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# Fishing nets and string at the Final Mesolithic and Early Neolithic site of Zamostje 2, Sergiev Posad (Russia)

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## Abstract

The site Zamostje 2, located in Sergiev-Posad (Russia) on the west bank of the Dubna river, has provided two Mesolithic and one Early Neolithic occupations dated from 7000 to 5400 cal BC. The archaeological excavations extended along a 160 m<sup>2</sup> stretch and 80-90 m<sup>2</sup> in an area that is today underwater. Nearly 250 objects and more than 140 underwater piles made of perishable materials have been recovered. The site has yielded fish-screens, fish-fences, wooden fish traps and several small cordage remains, pine bark floats, fragments of paddles and other wooden objects. In this work we will present the study of the fragments of ropes and fishing nets with the objective of providing new insights into the production and use of implements made of plant fibres.

Ropes, strings and cords were extensively used tools during prehistoric times. Plant fibres constituted, until the appearance of synthetic fibres, one of the main raw materials for the elaboration of strings and ropes, that were used for a number of purposes structures' construction, means of transportation, clothing and ornament, as well as the elaboration of fishing nets or as bowstring, among others. However, due to their perishable nature they are seldom recovered at archaeological contexts. For this reason, the case of Zamostje 2 is ideal to study this particular topic.

We have characterized the production process by analysing the morphological and technical characteristics of these cordage remains. According to the technique of cord making, a distinction has been made between knots and twisted cords. In order to characterize the type of production, the number of strings or elements used to produce the cords, the direction of the torsion as well as the type of twist have been analyzed. Likewise, the length, width and thickness or diameter of remains have been recorded. Raw material has been identified by comparing their anatomy with modern material and specialized bibliography. Finally, function of cordage is discussed in the frame of the site context.

The analysis of 78 knots and 20 fragments of strings have allowed to determine that they were elaborated with single threads, with a weak twist or without it, from 0.5 to 1.5 mm

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thick, which is noticeable smaller than most examples from other sites. Regarding the direction of twists, we have seen that it prevails the S type. All of them were elaborated with woody bast fibres.

According to the size and shape of the knots and strings of Zamostje 2 we suggest that this remains may have formed part of fishing nets, involved in the intense exploitation of water resources carried out at the site, where hooks, harpoons, taps and thousands of remains belonging to 11 fish species have been recovered.

**Keywords:** Plant fibres, waterlogged preservation, cordage, archaeobotany, ancient handicraft