

## ANCIENT DOMESTIC PIGS IN THE URALS (RUSSIA)

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**Abstract:** The authors have studied pig bone remains of late Bronze age (first apparition of pig in the Urals) and Iron age in the South and Middle Urals. They analyze the composition of these remains (type of bones, age of the animals) and compare some characters of the mandible for different sites and for the two ages.

**Keywords:** Domestic pig, *Sus scrofa*, Suidae, Eurasia, Archaeological bone remains, Mandible, Bronze age, Iron age.

IBEX J.M.E. 3:251-253

The work is based on the literature (Tsalkin, 1972; Petrenko, 1984) and on the original data on the composition of bone remains from archaeological sites. The area of the Wild boar in the Holocene was the southern taiga zone, mixed forests, forest steppe, the north of the steppe zone in the western and eastern regions of the Urals.

In the settlements of the Neolithic, Bronze, Iron and Middle ages bones of the Wild boar account for less than 1% from the bones of wild species. This evidences a poor hunting pressure on the Wild boar populations in the Urals in ancient times. In the 19th century A.C.<sup>1</sup> Wild boar hunting increased sharply and in the 20th century A.C. the species was exterminated. Presently its area has been recovered as a result of reacclimatization.

Remains of the domestic pig have been studied from archaeological sites in the western regions of the Middle Urals (late Bronze age - 3 sites; Iron age - 32 sites), from the western regions of the South Urals (late Bronze age - 30 sites, Iron age - 12 sites) and from the eastern regions of the South Urals (late Bronze age - 10 sites). Totally about 5,000 bones of the pig were studied. They were found in settlements and sacrificial complexes.

The pig first appeared in the South Urals in the beginning of the late Bronze age (18-17th

cent. B.C.<sup>2</sup>) together with the people of the Abashevo culture from the Middle Volga regions. In the middle of the late Bronze age the population of the western regions of the Middle Urals began breeding the pig. Since then up to the Middle ages the pig was bred by the whole population of the Ural western regions, from the southern taiga zone to the forest steppe zone. In the Ural eastern regions the pig was bred only by the population of the Syntashta, Petrovka (18-16th cent. B.C.) and Cherkaskal (14-13th cent. B.C.) cultures in the South Urals. In the settlements of the late Bronze age in the Ural western regions the pig bones average 5.5% in the forest - steppe zone, 9.6% in the broad-leaved forests, 12.3% in the mixed forests, 4.0% in the steppe zone. In the settlements of the late Bronze age in the eastern regions of the South Urals (in the steppe zone) the pig bones average 1.3%.

In the settlements of the Iron age in the Ural western regions they account in the southern taiga zone for 4.9%, in the mixed forests for 26.7%, in the broad-leaved forests for 35.4%. Thus, in comparison with the late Bronze age the role of the pig in the economics of the population of the Ural western regions is much greater in the Iron age. One of the reasons for that was the extensive development of agriculture in the Iron age. The most favourable natural zones for the pig breeding were the zones of mixed and broad-leaved forests.

In the settlements of the late Bronze age in the western regions of the South Urals skull bones

<sup>1</sup> A.C.: After Christ.

<sup>2</sup> B.C.: Before Christ.

make up 43.0% of the pig remains, postcranial skeleton bones 57.0%. In the settlements of the Iron age in the same region skull bones account for 43.6%, postcranial skeleton bones for 56.4%. In the settlements of the Iron age in the western regions of the Middle Urals skull bones make up 27.7%, postcranial skeleton bones 72.3%. Similar composition of the skeleton elements and killing age (Tab. 1) are indicative of the similar means of the pig usage by the people of the western Ural regions in the Bronze and Iron ages.

We studied variability of mandible sizes in 4 samples: two, from the western and eastern regions of the South Urals, referred to the Bronze age; two, from the western regions of the South and Middle Urals, referred to the Iron age. In each sample the variability was studied in two groups of different ontogenetic age: from 3.5-5 months to 10-12 months ( $M_2$  has not cut) and from 10-12 to 17-22 months ( $M_3$  has not cut). We analyzed the following characters (1st and 2nd age groups): i- diastem length ( $dC - dP_2$  or  $C - P_2$ ); ii- premolar length ( $dP_2 - dP_4$  or  $P_2 - P_4$ ); iii -  $dP_4 - M1$  length (first age group) or  $M_1 - M_2$  length (2nd age group); iv - diastem height (up to  $dP_2$  or  $P_2$ ); v- mandible body thickness under  $M_1$ .

It was found that mandible sizes of the same

ontogenetic age and from the same chronological period but different territories did not differ in the studied characters, therefore we combined them in two chronological samples: late Bronze age and Iron age. Comparison of mandible sizes of the first age group ( $M_2$  uncut) showed that pigs of the Iron age had a shorter diastem and less body thickness (Tab. 2).

In the second age group these differences remained, besides there appeared distinctions in the molar lengths and  $M_3$  sizes (Tab. 2).

During the transition from the Bronze to the Iron age  $M_3$  had a decreased correlation ratio (from 0.55 to 0.05) and altered regression coefficients: for the late Bronze age  $y = 5.88 + 0.296x$ ; for the Iron age  $y = 14.24 + 0.05x$ .

Thus, pigs of the Iron age compared to the pigs of the Bronze age had shorter snouts and  $M_3$  and thinner mandibles, which was connected with the changes in the mandible growth process.

**REFERENCES**

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**Table 1: Age composition of killed animals from the settlements in the Ural western regions.**

Age (months)	Late Bronze age		Iron age			
	South Urals		South Urals		Middle Urals	
	N		N		N	
up to 3.5	5	3.0%	0	-	0	-
from 3.5-5 to 10-12	51	30.5%	43	37.7%	20	28.6%
from 10-12 to 17-22	79	47.3%	59	51.8%	40	57.1%
over 22	32	19.2%	12	10.5%	10	14.3%

Table 2. Mandible and M<sub>3</sub> sizes in the pigs of the Urals.

Characters*	N	Min. - Max.	M ± m	SD
		Late Bronze age	(First age group, M <sub>2</sub> uncut)	
i	18	14.0 - 25.0	19.16 ± 0.79	3.34
ii	28	34.8 - 44.0	38.94 ± 0.34	1.82
iii	40	30.4 - 39.0	35.09 ± 0.32	2.00
iv	21	27.1 - 35.0	31.68 ± 0.55	2.52
v	21	16.9 - 23.0	20.12 ± 0.32	1.45
		Late Bronze age	(Second age group, M <sub>3</sub> uncut)	
i	23	22.0 - 39.4	27.78 ± 0.86	4.11
ii	22	36.5 - 43.6	40.13 ± 0.35	1.65
iii	73	34.0 - 42.8	38.41 ± 0.23	1.96
iv	14	35.2 - 50.4	43.52 ± 1.09	4.08
v	32	23.1 - 30.3	26.10 ± 0.34	1.93
M <sub>3</sub> length	19	34.6 - 42.6	38.48 ± 0.52	2.27
M <sub>3</sub> width	18	13.8 - 19.0	17.26 ± 0.30	1.25
		Iron age	(First age group, M <sub>2</sub> uncut)	
i	33	12.0 - 22.1	16.80 ± 0.41	2.33
ii	58	36.5 - 42.1	39.44 ± 0.20	1.49
iii	80	31.4 - 38.6	35.11 ± 0.15	1.35
iv	44	27.4 - 35.0	31.01 ± 0.32	2.14
v	41	16.9 - 20.8	18.55 ± 0.17	1.07
		Iron age	(Second age group, M <sub>3</sub> uncut)	
i	27	15.5 - 27.6	21.71 ± 0.59	3.09
ii	28	38.3 - 44.0	40.80 ± 0.33	1.74
iii	75	32.3 - 40.0	37.14 ± 0.19	1.65
iv	14	35.5 - 47.2	40.56 ± 0.98	3.65
v	41	21.1 - 30.3	24.30 ± 0.30	1.91
M <sub>3</sub> length	18	30.5 - 38.6	34.66 ± 0.49	2.08
M <sub>3</sub> width	16	14.3 - 17.1	15.91 ± 0.21	0.85

\*Description of characters is given in the text.