DATE ON ANIMAL BONES FROM THE HALLSTATTIAN FORTIFICATION AT ŞIMLEU SILVANIEI – OBSERVATOR (SĂLAJ COUNTY)

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SUMMARY: *The fauna remainders were brought to light during several campaigns, carried out with interruptions among 1996–2008. That is a sample of 539 fragments exclusively derived from mammals, being collected from dwellings and waste pits, postholes, Table 3–7). Within the pit no. 1 under the metal workshop was found a dog skeleton. It is about a specimen with a stature of 49.23 cm (Table 2). Domestic/ wild ratio with a value of 92.68/ 7.32% (as NISP) or 87.3/ 12.68% (as MNI) rather suggests a reduced weight of meat and other products from hunting (skins, furs). Apparently, the red deer was little exploited, his percentage cannot exceed 5–5.6%, and the boar has a value close to red deer (4.22% as individuals). The aurochs and roe deer have insignificant proportions (1.41% as individuals). In the domestic sector, the pig prevails with 31.85%, followed by cattle with 29.94% and ovicaprids with 23.57% (Table 1). Pork and mutton were the main sources of meat and to a lesser extent beef. Sheep/ goats and cattle were killed, especially after the reducing of "economic performance" used mainly for milk, draught power (cattle), wool (sheep). There were no seasonal cuts, being practiced all year round, depending on the needs of the community. The horse may have used in food. His percentage is around 5.41%. It seems that the community should not have a flourishing economy, but of subsistence one, with a smaller share of animal protein.*

KEYWORDS: *Hallstattian fortification, ritual pit, animal remains, dog skeleton, animal economy*

REZUMAT: *Materialul osteologic analizat provine din mai multe campanii arheologice, derulate cu întreruperi, între 1996–2008. Este vorba de un eșantion de 539 fragmente, exclusiv de la mamifere, recoltate din locuințe și gropi (de par, menajere, rituale,Tab. 3–7) . Din groapa nr. 1, de sub atelierul metalurgic provine un schelet de câine. Este vorba de un exemplar cu talia de 49.23 cm (Tab. 2). Raportul specii domestice/ sălbatice cu o valoare de 92.68/ 7.32% ca resturi sau 87.3/ 12.68% ca indivizi sugerează ponderea redusă a cărnii și altor produse obținute din vânat (piei, blănuri). Se pare că cerbul era exploatat într-o mică măsură, ponderea sa nu trece de 5–5.6%, mistrețul pare să aibă o valoare apropiată de cerb (4.22% ca indivizi). Bourul și căpriorul au ponderi nesemnificative (1.41% ca indivizi). În sectorul domestic, porcul prevalează cu 31.85%, urmat de vite cu 29.94% și ovicaprine cu 23.57% (Tab.1). Suinele erau furnizorul principal de carne, la fel rumegătoarele mici și într-o măsură mai mică bovinele. Ovicaprinele și vitele erau tăiate, mai ales după ce-și reduceau „performanțele economice", fiind utilizate mai ales pentru lapte, forță de muncă (vitele), lână (ovicaprinele). Nu existau tăieri sezoniere, ele se practicau pe tot parcursul anului, în funcție de necesitățile comunității. Cabalinele posibil să fi avut și ele o utilizare în alimentație. procentul lor este de 5.41%. Se pare că comunitatea nu avea o economie prea înfloritoare ci una de subzistență, cu o pondere mai mică a proteinelor de origine animală.*

CUVINTE-CHEIE: *fortificație hallstattiană, groapă rituală, resturi de animale, schelet de câine, economie animalieră*

The point *Observator/ Observatory* is the top of Măgura Şimleului (596 m), a complex of hills which dominates the north-western side of Şimleului Depression. At its foot to the south, on the shore of Crasna River lies the Şimleu Silvaniei town. Throughout field research started in 1990 a fortified Hallstattian settlement was identified, with an area of about 35 ha and a plan adapted to land configuration. It has been dated

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in Ha B1-Ha C (Gáva culture), being reused during the Dacian (Ist century BC) and Early Middle Age epochs[1]. The sample in question comes from several archaeological campaigns, carried out with interruptions among 1996–2008. Few remainders were collected; we are talking about 539 fragments, representing only the mammal class. They originate in dwellings, household annexes, some of them classified as *„simple domestic deposits, used at an earlier time, probably as storage pits up to damage"*[2].

The bonny material was harvested in several campaigns, totalling 539 bones from 71 individuals. The 1994' excavations[3] provided 168 bones, half of them recovered in a dwelling (L1/1994) and various pits. The 1999 and 2000' campaigns furnished only three bones from two dwellings (Tab. 4). The 2001'campaign[4] produced 221 bones, of which 135 are from the fortification ditch, the other ones from the filling of a dwelling, a metal workshop and various pits noted by cx. 1, 4, and 110. Only three pieces originating in two post holes (cx. 160 and 169) unearthed during 2003's campaign. Just 104 animal bones were collected during 2006's campaign[5]. They come from dwellings, households (cx. 8, 62, 63, 65) and pits with different destinations: cx. 24, 27, 31, 60, 76 (post holes). 40 bones were provided by 2008's campaign[6], from a household annex (cx. 47) and two pits denoted by cx. 13, 56. Although it has been dug a lot in the site, the bony material is reduced, as researchers of the site were observing too, *"one reconfirmed the older assertion relating to the cvasi-absence of bones in the pits from the first Iron Age at Observator"*[7]. About 96 remnants were provided by dwelling, L1/1994; 51 of them were calcined, the rest having some burning spots. The house was circular, with a diameter of 3 m, steeped in the sterile about 0.65 m. A human skeleton of an individual killed, once with the violent end of the habitation was found in the NW corner[8]. Of the 96 remainders in the house, only 33 were identified. They come from two cows 30–36 months old (slaughtered perhaps in autumn/ winter) and another 8–10 years old, a pig of 2–3 years old, a sheep of 2–3 years old, a horse, a roe deer and an adult stag. Evidently a few components preserved from their skeletons, e.g. a pair of lower jaws and a proximal tibia from a horse, the rest of the sample either reaching elsewhere, or get rid of cleanliness and thrown out. Usually the houses provided few wastes: a jaw bone from horse, with reddish

Table 1 – Frequencies of species at Şimleu – *Observator*

Taxa	**Nr. frgm.**	**%**	**MNI**	**25.35**
Bos taurus	94	29.94	18	30.99
Sus s. domesticus	100	31.85	22	21.13
Ovis/Capra	74	23.57	15	5.63
Equus caballus	17	5.41	4	4.22
Canis familiaris	6	1.91	3	**87.32**
Domestic mammals	**291**	**92.68**	**62**	5.63
Cervus elaphus	16	5.1	4	4.22
Sus s. ferrus	3	0.96	3	1.41
Capreolus capreolus	2	0.63	1	1.41
Bos primigenius	2	0.63	1	12.68
Wilds mammals	**23**	7.32	9	**100**
Identified	**314**	**100**	**71**	25.35
Ribs	10			30.99
Frgm. from large taxa	132			21.13
Frgm. from small taxa	83			5.63
Total sample	**539**			**4.22**

1 Pop et *alii* 2002, 304
2 *Ibidem*
3 Bejinaru, Pop 1995, 89–90
4 *Ibidem*
5 Pop et *alii* 2007
6 Pop et *alii* 2009, 210–211
7 Pop, Bejinaru, Pupeză 2004, 332
8 Bejinaru 1995, 89

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pigmentation was found in L4/2000. The same housing area denoted L1/ 2001 and equipped with pit supplies, fireplace, oven for domestic use[9] furnished a pig rib and a splinter from a small sized-species. An interesting construction, a metallurgical workshop, with two phases of filling was discovered in 2001. "*A part of a human skeleton was found in a shallow pit in the floor of the workshop*"[10]. Alternatively, we identified bones from a dog skeleton, at the depth of 1.74–1.90 m, in the pit no. 1, beneath the workshop. It is dated in the earlier stage of the building. We do not know whether is the same skeleton (with inaccurate identification in this case) or there is a human skeleton, besides the fixed one. The dog skeleton is incomplete, including the long bones of the limbs, a few ribs, and metapodii from feet (the present parties are coloured in grey on Fig. 1). Femora, left tibia, right innominate, the sacrum, the last two lumbar vertebrae, a fibula and a rib were taken from the depth of 1.74 m. The right tibia, the radius, two thoracic vertebrae, nine ribs, metatarsal (IInd left, IIIrd left, IVth right+left.) and metacarpals (III^{td} right, Vth right) unearthed from the depth of 1.8–1.9 m. The left innominate and a part of the righteous come from the pit no. 110 in the workshop, at a depth of 1.40. The dog stands up 49.23 cm at the shoulder with a medium robustness. The animal was older, with exostoses on the radius-ulna junction. Some greenish spots on the distal tibia due to contact

Table 2 – Measurements of complete bones from Şimleu – *Observator*

	Cattle	**Sheep**		**Dog**						
Bone	Mt	Mc	Mc	Radius	Radius	Ulna	Femur	Femur	Tibia	Tibia
Right/left	L	L	L	R	L	L	R	L	R	L
GL	205	117.5	107	150	150	175.5	174	174	171.5	171.5
SDO						21				
Bp	48.5	21	22	16	16		34.5	34.5	30.5	30
SD	25.5	12	12	12.5	13		12.5	12.5	12	12
Bd	53.5	22	23.5	19	19		29	29	20.5	20.5
I. slenderness	12.44	10.21	11.21	8.33	8.7		7.18	7.18	7	7
Tall (cm)	**117.26**	**56.98**	**51.89**	**45.6**	**46**	**48.31**	**53.34**	**53.3**	**49.97**	**49.97**

with a bronze object. The pit no.110 also contained an incisor and a fragmentary neurocranium from a dog, a small ruminant ischium and a splinter. Bones were probably „lost" in the filling of the complex. Pit no. 1 also contained, in addition to dog bones, two canines from pig and a cattle femurus. To mention the filling of the workshop belongs to two stages. From the lower stratum of the deposit, in addition to Canis skeleton 4 not assigned splinters and 5 cattle bones were also found. 56 bones originated in the upper layer, most of them from small sized-animals, pig, sheep and goat. They come from seven individuals (three pigs, four sheep). Bones of large specimens, cattle, horse; red deer are few, raising just 3 individuals (Fig. 5). It is nothing out of the ordinary that elements of smaller species or minor points from large animals running, in workshop and other buildings. Gr. 25/1994 supposed as ritual pit[11] includes the following elements: two jaw bone fragments from sub-adult cattle (milk premolars unchanged) gathered from the bed. A human ball joint recovered at 0.40 –1 m depth. Between 1–1.50 m collected many burned splinters, among them a symphysis from a cattle mandible. From 1.20 m depth come a proximal phalanx, an eroded molar and a splinter from cattle. From 1.50 m comes a breach of a large bodied-animal, possibly cattle. A vessel at a depth of 1–1.26 m contained three undetermined animal bones.

The bones are very fragmented, poorly preserved due to soil acidity, many remnants are calcined and deformed by fire, and some of them are chewed by animals. As a consequence of these destructive factors, out of the 539 quantified fragments, 225 bones (about 42 %) are not specified. According to statistics (Table 1) domestic mammals are quoted with 92.68% as NISP (fragments) and 87.32% as MNI (individuals). Pig rank the first by its 100 fragments (29.94%) originating in 22 presumed specimens (30.99%). Pig

[9] Sana 2006, 52–53
[10] Idem, 57
[11] *Ibidem*

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outnumbers cattle with 3.5% as the MNI, and with two percent as NISP. The pig share is higher on MNI, due to the big number of jaw bones, better maintained under conditions of an acid soil. On the other hand, smaller elements, in this case, maxillaries and isolated teeth are more common in dwellings and post holes. Instead, the large bones are spread out mainly in the trench of fortification and less in housing. And finally, to remember the spatial relation of the fortification, the milieu favouring the rise of the pig with less effort than cattle. Anatomical distribution of bones (Table 5) shows a prevalence of skull and dentition elements with 28% and a poor representation of the distal parts of the limbs (feet). The fleshy parts of the body, including belts, stylopodium, zeugopodium („hams") are well represented, accounting for about 23%. Overall the proportions between body parts are balanced except the distal limbs (Fig. 3). It is no possible to estimate the height and body shape of domestic swine, most of the bones originating in immature specimens. Slaughter ages show a rate of 4.54% individuals below three months. 50% of individuals were slaughtered between 1–2 years and 45.46% over this boundary. Approximately 22.73% were killed between 2–4 years. For 22.73% of specimens cannot state the precise age, only that they exceeded two years. Running through, the pig was slaughtered after one year, when it hit a certain body weight, the young specimens being protected. To note a fragmentary tusk from a boar with using marks.

The cattle come in second place with 94 bones (29.94%) from 18 individuals (25.35%). Distribution of bones, according to body regions, highlights the prevalence of cephalic elements by 26.6%, the dry parts of the limbs being noted by 23.4% (Table 6). The column items, the pelvic belt and hind legs (pelvis, femur and tibia) record reduced frequencies (15–17%). From the trench of fortification got a distal metatarsus with exostoses, from an older individual. From a pit house (cx. 8/2006) comes a female horn core of brahyceros type, with the following dimensions of the base: 42/35/130 mm. Sizing the widths of bones (a few really) a cattle population with many gracile specimens (probably females) and few robust ones (males) was set up. In the feature S1/2001/ IInd phase of fortification unearthed a metatarsus of 205 mm, estimating a stature of 109.28 cm (a cow). The value falls within the expected limits for that time in our regions. I think, in this epoch the cattle were small, with few specimens something higher and more robust, possibly males. For instance, an average of 102.97 cm estimated at Mediaş – *Cetate*[12], and close value of 103 cm at Remetea Mare – *Gomila lui Gabor* (the Banat Plain)[13]. In the Gáva habitation from Remetea Mare – *Gomila lui Pituţ* settled an average of 107.67 cm for females, 118.82 cm for males, and 120.6 cm for an ox. All in all, I got a mean of 112.09 cm[14]. Only in the Hallstattian sites at Bozna (Sălaj County) and Teleac cattle bones from large-sized individuals supposed (?)[15]. A relatively recent study on bovine metapodii, from Hallstattian settlements along the territory of Serbia offered a uniform database for height at the withers in that epoch[16]. Accordingly, averages of 106.8/122.5 cm (metacarpus/ metatarsus) obtained at Gomolava V, 116.64/118.4 cm at Kalakača, 112.59/108.4 cm at Feudvar and 110.56/111.2 cm at Vasica – *Gradina na Bosut*[17]. Therefore cattle of the first Iron Age in Serbia also emphasize low limits of the waist, cows outnumbering the bulls. At the same chronological landing the mean is 112.1 cm in Hungarian sites [18] and 109.3 cm in Slovakia[19].

Of 18 presumed cattle individuals, 22.22% were slaughtered below 2 years, 27.78% between 2–3 years and 50 onwards. 27.78% of mature individuals reached 8–10 years and even later. Therefore retaining the few slaughters of calves and heifers, just one third. Beef from immature individuals was used in a diminished proportion excepting animals with reduced economic performance. Concluding that, cattle were mainly employed until an advanced stage for milk and traction.

[12] Bindea, Haimovici 2004, 119
[13] El Susi 1997, 50
[14] El Susi 1996, 288–290
[15] See C. Lisovski-Cheleşanu, apud Vasiliev 1993, 50
[16] Blajić 2008, 133–175
[17] Blajić 2008, 139, tab. 11, 14
[18] Bökönyi 1974, 123
[19] Bökönyi 1991, apud Blajić 2008, 139

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The sheep/goat share is 23.57% as fragments and 21.13% as individuals, occupying the third place in the meat supplying. Of 74 bones, seven come from goat, 28 from sheep and 39 could not be accurately specified. The body distribution of bones shows a quite superiority of the skull elements and a poor representation of the column and pelvic belt (Tab. 7). Large discrepancies between the representations of various regions were not registered. The goat sample originates in individuals of 22–24 months (dead in winter), 4–5 years and over 1–2 years. The nine individuals of sheep were slaughtered according to the following schedule: two between 2–6 months (spring/summer), two between 6–12 months (summer/fall), one between 18–24 months, and another around 22–24 months (winter), one between 2–3 years and two between 18–30 months (Fig. 2). Including the material without assignment, the 15 individuals were slaughtered as it follows: 40% during the first year, 20% in the second, 13.33% between 2–4 years and 26.67% over 1.5–2.5 years (Fig. 4). For sure they were kept for milk, meat and wool, the slaughters took place all year round. So there is evidence for indwelling throughout the year, out of discussion a seasonal dwelling.

Two metacarpals of 117.5 mm (the upper layer of workshop) and 107 mm (IInd phase of the fortification) supported estimates of 56.98 and 51.89 cm withers heights. They are small values characteristic to females, also taking on the slenderness indices (Tab. 2). In general the Hallstattian sheep is small and gracile, whether it is about of Gáva or Basarabi sites-type. Values of 57–60 cm estimated at Bernadea (Basarabi settlement in Transylvania)[20]. On the contrary, at Mediaş – *Cetate* estimated an average of 67.48 cm[21] and 63.95 cm at Zau de Câmpie[22]. A variation of 59.4–63.8, average 61.1 cm established in case of Remetea Mare – *Gomila lui Pituţ*[23]. The same small sheep-sized with heights of 56.6, 60.61 and 62.71 cm were otherwise highlighted at Kalakača and Vasica (Serbia)[24].

17 bones totalling 5.41% derived from at least four horses (5.63%). A pair of mandibles assigned to an individual 6–7 years old (M3 starting erosion) was found in the dwelling L1/1994[25]. A mandible fragment with M3 erupting, suggesting a specimen, dead / killed (?) between 2.5–5 years recovered from the house L4/2000[26]. The timing of slaughter was not specified in case of two individuals with bones in the workshop and the former level of fortification. Definitely the horse was used in supply, 41.17% of the leftovers originate in meaty regions and about 59% in skull and distal limbs (not meaty) (Table 3). Two

Table 3 – Distribution of bony items from horse in complexes

Element	**Cx. 29**	**L1/1994/**	**L4/2000/**	**Workshop**	**Trench**	**Ist phase fortific.**	**Cx. 60**
Viscerocranium+dentes sup.		4		1			
Mandibula+dentes inf.			1				1
Scapula						1	
Humerus					1		1
Radius					1		
Metacarpus				1			
Pelvis		1					
Femur		1					
Tibia				1			
Phalanx 1	2						
TOTAL	**2**	**6**	**1**	**3**	**2**	**1**	**2**

[20] El Susi 2001, 240
[21] Probably the analyzed group included more males, as an explanation for the increased value
[22] Bindea 2008, 154
[23] El Susi 1996, 293–296
[24] Bökönyi 1981, 107
[25] Hillson 2005, 241
[26] Hillson 2005, 240

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phalanges from the complex no. 29, with GL – 83 mm and 39.76 – the slenderness index belong to a specimen with semi-thin extremities, probably a riding animal. Such copies were identified in Mediaş and Zau de Câmpie[27]. One cannot clarify about the height at the withers of the horse from Şimleul Silvaniei, but it is known from literature that horses of medium size are frequent, few animals going over 140 cm. For example, an animal of 140.3 cm height and a range size of 134.3–142.7 cm (mean–139.2 cm) were estimated at Mediaş[28] and Remetea Mare –*Gomila lui Pituț*. On that point the values are raised than Kalakača, emphasizing a range size of 123.7–141.2 cm. At Kalakača was obtained a local breed with small individuals, by crossbreeding between the Eastern and Western horses in the Serbian Danube region, during the Iron Age[29]. At Gomolava V medium-sized specimens of 132, 136 and 140.2 cm were identified [30]. In contrast, the horse from Remetea Mare contained taller exemplars with semigracile and gracile extremities. It seems the horse was used at riding, transport and food.

Besides the incomplete skeleton from the workshop, other dog bones were found. Accordingly, a left maxilla with P4 – 18.5 mm from another specimen was found in the pit noted by cx. 2/2001. A left maxilla and a mandible found in cx. 8/2006 originates in a third individual. The P4 is 18 mm in length. The dog from Şimleul Silvaniei is not excessively big; a similar specimen was identified at Zau de Câmpie (49.1 cm)[31], at Vărădia – *Chilii* (SW Banat) finding an outsized dog of 51.3, 52.5 and 55.2 cm[32]. Large and robust specimens like a boxer, Dalmatian or German shepherd were found in Kalakača (56.70 cm or 60.4 cm). Specimens below 50 cm were also emphasized[33]. Dogs in the first Iron Age on Romanian territory were of medium-size, with few large individuals as the Dacia epoch.

The hunted mammals account for 23 fragments (7.32 %) from nine specimens: four red deer, three wild pigs, an aurochs and a roe deer. Of the 16 red deer bones (5.1 %), 7 originate in skull. They are mandible apophysis, according them four specimens appreciated. Teething has been preserved in a single case; it is a half mandible with M3 fully erupted, entering into erosion, suggesting an animal 3–4 years old. A radius with the distal epiphysis just fused seems to belong to it[34]. It is a male, according to the following sizes of the mandible: P2-M3/ M1-M3/ M3 of 139/86/37.5 mm. Another stag is above 2–3 years old (the proximal tibia fused), and for other two specimens could not specify the stage. A tibia with the distal breadth of 57/ 38 mm, a distal humerus and an upper tusk come from three wild boars. The depths where the bones were removed from being different, each piece suggests an individual.

A proximal metacarpal with Bp/Dp of 74.4/ 42.5 mm, an upper molar heavily eroded suggest a mature aurochs specimen. The remains were recovered in the upper layer of the fortification trench. A burned metacarpal and a medium phalanx originate in a roe deer; the individual was 1.5 years old at the time of seizure.

CONCLUSIONS

Although the faunal sample is small, it provides useful information on certain species between X–VII centuries BC related to Gáva culture, in the Şimleu Depression. Domestic/wild report with a value of 7.32/ 92.68% as NISP or 87.3/12.68% as MNI rather suggests a reduced weight of meat and other products acquired from the game (skins, furs). It appears that the stag was exploited to a minor extent, its share does

[27] Bindea 2008, 168
[28] *Ibidem*
[29] Bökönyi 1981, 110
[30] Blajić 1988, 106
[31] Bindea 2008, 173
[32] El Susi 1996, 326, tab. 89
[33] Bökönyi 1981, 111
[34] Hillson 2005, 235, tab. 3.56

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not exceed 5 –5.6 %, the wild boar seems to deliver a value close to stag (4.22% just as MNI). Aurochs and roe deer, open landscape elements have insignificant shares (1.41% as MNI). One does not keep out an under-representation of wild taxa, thinking the position of the site in a hilly region, with a propitious environment for the game In addition, paleo-environmental data highlight an expand of the forest (related to a wetter climate) in the north-western parts of Transylvania at that epoch[35]. In the domestic sector, the pig was the primary provider of meat as well small ruminants and to lesser extent cattle. Sheep and cattle were slaughtered, especially after reducing „economic performance", being used primarily for milk, labour (cattle), wool (sheep). In that site were no seasonal slaughters, they were used all year round, depending on community' needs. Horse meat may have been occasionally eaten. It appears the community did not have a very thriving economy, merely a subsistence one, with a smaller rate of animal protein. The putting of that dog skeleton within the metallurgical workshop, probably have had a particular meaning. The exploit of other animal resources, as fish, birds and, molluscs besides mammals have not been stressed.

We do not intend to resume and debate the percentages of species in the Iron Age settlements in Transylvania. That argued many times[36] and latterly in a doctoral dissertation[37]. Presently there are many Hallstattian settlements with fauna analyses. Unfortunately, the samples are not large to give a firm basis for rendering. Most of them do not overlap 500 pieces. Due to scanty of samples, always seem discrepancies between NISP and MNI evaluations, and put the users of information in difficulty. So far, all these sites show some common traits following: they have produced inconsistent assemblages; cattle, sheep, pig, goat usually occur, sometimes horse and/ or dog; were identified wild mammals as well, their share fluctuating from one site to another, independent of ambient conditions. Exploitation of other food resources, from fishing, capture of birds and mollusc harvesting was little practiced, though all of the habitations developed near the waters. By now, one cannot shape clear-cut „economic schedules"; the ratios of cattle, pig and horse largely vary among sites. In the current phase of research, we "juggle with numbers". Just some analysis based on large samples can offer a well-defined starting point for the epoch. At any time, the samples are helpful from other reasons. They bring interesting data on morphology and body conformation of animals; in this respect the samples bring a lot of information. On the other hand, the finding of some special worked bones, like those from Vlaha-Pad[38] enriches the repertoire of the tools from Hallstatt. In another train of thoughts, a new taxon such as the chicken was found in the Iron Age site from Vlaha-Pad (Transylvania)[39]. Currently, the earliest definite evidence for the Central Europe comes from the Hallstattian site (phase B3) at Ostrov-Zápy, Czech Republic[40]. The taxon also appears in the Hallstattian settlement (C-D) from Doroslovo (Serbia), regarded as an early occurrence in the Balkans[41]. The discovery from Vlach-Pad becomes the more interesting, the more such bones were not identified in Hallstattian sites on the Romanian territory. We hope the further research at Şimleul Silvaniei to offer us new faunal samples and more consistent data on the topics covered in this article.

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Table 4 – Distribution of the identified taxa in complex

Trench	S1/ 1994	S1/ 1994	S1/ 1994	S1/ 1995	S1/ 1995	S1/ 1994	S1/ 1994	S1/ 1994	S3/ 2000	S1/ 2001	S1/ 2001	S1/ 2001	S1/ 2001	S2/ 2001	S2/ 2002	S2/ 2001	S2/ 2001
Complex	Cx. 25	Cx. 29	L1/ 1994	Cx. 47	Cx. 58	Cx. 92/ 1999	Cx. 94/ 1999	L2/ 1999	L4/ 2000	G1/2001 under workshop	Metal. workshop	Cx. 110	Ditch	Ist phase of fortific	IInd phase of fortific	Cx. 2/	L/ 2001
Bos taurus	5	2	13	1	1		1			1	8		13	5	14	1	
Sus s. domesticus			2	5		1	1	1		2	15	2	5	4	14	1	1
Ovis/Capra		6	9	1							16	1	3	6	9		
Equus caballus		2	6						1		3		2	1			
Canis familiaris										1*		2**				1	
Domestics	**5**	**10**	**30**	**7**	**1**	**1**	**2**	**1**	**1**	**4**	**42**	**5**	**23**	**16**	**37**	**3**	**1**
Cervus elaphus		1	2								2			2	6	2	
Sus s. ferrus															1		
Capreolus capreolus			1												1		
Bos primigenius													2				
Wilds		**1**	**3**								**2**		**2**	**2**	**8**	**2**	
Identified	**5**	**11**	**33**	**7**	**1**	**1**	**2**	**1**	**1**	**4**	**44**	**5**	**25**	**18**	**45**	**5**	**1**
Ribs													3		4		
Frgm.from large sp.	1	1	51								14		14	5	9	4	
Frgm.from small sp.		5	12	38				1			7	1	3		9		1
Total sample	**6**	**17**	**96**	**45**	**1**	**1**	**2**	**2**	**1**	**4**	**65**	**6**	**45**	**23**	**67**	**9**	**2**

L – dwelling; Cx. – complex (pit); * – a dog skeleton; ** from dog skeleton in the workshop

Table 4– (continued)

Trench	S1/ 2003	S1/ 2003	C1/ 2006	S1/ 2006	S1/ 2006	S1/ 2006	S1/ 2006	S1/ 2006	S1/ 2006	S1/ 2006	S1/ 2006	C3/ 2006	S1/ 2008	S1/ 2008	S5/ 2008
Complex	Cx. 160	Cx. 169	Cx. 24	Cx. 27	Cx. 31	Cx. 60	Cx. 62	Cx. 63	Cx. 65	Cx. 66	Cx. 77	Cx. 8	Cx. 13	Cx. 56	Cx. 47
Bos taurus					1			5	1	1		10	3	7	1
Sus s. domesticus	1		1	1			1	1	10	3	2	15	2	7	2
Ovis/Capra				1				3	4			7		7	1
Equus caballus						2									
Canis familiaris												2			
Domestics	**1**		**1**	**2**	**1**	**2**	**1**	**9**	**15**	**4**	**2**	**34**	**5**	**21**	**4**

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Trench	S1/ 2003	S1/ 2003	C1/ 2006	S1/ 2006	S1/ 2006	S1/ 2006	S1/ 2006	S1/ 2006	S1/ 2006	S1/ 2006	S1/ 2006	C3/ 2006	S1/ 2008	S1/ 2008	S5/ 2008
Cervus elaphus												1			
Sus s. ferrus												1			1
Capreolus capreolus															
Bos primigenius															
Wilds												**2**			**1**
Identified	**1**		**1**	**2**	**1**	**2**	**1**	**9**	**15**	**4**	**2**	**36**	**5**	**21**	**5**
Ribs					3										
Frgm.from large sp.	1	1			4							19	4	3	1
Frgm.from small sp.									4			1			1
Total sample	**2**	**1**	**1**	**2**	**8**	**2**	**1**	**9**	**19**	**4**	**2**	**56**	**9**	**24**	**7**

Table 5 – Distribution of bone items from pig in complex

Element	L1/ 1994	Cx. 47	Cx. 92/ 1999	Cx. 94/ 1999	L2/ 1999	G1/ 2001	Workshop	Cx. 110	Trench	Ist phase of fortific.	IInd phase of fortific.	Cx. 2	L/ 2001
Neurocr.							2	1					
Viscerocr.+dentes sup.							2			1	1		
Mandibula+dentes inf.					1	1	3	1		1	1		
Atlas													
Vertebra													
Costae	1	3							1		2		1
Scapula		2				1	3				1		
Humerus							2		2		1		
Radius											1	1	
Ulna													
Metacarpus	1			1			1						
Pelvis			1								3		
Femur							1		1		2		
Tibia									1	2	2		
Talus													
Phalanx 1							1						
TOTAL	**2**	**5**	**1**	**1**	**1**	**2**	**15**	**2**	**5**	**4**	**14**	**1**	**1**

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Table 5 – (continued)

Element	Cx. 160	Cx. 24	Cx. 27	Cx. 62	Cx. 63	Cx. 65	Cx. 66	Cx. 76	Cx. 8	Cx. 13	Cx. 56	Cx. 47	Total
Neurocranium													3
Viscerocr.+dentes sup.	1					1			2				8
Mandibula+dentes inf.				1		1	1	1	1	1	1	2	17
Atlas									1				1
Vertebra							2				1		3
Costae		1						1	3		4		17
Scapula			1			1			3				12
Humerus						1			2				8
Radius													2
Ulna									1				1
Metacarpus													3
Pelvis						1				1	1		7
Femur						1							5
Tibia					1	3			2				11
Talus						1							1
Phalanx 1													1
TOTAL	**1**	**1**	**1**	**1**	**1**	**10**	**3**	**2**	**15**	**2**	**7**	**2**	**100**

Table 6 – Distribution of bone items from cattle in complex

Complex	Cx. 25	Cx. 29	L1/ 1994	Cx. 47	Cx. 58	Cx. 94/ 1999	G1/ 2001	Work-shop.	Tr.	Ist ph. fortific.	IInd ph. fortific.	Cx. 2	Cx. 31	Cx.63	Cx. 65	Cx. 66	Cx. 8	Cx. 13	Cx. 56	Cx. 47	Total
Neurocranium ossa corni									1								1				2
Viscerocranium dentes sup.	1		4					1	2		1						1	1			11
Mandibula+ dentes inf.	2	1	1		1			2	2	1	1						1				12
Vertebra									1										2	1	4
Costae			2						1		3						1		1		8
Scapula			1						1					1			1		1		5
Humerus	1							1	2		1						1		1		7
Radius										1	1			1			2		1		6
Ulna														1							1
Metacarpus														1			1				2

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Complex	Cx. 25	Cx. 29	L1/ 1994	Cx. 47	Cx. 58	Cx. 94/ 1999	G1/ 2001	Work-shop.	Tr.	Ist ph. fortific.	IInd ph. fortific.	Cx. 2	Cx. 31	Cx.63	Cx. 65	Cx. 66	Cx. 8	Cx. 13	Cx. 56	Cx. 47	Total
Pelvis			2								1							1			4
Femur			1			1	1	1			2			1			1				8
Tibia								1	1		2										4
Talus			1					1	1	1			1								5
Metatarsus+ ossa metatarsi		1		1					1	1	2	1				1			1		9
Metapodii															1						1
Phalanx 1	1		1							1											3
Phalanx 2								1										1			2
TOTAL	**5**	**2**	**13**	**1**	**1**	**1**	**1**	**8**	**13**	**5**	**14**	**1**	**1**	**5**	**1**	**1**	**10**	**3**	**7**	**1**	**94**

Table 7 – Distribution of bone items from small ruminants in complex

Element	Cx. 29	L1/ 1994	Cx. 47	Work-shop.	Cx. 110	Trench	Ist ph. fortific.	IInd ph. fortific.	Cx. 27	Cx. 63	Cx. 65	Cx. 8	Cx. 56	Cx. 47	Total
Viscerocr.+dentes sup.								1				1			2
Mandibula+dentes inf.				5		1		2		1	3	2	1	1	16
Vertebra		2													2
Costae	1		1				1			2		2	3		10
Scapula	1	1						1							3
Humerus				2		1	1								4
Radius	1	1		3		1	1	1	1				1		10
Metacarpus				1			2	3							6
Pelvis		2		1	1										4
Femur				1								1			2
Tibia		1						1			1		2		5
Talus	1														1
Calcaneus	1	1													2
Metatarsus	1			2			1					1			5
Metapodii				1											1
Phalanx 1		1													1
TOTAL	**6**	**9**	**1**	**16**	**1**	**3**	**6**	**9**	**1**	**3**	**4**	**7**	**7**	**1**	**74**

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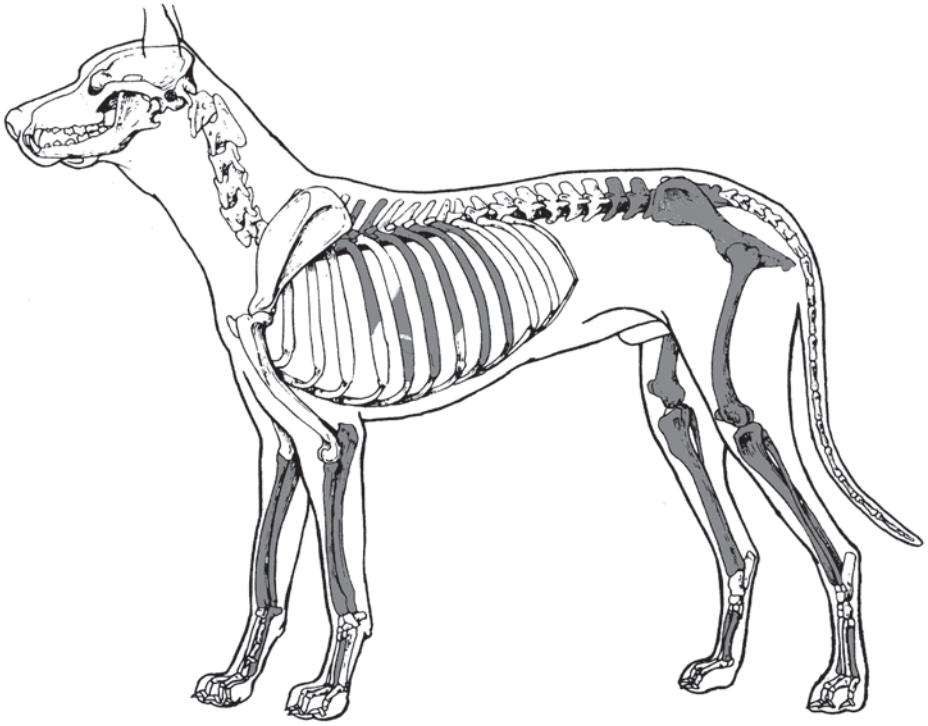

Fig. 1 – Drawing by gray the preserved bones from dog skeleton

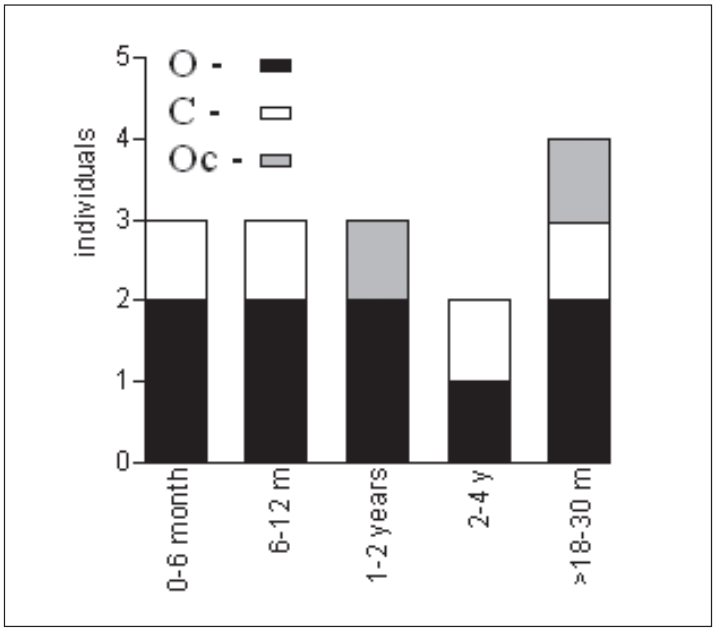

Fig. 2 – Kill-off patterns in sheep/ goat

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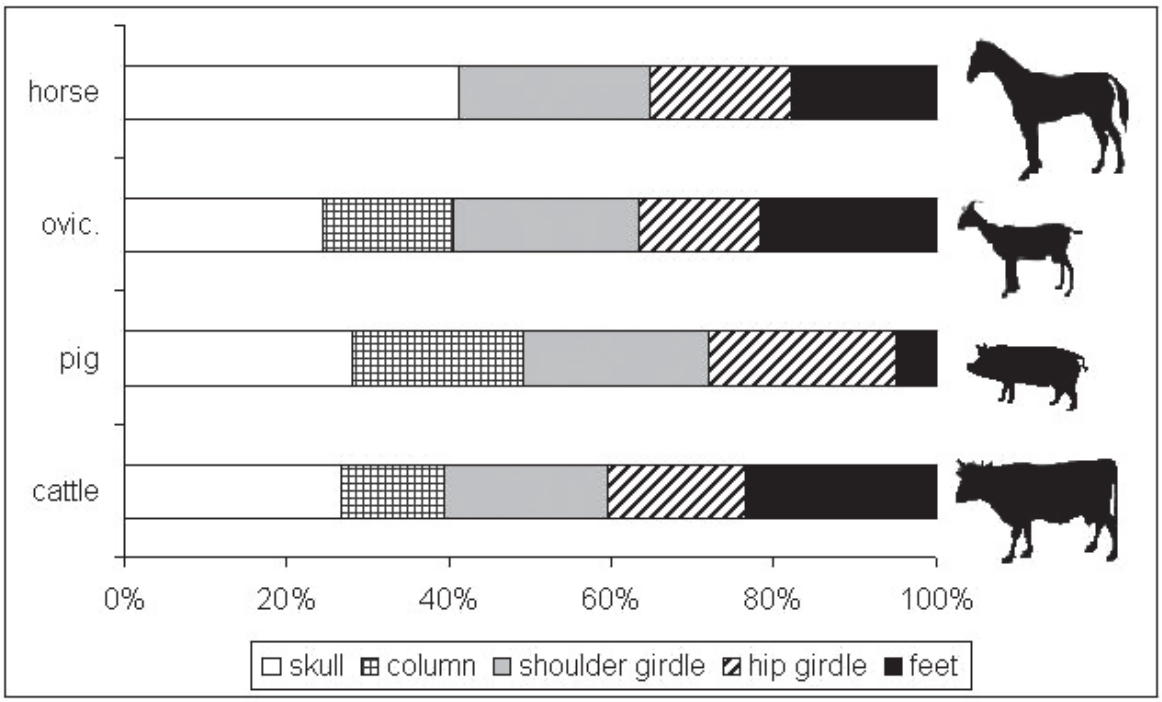

Fig. 3 – Body parts frequencies in cattle, small ruminants, pig, and horse

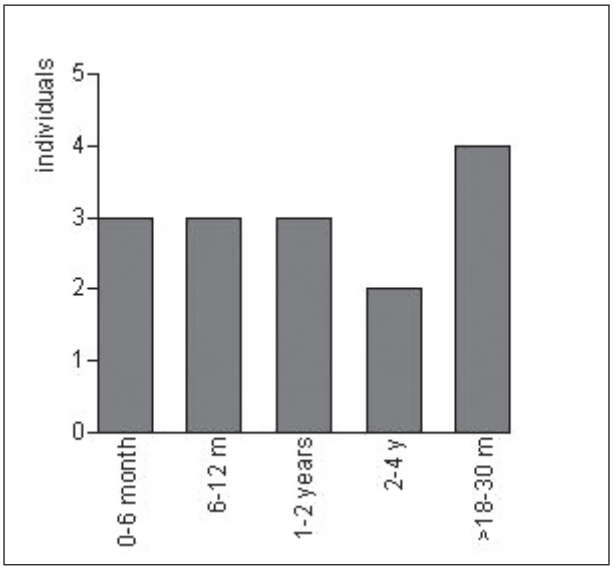

Fig. 4 – Kill-off patterns in cattle

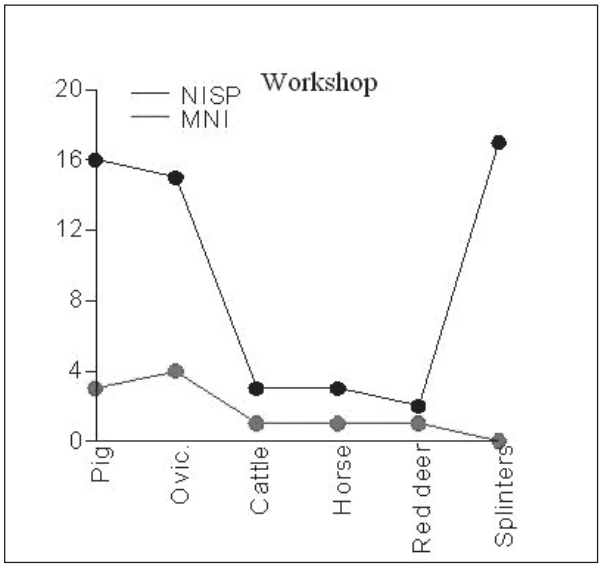

Fig. 5 – NISP and MNI frequencies in the metallurgical workshop

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