

# Hunting and fishing in *Germania libera* et romana during the Roman empire

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## RÉSUMÉ

Les recherches archéozoologiques ont mis en évidence que l'alimentation carnée des Germains pendant l'Empire romain était fondée à 95 % sur les animaux domestiques et à 5 % sur les animaux sauvages. Les os de petits mammifères d'oiseaux et de poissons se retrouvent en faibles quantités, rareté imputable aux conditions de collecte. En nombre de restes osseux, le cerf et le sanglier semblent avoir été les deux principales espèces chassées par les Germains. Mais selon les poids de viande déduits des nombres minimaux d'individus, ce résultat ne reste vrai que pour les habitants de la *Germania romana*. En *Germania libera*, en effet, c'est plutôt l'aurochs et le bison qui prédominent parmi les espèces chassées.

## ABSTRACT

Archaeozoological investigations have revealed that with regard to the meat yield aurochs and bison were the most important game for the people of *Germania libera*, and not – as suggested so far – red deer and wild boar.



Had Caesar (100-44 BC) still emphasized the great importance of hunting for the Sueves, a Germanic tribe in the north of the river Maine, Tacitus (55-115 AC) (*Germania* 15) mentioned it merely as an art of the nobles (Jankuhn, 1969 : 146). These rather deviating communications by two ancient authors about the economic rank of hunting in Germanic settlements in Roman times have been compared with archaeozoological discoveries at numerous sites in the north of the Alps.

The majority of bones found in excavations belonged to large or medium-large animals. They represent only a part of the originally existing secondary or

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anthropogenic thanatocenosis which means that they were mainly food remnants from the inhabitants.

Owing to the fact that most excavations made in Germany in the past decades included only random elutriations of excavated fragments or none at all, we may reliably assume that unobtrusive bone remains from smaller mammals, birds and fish are underrepresented. They surely got lost.

Bone finds from excavations in settlements revealed that in the majority of localities investigated in *Germania libera* and *romana* the share of domestic animals amounted to 95 % and that of wild animals to less than 5 %. Particularly in the coastal region of the North and the Baltic Sea game accounted for a very low proportion. According to Benecke (1992 : 132) they reached an average of only 0.5 % in this area. The partially frequent occurrence of fish remains in faunal complexes from the times of the peoples' migration (5<sup>th</sup> to 7<sup>th</sup> century AC), however, indicated for this region a greater role of fishing for food provision.

In inner Germanic settlements the role of game was usually slightly greater than in the coastal region of the North and the Baltic Sea. According to estimates made by Benecke (1992 : 132) for 16 localities in *Germania libera* its share game to an average of about 2.8 %. An exception were the faunal remains from Eggolsheim in the rural district of Forchheim, Upper Franconia. Here the proportion of game amounted to 32.8 %. According to Breu (1986, 148) it were surely extended forests with their rich animal life around the place which stimulated hunting there.

In *Germania romana*, too, the share of game was mostly small. Faunal remains from 37 localities accounted for a mean share of 1.9 %. Benecke (1992 : 133) succeeded to prove that in settlements of the type « *Villa rustica* » (= estate) roughly 2 to 4 times more game bones were found than in usual settlements, towns, Roman camps and garrisons. As plausible explanation he states that the land owners and their families belonging to the nobility are assumed to have made full use of their right of regular hunting. On the other hand Roman contemporaries (Varro III, 13 and Columella IX, 1) reported that landowners had used to keep young captured deer, fawns, wild pigs and hares as living meat reserve in enclosures where they were later available for human nutrition. The fact that areas for game were not only fenced in by the Romans in their homeland Italy but also in *Germania romana* was witnessed by two skeletons each of red deer and aurochs found in wells of Roman towns near Bad Wimpfen, district Heilbronn, and Rottweil on the river Neckar. In view of the fact that the bones of both skeletons showed neither traces of killing nor carving, Frey (1988 : 143) and Kokabi (1988 : 201) assumed that the animals had died in enclosures and subsequently were thrown into wells no longer in use. For a better evaluation of the significance of the most popular game species for human nutrition the authors cited in their publications not only the number of certain bones but also the minimum number of individuals derived therefrom as well as the carcass dressing percentage. The latter was defined by Schmidt, Patow and Kliesch (1950 : 132) as the weight of the deheaded, completely gutted body without head but with kidneys and kidney fat in per cent of the living weight.

For ill-fed cattle and pigs it amounted only to about 50 % and 75 % resp. These findings were applied accordingly to the corresponding wild animals. Since most bone remains of game belonged to adult or subadult individuals, their mean carcass dressing percentage was determined according to Brink (1957). The data are to be

understood as a rough approach because – as commonly known – for domestic and game species this criterion is strongly related to the state of nutrition at the moment of killing.

Species	Number of bones	Min. No.	Meat / kg per individual	Meat in kg total	Meat %
aurochs	122	12	350	4200	16,0
aurochs/bison	735	14	350	4900	18,7
bison	61	6	350	2100	8,0
elk	79	28	175	4900	18,7
red deer	2415	67	70	4690	17,9
wild boar	791	52	70	3640	13,9
other game	284	85		1763	6,7
total	4487	264		26193	100

(1)

Am Donnersberg	(Thesing 1978)	Kablow	(Teichert 1971)
Berlin-Schöneberg	(Pohle 1958)	Mühlberg	(Teichert 1990)
Dienstedt	(Barthel 1987)	Oberdorla	(Teichert 1974)
Erbbrink	(Bossneck u.a. 1966)	Penzlin	(Benecke 1989)
Eggolsheim	(Breu 1986)	Waltersdorf	(Teichert u.a. 1987)
Gielde	(Schaal 1968)	Wüste-Kunersdorf	(Teichert 1968)
	(Donnerbauer 1968)		
	(Thesing 1978)		
Haarhausen	(Barthel 1987)		
Hildesheim.-B.	(Missel 1987)		

**Table 1.** Survey about the most important game species (Mammalia) in Germania libera from 14 sites<sup>(1)</sup>.

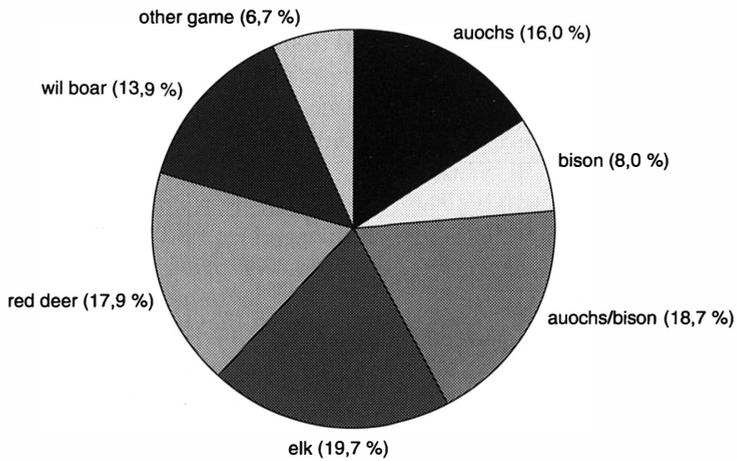
Species	Number of bones	Min. No.	Meat/kg per individual	Meat in kg total	Meat %
red deer	1023	75	70	5250	41,1
wild boar	347	42	70	2940	23,0
elk	23	11	175	1925	15,1
bear	36	11	90	990	7,7
beaver	64	17	22	374	2,9
aurochs	4	1	350	350	2,7
bison	1	1	350	350	2,7
other game	528	99		604	4,7
total	2026	257		12783	100

(1)

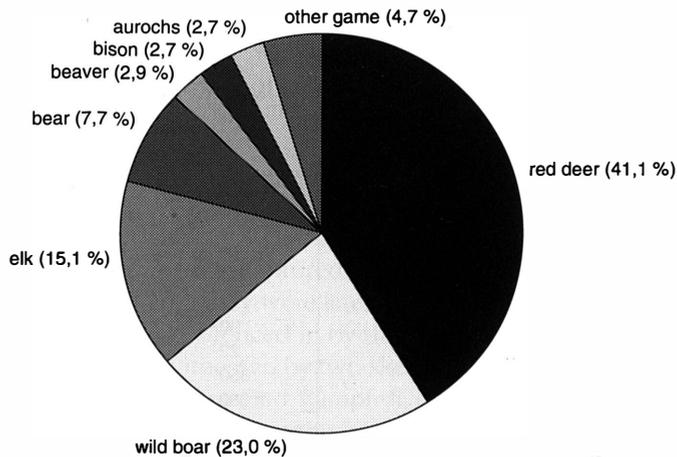
Bad Wimpfen	(Frey 1991)	Hüfingen	(Sauer-Neubert 1968)
Bentumersiel	(Zawatka 1977)	Jemgumkloster	(Zawatka 1977)
Breisach	(Schmidt-Pauly 1980)	Künzing-Quintana	(Swegat 1976)
Butzbach	(Habermehl 1959/60)	Pfaffenhofen	(v. Houwald 1971)
Dormagen	(Mennerich 1964)	Rainau-Buch	(Gulde 1985)
Epfach	(Boessneck 1964)	Rottweil	(Kokabi 1982 u. 1988)
Froitzheim	(Mennerich 1968)	Wehringen	(v. Houwald 1971)
Gellepp	(Mennerich 1968)	Xanten	(Waldmann 1966)
			(Müller 1989)
			(Schwarz 1989)

Abbreviation : Min. No. = Minimum number of individuals.

**Table 2.** Survey about the most important game species (Mammalia) in Germania romana from 16 sites<sup>(1)</sup>.



**Fig. 1.** Percentage meat production important game in Germania libera.



**Fig. 2.** Percentage meat production important game in Germania romana

Numerous bone finds have furnished the proof that in the Roman times in Germania red deer was the most frequently hunted game. In Germania libera 2 415 bones of red deer found at 13 localities could be identified as belonging to 67 individuals. The carcass dressing percentage derived therefrom was 4 690 kg = 17,9 %.

Comparative data have been obtained from 16 sites of discovery in Germania romana. Here 1 023 bones from deer were found stemming from at least 75 individuals. They are supposed to have provided a carcass dressing percentage of 5 250 kg which was

equivalent to 41.1 % of that of the most important game species.

Aurochs and bison were two other essential game animals in Germania libera. The aurochs could be identified at 6 localities by means of 122 bones from 12 individuals whereas the bison was represented at 3 places with 61 bones from 6 animals. These results have been essentially supported by another 735 bones from aurochs or bison stemming from 14 individuals at 4 places. The average living weight of adult individuals of these two wild cattle species was calculated by Brink (1957 : 148) with about 700 kg, the dressing percentage being 350 kg. Regarding the higher body weight, our minimum of 32 identified aurochs and bisons is supposed to have delivered a carcass dressing percentage totalling 11 200 kg = 42.7 % meat. When we compare these figures with the 67 red deer specimens found in Germania libera we get only 4 690 kg = 17.9 %.

This ratio demonstrates that for the Germanics not red deer – as has been assumed so far – but aurochs and bison ranked first among game animals.

The results obtained for Germania romana were different. Judging from bone finds red deer seemed to have been the most important game species there whereas aurochs and bison were represented by 5 bones from 2 animals only, the latter being the equivalent of a carcass dressing percentage of merely 700 kg, *i.e.* 5.4 %.

Numerous bones from the wild boar found at almost all excavation sites north of the Alps furnished the proof that these animals represent another game species which had been widely spread during the Roman era. Both in Germania libera and romana 791 and 347 identifiable bones resp. went to the account of wild pigs. In Germania libera they belonged to at least 52 individuals with a carcass dressing percentage of 13.9 or about 3 640 kg. The 347 wild pig bones identified for Germania romana came from not more than 42 animals with a dressing percentage of 23 % or some 2 940 kg.

Due to his relatively high body weight the elk as well provided a remarkable carcass dressing percentage which exceeded in Germania libera even that of red deer. Here at 5 excavation localities 79 bones from at least 28 elks were identified, their dressing percentage was assumed to have reached 4 900 kg = 18.7 %. In Germania romana, too, elks were discovered at 5 places, although the number of bones amounted to only 23 from at least 11 individuals. Their dressing weight is supposed to have equalled 1 925 kg = 15.1 %.

In the region north of the Alps roes were widely spread and hunted in the Roman era as can be concluded from bone finds at a great many places. Owing to the low body weight – according to Brink (1957 : 146) not more than 12 to 27 kg – the dressing percentage of males and females had presumably not been higher than 9 kg per animal on the average. Regarding the minimal number of identified individuals (37 in Germania romana and 28 in Germania libera) and their low body weight it becomes clear that this species with its low dressing weight of 333 kg = 2.6 % and 252 kg = 1 % had rather a low significance for human nutrition compared with the before mentioned game animals. This applies more or less also to other species like hare, beaver and dachs. Bear, wolf, fox and otter as well were identified by means of bone finds on various localities in Germania libera et romana. These animals had not only been hunted for their valuable fur but also for meat provision as was demonstrated by partially smashed tubular bones.

Birds were captured as well. This was revealed at localities in Germania libera and romana although in most cases only one or few bones from single animals were found,

preferably from larger species like greylag, mallard, shoveller, white-egged duck, garrot, smew, common swan, crane, ringdove, stockdove, buzzard, marsh harrier, goshawk, sea eagle, black vulture, griffon, eagle owl, black grouse, hazel hen, common raven, carrion crow, rook, jackdaw and magpie.

The meat of some of the mentioned species was regarded as delicacy. Therefore they were probably captured with bow and arrow or sweepnets. Due to the very small amount of meat offered by the few individuals of identified bird species in Germania they are assumed not to have had greater importance for human nutrition.

Fishing has been practised for thousands of years as was manifested by fish bones and finds of fish-hooks from early and prehistorical times. Fishes could always be captured very easily. Due to their high rate of reproduction they use to occur in huge numbers. Nevertheless, fish remains in archaeological finds have been rather limited or completely obsolete. According to Lepiksaar and Heinrich (1977 : 9) this might be due mainly to bad conservation conditions and insufficient recovering of finds. When making excavations in Haithabu these authors succeeded to prove that systematic elutriations of the material allowed to secure a remarkably higher number of small and inconspicuous finds. Analyses revealed that bones of the cranial capsule were obsolete in most of the identified fish species or had got lost to a large extent. The authors explained this fact by assuming that fish heads which had been cut off and thrown away by man were eaten or scattered by dogs, cats, crows and gulls.

In Haithabu the percentage of fish species rich in fat was particularly low with one exception – the herring. This decomposition of bones may be attributed to a sort of « autolysis » of the bone substance by endogenous fatty acids (Lepiksaar, Heinrich 1977 : 116). It becomes clear that for the above-mentioned reasons the proportion of fish remains in archaeozoological finds has even been smaller than that of small mammals and birds. As bone losses of fish finds have been especially high, it may be presumed that fish played a much greater role as foodstuff in Germania than could be confirmed by bone finds. Both in Germania libera and romana fish could be identified only at sites in the vicinity of waters, i.e. near rivers, crooks, lakes or ponds which offered the corresponding living-space for these animals.

Thirty bones of at least three sturgeons were found in Bentumersiel and Jemgumkloster on the lower Ems in Eastern Friesland and in Xanten in the Lower Rhine. This species lived on the North Sea coast and migrated upstream for spawning. According to Bauch (1966, 156) yet in 1890 sturgeons of 2 to 4 meters in length and up to 250 kg in weight were offered on the fish market in Hamburg. In former times this fish was more widely spread here and had obtained economic importance. Its eggs, the famous caviar, are wellknown as a delicacy.

The silurid is a predator living in stagnant and flowing waters of Eurasia. Bauch (1966 : 125) gives its length as maximal 2 m and its weight up to 100 kg. Six bones of at least three silurids were identified in the Germanic settlement Waltersdorf. This place and also Kablow are located in the lake district around Berlin where skull remains of pike, tench, roach, bream and perch were predominant.

At the Roman site Breisach on the Upper Rhine beside pike, barbel and salmon were identified. Salmon are migrators which in former times were rather frequent in the rivers of Germany (Driesch 1982). According to Bauch (1966 : 128) they could reach 1 m in length and 8 kg in weight and were essential and popular food.

Winding up it can be stated that in Roman times meat provision was only to a low degree secured by hunting and fishing and much more by animal husbandry. Among the identified game species aurochs, bison, red deer, wild boar and elk had obtained major importance for foodstuff provision. Due to the fact that in most excavations in Germany elutriations were not practised smaller bird and fish bones surely are underrepresented.

## Bibliography

- BARTHEL H. J., 1987.– Tierknochenfunde aus Siedlungen der römischen Kaiserzeit bei Dienststedt und Haarhausen, Kr. Arnstadt. *Beiträge zur Archäozoologie VI, Weimarer Monographien zur Ur- und Frühgeschichte*, Band 20, p. 36-90.
- BAUCH G., 1966.– Die einheimischen Süßwasserfische. 5. Auflage, Verlag Neumann, Radebeul.
- BENECKE N., 1989.– Die Tierknochenfunde aus einer germanischen Siedlung bei Penzlin, Kreis Waren. *Bodendenkmalpflege in Mecklenburg*, Jahrbuch 1988, p. 175-191.
- BENECKE N., 1992.– Archäologische Studien zur Entwicklung der Haustierhaltung in Mittel- und Nordeuropa von den Anfängen bis zum ausgehenden Mittelalter. Habilitationsschrift, Halle/Saale.
- BOESSNECK J., 1964.– Die Tierknochen aus den Grabungen 1954- 1957 auf dem Lorenzberg bei Epfach. *In* : J. Werner, : Studien zu Abodiacum-Epfach, p. 213-261, München.
- BOESSNECK J., CILIGA T., 1966.– Zu den Tierknochenfunden aus der Siedlung der römischen Kaiserzeit auf dem « Erbbrink » bei Seinstedt, Kreis Wolfenbüttel. *In* : H. Jankuhn, Neue Ausgrabungen und Forschungen *In* : Niedersachsen 3, p. 145-179, Hildesheim.
- BRINK F.H.v.d., 1957.– Die Säugetiere Europas. Verlag P. Parey, Hamburg und Berlin.
- BREU W., 1986.– Tierknochenfunde aus einer germanischen Siedlung bei Eggolsheim in Oberfranken (2.-5. Jh. n. Chr.), Dissertation, München.
- COLUMELLA L.I.M., (etwa um 0-70 n. Chr.).– *De re rustica*. Übersetzung von Ahrens, K. 1972 : Über Landwirtschaft. Berlin.
- DANNHEIMER F. 1964.– Die Rinderknochen der römischen Zivilsiedlung in Hüfingen (Ldkrs. Donaueschingen). *Badische Fundberichte*, Sonderheft 6, p.1-38, Freiburg.
- DONNERBAUER H.J., 1968.– Tierknochenfunde aus der Siedlung « Am Hetelberg » bei Gielde/Niedersachsen. II. Die Wiederkäuer. Dissertation, München.
- DRIESCH A.v.d., 1982.– Fischreste aus der slawisch - deutschen Fürstenburg auf dem Weinberg in Hitzacker (Elbe). *Neue Ansgrabungen und Forschungen in Niedersachsen* 15, p. 395-423, Hildesheim.
- FREY S., 1991.– Bad Wimpfen I. Osteologische Untersuchungen an Schlacht- und Siedlungsabfällen aus dem römischen Vicus von Bad Wimpfen. Landesdenkmalamt Baden-Württemberg, Konrad Theiss Verlag, Stuttgart.
- GULDE V., 1985.– Osteologische Untersuchungen an Tierknochen aus dem römischen Vicus von Rainau-Buch (Ostalbkreis). Dissertation, Landesdenkmalamt Baden-Württemberg, Stuttgart.
- HABERMEHL K.-H., 1959/60.– Die Tierknochenfunde im römischen Lagerdorf Butzbach. *Saalburg-Jahrbuch* 18, p. 67-108, Berlin.
- HOUWALD G. v., 1971.– Römische Tierknochenfunde aus Pfaffenhofen am Inn, Ldkr. Rosenheim und aus Wehringen, Ldkr. Schwabmünchen. Dissertation, München.
- KOKABI M., 1982.– *Arae Flaviae*. II. Viehhaltung und Jagd im römischen Rottweil. *Forschungen und Berichte zur Vor- und Frühgeschichte in Baden-Württemberg*, 13, Stuttgart.

- KOKABI M., 1988.– Viehhaltung und Jagd im römischen Rottweil. *In* : *Aræ Flaviae IV. Forschungen und Berichte zur Vor- und Frühgeschichte in Baden-Württemberg*, 28, p. 111-217, Stuttgart.
- LEPIKSAAR J., HEINRICH D., 1977.– Untersuchungen an Fischresten aus der frühmittelalterlichen Siedlung Haithabu. *Berichte über die Ausgrabungen in Haithabu*, Bericht 10, p. 9-122, Neumünster.
- MENNERICH G., 1968.– Römerzeitliche Tierknochen aus drei Fundorten des Niederrheingebiets. Dissertation, München.
- MISSSEL M., 1987.– Tierknochenfunde aus einer germanischen Siedlung in Hildesheim-Bavenstedt (3.-5. Jh. n. Chr.). Dissertation, München.
- MÜLLER E.Ch., 1989.– Tierknochenfunde aus dem Gelände einer Herberge in der Colonia Ulpia Traiana bei Xanten am Niederrhein. I. Nichtwiederkäuer. Dissertation, München.
- POHLE H., 1958.– Die Tierreste aus der Siedlung Berlin- Schöneberg. *Berliner Blätter für Vor- und Frühgeschichte* 7, p. 76-107, Berlin.
- SAUER-NEUBERT A., 1968.– Tierknochenfunde aus der römischen Zivilsiedlung in Hüfingen. II. Wild- und Haustierknochen mit Ausnahme der Rinder. Dissertation, München.
- SCHAAL F., 1968.– Tierknochenfunde aus der Siedlung « Am Hetelberg » bei Gielde/Niedersachsen. I. Die Nichtwiederkäuer. Dissertation, München.
- SCHMIDT J., PATOW C.v., KLIESCH J., 1953.– Züchtung, Ernährung und Haltung der landwirtschaftlichen Haustiere. Besonderer Teil, 6. Auflage, Verlag P. Parey, Berlin u. Hamburg.
- SCHMIDT-PAULY L.I., 1980.– Römerzeitliche und mittelalterliche Tierknochenfunde aus Breisach im Breisgau. Dissertation, München.
- SCHWARZ W., 1989.– Tierknochenfunde aus dem Gelände einer Herberge in der Colonia Ulpia Traiana bei Xanten am Niederrhein. II. Die Wiederkäuer. Dissertation, München.
- SWEGAT W., 1976.– Die Knochenfunde aus dem römischen Kastell Künzing-Quintana. Dissertation, München.
- TACITUS P.C., (etwa um 55-120 n. Chr.).– *Germania*. Übersetzung von Mauersberger, A. 1971, 2. Auflage.
- TEICHERT M., 1968.– Die Tierreste der germanischen Siedlung Wüste Kunersdorf, Kr. Seelow. *Veröffentlichungen Museum für Ur- und Frühgeschichte Potsdam*, 4, p. 101-125.
- TEICHERT M., 1971.– Die Tierreste aus einer germanischen Siedlung bei Kablow, Kr. Königs Wusterhausen. *Veröffentlichungen Museum für Ur- und Frühgeschichte Potsdam*, 6, p. 151-161.
- TEICHERT M., 1974.– Tierreste aus dem germanischen Opfermoor bei Oberdorla. *Museum für Ur- und Frühgeschichte Thüringens*, Weimar.
- TEICHERT M., GRÜNERT H., 1976.– Jagd und Fischfang. *In* : B. Krüger, : *Die Germanen*, Band 1, p. 436-450, Akademie Verlag Berlin.
- TEICHERT M., MÜLLER H.–H., 1983.– Jagd und Fischfang. *In* : B. Krüger, *Die Germanen*, Band II, p. 119-123, Akademie Verlag Berlin.
- TEICHERT M., MÜLLER R., 1987.– Die Tierreste. *In* : B. Krüger, Waltersdorf, eine germanische Siedlung der Kaiser- und Völkerwanderungszeit im Dahme-Spree-Gebiet. *Schriften zur Ur- und Frühgeschichte* 43, p. 128-150, Akademie Verlag Berlin.
- TEICHERT M., 1989.– Maßtabellen zu den Tierresten aus der germanischen Siedlung bei Mühlberg, Kr. Gotha. Akademie der Wissenschaften der DDR, Zentralinstitut für Alte Geschichte und Archäologie, Berlin.
- TEICHERT M., 1990.– Die Tierreste aus der germanischen Siedlung bei Mühlberg, Kr. Gotha. *Zeitschrift für Archäologie*, 24, 1, p. 45-66.
- THEISING R., 1978.– Die Tierknochen der Siedlung « Am Donnersberg », Gemarkung Gielde, Kreis Goslar. *Neue Ausgrabungen und Forschungen in Niedersachsen*, 12, p. 175-193, Hildesheim.

- WALDMANN K., 1966.– Die Knochenfunde aus der Colonia Ulpia Traiana einer römischen Stadt bei Xanten am Niederrhein. Dissertation, München.
- ZAWATKA D., REICHSTEIN H., 1977.– Untersuchungen an Tierknochenfunden von den römerzeitlichen Siedlungsplätzen Bentumersiel und Jemgumkloster an der unteren Ems/Ostfriesland. *Probleme der Küstenforschung im südlichen Nordseegebiet*, 12, p. 85-128, Hildesheim.