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THE ANIMAL BONES OF THE BANDCERAMIC AND MIDDLE AGE SETTLEMENTS NEAR BYLANY IN BOHEMIA

CONTENTS

INTRODUCTION

Near Bylany, Okres Kutná Hora, a small village 65 km east of Prague in central Bohemia, a large settlement belonging to the Bandceramic culture was excavated by the Archaeological Institute of the Czechoslovakian Academy of Science at Prague under the direction of Dr. B. Soudský.

Dr. Smetánka described the traces of Medieval habitation that were also found in the vicinity of Bylany (1962)[1].

In the Bandceramic settlement, which comprised more than 100 large family houses (Soudský, 1966), the "Linear" phase was recently dated around 4300 and 4200 B.C.[2] by radiocarbon measurements, while the somewhat later phase of the "Stroke-ornamented" pottery was dated 3860 B.C.[3] (Vogel and Waterbolk, 1967).

The habitation of the Middle Ages belonged to the IX ("Burgwallzeit") and XIV century A.D. (Smetánka, 1962). The circumstances for the preservation of bone material were not very good in the decalcified loess on which the settlements were situated. Only a small number of bones have been found, mostly badly preserved.

Most of the bones of the Bandceramic settlement were found in refuse pits and in poor condition. Best preserved was the enamel of the teeth, mostly of cattle. These teeth were all broken into many small fragments, making it impossible to determine

TABLE I. THE ANIMAL SPECIES FOUND IN THE DIFFERENT PERIODS OF THE BANDCERAMIC SETTLEMENT

		Number of pieces					
		Period					
		I	II	III	IV	V	?
Lepus europaeus	bones	–	–	–	–	1	–
Cricetus cricetus	individuals	1	–	–	–	–	–
	bones	2	4	–	–	–	–
Canis familiaris	bones	–	–	–	–	1	–
Sus domesticus	bones	2	8	6	–	–	11
	teeth	–	2	2	–	2	1
	toothfragments[1]	1	–	2	3	–	–
Sus sp.	bones	–	2	4	–	1 + 1 ind	1
	teeth	–	1	1	–	–	–
	toothfragments[1]	–	3	–	1	–	3
Sus scrofa	bones	–	2	1	1	–	–
Cervus elaphus	antlers	1	–	2	–	2	1
	bones	1	–	–	–	1	1
	teeth	–	–	1	–	–	–
Capreolus capreolus	bones	–	1	–	–	–	–
Bos taurus	bones	8	60	30	4	3	25
	teeth	7	8	7	–	3	8
	toothfragments[1]	66	93	68	10	14	42
Bos sp.	bones	–	4	1	–	–	3
Bos primigenius	bones	–	4	2	–	–	4
Capra hircus/	bones	1	4	7	–	1	3
Ovis aries	teeth	1	2	3	–	–	5
	toothfragments[1]	–	1	–	–	–	1

[1] The fragments are too small to see whether they belong to the upper or lower jaw, and how many pieces they represent. An estimation is given here.

how many teeth they represented. In Table I an estimate of the number of teeth these fragments represent for each species is given. It was impossible to measure them; among the many teeth fragments of cattle there certainly would be a number belonging to the Aurochs, but as the number of bones of the Aurochs is small compared to those of the domestic cattle, the same would be true for the teeth.

In Table I the bones found in the five major Periods of the Bandceramic settlement distinguished by Soudský are given.

Those of the first period were collected during the excavation campaigns of 1966 and 1967; those of the others in the earlier campaigns. The Periods I–IV belong to

TABLE II. BYLANY, BANDCERAMIC SETTLEMENT.
DISTRIBUTION OF THE BONES

	Bos taurus	Capra/Ovis	Sus domesticus	Canis familiaris	Lepus europeus	Cricetus cricetus	Sus scrofa	Sus sp.	Capreolus capreolus	Cervus elaphus	Cervus/Bos	Bos primigenius	Bos sp.
Antler	–	–	–	–	–	–	–	–	–	6(1)	–	–	–
Horn-cores	2	–	–	–	–	–	–	–	–	–	–	–	–
Cranium	2	–	1	–	1	–	–	1	–	–	2	–	1
Maxilla	2	–	–	–	–	–	–	–	–	–	–	–	–
Dentes	20	4	4	–	–	–	–	2	–	1	–	–	–
Mandibula	8	1	14	–	–	–	–	3	–	–	2	–	–
Dentes	13	4	3	–	–	–	–	2	–	–	–	–	–
Dentes	293	5(2)	6	–	–	–	–	6	–	–	–	–	–
O. hyoides	–	–	–	–	–	–	–	–	–	–	–	–	–
Atlas	–	–	1	–	–	–	–	–	–	–	–	–	–
Epistropheus	4	–	–	–	–	–	–	–	–	–	–	–	–
Vertebrae	1(8)	(2)	–	–	–	–	–	–	–	–	–	–	–
Costae	(2)	(6)	–	–	–	–	–	–	–	–	–	–	–
Scapula	7	(1)	2	–	–	–	1	1	–	–	1	2	1
Humerus	6	2	–	–	–	–	1	–	–	–	–	2	–
Radius	8	–	2	–	–	–	1	–	–	1	1	–	1
Ulna	2	–	1	–	–	2	–	1	–	–	–	–	–
O. carpi	2	2	–	–	–	–	(1)	–	–	–	–	–	–
Metacarpus	10	3	–	–	–	–	–	1	–	–	–	1	–
Pelvis	8	2	1	–	–	–	–	–	–	–	1	–	1
Femur	6	–	1	–	–	–	–	–	–	–	1	–	1
Patella	1	–	–	–	–	–	–	–	–	–	–	–	–
Tibia	4	3	–	–	–	2	–	–	–	1	–	–	–
O. centrotarsale	3	–	–	–	–	–	–	–	–	–	–	–	–
Calcaneus	4	(3)	–	–	–	–	1	–	–	–	–	1	–
Astragalus	14	–	–	–	–	–	–	–	–	–	–	1	–
Metatarsus	9	–	1	–	–	–	–	–	–	1	–	–	–
Metacarpus/metatarsus	7	2	–	–	–	–	–	–	1	–	–	–	–
Phalanx I	6	1	–	1	–	–	–	–	–	–	–	3	–
Phalanx II	12	–	1(1)	–	–	–	–	–	–	–	–	–	–
Phalanx III	1	–	2	–	–	–	–	–	–	–	–	–	–

( ) Identification is uncertain.

the "Linear" phase, Period V represents the younger "Stroke-ornamented" pottery phase. In the sixth column the bones that could not be assigned with certainty to any Period are collected.

TABLE III. BYLANY, 9TH CENTURY.
DISTRIBUTION OF THE BONES

	Bos taurus	Capra/Ovis	Ovis aries	Sus domesticus	Sus scrofa	Sus sp.	Capreolus capreolus	Gallus gallus	Avis sp.	Crocidura suaveolens	Soricidae	Cricetus cricetus	Microtus arvalis	Apodemus flavicollis	Apodemus sp.	Mus musculus	Unidentified small rodent	Bufo sp.	Unidentified Amphibian
Antler	–	–	–	–	–	–	2	–	–	–	–	–	–	–	–	–	–	–	–
Horn-cores	1	–	1	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Cranium	5	–	–	–	–	–	–	–	–	–	–	1	–	3	–	1	1	–	–
Maxilla	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Dentes	13	–	–	4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Mandibula	12(1)	1	–	4	–	–	–	–	–	1	–	1	1(1)	3	–	1	1	–	–
Dentes	1	1	–	7	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Dentes	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
O. hyoides	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Atlas	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–
Epistropheus	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1	–	–
Vertebrae	–	–	–	–	–	–	–	One joung individual	–	–	–	–	–	–	–	–	1	–	–
Costae	–	–	–	–	–	–	–		–	–	–	1	–	–	–	–	Two individuals	–	–
Scapula	3	1	–	1	–	–	–		Three fragments	–	–	–	–	4	1(2)	–		At least two individuals	–
Humerus	4	–	–	2	–	–	–		–	–	1	1	–	6	2 (3)				
Radius	8(1)	2	–	1	–	–	–		–	–	–	–	–	3	–	–			
Ulna	3	–	–	–	–	–	–		–	–	–	–	–	4	–	–			
O. carpi	–	–	–	–	–	–	–		–	–	–	–	–	+	–	–			
Metacarpus	1	–	–	–	–	–	–		–	–	–	–	–	–	–	–			
Pelvis	4(2)	(1)	–	–	–	–	–		–	–	–	–	–	–	1	1(1)			
Femur	6	–	–	1	–	–	–		1	–	–	–	–	6	8 (3)	–			
Patella	1	–	–	–	–	–	–		–	–	–	–	–	–	–	–			
Tibia	6	–	–	1	–	–	–		2	1	–	–	–	6	(1) (2)	–			
Tibio-tarsus	–	–	–	–	–	–	–		–	–	–	–	–	–	–	–			
O. malleolare	–	–	–	1	–	–	–		–	–	–	–	–	–	–	–			
O. tarsi	–	–	–	–	3	2	–		–	–	–	–	–	+	–	–			
O. centrotarsale	3	(1)	–	–	–	–	–		–	–	–	–	–	–	–	–			
Calcaneus	3	–	–	1	–	–	–		–	–	–	–	–	–	–	–			
Astragalus	7	–	–	1	–	–	–		–	–	–	–	–	–	–	–			
Metatarsus	9	–	–	–	–	–	–		–	–	–	–	–	–	–	–			
Tarso-metatarsus	–	–	–	–	–	–	–	♂	–	–	–	–	–	–	–	–			
Metacarpus/metatarsus	–	–	–	1	–	–	–		–	–	–	–	–	–	–	–			
Phalanx I	4	1	–	–	–	–	–		–	–	–	–	–	–	–	–			
Phalanx II	7	2	–	–	–	–	–		–	–	–	–	–	–	–	–			
Phalanx III	3	–	–	–	–	–	–		–	–	–	–	–	–	–	–			

( ) Identification is uncertain.

Soudský subdivided his major Periods on the basis of the archaeological evidence in 15 phases. The first Period in three; the second in a pre, optimal and post phase; the third in an early and late phase and the fifth Period in another six phases. As the material is already too small to give a reliable picture of the live stock of the five major Periods, it is no use to divide them in these fifteen phases. It is also impossible to draw any conclusion about a possible change in the composition of the domesticated animals in the different Periods.

What can be learnt in general is that hunting was of small importance and that cattle were the most important domesticated animals – anyhow the most numerous slaughtered animals. In Germany (Müller, 1964; Stampfli, 1964) and in Hungary

TABLE IV. BYLANY, 14TH CENTURY.
DISTRIBUTION OF THE BONES

	Bos taurus	Capra/Ovis	Ovis aries	Sus domesticus	Equus caballus	Gallus gallus	Avis sp.	Piscis sp.	Cricetus cricetus
Horn-cores	3	–	2	–	–	–	–	–	–
Cranium	2	–	–	1	–	–	–	–	–
Maxilla	–	–	–	3	–	1	–	–	–
Dentes	9	6	–	3	3	–	–	–	–
Mandibula	4	1	–	3	–	–	–	–	2
Dentes	6	–	–	5	–	–	–	–	–
Costae	–	–	–	–	–	1	Three fragments	One fragment	–
Scapula	–	–	–	–	–	(1)			–
Humerus	–	–	–	–	–	–			–
Radius	–	1	–	–	–	–			–
Ulna	–	–	–	1	–	–			–
Metacarpus	1	1	–	–	–	2			–
Femur	–	–	–	1	–	2			–
Tibia	1	2	–	1	–	–	–	–	–
Tibio-tarsus	–	–	–	–	–	2	–	–	–
O. malleolare	–	1	–	–	–	–	–	–	–
Calcaneus	1	–	–	–	–	–	–	–	–
Metatarsus	3	–	–	–	–	–	–	–	–
Phalanx I	2	–	–	–	–	–	–	–	–
Phalanx II	2	–	–	–	–	–	–	–	–

( ) Identification is uncertain.

TABLE V. MEASUREMENTS.

Bos taurus and *Bos primigenius*

	IX C.A.D.	XIV C.A.D.
Horncores		
Circumference at the base	165.4	128.0
Maximum diameter	68.5	–
Minimum diameter	38.5	–

	V Mill. B.C.				IX C.A.D.				
Maxilla	I	I	II	II					
Length of the molar row	83.0	–	–	–	–	–	–	–	
Length M^1	26.0	–	–	–	–	–	–	–	
Width M^1	22.0	–	–	–	–	–	–	–	
Length M^2	30.5	(34.5)	–	29.0	–	–	28.0	25.0	
Width M^2	23.0	22.5	–	19.5	16.5	18.0	18.5	17.5	
Length M^3	32.0	–	33.0	–	–	–	–	–	
Width M^3	24.0	–	–	–	–	–	–	–	–

	V Mill. B.C.					IX C.A.D.					
Mandibula	I	III	II	?	III	III					
Depth of the horizontal ramus behind M_3	–	77.5	–	–	–	–	–	63.0	–	–	–
Depth of the mandibular symphysis	–	–	–	–	–	–	–	35.0	26.0	27.0	–
Length of the tooth-row	–	–	–	–	–	–	(136.5)	–	–	–	–
Length of the molar-row	–	–	–	–	–	–	85.5	88.5	–	–	–
Length of the premolar-row	–	–	–	–	–	–	(78.5)	–	–	–	–
Length M_3	35.5	35.5	38.5	–	33.5	(41.0)	(35.5)	35.5	–	–	32.5
Width M_3	13.5	13.5	15.0	14.5	14.0	–	15.5	13.5	–	–	12.0
Length M_2	–	31.0	–	–	–	–	24.5	25.0	–	–	–
Width M_2	–	15.5	–	–	–	–	16.0	13.5	–	–	–

	V Mill. B.C.				IX C.A.D.
			B.p.	B.p.	
Scapula	IX	?	III	II	
Minimum length of the neck	(55.5)	–	73.0	73.5	45.0
Length of the articular surface	61.0	–	–	–	–
Width of the articular surface	51.5	–	–	–	–
Length proc. articularis	71.5	(74.0)	–	–	–

(Bökönyi, 1964) hunting was also of small importance but the composition of the live-stock was not the same in the different settlements. Cattle were the most important animals in a settlement with "Linear" pottery in Rhineland and "Stroke-ornamented" pottery in Central Germany. In a number of other settlements pig or the small ruminants came, on the basis of the number of bones recovered, in the first place.

In the Medieval settlements few bones of wild animals were found (Table III, IV). Among the domestic animals cattle came first, pig in the second and sheep/goat in the third place. Domestic fowl was found in both Periods.

Between the V Millenium B.C. and the Middle Ages man became acquainted with the domestic horse in the Bronze Age, the domestic fowl in the Iron Age and the cat, the donkey and the goose in the Roman Age.

Only in few Medieval European settlements have the bones of ducks been found. During the Middle Ages in Central and North-West Europe, with few exceptions, the small ruminants always come in the third place, while cattle and pigs alternately have the first and the second place (Beranová, 1966; Clason, 1968). In most of the settlements hunting was of small importance, this in contrast to the importance of hunting found with the eastern Slavs in the Forest and the Forest-Steppe Area in the USSR (Beranová, 1966). Both in the Bandceramic settlement and the Medieval sites a number of bones of small rodents and amphibians are found. As these are animals with burrowing habits it is quite possible that they buried themselves at a later date among the prehistoric and early historic remains.

THE DOMESTIC ANIMALS

Cattle – Bos taurus – come first in both Periods. Most of the bones are damaged and only a few could be measured (Table V). The measurements that could be taken compare for the Bandceramic cattle very well with those given by Müller (1964) for Central Germany. The Medieval cattle were considerable smaller than those of the Bandceramic. The same phenomenon of oxes becoming smaller in time could be observed in prehistoric and early historic Bavaria (Boessneck, 1958), North-West Germany (Nobis, 1954), Holland (Clason, 1967) and England (Jewell, 1963).

Of the two Bandceramic maxillae one was of an animal not yet 34 months old, a mandible was of an approximately 28 months old animal. Five lose M_3 were found and two mandibulae with a full set of teeth of animals at least three or four years old. The distal epiphyses of a femur and a tibia were not yet fused with the

TABLE V. MEASUREMENTS (CONTINUED).

Bos taurus and *Bos primigenius*

	V Mill. B.C.				IX C.A.D.
Humerus	II	II	B.p. ?	B.p. ?	
Maximum distal width	(81.0)	(90.0)	101.0	109.0	76.0
Width of the trochlea	–	(76.5)	91.0	–	66.5
Minimum width of the diaphysis	–	–	–	–	–

	V Mill. B.C.		IX C.A.D.			
Radius	III	II				
Maximum proximal width	–	–	75.0	–	78.0	–
Width of the proximal articular surface	–	–	67.5	–	71.0	60.5
Maximum distal width	(73.0)	74.5	–	71.0	–	–
Width of the distal articular surface	66.0	–	–	64.5	–	–
Minimum width of the diaphysis	–	–	37.0	–	–	–

	V Mill. B.C.							IX C.A.D.	XIV C.A.D.
Metacarpus	I	II	II	III	II	?	III	B.p. IV	
Maximum length	–	–	–	–	–	–	–	–	172.0
Maximum proximal width	–	(52.0)	–	57.0	–	–	–	66.5	46.0
Maximum distal width	56.5	–	57.0	–	68.0	67.5	68.0	–	55.5	43.5
Maximum width of the diaphysis	–	–	–	32.0	–	–	–	–	–	25.0

	IX C.A.D.
Pelvis	
Length of the acetabulum	66.0

shaft, and according to Habermehl (1961) of not yet $3\frac{1}{2}$–4 years old animals when slaughtered.

The Medieval cattle were adult when slaughtered; only a radius and a metacarpus were of a very young animal. With an undamaged metacarpus and meta-

TABLE V. MEASUREMENTS (CONTINUED).

Bos taurus and *Bos primigenius*

	IX C.A.D.											
Femur												
Maximum distal width	61.5	69.5										
	V Mill. B.C.					IX C.A.D.			XIV C.A.D.			
Metatarsus	III		II		II							
Maximum length						216.0		–	(192.0)			
Maximum proximal width	61.0					43.5	45.0		44.5	39.5		
Maximum distal width		52.0	(54.0)	54.0	57.0	49.0		45.0	44.0			
Minimum width of the diaphysis			28.0			24.0	22.5		24.5	19.5		
	V Mill. B.C.											
			B.p.									
Calcaneum	III	II	II									
Maximum length	118.5		169.0									
Maximum width	40.0	42.0	57.5									
	V Mill. B.C.								IX C.A.D.			
								B.p.				
Astragalus	III	II	II			II	IV					
Maximum lateral length	58.5	70.5	76.0	77.0	78.5	70.0			56.0	55.0	59.0	
Maximum medial length	53.5		68.5	69.5	69.0	67.0	68.0	(84.0)		52.0	55.0	
Width of the trochlea	38.0		51.5	53.5	50.0	63.0	44.5	(62.5)		35.5	39.0	
Lateral thickness	32.0		42.5	43.0		39.0	41.5			31.5	32.5	
Medial thickness	31.5		43.5	46.0	44.5		42.5	54.0			33.5	

tarsus it is possible to calculate the height at the withers with the method of Boessneck (1955). The metacarpus of the 14th century gives a height at the withers of 108,5 cm, the metatarsus of 123,2 cm. These measurements compare well with those found by Ambros (1962) at Budmerice (XIV and XV century).

TABLE V. MEASUREMENTS (CONTINUED).

Bos taurus and *Bos primigenius*

Maximum lateral length	59.0	59.5	63.0								
Maximum medial length	55.0	54.0	57.0								
Width of the trochlea	39.0	(36.5)	–								
Lateral thickness	32.5	32.5	34.0								
Medial thickness	33.5	–	35.5								
	V Mill. B.C.							IX C.A.D.			
Phalanx I	II	V	II	?	B.p. II	B.p. II	B.p. II				
Maximum lateral length	63.5	(64.0)	(71.0)	–	73.5	73.5	73.0	50.0	58,5	56.5	57.5
Maximum proximal width	30.5	–	37.5	–	39.5	35.0	38.5	28.0	28.5	26.5	26.4
Maximum distal width	28.0	31.0	37.0	29.0	–	(34.0)	36.5	26.5	27.0	28.0	–
Minimum width of the diaphysis	25.5	28.0	33.0	–	33.0	29.0	33.5	23.0	23.0	23.0	23.5
	XIV C.A.D.										
Maximum lateral length	47.0	46.0									
Maximum proximal width	28.0	27.0									
Maximum distal width	27.5	26.0									
Minimum width of the diaphysis	23.5	22.0									
	V Mill. B.C.					IX C.A.D.					
Phalanx II	II	?	III	II	II						
1. Maximum lateral length	46.5	47.5	50.5	51.0	–	30.0	36.0	36.5	49.5	38.0	39.5
2. Maximum proximal width	32.0	34.5	35.0	39.0	32.0	27.5	27.0	27.0	25.0	27.5	(29.0)
3. Maximum distal width	27.0	27.0	28.5	–	–	23.5	25.0	24.0	25.0	22.5	23.5
4. Minimum width of the diaphysis	25.0	26.0	27.0	–	27.0	21.0	22.0	22.5	21.5	21.0	21.0
	XIV C.A.D.										
1. Maximum lateral length	31.0	32.5									
2. Maximum proximal width	23.5	24.0									
3. Maximum distal width	19.0	20.0									
4. Minimum width of the diaphysis	17.5	19.0									

The *small ruminants – Ovis aries/Capra hircus* – come in the third place. Most of their bones were so badly damaged that it was impossible to decide whether they belong to sheep or to goat.

Among the Medieval bones sheep was found with certainty. In Hungary as well as in Central Germany both species were found in the Bandceramic and Medieval settlements.

A heavy horn-core of a ♂ was found at each of the Medieval sites. A smaller ♀ horn-core was found among the bones of the XIV century. Two Bandceramic p_3 indicate animals not yet two years old. The tibia of which the distal epiphyses was not yet fused with the shaft was of an animal younger than 15–20 months (Habermehl, 1961).

In the Medieval sites sheep and goat generally were of small importance for the daily meat supply, as elsewhere in Europe.

Domestic Pig – Sus domesticus – comes in the second place both in Bandceramic and Medieval Bylany. Only a few Bandceramic bones were measurable.

The measurements fall between the limits found by Müller for Central German

TABLE V. MEASUREMENTS (CONTINUED).

Capra/Ovis	
	V Mill. B.C.
Mandibula	?
Length of the tooth-row	79.0
Length of the molar row	52.5
Length of the premolar row	28.0
Length M_3	22.5
Width M_3	8.0
Length M_2	24.5

Capra/Ovis		
	V Mill. B.C.	
	?	
Humerus		
Maximum distal width	28.5	
Width of the trochlea	28.0	31.5
	V Mill. B.C.	

TABLE V. MEASUREMENTS.

Phalanx I	?
Lateral length	34.0
Maximum proximal width	11.5
Maximum distal width	10.5
Minimum width of the diaphysis	9.5

	V Mill. B.C.
Matacarpus	?
Maximum proximal width	23.5

Sus domesticus and *Sus scrofa*

	V Mill. B.C.			
Mandibula	?	III		?
		r.	l.	
Length of the molar row	–	–	73.0	67.0
Length of the premolar row	–	39.0	–	–
Length M_3	–	–	35.5	–
Width M_3	–	–	16.0	–
Height of the vertical ramus behind M_3	–	–	–	45.0
Length M_3	–	–	–	–
Length M_1M_2	–	–	–	–

	V Mill. B.C.	
	S.d.	S.s.
Scapula	II	II
Minimum length of the neck	21.5	31.5
Length of the articular surface	27.5	–
Width of the articular surface	(21.0)	–
Length proc. articularis	33.5	–

	V Mill. B.C.
Pelvis	III
Length of the acetabulum	33.0

TABLE V. MEASUREMENTS.

Cervus elaphus		
	V Mill. B.C.	
Tibia	?	
Maximum distal width	55.5	
Gallus gallus dom.		
	XIV C.A.D.	
Metacarpus		
Maximum length	34.5	
	XIV C.A.D.	
Femur		
Maximum length		70.0
Maximum distal width	13.5	15.5
Minimum distal width		7.0
	XIV C.A.D.	
Tibio-tarsus		
Maximum length	91.0	
Proximal width	16.5	18.5
Distal width	9.5	
Minimum width of diaphysis	6.0	

Bandceramic pigs. The Medieval pig were the small animals usually found in the Middle Ages. Of the Bandceramic mandibulae one is of an approximately half a year old piglet, two of animals about 26 months old, and five with a full of teeth of animals older than two years. Two were ♂♂ and two ♀♀. Of three mandibulae it was impossible to tell the Age. In the IX century A.D. pigs were slaughtered young.

Three skeletons, two of only a few months old animal and a third of an approximately half year old animal, were found. One mandibula was of an animal 22

months old, and one of an adult animal. Among the 14th century remains two deciduous molars of the maxilla were found.

Of the *Dog – Canis familiaris* – only one bone was found at Bandceramic Bylany.

The *Horse – Equus caballus* – was found in the layers of the XIV century. Three molars of the maxilla and an astragalus were in such a bad state of conservation that they were unmeasurable.

Remains of the *Domestic Fowl – Gallus gallus dom.* – were found in the Medieval sites.

In the "Burgwallzeit" (IX century) a tibio-tarsus and a tarso-metatarsus. From the XIV century five bones are known, a metacarpus, two femur and two tibio-tarsus fragments. The measurements of these bones compare with those of Budmerice (Ambros, 1962).

THE WILD ANIMALS

Of the *Hare – Lepus europaeus* – one skullfragment was found at the Bandceramic site.

Remains of the *Wild Boar – Sus scrofa* – were found in all three periods in small quantities.

Of the *Roe Deer – Capreolus capreolus* – one bone was found in Bandceramic Bylany. From the IX century two antlers with skullfragments are known. These were obviously of hunted animals.

Red Deer – Cervus elaphus – is in Bandceramic Bylany represented by six pieces, three shed antlers, one antler of a hunted animal and an antler worked into an axt-shaft.

Remains of the red deer were not found at the two Medieval sites.

Of the *Aurochs – Bos primigenius* – ten bones were found in Bandceramic Bylany.

The small insectivores, rodents and amphibians that were mostly found in the layers of the IX century will be discussed here shortly. They were identified with the help of specimen in the collection of the Royal Museum of Natural History at Leiden.

Of *Crocidura suaveolens – Lesser White-toothed Shrew* – one mandibula and three long bones were found among the IX century bones. According to Gaffrey (1953) the length of the tooth row of this species lies between 6,6–7,4 mm, the *Pygmy Shrew – Sorex minutus L.* – has a teethrow length of 5,8–6,6 mm, but the teeth have their tips coloured reddish-brown and although it is possible that the red colour vanished of the teeth of the mandible found at Bylany, I think it more probable that this mandible belongs to C. suaveolens.

Length; measured from proc. angularis – outer rim of Alveolus I_1	10,8
Length of the premolars and molars	5,3
Length of the tooth row	6,1

Of the *Common Hamster – Cricetus cricetus* – remains were found in all three settlements. A skull, tibia, fibula and rib belonging to one animal, a right mandibula had a much used set of teeth. It was possible to take the following measurements.

		l.	r.
Maximum length	51,9		
Basal length	48,7		
Maximum width of the skull	20,5		
Width postorbital constriction	6,7		
Length of the cheek teeth row	8,5	8,5	8,0
Width between the occipital condyles	10,0		

Length of the tooth row	8,3	8,3
Length; measured from the Proc. ang.-outer rim of alveolus I_1	31,5	29,5
Length; measured from the Proc. cond.-outer rim of alveolus I_1	32,5	

	Humerus	Radius	Tibia	
Maximum length	37,0	34,5	34,3	42,5
Maximum proximal width	7,0	3,5	8,2	8,0
Maximum distal width		4,5	6,2	6,5
Minimum width of the diaphysis	4,0		2,8	3,5

Of the *Common Vole – Microtus arvalis* – a left mandibula was found. It is difficult to separate the Common Vole from the *Field Vole – Microtus agrestis* – so that a second damaged left mandibula may belong to this species, but it is more probable that it is of the same individual as the mandibula of the common vole, as they were found together.

A large number of bones from the *Yellow-necked Fieldmouse – Apodemus flavicollis* – belong to at least four individuals. Husson (1962) states that the difference between the Yellow-necked Fieldmouse and the *Longtailed Fieldmouse – Apodemus*

sylvaticus – is that the first is really larger than the second. According to Husson, skulls and mandibulae with a length of the toothrow of less than 3,9 mm belongs to A. sylvaticus, those with a length of the toothrow larger than 4,1 mm belongs to A. flavicollis. The skulls and lower jaws with measurements that are in between these measurements should be named Apodemus sp.

The length of the tooth-row was for four skulls 4,4; 4,7; 4,7; 4,7 mm.

Of most long bones the epiphysises were not yet grown to the shaft and could not be measured. Of three humeri the maximum length was 14,4; 14,5 and 14,8 mm.

Of the *House mouse – Mus musculus* – three bones were found: a part of the skull, a mandibula and a pelvis fragment.

The length of the mandibula was 10,8 mm; the length of the cheek-tooth-row 2,9 mm. According to Baumann (1949) the house-mouse is one of the oldest followers of man and it is well possible that it followed him from Central Asia to Europe.

A number of small bones belonged to *Amphibians*. It was possible to identify a number of bones from the IX and XIV century layers with the work of Schaefer (1932) as belonging to toads – Bufo bufo and/or Bufo veridis. One bone may be that of a frog. The others could not be identified.

In conclusion, we can say that the composition of the live-stock in the V Millennium B.C. and the IX and XIV century A.D. was much the same. New elements in the Middle Ages are the horse and domestic fowl. The finds of Bandceramic Bylany compare very well with those of other Bandceramic settlements. There was no extensive hunting in the Middle Ages and the small ruminants (sheep/goat) were, like elsewhere in Europe, unimportant as meat supply. The Medieval finds compare very well with those Ambros described for Slovakia (Ambros, 1962[a], [b]).

The small number of bones for the Bandceramic as well as for the Medieval Period does not imply that Stock-rearing was of lesser importance than agriculture, as it is only the result of the bad preservation of the bones, owing to which especially the bones of the smaller species are possibly underrepresented or missing.

That some of the species were not found in all the Periods does not imply that they did not exist, or were not hunted in that Period, as their absence may be result of the small number of bones found.

NOTES

[1] I am grateful to both Dr. Soudský and Dr. Smetánka for allowing me to study the animal bones.

[2] GrN 4752 – 6170 ± 45, 4320 B.C.
GrN 4754 – 6270 ± 65, 4320 B.C.
GrN 4755 – 6180 ± 45, 4230 B.C.

[3] GrN 4751 – 5810 ± 65, 3860 B.C.

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