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**THE BEGINNINGS OF SERIAL PRODUCTION AT LATE CHALCOLITHIC ARSLANTEPE:
THE BONE TOOLS**

One general characteristic of technology in earlier prehistoric periods in Europe and the Near East is the production of individual objects, shaped according to proscribed, traditional models of technical and formal style. The cultural consensus involved in household and village level acceptance of mundane tools represents part of the social glue, binding (or acting as materialization of social instability where even the technical style changes) small communities together. Ornaments, as objects of display, often have far larger spatial distributions and shorter temporal distributions because they encompass shared social understandings over larger regions, amongst settlements but are more sensitive to changes in fashion.

Thus, it is not very surprising that at a time and place where other object categories begin to be mass produced, it is bone ornamental pins which seem to be produced using aspects of serial production seen en masse in later prehistoric and proto-historic periods. The late Chalcolithic layer (VII) tell settlement of Arslantepe, located at a junction between Caucasian and Mesopotamian spheres of influence in East-Central Anatolia, represents just such an early attempt (even if not a lasting one in this region) at serial production which was beginning to infiltrate many technical aspects the manufacture of ceramic, lithic and bone pins at this complex settlement. This is the moment at Arslantepe that sees the first centralized monumental building efforts and political and economic structures emerging. At the same time, ordinary, utilitarian bone tools such as awls and spindle whorls, remain wedded to the individual character of household production found in the small dwelling units on the tell but outside the central monumental/temple part of the site.

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**ASTRAGALI USE IN CHALCOLITHIC SITES FROM EASTERN ROMANIA.
THE CONSTRUCTION OF A HYPOTHESIS**

Astragali are found in different degrees of modification in many archaeological assemblages, within a wide chronological and geographical frame. Their use in prehistoric societies was subject of intense debate, both practical and symbolic function being assigned thereto. Our study brings into focus several collections of astragali from five sites located in the eastern part of Romania and dated from the Early to the Final Chalcolithic. The assemblage comprises a total amount of 602 astragali, from which 497 form a single deposit. In order to construct a viable hypothesis on the functionality of this category of artifacts, we pointed our investigation on the relationship between three sets of data. The first one deals with the patterns and intentionality of the modification procedures. Varied types of astragali were found within the collections: flattened on one or more faces, longitudinally divided or perforated.

The underlying problem is whether some of the applied treatments (i.e. the flattening) are the results of shaping procedures or of intense use.

The second set of data is the result of raw material examination and brings to light a specific pattern of exploitation according to the chronological context. More precisely, there is a shift from the use of cattle and other large ruminants' astragali in Early Chalcolithic sites onto small ruminants, especially sheep and goat towards the end of the Chalcolithic.

Finally, the third category of information comes from the analysis of the archaeological context. The modified astragali are usually found grouped together, in some cases along with unmodified astragali. These clusters are discovered in specific places within the settlement: in houses, in pits, in clay layers of house foundation or deposited in a clay vessel.

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BONE NEEDLES AND COMBS: MORE EVIDENCE ON TATTOOING TECHNIQUES IN PREHISTORIC EUROPE

At an earlier occasion, I summed up cumulative evidence for substantiating the hypothetical reconstruction of tattooing practices among the population of the Late 5th mill BC population of tell Pietrele (Măgura Gorgana) on the Lower Danube (Zidarov 2009). The main argument was based on the discovery of mineral pigment residues on very fine and sharp bone needles, iconographic analysis of anthropomorphic figurines, modern experiments and ethnographic evidence from the Southern Pacific. Subsequent excavations at the same site provide spectacular new evidence along similar line contributing to the diversification of the reconstructed tattooing techniques.

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ANIMAL BONE TOOL USE IN SOUTH-WEST TRANSDANUBIA (HUNGARY) DURING THE EARLY BRONZE AGE

Rescue excavations from three sites located in South-west Transdanubia (Hungary) yielded Early Bronze Age animal bone assemblages that included a number of remains with manufacture and/or use marks. Two of these assemblages showed similar characteristics regarding the number of bone artefacts and raw material and/or workshop debitage, as well as the main type of tools. The major difference is the presence of thong smoothers made from cattle mandibles at the site of Dombóvár-Tesco, and the presence of polished astragali from large Bovinae at the site of Paks-Gyapa. Not only the number of bone tools was small at Dombóvár-Tesco and Paks-Gyapa (1.8 and 0.4% of the whole assemblage, respectively), but evidence for metal working is also missing from both sites.