# A Middle Bronze Age Barrow at Cassington, Oxon.

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THE barrow described below lay in a field at Cassington, Oxon., in which gravel-digging has revealed numerous antiquities of all periods.<sup>1</sup> Early in 1943 the barrow appeared to be threatened with immediate destruction, and an emergency excavation was therefore carried out on behalf of the Ashmolean Museum for three weeks in April of that year ; the work was done by a group of volunteers under the general direction of the writer, in collaboration with Miss Beatrice de Cardi and Miss Jocelyn Morris. Owing to an unforeseen change in the direction of advance of the pit face, the barrow was spared for a further period of eighteen months, enabling additional excavations to be carried out by the Oxford University Archaeological Society in the summers of 1943 and 1944 under the direction of Miss Mary Rennie and Mr. Roger Leigh respectively.<sup>2</sup>

#### SUMMARY

The evidence suggests that an area about 110 ft. in diameter was enclosed by a small ditch, the excavated material being piled to form an inner bank. Near the centre of this area an adult male was buried in a deep grave-pit, in the filling of which an infant was interred. Over the filling of the grave a small ritual hut was erected. At the same time a foetus and two infants were cremated in situ and buried close by, one of them in a cinerary urn of debased overhanging-rim type; parts of a further cremated body were deposited on the adjacent ground surface. The burial area, including the remains of the ritual hut, which appeared first to have been partially destroyed

<sup>&</sup>lt;sup>1</sup> For previous finds in the locality see Antiq. Journ., xIV, 264 ; ibid., xV, 30 ; Journ. Rom. Studies,

<sup>&</sup>lt;sup>1</sup> For previous finds in the locality see Antiq. Journ., XIV, 264; *ibid.*, XV, 30; *Journ. Rom. Studies*, XXVII, 237; *Oxoniensia*, I, 13, 201; *ibid.*, II, 201; *ibid.*, III, 164; *ibid.*, IV, 196; *ibid.*, V, 2, 163; *ibid.*, VI, 84; *ibid.*, VII, 61, 103, 104; *ibid.*, VII/IX, 193. <sup>a</sup> My thanks are particularly due to my collaborators, Miss de Cardi and Miss Morris, who were chiefly responsible for the successful excavation of the important central area; to Mr. J. S. P. Bradford, Miss Joan Kirk, Mr. and Mrs. D. N. Riley, Miss G. Sowerby, Mr. and Mrs. P. G. Suggett, and my wife for their painstaking work on the site; to Miss M. V. Taylor and Mr. E. T. Leeds who visited the site and gave much helpful advice; to Mr. Smith, the owner of the site, for permission to dig and for the loan of a mechanical excavator; to Mr. Hedges, of Cassington Mill, for storing and transporting tools and equipment; to Miss Rennic and Mr. Leigh for allowing me to incorporate the results of the work done on the site under their direction; and in particular to Miss B. M. Blackthe results of the work done on the site under their direction ; and in particular to Miss B. M. Black-wood, Dr. L. Chalk, Mr. J. C. Trevor, and Professor F. E. Zeuner, for their reports on material submitted to them for examination and identification (Appendices I-IV, p. 24).



FIG. 2 MAP OF CASSINGTON (Sc. 6 ins.=1 mile) The site of the Barrow is marked by a cross, top left-hand corner (after Oxoniensia, v, fig. 1) Based on the 0.S. 6-in. map with the sanction of the Controller of H.M. Stationery Office.

by fire, was then covered by a mound of scraped-up surface soil, capped by gravel derived from a second, and larger, encircling ditch. The burials are all contemporary, and belong to the third quarter of the second millennium B.C.

## THE SITE

The barrow lay on the W. edge of a gravel terrace  $5\frac{1}{2}$  miles NW. of Oxford, at a height of 220 ft. O.D. and 25 ft. above the Thames. Immediately to the W. the ground drops sharply to the bed of the River Evenlode, while to the S. the terrace continues level for some 250 yards, before dropping gradually to the confluence of the Evenlode and Thames (FIG. 2).

The site was first discovered by the late Major G. W. G. Allen from the air. On PLATE I, A the ditch of the barrow can be seen clearly as a dark circle in the top left-hand corner of the photograph. Immediately to the N. of it runs the great ditch (30 ft. wide and 13 ft. deep, but now entirely silted up and invisible on the surface) of a large enclosure, probably dating to the period of the Roman conquest.<sup>3</sup> On the plate two smaller ditches can be seen branching from the main ditch; of these the one on the S. curves away towards the W. side of the barrow, and must pass very close to it, though its exact course at this point is obscured by the hedge. Material almost certainly derived from this smaller ditch was, however, thrown into the partly silted ditch of the barrow (v. infra, p. 10).

Before excavation the barrow appeared as a very low, ill-defined mound. There was no sign of any ditch on the surface, but the indications given by the air-photographs enabled the approximate centre of the structure to be located on the ground before excavation started.

### THE EXCAVATION

The centre plotted from air-photographs was marked on the ground, and was confirmed by probing for the ditches, and by the excavation of a short trench (FIG. 5, X-X'), which confirmed the fact, already suggested by the air-photographs, that there were two ditches round the barrow; the filling of these was not removed at this point.

In all, four approximately radial sections were dug, which are referred to below, and on the plan (FIG. 5), by the letters N, E, S, and W. Section W and the central area N. of and including the grave-pit were excavated entirely by hand ; section E was dug by a mechanical excavator to within 9 in. of the natural gravel, and the remainder of the soil and the filling of the ditches

<sup>8</sup> Oxoniensia, VII, 106 ; ibid., x, 93.

was removed by hand. This step was necessitated by the emergency character of the excavation, and was amply rewarded by the saving of time and labour thus achieved.

The above operations concluded the initial excavation. In the summer of 1943 sections N and S were dug by hand by members of the Oxford University Archaeological Society and the central area was extended S. of the gravepit, a mechanical excavator again being employed to remove the major part of the top-soil. A further small extension of the W. side of the central area was made by the same Society in the summer of 1944.

The site and its surroundings have now been entirely destroyed by gravel digging. The finds from the excavations are deposited in the Ashmolean Museum.

#### THE SECTIONS

The sections of the barrow are shown in FIG. 5. The layers are numbered, as far as possible, in stratigraphical order, and the same number has been given to corresponding layers throughout. The suffix 'x' indicates that the layer so marked is anomalous and does not conform to the general sequence exhibited by the sections as a whole.

All four sections show the same general sequence of deposits, namely, layers 1-9, 14, and 15. These layers are described in order below.

Layer 1. This is present in all sections, and consists of fine, dark, almost stoneless soil. It appears to lie directly upon the gravel subsoil, but it is possible that in each case it consists of two parts, an upper deposited layer, and a lower layer of original turf; no line of demarcation is, however, visible. (The question of turf lines on this site is discussed on p. 16.)

Layer 2. This consists of 'clean' gravel (i.e. without admixture of earth) except at the edges, where it is slightly earthy. It lies immediately over layer 1, except in section E, where its absence is almost certainly due to destruction by ploughing.

Layer 3. This constitutes the silting of the small ditch. As in all gravelcut ditches, the lower levels contain a high proportion of gravel; above, it shades off into fine, almost stoneless soil, reddish on exposure, but drying to a chocolate colour; the same material occurs in the lower silting of the larger ditch (sections E and W, layer 8).

Layer 4. This layer forms the whole of the core of the barrow-mound. It consists of fine, almost stoneless soil, merging at its upper edge into the darker and more stony plough-soil. Here again it was not possible to distinguish the old turf line on which this layer was deposited, but its existence can be inferred from the evidence discussed below (p. 16).

Layer 5. This layer was of brown soil with a fair admixture of gravel except in section S, where the gravel fraction was far smaller, though still appreciably greater than in layers 1 and 4. In all sections this layer rests on the bank formed by layers 1 and 2.

Layer 6. This layer is absent in section N, which has been much reduced in depth by ploughing. In the remaining sections it occupies the space between the edges or 'tails' of layers 4 and 5. It differs very little from the latter in texture, except in section S, where it is again somewhat more earthy than elsewhere. In this section it shades off on the inner side into a wedgeshaped layer (6x) containing more gravel, which itself shades off into the tail of layer 4.

Layer 7. In all sections except section N, where it has presumably been ploughed away, this layer occupies the depression or trough formed between layers 5 and 6; it consists of clean gravel.

Layer 8. This layer consists, like layer 3, of fine reddish soil, with primary gravel silting at its base and secondary slides of gravel from the sides of the ditch at higher levels. This material appears to be the standard filling of Bronze Age ditches in the Oxford region on gravel sites, and attention has already been drawn to it by Leeds.<sup>4</sup> A few scraps of animal bone, too fragmentary for identification, were found at the base of this layer in section W, and a single fragment of undecorated Bronze Age pottery in a corresponding position in section E.

Layer 9. This layer can be distinguished clearly only in section W, where it is protected from the plough by a greater depth of overlying soil; in the other sections it is mixed indistinguishably with the plough-soil of layer 15. Layer 9 consists of gravelly soil representing silt derived from the slopes of the barrow-mound.

Layer 14. This layer contains late Roman occupation-material; it occurs in sections E and W, and would doubtless have been found also in the other ditch sections, had these been excavated. In section W the soil of this layer was fine and greyish in colour, and contained pottery, a coin, and other small finds;<sup>5</sup> in section E there were traces of burning, with ash and reddened soil containing fragments of pottery. In both sections the upper edge of the layer shaded off into the disturbed plough-soil of layer 15.

Layer 15. This was the mixed gravelly deposit commonly found locally in the upper levels of ditches which have been subjected to cultivation, and requires no further comment.

<sup>4</sup> Oxoniensia, I, II.

<sup>5</sup> Ashmolean Museum accession nos. 1944.145-9, to be published later in connexion with the great enclosure and the antenna-ditches.

In addition to the layers conforming to the general stratigraphical sequence outlined above, there remain a few deposits representing purely local additions or disturbances. The chief of these form the remainder of the filling of the larger ditch in section W (layers 10x-13x). Of these 11x consists of brownish soil with a slight admixture of gravel, and 10x and 12x of clean gravel. The latter merges into 13x, which contains a fair amount of earth.

These layers obviously form no part of the general sequence and have clearly been thrown in from a point to the W. of the end of the section. A *terminus post quem* for their date is given by a sherd of Iron Age pottery which lay sealed beneath them on the surface of layer  $8.^6$  There is evidence, however, that the actual date of their deposition is some centuries later than that of this sherd.

Of the remaining layers, 5x in section S consists of material containing far more gravel than layer 5 through which it cuts. It forms the filling of a small trench cut for some unknown purpose during the construction of the barrow; it is sealed by layer 7. It was not possible to investigate this trench beyond the limits of the section.

Layer 17x represents a similar disturbance, but in this case one post-dating the construction of the barrow. The gravel in its lower levels is obviously derived from layer 2, which it has partially destroyed.

Layer 16x in section S and layer 18x in section W both represent further disturbances. These must post-date the construction of the barrow, since both layers consist almost wholly of clean gravel ; this must almost certainly be derived from a gravel skin (of which layer 7 forms the only surviving trace) originally covering the whole surface of the mound.

## THE CENTRAL AREA

An approximately rectangular area, measuring 30 ft. by 19 ft., was excavated in the centre of the barrow (FIG. 5). The chief finds were (a) a grave-pit containing two inhumations, surmounted by a ritual hut; (b) three cremations in pits dug in the gravel, one of them contained in a cinerary urn; (c) three spreads of wood-ash, on one of which lay a small deposit of cremated bones; and (d) a 'ritual pit'.

#### THE GRAVE-PIT AND RITUAL HUT.

The grave-pit was roughly oval in plan (diameters 5 ft. and 4 ft.) and 3 ft. 6 in. deep below gravel level ; its centre lay 13 ft. to the SE. of the centre of

<sup>6</sup> To be published later in connexion with the great enclosure and the antenna-ditches.

the barrow, upon which point its long axis was approximately orientated. Lying on the bottom of the grave was the skeleton of an adult male, crouched on his right side, head to the NW. (PLATE II, A); a flint scraper (p. 14, FIG. 4, no. 2; A.M. 1944.143) lay by his right knee-cap. Above and around the body were numerous minute fragments of black carbonized vegetable matter, which extended in a thin layer of soil up the sides of the pit for about 18 inches.

Above this thin layer of soil containing the skeleton the filling of the pit was of clean gravel, containing large lumps of gravel conglomerate. These had clearly been obtained in digging the grave, as the upper 6 inches of the natural gravel was locally cemented together to form a rocky layer; a part of this layer which had defeated the efforts of the grave-diggers and remained overhanging the W. side of the pit is shown by a broken line in FIG. 3, III. This gravel filling sloped downwards from the lip of the grave on the SW. side ; in its upper levels it was mixed with layers of soil.

At the bottom of the gravel slope, 22 in. above the floor of the grave, the skeleton of an infant lay crouched on its left side, head to the NW., against the NE. wall of the grave (PLATE II, D). There were no accompanying grave-goods.

The remainder of the filling of the grave was of gravely soil. The upper surface of this filling, at the level of the lip of the grave, was somewhat depressed owing, no doubt, to gradual consolidation of the filling beneath.

Close within the edge of the pit eleven stakes (or perhaps twelve ; one, less certain than the rest, is marked in FIG. 3, III, by an open circle) had been driven into the filling to a depth of 4 or 5 in. ; an additional stake was similarly driven in at the centre of the ring thus formed. The wood has been identified as probably oak, and careful excavation showed that the lower ends of the stakes had been pointed. Only isolated scraps of the actual wood survived, but the form of the stakes was preserved by earthy cores which penetrated the gravelly filling of the grave ; these cores were roughly circular in section and from 2 to  $2\frac{1}{2}$  in. in diameter, and since it is clear that the stakes were driven directly into the filling, without the previous digging of holes to receive them, they may be safely assumed to represent the actual diameters of the stakes.

Being entirely unexpected, the presence of these stakes was not, unfortunately, appreciated until the ground-plan of seven of them was revealed by excavation N. of the line A-B (FIG. 3). As soon as they were recognized the remainder of that portion of the mound which lay over the grave was carefully removed in a series of horizontal layers. Traces of further stakes appeared in horizontal section 13 in. below the surface of the mound, and were traced in this manner to the points where they entered the filling of the grave.

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FIG. 3 THE BARROW AT CASSINGTON, OXON. Detailed plans and section of grave-pit and ritual hut (p. 10)

from their base. Full discussion of the significance of this stake structure must be reserved for a later section of this report (p. 21), but it will be convenient to refer to it here, without prejudice, as a hut.

On the floor of the hut was a layer of fine stoneless soil 2 to 4 in. thick, which lay immediately on the gravelly filling of the grave and completely covered it (FIG. 3, layer f). Above this was a thin but compact spread of charred fragments of wood, identified as being oak, which extended for nearly 1 ft. outside the stakes on the E. side of the hut (*ibid.*, layer g). Above this was a much thicker, though less compact, layer of irregular shape consisting chiefly of greyish sandy soil and charred fragments of wood (*ibid.*, layer h; see also Professor Zeuner's report, Appendix I, p. 24).

#### THE CREMATION-POCKETS.

To the N. of the grave-pit three small circular pits lay in a straight line running ENE.-WSW. (FIG. 5, PLATE II, B). Pit I was I ft. in diameter and 7 in. deep, with a rounded bottom; it contained cremated bones in a compact mass, mixed with a little wood-ash, representing the complete skeleton of a child aged about 5 years.

Pit II was also I ft. in diameter ; its sides tapered slightly to a flat bottom at a depth of 9 in. In this pit, surrounded by black wood-ash, stood a small cinerary urn, mouth upwards (PLATE II, C). It contained the cremated bones of an infant under 6 months of age, unaccompanied by grave-goods. The bones were mixed with ash, and the upper part of the filling of the urn consisted mainly of soil reddened by fire. The urn, though cracked in places, probably by heat, was entire and was removed intact ; it is further discussed below (p. 20).

Pit III was 13 in. in diameter and 18 in. deep ; the greater part of the filling consisted of charred fragments of wood, identified as probably hawthorn, mixed with brown soil. From the charred wood at the bottom were recovered a few minute fragments of cremated bone, sufficient to be identified as those of a foetus.

#### THE ASH LAYERS AND CREMATION IV.

To the N. of the three cremation pockets just described and roughly parallel to them was a large spread of wood-ash divided into three sections approximately I ft. distant from each other (FIG. 5). This layer of ash was nowhere thicker than I in., and in many places was very tenuous; it lay on a layer of brown soil, indistinguishable from the material composing the mound (layer 4), averaging 4 in. in thickness.

On the surface of the eastern ash spread lay a thin layer, hardly more than a scatter, of gravel reddened by fire, derived presumably from the digging of pit II close by. On this gravel lay a scattered collection of cremated bones,

while for some feet around this was a further diffuse scatter of cremated fragments, among which were a leaf-shaped arrowhead (FIG. 4, no. 1; A.M. 1944.142), the broken-off cutting-edge of a polished flint axe (FIG. 4, no. 3; A.M. 1944.141), and a worked flint flake; a flint scraper (FIG. 4, no. 4; A.M. 1944.136c) occurred at the same level, close to the division between the two western ash-spreads. On the plan (FIG. 5) the central nucleus of this cremation is surrounded by a broken line, the fragments of bone and the



THE BARROW AT CASSINGTON, OXON. Cremation-urn and flint implements (pp. 13, 14, 20) Sc. 1/2

flints being indicated by special symbols. The problems presented by this group of finds are discussed below (p. 18).

THE 'RITUAL PIT'.

Some 22 ft. from the centre of the barrow, on the W. edge of the central excavated area, was a pit 4 ft. long, 1 ft. 10 in. wide, and 10 in. deep ; the ends were rounded and the sides sloped inwards slightly. The filling consisted of fine black soil, much darker in colour than that of the overlying mound ; it contained three white-patinated unworked flint flakes at its E. end.

#### THE DITCHES

The two ditches which surrounded the mound are of the normal type and require little comment. The larger ditch averages 16 ft. in width and 4 ft. 6 in. in depth below the gravel, and encloses an area about 115 ft. in diameter ; the smaller ditch, 4 ft. across and 1 ft. 9 in. deep, lies 2 ft. to 4 ft. within the larger one. The intervening berm has been lowered and reduced in width by weathering. Observation at the time the barrow was finally destroyed by the gravel-diggers showed that both ditches were continuous throughout their circumference.

### INTERPRETATION

The problems raised by the evidence presented above fall under two heads; first, the sequence of construction and the ritual of burial; and the second, the date of the barrow and the cultural connexions of its builders.

#### THE SEQUENCE OF CONSTRUCTION.

An examination of the sections shows that the method employed in the construction of the barrow resembles that commonly found elsewhere in the Oxford district,<sup>7</sup> namely, the building of a substantial mound of scraped-up topsoil, round the margins and on top of which is piled additional material, consisting chiefly of gravel cast up from an encircling ditch. This method makes it clear that the ditch has lost its primary significance as a quarry, and serves (except in the case of a very large ditch) the purely symbolical purpose of a barrier or enclosure round the sacred area.

The construction of the Cassington barrow differs, however, from other local examples of the same class, in that there are two ditches, within the smaller of which is a continuous deposit (layers 1 and 2) of material which is stratigraphically and structurally distinct from that forming the main body of the mound (layers 4, 5 and 6). Barrows with two ditches, are, it is true, known in the Oxford district,<sup>8</sup> but in these cases the ditches are of approximately equal size and are relatively more widely spaced ; the present arrangement is, locally at least, unparalleled.

An examination of the sections (FIG. 5) gives the probable explanation of these two ditches. The nature and position of layers 1 and 2 suggest very strongly that these represent respectively the turf and the gravel cast up from the smaller ditch; if this is so, the smaller ditch must have been dug *before* 

<sup>7</sup> E.g. Radley no. 7 (Oxoniensia, x, 94); Standlake (ibid., vi, 88); Stanton Harcourt (ibid., x, 16). \* Oxoniensia, VIII/IX, 94.

the mound (layer 4) was built, since in section N the tail of the mound overlies the upcast represented by layers 1 and 2. Similarly, if, as suggested on p. 10, layer 7 represents the surviving traces of the upcast from the larger ditch, the latter must have been dug *after* the building of the mound (as might be expected, in any case, on practical grounds), since layer 7 is stratigraphically later than layer 4. It is thus clear that the excavation of the smaller ditch belongs to the beginning of the construction-sequence, the larger one to the end of it.

There is no direct evidence to show whether the smaller ditch was dug before or after the ritual of burial in the centre had been completed. It seems likely, however, that the digging of this ditch in fact formed the first item of that ritual, thus demarcating the area within which the subsequent rites were to take place. As will appear below (p. 19), such indirect evidence as there is supports this interpretation.

As regards the remainder of the structure, there is again indirect evidence (p. 19) that the building of the mound followed immediately upon the conclusion of the burial ceremonies. The main core of the mound consists of scraped-up surface soil (see Professor Zeuner's report, Appendix I, p. 24) which included flint flakes, worked and unworked, and a sherd of Beaker pottery, all of which must be regarded as strays collected from the surrounding surface. The diameter of this soil mound was evidently intended to be about 70 ft., leaving a space some 10 ft. wide to be filled in between it and the bank within the smaller ditch ; on the N. side, however, the soil mound was evidently allowed to spread right up to the bank.

It seems probable that this intervening space was stripped of its surface soil, since the material of layers 5 and 6 rests directly on the natural gravel (sections E, S, and W, FIG. 5). Had these layers been deposited upon an undisturbed turf-line, the latter would almost certainly have been distinguishably preserved. While it is true that an actual turf-line ante-dating the barrow was nowhere observed, its presence beneath the mound (layer 4) may be safely inferred from the position of the ash spreads in the central area (p. 13), which must represent the sites of funeral pyres lighted on the old ground surface. The presence of an old turf-line must also be assumed beneath layer 1 (v. supra, p. 8), since, if the bank of which it forms a part is a primary structure, there would be no purpose served by the stripping of the turf at this point.

The material of layers 5 and 6, which fills up the space intervening between the mound and the bank, is probably derived from the digging of the topsoil on the site of the larger ditch. It is clear that this material was deposited in a series of tips, first against the outer bank (layer 5), then against the tail of the central soil mound (layer 6). Further material, from the deeper levels

of the larger ditch, consisting of clean gravel only, was used to fill up the trough between these two tips (layer 7) and to form a 'skin' of gravel over the whole mound, or at least over the outer part of it. The presence of this extended 'skin' can be deduced from the high proportion of gravel in the later disturbances represented by layers 16x and 18x; neither of these pene-trates the natural gravel beneath, and the gravel in them must therefore be derived from above.

It is possible that a short interval elapsed between the completion of the earth mound (layers 4, 5 and 6) and the completion of the excavation of the larger ditch. This is suggested by the disturbance in section S (layer 5x), the almost vertical sides of which could only have been dug if layer 5, through which it cuts, were already consolidated. Some interval should therefore, perhaps, be allowed for this consolidation to take place, between the deposition of layer 5 and the completion of the larger ditch, here represented by the deposit of layer 7, sealing the disturbance (layer 5x).

#### THE RITUAL OF BURIAL.

Among the central features of the barrow the most interesting is undoubtedly the stake structure built over the grave-pit (p. 11). With due respect to the caution shown by Professor Zeuner in the conclusion of his report (p. 25), I do not think there can be any doubt that these stakes do in fact represent the remains of a small ritual hut. The plan of the stakes and the height of the surviving ones admit of no other reasonable interpretation. It is true that there is no obvious entrance to the hut (though there is a slightly wider gap between two stakes on the E. side, which might have served as one) but since the structure is clearly a miniature one of symbolic function only, the question of an entrance large enough to admit a person does not arise.

The stakes forming the framework of the hut have been identified as probably oak (p. 25), but the nature of the remainder of the structure is problematical. At the time of excavation, and subsequently when soil samples were submitted to Professor Zeuner, the stakes were taken to represent a hut with vertical sides, covered by a conical roof whose apex was supported by a central stake, the roof itself being formed of branches and, perhaps, turf, the material lying on the floor of the hut (FIG. 3, III, V, layers g and h) being interpreted as collapsed roof material. There are, however, serious difficulties in this interpretation, both in the evidence itself, as shown by Professor Zeuner (p. 25), and in the known typology of Bronze Age hut-structures ; an alternative explanation is put forward below (p. 23).

Quite apart, however, from the question of the precise architecture of the

hut, Professor Zeuner's report makes it clear that at some stage in the proceedings before the building of the mound the hut was attacked by fire (p. 25). Whether this fire was started intentionally, as Professor Zeuner assumes, or by accident is a question requiring attention, as it has a bearing on the problem of ritual. In so small and inflammable a structure a fire could be started intentionally only with the purpose of completely destroying the hut; but this was not, in fact, done, since some of the stakes, at least, were left standing and were built *in situ* into the mound. An accidental fire, on the other hand, might easily have been started by a chance spark from one of the cremation pyres only a few feet away. If this interpretation is correct, it means that the inhumation-burials, with the hut over them, must have been complete when the cremations took place.

Of the cremated burials nos. I and II present no unusual features. The urn in Pit II is discussed on p. 20. The cremation of the foetus in Pit III, however, is a phenomenon for which no parallels appear to have been noticed, doubtless because the remains are so small (in the present instance all the fragments of bone could have been placed on a sixpence) that they could very easily have been missed.

Cremation IV (p. 13) presents problems which it is difficult satisfactorily to answer. The bones belong to an adult, and have been charred rather than calcined. They lay loosely scattered on the old ground surface, partly on the ash spread, but were not mixed with ashes. Close to them were two objects, a leaf-shaped flint arrowhead, unburnt, and the edge of a flint axe, apparently split off by heat, both of which are generally considered to belong to a period earlier than that of the urn deposited contemporaneously close by.<sup>9</sup> It would be tempting to regard these two objects merely as strays collected in mound-building, were they not stratigraphically associated with the cremated bones.

The position of these bones, scattered loosely on the old ground surface; the fact that only a part of the body is represented (see Miss Blackwood's report, p. 26); and the association with them of anachronistic grave-goods, contrasts sharply with the rite accorded to the other three cremations, and points to some definite difference of culture or status among the individuals here represented; but as to the nature of that difference the evidence is silent.

The only other feature of the central area which remains to be mentioned is the 'ritual pit' (p. 14, FIG. 5). Pits of this kind are known from numerous

<sup>&</sup>lt;sup>9</sup> The occurrence of leaf-shaped arrowheads with Middle Bronze Age burials has, however, been noted, though very rarely, e.g. Greenwell, British Barrows, p. 369, no. CLIX; Trans. Hunter Arch. Soc., 1928 (quoted from Childe, Prehistoric Communities, p. 154, n. 64).

barrows in all parts of the country ; one at Stanton Harcourt<sup>10</sup> contained whitepatinated flint flakes, as in the present instance, and another at Eynsham<sup>11</sup> was filled with the same black soil. The adjective 'ritual' serves only to cloak our ignorance of their real purpose.

It is impossible to say with certainty how long a period elapsed between the beginning of the ritual discussed above and the actual building of the barrow. It is possible that the ritual hut was intended to stand in the open for a period, though presumably not for very long, since so flimsy a structure could hardly be expected to withstand any protracted exposure to the weather. It seems likely, however, that whatever may have been the intentions of the builders, the remains of the hut were in fact enclosed in the mound very shortly after its destruction by fire. Had this not been done, it seems unlikely that the surviving stakes, only shallowly rooted and already disturbed, would have remained upright in the position in which they were found. If, then, the mound was built immediately after the burials were completed, it seems probable that the smaller ditch and its bank were constructed, as already suggested (p. 16), in the earliest stage of the obsequies. No purpose would be served in doing this after the burials, unless these were to be left, uncovered by the mound, for a period during which it was necessary to protect them, at least symbolically, by a ditch ; but this, as we have just seen is unlikely to have happened.

From what has been said above the following summary may be made of the sequence of events leading up to the completion of the barrow. It must, however, be made clear that parts of the sequence (particularly the details of the destruction of the hut) rest only upon circumstantial evidence, and must accordingly be treated strictly as hypotheses affording a reasonable, but by no means certain, explanation of the evidence.

- 1. Excavation of the small ditch and construction of the bank within it.
- 2. Excavation of the grave-pit, burial of the two bodies, and construction of the hut.
- 3. Cremation of two infants and a foetus *in situ*, during which the hut is accidentally set on fire and partially destroyed.
- 4. Excavation of pits I-III and deposition of cremations and urn in them.
- 5. Deposition of cremation IV on old ground surface.
- 6. Construction of central soil mound.

Oxoniensia, VIII/IX, 200.
 Ibid., VI, 85.

- 7. Excavation of larger ditch begun, the up-cast being piled between the tail of the mound and the bank.
- 8. A short interval elapses; a trench (section S, layer 5x) is dug and refilled on the S. side of the ground.
- The excavation of the larger ditch is completed, the gravel up-cast 9. being tipped on to the mound to form an over-all capping.

#### THE DATE OF THE BARROW AND ITS CULTURAL SIGNIFICANCE.

The urn. The only object from the barrow which affords any certain evidence of date is the urn which contained cremation II (p. 13). There is no doubt whatever that this was a primary deposit, and the date of the urn, if ascertainable, therefore gives the date of the barrow itself.

This vessel (PLATE I, B, FIG. 4, no. 5; A.M. 1943.12) stands 6 in. high ; the diameter of the rim is 6 in. and that of the base 35 in. ; the ware is fine, without admixture of sand or grit, fired to a brownish-grey colour ; the surface is now somewhat scaly, with numerous cracks and fissures, especially on the upper part.

In profile the urn is tripartite, and consists of a collar surmounting a slightly hollowed neck of equal depth, above a body which tapers with straight sides to a slight 'kick' at the base. Both collar and neck are decorated in continuous chevron pattern executed by means of a pair of cords twisted in opposite directions. The rim is plain and slightly rounded; within it is a deep rebate, formed by a swelling of the wall of the urn at the level of the base of the collar, decorated in the same paired-cord technique with a horizontal line of impressions surmounting oblique lines.

The squat form of the vessel, the deep internal bevel, and the unsharp ridged profile are all reminiscent of certain food vessels which occur in S. England.<sup>12</sup> It is clear, however, both from the use to which the vessel was put, and from the ornament,<sup>13</sup> that it is in fact a debased example of the overhangingrim cinerary urn, though exhibiting certain food-vessel characteristics.

The closest parallel to this vessel, particularly in decoration, is a small overhanging-rim urn in the collection of Mr. A. D. Passmore, found with an incense cup at Wilton, near Great Bedwyn, Wilts.<sup>14</sup> This urn stands 6 in. high, with a diameter of 5 in. at the rim and  $3\frac{1}{2}$  in. at the base. The

<sup>&</sup>lt;sup>12</sup> E.g. Beaulieu, Hants., Proc. Prehist. Soc., 1X, 12, fig. 8, nos. 3 and 4. <sup>13</sup> Double-cord ornament of this type is rare on Bronze Age pottery. Its most frequent occurrence is, however, on cinerary urns of overhanging-rim type and, in particular, on Cornish urns; it is found rarely on pygmy cups, hardly at all on food-vessels, and never, apparently, on those of S. English type. 14 Wilts. Arch. Mag., xxxiv, 308.

collar and shallow neck are of approximately equal depth, and are decorated with the impressions of a pair of twisted cords (in this case both cords are twisted right-handed) in precisely the same continuous chevron pattern as occurs on the Cassington urn. The upper part of the collar bears in addition a double line of cord impressions, crossed by numerous oblique impressions irregularly spaced. The rim is plain and there is no internal bevel.

Decoration in the form of continuous chevrons executed with a pair of twisted cords is rare on cinerary urns, and its occurrence on these two vessels, which are similar in size and form, suggests at least that they are not widely separated in date, if indeed they are not even more closely related.

With the Wilton urn was a bipartite pygmy cup, 21 in. in diameter. The lower part is round-bottomed, and meets the upper part, shaped like a truncated cone, in a sharp carination decorated with impressed dots ; the rim is similarly decorated, and two perforations pierce the wall of the vessel at the carination. The cup, and the urn which it accompanied, clearly fall within the series of pottery types which characterize the Wessex Culture of the Middle Bronze Age, and it is noteworthy that an urn, resembling that from Wilton very closely in shape and size, was found in the famous Upton Lovel 'Gold Barrow'.15

These parallels suggest that the Cassington urn should be placed chronologically within the 'Wessex' stage of the Bronze Age of S. England, dated by Piggott<sup>16</sup> 1700-1400 B.C. It is true that in technique the urn appears degenerate when compared with the parallels quoted ; this may, however, be due merely to the strength of the native tradition of potting exhibited by southern food-vessels, whose influence here has already been noted.

The burials and the ritual hut. That the date of the barrow must lie in the earlier part of the Middle Bronze Age is suggested by the presence both of inhumation and of cremation burials side by side. The replacement of the former rite by the latter is, of course, a gradual process, subject to local acceleration and retardation, and therefore unsuitable as a basis for chronological estimates. The association of inhumation burials with cinerary urns is, however, very rare in S. Britain, and its occurrence here suggests, though it cannot be said to prove, a date within the earlier phase of the Middle Bronze Age. A parallel instance of mixed rites in the same barrow has been found at North Stoke, Oxon.,<sup>17</sup> though unfortunately without dating evidence.

The structure above the grave-pit exemplifies the practice of hut-burial, which is not uncommon in the Bronze Age of Europe. Its rarity in Britain

<sup>15</sup> Colt Hoare, Ancient Wilts., p. 99, pl. xi.
 <sup>16</sup> Proc. Prehist. Soc., iv, 52.

17 Oxoniensia, 1, 16.

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is probably more apparent than real, owing to the unsuitability of nineteenthcentury methods of excavation for the discovery of such meagre traces as may survive. The types of hut thus employed as mortuary houses may be divided into two classes, based respectively on rectangular and circular plans. The British examples of the first class have been discussed by Piggott,<sup>18</sup> who compares them with types found in the continental Corded Ware culture, which contributes a large element to a 'A' beakers of the British Early Bronze Age. The second class is represented in Yorkshire<sup>19</sup> and at Caerbetin in Montgomeryshire;<sup>20</sup> in these cases, however, the structures are fairly large (diameters 20-30 ft.), and must be regarded either as actual dwellings or as full-size replicas of them. The Cassington 'hut', on the other hand, is clearly a miniature structure for which no certain parallel has yet been found in Britain. It is possible that a structure of similar type enclosed an unaccompanied cremation-burial in a barrow at Clifton Hampden, Oxon.<sup>21</sup> but the evidence is uncertain.

For closer analogues one must turn to the timber structures found beneath barrows in Holland.<sup>22</sup> The majority of these are of large diameter, comparable with the British examples already quoted. Though their excavators regard them in the main as ritual arrangements of free-standing posts, Piggott persuasively suggests<sup>23</sup> that some at least must represent the remains of actual huts. There are, however, a few much smaller constructions, called by van Giffen ' beehive-shaped grave-structures ',24 and it is to these that the Cassington hut may, perhaps, be compared.

The essential feature of these beehive-huts is a circular or oval beddingtrench which supported the base of a hollow structure of wattlework. At Hilversum<sup>25</sup> the section through the bedding-trench showed that the upright members sloped sharply inwards, forming, perhaps, a 'wigwam'. At Onnen,<sup>26</sup> however, the base of the framework rose vertically from the bedding-trench, while in barrow V at De Eeze27 the inward slope of the base of the uprights was only very slight. The remains of the upper part of these structures suggest strongly that they were in the form of a dome which was continuous with the converging walls.

Proc. Prehist. Soc., 1x, 24.
 <sup>19</sup> Mortimer, Forty Years' Researches, pp. 153, 181.
 <sup>20</sup> Montgomeryshire Hist. and Arch. Coll., 1932, pp. 176-81.

 Oxoniensia, 1, 15.
 Van Giffen, Die Bauart der Einzelgräber, Leipzig, 1930, passim. Bursch, Oudheidkundige Mededeelingen, Leiden, passim. <sup>23</sup> Arch. Journ., xcvi, 217.

24 Bursch, ibid., xv, 50, 53; van Giffen, op. cit., fig. 80, pls. 90, 93, 108.

25 Bursch, loc. cit.

26 van Giffen, op. cit., pl. 90.

27 van Giffen, op. cit., pl. 108.



The Cassington find may, perhaps, be interpreted as one of these beehivehuts. It is true that the bedding-trench is lacking, but since it was possible to thrust the stakes directly into the soft filling of the grave-pit no special excavation would be necessary to receive them.

As evidence against this interpretation the presence of a central stake must be considered. It is true that the plan of the stake-holes, taken in isolation, might be held to connote a hut with vertical walls and a separate roof, of the type already described (p. 17). It must be remembered, however, that the surviving traces of the uprights appear to converge towards the centre, as in the true beehive-hut, which, as a self-supporting framework, needs no central stake, and that no trace of the central stake itself was found above gravel level (FIG. 3, I and II). Moreover, among the huts discussed above, there appears to be no certain instance of a circular plan with a central supporting post; Bursch's barrow 2 at Soesterberg,<sup>28</sup> it is true, had a central posthole within a ring of nine others, but this hole contained an urn, and is regarded by its excavator as a socket for a temporary post used in laying out the remainder.

A possible explanation of the central stake-hole at Cassington, and for the carbonized wood which lay above it, is suggested by a barrow excavated by van Giffen at De Eeze.29 Here a beehive-hut contained remains of a wooden structure which the excavator persuasively interprets as a table, standing on a single leg (like a low garden bird-table), on which the gravegoods were placed. It is possible that the central stake formed the support for such a table, the top of which is represented by the layer of carbonized wood (FIG. 3, III and V, layer g); but in view of the uncertain effects upon any original structure of the fire in the hut, this suggestion can, at the most, be put forward only very tentatively.

On the confused evidence available it would be unwise to insist too strongly upon the suggested parallel with the Dutch beehive-huts. It may be noted, however, that these structures are found in the Beaker culture of Holland, which has a definite formative influence upon both the A and the B groups of our British beakers. Cassington and its neighbourhood are particularly rich in beaker material of both types<sup>30</sup> and it may be further remarked that the grave-pit and skeleton beneath the hut are typical, in size, shape, and attitude, of beaker burials in the Oxford district. The unsatisfactory nature of the structural evidence, and our growing realization of the complexity of the problems of British beakers and their continental origins, alike make

 <sup>&</sup>lt;sup>26</sup> Bursch, *ibid.*, xv, 55, fig. 31.
 <sup>29</sup> Op. cit., 139, pl. 108.
 <sup>30</sup> Oxoniensia, 111, 26-30, with refs.

it unwise to do more than suggest, with reserve, a possible Beaker element in the culture of the Cassington barrow-builders, and, consequently, a fairly early date for the barrow. This element, however, if it exists, contrasts strongly with the native tradition represented by the contemporary cinerary urn.

It is much to be regretted that the exigencies of war-time did not permit a fuller and more leisurely examination of the barrow. The results achieved, however, though unsatisfactory in many respects, illustrate that fusion of diverse cultures which is characteristic of the Middle Bronze Age as a whole, and to which the Oxford region appears to be particularly favourable. It may be added that, if for no other reason, the excavation has been valuable in suggesting that timber structures in British barrows may be commoner than is usually supposed, and that care and skill far greater than that here employed will be necessary if their nature and significance is to be properly understood.

#### APPENDICES

#### I. SOIL SAMPLES

#### By PROFESSOR F. E. ZEUNER, London University Institute of Archaeology

Four samples submitted represent a section through the strata covering the burial pit. The question is whether, and how, they might help in elucidating the construction of the 'hut' erected over the burial pit. The section may be summarized as follows : Layer 4: earth mound  $\begin{cases} Sample 1. \\ Sample 2. \end{cases}$ 

Layer h : humose layer, Sample 3. Layer g : layer of charred wood.

Layer g: layer of charred wood. Layer f: layer with some charcoal, Sample 4.

Layer e: the filling of the burial-pit,

Samples i and 2 (Layer 4), both from the mound of the barrow above the layer of humose material. Light brown sand with a certain amount of silt and much iron, probably not weathered in situ, but material excavated elsewhere and heaped up to form the mound. There is no evidence for turf or vegetable matter incorporated in the mound.

Since the fresh subsoil consists of gravel, whilst the mound-material appears to be made up of a sand which could well be the product of weathering of these gravels, one gains the impression that the mound was made up of surface-soil scraped together, without any attempt to get material by digging. This method of making the mound from purely superficial scrapings of soil scems to have been used at other sites, too (for instance the Saxon barrow of Sutton Hoo, *Antiq. Journ.*, xx, 156). Sample 3 (Layer h), immediately covering the spread of carbonized wood. It consists of the

same material as samples 1 and 2, with addition of much ' humose ' matter. Since the larger particles of organic matter are all charcoal, and since washing did not reveal even traces of moss, or root fibres indicating turf or other plant matter which might have been used in constructing a roof, it must be inferred that the organic contents of this latter are entirely due to burning of wood. The pieces of charcoal were too small to decide whether twigs or thicker pieces of wood were burned.

Sample 4 (Layer f), beneath the spread of carbonized wood, immediately above the filling of the burial-pit. Material resembling Sample 3, but of a slightly more coherent clayey appearance and more reddish. This difference is most readily explained by the action of fire while this layer was on the surface. The scraps of charcoal are somewhat larger, up to 10 mm. long. Some are oak, others come from a more fine-grained wood.

There is no evidence of wind-blown matter either in Sample 3 or 4, so that it is impossible to decide, on the evidence of the samples alone, whether the hut stood open to the wind.

Conclusion. Three major questions are raised in connexion with the evidence :

(I) Did the hut (the small circle of stakes) have a roof?

(II) Was the fire lit, (a) prior to the building of the hut, or (b) inside the finished hut?

(III) If (IIb) is correct and (I) to be answered in the affirmative, did the hut stand exposed for some time, or was it partly or wholly enclosed in the barrow when the fire was lit?

(I) The presence of a roof is suggested by the central stake.<sup>31</sup> But the deposit which one would expect to yield evidence for a roof, Layer h, did not produce any. One can assume, of course, that all traces of turf have rotted away, whilst the resistant charcoal has been preserved.

On the other hand, Layer h does not contradict the roof theory. It may well be that a roof of branches and twigs and covered with turf was destroyed by the fire, the fine matter of the roots and leaves of the turf being consumed completely, whilst the woody constituents were partly charred. This interpretation receives some support from the intimate mixture of earth and charcoal in Layer h, which is difficult to explain, unless earth and burning wood got mixed somehow during the process of its formation. If one accepts this, one assumes that the fire was lit in the finished hut.

This appears to be the most reasonable interpretation of the conditions observed, but the available

evidence does not provide conclusive proof of it. (II) The fire was lit on the surface of Layer f. But the spread of charcoal indicating the site of the fire is not wholly inside the hut, as it extends outside the circle of stakes on the western side. The question whether the stakes were attacked by fire cannot be answered, since their remains were too fragmentary. But if we assume, as suggested in (I), that the 'turf' component of the roof was consumed by fire, we would expect traces of fire action (like reddening or baking) in Layer h, which however is lacking. On the whole, therefore, the evidence of the fire-layer g tends to favour the view that the fire was lit before the hut was built, but if one accepts this view, one finds it difficult to explain the charcoal contained in Layer f.

It is, of course possible, to construct an explanation which avoids the difficulty caused by Layer g, and at the same time accepts the view that a fire, lit on one side of the hut, chiefly inside it, burned the roof. But one would have to attribute to this fire certain negative qualities, viz. it did not bake the soil contained in the roof though devouring the roots, and it did not char the stakes to any great extent. It is useless to argue on such points. The only, slender, suggestion that the fire was lit inside the hut is that, as Mr. Atkinson points out to me, the stakes on the south side were leaning over towards the charcoal layer.<sup>32</sup> This certainly suggests a collapse towards the side where the fire was burning.

The theory of a fire in the roofed hut thus scores a slightly higher probability than its alternatives.

(III) It is plain that the fire burned partly *outside* the hut, where it could not have done so had the mound at that time already covered the hut. Although direct evidence for the hut having stood exposed for some time, which we hoped to obtain from the samples, has not come forward, this distribution of the charcoal spread shows that the hut was not covered by the barrow when the fire was placed in it.

#### II. THE SPECIMENS OF CHARCOAL

By DR. L. CHALK, Imperial Forestry Institute, Oxford

Sample 1	 Ritual Hut, Layer h.	Sample 4	 Cremation II.
Sample 2	 Ritual Hut, Layer g.	Sample 5	 Ash spread.
Sample 3	 Ritual Hut, stake-hole.	Sample 6	 Cremation III.

Nos. 1, 2, 5, and 6 are all oak, *Quercus* sp., and no. 3 is probably oak too, but the material is too small to enable me to be absolutely sure. No. 4 is almost certainly one of the Rosaceae, possibly the hawthorn, *Crataegus* sp.; it might possibly be crab-apple, but not a cherry or blackthorn.

I find it almost impossible to distinguish between burnt and decayed wood in this state and hesitate to give an opinion. Nos. 5 and 6 certainly appear to have been burnt. No. 4, on the other hand, suggests decay in the centre, but may have been charred on the outside. The other specimens might or might not have been burnt, as far as I can tell.

Size is very difficult. I am inclined to guess that these specimens were at any rate not from twigs, and should put most of the fragments at anything over 1 cm. from the pith.

#### III. THE CREMATIONS

#### By Miss B. M. BLACKWOOD, Department of Ethnology, Oxford

Cremation I. Fragments of a probably complete skeleton of a child aged about five years. Identifiable fragments include upper portions of both femora (epiphyses separate); lower epiphysis of right femur; parts of head of humerus; crown of uncut first permanent molar; roots of two milk molars and milk canine.

Cremation II. Fragments of skeleton, probably complete, of an infant of under six months of age. Cremation III. Minute fragments of (?) early foetus.

<sup>31</sup> But v. supra, p. 23. R.J.C.A. <sup>32</sup> But v. supra, p. 23. R.J.C.A.

Cremation IV. Fragments of incomplete skeleton of an adult, consisting of lower part of occipital including posterior half of foramen magnum; parts of upper portion of occipital; parts of parietal; head and small portion of neck of (?) left humerus; part of distal end of shaft of humerus with a piece of the articular surface of the capitellum; small portions of shaft of (?) left humerus; small portions of an upper rib; small portion of the articular surface of head of radius.

#### IV. THE INHUMATIONS

#### By J. C. TREVOR, Duckworth Laboratory, University Museum of Archaeology and Ethnology, Cambridge.

The bones belong to an adult male, who died in middle life (Field no. M.H.12, Cambridge Catalogue no. Eu. 1.4.1), and to a child aged about five (Field no. M.H.13, Cambridge Catalogue no. Eu. 1.4.2). Their skulls have been restored by Mr. C. B. Denston, Assistant in the Duckworth Laboratory, where they are now preserved. That of the child is remarkably complete for an ancient specimen of such tender years, a tribute to the skill with which the fragments composing it were excavated. Reconstructed from the formulae provided by Pearson<sup>1</sup> for the maximum and oblique lengths of the left femur—in the present case the only whole limb bone—namely, 460 mm. and 457 mm. respectively, the stature of the adult was  $167 \cdot 7$  cm. or 5 ft. 6 in. This is an inch below the English Bronze Age male mean of  $171 \cdot 1$  cm. or 5 ft. 7 in. that Pearson cites in his memoir, and it falls within the 'medium height' category of most anthropologists.

The other measurements furnished relate to the cranium, i.e. the skull minus the mandible, and are shown below, the technique employed being that of Buxton and Morant.<sup>9</sup> With the exception of the auricular height, which was taken from the interportal line to the apex by means of the Davidson Black head-spanner attached to Mollison's craniophor, the characters are defined by Buxton, Trevor and Julien.<sup>3</sup> Cranial capacity was found from an unpublished formula for brachycephalic male skulls calculated by the late Dr. L. H. Dudley Buxton and the writer on the basis of the correlation between this character and the linear measurements of a series from the mediaeval ossuary of St. Leonard's church, Hythe.<sup>4</sup>

The skull of the adult is distinguished by prominent supraciliary ridges. The mastoid processes of the temporal are large and the areas for muscular attachment on the occipital well-marked. The occlusal surfaces of the teeth are much worn, and although  $M_1$ , L displays signs of caries, none in the mandible or the right half of the upper jaw—the left is missing—was lost before death. The incisor bite is edge-to-edge, and the mental protuberance is notably salient. No traces were observed of disease or injury to the bone. Apart from the basi-bregmatic height, in which it is superior, and the transverse arc and the foraminal length, in which it is sensibly equal, the absolute cranial dimensions are rather less than the revised English Bronze Age male means given by Morant.<sup>6</sup> Cranial capacity and auricular height are omitted from this comparison.

capacity and auricular height are omitted from this comparison. The cephalic index of the adult skull is mesocranial (77.7) and Hrdlička's mean height index, in terms of the divisions recently advocated by Vallois<sup>6</sup> but no of his nomenclature, is hypsicranial (86.2). As a measure of prognathism Weidenreich<sup>7</sup> has stressed the value of the nasal angle of the 'fundamental' triangle having for its sides the basi-nasal and basi-alveolar lengths and the upper facial height, and, according to the scheme proposed by him, the specimen may be described as hyperorthognathous (56°.9). The corresponding English Bronze Age male means are cephalic index 80.9, mean height index (determined from the average values of its components) 80.7 and nasal angle 60.4. The cephalic index of the child's skull is 80.1 or just brachycranial.

angle 60 4. The cephalic index of the child's skull is 80 1 or just brachycranial. Measurements of Adult Male Cranium. Capacity (C), 1472; maximum length (L), 181.5; maximum breadth (B), 141; minimum frontal breadth (B'), 92.5; basi-bregmatic height (H'), 139; auricular height (OH), 118.5; frontal chord (S'<sub>1</sub>), 111; parietal chord (S'<sub>2</sub>), 107.5?; occipital chord (S'<sub>2</sub>), 101?; frontal arc (S<sub>1</sub>), 124.5; parietal arc (S<sub>2</sub>), 121?; occipital arc (S<sub>2</sub>), 123?; total sagittal arc (S), 369; transverse biporial arc ( $\beta Q'$ ), 321?; maximum horizontal perimeter (U), 512?; foraminal length (fml), 36.0; foraminal breadth (fmb), 27.7; basi-nasal length (LB), 105; basi-alveolar length (GL), 88?; upper facial height (G'H), 62?; bimaxillary breadth (GB), 85.5; orbital breadth, left (O<sub>1</sub>, L), 40.6?; orbital height, left (O<sub>2</sub>, L), 41.0; 100 B/L, 77.7; 100  $H'/\frac{1}{4}(L+B)$ , 86.2; 100  $S'_1/S_1$ , 89.1; 100  $S'_2/S_2$ , 88.8?; 100  $S'_3/S_3$ , 82.1?; 100 fmb/fml, 76.9; 100 G'H/GB, 72.5?; 100  $O_4/Q_4$ , L, 76.4?;  $N \angle$ , 56°.9?;  $A \angle$ , 87°.1?;  $B \angle$ , 36°.0? Figures followed by a query denote either approximations which are very close to the true values or cases in which a convention has been used to locate a terminal point or points.

<sup>1</sup> Philos. Trans., Series A, CXCII, 169. <sup>2</sup> J. Roy. Anthrop. Inst., LXIII, 19. <sup>3</sup> Man, XXXVIII, Art. 47, p. 49. <sup>4</sup> Biometrika, XXIV, 135. <sup>5</sup> ibid., XX<sup>B</sup>, 301. <sup>6</sup> Bull. Soc. Anthrop. Paris, IX<sup>e</sup> Série, V, 8. <sup>7</sup> Palaeonto-logia Sinica, n.s. D, no. 10.



B THE BARROW AT CASSINGTON, OXON. A. Air-view showing site of Barrow (dark circle just r. of field-hedge) before excavation (p. 7) B. The cremation-urn found in pit II (pp. 13, 20) Phh. A : the late Major G. W. G. Allen. B : Ashmolean Museum. ATKINSON, CASSINGTON BARROW

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## THE BARROW AT CASSINGTON, OXON.

- A. Crouched burial of adult at base of grave-pit (scale I ft.) (p. 11).
  B. Central area, showing pits I-III and part of the grave-pit (p. 13).
  C. Pit II with cinerary urn *in situ* (p. 13).
  D. Crouched burial of infant in filling of grave-pit (scale I ft.) (p. 11).

Phh. R. J. C. Atkinson.

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ATKINSON, CASSINGTON BARROW