



Animal Remains from Longbridge Deverill

Cow Down

Introduction and Methods

The bones from this site weighed 355 lbs and were in three groups, one each from the 'A' and 'B' occupation phases and another of uncertain provenance but definitely of Iron Age date. The bulk of the material was from the 'B' phase but no difference in the types of animal was apparent between the three groups.

The species represented were cattle, sheep, ^{goat} pig, dog, horse, red deer, small rodents, amphibia and bird.

Proximal and distal extremities were measured across articular surfaces only. Ages were estimated using the nineteenth century data cited by Silver. (14). All measurements are in millimetres.

Description of Material

The bones were in a good state of preservation. The minimum number of the various species in each of the phases is shown below (Table 1.) Since the material in the undated group must obviously belong to one or other of the dated groups there may be some duplication but this is unavoidable.

Species/Phase	A	B	Undated
Cattle	5	19	11
Sheep	4	27	18
Pig	4	12	4
Horse	2	7	5
Dog	1	4	2

Goat

1

Cattle

Size The measurements of the long bones (Table 2) and the shape of the skulls and horn cores show that these cattle were identical with Bos taurus longifrons described from other Iron Age sites, (C 7. 8. 9. 10.) ^{small beaks of just over 3 1/2 ft at the shoulder.}

The cranial portions of eight skulls were found. Three had normal horn cores but the other five indicated the presence of polled animals. The sites of the horn cores were marked in two cases by irregular pits and in the others by small prominences, (Fig. 1), which would have been palpable under the skin ~~but~~ not visible in the living animal.

Age The age structure of the population shows fully mature animals to have been in the majority. Many third lower molars were heavily worn and some showed such extreme wear that the crown had almost disappeared. It seems



likely that these came from animals which were ten years old or more. Cows of such an age are common-place in some Highland crofts even at the present day. (13.). Thirty seven specimens from animals less than four years old were noted as against eighty nine from those of more than four years and of these twenty nine are considered on the basis of molar wear to be of beasts of more than five years of age. It is evident that the herdsmen at this settlement had little difficulty in bringing their stock through the winter. There were four mandibles with only five cheek teeth. Similar specimens were reported from Little Woodbury and Glastonbury. (7. 10.).

Table 2a. Measurements of Cattle Long Bones

	<u>t.l.</u>	<u>p.w.</u>	<u>m.s.d.</u>	<u>d.w.</u>
Radius	229.	60.	35.	51.
	234.	59.	30.	45.
	250.	67.	36.	55.
	255.	-.	38.	48.
	260.	60.	36.	59.
	-.	60-71(10)	-.	52-72(7)
Humerus	211. ⁺	-.	28.	61.
	211. ⁺	-.	29.	-.
	-.	-.	-.	60-74(34)
		+ to head		
Femur	288.	-.	29.	71. ^o
		o across condyles		
Tibia	269.	-.	36.	45.
	276.	78.	32.	47.
	282.	69.	35.	45.
	291.	70.	37.	46.
	-.	-.	-.	42-51(29)

Figures in brackets indicate numbers of specimens measured.

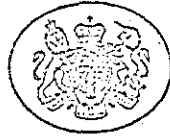


Table 2b. Measurements of Cattle Long Bones

Metacarpals

t.l.	169	169	170	171	172	173	175
p.w.	47	50	45	53	50	-	44
m.s.d.	26	29	26	31	28	28	27
d.w.	51	55	50	60	53	57	50
m.s.d.	15.3	17.1	15.3	18.1	16.2	16.2	15.4
100.msd/tl	30.1	32.5	29.4	35.0	30.8	32.9	28.5
100.dw/tl							
Sex	Cow	Steer	Cow	Steer	Cow or Steer	Steer	Cow
Ht. cms.	106	108	107	109	109	110	110
Ht. ins.	41.9	42.7	42.3	43.3	43.1	43.5	43.5

Metatarsals

t.l.	186	190	191	193	194	195	197	201
p.w.	40	40	-	41	44	44	41	40
m.s.d.	25	26	23	26	24	24	21	24
d.w.	56	55	52	53	48	50	45	51
m.s.d.	13.4	13.6	12.0	13.4	12.3	12.3	10.6	11.9
100.msd/tl	30.1	28.9	27.2	27.4	24.7	25.6	22.8	25.3
100.dw/tl								
Sex	Bull	Bull	Steer	Steer	Cow	Steer	Cow	Steer
Ht. cms.	111	114	109	110	109	111	111	115
Ht. ins.	43.9	45.1	43.1	43.5	43.1	43.9	43.9	45.5

Sex determinations were based on Howard's method using length/breadth indices. (6.) (see Fig. 2.)

For the height calculations the total lengths of the metapodials were multiplied by the following factors - Metacarpals: 6.71, 6.40 and 6.31 for bulls, steers and cows respectively. The equivalent factors for the metatarsals were 6.0, 5.71 and 5.63. (1).

t.l. = total length p.w. = proximal width
 m.s.d. = mid shaft diameter d.w. = distal width
 ht. = height at withers



Table 2b. (continued)

	<u>t.l.</u>	<u>p.w.</u>	<u>m.s.d.</u>	<u>d.w.</u>	<u>Sex</u>
Metatarsal	186.	40.	25.	56.	Ex11
	190.	40.	26.	55.	Male
	191.	-	25.	52.	Steer
	193.	41.	25.	53.	Steer
	193.	44.	24.	-	Cow
	194.	42.	24.	48.	Cow
	195.	44.	24.	50.	Steer
	197.	41.	21.	45.	Cow
	201.	40.	24.	51.	Cow or Steer

~~Sex determinations were based on Howard's method using length/breadth indices. (5.).~~

~~t.l. = total length. p.w. = proximal width.
m.s.d. = mid shaft diameter. d.w. = distal width.~~

Sheep

The dimensions of the sheep bones (Table 3) suggest that the animals closely resembled the Soay in build. Nine horn cores were found and from the size range of these it seems probable that ~~both rams and ewes were horned~~ there were horned animals among both rams and ewes.

Table 3. Measurements of Sheep Long Bones

	<u>t.l.</u>	<u>p.w.</u>	<u>m.s.d.</u>	<u>d.w.</u>
Humerus	120.	-	12.	23.
	125.	-	11.	23.
	-	-	-	22-28(18)
Femur	149.	-	12.	30.
Metacarpal	116.	17.	10.	20.
	117.	19.	10.	20.
	121.	19.	12.	22.
Metatarsal	122.	17.	10.	21.
	123.	17.	10.	20.(2)
	124.	18.	10.	21.
	128.	18.	10.	21.
	130.	17.	15.	20.

Figures in brackets indicate numbers of specimens measured.



Age

The remains of fully mature animals are the most numerous. (Table 4). Very many lower third molars were present and a high proportion were well worn and some, as with the cattle, showed extreme wear. The maximum age quoted in Table 4 is probably an underestimate and some of the animals may well have been nearer 10 years old.

The oldest sheep kept under commercial conditions, i.e. not a pet, known to the writer, died when 17 years of age.

Table 4. Estimates of ages of Sheep

<u>Phase/Age</u>	<u>N/B or foetal</u>	<u>0-6 m.o.</u>	<u>6-18 m.o.</u>	<u>1$\frac{1}{2}$-3 y.o.</u>	<u>3-5</u>	<u>5 or more</u>
A	-	3	3	2	5	1
B	3	12	12	4	36	16
Uncertain	3	4	2	6	11	7
	6	19	17	13	52	24

The numbers indicate bone specimens falling in particular age groups not individual animals.

It is inconceivable that pregnant ewes were deliberately killed so the new born or foetal lambs must be explained either by the death of the dams, or by abortion or neonatal death. The mortality among lambs in the first twelve months of life is always high so that most of the individuals in all age groups up to 18 months old could be accounted for by natural death. These small slender sheep would have had so little meat on them by that age that to kill them would have been pointless.

INSERT

Pig

The remains of this species were, as is usual, too few and fragmentary for it to be possible to obtain much information of value. ^{Only one} No specimen was large enough to suggest the presence of wild pig. ^{This} There was ^a one very large but broken tusk; at its broadest point this was triangular in section with sides of 15 x 22 x 27 mm. All age groups were represented, from young piglets to fully mature adults with well worn third molars.

Horse

This collection was remarkable for the amount of horse material present. The animals were the small ponies characteristic of Iron Age sites and stood about ¹¹⁻12 hands ⁴⁴⁻(¹¹²⁻48 ins./122 cms.). Comparison of bone measurements from this site and those from Castle Hill, Scarborough (Table 5) suggest the possibility that there may have been regional differences in Iron Age horses, those in the north being taller.

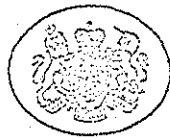


Table 5. Measurements of Horse Bones

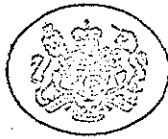
	<u>t.l.</u>	<u>p.w.</u>	<u>m.s.d.</u>	<u>d.w.</u>	
Radius	300.	63.	13.	53.	
Humerus	240.	-.	31.	66.	271-284. Castle Hill, Scarborough.
	251.	-.	31.	61.	
Femur	334.	-.	36.	78.*	(Condyles)
Tibia	320.	-.	38.	51.	
	332.	89.	38.	55.	
Metacarpal	181.	39.	25.	39.	
	192.	42.	29.	42.	
	197.	42.	31.	46.	
	198.	40.	26.	41.	
	199.	42.	30.	45.	
	200.	45.	29.	42.	
	203.	44.	30.	42.	
	204.	44.	29.	45.	221-235. Castle Hill, Scarborough. (10)
	204.	45.	29.	46.	215. New Forest - 12.3 h. 130 cms (11)
	205.	41.	28.	42.	189. Exmoor - 11.3 h. 119 cms (11)
Metatarsal	235.	45.	27.	44.	
	239.	41.	26.	40.	
	239.	42.	30.	43.	
	242.	35.	27.	42.	
	243.	42.	27.	42.	265-270. Castle Hill, Scarborough. (10)
	250.	43.	27.	43.	254. New Forest. (11)
	257.	47.	28.	47.	231. Exmoor. (11)
	259.	43.	30.	45.	

Age Most of the specimens were from young adults (see Table 6). These included cheek teeth of which some had not erupted and others showed only slight wear. Among both sheep and cattle there were fairly numerous bones of very young animals although they only formed a small proportion of the total. There was not a single such specimen in the horse material. The possible significance of this is discussed below. The horse bones were just as fragmentary as those of cattle and sheep, so it seems reasonable to assume that they were eaten.

Table 6. Estimates of ages of horses

Up to 18 m.o.	Up to 4 y.o.	6-8 y.o.	More than 2½-3 ^{II}	More than 3-3½ ^{II}
5	9	4	3	12

^{II} These 2 groups are estimated from epiphyseal fusion, a method which provides only a minimal, not actual, age.



Red Deer

As on other contemporary sites (3. 5. 7. 8. 10) there were very few red deer remains; merely some teeth and portions of cast antler. It is clear that this species was hardly hunted at all during the Iron Age.

Dog

Two pits (7 and 53) each yielded the almost complete skeleton of a 12 - 15 months old dog, but in Pit 7 there was no skull. The rest of the material was rather scattered with only a few specimens found in any given feature.

There were two nearly complete skulls (Pits 53 and 60), one of which closely resembled that of a male chow or a heavily built Border Collie. The furrow between the eyes, so conspicuous in the chow, was not present. The dimensions of the other skull, which had a nearly straight profile, matched those of a female chow or a pariah dog. (Table 7).

Table 7. Skull measurements of dogs

I	III	IV	IX	X	XI	XII	XIII	XV	
174.	85.	86.	86.	53.	62.	35.	128.	73	L.D. Pit 53.
171.	83.	103.	80.	55.	51.	36.	125.	60.	Chow 58.5.4.91 [≡]
175.	90.	99.	81.	52.	60.	33.	130.	69.	Pariah 166B [≡]
199.	95.	109.	92.	64.	70.	44.	-.	-.	L.D. Pit 60
199.	92.	115.	93.	-.	70.	40.	149.	76.	Chow D 36 [≡]
202.	101.	113.	93.	61.	64.	37.	154.	74.	Border Collie 64.5 [†]

[≡] Specimens at British Museum (Natural History)

[†] Private collection

- I Occipital protuberance - alveolare.
- III Posterior junction of nasals - alveolare.
- IV Bizygomatic Breadth.
- IX Greatest length of palate.
- X Greatest breadth of palate, at junction of P⁴ and M¹.
- XI Maxillary tooth row.
- XII Width across canines at lateral margin of alveolus.
- XIII Condyle - Infradentale.
- XV Mandibular Tooth Row.

Three mandibles were included in the dog remains and these had large lower carnassials in relation to the length of the tooth row, (2). (See Fig. 3.) Similar large teeth were noted at Glastonbury. (7.) This is a feature of relatively primitive dogs. (4).



Examination of the long bones and comparison with a wide range of reference material suggest that the dog population did not show any great variation in size, ranging from about 19"-23" (48-58 cms.) in height at the shoulder. Parallels are provided by the Border Collie 16", Chow 20" and Labrador 23". These heights are of course approximate and variable. Measurements are shown in Table 8.

Table 8. Measurements of Dog Long Bones

Humerus.	Radius.	Femur.	Tibia.
135.11	134.10	152.12	154.11 - Pit 53
136.11	130.11	144.12	162.12
-	152.12	-	167.13
-	-	180.13	180.12

Total length and midshaft diameter is given for each specimen.

It should be emphasised that the citing of a modern breed in comparison with dogs from this site in no way implies any resemblance other than that of stature and skull shape. The breeding of dogs at a settlement such as this could well have been completely uncontrolled by man and their function simply that of village scavengers. Equally they may have served as guard or herd dogs.

Rodents and Amphibia

Numerous bones and skulls of Water vole (*Arvicola terrestris*) and field vole (*Microtus agrestis*) and a few of the house mouse (*Mus musculus*) were found, mostly in the pits. Many bones of frog or toad were present.

Bird

Most of the skeleton of a young raven was found in one of the pits from the 'B' phase of the occupation.

Pathology

Lesions of osteoarthritis were noted in the femur of an adult bovine and the elbow of a young dog. The head of the femur showed severe wear, the normal rounded profile becoming flattened as a result. Exostoses extended all round the lip of the articular surface and down as far as the lesser trochanter. In the dog the humerus and ulna were affected; both showing exostosis and eburnation. A proliferative bony growth, possibly due to arthritis, filled the acetabulum on the pelvis of a pig. There was very little false joint formation so that in life the leg must have been fixed with only minimum movement. (Fig 5.)

Fig 4.



In the femur of a dog there was a healed diagonal midshaft fracture. This had occurred at least one year before death as the callus had disappeared almost completely.

Discussion

1. Sheep and Cattle

The high proportion of specimens from fully mature and old animals shows that sheep and cattle were not, as is so commonly implied, used purely as meat animals but kept alive as long as possible and killed only at the end of their productive life. It should be remembered that, even at the present day, it is only in the more affluent countries that meat figures largely in the diet and in many agricultural peasant communities it is very seldom eaten.

Milk and wool would have been provided by sheep and milk and power by cattle. Cows as well as steers can be used as draught animals. Culling and thus slaughter of younger animals would sometimes have been desirable as, for instance, in the case of sheep with faulty teeth or disease of the udder or cows of low fertility. Pigs of course are of no use until they are eaten.

It is far too readily assumed that all bones on archaeological sites are those of killed animals. There is no evidence for this belief and it seems highly probable that some are of animals which have died. There is no reason why many of these should not have been eaten. This practice is an every day occurrence in protein deficient parts of the world. Occasionally, however, a carcass would be encountered repugnant even to those unencumbered by modern ideas of hygiene and would, accordingly, be thrown entire into a pit. This is offered as a more likely explanation of the complete skeletons found, for example, at Barley where it was suggested that they indicated old tough animals which were not eaten. (3). Such extravagance seems unlikely. Iron Age people had sufficiently good ^{Cooking vessels} ~~poors~~ to stew tough meat and sufficiently good teeth to chew it. (2.)

On the basis of bone measurements and comparisons it is estimated that the carcass weight ratio of cattle : sheep : pig : horse was 10:1:1.5:10. Thus from the figures in Table 1. the meat contribution of each species is calculated. (Table 9.)

Table 9. Estimated Percentage of Total Meat provided by each Species

Occupation Phase.	Cattle.	Sheep.	Pig.	Horse.
A.	62 %	5 %	8 %	25 %
B.	62	6	9	23
Undated	60	10	3	27



Polled skulls have been reported from two other Iron Age sites in Wessex - All Cannings Cross and Swallowe Cliffe. (8. 9.). A skull from Glastonbury was described as having rudimentary horn cores but the published description and photograph (7.) make it clear that this was merely an example of the very short stubby type of horn occasionally to be found in a cattle population with mixed horn shapes and that the term 'rudimentary' is not justified.

No doubt if more of the numerous farmstead sites in Wessex are excavated many such skulls will be found but even considering only those already known the distribution pattern is of interest. Hornlessness in cattle, which has not, as far as the writer is aware, been recorded prior to the Iron Age, must have arisen from a mutation and is most unlikely to have appeared at several different settlements so close both in time and distance. It is suggested therefore that the occurrence of polled animals at these three sites shows that there was some form of exchange of cattle, either by trade or by stock thefts. The latter seems the more likely because according to the Irish sagas (Hawkes, pers. comm) cattle raiding was a favourite Celtic pastime. The polled character is genetically dominant so that if a beast carrying the appropriate gene were taken to another settlement then the feature would appear in its progeny there.

2. Horses

The age pattern is at first rather puzzling because to rear a pony from birth and then kill it at the beginning of its prime does not make sense particularly as it is known that horses were used for draught purposes in the Iron Age. The assumption that all horse bones found on excavations are those of domestic animals may be incorrect. If those from this site were not of domestic animals at all but of wild or semi-wild ones then their presence may point to periodic round-ups with subsequent selection of animals suitable for breaking-in and training and the slaughter of the remainder for food. That there were no bones of very young animals would seem to lend support to this view in that it indicates the apparent absence of foals at this settlement. If wild ponies existed in any number then it is likely they would have competed with the sheep and cattle for the available grazing and might have caused damage to crops thus making some reduction in their numbers necessary. Alternatively they may merely have been exploited as one of the available natural resources. This hypothesis was put forward by the excavator and seems to fit the observed facts and to make good sense.

Summary

The species represented were cattle, sheep, pig, dog, horse, red deer, small rodents, amphibia and raven. Goat

All the farm animals were small, the cattle about 3½ feet at the shoulder, the horses 11-12 hands and the sheep resembled the small slender Soay.



Cattle and sheep were not killed young but at the end of their productive life and evidence, based on the presence of polled skulls, is presented for the interchange of cattle between this and other comparable Iron Age sites in Wessex, either by trade or by stock thefts.

It is suggested that periodic round ups of wild or semi wild horses occurred, no breeding being carried out at the settlement.

The contribution of each species to the total amount of meat is shown and various pathological abnormalities are described.

Several tables and photographs are included.

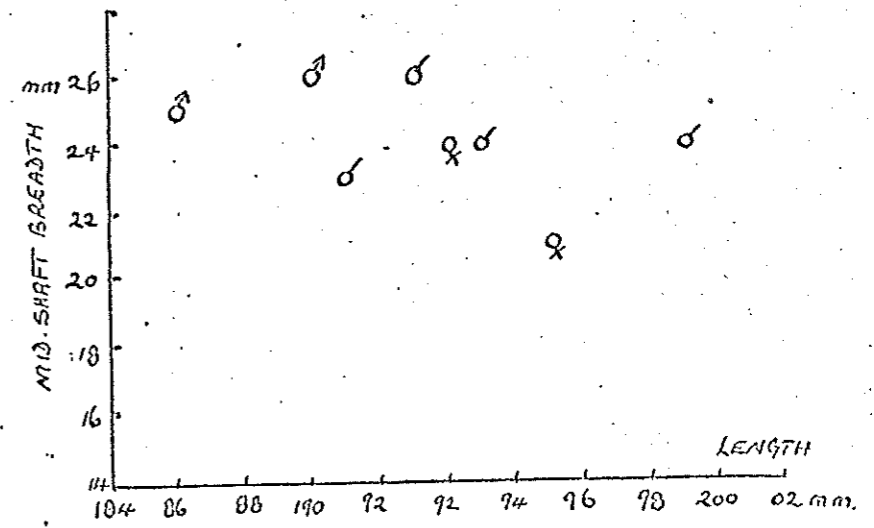
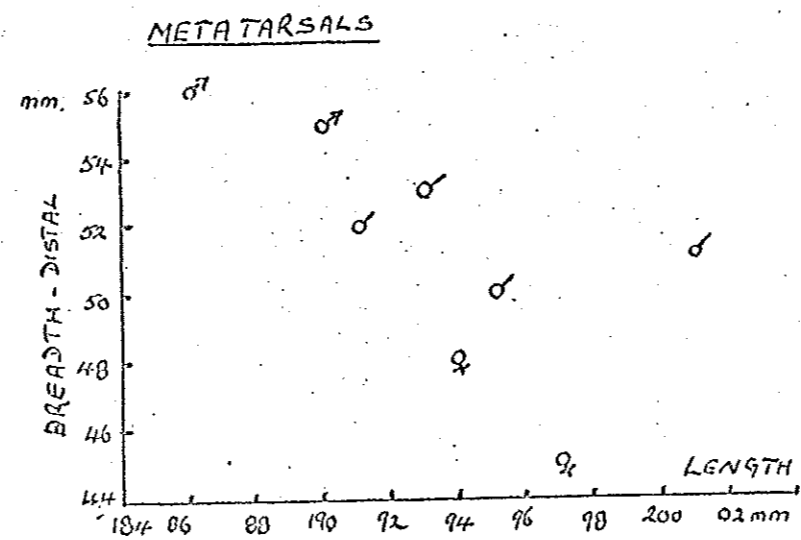
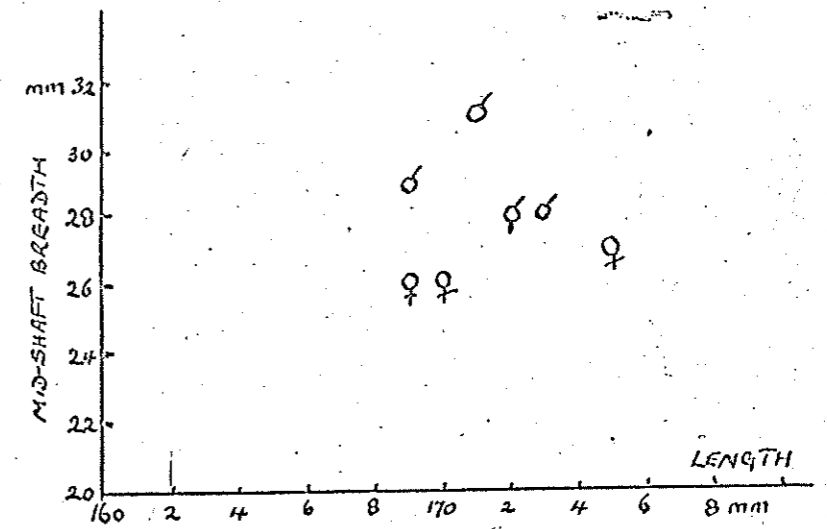
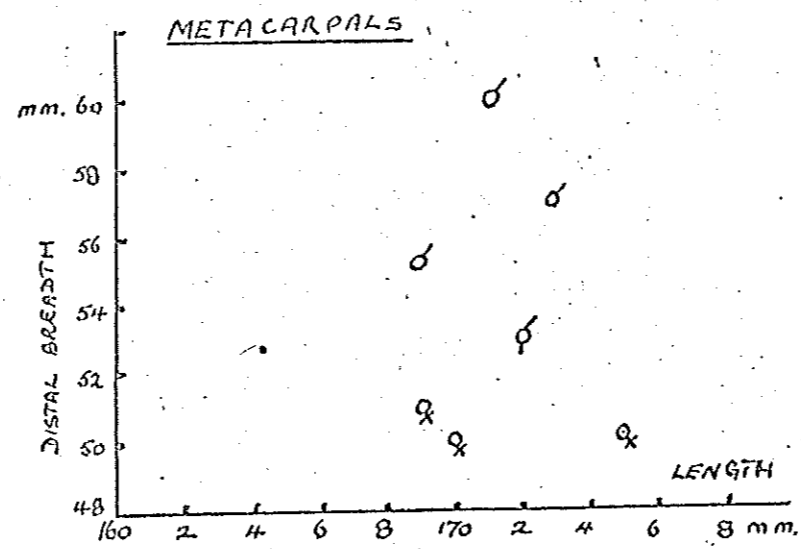
Acknowledgements

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♂ = Bull ♀ = Cow

Fig 2. Diagram to show length-breadth relationship

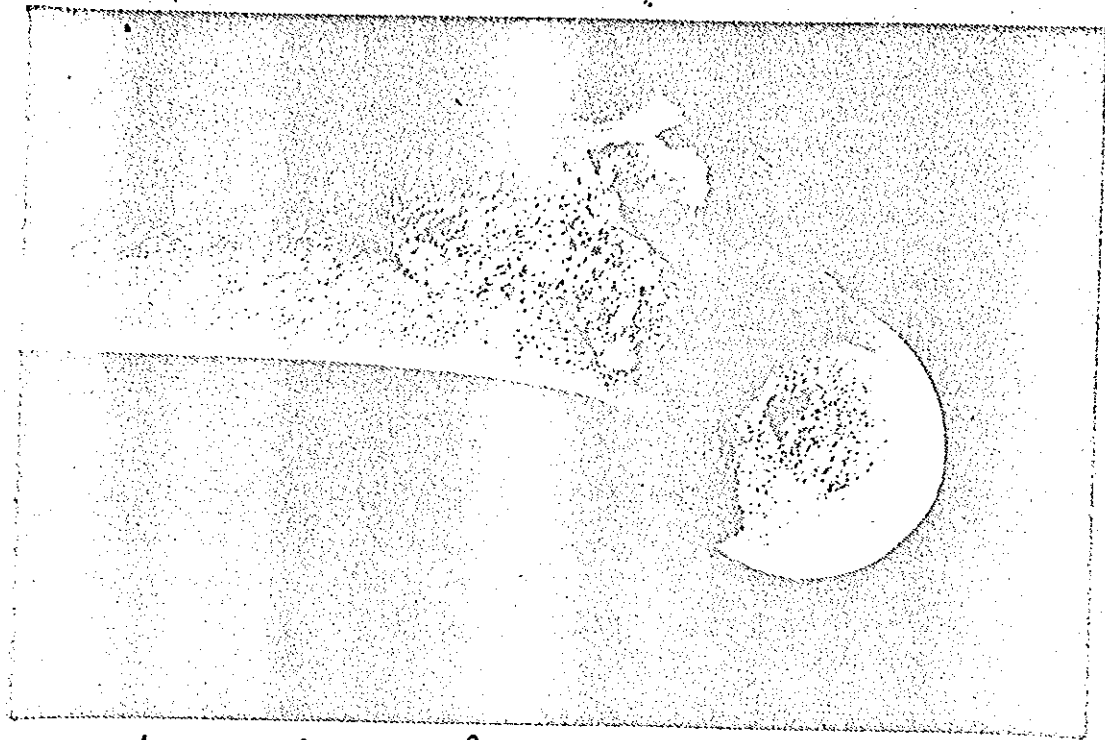


Fig 4b. Beaver Posterior view of femur in tra,
showing abutment of head and exostoses.

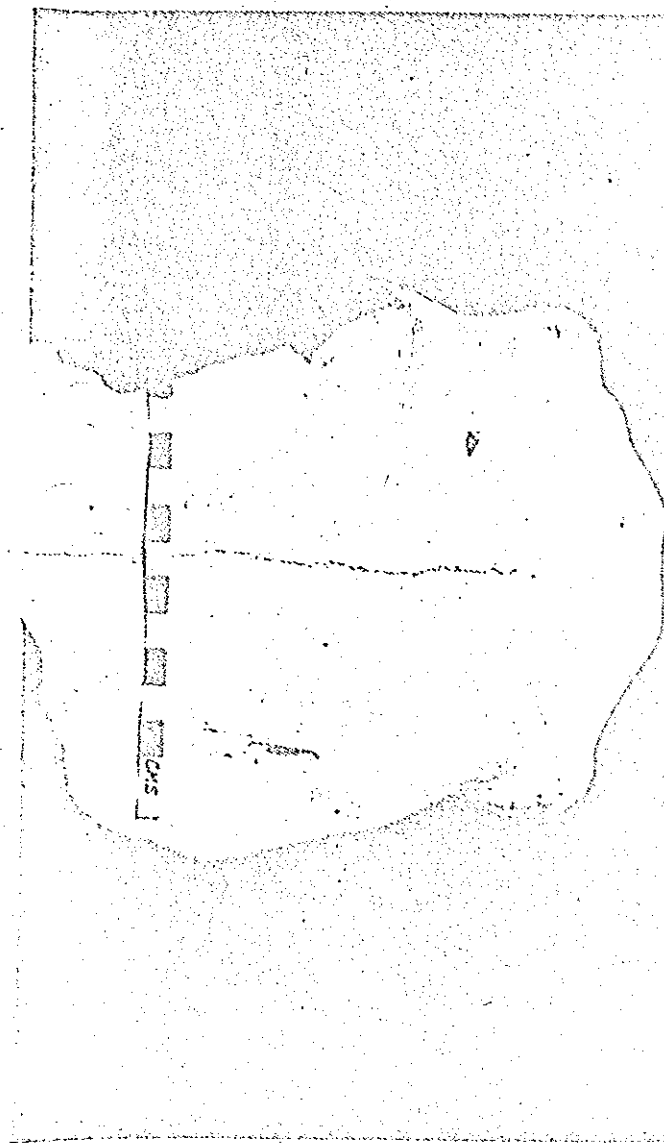


Fig 1d. Polled skull.

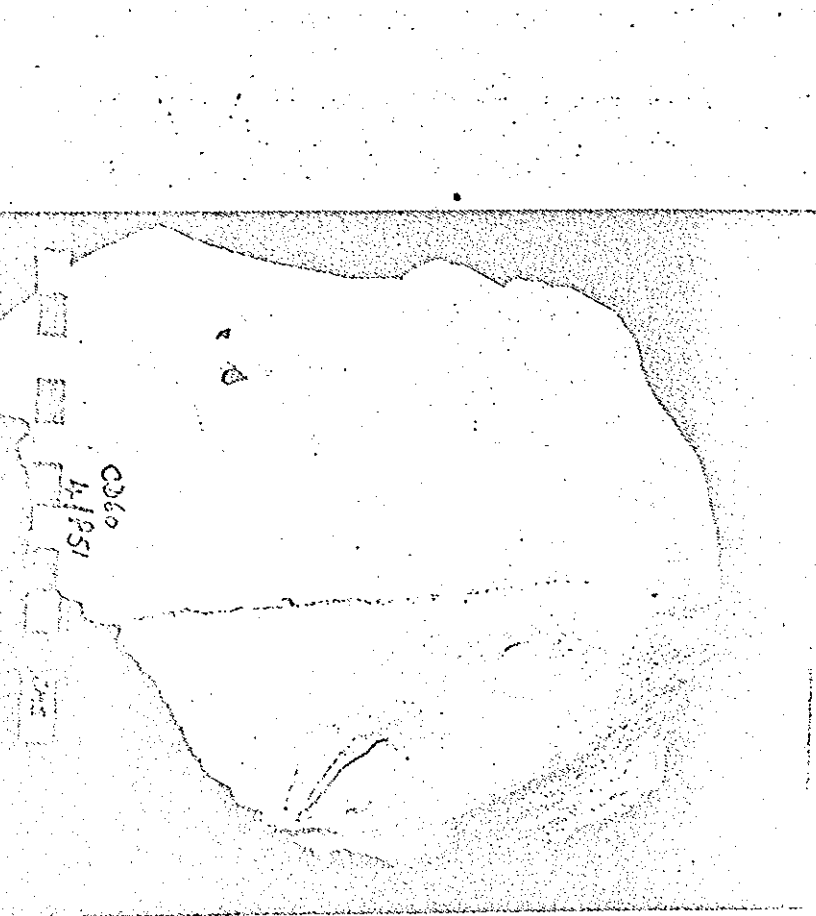


Fig 1c. Polled skull.

* is shown for comparison.

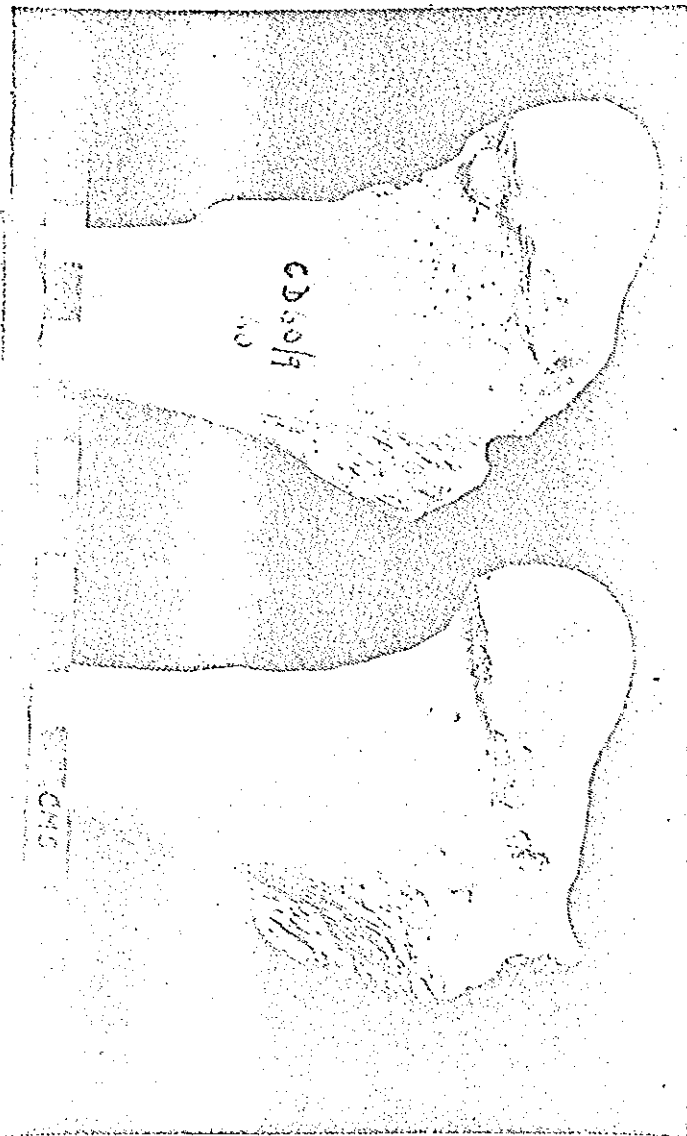


Fig 4A. Bovine femur showing lesions of osteoarthritis (left). Note flattened head and irregular fracture of proximal femur.*

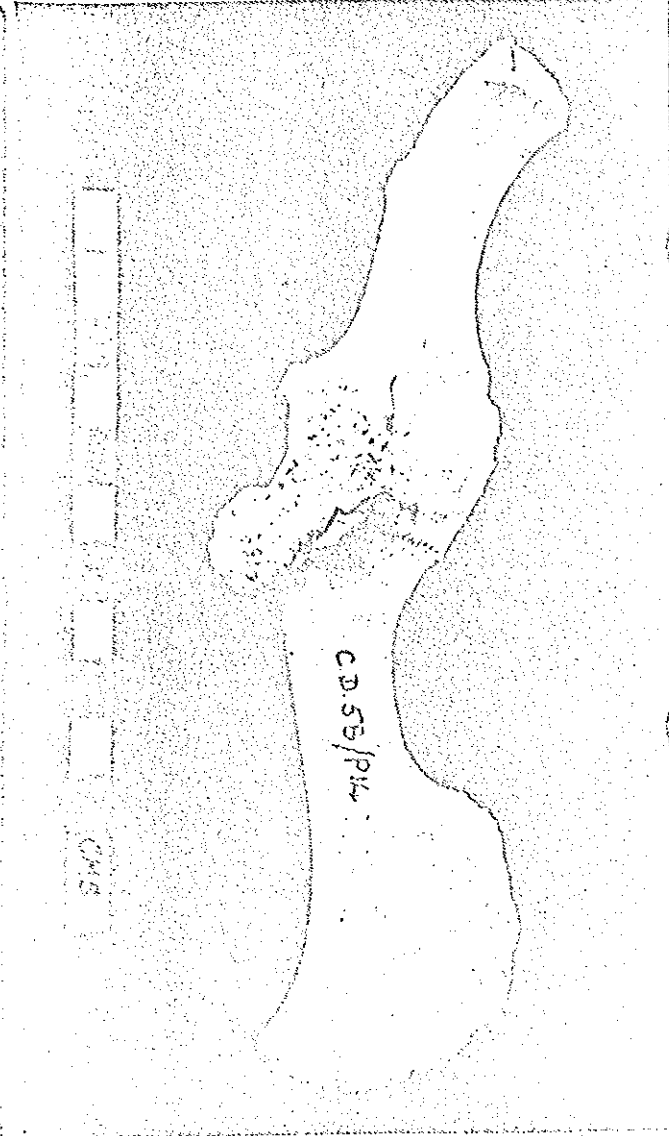
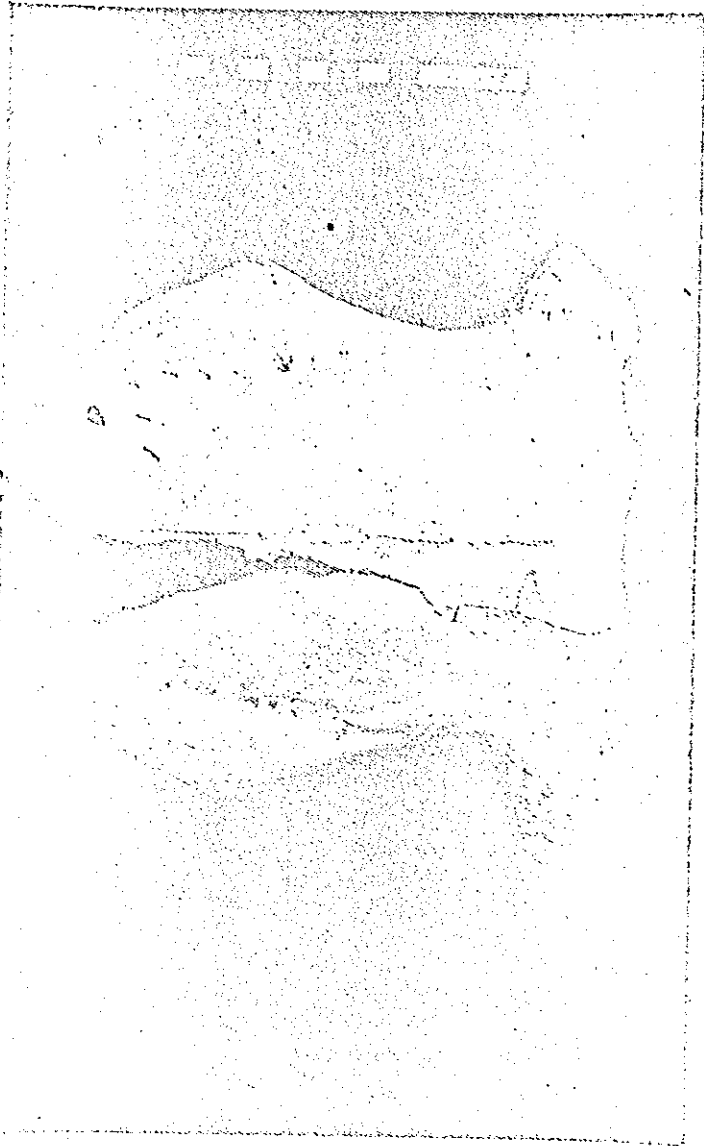


Fig 5. Proliferative bony growth filling the acetabulum of a fig.



1a. Horned skull.



1b. Horned skull.

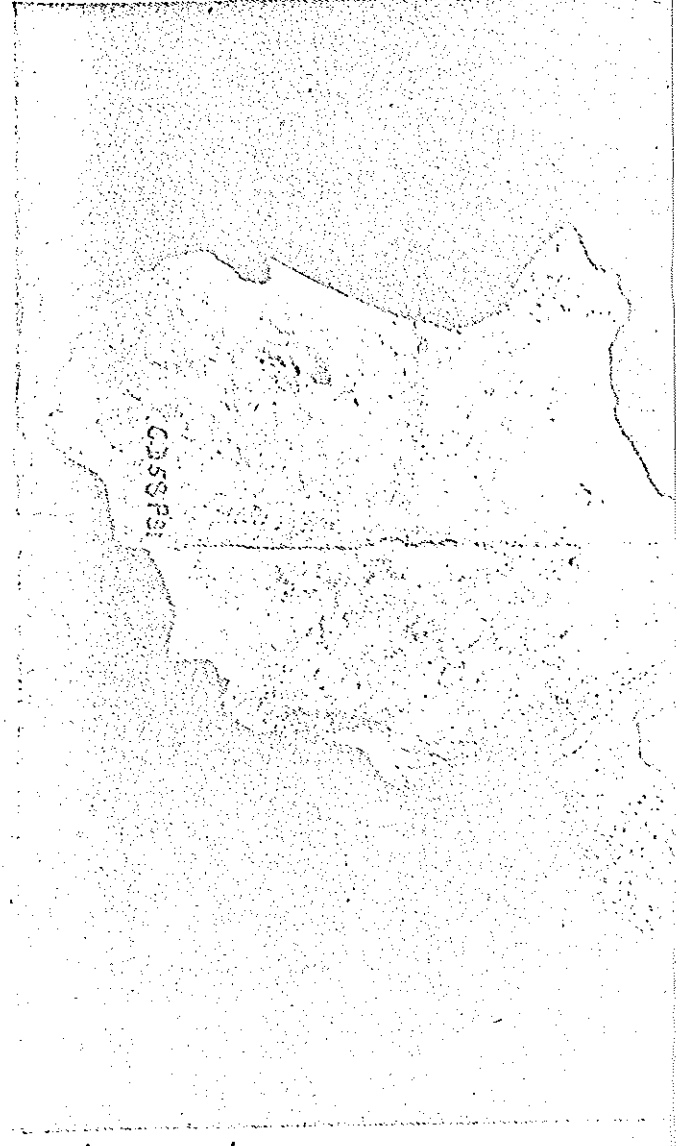


Fig 1a. Horned skull of
"B.t. longifrons" type.