MEAT SUPPLIES OF THE MARKETS OF MEDIEVAL AND EARLY MODERN AGE DEBRECEN (NE HUNGARY)

DEBRECEN KÉSŐ KÖZÉP- ÉS KORA ÚJKORI PIACAINAK HÚSELLÁTÁSA

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Abstract

The aim of this paper is to compare animal bone material from seven different sites in and around the Old-Town of Debrecen. During the analysis over 13,000 bone fragments were identified from the Middle and Early Modern Ages. These impressive numbers offer an opportunity for drafting the organization of meat supplies in Debrecen during these historical periods, and help understanding butchery techniques and conventions.
The other goal of the paper was to reconsider the concept of workshops and use it in the case of butcheries. Are they real workshops or not? And if they are, is it possible to investigate them by the "general workshop identifier" criteria? Possibly yes, because, like the other workshops, butchery has special processes.

Kivonat

A tanulmány célja hét különböző lelőhely állatcsont anyagának összehasonlítása Debrecen óvárosából. Az elemzések során több, mint 13.000 állatcsont töredéket sikerült meghatározni a lelőhelyek késő közép- és kora újkorra keltezett objektumaiból. A leletek nagy számának köszönhetően megkísérelhetjük felvázolni Debrecen városának húsellátását, a mészárlás módját és szokásait ebben a két történeti időszakban. A vizsgálatok másik célja újraértelmezni a műhely fogalmát és koncepcióját a mészárszékek esetében. Értelmezhetőek-e a mészárszékek műhelyekként, vagy sem? Ha igen, úgy használhatjuk-e a műhelyek lokalizációjára használt általános kritériumokat? Nagy valószínűséggel igen, hiszen a mészárszékek ugyanolyan sajátos műveleti folyamatokkal rendelkeznek, mint a műhelyek általános típusai.

KEYWORDS: DEBRECEN (NE HUNGARY), MEAT SUPPLIES, MEDIEVAL, EARLY MODERN, BUTCHERY

KULCSSZAVAK: DEBRECEN, HÚSELLÁTÁS, KÖZÉPKOR, KORA ÚJKOR, MÉSZÁRSZÉK

Introduction

Between 2000 and 2004 archaeologists of the Déri Museum in Debrecen performed many rescue excavations in and around Debrecen (NE Hungary, **Fig. 1.**). During these excavations a large number of animal bones came to light.

During the course of the last subsequent years the author of this paper identified more than 13,000 animal bone fragments from seven different sites in the Old Town of Debrecen. These bones were dated to the Medieval or the Early Modern periods.

The city of Debrecen occupied a very peculiar position during the Middle and the Early Modern Ages. Debrecen was not a real city, rather an *oppidum*, but had all the privileges of a city in this "city-less" non-urbanized area of the Hungarian Kingdom (Kubinyi 1989, 230).

Debrecen was first mentioned in the written sources in the *Regestrum* of Várad in 1235. (**Fig. 2.**) Later on, in 1361, King Louis I. granted privileges to the town (Módy 2006, 53). From the middle of the 15th century onwards the town played a very important role in the intensive cattle export of the Late Middle and the Early Modern Ages.

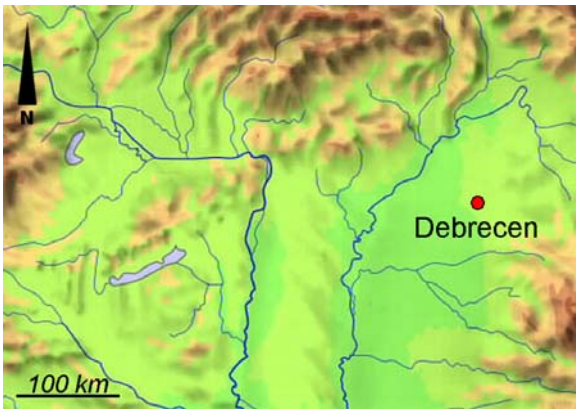

Fig. 1.: Map of the Carpathian Basin (after the geographical map by László Zentai 1996)

1. ábra: A Kárpát-medence térképe. Zentai László (1996) alapján

On account of the Late Medieval demographic explosion in the western parts of Europe, there was a huge demand for meat and livestock markets opened for the trade. This phenomenon stimulated Hungarian cattle exports which grew strong by the 16th century (Bartosiewicz & Gál 2003, 365).

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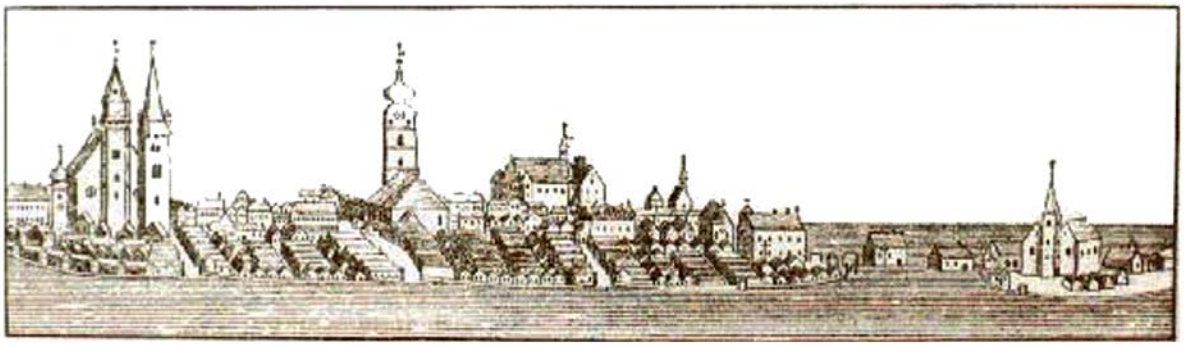

Fig. 2.: The town of Debrecen in the Early Modern Age

2. ábra: Debrecen az újkorban
(http://portal.debrecen.hu/varosunk/varostortenet/debrecentortenete1_varostortenet.html)

Thousands of the "fatty-beef" Hungarian cattle were herded on foot to Central-European transit markets (Venice, Austria, Hanseatic cities). On the basis of the customs records we have a lot of data concerning this intensive trading activity (Bartosiewicz 1997-1998, 41).

The presence of the *primigenius* cranial type of cattle began to become common, as a non-demanding but strong form providing good beef. Breeding of these types was ideal for the characteristic of the development of the different *primigenius* cattle-types, such as the Hungarian Grey that appeared later (Matolcsi 1975, 141).

Debrecen, as a town involved in trade and animal husbandry, emerged as an important market and redistribution centre for all forms of livestock in the Middle and Early Modern Ages. Cattle, however, was most important of all (Balogh 2006, 476).

Material, method and results

Almost all investigated sites are located within the current Old-Town of Debrecen. (**Fig. 3.**) This is very important, because comparisons between the sites show potential differences between the human populations inhabiting different parts of the city. On the basis of written sources we know, that the different areas and streets had their own herds (Balogh 2006, 478). The town owned common greens and the inhabitant smaller or bigger lots. The farthest greens were actually guarded by gunmen (Balogh 2006, 479).

The main aim of this paper is the analysis of similarities and differences between the butchery practices as well as the animals themselves observed at the seven sites.

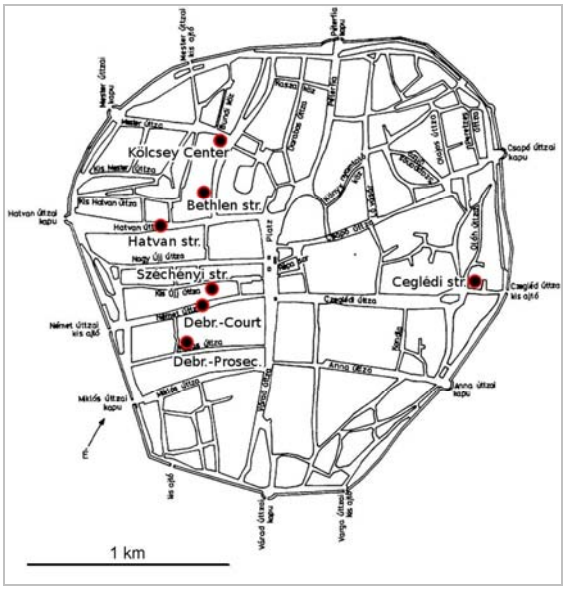

Fig. 3.: Location of the sites in the Early Modern Age Debrecen (After the map of György Kováts from 1750, HBML. D vT.2.)

3. ábra: A lelőhelyek elhelyezkedése az újkori Debrecenben (Kováts György 1750-es térképe nyomán, HBML. D vT.2.)

Differences and similarities

Species ratios

Although the representation of the main domestic species and the negligible contribution by game to meat supplies seems to be similar at the studied sites, a Chi-square test indicated statistically significant differences between the proportions of various animals consumed.

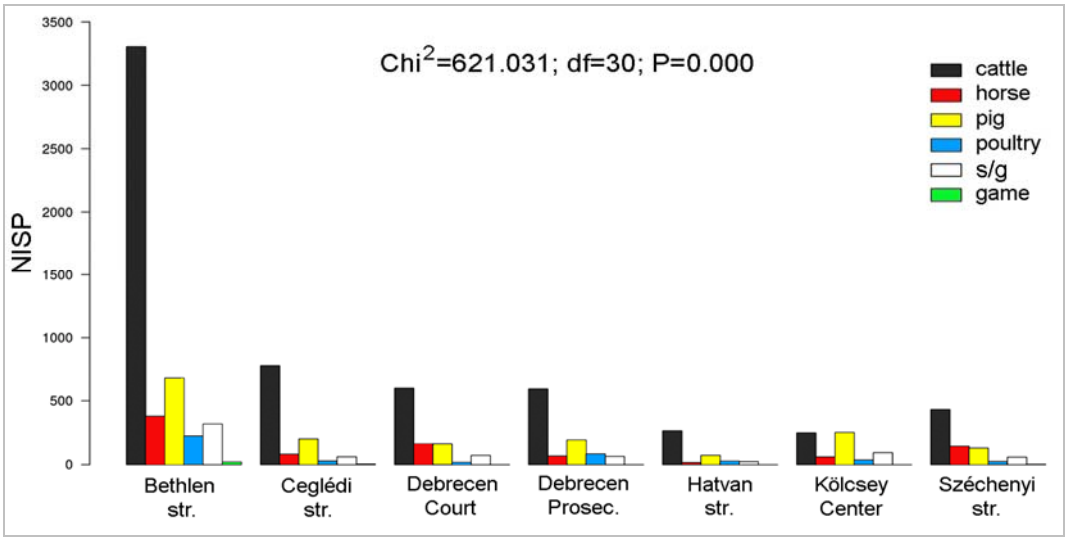

Fig. 4.: Diagram of the most important domestic species and hunted animals

4. ábra: A legfontosabb háziállat fajok és a vadak mennyisége eloszlása a lelőhelyeken

A possible source of this phenomenon may be the different proportions observed between the numbers of small ruminant remains and pig bones. In the Hungarian Middle Ages and Early Modern Age, the dominance of cattle bones was overwhelming and differences between sites often originate from such varying ratios of small stock. (**Fig. 4.**). Moreover the proportion of poultry remains also varies strongly between sites. While the number of poultry bones was hardly affected by contemporaneous taphonomic processes such as butchering, these small bones are more prone to being lost during excavations if the material is not sieved.

Written sources refer to ownership of land in each medieval street. Since differences in habitation mirror potential social differences, everyday meat-eating customs may also have differed between areas in the city and are possibly reflected by differences in the proportion of bones representing various species (Csippán 2008, 305).

Comparison of the sizes

Cattle (*Bos taurus* L.)

Fortunately numerous data are at service for us to calculate the withers heights of the most important domestic species. It is a fine possibility to compare the size of the animals from the distinct sites. (**Fig. 5.**)

On the basis of the comparison of the withers heights of cattle, we can say that essentially, the middle size category of the cattle was very similar between the disparate streets which were represented by the sites. Although the sizes of the cattle had a relatively big spread of withers heights, show the varied characteristics of the cattle stocks.

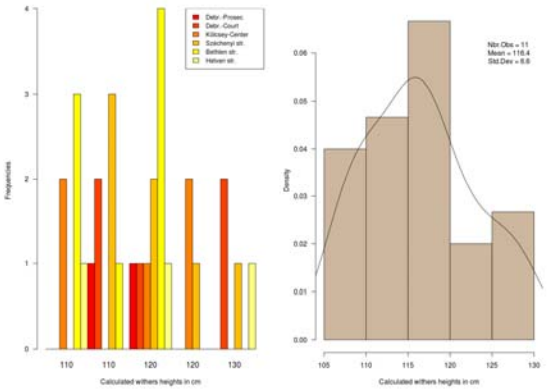

Fig. 5.: Withers heights of cattle from the sites

5. ábra: A számított szarvasmarha marmagasságok

Horse (*Equus caballus* L.)

Horse bone measurements suggest, that the size variability in these animals was similar to that of cattle. Altogether five of the sites yielded comparable data showing that the withers heights of these animals (after Vitt 1952) varied broadly between 130 to 150 cm. (**Fig. 6.**)

Pig (*Sus domestica* Erxl.), dog (*Canis familiaris* L.) and small ruminants (*Ovis aries* L. and *Capra hircus* L.)

Calculations of withers heights was also possible in the case of these domestic species but in smaller numbers. Only eight times in small ruminants (possible sheep) (Mean = 59.9±3.4 cm) (after Teichert 1975), six cases of dogs (Mean = 55.6±9.5 cm) (after Koudelka 1885) and only one case in domestic pig (75.5 cm) (after Teichert 1969).

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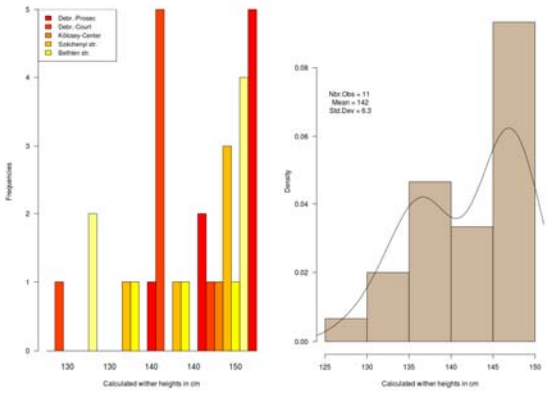

Fig. 6.: Withers heights of horses from the sites

6. ábra: A számított háziló marmagasságok

The size of the small ruminants (possibly sheep) were seemingly balanced. The body size of these animals were typically small and they were under the mean of the periods (Bökönyi 1974, 171).

The sizes of small ruminants (possibly sheep) seem to be balanced. The body size of these animals was small with their withers heights not reaching the average of other periods (Bökönyi 1974, 171). The withers heights dogs were diverse, medium and medium-large size dogs were common.

Age at death of the animals (kill-off patterns)

Kill-off patterns at the sites seem to be different, although the representations of the species are not equal in terms of the numbers of ageable teeth and bones.

Cattle were usually killed in their subadult and adult ages, except at the site of Széchenyi street where the proportion of juvenile individuals was equal with the proportions of adult and subadult individuals.

The ages of slaughter for sheep and goats are almost the same as those of cattle, but food refuse from the site of Debrecen –Prosecution shows a preference for meat from young lambs/kids. The high proportion of adult and subadult pigs remains noted at almost all sites is uncommon. Pigs tend to be killed at a younger age than other domesticates, since their sole form of exploitation is meat and fat. (**Fig. 7.**)

There is a huge ratio of adult and subadult pigs at almost all sites. It is very uncommon, because the exploitation possibilities of this species are limited to meat utilization only.

Butcheries as special meat-packing workshops

Written sources reveal, that seven of butcheries operated in the Debrecen during the late 18th century. Various streets represented in this study had potentially differing meat consumption habits or different access to meat. The question is whether one can recognize the location of butcheries or not?

If we can generalize butcheries like product-manufacturing workshops, the answer is probably yes.

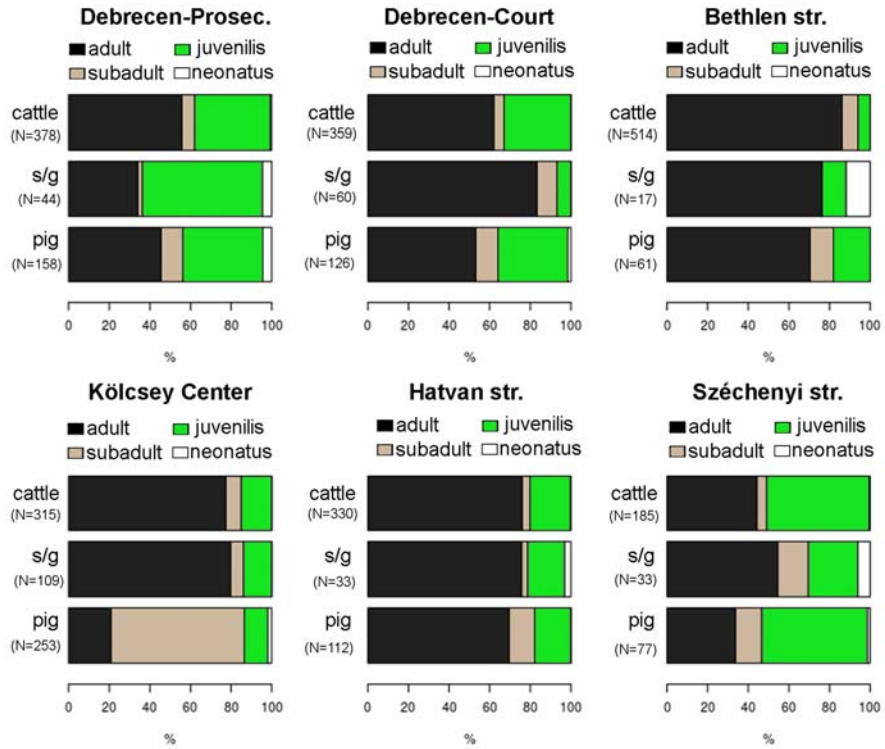

Fig. 7.: Kill-off patterns of the main domestic species

7. ábra.: A főbb gazdasági haszonállatok leölési életkora

The localization of workshops has six main criteria in archaeology (Csippán 2010, 32):

- Archaeological features which strongly connected to the activity in question

- Special tools
- Raw material(s)
- End product
- Workshop waste:
    - semi-finished product
    - reject
    - real debris
- Complementary information I written and iconographic sources.

For interpreting this method, we have to modify the criteria for the special case of the butcheries as follows:
- Special features (the butchering is not associated with archaeologically identifiable special features)
- Special tools (the butchers are not using only very special tools, markedly different from those found in common households or other workshops.
- Raw material and waste (the tangible raw material of butcheries is equal with archaeologically observable waste: animal bones)

In the case of the Debrecen butcheries another "localization criterion" may be used: the dominance of cattle bones with a near absence of butchering waste from other species.

The explanation of this phenomenon is that during the Middle- and Early Modern Ages only cattle were processed in butcheries. The rules of the guilds prescribed, that small stock (pigs, small ruminants) be killed by a sticker at home. If such rules are reflected in the find materials of butcheries they may be considered special workshops (Frecskay 1912, 266).

Because animal remains offer the only possibility to identify butcheries as workshops, the quality and quantity of the bone finds need further analysis..

Localization of a Pre-Modern Age butchery in the centre of Debrecen

During the analysis of the animal remains from the Ceglédi street site, located at the edge of Old Town, remarkable differences were noted in the proportions of several body parts. The massive dominance of bones from practically meatless body regions was noticed. These finds are not typical kitchen waste but tend to originate from primary butchering. Skull fragments, horn cores and „dry limb" bones came to light in large numbers (D. Szabó–Csippán 2006, 49). (**Figs. 8-9**)

On the basis of the hypotheses presented above we can interpret the differences in the presence and absence of species and/or body regions.

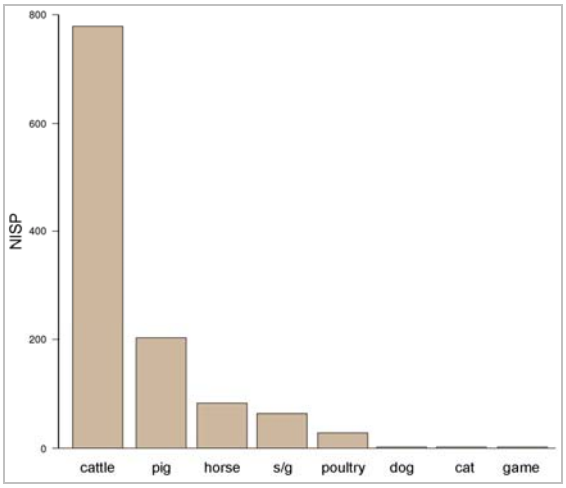

Fig. 8.: Diagram of the most important domestic species and hunted animals from the site of Ceglédi street

8. ábra: A főbb gazdasági haszonállatok és a vadászott állatok aránya a Ceglédi utcai lelőhelyen

In addition to the conspicuous presence of meatless cattle bones in a few features, the absence of remains representing other species is also notable.

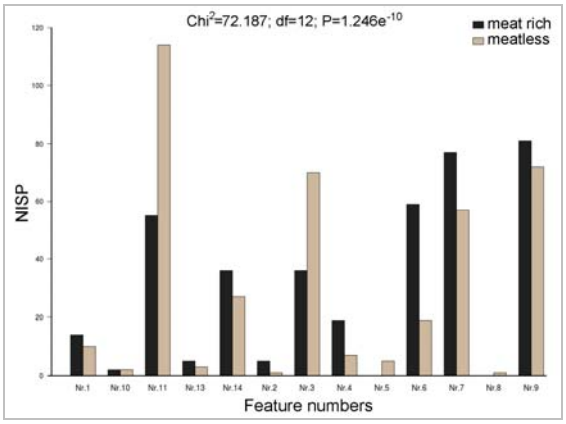

Fig. 9.: Distribution of meat-rich and meatless body regions in the features

9. ábra: A húsban gazdag és a húsban szegényebb régiók eloszlása az egyes objektumokban

The overrepresentation of meatless regions is significant in features Nr. 3 and Nr. 11. The composition of find material recovered from these features seems to be totally different from those the other as skull fragments, horn cores, metapodia, phalanges etc. constitute the majority of finds. The absence of other mammals and of poultry strengthen the argument, that finds from these two features are strongly connected to primary butchering of cattle.

Aside from this osteological evidence, there are fortunately numerous written sources concerning Ceglédi street. In 1770, the royal commissioner Miklós Forgách ordered the establishment of new butcheries inside the town and all of these

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butcheries had to slaughter four cattle a day (Gyimesi 1981, 370).

We know, that seven butcheries worked in Debrecen in the 1780s, and one of them was near by the gate of the town in the Kis-Cegléd street (Zoltai é. n., 187).

It is also known that seven butcheries worked in Debrecen during the 1780s, and one of them near operated near the city gate opening to Kis-Cegléd street (Zoltai é. n., 187). The owner of this butchery was the town itself. János Nagy rented it in 1825 (HBML IX. 22.2). Finally, the butchers' activity was prohibited by the Town Council in 1854 (Szűcs 1976, 48).

Conclusion

Animal bones were compared between seven different sites from the centre of Late Medieval and Early Modern Age Debrecen, Hungary. Written sources attest to the great importance of livestock trade in this town during the discussed periods. The seven sites represent the diversity of meat consumption in different parts of the *oppidum*. This diversity, however, not only shows the prevailing customs of meat consumption.

Animal remains also offer information on the body dimensions of domestic animals. Some sites yielded the remains of smaller individuals than others, although on the basis of the t-tests, we can conclude the homogeneity of size distributions. The small differences may originate from the different composition of animals in the refuse deposits in terms of age and sex. The sizes of dog, albeit based only on five measurements only, are indicative of tall or medium size animals.

The relative lack of bones from the meat rich body parts of cattle in certain features suggested, that the finds from Ceglédi street are not ordinary kitchen waste. Using the "General workshop localization criteria" these bones may be considered refuse of primary butchering activity. On the basis of the diversity of animal bone finds a draft of differential meat consumption could be sketched at the seven sites excavated in the city of Debrecen. Considering the quality and quantity of meat represented by the animal remains, not only consumption, but also beef production and the location of a butchery could be reconstructed using the evidence of animal remains.

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Appendix

Table 1.: Basic statistics of the withers heights of cattle from the sites

1. táblázat: A szarvasmarha marmagasságok alapstatisztikai adatai

	Bethlen str.	**Hatvan str.**	**Debrecen Prosec.**	**Debrecen Court**	**Kölcsey Centre**	**Széchenyi str.**
Number	8	3	2	5	5	7
Mean value	113.6	117.1	114.9	119.5	116.7	117.3
Standard deviation	5.8	11.5	0.5	8.2	7.4	5.1

Table 2.: Basic statistics of the withers heights of horses from the sites

2. táblázat: A háziló marmagasságok alapstatisztikai adatai

	Bethlen str.	**Debrecen Prosec.**	**Debrecen Court**	**Kölcsey Centre**	**Széchenyi str.**
Number	7	5	5	2	11
Mean value	145.7	138.0	143.7	142.5	140.7
Standard deviation	6.0	5.8	9.0	6.7	4.9

Table 3.: Results of the unpaired Student t-test (2-tailed) of cattle's withers heights

3. táblázat: A szarvasmarha marmagasságok összehasonlításának eredményei kétvégű t-próbával

	Debrecen-court N=5 Mean=119.526 Std.er.=3.68	**Kölcsey-Centre N=5 Mean=116.71 Std.er.=3.287**	**Bethlen str N=8 Mean=113.63 Std.er.=2.043**	**Széchényi str N=6 Mean=117.88 Std.er.=2.146**
Debrecen-court N=5 Mean=119.526 Std.er.=3.68	–	t=0.5703 p=0.5841 df=8 confidence int.=0.95	t=1.5261 p=0.1552 df=10 confidence int.=0.95	t=0.4029 p=0.6964 df=9 confidence int.=0.95
Kölcsey-Centre N=5 Mean=116.71 Std.er.=3.287	t=0.5703 p=0.5841 df=8 confidence int.=0.95	–	t=0.8448 p=0.4162 df=11 confidence int.=0.95	t=0.3079 p=0.7652 df=9 confidence int.=0.95
Bethlen str N=8 Mean=113.63 Std.er.=2.043	t=1.5261 p=0.1552 df=10 confidence int.=0.95	t=0.8448 p=0.4162 df=11 confidence int.=0.95	–	t=1.2830 p=0.2219 df=13 confidence int.=0.95
Széchényi str N=6 Mean=117.88 Std.er.=2.146	t=0.4029 p=0.6964 df=9 confidence int.=0.95	t=0.3079 p=0.7652 df=9 confidence int.=0.95	t=1.2830 p=0.2219 df=13 confidence int.=0.95	–

Table 4.: Results of the unpaired t-test (2-tailed) of horse's withers heights

4. táblázat: A szarvasmarha marmagasságok összehasonlításának eredményei kétvégű t-próbával

	Debrecen-court N=5 Mean=143.73 Std.er.=4.0289	**Debrecen-Prosec. N=5 Mean=138.04 Std.er.=2.572**	**Bethlen str N=7 Mean=145.68 Std.er.=2.25**	**Széchényi str N=11 Mean=140.65 Std.er.=1.482**
Debrecen-court N=5 Mean=143.73 Std.er.=4.0289	–	t=1.1891 p=0.2685 df=8 confidence int.=0.95	t=2.2183 p=0.0508 df=10 confidence int.=0.95	t=0.4542 p=0.6594 df=10 confidence int.=0.95
Debrecen-Prosec. N=5 Mean=138.04 Std.er.=2.572	t=1.1891 p=0.2685 df=8 confidence int.=0.95	–	t=2.2183 p=0.0508 df=10 confidence int.=0.95	t=0.9359 p=0.3652 df=14 confidence int.=0.95
Bethlen str N=7 Mean=145.68 Std.er.=2.25	t=1.5648 p=0.1487 df=10 confidence int.=0.95	t=2.2183 p=0.0508 df=10 confidence int.=0.95	–	t=1.9491 p=0.0690 df=16 confidence int.=0.95
Széchényi str N=11 Mean=140.65 Std.er.=1.482	t=0.4542 p=0.6594 df=10 confidence int.=0.95	t=0.9359 p=0.3652 df=14 confidence int.=0.95	t=1.9491 p=0.0690 df=16 confidence int.=0.95	–

Table 5.: Measurements

5. táblázat: Csontméretek

Site/Species	**Bone**	**Measurements** (in mm)	**Withers height** (in cm)
Debrecen-Prosecution			
Cattle	*Metacarpus III-IV sin*	GL= 185.3; BP= 55.9	114.51; ?
	Metatarsus III-IV sin	GL= 216.0; BP= 46.0	115.12; ♀
Horse	*Metacarpus III sin*	GL= 214.0	133.2
	Metacarpus III dex	GL= 232.0	142.56
	Metacarpus III sin	GL= 234.0	145.21
	Metatarsus III dex	GL= 262.0	137.26
	Humerus sin	GL= 280.0	132.0
Pig	*Astragalus sin*	GL= 42.2	75.53
Sheep/Goat	*Metacarpus III-IV dex*	GL= 121.0	58.56
	Metatarsus III-IV sin	GL= 119.7	53.98

Table 5.: Measurements, cont.

5. táblázat: Csontméretek, folyt.

Site/Species	Bone	Measurements (in mm)	Withers height (in cm)
Debrecen-Court			
Cattle	*Metacarpus III-IV sin*	GL= 183.0; BP= 50.0	110.35; ♀
	Metacarpus III-IV sin	GL= 212.0; BP= 57.7	127.83; ♀
	Metacarpus III-IV dex	GL= 184.6; BP= 59.0	116.85; ♂
	Metatarsus III-IV sin	GL= 214.0; BP= 47.1	114.06; ♀
	Metatarsus III-IV sin	GL= 235.0; BP= 55.1	128.54; ?
Horse	*Metacarpus III sin*	GL= 246.0	149.98
	Metacarpus III dex	GL= 205.0	128.25
	Femur dex	GL= 425.0	150.0
	Metatarsus III sin	GL= 275.0	144.15
	Metatarsus III sin	GL= 279.0	146.27
Sheep/Goat	*Metacarpus III-IV sin*	GL= 128.1	62.0
	Metatarsus III-IV dex	GL= 135.0	60.8
Hatvan street			
Cattle	*Metacarpus III-IV dex*	GL= 208.9; BP= 63.5	129.1; ?
	Metacarpus III-IV dex	GL= 176.0; BP= 48.2	106.12; ♀
	Metatarsus III-IV sin	GL= 218.0; BP= 44.8	114.48; ♀
Bethlen street			
Cattle	*Metacarpus III-IV dex*	GL= 178.0; BP= 50.0	107.33; ♀
	Metacarpus III-IV dex	GL= 184.0; BP= 48.8	110.95; ♀
	Metacarpus III-IV dex	GL= 199.0; BP= 51.9	119.99; ♀
	Metacarpus III-IV sin	GL= 197.0; BP= 51.8	118.79; ♀
	Metacarpus III-IV sin	GL= 198.0; BP= 49.7	119.39; ♀
	Metatarsus III-IV sin	GL= 200.0; BP= 44.7	106.6; ♀
	Metatarsus III-IV sin	GL= 220.0; BP= 41.6	117.26; ♀
	Metatarsus III-IV dex	GL= 204.0; BP= 42.2	108.73; ♀
Horse	*Radius dex.*	GL= 322.0	132.8
	Metacarpus III dex	GL= 236.0	144.68
	Tibia sin	GL= 377.0	148.8
	Tibia dex	GL= 380.0	150.0
	Metatarsus III dex	GL= 277.0	147.21
	Metatarsus III dex	GL= 280.0	146.8
	Metatarsus III sin	GL= 285.0	149.45
Dog	*Humerus sin*	GL= 187.0	63.02
	Radius dex	GL= 195.0	62.79
	Tibia dex	GL= 219.0	63.95

HU ISSN 1786-271X; urn: nbn: hu-4106

Table 5.: Measurements, cont.

5. táblázat: Csontméretek, folyt.

Site/Species	*Bone*	Measurements (in mm)	Withers height (in cm)
Kölcsey-Centre			
Cattle	*Metacarpus III-IV dex*	GL= 182.0; BP= 52.6	109.75; ♀
	Metacarpus III-IV dex	GL= 206.0; BP= 60.3	124.21; ♀
	Metacarpus III-IV sin	GL= 200.0; BP= 60.0	123.6; ♀
	Metatarsus III-IV dex	GL= 220.0; BP= 39.4	117.26; ♀
	Metatarsus III-IV sin	GL= 204.0; BP= 41.9	108.73; ♀
Horse	*Radius sin*	GL= 358.0	147.2
	Metacarpus III dex	GL= 223.0	137.79
Sheep/Goat	*Metacarpus III-IV sin*	GL= 126.0	60.98
	Metatarsus III-IV dex	GL= 126.0	56.82
Dog	*Humerus dex*	GL= 117.7	39.66
Széchényi street			
Cattle	*Metacarpus III-IV sin*	GL= 184.0; BP= 52.4	110.95; ♀
	Metacarpus III-IV sin	GL= 208.1; BP= 58.1	125.48; ♀
	Metacarpus III-IV dex	GL= 182.0; BP= 64.7	115.2; ♂
	Metacarpus III-IV dex	GL= 188.0; BP= 56.1	119.04; ♂
	Metacarpus III-IV dex	GL= 190.5; BP= 52.1	114.87; ♀
	Metacarpus III-IV dex	GL= 201.9; BP= 57.0	121.74; ♀
	Metatarsus III-IV dex	GL= 213.0; BP= 45.7	113.53; ♀
Horse	*Humerus sin*	GL= 292.0	136.8
	Humerus dex	GL= 290.0	136.0
	Metacarpus III dex	GL= 219.4	135.88
	Metacarpus III dex	GL= 238.1	145.79
	Femur sin	GL= 400.2	140.08
	Metatarsus III sin	GL= 258.2	135.248
	Metatarsus III sin	GL= 261.9	137.207
	Metatarsus III sin	GL= 277.0	145.21
	Metatarsus III dex	GL= 281.5	147.595
	Metatarsus III dex	GL= 267.2	140.016
	Metatarsus III dex	GL= 281.1	147.389
Sheep/Goat	*Radius sin*	GL= 154.0	61.6
	Metacarpus III-IV dex	GL= 133.8	64.76
Dog	*Humerus sin*	GL= 154.0	51.89
	Humerus sin	GL= 155.1	52.26