

### ~~III.2~~ The Animal Bones from Excavations at St. Agata, 1994-1997

La 1b

#### Introduction

To date, faunal remains have been recovered from four sets of excavations – from 1994 to 1997 – at the site of St. Agata, recovered from contexts spanning from the late-9<sup>th</sup> century when the settlement was first established, to the 11<sup>th</sup> century when the site was finally abandoned. The assemblage was recorded and analysed in 2007. 31 contexts contained animal bones (*tab. 1*). 238 fragments had been recovered from 3 contexts in 1994; 207 from 15 contexts in 1995, 780 from 3 contexts in 1996 and finally 933 from 10 contexts in 1997. A total of 2158 bone fragments were recovered of which 825 (38%) could be identified to species (*tab. 2*). The assemblage was divided into three broad phases which included contexts with overlapping periods:

- The early settlement. Period III (end of 9<sup>th</sup> century – beginning of 10<sup>th</sup> century).
- The fortified village. Period IV (10<sup>th</sup> – beginning of 11<sup>th</sup> century).
- Abandonment. Period V (11<sup>th</sup> century).

The largest sample of bones, including identifiable fragments, was obtained from the overlapping phase of period III-IV (see *tab. 2*). Overall, 16 contexts (52%) were moderately preserved, 8 were well preserved and only 5 were poorly preserved, although the latter (context 953; Period III-IV) includes one of the largest numbers of fragments in the assemblage. Overall, around 50% of identifiable bones were well preserved. Gnawing by carnivores and rodents was negligible – recorded on only 4% of the identifiable elements. Likewise the taphonomic effects of erosion (9 fragments) and burning (3 fragments) were insignificant. On the other hand, a significant level of fragmentation is suggested by the high number of loose teeth recovered from the site (138 pig, 23 cow and 15 ovicaprid).

#### Species representation

The identified material is composed of at least ten mammal and two bird species (*tab. 2*). Two examples of fish could not be identified to species. Since all the bones were hand collected and no sieving took place during the excavations, the predominance of large to medium-sized mammals in the assemblage is unsurprising. Two techniques for abundance estimations were employed: NISP (number of identified specimens) and MNI (minimum number of individuals) (REITZ, WING 2000: 191; KLEIN, CRUZ-URIBE 1984: 24-37), in order to make quantitative estimates of the relative abundance of the mammal bones found. The NISP count was calculated as a sum of fragments for each species and split by period (*tab. 2*). The MNI count for the assemblage as a whole was not calculated as a direct proportion of the NISP (*tab. 3*), but from the MNE (minimum number of elements) by summing the zones of each element to find the most abundant, then taking the number for the most abundant element to represent the MNI for the species overall (see HAMBLETON 1999).

The major domesticates – ovicaprids (*Ovis aries/Capra hircus*), cattle (*Bos taurus*) and pigs

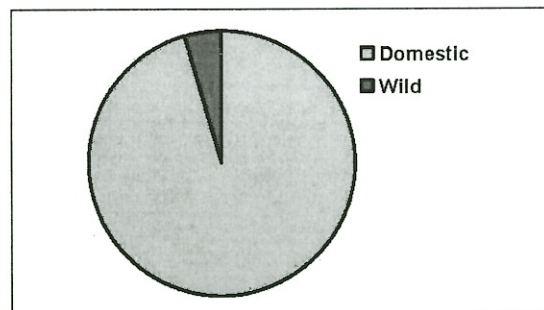


fig. 1 – The relative proportion of wild and domestic mammals.

Excavation year	Context no.	Number of animal bones	Identifiable	Preservation	Period	
1994	15	4	1	Poor		
	45	2		0	Poor	
	75	232		100	Poor	IV-V
Total bone fragments:		238	101			
1995	400	12	9	Moderate	V	
	403	1		1	Moderate	
	426	4		3	Moderate	
	430	1		0	Moderate	IV
	448	66		30	Moderate	IV
	461	1		1	Moderate	III-IV
	463	10		2	Moderate	IV
	467	11		4	Moderate	
	469	7		3	Moderate	
	475	21		10	Moderate	IV
	478	25		9	Moderate	IV
	483	2		1	Moderate	
	492	19		8	Moderate	
	500	11		4	Moderate	IV
	524	16		12	Quite good	
Total bone fragments:		207	97			
1996	4	351	149	Good	V	
	792	103		42	Moderate	III
	953	326		95	Poor	III-IV
Total bone fragments:		780	286			
1997	75	74	29	Good	IV-V	
	441	9		8	Good	
	442	122		61	Good	IV
	498	70		36	Good	IV
	503	17		17	Good	
	526	39		18	Poor	
	567	134		43	Moderate	IV-V
	582	3		1	Good	
	957	332		109	Good	III-IV
	1305	132		20	Poor	III
Total bone fragments:		932	342			
Total bone fragments in assemblage:		2157	826			

tab. 1 – Contexts at St. Agata with animal bones and their preservation conditions.

(*Sus scrofa*) – represent the largest proportion of identified species in all contexts, with wild mammals only representing a fraction (4.4%) of the assemblage (fig. 1).

### Period Representation

Three major phases of occupation were identified at the site, with two overlapping phases. Whilst the limited dataset cannot be used to identify any significant chronological trends, the range of fauna present at the site is generally consistent throughout its occupation.

III (end of 9<sup>th</sup> century-beginning of 10<sup>th</sup> century)

This phase yielded the smallest datable sample of animal remains. The full range of major domesticates are represented (including chicken), along with the only example of a dog from the site as well as roe and red deer.

III-IV (end of 9<sup>th</sup> century-beginning of 11<sup>th</sup> century)

The largest number of bones is associated with this overlapping phase, although only just under a third could be identified to species. Pig



### III.2 THE ANIMAL BONES FROM EXCAVATIONS AT ST. AGATA, 1994-1997

Species	Period III	Period III-IV	Period IV	Period IV-V	Period V	Unphased	ΣTotal
Cow	30	25	57	39	44	6	201
Sheep/Goat	8	26	11	3	10	3	61
Pig	17	148	61	86	71	42	425
Horse		3	16	21	27	19	86
Dog	1						1
Red deer	3		3	3	1	2	12
Roe deer	1	1	1			1	4
Cervid spec.						1	1
Hare				17			17
Beaver			1				1
Rat		1					1
Domestic fowl	2	1	2	2	5	2	14
Buzzard spec.				1			1
UUM	84	200	38	92	82	14	510
ULM	54	62	37	127	59	12	351
UMM	33	189	93	37	53	27	432
UUB	2	2	6	12	11	5	38
UUF		2					2
Total no. of fragments	235	660	326	440	363	134	2158
Total no. of identifiable fragments	62	205	152	172	158	76	825

tab. 2 – Species representation from St. Agata as ΣNISP (total number of identified specimens present), sub-divided according to phase and synthesising data from all four excavations. Key – UUM: unidentified mammals; ULM: unidentified large mammal; UMM: unidentified medium mammal; UUB: unidentified bird; UUF: unidentified fish.

Species	Period III	Period III-IV	Period IV	Period IV-V	Period V	ΣTotal
Cow	1	2	5	2	2	12
Sheep/Goat	2	2	2	1	1	8
Pig	1	4	7	3	3	18
Horse		1	2	2	1	6
Dog	1					1
Red deer	1		1	1	1	4
Roe deer		1	1			2
Hare				1		1
Beaver			1			1
Rat		1				1
Domestic fowl	2	1	2	2	2	9
Buzzard spec.				1		1

tab. 3 – Species representation at St. Agata by MNI, calculated from MNE for each context and sub-divided according to period.

remains dominate this and subsequent phases of occupation, whilst sheep/goat numbers remain consistently low. Horse appears. A single bone from a rat (*Rattus rattus*) is invariably a chance find.

#### IV (10<sup>th</sup>-beginning of 11<sup>th</sup> century)

The relative proportions of species evident in the previous overlapping phase continue in phase IV, with the addition of a single fragment of beaver pelvis (*Castor fiber*). Alongside the presence

of two species of cervid, this contributes to an impression of access to diverse local habitats.

#### IV-V (10<sup>th</sup>-11<sup>th</sup> century)

The second overlapping phase yielded the second highest number of animal bone fragments. Again, the relative proportions of species remain the similar. The range of wild species exploited at the site is extended further with the presence of hare, represented by a group of bones most likely from a single animal.

V (11<sup>th</sup> century)

This phase continues the pattern established from phase III-IV. In the final phase of occupation pigs were, comparatively, still the most important domesticate at the site. Opportunistic exploitation of wild fauna continued, as suggested by the presence of a single fragmentary red deer metacarpal.

## Unphased

135 bone fragments representing the majority of species at the site could not be assigned to a datable context.

## Species Representation

## Pig

Pigs represent the most abundant species throughout the occupation at the site (over 50% of identifiable fragments). The representation of pig bone elements is dominated by mandibles and front limb bones although with the exception of vertebrae, almost all body parts are represented (fig. 2). This suggests that whole carcasses were slaughtered on site and taphonomic factors have skewed the recovery of post-cranial elements.

19 pig mandibles provided tooth ageing evidence (using GRANT 1982), alongside fusion data (tab. 4). Pigs are bred exclusively for meat, so a higher proportion of juvenile animal remains

are usually recovered from such a site. The accumulated data for pig demonstrated an overall Grants mandibular toothwear score of 28 when averaged; this would indicate an age at death profile of between 14 and 21 months old. This point having been made, it is worth noting that six individuals demonstrated an age at death that was lower than this estimate. This was evidenced from unerupted third molars and the presence of the deciduous P4. The limited epiphyseal fusion dataset indicates the presence of both juveniles and mature individuals (tab. 4), but with a  $\Sigma$ NISP of 44, and the highest number for a single chronological phase (IV) summing only 17, no clear conclusion can be reached.

The presence of very old animals is further confirmed by an example of a pig mandible displaying evidence of heavy tooth wear and some periodontal disease (figs. 3-4). In both feral and domestic pigs, prevalence of periodontal disease increases with age (SAMUEL, WOODALL 1988).

## Cattle

Cattle represent the second most abundant species at the site. Mortality profiles for cattle were constructed from fusion data (tab. 5) since tooth wear could only be recorded from a single mandible (stage 7, period IV). The pattern of epiphyseal fusion indicates the consistent presence of both mature and juvenile animals at the site. It is difficult to say anything more specific about the demography of cattle brought into the site because only a few fragments are available for each chronological phase.

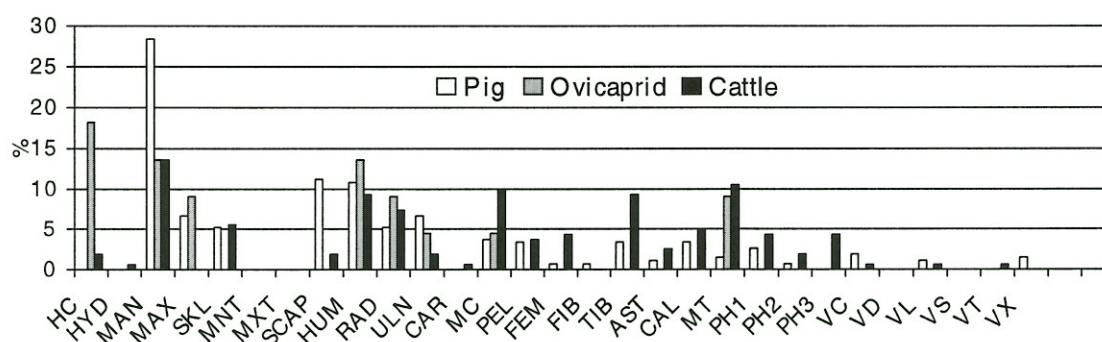


fig. 2 – Relative percentages of skeletal element representation of Pig, Cattle and Ovicaprids. HC = horncore; HYD = hyoid; MAN = mandible; MAX = maxilla; SKL = skull; MNT = mandibular tooth; MXT = maxillary tooth; SCAP = scapula; HUM = humerus; RAD = radius; ULN = ulna; CAR = carpal; MC = metacarpal; PEL = pelvis; FEM = femur; FIB = fibula; TIB = tibia; AST = astragalus; CAL = calcaneum; MT = metatarsal; PH1 = phalanx 1; PH2 = phalanx2; PH3 = phalanx3; VC = cervical vertebra; VD = caudal vertebra; VL = lumbar vertebra; VS = sacral vertebra; VT = thoracic vertebra; VX = vertebra unassigned to region.



Age (in months)	Element	Unfused			Fused						
		A	B	C	D	E	A	B	C	D	E
12-20	pelvis									3	3
	Scapula				1	1		2	3	1	1
	p. radius										
	p. phalanx 2								3	1	
	d. humerus				1	1		2	6	5	4
Total											
24	p. phalanx 1			1				4	2		
	d. tibia			1				4	2		
Total											
24-30	d. fibula.		5	1	1						
	Calcaneus		5	1	1						
Total											
36-42	p. femur									1	
	d. ulna				1						1
	d. femur			1		1					
	d. radius		1	1	1						
	p. humerus			3							
	p. tibia		1	5	2	1				1	1
Total											

tab. 4 – Epiphyseal fusion data for pig by phase: A = III; B = III-IV; C = IV; D = IV-V; E = V.

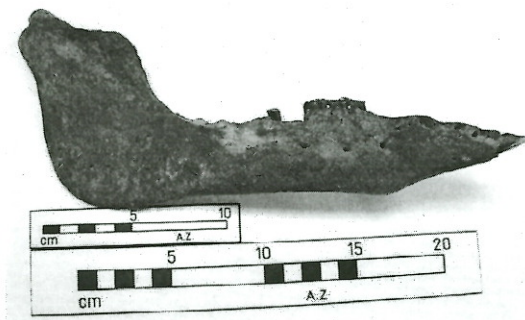


fig. 3 – Pig mandible.



fig 4 – Pig mandible.

### Ovicaprids

Ovicaprids (Sheep/goat) are poorly represented at the site compared to pigs and cattle, despite comparatively more evidence for the working of goat than cow horns. The age profile constructed from epiphyseal fusion data indicates that relatively young animals – less than a year old – were killed, with no evidence for mature individuals aged over 30 months. Only six examples of ovicaprid jawbones could be used for aging and it would be a mistake to over-interpret this data. The collective sample averaged out at a mandibular score of 25, indicating that the individual animals were culled at between one and two years of age. Given the limited dataset no definite conclusions can be drawn from this, except that relatively young ovicaprids supplied at the very least meat and horn for the site. It is possible that the culling pattern also hints at a local demand for fine leather or wool (O'CONNOR 2000: 91).

### Horse

Horses are consistently present at the site from the second phase of occupation. Epiphyseal fusion data in general showed a similar

		Unfused					Fused				
		A	B	C	D	E	A	B	C	D	E
12-20	p. phalanx 1							2	1	2	1
	p. phalanx 2									1	
	p. radius						1	2	1		
	d. humerus						2			2	1
Total							3	4	2	5	2
24-30	d. tibia			1	2				1	1	1
	d. metapodials			1	1		1	1	4	5	4
Total				2	3		1	1	5	6	5
42-48	p. humerus		1				1				
	p. femur			1	1						
	p. tibia								1		
	d. radius			2		2		1			
	d. femur				1	1					1
Total			1	3	2	3	1	1	1		1

tab. 5 – Epiphyseal fusion data for cattle by phase: A = III; B = III-IV; C = IV; D = IV-V; E = V.

Age (in months)	Element	Unfused					Fused				
		A	B	C	D	E	A	B	C	D	E
8-10	scapula										
	p. radius			1		1	2		1		1
	d. humerus		2	1							
Total			2	2		1	2		1		1
12-24	p. phalanx 1			1					1		
	p. phalanx 2										
	d. tibia		1								
	d. metapodials										
Total			1	1					1		
30-36	p. ulna										
	p. femur										
	calcaneus										
Total											
36-48	d. humerus										
	p. tibia										
	d. radius										
	d. femur										
Total											

tab. 6 – Epiphyseal fusion data for sheep/goat by phase: A = III; B = III-IV; C = IV; D = IV-V; E = V.

pattern to cattle, with early and late fusing elements present in most of the phases. Clearly horses played an important role at the site, with juveniles and adults represented in the assemblage.

#### *Other Domestic Mammals*

A single femur from a dog was identified (period III), with a fused distal epiphysis. It came from a robust individual, but was too small for a wolf



Age (in months)	Element	Unfused					Fused				
		A	B	C	D	E	A	B	C	D	E
Early fusing	Scapula D								1		
	Acetabulum										
	Radius P								1	1	
	Humerus D			1						1	
	1st Phalanx							2	2		
	2nd Phalanx P								1		
Total				1				2	5	2	
Later fusing	Tibia D				1				2		
	Metapodial D			1	1	1					
Total				1	2	1			2		
Late fusing	Calcaneus P								1		
	Femur P		1		1			1		1	
	Humerus P										
	Femur D		1								
	Tibia P								3		
Total			2		1			1	4	1	

tab. 7 – Epiphyseal fusion data for horse by phase: A = III; B = III-IV; C = IV; D = IV-V; E = V.

when compared with bones in the collection of the Graeme Clarke laboratory in Cambridge.

#### Wild Mammals

As with the majority of medieval sites, wild mammals represent a fraction of all identifiable species. However, the site yielded a slightly higher diversity of species than might be expected from such a settlement. Red and roe deer are present; the former in slightly higher numbers and throughout the occupation of the site. Red deer are mostly represented by lower limb bones; a single first phalanx, metapodial, two metacarpals and four metatarsals, as well as the proximal fragment of an ulna, a piece of mandible and antler. The epiphyseal fusion data indicates most of these bones derived from adult animals. Roe deer are represented by two metatarsal and cranial fragments, again the limb bones are from mature individuals. This consistent, albeit limited, exploitation of cervids is contrasted with 17 hare bone fragments most probably derived from a single animal (period IV-V). Evidence for fusion was only present on a single bone; a femur was unfused at both ends indicating a juvenile. A small fragment of beaver pelvis was identified after comparison with reference collections in Cambridge, completing an impression of limited

and intermittent hunting within the hinterland of the site. A femur from a rat (period III-IV) massively under-represents the site's commensal population. In summary, the small dataset does not allow the exploitation of wild mammals to be linked to specific social or economic contexts. However, it can contribute towards an understanding of local environmental conditions (see general discussion below).

#### Birds

With the exception of a single tarsometatarsus which can be assigned to the buzzard family, all bird bones were identified as belonging to domestic fowl (*Gallo gallus*). Since there were only 14 fragments, they provide no information other than the continued keeping of chickens at the site from the late-9<sup>th</sup> to the 11<sup>th</sup> century, with evidence for cockerels from two tarsometatarsi bearing spur marks.

#### Evidence of butchery and bone working

Butchery marks were only found on 24 bones, representing the processing of carcasses for consumption and manufacturing (tab. 8). There is limited evidence for horn working



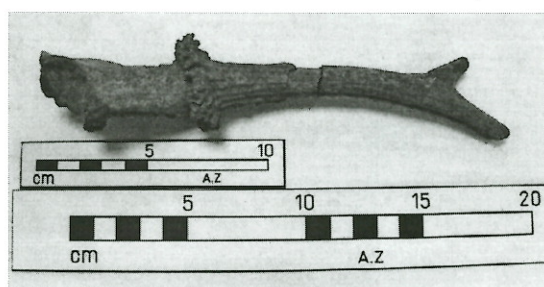


fig. 5 – Roe deer cranial fragment and antler.

Species	$\Sigma$ bones with cuts
Cow ( <i>Bos Taurus</i> )	11
Sheep/Goat ( <i>Ovicaprid</i> )	8
Pig ( <i>Sus scrofa</i> )	1
Roe ( <i>Capreolus capreolus</i> )	2
Unidentified large mammal	1
Unidentified medium mammal	1

tab. 8 – butchery per species.

throughout the occupation of the site, represented by seven butchered horn cores and four bearing no marks from a goat (four from period III-IV, one from IV and IV-V, and one with no assigned period), and five cow horn cores, of which only one had clear cut marks (period IV-V). A single piece of broken antler attached to a fragment of butchered roe deer cranium (fig. 5) may have been removed with the intention of working it, but there is no other evidence for antler processing. Unfortunately this fragment could not be assigned to any particular phase.

### General discussion

The faunal assemblage recovered from four seasons of excavations in St. Agata is very small, and so only limited conclusions can be reached on the nature of animal exploitation at the site. The smallest sample dates to the first phase of occupation (Period III: the end of the 9<sup>th</sup> to early 10<sup>th</sup> century); a permanent settlement organised as an open village and consisting of a set of small houses, one of which was excavated. In the early 10<sup>th</sup> century defensive moats and earth banks enclosed the settlement (Period IV). Excavations focused on a set of buildings in the centre of the site, and suggested the village was

abandoned at the beginning of the 11<sup>th</sup> century. When the settlement was abandoned (Period V), the site was completely modified. All previously constructed buildings were destroyed in a short period of time, after which only a single building was built to the side of the previously occupied zone. The area enclosed by the moats became used for cultivation.

Pigs appear to have consistently been the most important animals at the site, representing 52% of the total number of identified bones. Horses were clearly present at the site throughout most of its occupation. Although the limited dataset has prevented any demographic reconstruction for any of the species deposited at the site, it is clear that juvenile pigs, ovicaprids and cattle were being killed, and as one would expect, mature individuals were also being maintained. The exploitation of wild animals was comparatively very limited. Hare, red and roe deer were occasionally hunted – presumably for their meat – whilst there is no conclusive evidence from this assemblage of antler working. The modest evidence for butchery and bone working points to the continuation of carcass processing for consumption and manufacturing throughout the occupation of the site. The presence of beaver suggests exploitation for fur, and possibly meat, but there is no further evidence of fur-working at the site and this example contributes to an overall impression of opportunistic hunting. Nonetheless the presence of these animals suggests access to their habitats within the hinterland of the site. Beaver, red and roe deer, as well as buzzard point towards the presence of broken woodland, whilst hares tend to favour more open farmland and meadow landscapes. This ecological niche would have suited the full range of domestic animal husbandry practiced at the site. In summary, the evidence hints at a high-status biological profile for the site in comparison with other contemporary and later medieval faunal assemblages in north Italy. However, the bones were recovered from multiple contexts across a broad excavation area, and only a limited number could be identified to species. As such it is difficult to take this impression any further.

### Acknowledgements

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