„Alexandru Ioan Cuza" University, Iaşi

Faculty of History

THE ROLE OF ANIMALS IN THE LIFE OF POPULATIONS AT THE END OF THE BRONZE AGE AND THE BEGINNING OF THE IRON AGE IN TRANSYLVANIA

Abstract of the doctoral thesis

Scientific supervisor

prof. dr. ATTILA LÁSZLÓ

prof. dr. LUCREȚIU BÎRLIBA (joint supervision)

Doctoral candidate

IMOLA KELEMEN

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The present study is an interdisciplinary one using zoology's and comparative anatomy's methods of work to form a clearer picture of the everyday life and animal economy of human communities at the end of the Bronze Age and the beginning of the Iron Age in Transylvania, purposes which are at their turn also those of archaeology.

On account of the archaeozoological analyses we will attempt to answer questions like: what was the communities' main occupation (animal husbandry, hunting, fishing, hunting wild birds, gathering mollusks, etc.)?; which species have been kept or hunted more often, what sex and age did the sacrificed individuals generally have?; have the animals been used in agricultural works (traction, carrying, etc.)?; what kind of slaughtering techniques have been used to kill the animals and what kind of methods to prepare the meat as food?; the domestic species have been raised for their primal or their secondary products (milk, wool, etc.)?; have the bones of the animals been utilized in making tools or ornaments, etc?; what kind of relations did man have with the animals (did he considered them as goods or as pets)?, etc.

The objective of the present work is to research the animal husbandry of communities at the end of the Bronze Age and the beginning of the Iron Age in Transylvania, using mainly faunistical materials (gathered during archaeological excavations) analysed personally, but also analogies, samples analysed in earlier times and published in different journals of museums and other institutions. It is not our objective to settle or to intervene in the debates regarding these two periods' cronology, but rather to use the existent arguments in the most suitable way for archaeozoological analyses.

The doctoral thesis is composed of eight chapters. First of all, we present relevant information on the studied region's relief, soils, climate, hydrography, flora and fauna, but also on the changes of natural environment in the Holocene, all in *Chapter I. Physical-geografic characteristics of Transylvania.* The faunistical materials analysed archaeozoologically in the present paper come from many different archaeological sites in the Transylvanian Depression (Iclod–*Tabla Popii*, Pălatca–*Togul lui Mândruşcă*, Cluj-Napoca–*Strada Banatului*, Vlaha–*Pad,* Zau de Câmpie–*La Grădiniţă,* Gligoreşti–*Holoame*, Iernut-Sfântu Gheorghe–*Monument,* Ernei–*Cariera de piatră*, Teleac, Mediaş–*Gura Câmpului*, Mediaş–*Cetate*, Porumbenii Mari–*Várfele*), but also from the Braşov Depression (Olteni–*Cariera de nisip* şi Zoltan).

On the next pages, treating the state of researches, we would like to outline the archaeological and archaeozoological possibilities at our disposal, that form the basis of our questions but also of our possible final conclusions. The presentation of the archaeological

and archaeozoological studies can be found in the *Chapter II. Historiography of the end of the Bronze Age and the beginning of the Iron Age. The actual state of researches.*

At the moment, there are two terms used for animal bone analysis, both combine the name of two sciences – archaeology and zoology, only in different order: *archaeozoology* and *zooarchaeology*, respectively. The two expressions are used in well defined regions: *archaeozoology* mostly in Central and Eastern Europe, while *zooarchaeology* in the North-Atlantic regions of English-speakers. Disregarding which name is accepted in a specific country, teoretically the decision of which term is used should be based on the specialist's basic studies. It is understandable if someone trained in natural sciences monitors mainly the evolution and history of different animal species using techniques of comparative anatomy (and consideres him/herself an archaeozoologist), but it's also normal if an archaeologist with a specialty in human sciences sees in animal remains a tool to reconstruct the everyday life of different human communities (and consideres him/herself a zooarchaeologist).

After offering a general view of the aims and possibilities of our research, follows *Chapter III. The archaeologic-historic context. The archaeological presentation of the sites from which the faunistic materials come from,* in which we describe the results of the excavations that provided us with the animal bones, strictly from the point of view of archaeologists. In many cases, if possible, we used the researchers' archaeological reports or published studies.

After describing the sites from archaeology's point of view we present the methods of study that we used during the analyses, but also the primary data regarding the archaeozoological samples in *Chapter IV. The archaeozoological study of the faunistic material*, without interpreting their connection with other sites.

Regarding the investigation methods, we mostly applied the usual techniques of archaeozoology. A novelty towards other studies would be the fact that we also recorded the state of weathering of the bones (using on Behrensmeyer's observations), based on which we had the possibility to determine if the bone in question has spent a long time exposed to air (in this case the surface of the bone would be severely weathered).

Another unusual method that we used during archaeozoological analyses is to calculate the mean of the number of identified species (NISP) and the minimal number of individuals (MNI), since in both cases some species could be inevitably under- or overrepresented. This way, we consider their mean value more realistic in comparing different sites, because we appreciate the real number of animals on site or in a settlement to be somewhere in between the data showed by NISP and MNI.

A third method used by us but not by other Romanian studies of archaeozoology is the representation of some data, like the frequency of anatomical elements, in so called 'skeleton maps', for which we used the skeleton models published by Yvinec et al. in 2007.

In *Chapter V. The exploitation of identified animal species at the end of the Bronze Age and the beginning of the Iron Age. A comparative anatomical study,* we arrive to the interpretation of the primary data, using quantification and osteometry. We shortly present at first a general view of the presence of species, after which we analyse each one separately, with special care to their anatomical characteristics.

In *Chapter VI. The animal economy of the late prehistoric communities in Transilvania* we analyse the communities' preference in animal husbandry or hunting different species. We treat in detail the animal economy of each site, but in the case of this abstract we present only the data referring to the age at death of the animals. The cattle at the end of the Bronze Age have been raised for their primary products as well as for their secondary, exceptions being only the Olteni–*Cariera de nisip* and Zoltan sites, where the adult and mature individuals have been kept probably for their milk and utilized in agricultural works. At the beginning of the Iron Age stands out the site of Mediaş–*Cetate*, where a big part of the individuals were mature. At the end of the Bronze Age sheep/goats were raised more to be used in alimentation, exceptions being Zoltan and Gligoreşti–*Holoame*, where the adults have the same preponderence as the juvenile. At the beginning of the Iron Age stands out again the site of Mediaş–*Cetate*, where this species is kept also for secondary products. The pigs in both period are raised mainly for their meat and fat, exception being the site of Zoltan at the end of the Bronze Age, where we found numerous mature individuals, used probably for secondary products.

In the chapter befor last, *Chapter VII. Everyday life in transylvanian sites at the end of the Bronze Age and the beginning of the Iron Age in light of archaozoological analyses. Similarities and differences,* we try to compare the two studied periods from the point of view of archaeozoological results. This way among the most important resemblences we count the fact that there are 6 species that appear in all representative sites of both periods, and with little exceptions, cattle is the most exploited. At the same time, the communities of both periods prefer rabbits in a fragile age, and also sheep in spite of goats. Sheep, on the other hand, in both studied periods have of approximately the same withers height.

The most important difference between the two periods' analyses is the fact that from the end of Bronze Age there was a much larger number of animal remains to study. Possibly of the same cause only in this period appear species like fox or badger. Still, when at the end of

the Bronze Age in some sites horse meat is eaten and rabbit is more preferred, at the beginning of the Iron Age aurochs, roe deer and wolf are a much frequent discovery and pigs are more appreciated than sheep/goats. Regarding withers height, goats as well as domestic pigs seem to be of small stature at the end of the Bronze Age, and from this period significantly more worked bones have been discovered.

In the last chapter, *Chapter VIII. The species as ecologic indicators. Possibilities of palaeoenvironment reconstruction,* using the wild species identified in the faunistical samples we try to determine the studied sites' natural environment.

The annexes, bibliography, abbreviations and the list of tables, figures, maps and plates can be consulted at the end of the paper.