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THE ANIMAL BONES FROM THE EXCAVATION OF A ROMAN SITE AT RUDSTON, YORKSHIRE

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Archaeozoological Services

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THE ANIMAL BONES FROM THE EXCAVATION OF A ROMAN SITE AT RUDSTON, YORKSHIRE

PART 2.

THE BUILDINGS AND OTHER FEATURES

by

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Introduction

The first report on the bones from this site dealt only with those from the well. This report covers those from other areas of the site.

The bones are grouped by area and phase as indicated by Dr. Stead. The areas are identified by code letters. In most areas the bones are grouped into an early period (first - mid second century A.D.) and a late phase (late second century - late fourth century A.D.)

For each group the bones were sorted and studied following the general procedures described by Chaplin (1971). The results in this report are presented so that they can be integrated with bones from further excavations. The results are then considered and interpreted in the discussion section.

Results

The minimum number of animals determined from each of the principal bones of the body of cattle, sheep, pig and horse are given for each period and phase in tables 1 - 8.

Age criteria from the fusion of the epiphyses of the limb bones are given in tables 9 - 16 and from the teeth in tables 17 - 20.

Additional species present and any special features are noted below:-

Area R.A., Early period.

The bones in this group fall into two categories, discrete groups of bones recorded as 'burials' by the excavators, and bones from the general spread of refuse with no special associations.

The first of these burials (ref. ?) comprises bones from two sheep, but the two animals are not complete even allowing for some decay and break up of the bones. Most are broken and the skulls particularly so. Both animals are represented by their scapulae, humeri, and cranium and atlas vertebra but there is only a right and left radius, two right ulnae and a single left metacarpal. Of the hind limb there is one left and two right femora, but only a pair of tibiae and calcanea and a single left metatarsal. Some first phalanges are present but the absence of other phalanges and small bones is probably not significant as these are rarely recovered except by sieving the deposit. All of the epiphyses of both animals were fused and a full set of permanent cheek teeth were present indicating that both animals were mature adults aged more than 36 - 42 months.

Group OF would also seem to be part of a sheep burial as it comprised parts of a single animal plus some scraps of cattle bone. The sheep bones present were the mandibles, the atlas vertebra, both humeri, and radii but only a single fragment of the scapula and no forefoot bones. In the hind leg, no pelvis, both femora, but only the left tibia and metatarsal plus some rib fragments. This is an adult animal aged more than 36 - 42 months.

A third burial, KE has some of the lower foot bones quite well burnt, whilst other bones are unburnt. The following bones are present together with a lot of fragments of ribs and vertebrae; the cranium and mandibles, both scapulae, 1 humerus, no radii but both metacarpals (the left one is burnt). Of the hind limb the pelvis is present with parts of both femora and tibiae (the distal part of the left one is burnt) as is the left and right calcaneum. There are no other bones from this animal which is a mature adult. Also

present is part of a left scapula and left metatarsal, the latter with an unfused distal epiphysis indicating a much younger animal. Additionally there are parts of two pigs. Mandible fragments indicate one animal with a permanent dentition and another with incisors 3 and 4 erupting. Other bones are an immature left tibia, a mature right tibia, a left radius and a metapodial.

A fourth deposit KU contains scraps of sheep bones all heavily burnt/cremated with a few unburnt bones of dog and a calf mandible.

There are three burials (—, HT, KH) of very young cattle, i.e. calves. In all three most parts of the body are fully present and this situation contrasts with that of the sheep burials. The calf in KH however lacks the metapodials and other foot bones. The two calves — and KH both have the milk premolars p2 - 4 erupted but in HT they are erupting. HT is smaller than the other two and the metacarpal bone is not fused in the midline. The age of these calves cannot be established with any certainty because the relative maturity of an animal at birth varies between individuals and also the criteria available from the bones and teeth are not absolute. Epiphyses which are said to be fused at birth are not always firmly united and buried in the soil might well separate. Tooth eruption is in our experience a more reliable indicator in ungulates. At birth the premolars are erupting and their cusps just beginning to break the gum. They erupt rapidly and within a few weeks all three are fully operational. On this basis the two larger calves are not perinatal but several weeks old. The smaller third animal is however younger, almost certainly perinatal. It could have been stillborn but there is no proof of this.

None of the calf burials show any signs of burning, each is of a single animal almost certainly buried whole or largely so and there are no other parts of other species buried with them except a single perinatal sheep radius associated with HT. There are no burials of the other animals - (pig, dog, horse, etc.) which were also present at this time. Amongst the general material there are a number of quite large limb bones of cattle from at least two animals, together with the bones of part of a young calf. It is not clear if the calf bones are from a burial or not.

Apart from the burials the most numerous species are sheep, cattle, pigs and horses and part of a dog is also present. The minimum number of animals shown in the table for this deposit for all species excludes the animals associated with the burials as there is probably a distinction to be drawn here between"ritual" deposits and food debris. Age criteria for each species and

and also the minimum number of animals represented by each bone are given in the main summary tables. There are a few bird bones from this group still to be identified.

Area R.A. Late period.

The bones from this group all appear to be refuse. Cattle, sheep, horse, pig and dog are present and goat is represented by a single horn core. Of the cattle four of the eight animals are calves, at least one of which was perinatal judging from its teeth.

The sheep can be aged from both the teeth and long bones. Using the teeth three groups are recognisable. There are 6 group B, 6 group C and 2 group E animals as defined in the summary tables. There are some bird bones from this group still to be identified.

Area R.B. Early period.

These bones all appear to be from refuse deposits and there are no special features. Of the cattle three of the five animals are young calves.

Area R.B. Late period.

These deposits appear to be largely refuse but include some large portions of horse bones and also the horned parts of cattle skulls. Of the nine cattle recognised from the limb bones five are perinatal animals. Four mandibles indicate animals with a full dentition and a fifth has molar two almost fully erupted. The horn cores of the cattle are short (94 - 155 mm. and curved.

There are six pig mandibles indicating five adult animals with a full permanent dentition and a very young pig with only the deciduous premolars present. Of the adult animals three have the third molar beginning to wear, and in the other this is heavily worn. This contrasts with the ages indicated by the limb bones.

Two horn cores of sheep are present. They appear to be immature and curve upwards and outwards measuring between 5 and 7 cms. Their inner face is relatively flattened.

Area R.D. Early period.

Only a small group of bones of cattle, sheep and pig. Two pig mandibles indicate an adult and a juvenile animal. A cremation group RD/BH comprises recognisable limb bone fragments of sheep mixed up with charcoal.

Area R.D. Late period.

This also is a small group with cattle, sheep, horse and pig present. Of the sheep two bones, a humerus and a tibia, show erosive infective lesions of the distal interarticular surface closely resembling those found in these and other bones in Fallow deer (Chaplin, 1971). The specific cause of these conditions is not known.

Area R.H. Early period.

A small group with only sheep, cattle and horse present. There are two groups of cremated bones, RH/EL and RH/GZ. RH/EL comprised only fragmentary bones of sheep in which there were recognisable pieces of the ulnae, calcaneum, humerus and metacarpal, the epiphysis of the calcaneum was not fused indicating an animal not more than 30 - 36 months old. Cremation group RH/GZ comprised bones of cattle and sheep. The cattle bones were two carpals and an unburnt tooth and are probably incidental to the sheep bones, all of which are burnt. Recognisable fragments were two femora with both epiphyses unfused, cuboid, mandible and metacarpal fragments. The sheep was not more than 30-36 months old. Both of these groups involve only parts of animals.

Area R.H. Late period

Cattle, sheep, pig and horse are present in this group. Of the pig jaws, two are from adult animals, one with a heavily worn upper first molar. Two others are from immature animals.

Area R.L. Early period.

Bones of sheep, cattle, pig and horse are present. In addition to the three adult cattle there are two young calves - several weeks old, and another quite small calf, represented only by its mandibles.

Area R.L. Late period.

Bones of sheep, cattle, pig and horse are present. In addition to adult stock there are most of the bones of a perinatal calf and the pelvis and tibia of another. Five of the six sheep have deciduous premolars, but cannot be assigned to groups. The sixth is a group/adult. Of the four pigs, one is adult with heavily worn molars the others are immature one having permanent premolars has molar 3 erupting.

Area R.N. Early period.

Sheep, cattle, pigs and horse are represented. Most of the sheep bones and some of those of cattle and pig are quite heavily burnt. There is ref. RN/EB, a complete perinatal calf plus the pelvis of another, a few other perinatal calf bones are present in the rest of the material. The only cattle jaw has Molar 2 erupting. All of the five sheep have deciduous premolars and two belong to group C. The mandibles of three pigs indicate adult animals.

Area R.N. Late period.

Cattle, horse, sheep and pig are present together with a single horn core from a goat. Two cattle mandibles indicate one adult and another with deciduous premolars. One pig is adult, the other represented only by a mandible has the deciduous premolar 4 erupting and would be classified as perinatal.

Area R.R. Late period.

A small group of bones of sheep, cattle, pig and horse. Approximately half of the sheep bones are burnt. The cattle mandible is from an adult animal.

Area R.S. Late period.

A small group of bones with sheep, cattle, pig and horse present. From the teeth there are two adult pigs. All five sheep mandibles indicate adult animals. The cattle jaw shows well worn teeth. There is a single mandible from a perinatal calf.

Area R.T. Early period.

A small group with sheep, cattle, pig and horse present. There are several bones including the mandible of a perinatal calf. There are the hind limb bones of a perinatal sheep. The only pig mandible indicates an adult with light wear on lower molar 3. The horse includes a semi complete jaw with a full set of teeth. The teeth indicate an age of 5 - 7 years.

Area R.T. Late period.

A small group of bones with sheep, cattle, horse and pig present. The horse bones come from 5 different animals. In one adult (minimum age $3\frac{1}{2}$ years) the splint bone is fused to the metacarpal with fairly extensive osteophyte formation on the metacarpal. There is also some osteophyte formation on the first phalanx but this does not involve the joint. Another adult animal is

represented by the distal portion of the metacarpal which has extensive osteophyte formation on the lower shaft extending to the interarticular margin. This lesion would have caused severe/chronic lameness. Of the three other animals, one is over 3½ years, one at least 15 - 18 months and the other is less than 16 - 20 months represented by a very slender metatarsal bone, 22 cm. in length without the distal epiphysis. Of the pigs, two are adult and five immature. Among the sheep are a few bones from two perinatal animals.

Area R.U. Early period.

A small group of bones comprising those of sheep, cattle, pig and horse. In addition to the adult cattle there are a few bones from two perinatal calves. The only sheep mandible indicates an adult animal.

Area R.U. Late period.

In addition to the bones of sheep, cattle, pig and horse there are some from dog, man and birds. Of the pigs there is the substantial part of a perinatal animal. The mandibles indicate six other pigs, four have permanent dentition, one with molar 1 heavily worn, the other with it hardly worn. One animal has deciduous premolars 3 and 4 and another has molar 3 erupting. Of the cattle, there is the greater part of a perinatal calf. Other cattle aged from the mandibles indicate one adult, one with deciduous premolars 3 and 4 and the other with molar 3 erupting. The dog bones comprise a broken skull and a fragment each of a scapula and metapodial. The human bones comprise some 1st and 2nd phalanges, a tarsal bone, seven teeth and three fragments of skull.

Discussion

The relative numbers of the different bones of the body indicate the way in which an animal was utilised. Certain bones, notably the lower end of the tibia and radius and the lower limb and foot bones have little meat around them and are frequently discarded as waste when the carcass is dressed out and/or the carcass jointed. From the culinary point of view today the head is often similarly treated, although it contains much useable meat, fat, tongue, etc. but in many areas and until recent times the head was fully utilised although it was sometimes separated from the rest of the body and processed elsewh

Of the cattle in the early phase there is no very great disparity in the representation of any of the major bones, waste or otherwise which suggests a full utilisation of the whole animal on site which could imply that it was killed and processed there.

The picture for sheep is rather different and there is a very disproportionate representation of the bones. The great many tibiae(53) contrast with only 13 - 17 for other hind limb bones, and between 16 and 29 for fore limb bones and also mandibles. The certain waste bones - metacarpal and metatarsal are 16 and 17 respectively only a third of the total for the tibia. This suggests that there was selection in the joints being consumed especially in areas B, L and N and that only a proportion of the animals were cut up on the spot. The similarity of the totals for the mandible with meat bones of the forelimb suggests that the heads (possibly only tongues) were being utilised.

The early pig bones have a fairly even representation in quite a small sample but the mandible is just over twice as frequent as any other bone.

In the late phase the bones of cattle again show no great disparity one to another but what is interesting is the relatively low figures for the metacarpals and metatarsals (15 and 12) which so often greatly exceed the meat bones. Here it is the meat bones of both fore and hind limb that predominate. This would suggest that in part the meat was being brought into these areas of the villa as dressed carcasses or as joints. The metapodial bones do have a culinary role and thus if brought in, there is no need to assume any cattle carcass slaughter preparation in these areas of the villa.

In the late phase there is a considerable disproportion between some of the bones of sheep. The mandibles (99) and tibia (96) are the most numerous whilst the metacarpal and metatarsal are fewer even than many of the main meat bones. Although an exact total for the number of crania could not be determined it was a great deal less than the total for mandibles. The differences

Table 21 Rudston Villa. Killing pattern of domestic animals in the early and late periods from the fusion of the epiphyses of the long bones.

Cattle

	A	B	C	D	E	
% killed in age range	10%	0	30%	0	0	early
% killed less than	0	9%	40%	38%	33%	early
% killed in age range	20%	0	10%	0	12%	late
% killed less than	0	9%	30%	23%	42%	late

Sheep

	A	B	C	D	
% killed in age range	5%	63%	0	13%	early
% killed less than	0	68%	54%	81%	early
% killed in age range	9%	33%	8%	17%	late
% killed less than	0	42%	50%	67%	late

Pig

	A	B	C	
% killed in age range	15%	71%	8%	early
% killed less than	0	86%	94%	early
% killed in age range	32%	34%	21%	late
% killed in less than	0	67%	88%	late

in the frequency of the bones suggests that most of the sheep came as selected joints rather than as whole animals. The figures for the pigs in the late phase would also suggest this selectivity.

Table 21 summarises the age at which the domestic animals were slaughtered as determined from the limb bones and tables 17 - 20 summarise this as determined from the mandibles. The former indicate a range within which the animals were killed, the latter indicates a precise stage at which each was killed and used together these can establish a fairly precise picture of the killing policy. Exact agreement is not to be expected in these figures. In the early phase the cattle limb bones indicate that 30-40% of the animals were killed before maturity and in the late period approximately 42% were similarly killed. Of the sheep in the early phase only about 20% reached maturity with 63% of them being killed in or before their second year. The mandibles confirm this pattern with only one third of the animals reaching maturity. Of those killed before this the majority divide into almost equal numbers killed in their first year at 3 or 6 months and in their late first year 9 - 12 months or 18 months depending whether modern or earlier age values are used. In this case the values for older livestock would indicate a more rational husbandry.

In the late phase some two thirds of the sheep are killed before maturity with one third killed at 3 or 6 months. This is confirmed in general by the mandibles where approximately 40% reached maturity; killing ages can be fixed more precisely from the teeth and similar numbers were killed at 6 and 18 months and some at 3 - 4 years (old figures).

In both the early and late periods very few pigs, according to the limb bones, reached skeletal maturity (6 and 12% respectively). In the late period killing of the pigs is spread fairly evenly over the three age groups whereas in the early phase some 71% are killed in the middle of this (i.e. between 1 and 2 years on modern figures). This is apparently contradicted by the few mandibles in the early phase, only 1 of 8 is not adult i.e. 17 - 22 months or 3 years plus and in the late phase where 17 of 27 mandibles are adult. In fact in age terms using modern figures dental maturity corresponds to the end of epiphyseal age group B so that for the late phase there is no real discrepancy but for the early phase an apparent discrepancy remains. This may be due to our lack of precise knowledge correlating dental development with epiphyseal fusion as well as with changes in the timetable between ancient and modern pigs. We have old criteria for the teeth but not for the epiphyses. Alternatively the pigs' heads may have come from different animals to those from which the limb bones are derived.

Bones of horses are found in both the early and late deposits. The horse bones are not numerous and generally are more complete than those of cattle. Whereas with other species fragments of different bones are not necessarily from different animals those of horse often are. RT late is a good example of this where a few large semi complete bones are unequivocally from five different animals. There is nothing to suggest that any of these represent disturbe burials. It is concluded that the majority of horse bones represent joints of meat. Tables 15&16 show the ages of the horses and the great majority are fro fully matured animals. This suggests that these animals were kept as working animals and slaughtered when they became unsuitable or failed to measure up to expectation. If they had been bred for meat they would have been killed much younger. None of these animals appeared to be very old or senile. The few teeth and mandibles suggested animals in their prime perhaps 6 - 10 years old. A number, e.g. RT late, showed bone lesions that would have caused severe chronic lameness and such lesions are generally of traumatic and/or infective origin and are not age specific. It is therefore suggested that these are working ponies at least some of which were put down when they failed to recover from leg injuries. Other damaging injuries affecting only the soft tissues would not produce lesions in the bones but might also result in the animals being put down.

With the exception of the burials from the early phase the bones of cattle, sheep, pigs and horses appear to be part of food debris. There is no indication of any processing or other activity on the villa site. For all practical purposes the meat is derived solely from cattle, sheep, pigs and horses and there is no significant contribution from large wild species such as deer or birds or fish. Working from the minimum number of animals present the approximate amount of meat potentially available from these animals was/follows:-

	Early			Late		
Species	M.N.A.	Carcass Wt.(lbs.)	% of Total	M.N.A.	Carcass Wt.(lbs.)	% of Total
Cattle	13	3900	46%	24	7200	47%
Sheep	53	1325	16%	99	2475	16%
Pig	15	750	9%	32	1600	10.
Horse	6	2400	29%	10	4000	26%
		8375			15275	

From this table it will be seen that in both periods cattle were the most important meat source supplying some 46-47%. In both periods the ranking and the percentage contribution of each species is very similar suggesting that no

shifts in meat preference occurred over these periods.

The details of the burials of both adult and perinatal animals and the completeness or otherwise thereof has been described above. We do not wish to comment at this stage, without further discussion, on the significance or otherwise of these burials. The burials of adult sheep semi complete may have a ritual significance assuming complete excavation. The perinatal animals, both sheep and calves may also have a ritual significance but such an interpretation will depend on their context since they could be animals which simply died and were buried in a convenient spot cf. the Well.

There were comparatively few measurable bones from the Villa for comparison with those from the Well. In the case of the cattle the animals from the Villa are in general larger than those from the Well. Those of the sheep are in general similar to or a little larger than those from the Well. The Villa samples are however quite small.

Comparison of the Well and Villa

Well deposits 1 and 2 were compared with the late deposits of the Villa. The frequency of the different bones of each species were compared between the two groups. In the case of cattle, sheep and pigs a high total in one generally corresponds with a low total in the other and vice versa, especially in regard to the waste bones (Table 22). This is not so pronounced with the horse bones.

The amount of beef and lamb calculated to have been exported from the Well compares favourably with that consumed in the Villa allowing for the uncertainties involved in such assumptions. Pig and horse meat play an important part in the diet of the Villa more so than for the Well. The horses in both Well and Villa are represented by larger pieces of bone than for the cattle and in both they are from fully grown but not aged animals.

The proportion of cattle reaching maturity is closely similar 38% and 42% between the Well and the Villa. There is a similar agreement for the killing of sheep some 60% in the Well group and 66% in the Villa are killed before skeletal maturity and in both sheep are killed at various stages of their growth.

On this basis it is reasonable to regard the Well deposits 1 and 2 as complementing those from the late phase of the Villa.

Bone Dimensions

Cattle		Early	Late
Scapula	MWDE (a-p)	55.5	71
Humerus	MWPE	71.5	
	MWDE		68.8
Radius	MWPE	75	70, 76, 82, 82, 77.2
	L	236	
Metacarpal	MWPE		57.8, 49.5, 61.0
Tibia	MWDE	56.1, 53.1	Mean 62.1 Range 54-69.3 N = 7
Astragalus	L	Mean 63.2 Range 61.6-65.2 N= 7	Mean 59.5 Range 53-63.5 N = 6
Horn core, basal circumference		140, 120, 110	Mean 148 Range 98-191 N = 7

Sheep		Early	Late
Scapula	MWDE (a-p)	28.5, 29.1	
Humerus	MWDE	26.7, 24.7, 27.1, 26.2	25.0, 25.0, 27.0
Radius	MWPE	27.0	25.0, 26.8, 26, 26, 27
Radius complete	MOL, MWPE, MWDE		139, 28, 25; 140, 27, 25; 130, 24, 24; 139, 26, 23.
Metacarpal	MWPE		22.4, 21.0, 19.9, 20.0 20.0, 17.0, 20.0
Tibia	MWDE	23.8, 22.9, 23.6, 22.9, 25.1	24.0, 22.0, 23.0
Tibia complete	MOL, MWPE, MWDE		190, 35, 21.5; 185, - , 22.0; 198, 36, 24.0; 181, -, -
Calcaneum	MOL	46, 52.1, 55.6, 47.0, 52.0	46.0, 46.0
Astragalus		26.6, 23.0, 25.1	

Bone Dimensions continued.

Pig		Early	Late
Humerus	MWDE	34.9	
Astragalus	MOL	38.0, 39.9 38.2, 35.5	

Horse		Early	Late
Radius	MWPE	63.8, 76.3,	
Tibia	MWPE	64.5, 63.2, 65.0, 67.9	
Metacarpal	MOL		222mm.
Metatarsal(whole)	MOL, MWPE,MWDE		250, 46.6, 46.0

Table 1. The minimum number of animals determined from each of the principal bones of cattle from each excavation area for the early phase of the Rudston site

Bone	A*	B	D	H	L	N	T	U	Total
Cranium	P	P	1	P	1	2	-	P	4+
Mandible	P	1	1	1	1	1	1	1	7+
Scapula	2	-	1	-	1	1	1	2	8
Humerus	2	-	-	3	1	1	1	2	10
Radius	1	-	-	3	2	1	-	-	7
Ulna	1	-	-	4	3	2	1	2	13
Metacarpal	1	-	-	1	2	1	2	1	8
Innominate	1	3	-	-	1	-	-	1	6
Femur	1	2	-	3	1	1	-	1	9
Tibia	-	2	-	2	3	1	-	1	9
Astragalus	-	4	-	-	3	1	-	1	9
Calcaneum	-	1	-	1	2	2	-	-	6
Metatarsal	1	2	-	1	1	1	-	-	6
Perinatal an.	-	3	-	2	2	2	1	2	12

*Excluding burials. n.b. All bones from perinatal animals are recorded as a separate total and are not included under the individual bones.

Table 2. The minimum number of animals determined from each of the principal bones of sheep from each excavation area for the early phase of the Rudston site.

Bone	A*	B	D	H	L	N	T	U	Total
Cranium	P	-	-	1	2	4	-	-	7+
Mandible	6	10	1	1	4	5	1	1	29
Scapula	8	4	-	3	1	2	-	1	19
Humerus	3	2	-	2	3	5	2	5	22
Radius	6	4	2	2	5	6	1	3	29
Ulna	4	2	-	-	1	4	1	1	13
Metacarpal	5	3	-	1	3	2	1	1	16
Innominate	4	5	1	1	3	4	-	2	20
Femur	-	2	1	1	3	4	1	1	13
Tibia	8	14	2	2	10	9	3	5	53
Astragalus	3	4	-	-	3	4	1	-	15
Calcaneum	5	4	-	-	1	5	-	-	15
Metatarsal	6	-	1	-	4	4	1	1	17
Perinatal an.	-	-	-	-	-	2	1	-	3

*Excluding burials. N.b. All bones from perinatal animals are recorded under a single grand minimum total and are not included under the individual bones.

Table 3. The minimum number of animals determined from each of the principal bones of pig from each excavation area for the early phase of the Rudston site.

Bone	A*	B	D	H	L	N	T	Total
Cranium	1	P	-	-	2	2	-	5+
Mandible	1	2	2	-	6	3	1	15
Scapula	-	3	-	-	2	1	-	6
Humerus	1	1	1	-	-	1	1	5
Radius	1	-	1	-	-	2	-	4
Ulna	1	1	-	-	4	1	-	7
Innominate	-	1	-	-	-	1	-	2
Femur	-	2	2	-	1	2	-	7
Tibia	1	2	-	-	2	1	-	6
Astragalus	-	-	-	-	4	1	-	5
Calcaneum	-	1	-	-	1	1	-	3
Perinatal an.	-	-	-	-	-	-	-	0

*Excluding burials.

P= Present but minimum number could not be reliably determined.

Table 4. The minimum number of animals determined from each of the principal bones of horse from each excavation area for the early phase of the Rudston site.

Bone	A	B	D	H	L	N	T	U	Total
Cranium	-	-	-	-	-	-	-	-	0
Mandible	1	1	-	-	1	1	1	-	5
Scapula	1	-	-	-	-	-	-	-	1
Humerus	-	1	-	-	2	-	-	-	3
Radius	-	1	-	-	-	1	1	1	4
Ulna	-	-	-	-	-	-	-	-	0
Metacarpal	-	1	-	-	-	-	-	-	1
Innominate	-	1	-	-	-	-	-	-	1
Femur	-	-	-	-	-	-	-	-	0
Tibia	-	4	-	1	-	1	-	-	6
Astragalus	-	1	-	-	-	1	-	-	2
Calcaneum	-	-	-	-	-	1	-	-	1
Metatarsal	-	1	-	-	-	-	-	-	1

Table 5. The minimum number of animals determined from each of the principal bones of cattle from each excavation area for the late phase of the Rudston site.

Bone	A	B	D	H	L	N	R	S	T	U	Total
Cranium	P	6	1	1	-	2	-	1	-	P	11+
Mandible	2	6	2	-	-	2	1	1	1	3	18
Scapula	4	4	-	1	2	5	-	8	-	-	24
Humerus	1	2	1	2	1	3	-	3	-	3	16
Radius	3	4	1	1	1	2	-	4	-	5	21
Ulna	1	4	1	1	1	5	-	2	-	2	17
Metacarpal	2	3	1	-	6	2	-	-	-	1	15
Innominate	2	2	1	-	1	2	-	2	-	1	11
Femur	2	4	1	1	1	2	-	-	-	2	13
Tibia	8	4	-	3	-	2	-	2	-	4	23
Astragalus	3	5	1	1	-	2	-	1	-	3	16
Calcaneum	1	1	-	1	-	1	-	1	-	4	9
Metatarsal	1	3	1	1	2	1	-	1	-	2	12
Perinatal an.	-	5	-	1	2	-	-	1	-	1	10

N.b. All bones from perinatal animals are recorded under a single grand minimum total and are not included under the individual bones.

Table 6. The minimum number of animals determined from each of the principal bones of sheep from each excavation area for the late phase of the Rudston site.

Bone	A	B	D	H	L	N	R	S	T	U	Total
Cranium	P	2	-	-	-	3	-	1	-	P	6+
Mandible	16	25	6	8	6	10	2	5	10	11	99
Scapula	-	11	-	4	1	5	-	3	1	1	30
Humerus	6	9	2	4	6	8	1	1	7	8	52
Radius	9	13	5	4	5	6	2	6	9	6	65
Ulna	1	-	-	1	1	-	1	1	-	1	6
Metacarpal	8	4	1	1	7	6	-	2	2	3	34
Innominate	8	6	-	5	3	5	-	2	2	5	36
Femur	3	4	-	1	1	4	1	3	3	2	22
Tibia	13	25	5	7	9	6	2	4	10	15	96
Astragalus	1	2	-	2	-	-	-	-	-	2	7
Calcaneum	2	4	2	4	-	-	1	-	-	1	14
Metatarsal	7	7	3	-	4	3	2	3	2	6	37
Perinatal an.	-	1	-	1	1	-	-	-	2	-	5

N.b. All bones from perinatal animals are recorded under a single grand minimum total and are not included under the individual bones.

Table 7. The minimum number of animals determined from each of the principal bones of pig from each excavation area for the late phase of the Rudston site.

Bone	A	B	D	H	L	N	R	S	T	U	Total
Cranium	-	P	-	2	P	-	-	-	P	P	2+
Mandible	2	6	-	3	3	1	1	2	8	6	32
Scapula	-	5	-	4	1	2	-	3	-	5	20
Humerus	3	-	-	1	2	1	-	-	1	-	8
Radius	1	3	-	-	-	1	-	1	-	-	6
Ulna	2	2	-	-	4	1	-	1	-	2	12
Innominate	5	1	-	1	-	1	-	2	1	-	11
Femur	-	-	-	2	1	-	-	1	-	-	4
Tibia	-	4	-	-	2	1	-	2	1	1	11
Astragalus	-	1	1	-	-	-	-	1	-	3	6
Calcaneum	1	1	1	-	1	-	-	-	-	-	4
Perinatal an.	-	-	-	-	-	1	-	-	-	1	2

N.b. All bones from perinatal animals are recorded under a single grand minimum total and are not included under the individual bones.

P = Present but minimum number could not be reliably determined.

Table 8. The minimum number of animals determined from each of the principal bones of horse from each excavation area for the late phase of the Rudston site.

Bone	A	B	D	H	L	N	R	S	T	U	Total
Cranium	-	2	-	-	1	1	1	-	1	-	6
Mandible	-	2	2	1	1	1	-	1	1	1	10
Scapula	-	-	-	-	2	1	-	-	-	-	3
Humerus	-	-	-	-	-	-	-	-	1	-	1
Radius	1	-	1	-	1	1	-	1	2	3	10
Ulna	-	-	-	-	-	-	-	-	-	-	0
Metacarpal	-	1	-	-	-	-	-	1	2	-	4
Innominate	-	-	-	-	-	-	-	-	-	1	1
Femur	-	2	-	-	-	-	-	1	-	1	4
Tibia	-	2	1	-	1	-	-	-	-	1	5
Astragalus	-	2	-	-	1	1	-	-	1	-	5
Calcaneum	-	-	-	1	1	-	-	-	-	-	2
Metatarsal	2	2	-	-	-	1	-	-	2	-	7

Age criteria for cattle

		A*		B		D	
Epiphysis	Age (M)	Fused	Unfused	Fused	Unfused	Fused	Unfused
Scapula	7 - 10	2	0			1	0
Pelvis	7 - 10			2	0		
Total		2	0	2	0	1	0
Humerus d.	12 - 18			0	1		
Radius p.	12 - 18	1	0				
Total		1	0	0	1		
Metacarpal d.	24 - 30						
Tibia d.	24 - 30			1	3		
Total				1	3		
Metatarsal d.	27 - 36	1	0				
Femur p.	42	2	0	1	1		
Calcaneum	36 - 42						
Total		2	0	1	1		
Humerus p.	42 - 48	1	0	0	1		
Radius d.	42 - 48			0	1		
Femur d.	42 - 48			2	0		
Tibia p.	42 - 48			1	4		
Ulna	42 - 48						
Total		1	0	3	6		

*Excluding burials

Site: Rudston Villa

Ref. & Title: Table 9. Age criteria from epiphyseal fusion for the cattle in each excavation area for the

Age criteria for cattle

		H		L		N	
Epiphysis	Age (M)	Fused	Unfused	Fused	Unfused	Fused	Unfused
Scapula	7 - 10			1	0	2	0
Pelvis	7 - 10						
Total				1	0	2	0
Humerus d.	12 - 18	3	0	1	0		
Radius p.	12 - 18	1	0	2	0	1	0
Total		4	0	3	0	1	0
Metacarpal d.	24 - 30			1	0		
Tibia d.	24 - 30	0	1	3	0	1	0
Total		0	1	4	0	1	0
Metatarsal d.	27 - 36	1	0	2	0		
Femur p.	42	2	0				
Calcaneum	36 - 42					0	2
Total		2	0			0	2
Humerus p.	42 - 48	1	0				
Radius d.	42 - 48	1	0	1	0	1	0
Femur d.	42 - 48	3	0				
Tibia p.	42 - 48	1	2	2	0		
Ulna	42 - 48						
Total		6	2	3	0	1	0

Site: Rudston Villa Ref. & Title: Table 9 cont.

Age criteria for cattle

		T		U		Total	
Epiphysis	Age (M)	Fused	Unfused	Fused	Unfused	Fused	Unfused
Scapula	7 - 10	0	1	1	0	7	1
Pelvis	7 - 10					2	0
Total		0	1	1	0	9	1
Humerus d.	12 - 18			1	0	5	1
Radius p.	12 - 18					5	0
Total				1	0	10	1
Metacarpal d.	24 - 30					1	0
Tibia d.	24 - 30					5	4
Total						6	4
Metatarsal d.	27 - 36					4	0
Femur p.	42					5	1
Calcaneum	36 - 42					0	2
Total						5	3
Humerus p.	42 - 48	1	0			3	1
Radius d.	42 - 48					3	1
Femur d.	42 - 48					5	0
Tibia p.	42 - 48			1	0	5	6
Ulna	42 - 48						
Total		1	0			16	8

Site: Rudston Villa Ref. & Title: Table 9 cont.

Age criteria for sheep

		A*		B		D	
Epiphysis	Age (M)	Fused	Unfused	Fused	Unfused	Fused	Unfused
Scapula d.	6 - 8	4	1	2	0		
Innominate	6 - 10			2	0	1	0
Humerus d.	10	3	0	1	0		
Radius p.	10	5	0	1	0		
Total		12	1	6	0	1	0
Tibia d.	18 - 24	3	5	5	10	1	1
Metacarpal d.	18 - 24	0	2	1	1		
Total		3	7	6	11	1	1
Metatarsal d.	20 - 28	0	2				
Ulna	30						
Femur p.	30 - 36						
Calcaneum	30 - 36	3	3	5	1		
Radius d.	36	2	1				
Total		5	4	5	1		
Humerus p.	36 - 42	0	1				
Femur d.	36 - 42			1	2		
Tibia p.	36 - 42	2	3	4	16		
Total		2	4	5	18		

*Excluding burials.

Site: Rudston Villa

Ref. & Title: Table 10. Age criteria from epiphyseal fusion for the sheep in each excavation area for the early phase.

Age criteria for sheep

		H		L		N	
Epiphysis	Age (M)	Fused	Unfused	Fused	Unfused	Fused	Unfused
Scapula d.	6 - 8	2	0			3	0
Innominate	6 - 10	0	1	1	0	4	0
Humerus d.	10			3	0	5	0
Radius p.	10	2	0	3	0	6	0
Total		4	1	7	0	18	0
Tibia d.	18 - 24	0	1	1	2	2	4
Metacarpal d.	18 - 24					2	1
Total		0	1	1	2	4	5
Metatarsal d.	20 - 28			0	2	0	2
Ulna	30					1	1
Femur p.	30 - 36					1	0
Calcaneum	30 - 36			0	1	3	4
Radius d.	36	0	1	2	0	1	4
Total		0	1	2	1	6	9
Humerus p.	36 - 42						
Femur d.	36 - 42			0	1	1	4
Tibia p.	36 - 42			0	1	0	6
Total				0	2	1	10

Site: Rudston Villa Ref. & Title: Table 10 cont.

Age criteria for sheep

Epiphysis	Age (M)	T Fused	T Unfused	U Fused	U Unfused	Total Fused	Total Unfused
Scapula d.	6 - 8			0	2	11	2
Innominate	6 - 10			1	0	9	1
Humerus d.	10			3	0	15	0
Radius p.	10			3	0	20	0
Total				7	2	55	3
Tibia d.	18 - 24	1	0	2	1	15	24
Metacarpal d.	18 - 24	0	1	0	1	0	8
Total		1	1	2	2	15	32
Metatarsal d.	20 - 28						
Ulna	30			0	2	1	3
Femur p.	30 - 36					1	0
Calcaneum	30 - 36					11	9
Radius d.	36			0	3	5	9
Total				0	5	18	21
Humerus p.	36 - 42			0	1	0	2
Femur d.	36 - 42					3	7
Tibia p.	36 - 42	0	1	0	3	6	30
Total		0	1	0	4	9	39

Site: Rudston Villa Ref. & Title: Table 10 cont.

Age criteria for pigs

		A*		B		L	
Epiphysis	Age (M)	Fused	Unfused	Fused	Unfused	Fused	Unfused
Scapula	12			3	0	1	0
Pelvis	12			1	0		
Humerus d.	12			1	0	1	0
Radius p.	12	0	1				
Total		0	1	5	0	2	0
Metacarpal d.	24						
Tibia d.	24	0	1	1	2	1	1
Metatarsal d.	27						
Total		0	1	1	2	1	1
Calcaneum	30 - 36			0	2		
Humerus p.	42						
Radius d.	42	0	1				
Ulna	36 - 42			0	1		
Femur p.	42			1	1	0	1
Femur d.	42						
Tibia p.	42			0	2		
Total		0	1	1	4	0	1

*Excluding Burials

Site: Rudston Villa

Ref. & Title: Table 11. Age criteria from epiphyseal fusion for the pigs in each excavation area for the early phase.

Age criteria for pigs

		N		U		Total	
Epiphysis	Age (M)	Fused	Unfused	Fused	Unfused	Fused	Unfused
Scapula	12					4	0
Pelvis	12	0	1	1	0	2	1
Humerus d.	12			1	0	3	0
Radius p.	12	2	0			2	1
Total		2	1	2	0	11	2
Metacarpal d.	24	0	6			0	6
Tibia d.	24	0	2			2	6
Metatarsal d.	27						
Total		0	8			2	12
Calcaneum	30 - 36	0	1			0	3
Humerus p.	42	0	1			0	1
Radius d.	42	0	1			0	2
Ulna	36 - 42	0	1	0	1	0	3
Femur p.	42	0	2			1	4
Femur d.	42	0	1	0	1	0	2
Tibia p.	42	0	1			0	3
Total		0	7	0	2	1	15

Site: Rudston Villa Ref. & Title: Table 11 cont.

Table 12 Rudston Villa. Age criteria from epiphyseal fusion for the horses in each excavation area for the early phase.

Epiphysis	Age (M)	A F	A U	B F	B U	N F	N U	T F	T U	U F	U U	Total F	Total U
1st year													
2nd Phalange	9 - 12												
2nd year													
1st Phalange	13 - 15	1	0			2	0					3	0
Humerus d.	15 - 18			1	0							1	0
Radius p.	15 - 18			1	0	1	0			1	0	3	0
Metacarpal d.	15 - 18			1	0							1	0
Metatarsal d.	16 - 20												
Tibia d.	20 - 24			5	0							5	0
Total		1	0	8	0	3	0			1	0	13	0
4th year													
Scapula t.s.	36 - 42												
Humerus p.	36 - 42												
Radius d.	36 - 42							1	0			1	0
Ulna	36 - 42												
Femur p.	36 - 42												
Femur d.	36 - 42												
Tibia p.	36 - 42			2	1							2	1
Calcaneum	36 - 42												
Total				2	1			1	0			3	1

Age criteria for cattle

		A		B		D	
Epiphysis	Age (M)	Fused	Unfused	Fused	Unfused	Fused	Unfused
Scapula	7 - 10	0	1	5	3		
Pelvis	7 - 10	1	2	2	0		
Total		1	3	7	3		
Humerus d.	12 - 18			3	0	1	0
Radius p.	12 - 18	1	0	4	1		
Total		1	0	7	1	1	0
Metacarpal d.	24 - 30	1	0	2	1		
Tibia d.	24 - 30	1	2	3	5		
Total		2	2	5	6		
Metatarsal d.	27 - 36	1	0	2	1		
Femur p.	42	2	0	3	0		
Calcaneum	36 - 42	0	1	1	0		
Total		2	1	4	0		
Humerus p.	42 - 48	1	0	1	0		
Radius d.	42 - 48	2	0	3	2		
Femur d.	42 - 48			1	0		
Tibia p.	42 - 48	0	3	2	6		
Ulna	42 - 48						
Total		3	3	7	8		

Site: Rudston Villa

Ref. & Title: Table 13 Age criteria from epiphyseal fusion for the cattle in each excavation area for the lat[e] phase

Age criteria for cattle

		H		L		N	
Epiphysis	Age (M)	Fused	Unfused	Fused	Unfused	Fused	Unfused
Scapula	7 - 10	1	0	1	0	4	0
Pelvis	7 - 10			1	0	3	0
Total		1	0	2	0	7	0
Humerus d.	12 - 18	1	2	1	0	3	0
Radius p.	12 - 18					1	0
Total		1	2	1	0	4	0
Metacarpal d.	24 - 30			1	0	2	0
Tibia d.	24 - 30	3	0			1	0
Total		3	0	1	0	3	0
Metatarsal d.	27 - 36	1	0				
Femur p.	42	0	1	1	0		
Calcaneum	36 - 42					1	0
Total		0	1	1	0	1	0
Humerus p.	42 - 48	1	0			1	1
Radius d.	42 - 48					2	0
Femur d.	42 - 48			1	0		
Tibia p.	42 - 48	1	1			1	0
Ulna	42 - 48						
Total		2	1	1	0	4	1

Site: Rudston Villa Ref. & Title: Table 13 cont.

Age criteria for cattle

		S		U		Total	
Epiphysis	Age (M)	Fused	Unfused	Fused	Unfused	Fused	Unfused
Scapula	7 - 10	7	1			19	5
Pelvis	7 - 10	2	0			9	2
Total		9	1			28	7
Humerus d.	12 - 18	3	0	4	0	16	2
Radius p.	12 - 18	5	0	5	0	16	1
Total		8	0	9	0	32	3
Metacarpal d.	24 - 30	1	0	1	0	8	1
Tibia d.	24 - 30	2	0	3	1	13	8
Total		3	0	4	1	21	9
Metatarsal d.	27 - 36	1	0			5	1
Femur p.	42			2	0	8	1
Calcaneum	36 - 42			0	1	2	2
Total				2	1	10	3
Humerus p.	42 - 48	1	1			5	2
Radius d.	42 - 48	2	1			9	3
Femur d.	42 - 48					2	0
Tibia p.	42 - 48	2	0	0	1	6	11
Ulna	42 - 48	1	0	0	1	3	2
Total		6	2	0	1	25	18

Site: Rudston Villa Ref. & Title: Table 13 cont.

Age criteria for sheep

		A		B		D	
Epiphysis	Age (M)	Fused	Unfused	Fused	Unfused	Fused	Unfused
Scapula d.	6 - 8	5	0	8	3		
Innominate	6 - 10	7	3	10	0		
Humerus d.	10	5	0	8	0	2	0
Radius p.	10	2	0				
Total		19	3	26	3	2	0
Tibia d.	18 - 24	4	6	10	12	2	2
Metacarpal d.	18 - 24	2	0	3	1		
Total		6	6	13	13	2	2
Metatarsal d.	20 - 28	2	0			1	0
Ulna	30	2	0				
Femur p.	30 - 36	2	0				
Calcaneum	30 - 36	1	1	2	2	1	1
Radius d.	36	1	1				
Total		6	2	2	2	1	1
Humerus p.	36 - 42	3	0				
Femur d.	36 - 42	1	1				
Tibia p.	36 - 42	0	9	4	10		
Total		4	10	4	10		

Site: Rudston Villa

Ref. & Title: Table 14. Age criteria from epiphyseal fusion for the sheep in each excavation area for the late phase.

Age criteria for sheep

		H		L		N	
Epiphysis	Age (M)	Fused	Unfused	Fused	Unfused	Fused	Unfused
Scapula d.	6 - 8	2	2	1	0	7	0
Innominate	6 - 10	1	2			7	0
Humerus d.	10	3	0	2	0	5	0
Radius p.	10	1	0	2	0	1	0
Total		7	4	5	0	20	0
Tibia d.	18 - 24					4	2
Metacarpal d.	18 - 24	1	0	4	0	2	1
Total		1	0	4	0	6	3
Metatarsal d.	20 - 28					1	0
Ulna	30						
Femur p.	30 - 36	1	0			0	2
Calcaneum	30 - 36	1	3				
Radius d.	36	0	1	2	1	0	2
Total		2	4	2	1	0	4
Humerus p.	36 - 42						
Femur d.	36 - 42	0	1	0	1	1	3
Tibia p.	36 - 42					1	1
Total		0	1	0	1	2	4

Site: Rudston Villa Ref. & Title: Table 14 cont.

Age criteria for sheep

		R		S		T	
Epiphysis	Age (M)	Fused	Unfused	Fused	Unfused	Fused	Unfused
Scapula d.	6 - 8			3	0	1	0
Innominate	6 - 10			2	0	2	0
Humerus d.	10	1	0	1	0	1	0
Radius p.	10					1	0
Total		1	0	6	0	5	0
Tibia d.	18 - 24	1	0	1	1		
Metacarpal d.	18 - 24						
Total		1	0	1	1		
Metatarsal d.	20 - 28			3	0		
Ulna	30			1	0		
Femur p.	30 - 36			1	0	0	1
Calcaneum	30 - 36	1	0				
Radius d.	36	0	2			0	1
Total		1	2	2	0	0	2
Humerus p.	36 - 42						
Femur d.	36 - 42	2	0	1	1		
Tibia p.	36 - 42			0	1		
Total		2	0	1	2		

Site: Rudston Villa Ref. & Title: Table 14 cont.

Age criteria for sheep

		U		Total			
Epiphysis	Age (M)	Fused	Unfused	Fused	Unfused	Fused	Unfused
Scapula d.	6 - 8	1	0	28	5		
Innominate	6 - 10	1	0	30	5		
Humerus d.	10	4	0	32	0		
Radius p.	10	2	0	9	0		
Total		8	0	99	10		
Tibia d.	18 - 24			22	23		
Metacarpal d.	18 - 24			12	2		
Total				34	25		
Metatarsal d.	20 - 28	0	1	7	1		
Ulna	30	0	1	3	1		
Femur p.	30 - 36	1	0	5	3		
Calcaneum	30 - 36			6	7		
Radius d.	36	5	3	8	11		
Total		6	4	22	22		
Humerus p.	36 - 42			3	0		
Femur d.	36 - 42	0	1	5	8		
Tibia p.	36 - 42	3	4	8	25		
Total		3	5	16	33		

Site: Rudston Villa Ref. & Title: Table 14 cont.

Age criteria for pigs

		A		B		H	
Epiphysis	Age (M)	Fused	Unfused	Fused	Unfused	Fused	Unfused
Scapula	12					2	2
Pelvis	12	3	2	1	0	0	1
Humerus d.	12					1	0
Radius p.	12	1	0	0	1		
Total		4	2	1	1	3	3
Metacarpal d.	24						
Tibia d.	24			1	3		
Metatarsal d.	27						
Total				1	3		
Calcaneum	30 - 36	0	1	0	1		
Humerus p.	42						
Radius d.	42			0	1		
Ulna	36 - 42						
Femur p.	42			0	2		
Femur d.	42			0	1		
Tibia p.	42			0	1		
Total				0	5		

Site: Rudston Villa

Ref. & Title: Table 15. Age criteria from epiphyseal fusion for the pigs in each excavation area for the late phase.

Age criteria for pigs

		L		N		S	
Epiphysis	Age (M)	Fused	Unfused	Fused	Unfused	Fused	Unfused
Scapula	12			1	1	3	0
Pelvis	12			1	0	1	1
Humerus d.	12			0	1		
Radius p.	12					1	0
Total				2	2	5	1
Metacarpal d.	24					0	1
Tibia d.	24	1	0	0	1		
Metatarsal d.	27					0	1
Total		1	0	0	1	0	2
Calcaneum	30 - 36						
Humerus p.	42						
Radius d.	42			0	1		
Ulna	36 - 42					0	1
Femur p.	42						
Femur d.	42						
Tibia p.	42						
Total				0	1	0	1

Site: Rudston Villa Ref. & Title: Table 15 cont.

Age criteria for pigs

		T		U		Total	
Epiphysis	Age (M)	Fused	Unfused	Fused	Unfused	Fused	Unfuse
Scapula	12			2	0	8	3
Pelvis	12	1	0			7	4
Humerus d.	12	1	0			2	1
Radius p.	12					2	1
Total		2	0	2	0	19	9
Metacarpal d.	24					0	1
Tibia d.	24	1	0			3	4
Metatarsal d.	27					0	1
Total		1	0			3	6
Calcaneum	30 - 36					0	2
Humerus p.	42						
Radius d.	42					0	2
Ulna	36 - 42					0	1
Femur p.	42					0	2
Femur d.	42					0	1
Tibia p.	42	1	0			1	1
Total		1	0			1	7

Site: Rudston Villa Ref. & Title: Table 15 cont.

Epiphysis	Age (M)	A		B		D		H		L		N		S		T		U		Total	
		F	U	F	U	F	U	F	U	F	U	F	U	F	U	F	U	F	U	F	U
	1st year																				
2nd Phalange	9 - 12	1	0							1	0							1	0	3	0
	2nd year																				
1st Phalange	13 - 15	1	0	1	0					1	0					1	0			4	0
Humerus d.	15 - 18															1	0			1	0
Radius p.	15 - 18	1	0							1	0	1	0	2	0	3	0	1	0	9	0
Metacarpal d.	15 - 18			1	0											2	0			3	0
Metatarsal d.	16 - 20	1	0							1	0	1	0			0	1			3	1
Tibia d.	20 - 24					1	0			1	0							1	0	3	0
Total		3	0	2	0	1	0			4	0	2	0	2	0	7	1	2	0	23	1
	4th year																				
Scapula t.s.	36 - 42									1	0	1	0							2	0
Humerus p.	36 - 42															1	0			1	0
Radius d.	36 - 42					1	0									3	0	1	2	5	2
Ulna	36 - 42																				
Femur p.	36 - 42			2	0															2	0
Femur d.	36 - 42																				
Tibia p.	36 - 42									1	0							1	0	2	0
Calcaneum	36 - 42							0	1	1	0									1	1
Total				2	0	1	0	0	1	3	0	1	0			4	0	2	2	13	3

Age classes and codes for the stages of tooth eruption and wear for sheep

A1	p2, p3, p4.			0 - 6 weeks
B1	p2, p3, p4.	M1 erupting	P's fresh	
B2	p2, p3, p4.	M1 erupted		3 months (6 months)
C1	p2, p3, p4.	M2 erupting	P's wearing	
C2	p2, p3, p4.	M1, M2 erupted		9 - 12 months (18 months)
D1	p2, p3, p4.	M1, M2, M3 erupting	P's quite heavily worn	
D2	P2, P3, P4.(replacing p2,p3,p4)	M1, M2, M3		18 - 24 months (3 - 4 years)
E1	Light wear			24 months + (3 - 4 years +)
E2	Moderate wear			
E3	Heavy wear	often localised on first molar.		

Age data = modern figures with figures for 18th century hill sheep in parentheses. From Silver, 1963.

Table 17. Rudston Villa. Classified groupings of tooth eruption and wear stages for sheep from early phase.

Age group	A	B	L	N	T	U	Total
B	1	5	0	0	1	0	7
C	1	3	1	2	0	0	7
D	2	0	0	0	0	0	2
E	1	2	1	0	3	1	8

Table 18. Rudston Villa. Classified groupings of tooth eruption and wear stages for sheep from late phase.

Age group	A	B	D	L	N	S	T	U	Total
B	6	11	0	0	0	0	0	1	18
C	6	6	1	0	2	0	1	1	17
D	0	0	0	1	3	0	4	0	8
E	2	6	1	1	4	5	0	8	27

Age classes and codes for the stages of tooth eruption and wear for pigs.

A1	p2, p3, p4		10 weeks
A2	p2, p3, p4	P1 erupted	$3\frac{1}{2}$ - $6\frac{1}{2}$ months
B1	P1, p2, p3, p4	M1 erupting	
B2	P1, p2, p3, p4	M1 erupted	4 - 6 months (1 year)
C1	P1, p2, p3, p4	M1, M2 erupting	
C2	P1, p2, p3, p4	M1, M2 erupted	7 - 13 months ($1\frac{1}{2}$ - 2 years)
D1	P1, P2, P3, P4	M1, M2 (M3)	12 - 16 months (2 years)
D2	P1, p2, p3, p4	M1, M2, M3 erupting	An alternative
E	P1, P2, P3, P4	M1, M2, M3 erupted	17 - 22 months + (3 years +)

Age data from Silver (1963) is for modern animals, figures in parentheses are for 18th century animals.

Table 19. Rudston Villa. Classified age groups for the mandibles of pigs from the early deposits.

Age group	D	L	N	T	Total
A	0	0	0	0	0
B	0	0	0	0	0
C	0	0	0	0	0
D	0	1	0	0	1
E	1	2	3	1	7

Table 20. Rudston Villa. Classified age groups for the mandibles of pigs from the late deposits.

Age group	A	B	H	L	N	S	T	U	Total
A	0	1	0	0	1	0	0	0	2
B	0	0	0	1	0	0	0	0	1
C	0	0	0	0	0	0	1	0	1
D	1	0	1	1	0	0	2	1	6
E	0	5	2	1	1	2	2	4	17

Table 22. Comparison of the Well and Villa deposits.

	Cattle		Sheep		Pig		Horse	
	Well W1 + W2	Villa (L)	Well W1 + W2	Villa (L)	Well W1 + W2	Villa (L)	Well W1 + W2	Villa (L)
Mandible	(3)	18	4	99	9	32	P	10
Scapula	24	24	15	30	8	20	4	3
Humerus	41	16	36	52	6	8	9	1
Radius	35	21	27	65	7	6	8	10
Ulna	10	17	7	6	8	12	3	0
Metacarpal	32	15	161	34	-	-	10	4
Innominate	26	11	17	36	0	11	6	1
Femur	32	13	17	22	6	4	5	4
Tibia	41	23	31	96	13	11	9	5
Calcaneum	15	9	28	14	16	4	4	2
Astragalus	28	16	28	7	12	6	6	0
Metatarsal	62	12	171	37	-	-	7	7

Table 23. Rudston Villa. The species present and the greatest minimum number determined for each in the early and late phase.

Early

	A	B	D	H	L	N	T	U	Total	% of C.S.P.H Total
Cattle	2	4	1	4	3	2	2	2	20	20%
Sheep	8	14	2	3	10	9	3	5	54	54%
Pig	1	3	2	0	6	3	1	0	16	16%
Horse	1	4	0	1	2	1	1	1	11	11%
Goat	-	-	-	-	-	-	-	-		
Dog	P	-	-	-	-	-	-	-		
Bird	P	-	-	-	-	-	-	-		

Late

	A	B	D	H	L	N	R	S	T	U	Total	% of C.S.P.H. Total
Cattle	8	6	2	3	6	5	1	8	1	5	45	21.5%
Sheep	16	25	6	8	9	10	2	6	10	15	107	51%
Pig	5	6	1	4	4	2	1	3	8	6	40	19%
Horse	2	2	2	1	2	1	1	1	2	3	17	8%
Goat	-	-	-	-	-	1	-	-	-	-		
Dog	P	-	-	-	-	-	-	-	-	P		
Bird	P	-	-	-	-	-	-	-	-	P		