

The evolution of animal husbandry during Iron Age in Banat. Archaeozoological researches in South-West of Romania

Georgeta EL SUSI (Reșița)

The study is an attempt to outline the general fauna picture of Iron Age in Banat; the hypothetical models of animal exploitation proposed below are to be further tested by analyses of new samples. Information about the animal breeding in the Banat Plain in Early Hallstatt has been obtained by faunal studies at Remetea Mare "Gomila lui Pituț" (El Susi, 1988, p. 153-160). About 3,790 bones which were produced by 1973-1975's diggings, have been dated at the beginning of 10th c. B.C. (Medeleț, 1975, p.59).

An appraisal of wild: domestic ratio (85.8 : 14.2 %) shows the dominance of the second ones (tab. 1). Versus Bronze Age, the quota of wild mammals decreases with 14% in the same area (El Susi, 1994, p. 186). In only few centuries between Foeni site (Vatina Culture) and Remetea Mare the economy reached a more stable character, of a strong domestic field to the detriment of hunting. Cattle must have a major role in the inhabitants' supplying. They reached 40% versus 18.2% in Vatina Culture. The low percentage of young animals (20.4) indicates a reasonable exploitation of the stock. The subadult : adult : mature ratio of 1 : 2 : 2.5 is self-evident: 36.1% of animals were killed between 2-4 years (fig. 3) and 43.3% over this stage. Therefore the species were used either for meat or for secondary products. The sex ratio (cows; bulls: oxen) is 6: 2 on metacarpals and 2: 3: 1 on metatarsals. The low number of bulls and oxen and the higher one of cows indicate the using of females as draft animals. The situation is documented by some phalanges with pathological deformations due to overburdening and long use.

As for small ruminants, a significant increasing of their percentage, from 20% in Bronze Age to 28% in Early Hallstatt was recorded. Probably some changes in the climate of the region happened. It is known that paleoenvironmental data indicate 1000 B.C. to mark the end of Sub-Boreal and beginning of Sub-Atlantic periods. Though for the Banat Plain we do not have pollinic analyses, perhaps a rising of ovicaprines share should be correlated with an aridity increasing of the landscape. As the fig. 4 emphasizes 55.5% of ovicaprines were killed while juveniles and subadults, only 44.5% reached adulthood. This situation could be explained in two ways: either the stock was numerous enough to permit frequent slaughter of youngs, or because of shortage in winter fodder. Even if the grouping

were chiefly used for meat, secondary purposes were not ignored.

The pig quota (fig. 1) seems to be unchanged in Bronze Age and beginning of Hallstatt, in the Banat Plain. The high ratio of animals slaughtered while still young (68.5%) suggests they were used for meat. 31.4% of animals were kept many years, as breeding stock. It is a big value in comparison with prior periods.

The horse quota is only 5.9% lesser than the prior period, when it was 17%. The species was used for many purposes, inclusively for meat. 71.4% are matures-seniles. About 20% of animals were slaughtered of 3-4 years, some of them were culled for ritual aims. The importance of dog is minor.

It seems certain that hunting was of less importance. To some extent the red deer, the roe deer and the wild swine contributed to the community diet. Of the estimated meat weight, two thirds were furnished by cattle and only one by the others.

Analogies with Kalakača and Gomolava sites (fig. 5-7) reveal some aspects: for all of them the economy was based on cattle exploitation. Their shares vary between 41.3% at Kalakača (Bökönyi, 1981, p. 106-108), and 27.7% at Gomolava V (Blajić, 1988, p. 104), Remetea Mare occupying an intermediate position (35.4%). The small ruminants gain in importance in daily diet at Remetea Mare, only 14-16% recording in Serbian sites. For the moment, the pig quota diminishes only in Banatian sites; in Serbian settlements it is higher, of 28% at Kalakača and 23.1% at Gomolava V.

Although changes in fauna exploitation may have occurred during the Hallstattian period in Banat, for the moment it would be impossible to specify them. Unfortunately some links are missing. So for Southern Banat we have no information about Early Iron Age fauna until the Dacian epoch. Also the continuity in time is not ensured for the Northern region, except Remetea Mare. Besides, the two parts of Banat did not engender similar animal economies in the time due to very distinct biogeographical conditions. In this context the data analysed in this study do not permit an exhaustive presentation. In this respect the faunal data collected in two Dacian sites from Danube Valley are to be shown: Stenca Liubcovei (El Susi, 1985, p. 123) and Divici (El Susi, 1992, p. 169). The assemblages of 5,000 bones date between the 3rd B.C. to 1st A.D. (Gumă, 1977, p. 102; Gumă, Luca, Săcărin, 1987, p. 217). Though the region is rich in water courses, gathering and fishing could not be considered as economic activities. They must had been practised occasionally. In exchange, the hunting of ungulates and brown bear had an important role to meet the community needs. So one third of M.N.I. (minimum number individuals) is made by wild species. By cattle, pig and caprovines, the domestic hen can be noted as a new element in the faunal spectrum. It shows a higher percentage in the 1st period at Stenca Liubcovei, than in the 2nd one and in

the Danube Valley it is attested earlier at Doroslovo (Bökönyi, 1981, p. 107). The hen furnished bones in both sites, accounting 1-2% only. As for domestic mammal species, some remarks can be made. At Stenca Liubcovei the pig unambiguously dominates in both periods (fig. 2). Its share is higher in the first layer, about 30.5%, slightly decreasing to 26% in the second one. At Divici the pig frequency rises to 40%. Maybe the environmental conditions favoured the keeping of a numerous stock by natural growth. As such, the fact does not imply a neglect of cattle and small ruminants within the community economic activities, just a better usage, chiefly for secondary purposes.

The bovids quota is 18.6% in the 1st layer increasing to 23.4% in the 2nd one, at Stenca Liubcovei. At Divici their values grow less and less until 11.2%. Only the small ruminants do not fluctuate, reflecting above all unchanged breeding practices. In the Dacian sites, the horse shows an insignificant percentage, its being eaten is not excluded... Generally, during the habitation of the Stenca Liubcovei site, only small changes took place in the fauna spectrum. An estimating of the meat amount furnished by various species, pointed out some differences between the Dacian sites. For instance, the pig meat amount represents at Divici more than half of the total, 55%, and the cattle only 9.2% yielded by cattle. The bovids and the pig furnished at Stenca Liubcovei two thirds (together); the caprovines, the red deer, the horse and the brown bear completed another third of the total meat amount.

As regards age patterns, there are similarities between the two hypothetical economic models: the usage of cattle mostly for secondary products; the employment of caprovines for both meat and secondary products; the pig exploitation for meat and fat. In this case most of the M.N.I. were killed between 1-2 years, when they reached full size.

Referring to domestics' quota in our assemblages versus contemporary sites, conspicuous differences come out. There is a category of settlements in Romania with a prevalence of pig: for instance these are: Ziridava (Haimovici, 1969, p. 404), Sighișoara (personal researches), Radovanu (Udrescu, 1982, p. 140), Bordușani-Popină (Bălășescu, 1995, p. 13). In other sites as Răcătău (Haimovici, 1989, p. 309), Vlădiceasca (Udrescu, 1988, p. 85) the bovids are dominant. Only the site of Cîrlomănești (Udrescu, 1977, p. 366) is mentioned for caprovines' leading. Essentially, all above mentioned sites have a common feature: the usage of cattle and small ruminants chiefly for secondary products. As to game, in some settlements of the Romanian Plain it reaches 4-5%, as Cîrlomănești (Udrescu, 1977, p. 366), Radovanu (Udrescu, 1982, p. 140), Piscu Crăsani (Udrescu, 1984, p. 83), in contrast to those of the Danube Valley. At Pecica (in the middle of the West Plain) the domestic: wild ratio is 72.5: 27.3%, consequently similar to those of Southern Banat.

Referring to faunal spectra from Gomolava VI (Clason, 1979, p. 72) and Celtic fortresses of Serbia (Blajić, 1992, p. 404) no similarities between them were recorded. Though in La Tène layers of Gomolava VI a decreasing of cattle share, a rising of caprovines and pig are outlined, the figures are not significant. On the opposite, for Celtic sites it is pointed out: "the most important animal was cattle, followed by sheep/goat and pig, while the dog, horse and fowl were less present" (Blajić, 1992, p. 401).

In the absence of other samples from neighbouring regions of Banat, it should be specified that the husbandry of the two Dacian communities had their own evolutions according to local environmental peculiarities. Plenty of animal-size information was given by the numerous complete bones.

In Hallstattian times the withers height of cattle varied between 102.8-112.1 cm for cows ($M=108.2$ cm) and 112.6-123 cm for bulls ($M=117$ cm). A tall of 120.6 cm characterises an ox. On the whole, the average of withers height is 112.5 cm (Matolcsi) and bigger, including the value of the castrated animal (115.2 cm). These values fall into the cattle range size for Hungary (Bökönyi, 1981, p. 107), surpassing those from Gomolava (Blajić, 1988, p. 106). In La Tène epoch a slightly decreasing of body parameters was emphasised. The phenomenon is visible especially considering the breadth of fragments.

As to the withers' height, a mean of 112.5 cm was emphasized upon the cattle long bones from Dacian sites. The small stature of cattle conforms the well known type from other Dacian settlements of Romania (Haimovici, 1971, p. 258).

The size of sheep varies between 58-62 cm ($M=60.5$ cm) at Remetea Mare. Opposite to Bronze Age when the withers' height oscillates between 64.5-67.8 cm ($M=65.4$ cm) a certain decreasing is emphasized. In Dacian sites of the Danube valley values of 54-65.7 cm ($M=60.4$ cm) were obtained. The data are in keeping with those quoted in the speciality literature for Europe, mostly for South-East Europe (Audoin-Rouzeau, 1991, p. 5). Few data about the goat size were furnished by the samples. Anyway the same values seem to characterise the size during the Iron Age.

As to the pig size, in the Iron Age is reached the same value as the Bronze Age. So values as 64.4-78.4 cm ($M=72.1$ cm) characterize the Hallstattian stocks of Remetea Mare. Means of 66.2 cm for Stenca Liubcovei and 70.5 cm for Divici are near to those from Celtic fortresses in Serbia (Blajić, 1992, p. 402).

The withers' heights of hallstattian horses vary between 134.3-142.7 cm ($M=139.2$ cm). Even if the measurements of bone-breadth indicate smaller values than for the Bronze Age, in Banat the animals are taller. Compared to equids from Kalakača, those from Remetea Mare fall within the second half of the size range for the horses of Eastern Iron Age (Bökönyi, 1981, p. 109). It seems that two types of horse were bred: a group of "ordinary horses" with a height of 134.3-139.6 cm and

another of "choice horses", of 140.6-147.2 cm. Few bones of the species come from Dacian sites. All are so fragmented, they do not allow enough measurements for our purpose. The few data suggests few individuals belonging to "ordinary" type.

At Remetea Mare only 20 dog bones were found. They belong to animals of small stature (42.1 cm), or even large. An identical size variability was recorded in Dacian sites. However, big individuals close to wolf appear.

The very few measurements of the hen material in Dacian sites suggest small individuals, similar to those of Iron Age in South-East Europe (Haimovici, 1971, p. 260; Bökönyi, 1984, p. 94).

Georgeta El-Susi
Muzeul Județean Reșița
B-dul Republicii 10
1700 - Reșița
Jud. Caraș-Severin, România

REFERENCES

- Audoin-Rouzeau F. 1991, *La taille du mouton en Europe de l'antiquité aux temps modernes*, Fiches d'ostéologie animale pour l'archéologie, Série B: Mammifères, 3, p. 1-36.
- Bălășescu A. 1995, *Studiu arheozoologic al materialului de la Bordușani-Popina*, Cronică cercetărilor arheologice, Cluj-Napoca, 11-14 mai, 1995, p. 13.
- Blajić Svetlana 1988, *Faunal remains from Gomolava V*, Gomolava, Symposium, Ruma, 1986, Novi Sad, p. 104-107.
- 1992 *Faunal remains in Celtic Fortresses and indigenous settlements*, Balcanica, XXIII, p. 401-405.
- Bökönyi S. 1981, *Eisenzeitliche Tierhaltung und Jagd im Jugoslawischen Donau Gebiet. Die Ältere Eisenzeit in der Wojwodina und dem benachbarten Gebiet*, Materijali XIX (Referate de Symposium Novi-Sad), 10 bis 13 sept. 1979, p. 105-121.
- 1984, *Animal husbandry and hunting in Tăc-Gorsium*, Studia archaeologica, VIII, Budapest.
- Clason A. T. 1979, *The farmers of Gomolava in the Vinča and La Tène period*, Rad Vojvodanskih Muzeja, 25, p. 60-103.
- El Susi Georgeta 1985, *Considerații privind materialul faunistic provenit din așezarea dacică de la Stenca Liubcovei*, Banatica, 8, p. 123-138.

- 1988, *Considerații privind fauna din așezarea hallstattiană timpurie de la Remetea Mare - Gomila lui Pituț*, Thraco-Dacica, IX, 1-2, p. 153-160.
- 1992, *Studiu preliminar al materialului faunistic din cetatea dacică de la Divici (Com. Pojejena, Jud. Caraș-Severin)*, Thraco-Dacica, XIII, 1-2, p. 169-177.
- 1994, *Rapport préliminaire sur le matériel faunistique de l'établissement Vatina de Foeni (Dép. Timiș)*, Analele Banatului S.N., III, p. 184-192.
- Gumă M. 1977, *Cercetări arheologice pe Stenca Liubcovei (Jud. Caraș-Severin)*, Banatica, IV, p. 70-104.
- Gumă M., Luca S. A., Săcărin C. 1987, *Principalele rezultate ale cercetării arheologice în cetatea dacică de la Divici între 1985-1987*, Banatica, 9, p. 199-218.
- Haimovici S. 1969, *Date cu privire la fauna descoperită într-o așezare dacică "oppidum Ziridava"*, Analele Științifice ale Univ. Al. I. Cuza Iași, s. II, T. XV, p. 404-409.
- 1971, *L'élevage et la chasse chez les géto-daces*, Domestikationsforschung und - geschichte der Haustiere, Budapest, p. 257-269.
- 1989, *Materialul faunistic de la Răcătău*, Carpica, XX, p. 309-314.
- Medeleț Fl. 1975, *Situla de la Remetea Mare*, Banatica, 3, p. 49-61.
- Udrescu M. St. 1977, *Fauna descoperită în așezarea geto-dacă de la Cârlomanești*, SCIVA, 3, 28, p. 365-374.
- 1984, *Problèmes d'archéozoologie concernant les périodes géto-daces et daco-romaine en Roumanie*, BAR, ISS 227, p. 81-91.
- 1988, *Materialul osteologic din așezarea geto-dacă de la Vlădiceasca. Date zooarheologice*, Cultură și civilizație la Dunărea de Jos, IV, p. 83-88.
- 1982, *Date despre creșterea animalelor și vânătoare la geto-dacii de la Radovanu. Studiu arheozoologic*, Thraco-Dacica, III, p. 139-143.

Frequencies of species in Iron Age sites of Banat - Tab. 1

	REMETEA MARE				DIVICI			
	Frgm.	%	MNI	%	Frgm.	%	MNI	%
Bos taurus	887	39.2	83	35.4	302	12.7	21	11.2
Ovis / Capra	637	28.2	61	26	248	10.5	29	15.6
Sus domesticus	284	12.5	40	17	1008	42.7	74	39.7
Equus caballus	109	4.8	14	5.9	21	0.8	7	3.7
Canis familiaris	20	0.8	4	1.7	3	0.1	2	1
DOMESTICS	1,937	85.8	202	86.3	1,582	67	133	71.5
Cervus elaphus	185	8.1	16	6.8	368	15.6	19	10.2
Sus ferrus	60	2.6	6	2.5	332	14	16	8.6
Capreolus								
capreolus	21	0.9	5	2.1	35	1.4	7	3.7
Bos primigenius	12	0.5	3	1.2	22	0.9	2	1
Canis lupus	1	0.04	1	0.4				
Carnivora	1	0.04	1	0.4				
Castor fiber					5	0.2	3	1.6
Ursus arctos					12	0.5	3	1.6
Meles meles					1	0.04	1	0.5
Martes martes					2	0.08	1	0.5
Lepus sp.					1	0.04	1	0.5
WILDS	280	12.4	32	13.6	778	32.9	53	28.4
TOTAL	2,217	100	234	100	2,360	100	186	100
MAMMALS								
Sus sp.					85			
Bos / Cervus					24			
Ovic. / Capreolus					13			
Aves	2				1			
Reptilia					1			
Pisces + Mollusca	38				11			
Ribs + Splinters	1,533				1,100			
TOTAL SAMPLE	3,790				3,594			

Frequencies of species in Iron Age sites of Banat - Tab. 2

	Stenca Liubcovei - inferior level				Stenca Liubcovei - superior level			
	Frgm.	%	MNI	%	Frgm.	%	MNI	%
Bos taurus	95	20.6	11	18.6	209	26	23	23.5
Ovis / Capra	69	15	10	17	124	15.4	18	18.3
Sus domesticus	113	24.5	18	30.5	188	23.4	26	26.5
Equus caballus	5	1.1	1	1.7	5	0.6	1	1
Canis familiaris					1	0.1	1	1
DOMESTICS	282	61.3	40	67.8	527	65.7	69	70.4
Cervus elaphus	126	27.3	7	11.8	161	20	11	11.2
Sus ferrus	38	8.2	5	8.7	84	10.4	7	7.1
Capreolus								
capreolus	5	1.1	2	3.5	4	0.4	2	2
Bos primigenius	5	1.1	2	3.5	8	0.9	2	2
Vulpes vulpes					1	0.1	1	1
Castor fiber	1	0.2	1	1.7	1	0.1	1	1
Ursus arctos	1	0.2	1	1.7	12	1.4	3	3
Meles m.	2	0.4	1	1.7	3	0.3	1	1
Martes m.					1	0.1	1	1
WILDS	178	36.8	19	32.2	275	34.2	29	29.5
TOTAL	460	100	59	100	802	100	98	100
MAMMALS								
Sus sp.					38			
Bos / Cervus					10			
Ovic. / Capreolus					5			
Aves	33				5			
Reptilia					3			
Pisces +	51				22			
Mollusca								
Ribs +	145				89			
Splinters								
TOTAL	689				974			
SAMPLE								

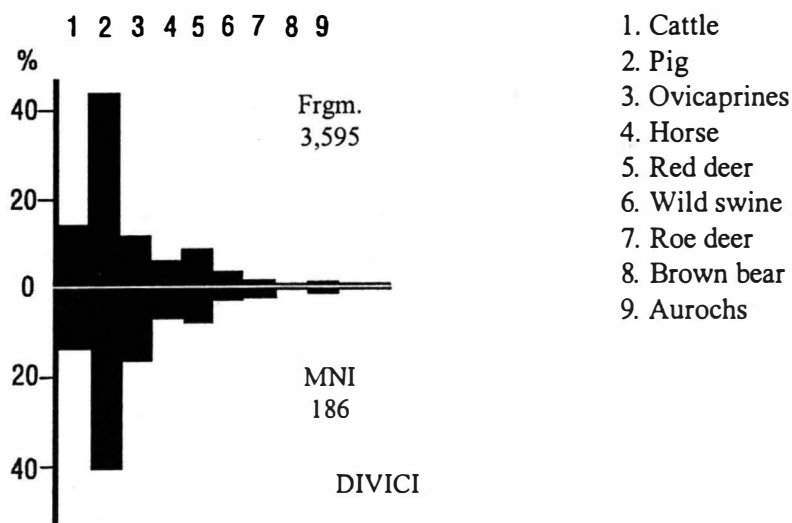
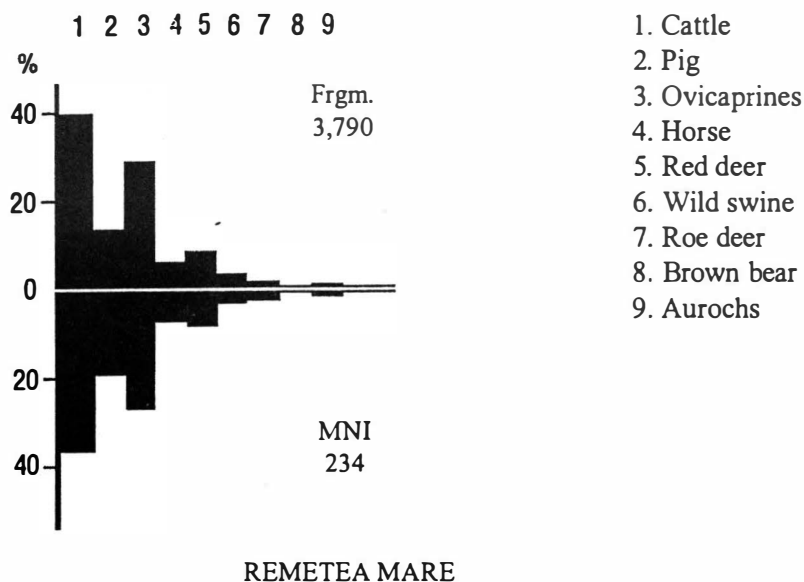


Fig. 1. The species frequencies at Remetea Mare and Divici.

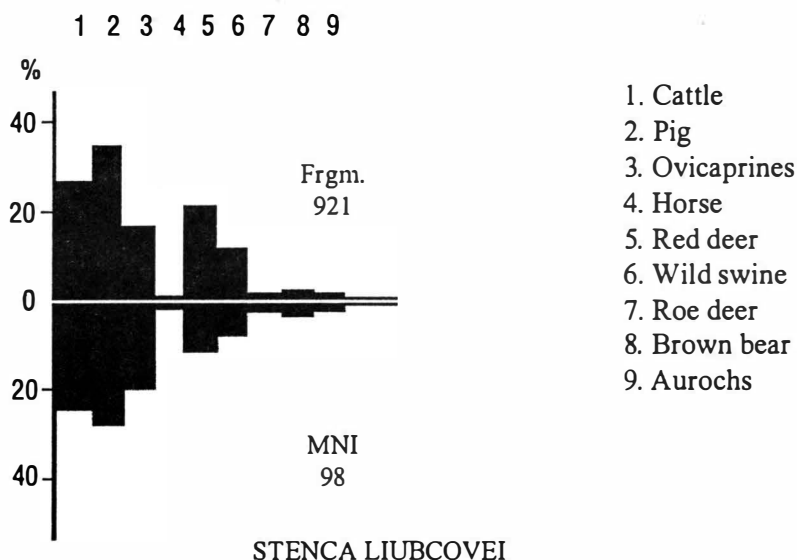
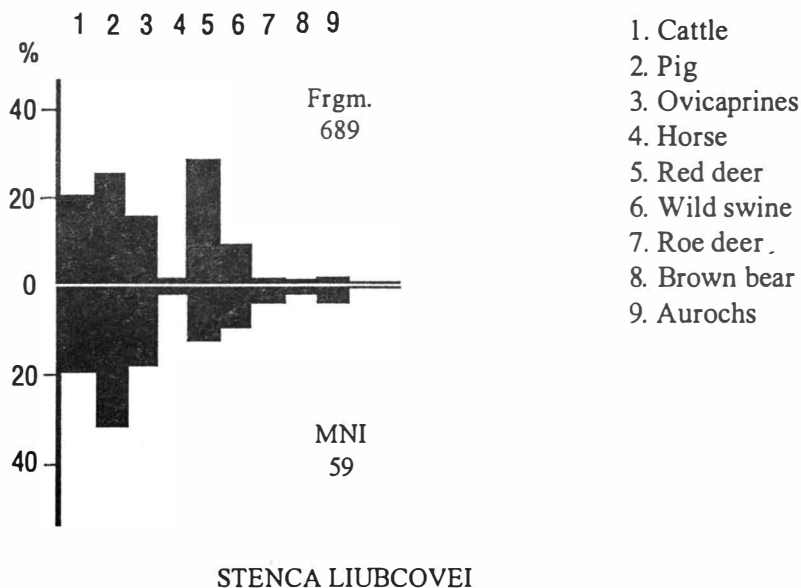


Fig. 2. The species frequencies at Stenca Liubcovei: A - inferior layer;
B - superior layer.

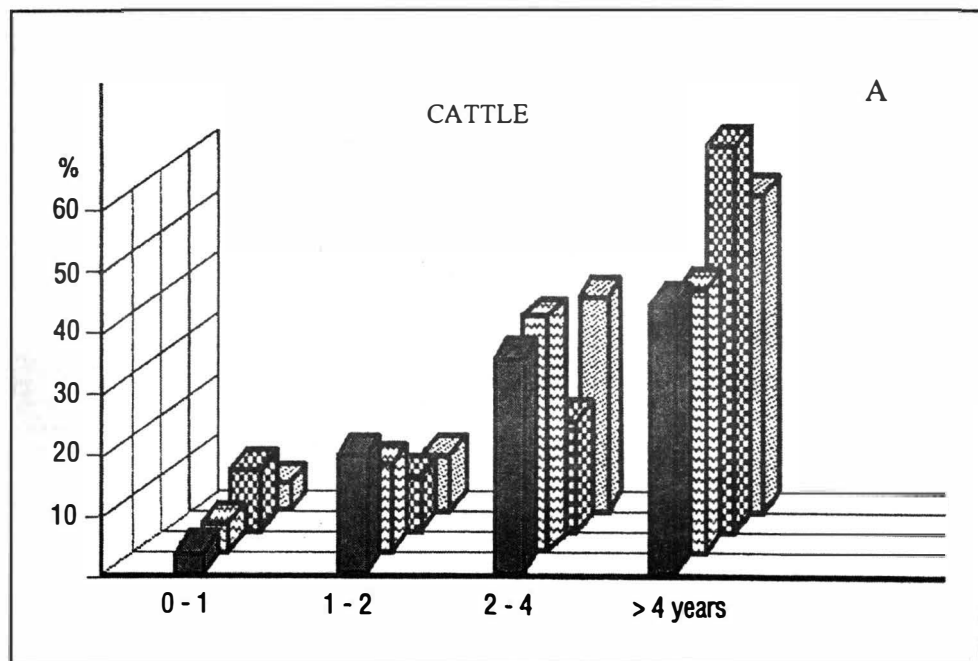


Fig. 3. The kill-off patterns of cattle during Iron Age
(the same explanations as fig. 5).

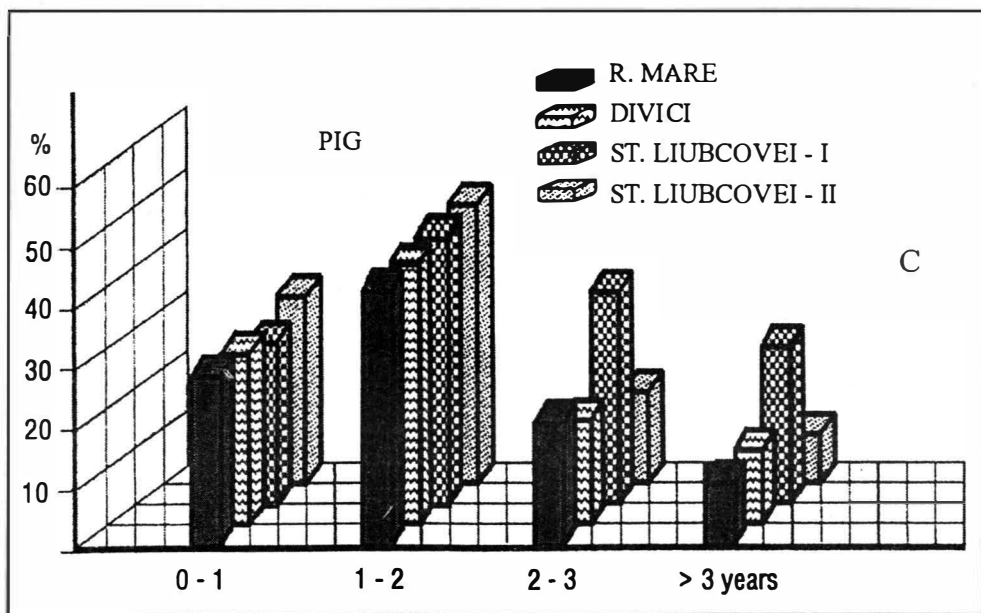
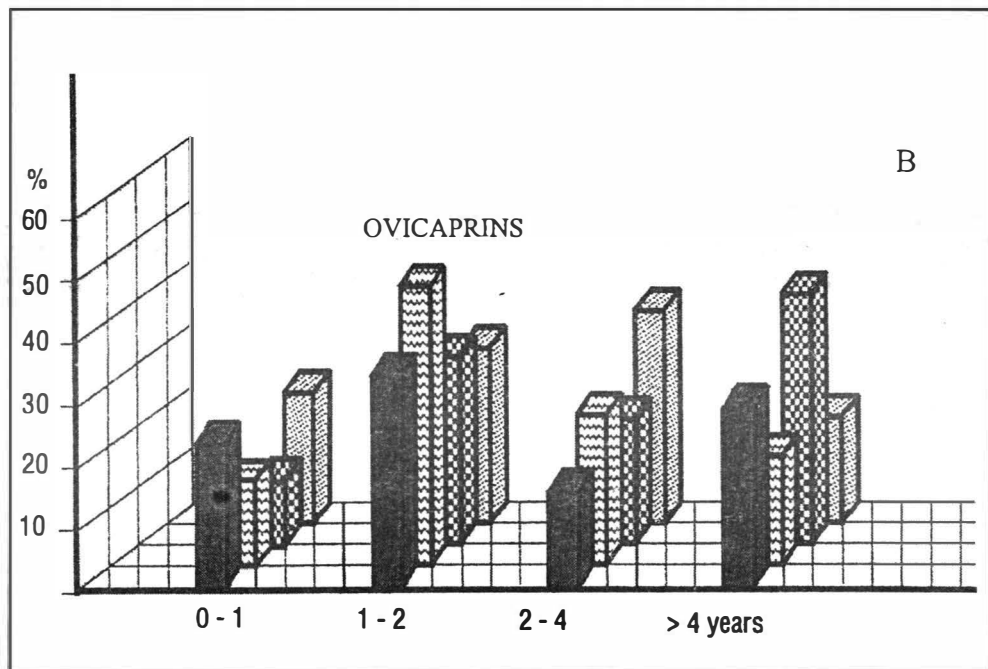


Fig. 4. The kill-off patterns of pig and ovicaprines during Iron Age.

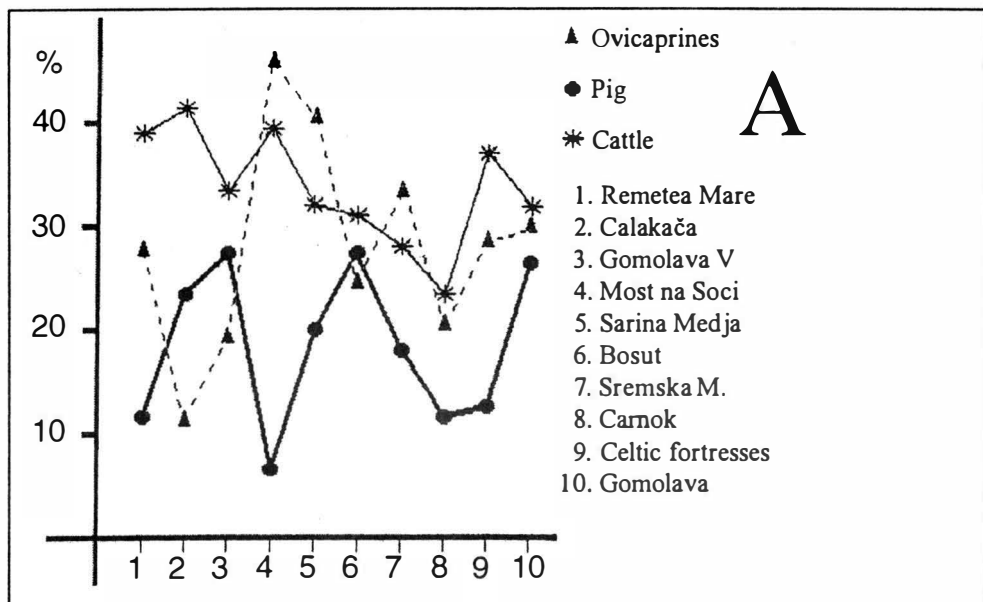


Fig. 5. The domestic mammals frequencies in sites of Iron Age: A - Hallstattian sites

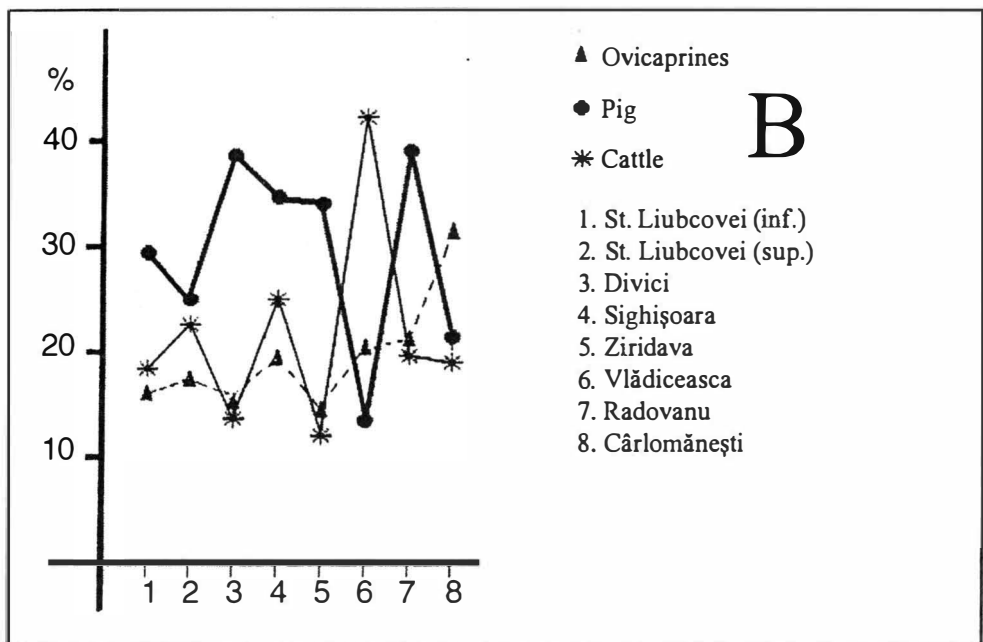


Fig. 6. The domestic mammals frequencies in sites of Iron Age: B - Dacian sites

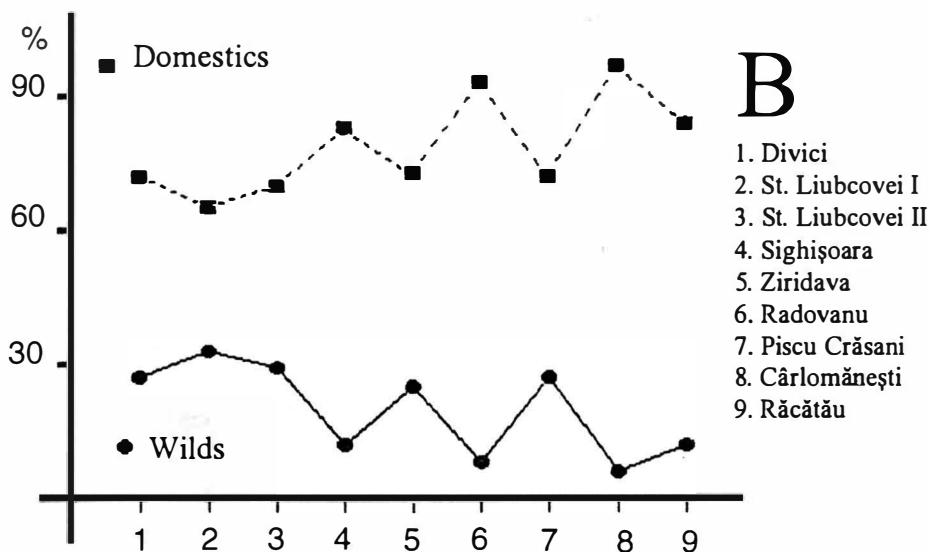
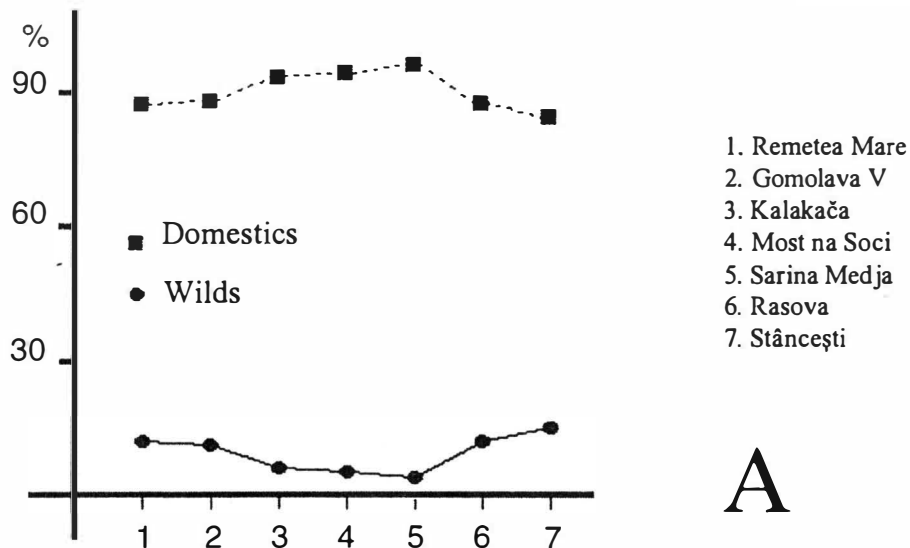


Fig. 7. The domestic/wild ratio in Iron Age sites:
A- Hallstattian sites; B- Dacian sites.