

# LITHIC MATERIAL EXTRACTION AREAS AS DETERMINED BY THE COMPOSITION OF THE WALLS OF THE FORTRESS OF NOVIODUNUM\*

Aurel-Daniel STĂNICĂ\*\*, Oliver LIVANOV\*\*\*

**Key-words:** geology, lithology, petrology, limestone, sandstone, basalt, outcrop, quarry, Noviodunum, Roman walls, Middle Byzantine and medieval walls

**Abstract:** In the present study we intend to capitalise on the results of a geological study, which identified the sources of supply with building stone forming the structure of Roman walls, or those belonging to the fortification elements dated to the Middle Byzantine and medieval period of the Noviodunum fortress.

**Rezumat:** În studiul de față ne propunem să valorificăm rezultatele unui studiu geologic, prin care au fost identificate sursele de aprovizionare cu piatră de construcție care intră în structura zidurilor de epocă romană, sau celor aparținând elementelor de fortificație aparținând perioadei medio-bizantine și medievale de la Cetatea Noviodunum.

## Introduction

As part of the Noviodunum 2020 project, the research team aimed to carry out a geological study in order to identify the sources of the sand found in the binder composition, as well as the source of the stone blocks used in the construction of the Roman walls or those belonging to the elements of fortification of to the Middle Byzantine and medieval period. Our main goal is to reconstruct the routes of transport of the lithic material, from the extraction places (the Roman quarries) to the site of the Roman-Byzantine fortress Noviodunum located in the north of the province of Scythia Minor.

Another aspect considered was a possible project to restore and enhance the discovered remains, which requires more data on the construction materials used and the sources of supply.

The Noviodunum archaeological complex is located about 3 km east of the town centre of Isaccea, on the bank of the Danube, at the point of the “Old Pontoon” or “Eski Kale” (Turkish for “the Old Fortress”), on a promontory, near one of the most important fords on the Danube.

In 1995, after a long hiatus, the archaeological research was resumed at the Noviodunum site. From 1997 until now, the Great Tower (TM)<sup>1</sup>, the Corner Tower (TC), Tower A (TA), Curtain 1 and Curtain 2 have been investigated; they are part of the research sector called the South-East Precinct<sup>2</sup>.

The Great Tower stands as a real fortress, being an indisputable proof of the strategic importance of the Noviodunum site. It has a width of 31.40 m and advances outwards 16.30 m. Its inner structure has a transverse row of four rectangular pillars, built of layers of shaped blocks and brick, placed on a median stilobat (foundation); they supported the wooden platforms used by the fortress' defenders.

The tower was built at the end of the 3rd century AD and evinces the stages of subsequent restorations from the 4th-6th centuries.

\* This article is a revised version of a paper presented at ARA Symposium (Architecture, Restoration, Archaeology), 22 April 2021.

\*\* “Gavrilă Simion” Eco-Museum Research Institute, Tulcea; email: aurelstanica@gmail.com

\*\*\* Danube Delta National Institute, Tulcea; email: oliver.livanov@ddni.ro

<sup>1</sup> Abbreviations used in the text: K<sub>1</sub> - Lower (Early) Cretaceous; K<sub>2</sub> - Upper (Late) Cretaceous; T - Triassic; T<sub>1</sub> - Lower (Early) Triassic; T<sub>2</sub> - Middle Triassic; T<sub>3</sub> - Upper (Late) Triassic; BT - The Big Tower; TA - Tower A; CT - The Corner Tower.

<sup>2</sup> Baumann 2010, pp. 18-19.