

The contents of ceramic vessels in the Bactria-Margiana Archaeological Complex, Turkmenistan

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Vessels found in the “white room” of the Gonur temenos and in Togolok-21 revealed part of their original contents as holes in a gypsum and clay deposit on their bottom. (See Sarianidi 1998, page 34 Fig. 9, for Map of Bronze Age sites of Bactria-Margiana.)

The holes are the negatives of plant matter which itself has decayed. The white layer of gypsum and clay has been separated from the ceramic fabric of the vessels and parts of it have reached my laboratory for an identification of the plants, which have left their imprints.

Of the plant remains it was said that they had already been described and published by N.R. Meyer-Melikyan and N.A. Avetov (1998). The photographs in the publication (Fig. 46) suggest that the objects seen by me concern indeed the same material as far as the material from the Gonur temenos is concerned.

The white substance shows on the section several layers, as has been described by the authors mentioned above. Some of these are very thin, with a thickness of more or less 1 mm, others are thicker, but the thickness of the whole does not exceed 1.5 cm. N.R. Meyer-Melikyan and N.A. Avetov succeeded in separating the layers and could describe different contents for each of them. I did not succeed in separating layers with significantly different aspects. It might be that I did not obtain quite the same material as what was published, or a different part of the deposit in the vessels.

Most of the impressions are round to oval. A small minority has clearly been left by stems. The round impressions have been published as having been left by hemp seeds (*Cannabis sativa*) and the stems by *Ephedra*. The material sent to me reveals, however, neither of these. The impressions caused by seeds are not of hemp. They are too small, for instance, do not have the right shape nor the right type of surface pattern. The long, grooved stems are not incontestably identifiable as *Ephedra*. The original contents consisted in my opinion of broomcorn millet (*Panicum miliaceum*) and the

stems might also belong to this cereal, although that cannot be proven. Some of the round impressions still contain a cell layer resembling a cell layer of broomcorn millet husks. They are preserved because of their high silica content. My interpretation is that the vessels were filled with not yet dehusked broomcorn millet.

To obtain a second opinion I showed the material to Sietse Bottema and René Cappers from the University of Groningen in the Netherlands. They had in their reference collection small-seeded hemp from Iran, but these were still too large, and again, the overall form and the surface pattern did not fit. Both colleagues were of the opinion that the impressions were left by a millet, presumably broomcorn millet.

In addition I had the opportunity to show the material to Mark Nesbitt from the Centre for Economic Botany, Royal Botanic Gardens in Kew, Great Britain, who is familiar with material from the Merv oasis and to Dorian Fuller from the Institute of Archaeology, London, Great Britain, who is an expert on Asian millets. Both colleagues came to the conclusion that broomcorn millet provides the best fit.

The original publication mentions also pollen, hemp pollen grains in large quantities, but also pollen from other plants. I did not succeed in extracting pollen from the white substance. Sietse Bottema tried again with two different methods but failed as well. Our opinion is that pollen has not been preserved.

We all wonder now whether we have looked at the same material as published by N.R. Meyer-Melikyan and N.A. Avetov. The material we examined contained broomcorn millet. This cereal is known from the Merv oasis, at least from the Bronze Age onwards (Nesbitt 1997). The crop plant most probably has its origin in Central Asia, perhaps even in the Aralo-Caspian basin. It is a cereal that can be cooked, made into a heavy bread, or used to prepare a fermented drink. The latter can be done with undehusked grain.

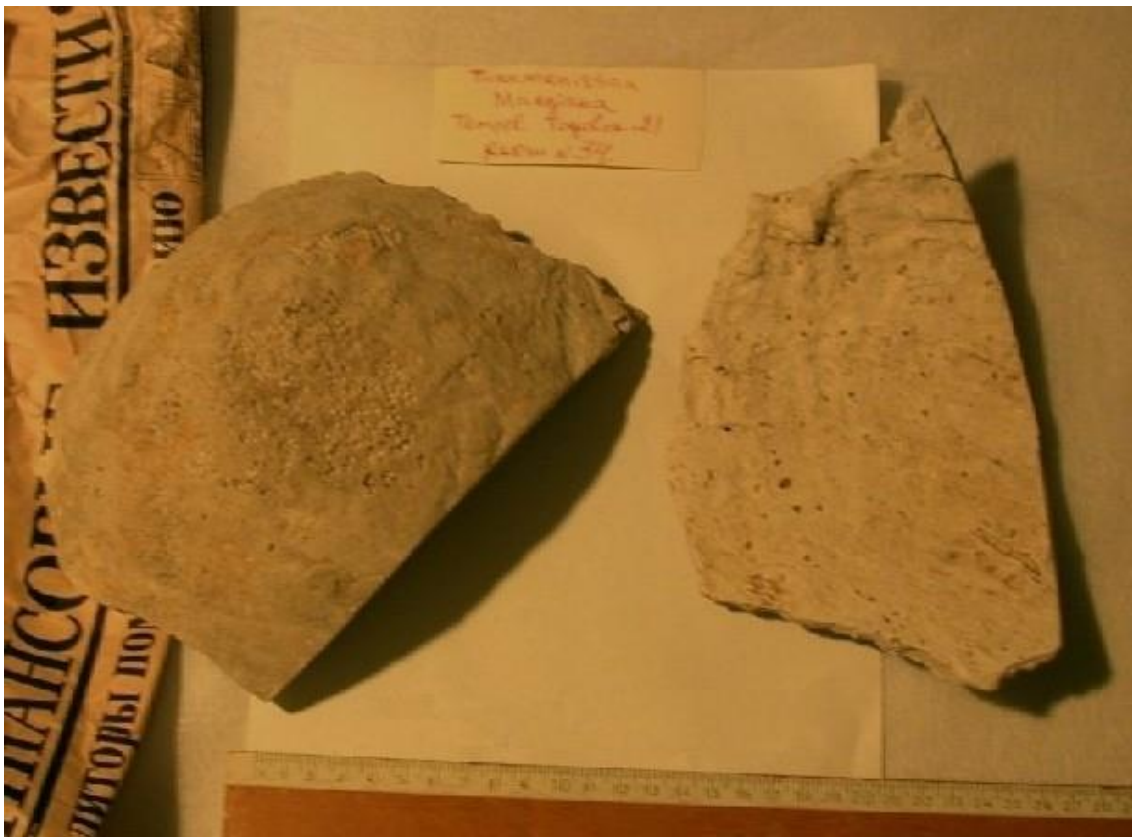
References:

Meyer-Melikyan, N.R. and N.A. Avetov. 1998. Analysis of Floral Remains in the Ceramic Vessel from the Gonur Temenos. In: Sarianidi 1998, Appendix I (pp 176-177)

Nesbitt, M. 1997. Plant use in the Merv Oasis. In: G. Herrmann, K. Kurbansakhatov, S.J. Simpson, The international Merv project, preliminary report on the fifth season. Iran 35 (pp 29-31)

Sarianidi, Victor. 1998. Margiana and Protozoroastrism. Athens: Kapon Editions.

Pictures



Picture 1: Two pieces of material found within a vessel in Togolok-21 of the BMAC, sent by Prof. Sarianidi in July 1999 (photo by Jan Houben).



Picture 2: Photograph of the material from Gonur temenos under a microscope (photo by Prof. Bakels).



Picture 3: Photograph of the material from Togolok-21 under a microscope (photo by Prof. Bakels).