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THE ANIMAL ECONOMY OF THE FREE DACIANS (II –III CENTURY A.D.) FROM THE NORTHERN AND CENTRAL PART OF THE SPACE BETWEEN THE CARPATHIANS AND THE RIVER PRUT, REFLECTED BY THE FAUNAL MATERIALS

SERGIU HAIMOVICI

Key words: Free dacians, Carpathes-Pruth, archaeozoology, animal economy.
Abstract. *The author studies using the archaeoyoological method the faunistic material from eight sites belonging to the Free Dacians from the area between the Carpathians and the Prut river. He put emphasies on the animal economy of these Dacians, stressing the importance of the ambient for the carrying on of the socio-economic life of that population.*
Résumé. *L'auteur analyse, par les méthodes de l'archéozoologie, le matériel faunique de huit stations des Daces libres entre les Carpates et la rivière Prut, en s'occupant surtout de l'élevage; on souligne, en même temps, l'importance de l'environnement pour la vie économique et sociale de cette population.*
Rezumat. *Autorul studiază, prin metodologia archeozoologiei, materialul faunistic provenit din opt situri ale dacilor liberi dintre Carpați şi Prut, ocupându-se mai ales de economia animalieră a acestora; se arată totodată importanța ambientului în desfăşurarea vieții economico-sociale a respectivei populații.*

It is known that the Dacians from La Tène used to live on a larger territory than of the future Roman province Dacia. After the Trajan wars, a great part of them, who remained out of the Roman Empire, used to keep them under surveillance, the conflicts being quite often. The one on eastern part of the Oriental Carpathians are often mentioned in the documents as the Carps, living especially on west of Siret river, in the north-east of Moldavia, over the left side of the Siret river being another group known as Costoboci. As we do not want to further detail regarding these aspects, sometimes counter versed, we will use the appellative Free Dacians taking into consideration that the animal economy was quite similar for the whole territory mentioned in the title of the paper. As there sometimes seem to be some slight differences in the economical characteristics of the sites inhabitants, that we consider a result of the environment influence, we will deal first with the repartition of the species inside the four sites on the left of the river Siret and then with those from the other four sites on the right of the same river. (see the map for the sites positions)

We must state from the very beginning that the eight sites, although as we have said, with environmental characteristics, sometimes slightly different, are placed in the east–central geographical area of Europe, on almost the same latitude, on 200–400 m altitude, as regarding the vegetation (nowadays almost humanized) on the lowest level of the forest, *Quercetum mixtum* (mixed Oak forests). The soil layer is dominated by forest soils (sub fossil), mosaic, in different stages of changing to chernozems. From the climatic point of view, the Free Dacians civilization has developed in the last (present) phase of the Holocene – the beech phase.

A number of 6567 animal remains from which 6536 belong to mammals and only 31 (0.97%) to other animal group such as: mollusks represented both by lamellibranchiate valves and gastropod shells, fish bones and birds have been discovered in the eight sites. We should mention that the accurate determination by sites could be made for almost 85% of the fauna material; at the same time, the fragments considered undeterminable (such as bone fragments and rarely teeth with very similar characteristics as, firstly, rib fragments, bodies or apophysis vertebrae, very small bony splits, bony shivers influenced by environment factors like soil acidity, burning and so on), belong to mammals too, reflecting the overwhelming role of this animal group, evidently manipulated by man, placed in the animal economy in a larger acceptance (as we will see), of the human society from the eight sites.

The determined material and summarized at 2535 remains, coming from the four sites on the left of the Siret river, is not too much, from the quantitative point of view, representing only 38,60% (so over 1/3 of all) distributed like this: 1. Suharău–*Ruginosu* (HAIMOVICI, UNGUREANU 2001, 189) 436 remains – 435 belonging to mammals and only one bony fragment, 0,23%, belonging to a bird – a hen (*Gallus domesticus*); 2. Brăieşti (HAIMOVICI 2000-2001, 361-371) – only 74 remains, all belonging to mammals; 3. Botoşani–*Groapa lui Ichim* (HAIMOVICI, TARCAN 1994, 321-329): 502 remains – 501 belonging to mammals, and a fragment (0,20%), a piece of egg shell, rather thick, coming from a very big bird – taking into consideration the local fauna – a stork or even an ostrich, whose broken egg (initially used as a bibelot, for decorative purposes) might have got into the domestic pit; 4. Drăgeşti (HAIMOVICI, 1981-1982, 57-65): 1523 remains – 1519 of mammals, a valve fragment of *Unio* (0,006%) and three bony fragments of *Gallus domesticus* (0,19%). So, we have 2535 fragments, 2529 of mammals and only 6 from other groups.

We should mention that the four sites are relatively dispersed, three of them being somewhat concentrated in the so – called „plaine" in the north-east of Moldavia, close to the much higher hills that separate the Jijia basin from the Siret one (all of them in Botoşani county), and the fourth, much southern, to the north–western part of the Moldavian Central Plateau – much higher – on the upper course of river Bârlad (Vaslui county), that is to become a left affluent of the river Siret. These four sites are all placed by small rivers with no meadows.

The four sites on the right of the river Siret gather a greater quantity of fauna remains, almost 2/3 of total: 4032 (61,40%), the sites variation being quite big here too. The remains are: 5. Homiceni (HAIMOVICI, KOGĂLNICEANU 2001, 415-428) with 636 remains – 624 from mammals and other 12 (3,88%), 10 from Mollusks, 8 shells of terrestrial snail (*Helix,* the gastropod and a smaller one, *Cepaea*) and 2 valves of *Unio*, a lamellibranchiat; there are also two bones from a wild bird (something smaller than the domestic hen) representing only 0,31% of total remains; 6. Izvoare–B zone (HAIMOVICI, 1983-1985, 264-271), with 278 remains, all from mammals; 7. Vlădiceni (HAIMOVICI, PANOVE 1990,253-262) – 1799 remains, all from mammals and, 8. Poiana Dulceşti (HAIMOVICI, TEODORESCU 1995, 195-208) with 1319 remains, 1306 of mammals and other 13 (0,98%): eight *Unio* valvae, a teleostean fish vertebrae of rather big seize, and two bones coming from a domestic hen (*Gallus domesticus*) 0,15% of the total; in this site two different components have been studied, one – Silişte, with little remains: 227 mammal fragments and the other – Varniță, with richer mammalian material, 1079 remains.

We state that the four sites are rather concentrated, placed in the precarpathic area, with a height of about 400 m, but lower on river valleys, especially for Poiana Dulceşti; three of them are placed either near or on the banks of rivers like Valea Neagră and Valea Mare, but especially on Moldova river, this one with a meadow (the four sites are placed in Neamt county).

The eight mentioned papers contain data about fragments frequency and presumed individuals for every species, especially mammals (see the eight tables); morphological studies and measurements have been made in order to establish some metrical characteristics including seize and gender; whenever was necessary and possible the slaughtering age was determined, the weight of each of them for diverse uses but also the wild – domestic mammals rate, in other words the contribution of animal husbandry and hunting to food provisions,

especially the necessary animal proteins for the inhabitants of the eight sites, the importance of every species and group not only as food, the reports between species, between groups and environment and, subsidiary, man – society – environment relationship, the role of some species for activities other than economic in the Free Dacians society and so on. We have to summarize the results of studying the palaeofauna material coming from the eight sites for a better understanding of the activities and society characteristic for the Free Dacians civilization.

1. From the very beginning we should say that the absolutely ancestral occupation of picking small animals had no longer a great weight in the global economy for the respective society. The few snail shells and shell valves stand as a proof that evidently, for all the eight sites the environment conditions were proper, especially for terrestrial snails picking, and at the same time, especially in the longer rivers in the pre-carpathian area, like Moldova river with dry branches and meadow, the *Unio* shells were rather many and in compact groups, so easy to be gathered. We believe that the lack of some parts of the skeleton belonging to a water turtle (*Emys*) among the fauna remains from Poiana-Dulceşti, is an argument for this. It is possible that a relatively flourishing economy, might have spared the inhabitants from using the mollusks as food, the lamellibranchiate valves being only a calcium carbonate source.

2. We can say the same thing about another occupation, pretty old too, fishing. The presence of a single fish vertebra, only at Poiana-Dulceşti (even if the fish bones are supposed to be more fragile and less resistant, especially vertebrae from fish reaching big seize: carp, sheet fish, pike perch, or ceratobranchials with pharyngeal teeth from diverse species of *Cyprinidae***)**, might have been among house remains if they had been thrown. So, it is obvious that different fishing techniques were sporadically used – in low water pools fish could be caught by hand or with a kind of splinter. Moldova river must have had a great number of the known species; the relatively flourishing economy made the fish meat proteins not to bring a significant contribution in the inhabitants diet.

3. We cannot talk about wild birds, (some of them eatable) hunting/ gathering; only in one settlement (Homiceni) two fragments from a rather small native bird were found. Taking into consideration this aspect, we could state that the economy of the respective population did not required this difficult way of getting food. We don't think they used to gather wild birds eggs, as there were no environmental conditions for an economic and efficient practicing (very large water and marsh areas).

4. Taking into consideration the mentioned above, we may say that there were two main activities: animal breeding on one side (in fact only domestic mammals), and hunting on the other hand (mammals too).If we are to compare them, hunting has a lower weight. We should say from the very beginning that this 4 deals with hunting as a way of providing food necessities for the inhabitants, especially the animal protein, with the greatest impact on some human society, the defining element for its civilization and economical welfare.

a) Hunting had a reduced weight, as we can see in the eight tables, at most 1/10 of the considered frequency for the animal breeding (if we considered the presumed individuals and due to the small quantity of remains belonging to wild species the individual estimation is a little exaggerated). Hunting was as well defined occupation not like a pastime as it is nowadays. The variation on settlements appears rather random but we believe that in the settlements on the east side of Siret river, it was less important than in the pre-carpathian area, the present Neamț county and at the same time with a lesser weight than in La Tène settlements from the same area. Studying the determined species and their frequency we may say that the red deer and wild boar hunting had a „food" character, as they had the greatest weight, as well as the roe deer, for additional animal proteins (we should mention that although the bear, the beaver and the hare were eatable too, the first was at the same time a beast and the other were almost too small to be considered a protein source). We should mention that the aurochs (rather difficult to be hunted) seemed to be quite rare. The wolf, a beast who clearly hindered the human activity, attacking both the domestic and wild species (as the red deer, roe deer, maybe wild boar) economically important too, was hunted firstly in order to be eliminated from the natural biologic circuit, the Free Dacians unconsciously interfering in the trophy chain. We should mention that for the red deer, roe deer and wild boar, hunting is somewhat planned, preserving the young ones and maybe the females too.

As they are wild mammals, closely related to environment, we should mention that almost all the hunted species (the red deer, wild boar, roe deer, bear and beaver – the last one requiring still waters and forests, especially falling leaves forests) are part of the ecological group named „ forest", so they are stenoec; the red deer and especially the bear could be seen at the beginning of the Ist millenium A.D. in the settlements on East of Siret river, so rather distant from their present pericarpathic area, the woods being specific for all those regions. Only the hare prefers open areas, avoiding the higher ones; the wolf is definitely eurioec**.**

b) Domestic animals breeding must be considered as a primary, even basic activity over plant growing about which we can give some indirect but certain data. Some mammals like: big horned, pigs, *Ovicaprinae* were breed, the horse but not the ass, and evidently the dog. Starting from La Tène the domestic hen was specific for the whole Romanian territory (HAIMOVICI 1987, 144-153).

Let us talk about the last one. As we ascertain in the introduction, *Gallus domesticus* appears sporadic, only in some settlements, being even more rarely than for the Geto-Dacians from Le Tène. It was small sized, evidently unimproved. As for the meat quantity it is rather insignificant, a special product of her, the eggs confer a mentionable importance, as the eggs improved the Free Dacians menu (eggs could be eaten as such and especially as an indispensable ingredient for some complex final products like some dishes and baked products). Evidently the domestic hen was not common for the economical circuit of the Free Dacians, incompletely assimilated by the respective people. We should say this, as in the IVth century, its frequency in the archaeological material is higher and higher, being sometimes mainly put as offers in the graves.

Bos taurus has the highest frequency of domestic mammals remains, but almost exclusive as individuals, as a big seized species, offering the most part of the fragments in a fauna lot (especially the long feet bones, the ribs, the skull etc. cut to pieces like for other species) the difference between the fragments frequency and even presumed individuals of *Bos taurus* and of the other eatable species like: pigs, *Ovicaprinae* and the horse, with *ab initio* lesser fragments, is considerable. Due to its big size, so the great quantity of proteins, *Bos taurus* ranks first offering 40 to 60% (maybe more in Vlădiceni) of the meat available for the inhabitants of the eight settlements. From the morphological point of view the horn fragments of *Bos taurus* have usually a relatively small plug**,** of *brachyceros* type, rarely passing the inferior variation limit for the *primigenius* type; no individuals without horns have been reported. The neural skull fragments have also a brachyceros form. All the measurements indicate a relatively gracile, with reduced sexual dimorphism skeleton of the long bones. The wither height is about 106-107 cm for all the sites, and is somehow disturbed by the female dominance and the existence of both gelded and male individuals (the female high frequency indicate a relatively low size). So, the cattle belonging to the Free Dacians were smaller than the ones from the same region during La Tène (HAIMOVICI 1987, 145-148).The dominance of

material coming from female adult and mature individuals is normal (generally, at birth for all the mammals the *sex ratio* is 1:1, the human being had been trying even from the Neolithic to get rid of this uneconomic reality).The lesser number even the lack of the gelded individuals – cattle - in some of the sites is almost unexplainable, phenomenon to be remarked for the Dacians in La Tène. Watching the slaughtering age curve we may say that the young (but not too little calves), adults, especially mature (most of them between 4-5 and 7-8 years, so at the optimum economic exploitation period), old and rarely even very old individuals of 12-13 years used to be slaughtered. It is noticeable the fact, still unclear, that the sacrificed adult frequency, aged between 2 to 3 years was very high in Vlădiceni, the great number of bony fragments proving that the phenomenon is not random.

Especially in two of the sites in Neamț county, Vlădiceni and Homiceni (were there are many bony fragments), a few bony fragments have been pointed out, longer and more massive, but relative to the measurements medium unreaching the inferior variation limit for *Bos primigenius* (a mandible fragment was found in Vlădiceni). It is well known that the Romans properly used the racial improvement means – evidently for the cattle whose size was increased – which they took with them in the conquered territories or they used these methods at place. Either by direct trade over the Carpathian passes or by plunder, the Free Dacians (the Carps) may got some improved cattle; we cannot say that this population used to practice on purpose and with positive results the racial improvement for the great horns, especially because this tall and bulky individuals (maybe bulls) were in fact a *rara avis* for the bony material coming from cattle and at the same time their presence is characteristic only for the sites on the right of Siret river, nearer to Roman Dacia.

The pigs (*Sus scrofa domesticus*) are ranked second as frequency, rarely overtaken by the *Ovicaprinae*; in Silişte, they surpass the number of cattle. Generally the quantity of remains is smaller in comparison to the one coming from cattle, but as we know there are many jaws (more massive) with teeth coming from the pigs, so the number of the presumed individuals is higher; the material coming from pigs is usually broken, so lesser measurements can be done. We ascertain the presence of a low sized pig, of medium size at most, with primitive characters: long muzzle, with the oblong lachrymal (there is a fragment with this bone almost square in Homiceni), relatively well preserved sexual dimorphism, especially for defense, relatively strong anterior train, with the characteristic hunch (wild boar characters), so the wither height calculated

only for two individuals is something over 72 cm. *Sex ratio* varies more for the matures, usually the females dominating over the males, but there can be vice-versa too; the gelded males couldn't be pointed out. The slaughtering age varies, let's say normal for the pigs; there are no young pigs but only between six months and a year. The peak of the curve is at the age of two or something over two, another primitive character, called late, slow growing, the optimum weight being at this age. We may find fragments belonging to older individuals of 4-5 years, and even of 7-8 years, but relatively rare, belonging to good boars or prolific female pigs. There is no racial improvement.

We may state that the pigs are a monovalent species, bred with a single purpose: the alimentary one, offering meat and eventually for fat (in the old times being used for non – alimentary purposes). According to their size evidently smaller than the cattle one, for the eight sites it appears smaller to the medium; they contributed with 15-20% of the animal proteins in the studied site (see the frequency tables).

The *Ovicaprinae* or the small horned (*Ovis* and *Capra*) especially the sheep are well represented, the goats being rare or even missing. It is known that the generic determination between *Ovis* and *Capra* is very difficult, if not impossible for some bony fragments and for the teeth. As regarding the eight sites, in three of the ones from the left of the Siret river, the goats were not pointed out at all (this does not indicate their absence but perhaps a very low frequency), and in Drăgeşti, the *Capra* - *Ovis* ratio being 1/12; it is evidently commoner in the sites from the Neamt county, lacking at Izvoare, with about 1/2 ratio in Vlădiceni, 1/2 in Poiana Dulceşti and about 1/1 in Homiceni. It is clear that in the pre-carpatian area, *Capra* was well represented almost similar to *Ovis*. The difference between the two site groups emerges from the eco-etology of the two genders, evidently correlated with the environment. *Capra* and *Ovis* does not exclude each other from eating, the sheep grazing on the lawn and the goat eating the leaves and stems of the higher herbs, the offshoots from the forest skirts, each of them covering an ecological recess. This could mean that there were some differences for the medial environment for the two site groups: in the eastern sites of lower altitude there were greater and richer secondary lawns, as a result of deforestation, ideal for the sheep (only Drăgeşti is placed in the higher "Podiş Central Moldovenesc"), and in higher pre-carpatian area, the woods were large, their offshoots and the clearing areas, so called "runc" being a proper environment for the goat.

The *Ovicaprinae* ranks third as frequency, after the pigs, easy overtaking them in Vlădiceni and Groapa lui Ichim, but only in number, but if we take into account the muscular mass and their weight, they are always behind, so the quantity of protein resulted from these small horned slaughtering is negligible, being even smaller than the one resulted from hunting.

As regarding the *Ovis* gender we may say that morphologically, there have been pointed out male individuals with typical but gracile horns (with triangular section) easy twisted, and female individuals, some of them with relatively great horns and more rarely females without or almost without horns. The wither height is about 60cm, some individuals of only 55-56cm as seize; only in Drăgeşti there are some taller sheep, one individual being of 66,4cm. Anyway the sheep can be considered low sized.

From the morphological point of view we have only a female horn typical for the *prisca* form belonging to *Capra*. It is very small and gracile, with a height of 61-62 cm (in Vlădiceni).

The sacrificial curve is characteristic for some multivalent domestic species: we find young individuals, but not kids under a few months, but mostly adults, matures, some of them being sacrificed at the age of 4-5 years, so at the optimum economic exploitation period; there are old individuals too if we know that zootechnical exploitation age is shorter for the small horned about 7 to 8 years, in comparison with the *Bovidae*.

The following in rank is a domestic mammal of great size, the horse (*Equus caballus*). For all the eight sites of the Free Dacians civilization the horse generally overtakes the cattle, as individual mass. Polyvalent too, especially at the beginning, was used in alimentation so its contribution to the animal protein necessary should be taken into consideration. Its frequency is higher, somewhere after the pigs, but evidently before the *Ovicaprinae* and even before the eatable hunted mammals.

Most of the remains coming from horse are as fragmentary as the ones from other mammals, their cutting being done according to the same criteria (as a high sized animal, almost the same as for the cattle). Even where there is little material, next to the so called „dry" bones we find fragments coming from segments wrapped in meat, and which is more some of them have burning, even calcination marks. The wide range of slaughtering curve (maybe of natural death too) indicates that this species was used for food too. So, we find individuals from 2-4 years (with some of the teeth unshed), aged between 5-7, 8-10, 10-12-13 years, about 15-17

and up to over 20 years with no dental enamel on the occlusion surface (the maximum zootechnical exploitation age is 25).

The old horses might have died of old age but the others were evidently sacrificed; the young ones, almost too young to be used for riding or traction could have had an accident so, their slaughtering and usage as an aliment was a necessity. As regarding the *sex ratio*, considering the *caninus*- teeth, there were many gelded individuals.

From the morphological and metrical point of view, the horses from the eight sites belonging to the Free Dacians civilization have a series of notable characteristic features. Judging from the characteristics of the upper jugal teeth occlusion surface, we may say they have a small protoconus, and the islands have their enamel with very few folds, both characteristics being specific for the eastern horses; the crown of the inferior jugal teeth has right under the occlusion surface two parallel cross stripes, characteristic for the eastern group of the domestic horses.

As regarding the metrical characteristics of the long bones remains we may say that there are relatively small horses on one hand, tall horses on the other hand, both of them being gracile. Nine intact long bones have been found, allowing an exact estimation of the wither height for those individuals. It varies from 1282mm to 1444mm with an average size of 1359mm. Three other sizes indicating tall horses have to be mentioned: 1433mm at Drăgeşti – Vaslui, 1378mm at Vlădiceni – Neamț and 1444mm at Homiceni – Neamț; these metapodal bones are both thin and half – thin. The horses in the two sites in Neamt county may come as those high cattle from the Roman Dacia province, but the one from Drăgeşti, farer from the province border, could be out of the place. It is known that the Geto-Dacians from La Tène used to have both common horses, of medium seize which they used for different works and high sized horses of over 1,40m, endowed with special characteristics, as a result of racial improvement techniques, so the so- called „ elite" horses, used by the leading class for riding, wars and parades (HAIMOVICI 1983, 79-107). We do not know for sure if the Free Dacians in Moldova used to have (or might have inherited) horses like those, or the ones found by us in the three sites were really coming from the Roman Dacia, where the improved horses were available. The problem is still open at least until the archaeological material from the new diggings will be studied.

The ass (*Asinus domesticus*), known under the name of donkey, is a termophilic element, originated from the north of Africa and / or Somalia, tamed long ago and who was coming from the south, from the Balcan

Peninsula, maybe since the early Hallstatt (HAIMOVICI, CREȚU 2001, 403-413), but assimilated very late by the Romanian cultures and civilizations, being common only in Dobrogea. The fragments found in the northern areas are coming from individuals brought by different people, especially merchants, who used them for carrying goods. These humble animals might have died of cold weather specific for our country latitude of 45°. The Free Dacians in Moldova, hardly knew it at evidently they did not breed it as a domestic species. It was found as an osteological material in Groapa lui Ichim (HAIMOVICI, TARCAN 1994, 327), with only one fragment, this site being probably the most northern site he reached (47°,45`) as a sub fossil and with a single fragment at Vlădiceni too (HAIMOVICI, PANOVE 1990, 260).

We should consider the dog (*Canis familiaris*) a domestic mammal, one of man companions from very old times. In the eight sites, the dog remains are distributed as such: he misses at Suharău and for all the other sites it has a very low frequency. At Poiana Dulceşti-Varniță and Brăieşti ((HAIMOVICI, TEODORESCU 1995, 195-208, HAIMOVICI 2000-2001, 361-371) dogs were discovered, put as offers in graves, and we shall discuss again about this matter. These dogs from different sites are of diverse sizes both metrical and morphological, from little to medium and from medium to high or almost high, the wither height, either direct or indirect determined (by measurements on the inferior jaw) being of 51 to 76cm.

These dogs did not seem to be used for other purposes, such as food. They were used for work although they weren't too specialized individuals; we do believe they weren't bred as companions. Their remains are easily fragmentary (if we don't count the ritually offered dogs) .The old individuals are rare, with marked traces of teeth erosion, and the youth have no sheded teeth or un-epiphysed long bones.

5. Some of the domestic mammals are considered polivalent: *Bos taurus, Ovicaprinae* and horses. We must say that at least for the time being, it is very difficult for an archaeozoologist to circumscribe all this functions, on the basis of the morphological characteristics of the skeleton; rather indirect data are used: like frequencies, different sacrificial ages, *sex ratio*, and also data from the comparative etnography.

Due to the cow dominance we may consider that they were bred for milk and its derivate products. The importance of the great horned as contributors to the animal protein necessary for the human society, is increasing but at the same time, for the animal fat such as cream and butter. The cattle were also used as an animal motor, (it is rather difficult

to appreciate the weight in carts traction, farming tools like the plough, carrying goods and so on).The lack of the gelded individuals raise a question; could the cows be used, if not usually at least sporadically for these multiple usages, this implying a diminished quantity of milk.

The *Ovicaprinae* are a milk source too but due to their small weight, the usage as an animal motor is excluded. As we know, the goats give the greatest quantity of milk from all the domestic species. The sheep offer milk too and we must say that only the diary products were usually eaten and some of them, like the green cheese, could be preserved for winter when the quantity of milk was diminishing even with the cows and the human society had to face not only a lack of animal protein. The sheep offers a remarkable product, especially for the temperate regions (the latitude of our country too), the wool, that can be easily processed under different forms (faster and more efficient than the vegetal textile fibers).

Taking into consideration both the frequencies and the weight differences between the cattle and the *Ovicaprinae* we may state that the Free Dacians had an animal economy based on fully breeding of the big horned and not the small ones, the last ones being characteristic for the mediteranean and sub mediteranean latitudes. Nevertheless the sheep had their precise economical role.

As regarding the horses (the ass is excluded as it characterizes the circum mediteranean latitudes) we study only the domestic horse, which was used as food too, but his main functions were different. We can consider the horse as an animal motor but it is difficult to appreciate its weight over the cattle. Evidently the horse was used for riding, and those high individuals, (descendants of the elite horses of the Geto–Dacians from La Tène) may have been used only for this purpose, due to their mentioned morphological characteristics. It is almost certain that for the others of medium height, the multiple functions deriving from their usage as an animal motor were present; we should say that the for the horses, the gelded individuals were in great number and their age was rather high, many individuals being aged somewhere over ten years, some of them even over twenty years.

6. We should say, in subsidiary, that all the mammal species, either domestic or wild, offered at their slaughtering (either hunted or ageing death) a series of products, basic for the economy of a society, but with some primitive characteristics: antlers, more the ectodermal part of the bull horns, used for making different objects and tools, even arms, skins or furs (especially from sheep) usually processed but used as such

too, bones, tendons and some internal organs like the bowels or the urinary bladder (the latter couldn't be preserved as they are flabby organs).

7. We may consider that the Free Dacians economy was well developed and very diverse, maybe with a greater weight than the agriculture (with all its types), an agriculture rather of subsistence (taking into consideration the lack of the gelded cattle), the animals being more mobile, moved alive, easily to do if they are in great number, so more proper for a real trade economy. Nevertheless their economy was behind the economy of the Geto-Dacians from La Tène, the Romanian extracarpathic area (HAIMOVICI 1987, 144-153). Even if the Geto – Dacians succeeded in improving a horse type we named „ elite" horse, it seems that later, after the beginning of the II century A.D., when the Romans conquered a part of the territory inhabited by the Geto–Dacians, constituting the imperial province Dacia, it disappeared. Anyway, some of the lacks of Geto-Dacian society, from the economical point of view, was that they didn't practiced racial improvement for the domestic species, excepting the so- called „elite" horse (HAIMOVICI 1987, 149-151)

8. A fact that seems trivial but in strong connection with the economical development stage is the presence in a supply storage (pit) of some remains belonging to a small rodent, almost certain a mouse (*Mus musculus musculus*), which had already become a comensal, as he had found a more proper environment in the human settlements (another recess) – a relatively developed economy with many food rests and stored supplies – than the natural one whom he deserted and is nowadays specific for the wild rat (*Mus musculus*).

9. As we showed, a sheleton belonging to a dog was found in a pit in Brăeşti, but there wasn't found any skull in the proximity, (so a decapitated individual must have been ritually offered) (HAIMOVICI 2000-2001, 361-371).

In Varnița site, Poiana Dulceşti, there are two holes in which dogs were found (one with an integer individual and the other with a skull) and in other six holes whole individuals of hare (*Lepus europaeus*) (HAIMOVICI, TEODORESCU 1995, 204-206). We should mention that for all the fragments there were no emaciated tracks, this being a proof of their throwing or bearing alive or the deposition of their fresh remains, as a result of their slaughtering, even cutting, by methods that didn't destroyed the skeleton but only the flash. We dealt with these aspects in the respective papers so we will not insist on aspects that are not closely related to economy. We would like to say that the gets from La Tène, in

the South of the country, used to deposit horses as an offer not only in royal tombs (Agighiol, Peretu) but also to bury horses or parts of them inside a necropolis (Zimnicea) at a site limits (Cătunu) or far from them, the „lonely" horses from Căscioarele (HAIMOVICI 2000, 195-201). In the Geto–Dacians site on both parts of the Carpathians (UDRESCU 1992, 268-270) we also find dogs or parts of dogs, but more recently deposited as offers in holes.

10. In the end, as we repeatedly observed, the existence of a strong connection between the environment and economical characteristics, these external factors are if not causes, at least conditions for the evolution and development of human society, their action being more pregnant if we refer to a less evolved society and more primitive economy, so we decided to characterize the environment from which the Free Dacians society emerged and evolved two thousand years ago, on the basis of the data offered by our archaeozoological study.

As we showed at the beginning of this paper, the environment characteristics specific for the time, were not different from the present as regarding the climate, native vegetation and wild fauna, but first rank related with the usually human destructive action, so complex and hard to master so-called humanizing, more and more pregnant as times passes. Some aspects of the human activity were described as having some role in the evolution of society, concerning some economic aspects we pointed out before.

We consider that the Free Dacians society developed in a forest environment, still unitary, but slightly troubled, especially in the lower areas on the left of the river Siret. The dominant biocenosis was the oak forest, with different dominant oak species according to altitude; it is known this is the best represented formation in East Central Europe, from the economical point of view and not only, with the most interrelations among its components. We believe that, although the forest was deforested for its many usages, it could naturally and continuously regenerate itself, the humanized areas with relatively artificial, secondary biocenosis, meaning all kinds of crops and secondary grasslands occupying small areas continuously alternating, have been got from the forest areas. In such an environment, an extensive subsistence agriculture, with not too great but satisfying crops for a population with a demographic index not too high, can be developed simultaneous with a domestic animals breeding, especially cattle and pigs (their wild forefathers being part of the ecological forest group), the slightly humanized environment offering great living conditions, as it is well known

that these animals did not live in stabling. At the same time, the forest environment was not proper only from the economical point of view but it offered protection against natural calamities resulting from the intensive deforestation like, changing in the water regime, soil erosion, ground glidings, even slight climate changes and the increasing of its variation, unknown by our ancestors, due to the great areas covered by the forest environment.

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BIBLIOGRAPHY

HAIMOVICI Sergiu

1981-1982 *Studiul paleofaunei din aşezarea aparţinând secolelor II-III e.n. de la Drăgeşti (jud. Vaslui)*, AMM, 3-4, p. 57-65.

1983 *Caractéristiques des chevaux des Gètes découverts dans la nécropole de Zimnicea*, Dacia N.S., 27, p. 79-107.

1983-1985 *Studiul materialului faunistic provenit din aşezarea de la Izvoare – Piatra Neamţ, zona B, aparţinând sec II-III e.n.*, MemAnt, 15-17, p 264-271.

1987 *Creşterea animalelor la geto-dacii (sec. IV î.e.n. – sec I e.n.) din Moldova şi Muntenia*, TD, 8, 1-2, p. 144-153.

2000 *Features of the ritually buried horses by the Geto-Dacian population during the second epoch of the Iron Age in the South Eastern Romania. Their Socioeconomic and worship importance.* In: *Actes du I^er^ Colloque International d'Archéologie Funeraire,* Tulcea 2000, p. 195-201.

2000-2001 *Materiale osteologice din siturile de la Brăeşti*, ArhMold, XXIII-XXIV, p. 361-371.

HAIMOVICI Sergiu, CREŢU Cristina

2001 *Unele probleme de arheozoologie privind o aşezare hallstattiană: Sărăţica (comuna Girov, jud. Neamţ),* MemAnt, XXII, p. 403-413.

HAIMOVICI Sergiu, KOGĂLNICEANU Raluca

2001 *Studiul materialului faunistic descoperit în urma săpăturilor arheologice executate în aşezarea dacilor liberi (sec.II-III d.Ch.) de la Homiceni (com Bârgoani, jud. Neamţ)*, MemAnt, XXII, p. 415-428.

HAIMOVICI Sergiu, PANOVE Cristina

1990 *Studiul arheozoologic al materialului provenit din stațiunea din sec. II-III de la Vlădiceni (jud. Neamț)*, TD, 11, 1-2, p. 253-262.

HAIMOVICI Sergiu, TARCAN Carmen

1994 *Studiul arheozoologic al materialului provenit din aşezarea dacilor liberi de la Botoşani – „Groapa lui Ichim”* (secolele II-III), ArhMold, 18, p. 321-329.

HAIMOVICI Sergiu, TEODORESCU, M.

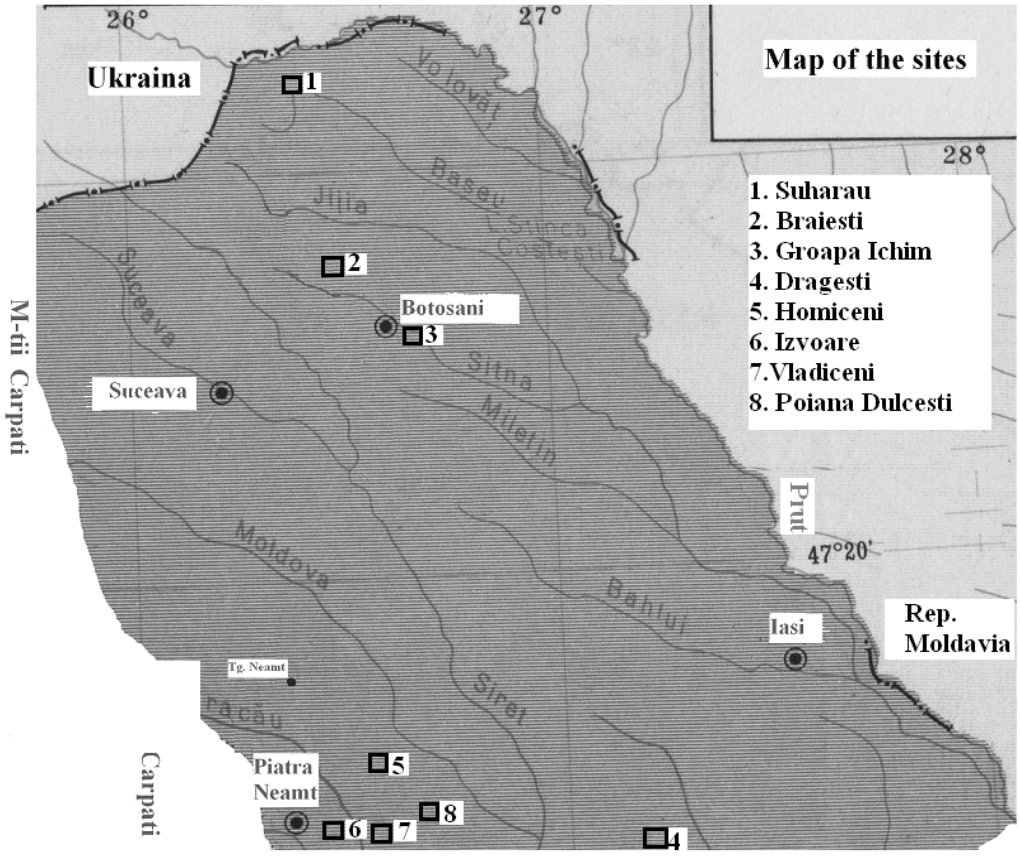
1995 *Studiul arheozoologic al materialului descoperit în două situri (Varniță şi Silişte) de la Poiana Dulceşti (județul Neamț) aparținând dacilor liberi (sec II-III D. H.)*, MemAnt, XX, p. 195-208.

HAIMOVICI Sergiu, UNGUREANU Aurelia

2001 *Caracteristicile materialului paleofaunistic descoperit într-un sit aparținând dacilor liberi (Costoboci?), situat în nordul Moldovei: aşezarea de la Suharău*, Suceava, XXVI-XXVIII, (1999-2001), p. 189-201.

UDRESCU Mircea

1992 *Unele date despre „mentalitatea rituală” în secolele III–IV e.n.; gropile rituale cu câini de la Stolniceni – Râmnicu-Vâlcea,* Istros, VI, p. 268-270.



The map of the eight sites

The eight tables representing the mammal species frequencies: the domestic ones are in decreasing order and the wild ones (separated with a thick line) in their systematic order.

1. Suharău

Species	Fragments		Individuals	
	Nr. abs	%	Nr. abs	%
Bos taurus	281	64,59	17	40,47
Sus domesticus	73	23,80	10	23,80
Ovicaprinae (Ovis)	64	14,76	8	19,04
Equus caballus	6	1,37	2	4,76
Ursus arctos	1	0,22	1	2,38
Cervus elaphus	9	2,06	3	7,17
Capreolus capreolus	1	0,22	1	2,38
Total	**435**		**42**	

2. Brăieşti

Species	Fragments		Individuals	
	Nr. abs	%	Nr. abs	%
Bos taurus	46	62,16	11	45,84
Sus domesticus	11	14,87	5	20,84
Ovicaprinae	8	10,82	3	12,50
Equus caballus	5	6,75	1	4,16
Canis familiaris	2 (46)*	2,70	2	8,34
Cervus elaphus	1	1,35	1	4,16
Capreolus capreolus	1	1,35	1	4,16
Total	**74**		**24**	

*it was considered only one fragment for the buried dog.

3. Groapa lui Ichim

Species	Fragments		Individuals	
	Nr. abs	%	Nr. abs	%
Bos taurus	309	61,68	23	37,70
Ovicaprinae (Ovis)	82	16,38	15	24,59
Sus domesticus	74	14,79	12	19,68
Equus caballus	31	6,19	6	9,83
Asinus domesticus	1	0,19	1	1,64
Canis familiaris	1	0,19	1	1,64
Sus scrofa ferus ?	2	0,39	2	3,28
Cervus elaphus ?	1	0,19	1	1,64
Total	**501**		**61**	

4. Drăgeşti

Species	Fragments		Individuals	
	Nr. abs	%	Nr. abs	%

Bos taurus	957	63,00	87	50,88
Sus domesticus	202	13,30	27	15,78
Ovicaprinae (Ovis et Capra)	190	12,50	27	15,78
Equus caballus	128	8,43	11	6,43
Canis familiaris	16	1,06	5	2,92
Lepus europeus	2	0,13	1	0,59
Canis lupus	2	0,13	1	0,59
Ursus arctos	1	0,06	1	0,59
Sus scrofa ferus	6	0,40	4	2,34
Cervus elaphus	13	0,86	6	3,51
Capreolus capreolus	2	0,13	1	0,59
Total	**1519**		**171**	

5. Homiceni

Species	Fragments		Individuals	
	Nr. abs	%	Nr. abs	%
Bos taurus	300	48,08	29	40,28
Sus domesticus	194	31,09	17	23,61
Ovicaprinae (Ovis et Capra)	65	10,42	9	12,80
Equus caballus	27	4,33	5	6,94
Canis familiaris	6	0,96	3	4,17
Canis lupus ?	1	0,16	1	1,39
Sus scrofa ferus	7	1,12	2	2,78
Cervus elaphus	16	2,56	4	5,55
Capreolus capreolus	8	1,28	2	2,78
Total	**624**		**72**	

6. Vlădiceni

Species	Fragments		Individuals	
	Nr. abs	%	Nr. abs	%
Bos taurus	1275	70,88	103	57,56
Ovicaprinae (Ovis et Capra)	174	9,69	26	14,54
Sus domesticus	156	8,67	25	13,96
Equus caballus	166	9,24	13	7,28
Asinus domesticus	1	0,05	1	0,55
Canis familiaris	3	0,16	2	1,11
Castor fiber	1	0,05	1	0,55

Canis lupus ?	1	0,05	1	0,55
Sus scrofa ferus	3	0,16	2	1,11
Cervus elaphus	18	1,00	4	2,24
Bos primigenius	1	0,05	1	0,55
Total	**1799**		**179**	

7. Izvoare

Species	Fragments		Individuals	
	Nr. abs	%	Nr. abs	%
Bos taurus	179	64,38	19	44,18
Sus domesticus	44	15,83	8	18,60
Ovicaprinae (Ovis et Capra)	28	10,08	6	13,95
Equus caballus	19	6,84	4	9,30
Canis familiaris	1	0,36	1	2,33
Ursus arctos	1	0,36	1	2,33
Sus scrofa ferus	1	0,36	1	2,33
Cervus elaphus	4	1,43	2	4,65
Capreolus capreolus	1	0,36	1	2,33
Total	**278**		**43**	

8. Poiana Dulceşti

Sit	Varnița				Siliştea			
Species	Fragments		Individuals		Fragments		Individuals	
	Nr abs	%	Nr abs	%	Nr abs	%	Nr abs	%
Bos taurus	475	44,03	63	29,30	114	50,23	8	26,67
Sus domesticus	365	33,82	73	33,96	58	25,56	9	30,00
Ovicaprinae (Ovis et Capra)	150	13,90	38	17,67	25	11,02	5	16,67
Equus caballus	61	5,65	21	9,78	21	9,22	4	13,33
Canis familiaris	6(87)*	0,56	4	1,86	1	0,45	1	3,33
Lepus europeus	6(137)*	0,55	6	2,79	-	-	-	-
Castor fiber	2	0,19	2	0,93	-	-	-	-
Sus scrofa ferus	5	0,46	2	0,93	3	1,32	1	3,33
Cervus elaphus	6	0,56	3	1,39	5	2,20	2	6,67
Capreolus capreolus	3	0,28	3	1,39	.	-	-	-
Total	**1079**		**275**		**226**		**30**	

*there were considered 6 buried hares, for fragments in order not to influence the frequency; we did the same for the dog.