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This volume is dedicated to the memory of George Pascu Hurezan (1949–2016)

Underwater Survey of River Mureş between Semlac and Pecica

Attila J. Tóth, Florin Marginean, Zsolt Csók

Abstract: The aim of the project was to survey the Mureş River by means of a side-scan sonar to collect data on the position, extension and character of the underwater ruins of the monastery of *Ajtonymonostora*. The observation of the river environment was also performed in order plan further underwater surveys and the excavation of the river.

Keywords: underwater survey, environment, ruins, monastery, Mureș River.

The present article is a preliminary report of the sonar scanning of a sector of River Mureş, where the ruins of Ahtum's monastery were located more than two decades ago, on the spot called Hăblău on the territory of the municipality of Semlac (Arad County)¹. The approach is due to the novelty of the situation, consisting of the pioneer use of this method in Romania for the evaluation of such an edifice.

Geographic location and historical context. River Mureş (in Latin *Maris*, in Hungarian *Maros*, in German *Mieresch*) crosses Romania and Hungary from East to West, measures 769 km in length and flows into the Tisa². It was a significant route probably since Prehistory, certainly during the Early Middle Ages until the Modern Era, and important settlements were linked to it. The first mention of the river is to be found in the writings of Herodotus, who called it *Marisos*³. Due to the natural conditions in the plain, the Mureş has large meanders, the result of the low incline and the numerous affluents that flow into it, especilly from the North⁴. This is an abundant, natural river, which connects Transylvania to the Great Hungarian Plain, and so to the Danube River Basin⁵. The three channels that separate from the Mures, i.e. Matca, Ierul and Mureşul Mort, designed during the Modern Period, follow in fact old secondary branches of the Mures.

I. Ujvári divides Mureșului Valley into four sectors: the Upper Mureș, the Middle Mureș, the Corridor (Defile) of the Lower Mureșul and the Lower Mureș. The segment under discussion in the present paper belongs to the sector of the Lower Mureș, located in the Western Plain, between Lipova and the mouth of the river⁶.

The regulation of the river started in the early 19th century, but the river remains active and is still changing its course. In the research area the natural riverbank is high (2 m above the current water level) on the north bank and consists of loess. Between Semlac and Pecica we observed a higher loess plateau, where the actual settlements are situated, followed by a flat floodplain, with paleo-channels. In some places the higher plateau closes the river, and there the riverbank is ca. 20 m high. The general character of the Mureş reminds us of River Drava, where we carried out extensive underwater researches at Drávatamási⁷

Signaled by the locals ever since 1992, the ruins nowadays located East of Semlac proved to be

¹ Translated by: Attila J. Tóth, Ana Maria Gruia.

^{*} László Lengyel, Norbert Puskás and Sergiu Voina have also been involved in the research, and we wish to thank them for it. Date of the survey: 22. 05. 2019.

Heitel 2010, 63–71.

² Urdea *et al*. 2012, 9–10.

³ Herodot 1964, IV, 48.

⁴ Rusu 2007, 35.

⁵ Mărginean 2016, 80–87.

⁶ Ujvári 1972, 299.

⁷ Tóth 2009; Tóth 2018, 97–103.

those of an important medieval monastery on the bank of the Mureş. This abbey was founded by the *gens Ajtony* but was mentioned relatively late in the medieval written sources⁸. During the 15th century the abbey was partly washed away by the river, which gradually moves to the North⁹. A cross section of stone structures is still visible on the freshly collapsed riverbank.

The archaeological researches initiated by R. Heitel, Adrian Axinte, Silviu Teodor and Suzana More Heitel in 1993–1994 have revealed several vestiges that have allowed the team to demonstrate the presence of an ecclesiastic edifice. The performed researches were rather meant to test the site and to straighten the profile dug by the waters in the riverbank. The archaeologists have thu identified a stratigraphy strongly disturbed by the waters of the Mureş that have claimed part of the foundations of the monastic complex. Carved stones were brought to land from the Mureş during a period of low water level. Among the discoveries one notes architectural elements, pottery, and a single grave, that can be generally dated to the eleventh-thirteenth centuries¹⁰. The inventory of the grave, the only one discovered, has been analyzed and recently published, dated to the end of the 13th century and the beginning of the 14th century¹¹.

Taking into consideration the limited character of the researches, we believe that the on-site situation must be reevaluated, starting from non-invasive analyses. Our researches were aimed at performing such a reevaluation, so that we could see how strongly the waters of the Mureş have affected the old monatsery, but also at identifying other planimetries and components of the ancient complex in the river bed.

Several technical data and working methods employed. During our visit, the water level was above average due to the recent raining period. The color of the river was brown, visibility was zero, and the current was very strong. Our local informers told us that during periods of low water level the water is much cleaner. Due to the river conditions we concentrated on the sonar survey and supervised the direct underwater survey.

We used a motorboat and a Humminbird 997 side imaging sonar with 455 kHz frequency for the survey. We placed the boat on the water at Semlac and this gave us the opportunity to visually observe the environment for a ca. 10 km long segment of the river. The flood plain is flat, covered with open forest used for animal husbandry, while on higher surfaces, the land is cultivated.

At the site we navigated in tracks parallel to the riverbank. The underwater structures were visible from the first track. The depth was 3-4 m in average in the left (southern) half of the channel and descended to 5-5.5 m closer to the right (northern) riverbank. The structures were visible in the middle and the right half of the river. Two linear anomalies were perpendicular to the bank and raised 0.5-1 m above the riverbed. These anomalies could be collapsed walls. Close to the middle of the river, at the farthest end of the site from the riverbank, we found a massive mound consisting of stones. This structure was situated at the end of the two long anomalies. There were other average-sized (ca. 50 cm) and some larger, longitudinal (ca. 1 m) block-like anomalies. The sonar images support the local information regarding the existence of the walls and sanctuary part of the abbey church under the water and the existence of carved and decorated larger stones. On the basis of the sonar features and of the stone structures visible in the riverbank, we calculate the area of the visible remains to 2400 square meters, though some features could be buried by the accumulated sediments at the end of the neighboring island in the left half of the channel. The distance between the two linear features is 12-15 m, the massive anomaly in the middle of the channel is ca. $5-6 \text{ m} \times 20 \text{ m}$ (NE-SW × NE-SW). There are blocks outside this area. Future researches should start with a direct underwater survey of the site meant to identify the sonar features. Underwater surveys combined with sonar and possibly radar surveys could provide an outline for the ground plan of the site. Detailed underwater investigations (surface mapping in research-grid and trial trenches) could clarify the structures, the state of conservation, and possibly the chronology. After the drawing of the ground plan, some carved stones – which the water has moved from their original position- could be brought to the surface, and some architectural details could be analyzed.

⁸ Györffy 1963, 846.

⁹ Heitel 2010, 63–71.

¹⁰ Heitel 2010, 63–71.

¹¹ Oța, Comșa 2015, 143–146.

On the return way we approached the left riverbank in the region of Semlac. We found two non-natural anomalies, measuring ca. 4–5 m length. On the shore, there is a 68 m vide dry water channel, and its mouth into the Mureş is reinforced with rows of stones (dry build wall of volcanic – granite? – stones) ca. 6–8 m upstream and 12–20 m downstream. Some huge trees are grown from the stone structure, suggesting an older dating of the features. The character of this channel and stone building "association" reminds us of the *"fok*" system (the use of natural and partly artificial channels in the floodplain for fisheries, water storage facilities etc. described by Bertalan Andrásfalvy at the Danube¹²). We established the coordinates of the site and took photographs. This discovery highlights the diversity of possible archaeological features along and inside the river.

Conclusions. The new investigations open the perspective of inter-disciplinary researches that might complete with new data aspects related to the landscape in the area where the vestiges of Ahtum's monastery have been located. These analyses could also provide the motivation for the re-initiation of the archaeological excavations, that would at least partially allow for the reconstruction of this monastery's planimetry.

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¹² Andrásfalvy 2014.



Plate 1. 1. Location of the vestiges according to an eighteenth-century map; 2. Geographic location of the Ajtonymonostor monastery.



Plate 2. 1. Sonar measurements of the Maros river; 2. Sonar images of Ajtonymonostora.



Plate 3. 1. The under water features at Ajtonymonostora (red boundery); 2. Sonar images at the region of the stone structure;



Plate 4. 1. Sonar features of Ajtonymonostora; 2. Sonar features of the region of the chanel and stones structure.



Plate 5. 1. Stone structures in the high-bank of the Maros, at Ajtonymonostora; 4. Stone structure and the mouth of an old channel (1-4. Spring of 2019; 2-3. Summer of 2017).

Abbreviations

AAASH	Acta Archaeologica Academiae Scientiarum Hungaricae, Budapesta.
AAC	Acta Archaeologica Carpathica, Cracovia.
Alba Regia	Alba Regia. Annales Musei Stephani regis, Székesferhérvár.
Angvstia	Angvstia. Sfântu Gheorghe.
Arabona	Győri Xántus János Múzeum, Győr.
ArchÉrt	Archaeologiai Értesitó, Budapesta.
ArchHung	Archaeologia Hungarica, Series Nova, Budapest.
ArhMold	ArheologiaMoldovei. Iași.
Arheologija/Archeologiya	Arheologija/ Archeologiya. Sofia.
Apulum	Acta MuseiApulensis – Apulum. Alba-Iulia.
AMN	Acta Musei Napocensis, Cluj-Napoca.
AMP	Acta Musei Porolissensis, Zalău.
BAM	Brvkenthal Acta Mvsei. Sibiu.
BHAB	(Museum Banaticum Temesiense) Bibliotheca Historica et Archaeologica Banatica.
BMMK	A Békés Megyei Múzeumok Közleményei. Békéscsaba.
BMA	Bibliotheca Memoriae Antiquitatis, Piatra Neamț.
BMN	Bibliotheca Musei Napocensis.
BudRég	Budapest Régiségei. Budapest.
CCA	Cronica Cercetărilor Arheologice din România, București.
CRSCRCR	Coins from Roman sites and collections of Roman coins from Romania.
Dacia N.S.	Dacia. Revue d'archéologie et d'histoire ancienne. Nouvelle serie. București.
EphNap	Ephemeris Napocensis. Cluj-Napoca.
Ethnographia	Ethnographia. A Magyar NéprajziTársaságFolyóirata. Budapest.
FADDP/GMADP	Führer zu archäologischen Denkmälern in Dacia Porolissensis/Ghid al monumen- telor arheologice din Dacia Porolissensis
FolArch	Folia Archaeologica. Budapest.
Hesperia	Hesperia: The Journal of the American School of Classical Studies at Athens.
MCA	MaterialesiCercetăriArheologice Bucharest
MEMÉ	A Móra Ferenc Múz, Évkönyve, Szeged
MFMÉ SE	Mára Ferenc MúzeumÉvkönyve: StudiaEthnographica. Szeged
MFMÉ-StudArch	A Móra Ferenc Múzeum Évkönyve. Studia Archaelogica. Szeged
MGTSZ	Magyar GazdaságtörténetiSzemle, Budapest
MMA	Monumenta Avarorum Archaeologica, Budapest
Mousaios	Mousaios, BuletinStiintific al Muzeului Judetean Buzău, Buzău
Nv.IAMÉ	Jósa András Múzeum Évkönyve. Nyiregyháza
OM	Orbis Mediaevalis. Arad.
РАТ	Patrimonium Archaeologicum Transvlvanicum. Clui Napoca.
PBF	Praehistorische Bronzefunde. Berlin.
PeuceS.N	PEUCE, Studii și cercetări de istorie și arheologie, Serie nouă, Tulcea,
RI, SN	Revista Istorică. Serie Nouă. Bucuresti.
RMM-MIA	Revista Muzeelor și Monumentelor, seria Monumente istorice și de artă. București.
SA	Sovietskaia Arheologija. Moscova.
SCIV(A)	Studii și Cercetări de Istorie Veche, București,
SlovArch	SlovenskáArcheológia. Nitra.
SPMA	Studies in Post-Medieval Archaeology. Prague.

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StudArchMed	Studia Archaeologica et Medievalia, Bratislava
TRÉT	TRÉT – Történelmi és Régészeti Értesitő, Temesvár (Timișoara).
WMMM	Wosinsky Mór Megyei Múzeum, Szekszárd
ZSA	Ziridava. StudiaArchaeologica. Arad.