Stone tools features from the Varhari Chalcolithic settlement, Eastern Rhodopes

Характеристика на скалните инструменти от халколитното селище Върхари, Източни Родопи

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The site studied is situated near to the village of Varhari in the Eastern Rhodopes (region of Momchilgrad town). It is dated to the Chalcolithic period, around 4500 BC. The region near by is built of low- and high-grade metahorphic rocks, outcropping to the W of the site, that are overlaid by thick Paleogene volcanosedimentary succession. The volcanic rocks are presented mainly by acid and intermediate tuffs, tuffites, latites, basaltic andesites and rhyolites. The Varhari Chalcolithic site is settled directly over the river terrace of Varbitsa River that overlays the serpentinized ultra-basic rocks cropping out to the south of Kardzhali.

A large number of polished and especially of knapped-stone artifacts have been found during the excavations. This study is focused mainly on the polished stone tools but some knapped ones (mainly scrapers) are also included. The study is based on macroscopic and thin section microscopy observations, and XRA diffraction (of the nephrite jade) using Genie HUBER Imaging Plate Camera G670 (at GI–BAS). LA-ICPMS study is still in progress.

The artifacts studied can be divided into several typological groups. The scrapers (whole tools, fragments and cores of their production) are presented mainly by rhyolites and jaspers but a few scrapers of flint are also found (Figs. 1, 2). The chisels and adzes are built predominantly of lava rocks (phenolatite, rarely basaltic andesite), tuffs, silicified tuffs, tuffites, siltstones, gran-

Fig. 1. Photos of the artifacts from Varhari Chalcolithic site: a, nephrite jade hammer-axe; b, amphibolitised metabasite hammer-axe; c, amphibolite adze; d, tuff; e, siltstone; f, flint scraper; g, flint; h, rhyolite; i, rhyolite; j, rhyolite; k, red jasper; l, jasper; m, green jasper
ites and amphibolites. Nephrite jade adzes (whole instruments and fragments) are rarely found. Most of the hammer-axes are made of amphibolitised metabasites and only a single phenolatite and a nephrite jade hammer-axe are found. The grinding stones, mortars and pestles are mainly made of lava rocks (phenodacite and phenolatite), pyroclastic rocks, tuffites and sandstones.

A special attention is paid for the nephrite jade tools because of their rare findings in Bulgaria. Nephrite jade artifact findings are reported for SW Bulgaria (Kostov et al., 2012) and in the vicinity of Kardzhali. Nephrite jade normally comprises of microcrystalline amphibole, generally in the tremolite-actinolite series. However, the quality of this jade, in particular its toughness, is dependent on the development of a distinctive, interwoven felted crystal fabric. The nephrite jade studied is pale green with dark inclusions probably of chrome-spinel. The amphibolitised metabasites are most probably genetically related to the nephrite jade formation.

Local and imported rock materials can be distinguished. The volcanic (pyroclastic and lava rocks including the jaspers) and sedimentary rocks, granites and metamorphic rocks are local materials. Probably imported, brought from longer distance is the flint that built up some of the scrapers. The nearer sources of flint limestone concretions are situated near to Yabalkovo village and in Northern Bulgaria, where also Chalcolithic and Neolithic flint artifacts are found. The source of the nephrite jade is under discussion. Nephrite jade is genetically connected with ultrabasic massifs, nevertheless no local nephrite jade occurrence in Eastern Rhodopes is found till now. The only natural occurrence in Bulgaria is found in Ograzhden Mountain (Zidarov et al., 2010). The Varhari Chalcolithic site settles directly over the Kardzhali serpentinitised ultrabasic rocks which are a good premise for finding a local nephrite jade occurrence.

References