VIII.—A COMPARATIVE ACCOUNT OF THE ANIMAL REMAINS FROM CORSTOPITUM AND THE IRON AGE SITE OF CATCOTE NEAR HARTLEPOOLS, COUNTY DURHAM

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The animal remains from recent excavations at the Roman Camp of *Corstopitum* and the civilian settlement of Iron Age/Romano British period at *Catcote* are compared with a view to understanding the economies of the sites.

Measurements made on the skeletal remains are used to compare the ages of the animals on slaughter and to investigate the types or varieties of the animal species present. For statistical purposes the metrical data published for animal remains from *Corstopitum* in 1911 (Meek, A. & Gray, R. A. H.) are treated together with data obtained by measuring the recently recovered specimens, i.e. up to and including the 1966 excavation. Data for measurements taken are available (Hodgson, G. W. I. 1967) and are not repeated here. In all we have data for about 782 identified bones at *Catcote* and 2,343 from *Corstopitum.*

PART I. SUMMARY

(a) *Relative numbers of species as a guide to the economy of the sites*

Methods used by investigators to estimate the relative abundance of the food forming species present on a site have varied and are discussed later. Such estimates may reflect the extent to which certain animals were hunted or reared.

It is assumed that horse constituted a food bearing species. Dog is not considered as a source of food although Pitt-Rivers, A. (1888) claimed that it was eaten in certain Romano-British villages.

The animal remains from *Catcote* and *Corstopitum* are similar in both the frequency of the different animal species present, and in the types of species present.

The order of abundance of species present at each site is Ox, Sheep, Pig, Horse, Red Deer, (excludes some shell-fish, bird bones and fish remains).

The frequencies of the various species at *Catcote* are strikingly akin to those calculated for the Romano-British village at *Woodcuts* (Pitt-Rivers, A. 1888) while the frequencies for *Corstopitum* are similar to those calculated for *Woodcuts* (Pitt-Rivers, A. 1888) and to those inferred for the Roman camps at *Bar Hill* (Bryce, T. H. 1906), *Exeter* (Fraser, F. C. 1952), *Segontium* (Watson, D. M. S. 1923) and *Silchester* (Jones, H. 1891), and (Newton, E. T. 1904). *Corstopitum* has the highest percentage of ox bones recorded for any of the twenty-one Roman sites compared. (See Part II.)

The higher percentage of cattle bones at *Corstopitum* compared with the lower percentage at *Catcote* may reflect the difference between a garrison town and an agricultural settlement. Haverfield, F. (1920) in arguing that in the Early Empire, the Roman army was fed mainly on cereals, and ate comparatively little meat, concedes the point that in the later Empire the consumption of flesh increased. He claims that the *prata* or *territoria* attached to fortresses or forts were at least to some extent grazing grounds for regimental cattle which the soldiers called *pequarii* herded. The same author refers to an inscription in Cumberland which mentions certain *venatores* and suggests that they "saw to the provision of fresh meat". In commenting upon the absence of byre like buildings in the Roman forts of *Housesteads* and *Gellygaer*, Haverfield maintains that if the garrisons lived on fresh beef or mutton they must have pastured their herds somewhere outside the forts. He doubts whether the Romans

could have grazed their cattle in safety outside the ramparts and suggests that either another method for getting meat must have been adopted or that the Roman garrisons depended for their food on something else than a supply of fresh meat. Possibly it was part of the economy of *Catcote* and similar settlements to supply beef and mutton to garrisons such as *Corstopitum*!

The almost complete absence of bird and fish bones from *Catcote* and *Corstopitum* is striking but Proudfoot, V. B. (1961) has suggested that bones of these animals may tend to disintegrate more quickly than the bones of robust domestic and wild animals. As none of the bird bones show signs of having been gnawed it is not presumed that their numbers have been reduced by being eaten by dogs and cats.

(b) *Ages of animals on slaughter*

Sheep—Twenty-one mandibles from *Catcote* and forty from *Corstopitum* were aged according to their tooth eruption pattern (Ewbank, J. M., Phillipson, D. W., Whitehouse, R. D. and Higgs, E. S. 1964) (see Part II of this report for details). Assuming that the lambing season in the Iron Age corresponded in time with that of the present day and on the basis that it took place chiefly in February and March it appears that no sheep were killed during their *first* year of life at *Catcote* and only 7·5% at *Corstopitum*. It could be argued that the inhabitants had little preference for lamb but Proudfoot, V. B. (private correspondence) has suggested that under the comparatively rigorous conditions obtaining at both sites they were unlikely to have produced fat lamb within six months of birth on spring and summer grazing.

It is difficult to understand the high percentages of sheep slaughtered or dying during the *summer* months (May-August) of their *second* year of life (25·5% at *Catcote* and 42·9% at *Corstopitum*), but the high percentages of death during the *second* winter after birth (November-February)

(20% at *Catcote* and 14·3% at *Corstopitum*) may be due to *winter killing* of animals brought in from summer grazing (Proudfoot, V. B. private correspondence). About one third of all sheep survived into their third year of life at *Catcote* (32·5%) and at *Corstopitum* (33·2%). This is similar to the excavation at *Barley* (Higgs, E. S. 1966) where 35% survived into their third year. There is no evidence from the two Northern sites considered here that sheep were being kept to an advanced age. Watson and More (1962) have pointed out that under comparatively rigorous conditions the death rate among ewes tends to rise after the age of five years. It seems likely, therefore, that the *Catcote* and *Corstopitum* sheep were lambing in the third year and were dying or were culled in subsequent years before they became aged, flocks, therefore, being kept at optimum production.

Cattle—Forty-two cattle mandibles from *Corstopitum* and twenty-two from *Catcote* were classified as to age on death. At *Catcote* there appears to be a high percentage of animals *not* reaching the optimum age of meat or calf. Three quarters of the animals at *Corstopitum* had survived two winters but at neither site is there evidence of aged animals. Possibly the small percentage of older animals represents the breeding stock!

Pig—At *Corstopitum* there is no evidence of a preponderance of younger animals being killed but at *Catcote* the animals were younger when slaughtered. At neither site is there any evidence of old animals such as may have been expected from a boar being kept for breeding purposes.

(c) *Types of animals*

Sheep were apparently slender legged animals somewhat similar to the *Soay* sheep.

Horses were small by modern day standards and appear to have ranged in size from that of a pit pony to a small horse of fourteen and a half hands high.

Pig. The *Corstopitum* pig remains are heavily eroded and very different from recent defleshed specimens. They hint of a long legged animal, possibly corresponding to the so-called *Irish Greyhound pig* which figures so frequently in reports of Irish sites. (See Roche, G. and Stelfox, A. W. 1936 and Proudfoot, V. B. 1961, for discussion.) This type of pig was of an athletic type being free to forage about in scrubland. At neither site are there remains indicative of wild pig.

Cattle. The animals were apparently all of the *Celtic Shorthorn* variety, i.e. *Bos taurus longifrons.* One skull from *Catcote* displays a prominent mesial prominence. The presence of such skulls is reported from *Whitehawk Bay* (Jackson, J. W. 1934), *Minnis Bay* (Jackson, J. W. 1943), *Glastonbury* (Dawkins, W., Boyd and Jackson, J. W. 1917) and *Maiden Castle* (Iron Age levels—Jackson, J. W. 1943). Jewell, P. (1963) has shown that the possession of a mesial prominence is not a criterion of domestication. In some of the *Corstopitum* ox skulls the horn cores are reduced to mere scurrs as at *Glastonbury* (Dawkins, W., Boyd, Jackson, J. W. 1917) but none of them is polled.

Some of the *Corstopitum* skulls bear only *five* molars and premolars instead of the usual six. This "*five toothed*" condition was assumed by Meek, A. and Gray, R. A. H., in the 1911 report on the animal remains from *Corstopitum*, to be a characteristic of the *Chillingham* type of cattle yet three of the Chillingham skulls in the British Museum (N.H.) bear the usual *six* "*cheek teeth*" (Hodgson, G. W. I. 1967). The appearance of "*five toothed*" forms is therefore not significant. A study of the length and width ranges of certain bones shows that there were great variations in the size of the cattle at *Corstopitum.* The specimens from *Catcote* fall within the *Corstopitum* ranges. Jewell's (1963) work of comparing the length ranges of certain bones has been adapted and extended later in this paper. The *Corstopitum* material includes bones as *short* or as *narrow* as anything reported from other ancient sites, and others as *long* and as

wide as some mediaeval and modern material. The significance of large forms is difficult to assess. Was this largeness a hangover of ancient massiveness from a primitive *Wild Auroch* (*Bos taurus primigenius*) stock or was it due to improvements in the *Celtic Shorthorn* (*Bos taurus longifrons*) stock, i.e. was it the beginning of a *new* increase in size culminating in the larger types typical of the mediaeval period?

Published references to larger animals on Roman sites are frequent, Bryce, T. H. (1906), speaking of cattle remains from *Bar Hill Fort* says "The Romans here had a larger, probably mixed breed of oxen, besides the *Celtic Shorthorn.*"

At *Clausentum* (Cornwall, I. W., 1958) reference is made to "one larger specimen of cattle possibly a throwback". Of the earlier *Corstopitum* material Meek, A. and Gray, R. A. H. (1911) commented "Numerous variations in size seem to us to indicate the many different types of domesticated *Bos* that existed in Britain during the Roman period." In the first report on animal bones from *Silchester* (Jones, H. 1891) it is suggested that possibly two sub-varieties of ox are present. At *Colchester* (Jackson, J. W. 1958) a larger ox is reported upon and it is likened to the *Woodhenge* type (Jackson, J. W. 1929). The same author reporting on cattle from *Highdole Hill* (Jackson, J. W. 1936) mentions cattle larger than the Celtic Ox and suggests that they may have been imported to this country and used for draft purposes. Two breeds of cattle, one large and the other small, are reported from the Roman levels at *Lydney* (Watson, D. M. S. 1932), while at *Newstead*, Ewart, J. C. (1911) speaks of bones belonging to "*cross bred animals*" heavily built animals used for transport. McKenny Hughes, T. (1896) in his review of breeds of cattle from British archaeological sites concludes that the Romans improved the *Celtic Shorthorn* by crossing it with cattle imported from Italy. The same author cogently argues the case that the *Celtic Shorthorn* stock found here by the Romans, was improved by them, and that this improved stock was the basis of our present varieties of cattle. Against this is Bryner Jones (1942) evidence that a wide variety of

cattle breeds, similar and ancestral to our present breeds, is found on Irish Early Christian Period sites. This variety can scarcely be the result of imports of fresh stocks of cattle from the Roman world.

Jewell's (1963) contention that there was a gradual diminution in size of cattle from Neolithic times to Iron Age is sustained by comparison of the published data. His claim that there was a diversity of types of cattle from Roman sites and the emergence of larger beasts seems to be borne out by the large ranges of bone sizes of the *Corstopitum* material and the descriptions of material from other sites quoted earlier. The large amount of data we have for the *Corstopitum* cattle bones taken together with the data gained from future annual excavations there, should permit the application of statistical methods. It may be that by these means we shall be able to throw some light on the origin of these larger forms.

PART II

(a) RELATIVE NUMBERS OF SPECIES AS A GUIDE TO THE ECONOMY OF THE SITES

A comparison of the relative abundance of some of the food forming species cannot be exact for several reasons.

1. Excavations at several sites are not complete, e.g. *Catcote* and *Corstopitum*.

2. Some reports include all identified fragments in assessing the relative abundance of species so that the *proximal* and *distal* fragments of the same bone may count as two (Ryder, M. L. 1961). The author felt obliged in the case of *Corstopitum* and *Catcote* to follow the example set by Meek, A. and Grey, R. A. H. (1911) and count only *entire* bones and fragments displaying a *distal* articulatory process. Chaplin, R. E. and Atkinson, J. (1966) in their report on the "Animal Bones from The Roman Villa" at *Twyford* have

maintained that comparisons of the relative abundance of different species can only realistically be achieved by comparing the minimum numbers of each species.

Minimum numbers of animals present at—

	Ox	Sheep	Pig	Horse	Deer
(a) *Catcote*	8	6	3	2	1
(b) *Corstopitum**	192	30	13	13	5

* Includes data from 1911 report (Meek, A. & Gray, R.A.H.)

However the comparison here is made on totals of fragments identified, since minimum numbers of animals present have not been published for most sites. In many cases only descriptive comments have been published and there are no metrical data. The species, are therefore listed in order of abundance. In some cases a significant phrase or adjective is quoted from the text so that a better idea of the frequencies of the species is given. Where it is not possible to judge which species was most abundant the various species are placed in brackets to signify this uncertainty.

3. The data concerning bones from *Tynemouth* are only from the most recent excavation. (Hodgson, G. W. I. 1968).

4. The data from *Windmill Hill* (Jope, M. 1965) concerning food animals does not include red deer. Red, and other deer are included for those sites for which data are available.

5. The data for *Puddlehill* (Field, N. R., Mathews, C. L. and Smith, I. F. 1964) have been recalculated to include only ox, pig and sheep. Red and roe deer have been excluded as they were represented only by shed antlers.

6. Not all reports on animal bones include data about horse remains. Opinions vary as to the extent to which ancient peoples ate horse. Despite the lack of any evidence of cracking horse bones for marrow at either *Catcote* or *Corstopitum*, the bones of horses have been included in the calculations to arrive at frequencies of each species.

7. The data for *Les Camps Des Matignons* (Poulain-Josien, T. 1966) have been recalculated so that the so-called *Bos taurus* L (boeuf) and *Bos primigenius* L (Le grand boeuf) are treated together, as are roe and red deer. Sheep and goat

have been grouped together and the distinction between domestic pig (le porc—*Sus domesticus* L) and wild pig (le sanglier—*Sus scrofa* L) has been abandoned for this comparison. This bulking of wild and domestic animals, although useful from the food point of view, cuts across the distinction between hunting and farming. The grouping together of sheep and goat is merely for convenience, it is hoped in future reports of animal remains that Boessneck's (1964) criteria, for distinguishing between the two species, will be invoked.

8. Data dealing with skeletal remains from several Irish sites are expressed in terms of weight (Roche, G., Stelfox, A. W., in Hencken, H. 1936, 1942, 1950).

9. Data for the Roman levels at *Upton, Gloucestershire*, (Yealland, S. and Higgs, E. S. 1966) refers to percentages calculated on numbers of bone fragments counted and does not include loose teeth.

RELATIVE FREQUENCIES OF FOOD SPECIES AT CERTAIN ANCIENT SITES

Mesolithic sites	
Star Carr	Roe & red deer, elk, ox, pig *no* sheep
Neolithic sites	
Maiden Castle I	Ox, sheep, pig, roe and red deer, horse teeth
Matignons—Camp 1	Ox 51·7%, sheep 24·1%, pig 18·1%, roe & red deer 6·1%, horse teeth nil
Camp 2	Ox 68·1%, sheep 14·6%, pig 14·3%, roe & red deer 3·0%, horse teeth nil
Puddlehill—Pit I	Pig 43·2%, sheep 33·8%, ox 23%
Pit II	Pig 60·0%, ox 40%, sheep nil
Pit III	Pig 65·5%, ox 33·3%, sheep 1·2%
Ronaldsway	Ox, sheep, pig rare, red deer
Skara Brae	Ox, sheep, pig

Neolithic sites	
Stonehenge	Ox, red deer, sheep scarce, few pig remains, horse absent
Thickthorn Down	Ox, sheep, pig scanty, red & roe deer, horse
Trundle I	Ox, pig, sheep, roe deer, no horse or red deer
Whitehawk Camp	Ox very abundant, sheep and pig scanty, roe and red deer
Windmill Hill (a) pre-enclosure	Ox 70·3%, pig 17·2%, sheep 12·5%
(b) Primary levels	Ox 60%, sheep 24·8%, pig 15·2%
(c) late Neolithic	Ox 61·2%, pig 24·5%, sheep 14·3%
Woodhenge	Ox, pig, sheep scanty.
Bronge Age sites	
Boscombe Down	Ox, sheep, goat, pig, horse
Castle Hill, Newhaven	Ox, sheep, pig, horse, red & roe deer
Jarlshof Sumburgh	Sheep, ox & pony, pig, walrus, whale, *no* deer
Lowes Farm Littleport	Report on cattle skeleton only
Maiden Castle II Bronze levels	Ox
Milden Hall Fen	Ox, sheep, pig, roe & red deer, *no* horse
Minnis Bay	Ox, sheep & horse
Ogbourne West Enc.	Ox, sheep
Overton Hill Avebury	Ox, horse & pig. *No* sheep
Ratfyn Amesbury	Ox, pig, bear and deer
Skendlebury Lincs.	Ox, pig & sheep, horse & 3 kinds of deer
Iron Age sites	
All Cannings Cross	(Ox, sheep), horse, pig, red deer
Camerton	Ox, sheep, horse, pig (few)
Catcote	Ox 54·6%, sheep 39·6%, pig 9·1%, horse 5·5%, red deer 0·2%
Glastonbury	Sheep & Ox, pig (fairly numerous), horse
High Field Pit Dwelling	Present—horse, ox, sheep, pig
Little Woodbury	Ox, sheep, horse, pig
Llyn Cerrig Bach Anglesey	Ox, sheep, horse
Lydney I	Ox, pig, rabbit, sheep, fallow deer

Iron Age sites	
Maiden Castle II	Ox, (horse, sheep, pig)
Staple Howe	Ox, sheep, pig were most abundant, horse
Trundle II—Iron Age	Ox, sheep, (pig & roe deer), horse
Roman sites	
Balmuildy Fort	Ox, pig, horse
Bar Hill	Ox, sheep, pig, horse, red deer
Caerleon	Ox 51%, pig 23%, deer (? red) 8·0%, horse 5·7%, sheep 4·6%
Caerwent	"numerous" remains of pig, ox, roe deer, sheep, horse & whale
Clausentum	Ox 65%, pig 20·2%, sheep 10·7%, red deer 3·1%, horse 1·0%
Corstopitum	Ox 71%, sheep 14·4%, pig 6·9%, horse 6·6%, deer 1·1%
Colchester	Ox 60·5%, pig 18·7%, sheep 14·6%, horse 6·2%
Eastwood Fawkam	Ox 56%, sheep 27%, horse 13%, pig 4%
Exeter	Ox, sheep, pig, horse. "No deer present"
Hambledon	"Horse exceptionally numerous", "Ox very numerous". Sheep & pig
Highdole Hill	Ox, sheep, horse, pig, deer
Lydney II	Ox, pig, sheep, horse, red deer
Newstead	Ox, horse, pig, sheep, red & roe deer, elk
Rotherley	Sheep 42·2%, ox 34·7%, horse 19·1%, pig 3·0%, red & roe deer 1·0%
Segontium	Ox, (pig, sheep, horse), red deer
Silchester	(Ox, sheep, pig "all very numerous"), horse, roe deer
Upton	Sheep 72%, ox 21%, horse 5%, pig 2%
The Rumps	Sheep 68%, pig 18%, ox 14%
Twyford	Sheep 35.8%, ox 26·9%, pig 17·9%, horse 13·5%, red deer 5·9%
Woodcuts	Ox 41·8%, sheep 30·8%, pig 13·6%, horse 10·7%, roe & red deer 3·2%

Roman sites	
Woodyates	Ox 37·7%, sheep 33·8%, horse 26·2%, pig 2·1%, roe deer 0·2%
Mediaeval sites	
Kirkstall	Ox 90%, sheep 5%, pig 3%, red deer 2%
Pontefract	Sheep 45%, ox 30%, pig 20%, red deer 5%
Tynemouth	Sheep 50%, pig 26·6%, ox 24·4%, deer nil
Well Street, Coventry*	Ox 72%, sheep 13·3%, pig 10·7%, horse 4·0%
Wharram Percy	Sheep 60%, ox 30%, pig 9%, red deer 1·0%
York	Ox 60%, sheep 30%, pig 10·0%, red deer nil

* Calculated on the basis of minimum number of animals.

Proudfoot (1961) has commented on the danger of underestimating the extent to which sheep were kept by considering only the faunal evidence from sites, i.e. the bones found being essentially those of the animals eaten and not those of animals kept to grow wool.

Yealland, S. and Higgs, E. S. (1966) have very properly shown that these percentage frequency figures may not accurately indicate the amount of meat which each species supplies. Accepting their estimated weights, a sheep weighs 125 lbs., a cow 900 lbs., a horse 800 lbs. and a pig 200 lbs. and making their assumption that all these domestic animals were eaten, the percentages of meat supplied by each species would be as follows—

CORSTOPITUM		*CATCOTE*	
Ox	88·3%	Ox	78·6%
Sheep	2·5%	Sheep	9·5%
Pig	2·0%	Pig	3·5%
Horse	7·2%	Horse	8·4%

At *Catcote* and *Corstopitum* as at *Windmill Hill* (Jope, M. 1965) domestic animals, especially cattle, play an important part in the economy. The higher percentage of sheep at *Tynemouth* (Hodgson, G. W. I. 1967) is similar to those reported at Pontefract (Ryder, M. L. 1961) and Larrybane (Proudfoot, V. B. and Wilson, B. C. S. 1961). The relative scarcity of Red Deer bones has been remarked upon in a previous description of the *Corstopitum* material (Meek, A., Gray, R. A. H. 1911) and it may be that other food was more easily procured (compare Roche, G. & Stelfox, A. W. in Hencken, H. 1936).

(b) AGES OF ANIMALS ON SLAUGHTER

Sheep

The mandibles were allocated to eruption stages—" a-z " in accordance with the method described by Ewbank, J. M., Phillipson, D. W., Whitehouse, R. D. and Higgs, E.S. (1964). They were then assigned to the appropriate three month age group ranging from birth to two years. Assuming that the rate of development of sheep varies little from *Catcote* to *Corstopitum*, a comparison of the percentages of sheep in each age group may be made. However, the rate of development of sheep may vary from site to site because of differences in breed and in the levels of nutritional status of the sites due to soil, climate and altitude. In these cases comparisons cannot be exact.

In the report on sheep mandibles from *Barley* (Ewbank, J. M., Phillipson, D. W., Whitehouse, R. D., Higgs, E. S. 1964) have suggested that it may be impossible to draw valid conclusions from samples of less than one hundred mandibles. The distribution of ages of mandibles on death is as follows.

Catcote

Sheep mandibles—Forty specimens classified as to age on death

Lambing in February					*Lambing in March*		
Percentage	Number		Group	Group	Number	Percentage
2·5%	1	I	Feb — Mar — Apr	March — April — May	I	1	2·5%
5·0%	2	II	May — June — July	June — July — Aug	II	2	5·0%
0·0%	0	III	Aug — Sept — Oct	Sept — Oct — Nov	III	0	0·0%
0·0%	0	IV	Nov — Dec — Jan	Dec — Jan — Feb	IV	0	0·0%
7·5%	3	V	Feb — Mar — Apr	March — April — May	V	3	7·5%
25·5%	10	VI	May — June — July	June — July — Aug	VI	10	25·0%
7·5%	3	VII	Aug — Sept — Oct	Sept — Oct — Nov	VII	3	7·5%
20·0%	8	VIII	Nov — Dec — Jan	Dec — Jan — Feb	VIII	8	20·0%

Thirteen specimens were older than two years.
32·5%

Corstopitum

Sheep mandibles—Twenty-one specimens classified as to age on death

Lambing in February					*Lambing in March*		
Percentage	Number		Group	Group		Number	Percentage
0%	0	I	Feb — Mar — Apr	March — April — May	I	0	0%
0%	0	II	May — June — July	June — July — Aug	II	0	0%
0%	0	III	Aug — Sept — Oct	Sept — Oct — Nov	III	0	0%
0%	0	IV	Nov — Dec — Jan	Dec — Jan — Feb	IV	0	0%
4·8%	1	V	Feb — Mar — Apr	March — Apr — May	V	1	4·8%
42·9%	9	VI	May — June — July	June — July — Aug	VI	9	42·9%
4·8%	1	VII	Aug — Sept — Oct	Sept — Oct — Nov	VII	1	4·8%
14·3%	3	VIII	Nov — Dec — Jan	Dec — Jan — Feb	VIII	3	14·3%

Seven specimens were older than two years.
(33·3%)

(b) *Cattle*—Criterion as to age used was that the *third permanent molar* erupts between two and two and a half years (Sisson, S.

1910). It was assumed that the same eruption times were true for ancient cattle.

(c) *Pig*—Criterion as to age used was that the *third permanent molar* erupts about from eighteen to twenty months after birth (Sisson, S. 1910).

See Part I for conclusions based on these criteria.

(c) TYPES OF CATTLE FOUND ON ANCIENT SITES

In reviewing the evidence of cattle remains from British Archaeological sites, Jewell (1963) has referred to the difficulty in distinguishing the types that are present. The types present are, in Jewell's view, *Bos primigenius*, the *wild aurochs*, and a number of varieties of *Bos taurus*, the *domestic ox*. Of the latter Jewell discusses the Neolithic Ox which had close affinities with *Bos primigenius*, and the *Celtic Shorthorn*, *Bos longifrons*, notable for its diminutive form. The detailed archaeological reports for Neolithic and Early Bronze Age sites in Britain provide descriptive, if not metrical evidence, of two kinds of ox , one being undoubtedly, the *wild aurochs* or *Bos primigenius*, the other, believed by many authors to be a *domesticated Neolithic longhorned ox*. Trow-Smith (1937) recalls Piggott's (1954) contention that there were two types of *Bos primigenius* in Britain, one smaller than the other and forming a prototype for the *Neolithic Ox*. Jope (1960) describes remains in Irish Quaternary deposits as belonging to " a breed of Ox other than what has been called *Bos primigenius*" and compares it to the small types described at *Star Carr* (Fraser 1954). Juliet Clutton-Brock has similarly described, from an almost certain pre-Neolithic context, the remains of Ox smaller than the usual *Bos primigenius* (Bellamy et al. 1966 and personal communication). There is, therefore, some evidence of variation in size of indigenous cattle before the Neolithic period so that it becomes increasingly difficult to determine the course of cattle domestication in Britain. Trow-Smith (1957) contends that the two types of *Bos primigenius* discussed by Piggott would interbreed

from time to time producing a wide range of intermediate types, while Jewell (1963) has speculated that *Neolithic Oxen*, brought as domestic stock from the continent, could have cross-bred with wild indigenous cattle and that these crosses would have shown hybrid vigour and may have given rise to some of the large remains such as are found at *Maiden Castle* (details are discussed later). He dismisses the speculation, however, with the conclusion that all the large specimens are probably the remains of wild *Bos primigenius*. Trow-Smith (1957) has revived Jackson's (1943 (a)) notion that domestication need not initially have produced animals as docile as our present domestic stock, and suggests that the first Neolithic settlers did not necessarily bring their own domesticated stock with them but that they may have taken the *wild auroch* calves of Britain and tamed them to their purpose. To avoid the confusion of referring to *Bos primigenius* (*wild aurochs*), and to a possible near relative of it, i.e. a *domesticated* long-horned *Neolithic Ox* of "*primigenius*" type, Howard (1963) has revived the nomenclature *Bos taurus frontosus*, first used by Nilsson in 1849, to describe the Neolithic domestic ox.

Thus according to Miss Howard, there are three types to consider—

(a) *Bos taurus primigenius*—the *wild aurochs* or *URUS*
(b) *Bos taurus frontosus*—*domesticated Neolithic Ox*
(c) *Bos taurus longifrons*—*Celtic Shorthorn*

Jewell (1963) describes the probable decline in *Bos primigenius* during the late Neolithic and Early Bronze Age but we know from the work of Higgs and Shawcross (1961) that it persisted until the Early Bronze Age. It was formerly generally agreed that the *Celtic Ox, Bos taurus longifrons*, did not appear at British sites for some centuries after a form of Neolithic *domestic* ox, having some of the features of *Bos primigenius*, was established, i.e. the *Bos taurus frontosus* of Howard. (See Trow-Smith (1957) and Jewell (1963) for discussion.) However, the report on the cattle remains from Neolithic pits at *Puddlehill* (Field, Mathews and Smith, 1964)

reporting a small domestic variety of oxen along with a larger creature, possibly a female *Bos primigenius*, may cause us to revise this opinion. Certainly when discussing continental sites, Zeuner (1963) has recalled the finding by Dottrens (1948) of "*longifrons*" cattle at the lowermost stratum of the Neolithic site at *Saint-Aubin*, on Lake Bienne in Switzerland. Jewell (1963) has remarked upon the lack of metrical data about cattle from early sites but the published accounts give an impression of a type of apparently domestic animal, intermediate in stature between the *wild aurochs* (*Bos taurus primigenius*) and the later (?) Celtic Shorthorn (*Bos taurus longifrons*). Of remains at *Stonehenge* and *Maiden Castle* (Jackson 1935 and 1943) and at *Windmill Hill* (Jewell 1963), oxen are claimed to be of a "*primigenius*" type.

Of the *Skara Brae* cattle (Watson 1931), Jewell (1963), discounts Watson's claim that they were larger than other Neolithic cattle and presumes them to be of a "*primigenius*" type. It is interesting to note that Watson felt he was dealing with "only *one* breed of larger cattle" despite sexual trimorphism due to alleged castration. Of cattle at *Woodhenge* (Jackson 1929), we are told "The *domestic ox* does *not* conform to *Bos longifrons*. It is more robust and having a different type of horn. Inhabitants of this site possessed domesticated long horned cattle allied to the *Urus* but smaller than that species". He claimed that there were dwarf forms of a *primigenius* race.

Of the *Whitehawk Bay* cattle, Jackson (1934) states "The Oxen are *not Bos longifrons*, being more robust with larger horns and a wider skull". While of the *Thickthorn Down* (Jackson 1936) he says "they are not *Celtic Shorthorn* but rather animals with long robust horns". At Trundle (Watson 1928 and 1930) the remains are described as being from a *small* ox with *powerful* horns.

The case appears to be made that there was, on Neolithic sites, in addition to the *wild aurochs*, a domestic type of oxen of robust proportions. The specialist reports of material from Bronze Age levels contain similar descriptions. Jack-

son (1931) said of cattle remains found at *Overton Hill* "all the others are larger and more robust and agree closely with the remains of the large ox at *Woodhenge*. They indicate a bigger ox than the typical *Bos longifrons* of early Iron Age sites". At *Jarlshof Sumburgh, Shetland*, Platt (1933) described remains of Shetland Ox and the presence of a larger ox. Cattle bones from *Castle Hill* (Jackson 1934) are said to be more robust than those attributed to *Bos longifrons*, while a horn core from *Boscombe Down* is said by the same author (Jackson 1936) to be "larger and much coarser, and fluted and belonging to another type". Of a horn core from *Ratfyn* Jackson (1935) says "It is *Bos primigenius* kind but smaller than the true *Urus*". Of the bones, he says "It is clear that the ox bones do not belong to the small Celtic ox of the old Iron Age sites". He claims that "The oxen of *Ratfyn, Stonehenge, Windmill Hill, Woodley* and *Whitehawk Camps* appear to have been of a robust type with large horn cores derived, possibly, from a *Bos primigenius* stem".

A large horn core is reported by Jackson (1936) at *Mildenhall Fen*, while robust horn cores from *Minnis Bay* (Jackson 1943) are attributed by him to *Bos taurus frontosus*.

The published references from Mesolithic, Neolithic and Bronze Age sites suggest that there were present cattle which were clearly not the diminutive *Celtic Shorthorn* (*Bos longifrons*) nor the large *Urus* (*Bos primigenius*). It would appear reasonable, therefore, to group such remains together and consider the *Neolithic domestic ox* as a successor to the *Mesolithic Ox*. How it was domesticated and whether it was a distinct breed, i.e. *Bos taurus frontosus* will remain a matter of speculation in the absence of fresh material and metrical data. At *Catcote* and *Corstopitum*, however, all the material appears to belong to *Celtic Shorthorn* (*Bos taurus longifrons*).

(1) *Diversity of Size*

Jewell (1963) has commented on (1) the gradual diminu-

tion in size of cattle from British ancient sites from the *Neolithic Ox* of the earlier sites to the *Celtic shorthorn* so common in the Iron Age and (2) the diversity of types of cattle from Roman sites with the emergence of beasts larger than those which commonly existed in the preceding centuries. Jewell's (1963) work has been extended to include the new data from *Corstopitum* and from *Catcote* along with data recorded for sites not included in Jewell's comparison. Figures No. 1-6 refer and are discussed in turn. The names of the sites within each age group are arranged in alphabetical order.

Figure No. 1

This compares the metacarpal length ranges of cattle remains reported from twenty-nine sites.

The six specimens from *Catcote* fall within the lower part of the *Corstopitum* range and the ranges for other Romano-British sites. The range of the *Catcote* material compares well with the Iron Age material from *Glastonbury* and *All Cannings Cross* as well as with Bronze Age material from *Jarlshof*. It is apparently shorter than modern material except for Kerry Cow and Chillingham cattle. The paucity of collections of modern material makes it dangerous to draw exact comparisons with modern breeds. The top part of the *Corstopitum* and other Romano-British ranges must represent animals with substantially *bigger* metacarpals than those found among Iron Age animals. Possibly these bones belonged to bulls or they represent a *bigger* variety of cattle.

Figure No. 2

This compares the distal width ranges of cattle remains reported from twenty-three sites.

The range for *Corstopitum* is very great. Some of the

Figure 1

CATTLE METACARPAL LENGTH RANGES

ADAPTED FROM JEWELL (1963) EXTENDED AND REVISED

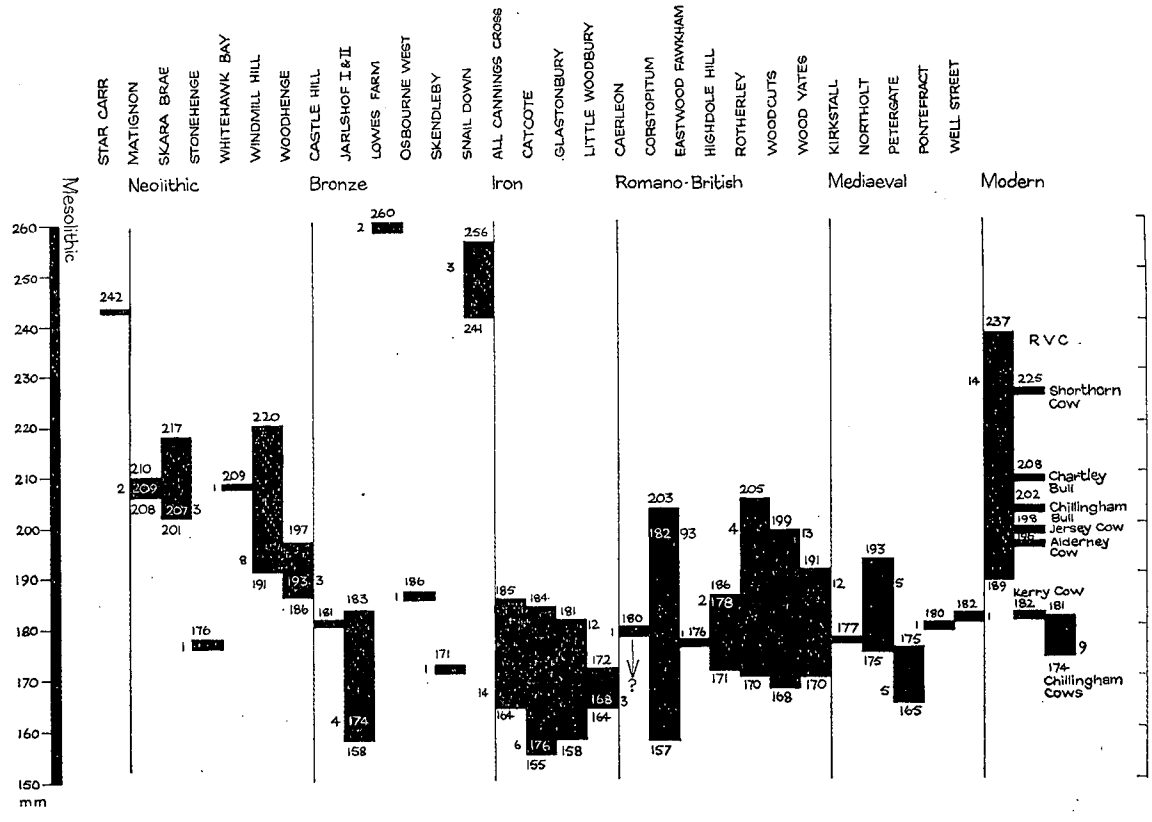
R V C – Material in Royal Veterinary College, breed and sex not known

Chillingham and Chartley material from British Museum

Figures for Alderney and Kerry are from Pitt Rivers (1888)

Number at side – number of specimens

Number inside – mean value



bones are as *narrow* as anything published for British sites and almost as *narrow* as a specimen of Chillingham bull, while others are as *wide* as much of the modern material in The Royal Veterinary College except for a Chartley Bull specimen; indeed they are *wider* than any clearly domesticated prehistoric animals.

The *Catcote* material shows a smaller range which fits into the middle range of Iron Age *Glastonbury* and Roman *Corstopitum*. The *Catcote* range is similar to that of the medieval material from *Petergate*, tending to be *narrower* in extent than the ranges reported for *Windmill Hill* and *Woodhenge* and being made up of bones which were themselves *narrower* than similar bones reported at either of these sites.

Figure No. 3

This compares the distal width ranges of cattle humerus bones recovered from seventeen sites.

The *Corstopitum* material has the widest range for any site except *Star Carr*. The *narrowest* bones being *narrower* than even modern Chillingham bull while the *widest* bones reach well into the modern range. The *widest* specimens are not as *wide* as some reported from Mesolithic, Neolithic and Bronze Age sites.

The few specimens from *Catcote* lie in the middle range of the *Corstopitum* material and compare well with medieval and some modern material, especially Jersey and Chillingham specimens.

Figure No 4

This compares the astragalus length ranges for cattle remains from eighteen sites.

At both *Corstopitum* and *Catcote* astragalus lengths are

Figure 2

CATTLE DISTAL WIDTH RANGES OF METACARPALS

DETAILS AS IN FIG 1

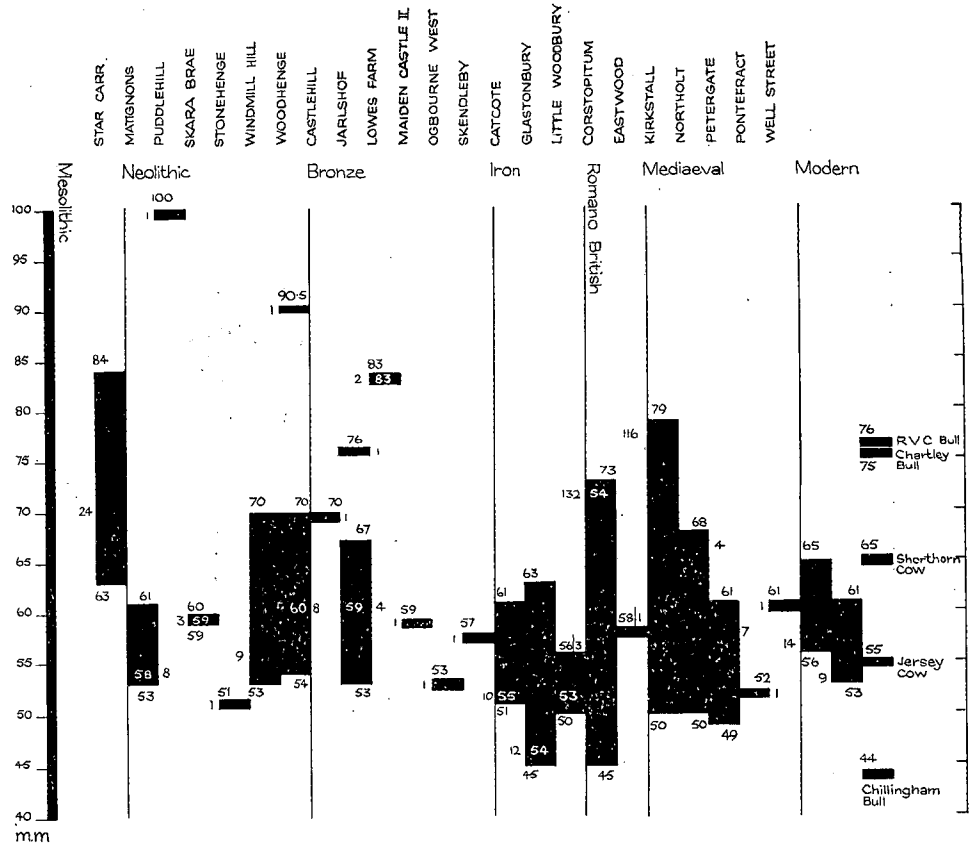


Figure 3

CATTLE HUMERUS WIDTH OF DISTAL ARTICULATION

DETAILS AS IN FIG 1

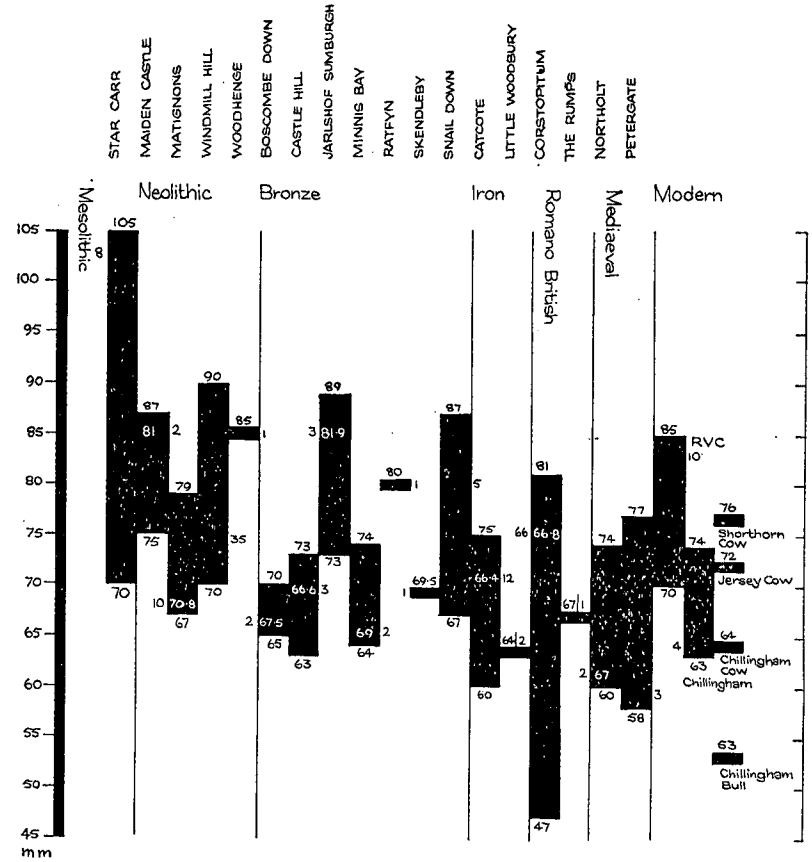


Figure 4

CATTLE ASTRAGALUS LENGTH RANGES

DETAILS AS IN FIG I

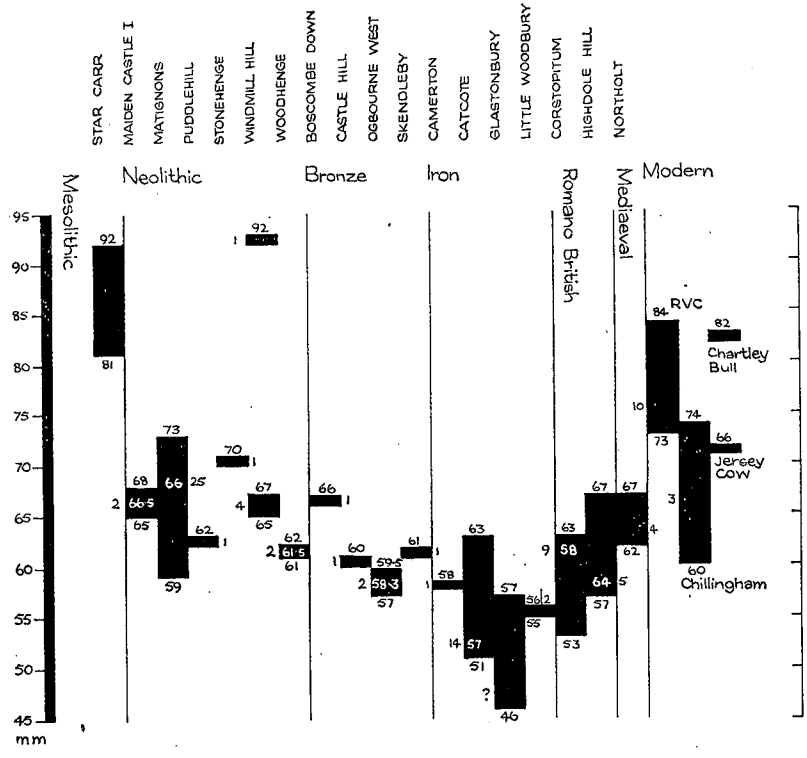
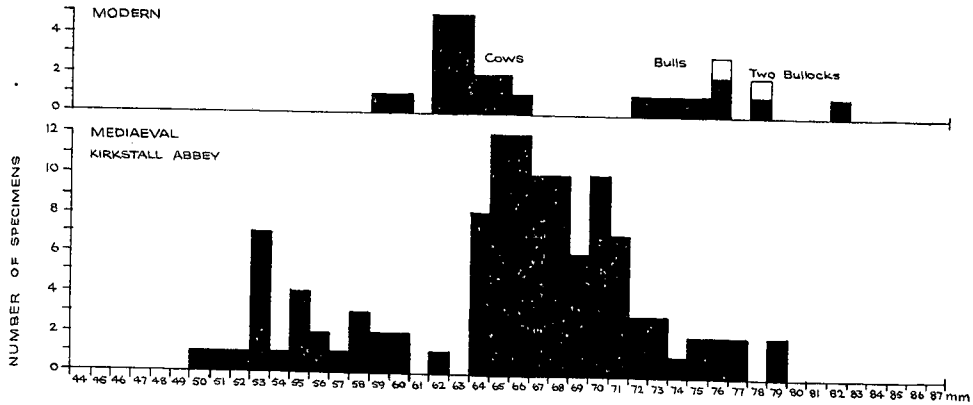
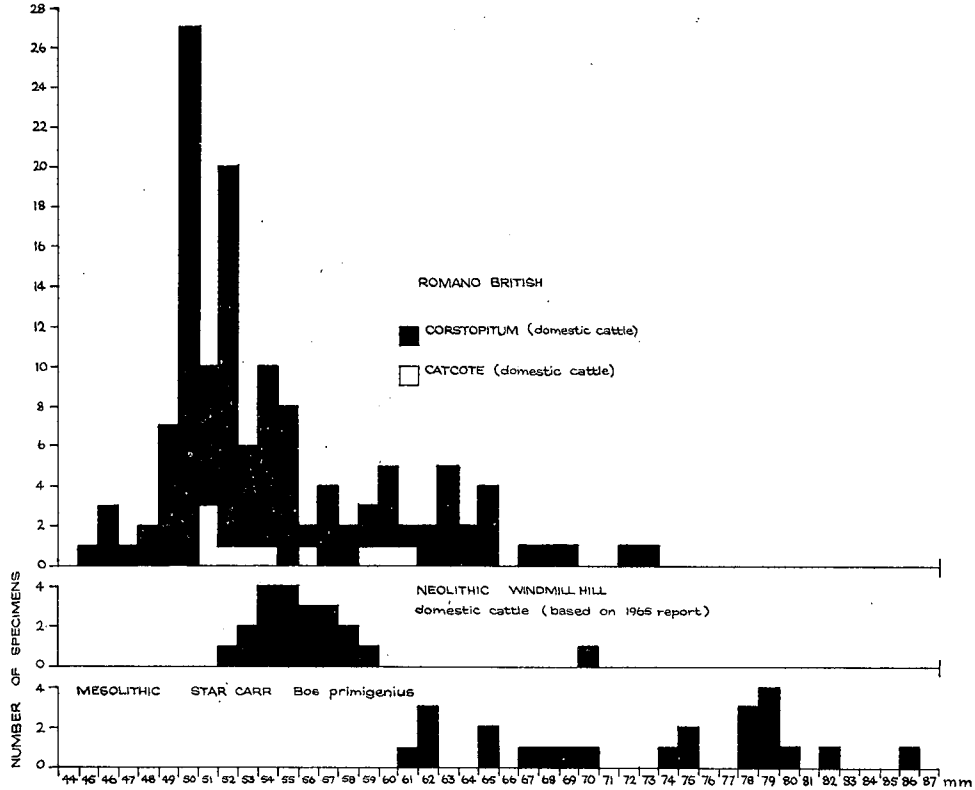


Figure 5

CATTLE
METACARPAL DISTAL WIDTHS
FREQUENCY DIAGRAM




ROMANO BRITISH
CORSTOPITUM (domestic cattle)
CATCOTE (domestic cattle)
NEOLITHIC WINDMILL HILL
domestic cattle (based on 1965 report)
MESOLITHIC STAR CARR Bos primigenius
NUMBER OF SPECIMENS
mm

shorter than most of the modern material in the Royal Veterinary College but not as *short* as much of the Iron Age *Glastonbury* material. If we assume a general diminution of cattle bones in time down to the Iron Age then the *Catcote* and *Corstopitum* materials may represent *a start of an increase in size* reflected in the longer astragalus bones reported for the Roman site of *Highdole Hill* and the Medieval site at *Northolt.*

Figure No. 5

This compares the scatter of cattle metacarpal distal widths from mesolithic, neolithic, Iron Age, Roman and medieval sites with those of some modern material.

The *Corstopitum* range is again great, on the one hand overlapping into the *wide* specimens of *Bos primigenius* from *Star Carr* and the *wide* specimens from medieval and modern times, on the other hand the bulk of the specimens are more *gracile* than either the smallest Neolithic or medieval material.

The *Catcote* range is small but it fits into the *Corstopitum* range.

Grigson, C. (1965) has attempted comparisons of cattle on the bases of measurements of sagittal length and proximal breadth of the second phalanx. This has been repeated and extended to include the *Catcote* and *Corstopitum* data.

Figure No. 6 (a)

Scatter of sagittal lengths of middle phalanx

The *Corstopitum* material shows a *wider* range than the *Catcote* material. There is some evidence of a *bigger boned animal* present at *Corstopitum* and absent from *Catcote*; an animal comparable in size with some of the *Bos primigenius* specimens from *Star Carr* as regards this particular measurement.

Figure 6a

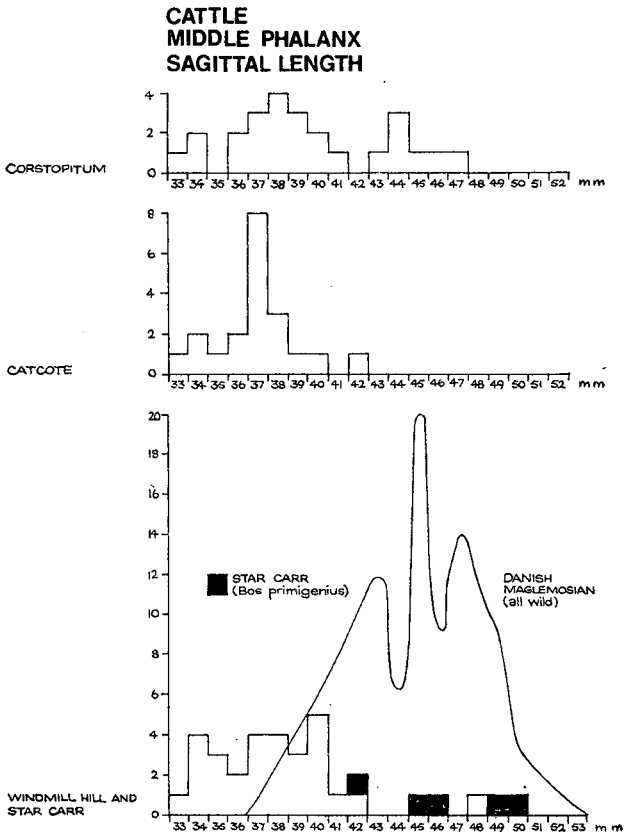
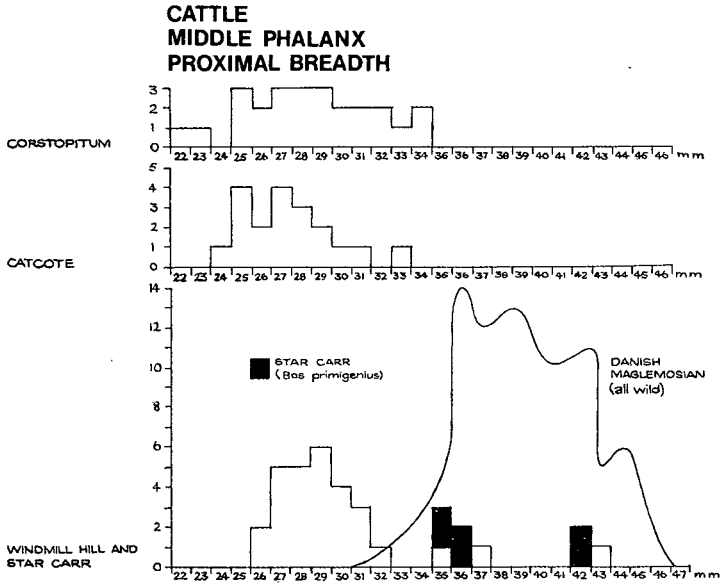


Figure No. 6 (b)

Scatter of proximal breadths of middle phalanx

The *Corstopitum* and *Catcote* specimens are substantially *narrower* than the Wild Danish Maglemosian material and the *Star Carr Bos primigenius* but are not very different in

Figure 6b



size from the *Windmill Hill* material. With shortage of Iron Age material it is difficult to discern whether the biggest specimens from *Corstopitum* are a *survival of prehistoric bigness* or the *advent of increase of size* which continues into medieval and modern times.

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