

Roman graves and rural rubbish. Animal remains from the Roman cemetery of Halbtturn, Austria

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ABSTRACT

The Roman cemetery of Halbtturn (Burgenland, Austria) was completely excavated in the years 1988-2002. Associated with a small agricultural settlement nearby, it covers an area of about 7,000 m² and was used as a burial site from the 2nd to the 5th c. AD. An analysis of features and artefacts indicated a diachronic change of burial practices, from a dominance of cremation at the beginning towards inhumation graves during the later phases. The spatial and chronological development is complicated by a pattern of re-use of earlier structures, abandonment, and expansion into areas originally designed for other purposes. The cemetery itself is integrated into an orthogonal system of field ditches, which eventually continue into the cemetery and delimit grave groups. A small part of the 23,500 animal bones (NISP ca 6,000) can be interpreted as grave goods or ritually deposited skeletons. The vast majority of the animal remains results from field ditches, pits and grave ditches. These assemblages are dominated by remains of cattle (*Bos taurus*), equids (*Equidae sp.*) and dogs (*Canis familiaris*) and indicate little manipulation. They correspond to a pattern of carcass disposal frequently observed at the periphery of rural settlements. The interpretation of the animal bones from the grave areas remains controversial, as the pottery may be indicative of ritual meals, whereas the bone record does not differ much from the situation in field ditches. The opportunistic disposal of carcasses and other rubbish in the course of earth works appears as the main agent responsible for the accumulation of animal bones within the cemetery area.

KEY WORDS

Roman cemetery,
Austria,
Pannonia,
ditch,
food offerings,
rubbish disposal.

RÉSUMÉ

Sépultures romaines et déchets ruraux. Restes animaux du cimetière romain de Halbtorn, Autriche.

La nécropole romaine de Halbtorn (Burgenland, Autriche) a fait l'objet de fouilles exhaustives entre 1988 et 2002. Associé à une petite exploitation agricole située à proximité, il s'étend sur une surface d'environ 7000m² et a connu une utilisation comme nécropole entre les II^{ème} et V^{ème} siècles. L'étude des structures et du mobilier met en évidence une évolution des pratiques funéraires marquées par l'abandon de la crémation en faveur de l'inhumation qui se généralise vers la fin de l'occupation. Le développement chronologique et spatial est difficile à reconstituer du fait de nombreuses utilisations secondaires de structures plus anciennes, d'abandons et de réutilisations de zones originellement dévolues à d'autres usages. La nécropole est intégrée dans un réseau de fossés orthogonaux qui se poursuivent jusqu'au sein de la zone des sépultures où ils délimitent des groupes de tombes. Une partie des 23500 restes osseux d'animaux (NISP environ 6000) peuvent être interprétés comme des offrandes funéraires ou des dépôts rituels. Une majorité de ces vestiges proviennent des remplissage de fossés, de puits et des fosses sépulcrales. La composition de ces ensembles est marquée par l'importance de carcasses de bovins (*Bos taurus*), d'équidés (*Equidae sp.*) et de chiens (*Canis familiaris*) qui présentent peu d'indices d'exploitation et qui correspondent à des dépôts assez typiques des périphéries des installations rurales. Les restes osseux provenant de la zone de sépultures ne se distinguent pas de ceux des zones de fossés même si la présence de céramiques pourraient être des indices de l'existence de repas funéraires, ce qui rend leur interprétation plus controversée. L'origine de ces accumulation d'ossements d'animaux s'explique plus vraisemblablement comme le résultat des nombreux remaniements qui ont touché la zone de la nécropole.

MOTS CLÉS

Cimetière Romain,
Autriche,
Pannonia,
fossé,
offrandes alimentaires,
déposition de déchets.

ARCHAEOLOGICAL SETTING
AND RESEARCH HISTORY

The cemetery of Halbtorn (Burgenland, Austria; Roman province of *Pannonia superior*) is one of the few Roman cemeteries from eastern Austria which has been completely investigated. In the course of the excavations its spatial limits and the duration of its use (2nd to the 5th c. AD) were clarified, so that research questions regarding the spatial organisation of the cemetery and the variability of burial habits could be tackled. A comprehensive interdisciplinary study, comprising artefacts, bioarchaeological remains, geoarchaeological aspects and an in-depth study of the features, has been completed recently (Doneus in Press). Several preliminary reports have already been published (Doneus 2007, 2010a, 2010b, Kunst 2009).

The site is located near the small village of Halbtorn in eastern Austria, province of Burgenland, about 60 kilometres to the east of Vienna, in the Austrian part of the Small Hungarian plain. Archaeological excavations took place between 1988 and 2002. At the same time, extensive prospection work was carried out. Aerial archaeology, systematic field walking and geophysical prospection methods were used to investigate the cemetery and its surroundings (Daim & Doneus 2004). Prospection has revealed a system of field ditches representing a remnant of the Roman agricultural landscape. Other results were the foundations of a rural settlement (*villa rustica*) with two living and working areas occupied from the 2nd until the 5th c. AD (Fig. 1). The countryside is currently dominated by fields and appears rather flat. A gentle relief, however, persists: the cemetery is situated 180 m to the west of the settlement, on a flat slope, with its lowest

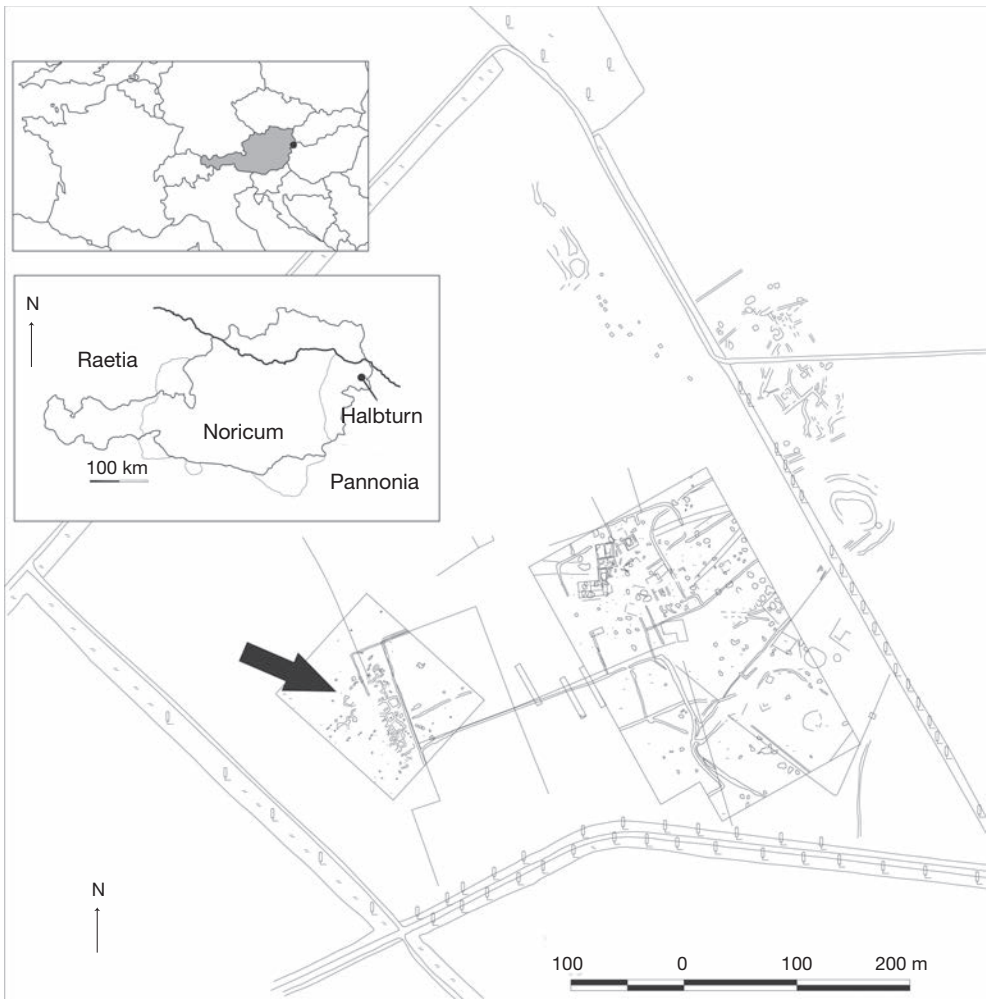


FIG. 1. — Roman site of Halbtorn: aerial and geomagnetic prospection of settlement, cemetery and field structures, with recent roads and hedges; arrow indicates excavation area with cemetery. Inserts: above — location of site in Western and Central Europe; below — Roman Austria with approximate provincial borders, river Danube and site of Halbtorn.

point about 15 m above the *villa*. This made it well visible for the former inhabitants.

The whole excavated surface, comprising the cemetery and parts of its immediate surroundings, covers an area of over 7,000 m². Many features belonging to different groups were found: cremation and inhumation burials, field ditches, grave ditches, pits, postholes, and a few others. Graves are the main feature type: about 160 cremation and 150 inhumation burials were unearthed. Generally, the soil structure of the prevailing chernozem was beneficial for preservation

and documentation, as most features stood out clearly against the loessic sediment. The original ground surface, however, is lost, and erosion was important in the southern part of the cemetery.

FEATURES OF THE CEMETERY

A wide-ranging and multi-phased *ditch system* is an outstanding feature (Fig. 2A) of the wider area. The purpose of this was probably not merely to



FIG. 2. – Cemetery of Halbturm : **A**, distribution of field ditches; **B**, grave gardens.

parcel the land – the construction of some ditches was too large for this purpose – but they may have additionally been used for water drainage, as cattle enclosures or something similar. The ditches form a rectangular system, connecting the settlement area with the cemetery, and could be traced along great distances, both from aerial photographs and geomagnetic prospection. A main direction running NNW-SSE is obvious. When the ditches intersect, fields of about 25 m wide and 50-100 m long were created. Apparently, the lay-out of the cemetery was influenced by the orientation of the field ditches. On three sides, it is enclosed by them: O (=object)3 in the north, and O128 in the east and south. No clear delimitation could be found in the west. Ditch O3, after taking a 90° turn, runs right through

the middle of the cemetery, where it was broadened and filled in with stones in its middle part. It exhibits a breadth of 1 m and a preserved depth of 0.3-0.5 m. After losing its original function it was filled in, but must have remained visible throughout the occupation period: it was used as a boundary for grave structures and some burials were placed here. The larger ditch O128, with a breadth of 1.2-1.6 m and a preserved depth of 0.4 m, takes a zigzag course, forming the eastern border of the cemetery for a length of 145 m. Apparently, it was often reconstructed and back-filled, but was always respected as a boundary. Some further ditches and similar linear structures exist in the investigated area. The field ditches, generally do not abound with artefacts suitable for dating, but locally with animal bones.

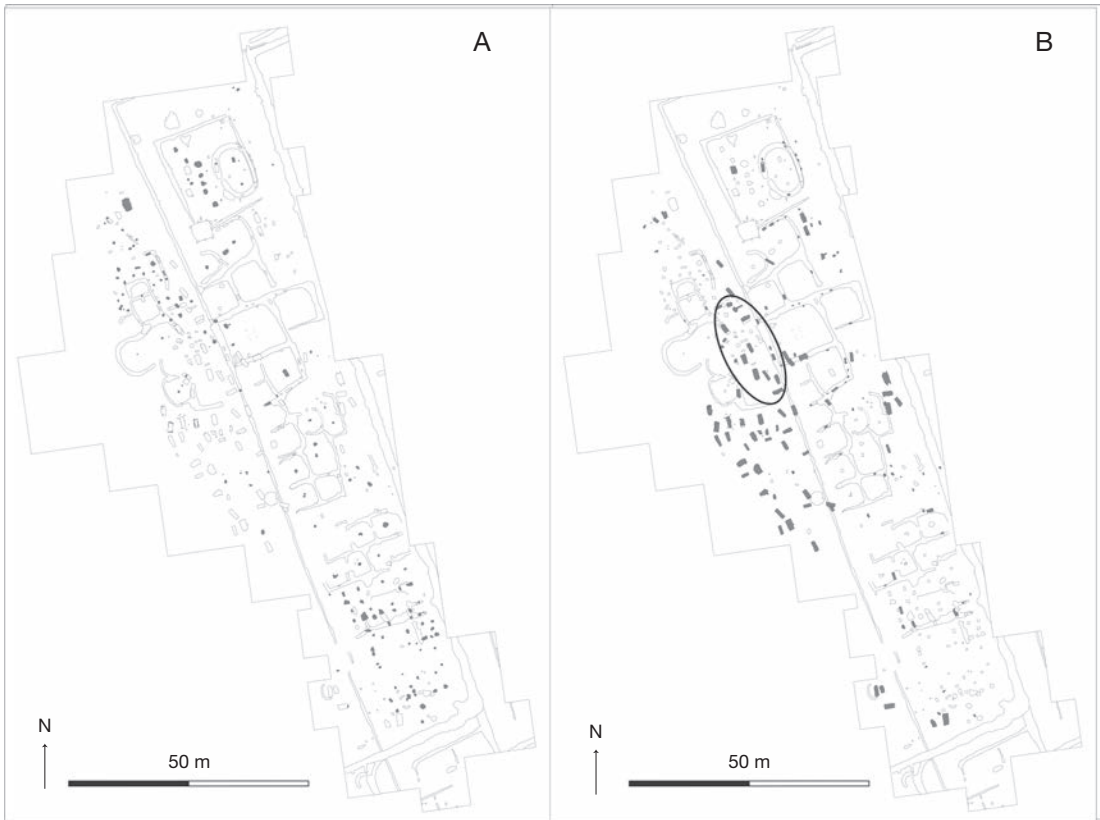


FIG. 3. — Cemetery of Halbtürn: **A**, cremation; **B**, inhumation burials; ellipsis indicates approximate distribution of assemblages with possible settlement rubbish.

Grave ditches (Fig. 2B), in contrast, appear as groups or confluent systems of ditches which take rectangular, curved or oval courses. Constructed in the 2nd and 3rd c., they are partly linked to each other and form an extensive system of “grave-gardens” across a large part of the graveyard. Their purpose was, probably, a demarcation of “personal” space and, at the same time, they served as a connection between the individual burial sites so as to develop larger communal areas. The earth from the ditches was probably used to construct central grave mounds. The largest area encircled by this type of ditch measures over 10 m in diameter, but most are much smaller. These systems extend along the area enclosed between the field ditches O3 and O128, where three discrete, closely interconnected groups could be discerned. Further north, three

isolated grave ditches and a rectangular enclosure appear. There is one more group to the west of O3. Altogether, some 40 grave-gardens of varying completeness could be excavated or reconstructed. Erosion makes them less visible in the southern part. While the central area of each grave garden usually remained respected throughout the occupation period, the ditches themselves eventually served different secondary functions. They became filled up with sediments containing small finds and animal bones, and often both cremation and inhumation burials were placed into them. In some cases, intentional depositions of objects, like special pottery types and pots with bird skeletons, occurred. These items can justifiably be interpreted as offerings.

At Halbtürn, *cremation burials* (Fig. 3A) were defined as pit-like structures containing burnt human remains,



FIG. 4. — Cemetery of Halbturn, distribution of pits.

potsherds, and other artefacts, like fragments of glass and metal items. In several cases, some of these elements were missing, leaving space for interpretation. Therefore, the final number of 160 cremation burials must be valued as an estimate. Generally, the burials belong to the simple type (*Brandschüttungsgräber*), receiving the cremated bones and grave goods collected from a pyre erected elsewhere. No central fireplace (*ustrina*) could be localized. Most cremation burials are spatially linked to grave ditch systems. They were found either within the encircled areas, or within the ditches, or they were arranged in spaces still left free.

About 150 *inhumation burials* (Fig. 3B) were excavated at Halbturn. The original figure may have been higher because isolated human remains, possibly from disturbed contexts, were occasionally found in other features. They appear to be irregularly distributed across the area. Sometimes, towards the

end of the occupation in the 5th c., groups were formed in spaces still left out by the grave ditch systems, while other graves were situated directly in the ditches. Single burials within simple grave pits prevail. Sometimes brick tiles and stones were used as constructive elements of the grave pit, whereas evidence for wooden coffins and sarcophagi are rare.

Like graves, *pits* (Fig. 4) were determined by their content. They do not appear as a homogenous group, exhibiting differences in size and shape and, possibly, function. Pits are dispersed across the cemetery, with groups in the north, south and west. Especially large-sized pits exist in the north, already outside the cemetery area proper. In two instances, animal skeletons were found in pits, and these features were originally regarded as an independent context type (*animal burials*). As animal skeletons, or articulated bone groups, occur in other feature types as well, this categorization had to be reconsidered.

Postholes appear in three size classes and depths. Apart from a group of postholes delimiting a sunken hut in the northern enclosure, no regularities concerning their arrangement could be detected. In some cases, they seem to indicate implements marking the entrances into grave areas.

CHRONOLOGY AND BURIAL HABITS

The diachronic development of the burial habits and the chronology of the grave groups appear to be of some relevance for the understanding of the animal bone accumulations which were, probably, mostly generated in the course of earthworks linked to the repeated (re)construction of the cemetery. Basically, dating was worked out on the basis of the associated artefacts, with pottery taking the first place (Doneus in Press). Among the features described above, inhumation burials can be dated without a problem, because the backfill is easily separated from the grave goods. Field and grave ditches, however, are prone to more complicated filling processes, including repair stages, and the materials found within them are related to the time of abandonment rather than to their construction.

According to excavation results, settlement activity started in Halbturn in the second third of

TABLE 1. — NISP and feature types, animal skeletons excluded. OC = *Ovis / Capra*.

	Bos	OC	Sus	Equus	Canis	other
field ditches	1943	125	41	812	177	3
grave ditches	206	25	24	216	25	9
cremations	35	25	21	10		7
inhumations	92	71	56	19	13	7
pits	75	15	16	68	11	5
surface	173	50	35	146	11	4

TABLE 2. — Bone weight (g) and feature types, animal skeletons excluded. OC = *Ovis / Capra*.

	Bos	OC	Sus	Equus	Canis	other
field ditches	51987,6	669,5	290,6	30799,7	1489,1	72,1
grave ditches	7938,8	123,7	271,6	10667,4	199,4	16,8
cremations	750,3	107,1	95,5	133,4		72,4
inhumations	1949	363,8	624,5	442,8	130,9	141,9
pits	1817,4	57,7	176,7	2319,8	33,7	5
surface	4554,3	249,4	113	4693,2	82,1	4,1

the 2nd c. AD, with the founding of the *villa* and the division of the land into parcels delimited by field ditches slightly antedating the cemetery. This explains the position of the latter among already defined plots. The oldest field ditches were filled in before AD 180, and the filling process in the oldest grave-garden group did not last beyond the first third of the 3rd c. AD. Later in the 3rd c., the situation changed, as the cemetery dispersed in all directions, both to the northern area with the isolated systems, to the south, and west of field ditch O3. The construction of grave ditches ceased in the course of the 3rd c., and for some time late during the 3rd c., free cremation burials without encirclements and inhumation burials existed side by side. In the second third of the 4th c., the habit of cremation burials ceased altogether. In the 4th and 5th c., large areas were abandoned as burial ground, and the relationship of the placement of graves to existing features stopped. Scattered groups of inhumation burials are found in the western periphery or in other spaces still available elsewhere. Admittedly, inhumation and cremation burials both existed from the very beginning of the cemetery, but with a clear tendency regarding age groups in the 2nd and 3rd c.: neonates and infants (1-12 months) were found predominantly in inhumation graves,

whereas the majority of older children and adults were cremated. The high percentage of babies and small children among the burials is an outstanding feature of Halbturm, if compared to other sites in *Pannonia superior*. From a child's inhumation grave of the 3rd c., a gold scroll with a Jewish inscription has been recovered (Doneus 2010b).

ANIMAL REMAINS FROM THE CEMETERY AREA – PRESUMPTIONS AND ORIGINS

Over 23,000 animal remains with a total weight of over 170kg were retrieved from the excavated area, about 5,450 (135kg) of which were ascribed to a taxonomic group (Kunst 2009 and in print; Table 1-2). The bones and teeth were collected by hand from all contexts, including from surfaces without defined features. A few remains were obtained from flotation samples, mainly out of vessel contents and grave areas. The principal species present are cattle (*Bos taurus*), sheep (*Ovis aries*), goat (*Capra hircus*), domestic pig (*Sus domesticus*), horse (*Equus caballus*) and domestic chicken (*Gallus gallus*). Domestic donkey (*Equus asinus*), domestic pigeon (*Columba livia*), red deer (*Cervus elaphus*), roe deer



FIG. 5. — Field ditch O128 with bone accumulation.

(*Capreolus capreolus*), wild boar (*Sus scrofa*), polecat (*Mustela putorius*), brown hare (*Lepus europaeus*), jay (*Garrulus glandarius*) and the European pond terrapin (*Emys orbicularis*) are only known from a few samples. Among the equids, no remains of hybrids (mules) could be identified.

The task for archaeozoology at Halbtorn goes far beyond the mere identification of grave goods, resulting from clear-cut settings within a burial with defined anthropological and cultural details. Although situations like these occur, the majority of the animal bone samples present a quite different character. In fact, the assemblages appear in a variety of shapes, just like in any coeval Roman settlement situation: fragmented materials indicating intensive processing; accumulations of, mainly, complete bones; concentrations of thermally altered bones; skeletons and articulated units of all stages of completeness; associated bone groups; attritional, deteriorated samples from surfaces. If a chicken skeleton preserved within an infant burial may indicate the extremely localized and easy-to-interpret type of assemblage, accumulations of isolated cattle and horse bones from the backfill of a field ditch, scattered across dozens of meters, represent a quite different taphonomic setting (Fig. 5). In the present case, the investigation of the graveyard was the aim, and limit, of the project, and there is no on-site reference to which the animal remains can be compared, because the settlement itself was not excavated. The archaeozoologist is, therefore, encouraged to discuss the eventual ritual dimen-

sion of the material and to discriminate between the “economic” and the “non-economic” animal (Lauwerier 2004). Apart from this potential ritual aspect indicated by the cemetery, the Halbtorn site provides an opportunity to study the spatial distribution of animal bones across a defined part of a Roman rural landscape.

ANIMAL REMAINS AND FEATURE TYPES

The assessment of features at Halbtorn was not worked out according to their animal bone content, but by their shapes, assumed functions and the associated artefacts and human remains. The zoological material, therefore, needs to be discussed in the light of the contextual information provided. In some cases, however, the interpretation obtained from the animal bone assemblages was at variance with the original classification of a given feature. From Figs 6 & 7, it becomes clear that the main accumulations of animal remains were found within ditches and pits. However, the situation conveyed may be misleading in several respects. Apart from the surface and the cremation burials, articulated bone groups or skeletons appear in all feature types, which makes quantification problematic. This could be easily corrected for grave goods and isolated animal skeletons from pits, but not for the ditches. Here, articulated or associated bone groups, intermingled with disarticulated remains, were usually not documented in the field and could only be identified *a posteriori* in the laboratory. To some degree, the quantities of bones retrieved are also an artefact of the excavation strategy. As can be seen from Fig. 2, segments of the large field ditch O128, which yielded the majority of remains in this category, were spared out. Had these segments been excavated, or, on the contrary, had O128 been avoided altogether, and deemed irrelevant for the cemetery, the situation would look quite different. The inclusion or exclusion of the pits in the northern and southern periphery would have had similar effects. This leaves a crucial role to the grave ditches, situated well within

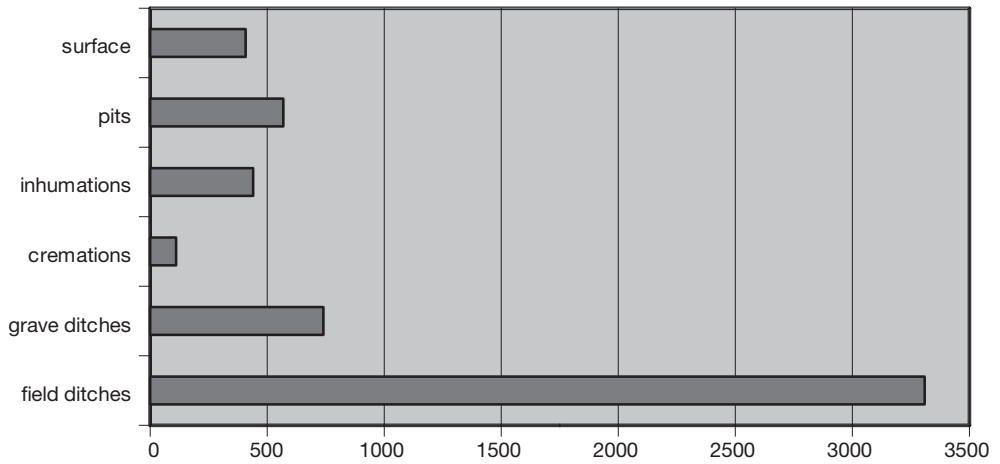


Fig. 6. – Halbtorn, NISP of animal remains from different feature types

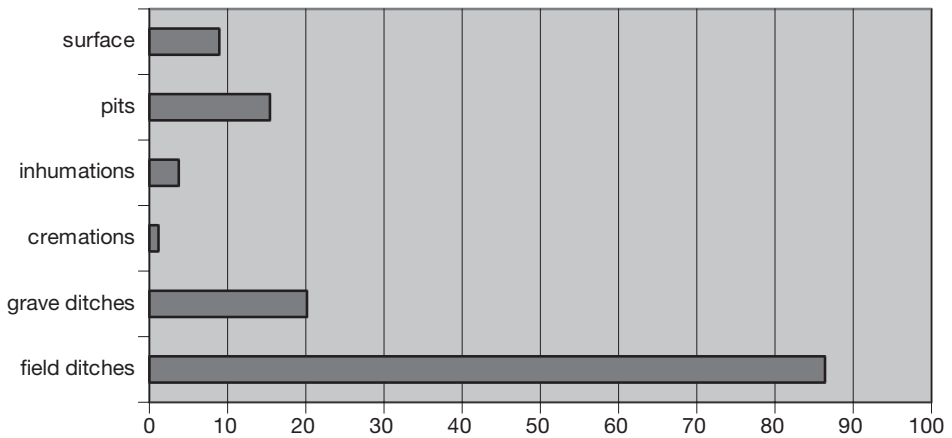


Fig. 7. – Halbtorn, weight (in kg) of determined animal remains from feature types.

the cemetery limits, but not representing burial contexts in the strict sense (compare Groot 2008). It appears therefore useful to discuss the assemblage characters along the defined feature types.

Field ditches: Animal remains from this type are almost exclusively represented by O128, the other ditches being much poorer in their content. The backfill of O128, in its northern part, contained important accumulations of domestic mammal bones (Fig. 5), which tend to decrease towards the south. In this north-eastern corner of the cemetery,

almost 70% of the total NISP is concentrated. The consolidation of this richest assemblage from Halbtorn, which is poor in artefacts, can only be roughly dated to some period after the second third of the 2nd c. AD, which is corroborated by the radiocarbon dating of an associated group of cattle bone. Cattle and horse, the dominant species (Fig. 6), are sometimes represented by articulated remains, like vertebrae and lower limbs, but mainly by isolated parts from all areas of the skeleton. In both species, symmetrical elements from the same individuals

TABLE 3. — NISP of articulated units and skeletons in feature types

	NISP of articulated units					NISP of (partial) skeletons			
	<i>Bos</i>	OC	<i>Sus</i>	<i>Equus</i>	<i>Canis</i>	<i>Equus</i>	<i>Canis</i>	Chicken	other birds
field ditches	56		2	26	16		151		
grave ditches	6	2	2	12	4		108	57	62
cremations									
inhumations		20						108	5
pits			3			167	206		
surface	2			4	3				

TABLE 4. — Cattle, relative weight distribution of skeletal parts.

	skeleton	field ditches	grave ditches	pits
Cranium	12,5	4,9	15,2	19,9
Mandibula	6,0	16,9	21,5	1,7
Hyoid	0,2	0,0	0,3	0,3
Vertebrae	16,1	18,4	11,2	16,2
Costae	14,3	8,9	2,8	13,4
Sternum	1,2	0,0	0,0	0,0
Scapula	4,4	2,0	1,7	0,0
Humerus	6,2	6,4	9,2	4,4
Pelvis	7,2	5,8	5,7	0,0
Femur	7,8	7,8	8,5	11,8
Patella	0,4	0,3	0,5	1,1
Radius/Ulna	5,4	5,2	4,8	4,5
Tibia	5,9	5,3	6,7	1,9
Carpus	0,8	0,6	0,3	0,0
Tarsus	2,0	4,1	3,1	3,0
Metacarpus	2,2	5,6	1,4	0,0
Metatarsus	3,4	4,3	3,4	19,7
Phalanges	3,4	3,4	3,6	2,1
Sesamoidea	0,4	0,1	0,1	0,0

could be identified (Table 3). The smaller livestock species are much rarer and are almost exclusively represented by isolated bones. The majority of the dog remains, the third most common species, can be attributed to (dissociated) skeletons and associated bone groups. As regards skeletal part distribution, slight deviation from a natural distribution was found for cattle and almost none for horse. Skeletal part frequencies were calculated by comparing the proportions of the cumulative weights of elements with the situation in a complete skeleton, using the standard individual given by the University of Basle (Table 4; <http://ipna.unibas.ch/archbiol/methodik/index.html>). In cattle, overrepresentations concern

the mandible, the metacarpus and even the vertebrae, while the skull and the scapula fall below the expected values (Fig. 8). The widespread taphonomic and analytic loss in vertebrae and ribs renders the present distribution rather as a type of moderate to marked accumulation of these elements.

Butchery marks were observed on only 3.7% of the cattle bones (Table 5). Cut marks prevail over chopping and can be related to skinning, dismemberment and filleting (Fig. 9). In the horse, anthropogenic marks are present on 0.7% of all finds and are mostly limited to cut marks on the distal limbs. Among the dog remains, no traces of human manipulation of the carcasses could be observed in any context of the cemetery.

The general impression of the assemblage from O128 is a preponderance of larger remains, including complete bones, exhibiting few traces of human impact. The percentage of undisputed food waste is low. That is, this field ditch was mainly used for the dumping of carcasses of equids and dogs, and for butchery waste and little exploited parts of cattle. Although a quick consolidation is indicated by the preservation of articulations, the taphonomic history must have been more complex. On one hand, conditions of bone surfaces indicate that some of the bones were exposed to weathering, and gnawing marks are present on all livestock species (1.4% in cattle and 2.8% in horse; Table 5). On the other, a high percentage of heat-influenced bones in the northern sector points at a fire event, which, apparently, took place on site. This is indicated by a broad variety of colour patterns representing all stages of heat influence, and by the fact that species and element distributions do not differ strongly from the rest

TABLE 5. — Frequencies of remains with human marks and gnaw marks.

Bos	human marks (n)			total			gnaw marks	
	cut	chop	both	n	% NISP	NISP	n	%NISP
field ditches	51	17	3	71	3,7	1943	28	1,4
grave ditches	3			3	1,5	206	1	0,5
cremations	1	1		2	5,7	35		0,0
inhumations		7		7	7,6	92	4	4,3
pits	3	1	1	5	6,7	75	2	2,7
surface	5	2		7	4,0	173	2	1,2
Ovis/Capra	cut	chop	both	total	% NISP	NISP	n	%NISP
field ditches	1		1	2	1,6	125	4	3,2
grave ditches	1	1		2	8,0	25	2	8,0
cremations	1			1	4,0	25	1	4,0
inhumations	1			1	1,4	71	3	4,2
pits	1			1	6,7	15		0,0
surface	1	1		2	4,0	50	1	2,0
Sus	cut	chop	both	total	% NISP	NISP	n	%NISP
field ditches					0,0	41	2	4,9
grave ditches					0,0	24		0,0
cremations	1			1	4,8	21		0,0
inhumations	3	2		5	8,9	56	6	10,7
pits		1		1	6,3	16	1	6,3
surface	2			2	5,7	35	1	2,9
Equus	cut	chop	both	total	% NISP	NISP	n	%NISP
field ditches	6			6	0,7	812	23	2,8
grave ditches	3			3	1,4	216	1	0,5
cremations				0	0,0	10	1	10,0
inhumations	1			1	5,3	19	1	5,3
pits	1			1	1,5	68	1	1,5
surface					0,0	146		0,0

of the assemblage. A field or cleaning fire appears as a possible cause, although the presence of an eroded, unidentified central fire place situated on top of the ditch should not be ruled out.

Grave ditches: The animal remains retrieved from the grave ditches enclosing the grave gardens make up about a quarter of the figures for field ditch O128. Albeit their wide distribution across the cemetery this indicates a general lower density of animal remains. Like in O128, a decreasing tendency in find numbers from north to south (and west) can be observed. Although this may be related to a decreasing preserved depth of the structures, a primary spatial factor cannot be overlooked: the northern group, including the rectangular enclosure, contained about half of all finds.

Cattle and equids (including the donkey) dominate the assemblages, followed by the dog and the smaller livestock species sheep, goat and pig. The

similarities to O128 are obvious: a preponderance of large bones of cattle and equids and the occurrence of articulated bone groups in equids and of partial skeletons in dogs. In two instances, possible residues of horse skeletons could be found in quite shallow grave ditches. A few associated bones from other domestic mammals are also present. As for skeletal part representation in cattle, the situation in the grave ditches does not differ essentially from the picture observed in the field ditches. The values for head parts are higher, those for vertebrae and ribs lower than in O128 (Fig. 8). Human modifications, exclusively represented by cut marks, are few in number. They are present on 1.5% of cattle and on 1.4% of equid remains, and are limited to the head parts and distal limbs in cattle, and exclusively to the distal limbs in equids. However, the percentage of remains of the smaller livestock

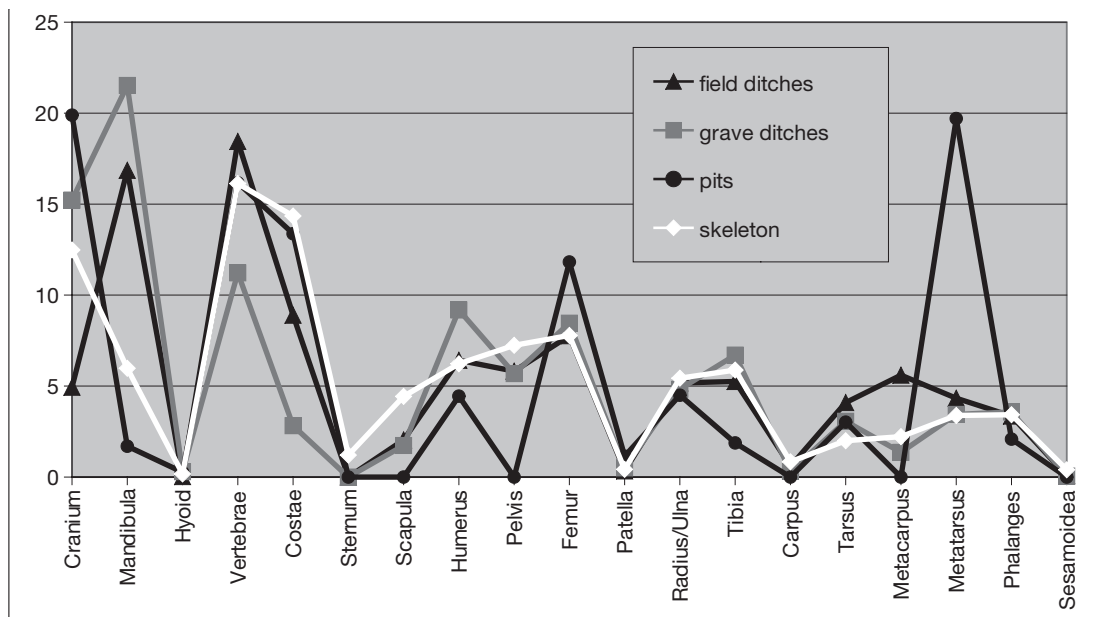


FIG. 8. — Cattle: Relative weight distribution (%) of skeletal elements from field and grave ditches and pits, compared to a complete skeleton from the Basle collection.

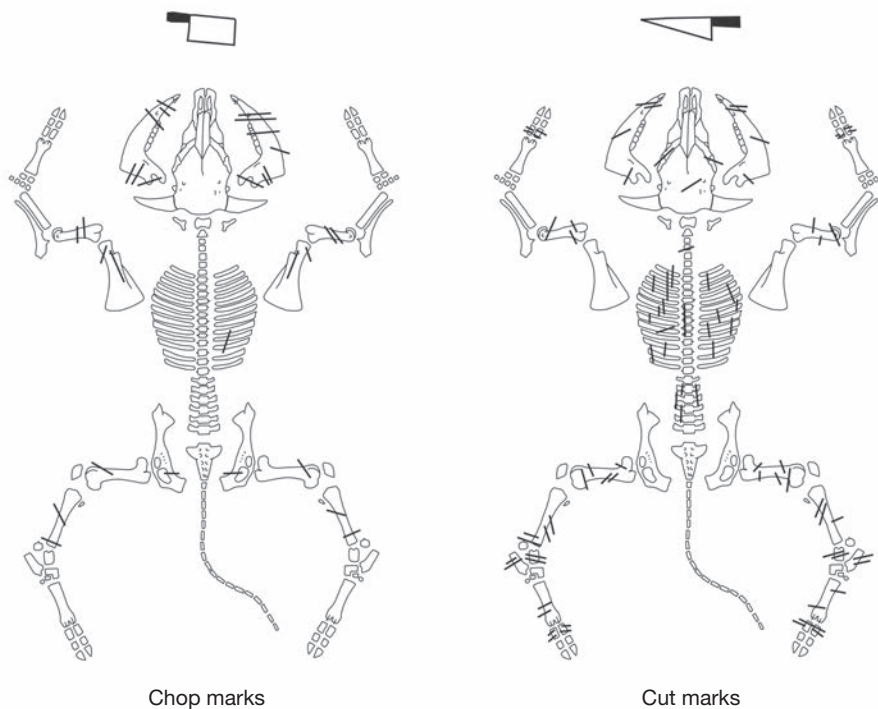


FIG 9. — Cattle, field ditch: schematic distribution of butchery marks; skeletal silhouettes after Helmer (1987).

species that can be counted as leftovers of meals appears higher than in the field ditch(es), as some butchery marks could be observed here, too. In comparison with field ditches, gnawing marks are rarer (0.5% in both cattle and horse), except for sheep and goat.

In two instances, special deposits of pots with bird skeletons were documented. They refer to a pair of domestic pigeons from the northern enclosure, and one hen from the central grave ditch system. In the case of the hen, a relationship with the nearby inhumation burial of an infant is possible. These two depositions can be interpreted as food offerings belonging to the 2nd and 3rd c., respectively.

Cremation burials: One of the most outstanding features of the Halbturm cemetery is the absence of burnt animal bones among the cremated human remains, despite close scrutiny and cross-checking of the material. Animal remains are nevertheless present in 19 cremation burials, still a low figure if the total number of 160 is taken into account. In 13 cases, these consist of isolated teeth and bone fragments, which are easily explained as stray finds or intrusive elements which entered the graves with the backfill. In three more burials, which all belong to the late 3rd c. and are situated in the NW part of the cemetery, between 17 and 48 determinable bone specimens were found. These three samples contained highly fragmented remains of domestic mammals, deer, the pond terrapin and manufacture refuse of antler and bone working. Small elements and loose teeth are well represented. These traits, together with a frequent, moderate heat-influence make the assemblages look like settlement refuse, resulting from activity areas, and certainly took some time to accumulate.

Inhumation burials: The highest number of indisputable ritual animal remains was documented in this category. They refer to skeletons or articulated units situated inside the grave contexts, sometimes arranged on plates, as funeral food (Lauwerier 2002). Almost all of these finds are from graves of the 4th and early 5th c., from the latest phase of the cemetery, when inhumation was the only burial rite. The deposited animal parts comprise chicken skeletons (5 cases), sheep (2) and pig (1) body parts. Three of the chicken deposits are from

female burials, whereas the mammal bones were exclusively associated with males. The bird carcasses were mostly put into the graves unprepared, the cutting-off of the lower legs was observed twice. One concentration of eggshells is from a child burial from the 3rd c. There are two more pig bones and one incomplete jay skeleton from child burials each, but these represent disturbed contexts. With a maximum of 12 observations, the number of inhumation burials with meat offerings appears low (8% of all inhumations). While isolated fragments from three burials may represent stray finds, assemblages from seven other inhumations are not easily interpreted in that way. They all derive from burials dated to the 4th and 5th c., from the NW part of the cemetery, situated in the same area as the three assemblages from the cremations with similar traits described above. Apparently, they represent time-averaged settlement refuse. The case of the backfill of grave 9 (Fig. 10), belonging to an adult male, contained 100 determined fragments and appears outstanding due to its appearance of "ordinary" rubbish, unparalleled elsewhere in the cemetery: a highly fragmented assemblage containing the main domesticated mammals to roughly equal parts, some teeth and skull parts of horse and dog, some wild mammals, again, shell fragments of the pond tortoise, mollusc shells and worked antler remains (Fig. 9). Percentages of human modifications and gnaw marks on cattle and pig remains are higher than elsewhere. Neither here nor in the other cases a local concentration or any spatial relationship to the grave proper was documented, as the bones were indiscriminately collected from the backfill or from a deeper structure not identified during excavation. A radiocarbon date of one sheep bone pointed to the later Iron Age, which, however, is not corroborated by any of the associated pottery.

Pits and postholes: Like in the field ditches, animal remains are the dominant element in these features concentrated in the northern periphery of the cemetery (Fig. 4). Generally, the assemblages from pits do not differ fundamentally in appearance from the situation in the ditches, as they are dominated by bones from larger cattle and horse species, although the percentages of sheep, goat and pig are considerably higher than in both types of ditches. The



FIG 10. — Animal bone assemblage from inhumation grave 9.

skeletal part distribution of cattle exhibits stronger deviations from the expected values, with overrepresentations in certain elements (skull, vertebrae, ribs, femur, metatarsus) and deficits in others (Fig. 8). This may indicate a higher input of butchery and/or consumption waste than in the ditches, which is also corroborated by the percentages of anthropogenic marks (6.7%; Table 5). Butchery marks are also present in the smaller livestock species. Among the equids, one cut on a proximal phalanx, easily interpreted as skinning mark, is the only observation. A few bones of most species were gnawed by dogs.

Two large pits, situated in the northern and southern periphery, contained one complete skeleton of a dog and of a male horse, respectively. A special case is represented by the skeletons of two dwarf-sized dogs from the central area, found in close vicinity to an inhumation grave of a child, which may represent a pet burial (Fig. 11). Unfortunately, exact excavation data is lacking in this case.

SUMMARY OF OBSERVATIONS AND ZOOLOGICAL REMARKS

The domesticated mammals cattle, sheep/goat, pig, equids and dog form the dominant elements within most assemblages. While the majority of the equid remains is from horse, a few bones belong to the donkey. Wild mammals, including red and roe deer, wild boar and polecat are represented by single finds or are largely restricted

to the assemblages from the fill earth of graves of the NW-area, and the same is true for the pond tortoise. Only the brown hare is more widely distributed. Birds are almost exclusively represented by grave gifts and offerings. In Figs 12, specimen counts are given for the different feature types, excluding the grave goods from the inhumation burials and other obvious animal skeletons. This is to the detriment of the horse in pits and of birds and the dog in general, the skeletons of which could be most easily assessed in the field or in the laboratory. It must be kept in mind that both cremation and inhumation burials are mainly represented by the “special assemblages” from the NW area, which may not belong to the grave contexts at all. Fig. 12 and 13 show a clear division between the burials, showing a balanced spectrum, on one hand and the remaining features, with a dominance of cattle and equids, on the other. Field and grave ditches differ only in so far as the percentage of cattle is higher in the former, while horse and, to a lesser extent, pig, reach higher values in the latter. In pits and among the stray finds from the surfaces, the smaller species are also better represented. As regards skeletal part distribution among cattle and equids in both types of ditches, deviation from a natural distribution was found to be slight in cattle and almost absent in equids. It may be justifiably argued that the remains of little exploited or only superficially modified carcasses of both cattle and equids were deposited into both types of ditches. This is further corroborated by the presence of articulated parts in both groups, and by the low frequency of butchery marks. Very few associated bone groups could be identified among the remains of sheep, goats and pigs, which can generally be valued as butchery or food refuse. To some degree, the “culinary” character may be more present in features with higher frequencies of the smaller species like pits, surfaces and even grave ditches, as opposed to field ditch O128. There are no indications that dog carcasses were butchered or modified in any way.

Because many assemblages from Halbturn exhibit only moderate fragmentation, a rich



FIG 11. — Elements of the skeletons of two dwarf-sized dogs from the vicinity of cremation burial 248. Foto by R. Gold, Institute for Palaeontology.

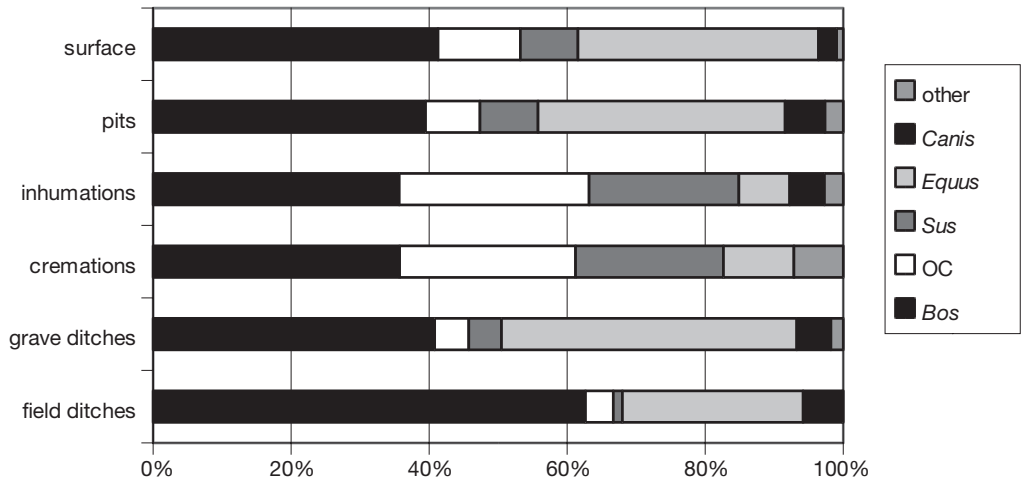


FIG. 12. — Relative species distribution (% NISP) according to feature types, skeletons excluded.

amount of osteometric data could be collected. With the exception of the samples of uncertain chronological position, both cattle and horse

remains belonged exclusively to a large-sized Roman breed (see Riedel 2004). Size variation among domestic dogs was enormous, ranging

from dwarf dogs to individuals of nearly the size of a wolf. Most cattle bones belong to sub-adult, adult or even elderly individuals. Among the horses, younger age stages are well represented. Horse breeding may have constituted a major economic activity of the settlement.

DISCUSSION

Animal remains from Roman cemeteries are commonly interpreted according to a ritual – ordinary (mundane) dichotomy (Lauwerier 2004, Groot 2006). The animal bone assemblages from Halbturn obviously result from various taphonomic pathways and functional backgrounds, and the situation is further complicated by the long occupation period of the cemetery, entailing possible shifts in land-use which may be responsible for the formation of palimpsest-deposits.

Two groups of assemblages from Halbturn can clearly be defined as resulting from funerary rituals. Depositions of two vessels containing bird skeletons indicate food offerings probably related to cremation burials of the early stages (2nd and 3rd c.) of the cemetery. Five chicken skeletons and three articulated limbs from sheep and pig, retrieved from inhumation graves of the 4th and 5th c., clearly represent grave gifts (see Lauwerier 2002, 2004) from the late phases. Despite the small number, a correlation between species group and sex of the deceased is apparent: chicken are linked with female, mammals with male burials. The question of the origin of 11 assemblages collected from the backfill of inhumations graves, cremation pits and postholes within a limited area in the NW part of the cemetery cannot be solved if not by further radiocarbon dates. Fragmentation patterns, species composition, percentages of modifications and the occurrence of simple bone tools are compatible with an interpretation as settlement debris and consumption/butchery refuse (compare Groot 2012:139). These samples may result from Iron Age settlement structures, the traces of which have subsequently become obscured by earth works connected with the construction of the graves. Eventually, the graves may have been cut into settlement strata rich in

animal remains. It is also in this area of the cemetery where most isolated postholes and undefined small pits were found.

The majority of the animal remains collected at Halbturn results from features outside proper grave contexts, like grave ditches, or even from structures not strictly related to graves at all, like field ditches and pits. The taphonomy of animal remains from context types like these is rarely addressed explicitly, either in (rural) cemeteries or elsewhere. One has to deal, at least implicitly, with the question of whether a close spatial relationship to grave structures alone is sufficient for putting forward a ritual interpretation of the bone assemblages. Of relevance for comparison are cemeteries where large areas were excavated and structures like pits and ditches occur. In her study on the cremation cemetery of Tiel-Passewaaij (Netherlands), Groot (2008: 159ff.) attributes a role within the funerary ritual to both animal burials and to the assemblages found in grave ditches. For the latter, an origin from funerary meals is taken into account. In the case of Faschendorf (Austria; Galik 2008) and Mainz-Weisenau (Germany; Wustrow 2000), most animal remains are believed to be connected with burial rites, although the interpretation of the remains of dogs and horses from contexts outside the graves themselves is open to discussion. Lepetz (1996: 148ff.) mentions the frequent presence of animal remains, deriving from sources other than rituals, within grave contexts. The interpretation of both animal burials in the vicinity of graves and of the alleged remains of funerary meals represents a constant challenge: *“A somewhat more trivial explanation is that the unburned bones from the cemetery are dispersed waste from the nearby settlement (Lauwerier 2002:67).”*

The assemblages retrieved from ditches, pits and surfaces at Halbturn exhibit common traits, regarding species composition and taphonomic features: general dominance of cattle and horse, minor importance of the smaller livestock species; presence of little butchered and fragmented cattle remains; occurrence of articulated bone groups in cattle and horse, and of partial and complete skeletons in dogs and, more rarely, horses. Differences concern the skeletal part representation of cattle which is more selective in pits compared to the ditches, shifting these contexts in the direction of consumption/butchery refuse. In cattle, both butchery and gnawing marks are most frequent in pits, followed by the field

ditches and the grave ditches. Unfortunately, the find numbers are too different among the context types to make exact comparisons. Carcass treatment was mainly carried out with knives, and dogs had occasional access to most assemblages. All in all, the samples exhibit a mixture of traits indicative of “special animal deposits” and of consumption/butchery rubbish as defined by Groot (2012:139ff.). Regarding the interpretation of the animal remains from the ditches and pits, two opposing views can be adopted:

- All remains, including those from species normally not used for consumption in the Roman era (equids, dogs), are related to some kind of burial rite. A symbolic role is attributed to the skeletons of dogs and horses, and the remains of cattle and other species indicate either the relics of food offerings or of ritual meals. The presence of “mundane” rubbish is inconceivable within the limits of a cemetery.

- The origin of most assemblages can be explained in terms of rubbish disposal not causally related to the cemetery. That is, their presence indicates a continuation of a rural Roman “disposal landscape” in the cemetery area. Earthworks and soil interventions, related to the construction and filling of grave systems and field ditches, were pragmatically used to get rid of animal carcasses and butchery waste. The eventual remains of ritual meals or similar acts are totally obscured by this strong input of settlement debris.

In contrast to the situation at Tiel-Passewaaij (Groot 2006), the assemblages from the cemetery area of Halbtürn cannot be compared to the adjacent settlement due to the lack of archaeological investigations. However, thanks to the wide extension of the excavated surface, the spatial distribution of the remains, and of certain context types, can be evaluated. Obviously, there is a strong spatial signal, as the contexts from the NE part of the cemetery situated most closely to the settlement (northern sectors of field ditch O128 and of the adjacent pits and grave ditches) produced most of the remains. Furthermore, reports on regional settlement sites might provide a clue. Both Riedel (2004) and Schmitzberger (2007) give details of assemblages from the periphery of two *villa* sites from Burgenland, Nickelsdorf and Potzneuseidel, situated 8 and 18 km away from the Halbtürn cemetery. The picture conveyed by these reports closely matches the situation found in the ditches at Halbtürn: a dominance of cat-

tle, equids and dogs, with the frequent occurrence of skeletons, articulated units and associated bone groups. At Halbtürn, no fundamental distinction between the assemblages from field ditches, grave ditches and pits could be found, which points to a related taphonomic origin, probably resulting from pragmatic disposal behaviour of the local residents. Conceivably, as the *villa* itself was situated some distance away, the amount of consumption refuse is lower, and the contribution of purposefully dumped butchery rubbish and carcasses is higher than in assemblages from settlements. In the grave ditches, the eventual bone record of funerary meals, indicated by the pottery, was probably made largely invisible by this strong input of bones. The presence of animal remains within a cemetery area may not have presented a nuisance for an agricultural community relying on the breeding of livestock. It must also be kept in mind that most of the bones entered the soil in the course of single events, when ditches and pits were backfilled, which only represent a short time span in the long occupation period of the cemetery. A wider application of the “Miss Blanche effect”, a concept developed by Lauwerier & Hensing (1992) in discussing spatial overlaps between human graves and animal burials, appears well suited here: it means that spatial association does not necessarily imply temporal unity, nor a causal (inter)relationship.

Although the contribution to the understanding of burial rites appears limited, the rich animal bone record from the Halbtürn cemetery area provided important information on the phenotype of local livestock, clues on the local economy, and on the possible interpretation of certain features. The unique presence of a Roman cattle breed, evidence of dwarf-sized dogs and specialized horse breeding can be derived from bone measurements and age-at death patterns, respectively. The possible location of a central cremation place above field ditch O128, and the existence of an unrecognized, prehistoric settlement in the NW area both remain controversial, but the animal bones provide, at least, a basis for further discussion. Because the agricultural features of a rural settlement are rarely the aim of excavations, it is fortunate that the general archaeological interest in cemeteries has made these aspects of Roman rural life accessible.

Nota

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