

ROMAN PERIOD EVIDENCE FOR A SPECIAL FORM OF *PERIMORTEM* TRAUMA IN LARGE LIVESTOCK

A NAGYÁLLATOK LEVÁGÁSÁNAK KÜLÖNLEGES NYOMAI EGY RÓMAI KORI LELETEN

LÁSZLÓ BARTOSIEWICZ¹, MAUREEN VAUGHAN², ZSUZSANNA TÓTH¹

¹Institute of Archaeological Sciences (ELTE), 1088 Budapest, Múzeum körút 4/B (Hungary)

²School of Geography, Archaeology and Palaeoecology, Queen's University Belfast, Elmwood Avenue,
BT7 1NN (UK)

E-mail: bartwicz@yahoo.com

Abstract

A peculiar type of injury observed on the second cervical vertebra (epistropheus) of an adult cattle in the animal bone assemblage from the Roman fort at Cramond, Scotland, bears a striking resemblance to similar traumatic lesions previously described in Migration Period sacrificial horses. Transversal metal cut marks observed on the dens epistrophei of the cattle specimen under discussion here are consistent with the possibility that the animal was disposed of by severing the spine through the dorsal intervertebral space between the atlas and epistropheus. Due to their relatively hidden anatomical position such cut marks are unlikely to have been post mortem, as targeted dismemberment leaves different traces on the cervical vertebrae. This way of killing is still being practiced in contemporary bull fights as a coup de grâce using a small knife called the puntilla. Ethnographic parallels to this method are also briefly discussed.

Kivonat

A skóciai Cramond római erődítéseiből felszínre hozott ételhulladék elemzésekor különös sérülés nyomait sikerült felfedezni egy kifejlett szarvasmarha második nyakcsigolyájának (epistropheus) belső felületén. A vizsgált epistropheus "fog" részének peremén fém pengével ejtett finom sérülések az állat sajátos levágási módjára utalnak: az első és a második nyakcsigolya közötti nyíláson keresztül a védtelen gerincvelő viszonylag könnyen átvágható volt. A fémvel ejtett finom vágásnyomok rendkívül hasonlítanak a népvándorlás kori lovak ugyanezen csigolyáján már korábban leírt elváltozáshoz, amelyet az áldozati állatok levágásával hoztak összefüggésbe. Viszonylag védett anatómiai helyzetüknél fogva kevésbé valószínű, hogy ezek a vágásnyomok a már megölt állat szétbontásakor keletkeztek, mert különböznek a céltudatos post mortem feldarabolás nyakcsigolyákon ejtett nyomaitól. Ezt a módszert bikaviadalokon kegyelemdőfészként mindmáig alkalmazzák, elegendő hozzá egy kicsiny, mintegy 10 cm pengé hosszúságú kés, a puntilla. A dolgozat kitér a módszer más néprajzi párhuzamaira is.

KEYWORDS: ARCHAEOZOOLOGY, SACRIFICIAL ANIMAL SLAUGHTER, ROMAN PERIOD, SCOTLAND

KULCSSZAVAK: RÉGÉSZETI ÁLLATTAN, ÁLDOZATI ÁLLATVÁGÁS, RÓMAI KOR, SKÓCIA

Introduction

Domestication has fundamentally altered human attitudes toward animals. While some of these widely discussed cultural changes were technical in nature (steady supply of meat, renewable "secondary" products etc.), others must have been at least partly ideological, which is far less possible to directly interpret on the basis of material remains recovered from archaeological excavations. As hunting played an exclusive role in Palaeolithic and Mesolithic meat procurement, traumatic injuries related to largely pre-Neolithic hunting have been widely discussed in the archaeozoological literature. The ways animals were brought down by various stone axes and projectiles has been well-documented in the osteological record since the mid-19th century (e.g. Babington 1863, Steenstrup 1880, Régnauld 1893).

Even unsuccessful attempts to kill animals provide direct evidence in the form of healed injuries on wild animal bone (Noe-Nygaard 1975).

With the onset of domestication perimortem trauma tends to be far more subtle in appearance, as the weapon itself does not remain in the carcass. Frequently, due to the lack of familiarity with forensic evidence and bone breakage patterns (Berryman & Haun 1996: 2), taphonomic effects can obscure the osteological evidence of slaughtering. Domestic animals are regularly handled: as a result of this physical proximity they are also tame enough to be held down so they can be killed in relatively simple ways that leaves no trace on the skeleton. It is therefore of special importance when skeletal injuries in archaeozoological assemblages can be seen in direct association with the animal's death.

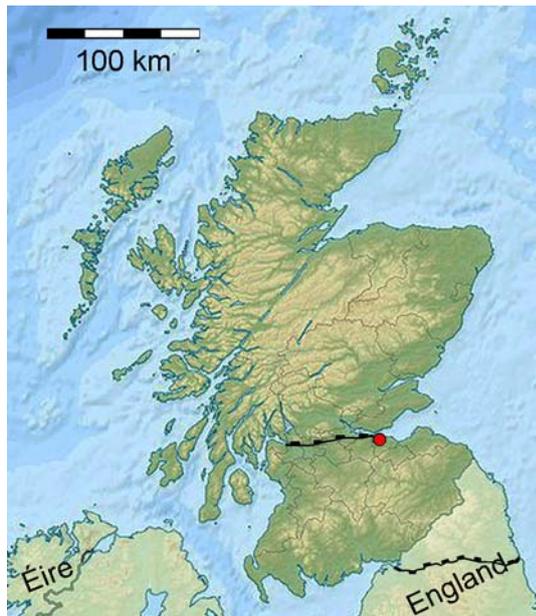


Fig. 1.: The location of Cramond in the map of modern-day Scotland (excl. Shetland). West-East lines mark Hadrian's Wall in England and the Antonine Wall in Scotland. Base map: Creative Commons.

1. ábra: Cramond fekvése Skócia mai területén (a térképen Shetland szigete nem látható). A nyugat-keleti irányok Angliában Hadrianus, Skóciában Antoninus falát jelölik. Alaptérkép: Creative Commons.

In this paper recently discovered Roman Period osteological evidence for a special form of slaughtering large livestock is reported from Scotland and has been studied in light of historical and ethnographic analogies. The thought-provoking find recovered among the cattle bones deposited in ordinary food refuse deserves special attention. This brief preliminary report is the description and possible interpretation of peculiar cut marks identified on a second cervical bovine vertebra.

Chronology and Material

The Roman fort at Cramond was established along the small estuary of River Almond where it flows into the Firth of Forth north of Edinburgh in Scotland. The small military outpost in the north was founded at approximately 140 AD when the Antonine Wall, spanning the approximately 63 km East-West distance between the Firth of Forth and the Firth of Clyde, was constructed. The fort and associated settlement formed fell beyond the Eastern end of the Antonine Wall (Holmes 2003).

Around 170 AD, the Romans were forced to withdraw toward the South to the 117.5 km long line of Hadrian's Wall in England, whose construction had begun in 122 AD (**Fig. 1.**).

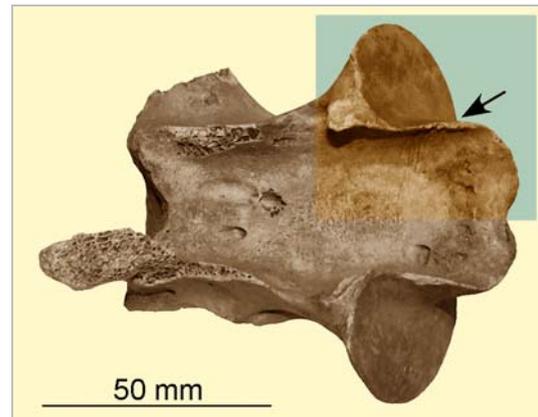


Fig. 2.: Dorsal aspect of the cattle axis. Colouring marks the left cranial section enlarged in Fig. 3. The general location of cutmarks is shown by the arrow.

2. ábra: A szarvasmarha második nyakcsigolyájának dorzális nézete. A színezett rész a kranialis vég 3. ábrán kinagyított darabját jelzi. A nyíl a vágásnyomok helyét mutatja.

A brief second period of occupation at Cramond lasted between 208 to 211 AD.

Hand-collected bone samples from the 1975-1976 excavations, kept in the Osteoarchaeological Collections at the University of Edinburgh, have been available for study. The assemblage of several thousand bones is dominated by the remains of cattle of usually small size. Since Caledonians had been engaging in farming long before the arrival of the Roman conquerors, the stereotypical interpretation of such small-sized animals is that they may represent unimproved indigenous stocks. Equid bones of similarly small size originating from horses or possibly mules were also found. Bones of sheep and pig occurred less commonly. There is a noteworthy presence of bones from large-sized red deer that must have roamed the fertile plains of Mid-Lothian at the time. However, no remains of aurochs or wild pig were identified. Marine mammals are represented by a single small cetacean vertebra. Beef and venison undoubtedly formed a major portion of the Roman Period meat diet at the settlement.

Results

During the macroscopic study of the archaeozoological assemblage from Cramond the probable evidence of a special form of slaughtering was suspected behind the phenomenon observed on the second cervical vertebra (epistropheus, axis) of an adult cattle (**Fig. 2.**).

The find itself was fragmented with the entire arcus vertebrae and the caudal third of the remaining corpus missing. Half a dozen fine transversal cut marks and related damage were noted on the left side of the *dens epistrophei*.



Fig. 3.: Fine, transversal metal cut marks around the left edge of the *dens epistrophei* of the Cramond cattle (Photo: Zsuzsanna Tóth)

3. ábra: Finom, fémpengével ejtett, harántirányú vágásnyomok a cramondi második szarvasmarha nyakcsigolya fognyúlványának bal peremén (Tóth Zsuzsa felvétele)

They were inflicted on the inside of the animal's concave vertebral canal, a region not exposed to ordinary cuts during dismemberment. The clear outline and narrow, "V"-shaped cross-section of the cuts are indicative of the use of a metal blade (**Fig. 3.**).

Discussion and Interpretation

The widely debated transversal cut marks sometimes discovered on the ventral aspect of the first cervical vertebra (atlas) are likely to have been caused during post mortem decapitation. The group of small, bunched cut marks concentrated across the left edge of the *dens epistrophei* sliding inside the vertebral canal are unlikely to have been the result of post mortem butchery. Cut marks caused by the latter, likely would have affected the periphery, i.e. external surfaces, of the vertebrae. While carcass dismemberment as a source of these marks cannot be entirely ruled out, it seems highly improbable given the morphology and location of these cuts.

A strikingly similar lesion was noted on the dorsal surface of the *dens epistrophei* recovered from AD 7th–8th century burials of complete horses at Ammern–Kapellendorf and Kaltenwestheim–Rinderstall (Germany) and Grave 15 from Komárno–Hadovce (Slovakia; Müller 1985: Taf. II–III, 1989). Those were tentatively associated with the killing of the animal. These fine marks, left on the dorsal surface of the articulation between the 1st and 2nd cervical vertebrae, seem to originate from cuts aimed at disrupting the spine from a dorsal direction, where a sharp weapon could be driven in between the vertebrae, bypassing the strong ligament anchoring the head to the trunk (*ligamentum nuchodorsale*), marked by the mane in horses (Fehér 1980; Müller 1989: 295, Abb. 2).

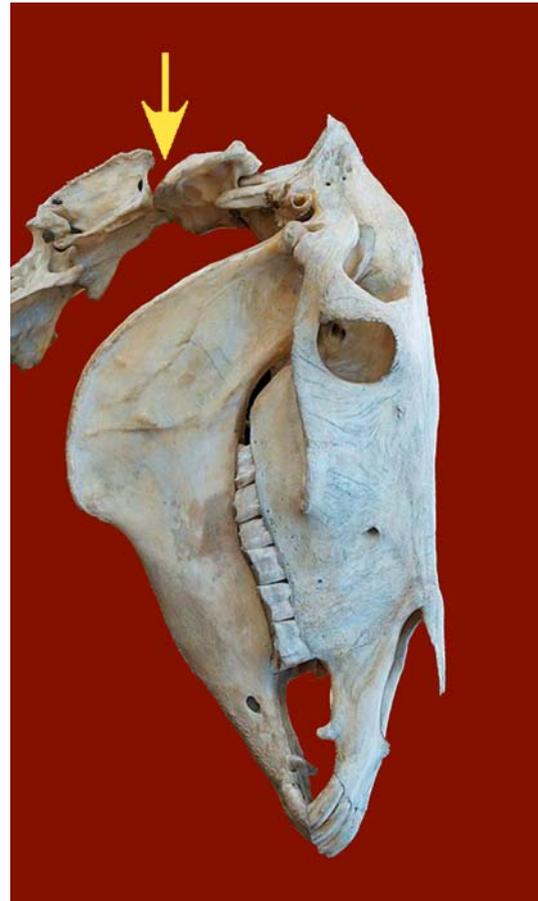


Fig. 4.: The location of the intervertebral opening between the first two cervical vertebrae in horse

4. ábra: Az I. és II. nyakcsigolya közötti nyílás helyzete lóban

This is a point where the animal's spine is vulnerable to pithing, the deliberate destruction of the central nervous system through the largest intervertebral opening in the entire vertebral column (**Fig. 4.**). The horses stabbed in this way were immobilized instantaneously. *Tetraplegia*, the paralysis caused by this type of spinal injury, results in the loss of use of all four limbs and torso. The disfunction is usually sensory and motor, which means that both sensation and control are lost. Since breathing needs active support by the intercostal musculature and the diaphragm this form spinal disruption causes suffocation in a short time. Presuming that this act was performed as horses were already standing in the grave, their final slaughter as well as the characteristically systematic post mortem arrangement of their bodies may have been facilitated by killing them on location this way.

Immobilizing the sacrificial horse by stretching its legs in four different directions with ropes tied to each of the fetlocks then breaking the backbone using a heavy beam was practiced by the Telengets (Amschler 1936: 308) and Cumandians (Zelenin 1928: 84) in the Altai region.

**Fig. 5.:**

Delivering the *coup de grâce* using a *puntilla* to a bull exhausted by the fight (Photo: Reuters/Victor Fraile)

5. ábra:

A viadalon kimerült bika tarkója mögött ejtett kegyelemdöfés puntillával (Victor Fraile/Reuters felvétele)

This torturous method caused the animal to suffocate. The end result was thus comparable to that of the 'master stab' under discussion in this paper. It took, however, a coordinated group effort and a longer time.

A probable ethnographic parallel was recorded among the Beltir living in the Minusinsk Basin in south-central Siberia where sacrificial horses were killed by thrusting a knife into the nuchal region "between the ears and the nape" (Kralovánszky 1985: 368). Evidently, able-bodied wild animals would be extremely difficult if not impossible to execute this way. Domesticates were either docile or at least easier to approach: a precondition to delivering a precisely aimed stab. It was recorded of the ancient Prussians that – similarly to some Asiatic steppe peoples (U. Kóhalmi 1972) – "before the sacrifice they chased the horses till they were exhausted" (Chantepie de la Saussaye 1925: 528). Although the exact method of killing is not specified in these cases, exhausting the animal is of evident practical significance as will be discussed below.

Kralovánszky (1985: 369) mentioned that until recently cows were also slaughtered in a similar way in the Őrség region of southwestern Hungary. This observation is especially interesting as it concerns cattle in a profane rather than religious context offering yet another contemporary analogy. The theatrical final act formally ending bull fights (*descabello*; Santisteban García 1993) is carried out using a long, slender, sharply pointed sword. The aim is to penetrate into the back of the neck to a depth of ca. 10 cm, dissecting the spinal cord through the intervertebral space between the atlas and axis (Martinez Arteaga 2003). At the very end of bullfights, however, there is another stab performed for the sake of safety. The *puntilla*, a straight knife of a blade length usually not exceeding 10 cm is driven between the first two

cervical vertebrae of the fatally injured and exhausted beast (**Fig. 5.**). Under these circumstances the incapacitated bull can be executed using a well-aimed but very simple weapon.

Conclusions

The special injury on the fragmented Cramond cattle axis under discussion here could not have been inflicted in too many ways. It was established that:

- In appearance the lesion is similar to cut marks found on the *dens epistrophei* of horses found in a sacrificial context
- Ethnographic analogies indicate that the space between the first two cervical vertebrae was a weak point (*locus minoris resistentiae*) well known in archaic cultures: diffusion of knowledge was probably not a precondition for developing the skill of killing large animals this way
- Two inventions facilitating this method of slaughter were domestic livestock and metallurgy (sufficiently thin blades)

Difficulties with interpreting the Cramond find remain:

- Parallels observed on the bones of excavated horses and ethnographic analogies are not directly linked (e.g. by experimental evidence or autopsy in fighting bulls)
- At this point it is impossible to tell whether this lesion observed in cattle for the first time represents local tradition or a method propagated through Roman expansion
- It also remains a question whether the rarely observed lesion represents profane slaughter or is related to ritual killing

To further clarify these problems, similar marks need to be systematically sought and recorded on the dorsal side of the *dens epistrophei* of large livestock in a wide range of archaeozoological assemblages.

Acknowledgements

Grateful thanks are due to Ákos Avar, Ilona Bede, Gergely Csiky and Arturo Morales Muñoz for insightful consultations on the topic. Reuters is thanked for the generous release of **Figure 5** of essential importance free of charge.

References

AMSCHLER, Johann Wolfgang (1933): Über die Tieropfer (besonders Pferdeopfer) der Telengiten im Sibirischen Altai. *Anthropos* **28** 305–313.

BABINGTON, Charles Cardale (1863): On a skull of *Bos primigenius* associated with flint implements. *Proceedings of the Cambridge Antiquarian Commission* **II** 285–288.

BARTOSIEWICZ, László, CSIKY, Gergely & GYARMATI, János (2008): Emberiességi szempontok és a hagyományos állatvágás két példája (Humane considerations and two examples of traditional slaughtering). *Animal welfare, etológia és tartástechnológia* **4** (3) 130–149.

BERRYMAN, Hugh E. & HAUN, Susan J. (1996): Applying forensic technique to interpret cranial fracture patterns in an archaeological specimen. *International Journal of Osteoarchaeology* **6** 2–9.

CHANTEPIE DE LA SAUSSAYE, Pierre Daniël (1925): *Lehrbuch der Religionsgeschichte*. Band II. Alfred Bertholet und Edvard Lehmann eds. 4. Auflage. Tübingen, Verlag von J. C. B. Mohr (Paul Siebeck). 1–732.

FEHÉR, György (1980): *A háziállatok Funkcionális Anatómiája* [The Functional Anatomy of Domestic Animals] I. Budapest, Mezőgazdasági Kiadó. 1–293.

HOLMES, Nicholas (2003): *Excavation of Roman Sites at Cramond, Edinburgh*. Edinburgh, Society of Antiquaries of Scotland Monograph **23** 1–168.

KRALOVÁNSZKY, Alán (1985): Honfoglaló őseink szarvasmarha-kultusza [The cattle cult of ancient Hungarians]. in: Viktor SZOMBATHY ed.: *Az őshazától a Kárpátokig* [From the Ancestral

Land to the Carpathians]. Budapest, Panoráma kiadó 360–374.

MARTINEZ ARTEAGA, Pedro (2003): *Lesiones anatómicas producidas en el toro por los trebejos empleados en la lidia*. Zacatecas, México, Universidad Autónoma de Zacatecas. 1–213.

MÜLLER, Hans-Hermann (1985): *Frühgeschichtliche Pferdeskelettfunde im Gebiet der Deutschen Demokratischen Republik*. Weimar, Beiträge zur Archäozoologie IV. 1–75.

MÜLLER, Hans-Hermann (1989): Schnittpuren an Wirbeln frühgeschichtlicher Pferdeskelette und ihre kulturgeschichtliche Interpretation. In: Friedrich Schlette & Dieter Kaufmann eds.: *Religion und Kult in ur- und frühgeschichtlicher Zeit*. XIII. Tagung der Fachgruppe Ur- und Frühgeschichte vom 4. Bis 6. November 1985 in Halle (Saale). Historiker- Gesellschaft der DDR. Berlin, Akademie Verlag, 293–296.

NOE-NYGAARD, Nanna (1975): Bone injuries caused by human weapons in Mesolithic Denmark. In A. T. Clason ed.: *Archaeozoological Studies*. Amsterdam–New York, North Holland and American Elsevier, 151–159.

RÉGNAULT, Félix (1894): Les haltes de chasse et de pêche à l'époque du renne. *Association Française pour l'Avancement des Sciences, Congres de Caen*, **II** 747–752.

SANTISTEBAN GARCÍA, Francisco (1993): Patología Quirúrgica del Toro de Lidia, Lesiones durante la lidia, Toro indultado, Muerte por Estocada, Descabello y Puntilla. *I Simposium Nacional del Toro de Lidia*. Imprenta Rayego, Zafra, 103–108.

STEENSTRUP, Johannes Japetus Smith (1880): Nogle i året 1879 til Universitetsmuseet indkommne bidrag til landets forhistoriske fauna [Some contribution to the country's prehistoric fauna brought to the University Museum during the year 1879]. Foredragsreferat, *Kongelige Danske Videnskabernes Selskab* 132–146.

U. KŐHALMI, Katalin (1972): A Steppék nomádja lóháton, fegyverben [Steppe nomads on horseback, armed]. Budapest, Akadémiai Kiadó, 1–219.

ZELENIN, Dmitrij K. (1928): Ein erotischer Ritus in den Opferungen der altaischen Türken. *Internationales Archiv für Ethnologie* **29**, 83–98.

