AML Report 3612
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BATTLE ABBEY.

Appendix XI : The Faunal Remains.

3,877 mammal, bird and fish bones were examined from the 1978-80 excavations. Bone from recent layers (eighteenth century and after) was counted on site but was not kept for examination and has not been included in any of the calculations. Archaeologically the material studied falls into two main groups: the material from the monastic period and that from the post-dissolution period during which the abbey site was used as a country house for the Browne family. The monastic period has been divided into three with the great rebuilding of the thirteenth century as the central division (period B). Period A represents monastic use before this, and period C that of the later Middle Ages. Period D represents the post-dissolution period up to about 1700 and has been divided into the dissolution layers to the north of the reredorter (D21-22), other phases in the reredorter area (D28-30) and those in the chapter house area (D20, 23a, 24-28). In the case of the latter the figures cannot be complete. The thick rubbish layers within the chapter house continued accumulating into the eighteenth century and the bone material was therefore discarded in 1978.

Only eighteen percent of the bone came from the monastic deposits (ie A, B and C). The reason for this is related to the change in use of the excavated area. In the pre-dissolution period these areas were part of the inner court of the monks and

being an integral part of their living quarters would have been kept relatively clear of debris. Significantly most of the bone from these periods came from two phases when the ground level was deliberately raised in parts of the refectorter area (B7 and C14). Later, after the dissolution, when the abbey was converted into a country mansion, the focus of occupation changed and these areas became peripheral to the main house and so much more debris accumulated. It is fortunate that the Cellarers' Accounts from 1275 to 1513 can help compensate for the paucity of bone from this period (Searle and Ross 1967).

Summary tables have been included to show the distribution of species for each division of the site and the measurements are those used by Jones et al (1981, 95-135). Detailed tables showing both the species and the anatomies recovered are available in a fuller version of the report (Ancient Monuments Laboratory Report number 3612).

THE MAMMALS.

The following species were identified, ox (Bos sp.), pig (Sus sp.), sheep (Ovis sp.), horse (Equus sp.), fallow deer (Dama dama), dog (Canis sp.), cat (Felis sp.), rabbit (Oryctolagus cuniculus), hare (Lepus sp.), badger (Meles meles), hedgehog (Erinaceus europaeus), rat (Rattus sp.), vole (Arvicola sp.), and housemouse (Mus musculus).

Since the amount of material from periods A, B and C is so small

it would be unwise to regard any differences between them as significant (see tables). However the trend from all three periods seems to imply that numerically pig was the most important species (29%), followed by cattle (21%), and sheep (18%) respectively. In period D although pig is still common ox and sheep appear more frequently, ox forming 21%, sheep 21%, and pig 15 or 16% depending on whether the whole individual from D23a is included. It is difficult to know whether this represents a decline in the importance of pig or a reflection of the distribution of debris changing with the occupation site.

Butchery marks were observed on the bones of species that were eaten, together with a high degree of fragmentation. In all periods the vertebrae of ox, sheep and pig were chopped axially, there seemed to be no difference in the mode of butchery between pre and post-dissolution deposits, although there may be too little material from the early periods for any differences to show.

The main limb bones of cattle were chopped across the shaft area and also at the proximal and distal ends. Astragali and calcanea were sometimes chopped axially, and with regard to the pelvis chopmarks were observed about the acetabulum. Knifecuts on some limb bones and ribs may be evidence of the boning out of meat.

Sheep limb bones were also chopped about the proximal and distal

ends and the shaft area. Three femora from the post-dissolution period showed overlapping knifecuts encircling the midshaft area. he purpose of this is unclear, but similar cuts have been found on sheep humeri in other sixteenth century deposits at Nonsuch Palace (Locker in prep), Baynards Castle circa 1520 (Armitage 1977, 148), and St Mary's Ospringe (Wall 1980, 239). The horn core of a ram was sawn off at its base.

Butchery of pig was less well defined, possibly because the animals are usually slaughtered before full maturity and evidence of butchery may be less clear on porous bone. However chopmarks were found on the shafts of humeri and femora and on the mandible in the area of the alveoli of the first molar and across the incisive area. The proportion of pig mandibles appears to be high, especially in the post-dissolution periods, these are usually heavily fragmented. Two metatarsals of fallow deer from period C showed evidence of knifecuts, as did two metatarsals from period D, also from period D were two fragments of antler that were sawn. None of the antlers from the site showed any evidence of having been removed from the skull, some had definately been cast so it is possible that cast antlers were collected for working.

A calcaneum of a hare from period D was chopped, and a knifecut was noted on the shaft of a rabbit tibia, also in period D as were the following; the humerus of a dog with knifecuts on the distal end, knifecuts on a dog astragalus, and two possible

Knifecuts on a cat ilium.

Very few remains of horse found and these were mostly loose teeth.

With regard to ageing only in pig were there enough suitable fragments of mandible for any comment to be made. Excluding the whole individual from 23a thirty three mandibles contained sufficient teeth to be aged, only five of these came from the monastic use of the site. Seventy nine percent of these mandibles appear to be over two years old , see figure 1, the stage of eruption has been calculated using Silver's old data (1969,299) which although the actual ages may be inaccurate should give some idea of the relative stages of eruption.

The whole pig from 23a was female (Armitage pers. comm.) and had all its teeth fully erupted and in wear, indeed some teeth were quite heavily worn and using Grant (1975, 440-450) a value of 50 was obtained. However when taken in conjunction with the state of epiphyseal fusion which was incomplete an age of around three years is indicated (Silver 1969, 285), which might suggest that the food the animal was eating was particularly abrasive. A shallow grave had been dug in which the entire carcase was placed, no evidence of butchery was found. Two ribs showed healed fractures, and there was slight collapse of the last lumber and first sacral vertebrae. The cause of death is not evident, but

whatever it was this animal was considered unsuitable for eating.

A number of immature and porous bones were also present representing calves and piglets in the post-dissolution periods and according to the Cellarers' accounts calves, piglets, lambs and kids were quite common in the monastic period also (Searle and Ross 1967, 18) but there is no bone evidence for the latter two. The best part of a sucking pig was the skin and ears, and of hares and rabbits the saddle or back (Stewart 1975, 100).

Rodent and canid gnawing was found on some bones in the post-dissolution deposits, which may suggest these bones were not immediately disposed of, but remained lying around for a while where they were chewed by dogs and various rodents.

Up to the time of the Dissolution the monks were able to eat meat as part of the main meal three days a week out of fast seasons, fish or eggs forming part of the main meal on the other four days (Searle and Ross 1967, 18). The manors around the Abbey were the main suppliers of meat and dairy products (much of the latter went to the Abbot's household), purchases were also made from Battle market. The Abbey bought both live animals and carcasses as in 1275 when expenses include.....for beef bought 73s 9d, six ox carcasses bought against the arrival of the King 40s, bull and three heifers 18s, eighty sheep for the kitchen 66s 8d, mutton 115s 3d, pork 3s, one lamb 6d.....(Searle and Ross 1967, 41).

Cattle and pigs are listed in the stock totals according to age and sex.

Much of the meat was probably dry salted, other methods included green salting in brine overnight (the meat would last for a few days in the summer or a few weeks in winter) or for longer keeping it was steeped in brine for several days and then hung in a dry and smoky atmosphere, for consumption this hard salt beef had to be simmered in water with hay or bran to get rid of some of the salt (Wilson 1973, 87).

The cellarer's store was drawn on by a number of kitchens including that of the convent, guest house and the Abbot's household, and by the late fourteenth century the monks had had to provide so much hospitality that the cellarer frequently over ran the budget.

Note of the purchase of rabbits is often made, these are usually included with the birds, until the seventeenth century the term rabbit was used for a young coney less than a year old, also known as rabbit suckers or rabbit runners depending on their stage of development, and were very well regarded for food (Wilson 1973, 83), whether the cellarers accounts refer to rabbits in this sense is not clear.

The fallow deer was counted as the second most noble game after the red deer stag and the hare the fourth after roe deer, both are found in pre and post-dissolution deposits, but are not mentioned in the accounts. Hares and coneys could also be coursed on foot as poor man's game (Wilson 1979, 83).

The fragments of badger from outside of the reredorter were in far poorer condition than contemporary bones perhaps these had lain around on the surface for some time before becoming incorporated into the deposit The remains of cat and dog are probably those of household pets, and it is interesting to note that the small mammal remains are all from post-dissolution deposits when this area was abandoned for habitation.

THE BIRDS.

490 bird bones were found, of these only 8.5 percent came from the monastic use of the site The majority of bone came from the outside of the reredorter in the post-dissolution period. The species are tabulated in table 2.

The following species were identified; domestic fowl (Gallus sp.), goose (Anser sp.), mallard (Anas platyrhynchos), teal (Anas crecca), pigeon (Columba sp.), ?swan (Cygnus sp.), buzzard (Buteo buteo), goshawk (Accipiter gentilis), woodcock (Scolopax rusticola), lesser black-backed gull (Larus fiscus), raven (Corvus corax), crow (Corvus corone), rook (Corvus frugilegus),

jackdaw (Corvus monedula), blackbird (Turdus merula), ?greenfinch (Carduelis chloris), chaffinch (Fringilla coelebs), snipe (Gallinago gallinago).

The most commonly occuring species in the monastic period are domestic fowl, goose and pigeon. Examination of the accounts does not seem to add many other species, but these three are regularly mentioned, and seem to have been bought in substantial numbers. Large numbers of pigeons were frequently purchased from the manor at Alfriston. In 1395 to 96 the cellarer purchased 12 swans for 20s and 794 pairs of pigeons from the manor of Alciston for 44s 1d (Ibid 92), and in 1378 to 79 a pair of pigeons cost 2d (Ibid 74) the purchase of partridges and ducks is also mentioned, some poultry was purchased from London. There are some rather unspecific references to other birds that were bought, eg in 1369 to 70 ..... for cocks, hens, capons, chickens, geese and other birds pertaining to poultry bought this year £8 15s (Ibid 62). In the 1319\20 accounts there is a reference to rabbits and birds bought for 32s 9d (Ibid 49).

In the post-dissolution period both the numbers and the variety of species increase many of which would have been eaten including mallard, teal, woodcock, snipe, blackbird, greenfinch etc (most of which were found in D21 22). A great variety of birds is known to have been eaten in the sixteenth and seventeenth centuries, many species are recorded from Nonsuch Palace (Locker in prep) and were nearly all edible. Drummond and Wilbrahim (1958, 61)

list the birds that were fashionable in the sixteenth century and Stewart (1975, 100) says that birds and game were served whole for guests to help themselves, the best pieces were wings of birds that scratched, thighs of birds that flew and the white meat of larger birds such as goose. Only old game birds were eaten in the seventeenth century as the young ones were considered indigestible.

In London the Company of Poulters was set up in the thirteenth century and it may be from one of their shops in the Poultry, or Leadenhall, or Smithfield markets that the poultry from London came from . The tariffs of the Company of Poulters from 1274 and 1634 suggest that swan was the most expensive bird. Of the small birds blackbirds were the most expensive followed by larks, a number of other birds are also mentioned and those found at **Battle Abbey** include woodpigeon, snipe, gull, mallard, finches and 'greenbirds' (Wilson 1973, 118). These probably provided some variety in what would otherwise have appeared to have been a rather monotonous diet.

The corvids were probably scavengers living close to areas of habitation, the buzzard was similarly known as a scavenger, and was common in most of mainland Britain until the second half of the nineteenth century (Sharrock 1976, 106). The goshawk was probably used for hawking, and was flown at such birds as cranes, geese, pheasants and partridges, it was a bird alloted to a

yeoman, (Wilson 1973, 117), so it was not regarded as of a very high status for hawking.

Thirteen examples of butchery were found on the bird bones, these were all on domestic fowl, pigeon and goose, only two chopmarks were found, the rest were knifecuts. Three cases of rodent gnawing were found from the post-dissolution period these bones may have been lying around on the surface for a while.

THE FISH

Handpicking and selected sieving produced 877 fish bones, the latter method gives the optimum chance of recovery. The following species were identified; roker (Raja clavata), eel (Anguilla anguilla), conger eel (Conger conger), herring (Clupea harengus), sprat (Sprattus sprattus), Cyprinidae, cod (Gadus morhua), haddock (Melanogrammus aeglefinus), whiting (Merlangius merlangus), ling (Molva molva), tub gurnard (Trigla lucerna), turbot (Scopthalmus maximuus), plaice (Pleuronectes platessa), and flounder (Platichthys flesus).

Sixty seven percent of the bone came from the post-dissolution deposits.

All the fish could have been caught off the south coast of England except ling whose range does not extend farther south than the northern part of the North Sea. Cod were caught in deep

water using lines, while closer to shore flounder are caught from the shoreline to depths of 55 metres, turbot from the shoreline to 80 metres and plaice from 0 to 200 metres, these would be caught with a combination of lines and shoreline traps which trap flatfish as they as they go inshore to feed at high tide. Whiting are found in depths of 30 to 100 metres and haddock from 40 to 300 metres, caught on lines and in nets. Herrings and sprats would have been seasonally netted catches. Conger eels are often found on rocky shores which give them shelter, and are caught on lines. Further information on the habitats of these fish can be found in Wheeler (1978).

From the cellarers accounts herring seem to have been the staple fish for the monks. These are described as being red or white depending on the curing process. White herring was traditionally gutted and washed as soon as it was caught, left in brine for a day, then drained and barrelled. Red herring after being cleaned and soaked in brine for a short period were strung by the head on wooden spits and hung in a special chimney to be smoked for twenty four hours (Sass 1977, 44). These methods of preserving herring were developed mainly in the thirteenth century, the dutch method of the fourteenth century which was adopted in Britain was important as the herrings were soaked in brine before being barrelled in salt. The exclusion of air was the important factor as this causes the fat to oxidise and the fish become rancid (Wilson 1973, 33).

The cellarers accounts show that the herrings were purchased in barrels or lasts, in 1306 to 7 ..... lasts and a half of fresh and gutted herrings cost £20 2s 1\4d (Searle and Ross 1967, 47) and in 1351 to 52 five lasts of herring cost £26 (Ibid 56). Each year many thousands of herring were pickled, salted and dried for the storeroom. The lean young fish can be dried, this was practised in Scotland around 1240 (Wilson 1973, 33). This is presumably because they have a lower fat content while young and are therefore less likely to become rancid. The herring fleets visited the south coast each year following the shoals. Sprats would also have been seasonally netted being common in inshore coastal waters, and in their first year would have been exploited as whitebait.

The other main fish recorded in the accounts are cod and mackerel (although we have no archaeological evidence for mackerel), dried cod was referred to as milvell, mulwell, or melewell. The term stockfish also usually refers to dried cod or other cod-like fish. Other fish mentioned include salmon, lamprey (for which there is never any archaeological record since this fish has no skeleton), conger eel, eel, sturgeon, porpoise, and dolphin. According to Stewart (1975, 100) porpoise counted as a fish, and therefore might be eaten by the monks on a fish day, but by the late sixteenth century the eating of porpoise had gone out of fashion (Drummond and Wilbrahim 1958, 58).

The market sources for all these fish are quite varied, Hastings, Winchelsea, Pevensey and Rye were visited by the herring fleet, where the cellarer probably purchased fresh herrings to be cured for the storeroom. There are records of fresh fish being purchased at Winchelsea, Hastings and elsewhere in 1306\7 for £75 (Searle and Ross 1967, 47), also of saltfish bought from Winchelsea in 1351 to 52 for £12 (Ibid 56) and in the same year a porpoise was bought from Dengemarsh for 13s 4d (Ibid 56). Fish were also sold at the gates of the Abbey in Battle itself, although what fish were bought by the cellarer was not made clear. Plaice from Winchelsea and whiting from Rye were esteemed in the fourteenth century, appearing in a number of household accounts, including royal households (Wilson 1973, 33).

Another important market that supplied the monks, and no doubt was just as important to the Browne family was London, this was probably the source of ling. Examples of the fish that were brought from London mentioned in the accounts are; in 1319 to 20 for 100 dried milwell bought at London 63s 4d, for the carriage of the same 3s (Searle and Ross 1967, 50) and in 1369 to 70 for red and white herrings, salmon, sturgeon and others bought in London by the treasurer £14 9s (Ibid 63).In the later fourteenth century the accounts record frequent debts to London fishmongers, some of which were specifically for the purchase of fish.

The monks also owned some fish ponds and a weir at Peppering Eye,

where fish could be caught and served fresh at table (Ibid 17). In 1275 at a cost of 2d the large fish pond was breached against the arrival of the King (Ibid 42). Much was known about the maintenance of fishponds in the medieval period in Britain and although there is no evidence as to what was kept in the Battle fishponds, in Prior More's fishponds in Worcester in the sixteenth century (Hickling 1971, 119) the ponds were stocked with eels, tench, pike, bream, perch and roach. From the fish bone evidence the only fish likely to have been kept in these ponds are eels and possibly the cyprinid from the post-dissolution deposits. Eels may also have been trapped in eel bucks (wicker baskets) stretched across the weir (Wheeler 1979, 61) or in free standing bucks. Baskets called fyke nets can also be laid in tidal areas as illustrated by Tesch (1977, 277). In the accounts of 1369 the purchase of both fresh and salt eels was made, (Searle and Ross 1967, 63). No specific mention is made of the tub gurnard which consistently appears in most deposits, although these are not especially favoured for food they are quite edible and were probably caught accidentally with other fish.

Some comparisons of size were made against modern reference specimens of known size and weight, but these proved to be unremarkable. Only two examples of knifecuts were found, both from the outside of the neurocranium, on a cod post temporal and on a flounder interhaemal. Two haddock cleithra from periods B and C were swollen, however this occurs so frequently with haddock as

to be almost a normal condition.

I would like to thank Mr A Wheeler (BMNH) for all his help and use of his reference collection.

GENERAL REMARKS.

Having presented the distribution of species recovered in the tables this report has tended to focus on the importance of the species rather than their relative importance in the pre and post-dissolution periods. This is for two reasons, firstly as previously mentioned the change in the position of the deposits relative to the occupation area after the Dissolution makes comparison between the two from the aspect of faunal remains irrelevant. Secondly although the rule of St Benedict forbad the eating of the meat of quadrupeds except in times of sickness, this rule was progressively relaxed after 1216 (Wilson 1973, 26). Although the ordinary monk may have eaten relatively frugally they were allowed to eat meat and the Abbot's household and their guests of varying importance must have feasted on quite luxurious items at certain times. So there is no reason to believe that all possible resources were not exploited during the monastic use of the site. The cellarers' accounts are a testament to this, the exploiting of the manors, the purchase of goods from local markets, and the bringing of goods from London by sea down the coast, this being quicker than across the Weald. The goods were brought to Rye by ship and then by road using hired carters to Battle, or by river craft up the Brede as far as it was navigable

(Searle and Ross 1967, 22).

If one accepts that the monks made full use of their own manors and many other markets little change should be expected when after the Dissolution the Abbey became the country house of the Brownes, they would now receive stock and crops from similar sources as the monks. The Brownes, their guests and servants would represent the same varying degrees of status as the monks, their employees, the Abbot and his guests, so the information from the cellarers' accounts is useful for both, indeed little could have been said about the food consumed at the Abbey before the Dissolution had the accounts not been available.

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REFERENCES.

P L Armitage 1977 Report on the mammalian remains from Baynard's Castle, Blackfriars, London. Ph D Thesis. University of London.

J C Drummond and A Wilbrahim. 1958. The Englishman's Food . London. Cape.

A Grant. 1975. The use of tooth wear as a guide to the age of age of domestic animals. In Excavations at Portchester Castle. 1. Roman. (B V Cunliffe) pp 440-450 .

C F Hickling 1971-2. Prior More's Fishponds. Medieval Archaeology. Vol 15-16. pp 118-123.

R T Jones, S M Wall, A M Locker, J Coy and M Maltby. Ancient Monuments Laboratory. D o E. Computer Based Osteometry. Data Capture User Manual. (1). Ancient Monuments Laboratory Report No 3342.

L Sass. 1977. To the Queen's Taste, Elizabethan Feasts and Recipes. John Murray.

ed E Searle and B Ross. 1967. Accounts of the Cellarers' of Battle Abbey 1275-1513. Sussex Record Society 1XV.

I A Silver, 1969. The Ageing of Domestic Animals. In Science and Archaeology, ed D Brothwell and E Higgs. Thames and Hudson. pp283-302.

J T R Sharrock. 1976. The Atlas for Breeding Birds in Britain and Ireland. British Trust for Ornithology. Irish Wildlife Conservancy.

K Stewart. 1975. Cooking and Eating, a pictorial history with recipes. In collaboration with Pamela and Maurice Michael. Hart-Davis, Macgibbon.

F W Tesch. 1977. The Eel. Edited by P Greenwood. English Edition Chapman and Hall.

S M Wall. 1980. The animal bones from the excavation of the hospital of St Mary of Ospringe. Archaeologia Cantiana, published by the Kent Archaeological Society. Vol XCV1 pp 227-266.

A Wheeler. 1978. Key to the Fishes of Northern Europe. F Warne.

A Wheeler. 1979. The Tidal Thames. Routledge and Kegan Paul.

C. Anne Wilson. 1973. Food and Drink in Britain. Constable. London.

Battle Abbey Table 1. Period A

	Cattle	Pig	Sheep	Unident	
Skull frag.		1			
Mandible		5			
Maxilla		1			
Scapula	1				
Humerus		1			
Radius		1			
1st.Phalanx		1			
Femur		1			
Tibia		1	1		
Calcanium	1				
Astragalus			1		
Centroquartal	1				
Rib	3		1		
Os coxae		1			
Vertebrae		2			
Teeth	1	1			
Long bone frag	1				
Fragment				8	
Sub Total	8	16	3	8	Total 35

Battle Abbey Table 2. Period B

	Cattle	Pig	Sheep	Horse	Rabbit	Hare	Unident	
Mandible	1	2	1			1		
Humerus		2	3					
Radius		2	1					
Ulna		5						
Metacarpal	1							
1st.Phalanx			1					
2nd.Phalanx		1						
3rd.Phalanx				1				
Os coxae	5	4						
Femur	1	1			1			
Patella			1					
Tibia	2	3	2					
Calcanium	1	3						
Astragalus		1	1					
Metatarsal	1		1					
Rib	5		4					
Axis			1					
Metapodial		5						
Teeth		2	1					
Long bone frag	1		3	1				
Fragment							48	
Sub Total	18	31	20	2	1	1	48	Total 121

Battle Abbey Table 3. Period C

	Cattle	Pig	Sheep	Horse	Fallow	Rabbit	Cat	Dog	Unident
Skull Frag		4							
Mandible		5							
Maxilla		6	1						
Scapula		1	1					1	
Humerus	3	1	2						
Radius	1	1	2					1	Fox?
Ulna	1	4					1		
Metacarpal	1								
1st.Phalanx	2	3							
2nd.Phalanx		1							
Os coxae	3							1	
Femur	8		8			1			
Tibia		5	7						
Calcaneum	3	1	1					1	
Metatarsal			1		2				
Rib	13		11						
Axis			1						
Thoracic vert	1		1						
Vertebrae	3	1	4						
Teeth		18	1	2					
Metapodials		9				1			
Fibula		3							
Long bone fr	15	2	4	1					1
Fragment									53
Sub Total	54	65	45	3	2	2	1	4	54
									Total 230

Battle Abbey Table 4. Chapter House Area (including whole pig from D23A)
D20, D23A, D24, D25, D26, D27, D28.

	Cattle	Pig 23A	Pig	Sheep	Fallow Deer	Cat	Rabbit	Rat	Vole	Hedgehog	Small Mammal	Unidentified	
Skull		1	1										
Mandible		2	1	1				1	2	1			
Antler					1								
Scapula	2	2	1	1									
Humerus	2	2	2	5									
Ulna		2		2							1		
Radius		2	2	5									
1st.Phalanx	1	4	1	2									
2nd.Phalanx		3		1									
3rd.Phalanx	1	3											
Os coxae	2	2		3									
Femur	2	2	3	1	1?	1	1				1		
Tibia	5	2	1	6	1						1		
Calcanium	1	2		1									
Astragalus	1	1			1								
Rib	21			11									
Atlas		1											
Axis		1		1									
Cervical vert	2	2											
Thoracic vert		15											
Lumbar vert		7											
Sacrum		4											
Vertebrae	2			1									
Teeth			6	3									
Metapodials		15	6										
Fibula		2	1										
Long bone fr	31			6								1	
Fragment	4			13								98	
Sub Total	77	77	25	63	4	1	1	1	2	1	3	99	
												Total	354

Battle Abbey Table 5. Reredorter Exterior 1380
D21, D22.

	Cattle	Pig	Sheep	Horse	Fallow Deer	Rabbit	Dog	Cat	Badger	Hare	Rat	Vole	House Mouse	Small Mammal	Unidentified
Skull frag	1	6							2						
Mandible	4	37	3		1	2			2		1		3		
Maxilla		5							1						
Horn/antler			1		14										
Scapula	6	7	9			1				1			1		
Humerus	6	6	14			4	1								
Radius	12	9	15			3	2								
Ulna	2	6	7			2				1					
Metacarpal	3		3												
1st.Phalanx	8	5	4												
2nd.Phalanx	1	2													
3rd.Phalanx	2														
Os coxae	25	8	25			4		2					2	1	
Femur	23	7	28			5	1	1			2		2		
Patella	2		1												
Tibia	12	8	12		2	6		1		1					
Calcanium	4	2	2				1			1					
Astragalus	3	1					1								
Centroquartal	2														
Metatarsal	7		7		6										
Rib	77		63												
Costal cart	2														
Axis	2		3												
Cervical v.	1		10												
Thoracic v.	10		7												
Lumbar v.	2		1												
Sacrum	1														
Caudal v.			4												
Vertebrae	25	3	11			2							3		
Teeth	6	66	2	5			3					1			
Metapodials		26				9	8			1					
Tarsal	2														
Baculum							1								
Fibula								1							
Long bone f.	45	2	58												12
Fragment	7		9					3*							440
Sub Total	303	206	299	5	23	38	18	8	5	5	3	1	11	1	452

Worked bone 1
Burnt bone 1
* Foetal

Total = 1380

Battle Abbey Table 6. Reredorter Phases D30 31 33 34

	Cattle	Pig	Sheep	Horse	Dog	Cat	Rabbit	Hare	Frog	Unident	
Skull frag			2					1			
Mandible	1		7		1		1				
Maxilla	1	1	4					1			
Horncore			1								
Scapula	7		1			1					
Humerus	4	2	3		1Fox?	2					
Radius	2	4					1				
Ulna	1	2					2				
2nd phalanx		1	1								
3rd phalanx			1								
Os coxae	5	1	2			1	1				
Femur	8		4			2	2				
Tibia	1	4	2			2	3				
Calcaneum	1	2	1								
Astragalus			1								
Metatarsal	3		1								
Rib	11		20		10						
Atlas					1						
Axis			1		1						
Cervical vert	2		2		1						
Thoracic vert	5		16		2						
Lumber vert	1										
Vertebrae	4		3								
Teeth		8	2	1							
Metapodial	1	3			1	1	4	1			
Talus	1										
Fibula		1									
Long bone frag	7	2							12		
Fragment	2		6							148	
Burnt frag										5	
Sub Total	68	31	81	1	18	9	14	3	12	153	
										Total	390

Battle Abbey Table 7.Period A . Birds

	Goose
Tarsometatarsus	1
Total	1

Battle Abbey. Table 8.Period B. Birds.

	Dom Fowl	Goose	Pigeon	Unident	
Scapula	1				
Humerus	2				
Ulna	1				
Carpometacarpus			1		
Femur		1			
Tibiotarsus			1		
Coracoid				1	
Unidentifable				1	
Sub Total	4	1	2	2	Total 9

Battle Abbey. Table 9. Period C. Birds.

	Dom Fowl	Goose	Pigeon	Jackdaw	Crow	Unident	
Coracoid	4	1	1				
Scapula		2					
Fircula		1					
Humerus						1	
Radius		1				1	
Ulna	2			1			
Carpometacarpus		2					
Sternum	3						
Tibiotarsus						1	
Tarsometatarsus		1				1	
Femur		2			1		
Unidentifiable						5	
Sub Total	9	10	1	1	1	10	Total 32

Battle Abbey. Table 10. D20 23a 24 25 26 27 28. Birds

	Dom Fowl	Blackbird	Unident	
Coracoid	1			
Ulna	4		1	
Scapula	1	1		
Tibiotarsus	1	1	2	
Tarsometatarsus	1			
Femur			1	
Os coxae	1			
Unidentifiable			6	
Sub Total	9	2	10	Total 21

Battle Abbey, Table 11, D21 22, Birds

	Dom Fowl	Goose	Pigeon	Chaffinch	Mallard	Teal	Greenfinch	Woodcock	Wader	Common Snipe	Buzzard	Goshawk	Corvid	Blackbird	Jackdaw	Raven	Rook	Swan	Lesser BB Gull	Unident
Coracoid	6	3	8			1				1	1									2
Fircula	1	1																		2
Scapula	4	2	1					1								1				1
Humerus	3	7	6				1							1	2	1				12
Radius	3	1	1						1							1			1	19
Ulna	4		3	1			1	3			4		1			2		1?	1	14
Carpomet.	4	19	1		1			4				1			1					
Sternum	2		1														1			1
Femur	6	3	2								2				3					2
Tibiotarsus	9	2	1								2				3					11
Tarsomet.			1					1							2	1				2
Wing Phalanx																				32
Phalanx																				8
Unident.																				67
Sub Total	42	38	25	1	1	1	2	9	1	1	9	1	1	1	11	6	1	1	2	173
																	Total		327	

Battle Abbey Table 12. D30, D31, D33, D34

	Dom. Fowl	Goose	Pigeon	Crane?	Unident.	
Coracoid	2		4			
Scapula					1	
Humerus			11		6	
Radius	1	1	2		4	
Ulna	1	2	10			
Carpomet.		3	3			
Sternum	2		1		1	
Femur	1		8		2	
Tibiotars.		1	3		4	
Tarsomet.	1		2		2	
Wing Phalanx					3	
Phalanx					9	
Vertebrae				1	4	
Unidentified					4	
Sub Total	8	7	44	1	40	Total 100

Battle Abbey, Table 13, Period A , Fish

	Eel	Conger Eel	Cod	Haddock	Whiting	Ling	Tub Gurnard	Plaice	Flatfish	Unident	
Dentary	1				1						
Skull			2		3		3	3			
Vertebrae		1	3	2	1	1		1	3		
Fin ray								20		160	
Unident										67	
Sub Total	1	1	5	2	5	1	3	24	3	227	Total 272

Battle Abbey. Table 14.Period B. Fish

	Haddock	Gadoid	Unident	
Skull	1			
Vertebrae		1		
Unident			3	
Sub Total	1	1	3	Total 5

attle Abbey, Table 15, Period C, Fish

	Conger Eel	Cod	Haddock	Gadoid	Tub Gurnard	Plaice	Unident	
Dentary					1			
Skull	1	1	1	1	3	1		
Fin-ray							2	
Unident							8	
Sub Total	1	1	1	1	4	1	10	Total 19

Battle Abbey, Table 16, D20 23A 24 25 26 27 28, Fish

	Conger Eel	Cod	Haddock	Whiting	Cod Ling	Ling	Gadoid	Plaice	Flatfish	Unident	
Premaxilla				1							
Skull		5	1		1	1		1		7	
Vertebrae	1	1	1			1	1		1		
Fin Ray										62	
Unident					1					23	
Sub Total	1	6	2	1	2	2	1	1	1	92	Total 109

Battle Abbey, Table 17, DS1 32 Ranaborder, Fish

Premaxilla				1								1					
Mentary			1					1					1				
Mul?			1	1	1	1	4	1	1	2	10		2	1	1	10	
Dentaree	1	3	3	4	4		7	2	3	1	1	1	1		4		
In Ray																23	
Vertebra	1																
Ribbon							1									33	
Jo Tota	2	3	5	5	5	1	12	3	5	4	12	1	4	1	5	132	
													Tota:			199	

Battle Abbey, Table 18, D30 31, Fish

	Eel	Herring	Cod	Whiting	Plaice/Flounder	Unident	
Skull		1			1		
Vertebrae	42	18	1	3			
Fin ray						209	
Unident						8	
Sub Total	42	19	1	3	1	217	
						Total	283