The diet of the Portuguese merchant family Ximenez at the "Blauwhof" (Belgium): between tradition and display in the 16th-17th century.

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Abstract

The "Blauwhof" is a rich estate in a rural village close to Antwerp built by the Portuguese merchant family Ximenez at the end of the 16th century. The animal remains left behind by this family reflect a wealthy diet of the 16th-17th century with juvenile cattle and sheep/goat, small game and a variety of birds. The clear dominance of sheep/goat is linked to their Portuguese origin. Despite the fact that they were merchants, trade did not influence their diet as no exotic animals are found in the assemblage and the amount of seafood is not unusually high. Although the family was Jewish until the end of the 15th century, their diet included non-kosher animals and body parts, which is consistent with their new identity as pious Christians who donated money to the Antwerp Cathedral by the time they occupied the Blauwhof.

Keywords: Medieval Flanders, Portuguese merchants, social identity, religion, trade

1. Introduction

Social identity and wealth is one of the major themes within medieval archaeology. Ashby (2002) published a study of zooarchaeology and status applied on Medieval Europe. In England large-scale zooarchaeological studies have been conducted at (Post-) Medieval castle sites, like Launceston castle in Cornwall (Albarella and Davis, 1994). These types of collections are also used in more targeted studies, for example one of them focuses on bird remains in relation to status (Albarella and Thomas, 2002). Even in Belgium, where zooarchaeological studies are scarce, social status was investigated in the food refuse from different sites in Namur (Boone et al., 2002).

Different authors study methodological problems regarding food and wealth. Some focus on the relationship between food and status in general (Van der Veen, 2003), others on the visibility of social status in archaeology (Twiss, 2012, Buylaert et al., 2011). Recognizing

status in faunal assemblages is a specific topic in zooarchaeology (Ervynck et al., 2003, DeFrance, 2009). Intricate knowledge of the social and cultural context of an assemblage is crucial in recognising wealth and status. As a general rule rare food items with a high cost or particular taste are seen as luxury items. Other signs of wealth are imported goods, a large variety of animals, the best cuts of meat and animals killed before the optimal slaughter age (Ervynck et al., 2003). In some cases certain products are restricted to one part of society, in medieval Flanders hunting was only allowed by nobility (Ervynck et al., 2003).

Most investigations into status focus on castles and large estates of nobility and wealthy families. The "Blauwhof" in Steendorp, Belgium is such a site. Built by the Ximenez, a Portuguese merchant family, the "Blauwhof" provides an opportunity to investigate social status in the 16th-17th century. The Ximenez are an interesting case study because they sought to balance their Portuguese origins with the wealthy lifestyle of Belgian nobles. These different identities are apparent in the remains of their food refuse. On the one hand, foods indicative of wealth are expected in the assemblage, augmented by exotic species and seafood from their trade affairs. On the other hand, their previous Jewish religious affiliation might be reflected in their private diet, despite the fact that they presented themselves to the outside world as Christians.

2. The site and historical context

2.1 Site: Blauwhof, Steendorp (Belgium)

Steendorp is a small village in Flanders, Belgium. It is a rural village next to the river Scheldt approximately 15km from Antwerp, 30km from Brussels and 35km from Ghent (fig.1). Modern clay extraction threatened the site and archaeological excavations were necessary to preserve all that was left from the medieval and post-medieval buildings (Van Vaerenbergh and Van Roeyen, 2007). In 1998 the ADW (Archeologische Dienst Waasland) started excavations which concluded in 2004. The research on the site (approximately 13.000 m²) was spread over several campaigns.

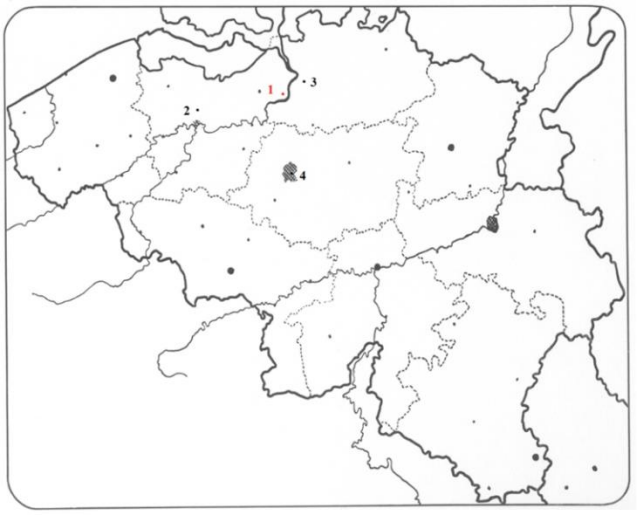


Fig.1: Position of the "Blauwhof" and surrounding cities on the map of Belgium. (Modified from http://static.digischool.nl/ak/onderbouw-vmbo/materiaal/Kaartmateriaal/belg2.jpg)

The excavations revealed the remains of the "Blauwhof" estate and the surrounding ditch filled with ceramics, glass and animal bone. The ditch contained several assemblages: layer E with material from the Ximenez family, a sterile fill D, material of the later owners in the 18th century in layer C and a mixed layer K (both Ximenez and later owners) (fig.2).

Fig.2: Z-N view of the eastern ditch of the Blauwhof (photograph: Archeologische Dienst Waasland)

During the archaeological excavations remains from earlier phases were discovered. A 14th - 15th century ditch belongs to the "Hof van Leugenhaeghe", a nobility estate that was destroyed when the "Blauwhof" was constructed. The animal remains from this phase will be subject of a future publication. The oldest materials discovered at the site belong to a 13th century farm.

The archaeological objects and finds were manually collected (handpicked, not screened) and stored for further analysis. There was no systematic screening of the sediments, so it is likely that elements from feet or small game are underrepresented (Reitz and Wing, 2008). With this current study we present the analysis of the zooarchaeological remains from the Ximenez family in layer E. The available historical data about this family is compared with the results from this current study then we place the assemblage in the larger social context of 16th -17th century Europe.

2.2 The Ximenez family, rich Portuguese merchants from Antwerp

The sixteenth century was a period of worldwide trade (Pohl, 1977, Veen, 2000, Harreld, 2003, Dupré, 2011). Spain and Portugal were heavily linked to the trade networks, as they owned the newly "discovered" American continent and because of their previously established relationships in Asia. One of the most important harbours in North-western Europe was Antwerp; a city of trade, science, arts and wealth (Dupré, 2011). To guarantee the safe transport and trade of their products, Portuguese families placed representatives in all important cities of Europe including Antwerp (Mathers, 1988).

As many foreign merchants gathered in different parts of the city, nations, or communities of a specific origin within the city, were formed (Pohl, 1977). Within the so-called Portuguese nation, both wealthy and poor families were represented. One of those wealthy Portuguese families in Antwerp was the Ximenez family. The first representatives of the Ximenez family in Antwerp were Ferdinand and Ruy Nunes Ximenez in the second half of the 16th century (Pohl, 1977). These important Portuguese merchants were very successful around 1580 and their trade business was continued by three brothers: Duarte, Manuel, and Gonzola Ximenez in 1590 (Pohl, 1977).

Duarte and Manuel were very important within the Portuguese nation (Pohl, 1977, Dupré, 2011, Göttler, 2012). Manuel (†1632) owned several houses on the Antwerp Meir and became a knight in the Order of Saint-Stephan. Duarte (†1630) bought the "Hof van Leugenhaeghe" in 1595 and built a new castle on the site known as the "Blauwhof." This was a very luxurious house on the countryside with a large fortifying ditch and its own church tower.

As merchants, the two brothers were involved in worldwide trade networks (Pohl, 1977). Sugar from South America and the Canary Islands was imported into Antwerp via Lisbon. Herbs and Brazilian wood followed the same route. Books, paintings, carpets, pieces of fine art, mirrors and scientific objects were shipped from Antwerp to Southern Europe and Africa. In Africa, diamonds, pearls and slaves were added to the cargo of the ships. Aside from this trade, they were involved in the banking economy, giving loans to other merchants, craftsmen and even to the Spanish crown. They invested in houses and farm lands. Donations were given to the Antwerp Cathedral in exchange for a sculpture with the family name and coat of arms (Pinchart, 1863). The Ximenez family was well-established in the high society of the 16th-17th century.

2.3 The castle-like residence "Blauwhof"

Like all wealthy Portuguese merchant families, the Ximenez heirs owned several houses on the Antwerp Meir (Pohl, 1977). These were real city palaces: highly decorated, stacked with expensive furniture, with huge libraries and where slaves were used as servants. It was a typical form of displaying wealth and status in the most important street of the Portuguese nation in Antwerp. When Duarte Ximenez bought the "Hof van Leugenhaeghe" in 1595, he finally achieved his goal of attaining nobility status. The location of this estate was ideal for business meetings, very close to Antwerp but in the quiet countryside away from all the attention of the city.

As a display of his wealth, Duarte removed all the existing buildings on the estate and built a completely new house with a castle-like look "The Blauwhof" (Pohl, 1977, Kretschmar, 1978, Van Vaerenbergh and Van Roeyen, 2007) (fig.3). The newly built "Blauwhof" was a large manor surrounded by a rectangular ditch 30 m wide. Walls with towers were placed to separate the ditch and the residence. A bridge with an entrance gate gave access to the main house, stables and gardens. The kitchen was most likely situated to the south, where the remains of a well with a water pump were found. In this part of the ditch a large amount of animal bones and pottery sherds were present, which is probably the refuse from the kitchen. On the same side of the house a small bridge gave access to an island with a tower. As mentioned in several texts, this probably was the house chapel or church (Pohl, 1977, Kretschmar, 1978). The property belonged to Duarte Ximenez and after his death in 1630 his brother Emmanuel inherited the Blauwhof (Van Vaerenbergh and Van Roeyen, 2007). Their children kept it until the end of the 17th century.

Fig.3: Digital 3D reconstruction of the "Blauwhof". (Reconstruction: Dirk Gorrebeeck for the Archeologische Dienst Waasland)

3. Objectives and research questions

The zooarchaeological assemblage of the "Blauwhof" provides an opportunity for evaluating the diet of wealthy merchant-bankers in Flanders for the first time. This study presents a completely new part of the post-medieval society. Insight into the diet of the inhabitants of the "Blauwhof" is used to answer questions about their social rank, the influence of trade on their lifestyle, and their religious beliefs.

Assessing the social status of the Ximenez family is the main research goal of this project. It is clear from historical records that the Ximenez family was well-off and belonged to the higher ranks of the Portuguese community in Antwerp (Pohl, 1977). Does the diet in the country house reflect this wealth? How does the diet reflect the Portuguese descent of its inhabitants? And how does this diet compare to the rich lifestyles of the local nobility?

Another important question that needs to be answered with this assemblage is the nature of the religious identity of the Ximenez family. They presented themselves as true Christians, donating to the Antwerp Cathedral to the extent that there was a statue holding the family arms present at the cathedral (Pinchart, 1863, Pohl, 1977). But just a century before, the family's ancestors were Jews living in Portugal. When Catholic Spain took over the rule of Portugal, the residents had no choice other than to reform (Hauben, 1966, Pohl, 1977). Was the Ximenez family completely converted and did they practice Christian customs? Or were they secretly Jewish, following strict dietary rules?

Worldwide trade made the Ximenez family wealthy and as owners of the "Blauwhof" they still participated in this business (Pohl, 1977). This activity provided the opportunity to acquire exotic food items that were valued in Flanders. These delicacies could be a welcome alternative to the daily diet and could be offered to guests, possibly in trade negotiations. Can any faunal materials be linked to the trade networks and access to the sea by the Ximenez family? As foreign merchants living in Antwerp, did they adapted their diet to Belgian habits or did they favour traditional Portuguese food?

4. Material and methods

The Archeologische Dienst Waasland (ADW) conducted the excavations of the "Blauwhof" site. Among the finds large collections of pottery, animal bones and botanical remains were collected and stored for further research. The zooarchaeological remains were transported to the University of Tübingen for a complete zooarchaeological analysis on the assemblage using the extensive comparative faunal collection of the Institut für Naturwissenschaftliche Archäologie.

4.1 Faunal analysis

Faunal remains were identified using standard zooarchaeological techniques (Lyman, 1994, Reitz and Wing, 2008, Groot, 2010). Specimens were identified to species level if possible, and to body size categories (e.g., medium mammal) in the case of less identifiable specimens. Boessneck (1969) was used to distinguish between sheep and goat. We assigned ribs, vertebrae, long bone shafts and flat bone pieces to size classes: large mammals (cattle and horse), medium mammals (pigs and sheep/goat), or small mammals (rabbits, hares and cats). Element, portion and side of the body were recorded, as well as butchery marks and evidence of burning. We took measurements of the bones using the guidelines from von den Driesch (1976). Mollusc and other shells are identified using specific determination charts (Richling

and Wiese, 2008b, Richling and Wiese, 2008c, Richling and Wiese, 2008a). Half shells from mussels, oysters and cockles were counted and recorded.

A species list with NISP (number of identified specimens) and %NISP is our basic unit of analysis. To create body part profiles, we calculate the minimum number of elements (MNE) based on the highest number of overlapping portions of each element (Reitz and Wing, 2008). MNE is then divided by the expected number of elements in a complete animal to calculate the minimum animal units (MAU) (Binford, 1978, Reitz and Wing, 2008). MAU is grouped by body part (horn, head, neck, axial, upper front, lower front, upper hind, lower hind and feet) following Stiner (1991) to produce body part distributions. Taking into account MNE and the side of each element we calculate minimum number of individuals (MNI) for each animal species (Reitz and Wing, 2008).

Three different methods are used to calculate age at death for mammals: long bone fusion, mandible tooth wear and tooth eruption and wear on specific teeth. The first method uses the data collected on long bone fusion. For each element the age at which they fuse and the number of fused, fusing and unfused specimens is presented (Silver, 1969, Habermehl, 1975). A second method uses teeth within mandibles and wear stages developed by Grant (1982). Combined with the age of eruption for certain teeth, this provides additional information from Grant's wear stages (Habermehl, 1975, Grant, 1982). The last method uses the eruption and wear of specific mandibular and loose teeth (Stiner, 2002). To prevent double counting of animals only the deciduous fourth premolar (dp4) and the fourth premolar (p4) or third molar (m3) are used. A dp4 belongs to a juvenile animal, a p4 or m3 with slight to medium wear (grant wear stages A-F for cattle and A-H for sheep/goat) belongs to a prime-aged adult animal and old animals have p4 or m3 with heavy wear (starting from grant wear stage G for cattle and I for sheep/goat). The numbers of animals in each age cohort are presented in a tripolar graph. A 95% confidence interval for the age distribution of each animal species is plotted following a program developed by Weaver et al. (2011). We also distinguished between juvenile and adult birds based on differences in their bone structure which accommodate growth (Cohen and Serjeantson, 1996).

4.2 Data interpretation

We analyse multiple lines of evidence to explore features of wealth and luxury in the diet (Ervynck et al., 2003, Van der Veen, 2003, Woolgar, 2006, Buylaert et al., 2011). The ability to acquire a lot of meat is often a sign of wealth as normal households had to rely more on

vegetables and grains throughout Medieval and Post-Medieval times (Van der Veen, 2003). The rich families even had the possibility to select the meatiest parts of the best animals. Killing young animals and consuming this age group in medieval Flanders can also be assigned to wealthy people (Ervynck et al., 2003).

Another feature for investigating social status is the diversity of the animals consumed by a particular family (Ervynck et al., 2003, Van der Veen, 2003, Buylaert et al., 2011). A combination of farm animals, wild mammals, birds and fish is expected for a wealthy diet. Large game hunting was restricted to lords and is only found in noble households. Small game could be hunted by a larger audience but is still restricted to the higher social classes. Several lines of evidence point to the social connotations of certain birds. Different zooarchaeological studies have focused on bird remains of medieval sites (Albarella and Davis, 1994, Boisseau and Yalden, 1998, Albarella and Thomas, 2002, Boone et al., 2002, Moreno-García and Pimenta, 2010, Thys and Van Neer, 2010). These authors confirm the wealthy status of wild fowl like partridge, pheasant and quail. According to these studies specific birds like grey heron, stork, crane and swan are also associated with the higher social classes. In addition, paintings of banquets were popular as display of wealth for the Antwerp elite during the 16^{th}-17^{th} century. A study about the birds in the paintings of the 16^{th} century artist Frans Snyder is included in our interpretation of the species found in the diet of the Ximenez family (Goddeeris et al., 2002). Finally, certain fish and seafood were not available for ordinary people during this period and are linked to social status; oysters in particular are one of these rich food items in 16^{th}-18^{th} century Flanders (De Wilde et al., 1994).

Figuring out the religious identity of the Ximenez family requires a specific approach. A Christian diet is not visible archaeologically. For Jews, food needs to be kosher and butchered according to the Shechita rules (Valenzuela-Lamas et al., 2014). Some animals like pigs, birds, small game and oysters are not considered to be kosher. Their presence would support the idea that the Ximenez family was Christian. Sheep/goat is present in Jewish assemblages, but because of special butchery practices the body part representation is altered. The veins of the animals need to stay intact when the body is chopped; this is not possible for the pelvis, which is typically not used in Jewish kitchens (Valenzuela-Lamas et al., 2014). The veins of the hind limb are difficult to keep intact, which might lead to an overrepresentation of front limbs in a zooarchaeological assemblage from Jewish homes (Valenzuela-Lamas et al., 2014).

The presence of animals that originated from Africa or the Americas is the best evidence for trade influences in the diet of Duarte Ximenez. But the family's business affairs would lead to other benefits as well. One of them is easy access to the sea, to fish and other seafood. Relationships with other traders can also help in acquiring certain rich food items. The Portuguese roots of these merchants could have also influenced their diet. Mediterranean diets are rich in fish, birds (e.g., partridges, ducks, pheasants) and rabbits, and often contain a large quantity of sheep (Chabran, 2002).

In general, we expected to find a rich diet with a large variety of mammal species, the best cuts of meat belonging to mainly young individuals, wild fowl and specific birds. These traders are expected to have a large marine component in their diet, including oysters. And as Christians they would not follow Jewish dietary rules, including non-kosher food items in their diet.

5. Results

The assemblage contains 3,549 animal remains (table 1) and is dominated by mammals (fig.4). Shellfish and birds are the next most important animal groups within this collection. A few molluscs and fish were also recovered.

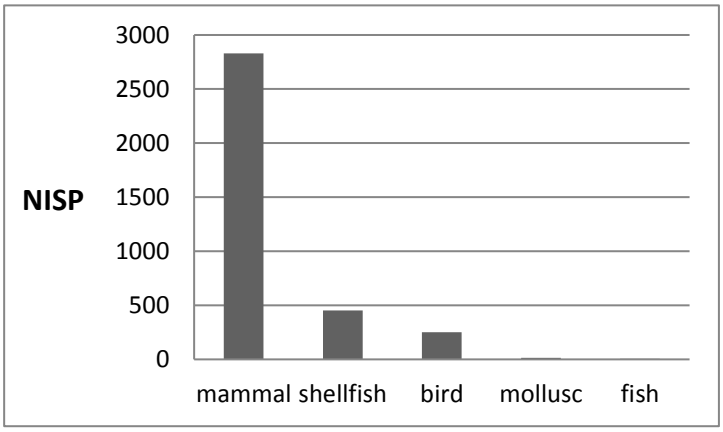


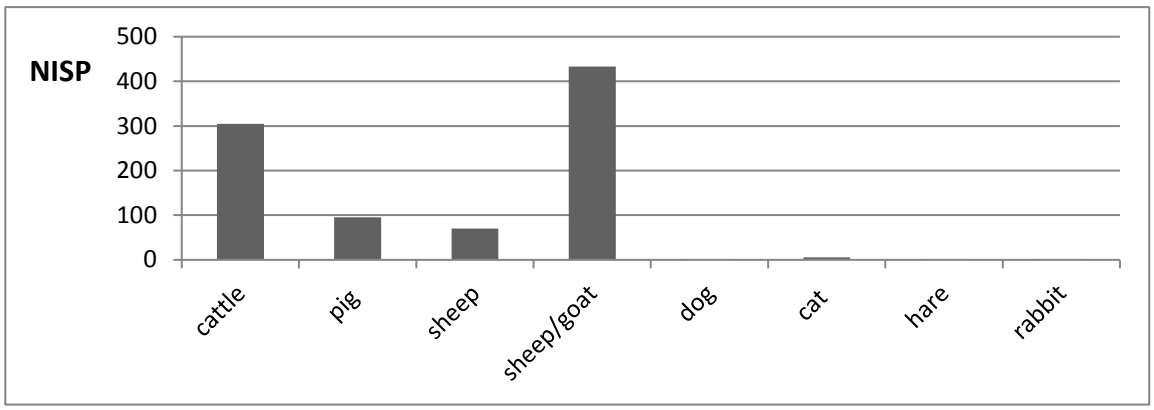
Fig.4: Animal group representation of the Ximenez family by NISP

4.1 Mammals

Cattle, pig and sheep/goat are the three most common taxa identified to the level of species. Most of the Ximenez remains are from sheep/goat, followed by cattle and pig (fig.5). It is difficult to distinguish between sheep and goat (Boessneck, 1969), therefore they are collapsed into one category of sheep/goat. We also recorded a few specimens of dog, cat, hare and rabbit.

		NISP	NISP%	MNI
Total		**3549**		
Mammal		**2829**	**79,71%**	
	Cattle (*Bos taurus)*	305	8,59%	10
	Pig (*Sus scrofa)*	95	2,68%	3
	Sheep (*Ovis aries)*	70	1,97%	21
	Sheep/goat (*Ovis/Capra)*	433	12,20%	
	Dog (*Canis familiaris)*	2	0,06%	1
	Cat (*Felix silvestris)*	6	0,17%	1
	Hare (*Lepus Europeas)*	2	0,06%	1
	Rabbit (*Oryctolagus cuniculus)*	2	0,06%	1
	Large ungulate	775	21,84%	
	Medium to large ungulate	60	1,69%	
	Medium ungulate	1067	30,06%	
	Small mammal	12	0,34%	
Bird		**250**	**7,04%**	
	Chicken (*Gallus domesticus)*	122	3,44%	9
	Pheasant (*Phasianus colchicus)*	14	0,39%	2
	Duck dom. *(Anas platyrhyncha)*	8	0,23%	2
	Goose (*Anser sp.)*	12	0,34%	3
	Grey partridge (*Perdix perdix)*	5	0,14%	1
	Grey heron *(Ardea cinerea)*	1	0,03%	1
	Carrion crow (*Corvus corone)*	4	0,11%	2
	Stork (*Ciconia ciconia)*	2	0,06%	1
	Northern gannet *(Sula bassana)*	1	0,03%	1
	Quail (*Couturnix couturnix)*	1	0,03%	1
	Duck sp. (*Anas sp.)*	1	0,03%	1
	Swangoose (*Anser cyngnoides)*	1	0,03%	1
	Barn owl *(Tyto alba)*	1	0,03%	1
	Eurasian bittern *(Botaurus stellaris)*	1	0,03%	1
	Unknown bird	76	2,14%	
Shellfish		**451**	**12,71%**	
	Oyster (*Ostrea edulis)*	212	5,97%	91
	Mussel (*Mytilus edulis)*	230	6,48%	43
	Cockle *(Cerastoderma edule)*	9	0,25%	5
Fish		**6**	**0,17%**	
	Unknown fish	6	0,17%	
Mollusc		**13**	**0,37%**	
	White Ramshorn *(Gyraulus albus)*	3	0,08%	
	Ramshorn (*Planorbis planorbis)*	2	0,06%	
	Pond snail *(Lymnaeidae sp.)*	4	0,11%	
	Surf clam (*Spisula solida)*	2	0,06%	
	Common whelk *(Buccinum undatum)*	1	0,03%	
	Thick-lipped dogwhelk *(Nassarius incrassatus)*	1	0,03%	

Table 1: Animal remains from the Ximenez family on the "Blauwhof" (NISP, %NISP and MNI)



313 Fig. 5: Species-specific mammal taxa in order of decreasing body size by NISP

314 Over 300 cattle bones were found in this assemblage, representing 33% of the species-specific
315 mammalian taxa (table 1). It is likely that the large ungulate remains belong to cattle, as no
316 other large ungulates are found in the assemblages. Therefore, we combined large ungulate
317 elements with cattle for the body part representation. The upper front and lower hind limbs of
318 cattle are well-represented in the assemblage (fig.6). The lower front limb, feet, and axial
319 elements are underrepresented by comparison.

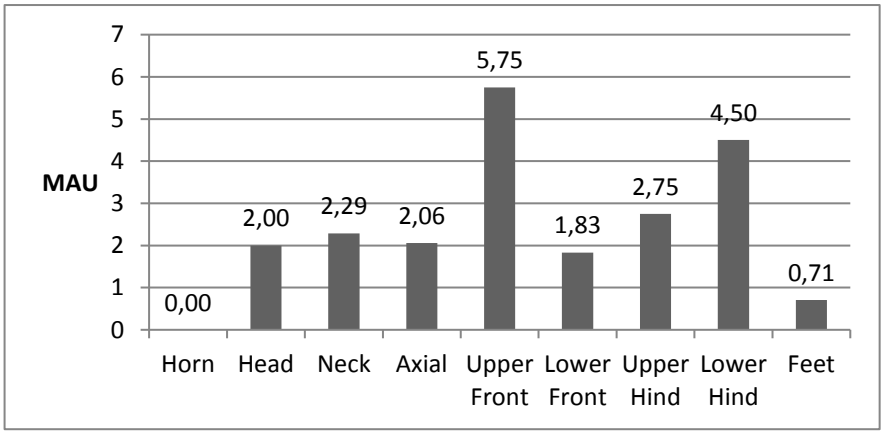


Fig.6: Combined body part representation (MAU) of cattle and large ungulates for the Ximenez family (following Stiner (1991))

327 Teeth still present in mandibles are assigned wear stages following Grant (1982). Data on the
328 eruption of adult teeth are included to provide ranges of calendar ages for certain specimens
329 (Habermehl, 1975). Forty-three percent of mandibles have fourth premolars in the process of
330 erupting, which is indicative of animals between the age of 24 and 28 months (table 2). Some
331 older animals with heavily worn teeth are present as well. Loose teeth are also useful for
332 aging animals in a zooarchaeological assemblage. This analysis specifically looks at the dp4
333 and p4 or m3 following Stiner (2002). In this case the p4 was preferred because it produced a
334 larger sample. The assemblage appears to be juvenile-dominated (fig.7).

335

336 Table 2: Wear stages of cattle following Grant (1982) combined with relative ages of tooth
337 eruption according to Habermehl (1975)

TWS dp4	TWS P4	TWS M1	TWS M2	TWS M3	Grant MWS	deciduous teeth	Age Habermehl	Age cohort
d	.	.			.	dp3+dp4	<24-28months	Juvenile
	erupting	e	d	a	25		24-28 months	Prime-aged adult
	.	.	erupting		.		15-18 months	Juvenile
k	erupting	h	g	a	31	dp4	24-28 months	Juvenile
	erupting	j	g	d	35		24-28 months	Prime-aged adult
	.	l	k	k	46		>15-18months	Old animal
	.	g	f	c	31		>15-18months	Prime-aged adult

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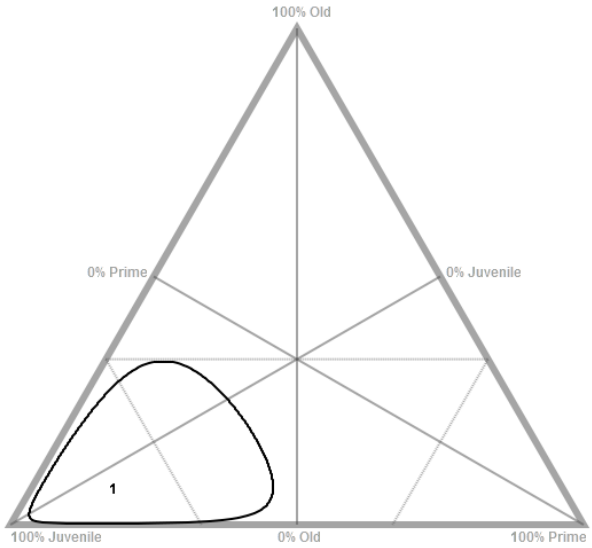

Fig. 7: Tripolar graph of age categories of loose and mandibular teeth following Stiner (2002) and Weaver et al. (2011). Circle represents a 95% confidence interval. (N=14)

348 One of the most important taxonomic groups in this assemblage is sheep/goat. It is
349 represented by at least 21 individuals (table 1). Of all remains, 14% could be positively
350 identified as sheep and none as goat. The majority of the medium ungulate remains are likely
351 sheep/goat and are therefore combined with this group for the following analyses. The
352 sheep/goat remains are dominated by the long bones of both front and hind limbs, while there
353 is a slight overrepresentation of lower hind limb elements, and feet are clearly
354 underrepresented (fig.8).

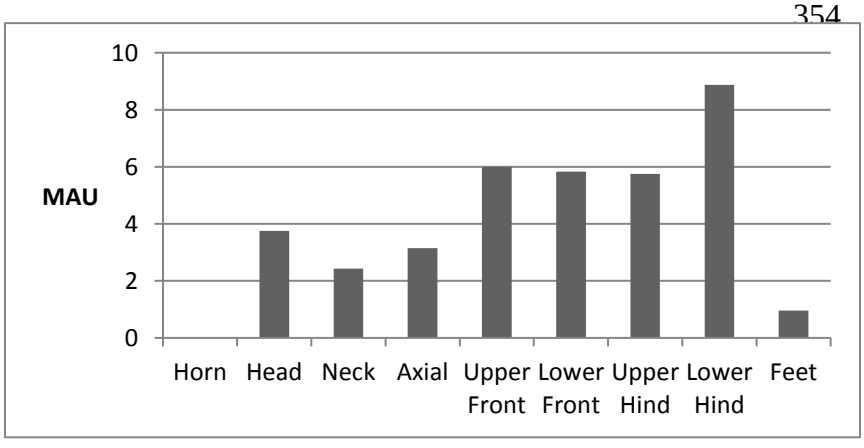

Fig.8: Combined body part representation (MAU) of sheep/goat and medium ungulates (following Stiner (1991))

Table 3: Long bone fusion of sheep/goat (MNE)

Age of fusion	Element	Fused	Fusing	Unfused
6-8 months	scapula prox.	5		1
6-10 months	innominate	1		6
10 months	humerus dist.	6	1	
	radius prox.	10	1	
13-16 months	phalanx 1 prox.	18		
	phalanx 2 prox.	3		
18-24 months	metacarp dist.	12		5
	tibia dist.	25	5	3
20-28 months	metatars dist.	8		4
	metapodial dist.			1
30 months	ulna prox.	1	1	4
30-36 months	femur prox.	2	2	9
	calcaneum	9	1	6
36 months	radius dist.		1	4
36-42 months	humerus prox.			3
	femur dist.		3	10
	tibia prox.	1	2	15

Many long bones yielded fusion data (table 3). Sheep and goat were slaughtered mainly between the ages of 2,5 and 3,5 years. This age pattern is also visible in the mandibles (table 4). Most mandibles have heavily worn teeth and an erupted p4; these belong to animals older than two years of age. The wear of dp4 /p4 was again used to create age profiles (fig.9). This plot shows the dominance of prime-aged adults combined with some juveniles, and the complete absence of old animals.

Table 4: Wear stages following Grant (1982) combined with ages determined by tooth eruption (Habermehl, 1975) for sheep/goat

TWS dp4	TWS P4	TWS M1	TWS M2	TWS M3	Grant MWS	deciduous teeth	Age Habermehl	Age cohort
	g	h	g	g	37		>2 year	Prime-aged adult
	g	h	g	f	36		>2 year	Prime-aged adult
	not yet erupted	g	f	erupting	27		18 months-2 year	Juvenile
	.	.	g	c	.		>18 months	Prime-aged adult
	.	k	h		.		>9 months	

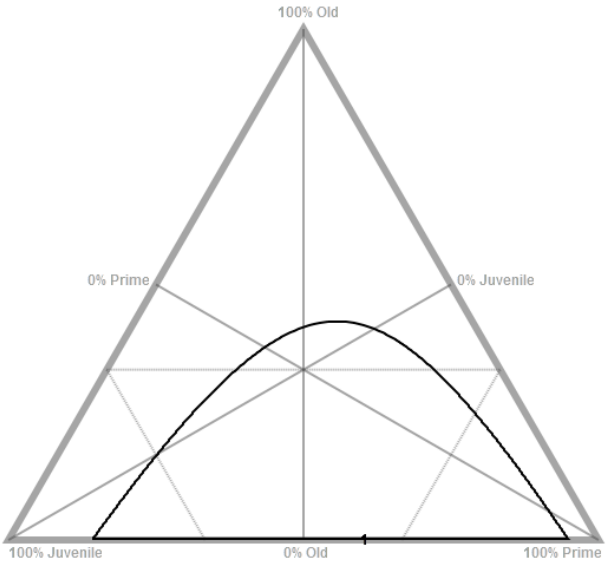

Fig. 9: Tripolar graph of age categories of loose and mandibular teeth following Stiner (2002) and Weaver et al. (2011). Circle represents a 95% confidence interval. (N=5)

With 95 specimens pig is an important animal in the "Blauwhof", representing 10% of the species-specific mammalian taxa (table 1). Neck, axial elements, and feet are underrepresented (fig. 10), though the overall sample is too low to draw a definitive conclusion about anatomical profiles.

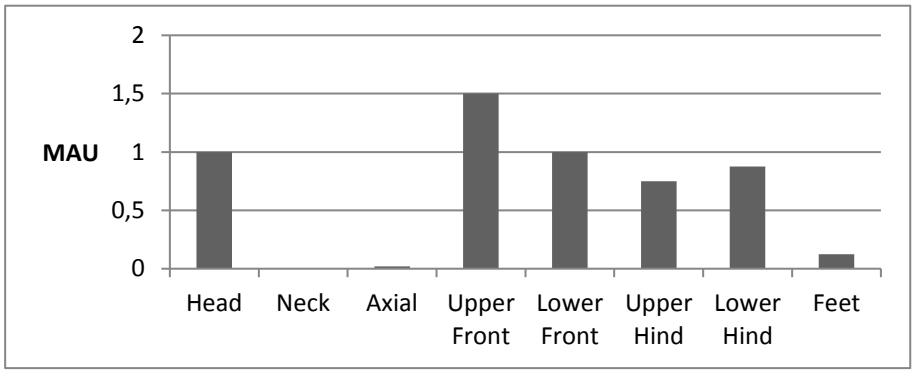

Fig. 10: Body part representation for pigs (MAU) (following Stiner (1991))

Long bone fusion was analysed for the pig bones in the Ximenez family assemblage (table 5). Most animals were killed around the age of two; many did not even reach this age. Three mandibles were evaluated following Grant (1982) for age determination. Two of them belong to animals around 16-20 months based on erupting m3 (table 6). One animal was in the process of shedding its fourth premolar when it died, which places it between 12 and 15 months.

Table 5: Long bone fusion for pigs (NISP)

Age of fusion	Element	Fused	Fusing	Unfused
1 year	innominate			1
	humerus dist.	1		
	radius prox.	1		3
	phalanx 2 prox.	1		
2 year	tibia dist.	1	1	2
	phalanx 1 prox.		1	1
2-2,5 years	metapodial dist.	1	1	2
	auxiliary metapodial dist.			1
3-3,5 year	ulna prox.			2
3, 5 year	humerus prox.	1		
	femur dist.			3

Table 6: Wear stages of pig mandibles following Grant (1982) combined with ages based on eruption of teeth (Habermehl, 1975)

TWS dp4	TWS P4	TWS M1	TWS M2	TWS M3	Grant MWS	deciduous teeth	Age Habermehl	Age cohort
	.	f	c	erupting	23		16-20 months	Prime-aged
	a	d	a	erupting	18		16-20 months	Prime-aged
h	erupting	b	a		.	dp4	12-15 months	Juvenile

Other mammals are present in low numbers. We identified two hare bones (femur and tibia), two rabbit bones (innominate and tibia), two dog metapodials, and six cat bones from at least one individual.

4.2 Birds

We identified 250 bird bones within this assemblage. Aside from unidentified fragments, chicken is the most important bird (fig.11). The meaty leg bones were more frequently found than wing bones (fig.12). Pheasant, duck, and goose are other important avian species. The collection is quite diverse with some surprising taxa like barn owl, grey heron, stork, northern gannet and quail. The unidentified bird remains are mainly juvenile elements (60% NISP) and adult long bone fragments. Six other juvenile specimens were positively identified as chicken.

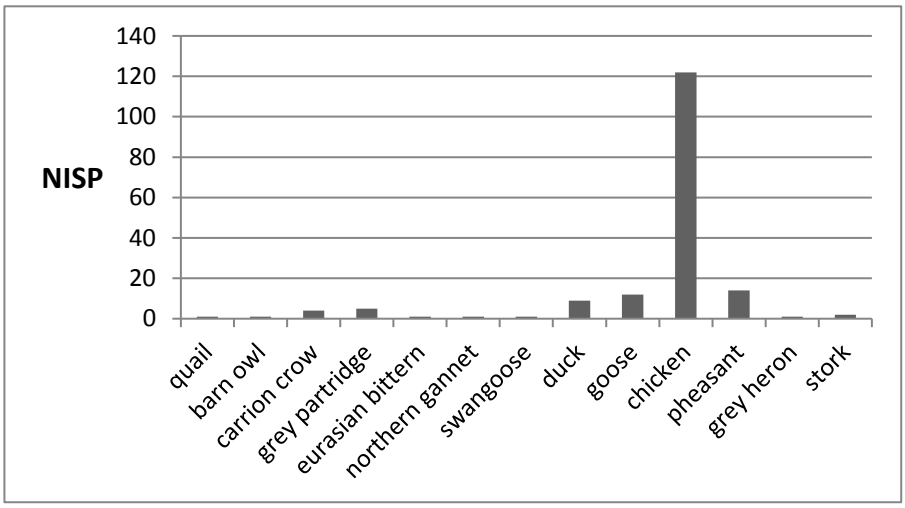

Fig.11:Species-specific bird remains in order of increasing body size by NISP

Fig.12: ratio of wing and leg bones of chicken (MAU)

4.3 Shellfish and fish

Shellfish comprises 12% of the NISP counts from this context (table 1). Less than 200 half shells of oysters were found in the Ximenez assemblage. Mussels and a small amount of cockles are present as well. As mentioned above, the sediments were not sieved. The small number of fish bones is therefore not surprising (table 1). The remains that were recovered are mainly large vertebrae (1-3cm in diameter).

6. Discussion

Cattle, sheep/goat and pig are found in fairly large quantities at the site. For the Ximenez family sheep/goat is the most commonly represented category of animals, whereas the contribution of pig bones is rather low. Pig is not kosher in Jewish households (Valenzuela-Lamas et al., 2014), so the presence of it in the diet of the Ximenez family supports the idea of them being Catholic. The amount of sheep/goat in the Ximenez assemblage is surprisingly high, however. A dominance of these ovi-caprines is not observed in any contemporary Belgian site (Cooremans et al., 1993, De Wilde et al., 1994, Wouters et al., 1994, Boone et al., 2002, De Groote et al., 2004, De Clercq et al., 2007, Troubleyn et al., 2009, Thys and Van Neer, 2010). The most likely explanation for this is the Portuguese origin of the Ximenez family. In post-medieval Portugal and Spain more sheep/goat is found in zooarchaeological assemblages. Sheep was commonly consumed by all social groups, for example as lamb stew (Grigg, 1999, Chabran, 2002, Correal et al., 2006, Davis, 2008).

The anatomical representations are useful in determining the social and religious identity of the Ximenez family. Special butchering methods are followed by Jews in order to remove all the veins from the meat and bones of the slaughtered animal (Valenzuela-Lamas et al., 2014).The clear dominance of hind limb elements and the presence of several innominate bones is additional evidence of a Catholic religious affiliation of the Ximenez family. Consumption of certain body portions can also be linked to status in some cases (Ashby, 2002, DeFrance, 2009). In medieval Europe the body parts with the best meat and largest amount of meat are generally selected by the elite. These are mainly upper hind limb and front limb elements (Ashby, 2002, Ervynck et al., 2003). Both sheep/goat and cattle are mainly represented by hind limb elements, the best parts of these animals. Even for the other animals such as pigs, the Ximenez family preferred front and hind limb elements.

Historically, many wealthy families in medieval Europe tend to prefer younger animals for consumption (Ashby, 2002, Ervynck et al., 2003, Van der Veen, 2003). The juvenile-dominated age pattern of cattle is a clear reflection of the wealth of the site's occupants. Sheep/goat combines the slaughter of very young animals and prime-aged adults. The inhabitants probably favoured eating juveniles and the animals that were chosen to survive were kept for wool production. Based on long bone fusion, pigs were also slaughtered at very young ages.

The presence of wild mammals is always a major issue in social zooarchaeology (Ashby, 2002, Ervynck et al., 2003). Especially in medieval Flanders, access to woods and hunting was restricted to specific social classes. The amount and presence of both large and small wild game can thus be used in order to further evaluate the social status of the inhabitants of the "Blauwhof". Large wild game is completely absent in the "Blauwhof" assemblage. Conversely, small game was at least a minor part of the diet of the Ximenez family, as is evidenced by the presence of a few hare bones. The number of elements recovered is rather low suggesting a minor influence of small game, though this might be a result of excavation methods since the sediments were not screened. Lagomorphs are also not considered to be kosher in the Jewish faith (Valenzuela-Lamas et al., 2014).

Birds are another important indicator of social status. Like wild mammals, hunting of wild birds can be connected to a high social status (Albarella and Thomas, 2002). Wild birds such as pheasant, grey partridge and quail were identified. The presence of these birds suggests that the Ximenez family was probably Catholic, as they are also not included in the list of Kosher food (Valenzuela-Lamas et al., 2014). Grey partridge was a favourable item on elite tables of Western Europe (Goddeeris et al., 2002) and pheasants were also found at banquets. They were highly valued, as expensive as a peacock or swan and often depicted on the banquet paintings of Frans Snyders (Goddeeris et al., 2002) (fig.13). The Ximenez family also consumed stork, grey heron and Eurasian bittern, all bird species linked to aristocratic households present in the work of Frans Snyders (Goddeeris et al., 2002) (fig.13) and presented to impress guests (Thys and Van Neer, 2010). Domestic birds like fowl, ducks and geese are found in large quantities, but this is not uncommon for wealthy diets during the 16th and 17th century where domestic bird bones could account for up to 90% of the total bird assemblage (Albarella and Thomas, 2002).

Fig.13: "Still-Life with Fowl and Game" by Frans Snyders (1614) with pheasant, grey partridge, grey heron and stork. (http://commons.wikimedia.org/wiki/File:Frans_Snyders_-_Still-Life_with_Fowl_and_Game_-_WGA21535.jpg#file)

No exotic bird or mammal species were identified in the Ximenez assemblage; so trade apparently did not influence the species spectrum at the "Blauwhof".

Some final observations are linked to the category of shellfish. These food items are not expected in Jewish diets and provide yet another line of evidence for a Christian religious affiliation of the Ximenez family (Valenzuela-Lamas et al., 2014). As merchants, this family would have had access to the sea, but they apparently did not use this advantage to acquire large amounts of seafood. This is despite the fact that oysters experienced an increase in social significance and were a rich food item restricted to the wealthiest part of society in post-medieval Flanders (Ervynck et al., 2003, Van der Veen, 2003).

7. Conclusion

The zooarchaeological assemblage found at the "Blauwhof" site is a useful indicator for determining the social identity of a Portuguese merchant family.

The Ximenez family, who built the "Blauwhof", offered their guests a wealthy diet with young cattle, sheep and goat, the best cuts of meat and small game. The large variety of hunted birds like pheasant and partridge and special bird species like grey heron and stork were further used to display their wealth. This Portuguese family used the non-Iberian habits to confirm their high social status, but with the dominance of sheep/goat they stayed loyal to their origin. Trade had no real influences on this diet, as no exotic species were consumed and the amount of seafood is low. The consumed animal species and sheep/goat elements confirm that the Ximenez family were true Christians.

This research on the animal remains of a post-medieval estate in Flanders provides an important zooarchaeological case study to understand social status, religious identity and trade. Together with historical texts and the other material culture, diet can be used to investigate these major themes in medieval archaeology. A great advantage of zooarchaeology is that subtle patterns, like the Portuguese tastes of the Ximenez family, are apparent, even though this is absent from the material culture. A thorough zooarchaeological investigation is therefore critical to find out the complete story behind a medieval site.

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