

FAUNAL REMAINS FROM DUTCH MEDIEVAL TOWNS. A SURVEY

Roel C. G. M. LAUWERIER*

Summary

This paper presents a survey of the present state of affairs of archaeozoological research in medieval towns in the Netherlands, and deals with the quantitative as well as the qualitative aspects. Much of the information is not easily accessible. A signalling system for archaeozoological data could solve the problem. The total information accessible comprises 49 studied bone assemblages from 22 towns. Although this information is extremely varied, its value is in many cases limited by, among other things, the small size of the bone assemblages studied. Since the excavated soil was not usually sieved, comparison of complexes is difficult and the information is mainly restricted to the larger mammals. The article concludes with a survey of the part played by these animals in meat production in the towns.

Résumé

Restes fauniques de cités médiévales des Pays-Bas. Un inventaire.

Cette communication dresse un inventaire de la situation actuelle de la recherche archéozoologique des cités médiévales des Pays-Bas, et en traite les aspects quantitatifs et qualitatifs. Beaucoup de données se révèlent d'un accès difficile. Un inventaire signalétique des données archéozoologiques pourrait résoudre ce problème. L'information totale accessible concerne 49 ensembles d'os étudiés, provenant de 22 cités. Bien que cette information soit très diverse, la validité en est limitée, entre autres à cause de la taille restreinte des échantillons d'os étudiés. Comme, le plus souvent, on n'a pas tamisé, il est difficile de comparer les ensembles, et l'information est en majeure partie limitée aux mammifères de grande taille. La fin de l'article présente un aperçu du rôle de ces animaux dans l'approvisionnement des cités.

Zusammenfassung

Zoologische Überreste aus mittelalterlichen Städten in den Niederlanden. Ein Überblick.

Der Beitrag gibt einen Überblick über den gegenwärtigen Stand der archäozoologischen Forschung in mittelalterlichen Städten in den Niederlanden. Es werden sowohl quantitative als auch qualitative Aspekte behandelt. Viele Daten sind schwer zugänglich. Ein System, das auf die archäozoologische Information hinweist, könnte dieses Problem lösen. Insgesamt stehen 49 untersuchte Knochenkomplexe aus 22 Städten zur Verfügung. Obwohl sehr unterschiedliche Daten vorliegen, ist der Wert einzelner Studien, unter anderem durch den geringen Umfang des untersuchten Knochenmaterials, begrenzt. Da der Aushub bei den Ausgrabungen meistens nicht gesiebt wurde, können die verschiedenen Komplexe nur schwer miteinander verglichen werden und bleibt die Information einseitig auf größere Säugetiere beschränkt. Der Artikel schließt mit einem Überblick über die Bedeutung dieser Tiere für die Fleischversorgung der mittelalterlichen Stadt.

Key Words

Archaeozoology, Middle Ages, Town, The Netherlands, Bibliography.

Mots clés

Archéozoologie, Moyen Âge, Ville, Pays-Bas, Bibliographie.

Schlüsselworte

Archäozoologie, Mittelalter, Stadt, Holland, Bibliographie.

The occasion for a survey of the present state of affairs of archaeozoological research in Medieval towns in the Netherlands was twofold. The first was a minor investigation of Medieval material from the town of Tiel which I carried out some time ago together with an Italian colleague (Lauwerier and Villari, 1994). The Tiel investigation was my first confrontation with material from a Medieval town. One's first question in such a case is what

the present state of affairs is in the archaeozoology of Medieval towns. Speaking more generally, a survey of this kind is important for two reasons. First, it is necessary as a starting point for research, as a frame of reference and as a basis for new questions. Second, it serves to formulate a policy for archaeological heritage management. In order to do so, the level of information must be known, and, more important, the gaps in our present knowledge. In this way,

* Rijksdienst voor het Oudheidkundig Bodemonderzoek (ROB), State Service for Archaeological Investigations in the Netherlands, Kerkstraat 1, NL-3811 CV Amersfoort, The Netherlands.

we have a well-argued case for allowing archaeozoology to be contributory in determining the choices which have to be made in protecting sites, and, if conservation is not possible, in excavating them.

The second reason for presenting an inventory is that this information is not easily accessible, especially for colleagues from non Dutch-speaking countries.

Inventory

The following selection criteria were used in the inventory. Although it does not completely do justice to the historical situation, for practical reasons only the towns situated in the present territory of the Netherlands were included. A survey of research in Flemish towns (Belgium), for example, was made by Eryvynck (1992). The pre-urban site of Dorestad was taken as a starting point, and the period concluded with the fifteenth century. Although historical sources are of major importance, this inventory has been confined to purely archaeozoological information. Another restriction is that the emphasis lies on site reports. Apart from these, there are all kinds of publications on the processing of animal products, and on one or more animal groups. Examples are: dogs from several sites (Wijngaarden-Bakker and Ijzereef, 1977), fish and birds from Leeuwarden (Brinkhuizen, 1983; Jager, 1983), birds from Leeuwarden, 's-Hertogenbosch and Maastricht (Hiddingh, 1983), the tanning of leather in 's-Hertogenbosch (Prummel, 1978, 1983b) and Leyden (Wijngaarden-Bakker and Maliapaard, 1992), and the several doctoral theses from the Biologisch-Archaeologisch Instituut (BAI) at Groningen that have been written on separate animals from the important Medieval town of Utrecht (Kersten, 1979; Zeiler, 1981; de Jong, 1982; van der Hout, 1982).

Previous surveys were published by Prummel (1982) and Groenman-van Waateringe and Wijngaarden-Bakker (1990).

Table 1 shows a survey of 49 studied bone assemblages from 22 towns which were recorded in some way or other. Different locations in a town, or bone assemblages of varying periods have been regarded as separate items. The position of the towns is shown in figure 1. In their accurate survey, Groenman-van Waateringe and Wijngaarden-Bakker (1990) mention 19 bone assemblages from 12 towns. The recently published bibliography of European archaeozoology by Audoin-Rouzeau (1993) refers to only a dozen bone assemblages from Dutch towns.

The discrepancy in the amount of information can, to some extent, be explained by the publication of the results of recent research and, in some cases, by a slightly differ-

ent classification of the data. The main reason for the discrepancy, however, is that a number of badly accessible information sources have now been tapped.

The nature of the source of information partly determines its accessibility. The most readily available publications are specifically archaeozoological. This category partly permeates to Audoin-Rouzeau's survey (1993). Some of the information, however, is to be found in general archaeological publications. Here, the archaeozoological data is often recorded in a single sentence or in a footnote. Accessibility is further limited by the fact that information sometimes appears in very local publications. A separate group of information which is of difficult access comprises student dissertations and other unpublished reports. Publications written in Dutch hardly penetrate beyond the borders of the Netherlands and Belgium.

There is an urgent need for a signalling system for archaeozoological information which would enable literature which is not primarily archaeozoological and unpublished reports and dissertations to become accessible. At the moment Dutch archaeozoologists from various universities and the State Service for Archaeological Investigations in the Netherlands (ROB) are attempting to realise a general archaeozoological information system. The major computer networks offer the prospect of internationalising a signalling system of this kind.

The quality and value of the information from the sites represented in table 1 vary considerably. One of the factors which determines the value of the information is dating. The ample dating of the sites at Haarlem 14th-17th centuries or Tiel 15th-18th centuries very much reduces the value of these complexes, and all the more so if we take into account the fact that, by their dates, these sites cover very different historical periods.

The size of the bone assemblage also determines its importance. There are more than a thousand identifiable bones of mammals in only seven sites, whereas half the complexes consists of less than three hundred bone fragments.

The third factor is the method of collection. In table 1, a survey per site and period is only given for the larger mammals found there. The few cases in which data on small mammals such as mice and moles was available are not included in the survey. Information on birds and fish has also been omitted. This selection is due to the fact that information on these animals was mostly very scarce or was completely lacking in most complexes. Inclusion of these data in the table would mean that it contained information which could not possibly be compared. This is because only one-third of the bone assemblages investigated was sieved, and even then, often on a very small scale. The result is that the

value of most complexes in clarifying, for example, our picture of fishing and the importance of poultry for consumption is minimal. A complicating factor is that at the Eindhoven-He2 site, for example, the data on material collected by hand and sieved material were not kept separate at the presentation. Various publications do not state whether material was sieved. This is a hindrance, especially when comparing sites. In addition, the degree to which information on material studied is recorded and presented varies. Weight, for example, was mentioned in only fourteen bone complexes.

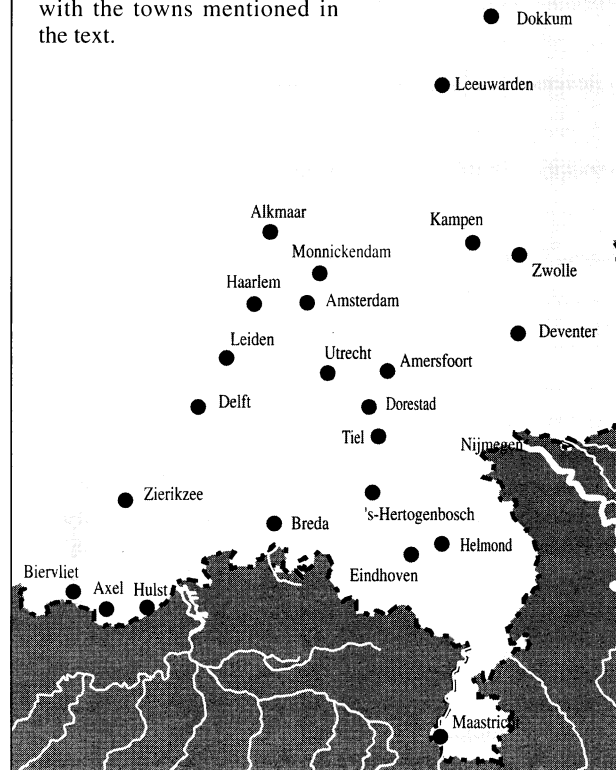
To sum up, the following may be concluded about the quantitative and qualitative aspects of the archaeozoological investigation of Medieval towns. If the dates and geographical distribution of the towns are considered, the information is certainly varied but also very fragmentary. More is known of only a few towns. The informative value of many of the small complexes is small. The fact that there was little systematic sieving is the main reason for the informative value being restricted to the larger mammals. As a result of all these factors, our knowledge of the archaeozoology of Medieval towns in the Netherlands is extremely limited and incomplete.

Local and global, inside and outside the town

Bones from an urban context can provide insight in very different matters. They give information about the agrarian economy, since a large number of the bones found within towns originated from animals reared in the country (e.g. Clark, 1992). Figure 2 shows schematically where animal products are produced (P) and where they are used and consumed (C). Although some of the products could be produced within the walls of a town, in many cases a greater quantity originates from the rural territory surrounding the town or, via import, from regions further away. As a result, faunal remains from towns can be evidence for the exploitation of rural territory. This gives rise to an important problem. If we find bones in a town, should we consider them as evidence of urban activities or as evidence for farm economics in the area surrounding the town or in a region further away? When, for example, a town becomes more densely populated, a greater part of the animal food products such as meat, milk and cheese will be produced outside the town. These kinds of questions about the agrarian economy and trade in food and other animal products can only be adequately investigated if archaeological, eco-archaeological and historical researches are combined.

On a very local scale, at the level of one or more households, a few backyards or a section of a market place, bones found in towns give information about, for example,

Fig. 1: Map of the Netherlands with the towns mentioned in the text.



the consumption of meat and the processing of animal products like antler, horn and hides. The practice of town centre investigation shows that evidence is usually only available from such small sections of the town. Prummel (1982) rightly remarks that faunal remains from partly excavated towns may not be representative for the town as a whole. Inside a town there is great social and therefore also economic differentiation which can strongly influence the variety of material found at a certain spot in the town. Craft activities and even the religious background of groups in a town may be of local influence on the composition of the bone assemblage, as has been demonstrated in the case of Portuguese Jews in 17th-century Amsterdam (Ijzereef, 1989). The differences which can be observed between the various sites in 14th-15th century Amsterdam (tab. 1) were possibly caused by similar very local factors.

When the data from the various sites are integrated, some general conclusions can be drawn on a very global scale about the size of animals and the consumption of animal products, for example.

Consumption of meat

We shall restrict ourself to the overall picture of meat consumption in Dutch Medieval towns. Nowhere was

Site ***	Period	Cattle	Sheep/ goat	Pig	Horse	Dog	Cat	Game	n
Dorestad ^{1,38}	8-9	68	19	13	2	1	0	1	5540
Deventer-Nm ²	8-10	54	21	26	0	1	-	-	661
Deventer-Bu ³	9	76	13	11	-	0	-	-	253
Tiel ⁴	9-10	70	5	25	1	-	1	-	153
Zwolle ⁵	9-12	68	9	24	1	-	16	0	1239
Alkmaar ^{6,38}	10-12	59	32	8	1	-	-	-	143
Deventer-Bu ³	10-12	64	13	23	0	0	2	1	700
Tiel ⁴	11	61	17	22	2	-	-	-	711
Alkmaar ^{7, 8, (38)}	12-14	55	40	4	1	3	1	1	229
Tiel ⁴	12-14	65	21	14	1	1	-	0	387
's-Hertogenbosch ⁹	13	49	30	21	1	-	-	-	240
Deventer-Bu ³	13	45	17	38	-	13	-	-	76
Dokkum ¹⁰	13	42	46	12	-	-	-	-	150
Axel ¹¹	13	x	-	x	-	-	-	-	26
Monnickendam ¹²	13-14	64	7	28	0	8	2	-	266
Eindhoven-He1 ¹³	13-14	71	14	16	7	-	-	-	212
Eindhoven-He2 ^{14, 15}	13-14	77	13	10	9	2	0	-	9744
Haarlem ¹⁶	13-15	50	16	34	1	12	+	1	790
Breda ¹⁷	13-15	56	27	17	1	-	0	1	440
Leiden ¹⁸	14	61	21	19	3	-	-	2	214
Zierikzee ¹⁹	14	55	40	5	-	-	-	-	102
Biervliet ²⁰	14	69	25	6	-	-	2	-	212
Hulst ²¹	14	69	14	17	2	2	-	1	92
Amersfoort ²²	14	57	10	35	1	13	20	0	5607
Breda ²³	14	43	44	13	-	-	1	1	1042
Maastricht ²⁴	14	54	7	38	-	-	67	-	78
Dokkum ¹⁰	14	49	42	9	-	-	-	-	65
Amsterdam-Ol ^{25, 26}	14-15	65	8	27	-	12	1	-	456
Amsterdam-Ne ^{27, 28, 26}	14-15	57	12	32	-	0	0	-	593
Amsterdam-Wa ^{29, 26}	14-15	59	21	20	-	-	-	-	46
Amsterdam-Ca ²⁶	14-15	73	4	24	0	-	1	0	311
Amsterdam-Ja ²⁶	14-15	54	5	41	-	1	1	-	126
Amsterdam-Da ²⁶	14-15	78	2	20	-	2	2	-	117
Haarlem ³⁰	14-15	57	17	26	1	1	-	5	154
Delft ³¹	14-15	60	25	15	6	3	1	-	154
Eindhoven-He2 ^{14, 15}	14-15	77	10	13	25	1	0	-	1233
Kampen ³²	14-15	62	12	26	-	4	6	-	1144
Zwolle ⁵	14-15	69	7	24	3	0	-	1	231
Deventer-Bu ^{3, (33)}	14-15	59	15	26	8	3	26	1	722
Helmond ³⁴	14-16	78	8	27	1	+	3	1	165
Dokkum ¹⁰	14-16	42	43	16	-	2	1	-	528
Haarlem ³⁵	14-17	66	14	20	0	1	3	50	829
Haarlem ³⁶	15	x	x	-	-	-	x	x	12
Breda ³⁷	15	57	41	2	-	-	-	3	376
Kampen ³²	15	67	9	24	0	1	3	0	952
Delft ³¹	15-16	56	32	12	8	19	20	-	241
Eindhoven-He2 ^{14, 15}	15-16	75	13	12	3	1	-	-	382
Kampen ³²	15-16	70	12	18	-	11	27	0	379
Tiel ⁴	15-18	75	22	4	5	2	-	-	54

game of any significance. Either no game was consumed at all, or, if so, only very occasionally. Game is most diverse in early Dorestad. Red deer, roe deer, probably wild boar, hare and beaver were found. The youngest finds of elk, which apparently is not found in the Netherlands after the 8th-9th century, also originate from this pre-urban site. The fact that the greatest variety of game is found at Dorestad might also be explained by the large quantity of material studied there, which of course greatly increases the likelihood of finding more species. Whenever game was found in the other settlements, it was roe deer, red deer and hare or rabbit. The relatively high percentages of game in 14th-15th/17th centuries Haarlem are mainly due to the bones of tame or wild rabbits. In view of the low meat weight of these animals this means that game was also of little importance to the meat consumption in this town. In 14th-15th centuries Zwolle and 14th-century Alkmaar the remains of otter (*Lutra lutra*) were found. In addition to the consumed animals mentioned above, smaller mammals such as rats and mice were also found, or, for example, the European

polecat (*Putorius putorius*) in Monnickendam and Amersfoort. The information on these animals which nosed around in the town refuse were not included in table 1.

Dogs, in general, were only seldom eaten in the Middle Ages, and then usually in times of war (Geppert, 1990). That dogs, like cats, were not generally used for consumption in the Medieval towns of the Netherlands can be seen from the large number of more or less complete skeletons of these animals that were found. The relatively large quantities of cats and dogs in Deventer and Kampen originate mainly from skeletal remains (pers. comm. F. J. Laarman, ROB). At other sites, too, where high percentages of dogs or cats were found, it is usually specifically stated that most of them at any rate originate from complete skeletons and were not therefore used for consumption (e.g. Mensch, 1980; Wijngaarden-Bakker, 1980a; Bult and Robbers, 1992; Boer *et al.*, 1994).

Horsemeat was practically never eaten either. Since the animals did not end up at the butcher's, the bones are generally less fragmented than those of cattle which are compara-

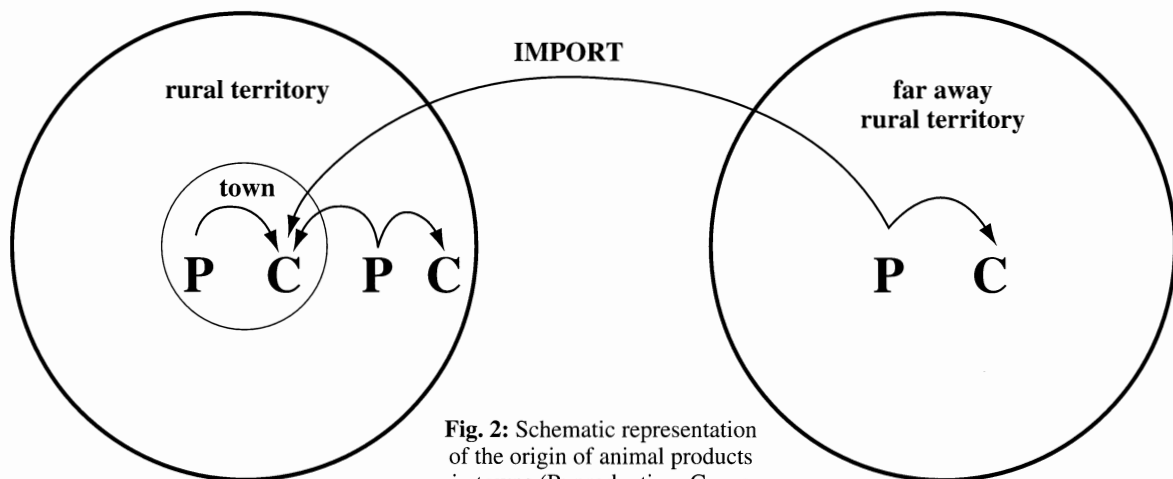


Fig. 2: Schematic representation of the origin of animal products in towns (P: production; C: use and consumption).

Table 1: Domestic and wild mammals from medieval (pre-) urban sites in the Netherlands. The percentages indicated for cattle, sheep/goat and pig are relative to one another, while the percentages given for horse, dog, cat and game are each a percentage of the total number of identified bones (n). No finds is indicated by “-”; 0% means finds, but less than 0.5%; + means skeleton; x means bones found.

* References: ¹ Prummel, 1983a; ² Spitzers, 1988; ³ Ijzereef and Laarman, 1986; ⁴ Lauwerier and Villari, 1995; ⁵ Mensch, 1980; ⁶ Clason, 1972; ⁷ Clason, 1979; ⁸ Clason and Brinkhuizen, 1978; ⁹ Prummel, 1978 (kitchen refuse); ¹⁰ Gelder, 1979; ¹¹ Lauwerier, 1992a; ¹² Seeman, 1989; ¹³ Verhoeven, 1989; ¹⁴ Jong, 1990; ¹⁵ Jong, in press; ¹⁶ Wijngaarden-Bakker, 1980a; ¹⁷ Jong, 1988; ¹⁸ Wijngaarden-Bakker, 1980b; ¹⁹ Heeringen, 1990; ²⁰ Lauwerier, 1992b; ²¹ Lauwerier, 1992c; ²² de Boer, den Heuvel and Krauwier, 1994; ²³ Jong, 1992; ²⁴ Panhuysen, 1984; ²⁵ Wijngaarden-Bakker, 1972; ²⁶ Baart, 1977; ²⁷ Clason, 1966; ²⁸ Clason, 1967; ²⁹ Clason and Wijngaarden-Bakker, 1969; ³⁰ Ijzereef, 1977; ³¹ Bult and Robbers, 1992; ³² Laarman, 1990; ³³ Laarman, 1989 (selection); ³⁴ Jong, 1986 (surface finds not included); ³⁵ Seeman, 1984; ³⁶ Maliepaard, 1988; ³⁷ der Lee, 1992; ³⁸ Prummel, 1979.

** Further indication of some sites within a town: Bu: Burseplein; Ca: C & A; Da: Damrak; He1 He2: Heuvelterrein; Ja: Sint Jansstraat; Ne: Nes; Nm: Nieuwe Markt, Grote Kerkhof & Grote Poot; Ol: Olofskapel; Wa: Warmoesstraat.

ble in size. Moreover, chopping and cutting traces are rare and far more bones are complete. However, radii and metapodials were often used in manufacturing objects such as bone skates which are frequently found. Just as with dogs and cats, publications often state specifically that these are skeletal finds. The high percentage of horse bones from Eindhoven and Deventer, for example, is accounted for by the find of buried horse cadavers.

If we disregard poultry, fish and molluscs, cattle form the main source of animal protein everywhere. The numbers of cattle bones fluctuate between 42 and 78% throughout the Middle Ages. Low numbers of cattle bones, and therefore relatively less beef can be found in 13th-century 's-Hertogenbosch and Deventer, 14th-century Breda, and in Dokkum in all the periods investigated. Although the percentages of cattle bones are less than 50%, beef will still have been the most important type of meat in these towns in the periods mentioned because of the much greater meat weight of cattle compared to that of sheep and pigs. At the moment no clear explanation for the similarities and differences in the varying percentages of cattle bones can be given, due to the absence of any obvious tendencies.

Groenman-van Waateringe and Wijngaarden-Bakker (1990) observed that from the 14th century on more pork than mutton was consumed. The reason for this could be pigkeeping within the town limits. This idea was based on data from Monnickendam, Amsterdam, Haarlem, and unpublished data from Dordrecht. In other towns too there is more consumption of pork than of mutton: Kampen, Zwolle, Deventer, Tiel, Amersfoort, Eindhoven, Helmond, Hulst and Maastricht. The information from Tiel, however, is inconsistent with the notion of a change in consumption after the 14th century. Many pigs and few sheep are found in Tiel in the earliest period, and few pigs and a relatively large number of sheep in later centuries. More mutton than pork in the 14th century and later is also evident in Dokkum, Delft, Breda, Zierikzee and Biervliet, and moreover, in Delft and Breda there is a clear increase in the number of sheep compared to pigs. Apart from Tiel, more pork was also eaten before the 14th century in Deventer and Zwolle. In other words, the change in consumption from mutton to pork is by no means a general rule. The phenomenon observed by Groenman-van Waateringe and Wijngaarden-Bakker is more likely to be the result of the choice of these towns, Monnickendam, Amsterdam and Haarlem in particular, where all the information dates from the 13th-14th centuries and later. If, however, we look at towns from which information is available from the early and the later periods, it is much easier to establish whether there was any change in the course of time. Dokkum, Zwolle, Deventer and Tiel are par-

ticularly suitable. More pork was consumed in Deventer in all the periods, in Zwolle the pattern of consumption was identical in the 9th-10th centuries and in the 14th-15th centuries, while meat consumption appears to have remained stable in Dokkum in the various periods, the only difference being that more mutton was eaten here in all the periods. Genuine changes can only really be observed in Tiel: the swing from pork to mutton. We cannot therefore speak of general period-linked tendencies which are valid for all towns. The information from Dokkum, Zwolle and Deventer gives the impression that environmental factors were far more important in these towns. The woods on the high cover sands in the vicinity of Zwolle and Deventer will have facilitated the large-scale grazing of pigs. In Dokkum, on the other hand, on the low-lying marine clay, conditions in the area would have been extremely suitable for sheepkeeping, also possibly on the salt-marshes outside the dikes. The decrease in pork consumption in Tiel may be linked with a reduction of the wooded area around the town due to reclamation which meant that there were fewer opportunities for fattening pigs.

Conclusions

A short survey has been given above of the state of affairs in the archaeozoological research of Medieval towns in the Netherlands. We have observed that information on this subject is extremely limited and incomplete. The fact that this information is incomplete and incommensurable is a matter which will have to be dealt with during excavation. One requirement is a standard method of collecting bone material, including systematic sieving. An attempt to initiate the collaboration of universities, town archaeologists and the State Service (ROB) with the objective of developing ecological-archaeological research into Medieval towns (Haaster, 1993), is highly recommended.

Since part of the information available is not easily accessible, an effective signalling system for archaeozoological information in the Netherlands is essential. The ICAZ, which is the main international organisation of archaeozoologists, should take the initiative in realizing a system of this kind on an international scale.

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