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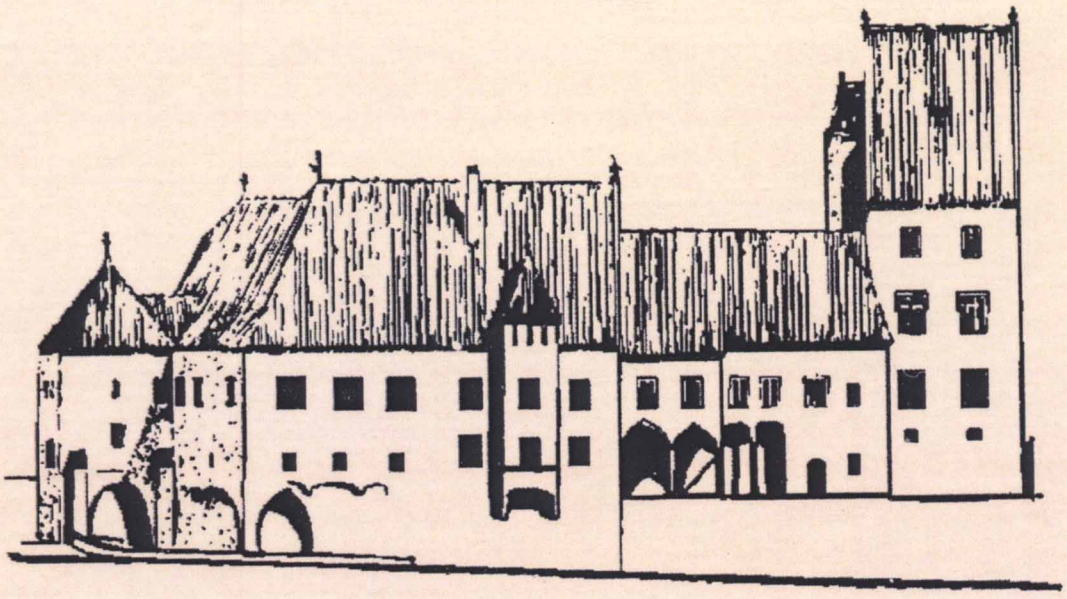

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TABLE OF CONTENTS

Sabin Adrian LUCA, Florentin PERIANU, *Stylistic and Typological Connections (I): Petrești and Bodrogkeresztúr Cultures* …….…..……...…….…….. 7

*

Alexandra POSTELNICU, *Graphic Reconstruction of the Republican Temple of Sora (Frosinone): Methodology and Comparisons* ……. 13

Silviu I. PURECE, Ecaterina NATEA, *Ancient Coins Discovered in Sibiu – Guşteriţa* ……... 45

*

Eszter JOBBIK, János KRÄHLING, *Approaching Building Connections Based on Net Vaults' Geometric Analysis. The Vaults of the Church on The Hill of Sighişoara and the Church of Băgaciu* … 49

Jan DE MAERE, *The Armorial and Coat of Arms Dated 1590 of Knight Mátyás I Huszár de Brenhida (?-1603) at Flanderhof Manor House in Daia / Thalheim (Sibiu County) and the Hungarian-Turkish Long War (1591-1606)* ……... 69

*

Radu TEUCEANU, *The Portfolio of Old Maps `Einzelne Karten (No. 507)` in the Brukenthal Cartographic Cabinet* …….…….…….. 85

Ioan BODOCHI, Delia-Maria TATU, *The Corvins' Castle during the Austro – Hungarian Empire* ..…. 123

Alexandru Gh. SONOC, Ioan BRAI, *A Dragon-Shaped Short Blowgun from Borneo in a Private Collection from Șelimbăr (Sibiu County, Romania)* …….. 143

Alexandra POPONEA, *The Educational System in Transylvania between 1853 and 1914* …….. 211

*

Andreea CORCA, *Adolescence Behind Bars. Interview with Niculina Moica* 217

*

List of Abbreviations……... 231

STYLISTIC AND TYPOLOGICAL CONNECTIONS (I) (PETREȘTI AND BODROGKERESZTÚR CULTURES)

Sabin Adrian LUCA *
Florentin PERIANU **

Abstract: *In this note, the stylistic connection between the shape and the ornamentation style of two types of vessels from the Petrești (Uioara de Jos) and Bodrogkeresztúr (from Pecica-Forgaci) archaeological discoveries is studied.*
Keywords: *Middle Eneolithic, possible direct links between the east of the Apuseni Mountains (Petrești culture) and the west of these mountains (Bodrogkeresztúr culture).*

Rezumat: *În prezenta notă se studiază legătura stilistică între forma și stilul ornamentării a două tipuri de vase din descoperirile arheologice Petrești (Uioara de Jos) și Bodrogkeresztúr (de la Pecica-Forgaci).*
Cuvinte cheie: *eneolitic mijlociu, posibile legături directe între estul Munților Apuseni (cultura Petrești) și vestul acestor munți (cultura Bodrogkeresztúr).*

The chronological and cultural links between the middle Eneolithic cultures of the west and east of the Apuseni Mountains are little known and debated, especially when we directly refer to distinct archaeological cultures. For the cultures from the west of the Apuseni Mountains, there is a chronology resulted, in particular, from research related to the large burial necropolises of the period belonging to the Tiszapolgár – Bodrogkeresztúr – Hunyadihálom (Toarte Pastilate) archaeological cultures (Luca 1999; Kutzián 1963; Kutzián 1969; Kutzián 1972; Patay 1974/1975.). For the eastern part of the Apuseni Mountains, synthesis studies and books were carried out covering the 3 cultures of the period (Crișan *et al.* 1992, p. 39, p. 97 – point c, p. 128 – point 17; p. 168 – point 4, p. 174 – point 1, p. 198 – point 5, p. 219 – point 2, p. 383 – point 1; Moga, Ciugudean 1995, p. 49 – point 10. 6, p. 167 – point 163. 4, p. 199 – point 199. 1; Luca 1999; Luca 2004, p. 109-143, Level III. Petrești culture, Level IV. Tiszapolgár culture, Level V. Bodrogkeresztúr III culture; Roman 2008; Luca (coord.) 2008, p. 46 – point 103. 1. a, b, p. 52 – point 120. 1.a, p. 66 – point 153. 1.c, p. 93 – point 205. 1.a, p. 95 – point 212. 2.a. 2., p. 97 – point 212. 3.c, p. 157 – point 382. 1.a; Diaconescu 2009; Luca, Gudea 2010, p. 23 – point 4. 1, p. 26 – point 13. 2.a, p. 27 – point 23. 1.a, p. 28 – point 27. 1.a, p. 33 – point 39. 1.h, p. 37 – point 43. 1.a, p. 38 – point 48. 1.b-c, p. 38 – point 48. 2.a, p. 42 – point 73. 2.b, p. 43 – point 75. 1. a, p. 48 – point 98. 1.b, p. 49 – point 98. 2.c, p. 54 – point 121. 1. a, p. 54 – point 121. 2. b, p. 58 – point 129. 2. a, p. 61 – point 141. 1. a, p. 62 – point 141. 2. c, p. 73 – point 169. 1. c, p. 77 – point 173. 1. a, p. 78 – point 177. 2. e, h, p. 83 – point 179. 1. c, p. 83 – point 179. 2. d, p. 84 – point 183. 1. b, p. 84 – point 184. 1. a, p. 89 – point 200. 1. a, p. 89 – point 200. 1. b, p. 90 – point 200. 2. b, p. 91 – point 202. 1. a, p. 93 – point 208. 1. a, p. 93 – point 212. 1. a, p. 93 – point 212. 2. b, p. 93 – point 208. 1. a, p. 93 – point 212. 1. a, p. 93 – point 212. 2. b, p. 94 – point 212. 2. f-g, p. 100 – point 226. 2. a, p. 102 – point 242. 1. a, p. 106 – point 250. 1. f-g, p. 107 – point 250. 2. ă-â, p. 110 – point 251. 1. a, p. 110 – point 253. 1. a, p. 112 – point 261. 1. a, p. 123 – point 286. 1. b, p. 124 – point 286. 1. h, p. 127 – point 289. 1. b). Because in the previous note we also mentioned the discoveries from the east of the Poiana Ruscă Mountains, we think that it is necessary to also mention the ones to the west of these mountains located in the Banat province, Romania (Luca 2010, p. 23 – point 7. 2. c, p. 28 – point 21. 1. o, p. 30 – point 30. 1. a, p. 30 – point 30. 2. b, p. 35 – point 43. 2. a, p. 44 – point 58. 2. c, p. 50 – point 90. 1. a, p. 52 – point 98. 2. a, p. 56 – point 104. 1. d, p. 57 – point 104. 1. f, p. 60 – point 105. 1. c, p. 64 – point 120. 1. a, p. 65 – point 120. 2. a-b, p. 69 – point 128. 1. a, p. 71 – point 131. 1. a, p. 76 – point 157. 1-2. a, p. 76 – point 159. 1. b, p. 77 – point 159. 2. a, p. 83 – point 181. 2. a, p. 84 – point 185. 1. a, p. 89 – point 197. 1. a, p. 90 – point 199. 1. a, p. 90 – point 199. 2. b, p. 94 –

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point 210. 1. a, p. 94 – point 210. 1. c, p. 99 – point 221. 1. b, p. 119 – point 253. 1. a, p. 120 – point 253. 1. a, p. 143 – point 309. 1. e, p. 145 – point 311. 1. d, p. 149 – point 325. 2. a.1, p. 160 – point 345. 1. e, p. 166 – point 372. 1. a, p. 167 – point 375. 1. a, p. 176 – point 388. 1. a, p. 179 – point 395. 1. a, p. 189 – point 417. 1. a, p. 191 – point 424. 1. a, p. 192 – point 424. 1. c-d, p. 195 – point 430. 1. a, p. 197 – point 435. 1. a-b, p. 212 – point 492. 1. b, p. 215 – point 505. 1. a, p. 218 – point 512. 1. c, p. 227 – point 530. 1. a, p. 231 – point 532. 3. a-b, p. 235 – point 550. 1. a, p. 235 – point 550. 1. c, p. 241 – point 574. 1. b, p. 244 – point 584. 1. a, p. 249 – point 598. 2. a, p. 249 – point 598. 2. c, p. 259 – point 618. 2. a, p. 263 – point 635. 1. b, p. 268 – point 650. 1. c, p. 269 – point 652. 1. b-c, p. 273 – point 662. 1. d). To conclude this part, we must also mention the existence of the Decea Mureșului cultural group that is part of this chronological and cultural period (Luca 1999, p. 57-59).

When the discovery from Uioara de Jos, Alba County (Luca, Ciugudean 2018; Luca 2020; Luca *et al.* 2022, p. 57-66), were published we found the existence of a ceramic vessel whose paste texture and firing are typical for the Petrești culture (Luca, Ciugudean 2018, p. 11, fig. 2, p. 21, pl. I/2; Luca 2020, p. 109-110, photo 1-2, pl. I; Luca *et al.* 2022, p. 61-62, photo 18. 1-2). The shape of the vessel is quite rare in the Petrești culture (Paul 1992, pl. XXIX). It also exists in the Bodrogkeresztúr culture where it is distinctively called ”milk pot” (Luca 1999, p. 93, pl. II/9-d). Discoveries of this form exist in the great Bodrogkeresztúr site from Pecica-*Forgaci* (settlement) (Luca 1999, p. 93, pl. II/9-d, p. 108, fig. 14/6) or in the necropolis related to the site – as it seems – discovered in recent years (called by the authors Pecica-*Est*) (Sava, Ursuțiu 2020). We find that in the general typology of the shape, it can also have a leg as well as perforated buttons under the lip. The vessel that we are studying is, without a doubt, an ”accommodation” of a form foreign to the Petrești culture (the general report made under the influence of the image of the ”milk pot”).

Extremely similar in the way of how ornament is organized is the covering of the vessel body, incised in the case of the Bodrogkeresztúr culture or painted, in the case of the Petrești culture (Photo. 1-2). We note the similarity of the arrangement of the ornament on the neck and on the belly, as well as the intense non-covering of the part towards the bottom with ornament. Moreover, the rhombuses that ornament the belly of the vessel in a chain, in addition to having parallel incisions and their number is similar (6-7 in one case and 6 in another).

The accentuation of the hollow spaces in the rhomb or the distinctive parts of the grouping of ornaments are highlighted, in one case with large impressed dots and in the other case with large painted dots.

Furthmore, the Bodrogkeresztúr ”milk pot” has the incised ornament highlighted by a white paste, as does the entire body of the Petrești vessel, apparently (Luca 1999, p. 25-30; Sava, Ursuțiu 2020, p. 59).

All these attributes show two distinct civilizations, occupying contiguous geographical spaces and apparently having essential cultural exchanges and craftsmen making fundamental exchanges related also to a world of similar, if not identical, religious ideas. The general composition of the discovery from Uioara de Jos (Luca, Ciugudean 2018) leads us to this idea, which seems to be, rather, a deposit belonging to a Petrești tomb. Could it be so?

It seems that the connection is also being made between copper and gold deposits (Luca, Gudea 2010, p. 73 – point 1. c; Luca 1999, p. 32-33, 92, pl. I). The new discoveries from the archaeological site from Turdaș-*Luncă* have shown us, to our surprise, the fact that in the Petrești culture are also large workshops – including in the Mureș meadow – specialized in the processing of copper (Luca 2019, p. 170-178, photo 260-279, plan 97). We remind that in the systematic excavation from Turdaș-*Luncă* we discovered a copper link in the Petrești context (Luca 2019, p. 175-177, foto 274-279). Moreover, in the old discoveries from Turdaș are also several cross armed copper axes that appear to be a deposit (or pieces from several deposits) that can now fit into the Petrești horizon.

In the discoveries of Professor Gheorghe Lazarovici, from Cheile Turzii-*Peștera Ungurească* there also seem to be discoveries of the period (Lazarovici 2014).

The absolute dates in the Pecica-*Est* necropolis are between the dates 5419±44 BP (4354-4226 calBC – RoAMS 664.80) – 5201±37 BP (4066-3952 calBC – RoAMS 1204.106) (the absolute dates for the Bodrogkeresztúr culture are not clearly stated in the cited article, but are obviously, in our opinion, towards the middle/end of the time interval reported from maximum to minimum) without specifying cultural affiliation

(Tiszapolgár or Bodrogkeresztúr) (Sava, Ursuțiu 2020, p. 64, table V). Comparing this absolute chronological range of data from the Pecica-*Est* necropolis with the Petrești culture data from the Turdaș-*Luncă* site (5722±54 BP (4705-4451 calBC – RoAMS 1781.108) – 5493±56 BP (4453-4241 calBC – RoAMS 1784.108) (Luca *et al.* 2022a, p. 2-3) and those from Tărtăria-*Gura Luncii* (5716±43 BP (4624-4461 calBC – RoAMS 1379.75) (Luca *et al.* 2020, p. 14, table I) – 5287±42 BP (4245-4036 calBC – RoAMS 1986.137) (Luca *et al.* 2023)).

We see that the most recent absolute data of the Petrești culture are, at this moment, in the range allocated by the study on the necropolis from Pecica-*Est*.

We believe that both the typological-stylistic comparison of the pottery and the radiocarbon data used show the contemporaneity of the Petrești culture, the late phase, with the moments of the Tiszapolgár and Bodrogkeresztúr cultures.

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In an article from 1993 (Luca 1993) we described our excavations at Pecica - *Forgaci* point, carried out in the autumn of the year 1989. Perhaps, comparing the plans published on that occasion, with the area researched on this occasion would show that it is one and the same archaeological site.

REFERENCES / BIBLIOGRAFIE

Ciugudean 1990 — Horia Ciugudean, *Noi descoperiri funerare aparținând culturii Wietenberg*, în *Apulum*, 26, 1990, p. 69-77.

Crișan *et al*. 1992 — Ion Horațiu Crișan, Mihai Bărbulescu, Eugen Chirilă, Valentin Vasiliev, Iudita Winkler, *Repertoriul arheologicl al Județului Cluj*, în *Bibliotheca Musei Napocensis*, 5, Cluj-Napoca, 1992.

Diaconescu 2009 — Dragoș Diaconescu, *Cultura Tiszapolgár în România*, Editura Altip, Sibiu, 2009.

Kutzián 1963 — Ida Bognár Kutzián, *The Cooper Age cemetery of Tiszapolgár-Basatanya*, în *Archaeologia Hungarica (S.N.)*, XLIII, Akadémial kiadó, Budapesta, 1963.

Kutzián 1969 — Ida Bognár Kutzián, *Probleme der mittleren Kupferzeit im Karpatenbeken*, în *Studijné Zvesti*, 17, 1969, p. 31-60.

Kutzián 1972 — Ida Bognár Kutzián, *The Early Copper Tiszapolgár culture in the Carpathian Basin*, Akadémiai Kiadó, Budapesta, 1972.

Lazarovici 2014 — Gheorghe Lazarovici, *Beginning of the Copper age in Transylvania and some data regarding the copper and gold metallurgy*, în (eds.) Wolfram Schier, Florin Drașovean, *The Neolithic and Eneolithic in Southern Europe*, Rahden/Westf., 2014.

Luca 1993 — Sabin Adrian Luca, *Observații privind faza clasică a culturii Bodrogkeresztúr în România*. *Așezarea de la Pecica-Forgaci*, în *Analele Banatului (S.N.)*, 2, 1993, p. 49-84

Luca 1999 — Sabin Adrian Luca, *Sfârșitul eneoliticului pe teritoriul intracarpatic al României. Cultura Bodrogkeresztúr*, în *Bibliotheca Musei Apulensis*, XI, Editura Altip, Alba Iulia, 1999.

Luca 2010 — Sabin Adrian Luca, *Descoperiri arheologice din Banatul Românesc – Repertoriu –* , în *Bibliotheca Brukenthal*, 46, Editura Altip, Sibiu, 2010. (ediția a-II-a).

Luca 2019 — Sabin Adrian Luca, *Un oraș preistoric din Europa. Turdaș-Luncă. Sector B. Vol. II. 1*, în *Bibliotheca Septemcastrensis*, 27, Editura Universității ”Lucian Blaga” din Sibiu, Sibiu, 2019.

Luca 2020 — Sabin Adrian Luca, *Ritual deposits of the Petrești culture in South-Western Transylvania*, în *Acta Terrae Septemcastrensis*, 19, 2020, p. 107-131.

Luca, Gudea 2010 — Sabin Adrian Luca, Nicolae Gudea, *Repertoriul arheologic al Județului Sălaj*, în *Bibliotheca Brukenthal*, 45, Editura Altip, Sibiu, 2010.

Luca, Ciugudean 2018 — Sabin Adrian Luca, Horia Ciugudean, *O depunere rituală aparținând culturii Petrești descoperită la Uioara de Jos*, în *Apulum*, 55, p. 9-22.

Luca *et al.* 2020 — Sabin Adrian Luca, Gabriel Tiberiu Rustoiu, Florentin Perianu, Sergiu Chideșa, Tiberiu Bogdan Sava, Doru Păceșilă, Oana Gâza, Iuliana Stanciu, Gabriela Sava, Bianca Ștefan, *Săpătura sistematică din anul 2019 în situl arheologic de la Tărtăria-Gura Luncii (Jud. Alba, România). Datarea radiocarbon a stratigrafiei zonei de nord-vest*, în *Apulum*, 57, 2020, p. 1-44.

Luca *et al.* 2022 — Adrian Luca, Florentin Perianu, Sabin Adrian Luca, *Arta ceramicii culturii Petrești*, Editura Karl A. Romstorfer, Suceava, 2022.

Luca *et al.* 2022a — Sabin Adrian Luca, Raluca-Maria Teodorescu, Florentin Perianu, Oana Găza, Mirela Mihon, Doru Păceșilă, *Date cronologice absolute rezultate în urma analizei radiocarbon a unor morminte de inhumație din săpăturile preventive de*

la Turdaș-Luncă (2011-2019) (Culturile Turdaș și Petrești), în *Apulum*, 59, 2022, p. 1-22.

Luca *et al.* 2023 — Sabin Adrian Luca, Gabriel Tiberiu Rustoiu, Cristinel Fântâneanu, Florentin Perianu, Oana Gâza, Mirela Mihon, Doru Păceșilă, *Noi date radiocarbon de la Tărtăria-Gura Luncii (Campania 2021)*, în (eds.) Vasile Cotiugă, Felix Tencariu, Andrei Asăndulesei, *Fontes Perennitates. Studia in honorem magistri Nicolae Ursulescu octogesimum annum peragentis*, Editura Cetatea de Scaun, Târgoviște, p. 117-130.

Luca (coord.) 2008 — Sabin Adrian Luca (coord.), Dragoș Diaconescu, Vasile Ferencz, Cristian Roman, Alexandru Sonoc, Cosmin Suciu, Sorin Tincu, *Repertoriul arheologic al Județului Hunedoara*, în *Bibliotheca Brukenthal*, 26, Editura Altip, Sibiu, 2008 (ediția a-II-a).

Moga, Ciugudean 1995 — Vasile Moga, Horia Ciugudean, *Repertoriul arheologic al Județului Alba*, în *Bibliotheca Musei Apulensis*, 2, Alba Iulia, 1995.

Patay 1974/1975 — P. Patay, *Die hochkupferzeitlische Bodrogkeresztúr-Kultur*, *Bericht der Römisch-Germanischen Kommission*, 55, 1, 1974/1975, p. 1-72.

Paul 1992 — I. Paul, *Cultura Petrești*, Editura Museion, București, 1992.

Roman 2008 — Cristian Roman, *Habitatul uman în peșterile din sud-vestul Transilvaniei*, în *Bibliotheca Brukenthal*, 25, Editura Altip, Sibiu, 2008.

Sava, Ursuțiu 2020 — Victor Sava, Adrian Ursuțiu, *Date preliminare asupra cimitirului eneolitic de la Pecica-Est, Județul Arad*, în *Varia Archaeologica*, I, 2020, p. 55-90.

LIST OF ILLUSTRATIONS / LISTA ILUSTRAȚIILOR

Photo 1. Uioara de Jos. Vessel decorated with painting. Petrești culture, late phase.
Uioara de Jos. Vas decorat prin pictare. Cultura Petrești, faza târzie.

Photo 2. Pecica-*Forgaci*. Vessel decorated by incising and white color. Bodrogkeresztúr culture.
Pecica-*Forgaci*. Vas decorat cu incizii și culoare albă. Cultura Bodrogkeresztúr.

Photo 1. Uioara de Jos. Vessel decorated with painting. Petrești culture, late phase.

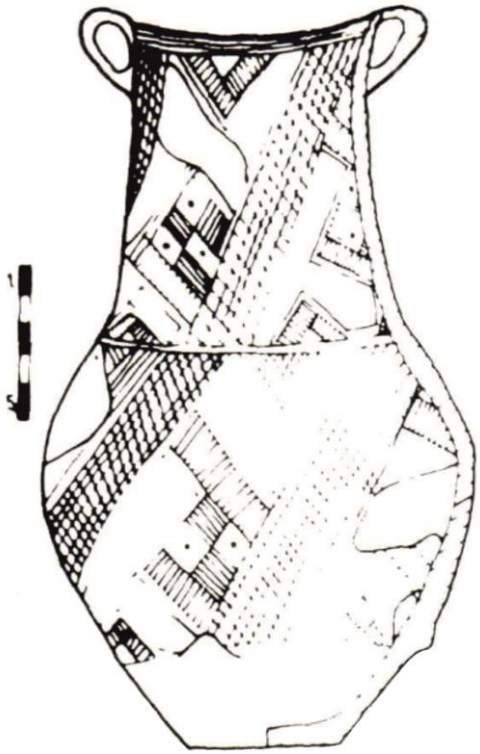

Photo 2. Pecica-*Forgaci*. Vessel decorated by incising and white color. Bodrogkeresztúr culture.

GRAPHIC RECONSTRUCTION OF THE REPUBLICAN TEMPLE OF SORA (FROSINONE): METHODOLOGY AND COMPARISONS *

Alexandra POSTELNICU **

Abstract: *The contribution presents the structural analysis of the Republican temple of Sora, traditionally dated back to 303 BC, paying particular attention to the artistic and architectural aspect of the structure, through detailed descriptions, comparisons and new graphic reconstructions. The ancient city of Sora was the protagonist of research carried out within the framework of a project launched by the Chair of Archaeology and History of Greek and Roman Art at "La Sapienza" University of Rome (Prof. Paolo Carafa), in collaboration with the Lazio Region, with the main objective of reconstructing the ancient landscapes and monuments of Lazio. The temple of the ancient city of Sora manages to impose itself as a symbol of a unique cultural identity, with an impressive architecture, within a territory marked by numerous historical events (www.lazioantico.it).*
Keywords: *Roman archaeology, archaeological map, ancient Lazio, Etruscan-Italic temple, architectural decorations.*

Rezumat: *Această cercetare prezintă analiza structurală a templului republican din Sora, care este datat în mod tradițional din 303 î.Hr., acordând o atenție deosebită aspectului artistic și arhitectural al structurii, prin descrieri detaliate, comparații și noi reconstituiri grafice. Orașul antic Sora a fost protagonistul unei cercetări efectuate în cadrul unui proiect inițiat de Catedra de Arheologie și Istorie a Artei Grecești și Romane a Universității "La Sapienza" din Roma (prof. Paolo Carafa), în colaborare cu regiunea Lazio, cu obiectivul principal de a reconstrui peisajele și structurile antice din Lazio. Templul orașului antic din Sora reușește să se stabilească ca simbol al unei individualități culturale unice, cu o arhitectură impunătoare, într-un teritoriu marcat de numeroase evenimente istorice (www.lazioantico.it).*
Cuvinte cheie: *arheologie romană, hartă arheologică, Lazio antic, templu etrusc-italic, decorațiuni arhitecturale.*

Ancient Lazio Project

The inception of the *Lazio Antico Project* can be attributed to a remarkable inter-institutional agreement forged between the Lazio Region and Sapienza University of Rome.

This collaborative effort brought together their collective resources and expertise with the aim of advancing research in the realm of Cultural Heritage. It provides a digital platform, accessible to the public and free of charge, that meticulously maps out archaeological sites and landmarks associated with the ancient world. Spanning from the mid-9th century BCE to the mid-6th century CE, this project currently encompasses the entire territory of the Lazio region south of the Tiber River.

The main objective of the project, in addition to obtaining crucial results for the study of the region, was to foster the participation of young scholars in research endeavors, providing them with training, empowering them with the chance to delve into and actively participate in this field, which holds paramount significance in the realm of advanced archaeological investigation.

The work carried out has resulted in a significant amount of digital data; the project includes over 300,000 basic records, analyzing approximately 70 cities, settlements, and their respective territories. It identifies 16 classes of archaeological complexes, divided into 184 subclasses, while the identified objects amount to over 41,000. Furthermore, to further enhance research, approximately 150 ancient monuments were reconstructed and presented in 200 tables (www.lazioantico.it).

The work carried out as part of the *Lazio Antico Project* represents only a fraction of a much larger project that was initiated by the Chair of Greek and Roman Archaeology and Art History at

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Sapienza University of Rome in 1993. The project, under the scientific direction of Professor Andrea Carandini, Professor Paolo Carafa, Professor Maria Teresa D'Alessio, and Dr. Maria Cristina Capanna, encompassed other areas of Lazio as well. These included the analysis and direct surveys of the agricultural landscapes of the Roman *suburbium* in the then Municipalities II, IV, IX, X, XVIII (now Municipalities II, III, VII, and XIII), the analysis of the agricultural landscapes of the Roman *suburbium* through the collection of bibliographic references related to the remaining municipalities of the City of Rome (Carandini et alii 2007; Capanna, Carafa 2009; Carafa 2021). Furthermore, the endeavor included the meticulous reconstruction and publication of the urban landscapes of ancient Rome in the esteemed work known as the *Atlas of Ancient Rome*, edited by Professor Andrea Carandini in 2012 (Carandini 2012).

The city of Sora represents the latest addition to the *Lazio Antico Project*. The achieved results are of utmost significance for the study of the territory, providing a comprehensive overview of all the findings through their integration into a single database. The implementation of the new archaeological map has not only facilitated a clearer and more accessible understanding of the city's archaeological and chronological framework, but has also been augmented by the creation of data analysis charts, incorporating territorial maps and detailed plans of the unearthed individual structures. In conclusion, this research involving the careful examination and analysis of the plan of the Republican temple in Sora aims to present a fresh and enhanced reconstruction of the structure. This research endeavor will introduce novel hypotheses that have the potential to reshape our perception and comprehension of the temple, which, regrettably, has been underrepresented until now.

Sora. Historical context of the city and the territory

The ancient and the current city of Sora is located in the territory of *Latium Adiectum* (Strab V, VII) – (fig. 1) and occupies the alluvial plain that opens at the mouth of the Roveto valley, which is situated 285 meters above sea level. The city lies on the banks of the Liri river, which envelops and defends it from the north, east, and west, in conjunction with the towering presence of Mount San Casto; the latter is comprised of three smaller hills interconnected through narrow saddles (Mezzazappa 2023, 99,100)-(fig. 2).[1] The structure of the two sides of the Liri valley is made up of a Mesozoic carbonate formation with a thickness of about 3,000 m. Contrarily, the valley and plain of the city of Sora showcase sediments primarily from the Cenozoic and Quaternary periods. Over the course of history, the region has undergone remarkable geological metamorphoses, characterized by the occurrence of five distinct glacial phases and four interglacial phases, leaving permanent traces on the valley floors and highest peaks (Rocchi, Galitzia, Rossi, Grillotti di Giacomo 1991, 104).

The Liri river originates near the fraction of Cappadocia and heads southeast to reach Capistrello, where it turns east to enter a limestone structure. In this stretch, it receives the ancient emissary Claudio, an artificial conduit built by the Romans to drain the vast lake basin of Fucino with the aim of remedying the numerous floods of which it was the cause.[2] (Dio Cass. LX,11, 5; Plin. XXXVI, 124; Suet. XLIV, 10; Tac. XII, 56, 1,2). Once the Liri river enters Lazio region, near Sora, it receives the Lacerno stream from the left. The left-sided watershed is marked by a series of hills, while on the right side of the river, the slopes of the hilly reliefs soften with increasingly gentle slopes until they reach the bed of the Liri. Sora's basin, being of alluvial nature, is distinguished by the calcareous-dolomitic elevations of the Ernici mountains in the north, while on the eastern side it is enclosed by the mountains of Marsica and a wide hilly arc (Rocchi, Galitzia, Rossi, Grillotti di Giacomo 1991, 106). The Liri river takes a turn towards the west before winding its way towards San Domenico, where it is joined by the Fibreno, its primary tributary. It will reach the border between Lazio and Campania regions near Sant'Apollinare, where it will receive the waters of the Gari river, continuing under the name Liri-Garigliano until it flows into the Tyrrhenian Sea. The Liri, Fibreno, and Lacerno rivers irrigated the plain, throughout the ancient period, as well as in the medieval and modern era. The morphological features of the region provided favorable conditions for the historical growth of the city and facilitated cultural exchange with the nearby valleys of

[1] The mountainous aspect of the area is recalled by the name of the city of Sora itself, which is derived from the Volscian root *sor/sur*, meaning cliff or rock (Tanzilli, Grimaldi 2009, 9).

[2] The project for the construction of an emissary for Lake Fucino was conceived by Caesar (1 century BC) and completed by the Emperor Claudius (41-52 AD).

Roveto, Comino, and Lacerno (Accordi et alii 1969).

The *Via Latina*, which traverses the area of our interest, is the oldest connecting axis between Lazio and Campania regions. Despite being constructed between the 4th and 3rd centuries BC, the path of the route had already been utilized since prehistoric times as a natural passageway between the Lepini, Ausoni, and Aurunci mountain ranges, as well as the valleys of the Sacco and Liri rivers. The route was extensively used by the Etruscans and Greeks for commercial purposes as well (Azzena 2004, 121-123). A complex network of smaller roads was intricately connected to the *Via Latina*, though we only have limited knowledge of their existence, and in many cases, their precise location remains unknown if they haven't been overlaid by contemporary thoroughfares (Nicosia 1995, 7-14; Rizzello 1985).

Nearby Sora, a natural pass was crucial for transhumance, allowing herds to travel between the Fucino and Roveto valleys and towards the coasts of Tyrrhenian and Adriatic Seas. The Volsci and later the Samnites used this pass to penetrate the Liri Valley and seize control of the frontier city of Sora (Mancini 2013, 38).

Human presence in the Liri Valley dates back to the Lower Paleolithic period, as attested by numerous findings in various locations. Southern Lazio's abundant flora and fauna provided a prosperous and habitable territory for early settlers. These settlements, dating back to the middle Pleistocene period, constitute some of the oldest evidence of human activity in Italy and Europe (Bidittu, Segre 1976-1977; Mancini 2013, 29), not only in the valleys of the Sacco and Liri rivers but also towards the coasts of the Pontine Plain.

During the Bronze Age, Southern Lazio experienced significant demographic growth, which is supported by the discovery of multiple sites. Two notable sites include Campovirigno (Nicosia, Cerqua 2007, 414-419), located between the municipalities of Sora and Broccostella, and Carnello (Belardelli 2007, 382), situated in the locality of Ciccione. Other important sites are in the localities of Baffetta (Rizzello 1998, 15-19), Madonna di Val Francesco (Rizzello 1998, 15-19), San Giuliano-Sura (Rizzello 1998, 20), Forca (Rizzello 1998, 22), Colle Sant'Angelo (Rizzello 1998, 22) and Santa Lucia-Pontrinio (Rizzello 1998, 22; Capoccia 2012, 55-56).

During the early years of the Iron Age, the summit of Mount San Casto was occupied by a settlement that yielded numerous ceramic fragments, some of which were dated back to at least the 2nd century BC. This indicates the long continuity of life in the settlement and was later interpreted by scholars as a military post used by the Volsci and Romans after the conquest of the city (Mezzazappa 2003, 114; Beranger 1981, 39).

Starting from the 6th century BC, the vast area of southern Lazio (fig. 1) was inhabited and dominated by the Volscian people (Coarelli 1993, 229; Di Fazio 2020). The excellent strategic position[3] (Mezzazappa 2003, 114) of Sora attracted the attention of the Samnites and the Romans, at the expense of the Volscian people, leading to a period marked by conflicts, defeats, and victories.[4] The city, conquered by the Romans in the year 345 BC thanks to the deeds of the consuls *Dorsuo* and *Sulpicius*, will spark the inevitable wrath of the Volsci. The latter, joining forces with the Samnites, launched a fierce attack on the Romans, retaking the city in 315 BC and putting to death the colonists who had settled within the city walls. However, the following year, in 314 BC, *Sulpicius*, supported by *Petelius* and thanks to the help of a traitor, managed to enter the city of Sora once again; one can only imagine the tragic end of the Volscian rebels, led to Rome to be executed. The city, now occupied by a Roman garrison, fell back into the hands of the Samnites in 306 BC, but the rebellion was quickly crushed and by 305 BC, Sora was once again under Roman control. (Liv. VII, 19,4; 28,6; IX, 14,4; 1-2; 24, 1-15; 43, 1; 44, 16; X, 1, 1-2; Diod. Sic. XX, 80, 1- 90, 4).

With the end of the Second Samnite War and the decisive Roman victory, Sora became a Latin colony by right in 303 BC (Liv. X 1, 1-4), and the same year conventionally marks the erection of the imposing city temple. The conquerors' intention was undoubtedly to assert their power over the newly conquered territory, as also happened with for the nearby centers of *Fregellae*, *Interamna Lirenas* and *Alba Fucens*, which were respectively conquered by Rome in 328, 312 and

[3] The strategic importance was already known in the past, as evidenced by the discovery of an Iron Age settlement on Mount San Casto. The presumably military position was later also frequented by the Volsci and Romans after the conquest of the city.

[4] For further information on the historical events involving the city of Sora, it is recommended to consult the following sources: Liv. XXVII, 9, 7; XXIX, 15, 5; Strafforello 1890, Vol. IV, 245-249.

304/303 BC.

The territory of Sora was divided among the colonists and had a certain legal autonomy, with partial citizenship, minting, laws, magistrates, census, and its own army, provided that they respected Rome's foreign policy choices. They also had the obligation to provide a contingent of soldiers proportional to the number of *iuniores*; they were young citizens capable of wielding weapons and fighting in case of extreme necessity. In 209 BC, Sora refused to help Rome against Hannibal during the Second Punic War and was punished by doubling their militias and paying a tribute. The refusal of Sora to assist Rome was not arbitrary or unwarranted. It originated from the discontent of settlers with the inevitable course of integration with the local native community. Additionally, the frequent and mounting demands for economic and military aid from the Latin colonies contributed to their discontent. The pervasive discomfort and socio-economic turmoil eventually culminated in the Italic peoples waging a social war. Due to this conflict, the *lex Plautia Papiria* was introduced in 89 BC, providing Roman citizenship to these groups. Moreover, the Roman triumph over the Marsi and Samnites alliance in the territory of Sora in 90 BC is documented by Appian (App. I, 46, 20). Nothing is known about the Roman citizenship acquired by the citizens of Sora: perhaps only with the constitution as a Latin colony to *municipium cum suffragio* led by *quattuorviri*[5], following the *lex Iulia de civitatis latinis*, which lasted until 42 BC. In 44 BC, another Roman colony was founded in Sora by order of Augustus (Liber Coloniarum, I, 237, 18-19), consisting of veterans belonging to Caesar's *IV legio*[6], which would later be called *Sorana*. In the late imperial era, there is no more significant information about Sora, at least until the 4th century AD when Sora was included in the provinces of *Campania* and *Samnium* under Constantine I and was attested from the 5th century as the seat of the Diocese (Caraffa 1972, 69, 75, note 39).

[5] Documented by AE 1985, 0266, found in the area of the temple of Sora and currently preserved at the *Museo della Media Valle del Liri*, inv. 2051 – 2052 – 2053 (Zevi Gallina 1978, 65; Tanzilli 1982, 137; Marta 1982, 175; Solin 2014, 124; Catalli, Scheid 1994, 55-65).

[6] Documented by CIL X, 05713 of unknown origin and currently preserved at the *Museo della Media Valle del Liri*, inv. 2039 (Tanzilli, Grimaldi 2009, 59-60; Solin 2014, 117) and by the numerous friezes representing weapons (Rizzello 1999; Tanzilli, Grimaldi 2009).

The ancient city of Sora. A brief overview of the excavations and results obtained

There is limited knowledge regarding the ancient city's urban arrangement, although some remnants of the polygonal defensive walls (which date back to the latter part of the 4th century BC) still exist, enabling a reconstruction of its design. Furthermore, there are two bridges, built in squared travertine masonry, that once spanned the Liri river, the Lacerno aqueduct (which dates back to the final quarter of the 1st century BC) and various remains belonging to roads (Sora-*Arpinum*, *Sora-Cereatae*, *Marianae*, *Verulae*, *Ferentinum*, *Sora-Atina*, *Casinum*)[7] public buildings, residential buildings (San Lorenzo *Domus*, from 325 BC to 400 AD[8]; the republican *Villa* of Schito from 300 to 200 BC[9]; *Villa* of San Giuliano, from 376 AD until its complete abandonment after the 6th century AD)[10], and numerous funerary structures (found along the main extra-urban roads) have been documented (Tab.I).

The *Lazio Antico Project* has based its research on the identification of the so-called topographic units, which are *the smallest trace that can be identified of human settlement or activity*. (Carandini, Carafa, Capanna 2007, 13).[11]

The complex system also examines the various subdivisions of Topographic Units, as they comprise diverse types of evidence, including both material and non-material elements such as Context Units, Movable Find Units, Anomaly Units, and Extra-Context Units. Moreover, Site Units are also accorded a certain degree of importance, consolidating the topographic units into an even more extensive group.[12]

In order to enhance the comprehension of the archaeological data, a series of graphs have been created relying on the information gathered throughout the investigation. The pie charts analyze and evaluate various aspects of the

[7] In addition to these, we also know about the road that connected Sora to Marsica and other secondary roads of the main routes mentioned earlier.
All the information regarding the road network: Rizzello 1985.

[8] For further information: Cerqua, Cerrone 2011.

[9] For further information: Cerqua 2006.

[10] For further information: Tommasetti 2004.

[11] In Ricci 1983, 496, the topographic units are defined as "the smallest unit useful for a reconstruction of the territory articulated by chronological periods".

[12] For further clarification and in-depth information, it is possible to consult the chart with the description of the classified data in: Capanna, Carafa 2009, 29.

archaeological data, such as their interpretation, dating, conservation, and geographic positioning. Furthermore, in an effort to attain a more profound insight into the evolution of the area's topography and socio-historical developments from 3000 BC (Bronze Age) to 600 AD (Late Roman Antiquity)[13], a bar graph was generated to analyze the distribution of sites established during this era, which includes newly founded sites, presently inhabited sites, and those which have been abandoned.

After meticulously surveying the territory under study, a total of 293 topographic units have been identified.

The city of Sora has presented a wide range of archaeological data of varying nature, as evident from the pie chart showcasing the interpretations of individual topographic units (Fig. 14). These data include religious buildings, administrative buildings, honorary monuments, roads and infrastructures, dwellings, funerary structures, other and unidentified remains, hydraulic structures, military structures, rural dwellings and even proto-historic settlements. The presence of these various elements provides a detailed account of the history and development of the urban center of Sora, highlighting its significance as a city with a diverse range of structures to support its growing population. Interestingly, the graph prominently depicts a significant number of funeral structures, ranging from individual funeral slabs and steles[14] to funeral monuments. These structures are primarily found along the major roads connecting to the city of Sora (Rizzello 1985; Tanzilli, Grimaldi 2009; Panciera 2006; Cerqua, Cerrone, Pantano 2010; Cerqua, Gatti, Gregori 2013; Tanzilli 2012; Tanzilli 2013; Cerqua, Cerrone 2011; Tommasetti 2004).

It is worth noting that 73% of these units have been successfully dated, while the remaining 27% have been deemed undatable due to insufficient data (Fig. 15). These undatable topographic traces are typically comprised of sporadically discovered structures and fragments of ceramics, marble, and other materials, which do not provide any concrete information that would enable their precise placement within a chronological framework.

Upon closer examination of the topographic units identified, it has been found that a significant majority of 92% were able to provide an interpretation due to their clear identification. However, the remaining 8% of unidentified units failed to yield any useful data for interpretation (Fig. 16). These enigmatic units are primarily comprised of areas containing fragments of ceramics devoid of any additional information, as well as architectural elements that have been repurposed for other uses. Such fragmented remnants make it challenging to decipher their original purpose.

The certainty of the location of individual topographic units is established for 72% of them, whereas for the remaining 28%, it remains uncertain (Fig. 17). The topographic units with certain location correspond to the archaeological data that have been found in situ, thus preserving their original position. On the other hand, the uncertain location refers to those archaeological data that lack sufficient information, have been displaced from their original context, have been reused for other purposes, or were reported in notes or news articles without providing a concrete discovery location (Fig. 18).

40% of the discoveries have been conserved, rendering them visible and open to visits. 32% of them refer to topographical units that have been dismantled or extracted from their original context, and consequently, are no longer observable in their initial position. Finally, topographical traces with an unknown degree of preservation account for 28% of the total.

The in-depth analysis of the chronological bar graph, which scrutinizes all the sites within the city of Sora, has uncovered fascinating and essential discoveries that are pivotal in comprehending and exploring the ancient territory. These groundbreaking results are highly intriguing as they offer unprecedented perspectives into the historical progress and transformation of the region, unraveling its intricate social, economic, and cultural components throughout the ages (Fig. 19).

The graph reveal that new settlements emerged during the Early Bronze Age and continued until the Middle Bronze Age, consisting of pottery fragments, ceramics, and flint cores. A hiatus followed from 1300 to 1001 BC, but new foundations emerged during the Late Bronze Age. The cause of the historical gap depicted in the graph remains uncertain, as it is unclear whether the absence of data during that period is a result of the absence of archaeological findings or if

[13] 600 AD is the temporal limit set by the research, carried out as part of the *Lazio Antico Project*.

[14] The inscriptions are cataloged in: *Corpus Inscriptionum Latinarum X*, L'Année épigraphique 1911-1973-1981-1985, *Ephemeris epigraphica* 08.

significant events occurred during that time. However, it seems plausible that the gap is due to the lack of available archaeological data.

Previous sites were abandoned in 700 BC, and in the 600s BC, a road connecting Sora and *Arpinum* was built. Fifty years later, the San Lorenzo *domus* was built, and its excavation confirmed the site's long continuity. The same year also saw the construction of the imposing city walls for protection, including the main temple according to tradition. The graph for the following centuries shows a clear and constant increase, a real urbanization of the area, with the presence of new foundations and the abandonment of the Republican villa in Schito locality in 150 BC, which was also founded in the 3rd century BC. In 100 BC, numerous funerary inscriptions and artifacts were identified outside the urban center. In 50 BC, the *Cereatae Marianae*, *Verulae*, and *Ferentinum* centers were linked by a road to Sora and the Lacerno aqueduct was built. This era of new foundations ended in 51 AD, resuming briefly in 101 AD with inscriptions from S. Giuliano. The final foundation was constructed in 401 BC, and the most recent documented topographic unit dates back to 470 AD. The continuity of life persisted until total abandonment in the 6th century AD.

The city of Sora's consistent pattern of human settlement, marked by the presence of preexisting foundations and newly established ones, is of great significance. This long-lasting trend, particularly noticeable from the 1st century AD onwards and continuing throughout the late antiquity period, has resulted in a slow but steady growth of the city's population, leading to a state of demographic equilibrium that is essential for the examination of historical and archaeological events.

These initial results obtained from the analyzed data deserve to be resumed and further investigated in the future, in order to obtain additional and new data (where possible), by analyzing even more deeply the topographical changes through comparison with the rest of ancient cities of the *Latium adiectum*.

It is truly interesting to note that the neighboring cities of Sora also have new foundations during the Late Roman Antiquity. Among these, we can mention *Arpinum* with foundations dating back to the 4th century AD, *Cereatae Marianae* with foundations from the 4th century AD, *Atina* during the 5th century AD, and finally *Verulae* with new foundations dating back to the 6th century AD.

The temple of Sora. A brief history of excavations

Undoubtedly, the most significant monument of the city of Sora is represented by the temple, found beneath the medieval cathedral.

In its elevated position on the southern slopes of Mount San Casto, the structure dominates the city, the valley of the Liri river below, and the access routes from the Sannio and Marsica regions. (Rizzello 1985; Cancellieri 1976-1977, 57, 58). In the 11th century, on the remains of the ancient temple, the Cathedral of Santa Maria Assunta was built, preserving part of the ancient structures and recreating the original perimeter of the ancient temple (Tab.II).

This magnificent structure has retained its stunning allure to this present moment (fig. 3).

The discovery of the *podium* of the temple along the southern side of the cathedral, which was made by chance and not related to scientific investigations, led to the initiation of the first archaeological campaign in 1977 directed by A. Zevi Gallina (Zevi Gallina 1978) both inside and outside the cathedral.

The subsequent research in 1979[15] (Lolli Ghetti, Pagliardi 1980) in the western part of the temple and all the investigation results were published by R. Marta in 1982 (Marta 1982); with the first reconstruction of the temple-cathedral complex in 8 phases[16], from the Republican era to 1977.

The structure continues to be the center of cultural and scientific interest, thanks to recent publications by A. Tanzilli, M. Grimaldi, R. Frasca, and S. Mezzazappa (Mezzazappa 2003; Tanzilli, Grimaldi 2009; Tanzilli 2012; Frasca 2013; Tanzilli 2015), which have enriched our knowledge of the temple of Sora with new and important information.

The archaeological remains of the temple

The temple has a rectangular plan, measuring 37,35 m in length and 23,70 m in width, with the main entrance on the S-E side.[17]

The square masonry foundations upon which the

[15] During this campaign, the *podium* was also intercepted on the northern side.

[16] Pagan Temple, Early Christian church, Romanesque church, church between 1100 and end of 1500, church from 1618, church between 1632 and 1717, church between 1717 and 1916, church from 1971.

[17] According to previous research, the length of 37,35 m does not include the side wings (*alae*), which measure approximately 3,40 m in length.

temple is built were designed not only to elevate the structure and create an imposing presence, but also to serve a practical purpose. These foundations were carefully constructed to contain the earth and make it as stable as possible, in order to ensure the longevity and durability of the structure. In addition to their intended function of facilitating access and preventing flooding, these structures were deliberately crafted to efficiently channel rainwater (Tanzilli 2015,27). The utilization of sophisticated terracing systems, bolstered by robust foundations and substructures, was a prevalent practice in ancient architecture, aimed at producing awe-inspiring edifices of grandeur. One such example is the Sanctuary of *Fortuna Primigenia* in Palestrina, which was built at the end of 2nd century BC.[18]

The southern side revealed the foundation plan of the stylobate, which was supporting the *podium*, comprising eleven courses of square blocks in situ that extend to a height of 6.50 meters. The visible surface of the second and third courses beneath the stylobate exhibit an *anathyrosis* on all four sides of the blocks, permitting comparisons with construction techniques from the Imperial era. Currently, the stylobate remains visible at the corner where the bell tower meets the church wall (Marta 1982, 173; Tanzilli 2015, 33).

The *podium* of the republican temple is entirely made of travertine blocks.[19]

On the southern side, from the courtyard, one can admire a well-preserved section of the *podium*, which was brought to light during excavation work in the 1970s, as previously explained. The *podium*, which rests on the foundation's first row, towers to a height of 2.12 m (Tab. II, III) and is crowned with paving slabs visible on both the southern and northern walls. It stretches 14.10 m in length but is interrupted for around 4.40 m due to tampering that occurred in the late 19th century. Notably, a fragment of a limestone drainage channel with a semicircular central cavity is visible at the edge (Tanzilli 2015, fig. 38; Marta 1982, foto 134).[20] Although the *podium* was partially exposed on the western side, it is entirely absent on the northern side.

Excavation of a collapse was started in 1978 in the western area of the cathedral, through which numerous decorative elements were unearthed on different occasions, at least partially attributable to the temple[21] (Tanzilli 2012, 26, 27; Tanzilli, Grimaldi 2012, 40, 41; Frasca 2013, 432-434; Zevi Gallina 1978; Lolli Ghetti, Pagliardi 1980; Catalli, Scheid 1994).

The elevation of the temple is made of travertine blocks and can be seen on the northern side of the cathedral (fig. 4-5), on the western side outside the cathedral and with the presbytery (fig. 6), in the parish office, and on the southern side. The perimeter walls are constructed using blocks that are roughly 60 cm in height, but they are not consistent in size or placement. Specifically, an imperfect isodomic square work is utilized for the eastern facade, while a pseudo-isodomic square work is used for the other perimeter sides, especially noticeable in the western and northern walls where the header and stretcher blocks are prominently displayed.[22] (Tanzilli 2015, 25; Marta 1982, 139).

The northern perimeter side of the temple is particularly striking and noteworthy for its impressive appearance.

This side does not have the *podium* but the perimeter wall made of squared blocks is well visible and allowed for a thorough study, including the temple area, which helped in understanding its organization and the evolution of its structure over time.

The internal pavement line is barely protruding in the wall, and a staircase can be seen (fig. 7), probably used to access the podium on the western side and also to the area upstream, occupied by another structure in connection with the religious area.[23]

[18] Other noteworthy examples can be found in Lanuvio with the Temple of Juno Sospita (1st century BC), Terracina with the Sanctuary on Monte Sant'Angelo (early 1st century BC), Tivoli with the Sanctuary of Hercules Victor (mid-2nd century BC), and Gabii with the Sanctuary of Juno (2nd century BC)–(Coarelli 1993).
For more information see D'Alessio 2011.

[19] The exception are the topping slabs of the *podium* and the internal pavement, which are characterized by a *solid mountain limestone*: Zevi Gallina 1978, 65.

[20] The fragment currently visible is all that remains of three pieces that were uncovered during the 1977 excavations and were later scattered due to the pavement work carried out in the outer courtyard.

[21] From the collapse come drums of fluted columns, plastered columns, large blocks of travertine, architectural terracottas (Tab. III), roof tiles, plasters, antefixes with the depiction of *Potnia Theron* (Tab. III, IV), several altar blocks, including one probably belonging to Flora (altar identified thanks to the inscription [Flo] *RAE*); it should be noted that not all of the materials belonged to the temple but also to a structure probably located upstream (temple B or *porticus*).

[22] On the northern side, towards the bottom, the blocks are also protruding.

[23] Area documented by the findings in the collapse on the western side mentioned in note n. 13.

The wall spans a total length of 40.40 meters and is made up of 11 rows of square, pseudo-isodomic blocks of travertine. It has a width of 1.15 meters and is interrupted by the chapel of the Purgatory, before continuing towards the Aragonese Tower. The blocks are supported by a stylobate that stands 7 meters tall, upon which the staircase rests.[24] The upper portion of the wall displays clear signs of medieval modifications, including the use of small, irregular blocks, a sealed opening, and five single-lancet windows. It is believed that this area was once covered by a slope, making it less visible compared to the other sides of the temple. It is noteworthy that previous studies and research have identified the extension of the northern wall towards the Aragonese Tower, thereby indicating the presence of the wing (Marta 1982, 139; Frasca 2013, 430; Tanzilli 2015, 39).

The front-facing side of the temple can be admired from inside the bell tower and the parish office. The squared block wall inside the bell tower is an impressive sight, extending to a width of 2.20 meters and a height of 8 meters. Similarly, on the ground floor of the parish office, a partially plastered section of the wall is still visible, measuring 3.80 meters in total width and featuring 11 rows of squared isodomic blocks in the lower part, which are larger than those in the upper rows. On the upper floor of the office, the wall is visible in three separate sections[25] (Tanzilli 2015, 40-41).

If one looks towards the western side of the presbytery wall, they will notice ten rows of pseudo-isodomic blocks, each measuring 60 cm in height, that trace back to the Roman era. Additionally, the wall incorporates irregularly shaped blocks from the medieval and late medieval periods that have been fitted to match the curve of the barrel vault designed for the central apse. The Roman wall's height stands at around 9.30 m. The second excavation campaign held in 1979 exposed the outer side of the wall and the same wall is also visible in the area of the courtyard and the football field, which stretches over 23.80 m and comprises twelve rows of isodomic blocks measuring 60 cm in dimension. Furthermore, the wall includes other irregular blocks from the medieval and late medieval periods, alongside traces of post holes and fumigation. Finally, evidence of an imperial-era renovation was discovered in the lower right margin through a limestone block with two holes used to insert equipment necessary for lifting the block (Lolli Ghetti, Pagliardi 1980; Tanzilli 2015, 43).

While the southern side remains hidden from view on the exterior due to subsequent alterations, a small but discernible square masonry section on the interior can be revealed by moving the painting of Saint Catherine.[26]

Other remains of the temple were repeatedly identified below the Bishop's Palace[27], the Seminary[28], below the main entrance of the cathedral[29], in the western area[30], below the Sacristy[31] and in the Saint Tommaso Hall[32]: these are walls made of squared blocks of travertine, interpreted as substructure works (Tab. II, III, fig. 8)−(Loffredo 1853; Squilla 1957; Beranger 1981; Marta 1982, 133, 134, Tanzilli 2015, 28-33)

Excavations were carried out near the pillars of the central nave of the cathedral in the years 1977-1978, discovering five bases of the internal columns, preserved up to the imoscapes and revealing, once again, the temple pavement

[24] Further investigations near the staircase revealed a total of three rows of blocks at a height of approximately 1.80 meters, displaying the placement plan.
For further information see Marta 1982.

[25] First section: 1,03 m
Second section: 3,83 m
Third section: 3, 60 m

[26] For more information see Tanzilli 2015, 43.

[27] The structure is composed of square masonry blocks, with a curvilinear plan and a barrel vault covering, with a width of 2.30 m, a length of 5.50 m, and a height of 2 m.

[28] The section extends further, connecting to the part that was discovered below the hall of Saint Thomas. It spans an impressive length of 16.65 meters and stands tall at a height of 3.70 meters.

[29] The substructions were identified and mentioned in Marta 1982, 134-135 but were only investigated later.
See Tanzilli 2015, 31.

[30] This 26-meter-long structure is composed of 6 rows of square travertine blocks and angles towards the western boundary, bending south. The blocks are 2.5 meters thick and 3 meters tall. The upper block has a molded frame, while the lower rows slightly protrude. It serves as a containment wall adjacent to compact clay, with the eastern area preserved but the western area damaged by spoliation. Excavations in 2008-2010 uncovered medieval burials and a furnace. Its function is well observed in Frasca 2013, who suggests it was built after the temple due to the discovery of architectural terracottas dating back to the 2nd century BC (Lolli Ghetti, Pagliardi 1980; Frasca 2013, 432-433).

[31] In the sacristy warehouse, one wall has the lower courses made of Roman square masonry blocks, while the upper courses have smaller blocks. The wall is 3.35 m high and 3 m wide. Additionally, the wall rests on a base made of square masonry blocks that protrude from the upper courses.

[32] The wall is composed of three rows of square blocks with a total length of 5.45 m and a height of 1.80 m.

already known and published by G. Squilla in 1961 and 1971 (Squilla 1961, 27,32,140; Squilla 1971, 51). The two overlapping flooring levels, the upper one composed of white stone slabs[33] and the lower one made of granular and irregular stone, initially suggested that the temple had two flooring phases. However, since the perimeter walls rest directly on the white stone pavement, the most plausible hypothesis is that the granular stone pavement constitutes the core of the podium, covered by the white stone pavement. Additionally, the upper flooring inside the temple perfectly follows the contour lines of the column bases, a solution that can also be observed in the Italic temple of Castel di Ieri (AQ) (Tanzilli 2015, note. 235; Torrieri 2007).

The arrangement of the columns, where the fifth column is described as not aligned with the other four, has generated many doubts, leading to various hypotheses on the internal disposition of the temple (Kosmopoulos 2021, 408; Tanzilli 2012, 45).

All the data collected from the studies conducted so far allow us to have a first idea of the general appearance, as well as some detailed aspects of the ancient temple. Scholars describe it as a sanctuary with majestic proportions (23.70 x 37.35 m), set on a wide terrace with access stairs, with extended wings towards the main facade[34], areostyle[35] (Vitr. III, 3, 5), with four Tuscan columns on the front (tetrastyle)[36]; the roof was made of a wooden structure.

The hypothesized type of the Temple of Sora, namely a *prostyle in-antis* structure, is due to comparisons with the two Etruscan-Italic temples of *Aesernia* and Villa S. Silvestro-Cascia (both constructed during the 3rd century BC) and as will be explained later, all appear to have been erected on a similar type of *podium*. However, the validity of this hypothesis remains in question due to the challenges of executing more comprehensive investigations and the modifications that have taken place in the southern region over the course of time. As a result, the exact nature of the temple of Sora and its relation to the broader architectural traditions of the ancient world are subjects of ongoing scholarly inquiry and debate.

As anticipated, the internal organization of the temple of Sora is still a topic of great debate. Over the years, various hypotheses have been put forward, but the few archaeological evidences are not sufficient to identify a single solution.[37] Similarly, there are no elements that allow for a certain identification of the deity worshiped in the temple, although there are several clues.[38]

What is certain is that the deity worshipped at the temple of Sora must have held a position of immense significance, given the grandiosity and magnificence of the temple, as well as its commanding position atop the city. The sheer size and imposing presence of the temple suggest that the deity was held in high esteem by the local community and that the act of worship was a central part of their religious and cultural identity.

The double-cushion *podium* (Tab. III), the *antepagmenta* (Tab. III and Tab. IV, C) and the antefixes with *Potnia Theron* (Tab. III and Tab. IV, A), are the most interesting decorative and architectural elements on which we will focus our attention.

A particularly noteworthy element of the building is the *podium* (fig. 9). The double-cushion typology is widespread between the end of the 6th and the 3rd century BC (Kosmopoulos 2021, 149). Similar examples can be found throughout central Italy, such as the temple in *Aesernia*[39] (Terzani 1996), Villa S. Silvestro-Cascia (Shoe 1965; Diosono 2011), Ardea (Di Mario 2007), Palestrina (Zevi 1989) and Rieti (Reggiani 1987; Lezzi 2010).

Certainly, the temples of *Aesernia* (fig. 10) and Villa S. Silvestro-Cascia (fig. 11) provide the most precise comparisons with the temple of Sora,

[33] Size of slabs: 60-80 x 130/150 and thickness of 30 cm.

[34] The extension of the lateral wall beyond the cell wall, as indicated by the sources in the bibliography, is visible only on the northern side. As such, it represents the Etruscan-Italic model and can be compared to the *Capitolia* of Cosa, Luni, Terracina, Minturno, Segni, S. Leucio and the Castori of Cori, as well as the double temples of *Alba Fucens*.

[35] Vitruvius indicates that Etruscan temples, such as the Temple of Jupiter Capitolinus, were called *aerostyle*, where the intercolumniation had a width which is greater than three diameters of the column.

[36] Also considered hexastyle in Tanzilli 2015, 19.

[37] For theories on the temple with the internal colonnade/single cell/tripartite in the *pars postica*: Cancellieri 1976-77, 73; Beranger 1981, 81; Tanzilli 2012, Rizzello 1986, 54-55; Tanzilli 2015, tab. 2, 20.

[38] In the beginning, the temple was attributed to the Capitoline triad (Jupiter, Juno, Minerva) due to the discovery of a *thesaurus* with a dedication to Minerva near the entrance of the temple. The temple was later attributed to Hercules (at first, it was believed to be the hero's club, but later on, it was recognized as the support for a statue in the shape of a trunk), but this too was disputed later (see Demma, Cerrone 2012) on: Catalli, Scheid 1982; Rizzello 1986; Tanzilli, Grimaldi 2009; Tanzilli 2015.

[39] The *podium* of the temple of Sora is slightly higher than that of *Aesernia*.

with which they share the chronological, cultural, and political context of the Samnite Wars (Edlund-Berry 2008, 443, 445). It is possible that the same craftsmen were involved in the erection of these buildings, using local limestone and reusing the Etruscan model as a cultural expression of Rome's origins during the monarchical period in the recently conquered territories (Coarelli, Diosono 2009; Edlund-Berry 2006; Edlund-Berry 2008, Strazzulla 1977). The most widespread architectural model during the construction of the temple of Sora was the Tuscan order, which we see used in various contemporary buildings, such as the temple of Juno Sospita in *Lanuvium.*[40]

Therefore, the planimetric scheme used for the construction of the Temple of Sora refers to the Tuscan model[41], despite not following the instructions outlined by Vitruvius in his treatise. As a result, it had an order widespread in the Etruscan environment starting from the 6th century BC, similar to the Doric order in terms of the capital but different due to the absence of grooves and the presence of the base. The Tuscan order is characterized by a smooth and slender shaft, slightly tapered towards the top, with a square base, single torus[42] and a capital with a flat abacus and echinus compared to the Doric order capital. A column drum with a diameter of 87 cm and a height of 76 cm was found under the bell tower of the cathedral. At the lower edge there is a rectangular interspace 30 cm high, 7 cm wide and 22 cm deep and it is clear evidence that it was the lower drum of the column (Tanzilli 2012, 44).

In her 2012 publication, A. Tanzilli thoroughly describes all the fragments of columns[43] discovered during the excavations and supposed that the column drum just described is an integral component of the Roman temple. Based on her observations, the dimensions of the column appear to be in harmony with those of the imoscapes unearthed within the cathedral. However, in her subsequent publication from 2015, A. Tanzilli revisits the discourse on the columns found but departs from her initial stance, as none of them possess dimensions that match the imoscapes. Instead, she postulates that these columns may likely have belonged to a neighboring structure within the sacred area, plausibly a colonnaded area (Tanzilli 2012, 43, 44; Tanzilli 2015, 45-47).

If the column drum found beneath the bell tower of the cathedral had been of the right size, it would have most likely been part of the columns arranged on the front of the temple.

The architectural decorations made of terracotta were found in the western collapse of the structure (Tab. II) during the first and second excavation campaigns (Zevi Gallina 1978; Lolli Ghetti, Pagliardi 1980). The *antepagmenta* (Tab. III and IV) had the dual function of protecting the upper wooden beams from the weather and to decorate the temple structure. The dimensions of the slabs are considerable (70 x 65 cm) and have a projecting molding at the top, followed by a series of decorations resting on a round rod; the sequence is concluded by a richly decorated band, composed of successive lobed palmettes, opposed and united by a wavy ribbon. (Vitr, III, 5, 7; Tanzilli 2012, 27). In the early reconstructions of the decorative model, stylized lilies were also attributed to this element. Fragments with such decorations had been found in the excavations and only later were correctly attributed to a structure outside the temple.

A complete publication of the *antepagmenta* slabs has never been made available.

R. Marta in 1982 (Marta 1982, 193) published only three fragments, later picked up by A. Tanzilli in 2012 (Tanzilli 2012, 27) and adding another 10 fragments only in 2015 (Tanzilli 2015, 53-54); the fragments of *antepagmenta* are much more numerous, preserved both in a deposit and in an exhibition of the Museum of the Media Valle del Liri.

An attempt will be made to bring together all the fragments into a single reconstruction.

The fragments of *antepagmenta* represented are the only ones that have been published so far, or

[40] For more information regarding the temple of *Juno Sospita* see: D'Alessio, Livrini 2019.

[41] For more information: Kosmopoulos 2021, 15.

[42] Single torus can have different types of profile, namely with quarter-circle profile (Etruscan round), or with semicircular profile.

[43] The first fragment of the column features a smooth surface with traces of white plaster on the edges, as well as grooves and a hole for the insertion of the metal clam (h: 151 cm; Ø: 52,5 and 50,5 cm). The second fragment boasts grooves all over its surface, as well as plaster and a hole (h: 132 cm; Ø: 52 cm). These initial two fragments were uncovered during excavations at the back of the cathedral. A third column drum was found in the collapse in the gallery located at the back of the cathedral (h: 63 cm; Ø: 60 cm). The fourth was found beneath the bell tower, and the last one, which had grooves and is no longer present, was situated in the Lanna family's property, in the proximity of the temple-cathedral (Rizzello 1991b, 92 and fig. 2, 93). Furthermore, in the courtyard of the Bishop's Palace, two other column drums are located (h: 41 cm, Ø: 63 cm; h: 95 cm; Ø: 42 cm).

better yet, the only ones that are visible and accessible. Fragment (A, Tab. IV) shows the decoration of a flower bud, later attributed to a structure outside the temple-cathedral of Sora. The decoration with flower buds is a pattern that is often used in combination with the lobed, opposed and successive palmettes, however, being the only fragment found, it makes it unlikely that it belonged to the decoration of the temple of our interest. The fourteen fragments found during the excavation and inserted in the graphic reconstruction all have the same characteristics regarding the decoration but also the same clay mixture of which they were made.

It is therefore likely that these pieces were integral to the embellishment of the temple of Sora. These, of various sizes, inform us both of the appearance of the palmettes and of the upper decorative band. As we can observe, some of the fragments have been reunited.

Fragments 13 and 14 exhibit holes, used for securing them to the wooden beam. Fragments 1, 6 and 7 boast decorative diamonds, located between the two spirals of the upper part; in contrast, the spirals of the lower part are devoid of these embellishments, showcasing only the palmettes.

The decorative palmettes motive, already used in previous centuries is widely spread also in the Lazio region, and three types have been identified:

1. Palmettes alternating with lilies arranged in two rows and with "S" shaped spirals.
2. Palmettes arranged in two horizontal rows connected to each other with "S" shaped spirals and serpentine ribbons.
3. Palmettes and "S" shaped spirals arranged diagonally.

The double palmettes motif is one of the most widespread, starting from the late archaic period and already present from the 5th century BC in centers of Etruscan and Lazio tradition, as in the case of *Caere* (Andrén 1939-1940, 11-14), *Pyrgi* (Colonna 2000), Orvieto (Andrén 1939-1940, 153-191), Ardea (Andrén 1939-1940, 437-452) and Segni (Andrén 1939-1940, 395-406). The model sees its own evolution, making small modifications to the shape of the palmettes and the fillers used. This evolution can be seen in the temples of *Cosa* (Taylor 2002 and note p. 65) and Gabii (Martinez 1958, 8), with fragments similar to those belonging to the temple of Sora. The palmettes motif of the temple of Sora belongs to the second category and the slabs can be compared to similar examples found in *Fregellae* (Coarelli 1981, 44).

The figurative style, which is distinct to the slabs of the Sora temple, is prevalent in the Lazio region between the 3rd and 2nd centuries BC (Tanzilli 2015, 52).[44]

The antefixes located at the end of the *imbrices* were found during the first excavation campaign. The three fragments found represent *Potnia Theron / Πότνια Θηρών* (Tab. III and IV), personification of nature, a female deity of animals (for different civilizations also male) and identified as *Artemis* (Hom. IL 21-468; Paus. III.18.10).

The depictions of the goddess exhibit a consistent anatomical portrayal, yet they vary in ornamental patterns influenced by geographical contexts, likely reflecting local adaptations.

In Etruria, the presence of *Potnia Theron* emerged in the 7th century BC, but it was primarily employed as a decorative element in temples at a later stage. It gained popularity as a motif starting from the 4th century BC and persisted in usage until the Principate of Augustus.

Studies have identified two iconographic types: the first refers to the archaic type, such as in the decorations of Ardea (Palone 2009). The second (Andrén 1939-1940, CLXXXIII), which includes the *Potnia Theron* from Sora, is inspired by classical models that we find in Ardea (Di Mario 2007, No. 2 178-179), *Caere* (Andrén 1939-1940, Tab.21, p. 71), Civita Castellana (Comella 1993), Rome (Pensabene, Sanzi Di Mino 1983, No. 195, 118), Gabii (Martinez 1958, 11-15), Alatri (Andrén 1939-1940, 390-393).

The *Potnia Theron* which belongs to the second iconographic type, is widely spread in the area from the 2nd century BC.

The three fragments from Sora, made of rosy clay with numerous inclusions, belonged to three different antefixes; the first (Tab. IV, 1), the smallest, is part of the deity's wing, including the left shoulder; the second (Tab. IV, 2) belonged to the lower part of the antefix, with the base, the goddess's legs, the long chiton, and part of the two rampant panthers; the third (Tab. IV, 3) preserves the central part of the figure, with the chiton at the

[44] In the 2012 publication, A. Tanzilli instead considers the figurative type of the Sora temple slabs to be prevalent in the Lazio region between the 2nd and 1st centuries BC (Tanzilli 2012, 27).

bust and shoulders level, the knotted cord under the breast that fixes the *apotygma*; in the lower right corner, one can glimpse the head of one of the two panthers. All three fragments still show traces of the original coloring and the second and third fragments, on the back, show the remains of the handles of the antefix.

The antefixes, which decorated the temple, had to be numerous, but the finding of only three fragments is, in any case, a great data for reconstruction. In the fragments, it is not possible to verify if the figure wore the typical *Polos* on her head, but we know of the existence of a type without a head covering; the reconstruction will follow the latter type (Andrén 1939-1940, CCXXX).

This category, without the typical *Polos*, belongs to an antefix with the representation of *Potnia Theron* of uncertain origin, reported by A. Andrén (Andrén 1939-1940, 510, III:1- Pl. 159; Tab. IV).

The *Potnia Theron* is depicted as standing in the forefront, draped in a long chiton with *apoptygma* and buttoned long sleeves. She boasts two large wings spread wide, while firmly grasping the paws of two rampant panthers that stand on the same platform as the goddess herself. Her hair is depicted as loose, wavy locks cascading down her shoulders. Adorning her neck is a bead necklace, matched by bracelets of similar design.

This specimen, housed in Rome at the Museum of Villa Giulia, bears a striking resemblance to the *Potnia Theron* of Sora despite its simpler and with less sophisticated features.

The fragments found in Sora have the following dimensions:

- Fragment 1: 13.5 cm x 8 cm x 2 cm.
- Fragment 2: 20.5 cm x 19.5 cm x up to 4 cm.
- Fragment 3: 29 cm x 21 cm x up to 5 cm.

The terracotta's used for the decoration of the Etruscan-Italic temples generally featured bronze elements in the shape of a trident called *menisci*, which served as protection against birds (Andrén 1939-1940, CXXVII). Introduced by the Greeks, examples were found in *Caere* (Ibidem, 11-64) and in Nemi (Morpurgo 1903, 297-368). It cannot be excluded that the antefixes of Sora also had this feature, but it is difficult to confirm because no complete fragment of the figure's head has been found, which could document the hole for the trident.

All decorative elements relevant to architectural decoration can be dated between the 3rd and 2nd centuries BC, and thus can help lower the dating of the temple, which could therefore have a chronology similar to that of the temples of *Aesernia* and Villa S. Silvestro-Cascia; this means that the construction of the temple after the year 303 BC should be reassessed.

In 2015, A. Tanzilli published a study that challenged the previously established date and proposed a new timeframe between the 2nd and 1st centuries BC. This was a time when the Etrusco-Italic architectural style was experiencing a revival, gaining popularity throughout the Lazio region (Tanzilli 2015, 24). Numerous examples of this style can be found throughout the Lazio region.[45] These structures all exhibit similar design features and stylistic elements, suggesting a shared cultural influence.

The restoration of ancient architecture during this period was a significant cultural movement, reflecting a renewed interest in the classical past. This interest is reflected in a wealth of literary works from the time, which document the restoration of ancient structures in great detail.

Additionally, the choice to use local materials, such as tuff, instead of the more luxurious marble, was seen as a way to align with Roman traditionalist thought.

This philosophy emphasized the importance of tradition, continuity, and respect for the customs of the past (Tanzilli 2015, 24- 25).

Furthermore, the classical model of *Potnia Theron* in the area has been attested during the 2nd century BC, and additionally, in the midst of the 2012 excavations, the substructure work in the rear part of the temple-cathedral was also dated back to the 2nd century BC. A. Tanzilli raises a clear doubt as to why the Romans would have built the temple first in 303 BC, or during the 3rd century BC[46], and the substructure in the 2nd century BC if the latter was built to protect the temple from landslides from Mount S. Casto (Frasca 2013, 434; Tanzilli 2015, 6, note. 26; 48, 49).

For this reason, it could be hypothesized that the temple was actually built during the 2nd century BC with subsequent renovations in the following centuries.

[45] For example, the double temples of *Alba Fucens* (Coarelli, Diosono 2009, 64).

[46] Despite the similarities between the temple of Sora and those of *Aesernia* and Villa S. Silvestro, these temples only share the same architectural design.

In order to better understand the decorations used in temples belonging to the same typology, it is possible to make a comparison with the Etruscan-Italic temple of Alatri, dated between the 3rd and 2nd century BC, found in the *La Stazza* area and reconstructed for didactic purposes within the garden of the 16th-century complex of the Museum of Villa Giulia in Rome[47] (fig. 12). Like the temple of Sora, it is decorated with architectural terracotta featuring the representation of *Potnia Theron* and terracotta with a palmette motif with a serpentiform ribbon (Cozza 1891; Russo, Attenni, Carosi 2020) – (fig. 13). The reproduction of the Alatri temple is an excellent opportunity to observe the full reproduction of a typical temple of the Etruscan-Italic tradition, which represents the most characteristic typology of pre-Roman and Roman-Republican Italy during the spread of Hellenistic models.

It should be noted that the palmettes pattern used by the Alatri temple for the *antepagmenta* belongs to the third category previously mentioned, with the palmette arranged diagonally. The pattern with opposing palmette surrounded by the undulating ribbon belongs to the plates of the *syma* (Tab. IV).

Among the other findings near the sacred area, noteworthy and unavoidable to mention are the six gift-offerings in the form of altars and the magnificent *thesaurus* dedicated to Minerva (Tab. II). During the initial excavation campaign of 1977 (Zevi Gallina 1978, 65-66) in the southern region, the altar inscribed with a dedication to Mars[48] and the *thesaurus* dedicated to Minerva[49] were discovered. In the subsequent excavation campaign of 1979 (Lolli Ghetti, Pagliardi 1996, 178-179) in the western region, a series of altars marked with capital letters A-B-C-D[50] were found behind the temple-cathedral. Additionally, in the sacristy of the cathedral, for the construction of the foundations, a sixth altar (E) was used, composed of three blocks.[51]

The altars, entirely made of travertine, have a rectangular plan with a profile similar to that of the temple *podium*. The *thesaurus*, intended for containing monetary offerings dedicated to the main deity of the temple, consists of two travertine blocks known as *valvae*, and an *omphalos* which is covered and adorned with an inscribed bronze cap.[52]

A total of 50 coins were found inside, dating between 211 BC and the middle of the 1st century AD.

Most likely, the altars do not display their original position, with the exception of the *thesaurus*, which was most likely positioned near the entrance of the temple to collect offerings from the people. The altars, a result of the custom of being dedicated to different deities, were arranged within the sacred area. The altars A-B-C-D discovered in the area at the back of the temple-cathedral suggest that they must have been located upstream, therefore, most likely in the area designated as a portico. Nevertheless, it is evident that the altars of Mars and E have been relocated and repurposed. Furthermore, the altar D displays burnt marks on its surface (Tanzilli 2012, 36, note. 6) that are reminiscent of those present on the western perimeter wall.

The original altar belonging to the temple and which was supposed to be placed on the front side has not been identified.

Graphic reconstruction

As part of the *Lazio Antico Project* a vectorial planimetry (Tab. I, II, III) was drawn up, in which all known elements of the temple were included: the parts of the *podium* with a covering in slabs, the perimeter walls of the *cella*, and the substructures. In addition, the remains related to the later phases of the early Christian worship building have also been included.

The graphic representation of the temple and its architectural decoration (Tab. IV) was created with AutoCAD 2019 software.

The proposed reconstruction of the main facade of the temple, shown here, uses data from the excavations (Tab. III) together with comparisons to contemporary temples of similar typology. The central staircase was reconstructed based on the

[47] This is a large reconstruction project carried out by the archaeologist and architect Adolfo Cozza, at the request of Felice Barnabei, based on the study of the plans and the remains of the architectural decoration found in the excavation. Recently, the renovation of the reconstructed temple, with its subsequent opening to the public, has been proposed by the museum director V. Nizzo.

[48] Museum of the Media Valle del Liri, inv. 2047 -2048, Sora.

[49] Museum of the Media Valle del Liri, inv. 2051 – 2052 – 2053, Sora.

[50] The inscription on Altar D specifically honors the deity Flora, while the other recovered fragments remain silent regarding the names of the deities to which they were dedicated.

[51] For further information regarding the discoveries: Tanzilli 2015, 57-69; Tanzilli, Grimaldi 2009, 36-38; Tanzilli 2012, 23-25; Tanzilli 2012; Catalli, Scheid 1994.

[52] AE 1985, 266.

presence of substructures documented at the main entrance and in coherence with the layout of the current staircase of the cathedral.[53] The remains of the *podium* found on the southern and western sides allow the limits of the entire *podium* to be reconstructed. The perimeter walls were reconstructed based on the squared blocks of travertine found in situ.

As noted in footnote n. 17 of this article, the tiles[54] and plaster fragments[55] found come from the collapse of the rear part of the temple. Thanks to these, we can have a partial idea of the appearance of the temple's roof and walls. The layer of plaster was applied with the purpose of protecting the perimeter walls from moisture, preserving them over time, as well as to camouflage the irregular appearance of the travertine blocks and to lavish the temple with grandeur. The plaster fragments found have different sizes, with some being white and others red (Tanzilli 2015, 55). It is likely that the decoration of the temple involved entirely white walls embellished with a red stripe at the base. This design principle was probably extended to the front columns of the temple as well.[56]

The tiles, on the other hand, are of the overlapping type with wings and present holes for anchoring (Tanzilli 2015, 55).

The roof has been partially reconstructed based on the terracotta elements found in the excavation; the overall appearance of the temple is based on comparisons with contemporary temples. There are no elements to propose reconstructions for the central *acroterion* or the *symae* slabs.

It is possible that the temple underwent several phases of renovation and restructuring.

One potential explanation for the temple's reconstruction may be associated with urban reorganization[57] interventions that occurred between 42 and 31 BC, a period in which veterans of the *IV legio Sorana*[58] were established in the area. It is plausible that these veterans played a role in the redevelopment of the city, including the renovation or reconstruction of the temple as a central part of the city's religious and cultural life (Tanzilli 2015, 8).

During the 1st century AD, a significant shift occurred as the freedmen class emerged, engaging in various entrepreneurial activities. This can be seen in the inscription CIL X 5718 (Solin 1981, 59; Tanzilli, Grimaldi 2009, 106), which references a *patronus vestiarius*, a person who owned a business dedicated to the production and sale of fabrics. The numerous funerary inscriptions of freedmen discovered in the area further demonstrate the social, cultural, and economic changes that were taking place during this time. Notable examples include the tomb of *Caius Helvius Philonicus*, *Marcus Marcius Agrippa*, *Rupilia Amaryllis*, *Marcus Septumius Felix*, and others[59] (Tanzilli, Grimaldi 2009, 95-102).

As previously stated thanks to the study of the western wall and the discovery of the limestone block with holes made for the lifting mechanism, researchers have identified one of the temple's reconstruction phases, dating back to the Imperial age.[60] Other interventions concerning the perimeter walls date back to the Middle Ages, along with some points of the floor inside the cathedral.

The interior floor of the temple was not modified or renovated during the Roman period.

Doubts continue to persist regarding the internal arrangement of the temple; if at first, given the finding of a short wall section near the second pillar to the left, although of uncertain dating (Marta 1982, 200), the temple had a tripartite cell, or if it was of the aedes type with wings. On the other hand, if the short wall section was built in a period subsequent to the Roman period, the structure would have an interior divided by two

[53] Considering the 8.20-meter difference in elevation between the temple and the lower area of the city, the following reconstruction of the central staircase of the temple has been proposed in Tab. III.

A single long staircase is not possible and the substructures of the temple's front have the same height without a gradual increase. Another hypothesis proposes a staircase on the southern side (Tanzilli 2015, 47).

[54] No. inv. SBAL SN21, SN23, SN24, SN14. Found during the first and second excavation campaign. Nowadays they are stored in the Museo della Media Valle del Liri of Sora.

[55] We know that the numerous fragments were unearthed during the first and second excavation campaigns of the temple and that they are currently preserved at the cathedral complex and at the Museo della Media Valle del Liri of Sora.

[56] As shown by, for instance, the reconstructions of the Temple of *Jupiter Capitolinus* in Rome or the Capitolium of *Minturnae.*

[57] The *Liber Colonarium* (I, 237, 18-19) provides evidence and a description of the reorganization of the land and the correction of road layouts during the colonization that occurred in the last years of the Republic.

[58] The presence of the *IV legio Sorana* in Sora is attested by the inscription CIL X, 5713, as well as by numerous friezes representing weapons.

[59] To date, the inscriptions are kept in the *Museo della Media Valle del Liri* and are listed in the following inventory numbers: inv. 2035, inv. 2028, inv. 2055, inv. 2044.

[60] No other useful information has been added to better understand the temple's reconstruction phase.

rows of columns, or defined as *Italic* (Tanzilli 2015). During the graphic reconstruction of the temple, a noteworthy observation was made; it was observed that the third column of the temple rests upon the identified short wall; in this case, the latter could potentially serve as the foundation for the column, unless all the columns are of Roman origin. The challenge arises from the absence of published photographs of the referenced wall, with the only source mentioning it being R. Marta in 1982 (Marta 1982, 200, no. 3), as stated by A. Tanzilli (Tanzilli 2015, 21, no. 115) - (Tab. II, III). This significant observation has the potential to offer valuable clarity regarding the true layout of the temple's interior, thereby challenging the previous hypothesis of a tripartite cella.

Furthermore, through the examination of surveys and photographs, another remarkable observation has emerged regarding the architecture of the temple of Sora. It is becoming increasingly plausible that the temple, in its original form, did not incorporate lateral wings, a hypothesis strengthened by the absence of Roman blocks above the level of the protruding floor situated on the temple's northern side, extending towards the Aragonese Tower, contrary to the initial assumptions made by scholars. Consequently, the ongoing reconstruction efforts have purposefully excluded the inclusion of the lateral wings (Tab. II, III).

According to archaeological evidence gathered during the excavations, it is plausible that the temple of Sora was abandoned after a fire, which is indicated by the traces of burning present on the western wall and on the altar with inscription to Flora (D). It is unclear, however, whether the temple was never reconstructed after the fire or if the fire occurred at a later point in time[61] (Tanzilli 2015, 8). It is worth noting that the adoption of eastern cults, which had become popular from the 2nd century BC (Rizzello 1984, p. 51), is reflected in the findings of a frieze and statuettes dedicated to Isis, both of which date back to the 1st century AD (Tanzilli, Grimaldi 2009, 73; Mezzazappa 2003, 115,116; Lauri 1956, 379).

This discovery may have played a role in the eventual abandonment of the temple, as the emergence of new religious practices and beliefs. The adoption of Eastern cults was a common phenomenon in the Roman world, and it represented a significant shift in the religious landscape of the time. As such, it is possible that the temple of Sora, which was a symbol of traditional Roman religion, lost its significance and fell into disuse as a result of this cultural shift (Tanzilli 2015, 9).

After the temple fell out of use and was subsequently abandoned by the community, it lay dormant until the 5th century when the city of Sora, having become the seat of the bishop, saw fit to resurrect the site by building a new early Christian church upon the ancient ruins. The commemoration of this event can be found in the form of an inscription etched onto the portal, boldly declaring *ex idolis falsis* for all to see (Tanzilli, Grimaldi 2009, 43; Marta 1982, 201).

Although the dating of the Roman temple was revised, the reconstruction was based on models from the 3rd century BC.

In summary, the temple of Sora represents a monumental and culturally significant structure that served as a powerful symbol of Roman domination in the Latin territory. The temple's architectural design exhibits a captivating interplay between the foundations of Roman architectural tradition and a remarkable augmentation of grandeur through the adoption of larger dimensions. This intriguing amalgamation can be observed prominently in the cases of the temple of *Aesernia* and Villa S. Silvestro.

By imitating the political and expansionist model of the Etruscans and adopting the Etruscan-Italic temple design, the Romans were able to make this architectural model their own, thus symbolizing their dominance over the Italic peoples (Edlund-Berry 2008, 445-446). This moment marked a balance between tradition and innovation, as Rome prepared for a new era of territorial conquests and expansion.

As such, the temple of Sora provides a fascinating glimpse into the complex interplay of tradition, innovation, and political power in the ancient world, and serves as a testament to the enduring legacy of Roman civilization.

Despite the scanty findings, due to the perishable nature of the materials and the continuous transformation of the area, it is possible to have an idea of the appearance of the Republican temple with the hope that in the near future archaeological research can continue to provide new information.

[61] Further fires that affected the structure also occurred in 1103 due to the Normans and later in 1916.

REFERENCES / BIBLIOGRAFIE

Accordi et alii1969	Bruno Accordi, Antonello Angelucci, Gian Carlo Avena, Fabio Bernardini, Carlo F. Boni, Franco Bruno, Marco Cercato, Bruno Coppola, Giovanni Fiore, Renato Furnicello, Giovanni Giglio, Giovanni Battista La Monica, Elvidio Lupia Palmieri, , Bruno Mattioli, Maurizio Parotto, *Idrogeologia dell'alto bacino del Liri (Appennino Centrale)*, from: Geol. Rom., VIII, Roma (1969).
Andrén 1939-1940	Arvid Andrén, *Architectural Terracottas from Etrusco-Italic Temples*, Lund-Leipzig, (1939-1940).
Azzena 2004	Giovanni A.M Azzena, *Il territorio: sistemi di comunicazione e infrastrutture*, from: Aa.Vv., *Atlante del Lazio antico. Un approfondimento critico delle conoscenze archeologiche*, Istituto Nazionale di Studi Romani, pp. 109-140, Roma (2007).
Belardelli et alii 2007	Clarissa Belardelli, Micaela Angle, Francesco di Gennaro, Flavia Trucco, *Repertorio dei siti protostorici del Lazio. Province di Roma, Viterbo e Frosinone*, Firenze (2007).
Beranger 1981	Eugenio Maria Beranger, *Museo civico della media valle del Liri. Contributi*, Centro Studi Sorani Patriarca, Sora (1981).
Biddittu, Segre 1976-1977	Italo Biddittu, Aldo G. Segre, *Giacimenti Preistorici e Quaternario della provincia di Frosinone*, from: BISALM, 9, pp. 21-44 (1976-77).
Cancellieri 1976-1977	Margherita Cancellieri, *Contributo per una carta archeologica della media Valle del Liri*, from: Bollettino dell'Istituto di storia e di arte del Lazio meridionale 9, Roma (1976-1977).
Capanna, Carafa 2009	Maria Cristina Capanna, Paolo Carafa, *Il progetto "archeologia del suburbio di Roma per la ricostruzione dei paesaggi agrari antichi"*. – from: Jolivet V., Pavolini C., Tomei M.A., Volpe R. (a cura di) Suburbium II: il suburbio di Roma dalla fine dell'età monarchica alla nascita del sistema delle ville (V-II secolo a.C.), Collection de l"École français de Rome 419, Roma (2009).
Capoccia 2012	Andrea Capoccia, *Storia e archeologia*, from: *Le montagne di Sora e la Wilderness*, pp. 52-58, Sora (2012).
Carandini 2012	Andrea Carandini, *Atlante di Roma Antica*, Mondadori Electa S.p.A, Bologna (2012).
Carafa 2021	Paolo Carafa, *Storie dai contesti. Metodologia e procedure della ricerca archeologica*, Mondadori Università, (2021).
Caraffa 1972	Filippo Caraffa, *La Ciociaria. Storia, arte, costume*, Roma (1972).
Carandini et alii 2007	Andrea Carandini, Paolo Carafa, Maria Cristina Capanna, *Il progetto "Archeologia del suburbio per la ricostruzione dei paesaggi agrari antichi"*. Impostazione e metodologia della ricerca. – from: Cupitò C., Il territorio tra la via Salaria, l'Aniene, il Tevere e la "Via Salaria Vetus": Municipio II, Roma (2007).
Catalli, Scheid 1994	Fiorenzo Catalli, John Scheid, *Le thesaurus de Sora*, from*: Revue numismatique*, 6e série - Tome 36, année (1994).
Cerqua 2006	Manuela Cerqua, *Un insediamento rustico di epoca repubblicana nell'ager soranus*, from: *Lazio e Sabina 4*, Roma (2006).
Cerqua, Cerrone 2011	Manuela Cerqua, Francesca Cerrone, *Nuovi dati sul suburbio di Sora (Frosinone): il sito di Largo S. Lorenzo*, from: *Lazio e Sabina 8*, Atti del Convegno, Roma (2011).

Cerqua, Cerrone, Pantano 2010 — Manuela Cerqua, Francesca Cerrone, Walter Pantano, *La necropoli imperiale di S. Domenico a Sora (Frosinone),* from: *Lazio e Sabina 7*, Atti del Convegno, Roma (2010).

Cerqua, Gatti, Gregori 2013 — Manuela Cerqua, Sandra Gatti, Gian Luca Gregori, *Sora: aree funerarie e documentazione epigrafica,* from: *Lazio e Sabina 10*, Atti del Convegno, Roma (2013).

Coarelli 1981 — Filippo Coarelli, *Fregellae. La storia degli scavi,* Roma (1981).

Coarelli 1993 — Filippo Coarelli, *Lazio, Guide Archeologiche Laterza*, Roma-Bari (1993).

Coarelli, Diosono 2009 — Filippo Coarelli, Francesca Diosono, *Il tempio principale: architettura, fasi edilizie, committenza,* from: *I Templi e il Forum di Villa S. Silvestro- La Sabina dalla conquista romana a Vespasiano,* Catalogo della mostra di Cascia (Museo Civico di Palazzo Santi, 8 giugno- 30 novembre 2009), Roma (2009).

Cozza 1891 — Adolfo Cozza, *Di un antico tempio scoperto presso Alatri,* MDAI(R), 6, 349-359 (1891).

D'Alessio, Livrini 2019 — Maria Teresa D'Alessio, Claudia Livrini, *La porticus sulla terrazza inferiore del colle San Lorenzo a Lanuvio : nuove interpretazioni*, from: Archeologia Classica, vol.70, n.s. II, 9, Roma (2019).

Demma, Cerrone 2012 — Filippo Demma, Francesca Cerrone, *Ercole a Sora, questioni storiche e topografiche*, from: Lazio e Sabina 8, Atti del Convegno, Roma (2012).

Di Fazio 2020 — Massimiliano Di Fazio, *I Volsci, un popolo "liquido" nel Lazio antico,* Roma (2020).

Diodorus Siculus — *Bibliotheca historica,* edition: Diodoro Siculo, *Biblioteca storica. Libri XVIII-XX, a cura di Anna Simonetti Agostinetti*, Milano (1988).

Diosono 2009 — Francesca Diosono, *Cascia: i templi ed il forum di Villa San Silvestro. La Sabina dalla conquista romana a Vespasiano*, from: Forma Urbis XIV-7/8, pp.8-18 (2009).

Edlund-Berry 2006 — Ingrid E. M. Edlund-Berry, *Etruscan Architectural Traditions: Local Creativity or Outside Influenze*, from: *EtrStud,* 9, pp. 37-43 (2006).

Edlund-Berry 2008 — Ingrid E. M. Edlund-Berry, *The Language of Etrusco-Italic architecture: new perspectives on Tuscan temples,* from: *American Journal of Archaeology,* 112, n.3, pp. 441-447 (2008).

Frasca 2013 — Rachele Frasca, *Il tempio della Cattedrale di Sora (Frosinone). Nuove indagini*, from: Lazio e Sabina 9, Atti del Convegno, Roma (2013).

Titus Livius — *Ab Urbe condita,* edition: Tito Livio, *Storie. Vol. I e II, a cura di Luciano Perelli*, Torino (2013).

Homer — *Iliad,* edition: Omero, *Iliade. Introduzione di Fausto Codino. Versione in prosa di Giuseppe Tonna. Guida bibliografica ragionata di Claudio Bevegni. Dizionario dei luoghi e dei personaggi*, Milano (2011).

Kosmopoulos 2021 — Dimosthenis Kosmopoulos, *Architettura templare italica in epoca ellenistica,* (Studia Archaeologica, 250), Roma-Bristol (2021).

Libertini 2018 — *Liber Colonarium,* from: *Gromatici Veteres* (Karl Lachmann 1848), Frattamaggiore (2018)

Loffredo 1853 — Francesco Loffredo, *Cenno monografico su Sora, in F. Cirelli, Il Regno delle Due Sicilie descritto e illustrato,* Napoli (1853).

Lolli Ghetti, Pagliardi 1996 — Mario Lolli Ghetti, Nicola Pagliardi, *Sora. Scavo presso la chiesa cattedrale di Santa Maria Assunta,* from: *Archeologia laziale,3. Terzo incontro di studio del Comitato per l'archeologia laziale,* Roma (1996).

Mancini 2013 — Massimiliano Mancini, *I Volsci e il loro territorio,* Frosinone (2013).

Marta 1982 — Roberto Marta, *La cattedrale di Sora. Inizio di un restauro,* Sora (1982).

Mezzazappa 2003 — Stefania Mezzazappa, *La forma della città di Sora e i suoi santuari*, from: Atlante tematico di topografia antica 12 (2003).

Nicosia 1995 — Angelo Nicosia, *Il Lazio meridionale tra antichità e medioevo. Aspetti e problemi*, from: LIRIS collana di studi storici diretta da Aldo Di Biasio: Saggi 2, Marina di Minturno (1995)

Nicosia, Cerqua 2007 — Emanuele Nicosia, Manuela Cerqua, *Rinvenimenti archeologici di epoca protostorica in località Campovarigno a Sora (Frosinone)*, from: Lazio e Sabina 5, Atti del Convegno, Roma (2007)

Panciera 2006 — Silvio Panciera, *Ricognizione epigrafica nella provincia di Frosinone*, from: *Epigrafi, epigrafia, epigrafisti. Scritti vari editi e inediti (1956-2005) con note complementari e indici*, III-20 (2006).

Pausanias — *Description of Greece*, edition: Pausania, *Guida della Grecia. Libro III. La Laconia. A cura di Domenico Musti e Mario Torelli*, Milano (1992).

Pliny the Elder — *Naturalis Historia*, edition: Gaio Plinio Secondo, *Storia Naturale V. Edizione diretta da Gian Biagio Conte con la collaborazione di Giuliano Ranuccio, Libri 33-37 Mineralogia e storia dell'arte. Traduzioni e note di Antonio Corso, Rossana Mugellesi, Gianpiero Rosati*, Torino (1988).

Ricci 1983 — Andreina Ricci, *La documentazione scritta nella ricognizione archeologica sul territorio: un nuovo Sistema di schedatura*, from: *Archeologia Medievale 10*, pp. 495-506 (1983).

Rizzello 1985 — Marcello Rizzello, *Viabilità del territorio Sorano in epoca romana. In relazione a necropoli e sepolture*, from: *Latium 2* (1985).

Rizzello 1986 — Marcello Rizzello, *I santuari rupestri della Media Valle del Liri in epoca romana*, from: *Latium 3* (1986).

Rizzello 1991b — Marcello, Rizzello, *Sora, area sacra della Cattedrale e zona attigua, nuovi rinvenimenti*, from: *Terra dei Volsci, contributi 1990*, annali del Museo archeologico di Frosinone pp. 92-94 (1991).

Rizzello 1998 — Marcello Rizzello, *Il medio corso del fiume Liri: la dinamica degli insediamenti sorani dall'età del ferro al periodo arcaico*, from: Terra dei Volsci, annali del Museo archeologico di Frosinone (1998)

Rocchi, Galitzia, Rossi, Grillotti di Giacomo 1991 — E. Rocchi, M. P. Galitzia, R. Rossi, M. G. Grillotti di Giacomo, *La Valle del Liri*, from: *Semestrale di studi e ricerche di geografia* (1991)

Russo, Attenni, Carosi 2020 — Alfonsina Russo, Luca Attenni, Simona Carosi, *Costruire la casa degli dei. Il tempietto di Alatri dallo scavo alla ricostruzione, dalla ricostruzione allo studio. Note su un progetto di studio e valorizzazione*, din: *Le mura poligonali. Atti del sesto Seminario con una sezione del Museo Civico di Alatri- a cura di Luca Attenni*, Napoli (2020).

Squilla 1957 — Gaetano Squilla, *Il seminario di Sora dalle origini ai giorni nostri*, Sora (1957).

Squilla 1961 — Gaetano Squilla, *La cattedrale di Sora dal 1100 al 1961*, Casamari (1961).

Squilla 1971 — Gaetano Squilla, *La diocesi di Sora nel 1110*, Casamari (1971).

Strabo — *Geographica*, edition: Cambridge Library Collection, Strabonis Geographica. Graece cum versione reficta. Edited by Karl W.F. Müller, Cambridge (2015).

Strazzulla 1977 — Maria José Strazzulla, *Le terrecotte architettoniche nell'Italia centrale*, din: *Caratteri*, pp. 41-49 (1997).

Suetonius — *De Vita Caesarum*, edition: Svetonio, *Vita dei Cesari*. *Introduzione di Lietta de Salvo, a cura di Francesco Casorati. Traduzioni di Francesco Casorati, Dorotea Medici, Roberto Pagan, Claudia Valerio. Edizione integrale. Testo latino a Fronte*, Milano (1995).

Tacitus — *Annales*, edition: *Annali. Dalla morte del Divo Augusto*, edited by Enrico

Oddone, Matilde Caltabiano, (1978).

Tanzilli, Grimaldi 2009 — Alessandra Tanzilli, Matilde Grimaldi, *Museo della media Valle del Liri di Sora. Guida alla sezione archeologica di età romana* (2009).

Tanzilli 2012 — Alessandra Tanzilli, *Materiali inediti della cattedrale di S. Maria Assunta a Sora*, in: Ager Aquinas. Storia e archeologia nella Media Valle dell'antico Liris, VI (2012).

Tanzilli 2012 — Alessandra Tanzilli, *Sparsa act disiecta membra sorana*, from: *Quaderni Coldragonesi 3*, Colfelice (2012).

Tanzilli 2013 — Alessandra Tanzilli, *Materiali funerari editi e inediti a Sora, Vicalvi e Casalattico (FR),* from: *Quaderni Coldragonesi 4*, Colfelice (2013).

Tanzilli 2015 — Alessandra Tanzilli, *Antiquissimum et aureum phanum. Sora. Chiesa Cattedrale Santa Maria Assunta,* Roma (2015).

Tommasetti 2004 — Alessandra Tommasetti, *Sora-Loc. S. Giuliano- Piazza Cav. Annunziata. Una villa tardoantica e una necropoli altomedievale,* from: *Fasti online*, (2004).

Vitruvius — *De architectura*, edition: *Vitruvius: Ten Books on Architecture,* edited by Ingrid D. Rowland, Thomas Noble Howe, Cambridge (2017).

Zevi Gallina 1978 — Anna Zevi Gallina, *Sora-Scavi alla cattedrale,* din*: Archeologia laziale 1. Incontro di studio del Comitato per l'archeologia* (1978)

LIST OF ILLUSTRATIONS / LISTA ILUSTRAȚIILOR

Fig. 1. *Latium vetus* and *adiectum* in the 5th century BC. The territory of Sora (red) within the "Thiessen polygon" (Illustration by Dr. Maria Cristina Capanna).

Fig. 1. *Latium vetus și adiectum* în secolul al V-lea î.Hr. Teritoriul orașului Sora (roșu) în cadrul "poligonului Thiessen" (ilustrație realizată de Dr. Maria Cristina Capanna).

Fig. 2. Imagine prin satelit a orașului Sora în prezent. Muntele San Casto, râul Liri, principalele străzi și periferia orașului sunt vizibile (Google Earth).

Fig. 2. Satellite image of the current city of Sora. The San Casto Mountain, the Liri river, the main streets, and the city outskirts are visible (Google Earth).

Fig. 3. Catedrala din Sora pe versanții muntelui San Casto. Fotografie aeriană cu drona: Matteo Cipollone, Video Drones and GoPro, (https://www.youtube.com/watch?v=1pNDD5eGaNw).

Fig. 3. The cathedral of Sora on the slopes of Mount San Casto. Aerial photograph-drone: Matteo Cipollone, Video Drones and GoPro, (https://www.youtube.com/watch?v=1pNDD5eGaNw).

Fig. 4. The northern wall in travertine blocks-squared work (Tanzilli 2015).

Fig. 4. Zidul nordic din blocuri de travertin - *Opus quadratum* (Tanzilli 2015).

Fig. 5. The northern wall in travertine blocks-squared work (Google Street View).

Fig. 5. Zidul nordic din blocuri de travertin - *Opus quadratum* (Google Street View).

Fig. 6. Prezbiteriul catedralei din Sora cu zidul din blocuri de travertin - *Opus quadratum* (beweb.chiesacattolica.it).

Fig. 6. The presbytery of the cathedral of Sora with the wall in travertine blocks-squared work (beweb.chiesacattolica.it).

Fig. 7. Scările de pe latura nordică a templului (Marta 1982, poza 109).

Fig. 7. The stairs on the northern side of the temple (Marta 1982, picture 109).

Fig. 8. Seminar - Substructură realizată din blocuri pătrate de travertin (Tanzilli 2015).

Fig. 8. Seminary- Substructure made of squared travertine blocks (Tanzilli 2015).

Fig. 9. *Podium* al templului din Sora (Tanzilli, Grimaldi 2009).

Fig. 9. *Podium* of the temple of Sora (Tanzilli, Grimaldi 2009).

Fig. 10. *Podium* al templului din *Aesernia* (pinomanocchio.com - *Isernia, testimonianze archeologiche*).

Fig. 10. *Podium* of the temple of *Aesernia* (pinomanocchio.com - *Isernia, testimonianze archeologiche*).

Fig. 11. *Podium* al templului Sf. Silvestru (Cascia) - (Diosono 2009).

Fig. 11. *Podium* of the temple of S. Silvestro (Cascia) – (Diosono 2009).

Fig. 12. Reconstituirea templului din Alatri (Museo Nazionale Etrusco di Villa Giulia-Roma) - (fotografie: Alexandra Postelnicu 2019).

Fig. 12. Reconstruction of the temple of Alatri (Museo Nazionale Etrusco di Villa Giulia-Roma) - (picture: Alexandra Postelnicu 2019).

Fig. 13. Motivul palmetelor și antefixe cu *Potnia Theron* din reconstrucția templului din Alatri (Museo Nazionale Etrusco di Villa Giulia-Roma) - (museoetru.it).

Fig. 13. Palmettes motif and antefixes with *Potnia Theron* from the reconstruction of the temple of Alatri (Museo Nazionale Etrusco di Villa Giulia-Roma) - (museoetru.it).

Fig. 14. Interpretări ale unităților topografice individuale.

Fig. 14. Interpretations of individual topographic units.

Fig. 15. Datarea unităților topografice individuale.

Fig. 15. Dating of individual topographic units.

Fig. 16. Interpretarea unităților topografice individuale.

Fig. 16. Interpretation of individual topographic units.

Fig. 17. Localizarea unităților topografice individuale.

Fig. 17. Location of individual topographic units.

Fig. 18. Conservarea unităților topografice individuale.

Fig. 18. Conservation of individual topographic units.

Fig. 19. Datarea siturilor arheologice.

Fig. 19. Dating of archaeological sites.

Tab. I. SORA. Archaeological map. The urban center (Alexandra Postelnicu, 2023).

Tab. I. SORA. Hartă arheologică. Centrul urban (Alexandra Postelnicu, 2023).

Tab. II. Templul republican din Sora. Planimetrie ale templului și catedralei (Alexandra Postelnicu, 2023).

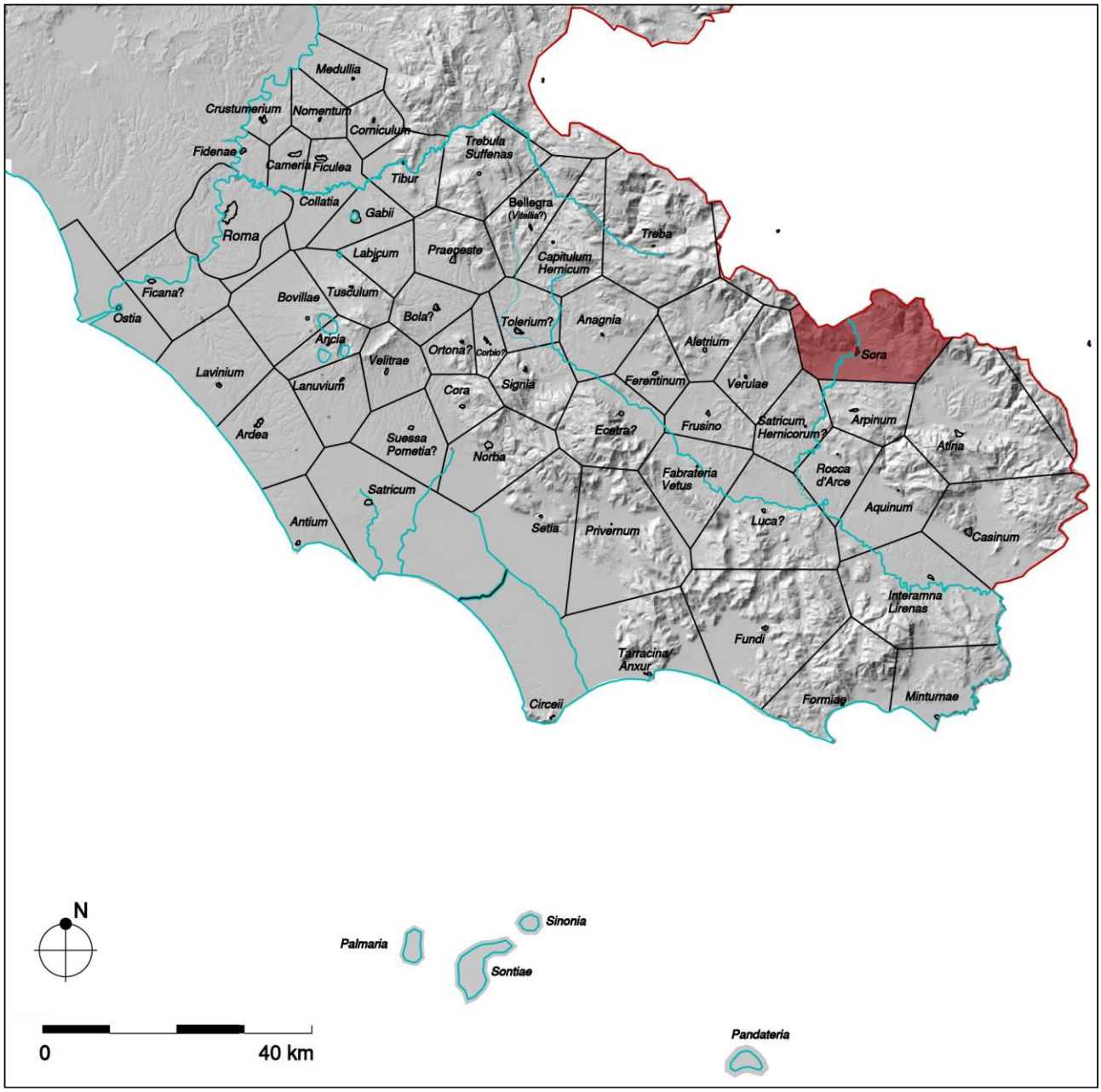
Tab. II. The republican temple of Sora. Planimetry of the temple and cathedral (Alexandra Postelnicu, 2023).

Tab. III. Templul republican din Sora. Tradițional datat în anul 303 î.Hr (Alexandra Postelnicu, 2023).

Tab. III. The republican temple of Sora. Traditionally dated back to 303 BC (Alexandra Postelnicu, 2023).

Tab. IV. Architectural decorations of the temple of Sora (Alexandra Postelnicu, 2023).

Tab. IV. Decorațiuni arhitecturale ale templului din Sora (Alexandra Postelnicu, 2023).



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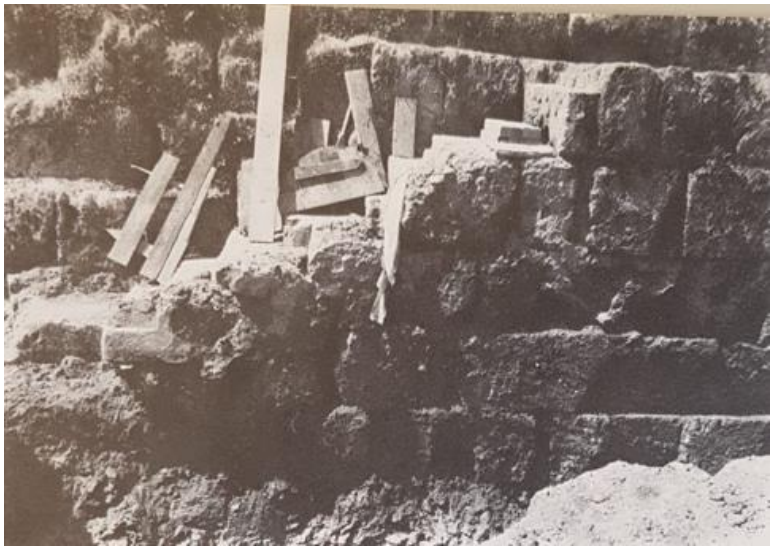


Fig. 7

Fig. 8

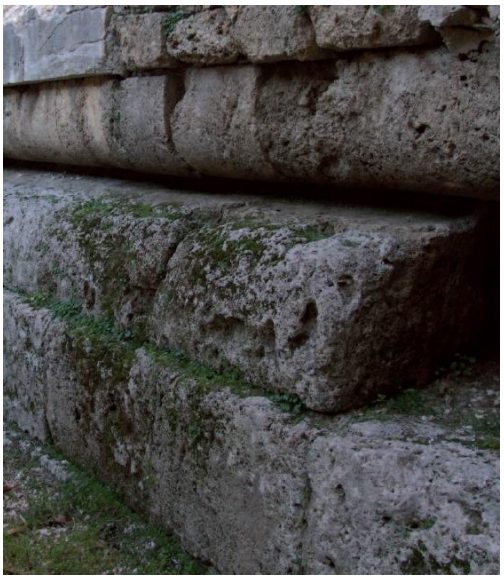
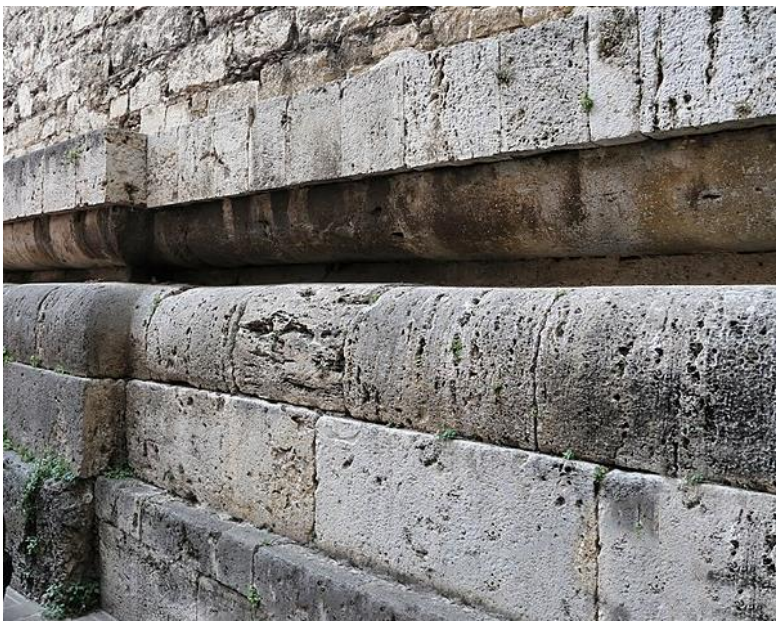


Fig. 9



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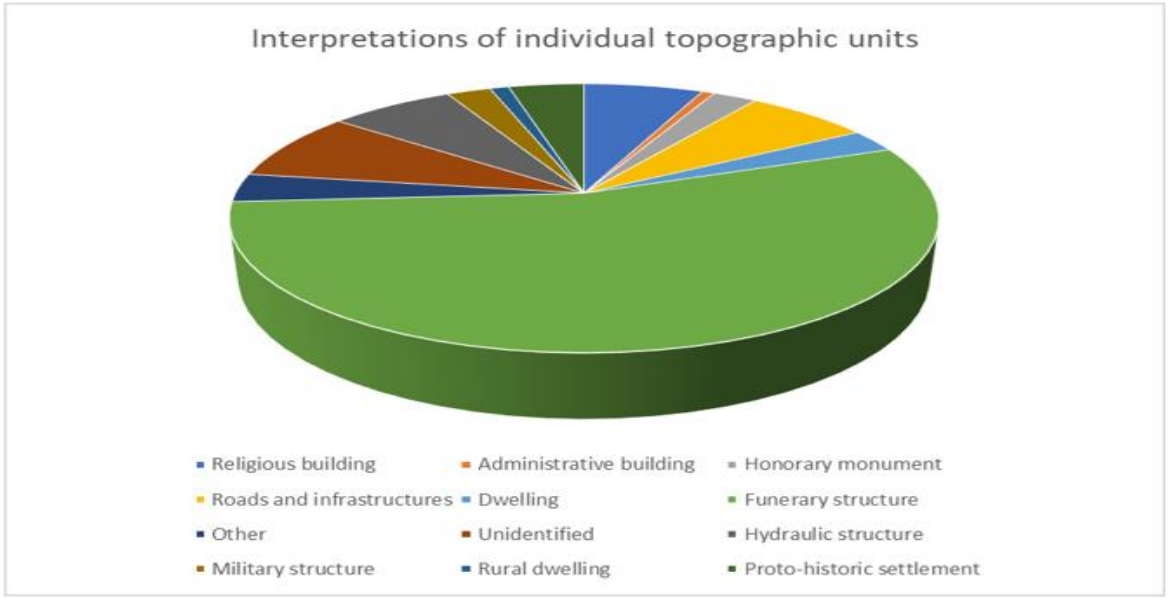


Fig. 14

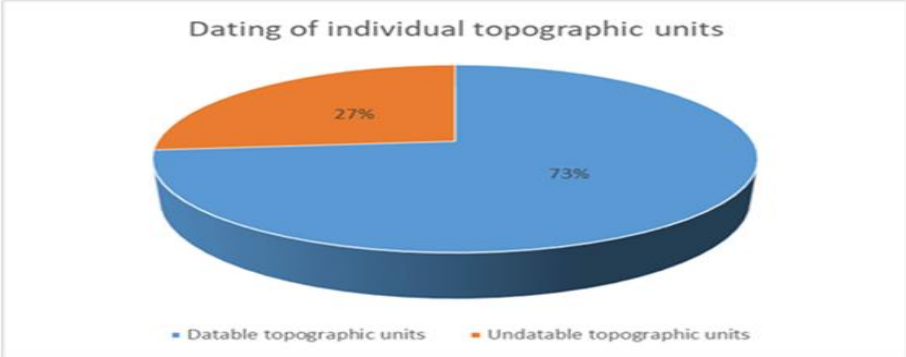


Fig. 15

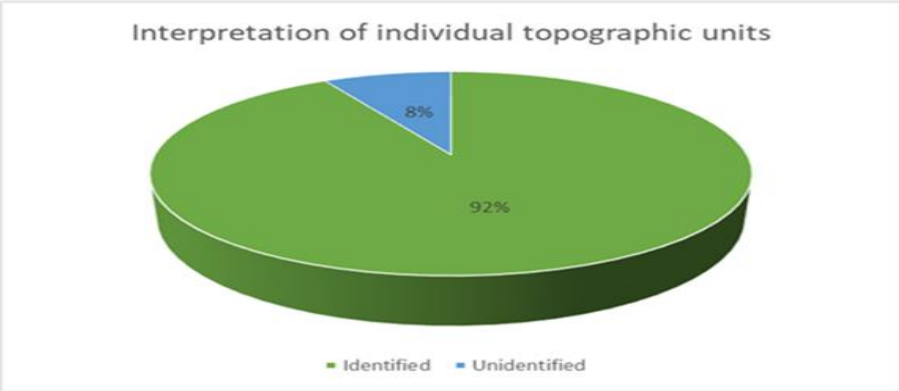


Fig. 16

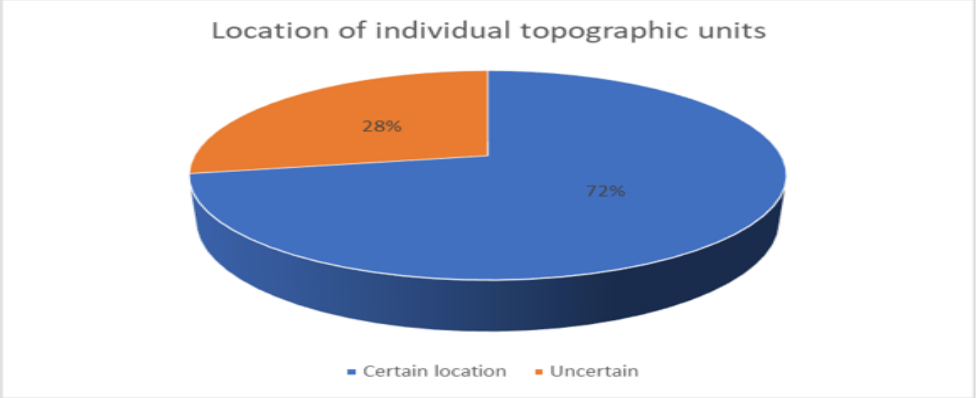


Fig. 17

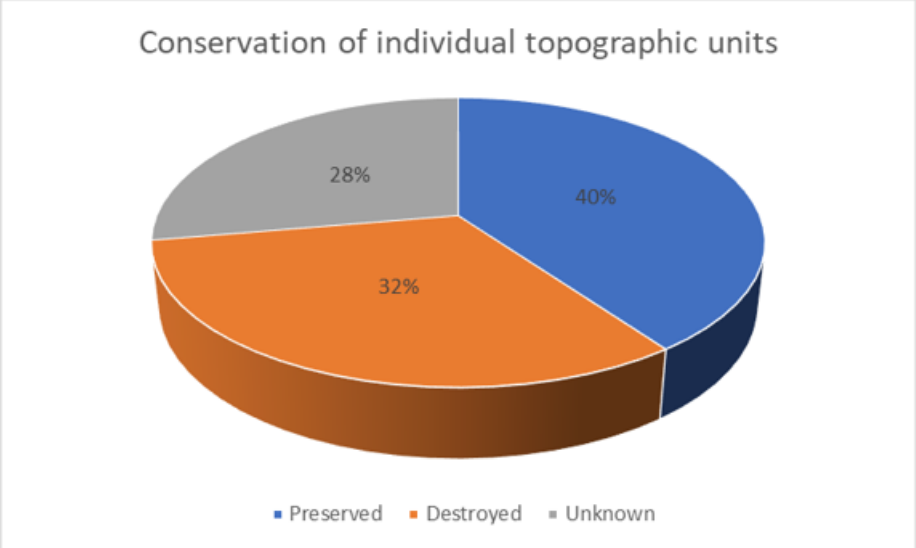


Fig. 18

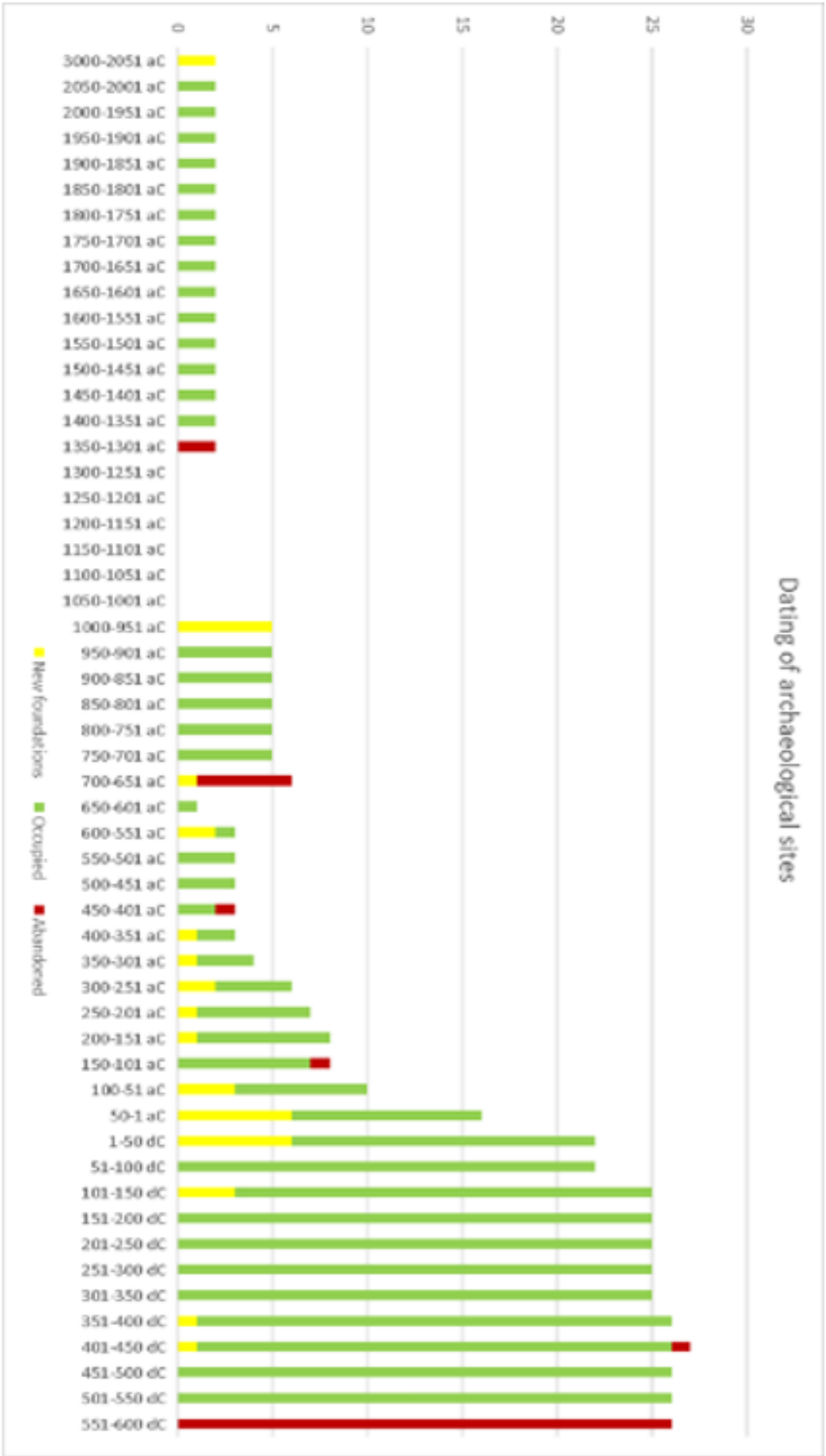
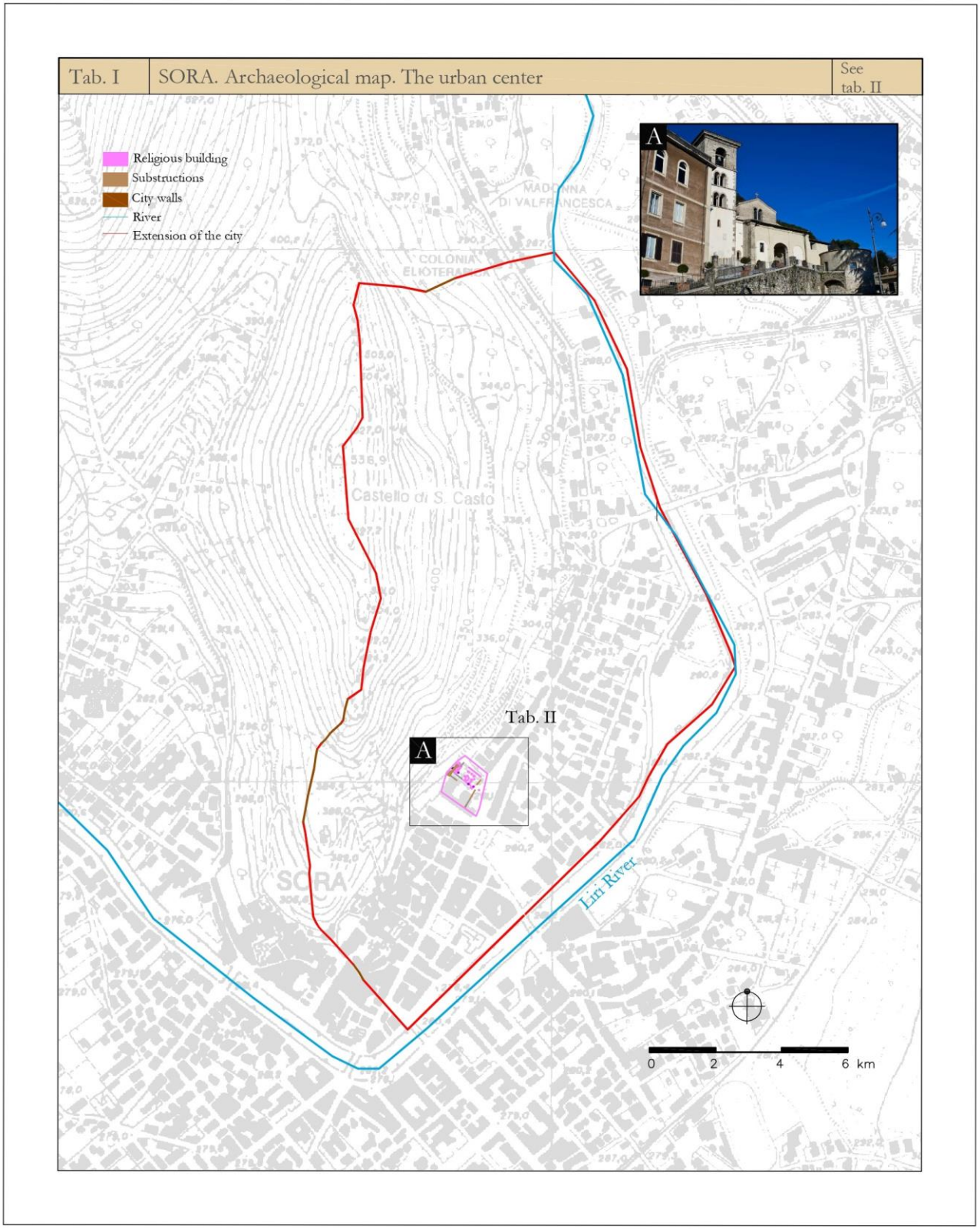
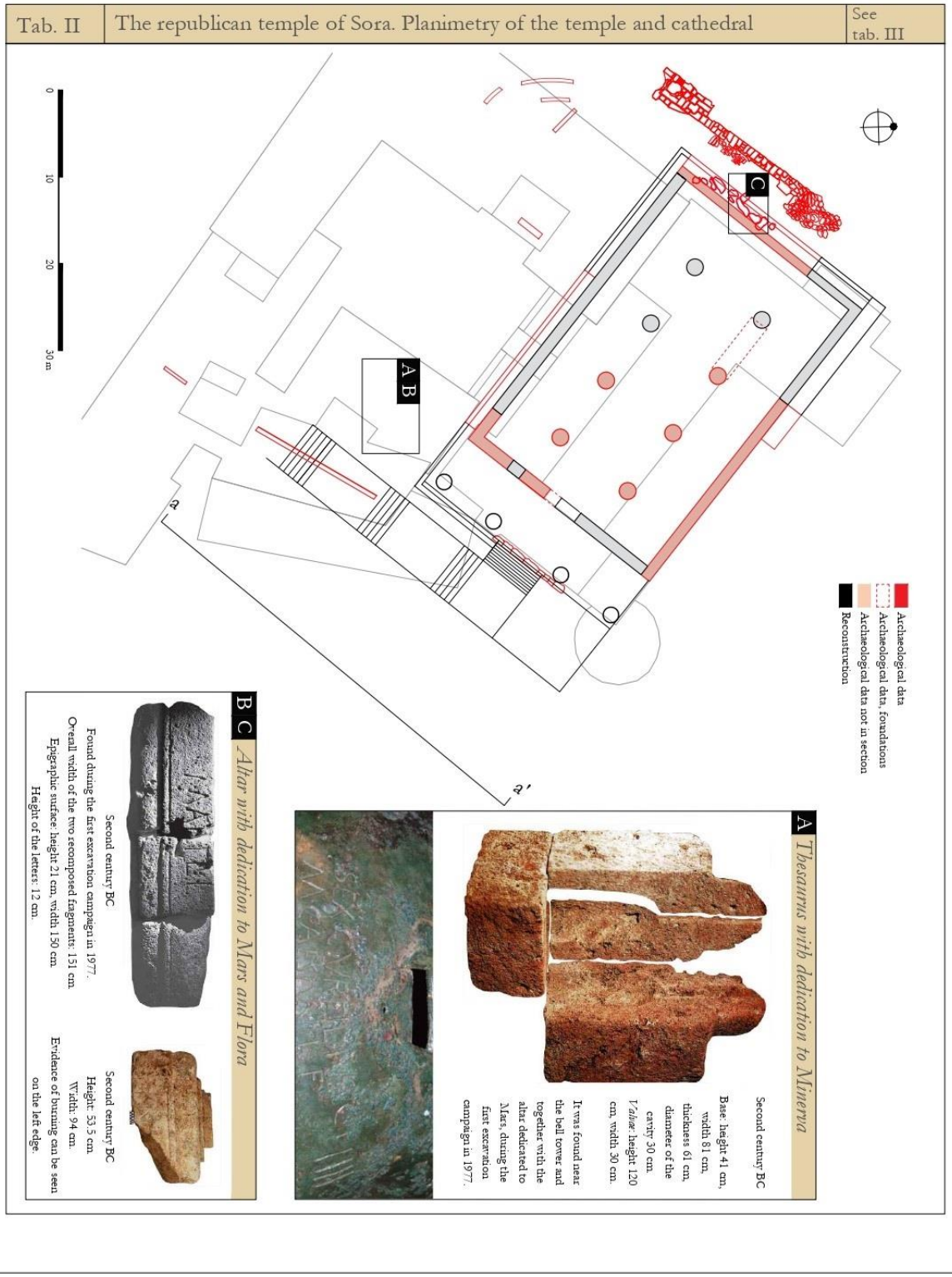


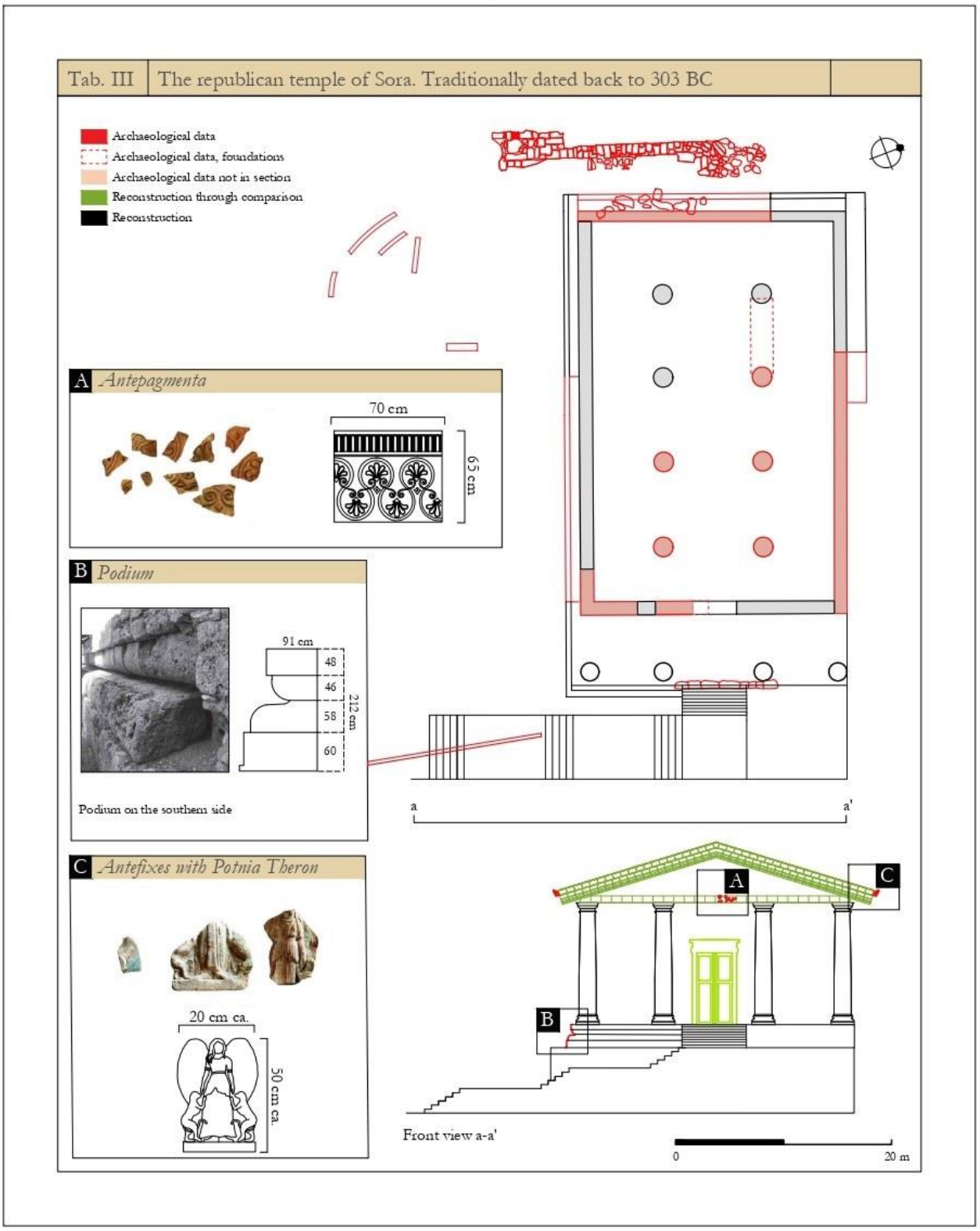
Fig. 19



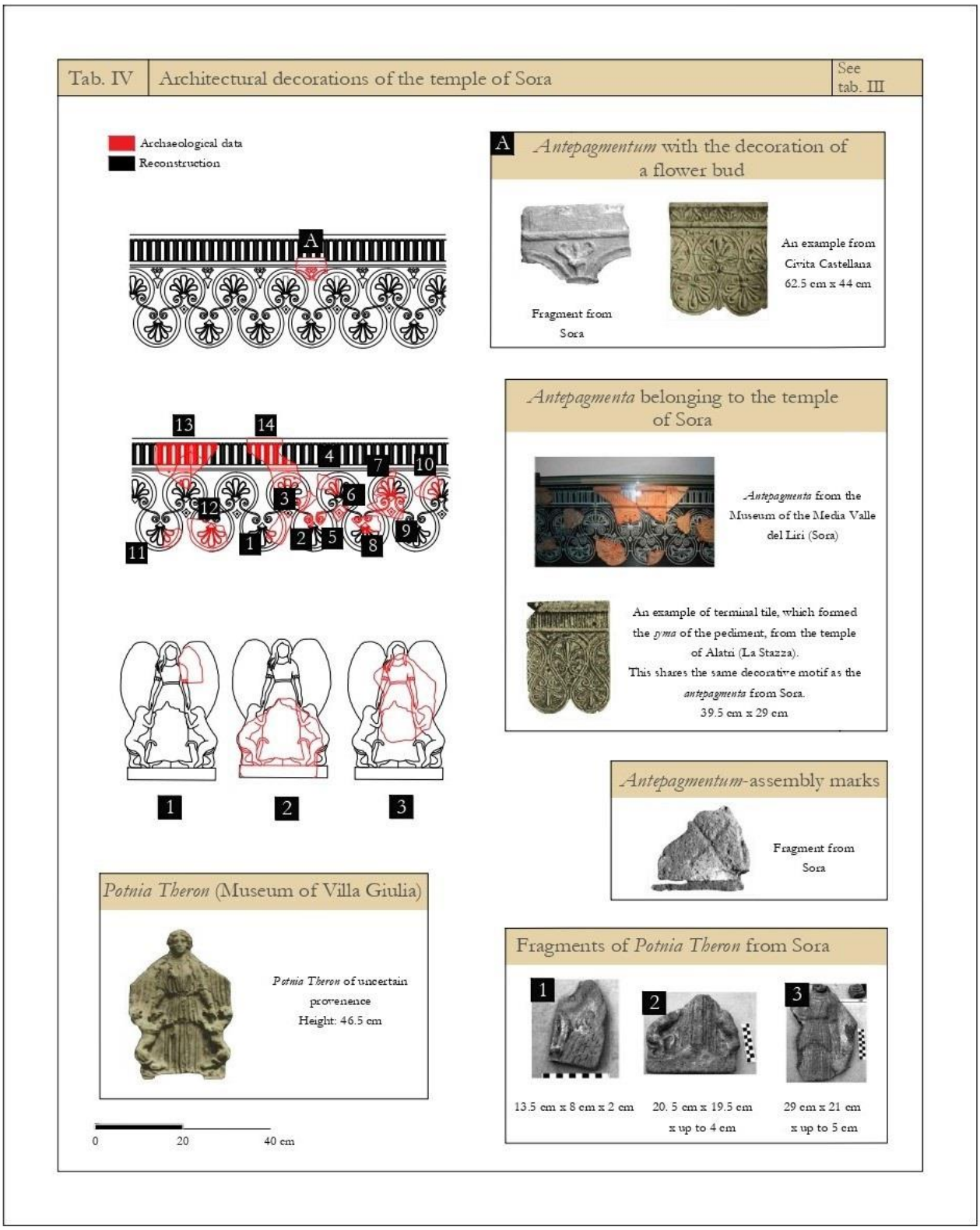
Tab. I



Tab. II



Tab. III



Tab. IV

ANCIENT COINS DISCOVERED IN SIBIU – GUȘTERIȚA

Silviu I. PURECE *
Ecaterina NATEA **

Abstract: *Due to the detectorists activities four ancient coins were found in the Gușterița's forest, near the Animal Life shelter. Two of them are imitations after Phillipos II's tetradrachms, Huși-Vovrieşti type and the other two are roman imperial coins issued by Commodus, sestertius and Severus Alexander, as. Further investigations will be held in area of discovery.*
Keywords: *Huși-Vovrieşti type, Commodus sestertius, Severus Alexander as, coin imitations, Gușterița.*

Rezumat: *Datorită activităților detectoriștilor, au fost găsite patru monede antice în pădurea Gușteriței, lângă adăpostul Animal Life. Două dintre ele sunt imitații după tetradrahmele lui Filip al II-lea, tipul Huși-Vovrieşti, iar celelalte două sunt monede imperiale romane emise de Commodus, sestertius și Severus Alexander, as. Investigații ulterioare vor fi efectuate în zona descoperirii.*
Cuvinte cheie: *tipul Huși-Vovrieşti, Commodus sestertius, Severus Alexander as, imitații de monedă, Gușterița.*

In the last day of the year 2020 four ancient coins were found with the metal detector in the North-Eastern region of Sibiu City, in the Gușterița's forest, near the *Animal Life* shelter, in 3 June 2022 were registered in the Brukenthal Museum's numismatic collection. Two of these coins are imitations after Phillipos II tetradrachms, *Huși-Vovrieşti* type and the other two are roman imperial issues.

IMITATIONS, *HUȘI-VOVRIEȘTI* TYPE

1. **Imitation**, *Huși-Vovrieşti* type

Obverse: Human head to the left, with beard, long hair and globular shaped eye;

Reverse: Rider on horseback advancing to the left. The rider's left leg is missing. His horse has the right front leg raised. ΦΙΛΙΠ, in the coarse manner, crossing the field situated between the rider's back and the horse tail and ΠΟΥ (?), in the same manner, between the horse's right leg and the muzzle. A symbol, unclear shape due to the coin preservation, between horse's front legs and a line (?) with two globules, due to the blurred image made by the intense wear it's very hard to observe some details, under the horse.

The coin had been worn for a significative period of time and carry an incision made on reverse, placed under the horse, drawn from the horse's back legs towards the edge of the coin in an oblique direction. The force used to make the incision was powerful enough to traverse the entire thickness.

AR, 13,88 g, 26,13x25,47 mm, axis 3.

Inventory number T 7441.

2. **Imitation**, *Huși-Vovrieşti* type

Obverse: Human head to the right, with beard and long hair;

Reverse: Rider on horseback advancing to the right. His horse has the left front leg raised. Under the horse un solar symbol (?) in form of a ring with notched margin. Between the horse's head and rider's head were placed, in the coarse manner, the letters ΦΛΠ (the "I" letters from the name ΦΙΛΙΠΠΟΥ are missing) and between horse's muzzle and left front leg were placed letters ΠΥ drawn in the same manner. A symbol, unclear shape due to the coin preservation, probably a torch, between horse's front legs.

This coin has a profound incision which penetrated the entire thickness; the struck was made on reverse from the margin to the centre. Another small incision it's present on obverse, starting from back zone of the man's neck until the coin margin.

AR, 13,21 g, 24,24x23,78 mm, axis 3.

Inventory number T 7440.

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ROMAN IMPERIAL COINS

3. COMMODVS
Obverse: [M] COMMODVS ANT [P FELIX AVG] BRIT
Head laureated, right.
Reverse: MINER V[ICT P M TR P XIIII IMP VIII] COS V / S-C
Minerva standing left, holding Victory and spear, shield, left and trophy, right.
S, 19,8 g, 29,58x28,72 mm, axis 6, RIC III, 528, years 186-187, Roma.
Inventory number T 7443.
The coin is very worn.

4. SEVERVS ALEXANDER
Obverse: IMP ALEXAN-DER PIVS AVG
Bust with slight drapery over left shoulder.
Reverse: PROVIDENTIA AVG / S-C
Providentia standing, head left, holding corn-ears over modius and anchor.
AS, 10,90 g, 29,21x28,10 mm, axis 12, RIC IV/II, 647, Roma, years 231-235. Inventory number T7442
The coin is very worn.

First two coins are imitations, *Huși-Vovrieşti* type, one having the iconography, avers and reverse, orientated to the left and other to the right. Both coins have been incised on reverse, in the case of coin number 1 the incision penetrated entire coin thickness affecting the obverse, the second coin had been incised with a powerful strike which caused a large cut, these are specific characteristics for this type (Preda 1966, 154). In the case of second coin another small incision was made on obverse. The issuers try, on both coins, to render the original legend but the result was with errors, see the second coin, and bad style. Both coin carry symbols on reverse, unfortunately unrecognizable due to the intense wearing.

Even if the large majority of *Huși-Vovrieşti* type's coins were found on the territory of Moldova (Munteanu 2016, 552), some of them come from other regions, Transylvania being one of them (Preda 1998, 160, Munteanu 2016, 552). One such coin was found during the archaeological diggings made on the highway route at Miercurea Sibiului, site IV (Luca, Natea, Palaghie 2013, 17; Luca *et alii*, 2013, 72). It seems that another imitation after a Philippus II tetradrachms, we don't know the type but we have to consider the possibility to have another *Huși-Vovrieşti* coin, was found in the Gușteriţa's region (Luca, Pinter, Georgescu 2003, 111). Probably, the *Huși-Vovrieşti* type's coins travelled across some commercial routes which connects Moldova with Transylvania and Banat, these coins being in the same time an economic and politic instrument used frequently abroad by their issuers (Rustoiu, Ferencz 2017, 351). In the near future we hope to understand better, from the archaeological perspective, the realities connected with those coins' discoveries.

As we mention above, two coins from this lot are roman imperial bronzes: 1 S from Commodus and 1 As from Severus Alexander. These coins were found in a region situated at two kilometres from the roman sites attested in Gușteriţa' territory (Popa 2000, 170, 189; Popa 2002, 93-94; Bărbulescu, Fodorean, Nedelea, 2021, 392). In connection with these sites several roman imperial coins were found (Luca, Pinter, Georgescu 2003, 109,112), many collected by M. J. Ackner (Neigebaur 1851, 265-272). As we can see, both coins are very worn due to an intense circulation. Unfortunately, we don't know the precise archaeological context but we hope that in near future to recover, if it's possible, some information. They can be integrated, from the chronological perspective, in the coin spectrum specific for the Gușteriţa's roman sites (Munteanu 2017, 203). In the rural area of Dacia, bronze coins issued by Commodus and Severus Alexander are commune. Starting with Commodus it was observed a peak of the sestertius presence in roman sites from Dacia (Munteanu 2017, 98), it is possible that Gușteriţa's region to have the same situation. The Servus Alexander's as presence is normal, in his reign period the a large quantity of *asses* were minted (Harl 1996, 128), despite the fact that sestertius becoming preferred bronze currency by the Severan dynasty, situation that we can observe, also, in the roman sites from Transylvania (Petac 2010, 140).

REFERENCES / BIBLIOGRAFIE

Bărbulescu, Fodorean, Nedelea 2021	Mihai Bărbulescu, Florin-Gheorghe Fodorean, Luciana Nedelea (Ed.), *Tabula Imperii Romanii - Forma Urbis Romani. Dacia*, București, 2021.
Harl 1996	Kenneth W. Harl, *Coinage in the Roman Economy 300 B.C. to A.D. 700*, Baltimore/Londra, 1996.
Luca *et alii* 2013	Sabin Adrian Luca, Adrian Georgescu, Gheorghe Vasile Natea, Raluca Maria Teodorescu, Claudia Urduzia, Claudiu Iuliu Munteanu, Vasile Palaghie, Adrian Luca, *Cercetarea preventivă. Provocarea arheologică a zilelor noastre*, Sibiu, 2013.
Luca, Natea, Palaghie 2013	Sabin Adrian Luca, Gheorghe Vasile Natea, Vasile Palaghie, *Cercetarea preventivă de la Miercurea Sibiului IV, județul Sibiu*, în *Acta Terrae Fogarasiensis*, II, 2013, p. 11-27.
Luca, Pinter, Georgescu 2003	Sabin Adrian, Zeno Karl, Adrian Georgescu, *Repertoriul arheologic al județului Sibiu*, Sibiu, 2003.
Munteanu 2016	Lucian Munteanu, *The Hoard with Coins of 'Huşi-Vovrieşti' Type Discovered in Huşi*, in: V. Cojocaru, A. Rubel (eds.), *Mobility in Research on the Black Sea Region. The Proceedings of the International Symposium, Iaşi, July 5-10, 2015*, Cluj-Napoca, 2016, p. 541-581.
Neigebaur 1831	Neigebaur Johann Daniel Ferdinand Neigebaur, *Dacien: aus den Ueberresten des klassischen Alterthums, mit besonderer Rücksicht auf Siebenbürgen*, Kronstadt, 1831.
Petac 2010	Emanuel Petac, *Aspecte ale circulației monetare în Dacia Romană (106-275 p. Chr.)*, Wetteren, 2010.
Popa 2000	Dumitru Popa, *Viața rurală în Transilvania romană*, Sibiu, 2000.
Popa 2002	Dumitru Popa, *Villae, vici, pagi. Așezările rurale din Dacia intracarpatică*, București, 2002.
Preda 1966	Constantin Preda, *Tezaurul de la Vovrieşti şi unele probleme privind monedele geto-dace din Moldova*, în *Arheologia Moldovei* 4, 1966, p. 137–172.
Preda 1998	Constantin Preda, *Istoria monedei în Dacia preromană*, Bucureşti, 1998.
Rustoiu, Ferencz 2017	Aurel Rustoiu, Iosif V. Ferencz, *Cross-cultural Connections between the Middle and Lower Danube Regions during the Late Iron Age . The Silver Bracelet from Băniţa (jud. Hunedoara / RO)*, în *Archäologisches Korrespondenzblatt*, 47/3, 2017, p. 341-357.

IMITATIONS, *HUȘI-VOVRIEȘTI* TYPE

1

2

ROMAN IMPERIAL COINS

3

4

APPROACHING BUILDING CONNECTIONS BASED ON NET VAULTS' GEOMETRIC ANALYSIS. THE VAULTS OF THE CHURCH ON THE HILL OF SIGHIŞOARA AND THE CHURCH OF BĂGACIU

Eszter JOBBIK*
János KRÄHLING**

Abstract: *In this paper, we present the point cloud-based geometric analysis of the northern aisle's vault in the Church on the Hill of Sighişoara (RO) and the nave vault of the church of Băgaciu (RO). The literature refers to the genealogic connection between the two since both are masonry ribbed vaults of the same rib pattern from the former Saxon area of Transylvania, where the guild of Sighişoara supposedly worked. Our research highlights the similarities and differences in the fine details of their geometry and construction techniques, thus providing a stronger basis to draw conclusions about lineage routes and guilds.*

Keywords: *building genealogy; late medieval building guilds; geometric net vault analysis; medieval construction techniques; gothic building methods; masonry ribbed net vaults.*

Rezumat: *În această lucrare, prezentăm analiza geometrică a ansamblului de puncte ale bolții navei laterale nordice din Biserica din Deal de la Sighișoara (RO) și bolta navei Bisericii din Băgaciu (RO). Literatura de specialitate se referă la legătura genealogică dintre cele două, deoarece ambele sunt bolți cu nervuri din zidărie, realizate după un model specific de nervură din fosta zonă săsească a Transilvaniei, unde se presupune că a funcționat breasla Sighișoara. Cercetarea noastră evidențiază asemănările și diferențele în detaliile fine ale geometriei și tehnicilor de construcție ale acestora, oferind astfel o bază mai solidă pentru a trage concluzii despre rutele filiației și bresle.*

Cuvinte cheie: *stabilirea genealogiei; bresle ale meșterilor constructori medievali târzii; analiza bolților intersectate tip plasă; tehnici de construcție medievală; metode de construcție gotică; bolți din plasă cu nervuri din zidărie.*

Introduction

Examining the genealogy of net vault-building techniques and searching for guild connections is not a new idea in the technical literature. However, the reasons behind the established connections in the absence of clear written sources are often considering only basic morphologic questions (*e. g*. the pattern of the net vault's plan view [Guzsik 2003; Szőke 2012]) or general common features (*e. g*. using masonry ribs [Fabini 1999]).

In the present paper, we attempt to reconsider these questions based on the comparison of two vaults, which fit the above-mentioned requirements. However, our research aims to inspect the problem on a deeper level. Thus, we laser-scanned the two vaults, which are the subject of this paper. Then, we followed our systematic, reproducible point cloud analysis method to draw a clear picture of the fine geometric characteristics and spatial interrelations of these structures. Based on these, the original construction and building methods can be reconstructed with a high probability.

Based on the new, detailed knowledge gathered, we evaluate the similarities and differences of our case studies, the northern aisle's vault in the Church on the Hill of Sighişoara (RO; Schäßburg, Segesvár) and the nave vault of the church of Băgaciu (RO; Bogeschdorf, Szászbogács) (Fig. 1), and discuss the adequate basis for researching inter-building and guild connections.

Short history of the Church on the Hill of Sighişoara

The 12th-century origins of the Church on the Hill of Sighişoara determine the building's present disposition. The Romanesque (and later the Gothic) church's apse was built in place of a 12-13th-century rotunda. (Fabini, Fabini 1985, 102;

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Istrate 2018, 7-8) The asymmetric Romanesque three-aisle basilica with 4 pairs of columns in the nave, a semi-circular apse and a 13th-century western tower (Istrate 2018, 8-9) had three different longitudinal axes: that of the tower, the apse, and of the nave connecting the former two. The plan's anomalies were due to the demand to place the apse on the former rotunda and the hill's ground being not uniformly adequate for the loads. (Istrate 2018, 9) Eventually by the 15th century (inscriptions: 1483, 1488 [Istrate 2018, 6]) due to the nave and tower walls' impairments, their demolition and rebuilding were inevitable (Oprescu 1961, 55; Istrate 2018, 10; Istrate 2021, 456-457). The works were continuous from 1429 to 1525. (Roth 1905, 66) The construction works of the 1480s were led by Jakob Kendlinger. (Entz 1996, 180; Szőke 2012, 204) (The apse and the choir were already rebuilt in the 14th century. [Istrate 2018, 10])

The new, Gothic walls followed the lines of the Romanesque ones; thus the church's asymmetry is due to the above-detailed original plan. (Istrate 2018, 13; Istrate 2021, 457) The main modification in the nave was that instead of the original basilica with 4 pairs of columns a hall church with 3 column pairs was built. (Istrate 2018, 14) The nave's vault system was carried out in this period as well. However, the earthquake of 1838 concerned the church's vaults as well (Müller 1856, 172), although the scope of the damage is unclear.

Most written sources agree that the vault of the choir was ruined and rebuilt of wood. (Our analysis of the point cloud also showed a clear difference in the geometry of this vault and that of the naves. [Fig. 2]) However, several sources mention the damage to the nave's vault as well. Some claim that the main nave was injured (Roth 1905, 67[1]), while others write about the damage to the aisle's vault.

Regarding the point cloud, we concluded that the geometry of the naves' vaults is coherent, even though seemingly uneven (see more details below). The only part, where the geometry's logic is slightly different, is the crown area of the middle and southern nave. Here, the axes of the ribs' profile follow the curvature of the webbing's surface, whereas all the other ribs'axes are perpendicular to the surface of the webbing at any given point, and the masonry technique of the webbing also changes: the curvature of the individual webs is clearly less significant closer to the crown line. However, the very same change in the webbing's building technique is not unexampled without any posterior-to-building alterations (*e. g.* apse vault of the catholic church of Andocs. [Jobbik-Krähling 2022b]) Presumably, in the earthquake only some of the ribs fell down and were placed back (since the webbing can be stable without them due to the realignment of the forces [Lengyel, Bagi 2015, 58] and the multiple equilibrium states of masonry structures [Heyman 1995, 20-22; Huerta 2012, 183], as numerous examples show.) The ribs' lower surfaces close to the crown of the vault in both aisles are not 'smooth', the connection points of their individual rib elements are clearly visible. (Fig. 3) However, if these are in fact due to the earthquake, the overall geometry of these vaults' rib system remained still unchanged since all ribs with these features are positioned right next to the crown line, thus the spatial position of the junctions and the length of the concerned ribs must have remained unaltered. To conclude, based on the geometric analysis (see below) and the above-listed observations we claim that the vault of the northern aisle, the subject of the present paper is of medieval origin, therefore its comparison to the vault of Băgaciu may lead to valid conclusions.

Short history of the nave vault of the church of Băgaciu

In parallel to the Church on the Hill of Sighişoara, the Gothic church of Băgaciu also originated in a basilica, which was rebuilt around 1421. (Fabini 1999, 79-80; Fabini - Fabini 1985, 217) The fortification of the church and the nave's vault were carried out around 1500. (Fabini 1999, 80-81) Although the machicolation was torn down in 1766 (Fabini 1999, 81), the nave's vault did not change since the very beginning of the 16th century.

The connection between the Church on the Hill of Sighişoara and the church of Băgaciu

The Church on the Hill of Sighişoara was an important town church even in the Medieval period. In contrast, the church of Băgaciu was a village church of lesser representativeness. The Gothic period of the first, connected to the name of Jakob Kendlinger, is seen as the direct architectural connection between the guild of Landshut, well-known for their masonry architecture. (Fabini, Fabini 1985, 83; Szőke 2012, 204) Afterwards, potentially more builders got to know the technique, which therefore spread around Sighişoara and Mediaș Seats. (Szőke 2012,

[1] It is also to be noted that while writing about the middle nave's damage, Roth does not mention that of the choir.

204) (Băgaciu is in Mediaș Seat.) These works are often claimed to be done by rural guilds, as in the case of Băgaciu. (Fabini, Fabini 1985, 84)

A fundamental element in deducing the connections between churches is their vaulting system. [Fabini 1999; Guzsik 2003; Szőke 2012] Some researchers stated that the main difference between the town churches and the rural ones is their structure – *e. g.* the rural churches have pseudo-net vaults (barrel vaults decorated with non-structural ribs) (Roth 1905, 36), as in the case of Băgaciu (Roth 1905, 80), contrary to the town churches' 'real net vaults'. In the literature, it is quite common to deduce guild connection based on the pattern of the net vaults' rib system. (Guzsik 2003; Szőke 2012) The pattern of the vault above the northern aisle of the Church on the Hill and that of the nave in the church of Băgaciu is the same.[2]

Thus, the literature suggests a connection between the two buildings. Moreover, the influence, and potentially the overlap of the builders is indicated. However, the reasons behind these claims are only the accordance of the building dates and the area, and the similarity of the general building technique (masonry ribbed vaults) and the rib system's patterns. We think that claiming this kind of connection requires a more exact basis, thus the comparison of the two church's vaults is an adequate way of contributing to the question's solution. In addition, the same rib pattern of the two vaults gives the potential that this evaluation is as exact as possible.

Material and methods

Our conclusions were drawn based on the construction and building methods of the vaults deduced from their exact geometry. For that, we developed a systematic analysis method for net and stellar vaults during our previous works[3], including the analysis of the church of Băgaciu.

Our method has two main steps: creating the point cloud, followed by the analysis, which is a step-by-step process, posing geometric questions incorporating the leading ideas of the topic's technical literature and the approach of engineers. The geometric questions are based on the geometric description of the different structural solutions plausible in the case of net vaults. Although several researchers in this field use similar workflows[4], the accentuated systematic and reapplicable approach of our works intends to give a new strategy to the subject.

Our on-site surveys were carried out by Leica BLK 360 laser scanner, while for the processing of the data Leica Cyclone Register 360 and AutoCAD software were used. (Fig. 4)

Regarding the point clouds' analysis, first, we isolated the different building periods, especially in the case of the structures directly connecting to the vaults. This step's importance lies in identifying the given circumstances at the time of the vault's building since these can hugely influence the construction methods chosen by the builders.

The isolation is followed by the rib system's global analysis. We start our global analysis by examining the rib system's plan view, as the most widely accepted idea in the technical literature on the topic is that the stellar and net vaults' building process started with the real-scale construction of their rib system's plan view (as presented by Wendland and Degenève [Wendland, Degenève 2017, 164]). This construction method was first pictured in 16th-century sources (*e. g.* the sketchbook of Rodrigo Gil de Hontañón as cited by Huerta [Huerta 2012, 173] or the Manuscript Ms. 12686 of the National Library of Spain [Baño, Galera 2020]) and appeared regularly in the most influential books on the topic up until the 20th century (Ranisch 1695; Hoffstadt 1840; Warth 1869, 258-260; Ungewitter 1901.) As for the construction of the plan pattern, the sources often claim the use of a quadrate-net (e. g. Schulze's method, as presented by Müller [Müller 1975, 45]) or the use of rotated inscribable quadrats (e. g. Hoffstadt's XIV. A. board, as described by Müller [Müller 1975,52]).

[2] We define the complete accordance of two rib patterns as all the junction points and ribs in a given bay of one vault have their counterpart in a given bay of the other vault and vice versa.

[3] The analyses of the nave vault of the church of Băgaciu (RO) (Jobbik, Krähling 2022a), of the apse's vault of the church of Andocs (HU) (Jobbik, Krähling 2022b) of the Matthias oratorio's stellar vault in the Inner City Parish Church of Budapest (HU) (Jobbik, Krähling 2023).

[4] Examining the ribs' curvatures and the height of the junctions based on a point cloud appears by Olaf Huth (Huth 2020), laser scan-based methodology to analyse dome structures was carried out by Bianchini (Bianchini 2020), analysis of rib deformations based on exact geometry was done by R. Maira Vidal (Vidal 2017), and the examination of original building techniques of vaults based on laser surveys was done by Paula Fuentes and Santiago Huerta (Huerta 2016) and J. C. Placios Gonzalo and R. Martín Talaverano (Gonzalo, Talaverano 2013).

Our main idea is that if the plan was deliberately constructed to follow a regular pattern, certain lines and circles on which the plan view of the rib junctions' fall must be recognisable. Thus, we established several routine examinations: longitudinal and cross-direction lines between the junctions of the same kind, the diagonals between the imposts, the lines connecting the midpoints between the adjacent imposts, and those between the latter midpoints and the imposts are drawn. Thales' circles on the walls between the adjacent imposts, and in the cross-direction, as well as circles with an impost as their midpoint and the distance of the adjacent imposts as their radius are constructed (as presented below).[5] Additionally, the length of all the ribs' plan view is measured (Table 1.). Through these examinations, different degrees of regularities can be detected, thus the plan view's priority can be evaluated.

In the next step in the rib system's global analysis, we aim to find the regularities in the junction's spatial positioning, the importance of which was accentuated among others by Wendland (Wendland 2010, 30). Furthermore, Müller (Müller 1975) claimed that the "Prinzipalbogen" theory also served this purpose. According to Wendland (Wendland 2010, 30-31), starting the building process by positioning the junctions was possibly a widespread practice.

The earlier theories (Ranisch 1695; Warth 1869, 258-260; Ungewitter 1901, 64) use the analogy of positioning the junctions on a hemisphere (stellar vaults) or a barrel vault (net vaults). (It is to be noted that the importance of spatial positioning also appears in these approaches indirectly.) However, practical considerations suggest that a surface as a temporary supporting structure would not be of benefit either economically or workload-wise. Thus, linear supports are more plausible, and the junctions' positions likely reflect these linear relations.

Whether the plan of the rib net proved to be constructed or not, the next step of our analysis is to study the positions of the junctions of the same type on the longitudinal sections. If these fall on the same line (respectively), it is plausible that a supporting structure of this direction was used (as presented below).

The final step of the analysis of the junction's spatial positioning is the cross-section analysis. The height position of the rib types in correlation with the whole height of the vault, as well as the ratio of the vault's width and height is the subject of the examinations.

If the plan of the rib network was presumably constructed, determining the lines on the longitudinal section, that is the height of the junction types, gives enough information to mark out unequivocally the spatial system of a net vault. If the plan was not fully constructed, additional data is still needed to define the junctions' spatial positions (as in the case of the church of Băgaciu [Jobbik, Krähling 2022a]).

After the analysation of the rib system's global geometry, the individual ribs are to be examined. Regarding the individual ribs, their curvatures had the utmost importance in the technical literature of the net and stellar vault construction, as according to the "Prinzipalbogen" theory, all the ribs in a given vault must have the same curvature, thus promoting prefabrication and accelerating the building process. (Renn - Osthues - Schlimme 2014, 71; Vidal 2017, 1007) This theory appeared regularly from the 16th century on (*e.g.* the manuscript of Jacob von Andernach as quoted by Müller [Müller 1974, 65-66]; Ranisch [Ranisch 1695], Hoffstadt [Hoffstadt 1840]; Meckel [Meckel 1933, 108]; Müller [Müller 1990]; Tomlow [Tomlow 1991]), although certain researchers gave voice to doubts from the 19th century (Lassaulx in 1835 as quoted by Wendland [Wendland 2012, 106]). While some of the recent studies applying point cloud-based survey methods evinced the former existence of the idea (Voigts 2015, 56-57), it is now proved, that its implementation was not universal. Thus, during our analysis, the curvature of each individual rib is to be measured.[6] The other measurement to carry out is that of the chord length of the ribs.

The data gathered about the individual ribs (*e. g.* the chord length in the case of the church of Băgaciu [Jobbik, Krähling 2022a]) proved to be the "missing" information to construct the rib system unequivocally in the case when the plan was not regular enough to assume its initial role in the process.

[5] Even though the use of other lines and circles is not inconceivable, if the majority of the here detailed examinations do not show regularities, it is highly probable that the basis of the vault's construction was not its plan view.

[6] In the case where the "Prinzipalbogen" principle applies, an additional question can be the origin of the radius' value.The written sources offer several ideas to answer the question, such as the "theory of the longest route", presented by (among others) Hoffstadt (1840) and Meckel (1933), however, other solutions, like using the half-length of a diagonal (Ranisch 1695; Pliego 2017) are also plausible.

The last step of our analysis method is the analysis of the webbing and its connection to the ribs. As for this connection, two main ideas exist. The commonly accepted version is that the webbing is built following the rib system, the latter serving as formwork for the former, as first described by Saunders in 1814 and specified later by Willis in 1842 (as quoted by Wendland [Wendland 2007, 342]). According to some studies, this idea also holds for masonry ribbed vaults (Szőke 2012, 207). However, in the latter case, another theory dominates the technical literature: that the masonry ribbed vaults are in fact simple barrel vaults, on which ribs were applicated secondarily for a decorative purpose. (Roth 1905, 36; Fabini 1985, 86; Fabini 1999; Harsányi 2001, 302)

To examine the masonry technique of the webbing, the vault can be "sliced up" horizontally. (Voigts 2014, 248) We applied the same method to differentiate the barrel vault-like and web-by-web building techniques, the former resulting in mapping lines parallel to the walls, while the latter in lines acting on the ribs' positions.

Results

The construction method of the northern aisle's vault in the Church on the Hill of Sighişoara

Applying the analysis to the vault

We carried out the analysis of the northern aisle's vault in the Church on the Hill of Sighişoara by following the steps of our method. For easier understanding, the alphanumeric codes were assigned to each individual rib of the vault. (Fig. 7)

As we detailed above, the outline of the nave walls as well as the western tower was a given circumstance when the vaults were to be built. Additionally, the lengths of the bays are not equal, presumably as a consequence of the demand on adjusting to the foundations of the Romanesque basilica's pillars. (Even though, the number of pillars in the Romanesque and Gothic churches is not the same, the plan illustrating the archaeological excavations [Istrate 2018, 8] shows, that when distributing the new pillars, the original system played a role.)

As for the analysis of the plan (Fig. 5), the positions of the junctions' plan pictures turned out to be quite irregular; only the very first examination (lines in the vault's longitudinal direction on the plan, as detailed above) gave even results. The junction points of the same type fall on the same lines parallel to the northern wall, with the few exception of the junctions indicated on "Fig. 5." (Deviations will be explained below). The system changes in the two western bays, where on the southern side, the junctions of the same type fall on different lines than in the previous four bays. These lines are parallel to the tower's northern wall. On the northern side of these two bays, the lines remain the same as in the other four bays, however, the last junction (5.C1. 1-5.E1.2-6.E1.1) falls to the line second closest to the crown line, instead of the closest one.

In the case of the other plan view examinations, the results showed a very high level of irregularities (Fig. 5), thus we concluded that it is plausible that the plan of the rib system did not mean the initial phase of the vault's construction.

Regarding the junction point's height positions, we concluded that the junction points of the same type on the longitudinal sections fall on the same lines (on both the southern and northern sides), and the lines of the southern and northern sides are all parallel to each other. Furthermore, the heights of the two westernmost imposts both on the northern and southern sides differ from the other ones. (Fig. 6)

Next, we analysed the cross-section view of the vault, projecting it to the eastern short wall. We found that the ratio of the vault's height (from the imposts to the lower surface of the junctions on the crown) to the width of the vault (the width of the northern aisle) is 3:4. Thus, a quadrate-net can be constructed. Then we projected the easternmost endpoints of the lines found on the plan view as well as those on the longitudinal sections. The results proved to be very even: the lines on the plan of the northern side are of the same distance from the wall and the middle line of the vault as those of the southern side (respectively). The distances between the lines of the longitudinal sections can be constructed from the quadrate-net by taking an eighth of the side of one quadrate. (See "Fig. 8.")

The individual rib curvatures did not prove to be uniform and have a considerable dispersion within a given rib type group too, thus the principle of the "Prinzipalbogen" does not apply to this vault. As for the chord lengths, we found that in the case of the D and F rib type group, all values were very close to each other, thus can be regarded as one

class. In the case of the other rib-type groups, the values belong to 2-3 clearly separable classes (based on the dispersion from the average). (Tables 1. and 2.) Representing the types on the plan view (Fig. 9.), we found that the values belonging to the groups differing from the majority of the values within one rib type are mainly the ribs next to the tower. In the case of the B group, this pattern is not so clear (explanation later).

After the analysis of the rib system, the mapping showed clearly that the webs are built on the ribs, not in a barrel vault-like way. (Fig. 2.) Thus, we concluded that the ribs were built before the webbing.

Conclusions drawn from the analysis

Based on the vault's geometric description, we attempted to reconstruct its building process. Considering that the two even characteristics of the junction types' spatial positions are their vertical and horizontal distance from the imposts and the crown points (represented by the parallel lines of the plan and the longitudinal sections during the analysis step), we concluded that the first step of the construction work was likely the construction of the quadrate net described above. Based on the quadrate net, plausibly wooden frames were created in the cross-direction of the vault. We presume that two (respectively coincident) types of these frames existed. (Fig. 10) Presumably, the ones with three shoulder points were placed halfway between each impost, and the ones with two shoulder points were placed to every impost. Then, the frames were connected with longitudinal wooden elements at the heights of the junctions. (Fig. 11) Afterwards, the junctions' exact places were localized by using their chord lengths, presumably starting from the impost points as the distances of the crown points do not show an even distribution.

Most likely, if the wooden frames were used as described above, their positions corresponded with that of the walls. (It is not plausible that the frames of two shoulder points, positioned to the imposts, were placed directly on the walls since this way carrying out the imposts and starting the corresponding ribs is not possible.) Thus, these frames were likely placed on a temporary supporting structure right next to the wall [one plausible solution is presented on "Fig 11."] On the other hand, the frames of three shoulder points could be placed on the walls [Fig. 11], or next to them in the same way as the other frames - pure geometry presented on "Fig. 10.")

Additional evidence supporting our theory is the position of the junctions, which seemed to be out of place on the plan view. We found that in each case when the junctions are not on the lines, the northern wall is not fully straight, thus the frame must have been shifted slightly to the north to follow its direction. And in these places, the junctions fall to lines connecting the matching points of the adjacent frames. Furthermore, at those places, where the theoretic position of the longitudinal lines coincided with the position of the junction points, but the shift of the frame is plausible due to the position of the wall and of other junction points (*e. g*. the frame of three shoulder points in the fourth bay), the lines adjusted to the frames' position fall sufficiently close to the theoretic line in the given points that both solutions can be accepted. (Fig. 12.) Thus, the points seemingly unfit for the building strategy we reconstructed, in fact, support our theory.

As we pointed out above, the lines on the plan in the case of the northern side of the westernmost two bays adjust to the direction of the tower's side. Here, the lines determining the northern and southern sides of the vault are not parallel to each other, thus the same frames can not be used since the width of the aisle is bigger than the width of the reconstructed frames. However, they can still fulfil their purpose if the builders modified them by "pulling them apart" at their vertical axis.

Regarding the numerous chord length value groups involved by the "B" ribs, the most plausible explanation is that since these are the ribs connecting to the walls and the pillars, and the length of each bay is different, they simply must have varied in order to reach the walls at the desired impost points - in these cases, the connection point of the adjacent B ribs fall halfway between their imposts, which explains their construction idea.

The correspondence regarding the vault's geometry and building techniques between the nave vault of the church of Băgaciu and the northern aisle's vault in the Church on the Hill of Sighişoara

As we stated above, there are multiple reasons behind comparing these two vaults to each other. On the one hand, the pattern of the rib systems' plan view is the same, which was a factor hugely accentuated by the technical literature about the genealogy of vaulting techniques. On the other hand, the influence of the Gothic period of the Church on the Hill of Sighişoara was considerable

to the rural churches of the area, including Băgaciu.

The geometric analysis of the vault of Băgaciu was the subject of our previous research (Jobbik, Krähling 2022a). Thus, we only present hereby the comparison of the two vault's geometric descriptions, and our conclusions drawn from them.

Regarding the geometry, the main difference is that in the case of Băgaciu, the lines similarly determining the plan as those of Sighişoara are not all parallel to each other. In Băgaciu, the lines of the northern and southern sides belong to two groups, each parallel to the corresponding long walls' easternmost parts, and the crown line of the vault is connecting the midpoints of the two short walls (representing a third direction).

However, other than that, the reconstructed construction and building method of the church of Băgaciu (published in Jobbik, Krähling 2022a) show numerous similarities to that of Sighişoara. In both cases, the primacy of the rib system to the webbing was proved by the mapping. The lines on the plan and on the longitudinal sections completed by the chord length values defined the spatial disposition of the rib system's junction points.

Although the long walls of the church of Băgaciu are excessively curved, and the lines determining the plan are not all parallel to each other, thus the use of wooden frames similar to the case of Sighişoara is not plausible, the general idea to construct and build a vault without initially constructing its plan applies there as well. In fact, we find it very likely that the reason behind this method is exactly the highly irregular plans determined by the remains of former building periods since this system gives more flexibility to mask the unevenness in the overall form of the rib system.

Since our former research of the church of Băgaciu did not consider the construction principles of the cross-section, that is the construction method of the junctions' height values, we detail it here. We found that the construction of this cross-section started from a quadrate net of a width-height ratio of 4:3 as well. However, the crown point is not determined by the height of the net, but a triangulation aspect is integrated: this point can be constructed as the crossing of two circles of a 3 units radius, with their midpoints being the lower corners of the quadrate net of 4 units width. The height of the starting points of the different junction types' lines also comes from the quadrate net: if the distance of the crown point from the closest horizontal quadrate line is 4x, then the distances of the lines from the crown point are x (which equals the height of the rib profile as well), 6x and 10x. (Fig. 13)

To conclude, the final ratios of the two vaults differ from each other. What is more, the logic of the two geometric constructions also differs, in the case of Sighişoara being the division of a pure quadrature system, while in the case of Băgaciu triangulation is added.

Discussion

As we presented, both vaults in question suggest construction and building methods explicitly different from the widespread ideas of the most influential works of the 19th-20th-century technical literature.

The former building periods' influence on the possibilities of the new vault's construction was considerable: in the case of Băgaciu the notably curved walls already existed by the time the early 16th-century vault was built, and in the case of Sighişoara, the nave and tower walls' directions were set, as the concept was to follow the Romanesque walls.

As for the building methods, the highly similar attitude in the two cases is undeniable, however, several differences on a conceptual level were detected, such as the difference in the construction of the short wall views, that is the height of the junctions, and the reconstructed temporary supporting system's fine details (application of coincident wooden frames).

Thus, the question arises, whether these data are enough to suggest the work of the same guild in Băgaciu as in Sighişoara, and, regarding this question in a more general way, what factors are to be considered to draw a conclusion like this, in the absence of factual written data. Oftentimes the same pattern of the rib system's plan and the accordance of the materials (*e. g.* masonry ribs) were held as conclusive in themselves. However, these factors are only the shallowest level of construction, visible to the bare eye, and therefore quite easily duplicable. We aim to accentuate that the real differences must be looked for in the details of the three-dimensional design and the techniques of realisation since these can define the

works of the same master or guild much more clearly - although these are also the factors which must be adjusted if required by the circumstances. With the spreading of the point cloud-based technologies, the possibility to analyse the net vaults on a deeper level is given, thus these fine characteristics can be mapped.

As for the case studies in the present paper, we assume that the high levels of similarities in the details of the constructions can suggest an actual overlap in the original builders, the rather that one of the main differences can be explained by the given circumstances. The dissimilarity of the short walls' construction can simply indicate the development of the original idea, or due to a conscious decision to increase stability (the width of the vault in Băgaciu [8.34 m] is nearly double of that of the northern aisle in Sighişoara [4.87 m] - thus the additional height with keeping the ratio of Sighişoara would have been significant). It is also plausible that the choices in Băgaciu were made by a master involved in the works in Sighişoara, but not necessarily the one in the leading position.

Conclusions

Applying our systematic, reproducible analysis method on the northern aisle's vault in the Church on the Hill of Sighişoara and the church of Băgaciu we came to the following conclusions:

We gave a suggestion for the plausible original construction method and building technique of the northern aisle's vault in the Church on the Hill of Sighişoara, including the temporary supporting structures.

We considered the similarities and differences between the two plausibly related vaults, both on geometric and structural levels. Based on the comparison, we defined the level of resemblance and established the plausible reasons for the differences.

Based on our previous conclusions drawn, we lay down general ideas about the proper approach to claiming genealogic connections and guild accordance assumed from net vault structures.

Additionally, we supplemented our previous research about the church of Băgaciu with the probable original construction of its overall form and the junction points' height relations.

Apart from the direct result of this research, namely the description of the geometric connections and the reconstruction of the plausible construction methods of our case studies, we consider our method and approach quite unique in the topic's literature. Our ideas and method may provide a basis for further research on the ever so frequented question of late Medieval building genealogy and help to integrate the geometric analysis of individual buildings into a broader context. Applying our method to further examples of the group of the South-Transylvanian masonry ribbed vaulted churches could possibly specify the building connection and genealogy network, and potentially offer some additional details about these buildings' links to the South German birthplace of this vault structure, thus contributing to the general understanding of the European Late Gothic architecture.

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REFERENCES / BIBLIOGRAFIE

Baño, Galera 2020	Baño Ricardo Garcia, Galera Macarena Salcedo, *Geometry and Construction of the Eight-Loop Ribbed Vault*. In: *Nexus Network Journal* 22 (2020), p. 895–913.
Bianchini 2020	Bianchini, Carlo, *A Methodological Approach for the Study of Domes*. In: *Nexus Network Journal* 22 (2020), p. 983-1013.
Entz 1996	Entz Géza, *Erdély építészete a 14-16. században*, Kolozsvár (Cluj-Napoca) (1996)
Fabini, Fabini 1985	Fabini Herman, Fabini Alida, *Kirchenburgen in Siebenbürgen*, Leipzig (1985)
Fabini 1999	Fabini Hermann, *Atlas der siebenbürgisch-sächsischen Kirchenbau und Dorfkirchen*, Bd. I, Hermannstadt (1999)
Fuentes, Huerta 2016	Fuentes Paula, Huerta Santiago, *Geometry, construction and structural analysis of the crossed-arched vault of the chapel of Villaviciosa, in the Mosque of Cordóba*. In: *International Journal of Architectural Heritage* 10(5), London (2016), p. 589-603
Gonzalo, Talaverano 2013	Gonzalo J. C. Palacios, Talaverano R. Martín, *Technological development in Spanish gothic vaults design*. In: *International Journal of Architectural Heritage: Conservation, Analysis, and Restauration* 7(2), London (2012), p. 189-206.
Guzsik 2003	Guzsik Tamás, *A pálos rend építészete a középkori Magyarországon*, Budapest (2003)
Harsányi 2001	Harsányi István, *A szeged-alsóvárosi ferences templom gótikus szentélye csillagboltozatának helyreállítása*. In: *Műemlékvédelem* 45/5 (2001), p. 294-304.
Heyman 1995	Heyman Jacques, *The stone skeleton. Structural engineering of masonry architecture*, Cambridge (1995)
Hoffstadt 1840	Hoffstadt Friedrich, *Gothisches ABC-Buch: Vorlegeblätter zum gothischen A-B-C-Buche…* Frankfurt a. M. (1840)
Huerta 2012	Huerta, Santiago, *Technical challenges in the construction of gothic vaults: The gothic theory of structural design*. In: Hassler Uta, Rauhut Christoph (eds.), *Bautechnik des Historismus. Von den Theorien über gotische Konstruktionen bis zu den Baustellen des 19. Jahrhunderts*, München (2012), p. 163-95.
Huth 2020	Huth Olaf, *Entwurfs-und Konstruktionsprinzipien des spätgotischen Netzgewölbes der Kirche St. Peter und Paul in der Lutherstadt Eisleben*, Bamberg (2020)
Jobbik, Krähling 2022a	Jobbik Eszter, Krähling János, *Late Mediaeval Net Vault Construction Method Rediscovered by Geometric Analysis. A Case Study of the Fortified Church of Băgaciu (Bogeschdorf)*. In: *Brukenthal. Acta Musei* 17/2, Piaţa Mare (2022), p. 179-202.
Jobbik, Krähling 2022b	Jobbik Eszter, Krähling János, *Remodelling a medieval net vault construction. Case study: the apsis vault in the catholic church of Andocs*. In: *Építés-Építészettudomány* 50/3-4, Budapest (2008), p. 317-349.

Jobbik, Krähling 2023 — Jobbik Eszter, Krähling János, *A Self-contained Stellar Vault Construction Method. The Vault of the Matthias Oratorio in the Inner City Parish Church of Budapest*. In: *Periodica Polytechnica Architecture*. 54/1, Budapest (2023), p. 73–85.

Istrate 2018 — Istrate, D. M, *Voraussetzungen und Vorbedingungen für den Bau der Bergkirche in Schäßburg*. In: *Zeitschrift für Siebenbürgische Landeskunde* 41, Heidelberg (2018), p. 1-16.

Istrate 2021 — Istrate, D. M, *Entstehung und Entwicklung der siebenbürgischen Stadtkirchen im 12-15. Jahrhunder*. In: D. Ade, S. Frommer, T. Marstaller, A. K. Scholz, M. Terp-Schunter, C. Vossler-Wolf and M. Wolf (eds.), *Sachsgeschichte(n). Beiträge zu einer interdisziplinär verstandenen Archäologie des Mittelalters und der Neuzeit. Festschrift für Barbara Scholkmann zu ihrem 80. Geburtstag*, Tübingen (2021), p. 445-464.

Lengyel, Bagi 2015 — Lengyel G., Bagi K., *Numerical analysis of the mechanical role of the ribs in groin vaults*. In: *Computers and Structures* 125, Amsterdam (2015), p. 42-60.

Meckel 1933 — Meckel Carl Anton, *Figurierte Gewölbe der deutschen Spätgotik*. In: *Architectura: Jahrbuch für Geschichte der Baukunst* 1, Berlin (1933), p. 107-21.

Müller 1856 — Müller F., *Die Schässburger Bergkirche in Siebenbürgen*. In: *Mitteilungen der K. K. Central-Commission,* 1, Wien (1856), p. 167-172.

Müller 1974 — Müller Werner, *Einflüsse der österreichischen und der böhmisch-sächsischen Spätgotik in den Gewölbemustern des Jacob Facht von Andernach*. In: *Wiener Jahrbuch für Kunstgeschichte* 27/1, Wien (1974), p. 65-82.

Müller 1975 — Müller Werner, *Die Zeichnungsvorlagen für Friedrich Hoffstadts "Gotisches A.B.C.-Buch" und der Nachlass des Nürnberger Ratsbaumeisters Wolf Jacob Stromer (1561-1614)*. In: *Wiener Jahrbuch für Kunstgechichte* 28/1, Wien (1975), 39-54.

Oprescu 1961 — Oprescu George, *Die Wehrkirchen in Siebenbürgen*. Dresden (1961)

Pliego 2012 — Pliego Elena, *Georg Gottlob Ungewitters Lehrbuch der gotischen Constructionen*. In: Hassler Uta, Rauhut Christoph (eds.), *Bautechnik des Historismus. Von den Theorien über gotische Konstruktionen bis zu den Baustellen des 19. Jahrhunderts*, München (2012), p. 217-229.

Ranisch 1695 — Ranisch Bartel, *Beschreibung aller Kirchengebäude der Stadt Dantzig*, Dantzig (1695)

Roth 1905 — Roth Victor, *Geschichte der deutschen Baukunst in Siebenbürgen*. Strassbourg (1905)

Szőke 2012 — Szőke Balázs, *A Wechselberger-Harperger motívum Délkelet-Erdély késő gótikus építészetében.* In: Sófalvi András, Visy Zsolt (eds.), *Tanulmányok a székelység középkori és fejedelemség kori történetéből*, Énlaka (2012), p. 201-18.

Vidal 2017 — Vidal R. Maira, *The evolution of the knowledge of geometry in early gothic construction: the development of the sexpartite vault in Europe*. In: *International Journal of Architectural Heritage* 11(7), London (2017), p. 1005-25.

Voigts 2014 — Voigts Clemens, *Spätgotische figurierte Gewölbe in Bayern: Konstruktion und Herstellungsweise*. Koldewey-Gesellschaft Veereinigung für Baugeschichte Forschung e.v. Bericht über die 48. Tagung für Ausgrabungswissenschaft und Bauforschung vom 28. Mai bis 1. Juni 2014 in Erfurt, Dresden (2014), p. 245-252.

Voigts 2015 — Voigts Clemens, *Bauforschung an figurierten Gewölben der Spätgotik: Das Beispiel der Georgskirche in Augsburg*. In: *Architectura - Die Zeitschrift für Geschichte der Baukunst / Journal of the History of Architecture* 45, Berlin (2015), p. 45-69.

Warth 1896 — Warth Otto, *Die Konstruktionen in Stein*. Leipzig (1896)

Wendland 2007 — Wendland David, *Traditional vault construction without formwork: Masonry pattern and vault shape in the historical technical literature and in experimental studies*. In: *International Journal of Architectural Heritage: Conservation, Analysis, and Restauration* 1(4) London (2007), p. 311-65.

Wendland 2010 — Wendland David, *Untersuchungen zu den Entwurfs- und Konstruktionsprinzipen der spätgotischen Zellengewölbe. Ein neuer Ansatz in der Verknüpfung von geometrischen Analysen am Befund und experimenteller Archäologie*. In: *Staatliche Schlösser, Burgen und Gärten Sachsen Jahrbuch 2010/2011* 17, Dresden (2010), p. 23-33.

Wendland 2012 — Wendland David, *Johann Claudius von Lassaulx' Gewölbe >aus freier Hand< - Die Wiedererfindung der gotischen Architektur und die Entwicklung der technischen Literatur*. In: Hassler Uta, Rauhut Christoph (eds.), *Bautechnik des Historismus. Von den Theorien über gotische Konstruktionen bis zu den Baustellen des 19. Jahrhunderts*, München (2012), p. 93-117.

Wendland, Degenève 2017 — Wendland David., Degenève Frédéric, *How to order fitting components for looping ribs: Design procedures for the stone members of complex late gothic vaults*. In: J.W.P. Campbell et al. (eds.), *Building Histories: The Proceedings of the Fourth Conference of the Construction History Society*, Cambridge (2017) p. 159-170.

LIST OF ILLUSTRATIONS / LISTA ILUSTRAȚIILOR

Fig. 1. The photo of the northern aisle's vault in the Church on the Hill of Sighişoara and the nave vault of Băgaciu. (Photos by Krisztina Fehér PhD. and the authors, respectively.)

Fig. 1. Fotografia bolții navei laterale nordice din Biserica din Deal de la Sighișoara și bolta naosului Băgaciu. (Fotografii de Dr. Krisztina Fehér și, respectiv, ale autorilor.)

Fig. 2. Mapping of the vaulting system of the Church on the Hill of Sighişoara.

Fig. 2. Cartografierea sistemului de boltire al Bisericii din Deal de la Sighişoara.

Fig. 3. Ribs next to the crown of the vaults of the naves of the Church on the Hill of Sighişoara. Top: northern aisle, middle: main nave, bottom: southern aisle.

Fig. 3. Nervurile de lângă coroana bolţilor navelor Bisericii din Deal de la Sighişoara. Sus: nava laterală nordică, mijloc: nava principal; jos: nava laterală sudică.

Fig. 4. Point clouds of the Church on the Hill of Sighişoara and of the church of Băgaciu.

Fig. 4. Nori de puncte ai Bisericii din Deal de la Sighişoara şi ai Bisericii din Băgaciu.

Fig. 5. Steps of the plan analysis, represented on the northern aisle's vault in the Church on the Hill of Sighişoara. From top to bottom: longitudinal axes, cross-direction axes, diagonals between imposts, diagonals between midpoints, circles according to Thales' theorem, circles with the imposts as midpoint and the impost's distances as radius. The dots highlight the places where the corresponding junction point's positions do not fit the tested idea.

Fig. 5. Etapele analizei planului, reprezentate pe bolta navei laterale nordice în Biserica din Deal de la Sighişoara. De sus în jos: axe longitudinale, axe de direcție transversală, diagonale între imposte, diagonale între puncte medii, cercuri conform teoremei lui Thales, cercuri cu impostele ca punct de mijloc și distanțele impostei ca rază. Punctele evidențiază locurile în care pozițiile punctului de joncțiune corespunzătoare nu se potrivesc cu ideea testată.

Fig. 6. Analysis of the junction point's positions in the Church on the Hill of Sighişoara on the longitudinal sections. Left: looking to the north, right: looking to the south.

Fig. 6. Analiza pozițiilor punctului de joncțiune în Biserica din Deal de la Sighișoara pe secțiunile longitudinale. Stânga: privind spre nord, dreapta: privind spre sud.

Fig. 7. Legend of the individual ribs of the Church on the Hill of Sighişoara. X.AY.Z: X: the number of the bay (starting from the east), A: the type of the rib, Y: the northern (1) or the southern (2) side of the vault, Z: the eastern rib of the same type in the given bay on the given side (1) or the western one (2).

Fig. 7. Legenda nervurilor individuale ale Bisericii din Deal de la Sighişoara. X.AY.Z: X: numărul arcadei (începând de la est), A: tipul nervurii, Y: partea nordică (1) sau sudică (2) a bolții, Z: partea de est nervură de același tip în arcada respective, pe latura respectivă (1) sau cea vestică (2).

Fig. 8. Analysis of the cross-section of the Church on the Hill of Sighişoara, projected to the eastern short wall.

Fig. 8. Analiza secțiunii transversale a Bisericii din Deal de la Sighișoara, proiectată pe zidul scurt estic.

Fig. 9. The ribs' chord length groups, pictured on the plan of the rib network. Type averages and dispersions see in Table 2.

Fig. 9. Lungimea grupurilor de coarde ale nervurilor, ilustrate pe planul rețelei de nervuri. Tipuri medii și dispersii vezi în Tabelul 2.

Fig. 10. Theoretical frames presented in the construction net of the cross-section of the Church on the Hill of Sighişoara.

Fig. 10. Cadre teoretice prezentate în construcția rețelei plasă a secțiunii transversale a Bisericii din Deal de la Sighișoara.

Fig. 11. Theoretical reconstruction of the use of the supposed frame system.

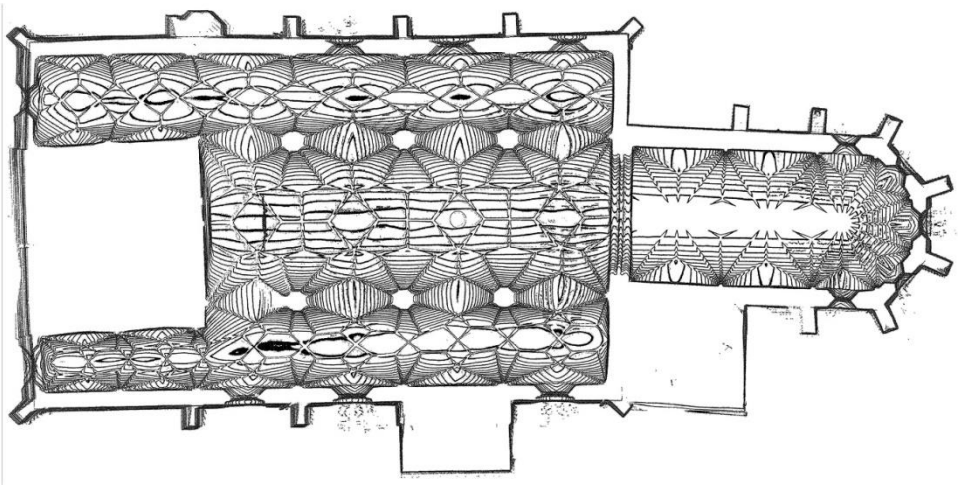
Fig. 11. Reconstituirea teoretică a utilizării presupusului sistem de cadru.

Fig. 12. Shifting the frames due to the unevenness of the inner wall surface. Explanation of the "misplaced" junction points.

Fig. 12. Deplasarea ramelor din cauza denivelărilor suprafeței peretelui interior. Explicația punctelor de joncțiune „deplasate".

Fig. 13. Analysis of the cross-section of the church of Băgaciu, projected to the eastern short wall.

Fig. 13. Analiza secțiunii transversale a Bisericii din Băgaciu, proiectată pe zidul scurt estic.



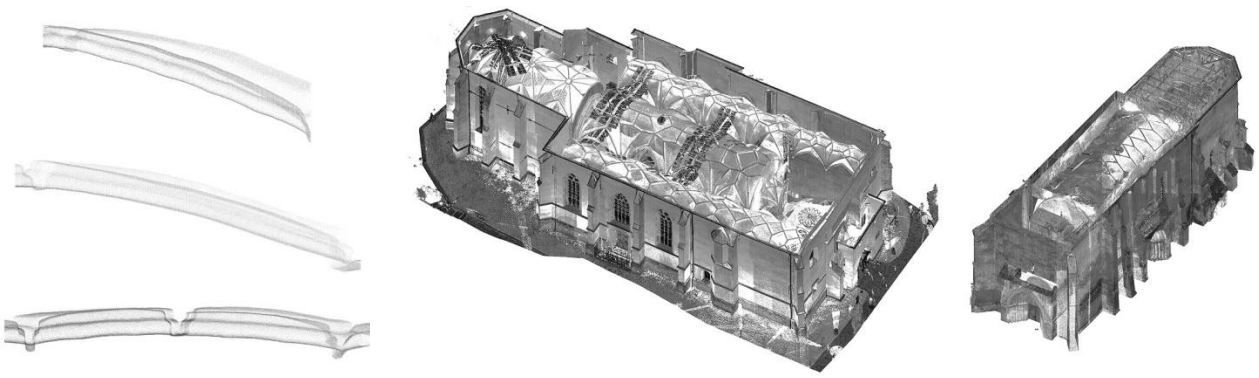


Fig. 1. The photo of the northern aisle's vault in the Church on the Hill of Sighişoara and the nave vault of Băgaciu

Fig. 2. Mapping of the vaulting system of the Church on the Hill of Sighişoara.

Fig. 3. Ribs next to the crown of the vaults of the naves of the Church on the Hill of Sighişoara.
Top: northern aisle, middle: main nave, bottom: southern aisle.

Fig. 4. Point clouds of the Church on the Hill of Sighişoara and of the church of Băgaciu.

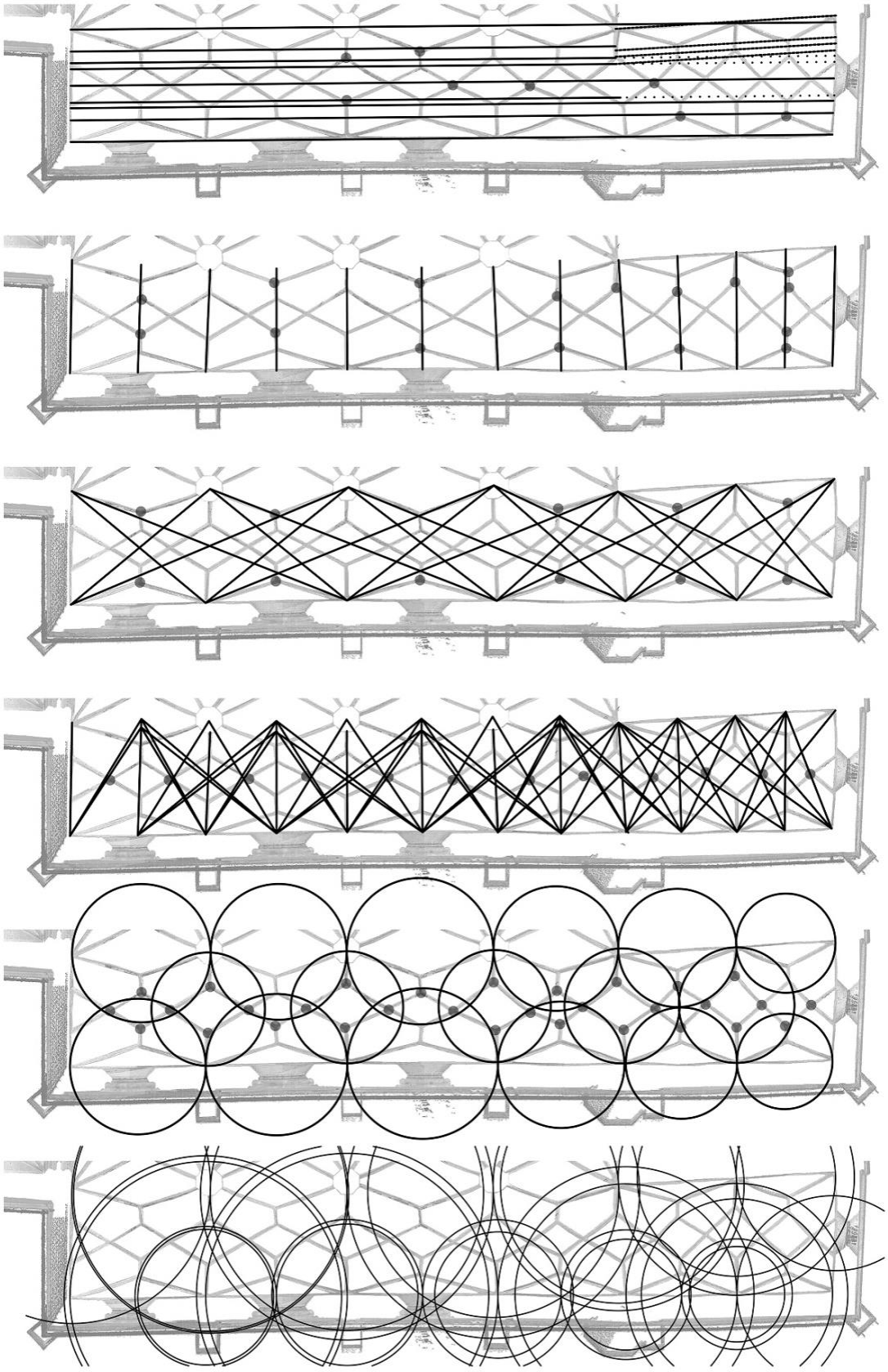


Fig: 5. Steps of the plan analysis, represented on the northern aisle's vault in the Church on the Hill of Sighişoara. From top to bottom: longitudinal axes, cross-direction axes, diagonals between imposts, diagonals between midpoints, circles according to Thales' theorem, circles with the imposts as midpoint and the impost's distances as radius. The dots highlight the places where the corresponding junction point's positions do not fit the tested idea.

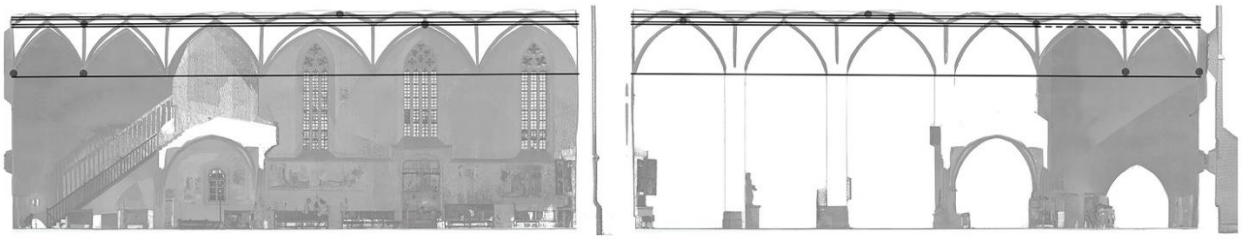


Fig. 6. Analysis of the junction point's positions in the Church on the Hill of Sighişoara on the longitudinal sections. Left: looking to the north, right: looking to the south.

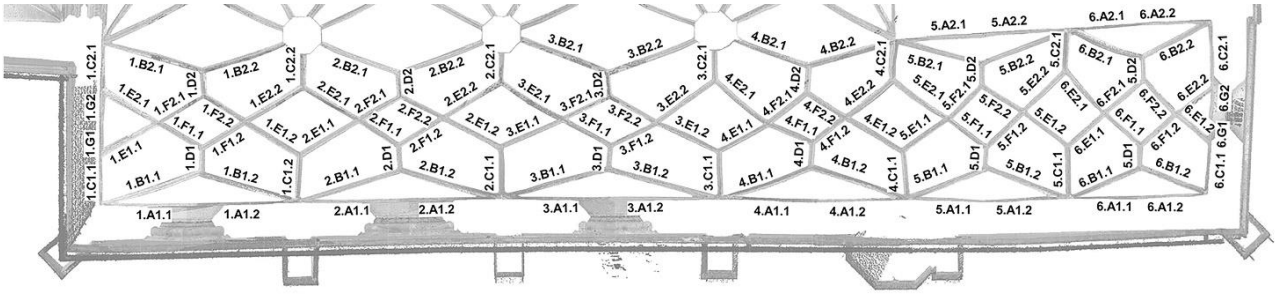


Fig. 7. Legend of the individual ribs of the Church on the Hill of Sighişoara. X.AY.Z: X: the number of the bay (starting from the east), A: the type of the rib, Y: the northern (1) or the southern (2) side of the vault, Z: the eastern rib of the same type in the given bay on the given side (1) or the western one (2).

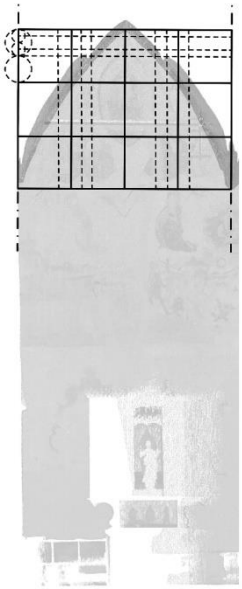


Fig. 8. Analysis of the cross-section of the Church on the Hill of Sighişoara, projected to the eastern short wall.

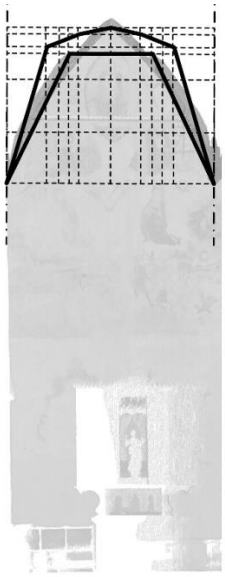


Fig. 10. Theoretical frames presented in the construction net of the cross-section of the Church on the Hill of Sighişoara.

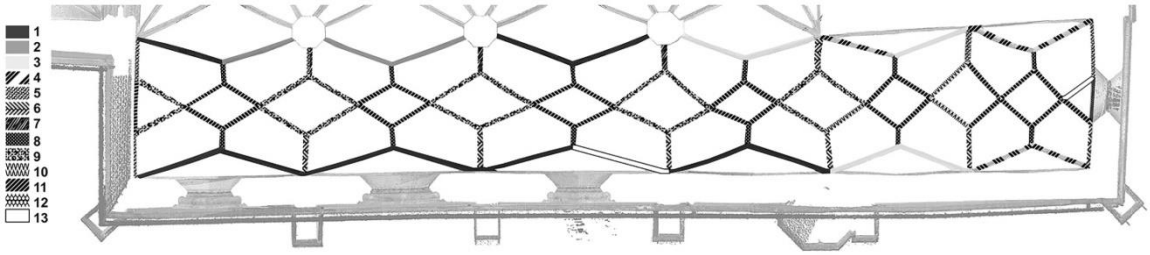


Fig. 9. The ribs' chord length groups, pictured on the plan of the rib network. Type averages and dispersions see in Table 2.

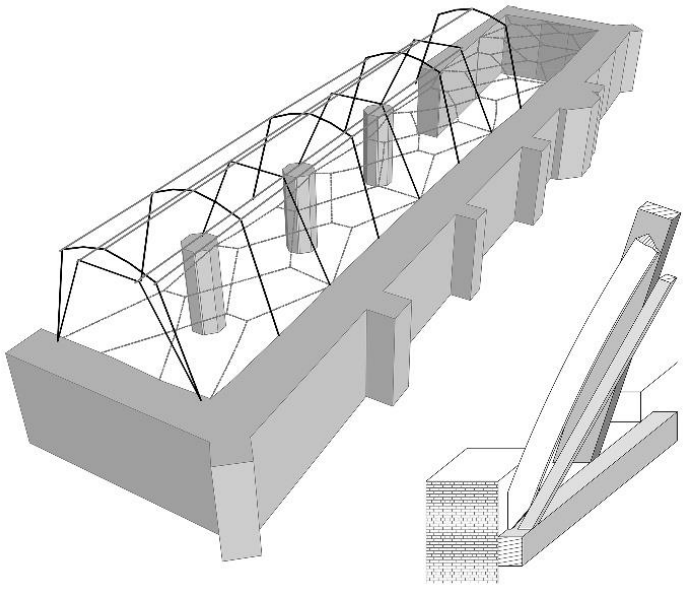


Fig. 11. Theoretical reconstruction of the use of the supposed frame system.

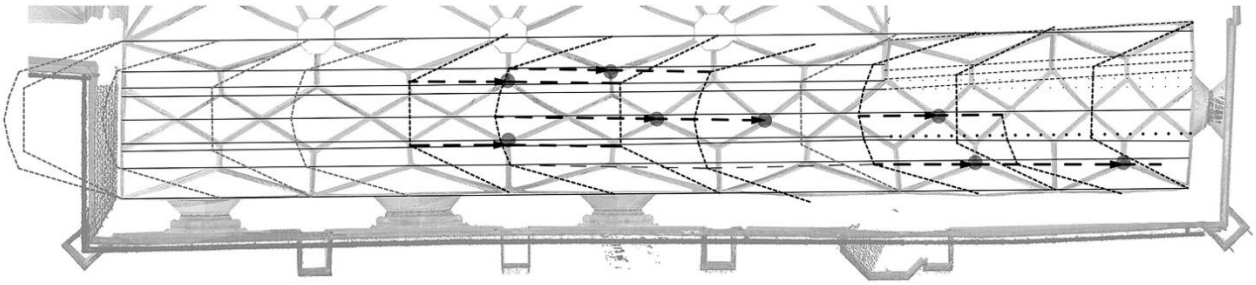


Fig. 12. Shifting the frames due to the unevenness of the inner wall surface. Explanation of the “misplaced” junction points.

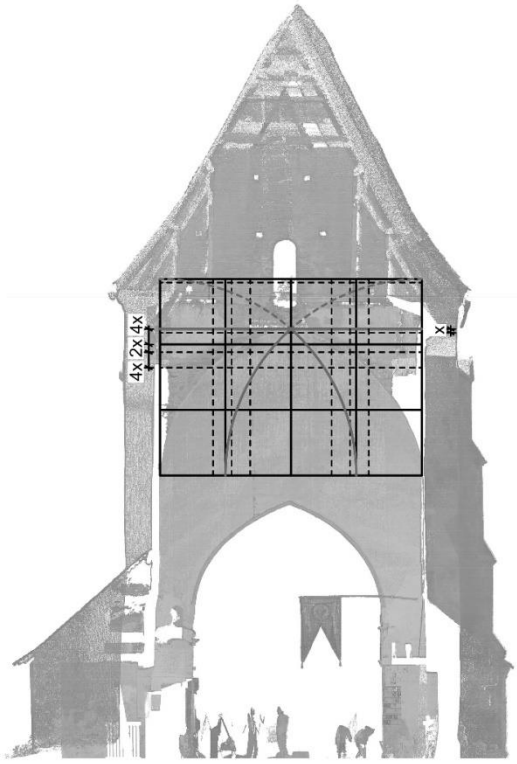


Fig. 13. Analysis of the cross-section of the church of Băgaciu, projected to the eastern short wall.

Table 1. Individual rib data.

Individual rib data					
Rib sign	**Length on plan view [m]**	**Rib curvature [m]**	**Chord length [m]**	**Chord length type (according to Fig. 9)**	**Note**
1.A.1.1	2.95	4.71	3.83	wall arch	
1.A.1.2	2.95	5.10	4.02	wall arch	
2.A.1.1	3.06	4.73	3.95	wall arch	
2.A.1.2	3.08	4.69	3.95	wall arch	
3.A.1.1	3.21	4.68	4.10	wall arch	
3.A.1.2	3.38	4.58	4.00	wall arch	
4.A.1.1	2.85	4.47	3.98	wall arch	
4.A.1.2	2.76	5.23	4.03	wall arch	
5.A.1.1	2.39	4.74	3.45	wall arch	next to the tower
5.A.1.2	2.42	7.42	3.50	wall arch	next to the tower
5.A.2.1	2.65	arch is not continuous	3.95	wall arch	next to the tower
5.A.2.2	2.52	6.36	3.65	wall arch	next to the tower
6.A.1.1	2.13	4.52	3.21	wall arch	next to the tower
6.A.1.2	2.04	4.18	3.10	wall arch	next to the tower
6.A.2.1	2.24	5.97	3.23	wall arch	next to the tower
6.A.2.2	2.05	11.13	3.10	wall arch	next to the tower
1.B.1.1	3.13	4.86	4.18	1	
1.B.1.2	3.01	4.80	4.20	1	
1.B.2.1	3.14	4.44	4.29	1	
1.B.2.2	2.53	4.70	4.07	2	
2.B.1.1	3.26	4.52	4.33	1	
2.B.1.2	3.14	4.57	4.23	1	
2.B.2.1	2.45	4.68	3.90	2	
2.B.2.2	2.71	4.86	4.08	2	
3.B.1.1	3.34	4.65	4.42	1	
3.B.1.2	3.47	4.65	4.59	13	
3.B.2.1	2.80	4.92	4.16	1	
3.B.2.2	2.81	4.73	4.22	1	
4.B.1.1	2.87	4.66	4.16	1	
4.B.1.2	3.06	4.84	4.35	1	
4.B.2.1	2.33	4.78	3.68	3	
4.B.2.2	2.77	4.93	3.79	3	
5.B.1.1	2.50	4.68	3.84	3	next to the tower
5.B.1.2	2.67	4.51	3.84	3	next to the tower
5.B.2.1	2.66	4.51	3.41	4	next to the tower
5.B.2.2	2.77	4.83	3.81	3	next to the tower
6.B.1.1	2.310	4.24	3.57	4	next to the tower
6.B.1.2	2.15	4.56	3.45	4	next to the tower
6.B.2.1	2.42	4.27	3.58	4	next to the tower
6.B.2.2	2.30	4.54	3.52	4	next to the tower
1.C.1.1	1.46	7.50	2.80	5	
1.C.1.2	1.44	4.54	3.16	5	

1.C.2.1	1.39	7.32	2.84	6	
1.C.2.2	0.95	4.40	2.59	5	
2.C.2.1	1.49	4.16	3.23	6	
2.C.2.2	0.87	4.35	2.35	7	
3.C.2.1	1.40	4.07	3.23	6	
3.C.2.2	0.95	4.45	2.34	7	
4.C.2.1	1.45	4.10	3.26	6	
4.C.2.2	1.19	6.81	3.28	6	
5.C.2.1	1.55	6.91	3.10	6	next to the tower
5.C.2.2	1.23	6.60	2.90	5	next to the tower
6.C.2.1	1.56	4.67	3.24	6	next to the tower
6.C.2.2	2.05	4.47	2.92	5	next to the tower
1.D.1	0.72	non-measurable	0.73	8	
1.D.2	0.70	non-measurable	0.73	8	
2.D.1	0.74	non-measurable	0.76	8	
2.D.2	0.74	non-measurable	0.79	8	
3.D.1	0.72	non-measurable	0.73	8	
3.D.2	0.75	non-measurable	0.76	8	
4.D.1	0.77	non-measurable	0.75	8	
4.D.2	0.79	non-measurable	0.79	8	
5.D.1	0.60	non-measurable	0.77	8	next to the tower
5.D.2	0.69	non-measurable	0.79	8	next to the tower
6.D.1	0.66	non-measurable	0.72	8	next to the tower
6.D.2	0.66	non-measurable	0.72	8	next to the tower
1.E.1.1	2.04	6.57	2.17	9	
1.E.1.2	1.96	7.08	2.01	9	
1.E.2.1	1.94	non-measurable	2.19	9	
1.E.2.2	1.95	6.60	2.08	9	
2.E.1.1	2.08	9.46	2.13	9	
2.E.1.2	1.98	8.19	2.02	9	
2.E.2.1	1.83	7.05	2.04	9	
2.E.2.2	2.04	11.44	2.07	9	
3.E.1.1	2.05	9.15	2.13	9	
3.E.1.2	2.16	8.67	2.08	9	
3.E.2.1	2.02	10.49	2.29	9	
3.E.2.2	2.15	10.10	2.21	9	
4.E.1.1	1.64	6.08	1.80	9	
4.E.1.2	2.04	11.93	2.02	9	
4.E.2.1	2.01	non-measurable	2.05	9	
4.E.2.2	1.82	non-measurable	1.83	9	
5.E.1.1	1.69	8.69	1.73	10	next to the tower
5.E.1.2	2.06	9.00	1.69	9	next to the tower
5.E.2.1	1.68	non-measurable	2.02	10	next to the tower
5.E.2.2	1.76	non-measurable	1.77	10	next to the tower
6.E.1.1	1.47	7.62	1.53	11	next to the tower
6.E.1.2	1.73	non-measurable	1.47	11	next to the tower
6.E.2.1	1.24	non-measurable	1.73	11	next to the tower
6.E.2.2	1.36	non-measurable	1.50	13	next to the tower
1.F.1.1	1.51	6.87	1.47	11	
1.F.1.2	1.59	6.79	1.58	11	
1.F.2.1	1.53	6.51	1.61	11	

1.F.2.2	1.47	7.60	1.50	11	
2.F.1.1	1.41	6.96	1.42	11	
2.F.1.2	1.42	6.98	1.59	11	
2.F.2.1	1.57	7.63	1.42	11	
2.F.2.2	1.43	8.39	1.45	11	
3.F.1.1	1.60	8.35	1.55	11	
3.F.1.2	1.57	9.49	1.54	11	
3.F.2.1	1.58	6.93	1.54	11	
3.F.2.2	1.61	7.17	1.62	11	
4.F.1.1	1.45	6.29	1.43	11	
4.F.1.2	1.53	6.72	1.29	11	
4.F.2.1	1.27	non-measurable	1.49	11	
4.F.2.2	1.37	non-measurable	1.44	11	
5.F.1.1	1.41	7.36	1.49	11	next to the tower
5.F.1.2	1.41	non-measurable	1.54	11	next to the tower
5.F.2.1	1.53	non-measurable	1.43	11	next to the tower
5.F.2.2	1.47	non-measurable	1.50	11	next to the tower
6.F.1.1	1.43	8.95	1.46	11	next to the tower
6.F.1.2	1.62	9.32	1.42	11	next to the tower
6.F.2.1	1.43	non-measurable	1.59	11	next to the tower
6.F.2.2	1.44	6.80	1.40	11	next to the tower
1.G.1	0.99	7.50	1.30	5	
1.G.2	0.99	7.32	1.43	5	
6.G.1	0.76	4.67	0.90	12	next to the tower
6.G.2	0.80	4.47	0.95	12	next to the tower

Table 2. Data of the ribs' chord length type groups

Ribs' chord length type groups' data		
Chord length type (according to Fig. 9)	**Type average [m]**	**Type dispersion [m]**
1	4.25	0.09
2	4.02	0.10
3	3.79	0.07
4	3.51	0.07
5	2.87	0.06
6	3.21	0.06
7	2.35	0.00
8	0.75	0.03
9	2.07	0.12
10	1.73	0.03
11	1.49	0.08
12	0.93	0.03

THE ARMORIAL AND COAT OF ARMS DATED 1590 OF KNIGHT MÁTYÁS I HUSZÁR DE BRENHIDA (?-1603) AT FLANDERHOF MANOR HOUSE IN DAIA / THALHEIM (SIBIU COUNTY) AND THE HUNGARIAN-TURKISH LONG WAR (1591-1606)

Jan DE MAERE *

Abstract: *In 2000, in the rubble extracted from under the old tower's remains when constructing a new one on the same site at Flanderhof Manor House in Daia / Thalheim / Dolmány, Roșia / Rothberg / Veresmart commune, fragments of chalk stone sculpture, of which two elements were the 'gardents' (supporters) of a coat of arms representing 'Winged Marine-Harpies', were discovered and integrated into the façade of the new tower. In 2020, the escutcheon (shield) of armiger Mátyás I Huszár de Brenhida dated 1590, part of the same coat of arms, was discovered also there, but as a piece of pavement in the garden. It was rejoined with the gardents in 2021. This item found at Daia, a village situated on the road that, nine years after the coat of arms was sculpted, led the plundering Michael the Brave from Agnita / Agnetheln / Szentágota to Șelimbăr / Schellenberg / Sellenberk (1599), is an interesting historical document, recalling a critical moment in the history of Transylvania. It illustrates the presence of Knight Mátyás I de Brenhida in Thalheim and the posthumous glory of his almost mythical brother, Péter I. More than 100 years later, his coat of arms (mainly inspired by that depicted on this recent discovery) served to the Boér family (c. 1730) in Apalina / Bendorf / Abafája as a heroic and prestigious ancestral reference; and again, at circa 1880, to Baron Huszár Károly III, when building the new castle there, included in its chimney's decoration.*

Keywords: *Knight Mátyás I Huszár de Brenhida, Daia, heraldry, Hungarian-Turkish War, Michael the Brave.*

Rezumat: *În 2000, în molozul extras de sub resturile vechiului turn când unul nou a fost construit pe același loc la Conacul Flanderhof din Daia / Thalheim / Dolmány, comuna Roșia / Rothberg / Veresmart, au fost descoperite fragmente de sculptură din calcar, dintre care două elemente erau tenanții unui blazon reprezentând "harpii marine înaripate", care au fost integrate în fațada noului turn. În 2020, un scut al armalistului Mátyás I Huszár de Brenhida datat 1590, parte a aceluiași blazon, a fost descoperit tot acolo, ca piesă de paviment în grădină. În 2021 el a fost reunit cu tenanții. Această piesă descoperită la Daia, un sat situat pe drumul care, la nouă ani după ce blazonul fusese sculptat, l-a dus pe Mihai Viteazul, jefuind, de la Agnita / Agnetheln / Szentágota to Șelimbăr / Schellenberg / Sellenberk (1599), este un interesant document istoric, amintind de un moment critic din istoria Transilvaniei. El ilustrează prezența cavalerului Mátyás I de Brenhida la Daia și gloria postumă a fratelui său aproape mitic, Péter I. După mai mult de 100 ani mai târziu, blazonul său (inspirat în linii mari de cel reprezentat pe această descoperire) a servit (la cca. 1730) familiei Boér din Apalina / Bendorf / Abafája ca o referință ancestrală eroică și de prestigiu; și din nou, la circa 1880, baronului Huszár Károly III, când și-a construit noul castel de acolo, în decorația șemineului căruia el a fost inclus.*

Cuvinte cheie: *cavalerul Mátyás I Huszár de Brenhida, Daia, heraldică, Războiul Ungaro-Turc, Mihai Viteazul.*

In 2000, in the rubble extracted from under the remains of the old tower when constructing a new one, after the design of architect Kovács, on the same site at Flanderhof Manor House in Daia, Strada Principală (or County Road DJ 106S), no. 175, Roșia / Rothberg / Veresmart commune (Sibiu county), some fragments of chalk stone sculpture, of which two elements were the supports of an armorial rendering 'winged marine harpies', were discovered and integrated on the façade of the new tower (Fig. 2). In 2020, the coat of arms of Mátyás I Huszár de Brenhida dated 1590, part of the same armorial, was discovered also there, but as a piece of pavement in the garden. It rejoined the armorial in 2021 (Fig. 1).

Daia, in German Thalheim or Dollman, respectively in Transylvanian Saxon idiom Duelmen or Dôlmen and in Hungarian Dolmány (De Maere 2020, 12 and 155-162), is situated 14 km east from Sibiu / Hermannstadt / Nagyszeben

on the road to Nocrich / Leschkirch / Újegyház and Agnita / Agnetheln / Szentágota (Fig. 5). Located near the border between two Transylvanian Saxon seats (that of Hermannstadt and that of Leschkirch), it belonged always to the first mentioned one (Fig. 7) and not the county of Lower Alba, whose territory interfered in many regions with that of the Transylvanian Saxon seats, even very closely to Daia (so only the eastern part of the Cornățel, formerly Hârtibaciu / Harbachsdorf / Hortobágyfalva village belonged to this county's territory, but its western part not, being an estate of the Hermannstadt seat and city, while another village, Hosman / Holzmengen / Holcmány, belonged to the Transylvanian Saxon seat of Leschkirch). Circa 1145, seven families of 'Latini' (i. e. Walloons) settled in Daia on the 'King's Ground' / Königsboden (*fundus regius*) in the Hârtibaciu / Harbach / Hortobágy river valley. In 1150, there were already 43 families established. Around 1270, they built a Romanesque Basilica, which later was transformed into a Saxon fortified church. In 1339 Gräve Andreas von Thalheim, living there in a fortified tower, was a member of the Seat's Court (*Stühlgericht*)[1]. An old map of the Great Principality of Transylvania dated 1769–1773, which is part of the larger imperial cartographical project known as *Josephinische Landesaufnahme*, shows clearly the buildings of the Flanderhof Manor (Fig. 6), which means they existed already at that time, but not the tower, as a separate structure, because it was already partially demolished and included in the structure of the 17th c. – 18th c. extant building: as resulting from its remains discovered when the tower (Fig. 2) was rebuilt in 1999–2000, its stump (built in red bricks on a base of mountain stone with a small door at 2 m from the ground) was at that time circa 4 m high, being used most likely (like in late 20th c.) as a dovecote with a chicken coop in its lower part. To meet the seismographic requirements in 2000, everything was cleared to make the large foundations necessary for a 25 m high tower. That's how were found parts of a door frame (Fig. 3) and of a chimney frame (Fig. 4), as well as the sculpted frame with winged marine harpies as gardents of Mátyás I Huszár de Brenhida's coat of arms (Fig. 1). The door frame and the chimney frame were reused in a different building of the same court, namely in the orangery.

1. The armorial in Daia

Dr Alexandru Sonoc of the Brukenthal National Museum identified the discovered sculptures as related to the coat of arms described by András Kovács (Kovács 1994, 84; cf. Sabău 1991, fig. 14) on the chimney dated circa 1880 (Figs. 15-16) in the castle of Apalina / Bendorf / Abafája (Mureș county). Small remains of colour in the coat of arms permitted their restoration and integration in the armorial (2021).

Two pinions of the armorial rest on the heads of the 'Marine Harpies with Bat Wings' framing on each side half of the chapter in the middle. Their naked voluptuous upper body is belted with the enrolled tissue of their shirt (remains of white colour). Their lower body resembles that of a Melusine (a Mermaid, often wrongly called Siren), covered with broad bear's breech (*Acanthus sp.*) leaves (originally green). The border of the oval frame situated between the harpies is also decorated with yellow coloured Acanthus leaves and shells.

Metaphorically in the Greek and Roman mythology, four harpies, invulnerable deities of devastation and revenge, punish malefactors. They are the personification of the violent winds of thunderstorms. Married each of them to one of these winds, they are the mothers of the fastest horses in classical mythology. These daughters of the marine god Thaumas and the Oceanid Electra, represent the terror imposed by armed force, a warning for enemies of the 'Family and the City'. They differ from the Strigae by their divine nature. Virgil (70-19 AC) describes them with faces of young girls (P. Vergilius Maro, *Aeneid*, chants III, 212 and VII, 116). Ovid (P. Ovidius

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[1] The *Gräve* (in Romanian *greav*), meaning *Count* (*Graf* in German, hence the Hungarian *gróf*) was from 12th c. till mid-15th c., actually a petty Transylvanian Saxon hereditary feudal, who possessed one or even some villages on the King's Ground, granted to the German colonists in southern Transylvania. Some of the *Gräven* may have been the descendants of the *locatores*, initial leaders of settlers, who organised them when they came to Transylvania. Thus, the *Gräven* are not simply rural judges (generally called *Hannen* by the Transylvanian Saxons), although (rather as a local particularity) outside the territory of the Transylvanian Saxon seats, in the Bistrița / Bistritz / Beszterce district the rural judges used to be called *Gräven* by the local Transylvanian Saxons. Sometimes, in late 13th c. and early 14th c., the *Gräven* even led revolts of the Transylvanian Saxons against the Bishop, respectively the Voivode of Transylvania. On the *Gräven* in the Transylvanian Saxon society: Nägler 1992, 217; cf. Baumann 1868; Theil 1870; Schuller 1887; Werner 1902; Müller 1931; Velescu 1974; Acker 1983; Popa-Gorjanu 2006; Dudău, Sonoc 2008.

Naso, *Metamporphoses*, chant XIII, 710) situates them at the entrance of Hell. Homer (Homeros, *Odyssey*, I, 241-243) warns that even the gods are not safe from their wrath.

They represent the terror, which the brothers Péter I et Mátyás I Huszár inflicted on the Ottomans and their Tatar vassals. Especially Péter I was feared as the '*Scourge of God'* and respected as an invincible adversary in duel.

Here, at the heraldic right side (left for the observer) '*Aello*' ('Gust') is represented, referring at Huszár's surprise attacks on Ottoman raiders, and at the heraldic left side (right for the observer) '*Celeno*' ('Obscure'). She predicted that the Trojans would not arrive in their new fatherland before eating their wooden tables. She refers at the endeavour of the Huszár family to push back the Ottomans and to free Europe of their scourge by terrorizing them.

The central medallion (sculpted in two parts) is composed by an Acanthus-ornamented frame in the centre of which an oval coat of arms resides. The scroll ribs of the mantling frame the inscription:

MATTHIAS HUSZAR DE BRENHIDA 1590. The coat of arm represents a split shield with round soles, revealing at the right side a Silver (white, symbolizing peace and sincerity) Unicorn with claws on Azure (blue, symbolizing loyalty and constancy) field. At the left there are three silver threads on Gules (vivid red, symbolizing military fortitude end magnanimity), referring to the colours of the Hungarian coat of arms.

A knight's helmet (not the crown of a baron as for baron Mátyás II) is dominated by the crest formed by a Silver Winged Unicorn. Under the helmet, the mantling of the armorial consists of sculpted Acanthus fragments, descending along the shield.

In the Indus civilization (Harappa) of the Bronze-Age (c. 2600 BC, in to-day's Pakistan) we find the first-known rendering of Unicorns (Caroutch 1997, 534). The Unicorn is mentioned in '*Physiologos'*, a moralizing Christian bestiary written in Greek by an unknown author, traditionally dated in the 2nd century A. D. (Biblical exegesis by Clement of Alexandria, c. 150 – c. 215 AD), which had a considerable influence in the Middle-Ages. This book represents real animals, imaginary and composite ones, and a monstrous anthropology. From the Middle Age until the end of the Renaissance, the Unicorn was by excellence the imaginary animal of the Christian Occident, associated with the duality of the human being, and the protection of its spirituality (Jung 1980). Winged, it suggests the velocity of the attack. Its symbolic function was a source for meditation and inspiration. Its white robe, symbolizing purity and modesty, gives it its nobility. Such a '*Monocerote'* is illustrated as a wood engraving, in the 1st Book (*Liber Primum, qui est de Quadripedibus Viviparis*) of *Historiae Animalium* by Conrad Gessner (Zürich, 1551).

2. The family Huszár de Brenhida/Berenhida/ Berhida

The family Huszár is of Transdanubian Hungarian origin (probably from Berzence, Somogy megye, Hungary). Huszár Balas (possessing a castle in 1471) and Huszár Mihály (Ban of Nagyszombat / Trnava / Tyrnau in 1530 under Emperor Ferdinand I), are ancestors of the brothers Péter I and Mátyás I.

Mátyás I Huszár, appears in documents in Transylvania under the reign of the Catholic Prince Sigismund Báthory (1573-1613; Voivode of Transylvania 1581-1586; Prince of Transylvania 1586-1598; 1598-1599; 1601-1602). As vassals of Emperor Rudolph II, Michael II the Brave of Wallachia (1593-1601) and Ștefan Răzvan of Moldavia (April 24, 1595 – August 1595) recognized Báthory's suzerainty. Their united armies of Wallachia and Moldavia, aided by the imperial army and by the Transylvanian one under István Bocskay and Sigismund Báthory (supported by artillery and 300 knights from Tuscany) defeated the Ottomans at the Battle of Giurgiu (October 27-30, 1595), chasing them from Wallachia, which they managed to conquer almost completely, despite their previous defeat by Michael the Brave supported by 6,000 Szekler mercenaries under Albert Király in the battle of Călugăreni near the Neajlov river (August 23, 1595).

Mátyás I distinguished himself in the battles of the fifteen years Long Turkish War (1591-1606), in the shadow of his famous brother Péter I. Their coat of arms is identic. Mátyás I served, as well as his brother Péter I, as officer of the Hussar regiment under Miklós Pálffy II (1552-1600), defending the frontier fortification line in the Banat region against the Turks. This Végvár fortification line went from the Adriatic coast, through Croatia and Slavonia, through

Transdanubia and the castles along the river Drava / Drau / Dráva and to the Balaton Lake. Mátyás I was twice imprisoned by the Ottomans. The second time, captive in the Seven Towers prison in Constantinople, he was only liberated after the payment of a ransom of 1,800 florins, which his brother Péter I had great difficulty collecting from friends and relatives (1593) (Takáts 2000). The coat of arms found in Daia is dated only three years before his liberation, which means that in 1590 Mátyás I was not yet captive in Constantinople and just finished (or almost finished) the building for which the discovered coat of arms was sculpted.

Did Mátyás I Huszár receive land or establish a fortified residence nearby at a moment of great instability in the region caused by marauding and passing soldiers? As the remains of a tower were found included in the walls of the later built Flanderhof Manor House, together with parts of its architectural sculpted decorations (respectively the gardents of a coat of arms, a door frame and a chimney frame,) and in the garden of the same property was discovered his very coat of arms, reused there as a piece of pavement, such a situation seems very likely, although Daia is located on the King's Ground, respectively on the territory of the Seat of Sibiu, very close to its capital. When exactly this tower and the residence was demolished is not easy to ascertain, but it may be supposed that this happened during the long fights opposing different groups of Transylvanian aristocrats in the early 17th c. and that the Huszárs, who settled in Transylvania as supporters of the Emperor and of the Báthory princes were considered as enemies by the pro-Ottoman aristocrats, if it was not ransacked and burned already in 1599 by the mercenaries of Micahel the Brave, on their way to the battle field of Șelimbăr (where they fought against the light cavalry of Péter I Huszár).

3. Baron Mátyás II Huszár de Brenhida

Péter I had two sons: István and Mátyás II. István had a son with Borbála Bánffy, Péter II. The latter had, with Judit Toroczkay Judit, a daughter Zsuzsa, who married Ferenc Földváry.

The coat of arms of Baron Mátyás II Huszár differs from those of Péter I and Mátyás I. The first bears the three silver threads on Gules mounting towards the right side, when these of Mátyás I and Mátyás II descend (see Kovács 1994, ill. 2).

The nephew of Mátyás I, Mátyás II Huszár de Brenhida, son of Péter I (1576-1603) died June 16, 1652 in the castle of Apalina. Mátyás II Huszár was educated in Transylvania. Prince George II Rákóczi gave him his first assignment. Early1630's, he is bestowed with the title of 'Chamberlain' and in 1635 he becomes 'Principal Judge of Marosszék', and in 1642, Chief-Captain of George II Rákóczi, President of the Princely Court of Justice (1638-1649), Sherif of Küküllő / Târnava county (1638-1648), Grand-Master of the Stables (1639-1652), Sherif of Torda / Turda county in 1649, Advisor of the Prince of Transylvania (1649-1652), Chief-Captain of Udvárhelyszék (1650). He owned the estates of Apalina and Filiaș / Fiatfalva.

The male branch of the family died out by Baron Mátyás II, who had two daughters, Borbála and Margit (Information on the Huszár-Boér family from Jenő Szépessy, in Unirea, September 2021. On Baron Mátyás II Huszár de Brenhida: Köblös 1904). The question arises: What is the meaning of a copy of the armorial of Péter I Huszár de Brenhida, who died 200 years earlier, in the decoration of a chimney made in late 19th century (c. 1880) in Abafája?

The family Boér de Kövesd/Cuieșd owned Abafája by feminine descend of the Huszárs. Torma Éva, granddaughter of Mátyás II Huszár married Ferenc Boér, Sherif of Kraszna / Crasna. Their son, József Boér, was bestowed with the title Baron Huszár in 1730. It's probable that the armorial of Mátyás II was used as proof of the seniority by the new baron's descendants in c. 1880, and therefore reproduced on the chimney in Abafája castle's grand hall.

The first castle, more than a century older than the early 17th century building of the Huszár de Brenhida family castle in Apalina (situated on Strada Apalinei 12, 6 km from Reghin) was initially built on 'King's Ground' (*Königsboden*) by István and Mátyás II Huszár. Baron József Boér modified it and built a two-story Baroque castle circa 1730 with stables and a park of 30 acres, bordered by the Mureș / Mieresch / Maros river. Next to it, Baron Károly III Huszár-Boér built circa 1880 a Neo-Classical castle with 32 rooms. Confiscated by the Communist regime in 1948, it served as an agricultural centre and later as a school for orphans, before being restituted to the family circa 1996.

The building of the recent castle of Abafája (c. 1880) was erected in Classical-Eclectic style, embellished by Baron Károly III Huszár, Delegate

in the Royal Parliament of Budapest. He added the historicist elements: a Neo-Gothic window, a staircase, a painted coffered ceiling in the grand hall on the first floor and the Eclectic fountain (Fig. 14), with still existing remains in situ in 2021 (Kovács 1994, 84). At the restitution of the estate to the rightful owners (c. 1996), the buildings, the chimney and the park were neglected, but in an overall acceptable condition (Fig. 12). Ransacked by the local population, today only a few walls and the fountain remains are surviving from this building (Fig. 13).

There is a difference in style between the armorial 1590 found in Thalheim (2000/2020) in Late Renaissance Transylvanian style, and that on the chimney in Abafája, a 'Historismus' addition (c. 1880) by Baron Károly III Huszár (see the drawing and photo by Kovács 1994, ill. 2). Also, the crest and the coat of arms differ (as mentioned earlier).

4. Knight Péter I Huszár de Brenhida (c. 1545-11.4.1603) and the Long War (1595-1606)

Already in his youth, Péter I demonstrated a great agility with the curved sword. He became a remarkable warrior in the battles around the Transdanubia defense line fortifications (On Huszár Péter: Takáts 2000, 78-92).

Under Chief-Captain Ferenc Geszty (1545-1595) he serves as Captain in the Transylvanian army at Veszprém castle and in 1576 at Pápa castle under László Majthényi, all being under the command of Miklós Pálffy. Péter I's attitude at the siege of Érsekújvár / Neuhäusel (nowadays Nové Zámky in Slovakia) is admired for his courage. Later, the Huszár brothers served in the Hussar regiment (Fig. 9-10) under Ferenc I Nádasdy (1555-1604) (Nagy 1987), married to the infamous Countess Erzsébet Báthory de Ecsed, and under his friend György Zrínyi. Regularly, this regiment raided the former Hungarian Kingdom's territory occupied by the Ottomans.

Péter I (Fig. 11) took the habit to invite enemy commanders, Agas and Beys to a duel by addressing them a letter. He did send dozens of them, often accompanied by a pig's tail, an extreme insult to Muslims. Ottoman complaints in 1582 provoked a reaction by the emperor, who satisfied their demand to punish Péter I. Archduke Ernest summoned Péter I to Vienna where he was imprisoned a short time for his insolence. Balthasar Batthyány intervened in his favour. On December 23, 1585, he was released. He received the villages he had conquered from the Turks as a gift for his bravery. In 1587, he takes the town and the castle of Koppány before returning to Pápa with a rich booty, included 200 Turk prisoners, which he sold for ransom to the sultan two years later.

In 1593, when Grand-Vizir Koca Sinan Pasha attacks Hungary with a powerful army, Péter I is nominated Chief-Captain of Pápa and is allowed to buy estates in Veszprém, Podar and Nagyalásony. Emperor Rudolf II only officialises this transaction four years later on June 4, 1597. The brothers participate at the liberation of Alba Iulia / Weissenburg / Gyulafehérvár in 1593. In 1594, Péter I, is bestowed with the title of Chamberlain (*aulae familiaris*) at the court of Sigismund Báthory in Transylvania (in Alba Iulia). Sigismund offers him the estate of Apalina, at only 6 km from the Saxon city Reghin / Sächsisch-Regen / Szászrégen, even closer than is Daia to Sibiu. Péter I's son István Huszár is nominated Private Chamberlain of Sigismund and leaves with him Transylvania in June 1594 towards Upper Silesia.

Péter I and his troops arrive too late to stop General Count Ferdinand von Hardegg to surrender Győr, the most important bastion defending the road to Vienna, and Pápa, without much resistance to the Turks on September 29, 1594. For this act, considered as treason, Hardegg is decapitated in Vienne (1595). This execution obscured the tactic military mistakes of Archduke Matthias. Later, as mentioned above, Sigismund Báthory, István Bocskay, Ștefan Răzvan (who actually already lost the Moldovan throne, in August), the 300 Tuscan knights and the artillery of Silvio Piccolomini, and the brothers Huszár, are victorious at Giurgiu / Gyurgyevo (October 27-30, 1595).

At the Habsburg defeat at the Battle of Mezőkeresztes near Eger (October 24-26, 1596), Péter I saves Sigismund's life. The second day of the battle, believing to have won, the imperial troops under command of Maximilian II of Austria and Sigismund Báthory, start plundering the tent of Sultan Mehmed III. The Turks defended themselves vigorously and won finally the battle. Each side lost about 30,000 men, therefore the Turks did not chase the fleeing imperial army.

Péter I and his brother now served Andrew Báthory, Cardinal-Diacre of Sant Adriano al Foro

and in 1589 Prince-Bishop of Warmia (1562/63-1599), in favour of whom Sigismund renounced the crown of Transylvania (March 21, 1599), in Mediaș / Mediasch / Medgyes. Andrew Báthory is designated by the Transylvanian Diet as Prince of Transylvania, supported by the Ottomans and the Polish-Lithuanian Commonwealth.

Michael the Brave (1558-1601), was supposed to combat the Turks but signs a treaty with them (1598). In Wallachia, he feels threatened by the entente between the Polish-Lithuanian Commonwealth and the Ottomans. He turns to the Emperor Rudolph II, who supports him since he also wanted peace (Treaty of Prague, June 9, 1598), and he accepts the imperial vassalage of Walachia. Through the Buzău pass, he advances against Transylvania (co-vassal and owing tribute to the Turks) with a part of his troops and the 5,000 Habsburg mercenaries sent by Rudolph II. He promises the Szeklers the restoration of their ancestral liberties. About 12,000 men joined him. His second army from Wallachia joins him in Fogaras on October 16, 1599, through the Turnu Roșu pass. They plundered the Făgăraș / Fogarasch / Fogaras region, devastated Hosman / Holzmegen / Holcmány, Roșia, Vurpăr / Burgberg / Vurpód, Daia and Șelimbăr. Did they destroy the newly erected manor house of Mátyás I Huszár de Brenhida somewhere near Daia? Only two houses in stone were known at that time in there.

In Șelimbăr, near Sibiu, on October 18, 1599, Michael the Brave, with his Wallachian army, the Szeklers who joined him, his Cossack mercenaries and Balkan Haïdouks oppose the Transylvanian troops, accompanied by other Cossack mercenaries, and the Huszár brothers' light cavalry, all under the general command of Cardinal Andrew Báthory. The light cavalry under the command of Péter I Huszár repels the enemy, but the troops of Michael the Brave regroup. Cardinal Andrew Báthory flees cowardly and provokes the defeat of his troops. On his flight to Poland on November 3, Andrew Báthory is captured and murdered by Szeklers.

After the battle, Péter I joins Michael the Brave, who is recognized at the Diet of Alba Iulia as Prince of Transylvania and its imperial governor. Michael the Brave, fomenting trouble in Moldavia against the will of the emperor is disgraced for disobedience. With the help of General Giorgio Basta's troops and heavy cavalry, the Transylvanian Hungarian nobility rose against Michael the Brave. They defeated him and his Wallachian and Szekler troops at the Battle of Mirăslau / Mireslau / Miriszló (September 18, 1600). Michael the Brave fled on his horse, swimming across the river Mureș. The Polish troops expelled him from Wallachia, and he went to Prague (February 23-March 5, 1601). There he succeeded in winning Emperor Rudolph II's favour again when the emperor got the news that Giorgio Basta had lost control over Transylvania to the Hungarian nobility led by Sigismund Báthory.

With General Basta, he was sent again to Transylvania, where they defeated Báthory at the battle of Gurăslău / Magyargoroszló. On August 9, 1601, Michael the Brave was assassinated by Giorgio Basta's Walloon Guards under Jacques Beauri near Câmpia Turzii / Jerischmarkt / Aranyosgyéres, probably on the order of the Emperor.

The Huszár brothers participated in the battle at the side of Giorgio Basta (Andrei Veress, II, p.52, doc. 1042) and his imperial troops when he took Alba Iulia in 1601. The same year, at the Diet of Cluj / Klausenburg / Kolozsvár, Péter I votes against the return of Sigismund. When the latter returns, Péter I is arrested as Michael the Brave's partner in crime (Nicolae Iorga, II, p.156) and imprisoned in the Deva / Diemrich / Déva castle, where he is later liberated by General Giorgio Basta. In 1602, he is named Ban of Caransebeș / Karansebesch / Karánsebes and Lugoj / Lugosch / Lugos against the will of the elite in Banat. In 1603, by treason, the troops of Mózes Székely and the Turks take Lugoj castle, held by Péter I. The Turkish commander captures and delivers Péter I to the chief of the Tatars, Bektash Pasha. Péter I is decapitated in a Shamanic ritual in Timisoara on April 11, 1603 (Patriciu Dragalina, p.156). They drunk his blood, a symbolic act to honour one of the most famous warriors of their time.

This ritual recalls very much what is told to have happened only c. 30 years earlier with Voivode John III the Terrible of Moldavia (called also *John the Brave* or *John the Armenian*): wanting to have spared his Moldavian and Cossack soldiers' lives and to be sent alive to the Sultan Selim II after the battle at Roșcani near the Cahul lake (1574), he surrendered to Ahmed Pasha, Beglerbeg of Rumelia, to his competitor Peter the Lame and to Adil Giray, the Khan of Crimea's brother, but he was stabbed, beheaded and torn to pieces by two camels, while the enemies rushed to collect parts of his body and to soak their weapons in his blood, thinking that in this way the virtue of the deceased will be transmitted to them (On Voivode

John III the Terrible of Moldavia: Petriceicu-Hașdeu 1942; Giurescu 1974).

5. The start of the Long Turkish War (1591-1606)

These years were characterized by fierce political and military struggle and intrigues between different fractions of the nobility, Szekler and Saxons, forming together (since 1438) 'The Union of Three Nations of Transylvania'. This was aggravated by the military and political interference in Transylvanian affairs by the rivalling Habsburg and Ottoman Empires as well as by the Polish-Lithuanian Commonwealth which supporting one faction or another in function of its interests.

Since the start of the Ottoman Occidental Conquest, the Turks used an imperialistic strategy in four stages: first they organized raids, even during peace treaties; followed by decisive battles and the attack of border fortifications with regular Ottoman troops; than the establishment of a vassal state paying tribute (as in Wallachia, Moldavia and Transylvania); and finally, a total annexation such as what they tried in Hungary (Tóth 2001). Aspiring also to take Prague, Vienna and Rome, their ambition was to make Hungary a tampon state as part of *Dar-ül-Islam*, the Islamic World (*'Le Grand Vizir Sinan, veut conquérir Vienne et Rome'*, Lettre de Gergely diak à Péter I Huszár, Archive Hungarian Military Institute, Budapest, Documentation of the Ottoman Period 1593-161).

Habsburg troops received little-or-no pay and were feared by the population. They lived upon the local peasants and merchants, and from booty they made in raids and attacks on travelling merchants and on commercial fairs in the occupied territories of Hungary which were under Ottoman vassalage.

After Süleyman I's victory in 1526 at Mohács, the Ottoman-Croatian-Habsburg frontier became a chronic conflict. Notwithstanding the peace treaties of 1568, 1574 and 1583, soldiers of both armies raided enemy territory to seek booty. A certain degree of raiding (less than 4,000 soldiers involved) did not threaten these peace agreements.

The emperor had prohibited duels with the Turk commanders (Fig. 8) to save as much as possible the Peace of Edirne (Andrinople, February 17, 1568, between Emperor Maximilian II and Sultan Selim II), concluded after the dead of Süleyman II (1566). The peace treaty was respected until 1593, but did not stop raids, attacks on trade fairs and skirmishes since the troops on both sides were poorly or not paid.

Booty and slaves were sold immediately on the local market. Ransom of captives was a great source of income for commanders on both sides (Dávid, Fodor 2002). Ottoman volunteer troops were rewarded with '*timars*' (grants of usufruct land). Habsburg commanders were bestowed with new fiefs. Both empires established a line of fortresses to defend their territory (Hegyi 2018). The advent of gunpowder arms and artillery required a new military architecture (Italian trace bastions). This frontier, a zone of transitional interaction between two empires, was a source of economic opportunity as well. But, inhabitants on both sides were exposed to double taxation and competing claims in a total absence of law and order.

Tatars, as Ottoman vassals, and Turk spahis raided frequently Imperial Hungary but paid their living expenses to the local population in the part of Hungary under Ottoman rule. The Ottomans initiated the Long Turkish War (1591-1606) after ending the Persian War (1578-1590). In order to conquer the Bosnian city Bihać, Hasan Pasha, Beglerbeg of Bosnia (1591-1593) attacked Hungary, taking pretext of the fact that Emperor Rudolph II didn't pay the tribute to the Sublime Porte. The sultan considered this as a breach of the Peace of Edirne. Archdukes Ernest and Matthias directed from Vienna the Habsburg military strategy without much consideration for the interests of the Hungarian nobility. István Bocskai led a revolt of Hungarian nobility against the Habsburg rule. When Transylvania, Moldavia and Wallachia revolted against their Ottoman vassalage, the sultan sends an army to Walachia (1595), against Michael the Brave.

In 1593, Pope Clement III had created an anti-Ottoman alliance, joined by the Prince of Transylvania, Sigismund Báthory de Somlyó. But the Transylvanian Diet refused to be part of this 'Holy Ligue' and named Sigismund's cousin Andrew Báthory as prince. Two months later, Sigismund, aided by István Bocskai, recuperates the princely crown.

In 1593, Grand Vizir Koca Sinanüddin (Sinan) Yusuf Pasha is nominated Serdar (commander-in-Chief of the Ottoman army). He tells the English envoy Edward Barton that '*If Hungary surrenders, he will let the Habsburgs enjoy what*

is left of their empire' (Brown 1897: Documents envoy Edward Barton). The Habsburgs are also in conflict with the Polish-Lithuanian Commonwealth for the Hungarian crown and the vassalage of Transylvania. The sultan offers by letter, as future parts of *Dar ül-Islam*, Imperial Hungary (still to conquer) to Sigismund Báthory de Somlyó, their vassal Prince of Transylvania (considered as co-vassalage by the emperor) and the Kingdom of Bohemia to István Báthory de Ecsed (letter of September 4, 1593), Judge Royal of Hungary and the brother of the aforementioned Countess Erszébet Báthory de Ecsed.

We have mentioned above that in 1594, the Ottomans had taken Győr / Raab and later Eger (October 1596). Sultan Murad III dies in 1595. The new sultan Mehmed III attacks Slavonia and Croatia.

The successors of Emperor Rudolph II wanted to maintain the conditions of the Peace of Zsitvatorok (1606) as-long-as possible, but a long-lasting peace with non-Muslims was inacceptable for the Ottoman imperialistic enterprise. Therefore, the emperor had to re-engage periodically peace negotiations.

Conclusion

The armorial and coat of arms dated 1590, found at Daia / Thalheim, a village situated on the road that led to the plundering by Michael the Brave from Agnita / Agnetheln / Szentágota to Șelimbăr / Schellenberg / Sellenberk (1599) nine years later, is an interesting historical document, at a critical moment in the history of Transylvania. It illustrates the presence of Knight Mátyás I de Brenhida in the Hârtibaciu / Harbach / Hortobágy valley's region at Daia / Thalheim / Dolmány and the posthumous glory of his almost mythical brother, Péter I. They served more than 100 years later as a heroic and prestigious ancestral reference to the Boér family (c. 1730) in their castle of Apalina / Bendorf / Abafája; and again there (circa 1880) to Baron Károly III Huszár, when building the new castle.

REFERENCES / BIBLIOGRAFIE

Acker 1983	Acker, Hans. *Die Erbrgräfen von Kelling: 1269-1430*. In: *Deutsches Familienarchiv: ein genealogisches Sammelwerk* 81, Neustadt an der Aisch (1983), pp. 133-150.
Baumann 1868	Baumann, Ferdinand. *Die Erbgrafen des Unterwalds*. In: * * *, *Programm des Evangelischen Unter- Gymnasiums und der Ev. Elementar- und Mädchenschule in Mühlbach (Siebenbürgen) für das Schuljahr 1867/8*, Hermannstadt, 1868, pp. 3-33.
Brown 1897	Brown, H. (ed.), *Calendar of State Papers & Manuscripts relating to English Affairs existing in the Archives of Venice and other Libraries of Northern Italy*, 9th vol. (1592-1603), London, 1897.
Caroutch 1997	Caroutch, Francesca Yvonne. *Le Mystère de la Licorne. À la recherche du temps perdu*, Paris, 1997.
Dávid, Fodor 2002	Dávid, Géza; Fodor Pál (eds.). *Ottomans, Hungarians and Habsburgs in Central Europe. The military confines in the Era of the Ottoman Conquest. The Ottoman Empire and its Heritage*, Leiden –Boston – Köln, 2002.
De Maere 2020	De Maere, Jan. *Beyond the Forest. A History of Transylvania Viewed in Its European Setting*, Iași, 2020.
Dragalina 1900	Dragalina Patriciu, *Din Istoria Banatului Severin*, Caransebeș, 1900, p.156.
Dudău, Sonoc 2008	Dudău, Oltea; Sonoc, Alexandru Gh. *Tezaurul medieval descoperit la Vurpăr (Borberek), județul Alba*. In: Munteanu, Claudiu (ed.), *Monedă şi comerţ în sud-estul Europei* 2. Sibiu (2008), pp. 133-147.
Giurescu 1974	Giurescu, Dinu C. *Ioan Vodă cel Viteaz*, București, 1974.
Hegyi 2018	Hegyi, Klára. *The Ottoman Military Organization in Hungary: Fortresses, Fortress Garrisons and Finances*, Berlin, 2018.
Iorga	Iorga Nicolae, *Banatica*, 18, II, Muzeul Banatului Montan, p.156.
Jung 1980	Jung, Carl Gustav. *Psychologie et Alchimie*, 2nd ed., London, 1980.
Köblös 1904	Köblös, Zoltán. *Brenhidai Huszár Mátyás temetési meghívója*. In: *Genealógiai Füzetek*, vol. 2, no. X, Kolozsvár (1904), p. 128.
Kovács 1994	Kovács, András. *Reneszánsz címeres kandalló Abafáján*. In: *Erdélyi Múzeum* LVI/1-2, Kolozsvár (1994), pp. 83-84.
Müller 1931	Müller, Georg. *Die Gräven des Siebenbürger Sachsenlandes*. In: * * *, *Festschrift Seiner Hochwürden D. Dr. Friedrich Teutsch yum 31. Oktober 1931*, Hermannstadt, 1931, pp. 103-178.
Nägler 1992	Nägler, Thomas. *Așezarea sașilor în Transilvania*, București, 1992.
Nagy 1987	Nagy, László. *Az erős fekete bég Nádasdy Ferenc*, Debrecen, 1987.
Petriceicu-Hașdeu 1942	Petriceicu-Hașdeu, *Ion-Vodă cel Cumplit. Aventurile, domnia, răsboaele, moartea; rolul său în istoria universală și viața poporului român (1572-1574)*, București, 1942.
Popa-Gorjanu 2006	Popa-Gorjanu, Cosmin. *Conflict și memorie în Transilvania secolelor XIII-XIV: Episcopia Transilvaniei și Gyan fiul lui Alard*. In: Rusu, Adrian Andrei (ed.), *Secolul XIII pe meleagurile locuite de români*, Cluj-Napoca, 2006, pp. 143-177.
Sabău 1991	Sabău, Nicolae. *Einführung in die Barocke Skulptur aus Siebenbürgen*. In: *Ars Transsilvaniae* 1, Cluj-Napoca (1991).
Schuller 1887	Schuller, Friedrich. *Beitrage zur äußeren Geschichte der Erbgrafen der Sieben Stühle*. In: *Archiv des Vereins für Siebenbürgische Landeskunde* 21, Hermannstadt (1887), pp. 313-366.
Takáts 2000	Takáts, Sándor. *Bajvívó Magyarok. Képek a törökvilágból*, Budapest, 2000.
Tóth 2001	Tóth, Sándor László. *Ottoman plans of expansion in Hungary in the 15 Year War 1593-*

1606. In: *Chronica* 1, Szeged (2001), pp. 79-87.

Velescu 1974 — Velescu, Oliver. *Der Aufstand der Sachsen aus dem Jahr 1277*. In: *Forschungen zur Volks- und Landeskunde* 17/1, Sibiu (1974), pp. 41-52.

Veress 1909 — Veress Andrei, *Epistolae et Acta Generalis Georgii Basta*, II, 1909, p.52, doc. 1042.

Werner 1902 — Werner, Victor. *Ursprung und Wesen des Erbgrafentums bei den Siebenbürger Sachsen*, Gotha, 1902.

LIST OF ILLUSTRATIONS / LISTA ILUSTRAȚIILOR

Fig. 1 Armorial of Mátyás I Huszár de Brenhida (1590) discovered in Daia / Thalheim / Dolmány (after its restoration).
Fig. 1 Blazonul complet al lui Mátyás I Huszár de Brenhida (1590) descoperit la Daia / Thalheim / Dolmány (după restaurarea sa).

Fig. 2. Curtea conacului Flanderhof Manor House din Daia cu turnul său reconstruit.
Fig. 2. The court of the Flanderhof Manor House in Daia with its reconstructed tower.

Fig. 3 Ancadrament de ușă de la turnul conacului Flanderhof refolosit într-o clădire diferită din aceeași curte.
Fig. 3 Door frame of the Flanderhof Manor House's tower reused in a different building in the same court.

Fig. 4 Chimney of the Flanderhof Manor House's tower reused in a different place in the same court.
Fig. 4 Șemineu descoperit în turnul conacului Flanderhof refolosit într-un alt loc din aceeași curte.

Fig. 5 Daia on the map of Joseph II (1769–1773).
Fig. 5 Daia pe harta lui Iosif II (1769–1773).

Fig. 6 Conacul Flanderhof (1) și proprietățile actuale și anterioare ale autorului, marcate pe un facsimil al hărții lui Iosif II.
Fig. 6 Flanderhof Manor House (1) and other actual and former properties of the author, marked on a facsimile of Joseph II's map.

Fig. 7 Harta scaunului Sibiu.
Fig. 7 Map of the Seat of Sibiu.

Fig. 8 Anonymous print depicting a duel between an Ottoman commander and a Hussar officer.
Fig. 8 Stampă anonimă reprezentând un duel dintre un comandant otoman și un ofițer de husari.

Fig. 9 Early 17th c. print rendering a Hussar.
Fig. 9 Stampă de la începutul sec. XVII reprezentând un husar.

Fig. 10 A 17th c. print rendering a Hussar.
Fig. 10 Stampă din sec. XVII reprezentând un husar.

Fig. 11 Anonymous print (c. 1600) rendering Péter I Huszár de Brenhida.
Fig. 11 Stampă (cca. 1600) reprezentându-l pe Péter I Huszár de Brenhida.

Fig. 12 Castelul de la Apalina / Bendorf / Abafája, cca. 1990.
Fig. 12 The castle in Apalina / Bendorf / Abafája, c. 1990.

Fig. 13 Castelul de la Apalina, 2020.
Fig. 13 The castle in Apalina, 2020.

Fig. 14 Fântâna eclectică a castelului de la Apalina, 2020.
Fig. 14 The eclectic fountain in the garden of the castle in Apalina, 2020.

Fig. 15 Blazonul baronului Mátyás II Huszár de Brenhida de pe șemineul castelului de la Apalina, cca. 1880 (după Kovács 1994).
Fig. 15 Coat of arms of Baron Mátyás II Huszár de Brenhida on the chimney in the castle in Apalina, c. 1880 (after Kovács 1994).

Fig. 16 Blazonul baronului Mátyás II Huszár de Brenhida de pe șemineul castelului de la Apalina (fotografie veche).
Fig. 16 Coat of arms of Baron Mátyás II Huszár de Brenhida on the chimney in the castle in Apalina (old photograph).

Fig. 1.

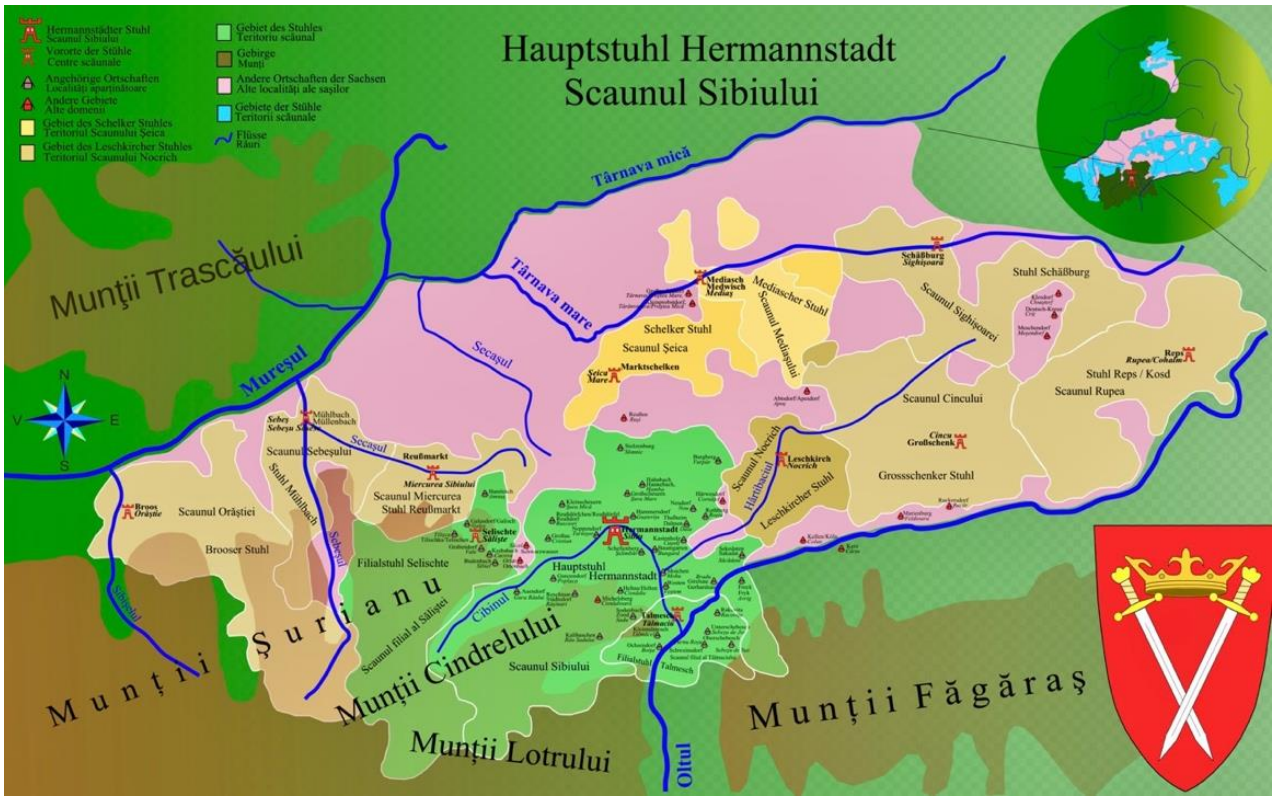
Fig 2.

Fig 3.

Fig 4.

Fig 5.

Fig 6.



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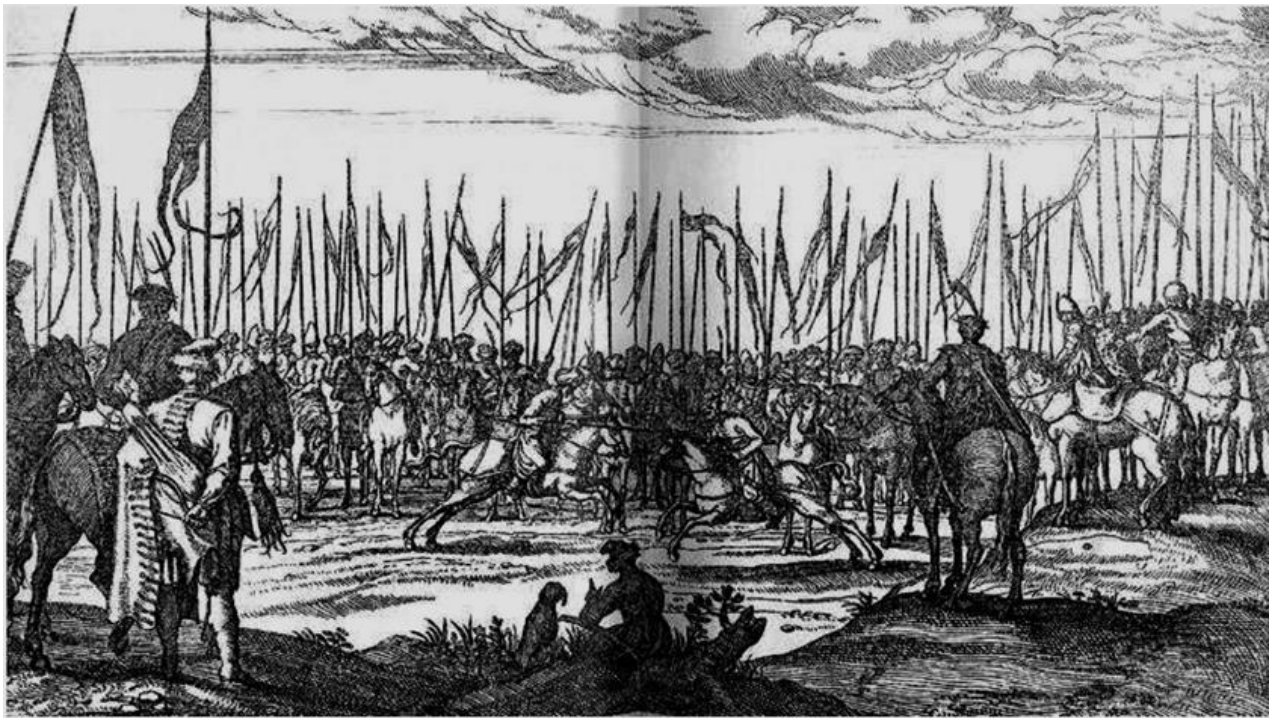

Fig 8.

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Fig. 11

Fig. 12

Fig. 13

Fig 14.

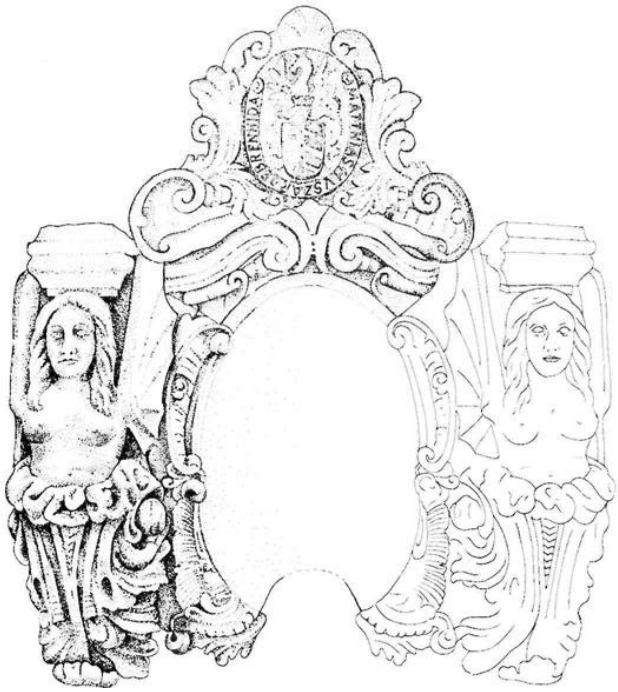

Fig 15.

Fig16.

THE PORTFOLIO OF OLD MAPS EINZELNE KARTEN (NO. 507) IN THE BRUKENTHAL CARTOGRAPHIC CABINET

Radu TEUCEANU *

Abstract: *The subject of this article is a bound volume of fourteen engraved and hand-drawn maps from the 18th and 19th centuries. Unlike the other cartographic volumes in the Brukenthal Library collection, which contain maps of other continents as well, here only regions from Europe (more precisely, Central Europe) and in the immediate vicinity of Europe (the Maghreb and the Near East) are represented. The other characteristic of the volume is that it is made up of "special" or "particular" maps, whose number is implicitly smaller, compared to other volumes that include as many as about seventy pieces. These beautiful and valuable pieces are the work of nowadays little known cartographers; most probably, the maps arrived by way of donations.*

Keywords: *Portfolio, special maps, engravings, Europe, neighbouring regions.*

Rezumat: *Acest articol are ca subiect un volum coligat de paisprezece hărți gravate și desenate manual din secolele al XVIII-lea și al XIX-lea. Spre deosebire de celelalte volume cartografice din colecția Bibliotecii Brukenthal, care cuprind şi hărți ale altor continente, aici sunt reprezentate regiuni din Europa (mai precis, Europa Centrală) și din imediata apropiere a Europei (Maghreb, Orientul Apropiat). Cealaltă caracteristică a volumului este că este alcătuit din hărți "speciale", "deosebite", al căror număr este în mod implicit mai redus, faţă de alte volume care cuprind chiar şi în jur de 70 de piese. Aceste hărți frumoase și valoroase sunt opera unor cartografi puțin cunoscuți în zilele noastre; cel mai probabil, hărțile au ajuns în fondul bibliotecii ca donații.*

Cuvinte cheie: *Volum coligat, hărți speciale, gravuri, Europa, regiuni învecinate.*

Taking into account the fact that so far I have been making mention of the aesthetic dimension of maps, this time I would like to focus on this topic in more detail. The main issue which I would like to dwell on is the one that maps are not artistic productions as paintings are; the fact that they are, however, drawn, engraved, or coloured as well does confer them a certain "artistic" appearance, which, in some cases, is quite pronounced indeed. The confusion is increased by the fact that maps, particularly during the Baroque period, were actually engraved by professional artists. Maps were being sold in bookshops, separately or bound in atlases, and the latter were prized for being "booklike", most often large-sized, and enriching a private library in the best way a printed item could do. These tendencies may be encountered today as well, the marketing of recently-made (reproductions, many of them already framed, of charming old maps being so well-known). Despite all these things, the fact is little known today that those publishers and mapmakers, looking for financial incomes, were not abreast with military cartographers' work and output, because the latter were working "under a pledge of secrecy" for the state (Docan 1264, 1289-1290). In that age one can find, for instance, encyclopaedic personalities such as "painter, drawer of maps, engineer" (as was a Swiss, Karl Lorenz Puntener (?–1720), a typical figure of the Baroque age in art, an illustrator of the legend of Wilhelm Tell (*** 1999, 11, 301)). Unfortunately, there was only a step from usual maps to "airy nothings", which, moreover, did not circulate. There "was a trend towards artistic and colourful rendition, for the maps still had many open areas in which the artist could indulge his imagination. The cartouche, or title block, became more and more elaborate, amounting to a small work of art" (C.F.F. 1994, 477).

As late as the turn of the 19th and 20th centuries, this tradition had not completely died out yet and there still were mapmakers who had the uninspired habit of "embellishing" maps with imaginary features, in order to obtain the above-mentioned aesthetic effect. For example, a European engineer newly arrived in Ciudad Guayana (Venezuela) embellished his map of the

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city with a nonexistent railway line, because his previous engineering experience led him to expect a rail linkage (Holahan 1982, 67).

As regards the complex phenomenon of mapmaking, a fair approach seems to me to be that of the French painter and art historian René Passeron (1920-2017), and I have decided to translate a passage from one of his works. I am also taking advantage from the fact that he, naturally, mentions maps of his homeland, France: his opinions fit the purpose of this article perfectly, because there are two such maps and, besides, parts of that country covered in other maps in the portfolio. According to Passeron, "emotional expressiveness is, as it seems, systematically excluded from a graphical "art" such as cartography, to which we will add the symbolism of statisticians. A map of France is a kind of vertical view, in which each point is related to the Cartesian coordinate axes. [...] It should be noted, in passing, that the graphical representation of geographic and economic realities seems to overturn what L. Degand wrote about abstraction in painting: namely, that it must get rid of any reference of things to the ground on which they would be placed (the billiard-painting replacing the window-painting): a map of France is perfectly figurative, being also a "billiard-painting": the lower edge does not even have the privilege of being a ground. [...] A map will of course be legible by observing certain plastic norms: the spacing of elements, the opposition (and grouping by families) of colours, and the precision of lines. As a visual language, however, a map is so opposite to painting, that its specificity can be grasped to a much greater extent, and, by comparison, it appears more distinct from graphical systems of information and communication" (Passeron 1982, 269-270). This, however, has not been the norm in all eras: one should not leave aside the old symbolic maps, which I have mentioned in one of my recent articles (Teuceanu 2021, 218).

Nevertheless, there is a feature which Passeron ignores, namely, that during the Baroque age and shortly afterwards (the first half of the 19th century), at least in some maps, the "basis of the maps of France" is, besides the neatline, the upper part of the Iberian Peninsula or engraved imagery in the Baroque fashion, such as the well-known, attractive row of small equal-sized vignettes, which resemble somewhat modern film slides in their unwinding.

Maps of France and Germany have been again mentioned when analyzing cartography as such: "the map of the world, or a region thereof, divides up its land space (although not generally the seas) in terms of territorial control and political authority: the map as assertion of sovereignty. States, such as France and Germany, are the building blocks of such a map." The author also noticed that "map-makers have chosen what to show and how to show it, and, by extension, what not to show. The word 'show' is deliberately chosen. It conveys a sense of art and artifice, of the map-maker as creator rather than reflector" (Black 1997, 11-12).

The portfolio of maps in the collection of the Brukenthal Cartographic Cabinet which I discuss here is a volume named *Einzelne Karten;* the best English equivalent is "special" or "particular" maps (shelf mark No. 507, inventory number 634/H). Like the rest of these cartographical volumes in our library, it has got a beautiful halfbinding (46 x 63.5 cm) (Fig. 1), actually a mere aggrandized version of many bookbindings from the second half of the 19th-century which can be found in our library: thick, shiny cardboard marbled covers, brown and yellow, dark green corners and spine, on whose middle part the title is punched in large gilt traditional German *Fraktur* script. At the very beginning, followed by the maps as such, there is a table of contents (*Inhalt*), written in black ink; thanks to the small number of items, it is a numbered list which could be written in a very large hand. Where it is the case, the titles are completed with the cartographers' names. Apart from the mention on the map of roads of Styria, it is noteworthy that no other data on the origin of these maps are recorded on the old library cataloguing cards. Anyway, it is obvious that not all of them were acquired by Samuel von Brukenthal, because three of them are dated after 1803 and other three were clearly made in the same period, if not even later, after 1850.

This portfolio is notable by the masterly, almost lush use, sharing out of light, pleasant colours, mainly hues of yellow, rose, and green; in the case of political borders and subdivisions, these ones are similar, such as in the post map of the Austrian Empire and the map of Transylvania, and, to a lesser extent, in the road map of the Austrian province Styria (*Steiermark*). Sometimes the outlines are filled, but, by contrast, some maps have been left completely uncoloured (this is the case of the map of Wallachia, where I personally hold this as a good decision, which avoided the overcrowding with data). To the maps proper is

added a sheet with Latin text, of engraved images of globes, made by the German cartographer Johann Baptist Homann, *Sphæra artificialis* (*Sphærarum artificialium typica repræsentatio*) (48 x 57 cm) (Fig. 2), in which are represented three coloured, three-legged globes: terrestrial and celestial, accompanied by an armillary sphere (this astronomical device is nothing but a skeleton celestial globe). As to armillary spheres in general, "in the 17th and 18th centuries such models – either suspended, rested on a stand, or affixed to a handle – were used to show the difference between the Ptolemaic theory of a central Earth and the Copernican theory of a central Sun" (*** 1994, 1, 569). In this case, it was drawn taking into account the geographical coordinates of the city of Nuremberg ("elevata supra Horizontem ad Latitudinem Noribergensem"). These were precisely the kind of artifacts preferred by the élites, that is, the crowned heads and the ones who imitated the courts, that is, mainly, the nobility and the clergy – the latter were fond of embellishing the libraries of the renowned monasteries, such as the Benedictine abbey of Melk in Austria. In such places, against the backdrop of the stacks of old books, it helped to create a magnificent scenery, pervaded by the breath of the reigning theology. In our case, both globes are coloured in dark turquoise, no difference being made from this point of view between sky and sea; the golden bases were rendered by way of the cheap yellow. The globes are also ornated with horizons coloured in rose, meridians coloured in yellow, and such fashionable ornamental elements as caryatids and lion paws.

Maps of Wallachia, Transylvania, and the Balkans

A truly distinct map, indeed, much different from the other maps of Wallachia that I have encountered so far, is Ferdinand Joseph von Ruhedorf's *Mappa specialis Wallachiæ* (39 x 69 cm) (Fig. 3); the map was dedicated to the count Hadik, who was probably the Field Marshall Andreas Hadik von Futak, the scion of an old Hungarian noble family (Wurzbach 1861, 7, 166). Ruhedorf was a natural scientist, but at the time when he made this map, he worked as a reporter and office director at the Banat General Command in Timişoara. Wherever he arrived, he would study the geology (at that time, called "mineralogy") of the region and on these occasions made several findings. While in Milan, he found an immensely productive supply of flints, which, for all their richness and excellence, was not worked on, only because the government still had a ten-year contract with a contractor to supply Galician flints. Just as they were beginning to set up a trade in these Lombard flints abroad, the French invaded Lombardy. The flint pits were buried in great haste, but were soon found again by the French, who had the excellent flints for their army produced there. In Banat, Ruhedorf made other findings: he claimed to have found two extinct volcanoes (he named one of them *Gutmann* ("The Good Man")) and to have sighted several "rings" on which the snow does not fall in winter. On that same mountain he found ocher earth pigment, sky blue, red, brown, gray, and black, which seemed to him to be very suited for paint preparation. Ruhedorf found other minerals as well, such as iron, copper, and lead deposits, and a vein of lodestone, and he also proposed the harvesting of the abundant *Rhus cotinus*, a plant. At one moment, Ruhedorf established a small sugar factory, where the juice from maple and Persian walnut trees (*Juglans regia*) was processed, but it soon went bankrupt because of the American and English sugar smuggled across the Turkish border (Wurzbach 1874, 27, 246-247).

Yet, Ruhedorf's activity as a mapmaker seems to have been unknown to Wurzbach, who, moreover, believed that he lived and flourished somewhat later than he actually did, counting on Ruhedorf's correspondence with a baron Meidinger in 1814-1815, when the scientist was rather aged and possibly did not live long afterwards. The fact is interesting, though, that Ruhedorf seems to have remained in Banat – it is not known if he stayed until the end of his life, or if he was buried there. In any case, cartographers are in general poorly recorded in Wurzbach's lexicon, where names such as Krieger, Kipferling, and other cannot be found. Nothing was mentioned about the cartographic activity of another figure, Franz von Weiss (1791-1858), who is only described as a military man (Wurzbach 1886, 54, 103-105). I do not know if these gaps are due to ignorance or secrecy, but I incline to the latter, because, as I have already shown, even in the case of recorded persons, mapmaking is "hushed" downright – so what remains of the activity of the mapmakers whose only (important) pursuit was this one … This profession may have been "packed" as well into formulas such as "Geo-, Topo-, Ethno-, Chartographen und Statistiker" (Wurzbach 1856, 1, 470), which was simplified when Wurzbach

thought it to be the case, according to the content of each volume, throughout the decades of issue of the lexicon. "In mid-1788 the Sibiu Company Pürkher announced the issuing in the near future of a sophisticated map which concentrated on Wallachia. […] The format was also modelled for the use in the military. Information came from Ferdinand Joseph Ruhedorf in Transylvania, who used the maps available at the Transylvanian military command. Official consent of the emperor and the generality had been assured for the print. Apart from geographical details, Ruhedorf also considered streets, bridges, even single houses and small footways" (Golob 2018, 87).

Yet, contrary to what Golob states, Ruhedorf did not actually represent single houses proper, since it was impossible at the scale of his map. Ruhedorf was able, however, to highlight an area with *habitationes dispersæ* ("scattered villages"). On the present map, they can be found especially in the mountainous areas, but also, interestingly, around Sibiu (*Herrmannstadt*), which, in this way, look like bricks or bee swarms.

On the other hand, aspects such as demand for noble wines, often abroad, may have played a part in the interest for this part of the Old Continent. In 1724, in his geographical encyclopaedia, Johann Hübner praised the wine made in Pitești (along with several other sorts), stating that "it is not inferior to any European wine" (Panighianț 1969, 101).

This map was analyzed from the strictly geographical point of view by A. Năstase in a short article published in the magazine *Terra* in Bucharest in 1969 (Năstase 1969, 30-35). Nonetheless, from unknown reasons, this article is not accompanied by any reproduction of the map, only of the legend, although the author did make a skeleton map of the main roads and settlements in Wallachia in the late 18th century and early 19th century, of course, in the parameters of modern science. This article was unknown to Marin Popescu-Spineni and is not recorded in the Historical Bibliography of Romania either.

One should not forget that the large amount of detail in this map owes much to the maps of Oltenia made during the Austrian domination of 1718-1739. It is not at all surprising that the more one "moves" to the east, the less precise the map is, because, unfortunately, the mapping had been done swiftly, in wartime conditions, "with all possible dispatch" (Popescu-Spineni 1978, 186). Anyway, the map was drawn by the famous Hieronymus Benedicti ("Hier. Benedicti scrip.") and seems to have been engraved in aqua fortis by Kilian Ponheimer the Old (1757-1828, Vienna) ("Kil. Ponheimer sculp."), a pupil of Schmutzer and Brand, who made engraved illustrations for Ovid's Metamorphoses (*** 1999, 11, 129). In my opinion, a flaw in Popescu-Spineni's approach is his neglect of the engraving techniques: the author (otherwise, with very good reason !) focuses especially on cultural aspects and the content of maps as such, which, however, would not have been possible without the artists" skill. In this case, a small genre engraving was added in the lower right corner, representing two shepherds with their animals, namely, a few sheep and a cow.

The map reclines slightly to the southeast, as proves the large ornamental upright arrow pointing to the north (*Septentrio*), so that the map may become easier to use (the country gets narrower at its eastern end) but also to make room for the legend. Oltenia is still considered a part of Austria, that is, "Vallachia Austriacadicta, a Regione Orsova usque ad Fluvium Alutam" (although it had been lost to the Empire almost half a century before), whereas Muntenia is named "Vallachia Turcica sive Transalutana". The counties are shown to have been eighteen in number, six in Oltenia and the other twelve in the rest; all are marked by means of large Roman numerals in bold. From west to east, outside Wallachia proper, are marked Hatzeg, Herrmanstadt, Fogaras, Cronstadt, and two *Triplæ Confiniæ* (the first marks the place where the borders of Wallachia, Transylvania, and Banat converge; whereas the second, those of Wallachia, Transylvania, and Moldavia).

Some toponyms are surprisingly well given, as in the case of Craiova, Slatina, Tismana, Strehaia, and Caracal, whereas many other are corrupted (*Debulen*). This is because "the field engineer often finds that local usage is confused and sometimes controversial. […] In sparsely settled country few names in actual use may be obtained for minor features, while in other areas inquiries may reveal inconsistencies and confusions in both spelling and application of local names. In some areas, for example, local residents may tend to refer to small streams by the name of the present occupant of the headwater area. The occupants of opposite sides of a mountain sometimes refer to it by different names" (C.F.F. 1994, 482).

The "small footways" are actually not small at all: interestingly, Ruhedorf represented *semitæ* (long

footways), which often had the role of the highways of nowadays, running especially across the eastern part of the country, namely, the Bărăgan; they connected the mountainous northern frontier with the Danube. Until the Organic Regulation (1832), the roads in Wallachia and Moldavia were natural roads. During the drought, they became dusty, and after the rains, muddy, the circulation being made in difficult conditions. Also, the streams were crossed through fords, bridges being rare (Eminet 1957, 77). There were several paths of this kind, which crossed each other, or forked in sparsely inhabited areas, as those crossroads are shown to have existed on blank spaces on the map (in ancient times, statues of the goddess Hecate used to be placed at crossroads). The most important were the so-called "salt road", the "earthenware-pot road", and the "sheep road", and all three converged in Pitești, which appears to have been a major transport hub (Panighianț 1969, 101). The best Romanian term for such roads is probably *drumeag,* whereas the contemporary highway would be best translated by *şleau,* which, moreover, has entered Romanian phraseology. Obviously, travel on these roads was so time-consuming that people came to talk and settled serious matters among themselves, thus the phrase appeared *a vorbi pe şleau,* that is, to put it bluntly. In one case, namely, southwest of Bucharest, this kind of road followed the course of a stream, which makes me think that this was because it crossed the old forest Vlăsia (in Romanian: Codrul Vlăsiei), or, rather, a large wooded "island" that was left of it. As to the geographical placement of the settlements, N. Docan was puzzled by it, with good reason questioning himself how the punctilious Ruhedorf could be so mistaken (Docan 1912, 1302). Again, I would try to give an explanation for this enigma by the secrecy in which it was worked and wrapped up afterwards.

The road from Târgu Jiu (*Tirgoschil*) to the monastery Tismana is represented, but it is not in a straight line, but follows the streams – so it is a zigzag one. Yet, it is not the monastery (on the map, "Monasteria cum Pagis", that is, a monastery with villages) that is showed, but the town. On the contrary, Polovragi (*Polivracs*) is figured as a monastery, and it was expected that the road linking Wallachia to Transylvania be shown as well. Nicolae Iorga went on the road and described it as follows: "the road from Târgul Jiului to Tismana begins just from the wide road to Severin. It is still a road, narrower than the latter, and much less maintained: the rains have covered it with a layer of watery mud. On one side and on the other, one can see slight, far-off heights; in the middle lies the cornfield, with its leaves turned yellow. Immediately, however, lines of hills rise in the way; one has reached the woods, which stretch to the walls of Tismana Monastery, which is itself more engulfed in deep forest than any other monastery in our homeland. Only a few, hooded travellers cross the rain-swept woods [...] or by means of waggon or carriage. [...] One can see white sheep [...] and deer grazing in the clearings. Jaleş, a clear stream which once gave its name to a county, rushes under the footbridge of the road. Beyond it can be found only the dark tranquillity of the host of oaks. [...] Leave the path towards Baia-de-Aramă, the old Mehedinţi town, and turn to the right, through a long cornfield. For some time, high, wooded heights can be seen in the background. [...] This forest climbing and descending into the depths, this mass of trunks and rich foliage is unlike anything I have seen so far. The black water of the Tismana river flows along in ceaseless foamy eddies" (Iorga 1972, 98-101).

The meadow at the mouth of Ialomița has a particularly interesting microrelief. A special picturesqueness is presented by the numerous *popine* (island fragments). When the waters recede, these *popine* form as "witnesses" of the erosion of the terrace they once formed part of. The scarcity of fruit attracted here the owners of orchards in Prahova and Dâmbovița. They would bring along apples and dried plums by way of carts, which they sprinkled on the grain. Some of the local inhabitants would go away with their carts full of fresh and salted fish, which they sold in the villages of the sub-Carpathian area, wherefrom they would bring back fruit, plum brandy, and other products (Teodorescu 1967, 167). As to the Danube itself, Ruhedorf marked the course of the river (*trajectus*) with *a* and, as he was not expected to make use of Romanian regional terms, named the *popine* with the Latin phrase *insulæ inundationi obnoxiæ* (island subject to inundation), marking them with *b,* as part of the "signa in Fl: Danubii".

The scientific value of Ruhedorf's map is confirmed by the fact that as late as 1942, the geographer Vintilă Mihăilescu pointed out that the Getic Plateau was one of the least known regions of Romania. This would have been due to the "absence of precise topographical maps and detailed geological studies. [...] The fact that this region has been shunned by geographical research

is also due to the very small number of geographers at that time [...] as well as the scarce possibilities of circulation, caused by the very poor population denseness and even the lack of ways of communication (Badea 1967, 17).

Taking into account the many elements which have been represented, the fact is an accomplishment that the author succeeded in obtaining a legible map, because, even in the thickest parts, there are blank spaces which ensure clarity and easy use.

The anonymous *Generalkarte von Siebenbürgen* (44 x 57 cm) (Fig. 4), which seems to have been made sometime between the Congress of Vienna and the Compromise, is an ambitious one, also shown by its name; it is primarily an economic and means-of-communication map. It contains the graticule and, unlike Ruhedorf's map (from which it is very different), covers an area stretching well beyond Transylvania proper, that is, well into Hungary, historical Maramureș, Wallachia, and Moldavia (the city Iași was chosen as the eastern limit, being placed as stuck on the scale bar, like a knob or like a button sewn to it). The political subdivisions are shown here only by means of coloured borders (by means of a thick green outline, "Land der Ungarn"; rose outline for "Land der Szekler", and yellow outline for "Land der Sachsen". The mapmaker (or mapmakers) represented the gold, silver, iron, lead, copper, sulphur, and cinnabar deposits, salt and mineral springs, as well as baths, *Commerzialstrassen* (trade routes), post roads, and *Glashütten* (glass factories). The canals are also represented ("Begh Schiffahrts Canal"). The frontier regiments are not forgotten either, but, unfortunately, they are barely visible, in spite of the good decision of marking boundaries only by way of thick outlines. Heights are shown by means of fine, skillfully drawn hachures, in such a subdued manner, so that, seen from a distance, the entire map seems drawn against a uniform light grey background. As in the Bărăgan, in Transylvania at that time surveyors still had to face many hindrances, but of a different kind, such as uneven terrain, wet river meadows, thick coniferous forest, rain, and fog, not to mention the danger represented by wild animals. The surveying was probably being made in August and September, when there are the most hours of sunlight – as in the case of Francesco Griselini's ascent on Muntele Mic on August 17, 1775 (Teuceanu 2021, 219).

It is probably from the need to have a better image of the militarized frontier that was decided the inclusion of an extra map: the equally anonymous, but unusually shaped – namely, elongate, folded-up *Specification der Sommer- und Winter-Cordon-Posten* of southern Transylvania (40 x 121 cm) (Fig. 5). The main duty of the border guards in peacetime was the service "la cordon" (guarding the border), which they performed in turn, in well-defined sectors. The border was guarded both at fixed points, called *cordons* (pickets), and by patrolling, a shift lasting two weeks, paid service with four kreutzers per day (Bucur, Lupea 2001, 10-11). It is an interesting manuscript military map, and also an ambitious one, which shows the entire frontier area between Haţeg and Covasna. This map is peculiar in that the toponyms are written upside down, or it is the map itself that is thus inverted, for the purpose of making military posts as visible as possible. The summer posts are 114, whereas the winter ones are 101 in number. Only the summer posts are marked, by means of small numbers written in red ink, a method which helped to avoid the overcrowding with toponyms. Only a road is marked (by means of a black thin line), namely, the one running along the northwestern edge of the territory represented – more precisely, from Deva to Tălmaciu in the Olt valley. Two glass factories (*Glashütten*) are figured near Avrig, and are symbolized by stemmed glasses. On the other hand, the mountainous heights are represented only around the Haţeg depression. All these obviously prove that this map is actually unfinished, as the author had naturally begun his work from left to right. My hypothesis is that it is the work of Michael Bielz, whom I have already mentioned in my articles, and the map may have well not been finished precisely because of the sheer fact of the disbandment of the regiments in 1851, which rendered the map useless. If this really was the case, then 1851 is the date of the map, and it also is the very last one of the old border system.

Except the heights which I have mentioned, only water courses are represented, in blue ink, but also some small swampy areas in the Braşov depression (Burzenland). As to the streams, a later author could only have confirmed, after completing the map, the fact that "viewed from above, the depression Ciuc, because through it the river Olt carved its valley in its upper course, looks like the bottom of a lake with receding water, reminding us of the time when it really was a lake, whose waters were later carried away by the Olt to the valley. Beginning with Tuşnad, and twinned with dozens of other rills, the river Olt

becomes fully grown-up" (Neamu 1967, 105). Not far from the lower left corner is represented, by means of a small irregular form filled with ink, "Lak Sz. Anna", but this small lake was obviously marked for the sake of field orientation. Because of its less usual form, this map was actually divided into two folding halves, each for a type of post (the summer ones on the left, and the winter ones on the right). The names were written orderly, in italics, in sepia ink; straight helping lines in pencil had been discreetly drawn and left as such, as if there were a table. On the whole, the reality on the spot is correctly and painstakingly represented, even if somewhat clumsily, and the fact that is a manuscript map is striking from the first glimpse.

The frontier defence by means of the frontier regiments was a complex task for the authorities, as can be seen from the work published in Vienna in 1838 by Mathias Stopfer, imperial-royal border administration captain ("kaiserl. königl. Gränz-Verwaltungs-Hauptmann"). I have chosen to quote a few chapter titles: *Legal procedure with regard to wild animals; On the refinement of horse breeding, according to officially issued instructions; On the fruit yards of the border communities; their purpose and preservation; On forest personnel.* As to concrete measures regarding what was taking place on the ground, I give as examples "the three community deposit heads take over the village deposit, which may only have one entrance and exit door with three strong different locks", "the beehives, which are placed in the woods, and for which the provincials pay the specified tax, while the border guards are exempt from it, must be paid according to the regulation of the forest ordinance", or "damage to the border signs in the woods, the fences, protection ditches is punished with a fine of ten guldens" (Stopfer 1838, 129, 170, 185).

The new Greek state is represented on the map made by a completely obscure Austrian mapmaker, Georg Schmitfeldt, *Griechenland nebst den angrenzenden Ländern* (Greece and the neighbouring lands), issued in Vienna („Wien bey Tranquillo Mollo") in 1830 (Fig. 6). The map may have entered our collections at the same time with Jean Jacques Barthélemy's *Voyage du jeune Anarchasis en Grèce,* namely on February 28, 1936, as part of the Wigand assets. The borders of the Greek state are marked by means of a thin red outline, whereas those of the Ottoman Empire, by a yellow outline in Europe and by a pale blue one in Asia Minor. The units of measure are the "geographic" (15 per degree) and Neo-Greek miles, and the Turkish hour (20 per degree). The author was interested in cities and towns, fortresses, boroughs (*Flecken*), and villages, which add the well-known Greek mosaic of "monasteries, castles, ruins, gulfs, ports", and, finally, the abbreviations (*C.* for *Cap*, *C-t* for *Castel, S-t* for *Sanct, Ag.* for *Agio*), and the Germanized adaptations *F.* for *Fluss* and *P* for *Pass.* Within this map are also included as inset maps two small plans of the ports Navarino and Nauplia (Napoli di Romania) with the fort Palamides (*Plan des Hafens von Navarin; Plan von Napoli di Romania und dem Fort Palamides*) (47.5 x 67.5 cm), in the lower corners. For these two small maps, the unit of measure preferred was the fathom (*Klafter*), 3,000 and 400 in turn. The fact that Schmitfeldt cannot be found in Wurzbach's encyclopedia is no surprise, given the scarcity of such data in this work. The map as such is well drawn, having got the graticule, but is also a beautiful one, and it succeeds in highlighting the mountainous character of the areas represented. The author also succeeded in representing the host of islands in the Aegean Sea – he included small unlabeled islands, which look like rocks, dangerous for navigation, in a seascape. Nonetheless, areas such as Albania and the island Rhodes are heavily distorted, which is easy to explain by lack of information on these remote and hard-to-reach regions. Easily to explain, on the plans of the port Navarino sea depths are recorded, but not in the other plan – Nauplia, located in the northeastern Peloponnese, was far more difficult to access. This concern for technical details makes me assume that we are not dealing in this case with a map intended for the general public, thus also explaining the lack of fact that this cartographer is so obscure.

For historical and sentimental reasons, there are Italian toponyms which are an echo of the Genoese and Venetian presence there in the Late Middle Ages (Negroponte, Zante, I. St. Maura, Lemno, Napoli di Romania, Pergamo, M[eer] B[usen] von Scala Nova), and these names are mixed with German filling words. The entire coast to Constantinople, to the Black Sea, is scrupulously represented, as if an attack on the Ottoman Empire was being prepared (this time, it would be another European power, namely, Great Britain, that took the offensive, at Gallipoli, 85 years afterwards, during World War I). The medieval castles on the islands Kos and Rhodes are shown outside the coast, thus highlighting their defensive role against attacks from the sea in the past centuries. On the contrary, on the

Ottoman side, the Anatolian city of Bursa (here: Broussa) is figured as lying in an empty space, despite its proximity to the coast. As to units of measure, the author presents the geographical and the modern Greek mile and the Turkish hour, which is shown to be 20 per degree. The absence of Crete, which was still an Ottoman possession and had a significant Muslim minority (only in 1913 was it united with Greece), is made up for by the inclusion of a map fragment representing this large Mediterranean island, barbarously cut, by using scissors, out of a typical, large, and much more scientifically rigorous, late-19th- or early-20th-century map. Due to the fact that only the upper edge is missing, this must only have been a (rectangular) map of the Greek islands. In the table of contents, this fragment was recorded as *Karte der Insel Kreta* (35 x 98.5 cm) (Fig. 7).

If one wants to look at Schmitfeldt's map as a cultural tribute paid to Greece, then, apart from the multiple, well-known aspects of life in ancient (brought back to life in the 20th century by the French scholar Robert Flacelière in *La vie quotidienne en Grèce au siècle de Périclès*) and modern Greece, the purely geographical factor consists in the fact that "the Greek landscape is conspicuous not only for its beauty but also for its complexity and its variety. The dominant element – as noted by Strabo, the great geographer of classical antiquity, and confirmed by a glance at the map – is the sea. An ever-present factor, the sea presses deep into the land in a host of arms and inlets, which are often separated by the rocky spines of peninsulas that thrust back into the sea and are continued in the arcs and clusters of beautiful islands across its surface" (J.S.Bo. 1994, 179).

"Travelling to Greece was quite common in the Classical world. This tendency continued through the ages and eventually Greece became part of the Grand Tour, particularly during the Napoleonic Wars, when other parts of Europe were inaccessible. The itinerary followed a more or less standard route. Athens and the greater Attica region was of top priority, and the route included, but was not restricted to, other famous places of ancient history and mythology, such as Delphi, Olympia, Corinth, Sparta, Delos and Thebes (Dritsas 2002; Kardasis undated). Simultaneously, scientific missions started roaming the Greek countryside. As a result, Greece was known to west Europeans, aristocrats, explorers, and scientists for a long time, before actual tourist development began, and for many travelers a journey to Greece was one of life's goals" (Andriotis 2009, 3).

An Italian writer, who visited Greece roughly a century after the map was made, informs us that "the hotel lounge in Nauplia was a graceful and shabby relic of the Philhellenism of the past century. […] On the walls, are old French prints on yellowish paper, in white frames, in chiaroscuro technique, in charcoal and pencil". As to the Acropolis and Parthenon, "with the decline of the academic tradition, the arrogant and practical innovators arrived. With their heads buried in their black cloths, photographers meticulously documented every curve, every perspective, and every crack. The Parthenon was revered as a miracle" (Cecchi 1973, 242, 260). Due to the fact that Austria "swallowed" Venice at the end of the 18th century, Schmitfeldt certainly had access to maps of the Peloponnese (named *Morea* by the Italians), Attica, and some islands. Thus, the Austrian cartographer was able to leave for posterity a stately map, one with a touch of longing for an ideal past, and equally a useful guide for future travels, so a cartographical work which his country could boast.

Maps of Central Europe. Post Maps

A map made by the German cartographer Homann is *Tabula Marchionatus Brandenburgensi* (42 x 52 cm) (Fig. 11), a beautiful, well-drawn map, clear, and rich in detail, including the political part. This map covers most of what was the former German Democratic Republic, but also most of present-day Poland. Two units of measure were used, the common German mile and the French mile ("Milliaria Germanica communia & Milliaria Gallica sive Horæ Itineris"). "The North German Plain is fringed by marshes, mud flats, and the islands of the North and Baltic seas. […] The soil is studded with ponds. […] Outside the moraines, meltwater laid down sheets of outwash sands, which, offering poorer soils, are frequently forested. A feature of the present-day moraine country is the existence of large, long, and branching lake systems" (T.H.El. 1994, 40, 44). This may have been one of the maps used at the Utrecht peace negotiations, but the Prussian authorities could also use it for the planning of road building or military operations, particularly in what is now Poland.

A post map of the Austrian possessions (*Postkarte der allgemeinen österr[eichischen] und ung[arischen] Erbländer,* Graz, 1792) (41.5 x

54.5 cm) (Fig. 12) was drawn and engraved by Johann Veit (Michael) Kauperz (1741-1816), head of the Styrian Academy of Drawing (Wurzbach 1864, 11, 86). The legend is surmounted by the crown of the Holy Roman Empire, that of Hungary, the orb, and by the imperial eagle. The borders of the provinces are marked by coloured outlines and the post roads are figured by a network of numerous broken lines. No less than five kinds of mail routes (*Poststrecke*) are represented: simple, one and a third, one and a half, double, and double and a half, each with its own symbol, probably imitated after the way of figuring tones and semitones on a line of the musical staff. I do not know why the author chose this way of showing the routes, but, taking into account the fact that the names of settlements are written in italics and those of the provinces, by means of capitals, whereas, as I have already mentioned, the only coloured elements are the borders, the most obvious reason is to ensure clarity. Indeed, as compared with the other post map, this one is incomparably superior in terms of clarity; nonetheless, on the other hand, the unaccountable lack of precision of the outlines is a major flaw. The part of Wallachia covered to the southeast is heavily deformed, with a too "narrow" Oltenia, and Bucharest is "packed" inside the map in a wrong place, which corresponds roughly to the geographical position of Slatina. The routes in Wallachia (only those in the southern part of the country are actually represented, and they fork from an unlabelled settlement in the plain) are named *Feld Poststazionen,* and, beyond the river Jiu, they are all unlabelled. Unlike the other maps in this volume, the cardinal points are named in the archaic fashion: Mitternacht/Mittag, Morgen/Abend.

"The Austrian postal system is among the oldest on record. Vienna possessed a local letter post and parcel post, on the plan of prepayment, as early as May 1772, at which date no city in Germany possessed the like. […] Thirteen years after its organization it became merged in the imperial post. The separate postal organizations of the empire (Austria) and the kingdom (Hungary) date from 1867" (Ingram 1926, 22, 194). In the 18th century Austria proceeded with a somewhat more thorough improvement of its road system, especially during Maria Theresia's reign much was done for road construction both in the Austrian regions and in the Netherlands. Nevertheless, the Austrian Postal Code of 1748 still mentions that the roads are "mountainous and swampy in other places" and that "compliantly it is better and more convenient to ride than to drive" (Veredarius 1885, 104).

Another work possibly by Kauperz or another Styrian figure, Joseph Karl Kindermann (1744-1801) is *Strassenkarte des Herzogthums Steyermarks* (road map of the Duchy of Styria), acquired by the Evangelical Gymnasium of Sibiu in 1828 (52.5 x 55.5) (Fig. 13). Indeed, Kauperz made a map of Styria to accompany Kindermann's geographical description of the province. Kindermann's father had chosen the career of a physician for his son; but following the break with his father, the young Kindermann left Austria and travelled to Prague and Germany, finally reaching the Netherlands. There he entered the service of the Eastern India Company and in this role he was sent to South Africa. There he made a name for himself and delved into natural history research study, which brought him into connection with personalities such as Buffon; he therefore became skilled at collecting items such as exotic birds for the French scholar. Eager to gather more knowledge in this field, Kindermann sailed to Ceylon. In 1774 he returned to the Netherlands, and then went to Styria, where his father had moved to, and he himself settled down for good. After so many places where he had lived, Styria finally became a second homeland for Kindermann. He moved later to the provincial capital, Graz, and it was in Vienna that died at 56 years old. His first important work was *A Historical and Geographical Sketch of the Duchy of Styria* in 1778, followed by *A Repertory of the History and Geography of Styria* in 1799. In 1801, the year of his death, he had begun to supervise the *Patriotic Calendar of the Styrians;* unfortunately, after Kindermann's death, only one issue came out. A man of many concerns, he even wrote a chess handbook, which came out in Graz in three editions (1795, 1801, and 1819). But it is his achievement in the field that interests us here, cartography: when he died, the release of the Austrian National Atlas had begun under his leadership. Eventually, however, the atlas, like the Styrian calendar, remained unfinished – only six maps with statistical tables came out (Wurzbach 1864, 11, 267-269). This may well have been a donation from Archduke John of Austria (1782-1859), who was particularly attached to this province. This map is different from all the rest of the portfolio in that, apart from the fact that it is uncoloured, it does not represent any heights. The lakes are depicted in dark blue, and resemble ink blots, and the islands in the rivers Mur, Drava

(Drau) and Sava (Sau) are scrupulously represented. This is one of the few maps in our collection on which *Fusswege* (foot roads) are marked, namely, by means of dotted lines; on the other hand, it is true that the area covered is not very extensive. The other three kinds of roads are *Chausseen* (highways) (marked in red), *Landstrassen* (marked in ochre), and *Landwege*, which are shown by means of simple black lines. As a curiosity, a settlement named Reschitza can be noticed in southwestern Styria.

"A real and great badge of the Styrians is the Erzberg in the upper country. With its dark steps inmidst of a great mountain landscape there is nothing like it in the world. Since the old days people have called it "Eiserner Brotlaib" (iron loaf) of the country. Here started the "iron roads" on which wealth and culture of the "Hammerherrenzeit" (iron barons" time) dwelt, from which the great industrial districts of the country developed. The "iron roads" crossed the "salt roads" from the land of Aussee. On their return people brought various goods from the south and east into the country. The country-inns in market-towns or at road-crossings, with wide gates and big stables, are proof of that time. Nowadays they live in the shadow of old splendour and may only be used as busstops. A third line of Styrian roads and at the same time the merriest were the "wine-roads" which came from lower Styria. Their most beautiful part lies in the Windische Büheln and south of the River Drave. But what is left to us, the wine country between Ehrenhausen and Leutschach, where nowadays hop is grown again, and north of it the Sausal, is the counterpart to the Erzberg, again noninterchangeable in its mood and appearance" (Koren s.a., 20). In contrast to traditional maps, full of the customary "molehills", the Erzberg is not shown as such here, and one has instead to look for the *Marktfleck* (small market town) Eisenerz (here, Eisenärtz). Not surprisingly, the salt road coming from Aussee, mentioned by Hanns Koren, is a long *Chaussee* (high road), which meets other two in the towns Leoben and Bruck respectively, and which both had a post station. The wine road (I have already mentioned the possible interest in Wallachian wines) can be found on the present map in its middle-lower-right part, and at that time it was made up of three segments: a highway, followed by an ochre *Landstrasse* (country road), while a *Landweg* (country path) ensured the connection with Leutschach. Ehrenhausen, which, like Graz, lies on the river Mur, and Leutschach were both marked as *Marktflecken.*

Four years after the post map of Austria was issued, that of the Holy Roman Empire, much more complex, by "C.P.S.C.M.", appeared in print: *Neue vollkommene Postkarte durch ganz Teutschland nach Italien, Franckreich, Niederlande, Preussen, Polen, und Ungarn,* printed in Vienna by the Artaria Compagnie in 1796. This map includes the inset one *Postkurs von Florenz bis Neapel* (in the lower left corner, graphically depicted as drawn on a rolled parchment, against the background of a beautiful dark beige in which the French territory was coloured) (58 x 83 cm) (Fig. 14). The legend still has archaic echoes ("Die sämmtlichen Kais: Königl: Lande sind roth illuminirt, und blau ist preussisch"), which continues with the explanations of the lines used to show post offices and routes ("Eine Post, Halbe Post, Virtel Post, Doppel Post. Routen für Couriers. Felleisen und Couriers Route. Routen der Kais. Reichs Postwägen").

"The mountainous and barren landscape of the Bergamasque Alps with its old Longobard tradition has been considered since the Middle Ages an inexhaustible source of reliable couriers and messengers in foreign services. Members of many local family clans, including the Tassis, hired themselves out primarily to messenger station of the Republic of Venice, which was set up in 1305; but the Tassis were also active as post- and messenger masters in the Papal States and in the Duchy of Milan. [...] The Princes of Thurn and Taxis have lived and resided in Regensburg since 1748. [...] According to Janetto von Taxis, around 1490 King Maximilian asked him, his brother Franz, and his nephew Johann Baptista to set up the first postal services of the Innsbruck court, especially to Italy, to Vienna, and to the Netherlands, in the swift way of 'posting' known from northern Italy: fixed post stations were set up on the courses at intervals of five miles (approx. 37 km), where horse and rider were exchanged. This was the beginning of the Central European postal system – and the "Welsch" Taxis were generally considered to be its 'inventors'. [...] After lengthy negotiations among his son, Baron Lamoral I von Taxis, the Prague imperial court, the Arch-Chancellor of Mainz, and Court Prince Johann Schweikhardt, Emperor Matthias bestowed the postal generalship in the empire on July 27, 1615 on the House of Taxis as a fief. In 1621 this imperial fiefdom was extended to include female offspring" (Dallmeier 1998, 18-20). This map, which may well have been

acquired by one of the main post offices in Austria, Hungary, or Transylvania, depicts political borders, the hydrography, settlements (the names of the cities are written in small capitals, and the rest, in italics), and, very superficially, the mountains (the Alps are shown by way of a few groupings of small sketchy "mounds"). As in Kauperz's map, in this case, and also in order to avoid confusion between streams and post routes, the latter are represented by means of thin broken lines. Unfortunately, this map seems a little too ambitious for its goal, and in certain parts, especially southern Germany and the area around Berlin, it is choked by data. Besides, an oddity is that, in spite of the fact that couriers" routes are included in the legend, as being shown by means of simple lines, they can only be found in the former Polish territory, running closely to the frontier of the Holy Roman Empire. To these shortcomings were in turn added the colouring of the Austrian hereditary lands, which "acquired" a rose outline, in a pale rose (those with a blue outline were left blank); the owners of the map must have realized that, in this way, the map would become difficult to use.

As regards Wallachia, the toponymy is bad and strange, worse than that on Kauperz's map, although the latter is older. Such altered forms are *Kiripina* for Câmpina and *Kimnic* for Râmnic, not to mention their wrong positioning on the map. Nonetheless, the author had an attempt to imposing German-style spelling rules such as the ending *-äny* for *-eni*, such as in *Kinäny* for Câineni. As a matter of fact, the latter settlement is always represented on Austrian maps, obviously because of its proximity to the border.

A particular importance might have been given to this kind of maps (that is, of southern and eastern France, including northern Italy, Switzerland, and areas of southern Germany) during the 17th, 18th, and the early 19th century, besides the Grand Tour, thanks to the so-called "wig mail" as well. The wigs, which at that time were a particularly important export item in France, were mainly transported from Lyons, where the most famous wigs were also based. From there to Venice, the courier's wages for a piece were no less than one French thaler (Veredarius 1885, 94).

Maps of France and Neighbouring Areas. Other Maps

Shifting the focus from Central Europe to the western half of the continent, I would like to draw attention on a General Map of France (*Carte générale de la France divisée en ses 83 départemens … pour servir a l'intelligence de l'Atlas de la France*) (48.5 x 55.5 cm) (Fig. 8). Within this map is included as an inset map, in the lower right corner, the recently acquired island Corsica (*Isle de Corse*). The scale is that of 100,000 fathoms (*Echelle de Cent Mille Toises*). Although the author is not explicitly named, he is Cassini de Thury, also called Cassini III, the first head bearing the title of director (in 1771) of the Paris Observatory. He began the elaboration, in 1744, of a topographical map of France, based on geodetic triangulation; this map, at a scale of 1:86,400, is the first of its kind that was ever made. Cassini de Thury's son would complete and present it, solemnly, in front of the National Assembly in 1789 (Lévy 1971, 519). "The four generations of the Cassini family of astronomers and surveyors in France were preeminent in developing methods for accurately surveying the land surface. In work extending from the late 17th to the late 18th century, the Cassinis made the first detailed topographic survey of a large country, and this was the basis for a national atlas of France published in 1791" (Harris 1994, 877).

The most recent foreign policy of post-1789 France, now a republic – territorial expansionism, is illustrated by *Kriegstheater oder Grenzkarte … zwischen Frankreich und Italien* (*The War Theatre between France and Italy*) (49 x 69 cm) (Fig. 9), a map in the style of Baroque political maps, with the territory of each state uniformly coloured. There seem to have been considerable interest at the time for the events taking place in Italy, which manifested itself in the most unexpected forms – "great events have also given dishes their names: chicken Marengo, for example, was named after the battle in 1800 in which Napoleon defeated the Austrians" (G.L. 1994, 691). The unit of measure used was the "geometric" or German mile, shown to be 15 per degree. Although the title is in German, the author tried to observe the local toponymy, even if sometimes clumsily, as he had a poor knowledge of the French language (*Limosin, Guienne, Province, Helvezia, Tirolo*). Yet, unlike many earlier maps, this one has the merit of being equally artistic and accurate, so perfectly suitable for a nobleman who would have found delight in possessing an atlas made up of such maps and leafing through it in his leisure hours, possibly to help planning a Grand Tour to Italy. It was engraved in 1798 (the year is wrongly given as 1793) by F[riedrich] Müller, whose surname was

Maler Müller ("The Painter Müller") (Kreuznach, January 13, 1749–Rome, April 23, 1825). After studying the fine arts in Mannheim, he went to Rome in 1778 to study Michelangelo's works (*** 1999, 9, 942). This map contains the graticule, and the author was also interested in both streams and lakes, which are pedantically shown; by contrast, the representation of the heights leaves the impression of a hilly relief. Roads are completely left out, and all oeconyms (names of settlements) are written in italics.

The existence of the latterly-made (1813), and also large, map of the Napoleonic Empire in the Brukenthal Museum is, obviously, explained by the Habsburgs' family ties with Napoleon, who had married the archduchess Marie-Louise three years before. In 1811 their union had also produced an heir, Napoleon II, who was styled King of Rome at the birth.

Like Schmitfeld in Austria some time later, the two French cartographers from the turn of the 18th and 19th centuries are little known: Chaumier and what seems likely to have been an aged, retired Professor Mauborgne, are the authors of a map of the Napoleonic Empire, *Tableau général et itinéraire de l'Empire Français : divisé en 130 Départemens, avec les Préfectures, sous-Préfectures, Archévêchés, Evêchés, Chef-lieux militaires et des Cohortes de la Legion d'Honneur, des Sénatories et Préfectures Maritimes, et à la distance de Paris aux Préfectures, marquée en lieues de Poste, où se trouvent Partie des Isles Britanniques, Partie de l'Allemagne, la Suisse, Partie de l'Italie et l'Isle de Corse ; rédigée par Chaumier en l'an 7 ; corrigée et augmentée par Mauborgne, Ancien Professeur, en 1813.* The map also includes, in the upper left part, an alphabetical list, *Tableau alphabétique des 130 Départemens qui composent l'Empire Français, avec leur population* (125 x 142 cm) (Fig. 10). The scale and longitude are both mixed systems of old and new units – the first in myriametres (10 km) and leagues (« Echelles de 10 myriamètres [et de] 25 Lieues communes ; Longitude Occidentale/Orientale du Méridien de Paris – Longitude du Méridien de l'Isle de Fer »).

This map is obviously a proud, defiant statement "in the teeth" of the other European powers, especially England and Russia. As to the internal affairs of Napoleonic France, "a strongly centralized government recruited bureaucrats according to their abilities. […] Freedom of internal trade and encouragements to technical innovation allied the state with commercial growth. […] Napoleon's kingdoms consolidated scattered territories in Germany and Italy, and the welter of divided states was never restored" (Stearns 1994, 687). "Upkeep of the church became a significant item in local budgets. […] Napoleon's Legion of Honour […] conferred recognition on men who served the state, primarily military officers who largely stood outside the ranks of the landed notables. By 1814 the Legion had 32,000 members, of whom only 1,500 were civilians. […] Napoleon wished to strengthen the ties that bound individuals together, which derived from religion, the family, and state authority. Napoleon's domestic innovations – the praefectorial system, with its extreme centralization of administrative authority; the University […]; the concordat with the Vatican […] and the Legion of Honour, which rewarded service to the state – all endured in the 19th century despite a succession of political upheavals. Historians who admire Napoleon consider these innovations as the "granite masses" on which modern French society developed. […] Towards the end of the empire, Napoleon's centralizing vision took over completely, reinforcing his personal will to power. France was merely a launching pad for Napoleon's boundless military and imperial ambition, its prime function being to raise men and money for war. In utter contrast to the Revolution, then, militarism became the defining quality of the Napoleonic regime" (I.Wo. 1994, 506, 509). As to cartography as such, "Napoleon, an ardent map enthusiast, planned a great survey of Europe on a 1:100,000 scale, which was well under way when he was overthrown" (C.F.F. 1994, 477).

Returning to the 1813 map, my opinion is that it was also made for supporting plans for a future invasion of the British Isles, taking account of their detailed representation. Besides the short connection between Dover and Pas de Calais, the author represented the connections by sea between Portsmouth and Cherbourg, Le Havre, and Dieppe, as well as those between Ireland and the Great Britain Island (the two departing points are Dublin and Wexford to the south). Even the short line between Land's End in Cornwall and the Scilly Islands (*Solingues*) is represented. "The islands are a continuation of the granite masses of the Cornish mainland […] and have rocky, dangerous coasts with many reefs. […] Early a haunt of pirates, the islands were later notorious for smuggling activities carried on there. In 1834 Augustus Smith succeeded the Godolphins as the

islands' lessee, and in 1933 the main islands were handed over to the British crown" (*** 1994, 10, 553).

By contrast, the only other sea routes figured in other places are the two Antibes-Bastia (in Corsica) ("Antibes – Bantia (sic !) : 50 lieues") and Toulon-Bastia ("Toulon – Bantia (sic !) : 70 lieues"), but, in comparison, nothing regarding the Low Countries, Spain, or Italy. Moreover, in the politically hostile Britain the hills and mountains are in turn clearly shown, namely, as orderly, coherent, and uninterrupted chains, beginning by the ocean coast and spreading throughout both islands of Great Britain and Ireland. The result is odd and unexpected, giving the impression that the British Isles are mountainous, as opposed to a hilly continental Europe, whereas the reality is exactly the opposite. It is true that "the relatively smooth basin of central Ireland rises towards its edges formed by ancient crystalline mountains (the Caledonian orogeny)" (Roşca 1971, 189). On the other hand, in sharp contrast, the Alps are wrongly and deceitfully depicted as a few modest hill ranges, separated from each other.

Due to the large extent of the French Empire following Napoleon's conquests, this map had to cover, in fact, neither more nor less than the whole of the "peninsular (or western) Europe. […] A convenient division is made by a line linking the base of the Jutland Peninsula with the head of the Adriatic Sea. The western part of the continent clearly has a high proportion of coastline with good maritime access and often with inland penetration by means of navigable rivers" (W.G.E./T.M.P. 1994, 18, 529).

I should not leave aside another important element, the many roads represented – by means of black thin lines which criss-cross the map. For the good administration of the country, the flourishing of trade and industry, as well as for strategic purposes, Napoleon developed the road network. Only in the last nine years of Napoleon's reign, the important sum of 277 million francs was spent on road construction. One of the most important works was the construction of the Simplon Road, calculated for the passage of artillery (1800-1806). The road crossed the Alps at a height of 2008 m and was endowed with numerous works of art and tunnels for defense against avalanches (Eminet 1957, 61).

A large, folded-up, and indeed a peculiar one in our collection is a map made by Johann Wilhelm Jaeger, *Le Theatre de la Guerre entre les deux puissans Empires de Russie et de Turquie, tant en Europe qu'en Asie : dressé avec beaucoup de soin, d'aprés les meilleures Cartes et Observations des plus modernes Voyages de Pocock, Otter et Hanwey, et d'après les Atlas de Russie et de Pologne, de même que suivant les Avis autentiques reçûs des Armées, durant cette Guerre,* printed in Frankfurt in 1770 (96 x 135 cm) (Fig. 15). Jaeger introduced himself here as « Ingenieur Capitaine Lieutenant de l'Artillerie et Inspecteur des Arsenaux de la Ville ». The unit of measure employed is the German mile ("Miles d'Allemagne"). In the early 20th century, Jaeger was romantically described as "a man of the highest intelligence and enduring diligence, an upright, sincere, humbly pious nature" (Jung 1905, 625). His Atlas of Germany, issued in 1789, is one of the most important achievements of German cartography of all time, and it may well have inspired the already-mentioned national atlas of France issued only two years later.

Auguste de Forbin, warden of the Louvre Museum, may well have used this map to plan, but also during his travels to the Eastern Mediterranean, the more so as it is written in French – even though he does not mention the title of the map in his travelogue, *Voyage dans le Levant en 1817 et 1818;* anyway, this was no ordinary journey: Forbin travelled at the expense of the state, as his goal was to acquire antiquities for the museum (*** 1999, 5, 568).

It is a large, spectacular map, aiming at combining technical precision and practical usefulness. Except Schmitfeld's map of Greece, which I have already described, and that of Algiers, which I shall comment on below, Jaeger's is the only map in the collection of the Brukenthal Library which I am aware of that contains data about the depth of the seas, in this case the Caspian. The area covered is unusually large (from Posen (nowadays Poznań, in Poland) in the northwest – so close to the Baltic Sea – to Cyprus to Lebanon in the opposite corner), and from Prague in the west to Teheran in the east. Near the left edge, probably because of the fear of attacks by the Turks to south Italy (as it had been the case at Otranto in the 15th and 16th centuries) and the natural need to make defense plans, the author managed to include the Salento peninsula, the "heel of the Italian boot", which juts out into the Mediterranean Sea; large and complex maps of this kind are few in number in our cartographical collection, which furthermore entitles its inclusion in the portfolio. A peculiarity is the fact that Crete has got a dark blue outline, as it does in the 19th-20th-century map which I have already described;

it is true that on Jaeger's map this island is much less accurately represented, having got a curved shape, somewhat in the manner of a wooden bowl, and the colouring is much more intense, and thus the contrasts, including that between the coloured spaces and the white of the paper.

Both Greece and Asia Minor are shown to be larger as they are in fact, certainly for sentimental-historical reasons. Jaeger chose to represent waters in an unusual way, at least in our cartographical collection: the coasts are accompanied by short parallel lines in the manner of a comb, as in other maps, but inland lakes are filled not by swash lines, as usual, but by the same parallel lines which I have just mentioned. Yet, a difference was made between the small lakes and the larger one, such as Van, which is represented in the manner of a sea, with an inward-oriented "comb" of short parallel lines. Instead, streams are filled by curved lines parallel to their banks, as if the author had wanted to show more clearly that it was all about flowing water, not navigable everywhere (the great regularizations of rivers were made in the following century). In this manner, a curious appearance is obtained at the river mouths, in this care especially in the spot where Volga flows into the Caspian Sea: the delta is represented by means of a heap of islands which the river only touches them in passing on the left side, in the manner of, for example, a silk scarf left to unfold as in a still life, for example, particularly a Baroque Dutch or Flemish one. This manner of depiction of the streams is also useful to stand out from the main roads, which the author wanted to figure, as two close parallel lines, throughout the map, on both continents, Europe and Asia. But the streams also have much exaggerated doubles, such as Kyzyl Irmak (the ancient Halys) in Asia Minor. In Russian territory, the steppe is quite unusually represented, rather suggesting marshy areas. Especially the manner to figure larger settlements is beautiful and ingenious, namely, by way of a single church tower or belfry, and their names are written in beautiful, legible italics, carefully chosen – neither too small nor too big. As one moves from the west towards the east, astionyms give way to comonyms, that is, villages and small towns (marked by way of simple circles) tend to replace cities, in the Russian, Ottoman, and Persian Empires, in spite of their presentation in the very title as "Mighty Empires" ("Puissan[t]s Empires").

In the case of Asia Minor, in the late 19th century Edmond Dutemple still ascertained that "the surface of the Anatolian peninsula is almost equal to the surface of France; but the population there is six times less [...] a density of barely 13/km². [...] From the fluvial point of view, Anatolia presents curious peculiarities. The main streams have got windings that are not found to the same degree in any other country. [...] All the immense plains of the interior of Anatolia [are] today deserted and uncultivated. [...] All transport in inner Anatolia is done with mules and camels" (Dutemple s.a., 963, 965).

Settlements and roads in this area, particularly in Persia and neighbouring regions, are quite well represented and they can still be easily found and followed on the map. As with the representing of Salento, the Austrians must have been interested in Jaeger's map and his depiction of Persia due to the need to make plans to defend their possessions in India. Economic reasons may have existed as well, only if I mention once again Ferdinand von Ruhedorf's trade ventures, where he needed Persian walnuts. It is through the Zagros mountains that the historic road passes which unites the Iranian plateau with Mesopotamia; the defile which closes it is called the Zagros Gate by Ptolemy and the Median Gate by Strabo. This path is still used today by trade; it starts from Baghdad, goes up the valley of the Dyala and one of its left tributaries as far as the Kerend pass, from where one reaches the small town of Kirmanshah, then Bisotun, where is engraved, on the rock, the great inscription of Darius I, and you come to Hamadan. In the southeast, there are extremely difficult mountain paths, which lead from Bandar-Abbas and from Bender-Bouchir to Shiraz; the latter is actually the caravan route, which leads from the Persian Gulf to Tehran via Ispahan and Kashan. [...] In the Zagros granite is found; this mineral deposit stretches to Lake Urmia and forms the Alvend (3,400 m) above Hamadan. [...] The low density of the population and the small number of towns or villages which have been set up on this immense territory (Huart s.a., 444; Houssay s.a., 446). As in the case of roads, caravans entered Romanian phraseology by way of a proverb whose English equivalent is, literally, "the dogs are barking, yet the caravan is moving along" – this must have been due to the influence of the Ottoman world, and brought in by merchants and travellers.

The modern highway must follow the old main road and, moreover, nowadays "the old caravanserais have become stops for drivers: they can find tea, ice, juices, and others there" (Coman 1975, 117). Some travellers and mapmakers may

have been confused by the appearance of villages, where the latter "seem to be very clean. Households are surrounded by high clay walls, which look like small fortresses" (Coman 1975, 117). Thus, perhaps cartographers felt encouraged to put more towns or castles on the map than actually existed.

Therefore, the extensive blank spaces are filled chiefly with mountains, lakes, streams, roads, and their names, written in smaller or larger capitals, and all of them are larger than in Europe: apart from Mount Ararat, which is figured as being huge because of its religious significance, the mountains are figured as being twice as big as those in Europe and have got two peaks. The overall meaning seems to be "everything here is billowy", a kind of more modern version of the old *Hic sunt leones* ("lions are to be found here"). Especially the area around the city Rasht in Persia (it is moreover named "Province Persane") is spectacularly figured, by the presence of such features as the seashore, streams, mountains, and forests, and the effect is amplified by the contrast between the very deep turquoise, almost black of the Persian state frontier and the bright russet of the city. Jonas Hanway, who is shown to have been a major source of inspiration for this map, praises the city and the surroundings; yet, a graphical description made by the French orientalist Clément Huart in the late 19th century, is the following: "the port of Recht [the French name at that time] is Enzeli, a poor little town of 200 to 300 houses surrounded by gardens, the only ornament of which is a five-storey pavilion which Nadir Shah had had built there. The climate of Recht is excessively unhealthy and humid; the thickets which surround it contain long-haired tigers which, in winter, draw near and reach the city itself" (Huart s.a., 220). This description is moreover confirmed by recent ones: "it lies about 15 miles (24 km) south of the Caspian Sea on a branch of the Safid River, where the higher ground merges into the marshlands fringing the Mordab, or Pahlavi, lagoon. […] The city is surrounded by rice fields and areas of half-cleared jungle" (*** 1994, 9, 947). Probably because of erroneous information on the Middle East, the lakes in that region are very wrongly represented, and they are much larger than they actually are. Lakes Van and Urmia (here: Chahi) are shown as very close to each other and only separated by a spit of land (their rounded form is also almost wholly fancied). On the other hand, Jaeger seems to have mistaken the Anatolian lake Tuz for Beyşehir: the former is wholly absent, whereas the second is much larger than in reality and is labeled "Lacus Salus ou Beidscher", whereas it is actually a freshwater lake, like the neighbouring Eğridir and Burdur (S.Er. 1994, 923). By contrast, lakes in Europe are much smaller and even do not appear at all on the map (I mean here the lakes of the Balkan Peninsula, which are quite large). The lake Balaton in Hungary is labeled "Palaton", somewhat as if calling forth palaces or castles. As to heights, they are of course shown by means of mounds, but the author's manner of representing them large, pyramid-like and with their shades, then by artistically "arranging" or "getting them up" in a priggish manner, of course largely fictitiously, ensures a tremendous appearance. For example, in what is today Northern Macedonia, no less than four short straight mountain rows are figured, in spite of the fact that they are all unlabeled. This fiction stands somewhat oddly in contrast with the claim of exactness offered by the graticule and other elements, as "useful additions" such as the thirty-six-word glossary of Russian terms, headed simply *Explanation of Some Russian Words* (*Erklärung einiger russischen Wörter*), set in the lower right corner.

Overall, the toponymy is a mixture of ancient and modern notions, some of which are clumsily spelled (*Mesopotanie, Angura* – the presence of the latter is certainly due to the famous Angora goats). The most coherent is "Candie, ou la Vieille Crete" and, in central Anatolia, "Lacus Salus ou Beidscher"). Within the pelagonyms (the proper names of the seas), a distinction is made between the Ionian Sea proper ("Mer Ionniene ou Mer de Grece") and a gulf between Peloponnesus and western Crete, called "La Mer Ionique". The labelling of the Aegean and Black Seas is conservative ("L'Archipel ou La Mer Aegée vulg La Mer Blanche"; "Le Pont-Euxin ou La Mer Noire"). The toponymy of Asia Minor is mixed. The historical provinces and the river Kyzyl Irmak are given their ancient names (Galatie, Carie, Pisidie, Licie, and "Hallis R."), yet a "Caramanie", the name of an old Turkish emirate, is also included. Southwest of Lake Van can be found the Regnum Bochtanonum, a Latin adaptation of Botan, a semi-autonomous Kurdish emirate at that time.

Along the same line, as courtly and bombastic as it was, baroque imagery is not lacking, on the contrary. There are two legends: The main one, placed in the upper right corner, includes a battle scene, whereas the second was placed in the center and has got the shape of an ancient amphitheatre, fallen into ruin. In the lower right

corner, a Turk is represented as crushed by the claws of the Russian imperial eagle, symbolizing the Christian Empire fighting against the Infidels; this is a kind of imagery which I have not encountered in our library. Overall, the aesthetic effect is based on the large size, the graticule, the baroque compositions, the russet spots representing the large cities (this one is body colour coarsely and hastily applied by using a brush, because of lack of time), to obtain the time-honoured palette of white, black, and red. (Moreover, in the meantime this custom has not completely died out, since large cities have been often represented by means of bright-red small squares or circles). For a long time, the preparation of vermilion was the secret of the Dutch nation; they had in turn got it from the Spaniards, who themselves would have learned it from the Arabs. The secret was let out after the invasion of the French armies in Holland (Bourgoin s.a., 395). Since this was made by hand, the number of copies of this map could not be a high one, and their rarity nowadays further supports my hypothesis; probably no more than one or two hundred actually came out. Here adds up the coloured political borders. Like Ruhedorf for Wallachia, Jaeger was able to avoid the choking with details, even if the blank spaces and the ensuing clarity were almost certainly meant for use by military commanders.

Taking into account the various, useful elements included, such as the Russian glossary, it is striking that this map goes well beyond the scope of a map of the 21th century, because it was made in such a way that it does "tell a story".

Least but not least, the fact that the author preferred the French language is not gratuitous, as it ensured a readership as wide as possible across the cosmopolitan Europe of the Enlightenment, in the Republic of Letters. Jaeger actually learned French, but only at the age of 41, when the French occupied Frankfurt and its environs during The Seven Years' War. The cartographer had succeeded in turning to good account an unfavourable situation, but he did not confine himself to the mere knowledge of this foreign language and decided to apply it for practical, useful purposes – so that he soon took up the translation into German of Guillaume Le Blond's *Éléments de fortification*, which had appeared in print only two years before (1739). Besides this, Jaeger had various other pursuits, worthy of a technical genius: in his spare time, he would build electric machines and telescopes, and a standing clock was also manufactured in his workshop (Jung 1905, 625). My point of view is that one has to do here with one of the most interesting maps in our collection, and all the more precious, as I do not expect it to have ever been much known about outside Central Europe, in spite of the fact that it was ideal to be framed and displayed in the home of a "votary of art", someone fond of luxury and sophistication.

One generation after Friedrich Müller, who was interested in northern Italy, another German cartographer, E[rnst] H[einrich] Michaelis, supervised a map, this time of North Africa and the Mediterranean, *Algier und das Mittelmeer* (50.5 x 70 cm) (Fig. 16), issued in München in 1830, so shortly after the French invasion. The interest in this region may be explained, among others, by the cultural legacy of August von Schlözer, who had written a book on this subject (*Summarische Geschichte von Nord-Afrika, namentlich von Marocko, Algier, Tunis, und Tripoli*, Göttingen, 1775), and by plans for future trade activities. In a broader context, culturally it was the age of Romanticism, and exoticism was in fashion. Algiers itself had been the setting of the successful opera by the Italian composer Rossini *L'Italiana in Algeri* (*The Italian Girl in Algiers*) from 1813, which was followed by *Il Turco in Italia* in 1814 (*** 1994, 10, 195).

This map has the advantage of having got both plans and vedutas (although they are only two small inset maps in the lower corners, in their turn surmounted by two rectangular artistic engravings; the author wanted to equally show the actual landscape and below it the map which represents it). These are all obviously a remainder from the Baroque age. Two large maps ensure the transition from general to particular, and, last but not least, there is an extensive toponymical list. Another element of originality is that it is printed in the recent lithographical technique ("Schrift u. Detail in Stein gest. v. W. Pobuda"). The "general map" is an oval one, representing the whole Mediterranean basin; it surmounts the rectangular map of what is now northern Algeria and most of Tunisia, flanked by the double pair which I have already mentioned, a plan of Algiers on the one hand and the gulf and the surroundings of the city on the other. The map of the Mediterranean basin actually covers an area stretching to the north to München and Vienna and inland into the African landmass to the oasis Murzuk in the Sahara. Thus, for example, most of Spain is included. The map also covers the greatest part of France and also Austria and Switzerland. Heights are rendered by means of short, mellow khaki hachures,

resembling somewhat branches of pine or cypress trees (also a hint at the fact that the North African shore is wooded ?) – a unique feature in our library. These hachures are artistically contrasted with of the subdued dark rose of political borders and well-marked in the case of the residential areas of Algiers. On both inset maps, as in Schmitfeldt's plan of Navarino, sea depths are marked. On the second inset map, that of the surroundings, for the sake of local colour, north is pointed at by a line surmounted by a crescent. As to the units of measure, besides the geographical mile, which is the same as on Müller's map (15 per degree), the author included the Italian (English) sea mile and the league, and besides the author added the daily distance covered by a caravan ("Tagreisen der Karawanen"), which had been appraised to have been three per degree ("3 a.d.G.") (compare with Schmitfeldt's Turkish hour). Earlier Spanish or Venetian presence in Tunisia, for example, can be inferred from toponyms such as Porto Farina ("Port of the Flour"), located near Tunis. The map also contains some ancient echoes, such as *Oase des Jupiter Ammon.*

The name list is preceded by a N.B. (Nota Bene): "In diesen Namen-Register sind nicht nur die in der Karte befindlichen Namen alphabetisch aufgeführt, sondern auch die wesenlichsten der vielfachen Renennungen und Schreibarten derselben ortlichen Gegenstände nebst die Hinweisung auf die betreffenden Vierecke der Karten-Projection (mittelst rubricirender Buchstaben), um auf diese Weise das schnelle Auffinden jener benannten Gegenstände möglichst zu erleichtern" (In this register of names, not only are the names on the map listed alphabetically, but also the most important of the many names and spellings of the same local objects, together with reference to the relevant squares of the map projection (using rubricating letters), in order in this way to make it as easy as possible to find those named objects quickly).

Besides the unexpected character of the maps and their beauty, they are also complex and eclectic, containing details obtained from older maps and numerous travel accounts that must have been behind these maps, but also from many, measurements and astronomical calculations obtained as a result of painstaking work. Some German and Austrian mapmakers were true heralds as to recent events in the Mediterranean space, that is, the independence of Greece for the first time since the fall of Constantinople and the conquest of the disturbing "pirate nest" Algiers by the French army. Another feature is the fact that many of the mapmakers seem to have lapsed into obscurity, and details about their biographies and activity (which must have been few and difficult to reach) may actually have been lost in the meanwhile. From aesthetic and prestige reasons, the custodians of the museum thought it best to have these sheets collected in one single place, the more so as this thing could only have made the work of researchers easier.

REFERENCES / BIBLIOGRAFIE

C.F.F. 1994 — C.F.F., *History of Cartography. – Mapmaking.* In: *Mapping and Surveying.* In: *The New Encyclopædia Britannica,* 23, Chicago (1994), p. 473-486.

G.L. 1994 — G.L., *Gastronomy.* In: *The New Encyclopædia Britannica,* 19, Chicago (1994), p. 689-696.

I.Wo. 1994 — I.Wo., *The French Revolution and Napoleon.* In: *France.* In: *The New Encyclopædia Britannica,* 19, Chicago (1994), p. 495-509.

J.S.Bo. 1994 — J.S.Bo., *Relief.* In: *Greece.* In: *The New Encyclopædia Britannica,* 20, Chicago (1994), p. 179-184.

S.Er. 1994 — S.Er. *The Land. – The People.* In: *Turkey and Ancient Anatolia.* In: *The New Encyclopædia Britannica,* 28, Chicago (1994), p. 920-925.

T.H.El. 1994 — T.H.El., *The Land. – Relief. – Drainage and Soils.* In: *Germany.* In: *The New Encyclopædia Britannica,* 20, Chicago (1994), p. 40-46.

W.G.E./T.M.P. 1994 — W.G.E./T.M.P., *The Land. – The People.* In: *Europe.* In: *The New Encyclopædia Britannica,* 18, Chicago (1994), p. 529-543.

Andriotis 2009 — Andriotis Konstantinos, *Early Travellers to Greece and Their Modern Counterparts.* [Paper presented at the Conference *Tourist Experiences, Meanings, Motivations, Behaviours* (April 1st–4th 2009, University of Central Lancashire (Preston, UK))].

Badea 1967 — Badea Lucian, *Subcarpații dintre Cerna Oltețului și Gilort: studiu de geomorfologie,* Bucureşti (1967).

*** 1999 — *Le Bénézit Dictionnaire,* Paris (1999).

Black 1997 — Black Jeremy, *Maps and Politics,* London (1997).

Bourgoin s.a. — Bourgoin Ed., *Cinabre – Chimie.* In: *La Grande Encyclopédie,* 11, Paris (s.a.), p. 395.

Bucur, Lupea 2001 — Bucur Alexandru, Lupea Cornel, *Ofițerii români din Regimentul I grăniceresc român de la Orlat,* Sibiu (2001).

Coman 1975 — Coman Ionel, *Spre înălțimile înzăpezite ale Orientului,* Bucureşti (1975).

Dallmeier 1998 — Dallmeier Martin, *Das Fürstliche Haus Thurn und Taxis.* In: *Thurn und Taxis Museum Regensburg: Höfische Kunst und Kultur,* München (1998), p. 18-27.

Docan 1912 — Docan N., *Memoriu despre documentele cartografice privitoare la războiul din 1787-1791.* In: *Analele Academiei Române,* 34/*Memoriile Secțiunii Istorice,* Bucureşti (1912), p. 1249-1360.

Dutemple s.a. — Dutemple Edmond, *Anatolie.* In: *La Grande Encyclopédie,* 2, Paris (s.a.), p. 963-965.

Eminet 1957 — Eminet Rolland, *Din istoria drumurilor,* Bucureşti (1957).

Forbin 1819 — Forbin Auguste de, *Voyage dans le Levant en 1817 et 1818,* Paris (1819).

Golob 2018 — Golob Andreas, *Itinerant Informants and Circulating Information: Insights into the Black Sea Region in Central-European Media.* In: *Europe and the Black Sea Region: A History of Early Knowledge Exchange (1750-1850),* Wien (2018), p. 81-100.

Harris 1994 — Harris Chauncy D., *Geography.* In: *The New Encyclopædia Britannica,* 19, Chicago (1994), p. 877-886.

Holahan 1982 — Holahan Charles J., *Environmental Psychology,* New York (1982).

Houssay s.a. — Houssay Frédéric, *La Perse – Géologie.* In: *La Grande Encyclopédie,* 26, Paris (s.a.), p. 445-446.

Huart s.a. — Huart Clément, *La Perse – Géographie.* In: *La Grande Encyclopédie,* 26, Paris (s.a.), p. 443-445.

Huart s.a. — Huart Clément, *Recht.* In: *La Grande Encyclopédie,* 28, Paris (s.a.), p. 220.

Ingram 1926 — Ingram Thomas Allan, *Post and Postal Service.* In : *The Encyclopædia Britannica,* 22, London (1926), p. 176-196.

Iorga 1972 — Iorga Nicolae, *Peisagii,* Cluj (1972).

Jesner 2016 — Jesner Sabine, *Imperiale Grenze und Militärgrenzraum im Siebenbürgen des 18. Jahrhunderts Funktionale Bedeutung und Wahrnehmung.* In: *Grenzen – kulturhistorische Annäherungen,* Wien (2016), p. 117-131.

Jung 1905 — Jung, R., *Johann Wilhelm Abraham Jaeger.* In: *Allgemeine Deutsche Biographie,* 50, Leipzig (1905), p. 625.

Koren s.a. — Koren Hanns, *Unity and particularity of the country.* In: *Steiermark,* Innsbruck-Wien (s.a.), p. 16-21.

Lévy 1971 — Lévy Jacques, *Cunoașterea Sistemului Solar.* In: *Istoria universală a științei,* 2, Bucureşti (1971), p. 503-526.

Năstase 1969 — Năstase A., *Mappa specialis Walachiae.* In: *Terra,* I (XXI)/2, 1969, p. 30-35.

Neamu 1967 — Neamu Gheorghe, *Pe valea Oltului – de la izvoare la Cozia.* In: *Lecturi geografice,* 1, Bucureşti (1967), p. 103-107.

*** 1994 — *The New Encyclopædia Britannica* [Micropædia (1-12)], Chicago (1994).

Panighianţ 1969 — Panighianţ Eugen, *Valea Oltului,* Bucureşti (1969).

Passeron 1982 — Passeron René, *Opera picturală și funcțiile aparenței,* Bucureşti (1982).

Popescu-Spineni 1978 — Popescu-Spineni Marin, *România în izvoare geografice şi cartografice: din antichitate până în pragul veacului nostru,* Bucureşti (1978).

Roşca 1971 — Roşca, I., *Irlanda, insula verde.* In: *Lecturi geografice,* 3, Bucureşti (1971), p. 188-191.

Stearns 1994 — Stearns Peter N., *The Industrial Revolution. – The Age of Revolution.* In: *European History and Culture.* In: *The New Encyclopædia Britannica,* Chicago (1994), 18, p. 683-689.

Stopfer 1838 — Stopfer Mathias, *Erlaeuterungen über die Militär-Gränz-Verwaltung des österreichischen Kaiserthums,* Wien (1838).

Teodorescu 1967 — Teodorescu Gheorghe, *Lunca Dunării la vărsarea Ialomiței.* In: *Lecturi geografice,* I, Bucureşti (1967), p. 166-169.

Teuceanu 2021 — Teuceanu Radu, *The Portfolio of Old Maps "Convolut verschiedener Karten" in the Cartographic Cabinet.* In: *Brukenthal Acta Musei* XVI.1, Sibiu/Hermannstadt (2021), p. 217-244.

Veredarius 1885 — Veredarius O., *Das Buch von der Weltpost, Entwickelung und Wirken der Post und Telegraphie im Weltverkehr,* Berlin (1885).

Wurzbach 1857-1870 — Wurzbach Constant von, *Biographisches Lexikon des Kaiserthums Œsterreich,* Wien (1857-1870).

LIST OF ILLUSTRATIONS / LISTA ILUSTRAȚIILOR

Fig. 1. The Portfolio / Volumul coligat

Fig. 2. Homann, Johann Baptist, *Sphæra artificialis (Sphærarum artificialium typica repræsentatio),* S.l., s.a.

Fig. 3. Ruhedorf, Ferdinand Joseph von, *Mappa specialis Wallachiæ,* S.l., s.a.

Fig. 4. *Generalkarte von Siebenbürgen,* S.l., s.a.

Fig. 5. *Specification der Sommer- und Winter-Cordonposten, der siebenbürgischen Militärgrenze,* S.l., s.a.

Fig. 6. Schmitfeld, Georg, *Griechenland nebst den angrenzenden Ländern,* Wien, Tranquillo Mollo, 1830

Fig. 7. *Karte der Insel Kreta,* S.l., s.a.

Fig. 8. *Carte générale de la France divisée en ses 83 départemens, avec le chef lieu des Districts, des Tribunaux, et l'arondissement des 10 Métropoles. Pour servir a l'intelligence de l'Atlas de la France, suivant la nouvelle division géographique décrétée par l'Assemblée Nationale,* [Paris, 1791]

Fig. 9. Müller, F[riedrich], *Kriegstheater oder Grenzkarte … zwischen Frankreich und Italien,* S.l., [1798]

Fig. 10. Chaumier & Mauborgne, *Tableau général et itinéraire de l'Empire Français : divisé en 130 Départemens, avec les Préfectures, sous-Préfectures, Archévêchés, Evêchés, Chef-lieux militaires et des Cohortes de la Legion d'Honneur, des Sénatories et Préfectures Maritimes, et à la distance de Paris aux Préfectures, marquée en lieues de Poste, où se trouvent Partie des Isles Britanniques, Partie de l'Allemagne, la Suisse, Partie de l'Italie et l'Isle de Corse ; rédigée par Chaumier en l'an 7 ; corrigée et augmentée par Mauborgne, Ancien Professeur, en 1813,* [Paris, 1813]

Fig. 11. Homann, Johann Baptist, *Tabula Marchionatus Brandenburgensi,* S.l., s.a.

Fig. 12. Kauperz Joh. Mich., *Postkarte der allgemeinen österr. und ung. Erbländer,* Graz, 1792

Fig. 13. *Strassenkarte des Herzogthums Steyermark …,* S.l., [ante 1829]

Fig. 14. C.P.S.C.M., *Neue vollkommene Postkarte durch ganz Teutschland nach Italien, Franckreich, Niederlande, Preussen, Polen, und Ungarn,* Wien, Artaria Compagnie, 1796

Fig. 15. Jaeger, Johann Wilhelm, *Le Theatre de la Guerre entre les deux puissans Empires de Russie et de Turquie, tant en Europe qu'en Asie : dressé avec beaucoup de soin, d'aprés les meilleures Cartes et Observations des plus modernes Voyages de Pocock, Otter et Hanwey, et d'aprés les Atlas de Russie et de Pologne, de même que suivant les Avis autentiques reçûs des Armées, durant cette Guerre par I. W. Iäger Ingénieur Capitaine Lieutenant de l'Artillerie et Inspecteur des Arsenaux de la Ville.* A Francfort sur le Mein. 1770

Fig. 16. Michaelis, E[rnst] H[einrich] (Bearbeitet unter Leitung von ~), *Algier und das Mittelmeer,* München, 1830

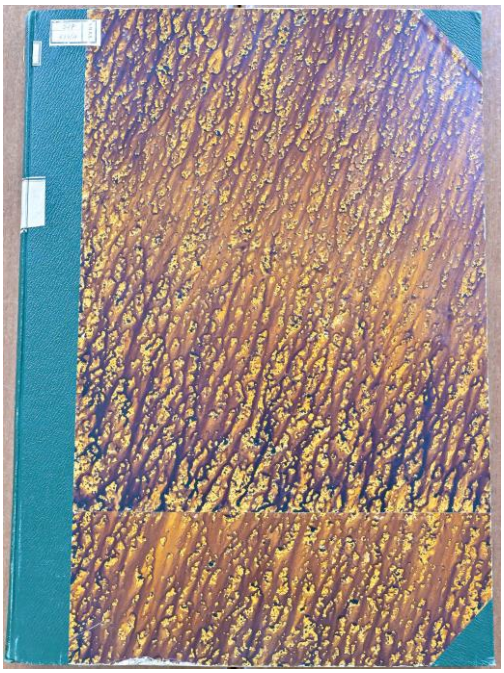

Fig. 1

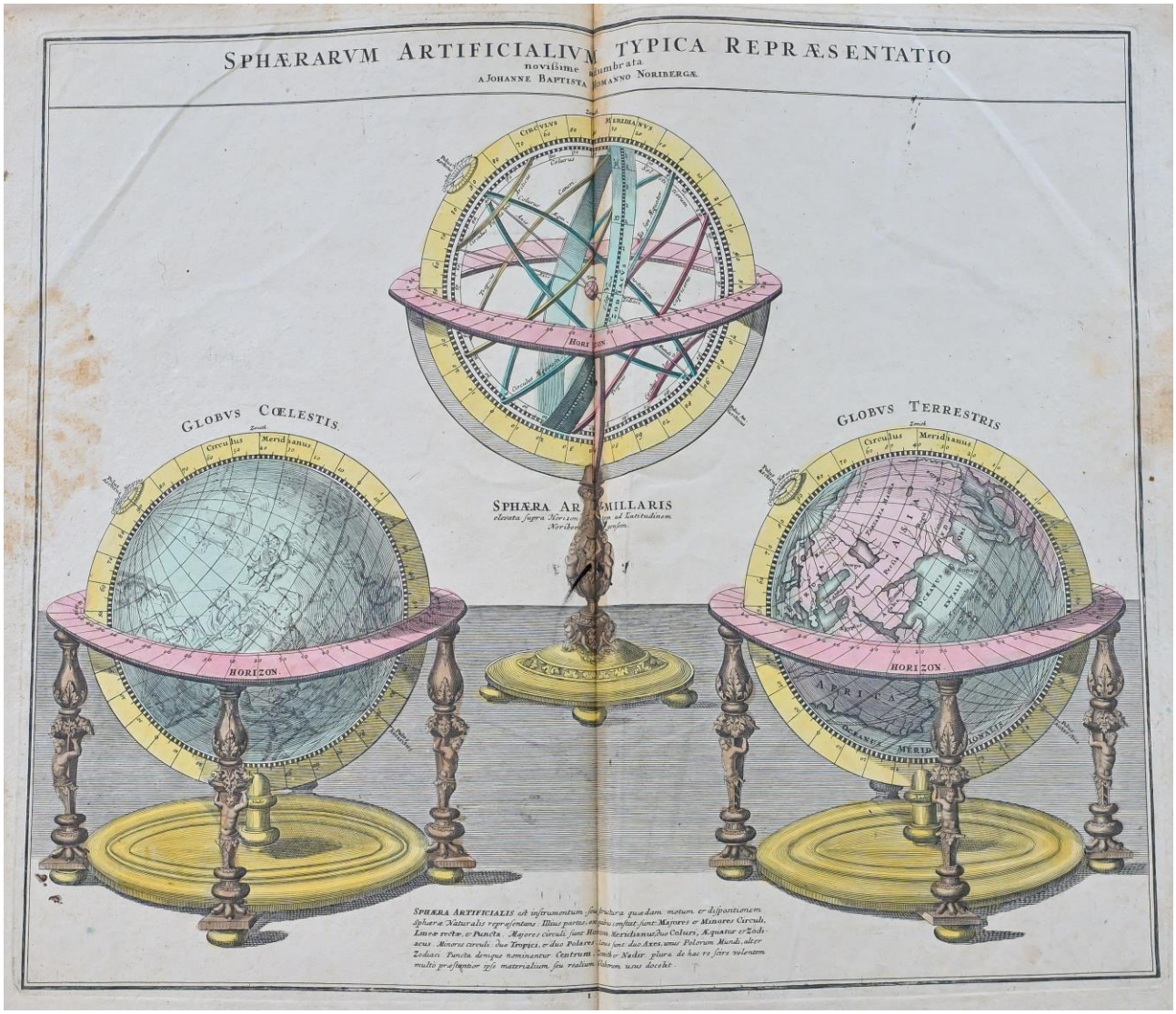

Fig. 2

Fig. 3

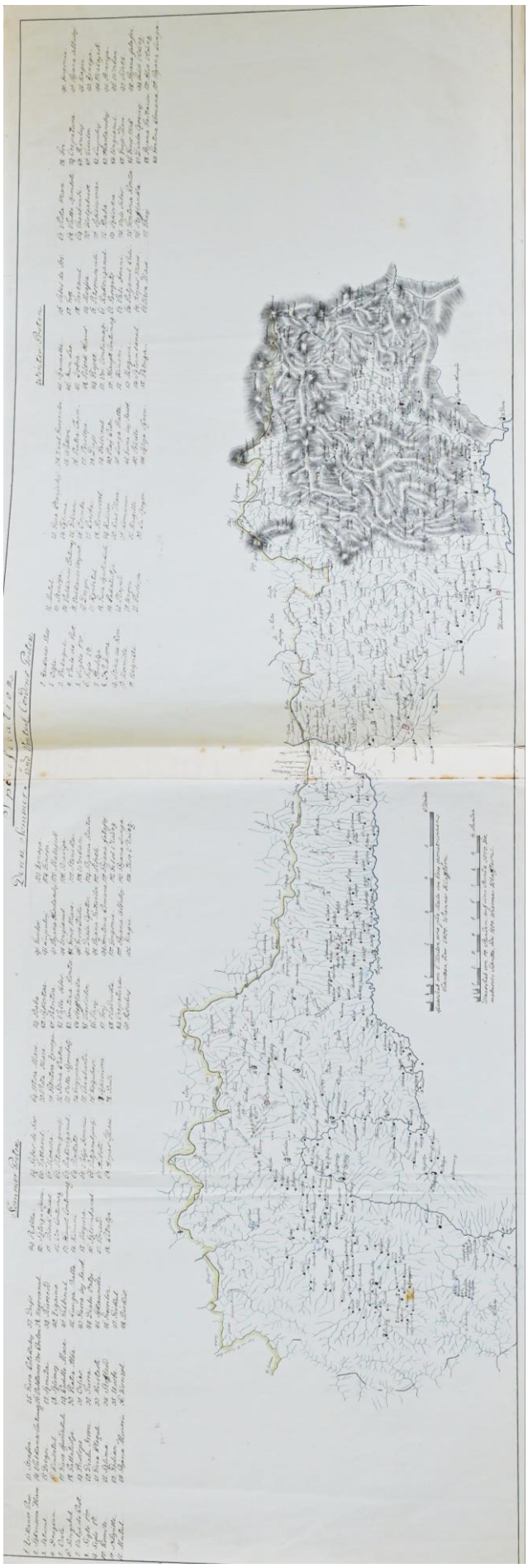

Fig. 5

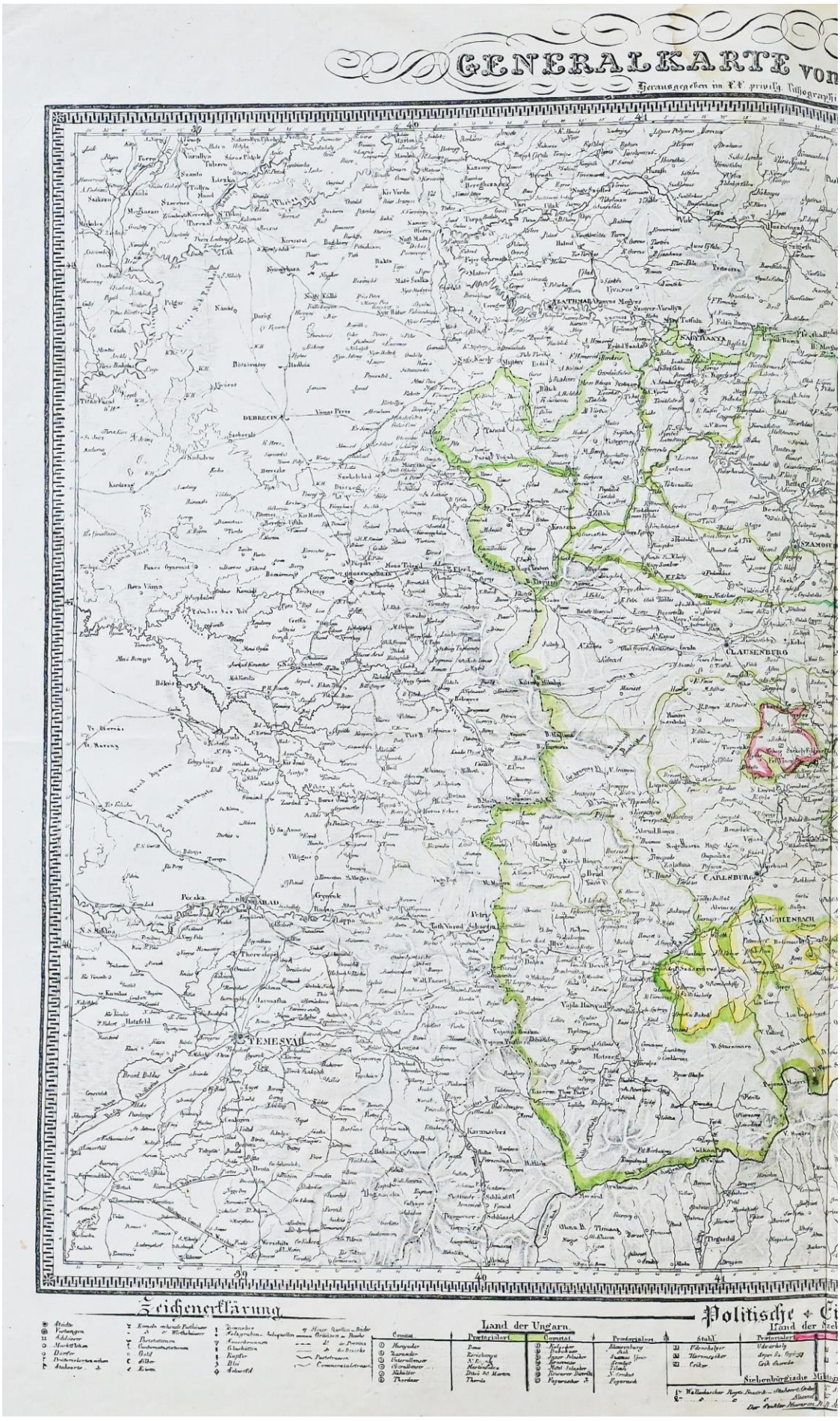

Fig. 4

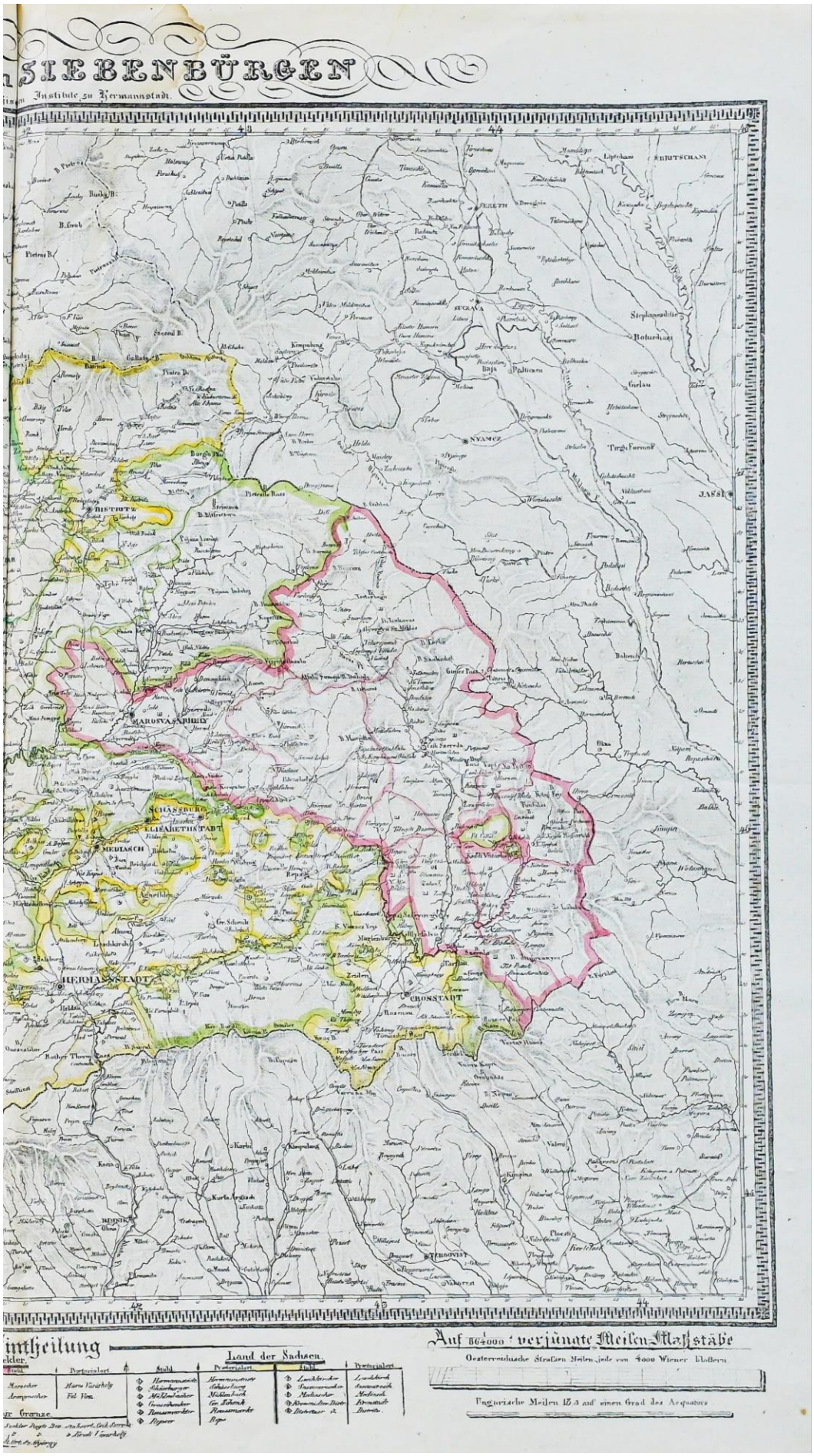

Fig. 4

Fig. 6

Fig. 7

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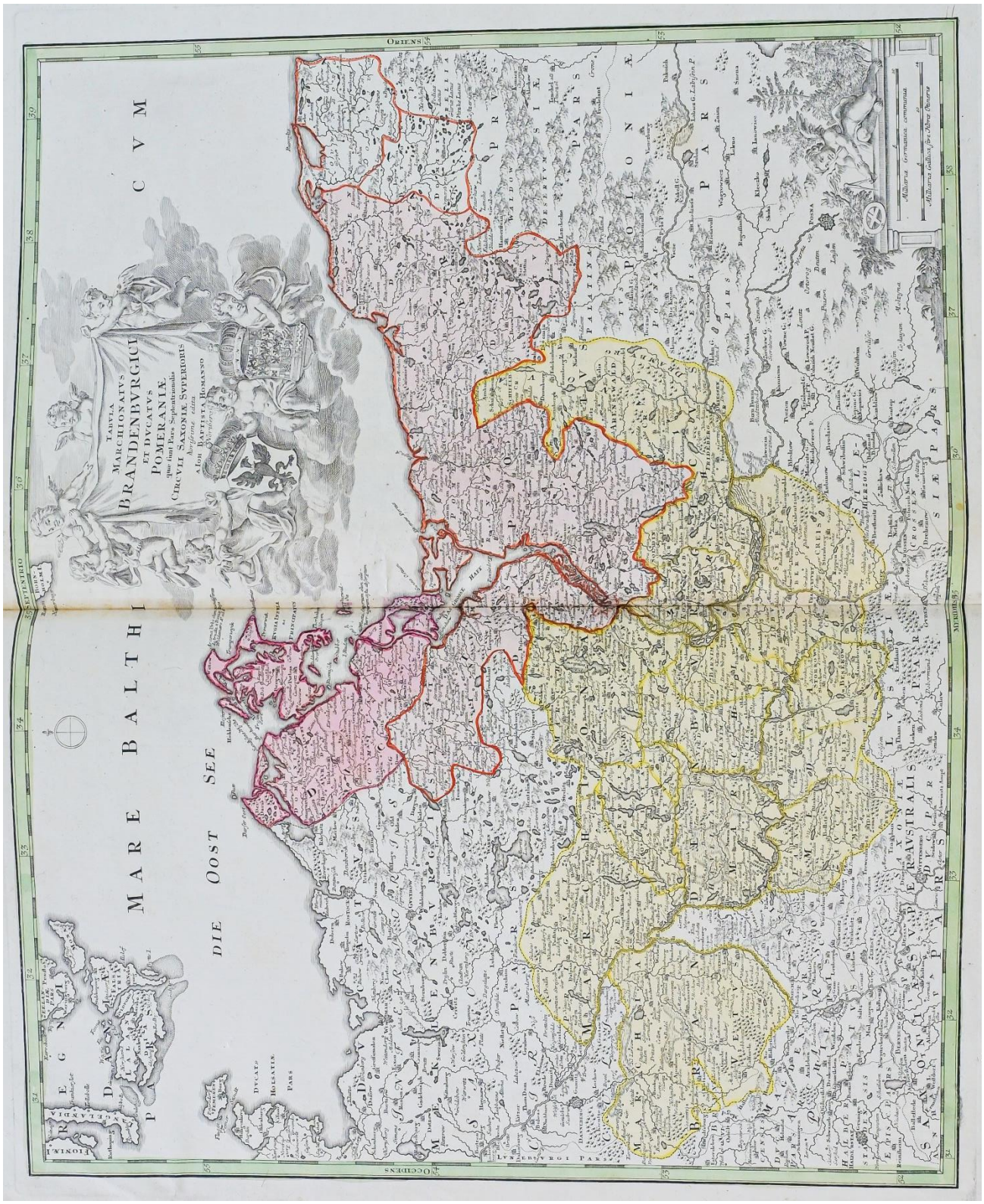

Fig. 11

Fig. 12

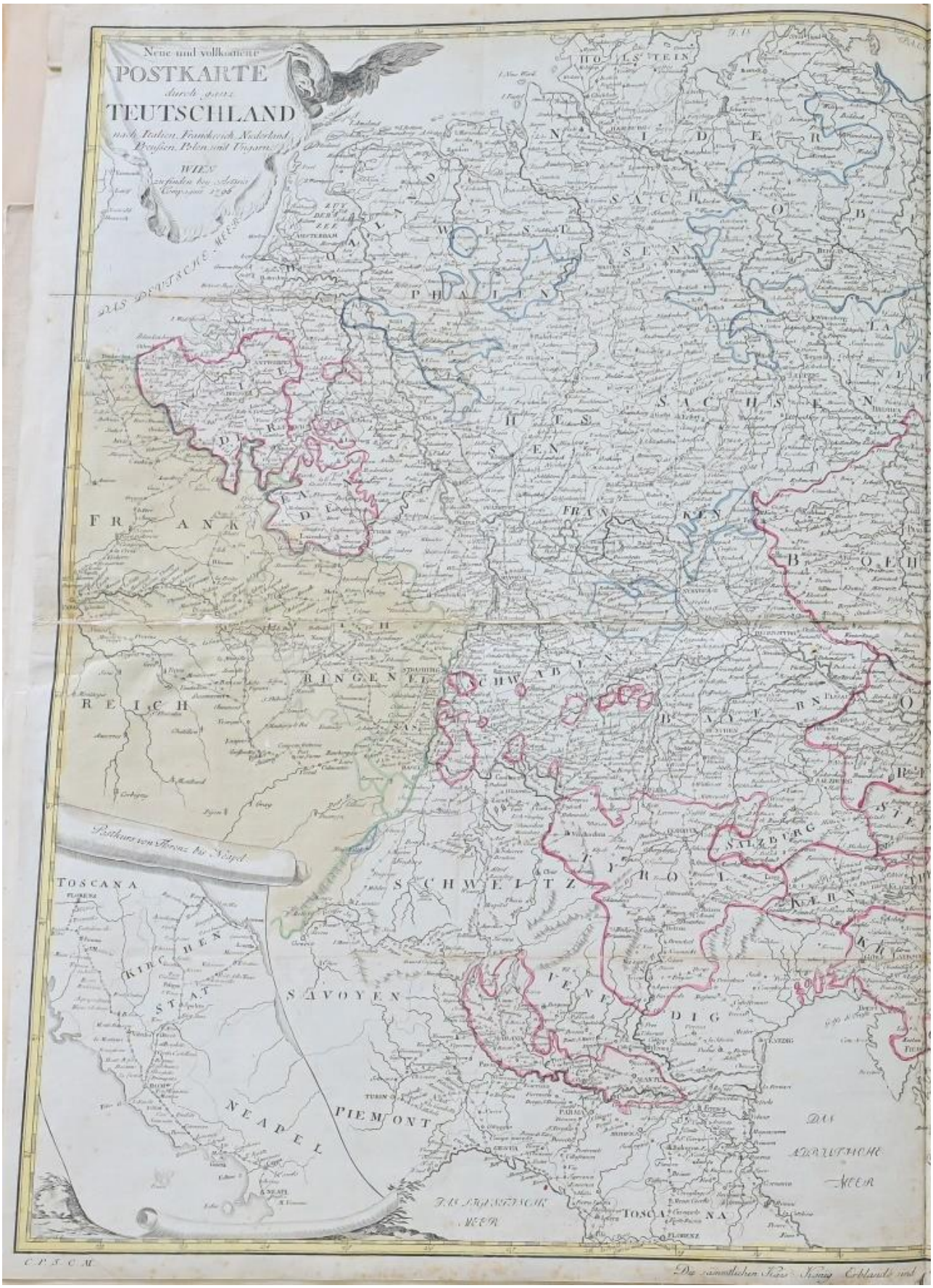

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Fig. 13

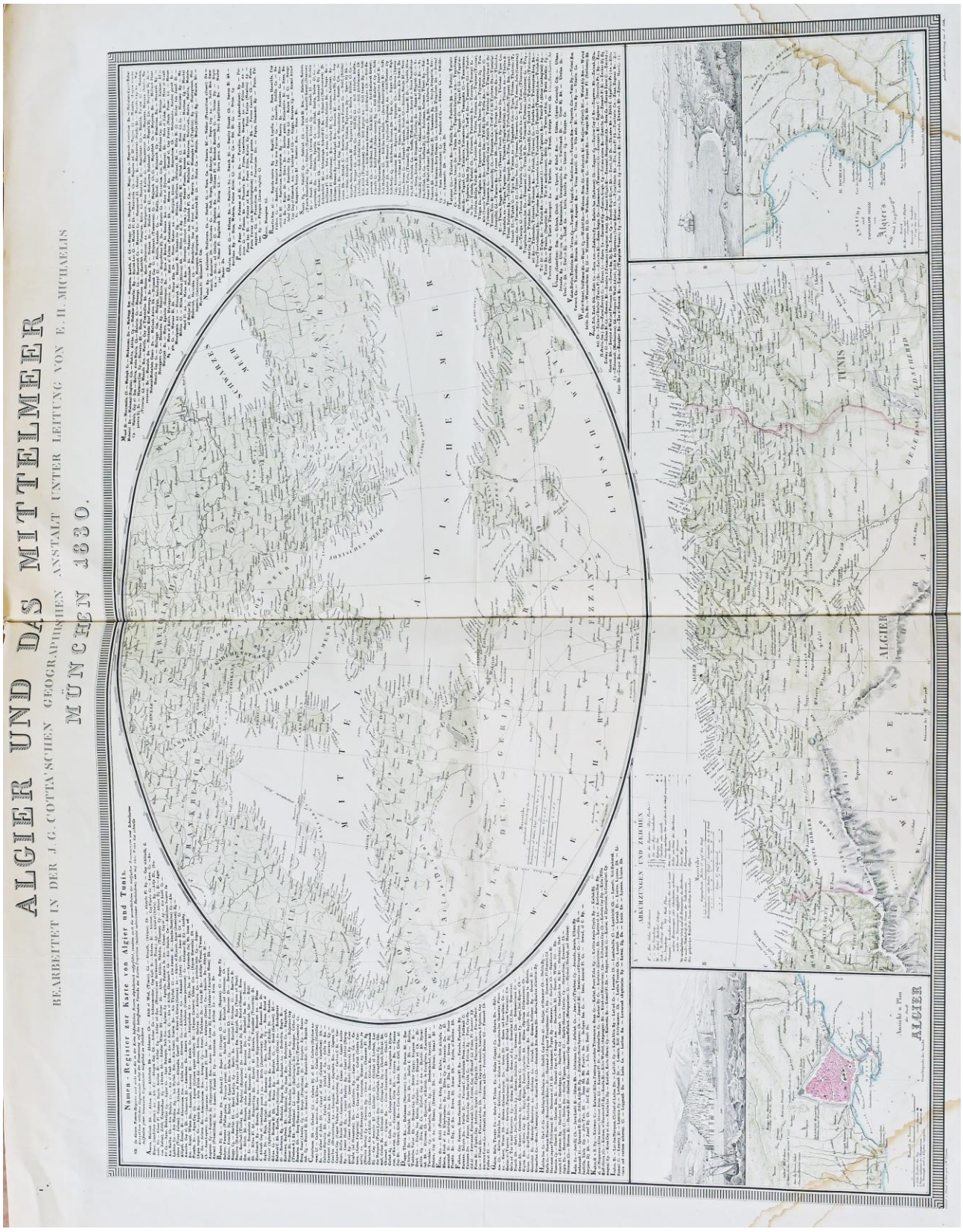

Fig. 16

THE CORVINS' CASTLE DURING THE AUSTRO-HUNGARIAN EMPIRE

Ioan BODOCHI *
Delia-Maria TATU **

Abstract: *The Castle of Hunedoara was restored to its former glory during the nineteenth century, after its almost complete destruction by fire, in 1854. The restoration works were assumed by the civil society, with a special note on the activity of the Society of Doctors and Naturalists from Hungary, with an exceptionally active campaign of informing the population on the shameful state of the Castle, stated in parliamentary speeches, scientific papers and newspaper articles. All of these works had been undertaken before legislation was in place, while even the concept and premises of restorations were being discussed by scientists and legislators.*

This paper also presents the new observations and discoveries that the authors were able to note during the current restoration project. It is important to mention that the restoration works made use of some of the original components, confirmed in situ by the presence of numerous stonemason markings pre-restoration. Most of the restores involved in the works at the Corvins'Castle agree that the monument needs to be brought to the original aspect, using visible clues in photos done after the fire in the 1854 as well as ones from the Bajoni 1681 inventory and the 1867 Arányi monograph.

Keywords: *castle, palace, Middle Ages, nineteenth century, restoration, archives.*

Rezumat: *Castelul Hunedoarei a fost restaurat la gloria de odinioară în secolul al XIX-lea, după distrugerea sa aproape completă printr-un incendiu, în 1854. Lucrările de restaurare au fost asumate de societatea civilă, cu o notă specială asupra activității Societății Medicilor și Naturaliștilor din Ungaria, cu o campanie excepțional de activă de informare a populației cu privire la starea rușinoasă a Castelului, exprimată în discursuri parlamentare, lucrări științifice și articole de ziar. Toate aceste lucrări au fost întreprinse înainte de intrarea în vigoare a legislației, în timp ce chiar conceptul și premisele restaurărilor au fost discutate de oamenii de știință și legiuitori.*

Această lucrare prezintă, de asemenea, noile observații și descoperiri pe care autorii le-au putut nota în timpul actualului proiect de restaurare. Este important de menționat că lucrările de restaurare au folosit unele dintre componentele originale, fapt confirmat in situ de prezența a numeroase semne de meșteri pietrari pre-restaurare. Majoritatea restauratorilor implicați în lucrările de la Castelul Corvinilor sunt de acord că monumentul trebuie adus la aspectul original, folosind indicii vizibile în fotografiile făcute după incendiul din 1854, precum și cele din inventarul Bajoni din 1681 și monografia Arányi din 1867.

Cuvinte cheie: *castel, palat, Evul Mediu, secolul al XIX-lea, restaurare, arhive.*

The great fire of the 13th of April 1854 ends over four centuries of uninterrupted habitation of the Castle. Despite the pleas of conservationist József Lórény (ever since 1855) it is abandoned by authorities and it starts to crumble under the weight of destruction (Mezey, Szentesi1996, 55-56) (fig. 1). This sad state of facts was later reported in several publications, notes on the indolence which betrayed an acute lack of respect towards the past and its accomplishments, but, at the same time somehow expressing the hope there will be "patriots" who will embrace the Cause[1].

The lack of interest from the authorities as well as the lack of a specialized institution[2] which would take over the task of restoring the Castle make it so, in a first stage the works would be assumed by the civil society (Lupescu 2011a, 10), with a special note on the activity of the Society of Doctors and Naturalists from Hungary, with an exceptionally active campaign of informing the population on the shameful state of the Castle in Hunedoara and the imperious need to restore it to

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[1] Presented in newspapers of the era, such as Vasárnapi Ujság (1857) or Nővilág (1860).

[2] "Magyarországi Műemlékek Ideiglenes Bizottsága" (Temporary Committee for the Protection of Monuments in Hungary) was set up in 1872 and since 1881 it became "Műemlékek Országos Bizottsága" (National Monuments Committee).

its former glory, stated in parliamentary speeches, scientific papers and newspaper articles.

The most active and influential voice endeavouring to save the Castle was that of Doctor Lajos Arányi. In 1863 he visited the Castle for the first time, with six more subsequent travels to Hunedoara, for measurements and documentation. In 1865 therefore, in Bratislava, within the 11th General Assembly of the Society of Doctors, Arányi was presenting a paper on the past and present of the Castle, as well as a gorgeous wood scale model (fig. 2). The speech and the model had an electrifying effect on the audience. So much so, that the quorum votes the financing of printing two thousand copies of the monograph on the Castle as well as the establishment of a delegation (containing Lajos Arányi[3] as well) which would present His Majesty the King Franz Joseph a petition for urgent measures that would stop the destruction of the Castle (Vasárnapi Ujság 12 (1865) 37, 462).

The first notable personality actively implicated in the rescue campaign was Carol Papp de Szathmáry (Bardoly 2011, 16), on his turn drawing attention on the historical and architectural high value of the monument, outgrowing the borders of the country, a monument waiting to be restored and included in the list of culturally and educationally relevant monuments (Szathmáry 1865, 552-553).

We must note the proposal (initiated by L. Arányi) to organize a committee which would work on a restoration project. The project would include József Lippert, Imre Henszlmann and Friedrich Schmidt (Sisa 2000, 97). In 1867, for this precise purpose, Professor Schmidt (accompanied by twelve of his students and two of the future actual restorers of the Castle – Ferenc Schulcz and Imre Steindl together with Adolf Léhner) went to Hunedoara for measurements, sketches and surveys. Some of the resulted plates and drawings were later published under the patronage of the Wiener Bauhütte. These were the bases of the first restoration project of the castle. It was proposed by F. Schmidt (Sisa 1987, 159), and subsequently used by F. Schulcz and I. Steindl as documentation for the restoration of the "fortress" from Hunedoara (Lupescu 2007, 39).

Steindl and Léhner present a report to the Association of Engineers (which had sent them in Hunedoara). The Association agrees that the restoration works at the Corvins' Castle need to start as soon as possible. This task was assigned to a committee formed by Imre Henszlmann, president and the members Szkalnitzky, Léhner and Steindl (Magyar Mérnök 1867, 163-165). Meanwhile, using the sketches and surveys drawn at Hunedoara, during the winter of 1867-68, a restoration project was written at the Academy in Vienna. In support for the beginning of the restoration works Schmidt was asked to write a report, talking about the urgent need to restore the castle. He proposes a 250,000 Forints budget, divided into 50,000 per annum. This budget did not contain the interior furnishings. Later on this plan was sent to Count Zichy Ödön, Baron Nopcsa and to the Minister of Finances Menyhért Lónyay. He became one of the fervent supporters of the monument and sent the restoration plan to Parliament. But here, there were not just supporters, but also critical voices, stating that a poor country such as Hungary could not afford such expenses for useless things. The ones who made the most efforts in voting this plan were, we should note, Lajos Arány, dr. Flóris Rómer and Albert Benedicti. Because of the fact that the budget cycle was only three years long the Diet votes instead of the required 250,000 Forints only 175,000 Forints, of which 25,000 were set aside for the year 1868 and 50,000 Forints per annum for the next three years (Schulcz 1869, 414; Bardoly 2011, 19).

A reputed Professor at the Academy of Fine Arts in Vienna, Friedrich Schmidt's influence over the restoration works at the castle was extended, through his students Ferenc Schulcz, Imre Steindl and Frigyes Schulek (Lupescu, 2007, 39) until the first decade of the twentieth century.

Still in 1868[4] during a working session of the Society of the Hungarian Historians, held in Cluj-Napoca, the idea of transforming the castle in Hunedoara into a royal residence (Századok1868, 591), a proposal happily received by the people of Hunedoara, with the prospect of housing the royal

[3]For more information on Arányi's activities for the Castle, see Bodochi 2021, 159-176.

[4]Initially, re-telling a discussion from 1865 with L. Arányi at Hunedoara, C. P. Szathmáry talks about the fact that the doctor suggested a museum, an academy of forestry sciences or a secondary grade economic institute (Szathmáry 1865, 552-553). Before, in 1863, Henrik Finály proposed that the Castle should be taken over by the „Erdélyi Múzeum-Egylet" - The Association of the Transylvanian Museum (Henrik 1863, 141). In 1867 the people in Hunedoara asked the Hungarian Government to transfer the Castle into the ownership of the County, so that it would be used as headquarters by the County Authorities (Vasárnapi Ujság 1867, 520).

family (Századok1869, 70; 138). More, this proposal perfectly fit with the restoration program[5], with which the Hungarian government wanted to mark the birth of the Austro-Hungarian Empire and electing Franz Joseph as King of Hungary (1867) but also the discussion concerning the establishment of the Royal residences in Hungary and Transylvania. At the same time the Hungarians, trying to prove their loyalty to the new King (Sisa 2000, 98), to reaffirm the desire of consolidating Hungarian national identity within the new political structure (Sisa 2020, 200) and to demonstrate the continuity between the golden age of the Hungarian royalty, represented by King Matthias and the new glorious recent era.

Also, choosing the Castle in Hunedoara was motivated by another important aspect: the Castle was the property of the Hungarian state, the Ministry of Finances, more specifically (Sisa 2002, 95).

The idea of the hunting lodge was not a local project but a successful European practice. Based on the principles of functionality, the castles in Stolzenfels and Pierrefonds, were restored by Viollet-le-Duc, commissioned by Napoleon III (Sisa 2000, 98).

In 1868 all premises for the start of the restoration works in Hunedoara were met and *Archaeologiai Közlemények* tells us several of the reasons feeding this optimism. There was talk of a quasi-total agreement concerning the immense value of the castle and its restoration as well as of the fact that the project was a guaranteed success since it belonged to Professor Schmidt. Another reason for hope was that fact that at the time a whole generation of architects, most of them Schmidt's students at the Academy of Fine Arts in Vienna, had graduated. The restoration works would offer them the possibility to work in the country. A very good economic reasoning was that since most of the architects were Hungarians, the money would stay in the country. If we add to this that fact that the budget for the project was under the direct scrutiny of the Ministry of Finances, we could say that, for the first time, there was a very real possibility that the restoration works would actually start in Hunedoara (Archaeologiai Közlemények1868, 218).

Schmidt's proposed restoration project (fig. 3) was based on the principles of Neo-gothic, promoted by the school of A.W.N. Pugin, principles adopted by the German Neo-gothic school through August Reichensperger, who was Schmidt's mentor while he was working at the Köln/ Cologne cathedral (Sisa 2002a, 170-171). His project, which solely focused on superficial interventions on the surfaces of the walls, was never implemented. When Schmidt was asked to take over the restoration works, he refused and proposed that Schultz, one of his favourite students, should be in charge.

F. Schulcz through a powerful Neo-gothic aspect he proposes, departs somewhat from Schmidt's vision, leaning more towards the Historicist school of thought which accepted original elements combined with fictitious ones, a principle which was specific to Viollet-le-Duc's school of stylistic restoration (Lupescu 2007, 41). The end goal was to restore the castle to its former glory but to preserve the nineteenth century creature comforts. In essence the project consisted of forming a domain with the castle, an exterior yard and a royal park (Magyar Mérnök,1870, pl. XLI). The budget of the project rocketed to 500,000 Forints (Forster 1905, 34). Nevertheless, we consider that, from a conceptual point of view, there are arguments supporting the fact that Schultz did not totally disavowed Pugin's school's principles.

Schulcz's project also focused on the roofs. They were to be heightened in order to give the building personality (the roofs were to be much taller than the ones pre-fire 1854 but still lower than the ones drawn in Steindl's project – fig 3). All the roof were excessively decorated with turrets, fleurons, pinnacles, crenelated attics as well as other elements which were supposed to augment the Neo Gothic style. The Mace Tower was supposed to have a clock while on top of the roof a statue was to be placed, a knight with a flag, representing John of Hunedoara (Sisa 2000, 98; Lupescu 2007, 44-45).

Still on the exterior a crenelated attic was placed, acquiring visual unity and connecting all the wings of the castle between themselves. On the façade facing the inner yard of the Bethlen wing a two-levelled gallery was projected. It connected this wing with the northern one, prolonged to the Matthias Loggia, thus also covering part of the chapel's façade. Above the gallery over the loggia, a geminated gothic window was supposed to be placed. It was supposed to be delimitated

[5]This program contained the Corvins' Castle in Hunedoara, the restoration of Solomon's Tower in Visegrad, the Galgamácsa hunting castle as well as another castle in the forests of the Ung County (Sisa 1986, 15).

with a mullion and flanked by coat of arms on both sides.

The roof preserved the belfry which was decorated with crochets on the sides and a fleuron shaped as a cross on top. The belfry was dismantled during the nineteen sixties. Since the loggia, at least on its ground floor, was built in the Gothic style, it seems that there were no interventions planned here. Inspired by the Neo Gothic spirit Schulcz sometimes exaggerated his proposals, deemed by Arányi as being historically fakes (Lupescu 2011, 339).

His early death impeded the project. The works done from the opening of the site in Hunedoara (on the 25th of November 1868) until the end of 1869 are known to us from an official report, published with Schulcz's approval in *A Magyar Mérnök-Egylet Közlönye*.

Schulcz came up with a seven-point urgent restoration plan. A priority was granting access in the building; therefore, the construction of a temporary bridge was first on the list. A smaller bridge on the eastern side, toward the garden was also planned for the evacuation of the debris. Once the access ways were assured, Schultz and his team would deal with supporting the vault of the Knights' Hall and the demolition of the last oriole of the Hunyadi Gallery, which presented a high risk of collapse.

The other planned works considered the construction of some temporary roofs as well as the demolition of walls, vaults and chimneys which, in case of collapse, would have endangered other constructions as well. The proposal of these interventions was to preserve the building, to assure the structural integrity and to avoid accidents.

There were at least two opinions concerning the aspect of the Council Hall. The first theory maintained that this hall was very similar to the one on the ground floor, therefore being divided into two naves. The second theory claimed that the fifteenth century image was very similar to the one in the nineteenth century, therefore it did not have a vault. This idea was also supported later by Konstantin Vukov (Vukov, 1988, 1-7).

The influence of Pugin's school was also reflected in Schulcz's desire to use construction materials which would be as close to the original ones. After several months of research, he discovers the quarry in Deva, from where the stone used in building the castle during the Middle Ages would have been quarried. The next problem on the list was that of the stone masons. Because Hunedoara did not have such specialized work force, the workmen were hired form Vienna's Votivkirche (Magyar Mérnök 1870, 42; Sisa 1987a, 44).

The current restoration project presented us with the unique possibility of, using the scaffolding placed on numerous architectural features, studying said features. The stone masons' marks, which are specific for the workshop in Hunedoara, attest the continuity of said workshop until 1876, when this first stage of restorations was halted. (fig. 4 – 1-4)

Again, from an information note from Schulcz we find that, by dismantling the walls in the Council Hall, which were built by Gabriel Bethlen, he discovers numerous fragments of ribs, abacuses, decorated keystones, fragments which used to belong in the vault of the Council Hall, which was demolished during the seventeenth century. There were also numerous fragments of the window components of the same great hall, which had been walled in during G. Bethlen (Századok 1869, 423). Unfortunately, the advanced degradation of these stone components permitted their very limited re-usage, but they proved extremely useful in providing information concerning the aspect of the vaults (Archaeologiai Értesítő, 1868-1869, 61-62; Sisa 2000, 102). Likewise, Schultz brings back the discussion of the fifteenth century fresco which decorated the Matthias Loggia (Századok 1869, 430-431), which he had wanted to remake according to the original model (Archaeologiai Értesítő1870, 307-308). This fresco had been partially uncovered by doctor L. Arányi in 1866 (Arányi 1867, 84). At that time the characters depicted were considered to be John of Hunedoara and Elizabeth Szilágyi (based on the interpretation that the two anthropomorphic representations were in proximity with the Corvins' coat of arms –Magyarország és Nagyvilág 1870, 395; Archaeologiai Értesítő, 1870, 266; Rómer, 1874, 148-149)[6].

The fresco was documented at Wiener Bauhütte and by Ferencz Storno (Lupescu 2007, 144-155). Storno came to Hunedoara in April of 1869 in

[6]This interpretation was contradicted by I. Möller, who, by following the position of the scenes, attributes the portraits to Sigismund of Luxembourg and Elisabeth of Margina (Möller, 1913, p. 21-23). Another interpretation is offered by R. Lupescu, Éva Szmodisné Eszláry andJolán Balogh, who theorize that the fresco is nothing else than an artistic instalment fashionable during the fifteenth century and it illustrates not the birth of John of Hunedoara but of that of the Duke John Corvin (Balogh, 1985, p. 271-272; Szmodisné, 1991, p. 103; Lupescu, 2007, p. 169).

order to copy the fresco within a project launched in 1865 by the Archaeological Committee (Storno 1869, 1-2; Möller 1913a, 91; Valter 1996, 73).

The rhythm of the works made Schultz HOPE that the great hall on the second level (now called the Council Hall) would be finished by the end of the 1870 summer, thus commissioning the sculpting of all the ribs of the vault (Schultz, Ángyán 1876, 9), with the desire to rebuild the fifteenth century gothic aspect of the hall (Lupescu 2007, 101). Schultz and Ángyán's claims that ALL the ribs of the vault had been executed by Schultz's command DOES NOT confirm our observations: the vault which was reconstructed during the nineteen sixties presents a mixture of original elements carvings made in the nineteenth century as well as the twentieth century (elements which were made in the nineteen sixties, which bare no markings). At this moment of our research, we CANNOT be sure if: 1. Schultz's commissions had been executed completely; 2. Gyula Piacsek, due to his thoroughly unprofessional practices, used part of Schultz's components as construction materials; 3. Part of the components were either lost or destroyed.

Schultz also restores the oriels of the new gate tower, the rectangular one of the loggias (toward the Bear Pit) and the windows from the first level of the loggia. In the same northern wing, he rebuilds the wooden ceilings. He also rebuilds the roofs (some of them covered with tiles and others covered with boards) of almost all wings of the castle (Möller 1913, 30; Schultz, Ángyán 1876, p. 8-9).

Unfortunately, Schultz died on the 21st of October 1870, only 32 years old, which meant that he was not able to finish not even the works on the Knights' Hall. He managed to rearrange the columns over the walls of the royal castrum (Möller 1913, 30), to rebuild the vaulted ceiling and the frames for the six windows (Schultz, Ángyán 1876, p. 8). Schultz and Ángyán affirmations, as well as from Radu Lupescu (Lupescu 2007, 51) according to which Schultz re-used original components are confirmed in situ by the presence of numerous stonemason markings pre-restoration. Some of them were dated during the fifteenth century by Möller as well (Möller 1913, p. 23). A consistent number of these markings in the Western Palace are NOT mentioned by Möller and we discovered them during this year's research session (2023). Among them we have to mention the ones situated on the lateral moulds of the first window from the new gate tower, where we found fifteenth century marks, while the transversal mould presents the same marking twice, dated during the nineteenth century (fig. 4: 5-8). At this moment of research, we cannot assuredly claim if the presence or absence of masons' marks would also confirm the chronology of those elements. The inventory and interpretation of the master masons' marks will be subject of a future study (fig. 4: 9-12)

The restoration works on the castle were taken over by Imre Steindl, former student of Friedrich Schmidt and protégée of Imre Henszlmann. Steindl was familiar with the Corvins' Castle, since, in 1867 he had been sent here by the Engineers' Association at Hunedoara to complete Schmidt's team, who were drawing the surveys on the castle.

Steindl had begun his specialization in Hungary, at the "József" Polytechnic Institute, then completing his studies at the Academy of Fine Arts in Vienna, where, after completing his studies, he also learned stone masonry, which was especially appreciated by the neo-gothic circles, since learning this highly specialized job was considered a sign of respect for the Middle Ages and a way of manifesting the cult for the period. Steindl's teachers in Vienna were Eduard van der Nürr and August Siccard but his true mentor was always Friedrich Schmidt (Pesti, Riedel 2016).

Steindl's appointment as chief architect at Hunedoara was considered auspicious. Being an adept of purism and historicism in restoration, he would have been most likely to continue his predecessor's project.

Looking at Steindl's project, in many ways could be considered a continuation of the precedent, with a difference being that he considered the budget as too small, comparing the architectural and historical value of the monument (MÉM MDK, Tudományos Irattár, Vajdahunyad, inv. no. MOB 5/1873, f.7).

Schulcz presented a restoration project which cost 500,000 Ft., Steindl's project gets to the sum of 1,330,000 Ft., the government requesting an annual increase from 50,000 to 100,000 Ft. (Bardoly 2011, 24; Fővárosi Lapok, 1871, 1311). The new project was architecturally slightly simpler than the former but it included interior furnishings and had a budget of 1,900,000 Ft. (Forster 1905, 34), which generates negative reactions in the press. The newspapers and quarrels in Parliament pointed to the proposal of unnecessary buildings, exaggerated administrative

expenses and eschewed priorities. There was the question of why, instead of restoring the parts of the castle which were built by John of Hunedoara, Steindl was instead focused on the ones built by Gabriel Bethlen, as well as insisting on the hunting lodge project, especially since the chances for the royal family of actually using it as a permanent residence were indeed quite slim (Szathmáry 1871, 1315; Bardoly 2011, 24-25).

Steindl does not give up his proposal and states that the sums of money set aside for the Schultz restoration are "ridiculously small", taking into account similar projects in other countries and taking into account the standards for an adequate royal residence (MÉM MDK, fond Tudományos Irattár, Vajdahunyad, MOB, inv. No.5/1873, f. 7). He elaborates two versions of the project, one in 1871 and the second shortly after, without major differences between them (meaning details concerning the decorative elements, the aspect of the façades, or the compartmentalization of the spaces). In essence, both variants contain positive aspects (Lupescu 2007, 46). The Steindl projects are important since, except certain parts of the castle, they influence the current appearance of the monument. From Steindl's old project he keeps the wooden Neo Gothic gallery of the new gate tower (which still exists today) as well as the structure of the roofs. He does give up on the crenelated structures, keeping them only on the roofless towers (Lupescu 2007, 46).

As for the Neo Gothic gallery in front of the Great Palace Facing the Town, he gives up on the portion in front of the chapel and draws up a stone staircase with iron wrought handrail for accessing the second floor. He also builds a gang towards the well. These works can be easily determined by the existence of numerous stonemasons' marks.

Steindl proposes that the most significant alterations would be on the southeastern side of the castle, where he wanted to build "the Royal Loggia", reachable by climbing the "Royal Staircase", also a tower with a spiral staircase and stellar vault (MCC inv. no. 1298; MÉM MDK, Tudományos Irattár, Lux Kálmán-hagyaték, inv. no. 1722/12). These works were never realized (for more details see Lupescu 2011, 339-342).

The windows on the first floor of the Matthias Loggia were reconstructed, having used Schmidt's drawings from 1867 as well as original components, with frames using raised poles and capstones. The decorative motifs used were torus, mewing and simple moulds on the mullion.

Works on the northern wing: The triangular balcony facing the Bears' Pit had been reconstructed. The rooms from the first and second floors had been re-compartmentalized. The façade of the Matthias Loggia had also been modified, with added Neo-Gothic elements that would stylistically unify the façades in the inner bailey. On the ground floor the modifications were limited to the opening next to the stairs, which was added with a simple door frame, sculpted with crochets and a cross-shaped finial while the gothic windows were replaced with copies. The plan for the tympanum was decorating (MÉM MDK, Tudományos Irattár, Lux Kálmán-hagyaték, inv. no. 1722/11) it with a coat of arms but that was replaced with trefoil and quatrefoil tracery. On the first floor the Renaissance semicircular arcade remained unmodified. Under the roof a retracting cornice supported pinions with small door leading to the attic. The pinions were decorated with crochets and cross-shaped finials.

Steindl's work on the Matthias Loggia attracted many controversies. At first, there was the rumour that he would destroy the frescoes on the second floor (Archaeologiai Értesítő, 1871, 21-22), then, it was thought that he was a poor manager of the site, the works were terribly slow after Schulcz's death. Apparently the "the man in charge with the works spends more time in Budapest", not going to Hunedoara unless there were some VIP's willing to visit the castle and, since he wanted to prolong the site, with him in charge, there were only 6 or 10 people working there every week (Magyarország és Nagyvilág1875, no.1, 12).

In July of 1874, a little before Steindl resigns (October of 1874), Hegedüs Candid, Imre Henszlmann and Imre Steindl were sent to Hunedoara in order to assess the restoration works. From their report, we find out that most of the north-eastern wing is restored and roofed, but there are no works done on the chapel and the southern wing. Other than the hallway on the ground floor, there are no works done on the eastern wing. But the western wing, namely the Knights' Hall was mostly finalized. As for the construction materials, the tiles for the roof were bought and the decorative stone elements that would be used to reconstruct the bay-windows on the Hunyadi Gallery had been prepared. The conclusion of the rapport was that, even though most of the construction materials had been bought and prepared, a large amount of money was needed in order to actually finish the restoration works. The end result for these little

egos and squirmishes was that, because of financial reasons, the restoration of the castle should be left for "better times" and the only area still in works was the finalization of the roofs (Henszlmann 1875, p. 6).

Considering all of the above, we should state that, although both Schulcz and Steindl proposed restoration projects which were adhering to the Purist school of restoration, Steindl's project was better because of his attitude toward the original elements of construction, but also, the works he conducted are better qualified as "reconstruction works" and not restoration.

The Royal House was obviously disinterested on this project (Sisa 2000, 104). But this notion, as well as the drastic reduction of the amounts of money allotted to the restoration of the castle, did not manage to stop the desire of still transforming the castle into a hunting lodge, therefore, the press was very enthusiastic in announcing His Majesty's visit to Transylvania, including the castle in Hunedoara (Magyarország és Nagyvilág 1875, no. 3,5), while, most of the time afterwards this matter was connected to the Crown Prince Rudolf (Szinte 1898, 99; Sisa 2002, 96; Sisa 2000, 106).

Following Steindl's resignation, Gyula Piacsek was named in charge with the works at Hunedoara. He was a former draftsman for Schulcz, head of works for Steindl, with a network of "friends" in the management of the Temporary Monuments Committee in Hungary.

In order to finalize and insure the works already begun by Steindl, Gyula Piacsek receives the sum of 66,691 Forints. The works begin in the month of May 1875 (Lupescu 2007, 52)), totalling plastering all the walls, dismantling and rebuilding the Hunyadi Gallery, where he never used original construction material which had been recovered. Subpar construction materials, poorly executed works, a lack of scruples in actually recovering and reusing original materials, shoddy, negligent reproductions of architectural components, negligence in reconstruction of the Gallery as well as actually never completing the works (MÉM MDK, Tudományos Irattár, Schulek Frigyes-hagyaték, Vajdahunyad, inv. no. K 699, f, 23-24;Bardoly 2011, p. 61) deprives us of one of the most spectacular components of the gallery, the heraldry which we could only study in older documents[7]. As a matter of fact, the gallery was left unfinished until the nineteen sixties, when the vaults of the bow windows had been reconstructed.

About this period, a sad one marring the restoration works on the castle of Hunedoara, Gyula Forster declared that the project never reached the goal and that, instead of being useful to the most known monument of the country, it actually led to its destruction (Möller 1913, 31). In answer to all accusations Steindl mentions that fact that not all the mistakes of the restoration are his, the ones made after he left the project and until the appointment of Antal Khuen in charge must be placed on others (Archaeologiai Értesítő 1880, 240). 1876 is also the year when the restoration works at the castle would be interrupted for five years.

Of the approved money for the royal hunting lodge, between 1869 and 1876 the sum total of money spent on the Corvins' Castle was 362,536 Forints (Forster 1905, 35).

When the restoration works were interrupted the Castle was out of the public attention while its fate was directly handled by the Ministry of Finances. It is, again, Lajos Arány who sends the Minister of Cults and Education, Ágoston Trefort, an offer proposing that the restoration of the castle would be done with the help of the civil society, by fundraising. Trefort sends this to the Monuments Committee, who, in the meeting on November 29th 1879 rejects it (Bardoly 2011, 30). Although rejected, The Matter is again in the public eye through Steindl. It is discussed in the Association of Engineers and Architects of Hungary. In 1879 Béla Ney proposed forming a committee that would evaluate the situation in Hunedoara and would propose a new project to the Government (Magyar Mérnök1879, 584). The head of the committee was openly elected Steindl, while the other members, elected by secret vote were Frigyes Schulek, Béla Ney, A Weber and Miklós Ybl (Magyar Mérnök1879, 594-595).

The committee went to Hunedoara in the autumn of 1879, and on the 6th of February 1880 a report containing mainly the situation of the Castle was read (Bardoly 2011, 30), also noting that at the date, because of the fact that the works had begun in too many places all at once, neither of the works had been finalized (Forster 1905, 35).

The most pressing matter was the lack of money and the initial restoration plan was impossible to accomplish but the committee considered it was a

[7]Lupescu proposes a reconstruction of the heraldry which used to decorate the Great Palace of the Corvins' Castle (Lupescu 2019, 53-69).

matter of national duty to finalize the already begun works. Two proposals were put forward. The first – creating a new restoration plan with a different outcome (the Royal Castle) and using the castle solely as a history museum; the second proposal was creating an acceptable and sustainable budget that would ensure the finalization of the works, even if it took longer to do it (Magyar Mérnök1880, 117-119). For years the Government unfortunately had only provided the necessary sums for security and minimal maintenance.

Carol Pogány, Member of Parliament for Hunedoara, comes up with a solution on the 19th of April 1880, when talking about the budget of the MONUMENTS COMMITTEE, noticing that there was no money included for the restoration of the castle, he proposes its transfer into the property of the Ministry of Cults and Education, a proposal received with great enthusiasm (Bardoly 2011, 30).

The members of the Temporary Committee of Monuments express their gratitude and joy that the Castle became the property of Ministry of Cults and Education (Parliament decision on the 19th of April 1880, put into practice on the 9th-11th of November 1880) and proposes that during the hiatus a specialist of the committee should go to Hunedoara twice a year and write an official report on the state of the Castle (Archaeologiai Értesítő1880, III).

For the formalities of delivering and receiving the castle Gyula Forster (as secretary within the Ministry of Cults and Education) was sent to Hunedoara. He, together with Schulek, were to pen a detailed report on the state of the castle, of the works done here, of the urgent works that needed to be done and to propose a budget (*MÉM MDK*, Tudományos Irattár,Schulek Frigyes-hagyaték, inv. no.K 697, f. 47; Bardoly 2011, 30 - 31). This transfer generates several administrative papers (dated on the 9th and on the 11th of November 1880 (MÉM MDK, Tudományos Irattár, Schulek Frigyes hagyaték,inv. no. K 698; MÉM MDK, Schulek Frigyes hagyaték,inv. no. K 699; Bardoly 2011, p. 52-77). Their documentary importance for the evolution of the castle could be compared to that of the 1681 inventory written by János Bajoni or Lajos Arányi's monograph.

Unfortunately, turning the castle into the property of the Ministry of Cults and Education and the new plan of re-functionalizing it by turning it into a museum (Sisa 2002, 96; Vasárnapi Ujság 1880, 617) – which was an idea presented multiple times, never changed the status, while the allocated money and the amount raised on rents barely managing to cover the security and maintenance fees. In 1881 only 1,000 forints were allocated to re-open the site (Lupescu 2007, 54), while between 1882 and 1884 5,000 Ft. were given and from 1883 until 1892 the sum was dropped to only 4,000 forints per annum (Forster 1905, 21-22).

Antal Khuen was appointed in charge of the works in Hunedoara and his assistant was István Möller.

The lack of money meant that the works on the castle were limited to several maintenance works and finalizing the ones already started. The restoration plan focused first on the works on the Hussars' Yard (since the buildings which were rented to the Ministry of Finances were so severely degraded as endangering the lives of the people working here) while the works in the castle proper were stopped. The cost of the repair works was 17,375 Ft (Forster 1905, 36). Because of the lack of money, the only places in the castle that were worked on are the Knight's Hall, finalizing the interiors of the Mace/ Painted Tower, the northern wing and the New Gate Tower. After this, the plan was to continue to works on the Council Hall and the Chapel. Unfortunately, other that several sketches for the Chapel, nothing was done, both of these spaces being restored in the nineteen-sixties (Ország-Világ1885, 16; Lupescu 2010, 150; Möller 1913, 31).

The sketches and surveys done in this period demonstrate the fact that the Historicist vision (present both for Schulcz and Steindl) was not yet overcome. This attitude is most clearly reflected in the plan to set sculpted lions (fig. 5) on the loggia Matthias staircase (Lupescu 2007, 55). An analysis of Khuen's activity will show the fact that he was focused on the same objectives as his predecessors (the northern wing and the Knights' Hall) the difference being in his attitude toward the original components. (fig. 6).

Because the annually allocated sums barely covered the expenses of maintaining the castle, the restoration works carried on very slowly and it was considered that even adding donations, those works will not be able to be finished faster than 50 or 60 years.

In these conditions during the territory gathering of the Society of Medics and Naturalists in Braşov the bases of an association for the protection of the Castle were established. Through its vice

president, dr. Darányi, a project of an itinerant fund raising was put to paper. On the 28th of August 1886 a meeting was held, with the participation of several local personalities. Arányi was invited to lecture (Pesti Hírlap 1886, 11).

The hopes of continuing the hunting lodge project were again high in 1887, when His Majesty, accompanied by Crown Prince Rudolf and several "military and civilian" personalities, visit the Castle. The supporters of the project and the local authorities use this occasion to bring back the idea and to propose that the restored monument should be given to Crown Prince Rudolf (Szinte 1898, 99). The only benefits from these proceedings are the allotment of 10,000 Forints to repair the bridge.

His poor health forced Khuen to move to Tenerife, from where until his death, he sent notes to Möller. He died on the February 1st 1890, only 38 years old. As a sign of respect on the day of his funeral a black flag was installed at the castle.

After Antal Khuen's death the site was taken over by István Möller, the two having had a relationship beyond the professional, Khuen leaving his entire estate to his favourite apprentice. Gyula Forster was hoping that Möller would inherit "not only the material goods but also his mentor's ideal and he would fulfil what his noble soul had dreamed of". Möller appoints Kálmán Lux in charge of the works and comes to Hunedoara for the first time in 1883 (Forster 1905, 36; Lupescu, 2007, 56).

Möller had studied architecture at the universities in Karlsruhe and Vienna and he was a continuity author of the German restoration school, who significantly influenced the restoration movement in Hungary and Transylvania during the second half of the 19thcentury (Opriș 1994, 63). The results of his researches, conceiving the first chronology of the construction phases of the castle remain until today important bibliographical reference in researches concerning the monument in Hunedoara.

Shortly after taking over the site Möller proposed a set of restorations to the Matthias Loggia, the first two floors of the New Gate Tower as well as the complete restoration of the Mace Tower, for which he demands 11,561 Forints. He also proposes re-making the paintings on the loggia, based on the plates prepared by Bertalan Székely, for which he demands another 9,270 Forints (MÉM MDK,Tudományos Irattár, Vajdahunyad, MOB, inv. no. 44/1890, f. 209). All of these demands remain unfulfilled, so the works are focused especially in the Hussar Yard, where unpretentious works could be contained within the allotted budget.

In 1896 Möller's authorization expired. In 1895 he addresses the Hungarian Historical Monuments Committee, requesting to prolong his authorization. It was not approved (Lupescu 2010, 150-151) and the works were taken over by Frigyes Schulek, but the lack of money for the actual works means this seemed to be a matter of ego from the well-known architect, who after 1876 always had connections with the works in Hunedoara. Schulek choses to work with Ottó Sztehlo, who wants to carry on the works in the Hussar Yard. The association between the two is not by chance because these two were the Committee's architect and vice architect.

The lack of finances felt like the works in Hunedoara carried on "slowly and with no vision" (Szinte 1898, 99), Schulek therefore, until he resigned, was more a honorary leader of the site. The only works that were supervised by him were at the buildings in the Hussars Yard and they were generated not by historical arguments but financial ones, as the buildings had been rented to the Ministry of Justice and served as headquarters for the local judge (Lupescu 2007, 57).

At the beginning of the twentieth century in Central and Southeastern Europe it was fashionable in restoration to use the principles of the stylistic unity doctrine. This was perpetuated by German restorer Rudolf Esterer until mid-twentieth century (Ratoiu 2011, 239), while in Transylvania it was purported by Rudolf Wagner, architect of the Historical Monuments Committee – the Transylvania section since 1923 (Opriș 1986, 105).

I. Möller's activity after 1900 is marked by two important aspects: 1. He is the first to base his restoration decisions on scientific principles and no. 2. He assures distancing the current restoration works from the Historicist principles. His two main directions of the site's activity were finalizing the already begun works and remedying the mistakes made here by the Steindl interventions, which were considered arbitrary, unwelcomed and even destructive (Lupescu 2010, 152-153). His plan also included the recommendations made by the sub-committee sent to Hunedoara in 1902, by the Monuments Committee for the restoration of the Castle in Hunedoara (MÉM MDK, Tudományos Irattár, Vajdahunyad, MOB, inv. no. 228/1907, f. 354).

Shortly after coming back to Hunedoara, in 1902, Möller writes several work plans, considering only the most urgent ones (MÉM MDK,Tudományos Irattár, Vajdahunyad, MOB,inv. no. 142/1902, f. 264) evaluated 73,363.33 Koronas (Bodochi, Tatu 2022, 111), while for the year 1903 he proposes a budget of 90,000 Koronas (MÉM MDK,Tudományos Irattár, Vajdahunyad, MOB,inv. no. 11/1903, f. 14).

A sensitive matter that needed to be solved, in order to eliminate the structural problems on the southern wall of the Golden Room, was that of the fresco decorating the parament of the loggia and which presented a spectacular frieze with coats of arms. This was a problem ever since the Steindl era (Rómer 1871, 21-22; Rómer 1874, 146-147). The famous painter Bertalan Székely presents two proposals to complete and restore it. The first concept had been rejected by the Monuments Committee in its ordinary meeting from 1890 (Lupescu 2007, 55). The second proposal, from 1901, visualized the completion of the fifteenth century frieze with coats of arms with a painting of a mythological hunting scene, illustrating the "legend of the deer" (Sisa 2000, 106) but it was never finalized due to structural fissures of the wall and to the advanced degradation of the plasters (Möller 1913, 20). The fresco was extracted and placed in conservation inside the castle.

Until 1907, because of the small amounts of money allotted to the project, the works done here were not expensive. At the castle they consisted of: plastering the eastern wing, repairs of the wall of the southern tower, placing a stone floor in the gate bastion as well as in the Torture tower and several rotten wooden beams from the roof were replaced (MÉM MDK, Tudományos Irattár, Vajdahunyad, *MOB*,inv. no. 748/1903, f. 1023). All the other works were focused on the buildings in the Hussars Yard, where, in 1905 one of the walls had collapsed (Lupescu 2010, 152). This was somewhat beneficial for the archaeological research, as some interesting discoveries where being made in this time: the original embrasures of the Torture tower, a vaulted room in the southern tower, semicircular frames with bevelled jambs datable during the first fortress (MÉM MDK,Tudományos Irattár, Vajdahunyad, MOB, inv. no. 593/1902, f. 1131), and a gothic portal placed on the southern side of the castle, which Möller considered as a gate of the first fortress (Möller 1913, 7-9).

Gyula Forster was appointed head of the Monuments Committee in 1907, managing to get the Parliament to vote a budget of 490,000 Koronas for a seven-year restoration plan, which would have been implemented by Möller.

As per the new decisions Möller sets up a budget of 196,162.87 Koronas for the works between 1907 and 1908 (MÉM MDK,Tudományos Irattár, Vajdahunyad, MOB,inv. no. 311/1908, f. 878). Schulek requests a thorough check of the veracity and quality of the budget, therefore the Committee proposes that Schulek and Möller would travel to Hunedoara (MÉM MDK, Tudományos Irattár, Vajdahunyad, *MOB*, inv. no. 228/1907, f. 356). They signed here a report, dated 23rd-24th July 1907 with proposals for the continuation of the restoration works: disavowing the conditioning of the former restorations and bringing the castle to the original aspect, using visible clues in photos done after the fire in 1854 as well as ones from the Bajoni 1681 inventory. A radical change in vision therefore. (MÉM MDK, Tudományos Irattár, Vajdahunyad, MOB, inv. no. 311/1908, f. 839).

As per the new approach the restoration works from 1907 to 1913 followed, mostly, the ideas – meaning finalization of the former works and remedying the mistakes. They were mostly focused on the north-eastern side and on the towers where façades were restored, degraded architectural components were replaced, repairs on the walls, pavements and roofs were being done. They also prepared the stone components for the Bethlen wing and Capistrano tower. The debris and dirt were evacuated, some as well as some dismantling and removing of the plasters in some spaces.

In the Hussars Yard, at the Judge's House the works consisted of plastering and finishing the walls, repairs on the floor, tinkering and the entry stairs. Door frames and the roof were repaired at the Notary House (MCC, inv. no.3369/1056).

From his reports toward the Monuments Committee between 1907 and 1913, Möller spends 271,139.11 Koronas (Bodochi, Tatu, 2022, 112-113).

As all of his predecessors Möller felt a particular attraction for the Northern wing, where he proposes and mostly accomplishes the following: re-organizing the space in the Golden Room; he removes the pinions and horizontal cornices done by Steindl on the roof and on the façade of the Matthias Loggia, thus by heightening the pillars

up under the roof managing to present the façade with a vertical structuring. The upper part of the façade, between the pillars, was decorated with a solid Neo Gothic frieze. The corners of the Treasure tower were rounded.

For the more complex woks (glassware, woodwork, tinkering, marble sculpting), since he was lacking the specialized work force, Möller, just like Schultz 25 years before him, commissions workshops in Budapest and Transylvania. Since Möller actually had several sites opened at the same time, the head of works was to have a very important role here. The first one was Ödön Hochholzer, and then the architect Rudolf Wagner, whom Möller, having a constant correspondence, was very happy with (Lupescu, 2010, 153). Basically, Möller undertakes "archaeological" and architectural researches followed by actual restoration works on all elements of the castle.

In 1914 the old financing contract was set to expire, while the restoration works were far from being over. Möller presents a ten-year restoration project with a budget of 1,266,272 Koronas, over three times more expensive than the one from 1907 (for more details see MÉM MDK,Tudományos Irattár, Vajdahunyad, MOB, inv. no. 136/1914 f. 212-217; Lupescu, 2010, 153). The start of the First World War had put a stop to the restoration plans (Lupescu 2007, 60).

Although Möller worked here the longest, he never managed to put his mark as much as Steindl for example. His most expressive work, the façade of the Matthias Loggia was radically modified during the restorations from 1965-68. Möller essentially focuses on original elements and their era of construction, by removing the Neo Gothic fantasy proposed by Schulcz and Steindl with a more realistic approach, closer to the original aspect. He paid special attention to the gutter system, water turning out to be the cause of most of the damage: he dug a drain ditch at the base of the eastern side of the Great Palace, which would drain water from the roof. Still here, he also builds a canal which would air the foundations of the walls.

Still, the 1914 project keeps a mentality which was influenced by the theory of stylistic unity, demonstrated by the proposal to remove all the seventeenth and nineteenth century works, keeping the medieval ones and keeping the later additions only in areas which were not covered by the fifteenth century constructions. Perhaps the demolitions proposal seems paradoxical but Möller was just applying the principles elaborated by the Sixth Architects Congress, in Madrid (1904). These principles stipulate that monuments that serve the purpose for which they had been built are considered alive and they must be restored only by scientists, so as to preserve their stylistic unity, considered one of the bases for beauty in architecture, while dissonant original elements should be preserved ONLY if they do not disturb the general aesthetic equilibrium

(https://www.getty.edu/conservation/publications_resources/research_resources/charters/charter01.html accessed 02.02.2023). The stylistic unity was to be achieved not by adding constructions but by removing them. In 1917 Möller was recommending removing the scaffolding system, which effectively ends this stage of restorations of the Corvins' Castle in Hunedoara (Lupescu 2010, 154).

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REFERENCES / BIBLIOGRAFIE

Arányi, 1867	Lajos Arányi, *Vajda-Hunyad vára. 1452. 1681. 1866. Szoban és Képben* [The fortress from Hunedoara. 1452. 1681. 1866. In words and images], Pozsony, 1867.
Balogh, 1985	Jolán Balogh, Mátyás király és a művészet [King Matthias and the arts], Budapest, Magvető Könyvkiadó,1985.
Bodochi, Tatu, 2022	Ioan Bodochi, Delia-Maria Tatu, „István Möller's Activity at the Corvins' Castle in Hunedoara", in *Brukenthal. Acta Musei*, XVII (2022) 1, p. 105-122.
Bardoly, 2011	István Bardoly, „ < Az indítványozó és jégtörő >. Arányi Lajos (1812–1887) és a vajdahunyadi vár restaurálásának egy korszaka. Adalékok a magyar műemlékvédelem történetéhez II." [„Pioneer and Innovator". Arányi Lajos (1812-1887) and one of the stages of restoration at Hunedoara.], in Magyar Műemlékvédelem, XV (2011), p. 7-103.
Forster, 1905	Gyula Forster, „A műemlékek védelme a magyar kormány visszaállítása ota (1867-1902)" [The protection of historical monuments after the reestablishment of the Hungarian government (1867-1902)], in Gyula Forster (szerk.), *Magyarország Műemlékei*, I, Budapest, Hornyanszky Viktor Császári és Királyi Udvari Könyvnyomdája, 1905 p..
Finály, 1863	Henrik Finály, „Egy archaeologiai kirándulás Vajda-Hunyadra és környékére„[An archaeological excurtion in Hunedoara and the surrounding areas] în *Az Erdély Múzeum-Egyesület Évkönyve*, 2 (1863) 1, p. 135-141.
Henszlmann, 1875	Henszlmann Imre: Évi jelentés a magyarországi műemlékek id. bizottságának 1874-dik évi működéséről [Annual report concerning the activity of the temporary Monuments Committee in Hungary for the year 1974], *Archaeologiai Értesítő*, 9. 1875, 4-9.
Lupescu, 2007	Radu Lupescu, *A vajdahunyadi vár a Hunyadiak korában* [The castle in Hunedoara during the Corvins'], Disszertáció – Dissertation paper, 2007, http://doktori.btk.elte.hu/art/lupescu/diss.pdf [accessed 20.03.2022].
Lupescu, 2010	Radu Lupescu, „Möller István tevékenysége Vajdahunyadon és a Hátszegi-medencében" [István Möller's activity in Hunedoara and Haţeg], *Műemlékvédelem*, 54 (2010) 3, Budapest, p. 149-159.
Lupescu, 2011	Radu Lupescu, „Habsburg királyi rezidenciák Magyarországon az Osztrák-Magyar Monarchia korában. Tervek Vajdahunyad várának rezidenciális átalakításához." [Habsburg residences in Hungary during the Austro-Hungarian Empire. The projects of transforming the castle in Hunedoara into a residence] *Liber discipulorum. Tanulmányok Kovács András 65. születésnapjára*. Szerk. Kovács Zsolt, Sarkadi Nagy Emese, Weisz Attila. Kolozsvár: EME – Entz Géza Művelődéstörténeti Alapítvány, 2011, p. 331-344.
Lupescu, 2011a	Radu Lupescu, „A vajdahunyadi vár helyreállításának története" [History of the restoration works at the Corvins' Castle in Hunedoara], în *Transsylvania Nostra*, 19 (2011), p. 10-18
Lupescu, 2019	Radu Lupescu, John Hunyadi's heraldic display in the great palace of Hunedoara Castle, în T. Hiltmann, M. Metelo de Seixas (eds.), *Heraldry in Medieval and Early Modern State Rooms* (Heraldic Studies 3), 2019, p. 53-69.
Mezey, Szentesi, 1996	Alice Mezey, Edit Szentesi, „Az állami műemlékvédelem kezdetei Magyarországon. A Central-Commission zur Erforschung und Erhaltung der Baudenkmale magyarországi működése (1853-1860)" [The first intervention by the state in the protection of historical monuments in Hungary. The activity of the Central Committee for the research and conservation of architectural monuments in Hungary (1853-1860)], în Bardoly István, Andrea Haris (szerk.), *A Magyar*

Műemlékvédelem Korszakay.Tanulmányok, Országos Műemlékvédelmi Hivatal, Budapest, 1996, p. 55-56.

Möller, 1913a — István Möller, „A vajda-hunyadi vár építési korai" [Stages of construction of the Castle in Hunedoara], in Gyula Forster (szerk.), *Magyarország Műemlékei*, III. kötet, Budapest, A Franklin-Társulat Nyomása, 1913, p. 77-104.

Möller, 1913 — István Möller, *A vajda-hunyadi vár építési korai* [Stages of construction of the Castle in Hunedoara], Budapest, A Franklin-Társulat Nyomása, 1913.

Opriş, 1994 — Ioan Opriş, *Comisiunea monumentelor istorice*[The committee for Historical Monuments], Bucureşti, Editura Enciclopedică, 1994.

Opriş, 1986 — Ioan Opriş, *Ocrotirea patrimoniului cultural. Tradiţii. Destin. Valoare*[The preservation of cultural patrimony. Traditions. Destiny. Valour], Bucureşti, Editura Meridiane, 1986.

Pesti, Riedel 2016 — Monika Pesti, Miklós Riedel,*Schulek, Schulcz, Steindl és A Wiener Bauhütte*, http://lechnerkozpont.hu/cikk/ schulek-schulcz-steindl-es-a-wiener-bauhutte [accesed 07.04.2022].

Rómer ,1871 — Flóris Rómer, "Vajda-hunyadi falfestmények*" [The frescoes from Hunedoara]* in *Archaeologiai Értesítő,* 5, (1871), p. 21-22.

Rómer, 1874 — Flóris Rómer, "Régi falképek Magyarországon"[Old murals in Hungary], in *Monumenta Hungariae Archaeologica III*, Budapest, Hoffmann és Molnár, 1874.

Schulcz, 1869 — Ferencz Schulcz, „Vajda-Hunyad váráról. III" [Of the Castle in Hunedoara. III], *Magyar Polgár*, 3 (1869) 96, p. 414-415.

Schulcz, Ángyán, 1876 — József Schulcz, György Ángyán, A vajda-hunyadi vár restaurálásának története. Különös tekintettel az ott történt károk és visszaélésekre! [The History of the restoration works in Hunedoara. Especially the destruction and abuse that happened there], Pecs, 1876.

Sisa, 1986 — József Sisa, „Egy eltűnt kastély nyomában: a galgamácsai királyi vadászlak" [On the trail of a lost castle: the royal hunting castle in Galgamácsa], in *Műemlékvédelem*, 30 (1986) 1, p. 15-20.

Sisa, 1987 — József Sisa, „Steindl Imre néhány korai munkája" [Some of Imre Steindl's early works], in *Ars Hungarica*, XV (1987) 2, p. 153-164.

Sisa, 1987a — József Sisa, „A romantikus és historizáló építészet néhány problémája" [Some problems of the romantic and historicist architecture], *Ars Hungarica*, XV (1987) 1, p. 43-48.

Sisa, 2000 — József Sisa, „Vajdahunyad várának 19. századi restaurálásáról" [Of the nineteenth century restoration works in Hunedoara], in *Ars Hungarica,* XXVIII (2000) 1, p. 97-108.

Sisa 2002 — József Sisa, „An Architectural Icon for Hungary: Vajdahunyad Castle", in *By Force or by Will: The Art of External Might and Internal Passion*, St. Andrews, (2002), p. 93-104.

Sisa, 2020 — József Sisa, „From the Central Commission to the National Commission of Mouments: Changing Institutional Framework and Principal Projects in the Kingdom of Hungary", in *Monumentorum Tutela*, 30 (2020), p. 191-207.

Sisa, 2002a — József Sisa, „Neo-Gothic Architecture and Restoration of Historic Buildings in Central Europe: Friedrich Schmidt and His School", in *The Journal of the Society of Architectural Historians*, 61 (2002) 2, p. 170-187.

Szmodisné, 1991 — Éva Szmodisné Eszláry, „Világi ábrázolások a magyarországi késő gótikus falfestészetben" *A Magyar Nemzeti Galéria Évkönyve*, Budapest, 1991. 103-106.

Storno, 1869 — Ferencz Storno, „Storno Ferencz jelentése erdélyi archaeologiai utjáról. I" [Storno Ferencz's report on the travel in Transylvania. I], în *Archaeologiai Értesítő*, 2 (1869), p.1-6.

Szathmáry, 1865 — Károly Paap Szathmáry, „Vajda-Hunyad I" [Hunedoara I], în *Vasárnapi Ujság*, 12

(1865) 44, p. 552-553.

Szathmáry, 1871 — Károly, Paap Szathmáry, „Mennyiben luxus a vajda-hunyadi vár kiépítése?" [Is the reconstruction of the Castle in Hunedoara a luxury?], in *Fővárosi Lapok*, 288 (1871), p. 1315.

Szinte, 1898 — Gábor Szinte, „Vajda-Hunyad" [Hunedoara], *Erdély*, 7 (1898), p.95-100.

Valter, 1996 — Ilona Valter, „A Magyar Tudományos Akadémia Archaeologiai Bizottsága és annak működése (1858-1872)" [The Academy of Sciences' Archaeological Committee and its activity (1858-1872)], in Bardoly István, Andrea Haris (szerk.), *A Magyar Műemlékvédelem Korszakai*, Országos Műemlékvédelmi Hivatal, Budapest, 1996, p. 69-78.

Vukov, 1988 — Konstantin Vukov, „Kételyek a vajdahunyadi vár lovagtermének helyreállításáról" [Concerns about the restoration of the Knights' Hall in the Castle of Hunedoara], in *Műemlékvédelem*, 32 (1988) 1, p. 1-7.

MÉM MDK — Magyar Építészeti Múzeum és Műemlékvédelmi Dokumentációs Központ

MCCH — Muzeul Castelul Corvinilor Hunedoara

Magyarország és Nagyvilág, Budapest.

A Magyar Mérnök-Egyesület Közlönye, Budapest.

Ország-Világ, Budapest.

Pesti Hírlap, Budapest.

Századok, Budapest.

Archaeologiai Közlemények, Budapest.

Vasárnapi Ujság, Budapest.

Nővilág, Budapest.

Fővárosi Lapok, Budapest.

Magyarország és Nagyvilág, Budapest.

LIST OF ILLUSTRATIONS / LISTA ILUSTRAȚIILOR

Fig. 1 – The Corvins' Castle after the fire in 1854 (drawing from the Museum's archive, inv. No. 3416)

Fig. 2 – The model of the castle presented by L. Arányi in 1865 (photo Delia Tatu)

Fig. 3 – Restoration proposals for the western façade (1. Friedriech Schmidt; 2. Ferencz Schulcz; 3. Imre Steindel) - apud: //bibliothek.univie.ac.at/sammlungen/plansammlung_des_instituts_fur_kunstgeschichte (1); A Magyar Mérnök-Egylet Közlönye, 1870, vol. IV, fig. XLI (2); Lupescu, 2007 (3)

Fig. 4: 1-4 – Stone mason's mark (19th century) on the brackets of the Huniady Gallery – presents all the craftsmen working on the site of the Castle; 5-8 – Stone mason's marks discovered on the frame of the first window from the New Gate Tower, in the Knights' Hall (probable dating: 15th century); 9-10 – Stone mason's mark in the Knights' Hall (vault) – 15th century; 11-12 – Stone mason's mark in the Knights' Hall (11 – keystone, 19th century; 12 – rib, 19th century); 13-15 – Stone mason's mark (15th century) discovered on the transversal ribs in the Council' Hall (Photos: Bodochi I., Tatu D.)

Fig. 5 – North wing section, Antal Khuen 1882 (MCC archive inv.no. 11)

Fig. 6 – The Knights' Hall, section and plan, Antal Khuen 1882 (MCC archive inv.no. 10)

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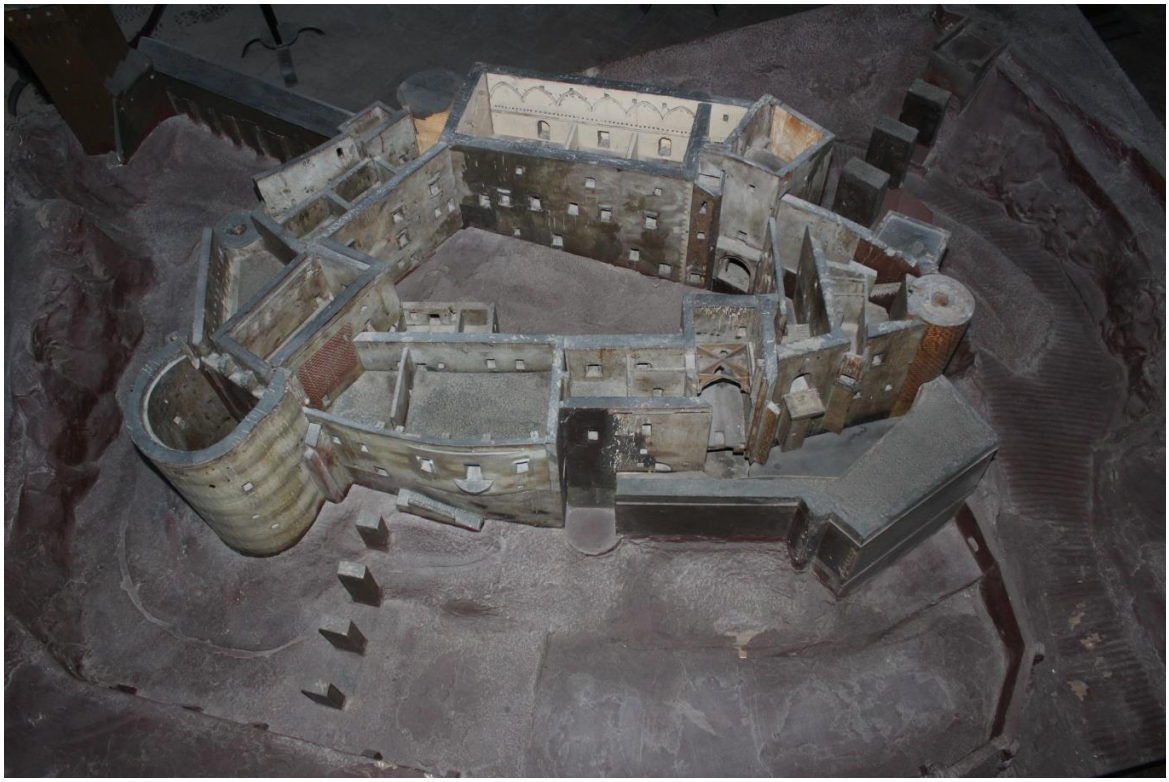
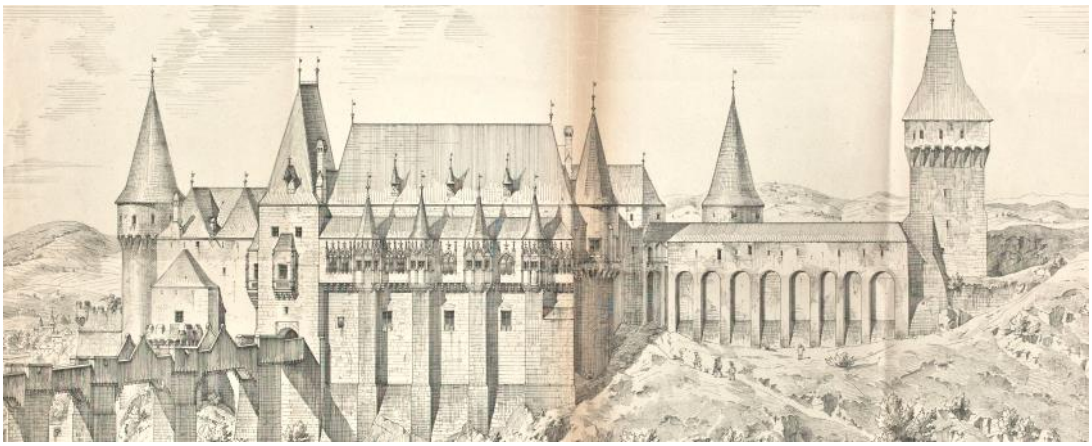


Fig. 2 – The model of the castle presented by L. Arányi in 1865 (photo Delia Tatu)



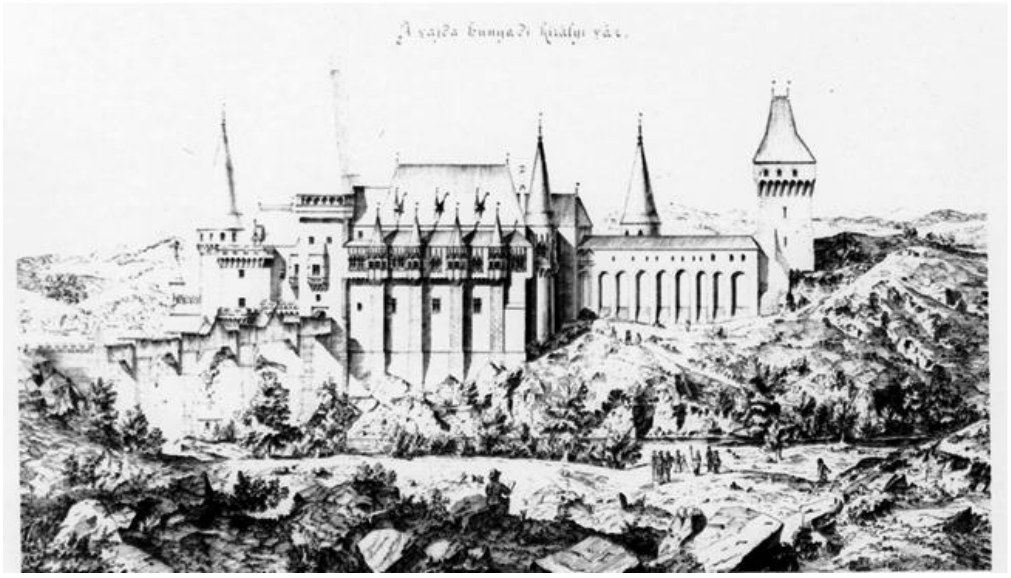


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Fig. 4

1-4 – Stone mason's mark (19th century) on the brackets of the Huniady Gallery – presents all the craftsmen working on the site of the Castle; 5-8 – Stone mason's marks discovered on the frame of the first window from the New Gate Tower, in the Knights' Hall (probable dating: 15th century); 9-10 – Stone mason's mark in the Knights' Hall (vault) – 15th century; 11-12 – Stone mason's mark in the Knights' Hall (11 – keystone, 19th century; 12 – rib, 19th century); 13-15 – Stone mason's mark (15th century) discovered on the transversal ribs in the Council' Hall (Photos: Bodochi I., Tatu D.)

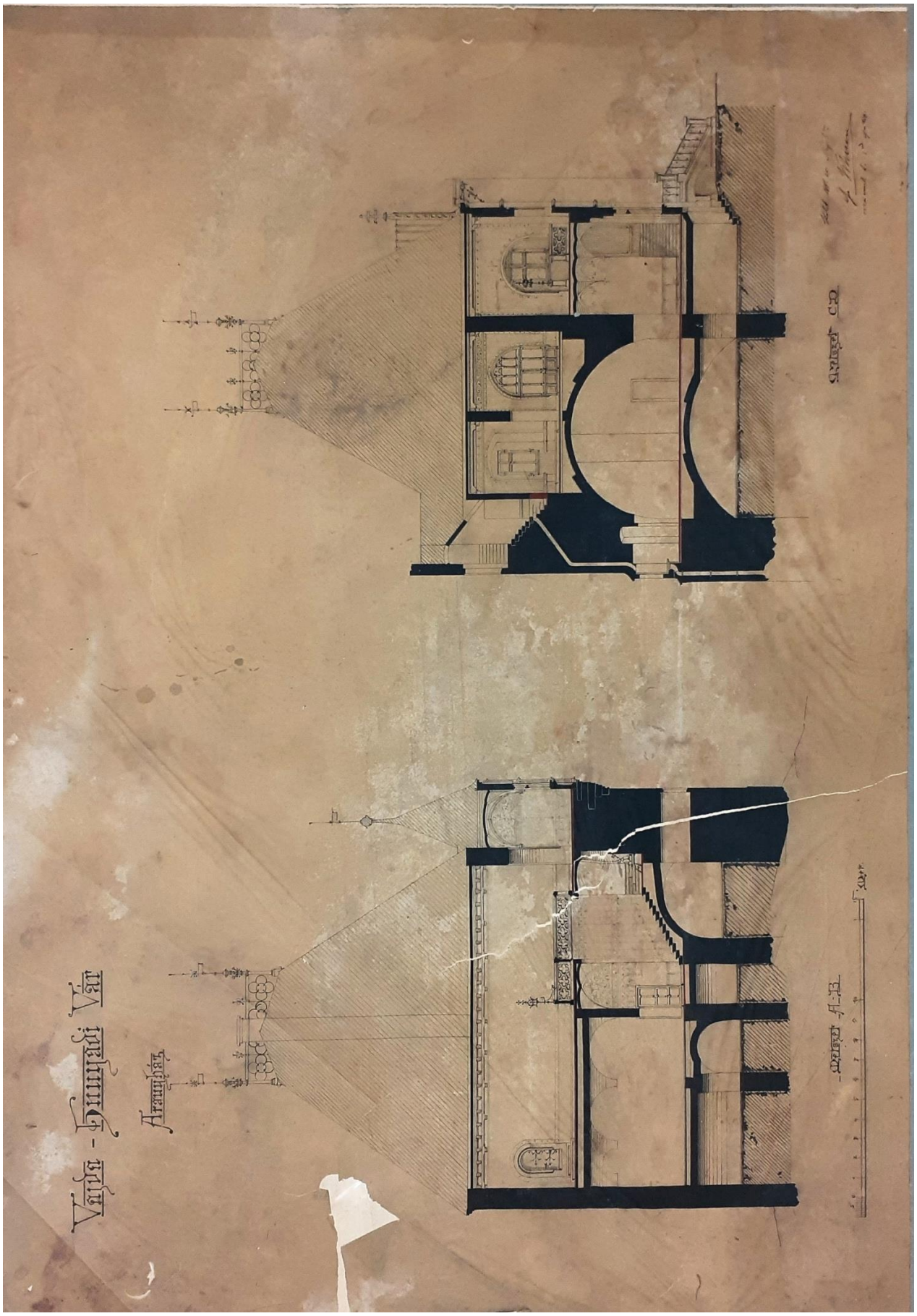

Fig. 5 – North wing section, Antal Khuen 1882 (MCC archive inv.no. 11)

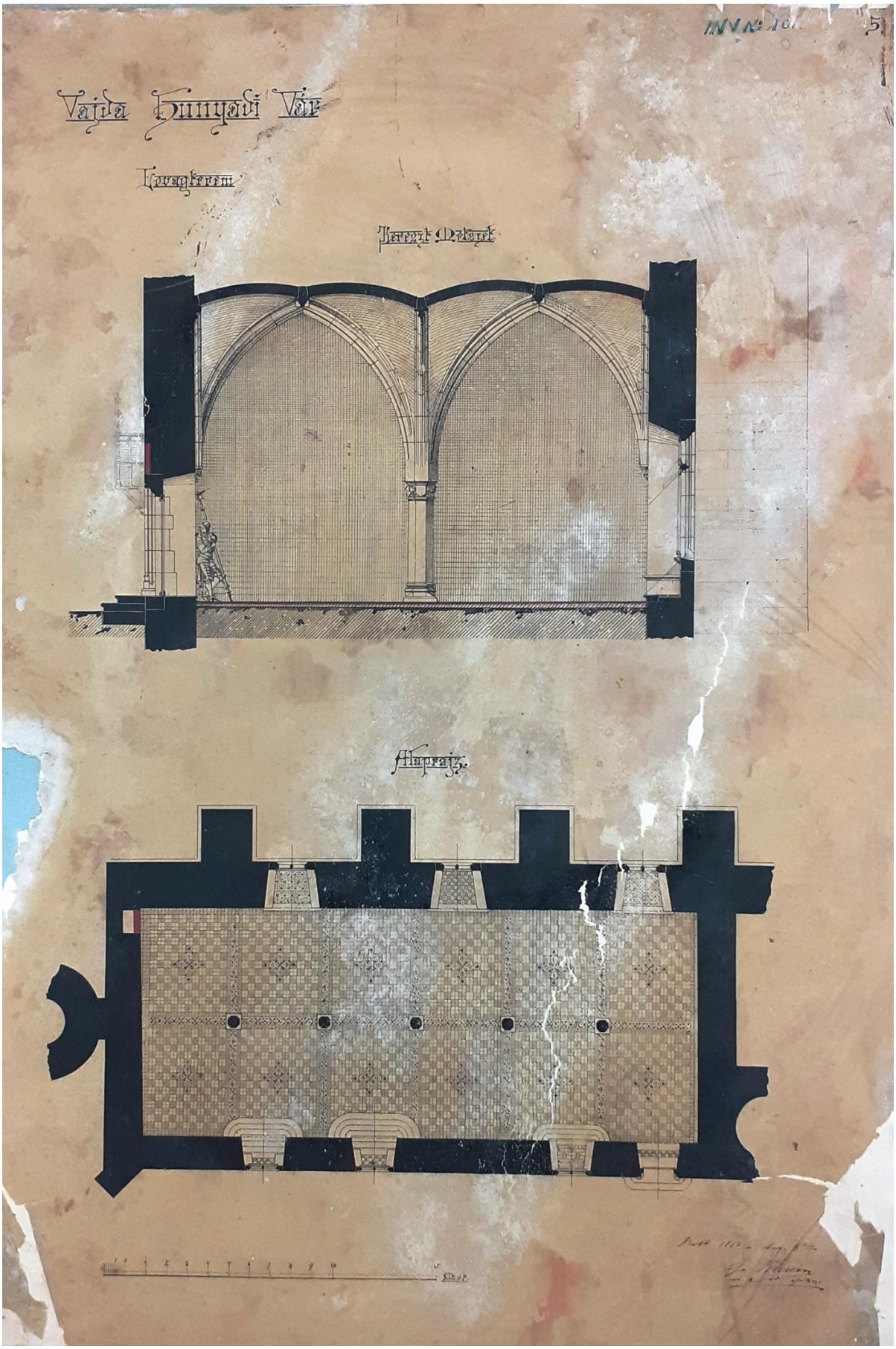

Fig. 6 – The Knights' Hall, section and plan, Antal Khuen 1882 (MCC archive inv.no. 10)

A DRAGON-SHAPED SHORT BLOWGUN FROM BORNEO IN A PRIVATE COLLECTION FROM ȘELIMBĂR (SIBIU COUNTY, ROMANIA)

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Ioan BRAI**

Abstract: *This short blowgun from a private collection in Șelimbăr recalls an Indonesian bamboo blowgun (sumpit), but especially the short wooden blowgun with an inner barrel of the Dusun people from North Borneo (nowadays the Sabah state in Malaysia), its construction being inspired by both. Unlike these, it is dragon-shaped, richly decorated and dismountable, the two parts used for firing having the inner barrel made of steel, not of soft wood. Each of the two segments of this steel barrel is inserted in the diaphysis of a long bone, painted with red varnish. The role of the spearhead-shaped edge which makes up the dragon's tail is just to prevent water from entering the steel barrel, which would rust. The weapon is functional, capable to kill by close shots smaller animals and even humans, if using poisoned darts, shorter than regular ones. By its dragon shape, this weapon (which may be dated in early 20th c., but belongs to a type documented since the 1890's) renders symbolically Bali Sungei or Nagah, the spirit of water, who according to the Dayak mythology rules the Underworld, which is associated with the feminine principle. Considering its technical and artistic particularities, it may come from North Borneo (now the Sabah state in Malaysia), where initially such items could have been commissioned most likely by local Chinese merchants, to be given as ceremonial gifts to Dayak religious chiefs, in order to facilitate trade relations. Although this weapon's use in headhunting is difficult to prove, its use in various rituals of the Dayaks and for killing smaller animals used as offerings seems credible. Only the newer fully functional weapons of this kind, dated in the 1950's–1960's, may have been intended, even since their production, to become touristic souvenirs, which however can be used as sport hunting weapons and to control pests or even as dangerous toys.*

Keywords: *blowgun, dragon, North Borneo, Dusuns, Dayaks.*

Rezumat: *Această sarbacană scurtă amintește de sarbacana indoneziană de bambus (sumpit), dar în special de sarbacana mai scurtă din lemn cu un tub în interior a populației Dusun din Borneo de Nord (în prezent, statul Sabah din Malaysia), construcția ei fiind inspirată de ambele. Spre deosebire de acestea, ea are formă de dragon, este bogat decorată și demontabilă, cele două părți folosite pentru tragere având tubul interior făcut din oțel, nu din lemn moale. Fiecare din cele două segmente al acestui tub din oțel este introdus într-o diafiză a unui os lung, vopsită cu lac roșu. Rolul capătului în formă de vârf de lance, care alcătuiește coada dragonului, este doar de a împiedica pătrunderea apei în tubul din oțel, care ar rugini. Arma este funcțională, putând ucide de la mică distanță animale mai mici și chiar oameni, dacă sunt folosite săgeți otrăvite, mai scurte decât cele obișnuite. Prin forma sa de dragon, această armă (carew poate fi datată la începutul sec. XX, dar care aparține unui tip atestat din anii 1890) îl reprezintă simbolic pe Bali Sungei sau Nagah, spiritual apei, care potrivit mitologiei daiace stăpânește Lumea de Dedesubt, care este asociată cu principiul feminin. Având în vedere particularitățile sale tehnice și artistice, ea ar putea proveni din Borneo de Nord (în prezent statul Sabah din Malaysia), unde inițial astfel de obiecte ar fi putut fi comandate cel mai probabil de către negustorii chinezi de acolo, spre a fi oferite ca daruri ceremoniale șefilor religioși daiaci, pentru a facilita relațiile comerciale. Cu toate că folosirea acestei arme în vânătoarea de capete este dificil de dovedit, pare credibilă întrebuințarea ei în diferite ritualuri ale daiacilor și pentru uciderea unor animale mai mici, folosite ca ofrande. Doar cele mai noi arme pe deplin funcționale de această natură, datate în anii 1950–1960, pot să fi fost destinate, chiar încă din producție, să devină suveniruri turistice, care pot fi totuși folosite și ca arme de vânătoare sportivă sau pentru combaterea dăunătorilor ori chiar ca jucării periculoase.*

Cuvinte cheie: *sarbacană, dragon, Borneo de Nord, dusuni, daiaci.*

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1. The item's description

In January 2021 the collector purchased for 220 lei the dragon-shaped short blowgun published on this occasion from Ionela Fola, the wife of a collector and seller of African and Asian antiques from Reghin / Szászrégen / Sächsisch-Regen (Mureș county, Romania), who told him that the item was brought from France, but it would be actually of Malaysian origin. The blowgun is quite well preserved, excepting the missing of a bone hook supporting the darts quiver and of the quiver itself, the loose of a still existant side mandibular barbel from the dragon's head, some oxidation of the steel barrel and some adherent dirt and the functional abrasion of the red varnish in some areas (Figs. 1–4). Due to the item's age and the storage conditions, the wooden dowels used to fix the other mandibular barbel and the central row of elongated scales contracted, hence there was a risk that these anatomic details could also loose (Fig. 2). Considering this, Ioan Brai, expert conservator of metals at the Brukenthal National Museum's Laboratory, was asked to restore this exotic weapon.

The item was dusted with a fine brush, then degreased of old oils and adhering dirt using a clean cloth soaked in ethyl alcohol. The detached elements were bonded with Devcon, a two-component epoxy resin. Before the resin cured, the excess resin was removed with a clean cloth dipped in ethyl alcohol. A spiral brush was used to remove small spots of rust visible on the outside of the blowgun's metallic barrel and preventively also from its inside. For protection, the whole piece was coated with Ballistol mineral oil. The photographs before conservation (Figs. 1–4) were made by Ioan Brai and those after conservation (Figs. 6–17) by Daniel Fărcașiu, the Brukenthal National Museum's photographer.

The item is incomplete, as it consists nowadays of only three pieces, the dart quiver being lost, as mentioned above. For each section of the blowgun's outer barrel was used a diaphysis (i. e. the hollow tubular shaft) of a long bone, richly engraved and adorned with delicately and meticulously carved bone pieces, as the mandibular barbels, the crest and the tail fin (Figs. 6–7). On its whole surface the blowgun was painted with a red varnish, imitating most likely (Fig. 5) the colour of the Borneo ironwood (*Eusideroxylon zwageri*), but which due to its aging became brown-reddish. The item consists of 3 pieces, which can be assembled (Figs. 3–4 and 6–7). If assembled, the item's maximum length is 72.2 cm, with a maximum width of 3.04 cm (measured at the upper end of the dragon's gills) and a maximum height of 6.7 cm (measured at the end of the dragon's crest). In the bone part of each of the first two pieces is fitted (using resin mixed probably with charcoal) a steel barrel, with an inner diameter of 7.6 mm and an outer diameter of 8.7 mm. The first piece (that with the dragon's head), which is the widest and the highest, is 28.8 cm long. The second piece is 23.2 cm long, has a maximum width of 2.56 cm (at its end towards the head) and a maximum height of 3.72 cm (at the highest point of the still preserved hook). The protruding part of the steel barrel fitted in it measures 3.66 cm. The third piece, with a maximum length of 27.0 cm, has a maximum width of 2.24 cm (at its end towards the head) and a maximum height of 6.39 cm (at the widest part of the dragon's tail fin). The protruding part of a wooden plug fitted in it using wooden pegs and resin measures 3.1 cm. The tail fin, fitted into this last part of the dragon's body through a notch, is 12.5 cm long and 3.3 mm thick. The weight of the whole item is 554 g.

Right to render the dragon's body as aesthetically as possible, it resembles to a deformed cylinder, flattened at both ends of its horizontal diameter (Figs. 14–17), regardless of the head's width and height. The body's shape was inspired most likely by observing rather some local snake-like fishes (like the eel, the moray, the loach etc.) and adding to their anatomy several barbels (specific to a catfish or a loach) and a central row of elongated scales, like on the neck of an iguana, an American lizard introduced as pet in some regions of South-East Asia by sailors, merchants and colonial officials. Unlike the lizards and the crocodiles, but also unlike the dragons from the Chinese and Japanese mythology and art, this dragon does not have legs. There are only superficial similarities with the body of a snake, as unlike the fishes mentioned above a snake's body is flattened at the ends of the vertical diameter and does not have barbels, gills and fins. The outer vertical diameter of the first two pieces is 2.86 cm, while the outer horizontal diameter is 2.12 cm, both being measured at the end of the central row of elongated scales, as from this point towards the dragon's head the two diameters are slightly increasing and in the opposite direction (towards the caudal peduncle) slightly decreasing, measuring finally (at the end of the dragon's caudal peduncle) 2.75 cm the vertical diameter and 1.93 cm the horizontal diameter.

The total length of the first two pieces, which

assembled make actually the active (shooting) part of this blowgun (which has no distinct mouthpiece) is 48.4 cm, but measuring it only to the muzzle, which is the end of the smooth steel barrel inside the dragon's mouth (Figs. 14–17), its relevant length from a ballistic point of view is 43.7 cm. Thus, considering the dimensions of its steel barrel, the blowgun can be compared to a 7.6 calibre 43.7 cm long smoothbore fire arm barrel.

The first piece of the dragon-shaped blowgun corresponds to the head and to the front part of the body (Fig. 12), which joins elements specific to predatory fishes and to reptiles, but also some specific to amphibians (particularly to the local limbless serpentine ones). The elongated head, with a large open mouth, has a pair of mental and one of mandibular barbels, as well as a pair of perforated gills. The dragon is apparently completely blind, as no eye is clearly marked on the head, which would lead to suppose that it may dwell in the soil of tropical rainforests or in streambeds, like a Caecilian, namely as a limbless serpentine amphibian (as *Ichthyophis atricollaris*, *I. biangularis*, *I. dulitensis* or *I. monochrous* in Borneo) or even in cave rivers, as various cave salamanders from Europe or America, which unlike the Caecilians have feet, but do not live in Asia. On the nape of the dragon there is an elongated reptilian crest of bone, decorated with two rows of 5 lines on each side, converging towards its pointed tip, which no Caecilian species has. Most likely, this crest may have been inspired by that of the male of a bright green lizard, the anglehead lizard (*Bronchocella cristatella*), endemic to Southeast Asia, although the proportion of the dragon's crest is much exaggerated. In relation to the horizontal axis of the blowgun, the crest shows a slight deviation to the left (Fig. 10). The look of the jaws, which shows mandibular prognathism, are specific rather for a reptile than for a predatory fish (Fig. 12). Both on the upper and on the lower jaw there are 8 teeth, the last 3 pairs being pointed, thin and turned backwards, like those of the snakes. Only the upper jaw's first pair of teeth, which are thin too, are facing outwards. By contrary, on the lower jaw the first pair of teeth (the fangs, actually) are stronger and perforated, allowing a cord to pass through, which could be used most likely not to hang the blowgun itself (when not it use), but a tassel on the blowgun's pipe (because a heavier charm like a rock or a tooth, hanged on it, would not be practical, not only because it could cause noise when oscillating and hitting it, scaring thus the game, but also when using the blowgun as a thrusting or throwing spear). Besides these two perforations in the fangs, on the lower jaw there are also other perforations, always symmetrically made: on the chin, towards the slightly splited end of the mandibula, there is a pair of larger holes, and behind them a row of 4 smaller ones. The lower jaw is adorned with engraved lines and shows two pairs of barbels, both apparently made of bone. The mental barbels are made of two wooden plugs, one of each side (Figs. 8 and 12). The curly mandibular barbels (apparently two pairs) begin right behind the mental barbels, closer to the end of the hyoid bone. All of them are carved in wood and fixed into the dragon's body by wooden dowels (Fig. 2). Each of the two gills is perforated. The scales on the snout are rectangular, while those on the rest of the upper part of the head, till to the crest, are rendered as a dot and a semicircle, suggesting thus several rows of semicircular scales adorned with a coloured dot. On the sides the body there are as well such semicircular scales, but broader, till towards the pectoral fins, where there is an area with rhombic scales, suggested by dashes oriented in both directions, like on the ventral part. Here, towards the ends of the mandibular barbels, begins a row of elongated scales, recalling that on the neck of an iguana (*Iguana sp.*). The first scale has a large perforation (of the same size as on the gills and on the lower jaw's first pair of teeth), designed most likely to let pass a cord on which may have hanged a charm or a tassel. On the dorsal side of both the first piece and of the other two composing the dragon's body there is only a 14.6 mm wide band, divided at almost equal distances (c. 12.5 mm) by two closely engraved transversal lines, suggesting thus that on the dragon's back there is a row of broad rectangular scales (Figs. 10–11). This line of scales, which continues without interruptions from head to tail, helps the owner of the blowgun to assembly quickly and correctly the weapon. On the dorsal part of the second piece of the dragon's body, in two specially made holes, were fitted apparently two L-shaped bone hooks, at 53.4 mm from each other, of which only one (12.6 mm high and 27.2 mm long) is preserved. From the other hook its lower part is still sticking in the hole in which it was fitted (Fig. 11). By comparison with blowguns of the same type, these hooks (Fig. 6–7 and 11) were used to fit a small quiver containing several small poisonous darts, thus neither as sights nor to hang the blowgun on the shoulder (imitating the way in which a rifle is hanged, in order to prevent the rain water to enter through the muzzle in the blowgun's inner steel barrel, which

can rust). As sight may have been used rather the small space between the dragon's crest and its forehead.

From the end of the central row of elongated scales till to that of the caudal peduncle, the whole ventral side of the dragon's body is divided by an engraved central line, which continues without to consider that the dragon's body consists actually of 3 distinct pieces (Figs. 8–9). Excepting only a small portion at the end of this row of scales decorated with a 15.3 mm wide band filled with bidirectional dashes suggesting rhombic scales, which continues also on the sides of the dragon's body but not on its dorsal side, the whole ventral side of the first piece's rest and of the whole second piece is adorned with three groups of motives engraved along the aforementioned central line, each of them resembling a fish bone or a palm branch. On the second piece and on the third one (Fig. 9), these motives are placed antithetically on both sides of the band filled with rhombic scales. The upper part of this fish bone or palm branch motif engraved on the blowgun's second piece continue also on the lower part of the dragon's body sides, where it suggests vegetation around a crocodile with a strong snout, which is engraved very realistically, on each side of the item (Fig. 13). Due to the look of their snouts, the crocodiles may be identified as salt water crocodiles (*Crocodilus porosus*) and not as false gharials (*Tomistoma schlegelii*), which have long and slim snouts broadening to the base, both species occurring in Borneo. In relation to the natural position (belly down) of the dragon's body consisting blowgun, respectively to the weapon's functional position, these crocodiles may be considered most likely dead, as they would float belly up, probably due to a compositional error, the engraver neglecting this detail. Each of these crocodiles is placed in a rectangular cartouche. At the end towards the dragon's head there is a band filled with bidirectional dashes suggesting rhombic scales, continuing that described above, on the blowgun's first piece. As already mentioned, around each of the two crocodiles engraved on the sides of the dragon's body there are dashes, of which those close to their spine belong actually to the fish bone or palm branch motif depicted on the dragon's ventral side. The cartouche's border close to the paws of the crocodiles is that delimiting the row of broad scales on the dragon's dorsal part. On the third piece's ventral side the aforementioned fish bone or palm branch motif does not continue (Fig. 9). On this piece, on both sides of the central line mentioned on the dragon's body ventral part there is only a 15.5 mm wide band with bidirectional dashes suggesting rhombic scales, which is filling actually the whole lower half of both sides of the dragon's body, although on its right side the dashes do not reach the central line engraved on the ventral side, due to the negligence of the craftsman who produced the item. The rest of each of the dragon's body sides is filled by a rectangular cartouche containing the already mentioned motif suggesting semicircular scales adorned with a dot. On each side of its two lobes, the tail fin is adorned with 4 curved lines, suggesting its bones (Fig. 14).

As about this item the seller had few information, besides the question of its origin and date there are also some others which have to be answered, particularly due to its shape and small size, but also to the relative rarity of such items in the international trade with ethnographical artefacts: is it a functional weapon, a ritual item, a simple touristic souvenir or a toy?

2. Some information about the blowguns and other throwing weapons and about the blowguns' widespread and their contemporary use

Despite an impressive number of works dealing only about them, published since late 19th c. till nowadays (Pleyte 1891; Skeat 1902; Annandale 1906; Van der Veen 1923; Hornell 1924; Pearson Chinnery 1927; Hall 1928; Sprinzin 1930; d'Harcourt, Nique 1934; Kerr 1935; Speck 1938; Coomaraswamy 1943; Yde 1948; Noone 1954–1955; Cranstone 1949; Bolgár 1950; Riley 1952; Riley 1954; Goodale, Chowning 1966; Jett 1970; Credland 1981; Curry-Roper 1982; Jett 1991; Janich 1993; Chaumeil 2001; Erikson 2001; Ventura 2003; Marino 2007; Puri 2011; Shook 2011; Jáckl 2017; Darmadi 2018; Mariñas 2020), the blowguns are still relatively little studied, if compared to other weapons. The information concerning the blowgun's worldwide spread accumulated and increased as consequence of the great geographic discoveries following the navigation's and sea trade's development. A Flemish illumination from Bruges (Fig. 70), attributed to the Master of Margaret of York (documented at 1470–1490) in a manuscript of a French translation (*Livre de prouffitz champestres et ruraulx*, II, LXV) of *Liber ruralium commodorum* by Pietro de' Crescenzi (1230/1235–1320/1321), commissioned at 1470–1475 (or even at 1480) by Anthony, Bastard of

Burgundy (1421–1504), kept at the Bibliothèque Nationale de France in Paris (Ms. 5064, stored at the Bibliothèque de l'Arsenal) evidences that at that time (namely some decades before Spanish and Portuguese seafarers could have reached the American mainland, Madagascar and Southeast Asia, during 1498–1516) such weapons were already well known to the European bird hunters. Although Auguste Demmin (1817–1898) claimed that in medieval Europe blowguns were used "to shoot poisoned arrows, Greek fire which scattered sparks and shoots" (Demmin 1894, 468), H. Swainson Cowper (1865–1941), pointing on the fact that the Greek fire was shot through metallic pipes and the propelling agent was surely stronger than the human lungs, stated rightly that their most likely use was for fowling (Cowper 1906, 245), as actually mentioned by A. Demmin about the modern ones "divided into several pieces, joining together like a fishing rod" (Demmin 1894, 468), respectively as depicted in this illumination.

As the blowguns are considered very ancient weapons in human history, there are works which analysing various kinds of weapons from Southeast Asia, the Southern Seas and the Americas (Friderici 1915) or from the whole world (Lane Fox 1874; Demmin 1894; Cowper 1906; Stone 1961; Popenko 1993; Bushev *et al.* 2019) or referring only to the slings used either in the Americas (Ainsworth Means 1919), respectively in Oceania and the Americas (York, York 2011) or in Southeast Asia (Jákl 2017), mention also the blowguns, but without to study them thoroughly, in a larger context of throwing weapons, as did Cornelis Marinus Pleyte (1863–1917), who studied both the spread of the blowgun and of the bow in Southeast Asia and the specific typology of these weapons in various areas and among various peoples in this region, as they are described by written sources or known from direct researches on museified items (Pleyte 1891). Apparently, in pre-modern and modern America the sling, which is considered typical rather for earlier periods (Ainsworth Means 1919, 323), was less used than the blowgun, the bow and the javelin (Ainsworth Means 1919, 318–319).

The blowguns were invented after the discovery of other throwing weapons, namely spears and harpoons, as the blowgun recalls both (by its darts) a throwing spear (javelin), but also (by its main part) the reed, bamboo, bone or horn pipe used by the primitives for various purposes: to extract water from small pits in the wet soil like the San people (the Bushmen) are using to do (Vulcănescu 1967, 47), in some healing rituals, like among the Kenyah Dayaks in Borneo (Furness 1902, 49–50; cf. Hose *et al.* 1912, II, 32), but also in making various music instruments. As on the cave walls in Lascaux, 17,000–15,000 years ago, on open air rocks the paint was also sprayed by blowing (Terzi 1992, 10), even simply by the mouth, like still practiced in mid-20th c. by the Australian aborigines (Bandi *et al.* 1961, 26), without any pipe. Right about how the blowgun may have been discovered, the British antiquarian and collector Henry Swainson Cowper noted: "It is not indeed easy to think of any force in nature, or any accidental occurrence in primitive savage life, which would be very likely to suggest such an appearance. Tubes of cane or reed are of course used by savages in a variety of ways, and the natural habit of man or babe to place things in the mouth might suggest the expulsive force of the breath. Australian fowlers will swim under water breathing through a reed, and the possession of such a reed might lead to pea or pellet shooting. Primitive reed or cane whistles might possibly suggest the same thing. The very fact that it is difficult to find a plausible theory explaining its origin, seeing that the force of compressed air appears unutilized in the animal world, renders more interesting the occurrence of the same weapon in two such widely separated areas as the South America and Malay regions." (Swainson Cowper 1906, 246). Actually, as he pointed, in a blowgun "elasticity of compressed air is converted into rectilinear motion" (Swainson Cowper 1906, 239).

Like the spear-thrower, the blowgun is an advanced device used to propel projectiles, but to ascertain when it was actually discovered is very difficult, due to the perishability of the wooden barrels and darts. Spears and harpoons are surely older than bows and arrows, as resulting from comparing the oldest dates for spearheads, harpoon heads and arrowheads: the oldest throwing spears seem to have been produced during the Middle Paleolithic, as suggested by a discovery from Umm el-Tlel in the El-Kowm basin in northeast Syria (Boëda *et al.* 1999), the oldest known harpoons, made of bone, discovered at Katanda region of former Zaire (Democratic Republic of the Congo, nowadays) are dated 90,000 years ago (Yellen *et al.* 1995) and the oldest stone arrow heads are those found in the Sibudu cave in South Africa, dated 64,000 years ago (Lombard, Phillipson 2015). Only after the invention of the throwing spear could have been

invented also the spear-thrower, especially the stiff one, made of bone, wood or even ivory, as in Eurasian and American (but not also African) prehistory since the Upper Paleolithic, c. 32,000 years ago (McClellan, Dorn 2006, 11. On Paleolithic spear-throwers: Stodiek 1993). Such devices, similar to the wooden *woomera* still used by the Australian natives (Mountford 1962, 191–192; Danielsson 1966, 129–130), who in the Northern Territory's Arnhem Land, where they call it *mangal*, use it only for throwing light spears (Iaru 1967, 63–64), are attested in various regions: the *kotaha* of the Maoris in New Zealand (Friderici 1915, 24), the less known spear-throwers from Bali (Pleyte 1891, 268) and Melanesia (Friderici 1915, 24), but also the famous *atlatl* used by the Aztecs (For details: Nuttall 1891; Raymond 1986; Whittaker 2015), the *hul'che* of the Mayas and the more or less similar devices used by other peoples from Mesoamerica and from eastern Brasil, or the *estólica* of the Incas or of the older Andean cultures, as Chinchorro, Nazca, Moche and Wari, the spear-throwers of some native cultures in Amazonia, particularly in its eastern part. Stiff spear-throwers are also known in almost whole western North America, from U. S. A.'s southwestern region till to southeastern Alaska, as well as in the Mississippi region and in Florida, but also among Inuits (Eskimos) and on the Yukon Ice Patches (On spear-throwers around the world: Krause 1902; Friderici 1915, 22–25). Like in late 19th c. (Mason 1884, 279), in late 1960's harpoons were still used by the Inuit, when hunting from their leather kayaks (Frison-Roche 1971, 183 and 204), and they were thrown with a spear-thrower, hold in the right hand, while holding the paddle in the left hand (Kellar 1955, 336), as drawn in 1936 by Paul-Émile Victor, who noted also an account about a murder committed some years ago with such a harpoon, thrown also from a leather kayak (Victor 1968, 191–192). Unlike most types of stiff spear-throwers, some Australian ones (especially those from the Central and Western deserts) were multi-purpose tools, having often also an adze-like blade and being used as an adze, a chopper, a fire making saw, a deflector of enemy spears, a receptacle for mixing colours and a scoop (On Australian spear-throwers: Palter 1977; Gould 1970; Cundy 1989). Compared to the difficulty to find in some regions the appropriate rocks needed to produce spearheads for the light spears lanced using the *woomera*, which can break (Danielsson 1966, 129–130), the blowgun darts made of sharpened wood are a real advantage. In the current stage of research, the flexible spear-thrower, made of leather, like the *amentum* used by the Romans and *ἀγκύλη* by the Greeks (but known also to various closer or farer European and Oriental barbarians), which gives not only range, but also spin to the projectile, is documented only in the Iron Age (Gardiner 1907; Harris 1963), but could actually have been invented even before the bow and the arrows, maybe already when the spearheads were still made of stone or when they lacked completely, consisting just of the sharpened and fire hardened wooden shafts of the spears. There are 16th c. mentions of a flexible spear-thrower's use in the Caribbean by the Arawaks, in Mexico (including also California) and during the Inca period in Peru (Friderici 1915, 22–24), but later also in New Caledonia and in the New Hebrides (Gardiner 1907, 257), during 18th c.–19th c. The last European weapon thrown with such a flexible device, namely a lanyard, called *amiento* by the Spaniards and *Wurfstrick* by the Germans (Friderici 1922, 22), is known as Scotch (or Yorkshire or Dutch or Swiss or Gypsy) arrow. As a toy, it was still used in 15th c. – 16th c. by Castilian children (who, by confusion, did not call it *amiento*, but *tiradera* or *tirandera*, like the stiff spear-thrower) and in late 19th c. by German children in Hamburg and in Switzerland (who, curiously, but most likely due to some confusion with the Swiss arrow mentioned above, called it *Wurfpfeil* instead of *Pfeilwerfer* or *Pfeilschleuder*), as well as by American native Indian ones in the New York state (Friderici 1915, 22–23). Wooden weighted darts, lanced therefore neither by a blowgun, nor with a spear-thrower, but by hand, recalling thus the later Roman *plumbatae* or *martiobarbuli* (Völling 1991), are known from Middle Paleolithic finds both in Western Europe and in southern Central Africa.

Compared to the bows and arrows, which supplemented the spear-thrower in Epi-Paleolithic, the blowgun is considered to be less evolved and less effective (Pleyte 1891, 275–276), that it may have been invented in an older period, which cannot be easily ascertained, due to the perishability of the blowgun barrels and of their oldest types of projectiles, namely darts made of wood with a sharpened and maybe fire hardened tip or having a head made of stone, bone or tooth. H. Swainson Cowper supposed that some of the microlithes (called by him "pigmy flints") may have been used as tips for blowgun darts (Swainson Cowper 1906, 239), which would suggest that the blowgun may have been used earliest at the end of Upper Paleolithic, as well as

later, during the Epi-Paleolithic, the Mesolithic and the Neolithic, remaining in use in certain regions till into the Copper Age and even into the Bronze Age. Due to its spearhead, the blowgun of Borneo (Figs. 18–19 and 33) may also be seen as a combined weapon. According to the researches of C. M. Pleyte, the blowgun (*sumpitan*) and not the bow is the native weapon of the peoples from western Indonesia (Pleyte 1891, 277). In Java, where the bow adopted under Indian influence was used by the nobles (Pleyte 1891, 277), both slings and blowguns were perceived (according to the analyses of pre-modern texts in Old Javanese) as foreign weapons, worn by mercenaries coming from Sumatra or other parts of Indonesia (Jákl 2017), where both the weapons and the society were less developed (Pleyte 1891, 277).

During their very long existence, the blowguns spread over a very wide geographical area, being attested by ancient sources in Egypt and in the Middle East, and both by images of various ages and by more recent narrative sources in other regions as well, such as northwestern South America (the core area), much of Middle America, the southeastern and eastern North America, Madagascar (and in older time maybe even in central regions of Tanzania), southern India, Afghanistan (the region of Kabul), Southeast Asia, western New Guinea, New Hannover, New Britain (New Pomerania) and New Ireland (New Mecklenburg) in the Bismarck archipelago, western Caroline islands and Japan. For shooting with a blowgun were used various projectiles, from masticated leaves, seeds, pebbles, clay, rubber or metallic pellets to wooden, paper and metallic darts. Scaring and hunting birds with blowguns is documented (although intermittently) in Flanders since late 15th c. (in Bruges, as mentioned above) till c. 1890 in Antwerp, but in Germany at c. 1850 in the Helgoland archipelago and in late 19th c. till nowadays in the Palatinate. In Helgoland were used c. 50 cm long wooden blowguns shooting clay pellets, but in the Palatinate c. 2 m long wooden blowguns, very noted being in Palatinate the blowgun hunters from Boehaemmer Jagdclub e.V. in Bad Bergzabern, among whom there are many women. To southern Europe the pellet-using blowgun was introduced by Arabs during the Middle Age and ultimately degenerated to become the pea-shooter (Jett 1970, 671; Jett 1991, 92). Most likely, pellet-using blowguns may have been known in 13th c. Italy and later in Flanders. Researchers as Colonel Lane Fox, namely the later Lieutenant General Augustus Henry Lane-Fox Pitt-Rivers (1827–1907) and the British orientalist Richard F. Burton (1821–1890) noted that finally, in late 19th c. Europe, the blowgun became from a weapon a simple toy, known as "pea-shooter" (Lane Fox 1874, 151; Burton 1884, 14, n. 2).

According to the researches of Stephen C. Jett (Jett 1970; Jett 1991), who collected much material from around the world, the blowgun appears to have been invented in Southeast Asia in relatively ancient times, respectively in the Malaysian culture area, particularly in Borneo. This hypothesis was considered as plausible by some researchers of Southeast Asian and Oceanian prehistory (Bellwood 1985, 152 and 155), as already Georg Friderici (1866–1947) considered that in Southeast Asia the blowgun spread from west to east (Map 4), namely from the Malay Peninsula to the Bismarck archipelago (Friderici 1915, map 5). However, while Frederick Boyle (1841–1914) rightfully pointed that any convincible arguments for a migration from Borneo to South America are lacking (Boyle 1865, 252), S. C. Jett, who followed actually another opinion of G. Friderici (Friderici 1915, 38), believed that the blowgun's spread is due to the Indonesian trade and migrations, although there are regions where such contacts are poorly documented or even lacking. Even S. C. Jett considered correctly that double-barrel bamboo types, split-and-grooved wooden weapons, and solid bored wooden blowguns evolved from simple forms of reed and bamboo blowguns (Jett 1970, 663, fig. 1), he thought that seeds (Jett 1991, 94) and clay pellets probably preceded poisoned darts as missiles, the darts being poisoned only in a later period. Actually, according to 19th – 20th c. written sources in Borneo and in many other regions of the world (although not everywhere) were used both clay pellets and poisoned darts, but for different game. Neither S. C. Jett's opinion that the use of poisoned darts is more recent than the use of darts is not well supported by evidences. As noted already in mid-19th c. (Low 1848, 331), American forms and uses of blowguns are similar to the Malaysian ones, which S. C. Jett since long time (Jett 1970) considered, although with some methodological deficiencies, as an evidence for early transpacific contacts, following a late 19th c. – early 20th c. Diffusionist trend (Pleyte 1891; Krause 1902; Friderici 1915) in the ethnographic researches. S. C. Jett draw the map showing the blowgun's spread in the Americas (Map 5) considering mainly ethnographic reports and only

for the Peruvian coast also archaeological finds, which apparently does not affect much the general image, as Mesoamerica is a region with an almost continuous occurrence of the blowgun. Actually, in the current stage of research for various theories about such early transpacific contacts between Southeast Asia and South America through Polynesia there are rather doubtful material evidences (Piper 2017, 255–256; Blust 2017, 287–288).

Despites his controversial conclusions about the spread of the blowguns through Indonesian trade and migrations and about the early transpacific contacts between Southeast Asia and South America through Polynesia, the researches of S. C. Jett about the regional spread of various types of blowguns in Southeast Asia and America are a valuable contribution, the maps he drew being of a particular interest. According to his results (Map 1), the Malay Peninsula with Borneo and the most islands around the latter (including the Philippines) is a region with a continuous occurrence of the blowgun (Jett 1970, fig. 2; cf. Jett 1991, fig. 1). Borneo is also, besides the Malay Peninsula, the most important region where bored wooden blowguns are occurring (Map 2), although in the most part of the island there are also double-barrel blowguns and in a small region in the northeastern part split-and-grooved barrel blowguns (Jett 1970, fig. 3). Borneo is also the most important region (Map 3) where clay pellets are used, where the blowguns have pith air stops and where a spearhead is attached to them (Jett 1970, fig. 5). These conclusions are very important to ascertain from a typological point of view the provenance of the dragon-shaped blowgun published on this occasion.

Not only among the headhunters from Borneo, but also in Japan the blowgun (*fukiya*) acquired the fame of a murder weapon. It was used by the Ninja warriors and it ranged from large, conventional-looking blowguns to small weapons, often disguised as innocuous items such canes, umbrellas and flutes, the darts being made of paper cones and pieces of steel, often coated with poison (Janich 1993, 5–6). The barrel, most often 30 cm long, was made of bamboo. Blowgun barrels could perform also additional functions, being used for example for breathing under water (Popenko 1993, 31). Japanese blowguns having a larger barrel, with a diameter of 1 inch (i. e. 2.5 cm) could fire also chemical charges: a special blinding one, which when hitting the face of the enemy, deprives him of the ability to see anything for some time, or a deadly one, acting on the respiratory system (Popenko 1993, 32, fig. 2). During World War II miniature blowguns disguised as cigarettes which could shoot tiny poisoned darts coated with curare were used by the German soldiers from the special forces unit led by Otto Skorzeny, while in Borneo the Dayak warriors used blowguns with poisoned darts to quietly kill Japanese sentries (Janich 1993, 6). The model for this miniature blowgun came apparently also from Japan, where the *fukibari* (i. e. "throwing mouthpiece") was a short bamboo tube (about 5 cm long), located in "stowed position" inside the mouth, which could shoot a poisoned dart. Thus, it cannot be a surprise if sometimes the use of blowguns is occurring also in spy novels and films.

Nowadays, blowguns and darts are made of various new materials like plastic, aluminium, steel (Popenko 1993, 31). They are still used in traditional hunting in some regions of the world or in sport, as well as in field biological research, especially for tranquilization in order to collect biological samples from some small animals (Keeley, Keeley 2012), in tagging salmons (Ripley 1949), or to capture small animals or for harvesting them, with minimal destructive impact on their bodies (Pfeffer 1971, 18–24; Janich 1993, 6). They are used also in zoological parks, for various purposes (Barnard, Dobbs 1980), especially for treating captive wildlife (Warren *et al.* 1979). Relatively recently, in Switzerland the use of the blowguns has been revived in a syncretistic context of questionable cultural-historical authenticity, combining martial arts and Japanese and Indian esoteric traditions (Puri 2011). Considering that since late 20th c. there is an increasing interest in using blowguns, both in sport and for hunting (Janich 1993; Mariñas 2020), the possibility of their use for criminal purposes, both by poachers and to eliminate discreetly some opponents, feared by the Europeans long time ago (Lumholtz 1920, I, 133), should not be denied. That is why the legislation of various countries prohibits actually the possession of blowguns (in Guatemala, Canada and Ireland, as well as in the states of California, Massachusetts and in the Federal District of Columbia) excepting the antique ones (Great Britain), because they are rightly considered to be extremely dangerous weapons, which if imported to Canada have to be deactivated by blocking one of the barrel's ends or by drilling a hole in the barrel. In other countries (as Germany) the possession of a blowgun and its use in sport is allowed, but not its use for hunting.

3. Characteristics of a Borneo blowgun and of its accessories (with some relevant remarks for the dragon-shaped blowgun from a private collection from Șelimbăr / Sellenberk / Schellenberg)

The blowgun from Borneo called sometimes *sipet* (Pleyte 1891, 269) or *sawput* (Lumholtz 1920, II, 246), but generally *sumpit* or *sumpitan* was still used in Borneo during the 20th c., for hunting and even for fighting, but also for sporting and in touristic events (Darmadi 2018, 116), but it became increasingly rare, right because the natives no longer rely on hunting and because the fights between tribes no longer exists (Darmadi 2018, 115 and 119), which is due especially to the repression of headhunting. As the Danish explorer Joergen Bitsch (1922–2005) noted in 1959, the policy of the colonial authorities from Sarawak caused a certain disdain of the natives towards their own traditions and towards the products of their handicrafts: "The Government of Sarawak will say that the efforts towards progress have been crowned with success. It depends from what point of view things are considered. If the authorities deem as a success that they convinced the natives that their own products have no value, then they have indeed succeeded. Nowadays, the native has the impression that the artisan objects of the past are naïve, downright ridiculous. A self-respecting man must have European products. They became almost ashamed of their old civilization and old customs. That's why they disappear." (Bitsch 1968, 179). As despite this colonial policy, the craftsmen still produce blowguns, but only on demand, as touristic souvenirs (Darmadi 2018, 115), more recently it was proposed to the Indonesian authorities not only to develop this production of souvenirs, but also to teach and to promote the both it and the use of blowguns for sport as belonging to the native traditional cultural heritage (Darmadi 2018, 118–119). As consequence or not, on the market there are new blowguns, especially of medium and long size, sold as souvenirs or as sport items.

According to William Henry Furness (1902–1896), the weapon's aforementioned name *sumpitan* is Malay, but the Kayans calls it *leput*, the Punans simply *put* and the Dayaks (due to their habitude to clip and elide the Malay words) drop the ending *–an*, calling it *sumpit*, all these names being probably of onomatopoeic origin, as they seem to derive from an imitation of the sound which occurs when the dart is blown through the barrel of the blowgun and the tongue closes the opening with a quick pat (Furness 1902, 114). The *sumpitan* is perhaps the finest product of native Bornean craftsmanship, being made both by Dayak tribes (Kayans and Kenyahs) and by Punans, but rarely by Sea Dayaks (Ibans) and the Klemantans (Hose *et al.* 1912, I, 215). Of these peoples, the Klemantans and the Kenyahs are closely related to the Punans and may properly regarded as Punans who adopted Kayan and Malay culture some generations ago (Hose *et al.* 1912, II, 193). Two branches of the Kayans, the Bukats in East Kalimantan and the Saputans in West Kalimantan, were famous as producers of blowguns, which they sold to other tribes (Lumholtz 1920, II, 246), in some late 19th c. – early 20th c. Kayan villages existing apparently even specialized craftsmen, famous for the blowguns they produced (Furness 1902, 113). Nowadays, only in the West Kalimantan province of Indonesia are recorded 211 tribes of Dayaks (Darmadi 2018, 116–118), including 3 tribes of Punans Darmadi 2018, 118, nr. 149–151), one of Muslim Malays (Darmadi 2018, 117, nr. 41), 3 subtribes of Dayaks living also in the Sarawak state of Malaysia (Darmadi 2018, 116–118, nrs. 30, 121 and 187) and one living also in the Sabah state of Malaysia (Darmadi 2018, 118, nr. 152), respectively one living both in West Kalimantan and in Taiwan (Darmadi 2018, 116, nr. 12) and 2 Dayak subtribes from West Kalimantan are mentioned as isolated and primitive (Darmadi 2018, 118, nrs. 210 and 211). Right here should be warned about a confusion dating from colonial times, between the Punans, a branch of the Dayaks, who have an agricultural economy and the nomadic Penans, who are hunters and gatherers, whose primitive way of life was often idealised by European authors since mid-19th c. till mid-20th c. as being close to the nature and to the primordial human pair's condition, when still living in Paradise (Sercombe, Sellato 2008). This confusion affected also mid-20th c. explorers, as the aforementioned Danish explorer Joergen Bitsch and the French explorer Pierre Pfeffer (1927–2016). Due to it, J. Bitsch, who actually visited the latter, believed that they used to be also blacksmiths (Bitsch 1968, 146–147), his information referring actually to the first. Most likely, to the Punans and not to this nomadic people may refer also both the early 20th c. information concerning the practice of headhunting (Lumholtz 1920, I, 46, 87 and 96), but also that about the making of drilled blowgun barrels, which actually are not longer than 1.5 m (Bitsch 1968, 137), by boring logs with an iron

rod as the Dayaks use to do (Hose *et al.* 1912, II, 191 and 226; cf. Bitsch 1968, 147), believed actually to be the newest improvement in their life (Hose *et al.* 1912, II, 6).

In Indonesia (including thus its Borneo provinces) *sumpit* is also the name generally given to the toy blowgun, which excepting only the marksmanship contests (Darmadi 2018, 118) is used to shoot poisoned darts from a bamboo barrel, made of light wood (Darmadi 2018, 115), needing thus less skill, efforts and time to be made than to produce a real blowgun, by boring a log of hardwood in the traditional way described below. In the Philippines the local blowgun is also called *sumpit*, but was given the name *zarbatana* by the Spaniards, which actually is a variant of *cerbatana*. From the mentioned Spanish word derives the Portuguese term *zarabatana*, respectively and the Italian one *cerbottana* and the French word *sarbacane*. Sometimes, the Italian name *cerbotanna* was believed as coming from *arbotana* or rather *carpicanna* (Burton 1884, 14, n. 2), meaning "cane from Carpi" (Lane Fox 1874, 151; Demmin 1894, 468; Swainson Cowper 1906, 245), which is a town in Emilia-Romagna, respectively that the Spaniards would have borrowed the name from Italian and not from the Arab pronunciation *zabatana*, originating from the blowgun's Malay name *sumpitan* (Jett 1970, 71). At c. 1520, when describing such weapons used in the Philippines (namely in the Cayayan and Palawan islands, close to Borneo), the chronicler of Magellan's voyage, Antonio Pigafetta (c. 1491 – c. 1531), who was a Venetian, used the medieval Latin term *sarbacanes* (Lane Fox 1874, 150; Swainson Cowper 1906, 240, n. 2), derived actually from Romance languages, namely from French and Provençal, in the later the weapon being called *sarbacano*, *serpatano*, *sarpatano* and even *soumpetano* (Jett 1970, 71, n. 34), which also comes from the Malay name *sumpitan*. Apparently, the actual term *blowgun* is not occurring in mid-19th c. – early 20th c. sources, which use only the term *blowpipe* (usually spelled *blow-pipe*), apparently adapted after the Dutch word *blaaspijp*, like also the German *Blasrohr* and its correspondents in other European languages, as *духовая трубка* in Russian, for example.

In late 19th c., according to C. M. Pleyte, some peoples from South Sulawesi (namely the Bugis and the Makassars) renounced already to use the blowgun (Pleyte 1891, 270), although in Sulawesi the bow and the arrows are not used (Pleyte 1891, 269). Only some decades later, C. Lumholtz noted that the Penihing Dayaks (a branch of the Kayans, at that time wrongly believed to be Punans) used almost only spears, no longer produce blowguns and were not very apt to use them (Lumholtz 1920, II, 246) and that the Bukitans (Bukits) renounced already to the use of blowguns and were hunting only with spears cheaply bought from the Malays (Lumholtz 1920, II, 302), as the Ot-Danum (Dahoi) Dayaks too (Lumholtz 1920, II, 327), although previously the Bukitans were known as producers of blowguns, which they used to sell to other peoples (Ranee of Sarawak 1913, 53). This means that, as probably other Kayans too (Lumholtz 1920, I, 73), they could no longer afford themselves to hunt some species of game and focused on different ones or on agriculture and other sources of food, as sometimes even the ethnographic reports let to suppose (Lumholtz 1920, II, 302 and 327). Only few years later the British ethnographer Ivor H. N. Evans (1886–1957) that the blowgun cannot be found everywhere in Borneo (excepting up-country villages), though it was formerly much commoner, when it was used also as an offensive weapon (Evans 1922, 191 – 192). Excepting only the Sultan of Banjarmassin's lifeguards armed with Javanese bows (Pleyte 1891, 267, n. 10) and the small roughly made toys of their children (Hose *et al.* 1912, I, 175), all the Dayaks ignored the use of the bow (Boyle 1865, 252; Pleyte 1891, 267; Gomes, Sharp 1917, 4), like also the Punans (Hose *et al.* 1912, I, 175), who actually may be rather the nomadic Penans, although in Borneo the bow's principle is applied for traps by the Dayaks (Swainson Cowper 1906, 248–249, figs. 335–336; Hose *et al.* 1912, I, 145, figs. 22–23 and 175, n. 1). This realities from Borneo recall that in Sulawesi, where the bow is also known only as a toy, but only among the Minahasan (Manado) children from North Sulawesi and some information about the Huwas in Madagascar and the Sundanese in Java, where the blowgun also exists as toy, but ceased to be a weapon (Pleyte 1891, 276). The crossbow is also known in Borneo, but only as a crudely made toy for the Kayan children, possibly in a few localities in the extreme north of the island (Hose *et al.* 1912, I, 46), maybe as a foreign influence, from China, like among the Minahasans in North Sulawesi (Pleyte 1891, 278). The crossbow is known actually in whole Indonesia, also only as a toy, but in the southern islands (in Aceh on Sumatra, respectively in Halmahera on the Maluku islands) the influence is not Chinese, but Portuguese or Dutch, as is indicated by their handle recalling that of an old musket, while the arrow is released

by means of a kind of cocker (Pleyte 1891, 278). The use of bow and crossbow only as toys is explained by the fact that in dense jungle the blowgun's use is probably more favourable (Hose *et al.* 1912, I, 175, n. 1). Although a study on Amazonian Indians among whom the bow hunting seems to be the more recently acquired technology evidenced the role which besides efficacy various believes may play some role in their option for blowguns or for bows (Erikson 2001), while another also points on the role of magic believes on keeping the spear and the blowgun at communities which does not use bows (Chaumeuil 2001), in actual stage of research on the Dayaks and on other peoples of Borneo this possibility is not yet evidenced, because apparently in Southeast Asia neither the spread of bow or of the crossbow, nor the blowguns' loss of importance as hunting and war weapons in favour of spears were influenced by such magic believes.

The length of the Dayak blowguns varies between 1–3 m (Darmadi 2018, 115; cf. Boyle 1865, 250), but apparently most frequently they are 7 feet long (Janich 1993, 5; cf. Gomes, Sharp 1917, 4), i. e. 2.13 m, which is exactly the average of a length of 6–8 feet (i. e. 1.82–2.4 m), mentioned both in some late 19th c. – early 20th c. writings (Bock 1882, 193; Green 1909, 53; cf. Knight 1880, 290) and by new researches (Darmadi 2018, 115 and 118; Bushev *et al.* 2019, 367). As there are also several mentions of about or right 8 feet (i. e. 2.43 m) long blowguns (Pleyte 1891, 269; Green 1909, 53; Gomes 1911, 78; cf. Knight 1880, 290), such a length range may be considered as real too, especially because according to H. Low, the blowguns of the Sea Dayaks were even longer, 8–10 feet (Low 1848, 211), i. e. 2.4–3.04 m.

Although I. H. N. Evans stated that the Dusun people from North Borneo (nowadays the Sabah state of Malaysia) have blowguns which, excepting a few unimportant details (Figs. 20–21), are exactly similar (Figs. 18–19) to that used by the other tribes (Evans 1922, 192), their blowguns (Figs. 18–20) are actually shorter than those of the Dayaks, measuring only 4–5.5 feet (i. e. 1.21–1.67 m) and inside the blowgun's barrel sometimes there is another one, made of soft wood (Fig. 21), in which is actually put the dart to be shot (Gudgeon 1913, 68). To it corresponds, actually, the steel barrel fitted in the interior of the dragon-shaped short blowgun published on this occasion. Discussing about blowguns with an inner barrel, should be noted an innovation inspired both by them and by the shotguns, which is documented also in Borneo (in the former Westdivision territory of North Borneo, which includes nowadays the districts Kudat, Marudu, Bangi and Pitas of the Sabah state of Malaysia), already in late 19th c.: the tip of the blowgun's main barrel, made of ironwood, is put into the top end of a gun barrel, in order to provide the blowgun with an aim (Pleyte 1891, 269, pl. XVIII/3, 5). It is also a clue for the region of Borneo and for the date when the traditional blowguns were "improved" by using metallic barrels of European origin, which were probably believed to give them the accuracy and efficacy of European shotguns. The origin of the blowguns with innner barrel, which inspired such "improvements", is surely older and may be found in the weapons of some primitive proto-Malay peoples living in southern Thailand and continental Malaysia, although the Dusuns are related to Taiwan natives and to some peoples from the Philippines rather to them or to other Borneo peoples. Thus, according to late 19th c. ethnographic sources, the blowgun of the Orang Sakai people (actually the Semangs) is made of a bamboo (*Bambusa wrayi*) barrel which contains either another bamboo barrel inside (Pleyte 1891, 265; cf. Friderici 1915, 37; Stone 1961, 589) or a barrel made of two bamboo pieces of unequal length joined through a short piece (Stone 1961, 589), preserving it thus against damage, as it is very thin and delicate, the latter's inner diameter varying from 9–16 mm (Pleyte 1891, 265). Among the Orang Mantra people (actually the Senois) the blowgun called by the natives *toumiang*, which is in fact the name of a bamboo species (*Bambusa longinodis*), consists of a 5–6 feet (i. e. 1.52–1.82 m) long exterior barrel (*tomerang* or *tagur*), usually adorned with figures and having its upper part painted in yellow and the lower one in white, and of an inner barrel, called *anak tumiang*, i. e. "son of the blowgun" (Pleyte 1891, 266; cf. Lane Fox 1874, 150–151; Swainson Cowper 1906, 241). Similar weapons are known also in Sumatra among the Lubu people from Tapanuli in North Sumatra, where the blowgun (*hina*) resembles very much in form and construction that of the Orang Sakai, consisting also of an inner barrel (*anaqnao*), kept inside another one, which is also made of *Bambusa longinodis*, the lower end of the outer barrel being fitted with a round mouthpiece (*tahawan*), which is fastened to the barrel by plaited rattan (Pleyte 1891, 267, pl. XVIII/9a-c). In the northern part of Sulawesi, they are made of a straight cut of bamboo fitted inside with another barrel of the same material and provided at the tip with a V-shaped piece of wood, the aim (Pleyte 1891, 270, pl. XIX/14). In the Palau island the blowgun is

constructed in a similar way, but from drilled pieces of wood (Friderici 1915, 37). In conclusion, the blowguns with an inner barrel are used by peoples of various origins, but in a limited part of Southeast Asia, including only some areas in the northern regions of the islands Sumatra, Borneo, Sulawesi and Palau besides some mountain regions in the Malay Peninsula, from where actually, according to G. Friderici, they may have spread to east (Friderici 1915, map 5). They appeared from the necessity to prevent the damage of the interior pipe, either consisting of a single pipe (when there are bamboo stems with long internodes), or obtained through joining 2–3 pieces of bamboo put inside of a palm leaf midrib, or of a split-and-grooved hardwood log, bound with gutta-percha (Stone 1961, 589; cf. Swainson cowper 1906, 241, figs. 330–331). Besides them, only in South America, in Mato Grosso, are known quite similar blowguns, which are made from a hollowed palm stem, in which is put a cane without nodes on its stem, having its inside polished well (Andrieș 1967, 78; cf. Swainson Cowper 1906, 240). Such a blowgun is called *pucuna* in Guyana and is thinner and lighter, but longer than the *zarabatana* made of hollowed palm stems, that a *pucuna* which is 11 feet (i. e. 3.35 m) long weighs only 1.5 pounds, 680 g, while a shorter *zarabatana*, only 7 feet (i. e. 2.13 m) long, weighs 3 pounds and 12 ounces, i. e. 1.7 kg (Swainson Cowper 1906, 240 and 242).

The Borneo bored wooden blowgun is made by drilling a smooth hole through a long piece of hardwood (Janich 1993, 5; Bushev *et al.* 2019, 367; cf. Boyle 1865, 250; Green 1909, 53; Gomes, Sharp 1917, 4), of dark red colour (Green 1909, 53). According to an early 20th c. testimony (Hose *et al.* 1912, I, 215), the best Borneo blowguns are made from the hard straight-grained wood of a tree locally called jagang (*Pterocarpus indicus*), but which due to the international trade with exotic wood is known to the Europeans through different names. The wood of this tree is indeed of dark red colour. Russian researchers consider this wood as being one of the two kinds typically used to make blowguns (Bushev *et al.* 2019, 367). According to late 19th c. accounts, the blowgun's barrel was made from iron wood (Bock 1882, 193), a name which is given actually to various species of trees from Borneo. As it is mentioned as niagang and described as a hard, close-grained, reddish wood, exceedingly straight and with few knots (Furness 1902, 113), it must be the Borneo ironwood tree (*Eusideroxylon zwageri*). Besides from the ulin or belian or kaya bĕsy tree (namely just other native names for *Eusideroxylon zwageri*), the wood used to make bored blowgun barrels may come also, according to new information (Darmadi 2018, 115 and 118–119), which actually confirm older conclusions (Pleyte 1891, 269), from other local hardwoods, as tapang (*Koompassia excelsa*), plepek (probably *Shorea acuminata*) or resak (*Vatica venulosa* or *V. rassak*), but also from two trees which cannot be identified, namely lenan and berangbungkan. According to Edward Henry Knight (1824–1883), the Dayaks used also the wood of the beach oak or horsetail oak (*Casuarina equisetifolia*) to make blowgun barrels (Knight 1880, 290). This very hard wood, mentioned also by recent researches as being used to make blowguns (Bushev *et al.* 2019, 367), has a yellowish-pink to reddish-brown colour, hence it is called also beefwood or ironwood. Among the identified hardwoods only the resak is not of dark red colour, even reddish not. However, if making a blowgun from the wood of an ironwood tree, a young tree is preferred (Pleyte 1891, 269), because being thinner it takes less time to polish it till reaching the desired exterior diameter.

In 19th c. ethnographical reports there is very few information about the way in which a Borneo blowgun barrel was produced. Especially about how the wood was bored there were rather suppositions, so erroneous descriptions persisted till in early 20th c. writings. Thus, according to the opinion of F. Boyle (which is actually the oldest) about this, the hole is drilled in a way which was not witnessed by him, but precisely by using a string, in the same manner (which he saw, but did not understand) as the long pipe-stems of jasmine and cherry-stick sold in Cairene bazaars are made (Boyle 1865, 250–251). More recent descriptions (Bock 1882, 193; Green 1909, 53; Gomes 1911, 78; Hose *et al.* 1912, I, 216) state correctly that the hole is drilled through a log with an iron rod, one end of which is chisel-pointed (Gomes 1911, 78; Hose *et al.* 1912, I, 217; cf. Bock 1882, 193; Pleyte 1891, 269; Furness 1902, 113). The most detailed description of a Borneo blowgun's production, documented also with photographs (Figa. 26–29), is due to the British ethnologist Charles Hose (1863–1929) and was published in 1917 (Hose *et al.* 1912, I, 215–218, pl. 112–114). In a certain measure, it recalls how the drilled blowguns are made in Guatemala by the Jakaltek Mayas using a wire to bore a log (Ventura 2003, 264–265, figs. 10 and 14). Considering right the information about how blowguns made by boring a single long log were produced in Borneo and in

Guatemala, the older remark of Hugh Low (1824–1905), that the blowguns of the Kayans from Borneo recall those from the Essiquibo river in South America in appearance (excepting the spearhead and the sight of the first), in size and in aspect of the darts (Low 1848, 331), may cause some confusion, as it reopens the question: how a long log could have been perforated before metallic tools existed? To Ch. Hose is due as well the detailed description, also accompanied by photographs, about the making of accessories for this native weapon's accessories, namely the darts (Hose *et al.* 1912, I, 218, pl. 115, fig. 42) and the quiver (Hose *et al.* 1912, I, 219, fig. 44) and about the preparation of the poison for darts (Hose *et al.* 1912, I, 218–219, pls. 88 and 116, fig. 43). An older description of the same process, by W. H. Furness, omitted some details and mentioned others (Furness 1902, 113–114), while new researches (Darmadi 2018, 118), although not detailed, confirm much of the described process, including the size of the log which is used to make a blowgun.

According to the missionary Edwin Herbert Gomes (1862–1944), having chosen and felled the tree, often one of large size, the craftsman splits from it long pieces about 8 feet (i. e. 2.43 m) in length. Such a piece is shaved with the adze (Fig. 26) until it is roughly cylindrical and 3–4 inches (i. e. 7.62–10.16 cm) in diameter (Hose *et al.* 1912, I, 216, pl. 112). The piece may be carried home to be worked at leisure, or the boring may be done upon the spot. A platform (Fig. 27) is erected about 7 feet (i. e. 2.13 m) above the ground; and the prepared rod is fixed vertically with the lower end resting on the ground and the upper end projecting through the platform (Hose *et al.* 1912, I, 215–216, pl. 113), and so secured, that the later remains 5–6 inches (i. e. 12.7 – 15.2 cm) above the floor (Furness 1902, 113). Its upper end is lashed to the platform, its lower end to a pair of stout poles lashed horizontally to trees, and its middle to another pair of poles similarly fixed.

The next operation, the boring of the wood, is accomplished by the aid of a straight rod of iron about 9 feet (i. e. 2.74 m) long, of slightly smaller diameter than the bore desired for the pipe, and having one end chisel-shaped and sharpened. One man standing on the platform holds the iron rod vertically above the end of the wood, and brings its sharp chisel edge down upon the centre of the flat surface. Lifting the rod with both hands he repeats his blow again and again, slightly turning the rod at each blow. He is aided in keeping the rod truly vertical by two or three forked sticks fixed horizontally at different levels above the platform in such a way that the vertical rod slides up and down in the forks, which thus serve as guides. The rod soon bites its way into the wood. An assistant, squatting on the platform with a bark-bucket of water beside him, ladles water into the hole after every two or three strokes, and thus causes the chips to float out (Hose *et al.* 1912, I, 216). He has also to keep constantly true the iron rod to the centre of the log, while the other man raises and drops perpendicularly this implement, the bored hole being of 0.25 inches (i. e. 0.6 cm) in diameter (Furness 1902, 113) or 3/8 inch (i. e. 0.9 cm) according to mid-20th c. and later authors (Stone 1961, 588; Bushev *et al.* 2019, 367), but maybe even larger, namely 0.5 inches (i. e. 1.2 cm), according to other opinions (Knight 1880, 290; Bock 1882, 193; Bushev *et al.* 2019, 367).

Thus, the description of this process by Eda Green, according to which a man standing below the wood simply fixed on the house posts, bores the hole upwards (Green 1909, 53) is completely wrong. The operation described above by E. H. Gomes, steadily pursued for about 6 hours, completes the boring (Hose *et al.* 1912, I, 216), which according to W. H. Furness, takes at least 8 or 9 hours (Furness 1902, 113–114), but not years of work, as formerly believed by F. Boyle (Boyle 1865, 251). Comparatively, to make a blowgun using a wire, the Jakaltek Mayas need 7 days, from beginning till to the end (Ventura 2003, 264). It is difficult to believe that, according to late 19th c. – early 20th c. sources, the Punans (actually the Penans), considered to be very skilled in the manufacture of blowguns (Bock 1882, 72; Hose *et al.* 1912, I, 36; Lumholtz 1920, I, 46), reportedly right in the same way as the Kayans (Hose *et al.* 1912, II, 191), could bore logs in this way, as these forest nomads never had and built houses (Green 1909, 17), till in early 20th c. when some of them are mentioned to live in houses and to do some farming (Ranee of Sarawak 1913, 53, n. 1). In mid-20th c. J. Bitsch mentioned the use of an iron rod by the Punans to bore a log in order to make a blowgun barrel, although much shorter (till 1.5 m) than that of the Dayaks (Bitsch 1968, 137), but without to describe this process (Bitsch 1968, 147), because most likely he never saw it, as he visited actually the Penans, nomadic hunters and gatherers and not the Punans. The true Punans, who are agriculturalists, learned the log drilling process from their neighbours, the Dayaks, namely the Kayans (Hose *et al.* 1912, II, 191 and 226), following whom some of them began also to

practice the headhunting (Lumholtz 1920, I, 46, 87 and 96). Supposedly, the Kayans themselves learn to bore the hardwood of their blowguns from the Malays, leaving thus the use of bows and arrows (Hose *et al.* 1912, II, 240). Due right to this confusion between Penans and Punans, the blowguns made of hardwood were considered in early 20th c. as the most recent improvement in the nomads' way of life (Hose *et al.* 1912, II, 6). Thus, despite the fact that these nomads, the Penans, were skilled in using the blowgun (Bock 1882, 72; Hose *et al.* 1912, I, 36 and II, 182; Lumholtz 1920, I, 46), they could produce only bamboo blowguns, using a completely different technology. Besides wooden blowgun barrels made of drilled wood (either with the mentioned steel rod or likely with fire), the Dayaks used also bamboo barrels, especially in blowguns made for children, which have a cone-shaped end made of a light wood, as pelawi (Darmadi 2015, 115), namely *Artocarpus odoratissimus*, which is an evergreen tree known under many different names to the Europeans, due to the international exotic wood trade. Bamboo blowguns are used not only in Malaysia and Indonesia, but also in the Philippines, unlike however in Japan, despite the fact that the bamboo is growing there too. According to Amante P. Mariñas Sr., to make bamboo blowguns are needed straight sections of stem. If crooked, the bamboo can be straightened by heating it over a fire. At first, the bamboo is sprayed with water to prevent it from charring. The crooked part of the bamboo is rotated over the fire to ensure that it becomes uniformly flexible, then to straighten it the bamboo is pressed against a tree trunk or against the knee. If the bamboo bends again, the process is repeated until it is straight and only then it is allowed to dry. The one-piece bamboo blowgun is usually short, measuring only about 4 feet (i. e. 1.21 m), because it is not easy to remove the barriers (or nodes) from longer pieces of bamboo: they had to be removed by hammering on a thin piece of hardwood to the end of which is attached a small metal point, then they are smoothed using an arc-shaped sharp metal piece, which is attached to the end of a long piece of hardwood. As it is easier to remove and smooth the inside of shorter sections of bamboo and also easier to find short sections of bamboo that are straight, two-pieces or three-pieces blowguns can be made from bamboo with couplings (also made from bamboo), used to connect the short sections (Mariñas 2020). These are actually the modern blowguns "divided into several pieces, joining together like a fishing rod" mentioned by A. Demmin as used for fowling (Demmin 1894, 468).

In boring the lower part of the log, the craftsman from Borneo aims (Fig. 28) at producing a slight curvature of the barrel by very slightly bending the pole and lashing it in the bent position; the pole on being released then straightens itself, and at the same time produces the desired slight curvature of the bore. This curvature is necessary in order to allow for the bending of the blowgun, when in use, by the weight of the spearhead which is lashed on bayonet-fashion. If the desired degree of curvature is not produced in this way, the wooden pipe, still in the rough state as regards its outer surface, is suspended horizontally on loops, and weights are hung upon the muzzle end until, on sighting through the bore, only a half circle of daylight is visible — this being the degree of curvature of the bore desired. The wood is then heated with torches, and on cooling retains the curvature thus impressed on it. It only remains to whittle down the rough surface to a smooth cylinder slightly tapering towards the muzzle, to polish the pipe inside and out, to lash on the spear-blade to the muzzle end with strips of rattan (Fig. 29), and to attach a small wooden sight to the muzzle end opposite the spear-blade (Hose *et al.* 1912, I, 216–217, pl. 114). The polishing of the bore, which begins after the log is pared down (Green 1909, 53; Gomes 1911, 78), is effected by working to and fro within it a long piece of closely fitting rattan; that of the outer surface, by rubbing it first with the skin of a stingray (which, although a marine fish, sometimes ascends to the upper reaches of the local rivers), and afterwards with the leaf, called by the Malays *emplas* or *daun amplas* (*Tetracera akara*), which is the local substitute for emery paper (Hose *et al.* 1912, I, 217–218; cf. Bock 1882, 193–194) and should not be identified, as C. M. Pleyte did, with *Ficus politoria* (Pleyte 1891, 269, n. 2), which actually is a native plant from Madagascar. W. H. Furnes describes a different way to polish the barrel: first, by means of fine sand or clay smeared on a slim rattan, which is pulled through it many times rapidly backward and forward, then with another piece of rattan ending in a loop or a cleft, wherein leaves, like the bamboo, rich in silica, are bound, till it shines almost as brilliantly as a gun barrel (Furness 1902, 114). According to the Norwegian explorer Carl Bock (1849–1932) and to C. M. Pleyte, the dried leaves of *daun amplas* were used to polish both the inside and the outside of the blowgun's barrel (Bock 1882, 193; Pleyte 1891, 269); this is actually the only material mentioned by recent researches as being used for polishing in

the Malay Archipelago (Bushev *et al.* 2019, 367). The barrel is polished till it is about an inch, i. e. 2.5 cm in diameter (Bock 1882, 193; Pleyte 1891, 269; Green 1909, 53; Gomes 1911, 78) or even 1.5 inch, i. e. 3.8 cm (Bock 1882, 193; cf. Bushev *et al.* 2019, 367) at the mouth and 1 inch at at the muzzle, and then scraped and smoothed with knives and shark skin files (Furness 1902, 114). C. Bock stated as well that the interior diameter is of 0.5 inch, i. e. 1.27 cm (Knight 1880, 290; Bock 1882, 193) or a little less (Pleyte 1891, 269), but according to W. H. Furness, it may be even thinner, at least 0.25 inch, i. e. 0.6 cm (Furness 1892, 113–114). These dimensions are confirmed by new researches, as according to H. Darmadi the barrels' exterior diameter may vary between 2–3.5 cm and the interior diameter does not exceed 1–1.2 cm (Darmadi 2018, 115; Bushev *et al.* 2019, 367), the muzzle being narrower than the opposite end of the barrel (Darmadi 2018, 118). If the barrel happens to be slightly sprung, the curve is overcome by the broad iron spearhead bound on at the muzzle, that when the pipe is held horizontally the weight of the iron counteracts the curve (Furness 1902, 114; cf. Knight 1880, 290).

Although hollowed palm stem weapons (produced in an unknown way) are also known among the Dayaks and a Dayak tradition about the use of hot coal by the Ot Danum tribe in West Kalimantan to bore by burning blowgun barrels may refer actually to the burning out of pith in palm stems, it lacks sufficient control to create a straight bore in solid wood, even among the Tanala people from Madagascar a heated rod (most likely of iron) is used for removing the pith of a palm stem, and in North America modern Cherokees burned out cane septa using heated pokers, most likely of iron too (Jett 1991, 90). Unlike them and as mentioned above, the Jakaltek Mayas in Guatemala use a wire to bore a log (Ventura 2003, 264–265, figs. 10 and 14). How a straight blowgun barrel could be obtained by boring a hardwood log before metallic tools existed is apparently still unknown, leaving open the question whether, until then, were used only blowguns made of split-and-grooved cane or bamboo stems or of palm stems hollowed like the Ot Danum tribe used to do. However, split-and-grooved blowguns can be made also from hardwood, as in the Malay Peninsula from splited logs, probably of pěnága (*Calophyllum inophyllum*, used in traditional shipbuilding), which are "grooved on the inner side throughout the entire length, so that when fitted together a perfect tube is formed, which is bound from end to end with a long strip of cane (?) and over the whole is an incrustation of a gutta percha-like substance to keep it together. The diameter of the tube at the mouthpiece is a little wider than at the muzzle, forming a slight choke and imitating, it is suggested, a natural tube of bamboo, which would be blown from the root end." (Swainson Cowper 1906, 241, figs. 330–331). Such blowguns from the Malay Peninsula are shorter than the habitual Borneo ones made of a bored log, as one described by W. W. Skeat is 5 feet 2 inches (i. e. 1.57 m) long and a Johor example described by Vaughan Stevens about 9 inches (i. e. about 22 cm) longer, having its barrel protected by a bamboo casing (Swainson Cowper 1906, 241), recalling thus the Southeast Asian blowguns with inner barrel. Their length is close to that of the Dusun blowguns with inner barrel from North Borneo, which may have inspired the construction of the dragon-shaped blowguns. If the used wood is that of *Calophyllum inophilum*, called also Borneo mahogany, their colour is also dark red, as that of the bored blowguns from Borneo, which is recalled actually by the varnish of the dragon-shaped blowgun from a private collection in Șelimbăr. In other regions, instead of gutta-percha and of resins as dammar, which are available in Borneo, for making of split-and-grooved blowguns may have been used various beeswax mixtures, as in South America (Swainson Cowper 1906, 241–242) and local resins.

The weapon is finished by adding typically to it a spearhead and a hook (*klahtdon*), lashed to the muzzle end (Figs. 19), the latter being used according to some opinions as a front sight when shooting (Janich 1993, 5; cf. Boyle 1865, 250; Knight 1880, 290; Bock 1882, 194; Pleyte 1891, pl. XVIII/8a; Furness 1902, 114; Hose *et al.* 1912, I, 217, pl. 114). Both this small hook and the spearhead, which are so placed as not to interfere with the dart's flight (Boyle 1865, 250; Pleyte 1891, 269, pl. XVIII/8), were strongly fasted to the blowgun's barrel with plaited rattan (Bock 1882, 194; cf. Low 1848, 330) or more recently with brass wire (Pleyte 1891, 269). While the split-and-grove blowguns made of bamboo or palm stems have usually a mouthpiece, consisting usually of the naturally wider part of the stem (namely closer to the plant's root), a distinct and larger mouthpiece is often lacking on drilled blowguns, although its weight acts as a poise in raising the barrel for shooting or may consist of a brass or copper case around the weapon's end (Swainson Cowper 1906, 240), sometimes even of wrapped wire, but rarely of wrapped rattan, as

maybe more frequently in older times. Some of the more highly furnished blowguns have another type of sight (called *bitan* by the Kayans), ingeniously made of a cowry shell imbedded in gutta-percha, with the slit-like opening turned upward and parallel to the shaft (Furness 1902, 114), while others have an iron sight, near the muzzle, bound with rattan (Low 1848, 330; Furness 1902, 114), measuring 2 cm, according to new information (Darmadi 2018, 118), or a spike-shaped copper one (Jett 1991, 97), or, simply, a small wooden sight (Hose *et al.* 1912, I, 217; Evans 1922, 192). An interesting drilled blowgun with spearhead (Bushev *et al.* 2019, 267, fig. 444), unfortunately undated and without provenance, which apparently is kept in a Russian collection (as it is known to the authors of a dictionary of weapons written for the use of the experts, teachers and students in Forensic Science of the Russian Ministry of Interior Affairs), has the muzzle part narrower than the mouthpiece part and a serpent- or dragon-like sight, placed right on the barrel, at the end of its first third (if considering the muzzle), where on dragon-shaped blowguns is placed the quiver. Due right to its particular shape, it seems to have been made from a hollowed palm stem. For this reason, it may be dated already in 19th c., most likely even before the 1890's, when the oldest dragon-shaped blowguns are documented.

The sharp iron spearhead (called *sangkoh*) allows to use the blowgun as a lance in warfare or to finish off wounded game (Janich 1993, 5; cf. Knight 1880, 290; Bock 1882, 185 and 194; Gudgeon 1913, 68; Lumholtz 1920, I, 46; Evans 1922, 192; Darmadi 2018, 113 and 116; Bushev *et al.* 2019, 367). Colonel Lane Fox described from his own collection a blowgun with spearhead from Central Borneo with a ridge dividing the spearhead's faces, being eccentric and reversed on alternate sides (Lane Fox 1874, 135 and 153, cat nr. 1005), which gives the weapon a rotatory motion on the principle of the screw propeller, the action being merely reversed, and, instead of the screw communicating its action to the surrounding medium and thereby propelling itself along, the air in this case impinges upon the screw and causes the javelin to rotate, by which means the accuracy of its flight is increased, like that of a rifle bullet shot from a gun (Lane Fox 1874, 135). According to new researches, which confirm suppositions based on analyses of old photographs (Fig. 33), it measures 20–30 cm (Darmadi 2018, 115), is rather thick and may be decorated with engraved patterns (Pleyte 1891, 269). Although the Dayaks use also blowguns without an attached spearhead, the latter is considered as a specific feature (Fig. 33) of a Dayak blowgun (Pleyte 1891, 269) and there are even researchers who stated that unlike these Dayak weapons those of the Malay Peninsula do not have sights, nor are they fitted with spearheads (Stone 1961, 589). Actually, the spearhead is associated almost always with drilled wooden blowguns, excepting only on the Palau island and in southwestern Sulawesi (Jett 1991, 97), as in Palau the blowguns, although made from drilled logs (Friderici 1915, 37), do not have spearheads. By contrary, the Orang Sabimba (actually the Orang Laut people, known as sea nomads), who claim that their ancestors left southern Sulawesi, kept the tradition of a blowgun made by drilling a single wood piece and having a spearhead at one of its ends (Friderici 1915, 37) and among the Orang Sakai (the Semangs in the Malay Peninsula) a spearhead exists even at the toy blowguns used by children (Pleyte 1891, 266). The spearhead occurs as well at blowguns from the Bangka island in the Riau Archipelago, close to the central eastern coast of Sumatra (Pleyte 1891, 266) and at a ceremonial blowgun from Bali (Pleyte 1869, 279, pl. XVIII/1), where Hindu Javanese took refuge from the Muslim conquerors of their island (Pleyte 1869, 268). Despite the almost universal association between the spearhead and the drilled wood blowguns, there is no sure evidence that a spearhead was added to the blowgun only since metal tools are used to bore logs. Thus, among some Dayak communities the iron spearhead replaced quite recently a spearhead made of stone, mentioned by new researches (Darmadi 2018, 113, 115, 116 and 118), but about whose nature unfortunately there is no information excepting the native name *muckloom* of the used mountain rock (Darmadi 2018, 118), which cannot be identified. Although the 19th c. – 20th c. written sources do not document this in Borneo, in older times may have been used also spearheads of wood, as among the Orang Gunung (Pleyte 1891, 266), actually the Temuans (a proto-Malay people from western Malaysia), particularly of young bamboo, which is very hard (Boyle 1865, 85) or made of sharpened bones. Right for its spearhead, the blowgun of the Dayaks from Borneo is more useful than the blowgun used by the Jivaros, an Amerindian people from Ecuador, being one of the very few belongs carried with them by the Penans (Bitsch 1968, 188, fig. 28), the native nomadic people living in remote areas of Borneo's inland. Although in mid-20th c., due to the confusion

between the nomadic Penans and the Punans, the first are described as "the blacksmiths of the jungle", who know where the limonite ores can be found, who use to keep their tools hidden in certain places of the jungle during their continuous movements, who use a forge to produce blades and other items and even used an iron rod to pierce the wood for making a blowgun barrel (Bitsch 1968, 146–147), although much shorter (till 1.5 m) than that of the Dayaks (Bitsch 1968, 137), in early 20th c. it was clearly pointed that the nomadic hunters and gatherers had to get this iron rod from other peoples, being not able to produce it (Hose *et al.* 1912, II, 191 and 226).

After the blowgun's barrel is already polished, sometimes it may be ornamented with a pattern inlaid with tinfoil (Green 1909, 54). Such weapons, like also those decorated with brass wire and plates or with silver plates, are believed to have belonged to high-rank persons (Juynboll 1910, 86). Apparently in early 20th c. this seems to have been considered as a recent improvement, because in 1902 W. H. Furness stated that he did not see any ornamentation on blowguns, excepting a plate of bone inlaid with strips of lead (Furness 1902, 114). The decoration of the barrel, like that of the quivers, even if consisting only of elaborate and quite characteristic patterns of incised lines, has definite meanings for their makers, as the researchers noted (Stone 1961, 589), without knowing to explain these meanings. The blowguns made of bored hardwood are often painted and / or varnished, right because of the need to protect against the effects of humidity such an important weapon, produced with much effort and during a quite long time (if considering even only that needed to bore a log). Even the outer barrel of the blowguns with inner barrel of the Orang Mantra (actually the Senois) from the Malay Peninsula are adorned with figures and painted in dark at the muzzle extremity and in white towards the mouthpiece (Lane Fox 1874, 151; cf. Swainson Cowper 1906, 241). By contrary, blowguns which are made in a simpler way, as those from hollowed palm stems or split-and-grooved bamboo stems, are apparently more often unpainted and / or unvarnished. A tinfoil inlaid *sumpitan* of the Dayaks (which does not have a spearhead) kept at the Oxford Museum has a length of 80 3/8 inches, i. e. 2.04 m, the interior diameter of 0.7 inches, i. e. 1.77 cm and a weight of ounces, i. e. 822.13 g (Green 1909), which means that such weapons were very light. If considering the proportional width and thickness of the spearhead's blade in relation to its length on old photographs, as according to newer researches the spearhead's length is of 20–30 cm (Darmadi 2018, 115), it may be assumed that the spearhead's maximum weight was about 630 g. Thus, the weight of a spearheaded Borneo blowgun might have been of around 1.45 kg. Such a blowgun with spearhead could have been used not only for thrusting, but also for throwing. Because the making of a blowgun needed much effort and time (especially if it had to be made by boring a hardwood log and not from bamboo stem pieces), it was surely a quite expensive commodity, especially if it was bought from a different village or tribal community, that despite the possibility of using the blowgun both as a thrusting and throwing weapon, when enemies should have been attacked by spear, the spearhead was detached from the blowgun and tied to a stick, the blowgun being hidden till after the fight (Lumholtz 1920, II, 404), in order to avoid the damage or the loss of the blowgun's barrel. On the dragon-shaped short blowgun published on this occasion the part corresponding to a spearhead is actually that of the tail fin, but this item's part is purely decorative, as on its surface there are no traces of sharpening. Thus, it would be difficult to use it even to stab a hen, which is the most common victim in Dayak bloody sacrifices performed on various occasion. The spearhead-shaped edge which makes up the dragon's tail has thus no other role than to prevent water from entering the steel barrel, which would rust. This means that the blowgun had to be carried (or hanged on a shoulder when carried) with the dragon's head downwards and the spearhead upwards. In the Malay Peninsula (but probably not only there) it is usual to keep the muzzle stopped with leaves, in order to keep out white ants and the small wild bees and to use a cleaning rod of palm wood with stripes of leaves (Stone 1961, 589).

As blowgun projectiles the Dayaks used mainly steel or wooden darts. The single-pointed steel dart, called *damak* by the Dayaks, is pointed in a cork-like cushion and has feather bound on it, which allows it to fly to the target (Darmadi 2018, 115, fig. 2). Curiously, the steel darts are not mentioned by late 19th c. – early 20th c. sources and thus they should be considered to have been used later, probably after 1920. The darts described in mid-19th c. were made from the thorn of the wild sago palm (*Cycas rumphii*), as it is hard and pointed, 6–8 inches (i. e. 15.2–20.3 cm) long, quite straight, equally thick from base to point, its blunt end being encased in a cube of

compressed pith, fitting exactly to the hollow of the barrel (Boyle 1865, 251; Hose *et al.* 1912, I, 218; cf. Swainson Cowper 1906, 243). In late 19th c. are mentioned light darts (*langá*) made of bamboo, 9.5–10 inches (i. e. 24.13–25.4 cm) long and 2–2.5 mm thick (Bock 1882, 194, pl. 18/8), although there were also much shorter bamboo darts, with a length of 7–8 inches (i. e. 17.7–20.3 cm), equally thick from base to point and not thicker than a knitting needle and furnished at the butt with a conical piece of pith or soft wood (Figs. 22 and 24), which sometimes may be hollow, but few of them have wing-like appendages along the shaft (Pleyte 1869, 269). If making shafts for darts from bamboo (Fig. 30), short pieces of bamboo are cut between two nodes and then split into smaller thin pieces. The shafts are then rounded to the required diameter using knives or sharpened shells. The bamboo darts are called *tepus* if they are simply sharpened (Pleyte 1891, 269, pl. XVIII/14) or *tanggiri* if they have a triangular point of bamboo (Pleyte 1891, 269 and 279, pl. XVIII/13), but *ladjau* if they have a point of brass (Pleyte 1891, 269, pl. XVIII/11). Other darts may have a thin iron point (Pleyte 1891, 279, pl. XVIII/15) or even a barbed point (Pleyte 1891, 279, pl. XVIII/16). In early 20th c. imported tin or brass ware was used as a source of metal for making dart heads, instead of which formerly was used a slip of hardwood and, possibly, in some cases stone (Hose *et al.* 1912, I, 218) or even a shark tooth (Low 1848, 330; Pleyte 1891, 269, pl. XVIII/12) or a stingray tail bone, which breaks off in the wound (Knight 1880, 290). According to late 19th c. and early 20th c. accounts (Knight 1880, 290; Green 1909, 54; Hose *et al.* 1912, I, 218, pl. 115), as darts were used also extremely light slips of the nibong palm (*Oncosperma tigillarium*), which are 9–12 inches (i. e. 22.8–30.4 cm) long and 1/16–1/8 inch (i. e. 0.1–0.3 cm) in diameter. The pointed tips of the darts are hardened in the fire and fitted with a small butt of dried pith or of light wood (Green 1909, 54), like that of the aforementioned palm (Knight 1880, 290).

If pith is used, it looks as a small tapering cylinder of tough pith (Figs. 22 and 24), about 1 inch in length, its greatest diameter at its butt end being exactly equal to the bore of the pipe (Hose *et al.* 1912, I, 218; cf. Bock 1882, 194). This piece of pith (*buà*), by mean of which the dart is actually blown through the barrel, corresponding thus to the nock and shafting of ordinary arrows and serving also as balance (Bock 1882, 194) and to prevent windage (Knight 1880, 290), is shaved to the required diameter by the aid of a small wooden cylinder of the standard size, which is prolonged in a pin (Fig. 23) of the same diameter as the shaft of the dart (Hose *et al.* 1912, I, 218, fig. 42; cf. Pleyte 1891, 279, pl. XVIII/3). A piece of pith transfixed by the pin is shaved with a sharp knife until its surface is flush with that of the wooden gauge (Hose *et al.* 1912, I, 218) described above, getting thus a cone shape (Knight 1880, 290). Sometimes the butts may be hollowed and have attached wing-like appendages along the dart's shaft (Lane Fox 1874, 150; cf. Swainson Coper 1906, 243). It is necessary to replace the dry and cracked pith butts (Furness 1902, 76), because their change in calibre will affect the dart's ballistic qualities due to lack of air pressure, respectively due to the pith butt's friction with the interior of the blowgun's barrel. The previously prepared pith butts are carried in a gourd (Bock 1882, 72 and 194), right because to make them in the desired size needs some time. The wooden stopper of this gourd (*hung*) is often carved to render a monster's head (Bock 1882, 194, pl. 18/6).

Unfortunately, about the darts used to be fired with blowguns with an inner barrel, as those used in certain regions of the Malay Peninsula by the Semangs and by the Senois, respectively in some area of the northern regions of Sumatra, in North Borneo and in Sulawesi there is few information. The darts used by the Semangs are from 8 inches to 11 inches (i. e. 20.3–27.9 cm) long and about 1 mm in diameter and are made from the hard midrib of the Berettan-palm leaf, one end being carefully sharpened and dressed with poison and the other provided with a small hub of the pith of some palm, so that it has plenty of room in the barrel; behind the dart, put there in order to prevent the escape of wind when blowing the dart out of the barrel, as wad they use some soft material, as raw cotton or some velvety covering found at the base of the midribs of some rattan palm leaves (Pleyte 1891, 265). The Senois use a light dart, only some inches long (Pleyte 1891, 266). The darts of the Lubus in northern Sumatra are made of a pointed piece of bamboo or wood and at their other end they have a little hub, taken from the anau palm (*Arenga saccharifera*), as C. M. Pleyte mentioned (Pleyte 1891, 267).

Particularly for short blowguns (as the dragon-shaped one published on this occasion) it is very important that the darts are not only straight, but also very light, as they have to be shot at closer range. This means they need to have very light shafts and a high efficacy even without separately

made heads of metal, stone, bone, tooth, shell etc., as well as to have buts and wads made of very light materials, which is actually more important than to be feathered (as on wadded darts the feathering may consists of textile threads or may even lack). Considering some local materials traditionally used to make blowgun darts in other regions of Southeast Asia, but which are available also in Borneo (although they are not described in mid-19th c. – early 20th c. written sources), the shaft of the darts can also be made from walis tingting, namely the hard spines (primary veins) of the leaves of the coconut palm (*Cocos nucifera*) frond, usually used in Southeast Asia to make brooms. The dart's sharp tip could be fire-hardened, as for those made of bamboo splits. Traditionally, the shift can be wadded with cotton-like fibres from the pod of the local kapok or (silk-)cotton tree (*Bombax ceiba*), but for sport also with proper cotton (*Gossypium sp.*) fibres or with the yellowish cotton-like material taken from the pod of the kapok tree (*Ceiba pentandra*) from South America or from West Africa (*Ceiba pentandra var. guineensis*), by rubbing at first the blunt end of the shaft with a sticky resin, to which the kapok sticks and then it is wrapped around. Thus, the darts of shorter blowguns made of vegetable materials may differ especially by their length, which apparently depends on the plant species used to make the shift. Considering the length of only 48.4 cm of the active (shooting) part of the dragon-shaped blowgun published on this occasion, which consists actually of the weapon's two first pieces (beginning with that adorned with the head), it is obvious that its darts must be necessarily shorter than those made of bamboo mentioned above, but not thinner. Most likely, they could have been made of bamboo or from the much lighter walis tingting or may have had a steel tip. The width of the darts' pith butts has to correspond to the calibre of the blowgun's steel barrel, namely 7.6 mm.

The poison used on darts, called *parir*, is made from tree saps, herbs and venomous animals as scorpions, snakes and toads and no antidote is known for it, that even a scratch made by a poisoned blowgun dart may cause immediate death, although the meat of an animal hunted using is not poisoned (Darmadi 2018, 113 and 115; cf. Bock 1882, 73; Lumholtz 1920, I. 133; Jett 1991, 96) and may be eaten after the dart is removed by cutting out the spot into it has penetrated, to the distance of an inch or so all around (Bock 1882, 73; Jett 1991, 96). As nomadic jungle hunters and gatherers, the Penans (and not the Punans, as believed by the colonial age authors) are known to be very skilled in preparing the poison needed for darts (Lumholtz 1920, I, 46). As a poison used for blowgun darts in 19th c. is mentioned the *hupa* (Boyle 1865, 59–60), which is most likely the sap of the upas tree (*Antiaris toxicaria*), called also ipoh (Low 1848, 330; Hose *et al.* 1912, I, 218; Lumholtz 1920, I, 180; cf. Marryat 1848, 80; Knight 1880, 290). Concerning this tree since mid-19th c. till early 20th c. there was some confusion: initially, it was not sure that the mentioned tree's sap is used to produce the poison (Boyle 1865, 251) and since late 19th c. till nowadays there are researchers who believe that the upas and the ipoh trees would be different species (Bock 1882, 72, n. 1; Green 1909, 54–55; Darmadi 2018, 119). Although E. Green stated, considering maybe a common confusion between the poison extracted from the mentioned tree with a poison containing strychnine from Java called *chettik* and by the French *tieuté* (Bock 1882, 72, n. 1; cf. Low 1848, 330), extracted from *Strychnos ignatii* (called also *Strychnos tieuté*) and still used as emetic in late 19th c., that the poisonous agent in this sap is the strychnine, which acts upon the heart and the spinal cord (Green 1909, 55). Some confusion is certainly due also to the interdiction of studying and tasting poisons on living animals issued by the British Parliament, which for some time led to a lack of analyses (Bock 1882, 73–74). So, C. Bock, who believed that the poison used by the Punans (actually by the Penans) on their darts contains nicotine, mentioned however that if hit by a poisoned dart, a bird or even a monkey would immediately fall with convulsive movements and in few seconds afterwards is dead (Bock 1882, 72). At his request to clarify the confusion, Robert Christison answered that according to the accounts known to him, there victims hit by poisoned darts present different symptoms: coma with convulsions causing death, paralysis, death by the arrest of the heart's action (Bock 1882, 72, n. 1). New researches (Darmadi 2018, 119) mention also other vegetable poisons, extracted from the sap of the siren tree (*Strychnos nux-vomica*), of the unidentified wi tree, and from toba (*Derris elliptica*), a vine which contains rotenone, which is also commonly used for fishing (Boyle 1865, 52–53; Ling Roth 1896, 458–46; Gomes 1911, 55 and 210; Gomes, Sharp 1917, 24 and 45–46), but which cannot kill young sharks and crocodiles (Boyle 1865, 53).

In the current stage of research, about the poisons traditionally used in Borneo on darts more

information there is only about that extracted from the upas tree, which is not actually strychnine, but a different one, namely the antiarine, a cardiac glycoside, which affects the heart by inhibiting the sodium-potassium pump of the enzymes that catalyse the hydrolysis of a phosphate bound in adenosine triphosphate (ATP), which forms adenosine diphosphate (ADP) and a free ion, leading thus to increased level of sodium and calcium levels, resulting in increased contractility and arrhythmias, unlike if using strychnine, which is actually a neurotoxin, acting as an antagonist of glycine and acetylcholine receptors and may affect the motor nerve fibres in the spinal cord which control muscle contraction, causing thus uncontrolled muscle spasms and convulsions, which can lead to respiratory failure and death. Nicotine is actually a stimulant drug and is not very common or effective as poison for darts, as it will cause nausea, vomiting, abdominal pains, increased salivation, sweating, increased blood pressure etc. Rotenone, which is toxic to insects and fish, inhibits mitochondrial oxidation in cells, blocking the production of energy and causing the cells to die, is only moderately toxic to mammals, but can cause serious effects in humans, as respiratory failure, convulsions, coma and death. Thus, although the most used dart poison was probably the antiarine collected from the upas trees, which is also the strongest among those discussed above, it seems very likely that in Borneo were used actually various kinds of poisons, with different effects, obtained from various sources, as suggested by Hamid Darmadi (Darmadi 2018, 113 and 115), who may have acquired through ethnographic field research some empirical knowledge which cannot be found in the 19th and early 20th c. written sources.

From the upas trees the poison is collected by making incisions in the tree (Fig. 31), through which the gum is collected in a bamboo cup (Hose *et al.* 1912, I, 218, pl. 88; cf. Green 1909, 54; Pleyte 1891, 269). This sap issues in a white, creamlike state, but speedily it becomes black when exposed to the air (Pleyte 1891, 269). For this reason, it may be kept right in the small bamboo flasks, in which it was collected, if they are closed in the most careful manner, in order to exclude the air (Pleyte 1891, 269, pl. XVIII/21) or it has to be heated slowly over a fire (Fig. 32) in a trough made from a leaf stem of a palm, until it becomes a thick paste of dark purple brown colour (Hose *et al.* 1912, I, 218, pl. 116; cf. Green 1909, 54). The sap may be also boiled in earthenware jars (sometimes 25 cm in diameter), which are protected on journeys by being encased in rattan netting (Lumholtz 1920, II, 282–283), its smell recalling that of boiled gutta-percha (Bock 1882, 72). The bamboo flasks in which the poison is kept in natural condition are 5 inches (i. e. 12.7 cm) in length, and about 0.5 inch in diameter, having an end naturally closed by a knot, and the other sealed with the most scrupulous care: first, a plug of soft wood has been inserted into the end after the manner of a cork, over which a lump of beeswax is firmly kneaded, and over the wax a piece of membrane is tied when still wet (Pleyte 1891, 269, pl. XVIII/21). When the poison is to be applied to the darts, it is worked into a thinner paste, a small quantity of which, still hot, is smeared by using a wooden spatula resembling a pestle (Fig. 24) in a thick layer over a wooden plate (Green 1909, 54; Hose *et al.* 1912, I, 218, fig. 43; cf. Bock 1882, 72–73, fig. 13), which the natives used to carry with them (Fig. 25). A circular groove is cut round the shaft of the dart about 2 inches (i. e. 5.08 cm) from its tip, and the part so marked off is rolled in the paste and then dried before a fire (Hose *et al.* 1912, I, 218; cf. Bock 1882, 73). Thus, the poison stays actually on the dart's shaft, close to its tip, and comes in contact with the wound caused by the dart's head. For use against large game or humans, a larger dose of poison is required than can be carried on the tip of the shaft, and for this reason a small triangular piece of metal is affixed by splitting the tip of the shaft, thrusting in the base of the triangular plate, and securing it with a fine thread of rattan or fern-stem (Hose *et al.* 1912, I; cf. Furness 1902, 177). Only in this situation, as the dart's metal head remains in the wound (Furness 1902, 177; Green 1909, 54), it is rolled in poison paste, the poison paste being thus applied right on its surface (Green 1909, 54). Because the poison's power vanishes after 2 hours of exposure to the atmosphere (Boyle 1865, 251; Pleyte 1891, 269), on the darts the poison must be renewed from the little bamboo case carried by each warrior (Boyle 1865, 251). For the same reason, some natives carry a box of lime juice, into which they dip the darts just before shooting, in order to make the poison more virulent (Green 1909, 54–55). According to the freshness and strength of the poison, the person or the animal will die in a few minutes, in some hours, or may only become feverish and ill, but never other outward sign is observed excepting a tiny prick where the dart has pierced the skin (Green 1909, 55; cf. Pleyte 1891, 269). According to Carl Lumholtz (1851–1922) a porcupine would die in less than one minute afterwards (Lumholtz 1920, I, 132). A man hit by

a poisoned dart of the Dayaks would die, according to F. Boyle, in about half an hour after being wounded (Boyle 1865, 251), but being hit in his cheek by a poisoned arrow of the Punans (actually of the nomadic Penans), a man died according to Ch. Hose within 10 minutes (Hose *et al.* 1912, II, 181). Should the poison has been exposed to the air, the wounded man has a chance of recovery; and it has been found that a large dose of spirits, sucking the wound, and keeping the sufferer continually in motion will generally overcome the virulence of the poison (Pleyte 1891, 269; cf. Boyle 1865, 252). A poison made only with sap of the upas tree is used also in other regions, namely among the Semangs in the Malaysian Peninsula (Pleyte 1891, 265) and among the Lubus in northern Sumatra (Pleyte 1891, 267). Less strong than the upas tree sap poison of the Dayaks seems to be a poison mixture used in the Malaysian Peninsula by the Senois, which is made from the mentioned sap and from some roots, as reportedly it may kill a monkey, a squirrel, a bird or a wild cat in few minutes, but is said to have a doubtful efficacy on humans and none or almost none on hens (Pleyte 1891, 266). Regardless of the used poison, the quantity needed to hunt small game is less, thus not enough to kill humans (Lumholtz 1920, I, 133).

Because of the toxicity of the darts, they are kept in a quiver made of bark or of bamboo stem (Fig. 22), which may contain 50–100 darts (Darmadi 2018, 115 and 119), but according to older sources the Dayaks generally carried with them only 30–40 darts (Pleyte 1891, 269). If made of a bamboo stem (as most frequently), the quiver (*telep*, *tolor* or *renjung*) is a large internode section (Evans 1922, 192), of various sizes: 2 inches in diameter and 13 inches in length (Bock 1882, 194) or 4 inches (i. e. 10.16 cm) in diameter and 10 inches (i. e. 25.4 cm) in length, fitted over its shaved lip with a lid made also of bamboo (Hose *et al.* 1912, I, 219, fig. 44; cf. Low 1848, 330). When making a quiver, one of the adjoining nodes is spared, to form the quiver's bottom (Evans 1992, 192). The quiver may consist of one (Pleyte 1891, 279, pl. XVIII/22) or two bamboo barrels (Pleyte 1891, 279, pl. XVIII/19). The lid is made also of bamboo, the same used to make the box or a similar one, consisting of an unbroken node, with a few inches of an adjoining internode to form the sides, while a slight shaving down of the upside of the quiver allows for the fitting of the cap-type lid (Evans 1922, 192). Very elegant Dayak quivers having a long hook by which they are hung from the belt on the left side, are made of bamboo, carved or painted or finished by rings of coloured rattan with shells embedded in a layer of gutta-percha (Green 1909, 54). The quiver is closed by a conical wooden cover, which is always secured by a string, so that it shall not be lost (Pleyte 1801, 269, pl. XVIII/23). To the quiver the hook made of hard irontree wood is lashed by a broad belt of rattan (*hengot*), most beautifully plaited (Pleyte 1891, 269). The quiver may be bound with ornamental rings of plaited rattan and its bamboo lid may be adorned with a shell of *Helix (Exrhysota) brookei* (Bock 1882, 194, pl. 18/5), which is a land snail endemic to Borneo and the largest one on this island (bin Marzuki *et al.* 2021, 94, fig. 43E), wrongly called *H. brookeana* by C. Bock. There are also cylindrical quivers made of reed (Pleyte 1891, 279, pl. XVIII/18). The darts, mostly without pith butts, are wrapped in a squirrel skin and thrust tip downwards in the quiver (Hose *et al.* 1912, I, 219), in order to avoid self-poisoning through the fingers' accidental pricking, when in a hurry a dart's tip is touched carelessly. This way to keep the darts to prevent fatal injuries was noted also in northern Sumatra, among the Lubus (Pleyte 1891, 267 and 279, pl. XVIII/25a). The Kayans use to carry in their quiver not only ready darts, which are put in a separate compartment, but also the heads for dart, kept separately in a sack made of monkey skin, as well as various charms, especially bezoars (Low 1848, 330). In war the quivers are kept open, so that the darts can be easily reached, but the Kayans often hold 4 spare darts between their fingers and thus they will shoot them 5 times as quickly as a musket can fire (Green 1909, 54).

A blowgun accessory believed to be very important, not by the Dayaks but by the nomadic Penans, is an amulet (*siap*), usually tied to the quiver, which being dipped in the blood of every killed animal in order to increase or preserve its virtue, becomes thus thickly encrusted (Hose *et al.* 1912, I, 126; Hose *et al.* 1912, II, 190). It consists of a bundle of objects which forcibly attracted the owner's attention for any reason, as a large quartz crystal, a strangely shaped tusk or tooth or pebble etc. (Hose *et al.* 1912, II, 190).

With darts fired from a blowgun are hunted especially birds and monkeys (Hose *et al.* 1912, I, 145; cf. Boyle 1865, 250; Bock 1882, 194; Pleyte 1891, 266; Furness 1902, 177; Green 1909, 54; Ranee of Sarawak 1913, 256; Gudgeon 1913, 68; Lumholtz 1920, I, 170; Evans 1922, 192), but also squirrels (Boyle 1865, 252; Pleyte 1891, 266),

wild cats (Pleyte 1891, 266; Lumholtz 1920, I, 191), deers (Hose *et al.* 1912, I, 144; Lumholtz 1920, I, 166) and even pigs (Hose *et al.* 1912, I, 144; Lumholtz 1920, I, 188 and 191, Pfeffer 1971, 125), sometimes sun bears (Lumholtz 1920, I, 186). The Muruts from North Borneo use the blowgun also in fish hunting (Ling Roth 1896, 462). The Punans (rather than the nomadic Penans, actually) claim that with darts shot from their blowguns they can kill also rhinoceroses, if the darts are properly prepared, their point having to be weighted with a little triangular head of bamboo or of tin, which carries more poison and becomes more detached in the wound (Furness 1902, 177). Sometimes, in order to hunt small animals, instead of darts from blowguns were shot pea-sized clay balls (Pfeffer 1971, 24; cf. Furness 1902, 177). However, large animals, as elephants (Gudgeon 1913, 81–82), rhinoceroses (Furness 1902, 177; Pfeffer 1971, 83) and sun bears (Pfeffer 1971, 186), but especially the bores (Bock 1882, 194; Pfeffer 1971, 132–133 and 142), as well as the crocodiles (Boyle 1865, 52–53; Gudgeon 1913, 21) and even the young sharks (Boyle 1865, 52–53) and the wild cats (Lumholtz 1920, I, 191), although small but dangerous, were hunted using lances. Unlike other Dayaks, the Kayans hardly regard the blowgun as a serious weapon in warfare (Hose *et al.* 1912, I, 161) and the Kenyahs also prefer to carry a spear instead of a blowgun when hunting, but also for their defence when crossing a land inhabited by a different people (Lumholtz 1920, I, 73). Even there is no doubt that the blowgun was often used in battles, for defence it was used only if a longhouse was stormed by the enemy (Hose *et al.* 1912, I, 181). This information recalls in a certain measure the situation noted in the Bismarck Archipelago, where bows and arrows were apparently less known, in wars were used slings and to hunt birds exclusively blowguns (York, York 2011, 33), unlike in the Admirality islands, where for wars were used clubs and spears and for hunting bows and arrows, as slings were unknown (York, York 2011, 34), as blowguns too.

Apparently, due to its importance in hunting and warfare, among the Dayaks the blowgun had also some ritual functions, about which there is still few information: it belongs to the traditional wedding implements of a young man (Darmadi 2018, 113 and 119), it may be a part of the funerary inventory of its owner (Gomes 1911, 134 and 137), and as an offering associated with hunting trophies as stag antlers and bore tusks put over a grave it would distinguish the dead as a hunter (Gomes 1911, 138). Among the Katingans, during the period of 3 days and 3 nights when the body lays in state in the house, the blowgun, other weapons and personal items of the deceased and much food is placed nearby (Lumholtz 1920, II, 360). As every big tree is believed to have a spirit (*antoh*) in possession of it, some being well disposed, others of evil disposition, when a man is killed by falling from the tree, members of his family, angry with the tree's *antoh*, will come and will hit the tree with darts shot from the blowgun, then they will cut it with sabres and hit with spears, and as final punishment it is felled and a feast is made in order to calling a good spirit to drive away or kill the bad one (Lumholtz 1920, II, 357). While the Penihing Dayaks believe that an illness can be sent by an *antoh* though a blowgun shot (Lumholtz 1920, 250), the Kenyah Dayaks use the blowgun also in their healing rituals, putting one of its ends close to the sick person's ear and shouting his or her name in it, in order to call back his or her soul that was wandering off (Furness 1902, 49–50; cf. Hose *et al.* 1912, II, 32). Before attacking the enemy in a battle, as well as when a new head is brought into the village, the Kayan chief has to shot a dart in the direction of the enemy, as a warning, and also as a signal for his comrades to cease their war chant (Furness 1902, 91–92). Certain ritual interdictions seem to be connected not with the blowgun itself, but with its accessories, as the quivers for darts are carried only by men, never by women (Furness 1902, 34–35).

4. Some characteristics of the blowgun shot compared with the spear throwing (with some remarks concerning the Borneo blowguns, particularly the short dragon-shaped ones with inner barrel)

As in Borneo the blowguns are already obsolete and there are few shooting experiments with authentic old weapons, the most information on the way in which they were used for shooting can be gathered from short descriptions in the ethnographic literature and through study of old photographs. To shoot with a Borneo blowgun, the mouthpiece is held between the index and the second finger of the left hand, while the right supports the barrel, of which the weight is so considerable that a strong arm and much practice can alone enable a man to direct it (Boyle 1865, 252). Of course, a left-handed native will do the opposite, as documented by an old photograph (Fig. 34). Contrary to the method which should be

naturally adopted, the Dayaks hold the blowgun's pipe close to the mouth (Lumholtz 1920, I, 73), the hands being directed upwards and their palms should be closed or touch (Darmadi 2018, 119), gripping the blowgun close to its mouthpiece, the knuckles being upwards (Evans 1922, 192), elbows out to the sides, that even the heavy Borneo blowguns will be easy to hold (Jett 1981, 97). The muzzle should have a slight circular motion and the shots must be closely timed (Jett 1981, 97). Both the study of late 19th c. – early 20th c. photographs and the new ethnographic researches reveals that usually the shooter is standing (Fig. 19) or squatting (Darmadi 2018, 119), sometimes even sitting.

H. Swainson Cowper described with more details how the South American blowguns are hold when shooting, as there are differences, depending principally of their length (Swainson Cowper 1906, 244) than of their type. Thus, the light South American variety (and especially the very light one, called *pucuna*) is held by both hands close to the mouth, the left hand being about 8 inches (i. e. 20.3 cm) from the mouthpiece, with the palm upwards, the left elbow supported against the hip, and the right hand between the left hand and the mouthpiece palm downward. The blowgun is raised by bending the body backwards, and the aim is also regulated by bending or moving the body, and not by shifting the weapon itself, that the explorers were astonished to see how steady the blowgun can be held thus for a lengthened time. The much greater weight of the *zarabatana* makes a different method of support necessary, that the Indian holds the right arm extended nearly straight, while the left hand helps to support at an intermediate point, just above the mouth piece (Swainson Cowper 1906, fig. 332). The position is indeed very similar to that of the modern hunter with his fowling rifle (Swainson Cowper 1906, fig. 334), only that the hands are hold in reversed position, and the gun is held to the shoulder, whereas the blowpipe necessarily rests on the mouth. For experimental shots with authentic old blowguns or with reconstructions of them, H. Swainson Cowper's details and comments are very important.

V. N. Popenko insisted on some important rules for shooting with a blowgun, concerning the inhalation and the exhalation (Popenko 1993, 32). Inhalation must be done as during the normal breathing, without to inflate the lungs like a balloon, since after all the dart will leave the barrel even before the exhalation is completed. To inhale in rows with the blowgun's barrel at the mouth is very dangerous, especially if using a poisoned dart, because it can go in the opposite direction, with obvious consequences. In order to prevent this, inside of modern industrially produced blowguns there is a valve, which on self-made weapons can be replaced by a simple cross-shaped safety device intersection consisting of wire or textile threads applied at the hole of the mouthpiece. This will not affect the quality of the shot, but will protect against the dart's reverse motion. Exhalation should be done without inflating the cheeks (since this reduces air pressure), exhaling sharply (intelligibly). In this case, the position of the lips at the point of contact with the pipe should be approximately the same as that of a trumpeter when playing the instrument. If the barrel is simply put in the mouth, the sharply exhaled air will flow into the place where the lips come into contact with the tube and the shot will be weakened.

A rarely debated question (despite of its importance for the history of prehistoric weapons) is which would be the advantages of using a blowgun instead of other weapons, as a sling, a boomerang or a javelin with or without a stiff or flexible spear-thrower or of a bow and arrow. It is important, because depending apparently rather on the size of the hunted game, but also on how dangerous it may be or in which environment it lives, in Borneo like in other regions of Southeast Asia are used (as mentioned above) also javelins, but simply, without any spear-thrower. Obviously, if compared to a blowgun a sling is less precise at longer range and, like the boomerang, it cannot be used in dense forests, but only in open spaces, like a grass land or a desert or the alpine tundra. Due most likely to the dependence of the the spear-hunting strategy of the Borneo natives on their environment's specificity, they try to approach the game as much as possible, that the use of a stiff or flexible spear-thrower is not necessary. Their war strategies are very similar to their hunting strategies, especially if considering the stalk used in headhunting, not so much the storm of a village.

Unlike in war or hunt or in target throwing practice, in throwing for distance as well as in ancient competitions, a blunt javelin would be launched (Gardiner 1907, 249–250) at about 45°, but if targeting is intended a sharp weapon has to be thrown much closer to the horizontal (Gardiner 1907, 258). Using a stiff spear-thrower, the Australian natives (who do not know the blowgun) can increase the spear's range till 100–150 m (Iaru 1967, 64), which considering its

similarity with the prehistoric ones, is a convenient distance both in warfare and if hunting swift medium and large Australian animals, as wallabies and wallaroos, respectively kangaroos. In other regions, the stiff spear-thrower is effective in hunting not only swift, but also larger and more dangerous animals, as various sea mammals, bears and other large carnivores, wild bores and even large herbivores, respectively in older ages the Late Pleistocene and Holocene megafauna of Eurasia and of the Americas. Spear-thrower are very effective also in warfare. Thus, in Brasil, equipped with their uniquely grooved atlatl, the Tarairiu (a Tapuya tribe of migratory foragers and raiders inhabiting the forested mountains and highland savannahs of Rio Grande do Norte) could hurl their c. 2 m long wooden cane darts with a stone or long and serrated hard-wood point, sometimes tipped with poison, from a great distance with accuracy, speed, and such deadly force that these easily pierced through the protective armour of the Portuguese or any other enemy (Raymond 1986, 173). Of course, here is meant not the steel plate armour, but the mail, leather or textile armour worn by most of the early 17th c. soldiers. The kinetic energy of a spear launched from an Australian spear-thrower (*woomera*) is said to be 4 times that of an arrow launched from a compound bow, at a speed which may reach 150 km/h. The making of a spear-thrower takes 4 hours of continuous work (Mountford 1962, 191), thus considerably less than to make a Borneo blowgun from a hardwood log. As already mentioned above, sometimes the appropriate rock needed to replace the broken spearheads may be difficult to find, unlike the short time needed to produce a blowgun poisoned wooden dart, even if it has only a sharpened tip, fire hardened or not. Unlike in desert regions, in forested areas (as on the islands of Southeast Asia and in certain regions of the Americas) where are growing canes, bamboos or palms which can be easily hollowed or cleaned of pith in order to make a blowgun and for hunting smaller animals, the latter's use was preferred and used either in addition to the spear thrown either using a spear-thrower or simply, by bare hand. A different reason for using the blowgun instead of spears is that the game killed with them is different, consisting mostly of small and medium size animals and especially (although not only) of those living in the jungle's canopy.

If using a flexible spear-thrower (as the *amentum*), it has to be securely attached at or behind the centre of gravity of the shaft, which is almost in the centre of the shaft for an athlete's light spear, although at the price of reducing its accuracy, or closer to the point for the pointed and heavier one used in war and when hunting (Gardiner 1907, 251). This would improve with 58 % on average the range of a weapon thrown by hand, according to new researches (Murray *et al.* 2010) or with only 25 %, if using a modern standard all-metal 8 feet (i. e. 2.4 m) long competition spear (Harris 1963, 31). It has thus less efficiency as it was expected by the researchers who knew that in late 19th c. it was claimed that the use of the flexible spear-thrower would increase with 120 %–400 % the range of a Greek javelin, compared with that it could reach if thrown by hand (Harris 1963, 30 and 34). The winding of the thong (*amentum*) added rotation and therefore accuracy to the projectile, similar to the effect of riffling on a bullet (Gardiner 1907, 251). The experiments conducted by H. A. Harris using the modern competition spear described above (with and without thong, standing, without run, using as far as possible the same effort) support the theories based on Greek vase paintings of the proper use of an *amentum* (Harris 1963, 31–34). He reached a distance of 54 feet, i. e. 16.4 m without using the thong, which added 25 % to this distance (Harris 1963, 34), resulting thus an improvement of 4.1 m, i. e. 20.5 m totally. Calculations based on ancient sources revealed that the Greek athletes, throwing a competition javelin with thong (*amentum*) may have usually reached a distance of 300 or even 450 feet, i. e. 91.4 or even 137.1 m (Harris 1963, 34–35), although the mid-20th c. world athletic record was far lower, only 282 feet (i. e. 85.9 m), and a 240 feet (i. e. 73.1 m) distance was considered a very good throw result (Harris 1963, 35), at that time the standard all-metal competition spears being 4–8 ounces (i. e. about 113–226 g) heavier than the Greek ones of the same length, whose shaft was made of elder shoots (*Sambucus niger*) (Harris 1963, 36) and were thrown with a thong. Experiments made in mid-20th c. by Spanish athletes using a throw method of even less accuracy (throwing the javelin underarm, with a turn like that of a discus-thrower in a circle), which was not accepted in competitions due to the risks for the spectators), reached also 300 feet (Harris 1963, 35), i. e. 91.4 m. According to ancient written sources and to calculations of H. A. Harris, ancient Greeks bowers could shoot at 282 ὄργυιαι (fathoms), i. e. 521.7 m, according to a late 4th c. BC inscription from Olbia mentioning an Anaxagoras or, according to Strabo's account about Mithridates (Strabo, *Geographia*, XIV, I, 23) more than a

στάδιον, i. e. 184.9 m respectively 200 yards (Harris 1963, 35). Experiments made with a Scotch arrow, using a textile thong (lanyard) longer than the arrow's length instead of a leather thong (*amentum*), evidenced that a distance of 55 yards (thus c. 50 m) can easily be reached.

Shooting steel darts, the maximum range of average length blowguns (4 to 6 feet, i. e. 1.2 to 1.8 m) approaches 70 yards (i. e. 64 m), while for over 6 feet long blowguns the range is extended till nearly 100 yards, i. e. 91.4 m (Janich 1993, 10; cf. Knight 1880, 290) or even more than 100 m in straight direction (Darmadi 2018, 115). However, the maximum effective range (at which the dart hitting the target will still have enough energy to damage it) is 50–60 yards, i. e. 45.7–54.8 m (Janich 1993, 10; cf. Low 1848, 330; Knight 1880, 290), but according to new researches, 50–70 m, even with a toy blowgun (Darmadi 2018, 115). These recent remarks correspond roughly to F. Boyle's ones from 1865, according to which the most effective range of the weapon is 40 yards (i. e. 36.57 m), although experienced lungs can project the dart to 80 yards (i. e. 73.15 m), but without to break the human skin at this distance (Boyle 1865, 252). Although at 60 yards a dart can kill a monkey (Green 1909, 54), H. Low thought that at this distance it would not pierce the human skin (Low 1848, 330), which is obviously wrong. At 20 yards (i. e. 18.28 m) the darts made of the extremely light nibong palm slips will stick into the enemy's body half their length of 9–12 inches (Green 1909, 54), thus 11.4 – 15.2 cm. At the distance of 15–20 yards, a dart can transfix a bird of the size of a starling (Low 1848, 330). To test the skill in marksmanship of the Punans (and not of the nomadic Penans, actually), a potato of about 1.5 inch in diameter was put on a pole, and from a distance of 50 paces (i. e. 37.5 m) they stuck in it 6 blowgun darts out of 10 (Furness 1902, 177).

About the ballistic qualities of a blowgun with inner barrel there is less information. Thus, the blowgun of this type used by the Orang Mantra people (actually the Senois) from the Malaysian Peninsula, which is 5–6 feet (i. e. 1.52–1.82 m) long, sends the poisoned dart some 50–60 yards (i. e. 45.7–54.8 m) away (Lane Fox 1874, 151; cf. Swainson Cowper 1906, 241), although it can hit deadly at 50–60 paces (i. e. 37.5–45 m), a monkey, a squirrel, a bird or a wild cat (Pleyte 1891, 266). Thus, both its maximum range and the maximum effective range are actually shorter than that of longer blowguns, without an inner barrel. This conclusion is very important to ascertain the ballistic qualities of the dragon-shaped short blowgun from a private collection in Șelimbăr, which is about 50 % shorter than the smallest blowgun of the Senois. Empirically, it is known that the dart's flight range depends both on the length of the barrel and on the shape and length of the dart and that the shorter the barrel and the dart are, the less is the weapon's range (Popenko 1993, 31). According to V. N. Popenko (Popenko 1993, 31), the optimal diameter for a blowgun barrel is 5–10 mm, and the length of the arrow is from 30 to 150 mm, for a length which may vary from 0.4–2.0 m.

Up to the range of 80 yards, the trajectory of the dart is predictable enough to allow an accurate shot, the dart still retaining energy to penetrate several inches of flesh (Janich 1993, 10). By using lighter darts, made of wood, this range may be extended slightly, but the very light darts may be thrown of course by the slightest breeze and do not penetrate so deeply as steel darts (Janich 1993, 10). The practical accuracy of the weapon is determined by velocity, which varies with the length of the blowgun, the weight of the dart and the lung power of the shooter and also affects the power with which the projectile hits the target (Janich 1993, 9). The accuracy depends, like that of a rifle, on the absolute straightness of the barrel, which consequently is never allowed to lean, but is always suspended to the roof of the house, and when carried, it is held upright, like a rifle shouldered (Swainson Cowper 1906, 243). Chronograph tests revealed that when shot by average shooters darts can easily approach or exceed velocities of 300 feet, i. e. 91.4 m/s (329.4 km/h), and with this velocity at short range (according to the claims of Michael D. Janich) steel darts will easily penetrate 1/2 inch, i. e. 12.7 mm plywood and bury themselves up to the stopper into flesh (Janich 1993, 9–10). Experiments show actually rather the opposite, namely that under certain conditions a small dart may penetrate the flesh and remain stick into the plywood. Therefore, the Dayak blowgun having an effective range of only 25–30 m, either vertically or horizontally, depending on the ability of the shooter (Darmadi 2018, 113), must be rather the shorter one. Even this effective range is exceeds much that of 15 m, which according to V. N. Popenko would be the maximum one the blowgun darts could reach (Popenko 1993, 31). Thus, although the short blowguns were used to shot on targets at closer distance, their darts were still able to penetrate the body, considering that if their velocity and mass are identic to those used in

longer blowguns, their kinetic energy is identic. Due to the shorter distance, such a weapon is more effective in stalk, when the shooter is hidden that his presence cannot be easily detected by the victim, which may see, hear or sniff him. This conclusion recalls a similar one, resulting by comparison between the use of two types of blowguns by Amerindians from South America, namely the short ones of the Aucas and the 3 m long ones of their neighbours, the Jivagos (Bitsch 1968, 137). By contrary, South Americans are tolerably certain at small game up to 140 yards, but probably generally shooting takes place at half that range (Swainson Cowper 1906, 243), being thus more effective than the Borneo ones. An important remark is also that due to their length it is probably much easier to aim with a South American blowgun at an object directly overhead, than at one on the same level as the shooter (Swainson Cowper 1906, 243), therefore with short blowguns, as the dragon-shaped one from a private collection in Șelimbăr it is easier to aim at lower targets, even at smaller terrestrial ones, which may be lower than the shooter, like rodents, fowl, dogs or monkeys foraging on soil.

In conclusion, the darts of the blowguns may reach more than 100 % higher velocities than that of javelins thrown with a stiff spear-thrower of Australian type, but not so long distances. The distances reached by darts shot with blowguns of average length are inferior to those reached with bows and arrows, but superior to those of simply hand-thrown javelins, to Scotch darts thrown using a lanyard and the same or less inferior to those of Greek javelins thrown using a leather thong. Considering also the game which is shot with blowgun darts, the efficacy of this weapon consists mainly in its maximum effective range, which is above the maximum distance which a simply hand-thrown javelin may reach, making it useful also when fights are waged in dense jungle, where bows and arrows but especially javelins thrown with stiff or flexible spear-throwers may be less efficient as in desert or in a large field or even on hills with few bushes or forests with looser trees. Obviously, the poison improved the efficiency of each kind of pointed projectile, either dart or arrow or spearhead. Due to these advantages, but also, as V. N. Popenko noted (Popenko 1993, 31), to its portability, high accuracy, noiselessness and invisibility of shooting, for which there is no need to make sudden movements, the blowgun has become widespread.

5. Cultural and historical remarks on the dragon-shaped short blowgun from a private collection in Șelimbăr

From a typological point of view, the dragon-shaped short blowgun published on this occasion resembles those with a spear point (*sangkoh*) at one end, which are widespread in the island of Borneo (officially called Kalimantan in Indonesia) among the indigenous Dayak people, but also among the Dusun people in North Borneo (nowadays the Sabah state in Malaysia), while a small barrel placed inside the larger one of the blowgun is documented only among the Dusuns (who are neither Dayaks nor Penans), in early 20th c., whose blowguns are also shorter than those of the Dayaks (Gudgeon 1913, 68). However, it is richly decorated, made from uncommon materials and not from a single piece of wood, to which a spearhead was attached, but of three segments that merge in a more complex manner. The red varnish applied on the three bone pieces having fitted in them the two parts of the blowgun's steel barrel, respectively its end in shape of a spearhead (or of a tail fin), recalls actually that often the hardwood of which the barrels of the Borneo blowguns are made is of dark red colour (Green 1909, 53). Its carved and incised decoration suggests the body of a red dragon. While about the dragon in the mythology and decorative arts of the Dusuns in the 19th c. – early 20th c. ethnographic literature there is almost no information, the most information about this mythological creature in the mythology and decorative arts of the native peoples of Borneo refers is coming from the Dayaks.

In the decorative arts of the Dayaks this mythical animal is known particularly as ornament for the canoe bows (Lumholtz 1920, I, 85; Bitsch 1968, 118 and 186, fig. 10). The sculpted dragons as bow ornaments (Fig. 35) for the canoe (*prahu*) have the role to bring the spirits into a good mood, especially if the boats are used to transport the dead (Bitsch 1968, 118 and 186). Very likely with the same role, the sculpted dragons occur as well on the roof ridges (Figs. 39–44) and are painted on the walls of the funerary houses placed on wooden poles (Bock 1882, pls. 8–9), recalling the Dayak houses, which have sculpted wooden poles (Pfeffer 1971, 57) or panels (Hose *et al.* 1912, I, pl. 122) adorned with dragons (Fig. 37). Such a funerary house of the Kenyah Dayaks, very similar to the mausoleum of Rajah Sinen's family near Long Wai in East Kalimantan (Fig. 40), as painted by C. Bock in late 19th c. (Bock 1882, 79, pl. 9), was wrongly believed to be a rice barn, as

resulting from the inscription of a watercolour (Fig. 39) dated c. 1900 by Anton Willem Nieuwenhuis (1864–1953), kept at the Leiden University's Library (inv. nr. KITLV 37C199). As noted by P. Pfeffer, dragons are rendered also on the tattoos of these people (Pfeffer 1971, 60), made by using specific wooden patterns (Fig. 38), and also on the tattoos of their neighbours, the Penans (Pfeffer 1971, 91). Sculpted dragons painted in red and black, considered to be water spirits (*Bali Sungei*) or dragons (*Nagah*), whose look and name were considered in early 20th c. to be foreign, borrowed perhaps from the Chinese mythology and decorative arts, adorns the frieze running along the top of the partition wall in the long houses of Kenyah Dayaks and even gave the name of this motif (Hose *et al.* 1912, I, 241–242). Actually, the name *Nagah* is of Hindu origin, meaning "snake" in Sanskrit and in many languages from India. In early 20th c., two sculpted dragons, symbolising the same Nagah, adorned each gable of the house of a certain Dayak chief's house, one showing its head and body and the other its tail, and before to be placed on the gable a sacrifice was offered, by smearing them with blood, because being very fierce when aroused to ire, the dragon had first to get blood to eat, in order not be angry with the owner of the house, but to be disposed to protect him against his enemies (Lumholtz 1920, I, 237). Thus, the red colour of the dragon-shaped short blowgun published on this occasion may also recall the blood sacrifices offered by the mortals to Nagah (Lumholtz 1920, I, 238) when seeking help and protection from it, because it is very powerful and it may be good or evil, according to the treatment received from them (Lumholtz 1920, I, 122). Having not only the unusual shape of a dragon, but even a colour in which the dragons are rendered in the Dayak art, to this blowgun are attributed symbolically, by association to the dragon, some magic powers, similar to those itself is believed to have (as velocity, force and efficacy in killing), that it may be considered primarily a ritual weapon.

Actually, Bali Sungei or Nagah cannot be properly called a god (Hose *et al.* 1912, II, 14), but a very powerful supernatural being or spirit (*antoh*), the most famous (Lumholtz 1920, I, 122) and the greatest of all, invisible in ordinary conditions, but thought as embodied in a huge serpent or dragon living in the ground (Lumholtz 1920, I, 85), in underground caves (Lumholtz 1920, I, 237) or at the bottom of the river, being supposed to cause the violent swirls and uprushes of water which appears on the surface in time of flood (Hose *et al.* 1912, II, 14–16), but also to eat humans (Lumholtz 1920, I, 238). The Dayaks believe also that Nagah appears as a combination between the body of a *rusa*, a kind of deer (*Rusa timorensis*) which is actually introduced and not native to Borneo, and that of a serpent, having a horned head with a disproportionately large dog mouth, and even that it would be of a *rusa*'s size (Lumholtz 1920, I, 238). This may explain also why foreigners described sometimes the canoes of the natives as having the bow adorned with heads of crocodiles and dogs carved in hardwood and painted in red and black (Hose *et al.* 1912, I, 202).

According to C. Lumholtz (Lumholtz 1920, I, 122), Bali Sungei or Nagah rules the Underworld (that it is underneath as well as above the water and the earth), which is associated with the female principle of the nature. As suggested by the analyses of some tales recorded over c. 70 years since late 19th c., it may be supposed that the Land Dayaks (at first those in Sarawak, later those from the North Kalimantan province in Indonesia) tended gradually to believe that it may be identified with saltwater crocodiles (*Crocodilus porosus*) living in Sarawak (Pryer 1893, 67–68; Ranee of Sarawak 1913, 291–293), respectively lonely ones coming from tributaries of the Bahau river, itself a tributary of the Kayan, from where one of them came into the region (Pfeffer 1971, 136–138). Actually, describing the dragons adorning the funerary house of Dinda, a Dayak rajah from Long Wai in East Kalimantan (Fig. 41), who under the influence of his suzerain the Sultan of Kutai converted nominally to Islam (Bock 1882, 65), C. Bock calls them "crocodiles", noting that they were a favourite motif (Bock 1882, 79) and sometimes also the dragon head adorning the prow of a canoe (Fig. 35) may be considered (sometimes rightly) as being that of a crocodile (Fig. 36) or of a dog (Hose *et al.* 1912, I, 202 and 238; Hose *et al.* 1912, II, 83), like also the head carved at the end of a sabre grip (Hose *et al.* 1912, I, 239) or on the walls (Bock 1882, 137), the poles (Furness 1902, 3) and the crossbeams (Hose *et al.* 1912, II, 78) of houses. As resulting from the study of zoomorphic depictions in Borneo, the Europeans called "crocodiles" both such realistically rendered animals and highly stylised ones, namely the dragons, as apparently even the natives and not only the Europeans mistook for dogs or crocodiles heads the dragons heads. In early 20th c. even the natives were not sure if the stylised animals decorating the crossbeams of their houses are actually crocodiles

or dogs, because their original identity has been already forgotten (Hose *et al.* 1912, II, 78). Referring to the dragon in the Chinese traditions from Sarawak, Ada Pryer, the wife of the British entomologist William Burgess Pryer (1843–1899), noted actually its closeness to the crocodile (Pryer 1893, 171). However, among the Dayaks, who show greatest veneration and fear towards the crocodile (Bock 1882, 217; Hose *et al.* 1912, II, 68), are documented realistic images of crocodiles, as on bows (Fig. 36) of war canoes (Hose *et al.* 1912, II, 83, pl. 125) or even as very roughly carved wooden statues placed near the houses (Hose *et al.* 1912, I, pl. 164; cf. Bock 1882, 243) or used in certain ceremonies (Hose *et al.* 1912, II, pl. 163). As the Sea Dayaks (Ibans) consider that the river-god Ribai may take sometimes the shape of a crocodile (Hose *et al.* 1912, II, 89), this confusion between dragon and crocodile is even easier to understand. Apparently all Dayaks think that the crocodile is a good spirit and they do not kill it, until the crocodile does not devour humans (Gomes 1911, 56–57; Hose *et al.* 1912, II, 68–69, 76 and 89; Lumholtz 1920, II, 353), considering often that there is a pact concluded between them (or their community) and the crocodiles, sometimes even between them and a certain one (Gomes 1911, 56–57; Hose *et al* 1912, II, 68–70, 76–77 and 83; Gudgeon 1913, 8–9; Ranee of Sarawak 1913, 292–293; Bitsch 1968, 130–131; Pfeffer 1971, 136–138), believed (although only sporadically) to be an ancestor or a relative (Hose *et al.* 1912, II, 76–77, 81–82, 89, 96 and 110–111), which can help them when they are in need, even by sending game to them (Hose *et al.* 1912, II, 76–77) and warn them about dangers (Hose *et al.* 1912, 82–83). Even if a crocodile devoured a human and should be killed, both respect towards the crocodile and some rituals have to be observed, similar to those for killing a human (Lumholtz 1920, II, 353–354; cf. Hose *et al.* 1912, I, 142; Home *et al.* 1912, II, 68; Gomes 1911, 59; Ranee of Sarawak 1913, 85). The Klemantans, who believe that some people can transform themselves into crocodiles, will not even eat from a vessel in which crocodile meat was cooked, because they believe that if someone would unwittingly do so, his body would become covered with sores (Hose *et al.* 1912, II, 82), although their Batu Blah tribe used, when returning from war, to make a huge crocodile effigy of rice, eggs and bananas, which after being ritually pierced with a spear and beheaded, is cut in pieces and eaten with pork and fowls by the chiefs and by the people (Hose *et al.* 1912, II, 83). The crocodile occurs often as a character in folk tales and legends from Borneo (Evans 1923), which evidences its importance in the imagery of the natives from there. Unlike the Dayaks, the Malays hunt crocodiles currently (Gomes 1911, 60; Hose *et al.* 1912, I, 140), but in order to eat their meat (Pryer 1893, 70 and 74) and to sell their skin (Pfeffer 1971, 136). The Melanau (or A-Likou) people from Sarawak are noted for their elaborate hardwood sculptures rendering crocodiles (Hose *et al.* 1912, I, 242). Obviously under the influence of the Dayaks, the Punans (rather than the nomadic Penans) seem to consider the crocodile as a god and call it Bali Penyalong, which actually is the name of the Supreme Spirit among the Kenyah Dayaks and venerate a wooden image of it, which they used to hang in front of their shelter and to adorn with blossom of the betel nut tree (*Areca catechu*) if someone is ill, their medicine-man addressing it when he seeks to call back the soul of his patient (Hose *et al.* 1912, II, 84–85). According to Ch. Hose, they also used to bring offerings of cooked food beneath this crocodile image (Hose *et al.* 1912, II, 184), for which and for the bundle of charms attached to it the headman has to take care (Hose *et al.* 1912, II, 182). As offerings to the crocodiles, the Kenyahs used to bring eggs, as economical substitutes for fowls (Hose *et al.* 1912, II, 67–68). Thinking that the crocodile embodies a good spirit, the Kayans use to make a clay statue of a crocodile, asking it to drive away the evil spirits, but in early 20th c. this custom vanished (Hose *et al.* 1912, II, 76). The Klemantans also use to put a wooden statue of a crocodile (Hose *et al.* 1912, II, 83) and the Muruts to make one from clay, for use on the celebration of a successful expedition (Hose *et al.* 1912, II, 84). The Sea Dayaks (Iban) use to make a life-size statue of a crocodile on the land chosen for a new paddy field and bring cloths, food and rice-spirit as offerings to it and kill a fowl or a pig before it, and the place around it is kept clean for 3 years, that all the pests which eat the rice will be destroyed (Hose *et al.* 1912, II, 88).

Singalang Burong, the ruler of the Spirit's World (actually the Upper World), associated with the male principle, is the god of war (Gomes 1911, 210) and although he is in a certain measure anthropomorphised, as living in a house and having a wife (Bock 1882, 85–86), his wooden idol shows features of a hornbill (Gomes 1911, 211), although he may be embodied also by a hawk (Gomes 1911, 214; cf. Bock 1882, 85), as both are omen birds, which bring messages to the mortals (Lumholtz 1920, I, 122; cf. Bock 1882, 222). The hornbill, especially the helmeted one

(*Rhinoplax vigil*), which is sacred to all Dayak tribes (Hose *et al.* 1912, II, 298; cf. Lumholtz 1920, I, 122) and particularly to the Ibans (Hose *et al.* 1912, II, 88), protects the Upper World (Lumholtz 1920, I, 122). This bird, whose call inspires the Dayaks with courage, is an embodiment of force which may be either beneficent or harmful, and has been appropriated by them to serve various purposes (Lumholtz 1920, I, 169), its highly valued tail feathers with alternating black and white transverse bands being attached by the warriors to their hairy war coats (Haddon 1901, 352–352, 358 and 407) and to their rattan caps (Haddon 1901, 353, 358 and 407; Lumholtz 1920, I, 169–170 and 237; Lumholtz 1920, II, 162, fig. 26), as a distinctive and much coveted sign of bravery (Haddon 1901, 353 and 395). The white-crested hornbill (*Berenicornis comatus*) is an omen bird of secondary importance, sought for by the Kenyahs and particularly by the Kayans as used in this way, but by the Ibans not at all (Haddon 1901, 388). From the casque with which the hornbill's beak is provided are carved the large red ear ornaments (Lumholtz 1920, I, 170) for warriors who took a head or for other distinguished persons (Hose *et al.* 1912, I, 45). Thus, the hornbill may be killed, but many tribes do not eat it (Lumholtz 1920, II, 273), like is known also about the crocodile (Hose *et al.* 1912, I, 70; Hose *et al.* 1912, II, 253; Lumholtz 1920, I, 179; Lumholtz 1920, II, 234 and 353). Like the dragon's wooden images mentioned above, the hornbill's one may also adorn the roof of the funeral monuments (Lumholtz 1920, II, 347) or may be placed on memorial pillars (Lumholtz 1920, II, 354–365). The balance between the Underworld and the Upperworld worlds is maintained and the fertility of the land is promoted by means of all kinds of rituals.

The dragon is well known both in the Chinese mythology and decorative arts, even among the settlers who came to Borneo (Pryer 1893, 171–172) mainly mostly during late 19th c. and early 20th c., especially in the territories of Sarawak and North Borneo (since 1946 British Crown colonies, nowadays the Malaysian states of Sarawak and Sabah), but also in other regions of the island, which till mid-20th c. were under Dutch colonial rule (nowadays belonging to Indonesia) and less in the Sultanate of Brunei (during 1906–1984 a British protectorate), whose Muslim dynasty was actively involved in the spread of Islam and in mid-19th c. had to fight against the piracy practiced by the Iban communities (the Sea Dayaks). The dragon occurs as well in the Japanese mythology and decorative arts, as well as in other Far Eastern and Southeast Asian cultures, which through trade relations, but also through captured and enslaved sailors, merchants and peasants, later also through settlers, may have influenced the natives. As the construction of the dragon-shaped short blowgun from Borneo published on this occasion recalls the Indonesian type blowguns made of short sections of bamboo, it may render rather Bali Sungei or Nagah, the ruler of the Underworld, according to the believes of the Dayaks than an anonymous dragon or less individualised dragon from a different mythology. The rendering of the crocodile, considered as an animal associated with Bali Sungei or Nagah or even an embodiment form of him on this richly decorated blowgun of an unusual dragon shape allows the supposition that it could be a ritual item, apparently very rare.

It is difficult to say which role Bali Sungei or Nagah has in funerary rites, although the Sea Dayaks believe that from the unknown Land of Death the spirits of the relatives and friends use to come in a long boat to take the dying person's soul away, making him to cross the River of Death (Gomes 1911, 133–134). Most likely, it could be expected that Bali Shungei would not interfere negatively during these journeys of the spirits from the Land of Death to the dying persons, respectively to their return together with the dead's soul. According to ethnographical reports, rice is strewn over the chest of the dead, as a propitiation for any evil the dead may have done while alive, because the Dayaks believe that the death is the punishment for some sin, like doing a forbidden thing or for the disregarding of the warnings of birds and dreams (Gomes 1911, 134). Although during the corpse's lay in state in the common hall (*ruai*) a professional wailer describes in highly figurative language the soul's journey to the Other World (which is actually the Spirits' World and the Upper World) and asks the spirits to guide his soul in the right direction, so that it may not lose its way (Gomes 1911, 135), offerings to Bali Sungei are not expressly mentioned (Gomes 1911, 132–144) and even later, during the Pana ritual, the third day after death, food offerings are given, but to the spirit of the deceased and to the companion spirits (Gomes 1911, 139–140), by the dead's friends who are in mourning. However, a blowgun may be connected either with the funerary inventory (*baiya*), which usually consists of all the dead's belongings, as cloths, jewels, implements of work and weapons

and even music instruments and money, as well as rice, tobacco and betel nut which would be needed and used in the Other World (Gomes 1911, 134 and 137). Above the grave, which sometimes may be fenced and for a warrior even roofed, palisaded and spiked, food and drinks are put as offerings, and at either end some items indicating the sex, the occupation and the social status of the deceased, as weapons for a warrior, a blowgun and a quiver together with stag antlers and boar tusks for a hunter, spindles, petticoats, waist rings or a water gourd for a woman and valuable jars and gongs for a rich man (Gomes 1911, 138; cf. Geen 1906, 60). The mourning period ends with the *Gawai Antu* (i. e. "Souls' Feast"), held one year or two after the death, when all the souls of the persons who died since the last celebration are honoured and baskets with means of livelihood are made and placed on different graves (Gomes 1911, 142).

If this dragon-shaped blowgun, which certainly was of a high value when it was produced, was a part of a funerary inventory or an offering in a traditional burial ground (*pendam*) on the occasion of the *Gawai Antu*, it could have been easily taken from there rather when for various reasons the corresponding village ceased to exist or when most of its inhabitants, leaving the local native traditional religious believes, converted to Christianity or to Islam and almost lost the affective connection with their ancestors, destroying and sacking old tombs. As in older times a traditional burial ground, located usually on the slope of a hill, was regarded by the Dayaks with superstitious terror, as abode of spirits, they never went to it excepting for burials, they did not stay there longer as needed to help and hurried away before they would be meet a spirit which may harm them, so they did not cut the trees, and the shallow graves were often dug up by wild pigs and bears, who scattered the bones (Gomes 1911, 136). Already in early 20th c. and right in relation with the aforementioned changes, items made of precious metal or brass, which were often stolen, were broken in pieces before being deposed in the only 3 feet, i. e. 0.91 m deep grave (Gomes 1911, 137–138). The good condition in which this weapon is preserved, especially if considering its wooden and metallic parts, which if deposed in a cemetery since a longer period (certainly of several decades) would have to face specific damages due to a hot and wet climate, excludes completely its provenance from a funerary inventory or from offerings put above the surface of the soil.

This dragon-shaped short blowgun is still fully functional and deadly, as it can be used to hit at close range small and medium targets with poisoned darts, which necessarily must be shorter and thus also lighter than the common ones. The third piece of the blowgun, made of finely carved bone, which makes up the dragon's tail and would suggest an usual weapon's spearhead (although there is no muzzle and sight there), is fixed by a wooden peg in the second segment's steel barrel, in which the dart is to be put and where thus the user has to blow. As the bone made dragon's tail cannot be used to pierce, as a spearhead, it has a purely decorative role, but also prevents water from entering the steel barrel of the blowgun and oxidizing it, which would affect the weapon's ballistic qualities, rendering it unusable over time, due to the difficulty of removing the iron oxides that could form in the steel barrel's interior. The fact that from a typological point of view this item is inspired by various types of traditional blowguns, namely the Indonesian blowgun composed of several segments of bamboo, particularly the blowgun type with spearhead used in Borneo by the Dayaks and by the Penans and the blowgun of the Dusuns which has an additional barrel inside the weapon's one, its rich decoration points to the mythological believes of the Dayaks. The complexity of its construction, which allows to be dismantled and concealed, that in the event of a control carried out by the colonial authorities it will not be easily noted, would apparently lead to the conclusion that it is neither a tourist souvenir (due to its functionality and complexity), nor a non-functional, exclusively ritual item, but rather a weapon used ritually by a religious leader of the Dayaks, in connection with various rituals, among which maybe also some connected with the headhunting.

The victims of the headhunting practiced in Borneo could be individuals of any sex and age (Hose *et al.* 1912, I, 150; Bitsch 1968, 125; Pfeffer 1971, 64), of any religious denomination and ethnic origin (Pfeffer 1971, 143, 148–149 and 151–152), even from the same people (Pfeffer 1971, 138–141 and 144), but had necessarily to be from a different village (Hose *et al.* 1912, I, 159; Pfeffer 1971, 68). If it was not a true battle, fought on a field or in the forest or an attack on a village, stormed usually by night (Pfeffer 1971, 138–140) or a ritual duel (Pfeffer 1971, 140–141), in order to avoid misfortune for the whole village, as could happen as punishment for a common murder (Pfeffer 1971, 141–142), there were some specific ritual prescriptions to be observed before a head

was taken, namely getting auspicious signs from certain animals (birds, snakes and mammals), consisting in their position on the right side of the way, their movement towards this direction or above the village (Pfeffer 1971, 64–65) and in playing the flute before leaving the village for taking heads (Pfeffer 1971, 72). If this happened, the victim was typically stalked from the bushes on the way leading to its own village (*kampong*), being killed either with a spear (Pfeffer 1971, 64) or with a poisoned dart shot from a blowgun and then beheaded (Pfeiffer 1855, 86; Bitsch 1968, 123), using a knife (Bitsch 1968, 123), actually a specific short sabre (*mandau* or *parang*). Already under James Brooke, the first Rajah of Sarawak (1841–1868), the headhunting was basically forbidden (Pfeiffer 1865, 69). However, needing their support against enemies, he allowed to his loyal Dayak warriors to continue the headhunting, but only if the heads were taken from killed enemies and not from cowardly stalked passers (Boyle 1865, 171–172; cf. Green 1909, 118). So, during an insurrection of the Chinese settlers against James Brooke (1857), it was allowed to the Dayaks to take and keep the heads of the killed enemies (Boyle 1865, 31, 63 and 265–266; Ranee of Sarawak 1913, 112–113 and 303; Ooi 1999, 100–101). The Rajah followed thus an older custom, concerning the Dayak's rights to keep the heads they gathered during the battles in which they were allied with the Malays, who kept the booty and the prisoners (Boyle 1865, 293; Green 1909, 51). In contrary situation, the community of the aggressors had to pay a heavy fine and the heads were confiscated by the Tuan Mudah (i. e. "Young Lord"), namely the kingdom's Heir-Apparent (Boyle 1865, 221; cf. Green 1909, 50 and 97). The British and Dutch colonial authorities, even those of the Japanese occupation (1941–1945), and after decolonization those of Malaysia and Indonesia also tried to prohibit or at least to limit the headhunting, allowing it sometimes too, in order to eliminate opponents (Lumholtz 1920, I, 49; Pfeffer 1971, 143–153; Ooi 2011, 146; Ooi 2020, 257; cf. Bitsch 1968, 123–125), after it virtually ceased in the whole island already in early 20th c. (Bitsch 1968, 123, cf. Lumholtz 1920, I, 49 and 218). So, already in 1913 half of the heads hanging in some Dayak villages were actually not human, but taken from orangutans (Gudgeon 1913, 69), as in mid-19th c. R. Boyle noted once, but rather as exception (Boyle 1865, 222–223). The Dutch authorities forbade certain traditional funerary rituals connected with headhunting (Lumholtz 1920, II, 362–363), used to destroy the human heads hanging in houses, smashing them or throwing them into rivers (Lumholtz 1920, I, 49) and imprisoned the headhunters (Lumholtz 1920, I, 87–88, 96 and 239; Pfeffer 1971, 150) for terms varying between 1 and 6 years, according to the degree of their involvement (Lumholtz 1920, I, 87–88; cf. Pfeffer 1971, 150). The eradication of the piracy practiced till mid-19th c. by the Sea Dayaks and the repression of headhunting (despite the short periods when due to political and / or military reasons it was tolerated) lead to a gradual ceasing of intertribal fights, often considered to be revenges for previous headhunting expeditions, but always themselves an occasion for headhunting (Pfeffer 1971, 151). However, within the rituals of the Dayaks the human heads kept their traditional role (as known with many details from mid-19th c. – early 20th c. written sources) even until the second half of the 20th c. (Bitsch 1968, 123–126; Pfeffer 1971, 57–58 and 64–67, 138–145), when according to the ethnographers' testimonies they began to be acquired through exchange between communities (Pfeffer 1971, 65), following the older practice of borrowing a head from another village, documented already in early 20th c. (Haddon 1901, 395; Furness 1902, 88–89) or a newer one, from Sarawak, to borrow a head owned by the Government, which used to keep heads in a certain fort for this purpose, in order to avoid fights between the native communities (Haddon 1901, 395).

Several traditional feasts of the Ibans (or Sea Dayaks) are connected with the headhunting (Gomes 1911, 333–334) and are dedicated to Singalang Burong, the god of war, who rules over the Spirits' World (Gomes 1911, 210) or the Upper World: *Gawai Burong* (i. e. "The Bird Feast"), called also *Gawai Pala* (i. e. "The Head Feast") or *Gawai Tenyalang* (i. e. "The Hornbill Feast"), dedicated to the heads taken in war, which was celebrated at the return of the warriors, but which in late 19th c. – early 20th c. became a Harvest Feast (Gomes 1911, 210–214), *Gawai Ijok* (i. e. "The Feast of the Gamuti Palm", from which *tuak*, a native drink is made), which is organized when a man celebrated the Hornbill Feast several times and was successful in war (Gomes 1911, 214–215) and *Gawai Gajah* ("The Elephant Feast"), which is the most important one, but rarely observed, as it may be celebrated only by a chief (*kapala*) particularly successful against the enemy and who has brought so much heads, that no feast is held when a new head was brought (Gomes 1911, 215). In Sarawak the feast dedicated to the heads taken in war is called also

Begawai Antu (Ranee of Sarawak 1913, 273), but *Mamat* among the Land Dayaks (Pfeffer 1971, 57). In the current stage of research it is difficult to evidence the possibility that such a dragon-shaped blowgun may have been used in rituals performed when the feast of the heads is celebrated or when a human head acquired by exchange from a different village was brought to end the mourning period (*ulit*), although on the latter occasion the ethnographic reports are mentioning only that after observing the traditional auspicious signs of an osprey, a warrior performed a simulated beheading with his sabre (Pfeffer 1971, 66–67), but neither a simulated attack using a lance, nor a stalk and a blowgun shot before.

Traditionally, each village (*kampong*) had not only one military chief (*panglima* or *pangarah*), but several of them, who were raised to this position on account of their courage and ability in war, and besides them each tribe had a great chief (*Orang Kaya*) or even two for larger tribes, who were elected by the people and, if tributary to the Malays, had to pay tribute to a noble (*pangeran* or *datta*) who could confirm or reject the election (Low 1848, 288), as being a direct vassal of the country's monarch, the sultan or the rajah. Corresponding in Europe to a mayor and often mentioned on various occasions (Lumholtz 1920), the chief of a village or even of a district, called *kapala* or *pumbakal*, was a very influent person, representing the community in relation with the foreigners. Formerly a village *kapala* was elected for an indefinite term, but more recently the election had to be approved by the district's *kapala* (Lumholtz 1920, II, 333), who was assisted by a deputy (Lumholtz 1920, II, 316), as the village *kapala* was also assisted by a *mantri*, the native policeman (Lumholtz 1920, I, 105). The village *kapala* was wealthy, as he could own a buffalo heard (Lumholtz 1920, II, 279) and European furniture (Lumholtz 1920, I, 104), but only some decades later, in mid-20th c., the richest families owned heards of some tens buffalos, while usual ones only such an animal (Bitsch 1968, 170). In his house the community's headhunting trophies were hanged (Lumholtz 1920, II, 254–255 and 258). He could be at the same time a *blian* (Lumholtz 1920, I, 216; Lumholtz 1920, II, 307), namely a priest and healer, and could even perform himself certain rituals (Lumholtz 1920, I, 120, 203 and 229), regardless if he was or not also a *blian* or a religious chief (*kepala adat*). Even in mid-20th c. (Pfeffer 1971, 55 and 147), among the Kenyah Dayaks the great chief was also a religious chief (*kepala adat*), who led all religious rituals and within larger tribes the great chiefs could have been brothers. At that time, the c. 10,000 Kenyahs living in about 30 village on a territory stretched from the eastern shore of Kalimantan till to the mountains in the island's central part, but larger than half of France, were ruled by 3 such great chiefs (Pfeffer 1971, 53). In late 19th c., in the territory under Dutch colonial administration the great chief was called himself *pangeran* or even rajah (Bock 1882, 92), being either an indirect or a direct vassal of a Malay sultan of Islamic faith, which often lead to a nominally conversion to Islam (Bock 1882, 65 and 136). By conversion to Islam the chiefs were allowed to have several wives (Bock 1882, 211 and 232), unlike the habitudes of the Dayaks, among whom only in mid-20th c. rich men used to have two wives (Bitsch 1968, 170), but they had (theoretically) to renounce to eat pork and to drink alcoholic beverages (Pfeffer 1971, 147), which were a characteristic of all traditional Dayak feasts. So, despite it forbids the consumption of pork, this religion grow fast in late 19th c., as more and more natives of Central Borneo converted to it (Pryer 1893, 80), while during early 20th c. many Dayaks (even some chiefs) and other natives from Borneo, as well as Malays and Chinese converted to Christianity (see Green 1909; Gomes 1911; Gomes, Sharp 1917). Especially after World War II, as documented by ethnographical reports, the conversions to Christianity or Islam worried the traditional political and religious elite of the Land Dayaks (particularly of the Kenyahs), who feared the loss of influence (Pfeffer 1971, 53, 55 and 147–148), augmented also by the massive migration of young people to the coast (Pfeffer 1971, 54). Very likely, these spiritual changes affected the preservation of the natives' traditional immaterial cultural heritage and as consequence of this the preservation of certain religious artefacts and of traditional funerary monuments, as being related to the natives' former believes. The ethnographers deplored such cultural changes already in late 19th c. and early 20th c. (Friderici 1915, 24–25). This explains, although only partially, also the rarity of certain ritual artefacts and the few information about them.

The use of the dragon-shaped short blowgun for killing discreetly enemies by a member of a secret society of mystical, political or / and criminal nature that operated among the Chinese settlers on the island seems less likely, considering both the item's exquisite execution and the very limited

spread of the blowgun's use in China. However, it cannot be completely excluded, especially due to the possibility of disguising an assassination carried out using such a weapon as a result of the headhunting, traditionally practiced by the Dayaks. Actually, both the Dayaks and the Malays had often tense relations with the Chinese settlers even after decolonization, as the latter were perceived not only in Borneo, but generally in Southeast Asia especially as direct exploiters (as tenants or owners of shops, taverns, brothels, gambling houses and pawnshops) and sometimes (as clerks and policemen) as tools of the colonial authorities (Sonoc, Luca 2013, 86–97). Paradoxically, at the same time they were considered collectively as subversive Left opponents and sympathisers of the communist powers (Poulgrain 1998; Ooi 2020). Before the reign of James Brooke, the Chinese settlers from Sarawak, despised and ridiculed by the Malays and easy to kill, became the favourite game of young headhunting Dayaks, delaying the Chinese immigration (Gudgeon 1913, 39–40). This increased the settlers' hate towards the native peoples. Later, under the reign of Charles Anthoni Johnson Brooke, the second Rajah of Sarawak (1868–1917), according to the memories of Ranee Margaret Brooke (1849–1936), his wife, the Chinese secret societies were considered as a serious problem for the government of Sarawak, being suspected of plotting arsons and the killing of the white inhabitants (Ranee of Sarawak 1913, 107–108), but also to overthrow the government and to seize the Government's Treasury, as well as to spread socialist ideas among the domestic staff (Gudgeon 1913, 41–42). So, in Sarawak the Chinese secret societies were considered by the officials a great curse, as they claimed that most of these were intended as benevolent societies supposed to be engaged in forwarding funds to rebels in China for the overthrow of the monarchy, but became societies of murderers bent on blackmail and theft, that the collected money never reached China and ended actually to support in idleness and luxury the heads of such societies from Borneo (Gudgeon 1913, 41). Thus, unlike the Chinese, the Dayaks were more trusted and, like the Malays, they became even members of the Royal Guard and had also responsibilities in keeping the public order (Ranee of Sarawak 1913, 105 and 107).

The special construction of this dragon-shaped short blowgun, which can be dismantled and used to deliver a deadly shot, the way in which the dragon's head was stylised and the item's detailed decoration, intended to facilitate its assembly by an user knowing about its role, possibly also the use of red varnish suggest its production in a workshop in the very Borneo island, which considering the political and demographic reasons mentioned above, as well as the influence of the Indonesian bamboo blowguns and especially of the Dusun blowguns seems to have been located rather in North Borneo (nowadays the Malaysian state of Sabah) than in Sarawak or somewhere in the regions under Dutch colonial rule or in the Sultanate of Brunei. Analysing this artefact, it is easy to suppose that its commissioner, most likely a local Chinese merchant, who may have used to travel and to trade with individuals of various origins, could have seen various types of blowguns and could have noted the differences among them, but also could have known some elements of native mythology. In early 20th c. the lower-class Chinamen from Borneo used to merry Dusun wives, but also Dayak ones and all the subordinate positions in Government offices were hold by Chinamen, many of whom are the sons of Dusun mothers, and have received their education in the mission-schools of the coast ports (Gudgeon 1913, 44). The fact that the general appearance of this curious weapon, apparently a "luxury item" for local standards, is undoubtedly inspired by the Dayaks' blowguns with spearhead (although this part of the item has different functions and has to be detached when shooting) and its shape recalls Bali Sungei, an important character of the Dayak mythology, allows to assume that it was most likely intended to be a ceremonial gift for a Dayak religious chief (*kepala adat*), being commissioned rather by a local Chinese merchant than by a Malay one (because the most Malays are Muslims) or by the authorities of the Sarawak Kingdom or of North Borneo, in order to earn the recipient's favour, with a view to some profitable trade relations, based on the exchange of forest products (damar, camphor, gutta-percha, rattan, honey and beeswax, rhinoceros horns, hides and meat, various pelts and feathers, various parts of animals and animal body products used in traditional Chinese medicine, edible swift nests, alluvial gold etc.) for salt, cloth, tobacco, metal, jars, cheap jewels, glass beads, needles, fishing hooks and in mid-20th c. even for petrol and soap. F. Boyle stressed already in 1865 how risky such a trade was for the Chinese merchants who ventured into the Dayaks' territories and how they used to take advantage of Rajah James Brooke's policy towards the Dayaks, to keep the allegiance of the latter to him (Boyle 1865, 297). The *kepala adat*

was a very influent person, right due to the importance of various rituals in the daily life of the Dayaks. Especially in mid-20th c. some of such religious leaders became more open to contacts with foreigners and very interested in developing trade, being aware that this could be a possibility to keep their influence after major changes occurred in the life of their communities, due to the stronger control of the authorities and to the new possibilities opened for young people who leaved their villages (Pfeffer 1971, 147–148). Contrary to early 20th c. reports about the headhunting's lack among the nomadic Penans (Green 1909, 17), there is some information, only almost one decade later, that some Punan (and not Penan) communities practiced the headhunting like their Dayak neighbours (Lumholtz 1920, I, 46, 87 and 96). These Punans used to kill other Punans (and maybe also Penans), as well as Dayaks and Malays (Lumholtz 1920, I, 46 and 87) and apparently their people used as well to punish adultery by beheading (Lumholtz 1920, I, 217–218), like also the Dayaks at that time did (Pfeffer 1971, 73). Although the dragon occurs also in the tattoos of the Penans (Pfeffer 1971, 91), which actually are similar to those of the Kenyah Dayaks (Lumholtz 1920, I, 96), it seems less likely that this dragon-shaped short blowgun was intended as a gift for a Penan chief, as the Penans (and not the Punans) continued to be forest nomads (Hose *et al.* 1912, II, 181–182) till during the second half of the 20th c., using to carry with them only few things (Bock 1882, 72; Hose *et al.* 1912, II, 190; Bitsch 1968, 188, fig. 28), which they believed to be necessary for their daily life, excepting maybe some communities which in early 20th c. already began to live in houses and to do some farming (Ranee of Sarawak 1913, 53, n. 1), if this information refers truly to them and is not a misunderstood "new", describing in fact the Punans' habitual way of life.

Considering both the meaning of the dragon in the mythology of the Dayaks, as well as their various rituals in which a blowgun may be used, it is difficult to say that this dragon-shaped blowgun is just a toy (as similar but later ones, produced right to be sold to the tourists, but also as many simpler, generally less decorated items, more easily made of bamboo, made for native children). Surely, it can be used as a toy, but its poisoned darts would make it a deadly one, able to kill not only small animals, but also medium-sized ones and even humans. Its rich decoration, alluding obviously to the Dayak mythology, particularly to the Underworld, would make it an unusual and rather expensive item, which apparently was not produced industrially, in large amounts, but rather with the means of a craftsman's workshop, most likely following the same model for a longer period. Being probably quite expensive for ordinary people, such a toy could have been used most likely by children of officials or wealthy merchants, rather in Sarawak (where the mythological allusions would be more easily comprehensible) than in North Borneo, but not necessarily only of European descent. If purchased as a touristic souvenir by wealthy travellers who visited Borneo for various reasons, it could have been an exotic gift for their children, although initially it may have been produced as a ceremonial gift of ritual use.

6. Analogies for the dragon-shaped short blowgun from a private collection in Șelimbăr and some typological and chronological remarks

Researches on internet for auction results evidenced that dragon-shaped blowguns were quite rarely auctioned during 2008–2022, as only 16 such items (with or without steel inner barrel) could be identified (Tab. 1), among which only a wooden one was without steel inner barrel (Tab. 1, no. 5, Figs. 56–60). Discussions on internet with private collectors of weapons from abroad confirmed this remark and gave some clues on the date of their own similar items or of the auctioned ones. The most of these blowguns are dated in the 1950's and later (maybe only in the 1960's), although the oldest one is dated in the 1890's and some items may be dated in mid-20th c. (but before the 1950's) and in early 20th c. This type of blowgun was created around 1890 (Tab. 1, no. 16, Fig. 50), obviously (as suggested above) under the influence of the blowguns with an inner barrel from certain Southeast Asian regions, namely from southern Thailand and continental Malaysia, northern Sumatra and northern Sulawesi (Pleyte 1891, 265–267, 267 and 270, pls. XVIII/9a-c and XIX/14) and from Palau (Friderici 1915, 37), but especially of the Dusuns from North Borneo (Gudgeon 1913, 68), the steel iron barrel being thus an innovation, right at the time when the use of an ironwood made blowgun with its tip put into the top end of a rifle barrel, in order to provide the blowgun with an aim is documented right there, in the former Westdivision territory of North Borneo (Pleyte 1891, 269, pl. XVIII/3, 5). The "improvement" of the traditional blowguns by using metallic barrels of European origin was

probably believed to give them the accuracy and efficacy of European shotguns, although when hunting in the jungle they are actually less effective than the traditional long blowguns. By contrary, being shorter they are more effective in narrow spaces in villages (under the longhouses or between them) or on the streets of a town, for killing domestic animals (as hens or pigs, the Dayaks' usual sacrificial offerings, besides in rare situations dogs), but also to fight various birds and smaller mammals considered as pests. As the bone carving is a laborious work, this type of blowguns was not produced in large amounts, as the usual longer ones, but initially (in late 19th c. – early 20th c.) only to be offered as ceremonial gifts, although already in late 19th c. they may have been occasionally sold as touristic souvenir, which can be used for sport, as a dangerous toy. Thus, Right because this dragon-shaped blowguns (with or without a steel inner barrel) is never mentioned in travelogues and ethnographic works published during 1848–1922, it seems to have been very rare till in the 1950's–1960's, when it was produced more frequently, but as a touristic souvenir.

Apparently, most of the 16 recorded blowguns are made of bone, as at least 5 items are mentioned as being made of wood, 7 as being of carved bone, 1 as made of bone or resin (maybe plastic?) and the other 3 of an unmentioned material (but either bone or wood only). During the whole period of c. 60–70 years within the 16 recorded blowguns were produced, their traditional model (both as the dragon's body general shape of the item and as place of particular decorative motives on it) did not change significantly, excepting the curious innovation in rendering the mental barbels from the same piece of bone and the occurring of the bird-shaped quiver in mid-20th c. (Tab. 1, no. 3, Figs. 46–48), although only this new quiver shape seems to have been accepted and occur also in the 1950's and later. Thus, unfortunately there are only few details (most of them being of stylistic nature) which may be relevant to ascertain an item's age. Rarely is known a previous provenance or even when exactly the item was brought from its origin region, mentioned mostly as Indonesia, but twice right as Borneo (respectively Kalimantan). Very rarely such a weapon was simply called "Oriental bone dragon blowpipe" (Tab. 1, no. 4, Fig. 53), "antique or vintage carved wood blow dart gun from a private collection of Asian antiques" (Tab. 1, no. 8, Fig. 54) or "Chinese dart gun" (Tab. 1, no. 7). By mistake, a dragon-shaped blowgun was described even as "Chinese carved Dragon fire stick" (Tab. 1, no. 3, Figs. 46–48), another was considered to be of Burmese origin (Tab. 1, no. 6, Figs. 51–52) and a third one (believed to come from British Columbia) attributed to Canada's First Nations (Tab. 1, no. 9, Fig. 55), maybe because the stylised dragon head resembles very much a dog or a wolf head. For a true weapon, which was not intended primarily to be a simple touristic souvenir, the date when it was brought from its origin region may be considered rather as a *terminus ante quem* for their production than a *terminus ad quem*, as for purely touristic souvenirs. Such clues are always important for comparison and may allow to date more precisely items of this type, when several of them are compared, if considering some results (Tab. 1) obtained by comparing dated dragon-shaped blowguns found through internet researches.

Besides their dragon-shaped body, consisting often of three pieces (if the darts quiver, which morphologically is an accessory is not considered), these blowguns show some other common features: excepting only one, all have fitted inside a steel barrel, and all were designed to have a bone or wooden quiver for darts attached to its upper part (the dorsal part of the dragon's body) which may contain maximum 7 darts (but usually 3 or 4), always with needle-like steel points fitted in thin wooden shifts, with stoppers made of cotton wrapped with multicoloured cotton yarn. The weapon's third piece (corresponding to the spearhead, shaped as the dragon's body's tail fin) does not have other practical function than to prevent the rain water entering into the weapon's steel barrel, excepting only 3 items (Tab. 1, nos. 4, 6 and 8, Figs. 51–55), without spearhead, that the blow is delivered right at the end of the last piece (even of the third as in Fig. 55). Such a dragon-shaped blowgun without spearhead from a private collection, which was not considered in the present statistical analyses because about it there is not more information, was wrongly described as being of African origin. Excepting only a mid-20th c. item (Tab. 1, no. 1), having the hooks which support the quiver oriented in the direction of the dragon's tail, on the other items the hooks (if existing) are oriented in the opposite direction, towards the dragon's head.

Excepting the situation of the items without spearhead, the other blowguns' full lengths vary between 58.4 and c. 102 cm (being therefore shorter than the common Borneo blowguns, even than those used by the Dusun people and the smallest even than the dragon-shaped blowgun in

a private collection from Șelimbăr. The dart quivers of the 16 blowguns recorded here (Tab. 1) have various shapes and 1 or two lids (if considering the number of the existing bar-shaped handles). Mostly, during the 20th c., the quiver is shaped as a right circular cylinder or as a flattened, respectively solid elliptical one, their lid being shaped as a right circular conic frustum, respectively as a solid elliptical cylinder with a small bar-shaped handle in the middle, helping to attach it (through the two eyelets fitted in it) to the two L-shaped hooks existing on the dragon-shaped blowgun's body. Very rarely, in the 1890's (Tab. 11, no. 16, Fig. 50), the quiver may have the shape of two right circular conic frusta or, since mid-20th c., even the form of a stylised bird, with only one lid (corresponding to the bird's tail), which is attached through an eyelet placed on the bird's spine in a C-shaped hook fitted into the blowgun's dragon-shaped body. During the first half of 20th c. the quiver may be shaped as a parallelepiped with rounded edges, attached through a mitre joint to the blowgun's dragon-shaped body, to which through a groove joint was attached a carved ornament, namely a bird statuette (Tab. 1, no. 10, Fig. 61). Rarely, in the 1950's and later the quiver may have the shape of a prism with a trapezoidal base and rounded edges (Tab. 1, no. 15, Figs. 66 and 68). Sometimes, fearing that the hooks are not enough to prevent the loss of the quiver, the latter are fasted on the dragon-shaped blowgun with a textile bound (Tab. 1, nos. 8–9, Figs. 54–55) or to the blowgun was added in a later period (and surely not by the natives from Borneo) a brass chain, that the weapon may be worn hanged on the shoulder, like on a rifle sling (Tab. 1, no. 10, Fig. 61).

On older items the varnish is mostly brown to dark brown, but sometimes in early 20th c. it may be also reddish-orange (Tab. 1, no. 10, Fig. 61), while since the mid-20th c. is occurring (although rare) a black one (Tab. 1, nos. 3 and 13) and in the 1950's and later, but very rarely, even a matte dark red one (Tab. 1, no. 15, Figs. 66–68). On items made after 1950 often was used a transparent or even yellowish varnish, intending actually to imitate the appearance of aged bone or ivory or of slightly burned wood and to emphasize some details, as it covers the whole surface, including also the areas with black painted carved motives, aiming either to suggest they were pyrographed (Figs. 45, 53, 55, 62 and 63) or, more rarely, to imitate the black painted details of Japanese ivories (Fig. 65). The animals rendered on the sides of the dragon's body are differing as well: they may be either the traditional and most frequent pair if crocodiles (either salt water crocodiles, as on the item in a private collection in Șelimbăr, or false gharials), but also dragons, snakes or catfishes, or a tiger and a bore or striped cat (or a tiger?) and a much larger dog (rather than an otter). The pairs of different animals instead of the traditional pairs of similar animals seems also specific to the newer blowguns, dated in mid-20th c. (if not only since the 1950's). On 20th c. items (but especially on the newer ones) the anatomic details of the dragon's body and of the real or imaginary animals engraved on its sides may be sometimes less realistically shaped. Thus, the dragon's head may show rather canine than reptilian features, recalling thus by coincidence that in early 20th c. even the Borneo natives were not sure if the stylised animals decorating the crossbeams of their houses are actually crocodiles or dogs, because their original identity has been already forgotten (Hose *et al*. 1912, II, 78). Even the other carved ornaments on the blowgun (imitating always the traditional models) may be less carefully made. Extremely rarely and only in mid-20th c. the dragon's eyes were made of steel wire (Tab. 1, no. 2, Fig. 64). Often, since the 1950's till c. 1970's its nasal barbels (Tab. 1, nos. 1 and 11), mental barbels (Tab. 1, no. 3 and 9, Figs. 48 and 55), but most frequently both nasal and mental ones (Tab. 1, nos. 7, 9 and 15, Figs. 55 and 67) are made of steel wire. A very important detail is that the mental barbles made of wooden plugs are lacking on all items which have a bird-shaped quiver or eyes or barbels made of wire, thus not only on them made during the 1950's or later, but even on some made in mid-20th c., thus in the 1930's–1940's. Apparently very rarely and only on items produced in the 1950's or later, instead of the hooks used as quiver supports are occurring small metallic nuts welded on a small shaft (Tab. 1, no. 15, Fig. 68).

Thus, since mid-20th c. the dragon-shaped blowguns show (as actually worldwide often happens with items produced rather to be sold as touristic souvenirs than to be used in daily life) an obvious and gradually stronger penchant towards kitsch, not only because they are often adorned with such metallic elements, but especially because sometimes they may be provided with elaborated but less useful sculptural parts, like the bird-shaped quiver (Tab. 1, no. 3, Figs. 46–47) and sometimes like a crocodile statuette, intended to be a pendant to the bird-shaped quiver, although it is not a quiver too, as evidenced by an

item auctioned on October 10, 2022 in Palm Beach Gardens, Florida (Tab. 1, no. 12, Fig. 45), which may be dated in the 1950's or later. If the bird-shaped quiver containing the blowgun's poisonous darts would render a hornbill, this bird would be rightfully chosen, because it is one of the omen birds recognised by all Dayaks (Lumholtz 1920, I, 122), is a symbol of velocity (Lumholtz 1920, 354) and also an all-seeing bird, due to its visual acuity (Lumholtz 1920, 364–365). However, considering the shape of the bird's beak, it is neither a hornbill nor a red hawk (actually Wallace's hawk-eagle, *Nisaetus nanus*), these birds being the two real (or still existing) birds among the three omen birds recognised by all Dayaks (Lumholtz 1920, I, 122) and the most important ones among the seven omen birds recognised by the Penihings (Lumholtz 1920, II, 245), namely the Aoheng Bahau Dayaks. It resembles the best to another omen bird, namely the little spiderhunter (*Arachnotera longirostra*), which in Sarawak is considered by the Sea Dayaks (the Ibans), the Kayans, the Melanau (or A-Likou) people and the Punans as a bird of good omen, always the first bird to look for when undertaking anything, that when the men are out in the jungle collecting camphor, they would wait until they heard its call (Haddon 1901, 390–391). Its appartition on the right side of the way is a good omen, needed when going to take a human head (Pfeffer 1971, 64). By contrary, its apparition on the way's left side or even only its call heard on the same side will stop every action of the natives for a whole week (Pfeffer 1971, 148). Alfred Cort Haddon (1855–1940) noted that it is commoly mistaken, although only by the Kayans, for the brown-throated sunbird (*Anthreptes malacensis*), believed also by the Kenyahs (but not so much) to be an omen bird (Haddon 1901, 391).

In the production of touristic souvenirs inspired by the already obsolete dragon-shaped blowguns this penchant towards kitsch goes even further, to extreme, as such an item fully made of bone, known actually to come from Indonesia (but not particularly from Borneo), sold by Atma Ethnic Arts in Beroia (Greece) for 120 € (Fig. 49), cannot be used to shot darts due to the fact that instead of a cylindrical shape the dragon's body (made of 3 pieces) is twisted, aiming to render as realistically possible the dragon's movements. Instead of a quiver, it has two functionless animal-shaped ornaments (a crocodile and a little spiderhunter), carved as distinct items which can be attached to it, but using joints and not hooks. It is surely recent (perhaps from late 20th c.) and it recalls obviously functional weapons produced in the 1950's or later as touristic souvenirs, like the aforementioned one, auctioned in Palm Beach Gardens. Although interesting from mythological point of view, as it obviously alludes both to Bali Sungei or Nagah (symbolised by the crocodile), the ruler of the Underworld and to the war god Singalang Burong (symbolised by one of his messenger birds), who is the ruler of the Upper World and who (as mentioned above) use to appear as a hornbill or to send messages to the mortals by this or by other omen bird, this item without older analogies (excepting the two birds-shaped quivers mentioned above, respectively Tab. 1, no. 12, Fig. 45 and Tab. 1, no. 3, Figs. 46–47) is a simple touristic souvenir which cannot be considered as a weapon but a sculpture and whose ritual use may be not doubted, but rejected. The functional item auctioned in Palm Beach Gardens, with the two sculptures alluding to the Dayak mythology (the bird-shaped quiver and the useless crocodile statuette) on one side and the other of it, is obviously rather a dangerous toy and a decorative item, which could have been sold also as souvenir to interested tourists, because it would be unpractical for hunting in the jungle, both to the small number of darts which can be kept in the quiver and to its shape. If resin, respectively plastic and not bone was truly used to produce a fully functional dragon-shaped blowgun of traditional type (thus without such sculptures on one side and the other of it), such an item can be considered as well rather a dangerous toy, which of course could have been sold also as a touristic souvenir.

As mentioned above, among the 16 dragon-shaped blowguns auctioned during 2008–2022 found through internet searches 3 items (Tab. 1, nos. 4, 6 and 8, Figs. 51–55) were made without spearhead. Among the rest of 13 dragon-shaped blowguns with spearhead the length is known for only 9 items. Considering besides them also the similar one in a private collection from Șelimbăr, with a length of 72.2 cm, the statistical research revealed that under 70 cm there is 1 item (thus 10 %), between 70–90 cm there are 6 items (thus 60 %), between 90–100 cm there are 2 items (thus 20 %) and over 100 cm there is 1 item (thus 10 %). A weapon (Tab. 1, no. 15, Figs. 66–68), which is 71 cm long, thus of almost the same length like that from a private collection in Șelimbăr, has a 17.5 cm quiver and the darts contained in it (Figs. 68–69) are 8.5 cm long. It may be supposed that the missing quiver and darts of the blowgun in a

private collection in Șelimbăr were of similar dimensions. Unfortunately, only for one blowgun (Tab. 1, no. 2, Fig. 64), measuring 94 cm, the weight is known (784 g, namely), and it is with 330 g heavier than the almost 22 cm shorter item in a private collection from Șelimbăr.

The older functional dragon-shaped Borneo blowguns may have been ceremonial gifts, made to be used most likely as ritual items in the Dayak communities, by their religious chiefs. Unlike them, the newest (dated especially in the 1950's and later), with a more impressive decoration, may have been produced mainly as a touristic souvenir, although they may have been used for sport or/and at the same time as a mean of pest control, to hunt monkeys, rats or birds and various other scavangers feeding on town garbage, either in Borneo or abroad (but only in regions where a suitable poison could be produced and used to anoint the darts) in an age when the use of rifles made the blowgun become more and more rare even in the jungle. Thus, in the last stage in the blowgun's historical evolution, this weapon became a sport hunting weapon and even a dangerous toy, in countries where its use by children is not forbidden. It is exactly what happened with the blowgun in Europe, but apparently during a longer period, if considering both the current situation and the visual evidences and written sources from Flanders and Germany, dated from late 15th c. till 19th c.

7. Conclusions

The short blowgun recalls an Indonesian bamboo blowgun (*sumpit*), but especially the short wooden blowgun with an inner barrel of the Dusun people from North Borneo, its construction being inspired by both. Unlike these, it is dragon-shaped, richly decorated and dissmountable, the two parts used for shooting having the inner barrel made of steel and not of soft wood. Easch of the two segments of this inner barrel is inserted in a diaphysis of a long bone, painted with red varnish. The role of the spearhead-shaped edge which makes up the dragon's tail is just to prevent water from entering the steel barrel, which would rust. Despite this, the weapon is fully functional, capable to kill at close range smaller animals and even humans, if using poisoned darts, but shorter than regular ones. Although in Borneo the headhunting ceased practically in early 20th c., thanks to the repressive measures taken by the Kingdom of Sarawak and by the British and Dutch colonial authorities, it was revived during the Japanese occupation in the World War II and practiced even later, in the context of the repression of insurgents and political opponents. Thus, the human heads taken by the tribal warriors or acquired through trade retained their ritual and social role recorded by written sources since mid-19th c. even in the second half of the century. By its dragon shape, this weapon (which may be dated in early 20th c.) renders symbolically Bali Sungei or Nagah, the spirit of water, who according to the Dayak mythology rules the Underworld, which is associated with the feminine principle. This type of blowguns seems to have been produced since the 1890's. Considering their technical and artistic particularities, they may come from North Borneo (now the Sabah state in Malaysia), where initially such items could have been commissioned most likely by local Chinese merchants, to be given as ceremonial gifts to Dayak religious chiefs, in order to facilitate trade relations. Although this weapon's use in headhunting is difficult to prove, its use in various rituals of the Dayaks and for hunting small animals which have to be used as offering seems credible. Only the newer fully functional weapons of this kind, dated in the 1950's–1960's, may have been intended, even since their production, to become simple touristic souvenirs, which however can be used as sport hunting weapons and to control pests or even a dangerous toy, in countries where their use by children is not forbidden.

REFERENCES / BIBLIOGRAFIE

Ainsworth Means 1919 — Ainsworth Means, Philipp. *Distribution and use of slings in Pre-Columbian America, with descriptive catalogue of ancient Peruvian slings in the United States National Museum*. In: *Proceedings of the United States National Museum* 55, Washington (1919), pp. 317–349.

Annandale 1906 — Annandale, N. *The introduction of the blow-gun into southern India*. In: *Man. A Month Record of Anthropological Science* 6, London (1906), p. 26.

Andrieș 1967 — Andrieș, Mihai Gheorghe. *Indienii din Mato Grosso*, București, 1967.

Bandi *et al.* 1961 — Bandi, Hans-Georg; Breuil, Henri; Berger-Kirchner, Lilo; Lhote, Henri; Holm, Erik, *The Art of the Stone Age: Forty Thousand Year of Art*, New York, 1961.

Barnard, Dobbs 1980 — Barnard, S. M.; Dobbs, J. S. *A handmade blowgun dart – its preparation and application in a zological park*. In: *Journal of the American Veterinary Medical Association* 177, Schaumburg (1980), pp. 951–954.

Bellwood 1979 — Bellwood, Peter. *Man's Conquest of the Pacific: The Prehistory of Southeast Asia and Oceania*, New York, 1989.

bin Marzuki *et al.* 2021 — bin Marzuki, Mohammad Effendi; Liew, Thor-Seng; Mohd-Azlan, Jayasilan. *Land snails and slugs of Bau limestone hills, Sarawak (Malaysia, Borneo), with the description of 13 new species*. In: *ZooKeys* 1035, Sofia (2021), pp. 1–113.

Bitsch 1968 — Bitsch, Joergen. *Ulu, capătul lumii. Călătorie prin junglă, în Sarawak*, București, 1968.

Blust 2017 — Blust, Robert. *Historical linguistics and archaeology: an uneasy alliance*. In: Piper, Philip J.; Matsumura, Hirofumi; Bulbeck David, *New Perspectives in Southeast Asian and Oceanian Prehistory*, Acton (2017), pp. 275–291.

Bock 1882 — Bock, Carl. *The Head-Hunters of Borneo: A Narrative of Travel Up the Mahakkam and Down the Barito; Also Journeyings in Sumatra*, 2nd edition, London, 1882.

Boëda *et al.* 1999 — Boëda, E.; Geneste, J.-M.; Griggo, C.; Mercier, N.; Muhesen, S.; Reyss, J. L.; Taha, A.; Valladas, H. *A Levallois point embedded in the vertebra of a wild ass (Equus africanus): hafting, projectiles and Mousterian hunting weapons*. *Antiquity* 73, Cambridge (1999), pp. 394–402.

Bolgár 1950 — Bolgár, Lajos. *Some more data on the spreading of the blowgun in South-America*. In: *Acta Ethnographica* 1, Budapest (1950), pp. 121–136.

Boyle 1865 — Boyle, Frederick. *Adventures Among the Dyaks of Borneo*, London, 1865.

Burton 1884 — Burton, Richard F. *The Book of the Sword*, London, 1884.

Bushev *et al.* 2019 — Bushev, V. V.; Chetvergov, M. A.; Yarmak, K. V.; Belozerova, A. V. *Холодное и метательное оружие: словарь*, 2nd revised and completed edition, Moskva, 2019.

Chaumeil 2001 — Chaumeil, Jean-Pierre. *The blowpipe Indians: variations on the theme of blowpipe and tube among the Yagua Indians of the Peruvian Amazon*. In: Laura Rival, Neil Whitehead (eds.), *Beyond the Visible and the Material. The Amerindianization of the Society in the Work of Peter Rivière*, Oxford, 2001, pp. 81–99.

Cranstone 1949 — Cranstone, B. A. L. *The blowgun in Europe*. In: *Man. The Journal of Royal Anthropological Institute* 49, London (1949), p. 119.

Credland 1981 — Credland, Arthur G. *The blowpipe in Europe and the East*. In: *The Journal of the Arms and Armour Society* 10/4, London (1981), pp. 119–147.

Coomaraswamy 1943 — Coomaraswamy, A. K. *The blowpipe in Persia and India*. In: *American Anthropologist* 45, Hoboken (1943), pp. 311–312.

Cundy 1989 — Cundy, B. J. *Formal Variation in Australian Spear and Spearthrower Technology*, Chicago, 1989.

Curry-Roper 1982 — Curry-Roper, Janel M. *Houma blowguns and baskets in the Mississippi river delta*. In: *Journal of Cultural Geography* 2, Washington (1982), pp. 13–22.

Danielsson 1966 — Danielsson, Bengt. *Expediția Bumerang*, București, 1966.

Darmadi 2018 — Darmadi, Hamid. *Sumpit (blowgun) as traditional weapons with Dayak high protection*. In: *Journal of Education, Teaching and Learning* 3/1, Singkawang (2018), pp. 113–120.

Demmin 1894 — Demmin, Auguste. *An Illustrated History of Arms and Armour from the Earliest*

Period to the Present Time, London, 1894.

d'Harcourt, Nique 1934 — d'Harcourt, Raoul; Nique, Jeanne. *La sarbacane, l'élevage des oiseaux, la tête réduite chez les peuples Mochica*. In: *Journal de la Société des Américanistes* 26/1, Paris (1934), pp. 103–108.

Erikson 2001 — Erikson, Philippe. *Myth and material culture: matis blowguns, palm trees, and ancestor spirits*. In: Laura Rival, Neil Whitehead (eds.), *Beyond the Visible and the Material. The Amerindianization of the Society in the Work of Peter Rivière*, Oxford, 2001, pp. 101–121.

Evans 1922 — Evans, Ivor H. N. *Among Primitive Peoples in Borneo: A Description of the Lives, Habits & Customs of the Piratical Headhunters of North Borneo, with An Account of Interesting Objects of Prehistoric Antiquity Discovered in the Island*, London, 1922.

Evans 1923 — Evans, Ivor H. N. *Studies in Religion, Folk-Lore, & Custom in British North Borneo and the Malay Peninsula*, Cambridge, 1923.

Friderici 1915 — Friderici, G. *Ein Beitrag zur Kenntnis der Trutzwaffen der Indonesier, Südseevölker und Indianer*, Leipzig – Berlin, 1915.

Frison-Roche 1971 — Frison-Roche, Roger. *Popoare de vînători din Arctica*, București, 1971.

Furness 1902 — Furness, William Henry. *The Home-Life of Borneo Head-Hunters: Its Festivals and Folk-Lore*, Philadelphia, 1902.

Gardiner 1907 — Gardiner, E. Norman. *Throwing the javelin*. In: *Journal of Hellenic Studies* 27, London (1907), pp. 249–273.

Gomes 1911 — Gomes, Edwin H. *Seventeen Years among the Sea Dyaks of Borneo: A Record of Intimate Association with the Natives of the Borneo Jungles*, Philadelphia, 1911.

Gomes, Sharp 1917 — Gomes, Edwin H.; Sharp, A. F. *The Sea-Dyaks of Borneo. With A Chapter on Missionary Works Amongst the Dyaks*, 3rd edition, Westminster, 1917.

Goodale, Chowning 1966 — Goodale, Jane; Chowning, Ann. *Blowgun hunters of the South Pacific*. In: *National Geographic* Magazine 129, Washington (1966), pp. 792–817.

Gould 1970 — Gould, Richard A. *Spears and Spear Throwers of the Western Desert Aborigenes of Australia*, New York, 1970.

Green 1909 — Green, Eda. *Borneo: The Land of River and Palm*, Kensington, 1909.

Gudgeon 1913 — L. W. W. Gudgeon, *British North Borneo*, London, 1913.

Haddon 1901 — Haddon, Alfred C. *Head-hunters, Black, White and Brown*, London, 1901.

Hall 1928 — Hall, I. C. *A pharmaco-bacteriological study of two Malayan blow-gun poisoned darts*. In: *American Anthropologist* 30/1, Menasha (1928), pp. 47–59.

Harris 1963 — Harris, H. A. *Greek javelin throwing*. In: *Greece & Rome*, Cambridge (1963), pp. 26–36.

Hornell 1924 — Hornell, James. *South Indian blowguns, boomernags and crossbows*. In: *Journal of the Royal Anthropological Institute of Great Britain and Ireland* 54, London (1924), pp. 316–346.

Hose *et al*. 1912 — Hose, Charles; McDougall, William; Haddon, A. C. *The Pagan Tribes of Borneo: A Description of Their Physical Moral and Intellectual Condition with Some Discussion of Their Ethnic Relation*, 2 vols., London, 1912.

Iaru 1967 — Iaru, George. *Băștinașii Australiei*, București, 1967.

Jáckl 2017 — Jáckl, Jiří. *The sling and the blowgun as combat weapons in pre-Islamic Java. Notes on Old Javanese terms gaṇḍi and tulup*. In: *Wacana. Jurnal Psikologi* 18/3, Surakarta (2017), pp. 641–657.

Janich 1993 — Janich, Michael D. *Blowguns. The Breath of Death*, Boulder, 1993.

Jett 1970 — Jett, Stephen C. *The development and distribution of the blowgun*. In: *Annals of the Association of American Geographers* 60/4, Washington (1970), pp. 662–688.

Jett 1991 — Jett, Stephen C. *Further Information on the geography of the blowgun and its implications for early transoceanic contacts*. In: *Annals of the Association of American Geographers* 81/1, Washington (1991), pp. 89–102.

Juynboll 1910 — Juynboll, H. H. *Katalog des Ethnographischen Reichsmuseums*, 2nd vol., Leiden, 1910.

Keeley, Keeley 2012 — Keeley, Brian W.; Keeley, Annika T. *Using a specialized blowgun dart to obtain genetic samples from mammals*. In: *Wildlife Society Bulletin* 36/1, Hoboken (2012), pp. 185–188.

Kellar 1955 — Kellar, James H. *The atlatl in North America*. In: *Indiana Historical Society. Prehistory Research Series* 3/3, (1955), pp. 281–352.

Kerr 1935 — Kerr, A. *The blow-pipe in northeastern Siam*. In: *Journal of the Siam Society* 28/2,

Bangkok (1935), p. 187.

Knight 1880 — Knight, Edward H. *A Study of the Savage Weapons at the Centennial Exhibition, Philadelphia, 1876*. In: *First Annual Report of the Bureau of Ethnology to the Secretary of the Smithsonian Institution*, Washington (1880), pp. 213–297.

Krause 1902 — Krause, Fritz. *Schleudervorrichtungen für Wurfwaffen*. In: *Archives internationales d'Ethnographie* 15/4, Leiden (1902), pp. 121–155.

Lane Fox 1874 — Lane Fox, Colonel [Augustus Henry Lane-Fox Pitt-Rivers]. *Catalogue of the Anthropological Collection Lent by Colonel Lane Fox for Exhibition in the Bethnal Green Branch of the south Kensington Museum. June 1874*, London, 1874.

Ling Roth 1896 — Ling Roth, Henry. *The Natives of Sarawak and British North Borneo. Based Chiefly on the Mss. of the Late Hugh Brooke Low Sarawak Government Service*, 1st vol., New York, 1896.

Lombard, Phillipson 2015 — Lombard, M.; Phillipson, L. *Indication of bow and stone-tipped arrow use 64 000 years ago in KwaZulu-Natal, South Africa*. In: *Antiquity* 84, Cambridge (2015), pp. 635–648.

Low 1848 — Low, Hugh. *Sarawak; Its Inhabitants and Productions: Being Notes during a Residence in That Country with H. H. the Rajah Mr. Brooke*, London, 1848.

Lumholtz 1920 — Lumholtz, Carl. *Through Central Borneo: An Account of Two Years' Travel in the Land of the Head-Hunters between the Years 1913 and 1917*, 2 vols., New York, 1920.

Mariñas 2020 — Mariñas Sr., Amante P. *Blowgun Techniques. The Definitive Guide to Modern and Traditional Blowgun Techniques*, Tokyo – Rutland – Singapore, 2020.

Marino 2007 — Marino, Juan F. *Sumpitan. Il Grande Libro della Cerbottana. Le origini, la storia, la tecnica, lo sport*, Bagno a Ripoli, 2007.

Marryat 1848 — Marryat, Frank S., *Borneo and the Indian Archipelago. With Drawings of Costume and Scenery*, London, 1848.

Mason 1884 — Mason, Otis T. *Throwing sticks in the national Museum*. In: *Third Annual Report of the Bureau of Ethnology to the Secretary of the Smithsonian Institution*, Washington (1884), pp. 279–289.

McClellan, Dorn 2006 — McClellan, James Edward; Dorn, Harold. *Science and Technology in World History: An Introduction*, Baltimore, 2006.

Mountford 1962 — Mountford, Charles P. *Oameni negri și nisipuri roșii. Călătorii prin deșertul Australiei*. București, 1962.

Murray *et al*. 2010 — Murray S. R.; Sands, W. A.; Keck, N. A.; O'Roark, D. A. *Efficacy of the ankyle in increasing the distance of the ancient Greek javelin throw*. In: *Nikephoros. Zeitschrift für Sport und Kultur in Altertum* 23, Hildesheim – Zürich – New York (2010), pp. 329–333.

Noone 1954–1955 — Noone, R. O. D. *Notes on the trade in blowpipe and blowpipe bamboo in North Malaya*. In: *Federation Museums Journal* 1 & 2, Kuala Lumpur (1954–1955), pp. 1–18.

Nutall 1891 — Nutall, Zelia. *The Atlatl or Spear-Thrower of the Ancient Mexicans*, Cambridge, 1891.

Ooi 1999 — Ooi, Keat Gin. *Rising Sun over Borneo: The Japanese Occupation of Sarawak, 1941–1945*, Basingstoke – New York, 1999.

Ooi 2011 — Ooi, Keat Gin. *The Japanese Occupation of Borneo, 1941–1945*, Abingdon – New York, 2011.

Ooi 2020 — Ooi, Keat Gin. *Borneo in the Cold War, 1945–1990*, Abingdon – New York, 2020.

Palter 1977 — Palter, John L. *Design and construction of Australian spear-thrower projectiles and hand-thrown spears*. In: *Archaeology & Physical Anthropology* 12/3, Hoboken (1977), pp. 161–172.

Pearson Chinnery 1927 — Pearson Chinnery, E. W. *The blow-gun in New Britain*. In: *Man. The Journal of Royal Anthropological Institute* 27, London (1927), p. 208.

Pfeffer 1971 — Pfeffer, Pierre. *Popasuri în Kalimantan*, București, 1971.

Pfeiffer 1855 — Pfeiffer, Ida. *A Lady's Second Journey Around the World: from Londonto the Cape of Good Hope, Borneo, Java, Sumatra, Celebes, Ceram, the Moluccas, etc. California, Panama, Peru, Ecuador, and the United States*, 1st vol., London, 1855.

Piper 2017 — Piper, Philip J. *The origins and arrival of the earliest domestic animals in mainland and island Southeast Asia: a developing story of complexity*. In: Piper, Philip J.; Matsumura, Hirofumi; Bulbeck David, *New Perspectives in Southeast Asian and Oceanian Prehistory*, Acton (2017), pp. 251–273.

Pleyte 1891 — Pleyte, C. M. *Sumpitan and bow in Indonesia*. In: *Archives internationales d'Ethnographie* 4, Leiden (1891), pp. 265–281.

Popenko 1993 — Popenko, V. N. *Метательное холодное оружие*, Moskva, 1993.
Poulgrain 1998 — Poulgrain, Greg. *The Genesis of Konfrontasi: Malaysia, Brunei and Indonesia, 1945–1965*, Bathurst, 1998.
Pryer 1893 — Pryer, Mrs. W. B. *A Decade in Borneo*, London, 1893.
Puri 2011 — Puri, Shri Krishan. *The Basic Principles of the Fuchiyado Meditation: The Samurai Blowgun Meditation Art*, Muttenz, 2011.
Ranee of Sarawak 1913 — Ranee of Sarawak [Margaret Brooke], *My Life in Sarawak*, London, 1913.
Raymond 1986 — Raymond, Anan. *Experiments in the function and performance of the weighted atlatl*. In: *World Archaeology* 18/2, Abingdon (1986), pp. 153–177.
Riley 1952 — Riley, Carroll L. *The blowgun in the New World*. In: *Southwestern Journal of Anthropology* 8/3, Chicago (1952), pp. 297–319.
Riley 1954 — Riley, Carroll L. *Early accounts of the South and Central American blowgun*. In: *University of Colorado Studies*, Series in Anthropology 4, Boulder (1954), pp. 78–89.
Ripley 1949 — Ripley, W. E. *Tagging salmon with blowgun darts*. In: *Copeia* 2, Leander (1949), pp. 97–100.
Sercombe, Sellato 2008 — Sercombe, Peter G.; Sellato, Bernard. *Beyond the Green Myth*, Copenhagen, 2008.
Shook 2011 — Shook, Edwin. *Blowguns in Guatemala (1946)*. In: Weeks, John M. (ed.), *The Carnegie Maya III: Carnegie Institution of Washington Notes on Middle American Archaeology and Ethnology, 1940–1957*, Wahington 2011, pp. 259–261.
Skeat 1902 — Skeat, W. W. *Blowpipe from Kuantan (Malay Peninsula)*. In: *Man. A Month Record of Anthropological Science* 2, London (1902), pp. 145–146.
Sonoc, Luca 2013 — Sonoc, Alexandru Gh.; Luca, Adrian. *Trei jetoane de cazinou cu inscripții chinezești din colecția Muzeului Național Brukenthal și semnificația lor cultural-istorică*. In: *Monedă și comerț în sud-estul Europei* 5, Sibiu (2013), pp. 75–104.
Speck 1938 — Speck, Frank G. *The cane blowgun in Catawba and southeastern ethnology*. In: *American Anthropologist* 40/2, Hoboken (1938), pp. 198–204.
Sprinzin 1930 — Sprinzin, Noemie G. *The blowgun in America, Indonesia, and Oceania*. In: *International Congress of Americanists* 23, New York (1930), pp. 699–704.
Stodiek 1993 — Stodiek, Ulrich. *Zur Technik der jungsteinzeitlichen Speerschleuder*, Tübingen, 1993.
Stone 1961 — Stone, George Cameron. *A Glossary of the Construction, Deocration and Use of Arms and Armor in All Countries and in Alltimes Together with Some Closely Related Subjects*, New York, 1961.
Swainson Cowper 1906 — Swainson Cowper, H. *The Art of Attack: Being a Study in the Development of Weapons and Appliances of Offence, from the Earliest Times to the Age of Gunpowder*, Ulverston, 1906.
Terzi 1992 — Terzi, Marinella. *Prehistoric Rock Art*, Chicago, 1992.
Van der Veen 1923 — Van der Veen, H. *Blaasroer, schild en pijl en boog bij de sa'dan-en binoeang-toradja's*. In: *Tijdschrift voor Indische Taal-, Land- en Volkenkunde* 63, Batavia (1923), pp. 368–373.
Ventura 2003 — Ventura, Carol. *The Jakaltek Maya blowgun in mythological and historical context*. In: *Ancient Mesoamerica* 14/2, New York – Cambridge (2003), pp. 257–268.
Victor 1968 — Victor, Paul-Émile. *Boreal. Bucurie în noapte*, București, 1968.
Völling 1991 — Völling, Thomas. *Plumbata - Mattiobarbulus - Martzobarboulon? Bemerkungen zu einem Waffenfund aus Olympia*. In: *Archäologischer Anzeiger*, Berlin (1991), pp. 287–298.
Vulcănescu 1967 — Vulcănescu, Romulus. *Boșimanii*, București 1967.
Warren *et al.* 1979 — Warren, R. J.; Schlauer, N. L.; Jones, J. T.; Sacanlon, P. F.; Kirkpatrick, R. L. *A modified blow-gun syringe for remote injection of captive wildlife*. In: *Journal of Wildlife Diseases* 15, Lawrence (1979), pp. 537–541.
Whittaker 2015 — Whittaker, John. *The Aztec atlatl in the British Museum*. In: *Ancient Mesoamerica* 26/1, New York – Cambridge (2015), pp. 69–79.
Yde 1948 — Yde, Jens. *The regional distribution of South American blowgun types*. In: *Journal de la Société des Américanistes* 37, Paris (1948), pp. 275–317.
Yellen *et al.* 1995 — Yellen, J. E.; Brooks, A. S.; Cornelissen, E.; Mehlman, M. J.; Stewart, K. *A middle stone age worked bone industry from Katanda, Upper Semliki Valley, Zaire*. In: *Science* 268, Washington (1995), pp. 533–536.
York, York 2011 — York, Robert; York, Gigi. *Slings & Slingstones: The Forgotten Weapons of Oceania and the Americas*, Kent, 2011.

LIST OF ILLUSTRATIONS / LISTA ILUSTRAȚIILOR

Fig. 1 The disassembled three pieces of the dragon-shaped blowgun (before conservation), early 20th c. Private collection in Șelimbăr, Romania.
Fig. 1 Cele trei piese dezasamblate ale sarbacanei în formă de dragon (înainte de restaurare), începutul sec. XX. Colecție privată din Șelimbăr, România.
Fig. 2 The assembled dragon-shaped blowgun. Head detail (before conservation).
Fig. 2 Sarbacana în formă de dragon. Detaliu cu capul (înainte de restaurare).
Fig. 3 The assembled dragon-shaped blowgun. Left sight view (before conservation).
Fig. 3 Sarbacana în formă de dragon. Vedere laterală stânga (înainte de restaurare).
Fig. 4 The assembled dragon-shaped blowgun. Right sight view (before conservation).
Fig. 4 Sarbacana în formă de dragon. Vedere laterală dreapta (înainte de restaurare).
Fig. 5 Chopsticks made of Borneo ironwood (*Eusideroxylon zwageri*).
Fig. 5 Bețișoare de mâncat din lemn de fier de Borneo (*Eusideroxylon zwageri*).
Fig. 6 The assembled dragon-shaped blowgun. Left sight view (after conservation).
Fig. 6 Sarbacana în formă de dragon asamblată. Vedere laterală stânga (după restaurare).
Fig. 7 The assembled dragon-shaped blowgun. Right sight view (after conservation).
Fig. 7 Sarbacana în formă de dragon asamblată. Vedere laterală dreapta (după restaurare).
Fig. 8 The assembled dragon-shaped blowgun. Ventral part detail (after conservation).
Fig. 8 Sarbacana în formă de dragon asamblată. Detaliu cu partea ventrală (după restaurare).
Fig. 9 The assembled dragon-shaped blowgun. Ventral part detail (after conservation).
Fig. 9 Sarbacana în formă de dragon asamblată. Detaliu cu partea ventrală (după restaurare).
Fig. 10 The assembled dragon-shaped blowgun. Dorsal part detail (after conservation).
Fig. 10 Sarbacana în formă de dragon asamblată. Detaliu cu partea dorsală (după restaurare).
Fig. 11 The assembled dragon-shaped blowgun. Dorsal part detail (after conservation).
Fig. 11 Sarbacana în formă de dragon asamblată. Detaliu cu partea dorsală (după restaurare).
Fig. 12 The assembled dragon-shaped blowgun. Head detail (after conservation).
Fig. 12 Sarbacana sub formă de dragon asamblată. Detaliu cu capul (după restaurare).
Fig. 13 Crocodile rendered on the dragon-shaped blowgun.
Fig. 13 Crocodil reprezentat pe sarbacana sub formă de dragon.
Fig. 14 The dragon-shaped blowgun. Tail fin detail.
Fig. 14 Sarbacana sub formă de dragon. Detaliu cu înotătoarea caudală.
Fig. 15 Muzzle detail.
Fig. 15 Sarbacana sub formă de dragon. Detaliu cu gura țevii.
Fig. 16 Barrel sections detail.
Fig. 16 Sarbacana sub formă de dragon. Detaliu cu secțiuni prin țeavă.
Fig. 17 The blowgun's inner barrel and the third piece's wooden plug.
Fig. 17 Sarbacana sub formă de dragon. Detaliu cu tubul interior din oțel și cepul din lemn.
Fig. 18 Dusun blowgun from North Borneo with its accessories, late 19th c. – early 20th c. Private collection.
Fig. 18 Sarbacană dusună din Borneo de Nord cu accesoriile sale, sfârșitul sec. XIX – începutul sec. XX. Colecție privată.
Fig. 19 The speahead and the sight of a Dusun blowgun from North Borneo, late 19th c. – early 20th c. Private collection.
Fig. 19 Vârful de lance și dispozitivul de ochire al unei sarbacană dusune din Borneo de Nord, sfârșitul sec. XIX – începutul sec. XX. Colecție privată.
Fig. 20 The mouthpiece of a Dusun blowgun from North Borneo, late 19th c. – early 20th c. Private collection.
Fig. 20 Mușțiucul unei sarbacane dusune din Borneo de Nord, sfârșitul sec. XIX – începutul sec. XX. Colecție privată.
Fig. 21 The inner barrel of a Dusun blowgun from North Borneo, late 19th c. – early 20th c. Private collection.
Fig. 21 Tubul interior al unei sarbacană dusune din Borneo de Nord, sfârșitul sec. XIX – începutul sec. XX. Colecție privată.
Fig. 22 Quiver for blowgun darts with its hanging wooden hook, Borneo, before 1887. Tropenmuseum, Amsterdam.

Fig. 22 Tolbă cu săgeți de sarbacană și cârligul ei din lemn pentru atârnare, Borneo, înainte de 1887. Tropenmuseum, Amsterdam.

Fig. 23 Tool for shaping butts of blowgun darts (after Furness 1902).

Fig. 23 Unealtă pentru fasonarea capetelor săgeților de sarbacană (după Furness 1902).

Fig. 24 Gourd for keeping the poison for blowgun darts with its bone spatula and pith butts, Borneo, before 1920. Tropenmuseum, Amsterdam.

Fig. 24 Tigvă pentru păstrarea otrăvii pentru săgețile de sarbacană cu spatula ei din os și capete de săgeți din măduvă vegetală, Borneo, înainte de 1920. Tropenmuseum, Amsterdam.

Fig. 25 Wooden plate for preparing poison for darts, Borneo, before 1937. Tropenmuseum, Amsterdam.

Fig. 25 Placă din lemn pentru prepararea otrăvii pentru săgeți, Borneo, înainte de 1937. Tropenmuseum, Amsterdam.

Fig. 26 A Kenyah man from Sarawak hewing out a wooden block needed to make a blowgun. Photograph by Ch. Hose, early 20th c. (after Hose *et al.* 1912).

Fig. 26 Un bărbat Kenyah din Sarawak tăindu-și un bloc din lemn, necesar spre a face o sarbacană. Fotografie de Ch. Hose, începutul sec. XX (după Hose *et al.* 1912).

Fig. 27 Two Kenyah natives from Sarawak boring a blowgun barrel. Photograph by Ch. Hose, early 20th c. (after Hose *et al.* 1912).

Fig. 27 Doi indigeni Kenyah din Sarawak sfredelind o țeavă de sarbacană. Fotografie de Ch. Hose, începutul sec. XX (după Hose *et al.* 1912).

Fig. 28 A Kenyah man from Sarawak testing the bore of a blowgun barrel. Photograph by Ch. Hose, early 20th c.

Fig. 28 Un bărbat Kenyah din Sarawak încercând perforația unei țevi de sarbacană. Fotografie de Ch. Hose, începutul sec. XX.

Fig. 29 A Kenyah man from Sarawak tying a speahead to a blowgun. Photograph by Ch. Hose, early 20th c. (after Hose *et al.* 1912).

Fig. 29 Un bărbat Kenyah din Sarawak legând vârful de lance de o sarbacană. Fotografie de Ch. Hose, începutul sec. (după Hose *et al.* 1912).

Fig. 30 A Kenyah man from Sarawak making darts for his blowgun. Photograph by Ch. Hose, early 20th c. (after Hose *et al.* 1912).

Fig. 30 Un bărbat Kenyah din Sarawak făcându-și săgeți pentru sarbacană. Fotografie de Ch. Hose, începutul sec. XX (după Hose *et al.* 1912).

Fig. 31 A Kenyah man from Sarawak collecting the poisonous sap of the upas tree. Photograph by Ch. Hose, early 20th c. (after Hose *et al.* 1912).

Fig. 31 Un bărbat Kenyah din Sarawak colectând seva otrăvitoare a copacului upas. Fotografie de Ch. Hose, early 20th c. (după Hose *et al.* 1912).

Fig. 32 A Kenyah man making dart poison. Photograph by Ch. Hose, early 20th c. (after Hose *et al.* 1912).

Fig. 32 Un bărbat Kenyah preparând otravă pentru sarbacană. Fotografie de Ch. Hose, începutul sec. XX (după Hose *et al.* 1912).

Fig. 33 Krio Dayak (Penyahbong) hunters armed with spearhead blowguns in Tamaloe, West Kalimantan, 1913–1917 (after Lumholtz 1920).

Fig. 33 Vânători daiaci Krio (Penyahbong) înarmați cu sarbacane cu vârf de lance la Tamaloe, West Kalimantan, 1913–1917 (după Lumholtz 1920).

Fig. 34 Dayak hunting with a blowgun, c. 1900–1940. Tropenmuseum, Amsterdam.

Fig. 34 Daiac vânând cu o sarbacană, cca. 1900–1940. Tropenmuseum, Amsterdam.

Fig. 35 Prow of a Dayak canoe on the Baram river, Sarawak (after Bitsch 1968).

Fig. 35 Prova unei pirogi daiace pe râul Baram, Sarawak (după Bitsch 1968).

Fig. 36 Iban warrior staying on the prow of a Klemantan war-boat (after Hose *et al.* 1912).

Fig. 36 Războinic Iban stând pe prova unei pirogi de război klemantane (după Hose *et al.* 1912).

Fig. 37 Carved wall panels on a Klemantan longhouse gallery in the Baram district, Sarawak (after Hose *et al.* 1912).

Fig. 37 Panouri murale sculptate din galeria unei case lungi klemantane din districtul Baram, Sarawak (după Hose *et al.* 1912).

Fig. 38 Kayan wooden pattern for tattoos, before 1928. Tropenmuseum, Amsterdam.

Fig. 38 Model kayan din lemn pentru tatuaje, înainte de 1928. Tropenmuseum, Amsterdam.

Fig. 39 Kenyah "rice barn" (actually a mausoleum). Watercolour by Anton Willem Nieuwenhuis, c. 1900. Leiden University's Library.

Fig. 39 "Hambar de orez" (de fapt, un mausoleu) kenyah. Acuarelă de Anton Willem Nieuwenhuis, cca. 1900. Leiden University's Library.

Fig. 40 Mausoleum of Rajah Sinen's family near Long Wai, East Kalimantan. Watercolour by Carl Bock, 1878–1879 (after Bock 1882).

Fig. 40 Mausoleul familiei rajahului Sinen lângă Long Wai, Kalimantanul Oriental. Acuarelă de Carl Bock, 1878–1879 (după Bock 1882).

Fig. 41 Mausoleum of Rajah Dinda's family near Long Wai, East Kalimantan. Watercolour by Carl Bock, 1878–1879 (after Bock 1882).

Fig. 41 Mausoleul familiei rajahului Dinda lângă Long Wai, Kalimantanul Oriental. Acuarelă de Carl Bock, 1878–1879 (după Bock 1882).

Fig. 42 Kayan wooden mausoleum near Long Pelaban, Central Kalimantan, 1913–1917 (after Lumholtz 1920).

Fig. 42 Mausoleu kayan din lemn lângă Long Pelaban, Kalimantanul Central, 1913–1917 (după Lumholtz 1920).

Fig. 43 Funerary monuments of the children of Bui Djalong, Chief of the Kenyah Dayaks. Photograph by Jean Demmeni, c. 1898–1900. Private collection.

Fig. 43 Monumente funerare ale copiilor șefului Bui Djalong al daiacilor Kenyah. Fotografie de Jean Demmeni, cca. 1898–1900. Colecție privată.

Fig. 44 Dayak ossuary (*sandung*) in Ketapang, West Kalimantan. Photograph by Wibowo Djatmiko, 2013.

Fig. 44 Osuar daiak (*sandung*) la Ketapang, Kalimantanul Occidental. Fotografie de Wibowo Djatmiko, 2013.

Fig. 45 Dragon-shaped blowgun with a bird-shaped quiver and a crocodile statuette, 1950's or later. Private collection.

Fig. 45 Sarbacană în formă de dragon cu tolbă sub formă de pasăre și statuetă de crocodil, anii 1950 sau mai târziu. Colecție privată.

Fig. 46 Dragon-shaped blowgun with a bird-shaped quiver, mid-20th c. Private collection.

Fig. 46 Sarbacană în formă de dragon cu tolbă sub formă de pasăre, mijlocul sec. XX. Colecție privată.

Fig. 47 Dragon-shaped blowgun with a bird-shaped quiver, mid-20th c. Detail. Private collection.

Fig. 47 Sarbacană în formă de dragon cu tolbă sub formă de pasăre, mijlocul sec. XX. Detaliu. Colecție privată.

Fig. 48 Dragon-shaped blowgun with a bird-shaped quiver, mid-20th c. Detail. Private collection.

Fig. 48 Sarbacană în formă de dragon cu tolbă sub formă de pasăre, mijlocul sec. XX. Detaliu. Colecție privată.

Fig. 49 Dragon-shaped statuette imitating a blowgun, late 20th c. Private collection.

Fig. 49 Statuetă în formă de dragon imitând o sarbacană, sfârșitul sec. XX. Colecție privată.

Fig. 50 Dragon-shaped wooden blowgun, 1890's. Private collection.

Fig. 50 Sarbacană din lemn în formă de dragon, anii 1890. Colecție privată.

Fig. 51 Dragon-shaped blowgun without spearhead, first half of 20th c.. Private collection.

Fig. 51 Sarbacană în formă de dragon fără vârf de lance, prima jumătate a sec. XX. Colecție privată.

Fig. 52 Dragon-shaped blowgun without spearhead, first half of 20th c. Detail. Private collection.

Fig. 52 Sarbacană în formă de dragon fără vârf de lance, prima jumătate a sec. XX. Detaliu. Colecție privată.

Fig. 53 Dragon-shaped blowgun without spearhead, probably 1930's – 1940's. Private collection.

Fig. 53 Sarbacană în formă de dragon fără vârf de lance, probabil anii 1930–1940. Colecție privată.

Fig. 54 Dragon-shaped blowgun without spearhead, late 19th c. – early 20th c. Private collection.

Fig. 54 Sarbacană în formă de dragon fără vârf de lance, sfârșitul sec. XIX – începutul sec. XX. Colecție privată.

Fig. 55 Dragon-shaped blowgun without spearhead, 1950's or later. Private collection.

Fig. 55 Sarbacană în formă de dragon fără vârf de lance, anii 1950 sau mai târziu. Colecție privată.

Fig. 56 Dragon-shaped blowgun, late 19th c. – early 20th c. Private collection.

Fig. 56 Sarbacană în formă de dragon, sfârșitul sec. XIX – începutul sec. XX. Colecție privată.

Fig. 57 Dragon-shaped blowgun, late 19th c. – early 20th c. Detail. Private collection.

Fig. 57 Sarbacană în formă de dragon, sfârșitul sec. XIX – începutul sec. XX. Detaliu. Colecție privată.

Fig. 58 Dragon-shaped blowgun, late 19th c. – early 20th c. Detail. Private collection.

Fig. 58 Sarbacană în formă de dragon, sfârșitul sec. XIX – începutul sec. XX. Detaliu. Colecție privată.

Fig. 59 Dragon-shaped blowgun, late 19th c. – early 20th c. Detail. Private collection.

Fig. 59 Sarbacană în formă de dragon, sfârșitul sec. XIX – începutul sec. XX. Detaliu. Colecție privată.

Fig. 60 Dragon-shaped blowgun, late 19th c. – early 20th c. Detail. Private collection.

Fig. 60 Sarbacană în formă de dragon, sfârșitul sec. XIX – începutul sec. XX. Detaliu. Colecție privată.

Fig. 61 Dragon-shaped blowgun, first half of 20th c. Private collection.

Fig. 61 Sarbacană în formă de dragon, prima jumătate a sec. XX. Colecție privată.

Fig. 62 Dragon-shaped blowgun, probably 1930's – 1940's. Private collection.

Fig. 62 Sarbacană în formă de dragon, probabil anii 1930–1940. Colecție privată.

Fig. 63 Dragon-shaped blowgun, probably 1930's – 1940's. Private collection.

Fig. 63 Sarbacană în formă de dragon, probabil anii 1930–1940. Colecție privată.

Fig. 64 Dragon-shaped blowgun, 1950's or later. Private collection.

Fig. 64 Sarbacană în formă de dragon, anii 1950 sau mai târziu. Colecție privată.

Fig. 65 Dragon-shaped blowgun, 1950's or later. Private collection.

Fig. 65 Sarbacană în formă de dragon, anii 1950 sau mai târziu. Colecție privată.

Fig. 66 Dragon-shaped blowgun, 2nd half of 20th c. Private collection.

Fig. 66 Sarbacană în formă de dragon, a doua jumătate a sec. XX. Colecție privată.

Fig. 67 Dragon-shaped blowgun, 2nd half of 20th c. Private collection.

Fig. 67 Sarbacană în formă de dragon, a doua jumătate a sec. XX. Colecție privată.

Fig. 68 Dragon-shaped blowgun, 2nd half of 20th c. Private collection.

Fig. 68 Sarbacană în formă de dragon, a doua jumătate a sec. XX. Colecție privată.

Fig. 69 Darts of a dragon-shaped blowgun, 2nd half of 20th c. Private collection.

Fig. 69 Săgeți ale unei sarbacane în formă de dragon, a doua jumătate a sec. XX. Colecție privată.

Fig. 70 Blowgun used for hunting birds in Flanders (c. 1470–1476). Illumination by the Master of Margaret of York (documented at 1470–1490). Bibliothèque nationale de France, Paris.

Fig. 70 Sarbacană folosită la vânătoarea de păsări în Flandra (cca. 1470–1476). Miniatură de Maestrul Margaretei de York (activ la 1470–1490). Bibliothèque nationale de France, Paris.

Map 1 Distribution of the blowgun in Asia, Oceania and Madagascar in recent historic times, without Egypt and Europe (after Jett 1991).

Harta 1 Răspândirea sarbacanei în Asia, Oceania și Madagascar în timpurile istorice recente, fără Egipt și Europa (după Jett 1991).

Map 2 Outlines of the occurence of blowgun types in Southeast Asia (after Jett 1970).

Harta 2 Schiță a ocurenței tipurilor de sarbacană ăn Asia de Sud-Est (după Jett 1970).

Map 3 Outlines of the occurences of blowgun clay pellets, pith air stops and attached spearhead in Southeast Asia (after Jett 1970).

Harta 3 Schiță a ocurenței peletelor din lut pentru sarbacană, a opritoarelor de aer din măduvă vegetală și a vârfurilor de lance atașate în Asia de Sud-Est (după Jett 1970).

Map 4 The blowgun's diffusion in Southeast Asia and Oceania (after Friderici 1915).

Harta 4 Răspândirea sarbacanei în Asia de Sud-Est și Oceania (după Friderici 1915).

Map 5 Distribution of the blowgun in America based on ethnographic reports, with archaeological reports only for the Peruvian coast (after Jett 1991).

Harta p 5 Răspândirea sarbacanei în America pe baza datelor etnografice, cu date arheologice doar pentru coasta peruviană (după Jett 1991).

Tab. 1 Information about some dragon-shaped three-pieces blowguns (with or without steel inner barrel) auctioned during 2008–2022

Tab. 1 Informații privind câteva sarbacane în formă de dragon (cu sau fără țeavă interioară de oțel) licitate în perioada 2008–2022.

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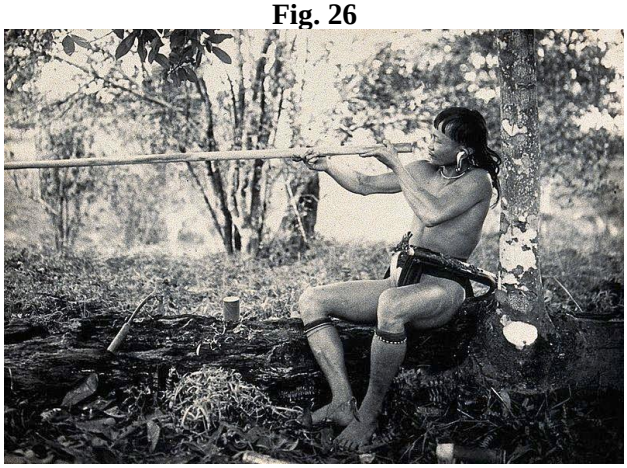

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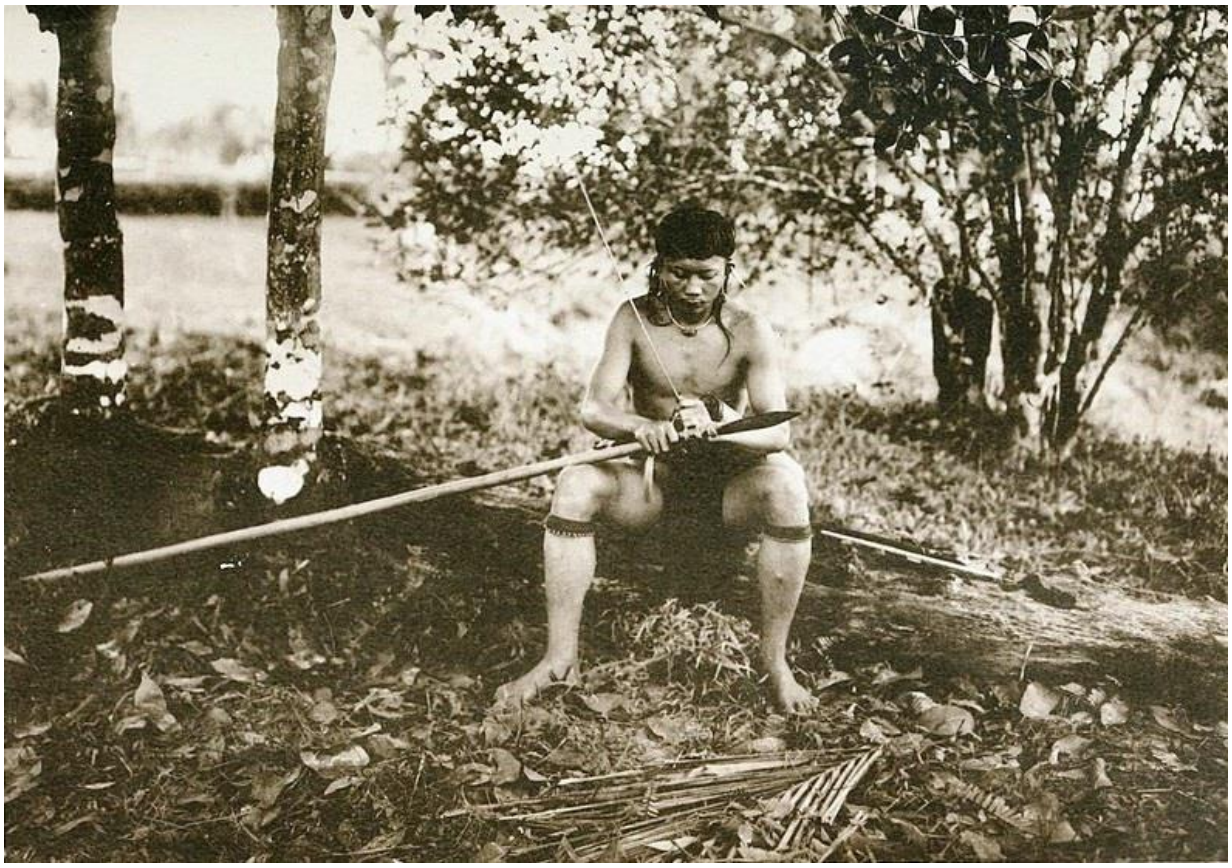

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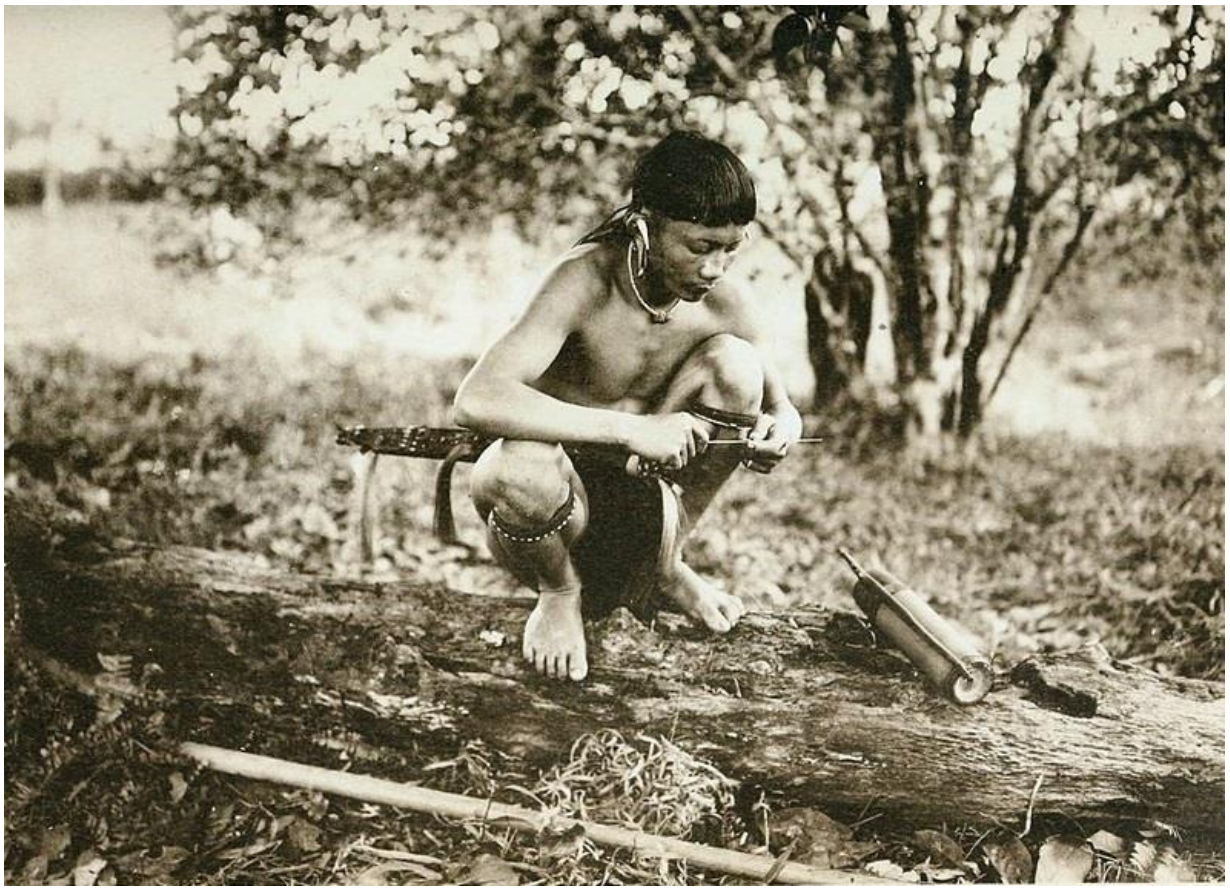

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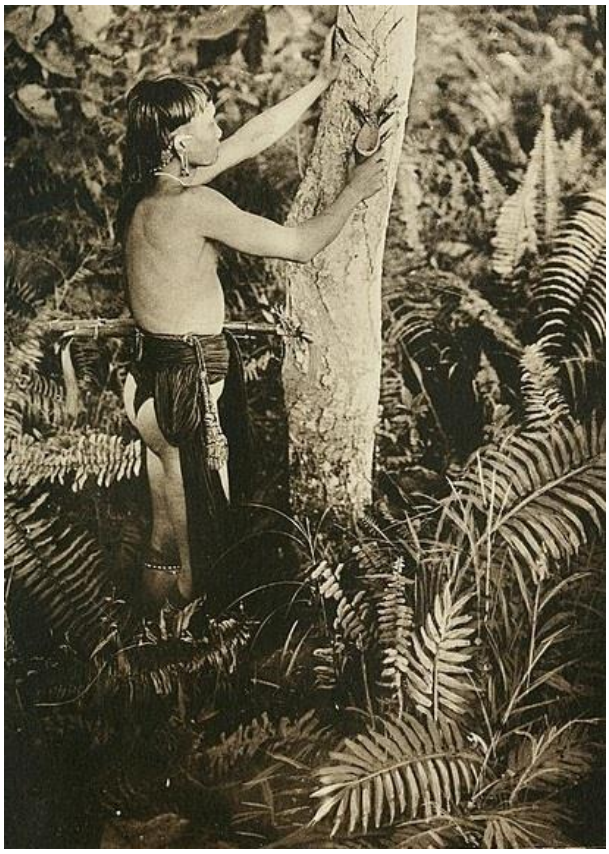

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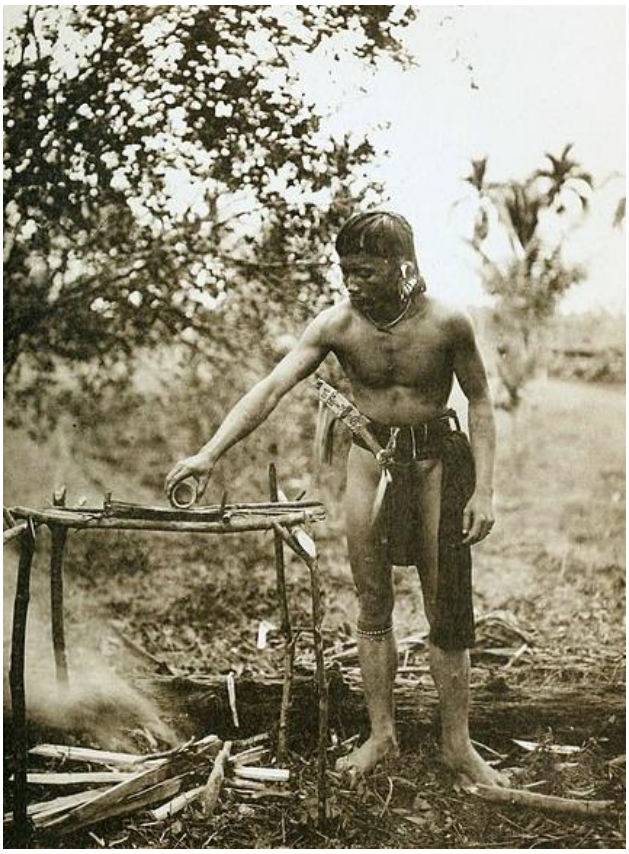

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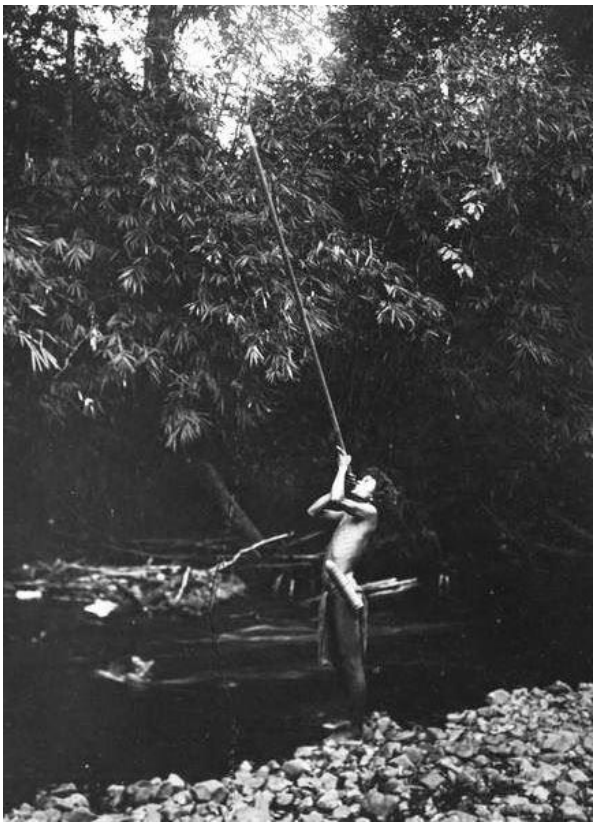
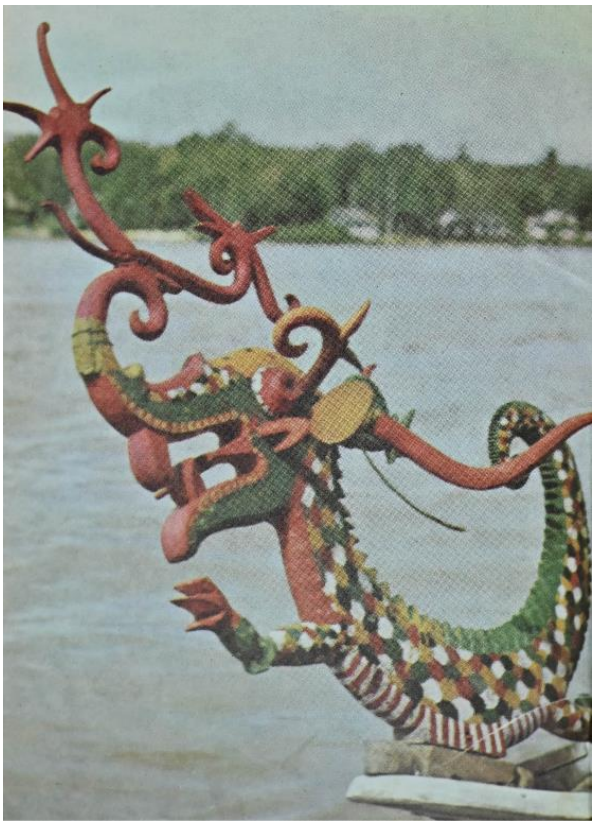


Fig. 34



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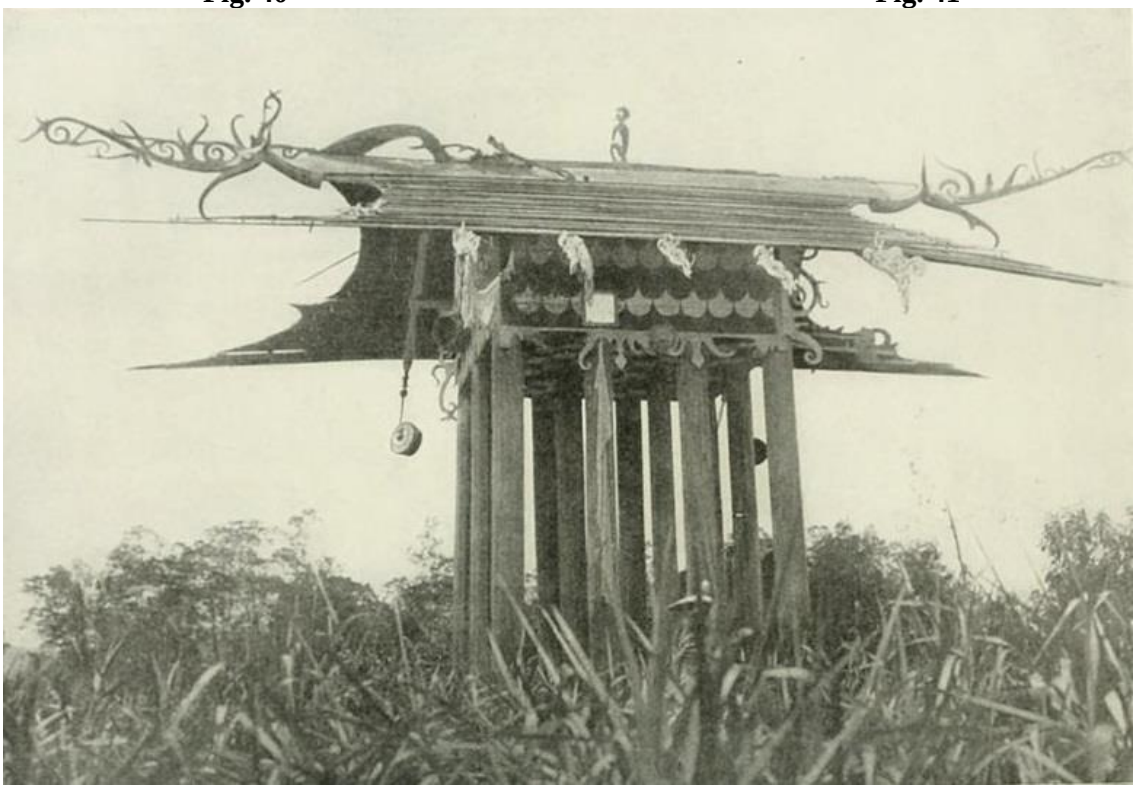

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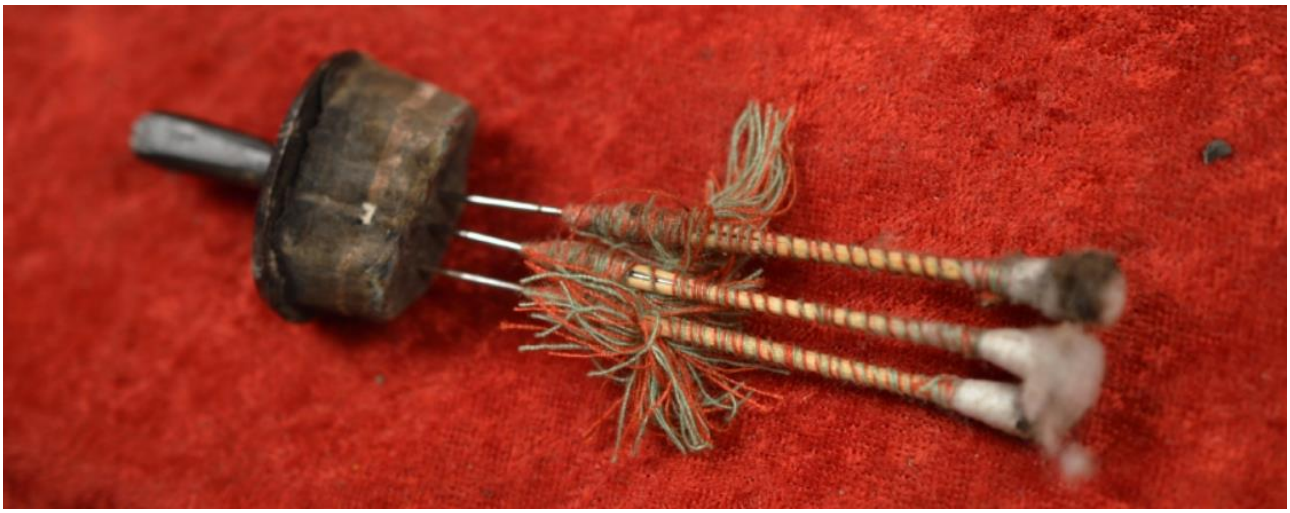

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61

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63

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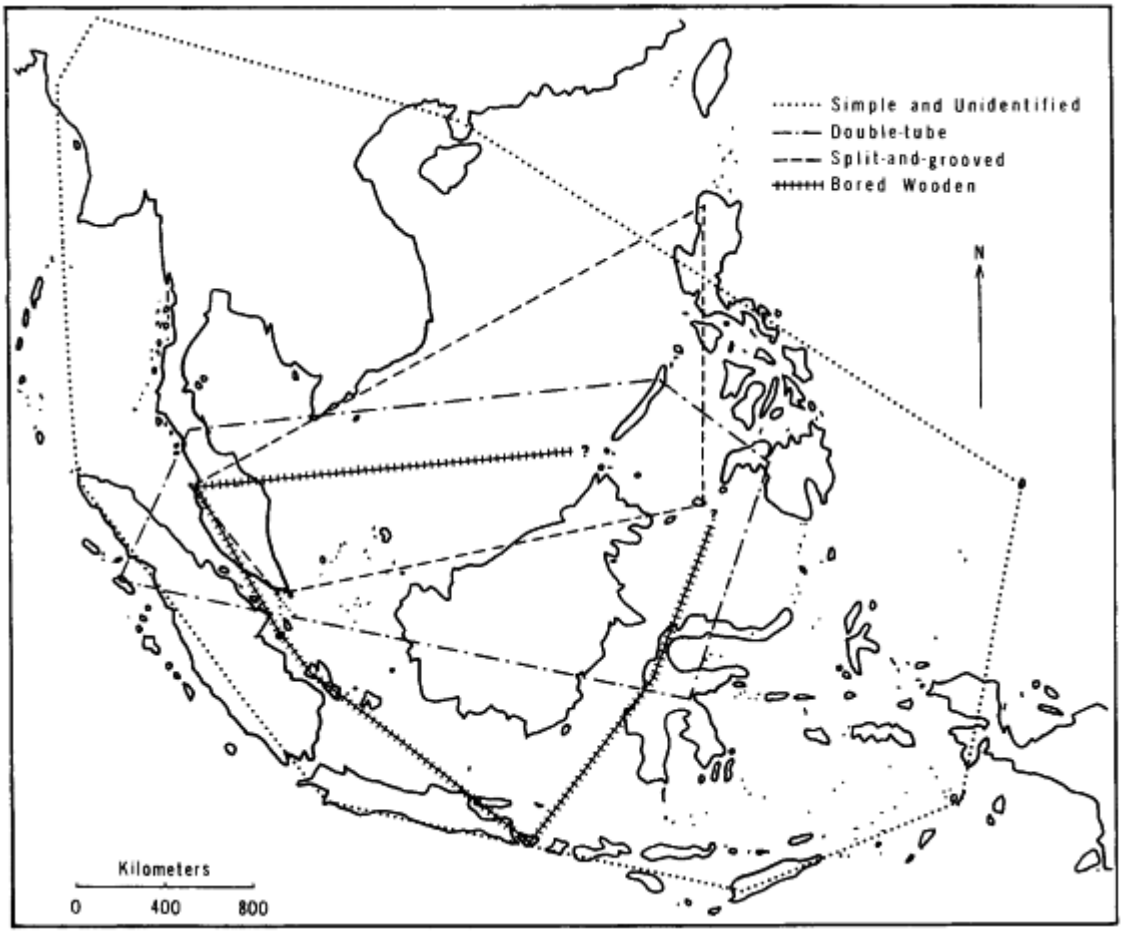
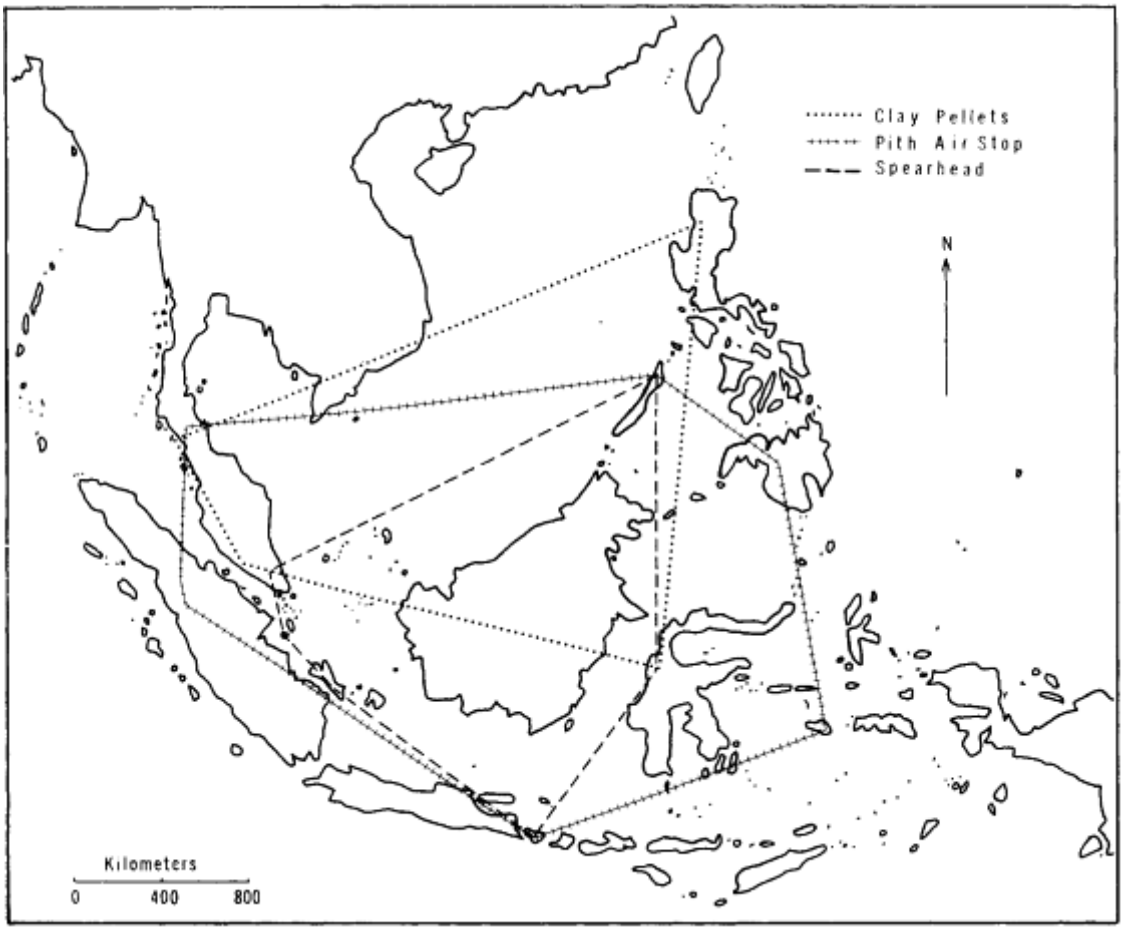
Fig. 68

Fig. 69

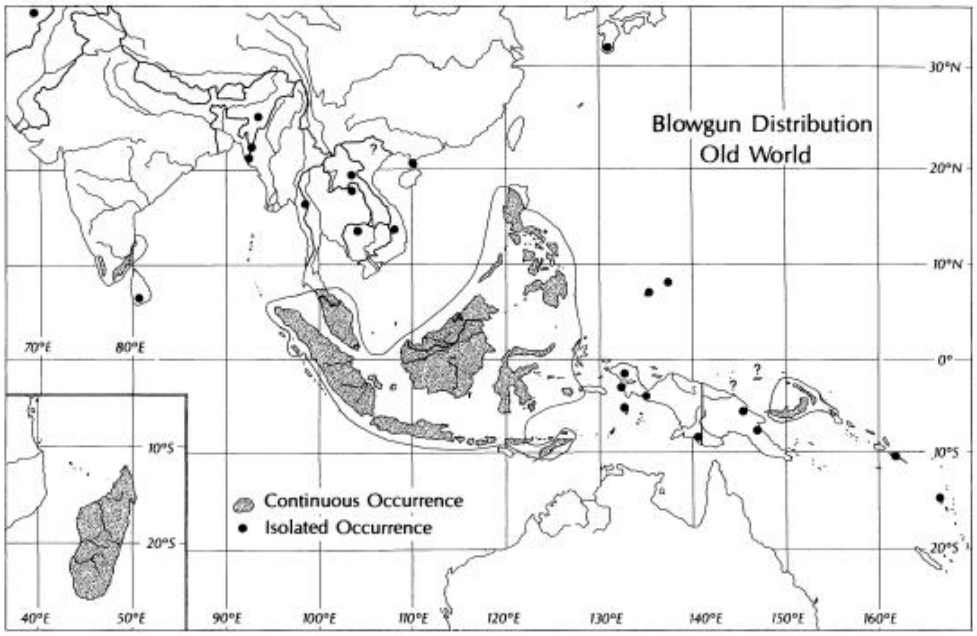
Fig. 70



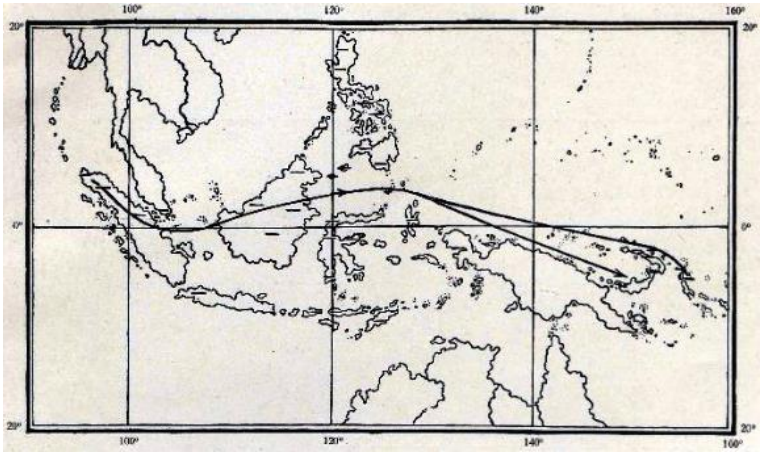
Map 2



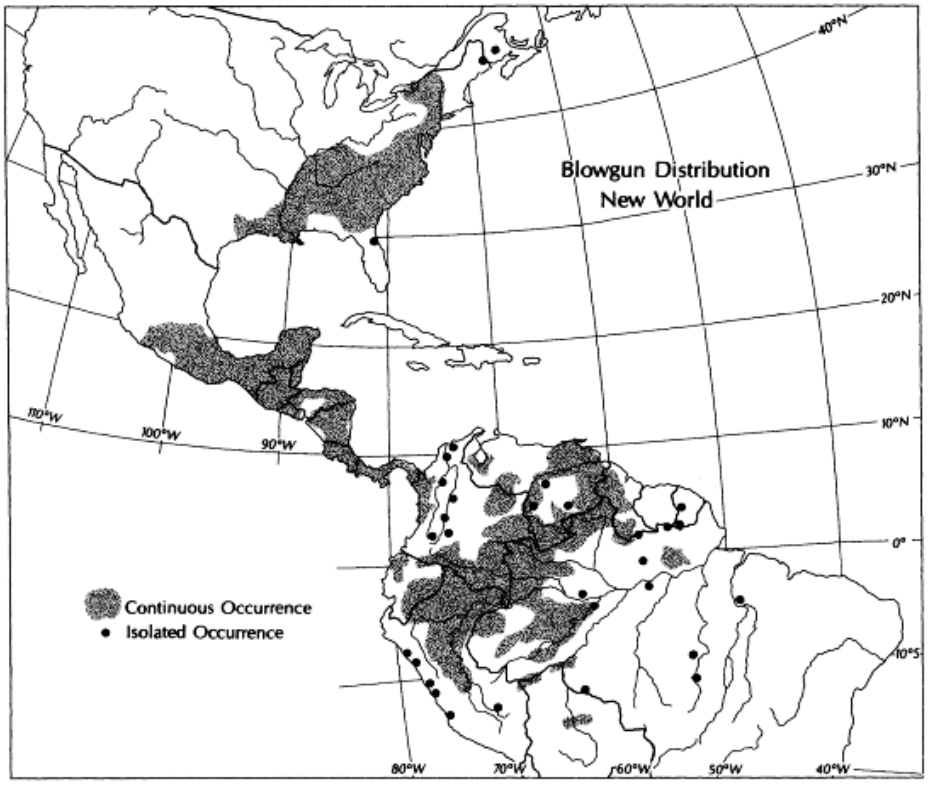
Map 3



Map 1



Map 4



Map 5

Tab. 1 Information about some dragon-shaped blowguns (with or without steel inner barrel) auctioned during 2008–2022

Current no.	Auction	Information about the item	Remarks
1.	ICollector, 11.12.2008, lot 877	Described as "Indonesian Naga-form carved bone blowgun". Adorned with engraved boar and tiger. With dart case (damaged, but repaired) and darts. Length 40 inches (i. e. 101.6 cm). Lot location: Morris Plains, New Jersey, United States of America.	Thin transparent varnish, black painted carvings. Cylindrical quiver, one hook missing, the other oriented towards the spearhead end. Nasal barbels of steel wire. Date: mid-20th c.
2.	flight-toys.com, 3.08.2010, item CT 06	Indonesian dragon blow gun, made of bone. Length: 94 cm. Weight: 784 g. Price: 29 $.	Black varnish. Eyes made of iron wire (one is missing). Quiver missing. Proposed date: 1950's or later.
3.	ICollector, 11.06.2011, lot 345	Wrongly described as a "Finely carved Chinese bone dragon fire stick. Finely carved in sections to depict a dragon with dragon carvings and an additional bird caving that sits below. Bird holder chipped, one of bird's leg chipped". Length 37 inches (i. e. 93.9 cm). Price: 50 $ (estimated at 100–200 $). Date: 20th c.	Thin brown varnish, used mainly to emphasize the carvings. Bird-shaped darts quiver. Mental barbels of steel wire. Proposed date: mid-20th c. (similar item collected before 1950 in a private collection).
4.	Davidson Auctions, Sidney, 20.10.2012, lot 159	Described as "Oriental bone dragon blowpipe. Some small losses". Length 96 cm. Estimated price: 50–100 Australian dollars.	Dragon-shaped blowgun without spearhead. Thin brown varnish, black painted carvings. Quiver and a hook missing. Date: mid-20th c. (probably 1930's – 1940's)
5.	Gun Auction, auction 12648053, 18.02.2014	Described as "Indonesian blow dart gun". Price: 19.99 $.	Made of wood, without inner metallic barrel. Brown varnish. Flattened cylindrical quiver. Proposed date: late 19th c. – early 20th c.
6.	Toovey's Antique & Fire Art Auctioneers & Valuers (Great Britain), 9.09.2015, lot 852	Described wrongly as "a Burmese carved bone blowpipe with dragon's head at muzzle". Length: c. 102 cm. Price: 22 £.	Dragon-shaped blowgun without spearhead. Thin yellow varnish, black painted carvings. Parallelepiped quiver attached by a groove joint. On it another groove joint, maybe for a missing statuette (probably a bird-shaped one). Date: first half of 20th c.
7.	Andrew Smith & Son, Winchester Auction Rooms, Alresford (Great Britain), 2.02.2016, lot 503	Described as a "Chinese stained bone dart gun carved as a dragon, with slung dart-quiver beneath". Length 75 cm.	Brown varnish, carvings painted in black. Flattened cylindrical quiver. Nasal and mental barbels of steel wire. Proposed date: 1950's or later.
8.	Propertyroom.com, 3.11.2019, listing ID: 13611143, item no. 5057 sb bd 3577	Described as "Antique of vintage carved wood blow dart gun. Intricately carved dragon head at tip with notches for storing darts. 3 darts included. Pieces fit together. Below the remark:	Dragon-shaped blowgun without spearhead. Yellow varnish, covering carvings and small surfaces painted in black. Quiver in shape of a flattened cylinder (although deformed, almost to a conical frustum). Proposed date:

		"Material unknown. Could be wood or bone or a combination (unsure).". Length c. 25.5 inches (i. e. 64.7 cm). Provenance: "This item is from a private collection of Asian antiques".	late 19th c. – early 20th c.
9.	Able Auctions, Langley (Canada), 24.03.2018, lot 26	Described as "antique bone carved dragon design blow dart shooter", wrongly considered as "First Nations Art / British Columbia". Length: 23.5 inches (i. e. 58.4 cm).	Thin brown varnish, carvings painted in black. The flattened cylindrical quiver containing 7 darts is hanged through a wire passing through its eyelets. Nasal and mental barbels of steel wire. Proposed date: 1950's or later.
10.	Lot-tissimo, Great Britain, 24.11.2019, lot 32	Described as "Traditional blowgun made from exotic wood, with a dragon decoration, Indonesia, the beginning of the 20th century". Length: 86 cm. Lot location: Bucharest.	Reddish-orange varnish, black painted carvings. Parallelepiped quiver with rounded edges attached by mitre joints, with a socket for attaching through a groove joint a statuette, maybe a bird-shaped one. In a later period was added (most likely not by the Borneo natives) a brass chain, aiming to imitate a rifle sling. Proposed date: first half of 20th c.
11.	Hinter Auctions, Coorey (Australia), 29.05.2022, lot 79	Described as "carved bone / resin dragon blowpipe with 2 darts". Estimated price: 50–80 Australian dollars. Sold for 90 Australian dollars.	Transparent varnish on white bone, carvings painted in black (like Japanese ivories). Flattened cylindrical quiver hanging on hooks through eyelets fixed on its body, having only one lid. Nasal barbels made of iron wire. Proposed date: 1950's or later.
12.	DejaVu Estate Sales & Auctions, Palm Beach Gardens (United States of America), 10.10.2022, lot 221	Described as "Indonesian style carved dragon blowgun and 3 darts, good pre-owned condition". Estimated price: 300–500 $.	Transparent varnish, carvings painted in black. Bird-shaped quiver and crocodile-shaped statuette, attached to one side and the other. Proposed date: 1950's or later.
13.	AuctionNinja, Ridgefield Thrift (United States of America), item 10046	Indonesian dragon shaped carved blow dart gun. Length: 31 inches (i. e. 78.7 cm). Price: 17 $	Black varnish. Quiver missing. Proposed date: mid-20th c.
14.	Assamika	Indonesian dragon shaped carved blow dart gun from Borneo 3 darts. Length: 35 inches (i. e. 88.9 cm).	Thin brown varnish, black painted carvings. Flattened cylindrical quiver. Proposed date: mid-20th c. (probably 1930's – 1940's)
15.	Catawiki, sold by Simon Ruurd de Haan (The Netherlands)	Wooden dragon-shaped blowgun with darts. Head adorned with steel wire. Length: 71 cm. Length of the darts: 8.5 cm. Length of the darts quiver: 17.5 cm. Provenance: Kalimantan. Date: 2nd half of 20th c. Price: 65 €.	Reddish varnish, some carvings apparently painted in black. Quiver in the shape of a prism with trapezoidal base and rounded edges. The quiver's eyelets made of iron nuts. Nasal and mental barbels of steel wire.
16.	Worth Point	1890's antique Indonesian wooden carved dragon Naga monkey hunter blowgun, darts.	Brown varnish, black painted carvings. The quiver has the shape of two right circular conic frusta.

THE EDUCATIONAL SYSTEM IN TRANSYLVANIA BETWEEN 1853 AND 1914

Alexandra POPONEA*

Abstract: *The situation of the educational system in Transylvania, in the second half of the 19th century, was increasingly shaping around the religious cults, the Church playing a very important role in the development of the educational system and in the education of young people. From a national and religious point of view, the Orthodox Church in Transylvania strove to "Romanianize" the native population of this historical area, opening schools and libraries to educate them in the Romanian spirit, with priests and teachers often collaborating in extracurricular activities.*

Keywords: *education, Church, Transylvania, school, library.*

Rezumat: *Situația învățământului din Transilvania, în cea de-a doua jumătate a secolului al XIX-lea, se contura tot mai vizibil în jurul cultelor confesionale, Biserica jucând un rol foarte important în dezvoltarea sistemului de învățământ și în culturalizarea tinerilor. Din punct de vedere național și confesional, Biserica Ortodoxă din Transilvania duce o adevărată luptă de „românizare" a populației autohtone din acest areal istoric, înființând școli și biblioteci în vederea educării în spiritul românesc, preoții și învățătorii colaborând deseori în activitățile extrașcolare.*

Cuvinte cheie: *învățământ, Biserica, Transilvania, școală, bibliotecă.*

We present a brief picture of the education system in Transylvania before the outbreak of the First World War (statistics on the number of schools, legislative regulations of the educational system, extracurricular activities, salary level of teaching staff).

According to a statistic, out of the 2398 schools existing in Transylvania in 1858, 961 were teaching in Romanian, "... and of these 691 were under the supreme inspection of Șaguna" (Telegraful Român, 1923, 2). The initiative to introduce teaching conferences in 1862 belonged to Andrei Șaguna (Telegraful Român, 1923, 2).

Circular No. 892 of 1853 (Telegraful Român, 1900, 1) regulated that religious education in the empire, as far as Orthodox believers attending "foreign schools" were concerned, had to be done by appointing as catechist "... our priest from the locality holding a foreign school", him being obliged ". ... to be for young people of our religion, to give them the necessary religious instruction, to ensure that these young people regularly attend our church, to examine them, and to give them certificates of their progress in religious studies and research" (Telegraful Român, 1900, 1). At the end of the same circular, parents were urged to guide their children to attend schools "... in such towns, where we have a church and a parish priest, so that their children can grow up according to the church's commandments, for if they do otherwise, sending their children to schools in such towns, where we have neither a church nor a priest, their children will not be able to receive Christian education". Some schools were listed where parents could send their children, "... to the small gymnasium in Brașov, Săcele and Reșinar, schools claimed to be just as good, as regular as other schools in the country" (Telegraful Român, 1900, 1).

In 1868, the law "on the obligation of people's education" was adopted, which led to the opening of many schools "... which can be considered as well-established schools" (Telegraful Român, 1900, 3).

In 1900, the Permanent Committee of the Board of National Instruction was considering the adoption of reforms to the teaching preparation and curriculum for girls' superior schools. With regard to the second issue, it was decided that "... the girls' superior school is a unitary middle school, with six classes, which is not based on the civil school, nor does it borrow popularity from the girls' gymnasium ... it is envisaged as a school which will satisfy higher cultural demands, whereas the civil school will henceforth pursue

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only practical aims ... The superior school for girls is intended for girls, who, without having to study at university, will have to receive a high general culture and language culture" (Telegraful Român, 1900, 50).

A detailed situation of the schools under the patronage of the Orthodox Church can be found in a report of the Archdiocese of Sibiu, elaborated by the future Metropolitan of Transylvania, Ioan Meţianu. According to this statistic, there were Orthodox schools in 792 "church communes", but in 235 there were no schools. The following schools were also inventoried: Greek-Catholic (41 church communes), Evangelical-Lutheran (26 church communes), Evangelical-Reformed (44 church communes), Unitarian (2 church communes), state schools (45), communal schools (39), private meeting schools (1). There were 963 registered teachers, of whom 455 were titular and 508 substitute. During the school year 1898-1899 a number of stipends were granted through foundations (Francisc Iosif, Ecaterina Raţ, Ioan Popescu). Several teaching conferences were organised during the year (Telegraful Român, 1900, 194).

From the end of the 19th century, pedagogical subjects began to occupy an increasingly important place in the curriculum of theological schools, their imposition by the laic authorities being supported by the religious authorities. Thus, in 1884/5 the theologians were offered "in course II didactics and special methodology, 3 hours, and in course III pedagogy also 3 hours per week, in 1895/96 the theologian students, together with those in the pedagogical section, in course II, 5 hours of pedagogy and in course III didactics and methodology also in 5 hours per week ... in 1895/6, when psychology was not proposed in course I, pedagogy and didactics were proposed, 5 hours each ... in 1915/16 ... psychology (2 hours) was proposed in the first theological course; didactics and methodology (2 hours) in course II ... pedagogy (2 hours) in course III, the history of pedagogy and the organisation of instruction in Hungary (2 hours) and practical education (6 hours)" (Telegraful Român, 1916, 283-284).

The involvement of central and religious authorities in the development of the school system was major. Thus, in his speech on the occasion of the 50th anniversary of the establishment of the gymnasium in Braşov (June 29, 1900), Ilarion Puşcariu reviewed the moments that marked the beginning of the educational institution: "... a stronger momentum in culture through the establishment of schools for the Orthodox Romanians were shown under the glorious reign of our High Emperor and King Francis Joseph I". The evidence and essential contribution of Andrei Saguna who, "... intervened with his authority to gain the right to establish this gymnasium and later the right to make it known, and especially ensured its existence as a confessional gymnasium gr. - or. by gaining our ecclesiastical autonomy" (Telegraful Român, 1900, 2).

Two important coordinates of the educational system, promoted by both civil and religious authorities, were the establishment of school libraries and the organisation of teachers' conferences. Priests and teachers often collaborated in extracurricular activities.

In this way, thanks to the efforts of the priest Iosif Gomoş from Abrud, the school library was established, and he also elaborated the operating status "... in which he obliged the teacher to organize several productions - with the pupils - during the year, the proceeds of which were to be used to buy books for the library". At his insistence, the "village leaders" donated a large number of books, "... so that by now we can boast that we have a fine school library". The priest got involved in the building of a new school building, "... so that today we have all the material gathered for the construction of a new school building, the plan made and submitted to our church authorities for approval, as we believe, that right in the fall of this year we will see the new school building put under the roof". The teacher was also paid from the church fund (Telegraful Român, 1900, 352).

The credit for the establishment of the school library in Agârbiciu went to teacher Ilie Cîmpeanu and priest Ioan Botezan. The first was a teacher in the village from 1895 until 1930, when he retired. Ioan Botezan, born in Blaj, was appointed, in 1894, priest in the village. He was also involved in economic activities, managing to establish in 1907 a "credit company, i.e., a cooperative system Reifeisen" (Lupu, 1978, 401).

We learn about the way the library was established from an open letter of thanks addressed to the Association and published in *Foaia Poporului* by Ioan Botezan "president of the Romanian Popular Library" and Dumitru Brânză, secretary. The library was created thanks to important donations. Funds were also raised from tickets sale for theatrical performances given by the school's pupils under the guidance of teachers Elia Cîmpean and George Albu. At the

end of 1896, "... the library consisted of 107 books of great content" (Lupu, 1978, 401).

In order to enrich their book collection, the two sent a request to the Astra branch in Mediaș at the end of 1896. At the beginning of 1897, the central board of Sibiu approved "... to donate to the People's library of Agîrbiciu, any books available for that purpose from the Association's library". In 1897 the Association donated "18 books of great value" (Lupu, 1978, 405).

In 1897, the Teachers' Reunion of Mediaș district was established, Ilie Cîmpeanu being elected president. He appealed for book donations to the Romanian Academy. The request was approved, and the library's holdings included the "Annals XV and following". The following years the donations of books from the scientific forum continued.

According to a testimony, the inventory of the library included the following books: Teodor T. Burada, "O călătorie în satele românești din Istria", Iași, 1896, Petre Dulfu, "Isprăvile lui Păcală, Halima, sau 1001 de nopți", trad. Ioan Barac, Brașov, 1897, G. Coșbuc, „Războiul nostru pentru neatârnare", "Alexandria", "Genoveva de Brabant", „Arghir și preafrumoasa Elena", "Leonat și Dorofata", "Til Buhoglindă", N. D. Popescu, "Bujor, căpitan de haiduci", N. D. Popescu, "Iancu Jianu", N. D. Popescu, "Maria", N. D. Popescu, "Putoianca", N. D. Popescu, "Fata de la Cozia"; Alexandru Lapedatu, "Ștefan cel Mare", G. Coșbuc, "Din țara Basarabilor" (books published in the Biblioteca Steaua collection); plays from the Biblioteca teatrală-Brașov collection; plays written by Iosif Vulcan, Emanoil Suciu, Octavian Prie, Vasile Alecsandri. At the end of the 19th century, the library held almost 400 volumes (Lupu, 1978, 407).

In 1909, the library moved to the church altar next to the school. The library was moved in order to avoid confiscation by the Hungarian authorities, considering that the library contained "... agitating books against the state and that the teacher Ilie Cîmpeanu and the priest Ioan Botezan recommend them and give them to young people to read". In January 1910, the first praetor, accompanied by a patrol of gendarmes, confiscated the entire library, "... and with the help of the servants of the city hall, packed all the books in bags and took them to Sighișoara to be censured". Both the priest and the teacher were interrogated.

A trial was started, which, after a year, reached the final stage at the Court of Appeal (the royal board) in Târgu Mureș. The newspaper *Românul* from Arad supported, through a sustained press campaign, the lawsuit of the two library founders: "... this new act of persecution against the Romanian book, aiming to intimidate the Romanian public from establishing and researching Romanian libraries, is revolting ... we are waiting with excitement for the outcome of this trial, in which librarians Ioan Botezan and Ilie Câmpean will have to sustain not their own defence, but that of Romanian literature".

The newspaper published a list of 16 books incriminated by the prosecutor: Augustin Bunea, "Din istoria românilor: Episcopul Inochentie Micu Klein", Blaj, 1900; Gheorghe Coșbuc, "Războiul nostru pentru neatârnare", București; Gr. V. Borgovan, Ionel. "Educațiunea unui bun copil", București-Gherla, 1900; "Adunarea generală a II-a a Asociațiunii transilvane pentru literatura română și cultura poporului român, ținută la Brașov, la anul 1862"; "Date și documente referitoare la conferința națională română, ținută la Mercurea, la 7 și 8 martie 1869"; Andrei Bârseanu, Ioan Urban Jarnik, "Doine și strigături din Ardeal", Brașov, 1895; Nicolae Xenopol, "Brazi și putregai. Moravuri provinciale", București, 1892; "Petrea de la Cluj, Zile negre", Gherla, 1893; "Discursul de recepțiune ținut de A. D. Xenopol la Academia Română sub prezidența Maiestății Sale Regelui despre Mihail Kogălniceanu", București, 1895; Ioan Băilă, "Pe sub arini. Poezii", Sibiu, 1901; V. A. Urechia, "Rezultatul domniei lui Alexandru Moruzzi de la 1799-1821"; "Discursul de recepțiune ținut la Academia Română sub prezidiul Maiestății Sale Regelui de D.C. Ollănescu despre Vasile Alecsandri", București, 1894; Pamfiliu Grapini, "Monografia comunei mari Rodna-nouă (1773-1923). Cu o mapă topografică și cu note istorice despre valea Rodnei", Bistrița, 1923; Zacharia Antinescu, "Autobiographia mea sau un voiagiu în timpu de 70 ani. Presa și poesia, 1826-1896", Ploiești, 1896; "Discurs de recepțiune ținut la Academia Română sub prezidiul Maiestății Sale Regelui de Nicolae Popea despre Andrei baron de Șaguna", București, 1900; Bartolomeu Baiulescu, "Despre necesitatea promovării meseriilor între români", Sibiu, 1884.

The cause of the library was sustained in the Parliament in Budapest by deputy Ștefan Cicio Pop, who addressed several questions to the Minister of Justice and Internal Affairs. Finally, in the session of April 4, 1911, the Court of Appeal of Târgu Mureș decided: "... the confiscated books, 169 in total, shall be transferred to the

administrative commission for the definitive seizure and their taking out of circulation". All the books were burned. A few religious books were saved and found a shelter in the parish house of Father Botezan. In ”Lista bibliotecilor aflătoare pe teritoriul despărțămintelor Asociațiunii cu sfârșitul anului 1911” published in the Transylvania journal, the library of Agârbiciu was listed as a school library. There was no information about the number of volumes and readers.

After the outbreak of the First World War, the teacher Ilie Câmpeanu was mobilized, fighting on the Russian frontline in Bucovina. In December 1914, he fell prisoner and remained in Russia until 1918. In 1916, the priest Botezan was deported to an internment camp in a commune in Sopron, near the Hungarian-Austrian border, from where he returned to his homeland in the autumn of 1918 (Lupu, 1978, 412).

On the eve of the outbreak of the First World War, there were 40 subscribers to various Romanian periodicals in the locality (Lupu, 1978, 412).

In his speech at the opening of the teaching conferences, Commissar Ioan Stroia, starting from a speech by Metropolitan Andrei Saguna, reiterates their importance, considering that they "... can improve the teacher especially in two directions of his calling, in the theoretical and practical direction". Teaching conferences were considered essential for the improvement of pedagogical knowledge, as they were nothing more than "... a powerful means of thoroughness, clarifying and broadening the theoretical knowledge of the teacher entering practical life" (Telegraful Român, 1900, 503-504).

The Ministry of Public Instruction asked headmasters and teachers "... that every Sunday and religious holidays pupils should be taken ... to one of the nearest churches, where the pupils would listen the holy liturgy in the church" (Telegraful Român, 1900, 3).

We quote from the theme of the teaching conference of the Mediaș Conference Circle: "The life of Archbishop and Metropolitan Andreiu Baron of Saguna ... the notion of Language ... practical lecture on geometry ... practical lecture on natural history (zoology) Cow ..." (Telegraful Român, 1900, 459).

We review some data concerning the admission exams as well as the salaries of the teaching staff. The conditions for participation to the examination for the position of teacher (3rd grade) at the Greek Orthodox School of Rășinari were fixed by the local Greek-Orthodox parish committee. In addition to the examination itself, candidates were obliged to demonstrate their vocal qualities, having to "... before the examination deadline, present themselves in church on a Sunday or a religious holiday to show their skill in church singing, having the duty to sing in the pew on Sundays and holidays". The future teacher's salary was paid entirely from local church funds, "700 cor. salary and 64 cor. goods and wood, to be paid from the church fund in monthly instalments in advance" (Telegraful Român, 1900, 294).

The stipend of 1000 crowns received from the state by the Archdiocesan Consistory, "... intended for the higher qualification of the graduates of the theological course of our archdiocesan seminary" was to be awarded after a competition. Applications for the competition had to be accompanied by several supporting documents: "baptismal certificate ... testimony of maturity ... theological graduation certificate ... declaration that he will choose the speciality indicated to him by the Archdiocesan Consistory" (Telegraful Român, 1915, 2).

The Hungarian central authorities regulated standards for the construction of religious schools, imposing a general pattern, "classrooms 10 m long and 6.30 m wide, lit only from the left side of the pupils and with the entrance on the right side of the desk from an anteroom of at least 20 m². For several classes, a 20 m² chancellery was also required and for one class, the teacher's house was sufficient, consisting of two living rooms: a kitchen with pantry and cellar, with a separate entrance and no direct communication with the school" (Telegraful Român, 1921, 1).

Conclusions: The need for culturalization of young people in Transylvania was illustrated by the actions that local authorities, together with the church and school institutions, took in this direction. The establishment of new schools around the churches was a need that gradually materialized with great efforts, but which brought with it another need, namely, the establishment of school libraries - created through donations - through which the future of a cultural period was an ideal increasingly attainable by the young Romanian population of these areas. In 1858 there were 961 Romanian-language schools in Transylvania, most of which belonged to the Orthodox Church, and after the adoption of the

law "on the compulsory education of the people" the number of state schools also increased. Still now, the collaboration between priests and teachers through extracurricular activities was made with the aim of educating pupils in a national, united spirit and under the same religious cult, a spirit that was at the basis of the formation of Greater Romania after the first conflagration. The efforts of culturalization had their price, including the sacrifices of those involved in this endeavour, but the importance of the facts and what remains after this period of turmoil is reflected up to the present.

REFERENCES / BIBLIOGRAFIE

Telegraful Român, 1923, 2.	*Importanța școalei confesionale în cultura neamului*, în Telegraful Român, Sibiu, 1923, an LXXI, nr. 47, p. 2.
Telegraful Român, 1900, 1.	*Catechisarea, în Telegraful Român*, Sibiu, 1900, an XLVIII, nr. 134, p. 1.
Telegraful Român, 1900, 3.	*Starea școlelor nostre*, în Telegraful Român, Sibiu, 1900, an XLVIII, nr. 67, p. 3.
Telegraful Român, 1900, 50.	*Reforme în organisația școlelor de fete*, în Telegraful Român, Sibiu, 1900, an XLVIII, nr. 13, p. 50.
Telegraful Român, 1900, 194.	Ioan Mețianu, *Raportul general al senatului scolariu*, în Telegraful Român, Sibiu, 1900, an XLVIII, nr. 49, p. 194.
Telegraful Român, 1916, 283-284.	Pavel Roșca, Romulus Cândea, *Lipsa de învățători*, în Telegraful Român, Sibiu, 1916, an LXIV, nr. 58, p. 283-284.
Telegraful Român, 1900, 2.	*Jubileul de 50 de ani al liceului ortodox român din Brașov*, în Telegraful Român, 1900, an XLVIII, nr. 74, p. 2.
Telegraful Român, 1900, 352.	*Preot harnic*, în Telegraful Român, 1900, an XLVIII, nr. 86, p. 352.
Lupu, 1978, 401, 407, 412.	Ioan Lupu, *O bibliotecă sătească din Transilvania de la sfârșitul veacului al XIX-lea; Biblioteca poporală din Agârbiciu* (Jud. Sibiu), în Apulum, Alba Iulia,1978, an XVI, p. 401, p. 407, p. 412.
Telegraful Român, 1900, 503-504.	Ioan Stroia, *Cuventare rostită la deschiderea conferențelor invețătoresci din cercul Dejului în 21 octobre 1900*, în Telegraful Român, Sibiu, 1900, an XLVIII, nr. 122, p. 503-504.
Telegraful Român, 1900, 3.	*Pentru educația religioasă*, în Telegraful Român, Sibiu, 1900, an XLVIII, nr. 135, p. 3.
Telegraful Român, 1900, 294.	*Conferențele învețătorești*, în Telegraful Român, , Sibiu, 1900, an XLVIII, nr. 111, p. 459. 16 Concurs, în Telegraful Român, Sibiu, 1900, an XLVIII, nr. 73, p. 294.
Telegraful Român, 1915, 2.	*Concurs*, în Telegraful Român, Sibiu, 1915, an LXIII, nr. 68, p. 2.
Telegraful Român, 1921, 1.	*Școalele confesionale și Casele naționale*, în Telegraful Român, Sibiu, 1921, an LXIX, nr. 51, p. 1.

ADOLESCENCE BEHIND BARS. INTERVIEW WITH NICULINA MOICA

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Abstract: *The article below presents, in the form of an oral history interview, the situation of women who fell victim to the communist dictatorship in Romania. It depicts the story of Niculina Moica, one of the youngest former political prisoners, arrested at only fifteen years for joining to the anti-communist organization Uniunea Tineretului Liber, initiated at a school in Reghin by student Nicolae Munthiu as a result of the influences of the Hungarian revolution. Between 1959 and 1964, Niculina Moica was imprisoned at Târgu Mureș, Jilava, Botoșani, Arad and Oradea penitentiaries. More than half a century after her release, Niculina Moica proves her courage to share her cruel prison experience with the reading public interested in the history of the repressive forms of the communist regime.*
The interview is part of the Oral History collection, currently in the project stage at the Brukenthal National Museum. In the making of this article, in addition to the actual interview, I integrated the criminal records sheets of the political prisoners mentioned by Niculina Moica during the recorded dialogue, as well as secondary sources, used in the contextualization of the described events.

Keywords: *Niculina Moica, the woman in communism, political prisoner, repression.*

Rezumat: *Articolul de mai jos prezintă, sub forma unui interviu de istorie orală, situația femeilor căzute victime ale dictaturii comuniste din România. El înfățișează povestea Niculinei Moica, una dintre cele mai tinere foste deținute politic, arestată la numai cincisprezece ani pentru aderența la organizația anticomunistă Uniunea Tineretului Liber, inițiată la o școală din Reghin de elevul Nicolae Munthiu ca efect al influențelor revoluției ungare. Între anii 1959 și 1964, Niculina Moica a fost închisă în penitenciarele Târgu Mureș, Jilava, Botoșani, Arad și Oradea. La mai bine de o jumătate de secol de la eliberare, Niculina Moica își dovedește curajul de a împărtăși crunta sa experiență carcerală cu publicul cititor interesat de istoria formelor represive ale regimului comunist.*
Interviul se încadrează colecției de Istorie Orală, aflată momentan în stadiul de proiect al Muzeului Național Brukenthal. În realizarea acestui articol am integrat, pe lângă interviul propriu-zis, fișe matricole penale ale deținuților politici amintiți de Niculina Moica pe parcursul dialogului înregistrat, cât și surse secundare, folosite în contextualizarea evenimentelor descrise.

Cuvinte cheie: *Niculina Moica, femeia în comunism, deținut politic, represiune.*

This article depicts the story of Niculina Moica, former political prisoner during the communist regime, confessed in her own words during the recording of an oral history interview. In the following, after the brief biographical presentation of Niculina Moica, the interview recorded at the beginning of 2023 can be found. Although it required the integration of the translation in english language and editing operations, to facilitate the reading, it largely preserves its authenticity.

Niculina Moica belongs to the category of the youngest former political prisoners, being arrested at only 15 years old by the communist authorities. At the same time, she is admired for her courage to confess her past full of suffering to generations of young people who can hardly understand it, in the absence of lived experience (Vasilescu 2023, 24).

Niculina Moica, nicknamed *Nina* by her parents, Domnica and Petru Moica, was born on 21st October 1943 in Ploiești. The Moica family were refugees in the town on the banks of the Teleajen, the two spouses were coming from Reghin, after the N-E part of Transylvania had been ceded to the Horthyist troops, in the second half of 1940. The family returned to Reghin four years later, when the previously lost territory was recovered by Romania through Romanian-Soviet military collaboration.

The establishment of the communist regime in Romania had immediate negative consequences

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on the Moica family. In 1949, Petru Moica was sentenced to 2 months in prison, due to actions qualified by the communist authorities as acts of sabotage against the state (CRS MoicaP: P1960592).

Beyond the unfavorable attitude towards the new regime, he had also come to the attention of the authorities by his previous inclusion in the composition of the Carlist *jandarmerie*, a fact revealed by Niculina Moica in the below interview. In 1958, Niculina Moica enrolled as a student at Petru Maior High School in Reghin. Anti-communist sentiments led her to join the Union of Free Youth, an organization founded under the impulse of the Hungarian revolutionary current and led by the student Nicolae Munthiu. It is interesting that during the interview, Niculina Moica avoided to mention the name of Nicolae Munthiu, the memory of whom still causes her suffering even today. In addition to schoolmates, the organization also included several workers and a student, recruited from Valea Gurghiului. The initiative of stealing weapons from the Forest Departament located on Valea Gurghiului put an end to the Union of Free Youth, whose members were arrested one by one by the authorities of Securitate, investigated and later convicted with sentences ranging from 10 to 25 years of hard prison, respectively forced labor.

The arrest of Niculina Moica took place on 15th June 1959, during the celebration of the end of the 1958-1959 school year. She had just finished ninth grade and was fifteen and a half years old. By decision no. 382/1959 of the Cluj Military Court, Niculina Moica was sentenced to 20 years of hard prison for conspiracy, specifying in her criminal record sheet also her membership of the Union of Free Youth in Romania (CRS MoicaN: P1960591).

The negative consequences of Niculina Moica's arrest also affected her family. At the same time, Petru Moica was also arrested, while Domnica Moica, although still at liberty, had to vacate the family house in Reghin and to divorce, additionally facing numerous financial shortages, which is why she tried to hide the sentences of her daughter and husband, as Niculina Moica herself testified in the interview. At the time of Niculina's father's arrest, the Moica family still kept 0.58 h of land (CRS MoicaP: P1960592). Petru Moica was sentenced to 20 years in prison. On his criminal record sheet, conspiracy against social order is specified as the motivation for the sentence (CRS MoicaP: P1960593). By decision no. 266/1962 of the Cluj Military Court, Petru Moica's sentence was reduced to 5 years of correctional prison (CRS MoicaP: P1960593). He was imprisoned for five years in the communist prisons, during which time he went to the Gherla and Văcărești penitentiaries and the Giurgeni labor camp.

Throughout her prison experience, Niculina Moica went to Târgu Mureș, Jilava, Botoșani, Arad and Oradea penitentiaries. The transfer from Jilava to Botoșani took place on 5th May 1960. Before arriving in Arad, Niculina Moica was transited again to Jilava, where she spent another six days (CRS MoicaN: P1960590). The detention in Arad lasted two years, on October 31, 1962 being transferred to the last prison space she had, namely the Oradea penitentiary (CRS MoicaN: P1960590). According to decision no. 266/1962, Niculina Moica's sentence was commuted to 12 years in prison (CRS MoicaN: P1960591). Two years later, however, she would be released by pardon decree no. 310/1964, on June 23, leaving the prison in Oradea. Petru Moica was released four days later, on June 27 the family reunited in Reghin.

Niculina Moica tried to rebuild her post-prison existence, continuing her studies and initially working at a bakery, after which she worked until retirement age in accounting. She was under constant surveillance by the Securitate, married a former political prisoner, and they had a daughter together. Currently, Niculina Moica lives in Bucharest and is a member of the Association of Former Political Prisoners from Romania. Her story is detailed in the lines below...

Good afternoon! We are now in Niculina Moica's house in Bucharest, former political prisoner in the communist regime period. First, I will ask you to tell me some biographic data.

With pleasure! I was born on 21st October 1943 in Ploiești. After Transylvania was taken by the Hungarians[1], my parents became refugees and also before, in their youth, they worked in Ploiești.

What were the names of your parents?

[1] The interviewed is making a reference to the events happened after the arbitration of Wien signed on 30th. According to its clauses, the N-E part of Transylvania was ceded to Hungary, including Reghin amongst the localities turned to Hungarian administration.

My dad was Petru Moica[2], and my mom was Domnica Moica.

Where had they come from to take refuge in Ploiești?

My father was from Transylvania, and my mother was bucovinean. They met in Ploiești when they were young. They married and had a girl, my elder sister; her name was Florentina, and my mother gave birth to her at Reghin. My father wished to return there; he only went to Ploiești to work and to make money for buying land in Reghin. When my parents returned to Reghin, probably I was one year and a half.

Please, tell me about your childhood. Which is your first memory ever had.

My first memory is quite funny, because I remember me holding the baby bottle in my mouth, on the stairs of the house where I lived. This is my first memory. Then fallowed the next years of childhood, playing with the neighbors' children.

Had your parents any political activity?

No…neither my dad, nor my mom.

Which was the social status of your parents?

My mom was a housewife: this is how it was back then; the women raised their children at home. The main activity of my dad was the labor of land. We were living from the incomes coming from the labor of land. This is what my dad was doing, until the communists took our land.

Returned to Reghin, my parents received a house from the state…probably was the house of some Saxons left abroad. They wished to build later a house of ours, on the land we had, but they did not get to build it, because our lad was taken. My parents were not very wealthy, but they tried to manage, and they were hardworking humans.

Did you go to school in Reghin?

Yes, I continued to go to school until they arrested me when I finished the 9th grade.

What did your father think about the installment of the communist regime in Romania?

My father was very displeased because it was hard to progress. After the war there was a lot of poverty, and the communists accused him of being *chiabur*, and then the troubles started: high shares and high taxes. The shares were so high that was very hard for my family to pay them. More than a half of the harvest had to be given to the state.

Was your own attitude influenced by your father's opinions?

I was seeing what is happening around me. I was growing to see how hard it was to live. I realized alone that is not good at all what is happening to us. It was a strange feeling, the people started to change and to think different. The members of the poor families were joining the party, the syndicates, but we were not…already the people were being divided. Those times were very hard.

How early did you start to have this attitude ?

Very early, since elementary school, I remember that they gave out coupons for bread, they were little cards with points. Including cloths you could only buy with those points. If you did not have enough wheat and you had to buy a bread, then it was a real problem. I remember that the neighbor's boy, who was a seller at a grocery store, secretly gave me a loaf of bread.

Earlier you mentioned about your arrest. When did this happen and why?

It happened in 1959, when I had finished the 9th grade of high school. Why? Because I was recruited into an anti-communist organization by a schoolmate[3], about three years older than me, even though we were in the same class: he had previously attended a wood industry vocational school. His father thought that a vocational school would also be good, because under the communist regime you never know to what it might be useful for, even if he was a doctor. Being older, this colleague knew more than us and we trusted him.

After 1956, when the Hungarian Revolution happened[4], of course the people were talking. We also had a radio at home and could listen to Western radio stations.

My colleague was staying in a guest house near

[2] Petru Moica (b. 1909), arrested in 1959 and sentenced to 20 years of prison, later changed to only five years of correctional prison. He was closed in the prisons from Gherla and Văcărești, and the labor camp from Giurgeni. He was released by the pardon decree no. 720/1964. The information was taken from CRS MoicaP: P1960592, P1960593.

[3] Nicolae Munthiu (b. 1941), arrested in 1959 and sentenced to 25 years in prison for plotting against the social order. He went through Cluj and Aiud prisons. Released by pardon decree no. 223/1976. The information was taken from the CRS Munthiu: P1990147, P1990148.

[4] For more information about the consequences in Romania of the Hungarian Revolution, see: Granville 2008, p. 185-210.

our home, and he also came to listen...and this is from where I get a lot of trouble. Being colleagues and neighbors, of course when he came to our house to listen to the radio, we commented on what we heard. He was against the communist regime. After reading his file from the Securitate I realized that he also had other problems with the regime, from the time when he was a student at the vocational school, and his father had already been arrested also for political reasons.

Influenced by what happened in Hungary, we decided to do something too. In any case, there were a lot of student protests throughout the country, and we tried to do something like that. He insisted to recruit other colleagues in the organization. I think they had already kicked him out of school, he was also a rebellious nature, always having something to say against the system.

But how many colleagues were involved in the organization?

From the school, there were four or five students involved. Then nineteen of us arrived in the justice court, but I didn't know all of them.

Where were the other members from?

The other members were recruited by him, from Valea Gurghiului, from Toplița, where he knew people. There were many young workers and a student, whom he knew from holydays, but also a lady from Toplița, who, anyway, already had a political past, although we did not know it at that time...only later we found out, staying with her in prison.

In the group at the Court, when I woke up there, I only knew my high school classmates and, of course, my father, because he was also accused.

Did your parents know you were part of an anticommunist organization.

No, they didn't know. It was found out at the time when some of the boys stole some weapons from the Forest Department in Gurghiu. It was still believed that there were still fugitives in the mountains, and I believe they wished to join them; they were young, the influence of the Hungarian Revolution...so they didn't need much to act.

Of course, the Securitate caught the boys quite quickly, even the same day or the second, I don't remember well. They probably had beaten them and they started saying our names, because right after them we were also arrested.

How did this young man successed to recruit you in the organization?

Because he realized that I was also against the regime, and among my colleagues there were enough who had anti-communist feelings, but not all of them had the courage to get involved.

Do I have to understand that the main purpose of this organization was to remove the communist regime from Romania?

Yes, but if you read our files, it shows something else entirely. When I read them, I was shocked! They say we wanted to blow up factories and railways, but we did not even have the necessary material to do it. The truth is that the Securitate did everything they could to lock us up as hard as possible, to scare the people and to give us many years in prison. Securitate's officers lived on this: this is how they got elevated in rank, this is how their salaries were increased – as how they made the files. The Securitate made the files and also set the convictions, and the Courts were some kind of a theater.

As a member of the organization, have you realised any certain anti-communist action?

We did not do too much, because we did not even have the chance, but we had an idea. There were a few families in Reghin whose members were arrested, in a large group in Târgu Mureș: the Faliboga group[5].

We thought of sending them some sympathy letters...there were not many, just a few envelopes. Probably some of the families got scared and reported us to the Securitate. Even the postmen who delivered our letters were investigated because of this.

On the evening when they arrested me, I was attending a ball, or I should say the end of the school year meeting which we held in the gym of the high school in Reghin. I told to a female colleague[6] that we should go too, not to look scared, even though I knew that male colleague had already been arrested. I remember I was

[5] The Faliboga batch was composed of 70 people accused of setting up a secret anti-communist organization. Most of the arrested people came from the Mureș region, but also from other Transylvanian areas. Three of the defendants were sentenced to death, including Ioan Faliboga, leader of the group. The sentence was executed on 1st August 1963, in the Gherla Penitentiary. The Information was taken from CRS Faliboga: P1580235, P1580236.

[6] Irina Cooș (b. 1943), arrested in 1959 and sentenced to 20 years in prison for conspiracy. She went through Miercurea Ciuc, Arad and Oradea prisons. Released by pardon decree no. 310/1964. The information was taken from CRS Cooș: P1250607, P1250608.

dressed in a gray dress.

Was the colleague also a member of the organization?

Yes, I recruited that colleague myself whatever...and we went to the meeting. Of course, I had an inner state of anxiety and I kept thinking about what my parents would say if I would be arrested too. I felt that something very dangerous was about to happen to me.

Anyway, we went to the ball, and by the time we arrived, it was already dark outside. In that darkness, a teacher came to me and said: «*Nina, someone is looking for you*». The teacher had taken my arm and came with me, and the Securitate car was waiting for me outside. I got in the car, and after some time my colleague also got in.

They took us to my house; I did not see my parents, in fact, I do not even think my father was in town then, I do not know where he was, but I did not see my mother either. There was a search in our house and a neighbor, with whom I grew up, was assisting. I think he was there as a witness. I looked at him scared, but I could not ask him anything.

During the search, were you allowed to pack a few things or to change your clean ball clothes?

No, not at all. Then I went to the headquarters of the Securitate in Reghin, which was a branch of the one from Târgu Mureș. There was terrible! I think they did not have enough staff for how many arrests there were. From that moment, I did not see my colleague again only at the Court and to the release. They put me in a room with a wolf dog, which was guarding me. If I moved my leg a little, the dog would already prick its ears.

They did not investigate me at Reghin, but they did investigate me one night at Târgu Mureș. In the morning, they called us to the registry office, where they made our arrest form, with face-profile photos, fingerprints, and all kinds of other papers. Afterwards, they put me in a cell at the Securitate of Târgu Mureș. I do not remember whether I had already found a fellow cellmate there or if she had come after me, a Hungarian woman, arrested for joining the Jehovah's Witnesses. I stayed with her and she seemed like a gentle girl...I have no idea if she was telling me on or not. The Securitate Headquarters had a long corridor with windows, and through those windows the prisoners corresponded. The cell we were in had corridor ventilation. Other inmates were being led on that corridor either for interrogation or to the toilet. At Târgu Mureș we did not have toilets (*tinete*) in the cells, you had to stay in the door until the guard had the patience to take you away. One day, I heard my father's cough in the corridor.

Only then did you realize that he was also arrested?

Yes, but also in the investigations I had started to be asked about my father. I would say one thing, the investigator would transcribe another, and at the end he would put the statement right in front of me to sign. In the Securitate there were two types of investigators: the bad ones, who beat you, and the ones who worked on you mentally.

The one who interrogated me realized that I was very young and tried to be kind, even though once, to scare me, he took me into a room where I saw all kinds of torture instruments hanging on the walls.

During the period I'm talking about, I was so worried about my father that I do not remember anything that happened until the trial. On the 10th or 11th of September we had the trial...when we discovered there were nineteen of us at the Court. I did not know most of the lot. I only knew my high school classmates, the team leader, and my father.

The interrogation had begun, only the questions were twisted so that you did not get to answer anything, and the lawyers did not have the courage to defend you. My lawyer asked the judges to take into account that I was a minor and that was it. It was crowdy in the courtroom...the witnesses were all our schoolmates. One of the witnesses was a younger cousin of mine. With great difficulty I managed to keep her from being arrested, even though the poor girl knew something. Other fellow witnesses were scarred for life, after that they didn't even communicate with us. Many U.T.C. secretaries from the county also participated.

I think ours was a demonstration trial, by which they aimed to scare all the students in the area. I remember that when my father spoke, he said that everything he stated at the investigations, he stated under the influence of the beating. Of course, they kicked him out of the courtroom. During the investigation, the investigator had scared me that if I didn't declare everything, he would beat my father.

But were there any traces of beatings on him ?

It turned gray there, but they were careful not to

take you beaten to the Court.

Was your mother able to attend the trial ?

She was, but we were not even allowed to look around the room, so we hardly spotted her.

Were the parents of other members of the organization arrested or only your father?

Only my father.

Have you asked yourself why ?

Because he was considered *chiabur* and in his youth he worked for a few months in the old constabulary. Dad was not the type of man to obey orders, he wanted to be independent.

What I want to emphasize, however, is the fact that everything was organized at the disposal of the party. The Securitate made the files, the Securitate established the convictions together with the party, and the Court was a kind of theater.

Either my father asked, or to make fun of us investigators, after the trial we were both taken to the same court room. Dad looked at me with the face of a tortured man and asked me: «*What did you do, Nina ?*». They brought me to tears and I do not know what I answered, and since then we have not seen each other for five years.

I think you were also very scared, considering your age.

For my parents, I was the most scared, because I was ashamed of the trouble I had caused them. The truth is, that's where all the trouble in our house started. People still ask me why I consider myself guilty, but it all started from what I did.

How was the process completed?

With some huge convictions. They did not tell us then, we found out about the convictions about ten days later. When they brought them to the penitentiary, I was in the cell - they had already moved us from the headquarters of the Securitate to the Târgu Mureș Penitentiary - I was with some collegues: one got ten years, another twelve, and I got twenty. So, the trial had been in September, and I turned sixteen in October...and when I saw the sentence, I remember saying: «*They are crazy! How can I stay locked up for so long?*».

Of course, we signed the sentence, we had to sign it for the appeal. I do not even know when the appeal was held because nobody called us anywhere. The appeal had been rejected, and we were still left with that conviction.

At Târgu Mureș, I talked to my father through the wall, using a metal cup...it was one of the methods, because only later I learned the Morse code.

Were you able to dialogue with your father from the cell without any restrictions?

No, no. It was with restrictions, because if they saw you, they put you in solitary confinement. I would catch the moment when the guardian might be busy distributing food or with something else. One of the roommates was standing at the door during this time.

They were very severe, but then we had a heating stove that was fueled from outside, from the hallway. Among the common-law prisoners, there was a chef who put a corner of bread in the stove for us, which we shared, sometimes also cigarettes. Since I did not smoke, I found it great to break the wall behind the cell and give the cigarettes to the inmates on the other side. I'm surprised that I escaped without punishment, that if they caught me, I think they would put me in solitary confinement.

I arrived at Jilava on Christmas Eve. They sent us with other several prisoners in a wagon attached to the train. I do not remember how many days it took with the train.

There, I also received food: a bit of bread and a rancid bacon, which I could not eat. They also gave us a slice of cheese which was so salty, that it was better to throw it away than to eat it, because afterwards you were thirsty, and no one gave you water.

When you left Târgu Mureș, did you know that you were going towards Jilava?

No. I had no idea where they were taking me. So, I don't know how many days I did then because the wagon was attached to various trains and where it stopped, it gathered other prisoners from the country. In any case, we arrived at Jilava on Christmas Eve. I remember it was dark.

On the left side of the entrance, there were the officers' offices, where they made us records, they searched us, they dressed us...and then they took you to the station. I had come alone then, but I could be hearing some chains behind me. There were other prisoners, chained at the feet. They thought of putting chains on me too, because I had a big conviction, but they said I was still a child, and they did not put them on me.

After I did all the formalities at Jilava, they took me to the women's section, but I did not know

where I was going, I could only see some lights on the ground. The guards took me by the arm and put me in a solitary confinement, in the solitary confinement of the women's section, where they kept me for about a week, and I did not know where I was. No one asked me my name or what I have done for being there.

The solitary confinement was small, I had a bed half a meter long, and behind the bed I had a bucket for necessities. I was putting that one out, they were bringing to me a metal bowl of clear soup, and I got so depressed that I cried for my whole family. Wherever I was looking around the cell, I saw my mother's face.

What happened to your mother after you were arrested?

They threw her out of the house. They had not given her a job for three years, until she divorced of my father. She did housekeeping for various families to support herself.

I was most obsessed with the thought that I did not know where I was. A few days later, I was taken out of the detention center and put in a cell with several other women inmates, only then I found out that I was in Jilava. I stayed in Jilava for four or five months, but after a while I was also transferred from there, because Jilava was considered a kind of transit prison.

In Jilava anyway, the regime was cruel: it was very severe, very bad food, cold, damp, and I inevitably I got a flu, because I stayed from autumn to winter. I was scared when I saw the other older inmates, dressed in rags, uncut, you cannot even describe...they had faded faces, because they were not let outside.

What other political prisoners did you meet in prisons?

I do not remember much from Jilava, but I remember Mrs. Mititelu[7], Mrs. Dabija[8], a few women from the Arnăuțoiu group...but I couldn't distinguish them, I only know the figure of old Arnăuțoiu[9], their mother, but there were other peasants. I did not know which was one, which was other, because I had just arrived among them, and in prison I did not even think about it.

There was a girl who was so sick, I think she died, because two women were carrying her on their shoulders, because she could no longer stand on her feet. She also had meningitis, and probably some of the inmates were doctors, because they gave her an injection; they did not bother the penitentiary doctor, instead they used any doctors among the inmates. It was still a whole mess when a doctor came because they sounded the alarm, we had to jump out of bed, lie down with our heads on the ground and our hands behind our backs, so that we could not see the doctor and he could not see us. That would happen when the doctor came, but after that, the alarm would stop, and we could go back to bed.

The food was filthy, we were always searched, and when we were searched, they took us out into the hall, and there we waited for them to come and search us. They ordered us to do various movements, so that we would not have something hidden in our private parts...that is, worse than hunger and more than everything was humiliation.

How were the other inmates looking at you, taking into account the fact that you were the youngest there?

They were looking at me in disbelief. In the last days when I stayed at Jilava, they took me out of my cell and put me along the legionary women. You can imagine how scared they were of me, that they had been locked up together for about 10-14 years, only with each other, that they were very isolated, we were not allowed to communicate with them, and they were not allowed to communicate with us. They would have thought: «*Who is this child, brought to us in the cell? Did she come to tell on us ?*». They were also scared of me, and me of them, because they did not know who I was.

In Botoșani, later, I met other legionnaires, brought in transit. There was also Aspazia Oțel[10]

[7] Elena Mititelu (b. 1901), arrested in 1952 and sentenced to 25 years in prison for the crime of high treason. She went at Jilava, Mislea, Miercurea Ciuc and Oradea prisons, before being released by pardon decree no. 176/1964. The information was taken from CRS Mititelu: P1950518, P1950519.

[8] Minerva Dabija (b. 1892), arrested in 1959 and sentenced to 9 years in prison for conspiracy. She went at Văcărești and Jilava prisons, before being released by pardon decree no. 406/1960. The information was taken from CRS Dabija: P1280843, P1280844

[9] Laurenția Arnăuțoiu (b. 1894), arrested for the first time in 1949 and sentenced to 6 years in prison for conspiring against the social order. The second arrest took place in 1958, being sentenced to 10 years in prison for acts of terror. She went at Pitesti, Jilava and Miercurea Ciuc prisons. She died in 1962, during the detention at Miercurea Ciuc. Information extracted from CRS Arnăuțoiu: P1250899, P1250900, P1250901, P1250902, P1250903, P1250904, P1280844.

[10] Aspazia Oțel (b. 1923), arrested in 1948 and sentenced to 10 years of hard prison for conspiracy. She went at Miercurea Ciuc, Jilava, Botoșani, Mislea and Arad prisons. Released in 1962. The information was taken from CRS

and Marin's wife[11], who spent a long time in prison. At that time, I didn't know who I was imprisoned with, along the way I understood some things.

Did it happen to make friends in prison?

Yes, one of the colleagues from Oradea[12], even became my godmother after I was released. I was lucky enough to meet a lot of quality women.

That's what Jilava was... I am not telling you more! When they were taking us to bathroom, they were making a lot of fun of us...while I was locked up, I also suffered from cold and hunger, but the humiliation was the most terrible. You looked at those women who were famous, generally educated, they were the wives of prominent people, and how can they taunt them like that? But the female guards had a satisfaction! They always called us «*bandits*»; and when they took us to the bathroom, they made fun of us when they were throwing alternatively boiled and cold water on us. They left us soapy and only said: «*move, move, move fast*». The bathroom was somewhere in an adjacent building, and we were running unwipped back to the room.

Do I have to understand that at Jilava you were guarded only by female guards?

Female guards in general, even if there happened to be a male guard as well. And at Jilava, they followed you both through the peephole on the door, but also through the little window, and at night they opened the shutters, because there were shutters at that time. Now if you go you can also see toilets installed, but in our time, there weren't any, there was only that miserable place (*tinetă*), and you can realize what smells we were sitting in, there are unpleasant things in stories, but that was the reality...at night those shutters were opened, like the guards to see us from the yard as well. During the day they closed them so that we could not see in the yard. They would not even let you sleep with your hands under the blanket. I mean, everything was designed to destroy you.

Did you have the right to go out for a walk in the prison yard?

Normally they should have taken us out for 15-20 minutes in the prison yard, but they did not always take us out. There were also whole periods when they did not take us out. Everything was left to their free will.

And the longest you have been locked up without being taken out for a walk?

I do not know how much more to say, but it was also months. In any case, germs appeared quickly because of the bad food and the mess. When dysentery appeared there, and do you realize what it was like then? The women were sitting on the edge of the bucket, maybe three or four at the same time.

Was illness common in prison?

Tuberculosis, in various forms, was common among young people, in particular. Flus were frequent, ulcers, stomachaches...

Have you ever got sick there?

I did. The gastritis that I still have to this day is based on the perioad from Jilava, because it was that uncooked cornmeal mush. I did not eat cornmeal mush for years after I was released, because I could not anymore, my stomach hurt.

I also had a flu...in 1964, before the liberation, I remember that I had a very bad flu. In Oradea, I had a very big tension. Then it was felt that liberations would follow, I mean it was felt what was happening outside. The doctor was afraid that I would die there because he called me quite frequently to take my blood pressure. I was receiving minimal medical care, one pill from time to time, which did more harm than good because my body had got used to the tension, and that would suddenly drop my tension and make it worse.

Was there a doctor from the penitentiary or were there doctors brought in from outside it?

Well, they were from outside. No, not ours. In Arad, I remember that there was a doctor Avram, and in Oradea there was one named Crețu, he dealt more with female diseases, I think he was a gynecologist. If any prisoner was very sick, he was anyway taken to Văcărești, a kind of prison-hospital.

Did you leave Jilava for Oradea?

No, after that, they took me to Botoșani. I never understood why in Botoșani. Usually, the women

Oțel: P1220605, P1220606.

[11] Ana Maria Marin (b. 1910), arrested in 1958 and sentenced to 3 years in prison, a sentence that was doubled in 1961. Until 1964, she went at Văcărești, Mislea, Jilava, Botoșani, Arad, Bacău, Roman and Oradea prisons. The information was taken from CRS Marin: P1900680, P1900681.

[12] Maria Mureșan (b. 1920), arrested in 1956 and sentenced to 8 years in prison for plotting against the social order. Member of the Faliboga group. She went to Codlea, Miercurea Ciuc and Arad prisons. Released by pardon decree no. 5/1963. The information was taken from CRS Mureșan: P1170130, P1170131.

were sent to the Miercurea Ciuc prison. In Botoșani, they locked me in a cell, in a small section for women. To the right of the cell was locked a boy, whose name was Viorel. We made contact through morse code.

How did you learn this communication system?

I don't remember how I learned it, but little by little. I learned Morse code from the older prisoners because I would not have known it otherwise. I had no other way to know it, but I learned it quickly and could speak it. Of course, also carefully, because if they caught you talking, they would put you in solitary confinement. At Botoșani, I had a more decent guard, I think she took pity on me, and she told me that being a minor, I have the right to the speaker and package.

Were you able to meet your mother at the speaker?

Yes, in Botoșani.

Being a minor, did you have any benefit compared to the other convicts?

The right to the speaker and to the package, that's it. Otherwise, it was the same work, the same torments, the same fear. One day they gave me a postcard and I wrote home asking for 5 kg of food and some clothes to be brought.

Finally, my mother came...I don't remember how I talked to her there, it was semi-dark, even though the room was quite big. Between us was a half wall with barbed wire on top and I could not even see it well. As excited as we both were, we could not tell each other much.

How long did this meeting last?

Very little...5-8 minutes, maybe not that much. We saw each other only once, and after that the same, they told me to do my bag. However, I stayed for about seven months in Botoșani, alone in a cell, and it was not at all easy to stay alone. Normally, it was not even allowed to leave a teenager alone. I could have gone crazy.

Someone asked me if I was thinking about memories, where to have too many memories from? That they arrested me when I was fifteen and a half years old, I did not really have memories, like others, who will repeat events from the past, poems or novels... I only had my soul. So, it was not the same situation.

My salvation was that I was escaping from there, I was dreaming...when they took me to report or when they brought me food, it was as if I felt disturbed, that they were taking me out of my dreams. And that is how Botoșani passed.

The boy next door, whom I mentioned earlier (being a TB patient, I always mention him in prayer, because I don't know if he lived or not), he had the right to more bread, and it was like they gave him a cup of milk sometimes, and from that bread of his, sometimes, when he could, he would leave me a piece of bread, hidden somewhere up, where the toilet was, by the water basin, and I would secretly take it.

From Botoșani, one day, they put me in a car, and I went a long way then, I did not know where they were taking me. They sent me back to Jilava, but not to the penitentiary, I think they kept me in triage, but in my transcript, it says that I was in Jilava. I think they kept me there for a day or two.

It was not easy to keep moving from one place to another. Only once I caught in a bigger cell, in the rest all small cells, two or three people. Then, I woke up in Arad, where, just like that, I woke up alone in the cell. I was next to the cell, on one side, with the women brought from Botoșani, and on the other side, with a girl from Vatra Dornei. I was talking to them through the wall, that was the only consolation, that we were still exchanging words through morse code.

That is where I came of age, that is where I turned eighteen, and in that autumn, they brought me a sentence, that my condemnation was reduced. My mother and a few others fought as hard as they could and appealed, so they reduced the sentences to everyone from twenty to twelve years. My father had his sentence reduced from twenty years to five, even though he was not guilty at all. I said that twenty and twelve are the same to me because I'm still stiff in prison. I am finally getting used to that idea too. After I turned eighteen, I was put in a cell with other women and put to work in the workshop.[13] I felt so strange, I did not know anyone, I did not even know how to work there, but it was a prison after all, not a pension.

At one point, I was locked up in a cell with sixty other inmates. There, I became attached to him and they became dear to me, I can even say that then I felt good in prison.

I am also asked why I didn't learn a foreign language, because many learned in prison, but the truth is that those who stayed without working were able to learn. I tried to learn, but the older

[13] The introduction of lucrative opportunities in the prison space represented a measure of Soviet inspiration; although far from being without results, the contributions of the penitentiary system to the economy of the country were never significant (Vasilescu 2023, p. 93).

inmates, who knew foreign languages, came late from the workshop, and then had no patience to teach others.

In Arad I also met the lady who later married me, she was also from the Mureș area, we also had mutual acquaintances.

Have you ever been treated violently in prison?

No, but others were beaten, the ones who were caught talking to the wall or who answered the guards more cheekily.

What is the most painful memory from prison?

The cold from Jilava and the meeting with my father.

Finally, one evening they told to all the inmates in the cell to pack the bags, that we were leaving again. In a way, we were happy to stay there, because at least we were working. We were forced to get into some trucks. Some platforms were raised on the trucks, and at each corner, we see a soldier with a gun pointed at us. We did not even understand what was happening, we were scared. Actually, that Cuban missile thing had happened. They took us from Arad to Oradea, again to the cellular regime, that is without working; the prison in Oradea was also very terrible because of the cold and the great severity. It was also cold, it was a very hard winter.

In the spring, when things calmed down outside, we realized...when there was something very serious outside, the guards were tough, the food was even worse, everything was much worse. So, I knew something had happened, I did not know what, but something had happened.

When things calmed down in Cuba, after the Russians came to an understanding with the Americans, they took us to larger cells and gave us the right to go to work, to the workshops, where we started again working on knitting sticks.

At the beginning of 1963, a series of movements had started outside, which we did not understand...they were disappearing from us and we thought that maybe they had taken them to another prison, for investigations. At the same time, they brought from Miercurea Ciuc the women with very heavy sentences, those accused of espionage, Ventzel[14] and Lya Popescu[15], from the National Bank, those accused in connection with the theft, where it was also Monica Sevianu[16], Coposu's wife[17] and Ana Macarie[18], from Father Todea's lot. There were others, but I cannot remember exactly now. Some of them stayed with me, but others I met only at the workshop.

As I said, they kept leaving the inmates...the cells were merged, some left, others were brought into the cell. In the meantime, we were allowed to set up a club, we were also given books with a communist theme, to re-educate ourselves. We had an educator at the club who took care of us, brought from among their own. They also brought us the film caravan I saw about two or three. We were told about the achievements outside, and to the men also happened to let them walk around town.

Has anyone been convinced by these attempts of the regime to attract you to its side?

No, but there were also some inmates who were still chirping, writing an article, sticking it to the wall...they had started a kind of re-education.

At some point we found out why the prisoners were disappearing, this was sometime in 1964, in the spring. We found out that there were actually some releases being made, so we started waiting for our turn. You realize what emotions I had! In June 1964, I also heard myself called on a list, that's how it was announced, and I remember that also the educator and the doctor were next to me then. If my blood pressure was that high, they were afraid I would die. When I heard, I was in tears. The teacher looked at me and said: «*Keep calm, because your father is also leaving*». He knew my trouble.

[14] Paula Ventzel (b. 1914), arrested in 1951 and sentenced to 25 years in prison for high treason. She passed through Jilava, Mislea, Miercurea Ciuc and Oradea prisons. Released by pardon decree no. 176/1964. The information was taken from CRS Ventzel: P2310738, P2310739.

[15] Lya Popescu (b. 1911), arrested in 1951 and sentenced to 25 years in prison for fraudulently crossing the border. She went to Jilava, Mislea, Văcărești, Miercurea Ciuc and Oradea prisons. Released by pardon decree no. 176/1964. Information extracted from CRS Popescu: P2100442, P2100443 P2310739.

[16] Monica Sevianu (b. 1923), arrested in 1959 and sentenced to 25 years in prison for conspiracy. She went to Miercurea Ciuc, Văcărești, Jilava and Oradea prisons. Released by pardon decree no. 411/1964. The information was taken from CRS Sevianu: P1260923, P1260924.

[17] Arlette Coposu (b. 1915), arrested in 1950 and sentenced to 20 years in prison for passing information to the French Legation. She went to Mislea, Jilava, Miercurea Ciuc and Oradea prisons. Released by pardon decree no. 176/1964. The information was taken from CRS Coposu: P1460017, P1460018.

[18] Ana Macarie (b. 1923), arrested in 1951 and sentenced to 25 years in prison for high treason. She went to Jilava, Mislea, Miercurea Ciuc, Văcărești and Oradea prisons. Released by pardon decree no. 176/1964. The information was taken from CRS Macarie: P1870550, P1870551.

That is how I was released. I went home, I looked for my mother, because I did not know where she was, because she did not live where I used to live. My mother was not even home. A neighbor of hers found me. Then came my mother, who was working at a factory at the time. The meeting was not easy, we looked at each other as if we did not even know each other anymore. How can I say...I had also grown up, my mother was also different.

Did your mother expect you to be released?

No, even though we had asked someone from our town, who had been released, to announce, but he did not go, because he was afraid. After about two weeks, my father was also released.

Then another torment began. I realized that everyone was avoiding me... there were a lot of hard days. We went to the Securitate me and my father, to sign that paper that all released prisoners signed, by which we promised not to say anything about what happened to us.

I was given a job, after about two months, at a bakery, where I peeled potatoes. It was very difficult, because I had none left. My mother had recovered some of her furniture, because when they had taken her out of the house, they took everything. I also went to the school to ask what I can do.

Anyway, after we were arrested, a lot happened in the school too, but we only found out later. Our process took place before school started. Then they did a meeting in the school yard, announced our sentences, expelled us, the director was fired...and the geography teacher became the director. I was disoriented and wanted to start school again and get on with my life. The young people, especially, were very scared of the ex-prisoners, they were afraid of us. I do not blame them, that is it.

The headmistress told me that I can only apply to the Ministry of Education, and they would approve my continuation of high school. I made a request. Anyway, I could not hope for a faculty, but at least I would have finished high school, because I had no money at all. I remember that a relative of my father came to bring me some cloth, with which I made two skirts, so that I would have something to change into. Nothing would fit on me anymore, from what I had in the closet, kept by my mother.

I started working at a bakery. People started being nice to me, when I came to work, I brought bread from home to eat, but they told me not to bring anymore, that we have enough bread there. In the end, the director of the Bakery assigned me to the department of the product warehouse. On the orders of the Securitate, we had to be given a job, even temporarily...we changed several jobs, because wherever we went, positions were being restructured.

What did your father do after he was released?

He tried to get hired because we had nothing. He was employed as a worker in a factory. In the Securitate file, I found notes given by his colleagues, but they all spoke well of him. I kept changing jobs. I was still able to enroll in the 10th grade at Reghin, and the following year, I got married and left the city.

I moved to Gura Humorului with my husband. Through him, I found a position as a cashier at a high school in Humor. I got pregnant, but then I realized that if I give birth there, no one will help me. I returned home to my mother. My husband, being a painter, very easily found a job as a commercial decorator. After I gave birth, I also worked in other places. My husband also returned to Reghin and in the meantime, I had managed to finish high school.

The director of the high school recommended me to give some differences for the qualification, because there were always job restructurings. I gave some differences at the economic high school in Târgu-Mureș, but it was difficult having a small child.

After that, I chose to divorce my husband. I stayed alone and raised the child with fear for the future, and when my daughter thought about going to school, I did not know how to guide her to something that would not ask for her file, because she had three files in her bag: mine, her father's and grandfather's. At one point, my daughter wanted to do Law and I said to her: «*How can you go to Law?*». I managed to guide her towards Medicine in the end. At Medicine, they did not ask for file, but anyway, I raised her with fear, with great emotions.

I did not tell my daughter about my situation when she was little, but one time a sister of my mother came to visit and I do not know how, she said about me that I went to prison. Only wails followed after that. My girl thought that I killed someone or that I stole because I was in prison, she did not know what a political prisoner meant, that she was around the 3rd grade. Many days passed before I calmed her down, and from then on, she never wanted to see that aunt again. So,

there were all kinds of hardships that tormented your nerves and soul, but who could understand them?

After your release, did you tell anyone about the years of detention?

Not really. Well, with my godmother, of course we were still talking because we were locked up together. Otherwise, I did not talk at home either. My father and I understood each other by looking at each other, we did not have to say anything to each other.

Did you gain any constructive experience as a result of the detention? Do you think those years matured you or destroyed your adolescence?

They destroyed my adolescence, but to mature, I think the meeting with my father in prison matured me the most. If you saw my arrest photo and compared it to the one from when I was released, you would realize that I was no longer the same person.

I would then think about the concerns and thoughts of women of my age, and it seemed to me that I was so far and strange to those things. I could not find my place anywhere and it was said about me, I saw that from the statements given to the Securitate that I was quiet.

After your release, did you try to reconnect with your former schoolmates?

I had no way. A former female colleague did not even want to see us anymore. Even today, if she meets me on the street, she is turning her head. I did not judge her, I tried to understand her. I had about three colleagues who came with flowers, but late. Others not at all, it took years for them to realize I do not bite anyone. I have not even seen that colleague with whom I was arrested on the night of the ball. They took me to Jilava and her to Miercurea Ciuc, I do not know why.

Did you know that you were being watched by the Securitate?

When I moved to Ploiești, I hoped not. I thought they had lost track of me, but when I read my file, I saw that every move I made from one city to another was being watched.

But how did you realize that you were being watched?

I only realized it after the Revolution.

How did you experience the revolution?

I was not in Bucharest, and I envied those who stayed with tents in University Square. I had hopes, but I realized the reality when Doina Cornea said that she did not trust Ion Iliescu[19]. It was clear to me that the whole thing was arranged, especially when Iliescu spoke about the ideals of the party, which should not be violated. In other words, I enjoyed the Revolution for nothing, because I did not realize that it was all a game.

Has your situation changed in any way after the Revolution?

Yes, a proof is that now I can talk about what I experienced. Times change from day to day anyway. How much does it cost them to let us go? The mood is still unbearable, you don't trust anyone anymore and there are all kinds of grievances.

Have you ever thought of emigrating from Romania?

No, but I'm sorry that when I was released I didn't do that. I had no one to help me, no one to guide me. I was a prisoner, my father was a prisoner, how would I have succeeded? It was also very difficult to emigrate... I know cases, I listened to them on Radio Free Europe.

But after the Revolution, what kept you here?

My child. My daughter was already a student at the time, and I had to help her to graduate. And with my current mind, I do not think I would have left so easily. It is not easy to be foreigners all the time, and I do not think the people who left the country are very happy either. They have been gone for so long and maybe they have managed to make a house there, but their roots are still home, they still pull here.

You said earlier that you saw your file from the Securitate. What emotions did it generate for you?

I laughed, I cried, because I realized how the Securitate, even if they called you dozens of times for investigation, wrote the same things, only what they wanted about you.

Did you ask for name disclosure?

Yes, but they did not disclose them to me in all cases. I trusted certain people and I saw my trust betrayed.

Paraphrasing Claudia Florentina Dobre (Dobre 2019), *I am curious if you consider yourself a*

[19] Niculina Moica recalls the open letter that Doina Cornea, known anti-communist dissident, addressed to Ion Iliescu in July 1990, as a manifesto against the street violence unleashed during the *University Square* Phenomenon (22 April-15 June 1990).

heroine or a victim of the communist regime in Romania?

We were all victims. No... I do not want to say I am a heroine. There were others who were in prison for 15-20 years or who died because of it. I would also be ashamed to consider myself a heroine. On the other hand, who knows why God spared me or what kind of person I would be today if I had not gone through the prison experience. I had the opportunity to meet people I would not have met otherwise. I do not consider myself a victim, I do not want to give them satisfaction.

Do you have any regrets about your past?

The fact that my family suffered, which still hurts me a lot.

I don't think there were any complaints from the family though...

No, my father did not say a word, but I suspected mom was displeased. Indeed, she was tortured, because she had a little girl who died, years later she gave birth to another little girl, that is me, and the second one ended up in prison. It was not easy for her either, because otherwise, she was a very good mother and a very hardworking woman. She helped me as much as she could, but that is how I felt. Maybe now I'm wrong and committing sins.

It was too much trouble for my family. As small as my family was, so great was our trouble. I felt everything, that this was my nature.

What advice would you give to today's youth?

First, I would advise them to study so that they can build a future for themselves. To be dignified and to know the history of their country, to know what everyone in this country has suffered, so that the past does not repeat itself.

REFERENCES / BIBLIOGRAFIE

CRS Arnăuțoiu — Criminal record sheets Arnăuțoiu Laurenția: P1250899, P1250900, P1250901, P1250902, P1250903, P1250904, P1280844 (https://www.iiccmer.ro/resurse/fisele-matricole-penale/, last accessed: 7th March 2023).

CRS Cooș — Criminal record sheets Cooș Irina: P1250607, P1250608 (https://www.iiccmer.ro/resurse/fisele-matricole-penale/, last time accessed: 7th March 2023).

CRS Coposu — Criminal record sheets Coposu Arlette: P1460017, P1460018 (https://www.iiccmer.ro/resurse/fisele-matricole-penale/, last time accessed: 7th March 2023).

CRS Dabija — Criminal record sheets Dabija Minerva: P1280843, P1280844 (https://www.iiccmer.ro/resurse/fisele-matricole-penale/, last time accessed: 7th March 2023).

CRS Faliboga — Criminal record sheets Faliboga Ioan: P1580235, P1580236 (https://www.iiccmer.ro/resurse/fisele-matricole-penale/, last time accessed: 7th March 2023).

CRS Macarie — Criminal record sheets Macarie Ana: P1870550, P1870551 (https://www.iiccmer.ro/resurse/fisele-matricole-penale/, last time accessed: 7th March 2023).

CRS Marin — Criminal record sheets Marin Ana Maria: P1900680, P1900681 (https://www.iiccmer.ro/resurse/fisele-matricole-penale/, last time accessed: 7th March 2023).

CRS Mititelu — Criminal record sheets Mititelu Elena: P1950518, P1950519 (https://www.iiccmer.ro/resurse/fisele-matricole-penale/, last time accessed: 7th March 2023).

CRS MoicaN — Criminal record sheets Moica Niculina: P1960590, P1960591 (https://www.iiccmer.ro/resurse/fisele-matricole-penale/, last time accessed: 7th March 2023).

CRS MoicaP — Criminal record sheets Moica Petru: P1960592, P19605923 (https://www.iiccmer.ro/resurse/fisele-matricole-penale/, last time accessed: 7th March 2023).

CRS Mureșan — Criminal record sheets Mureșan Maria: P1170130, P1170131 (https://www.iiccmer.ro/resurse/fisele-matricole-penale/, last time accessed: 7th March 2023).

CRS Munthiu — Criminal record sheets Munthiu Nicolae: P1990147, P1990148 (https://www.iiccmer.ro/resurse/fisele-matricole-penale/, last time accessed: 7th March 2023).

CRS Oțel — Criminal record sheets Oțel Aspasia: P1220605, P1220606 (https://www.iiccmer.ro/resurse/fisele-matricole-penale/, last time accessed: 7th March 2023).

CRS Popescu — Criminal record sheets Popescu Lya: P2100442, P2100443, P2310739 (https://www.iiccmer.ro/resurse/fisele-matricole-penale/, last time accessed: 7th March 2023).

CRS Sevianu — Criminal record sheets Sevianu Monica: P1260923, P1260924 (https://www.iiccmer.ro/resurse/fisele-matricole-penale/, last time accessed: 7th March 2023).

CRS Ventzel — Criminal record sheets Ventzel Paula: P2310738, P2310739 (https://www.iiccmer.ro/resurse/fisele-matricole-penale/, last time accessed: 7th March 2023).

Dobre 2019 — DOBRE, Claudia Florentina, *Ni victim, ni heroine. Les anciennes détenues politiques et les mémoires du communisme en Roumanie*, Editura Electra, București, 2019.

Granville 2008 — GRANVILLE, J., *«We have wines of all kinds: red, white and green»: romanian reactions to the Hungarian Uprising in 1956*, in *Australian Journal of Politics & History*, Vol. 54, Nr. 2, 2008, p. 185-210.

Vasilescu 2023 — VASILESCU, Constantin (coord.), MAREȘ, Clara, SOARE, S. Florin, MUREȘAN, Alin, PETRE, Constantin, *Morfologia (ne)vinovăției. Alfabetul detenției feminine în comunism*, Editura Litera, București, 2023.

LIST OF ABREVIATIONS

AA	*Acta Adriatica.*
ActaAH	*Acta Archaeologica Academiae Scientiarum Hungaricae,* Budapest.
ActaMN	*Acta Musei Napocensis,* Muzeul Național de Istorie a Transilvaniei, Cluj-Napoca.
ActaMP	*Acta Musei Porolissensis*, Zalău.
ActaSic	*ActaSiculica,* Sfântu-Gheorghe
ActaTS	*Acta Terrae Septemcastrensis,* Universitatea „Lucian Blaga" din Sibiu.
AIIAC	*Anuarul Institutului de Istorie și Arheologie Cluj*
AM	*Arheologia Medievală*
Angustia	*Angustia,* Muzeul Carpaților Răsăriteni, Sfântu Gheorghe.
AnB(SN)	*Analele Banatului*, Serie nouă, Timişoara.
Annales UA	*Annales Universitatis Apulensis.*
Apulum	*Apulum. Acta Musei Apulensis,* Muzeul Național al Unirii, Alba Iulia.
Archaeo-Mal	*The Archaeo-Malacology Grup Newsletter,* Wallingford, U.K.
Archeologické Rozhledy	*Archeologicke Rozhledy,* Praga.
ArchErt	*Archaeologiai Értesitö*, Budapest.
Arheologia	*Arheologia,* Sofia.
AȘU	*Analele Științifice ale Universității „Al. I. Cuza"*, Iași.
ATS	*Acta Terrae Septemcastrensis*, Sibiu.
AUVT	*Annales d'Université Valahia*, Târgoviște.
AVSL	*Archiv des Verains für Siebenbürburgische Landeskunde, Neue Folge, Hermannstadt/Sibiu*
BAM	*Brvkenthal Acta Mvsei,* Muzeul Național Brukenthal, Sibiu.
Banatica	*Banatica*, Muzeul Banatului Montan, Reșița
BAR	*Brittish Archaeological Reports. International Series*, Oxford.
BEN	*Bibliotheca Ephemeris Napocensis, Institutul de Arheologie și Istoria Artei, Academia Română*, Cluj-Napoca
BB	*Bibliotheca Brukenthal*, Muzeul Național Brukenthal, Sibiu.
BCMI	*Buletinul Comisiei Monumentelor Istorice, București*
BCSS	*Buletinul Cercurilor Ştiinţifice Studenţeşti. Arheologie – Istorie – Muzeologie,* Alba Iulia.
BHAB	*Bibliotheca Historica et Archaeologica Banatica,* Muzeul Național al Banatului, Timișoara
BMA	*Bibliotheca Musei Apulensis,* Muzeul Național al Unirii, Alba Iulia.
BMN	*Bibliotheca Musei Napocensis*, Muzeul Național de Istorie a Transilvaniei, Cluj-Napoca
BMN.CP	*Biblioteca Muzeului Național. Seria Cercetări Pluridisciplinare, Muzeul Național de Istorie a României*, București
BS	*Biblioteca Septemcastrensis*, Universitatea „Lucian Blaga" din Sibiu
BSNR	*Buletinul Societății Numismatice Române*
CCA	*Cronica Cercetărilor Arheologice*, București.
CCDJ	*Cultură și Civilizație la Dunărea de Jos*, Muzeul Dunării de Jos, Călărași
Cercetări Istorice	*Cercetări Istorice* (Serie Nouă), Iaşi.
CetDacTrans	*Cetăți dacice din Sudul Transilvaniei*, Bucureşti.
CN	*Cercetări Numismatice*
ComArchHung	*Communicationes Archaeologicae Hungaricae.*
Corviniana	*Corviniana. Acta Musei Corvinensis,* Hunedoara.
Crisia	*Crisia*, Tara Crisurilor Museum, Oradea.
Dacia	*Dacia. Revue d'archéologie et d'histoire ancienne,* Nouvelle Série, Bucharest.

DocPrae	*Documenta Praeistorica*, Ljubljana.
EJA	*European Journal of Archeology*, Oxford.
FolArch	*Folia Archaeologica*, Budapest.
ForVL	*Forschungen zur Volks- und Landeskunde*, Institutul de Cercetări Socio-Umane, Sibiu
Gumowski	Marian Gumowski, *Handbuch der polnischen Numismatik*, Graz, 1960.
HERA	*Human and Ecological Risk Assessment.*
Huszár	Lajos Huszár, *Münzkatalog Ungarn: von 1000 bis heute*, München, 1979.
Izvestia	*Izvestija na Narodnija Muzej Varna.*
JAS	*Journal of Archeological Sciences*, Amsterdam.
JSR	*Journal of Sedimentary Research*, Tulsa, U.S.A.
MCA	*Materiale şi cercetări arheologice*, Bucureşti.
MBR	G. Buzdugan, O. Luchian, C. C. Oprescu, *Monede şi bancnote româneşti*, Bucureşti, 1977.
MemAntiq	*Memoria Antiquitatis. Acta Musei Petrodavensis*, Piatra Neamţ.
MNJ	*Macedonian Numismatic Journal*
MonArch	*MonumentaArchaeologica*, Los Angeles, U.S.A.
PA	*Preistoria Alpina*, Trento.
PaläontZ	PaläontologischeZeitschrift, Berlin.
PB	Patrimonium Banaticum, Direcția pentru cultură a județului Timiș, Timișoara
PBF	*Prähistorische Bronzefunde*, München.
PMJH	*Publicațiile Muzeului Județean Hunedoara-Deva*, Deva
Pontica	*Pontica*, Constanța.
PZ	*Praehistorische Zeitschrift*, Berlin.
RA	*Revista de Arheologie*, București.
RB	*Revista Bistriței*, Bistrița.
Rengjeo	Ivan Rengjeo, *Corpus der mittelalterichen Münzen von Kroatien, Slavonien, Dalmatien und Bosnien*, Graz, 1959.
RIC	Harold Mattingly, Edward A. Sydenham, *The Roman Imperial Coinage*, III, London, 1930.
RMMMIA	*Revista muzeelor şi monumentelor. Monumente istorice şi de artă*, Bucureşti.
SAA	*Studia Antiqua et Archaeologica, Universitatea „Al.I. Cuza", Iași*
Sargetia	*Sargetia. Acta Musei Devensis, Muzeul Civilizației Dacice și Romane, Deva*
SCIV(A)	*Studii şi Cercetări de Istorie Veche (şi Arheologie)*, Bucureşti.
SCN	*Studii și Cercetări de Numismatică*
ScriptaGeo	*Scripta Geologica*, Leiden.
SIBan	*Studii de istorie a Banatului*, Timișoara.
SIC.SH	*Studia Universitatis Cibiniensis. Series Historia*, Universitatea „Lucian Blaga" din Sibiu.
SlovArch	*Slovenská Archeológia*, Nitra.
StComB	*Muzeul Brukenthal. Studii și comunicări (arheologie-istorie)*, Sibiu.
StudPre	*Studii de Preistorie, Bucureşti*
SUBB	*Studia Universitatis Babes-Bolyai*, Universitatea „Babeș-Bolyai", Cluj-Napoca
Symposia	Thracologica Symposia Thracologica, Bucureşti.
TCIC	*Techniques & Culture, Itinéraires de coquillages.*
Thraco-Dacica	*Thraco-Dacica. Institutul Roman de Tracologie*, Bucureşti.
TJS	*Turkish Journal of Zoology.*
Wcoins a / b	C. R. Bruce II (ed.), *Standard Catalog of World Coins. Seventeenth Century. 1601 - 1700*, 4th ed., Iola, 2008. / *Eighteenth Century. 1701 – 1800*, 3rd ed., Iola, 2002.
Zargidava	*Zargidava*. Revistă de istorie, Bacău.
Ziridava	*Ziridava. Studia Archaeologica*, Muzeul Arad.

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PUBLICAŢIILE PERIODICE APĂRUTE DE-A LUNGUL TIMPULUI (INCLUSIV PRECURSORII)

CRONOLOGIE	ISTORIE, ARHEOLOGIE	ARTA PLASTICĂ	ŞTIINŢELE NATURII	RESTAURARE	ETNOGRAFIE
Ante 1950		Mitteilungen aus dem Baron von Brukentalischen Museum 1931- 1937 - Neue Folge I- VII 1941 - Neue Folge I- VIII 1944 - Neue Folge IX-X 1946- 1947 - Neue Folge XI-XII	Verhandlungen und Mitteilungen der siebenbürgischen Vereins für Naturwiessenschaften zu Hermannstadt 1849-1945 95 de numere		
1959-1989	Studii şi comunicări Muzeul Brukenthal, Sibiu 1956, nr. 1 1965, nr. 12 1967, nr. 13 Volum omagial, Anuarul Muzeului Brukenthal, 1817-1967 1969, nr. 14 1973, nr. 18 1975, nr. 19 1977, nr. 20 1981, nr. 21	Studii şi comunicări Muzeul Brukenthal, Sibiu 1956, nr. 4, 5 1956, nr. 7 Istoria culturii 1978, nr. 1 1979, nr. 2	Studii şi comunicări Muzeul Brukenthal, Sibiu 1958, nr. 10, 11 1970, nr. 15 1971, nr. 16 1972, nr. 17 1973, nr. 18 1975, nr. 19 1976, nr. 20 1977, nr. 21 1978, nr. 22 1979, nr. 23 1980, nr. 24 + Supliment 1983, nr. 25 + Supliment 1984, nr. 26 1998, nr. 27 2003, nr. 28 2004, nr 29 + Supliment		Studii şi comunicări Muzeul Brukenthal, Sibiu 1956, nr. 2, 3, 6 1958, nr. 8, 9 Cibinium, Studii şi materiale privind Muzeul tehnicii populare din Dumbrava Sibiului, Sibiu 1966, vol I 1967/68, vol II 1969/73, vol III 1974/78, vol IV 1979/83, vol V
După 1989	2006, I, 1 2007, II, 1 2008, III, 1 2009, IV, 1 2010, V, 1 2011, VI, 1 2012, VII, 1 2013, VIII, 1 2014, IX, 1 2015, X, 1 2016, XI, 1 2017, XII, 1 2018, XIII, 1 2019, XIV, 1 2020, XV, 1 2021, XVI, 1 2022, XVII, 1	2006, I, 2 2007, II, 2 2008, III, 2 2009, IV, 2 2010, V, 2 2011, VI, 2 2012, VII, 2 2013, VIII, 2 2014, IX, 2 2015, X, 2 2016, XI, 2 2017, XII, 2 2018, XIII, 2 2019, XIV, 2 2020, XV, 2 2021, XVI, 2 2022, XVII, 2	2006, I,3 2007, II, 3 2008, III, 3 2009, IV, 3 2010, V, 3 2011, VI, 3 2012, VII, 3 2013, VIII, 3 2014, IX, 3 2015, X, 3 2016, XI, 3 2017, XII, 3 2018, XIII, 3 2019, XIV, 3 2020, XV, 3 2021, XVI, 3 2022, XVII, 3	2010, V, 4 2011, VI, 4 2012, VII, 4 2013, VIII, 4 2014, IX, 4 2015, X, 4 2016, XI, 4 2017, XII, 4 2018, XIII, 4 2019, XIV, 4 2020, XV, 4 2021, XVI, 4 2022, XVII, 4	

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