

# The Importance and Representation of Teeth in Archaeozoological Material

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## ABSTRACT

*Archaeologists, in most cases, neglect animal bones and teeth, which present common material on archaeological sites. Analysis of archaeozoological material from Vučedol (Baden culture) and prehistoric cave site Vela spila on Korčula, has been applied to stress the importance of that material (especially single animal teeth) in archaeozoological samples. It is obvious that a higher percentage of single teeth influence the number of identified animal species on particular sites. One species were identified only by teeth. For the reconstruction of the environment and behavior of ancient peoples, every evidence obtained from sites is important, and because of that sieving must be part of every excavation.*

**Key words:** archaeozoology, animal teeth, Vučedol, Vela spila

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## Introduction

Detailed analysis and identification of evidence collected during archaeological excavation constitute a basis for interpretation of the relationships between people, animals and the environment. The study of animal remains (archaeozoological material) from archaeological sites is a research area of a growing multi-

disciplinary science called Archaeozoology. Besides animal bones, animal teeth are common finds on sites of any period. They make very attractive material, mostly in very good shape and they survive in a high percentage (in bone or individually). They can also provide precise information about animals that lived hun-

dreds or thousands years ago. According to teeth, an archaeozoologist can identify animal species<sup>1</sup>, minimum number of individuals (MNI), animal age<sup>1–4</sup> and sex<sup>1,5</sup>, predict body mass<sup>6</sup> and even a pathological process caused by human exploitation<sup>1</sup>.

Relatively few textbooks about comparative dental anatomy exist<sup>1</sup>, but tooth form, size and shape are an obligatory part of every animal anatomy book<sup>7,8</sup>. Information about animal teeth can be found as part of reports from archaeological sites<sup>6,9</sup>.

We have applied that knowledge through the analysis of archaeozoological samples from Vučedol, Baden culture and Vela spila, a prehistoric cave site. In this article we will present our results and stress the importance of teeth in each archaeological sample.

## Material and methods

The study was carried out on animal bone and teeth from two totally different sites: 1502 specimens from Vučedol settlement (northeast Croatia) and 822 from Vela spila, a cave site situated above Vela Luka, on the island of Korčula. The material from Vučedol was excavated in 1984/85, and the latter one from Vela spila in 1997/99. Vučedol material represents only one culture: the Baden culture (3300–3150 BC). The majority of the material from Vela spila originates from the Paleolithic (102), the Neolithic (162) and the Mesolithic (433). There are also bones and teeth from the Eneolithic (72), the Bronze ages (29) and 25 specimens from undetermined layer. First steps in the

laboratory analysis include preparing the material: signature, evidence book and computer program. The next steps is laboratory analysis: macromorphological observation and comparison with recent bone and teeth material from Comparative bone collection Department of Anatomy, Histology and Embryology, Faculty of Veterinary Medicine University of Zagreb. The examined animal material is a part of the archaeological collection in the above-mentioned Department.

## Results and Discussion

The process of collecting the animal material can be anticipated from Table 1 through the percentage of animal teeth in both samples.

Based on tooth form, size and shape or dental microstructure it can be identified from which family or even species it originated. Low percentage (5.659%) of teeth in all of Vučedol samples is a direct reason for low determination (by teeth) in that material. Undoubtedly we can confirm only three species: *Sus scrofa ferus* L., *Cervus elaphus* L. and *Canis familiaris* L., and three bigger groups: small and big ruminants and *Sus* spp. In the same time, by the bones we confirmed: human remains, *Bos taurus* L., *Bos primigenius* Boj., *Sus domesticus* Erxl, *Cervus elaphus* L., *Capreolus capreolus* L., *Ovis aries* L., *Capra hircus* L., *Equus caballus* L., *Vulpes vulpes* L., *Lepus europeus* Pall. and *Ursus arctos* L. If we presume that group of big ruminants include *Bos taurus* L., *Bos primigenius* Boj. and *Cervus elaphus* L.; small ruminants *Capreolus capreolus* L., *Ovis aries* L. and

TABLE 1  
TEETH PARTICIPATION IN ARCHAEOZOOLOGICAL SAMPLES

	N	Animal teeth	%	Animal bones	%
Vučedol	1502	85	5.659	1417	94.340
Vela spila	822	224	27.250	598	72.749

*Capra hircus* L., we have five exact species (humans remains, *Equus caballus* L., *Vulpes vulpes* L., *Lepus europeus* Pall. and *Ursus arctos* L.) which are not detected by single teeth.

Based on a better-collected material (from Vela spila) we confirmed teeth from *Equus* spp., *Bos* spp., *Sus* spp., *Cervus elaphus* L., *Capra hircus* L., *Vulpes vulpes* L., *Lepus europaeus* Pall. There were teeth identified as small ruminant teeth, which can include *Capra hircus* L. and *Capreolus capreolus* L. Only three groups of animals could not be identified based on teeth specimens: *Felis silvestris* Schr, *Martes* spp. and micromamalian. We confirm them in archaeological samples only by their bones. It must be pointed out that there is an opposite situation too. The identification of *Sus* spp. (domestic or wild) was possible only because samples contained three pigs teeth (No. VS 83, VS 112 and VS 545). Two of them were also used for artifacts. Sometimes, even isolated teeth were sufficient for the identification of species or they could provide tentative indications of the season of their owner's death<sup>10</sup>. In the other case,

one tooth (for example first molar of carnivores) and metrical analysis of M<sub>1</sub>, could provide information about the body weight<sup>11</sup>.

## Conclusion

Specimens from Vučedol were collected without sieving, since the research of Vela spila probably included the process of dry-sieving. Sieving with different mesh increased the recovery rate and the number of identified species. This work is a confirmation of the importance of the sieving process on an archaeological site and a direct recommendation to the archaeologist. Wets-sieving, even one part of the archaeological site, can increase the amount of small mammal teeth. At the same time, there will be more small bones, too. That will make a perfect material for an archaeozoologist. It provides a possibility of identification of almost each specific kind of animal from a particular site and time of our past. That is the only way for the reconstruction of the environment and the behavior of ancient peoples based on animals.

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## VAŽNOST I UDIO ZUBA U ARHEOZOOLŠKOM MATERIJALU

### SAŽETAK

Arheolozi, u većini slučajeva, zanemaruju životinjske kosti i zube, koji čine učestali materijal na arheološkim lokalitetima. Analiza arheozoolškog materijala s Vučedola (badenska kultura) i pretpovijesnog špiljskog lokaliteta Vela spila na Korčuli, je primjenjena, kako bi se istaknula važnost tog materijala (posebno pojedinačnih zuba životinja) u arheozoolškom uzorku. Uočljivo je da veći postotak pojedinačnih zuba u cjelokupnom uzorku utječe na broj utvrđenih vrsta određenog lokaliteta. Isključivo putem zuba je utvrđena jedna životinjska vrsta. Za rekonstrukciju okoliša i ponašanja čovjeka u pretpovijesnim vremenima, svaki nalaz je važan, zbog čega prosijavanje tla treba postati dio svakog iskopavanja.

**Ključne riječi:** arheozoologija, životinjski zubi, Vučedol, Vela spila