

GORSEY BIGBURY, CHEDDAR, SOMERSET:

Radiocarbon dating, human and animal bones, charcoals,
archaeological reassessmentA. M. ApSIMON, J. H. MUSGRAVE, J. SHELDON,
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1. INTRODUCTION

Gorsey Bigbury (N.G.R. ST 484558) lies at 240m OD on the Mendip Hills, 3.5 km northeast of Cheddar (*Fig. 40*). It consists of a circular ditched enclosure about 22m in diameter, with an entrance causeway on the north and an external bank with a probable original diameter of about 46 m. It corresponds to the definition of a Class I henge monument (Piggott 1939). The original excavations were reported by Jones (1938). These gave evidence of Bell Beaker burials and occupation material in the ditch. Following wartime destruction of the Society's museum and library, a catalogue of the pottery salvaged and some additional notes were presented by ApSimon (1951). A report on limited excavations in 1965 in the area north of the causeway was published by Tratman (1966). The present paper includes results of radiocarbon dating of animal bone and charcoal from the occupation, and supplementary reports on human and animal bones, charcoal and clay daub, together with a general reassessment of the site.

2. THE EXCAVATIONS

The excavations of 1931-4 involved the complete excavation of the area within the ditch, showing that only 15-25 cm of soil covered the Carboniferous Limestone and excluding the possibility that there had been a substantial post-built structure there (*Fig. 41*). No significant artifacts were found in this area. The complete excavation of the rock-cut ditch (Pl.15) showed this to be very irregular due to the difficulties of quarrying the limestone with its strongly marked bedding plane and joint structure. The ditch varied from about 3 to 5 m in width and was from about 1.1 to 2.4 m in depth below rock surface. A disturbed Bell Beaker burial was found in the ditch to the west of the causeway, as well as further human bone from east of the causeway, which is described here for the first time. A substantial Beaker occupation deposit, including a large quantity of pots sherds, flint artifacts, animal bones and charcoal was also found in the ditch. This deposit generally rested on a layer of gritty yellow clay from which few finds were recovered. Two sections were cut through the bank, showing that this was made partly of earth and partly of stone quarried from the ditch (*Fig. 45*).

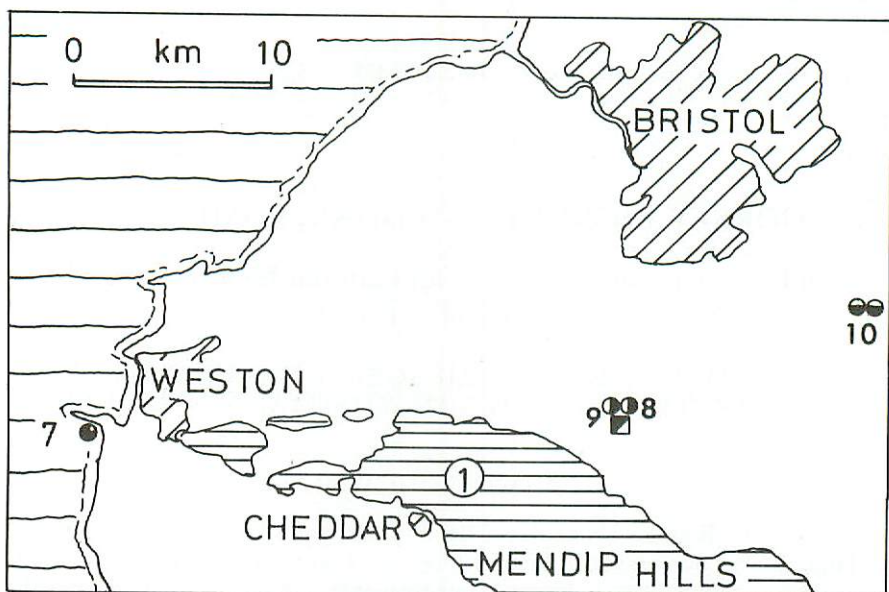
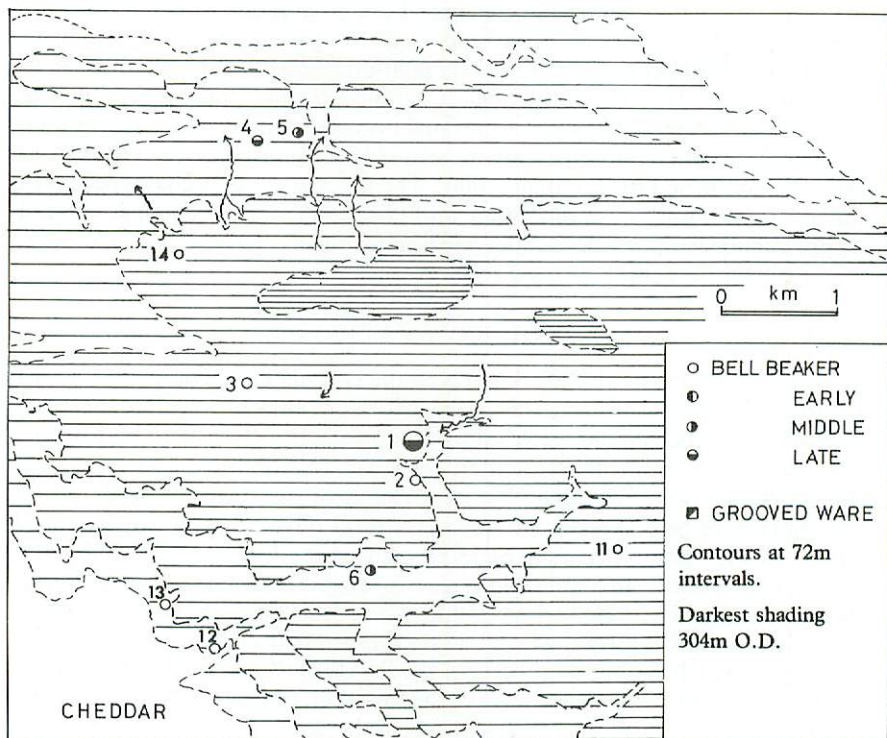


Fig. 40a (above). Fig. 40b (below).



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1. Gorsey Bigbury. 2. Piney Sleight barrow (T21). 3. Tynings Farm Central barrow (T14). 4. *Bos Swallet*. 5. Burrington barrow (T5). 6. Bone Hole. 7. Brean Down (Sand Cliff). 8. Chew Park. 9. Ben Bridge. 10. Corston. 11. Charterhouse Warren Farm swallet. 12. Sun Hole. 13. Chelms Combe. 14. Rowberrow Cavern.

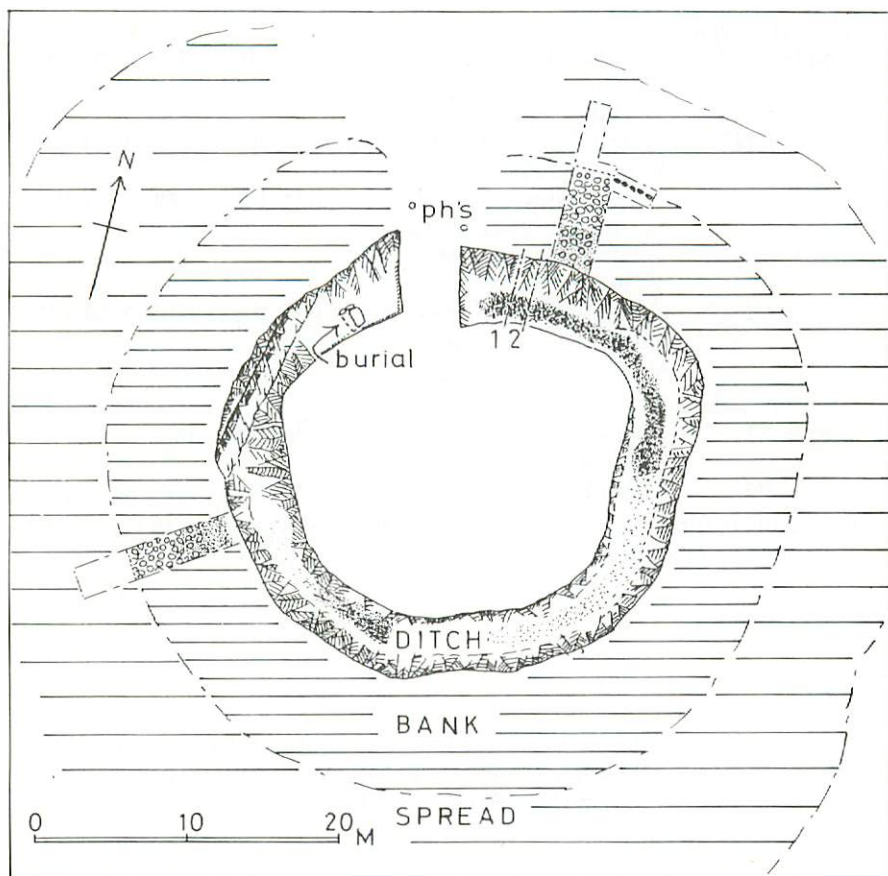


Fig. 41. Sketch plan of Gorsey Bigbury based on Jones 1938 and Tratman 1966. N.G.R. ST 48445583.

3. RADIOCARBON DATING

In 1973 a series of charcoal samples (series 'A') and a series of samples of animal bone (series 'B') taken from the residue of unidentifiable material from the occupation deposit were submitted to the British Museum Research Laboratory for dating as part of their programme of comparison between dates on charcoal and on bone. These samples came from the reserve collections kept in the Society's museum store which had escaped wartime destruction. The material had been recatalogued and transferred to new containers and the original labels copied in 1947-9. One of the authors (A.M.A.) took part in this work so that he was able to vouch for the history of the samples. Visual examination suggested that the samples had not been in any way adversely affected in the intervening period. The dates given here are all quoted in radiocarbon years BP using the 5568 yr half-life.

Series A samples (charcoal)

sample CH2:	“bottom of occupation, 33ft from causeway, E. side, 1.8.32”	BM-1086: 3663 ± 61 BP
CH7:	“ditch, lower part of hearth, 8.8.33”	BM-1087: 3602 ± 71 BP
CH9:	“ditch, bottom half of occupation level, E. side, c 33ft from causeway, 17.9, 33”	BM-1088: 3800 ± 74 BP
CH13:	“ditch, hearth on west side of causeway, outer side.”	BM-1089: 3782 ± 62 BP

Series B samples (bone collagen)

sample B1:	“bottom of occupation 32ft east of causeway”	BM-1090: 3666 ± 117 BP
B2:	“bottom of occupation”	BM-1091: 3606 ± 67 BP

Dating of six further provenanced bone samples was not done in view of the close correspondence between the two series.

4.1. A HYPERBRACHYCEPHALIC BELL BEAKER CRANIUM, AND OTHER HUMAN REMAINS, FROM GORSEY BIGBURY, MENDIP, SOMERSET [J.H.M.]

INTRODUCTION

Professor Tratman has kindly invited me to examine and report on a small collection of human remains, mainly cranial, from Gorse Bigbury. When handed to me the remains were stored in four boxes and had already been assigned to two individuals: a young adult and a child. My own examinations have confirmed the original attribution. My task has also been made much easier by the efforts of Dr. H. Taylor, who performed the preliminary sorting and re-assembled a large part of the adult cranium. His notes have been preserved with the material.

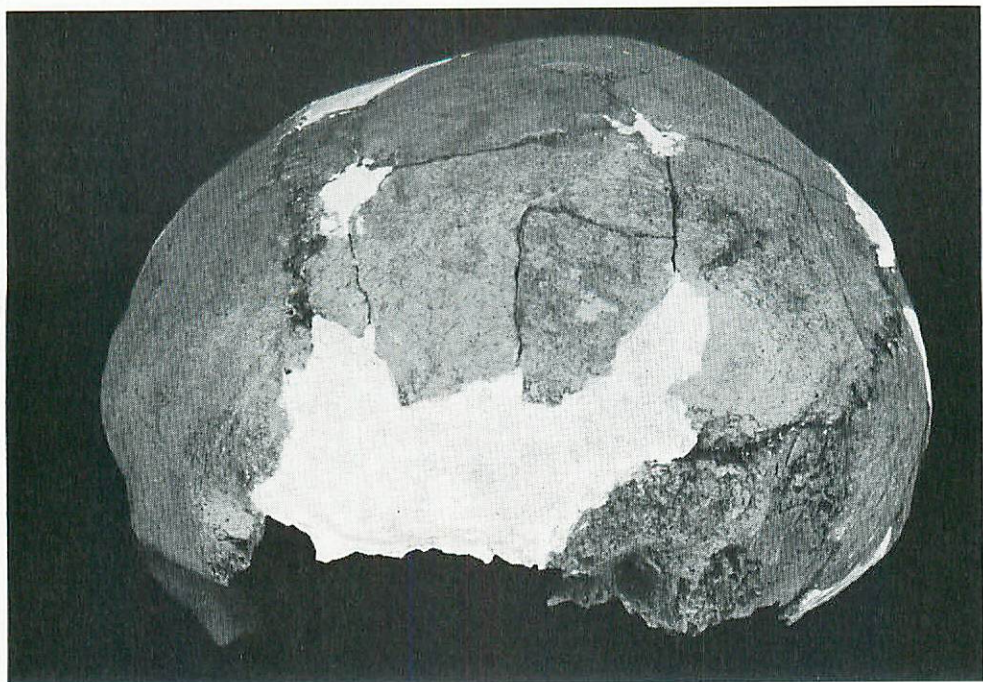
THE ADULT REMAINS

1. *Provenance*

These remains are said to have come from the bottom hearth at Gorse Bigbury. This was the occupation layer upon the basal silt on the east side of the causeway.

2. *Description*

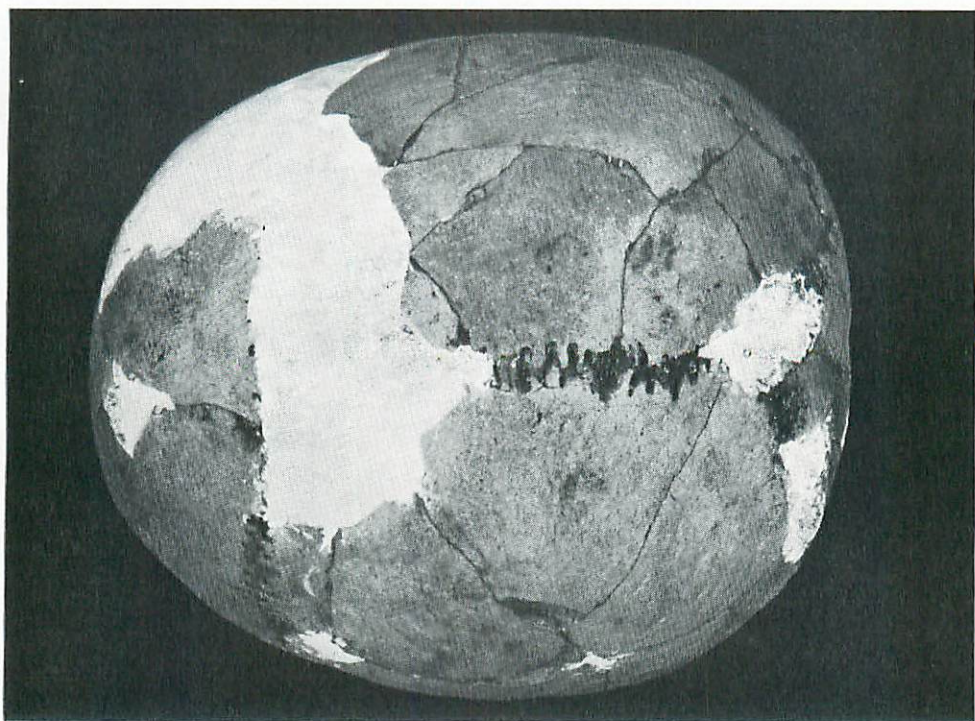
They comprise an almost complete cranial vault with the left and right petrous temporal bones in position. Most of the base of the skull and the face,



15.1



15.2



15.3

Plate 15

- 15.1 Gorsey Bigbury adult female cranium: left lateral aspect (approximately *Norma lateralis sinistralis*).
- 15.2 Gorsey Bigbury adult female cranium: posterior aspect (approximately *Norma occipitalis*).
- 15.3 Gorsey Bigbury adult female cranium: superior aspect (approximately *Norma verticalis*).

from the glabella downwards, is either missing or preserved in fragments too small to restore to the whole accurately. The condition of the bones is generally good. They are pale creamy yellow, like ivory, and moderately hard. The outer table is smooth and not eroded. Their condition indicates that they have not been disturbed since death.* A large portion of the right frontal bone was restored with plaster of Paris and a similar, though smaller, area was likewise replaced on the left side. The post-bregmatic portion of both parietal bones also had to be replaced. Toughened dental wax was used to re-model the glabella and medial supraorbital regions. The restored cranium is illustrated in Plate 15. The small fragments remaining after restoration number more than forty. Finally, the crown of an upper right first or second permanent molar was also recovered.

3. *Sex*

This was most probably female. I agree with Dr. Taylor's diagnosis and reproduce it in full: "The thin bones, absence of brow ridges, domed frontal bones, small mastoid processes and relatively slight ridging for neck muscles on the occipital would seem to show that this is female—(? about 90% probability)".

4. *Age*

The evidence of the cranial sutures and sinuses and the isolated upper molar tooth indicate that this subject died at between 25 and 35 years of age. The sutures are largely patent, with the exception of the basi-sphenoid. Union between the occipital and sphenoid bones is complete by the age of 25 (Genovés 1969). The posterior part of the sphenoid sinus is clearly visible and it would appear to have extended or to be about to extend into the basi-occipital bone. Such a backward extension is uncommon in very young human skulls (Le Gros Clark 1938). The molar crown, though moderately worn, is of little assistance on its own. However, if the sutures, sinuses and this tooth are all taken into account, one is left with the impression that an estimate of 25-35 years is probably fairly accurate.

5. *Pathology and cause of death*

No serious pathological lesions to which death might be attributed were observed.

6. *Craniometry*

A limited number of measurements were taken and are reproduced in Table 1. The techniques used were those of Martin (1928), Brothwell (1963) and Howells (1973).

7. *Morphological and metrical observations*

A glance at Plate 15 and the measurements recorded below will reveal at once that this cranium was extremely brachycephalic. + Indeed it was nearly as broad as it was long. If all Bell Beaker skulls were of similar shape then the

* Apsimon, p.173, has suggested that the bones represent a reburial following on the disturbance west of the causeway. The time interval between the disturbance and reburial would have been short enough so as not to affect the condition of the bones. Ed.

+ Since this report was prepared Knip (1974) has published an account of hyperbrachycephalic skulls from the Beaker cemetery at Molenaarsgraaf, Zuid Holland (in Louwe Kooijmans 1974). These skulls have C¹⁴ dates very close to those for Gorsey Bigbury (p.158). They are the first Bell Beaker skulls from the Netherlands.

Glabella-occipital length	*172	Vertex radius	122
Maximum breadth	154	Nasion radius	*97
Biasterionic breadth	*124	Bregma radius	122
Mastoid width (right)	12	Lambda radius	103
Nasion-bregma chord	*110	Opisthion radius	42
Nasion-bregma subtense	*24	Minimum frontal breadth	*103
Nasion-bregma fraction	*49	Bregma-lambda arc	108
Bregma-lambda chord	100	Lambda-opisthion arc	128
Bregma-lambda subtense	17	Bregma-asterion arc (left)	167
Bregma-lambda fraction	63	Lambda-asterion arc (left)	105
Lambda-opisthion chord	104	Biporionic breadth	126
Lambda-opisthion subtense	27	Horizontal circumference	*535
Lambda-opisthion fraction	57	Cranial index (%)	*89.5

TABLE 1: Metrical data on the Gorsey Bigbury adult female cranium. All linear measurements are recorded in mm. Please note: * = estimated score.

	Gorsey Bigbury	English and Scottish Neolithic	English Bronze Age	Scottish Bronze Age	English and Scottish Iron Age
Glabella-occipital length:					
Male		194	185	181	187
Female	172	184			180
Maximum Breadth:					
Male		139	150	150	141
Female	154	136			136
Cephalic index:					
Male		72	82	83	76
Female	90	73			75

TABLE 2: Comparative data on the Gorsey Bigbury cranium and those of other prehistoric populations emphasizing the marked brachycephaly of the Gorsey Bigbury specimen. After Cameron (1934).

traditional picture of these people would become accepted as fact at once. Unfortunately accurate published information about the cranial morphology of the British Bell Beaker population is scarce. The pioneering works of Schuster (1906) and Cameron (1934) are our main sources of information. However Mr. D. R. Brothwell of the British Museum (Natural History) has collected and collated much new data which are to be published shortly (Brothwell, personal communication). Despite this dearth it is not difficult to emphasize the marked brachycephaly of this lady by comparing the relevant dimensions of her cranium with those of other prehistoric populations published by Cameron in 1934. This information is reproduced in Table 2.

THE JUVENILE REMAINS

1. *Provenance*

These were apparently recovered from the occupied part of the ditch, probably from the rubble one foot below the hearth.

2. *Description and discussion*

They are much less complete than those of the adult female. They comprise two largish portions of cranial vault, restored from smaller pieces, and more than forty loose fragments. The bones are ivory-coloured like those of the adult. They are very thin, firm and brittle. The total weight of these cranial fragments is 77.48 g. Eight miscellaneous post-cranial fragments, weighing 4.48 g, were also recovered. In addition a fragment of an animal long bone and a carnivore (?) tooth were found among the remains.

No information about the sex or cause of death of this subject could be gathered. An accurate assessment of its age, however, could be made. Fusion between the squamous and lateral parts of the occipital bone had taken place whereas the lateral and basilar parts were still separate. It would be safe to infer therefore that the child was approximately five years old when it died (Dixon 1912; Gray 1958).

ACKNOWLEDGEMENTS

I would like to thank Professor Tratman for inviting me to study these interesting remains; Dr. H. Taylor for making my task lighter; Mr. D. R. Brothwell, Dr. B. K. B. Berkovitz and Mr. B. J. Moxham for helpful comments; and Miss Anne Featherstone for taking such excellent photographs.

ABSTRACT: FAWCETT, E. 1938.

4.2. HUMAN SKELETAL REMAINS FROM GORSEY BIGBURY
[E.K.T.]

Fawcett lists the bones recovered from the west side of the causeway only. The bones recovered represented two individuals. One male and one female. Of the female only part of a shaft of a femur, a piece of hip bone, a radius and part of a mandible were found.

The rest of the bones belonged to an adult male and included the skull and mandible (Figs. 42-44). The cephalic index was 83.4 [*cf.* the female skull described by Musgrave which has an index of 90]. The height of the individual was estimated as 1.65 m. The age at time of death was not stated. The supra-orbital eminences were prominent. The facial index was below 50. The right humerus showed muscle attachments indicative of "great power in the use of the arm". The development suggested that he "was skilled in 'slinging'". The right radius had been fractured but the "repair was so perfect that it is doubtful if it could have been done better".

The forearm was slightly longer than usual with a humero-radial index of 78.6, *cf.* modern European 74. There was some evidence of rheumatic disease. Fawcett concluded that the man was "of great muscular strength, especially in those muscles concerned with movements of the shoulder joint".

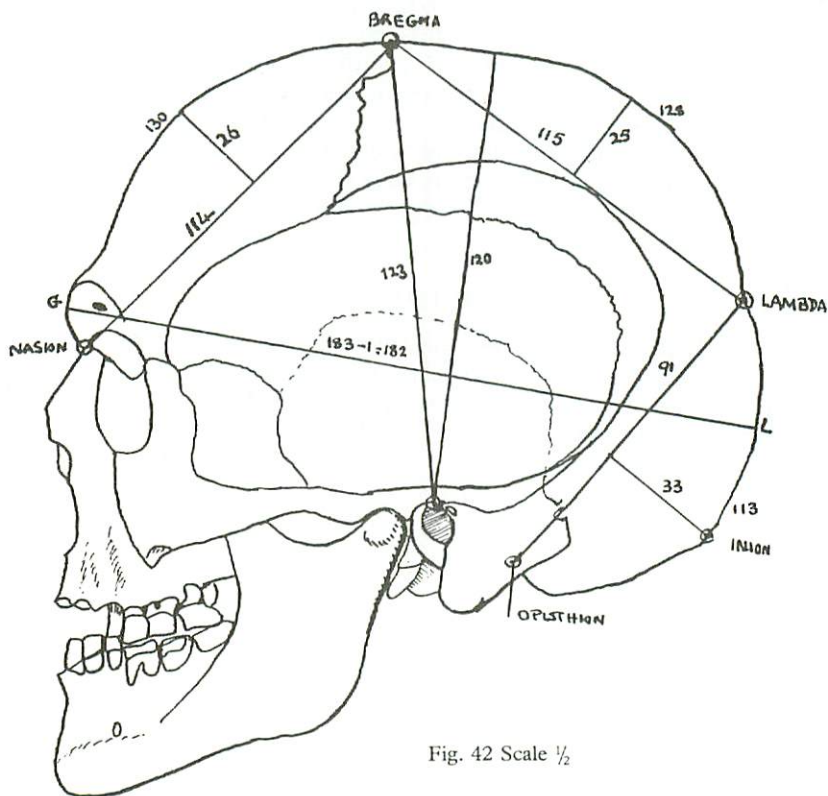
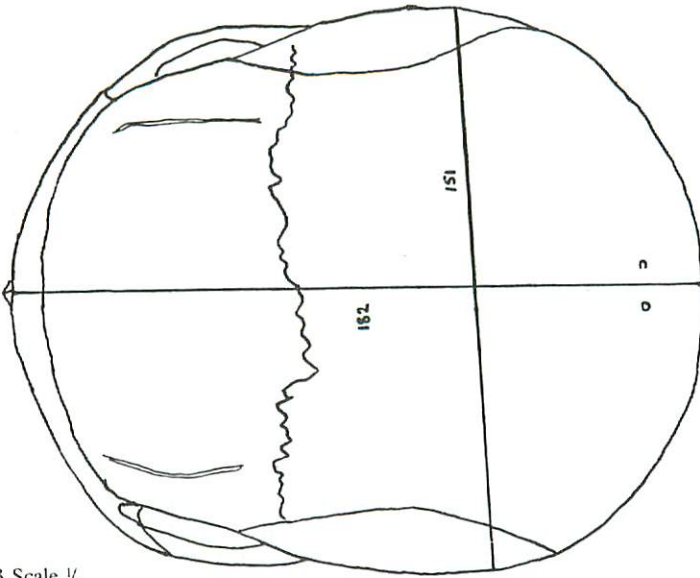
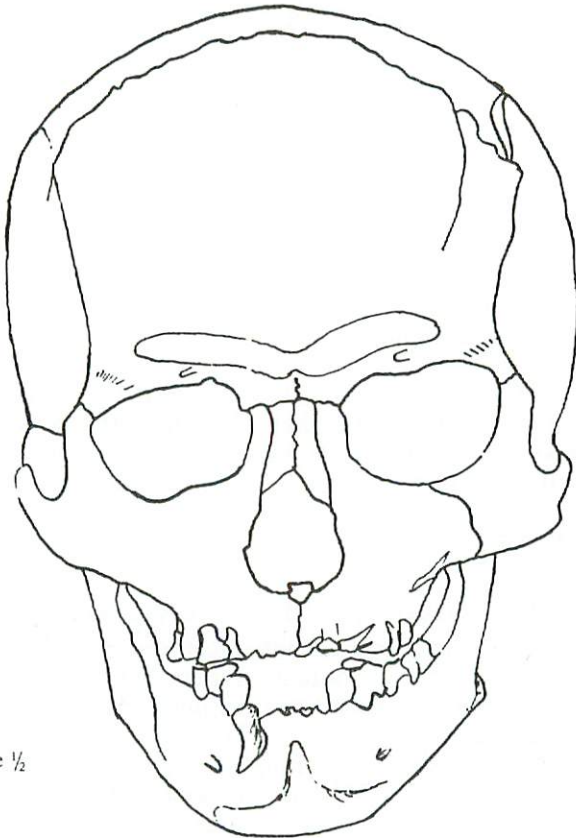


Fig. 42 Scale $\frac{1}{2}$

Fig. 43 Scale $\frac{1}{2}$ Fig. 44 Scale $\frac{1}{2}$

Figs. 42-44 Three drawings of the skull from the disturbed burial west of the causeway. Reproduced from Fawcett in Jones 1938.

5. ANIMAL BONES FROM GORSEY BIGBURY [L.H.v.W-B]

INTRODUCTION

During the excavation of the henge monument at Gorse Bigbury in 1931-'34 a secondary deposit of Beaker sherds, flint and animal bones was found in the ditch (Jones, 1938; ApSimon, 1951). Especially the north-east and the south-west segments of the ditch yielded abundant Beaker material, while in the north-west segment a Beaker burial was discovered (Fawcett, 1938). The animal bones were examined by Tetley (1938), who mentions remains of cattle, pig, sheep, red deer, roe deer, and dog, but without giving the relative frequency of the species.

By kind permission of the U.B.S.S. President Professor E. K. Tratman the author had the opportunity during a short visit to Bristol to re-examine those bones from Gorse Bigbury that survived the war-time destruction of the Society's Museum. These bones all come from the north-east segment of the ditch, *c.* 12-45 feet from the reference point, that is the general area between sections 2 and 4 (*cf.* Jones, 1938, plan facing page 56, here figure 41) and consequently they constitute only part of the excavated material.

MEASUREMENTS

Table 1

These are given in mm.
abbreviations:

le.	= length	prox.	= proximal
wi.	= width	dist.	= distal
max.	= maximum	art. surf.	= articular surface
min.	= minimum		

Remains of *Capreolus capreolus* (L)—roe-deer that are mentioned by Tetley among the animal species could not be traced. It is however possible that one or more of the bone points found with the Beaker burial and apparently made from the metapodials of a small ruminant as is shown by Jones (1938, plate VI) can be ascribed to the roe-deer. War-time destruction of the objects prevents verification of this hypothesis.

SHORT NOTES ON THE SEPARATE SPECIES.

Cattle. The minimum number of individuals was calculated on the basis of lower jaw fragments. Study of the tooth eruption of these fragments shows two animals with a complete permanent dentition (*i.e.* older than 3 years) and four with a rather worn milk dentition. The latter were probably slaughtered between 2½ and 3 years. Epiphyseal fusion shows that all cattle were killed before they reached 3½ years with a maximum between 2½ and 3 years. Only one unfused distal humerus fragment belongs to an animal under 1-1½ years old.

Table 2. Gorsey Bigbury. Specification of the skeletal parts.

	cattle	pig	sheep/ goat	dog
antler/horncore	1	-	-	-
maxilla	3	10	1	-
mandibula	16	19	-	-
dentes	68	65	13	-
axis	1	1	-	-
vertebrae	13	2	2	1
sacrum	2	1	-	-
scapula	7	4	1	-
humerus	2	10	4	-
radius	4	1	-	-
ulna	1	4	-	-
carpal bones	-	3	-	-
metacarpal	3	-	-	-
pelvis	3	-	2	-
femur	4	-	-	1
tibia	-	2	1	-
astragalus	-	1	-	-
calcaneum	4	1	-	-
metatarsal	4	-	-	-
phalanx I	13	-	1	-
phalanx II	6	-	-	-
phalanx III	2	-	1	-
others	3	3	1	1
total	160	127	26	3
MIND	6	10	2	1

Table 3. CATTLE

<i>Horncore</i>				<i>Calcaneum</i>			
diameter at base	48.1 x 37.3			le.	125.7	121.9	
circumference at base	140			le. of tuber	75.6	± 73	
<i>Mandibula</i>				<i>Metatarsal</i>			
le. tooth row	± 145			le.	248		
le. molar row	± 91			prox. wi.	—	41.9	
le. premolar row (deciduous)	56.1			dist. wi.	57.9	—	
le. M ₃	36.7			min. wi. shaft	29.1	—	
wi. M ₃	17.7			<i>Phalanx I</i>			
					max.	min.	n
				le.	± 61.5	55.2	5
				prox. wi.	± 31	26.3	5
				dist. wi.	25.6	21.6	8
				<i>Phalanx II</i>			
				le.	max.	min.	n
				prox. wi.	43.0	37.6	5
				dist. wi.	33.1	26.7	6
				dist. wi.	25.3	19.7	5
				<i>Phalanx III</i>			
				diagonal le.	± 55		
<i>Scapula</i>							
min. le. of neck	58.4			34.4			
wi. art. surf.	42.0			35.4 (Juv)			
<i>Radius</i>							
wi. prox. art. surf.	66.8						
<i>Metacarpal</i>							
max. prox. wi.	63.5						

Table 4. PIG

<i>Maxilla</i>					<i>Axis</i>	46.9		
	le. molar row			61.3	<i>Scapula</i>			
<i>Mandibula</i>					min. wi. of neck	22.9	21.6	19.3
	le. premolar row			46.8	le. art. surf.	24.6	24.2	—
					wi. art. surf.	23.0	22.9	—
<i>Third molar</i>					<i>Radius</i>			
	le.	31.2	34.2	29.4	prox. wi.	27.8		
	wi.	18.3	14.8	13.9	<i>Astragalus</i>			
	inf./sup.sup.		inf.	inf.	le.	45.2		
					prox. wi.	22.5		
					dist. wi.	25.5		
					<i>Phalanx 3</i>			
					le.	28.9		

Table 5. SHEEP/GOAT

M_3	
le.	21.8
wi.	7.5

Table 6. RED DEER

<i>Tibia</i>	
max. dist. wi.	46.8
wi. dist. art. surf.	41.9

One complete metatarsal with fused epiphyses comes from a cow (*DB* index = 23.3; cf Howard, 1963). According to Fock (1966) the length of the metatarsal must then be multiplied by 5.35 to give a shoulder-height, which is 132 cm for the Gorsey Bigbury cow. This height falls within the variation range of early Neolithic cattle from Windmill Hill (120-139 cm; Jope and Grigson, 1965) and of those from the Beaker site at Newgrange, Co. Meath (120-137 cm; van Wijngaarden-Bakker, 1974). The horn-core fragment from Gorsey Bigbury is rather small when compared with the Windmill Hill specimens but measurements of the long bones (*cf.* table 3) all seem to indicate the large 'primigenius' or 'frontosus' breed.

Pig. The minimum number of individuals was calculated on the basis of lower jaw fragments. Six of the right jaws each have the deciduous PM4 present, which means that these animals were killed before they were a year old. Four of the left mandibulae have a complete permanent dentition and are then older than 1½ years. Of the latter one contains a strongly worn M3 indicating an old individual.

Most of the long bones come from immature animals, among them are four humerus fragments with unfused distal epiphysis—(fusion takes place at 1 year). A scapula and humerus belong to a newly born piglet. The measurements of the pig remains (table 4) agree with those from Windmill Hill and Newgrange, with the exception of the third molars which are somewhat smaller than the Newgrange ones.

Sheep/goat. Due to the limited time available to the author, the difficult osteological distinction between sheep and goat has not been made. The minimum number of individuals was based on two right distal humerus fragments. Of these one individual was under 10 months old—(unfused distal epiphysis), the other over 10 months, (table 5).

Dog. The three dog bones from Gorsey Bigbury were contained in a box labelled "No exact locality" and their prehistoric origin is therefore not absolutely certain. Measurements could not be taken.

Red deer. Two antler tines and a distal tibia fragment, (table 6), are the only indications of hunting at Gorsey Bigbury.

DISCUSSION

All animals bones from Gorsey Bigbury were broken, indicating that they presumably represent food refuse of prehistoric people. The economy was based on livestock breeding, while hunting was unimportant. As is usual in Neolithic times cattle and pigs predominate. The absence of old individuals indicates that both were bred as primary food animals. The high proportion of young pigs is remarkable. Cattle reached a shoulder height of 132 cm. Sheep/goat occupy the third place among the domestic animals. It is only in the Late Bronze and Early Iron Age that they come to play a part of increasing or predominating importance (Clark, 1952). It is interesting to note that at Gorsey Bigbury and Newgrange Beaker farmers settled on the verge of an older monument (henge, passage grave) and made use of the existing structures in connection with their habitation site. Remains of the domestic horse, which were recovered from several Beaker sites (among them Newgrange, Co. Meath; cf. van Wijngaarden-Bakker 1974), have not been found at Gorsey Bigbury.

6. CHARCOALS [J.S.]

In all 73 gm of charcoal fragments were examined. As will be seen the species found were very limited and fairly ubiquitous so far as subsoil is concerned. The only forest canopy species identified was oak, and hazel, hawthorn and sloe are of course all oakwood scrub bushes. None of the pieces were complete enough to say how many years growth had occurred nor whether the stems had all been cut at the same time of year.

Identifications

- CH 1 : 25.07.33. bottom of hearth 31 ft from causeway reference point (R.P.)
10.5 gm : about equal quantities oak and hazel.
- CH 3 : 14.05.33. ditch, black band
13 gm : mostly *Crataegus* type, some hazel and oak (slow grown, narrower rings),
1 *Prunus spinosa* (Sloe).
- CH 4 : 03.07.33. ditch, occupation, 2nd (foot).
4 gm : several *Crataegus* type, 1-2 hazel, 1 probably holly.
- CH 5 : 09.07.33. ditch bottom ½ of occupation, outer side, 32 ft from R.P.
2.5 gm : 1 *Crataegus* type.
- CH 6 : 02.08.33. ditch, occupation, upper half, inner side, c. 31 ft from R.P.
10 gm : all larger oak, smaller fragments hazel and *Crataegus* type.

- CH 8 : 16.09.33. ditch, bottom half of occupation, c. 33 ft from R.P.
7.5 gm : about equal quantities by weight of *Crataegus* type and hazel.
- CH 10 : 31.03.34. ditch, middle of hearth east of causeway.
3 gm : all *Crataegus* type.
- CH 11 : 11.04.34. ditch, hearth c. 33-35 ft east of R.P.
10 gm : mostly *Crataegus*, 2 hazel.
- CH 12 : 29.04.34. ditch, bottom of occupation, c. 36 ft from R.P.
4.5 gm : mostly hazel, 1 oak, 1 *Crataegus* type.
- CH 14 : 03.07.34. ditch, bottom of hearth east of causeway.
3.5 gm : all hazel.
- CH 15 : spoil from occupation layer.
6 gm : almost equal quantities of oak, hazel and *Crataegus* type.
- CH 16 : no date, ditch, 32 ft east (with Bone 1), bottom of occupation.
Mostly *Crataegus* type, 3 hazel, 1 oak.

b 7. BURNT DAUB [E.K.T.]

There are three pieces of burnt daub in the collection of material from Gorsey Bigbury in the Spelaeological Society's museum. The label, which is the original one, states that they came from "under the hearth" in the northeast sector of the ditch. That is they belong to the earliest stage of the secondary occupation represented in the ditch deposits. They measured 12.5 x 8.5 cm, 7.5 x 6 cm and 4 x 4 cm. The largest specimen is up to 3.5 cm thick, the next up to 1.5 cm. Both contain numerous charcoal inclusions up to 10 mm and the largest contains bone fragments also. The small grits are minerals of local origin (D. Nuttall, verbal report). They are shown in plate 16A-D.

The largest specimen consists of an inner layer of coarser clay with charcoal and bone inclusions up to 10 mm, on the outside of which a pat of finer muddy clay 9 cm by 6 cm has been applied. The second is a complete pat. Both pats have fine, thumb and palm impressions on the outside complete with whorl patterns. The inside of the daub bears smooth shallow impressions suggesting that it had been applied to a structure consisting of stakes about 10 cm in diameter with panels of split laths not more than 1 cm in diameter butted up against them at right angles. The third fragment appears to have been moulded round a lath (?) with a diameter of about 2 cm. The clay in its soft state was not pressed on to the wattle work very firmly so that it was not squeezed in between the pieces of stick making up the wattle work. The pats may represent repairs to the original daub. Subsequently the structure was burnt and the three pieces heated sufficiently to give them a hardness equivalent to some of the coarse pottery from the site. Wall panels of wattle and daub are suggested by the unsubstantial remains of the walls of known Beaker houses.

8. ARCHAEOLOGICAL REASSESSMENT [A.M.A.]

The external bank: Two sections through this were published. One 5m east of the causeway shows a layer of stones extending for about 6m outside the ditch and suggests that immediately outside the ditch this overlay a low bank about 2.2m wide, probably made from the turf (?) and soil dug from the line of the ditch. This cutting exposed traces of what may have been an external stone revetment to the bank, though this was not confirmed elsewhere. The other section, on the west, suggests the presence outside the ditch of an earthen bank about 4m wide and 0.6m high, overlain by a stony layer extending from 2 to 7m outside the ditch. The pre-bank soil is not identified or described but the sections indicate that it cannot have been more than 0.4 to 0.7m thick and may have been less. These sections suggest that the original external diameter of the earthwork may have been only about 46m and not the 67m indicated on the plan. They suggest that the berm between bank and ditch was not more than about 2m wide. These conclusions, not further discussed here, agree with those of Tratman (1966).

The ditch: The sections suggest that the quarrying of the ditch was begun with a planned width of about 3.6m (12 ft), about 0.6 to 1.5m less than shown on the plan, though the nature of the rock resulted in the profile of the ditch being very irregular. The drawn sections are conventionalised and because of the method of excavating in steps do not show details of the layers above the Beaker occupation deposit (except stones in brown clay in sections 3 and 6 of Jones (1938)). Generally they show this resting on a gritty yellow clay, probably a mixture of subsoil and weathered rock fragments. In sections 2, 3 and 4 (Jones 1938), the upper surface of this is concave, suggesting that it was a naturally accumulated silt. In section 1 (Fig.45a) this is shown underlain by a wedge of limestone rubble with a matrix of yellow clay, which rests on the sloping bottom of the ditch. In the description it is suggested that this was a platform built "to form a flat floor for settlement". The supposed rubble platform reappeared in sections 3 and 4. Photographs show that the Beaker occupation deposit contained much stone which looks as though it might have slipped down the outer side of the ditch from the bank. It seems possible that the rubble platforms were also the result of bank slip and that the line drawn in section 1 between rubble and yellow clay is incorrect in that it implies a distinction between the deposits which may not really have existed, though this cannot be confirmed or denied from the drawings and photographs.

Origin and nature of the Beaker deposit: The accumulation of bones of domesticated food animals, many of which bore cuts, and which, from Drs. Wijngaarden - Bakker's analysis, must have been butchered nearby, since all parts of the skeletons are represented, the presence of flint artifacts and waste and of broken pottery of both fine and coarse beaker wares, all these indicate that this is material derived from domestic occupation. Despite the large quantity of charcoal recovered, the report does not present evidence for burning *in situ* in the ditch. Though activity in the ditch is not excluded, the occurrence of narrow bands of charcoal, which may have been waterlaid, suggests derivation from hearths perhaps on the sloping edges of the ditch.

The wide horizontal and vertical dispersion of sherds from the same pots and the differential weathering, commented on by Grimes (1938, 30-1) suggests that much of the deposit derives from random dumping of rubbish over a prolonged period.

The human remains from the ditch: These fall into two groups, the remains from west of the causeway, described in the original report by Prof. Fawcett (abstract p.162), and those from east of the causeway described here by Dr. Musgrave. The first relate to the remains of a stone cist found 2m deep at the bottom of the ditch, 3m west of the causeway. This cist lay northwest to southeast and was 1.07m long and 0.75m wide. Its floor consisted of two flat slabs. Its southeast end was formed by the inner side of the ditch, its north-east side by a boulder which leaned inward to half cover it and its northwest end was represented by two courses of walling. Its southwest side and cover had been destroyed. In this cist were the remains of the crouched burial of a man, laid on his left side with his head to the northwest and facing northeast. The legs had been tightly contracted against the SE end of the cist and the arms had probably been bent in front of the face.

A barbed and tanged flint arrowhead was found by the knee and a flint knife, a beaker sherd and five bone artifacts, including four points (Jones 1938, Pl. VI) were found behind the skull. Only the skull, the mandible and fragments of limb bones remained in the cist, but a substantial part of the skeleton was found in the overlying filling of the ditch, together with part of a femur from another individual. Further bones recovered from the "bottom of the ditch", most probably from close to the cist, since they are also described as found "10ft west of the causeway", confirm the presence of a second individual. They included part of a second mandible, parts of a third humerus and fragments of a left hip bone sexed as female and of the corresponding femur. It seems probable that the cist originally contained the burial of an adult female, in addition to the adult male skeleton described by Fawcett. The description by Jones suggests that, contrary to his conclusion, the male really had been buried as a body and not as disarticulated bones. The published photograph (Jones Pl. VIb) suggests that the mandible was still in anatomical position. Our interpretation is that at some subsequent time the cist was disturbed and partly destroyed and some of the bones removed, others being left in the filling of the robbing pit. This was probably after flesh and ligaments had decayed, since part of the second mandible was left behind, and after the cist had partly filled with soil (though this may have happened when it was broken open), since the male skull was left. Robbing at an early date when the location of the grave was still known, or was obvious, seems more probable than chance disturbance by an early archaeologist, such as the Rev. Skinner of Camerton, who is known to have visited the site.

The male skeleton had an estimated height of 1.68m and its brachycephalic skull, which had a cephalic index of 83.4, was described by Fawcett (1938, here, *Figs.* 42-44) as having 'all the characters which one associates with the "Beaker Folk"'.

The human material described above by Dr. Musgrave derives from two individuals, the first a young adult woman, represented by a hyper-brachycephalic cranial vault and an upper permanent molar, and the second

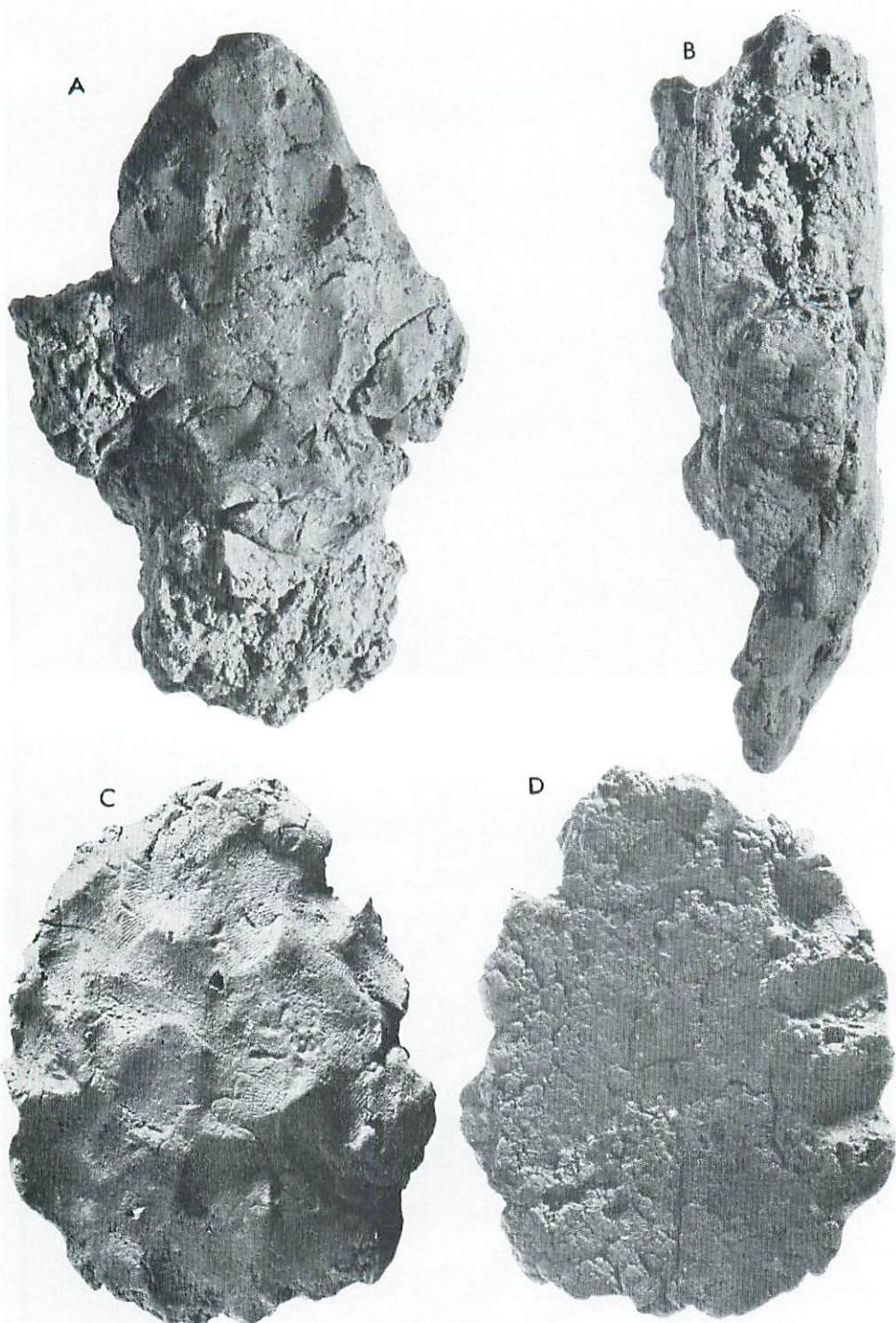


Plate 16 Gorsey Bigbury. Fragments of clay daub. (Photograph: N. Bradford).
Scale: 1:1 approx.

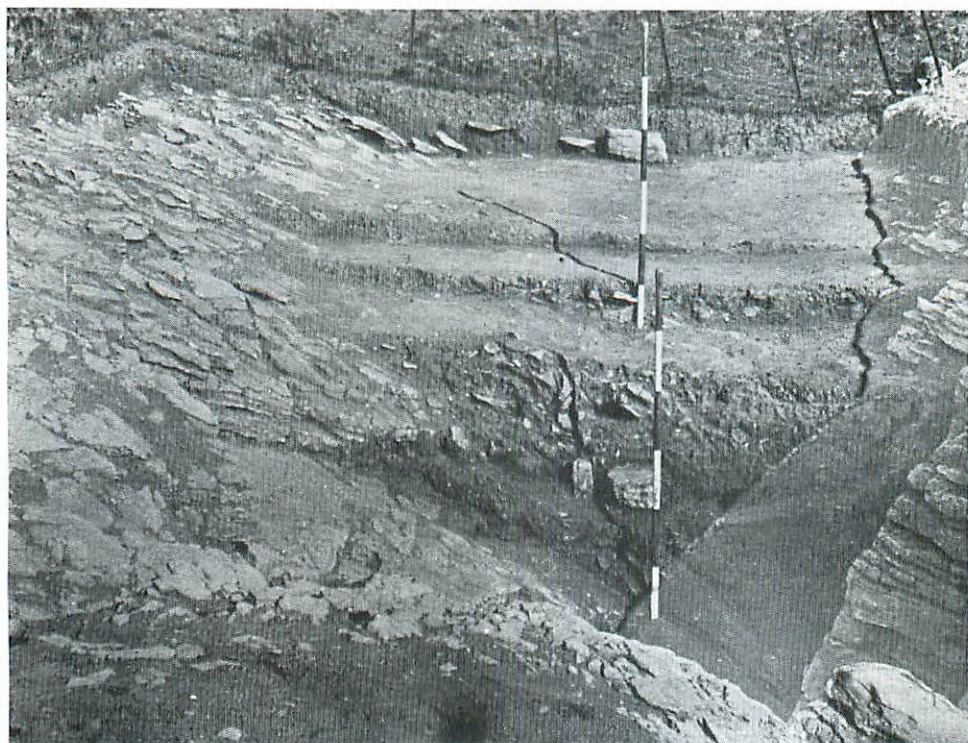


Plate 17 Sections across ditch about 10 ft east of Causeway, looking east. See figure 45.
Scale in ft. (Photographs: H. Taylor).



Fig. 46. Gorsey Bigbury. Flint implements, redrawn from Jones 1938. Sc. 1/2. His 3, 5, 8, 9, 15 and 19 are described but not illustrated.

cranium is represented by the 'S' in the layer of gritty yellow clay close to the inner side of the ditch and about 0.45m (1ft 6 in.) below the lowest charcoal band, and that of the child by the 'S' marked in the layer of rubble about half-way across the ditch and 0.3m (1ft) below the base of the 'hearth'. It is clear that neither represents a burial *in situ* and it is likely that the female cranium was deposited some time after death, because although an upper molar was found, there was no trace of the mandible or lower dentition. Both groups must have been deposited before the Beaker occupation.

We have thus the coincidence of a disturbed double burial west of the causeway, from which a female skull had been removed, probably after decay of soft parts, and the deposition east of the causeway of the cranium of a young woman otherwise unrepresented on the site. The most economical hypothesis is that the isolated cranium derives from the robbed burial. If, as we have suggested, the division between rubble and yellow clay in section 1 is illusory, then it is possible that the bones of the five year old child were also in the cist originally. It follows that both the burials, which appear to have been of individuals whose cranial morphology is consistent with a Beaker assignment and which were associated with Beaker artifacts, and the robbing and redeposition of the female skull and some bones of the child, antedate the main Beaker occupation.

Double burials of adults and of adult and child remains in Beaker graves are sufficiently well known for there to be no objection on this score while there need be no objection on chronological grounds since finds of 'Early' and 'Middle' Bell Beaker burials at Brean Down and Burrington respectively (ApSimon 1969) indicate that Beaker settlement on the Mendips had begun perhaps 200 radiocarbon years earlier than the occupation of Gorsey Bigbury. The obvious analogy for the suggested course of events at Gorsey is the removal of skulls from the West Kennet long barrow (Piggott 1962) and the setting up and burying of skulls in the ditches of Middle Neolithic causewayed camps. (Two new local 'Middle' Beaker finds (unpublished) from the Bone Hole, Cheddar, and from Charterhouse Warren Farm swallet, Blagdon, may be noted here).

The flint industry: The industry recovered from the site, almost entirely from the Beaker occupation, originally comprised about 2000 worked flints and an equal number of waste pieces. Though the report does not give a numerical breakdown by types, to judge from the illustrations and surviving pieces, the series compared well with the small Beaker industry from Bos Swallet, Burrington (Taylor and ApSimon 1964) and with the unpublished Beaker industry from Ballynagilly, Co. Tyrone (ApSimon 1976), as well as with the Beaker industries from Molenaarsgraaf, South Holland (Louwe Kooijmans 1974) and Myrhøj, North Jutland (Jenson 1973). The predominant element appears to have been small convex scrapers on flakes, one of the most persistent elements in Beaker industries (*Fig. 46*). The metrical character of the 33 illustrated is as follows:

Lengths: 19-46.5mm, frequency peaks 20-25mm, 30-40mm

Breadths: 12-39.5mm, 22 between 30-40mm

L/B ratios: <1 - 8, >1<2 - 22, >2.0 - 3

The arrowheads illustrated, which probably included all reasonably complete specimens, can be broken down as follows:

Barbed and tanged (nos. 1, 2, 4, 7, 10, 11, 13, 14, 17, 18)	10
Triangular with rounded bases (nos. 8, 9, 19)	3
Triangular with straight or concave bases (nos. 3, 5, 6, 21-2, 26, 27)	7
Assymetric barbed (nos. 16, 20, 23-5)	5
Leaf-shaped (no. 12)	1
Unfinished (no. 15)	1
	<hr/> 27

The barbed and tanged arrowheads included convex and concave sided forms characteristic of the later Beaker series. Simple triangular forms, like that with the burials, which forms are characteristic of Middle Bell Beaker burials, were represented by only two possible specimens.

Implements which need not belong to the series are relatively few: three relatively large scrapers (nos. 40, 54, 80), three end-scrapers (nos. 28-30), the leaf-shaped arrowhead (12), which is likely to be a Early-Middle Neolithic stray, though the illustration is not conclusive since the specimen was bipatented, and the five asymmetrically barbed arrowheads of Clark's classes G and H. These on the evidence of Woodhenge and Durrington Walls (Wainwright and Longworth 1971) are diagnostic of a Grooved Ware industry. One might be dismissed as a stray but five must indicate a phase of Grooved Ware activity on the site. Similar arrowheads are known as surface finds on the Mendips, but the nearest Grooved Ware find is the unpublished vessel from Ben Bridge, Compton Martin, 8km north-east of Gorsey Bigbury. The small microlithic series (Jones, 1938, p. 23) were, excluding accidental spalls, probably strays from the Mesolithic flint scatter now known to exist in the field. Apart from these there is no other obvious extraneous element.

The Beaker pottery: This was thoroughly described and discussed by Grimes (1938). A few more fragments were illustrated by ApSimon (1951). Because the original report is now hard to get hold of and none of the pottery was illustrated in D. L. Clarke's corpus (Clarke 1970), the opportunity has been taken of reproducing most of the illustrations omitting only rusticated sherds without decisive evidence of form. The series included comb decorated fine wares and rusticated coarse wares with impressed and finger-nail and finger tip decoration. Grimes' suggestion that no. 1 might relate to the Peterborough series need no longer be entertained since the extant sherds show no resemblance to Peterborough fabrics (*Fig. 51*).

Grimes considered that the total number of pots represented was in the neighbourhood of 100. A check on surviving sherds has suggested that 120 would not be an overestimate. This is clearly not the contemporary pottery of a single family, nor in view of the typological range present is it likely to be the contemporary pottery of an aggregate of say a dozen families linked by kinship. Grimes concluded that these factors suggested a prolonged occupation and this still seems the more probable interpretation. The pottery on the site is representative of about half the known development of Late Beaker pottery in central southern England, suggesting activity for perhaps 60-100 years out of a span of hardly less than two centuries. Calculation on the assumption that only a single family was present on the site and that they might have had 6-10 pots in use at any one time, all of which would need to be replaced within a period of 5-10 years, suggests a similar duration.

The most recent analysis of the development of British Bell Beaker pottery is that by Lanting and van der Waals (1972), who discard D. L. Clarke's notion of multiple invasions and regionally distinct Beaker cultures in favour of essentially continuous evolution within each area of intensive Beaker settlement, modified by the effects of contact between regions and with the continental homelands. Their analysis presents the development of

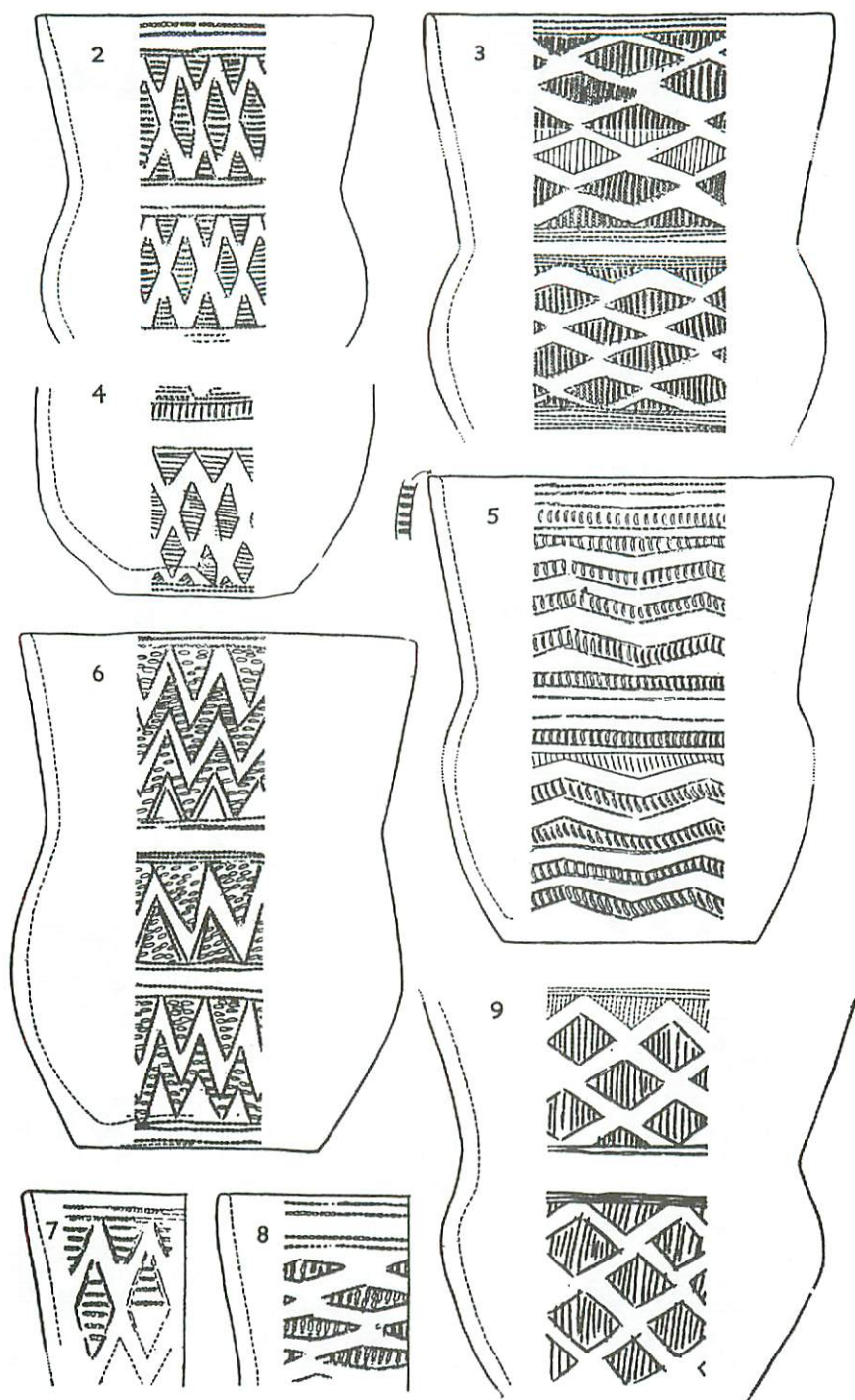


Fig. 47. Gorsey Bigbury, Beaker pottery. Reproduced from Grimes in Jones 1938. Sc. 1/5.

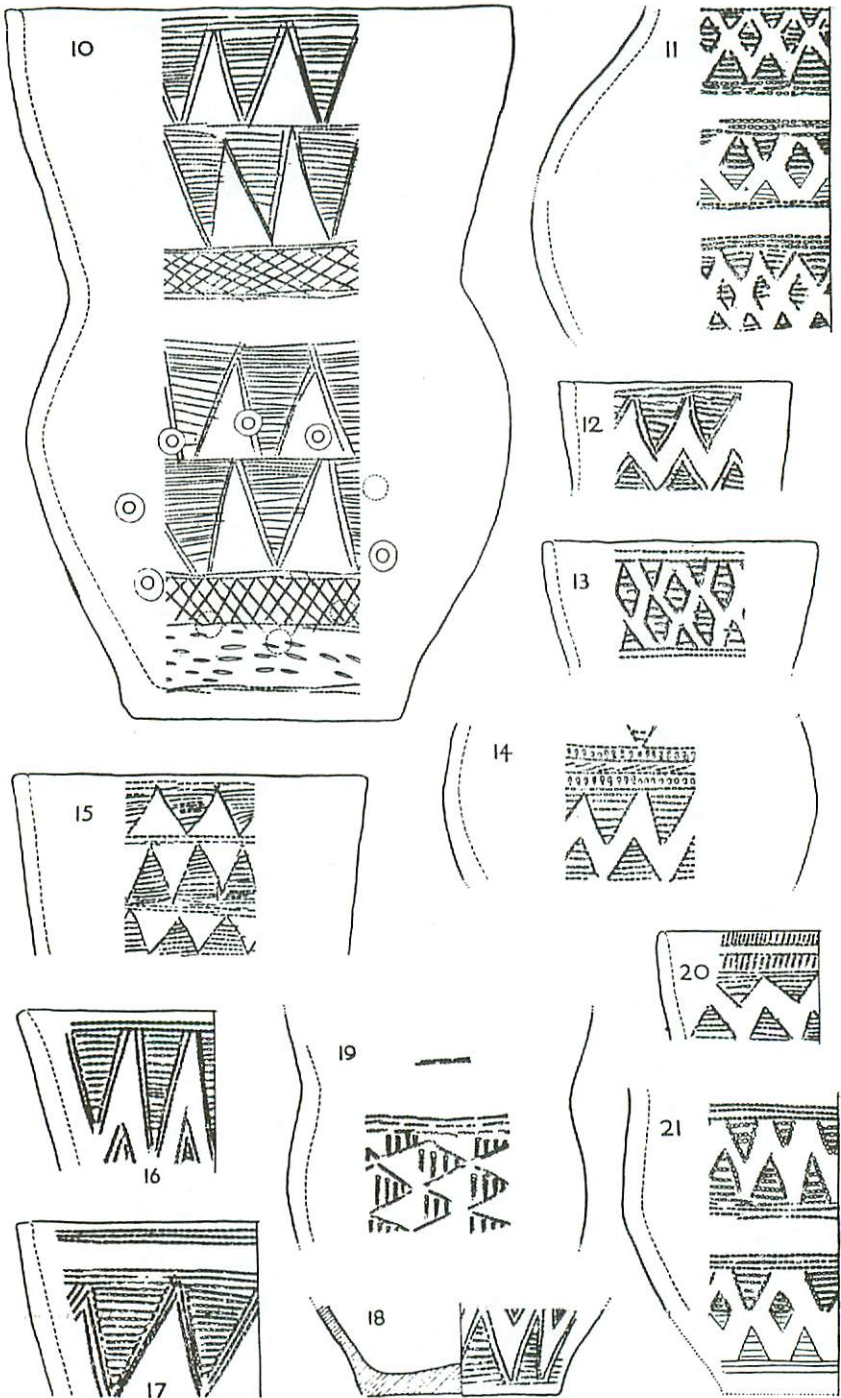


Fig. 48. Gorse Bigbury, Beaker pottery. Reproduced from Grimes in Jones 1938. Sc. $\frac{1}{2}$.

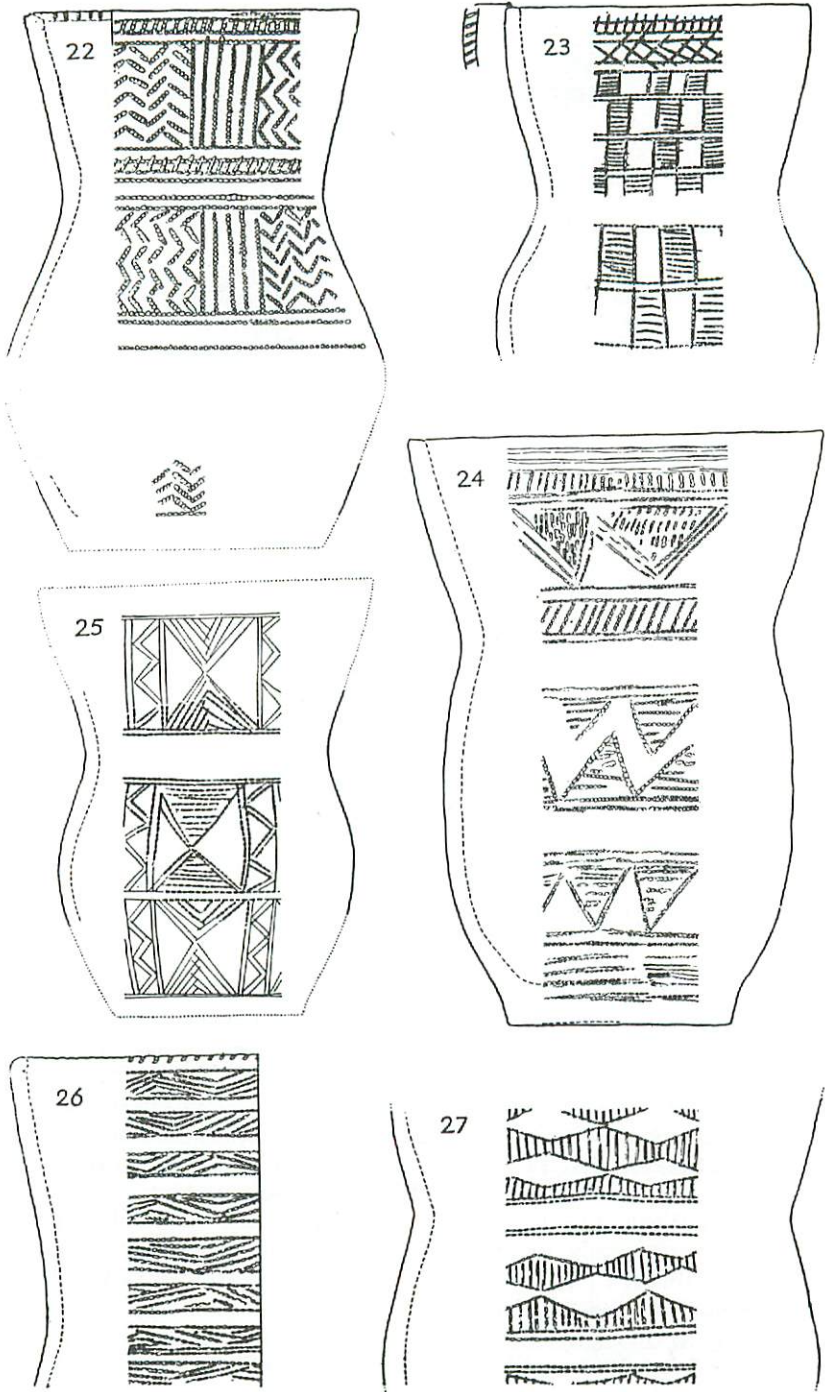


Fig. 49. Gorsey Bigbury, Beaker pottery. Reproduced from Grimes in Jones 1938. Sc. $\frac{1}{3}$.

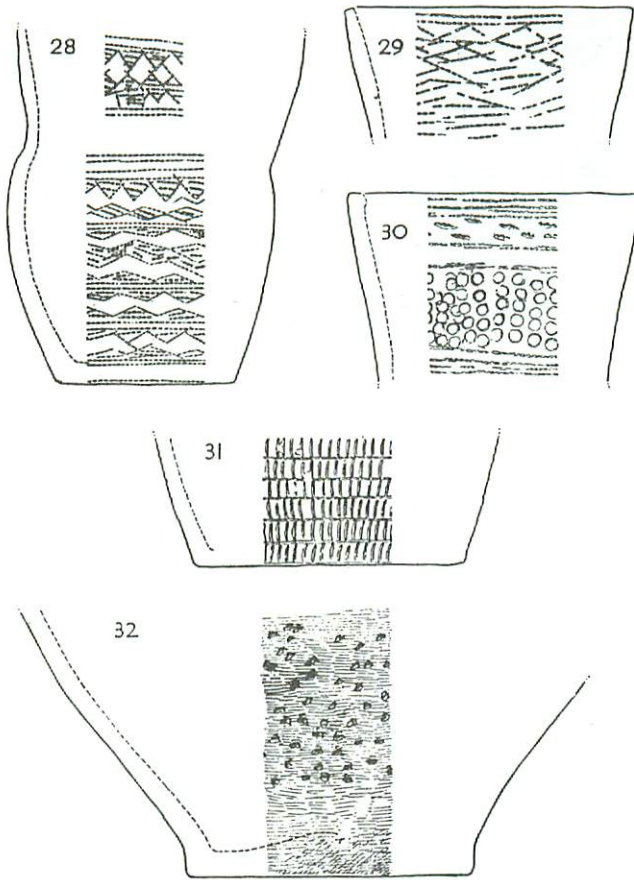


Fig. 50 Gorsey Bigbury, Beaker pottery. Reproduced from Grimes in Jones 1938. Sc. $\frac{1}{2}$.

Beakers in central southern England ('Wessex') in terms of 7 'steps', of which steps 5, 6 and 7, correspond to Case's Late Beaker stage, or what in Abercromby's old scheme would be 'AC' (step 5) developing through 'A' (steps 5 and 6) to the terminal Beaker styles - 'A3' (step 7). Most of the Gorsey Bigbury beakers correspond to their step 6, though one or two of the shorter necked pots (eg. no. 24) approximate to step 5 and there are some sherds (ApSimon 1951, Fig. 38, no. 54) with decoration very like beakers from Shrewton, Wilts. (step 4) and Wincanton, Somerset (step 5) (Lanting and van der Waals, Fig. 1). No. 26 perhaps approaches step 7, but there is nothing unequivocally corresponding to this final 'step', and incised decoration, always a good indication of approaching stylistic dissolution, is virtually absent from the series.

The most substantial other local series of late Bell Beaker pottery is that from *Bos Swallet*, Burrington (Taylor and ApSimon 1964) which comprised about 20 pots, showing a startlingly close resemblance to the Gorsey series.

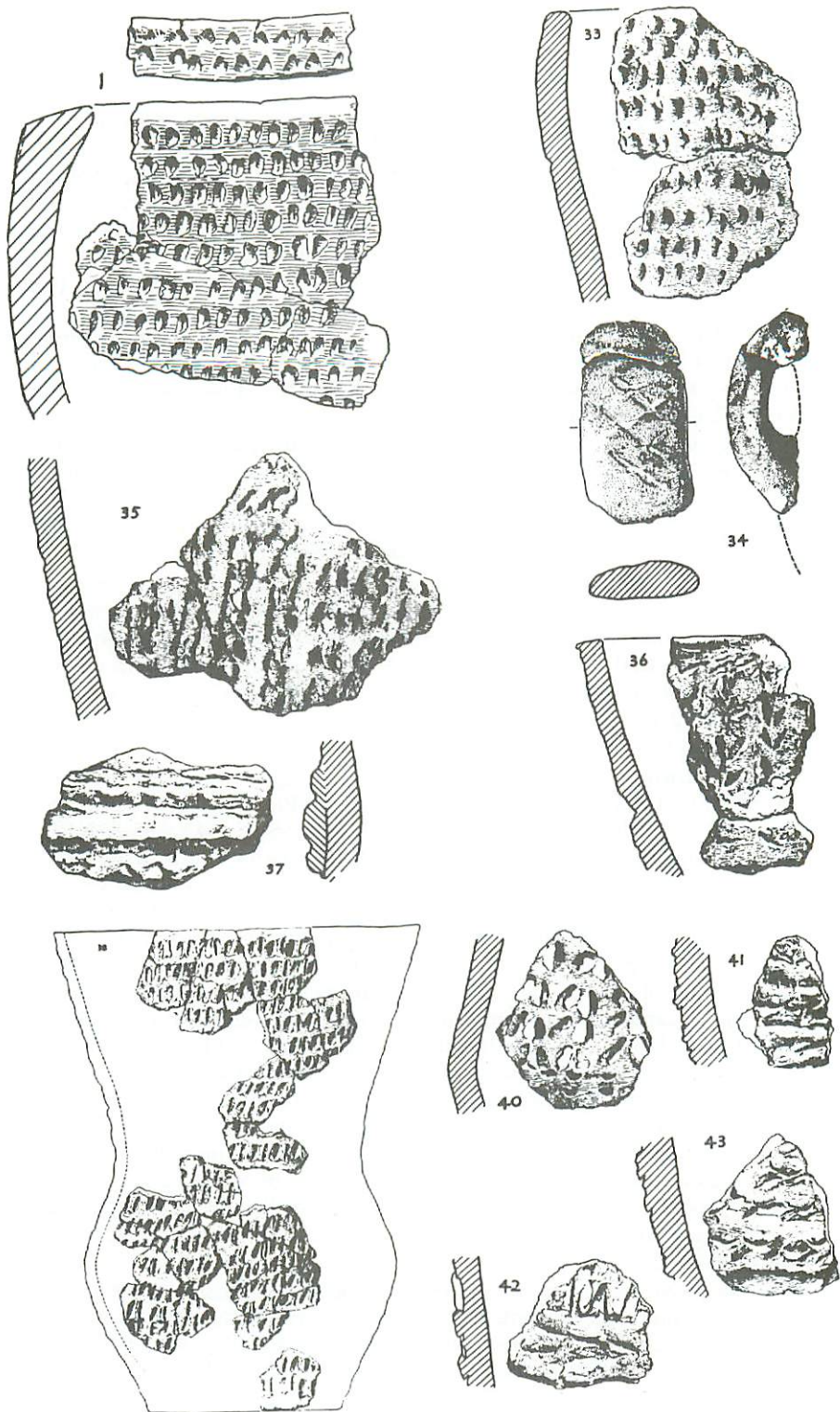


Fig. 51 Gorse Bigbury, impressed and rusticated wares and handle. Sc. $\frac{1}{2}$. Rusticated Beaker. Sc. $\frac{1}{4}$.

Brean Down (ApSimon *et al.* 1961) produced a small stratified series in addition to the well known Maritime (Early) Beaker find, and there is a sprinkling of sherds from local caves and barrows, including Piney Sleight (T. 21, ApSimon 1968), 300m to the south and Tynning's Farm central barrow (T. 14, ApSimon 1969), 1.4 km to the west. These leave little doubt that the Mendip area was densely settled at this time.

The radiocarbon dates: These all overlap within one standard deviation. The matching of pairs of virtually identical charcoal and bone dates (BM-1087 with -1091, -1086 with -1090) gives further evidence of the dating potential of unburnt bone, as well as suggesting that much of the charcoal came from young wood used in domestic fires. If the Pennsylvania tree-ring dating curve (Michael and Ralph 1974) is applied to these dates, the resultant true mean ages of 5 of the 6 determinations fall within the period 2190-2110 BC, while the sixth falls in a region of ambiguity, with a range of possible mean age from 2300 to 2200 BC, though all dates still overlap at one standard deviation. The presence of a 'wobble' in the radiocarbon dating curve at this period is confirmed now by Burleigh and Hewson (1976).

These age determinations are thus fully compatible with the duration of about 100 years for the occupation suggested on archaeological grounds. There is a good measure of agreement between them and other published dates for late Bell Beaker material in Britain and in the Low Countries (Lanting, Mook and van der Waals 1973) as well as with the dating brackets of 3750-3600 BP for step 5 and 3650-3500 BP for step 6 suggested by Lanting and van der Waals.

Comparison of this series with 14 dates on samples from Grooved Ware contexts from Durrington Walls, Marden, Mount Pleasant and Woodhenge, published by Burleigh *et al.* (1972) (BM-395-400, -560, -663, 666-8; NPL-239-240), suggests that the Gorsey Bigbury series, with a mean age of 3686 ± 77 BP, is somewhat younger than the Grooved Ware series, with a mean age of 3900 ± 89 BP. However 28 of the total of 84 ($= 6 \times 14$) pairs of dates, i.e. 1 in 3, overlap at one standard deviation and statistical tests show that because of the small number of dates and their relatively large standard deviations the difference of 214 years between the means of the series is not significant (Analysis of variance 'between samples' and 'within samples' gives an 'F' value, $F = 1.35$, with 1 degree freedom for the greater and 18 degrees for the lesser variance estimate). Thus though the dates look as though they support the proposition that the site was originally constructed by Grooved Ware people, a century or so before the Late Beaker occupation, with the insertion and subsequent robbing of the beaker grave placed in the intervening period, a proposition which agrees with the general picture of Middle and Late Bell Beaker people taking over sites previously controlled by Grooved Ware people, proof would require a series of dates on critical, stratigraphically controlled samples.

The Beaker occupation: Drs. Wijngaarden - Bakker's discussion of the animal bones needs no further comment. Helbaek's identification of an impression of a grain of naked barley on a beaker sherd (Helbaek 1953) suggests cereal growing, so that settled mixed farming, such as has been deduced for other Beaker sites (*eg* ApSimon 1976), seems likely. The burnt daub indicates

structures close at hand and the house site, or sites, could have been outside the bank on on the northeast side, with the area inside the ditch used only for penning stock since it yielded so few finds and no evidence of any structures. By analogy with Molenaarsgraaf and Myrhøj, houses 10-15m long might be expected, but it seems unlikely that any traces can have survived modern ploughing, unless the probable postholes, from which the posts appeared to have been removed, found by Tratman (1966) between the apparent ends of the bank are relevant here. (Connection with a gate across the entrance seems more likely).

The location of the site on well drained brown earth soils of the Mendip plateau (Findlay 1965), but within 200m of the permanent stream which sinks at Lower Farm, is appropriate to the mixed farming pattern suggested. At present it is not possible to say anything about the detailed vegetation pattern met by these Beaker people, though at Ballynagilly they appear to have chosen to clear secondary birch woodland resulting from previous Neolithic farming activity. The location of this site is exactly paralleled by that of the surely contemporary Beaker site at *Bos Swallet*, only 2.5 km away. It seems more probable that these sites were occupied by two separate families within a kin group, than that they represent alternative locations of a single family. The virtual identity of the Beaker pottery from the two sites raises the possibility that this may have been made by a family of specialist potters within the clan rather than by each individual family. In this way the potters would get the necessary practice to explain their obviously very high level of competence. It may be possible to check this by characterization studies of local Beaker fabrics.

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