

## A BARROW AT DUNSTABLE, BEDFORDSHIRE

### PART I.

#### THE ARCHAEOLOGICAL EVIDENCE

By G. C. DUNNING and R. E. M. WHEELER

In 1926 the University College and Hospital (London) Anthropological Society, working in collaboration with Mr. T. W. Bagshawe, F.S.A., Hon. Curator of the Dunstable Museum, began the exploration of the northernmost of the 'Five Knolls,'  $\frac{3}{4}$  mile west of Dunstable in Bedfordshire. The Five Knolls are five bell-barrows which here crown a salient of the Down and overlook the Vale of Aylesbury (Pl. i, A). The northernmost barrow, no. 5, still rises to a height of about 5 ft. above the level back of the ridge, but its northern slopes are continued without interruption by those of the steep hillside. It is thus the most prominent of the series (Fig. 1).

Permission to excavate was kindly granted by the Conservators of the Dunstable Downs and the Stint Holders. The objects found, together with a reconstruction of the primary burial, are deposited in the Dunstable Museum. Interim reports of the excavations were printed in *Man* (1927, 12, and 1928, 114), and in the annual reports of the Dunstable Library and Museum for 1926-7, 1927-8, 1928-9 and 1929-30. The present and final report incorporates the whole of the evidence recovered during the four years' work.

In 1926-7, the time-hallowed but unsatisfactory method of trenching the centre of the barrow was adopted and, although much interesting evidence was thereby obtained, it was found necessary when work was resumed in 1928 to begin *de novo* with the systematic clearance of the whole mound. The work was resumed and completed in 1929.

The method adopted in the last two years of the

excavation was as follows.<sup>1</sup> Two parallel lines of pegs were laid out at right-angles to the ends of one of the axes of the barrow. The pegs of each line were planted at regular intervals of a foot (or multiples of a foot), and the corresponding pegs of each line bore a similar number. Working between these datum-lines, the diggers proceeded to remove the mound strip by strip, each strip coinciding, so far as possible, with the interval between two pairs of pegs. In this way, a complete section of the mound was always in view, and it was easy to correlate "finds," as they occurred, both with the various strata and with the measured datum-lines.

The barrow is from 50-60 feet in diameter, and is structurally of one period. The primary interment, found in 1926, was nearly central in the mound and consisted of a female skeleton, lying in a crouched position on the right side, with the right hand at the jaw and the head slightly east of north (Pl. ii, A). The skeleton lay in an oval grave, 3 feet 3 inches long, 2 feet 2 inches wide and about 3 feet deep in the chalk. The only grave-furniture was a simple flint-flake knife,  $4\frac{1}{4}$  inches long, with one polished edge and slight retouching at one end (Fig. 2), placed under the right shoulder. The following snail shells were found at the bottom of the grave: *Helix hortensis* (3 specimens), *Helix rufescens* (1 large specimen), and *Cyclostoma elegans* (4 specimens).

In reporting upon this skeleton, Professor Elliot Smith notes that the bones are those of a slenderly built woman, about 5 feet in height and of middle age. The skull has a cephalic index of 74.4 and is ovoid in form, with a prominent occipital bulging. The chin has the typical pointed form of the Mediterranean, and the facial characters, as a whole, are quite characteristic of this race. Professor Elliot Smith points out that a feature of special interest in the skull is 'a condition of very advanced symmetrical thinning, that is extremely rare in Europe but very common in the aristocracy of ancient Egypt from the third to the nineteenth

<sup>1</sup> Cf. C. Fox, *Archaeologia Cambrensis*, 1926, p. 51.



A. THREE OF THE FIVE KNOLLS, DUNSTABLE DOWNS



B. BARROW NO. 5, FIVE KNOLLS : SOUTHERN PART OF DITCH



C. BARROW NO. 5, FIVE KNOLLS : THE DITCH COMPLETELY EXCAVATED  
The central figure is standing by the primary burial



A. THE PRIMARY BURIAL.



B. SKULL OF CREMATION NO. I, FOUND INSIDE THE BRONZE-AGE URN (FIG. 3)

DUNSTABLE DOWNS : FIVE KNOLLS, BARROW No 5

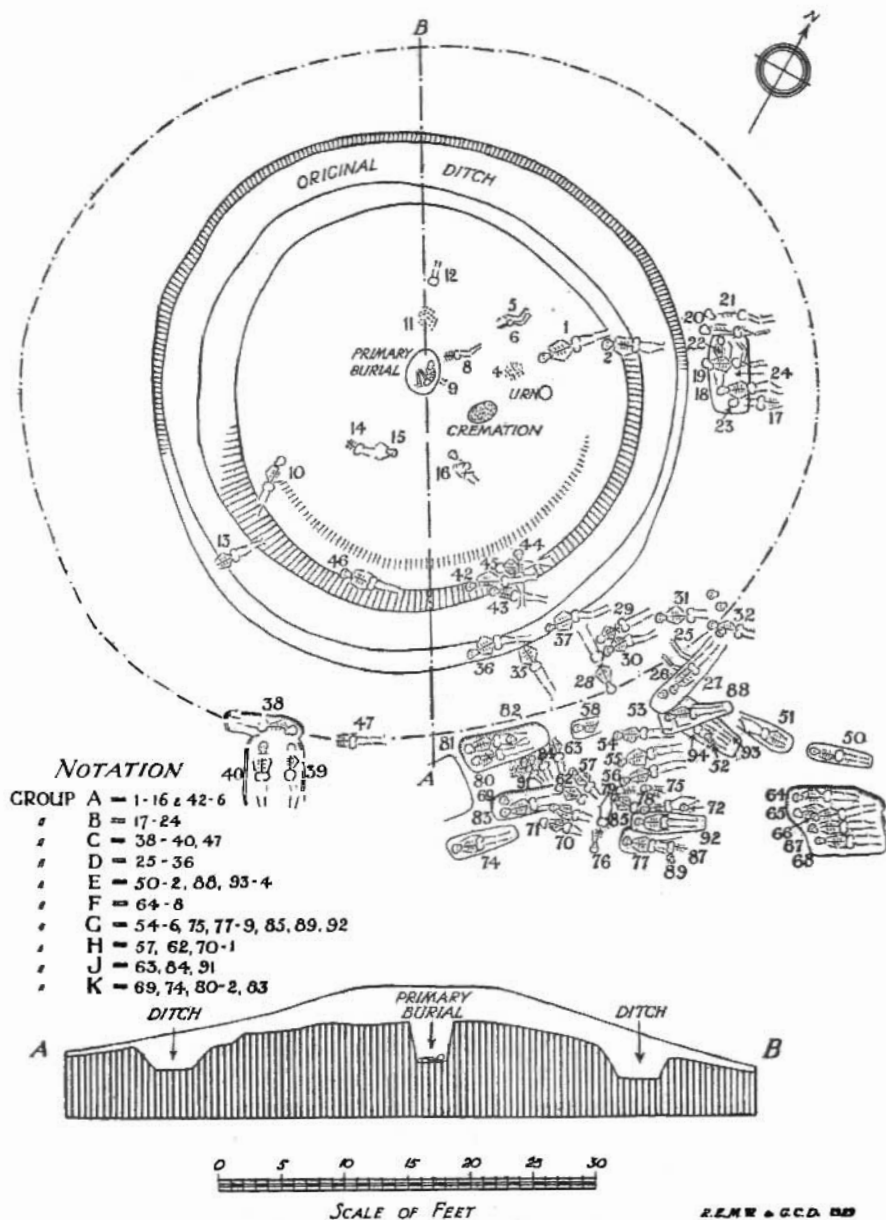


FIG. 1. PLAN AND SECTION OF BARROW NO. 5, FIVE KNOLLS

dynasties. In 1907, I discussed (in the *Journal of Anatomy and Physiology*, xli, 232) this peculiar incidence, and arrived at the conclusion that it was probably the result of wearing heavy wigs for long periods of time. We know nothing of the kinds of head-dress worn in the Bronze Age; but, if this theory is valid, the condition of the Dunstable lady's skull indicates that she was accustomed to wear either a wig or some other heavy type of 'head-gear.' Professor Elliot Smith also observes that many years

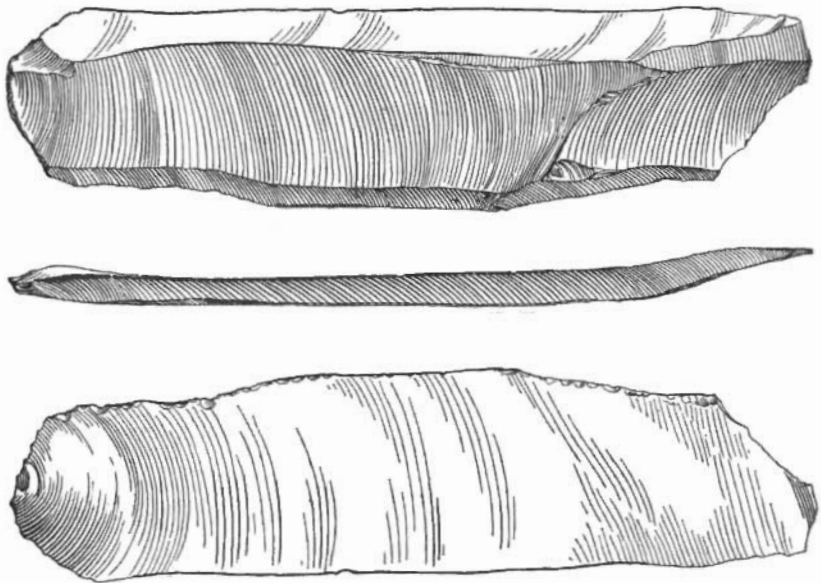


FIG. 2. FLINT KNIFE FOUND IN PRIMARY BURIAL (i)

before her death, the woman had had her left ulna broken near the wrist, possibly in fending a blow from a stick. This feature was found to recur in other skeletons of much later date from the surface of this barrow.

The primary burial was surrounded by a circular, flat-bottomed ditch enclosing a space about 25 feet in diameter (Pl. i, B-C). The ditch was 3 feet broad at the base and between 6 and 7 feet broad at the top, i.e. at the original surface of the ground (Pl. iii, B). It was of purely ritual significance since it lay well within the

original structure of the mound. Ritual-ditches of this kind are not uncommon in Bronze Age barrows; a particularly close analogy is provided by the barrow excavated by Dr. Cyril Fox at Ysceifiog in Flintshire (see *Archaeologia Cambrensis*, 1926, p. 48, where the possible use of this ditch in connexion with funeral ceremony is discussed by Dr. Fox). The Dunstable ditch differed from certain others of its class in the apparent absence of any entrance through or into it.

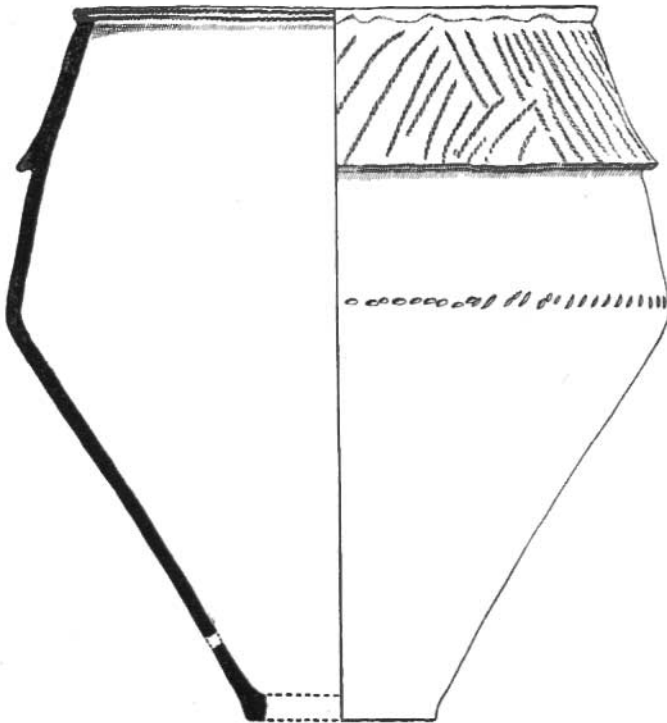


FIG. 3. BRONZE AGE URN ( $\frac{1}{4}$ )

The date of the primary interment is not closely indicated by the associated evidence. In the original filling of the ditch were found two or three tines of deerhorn, doubtless from deerhorn picks, such as were commonly used for digging or quarrying in the Neolithic and Bronze Ages. Half-a-dozen minute fragments of buff hand-made pottery of Bronze Age

type, but indeterminate form, were also found in this filling, whilst occasional nuclei, flakes and round scrapers of flint were found throughout the mound. The indefiniteness of all this evidence throws us back upon more general considerations. Circular barrows with single interments are not known to have been customary in this country before the beginning of the Bronze Age (about 1900 B.C.); whilst inhumation was almost entirely superseded by cremation in the middle Bronze Age, which probably began in or before the sixteenth century B.C.

If the burial is on these grounds ascribed to the period 1900-1600 B.C., the ascription receives some support from the fact that the mound had been subsequently used for secondary burials which were all cremations of middle Bronze Age type. Of these secondary burials, the most important lay at a distance of about 10 feet east of the primary grave, and consisted of burnt bones covered by an inverted urn, with its base 10 inches below the present surface (Pl. iii, A). The urn is of 'overhanging-rim' type and of middle Bronze Age date (Fig. 3). The overhanging rim is ornamented with cord-impressions, grouped roughly chevron-wise. A double cord-line is impressed upon the inner bevel of the rim, and the main girth of the vessel is marked by a line of rough finger-nail impressions. It is recorded that the mouth of the urn, when first discovered, was 'stopped with clay.'

One other cremation-burial was found—a collection of burnt bones, together with wood-ashes and a few burnt shells of *Cyclostoma elegans*, all placed in a shallow, oval depression,  $2\frac{1}{2}$  feet long,  $1\frac{1}{2}$  feet wide and 3 inches deep, at a distance of 5 feet south-east of the primary grave and at a depth of 2 feet 2 inches below the present surface. Nothing was present to indicate the date of this burial, although it was of a simple type common enough in the middle and later Bronze Age.

The distinctive feature of the barrow, however, lay not in these relatively early burials but in the extensive use of its surface for burial apparently at a considerably later period. The southern half of the





A. BRONZE AGE URN AND SKELETON NO. I  
Note the crossing of the hands behind the back



B. SECTION OF DITCH



A. SKELETONS NOS. 42-45



B. SKELETONS NOS. 25-27

mound, together with the adjacent land-surface, was literally encrusted with a multitude of burials, all by inhumation. These burials, about 100 in number, may be divided into ten groups.

GROUP A.

Burials scattered over the central and southern part of the barrow. These lay from 3 to 12 inches below the surface. The skeletons lying over or near the original ditch were well preserved, those on the higher part of the mound were much disturbed, owing

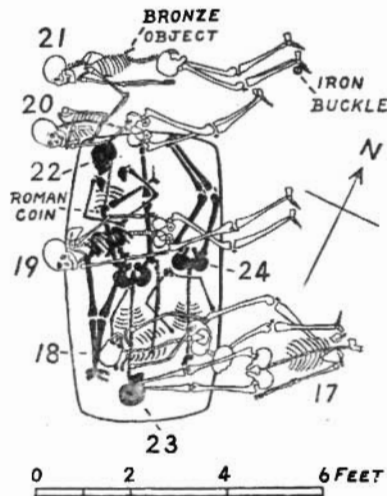


FIG. 4. SKELETONS OF GROUP B

to the weathering away of the surface earth. Skeletons nos. 5 and 6, with head-ends to the south-west, had been buried together. Nos. 1, 6, 10 and 13 had the hands crossed behind the back. Nos. 2 and 46 were exceptional in that the arms lay straight by the sides instead of being crossed. Skeletons nos. 42-45 lay in a jumbled heap and had obviously been buried simultaneously (Pl. iv, A). No. 42 certainly, the others doubtfully, had had their wrists bound behind their backs. (Pl. iii, A shows skeleton no. 1 with the fore-arms passing behind the ribs, and the Bronze Age cinerary urn in position)

## GROUP B (Fig. 4).

A large rectangular grave with the long axis NNE.-SSW., 6 feet long, 3 feet wide, cut 15 inches in the chalk, with vertical sides and flat bottom, near the eastern margin of the barrow. The grave contained three skeletons, nos. 22, 23, 24, and five more skeletons, nos. 17 to 21, lay over the top of the grave, two across each end and one at the middle. Skeletons nos. 22 and 24 had their hands crossed behind the back, the hands of no. 23 were separate. None of the upper burials had the hands crossed. Scattered between nos. 17 and 18 were some small pieces of Roman pottery (a sherd of plain Samian and the rim of a lid, grey paste with gritty red surface), and between nos. 18 and 19 was an iron nail, 2 inches long, with bent shaft. The objects more closely associated with these burials, namely, a bronze object and iron buckle found near no. 21, and a coin found with no. 22, will be considered in more detail below (pp. 206-8).

## GROUP C.

Three burials in shallow trench-graves, each about 1 foot deep in the surface of the mound at its southern margin. Skeleton no. 38 lay with head slightly north of east; the right hand had been placed behind the back, and as the left hand and forearm were missing, it is probable, though not certain, that the hands had originally been tied together. Skeletons nos. 39 and 40 lay with their heads north-west, side by side in a broad, shallow grave adjoining no. 38. They had probably been buried simultaneously. No. 39 certainly, and no. 40 probably, had had the hands tied behind the back. East of this group was an isolated headless skeleton, no. 47, with straight arms.

## GROUP D.

Twelve more or less complete skeletons and fragments of at least seven others, on the south-east margin of the barrow. They had been laid out in two directions, with heads roughly south-west and north-



A. SKELETON NO. 37



B. SKELETONS NOS. 28-30  
Note the crossing of the hands behind the back



A. SKELETON NO. 88



B. SKELETONS NOS. 93-94



C. SKELETON NO. 92

west or south-east respectively. Skeletons nos. 25 and 26 lay extended, one on top of the other, with the legs towards the west-north-west. They had been badly mutilated during the burial of no. 27, whose trench-grave has been cut through them (Pl. iv, B). The skulls of the two former were not identifiable, but may have been amongst the five skulls found in disturbed soil adjoining the trench-grave. The head-end of no. 27's grave overlapped the deeper grave of no. 88 of Group E, and was thus dug subsequently to it. Skeletons nos. 28, 29 and 30 formed a group which had certainly been buried at the same time (Pl. v, B). No. 28 lay with the head towards the south-east, 29 and 30 with their heads towards the south-west. All three skeletons had had their hands tied behind their backs, and skeleton no. 28 lay on its face. Skeleton no. 31 lay with its head between the feet of nos. 29 and 30 in a west-south-westerly direction. It also had almost certainly been buried at the same time, and its wrists were likewise crossed behind the back. Near by lay no. 32 with head slightly south of west and its hands bound. No. 35 lay with its head west-north-west, though the skull was missing, probably due to the subsequent burial of the adjacent skeleton no. 36. No. 35 lay back uppermost and the hands also crossed. No. 36 had its head towards the south-west and its hands similarly crossed. Skeleton no. 37 was disposed in an identical fashion (Pl. v, A).

The remaining Groups (E to J) comprise some forty odd burials arranged in a more compact and orderly fashion than those on the barrow, on the level down-surface immediately south-east of the mound.

#### GROUP E (Pl. vi, A-B).

A chalk-cut grave,  $6\frac{1}{2}$  feet long, 3 feet wide and 3 feet deep, containing skeletons nos. 93 and 94. Both were extended, with heads a little north of west and straight arms. The grave for no. 94 (Pl. vi, B) was very carefully cut, with a square niche for the head.

This burial was made first, as the left arm was disturbed in burying no. 93. At some subsequent time, another burial, no. 88, was made in a shallow grave in the chalk, obliquely crossing nos. 93 and 94 (Pl. vi, A). The grave was  $6\frac{1}{2}$  feet long, 2 feet 3 inches wide, and 2 feet deep. The skeleton was extended, with head to the south-west and the right arm straight out from the shoulder. A skull and odd limb-bones, no. 52, lay over the grave for no. 94; they probably represent a burial disturbed in burying no. 88. Skeletons nos. 50 and 51 were in shallow chalk-graves. No. 50 lay with the head slightly south of west, the right arm was straight, the left arm missing. The head of no. 51 was missing, but the head end pointed due east; the arms were straight.

## GROUP F.

A large irregular grave 6-9 inches deep in the chalk,  $7\frac{1}{2}$  feet long and  $5\frac{1}{2}$  feet wide. It contained five extended skeletons, nos. 64 to 68, with heads to the south-west. The hands of nos. 64, 65 and 66 had been crossed behind the back, the arms of the other skeletons were straight. All five had certainly been buried at the same time.

## GROUP G.

Large group of ten skeletons, nos. 54-56, 75, 77-79, 85, 89 and 92, resting on the chalk, arranged parallel with heads towards the south-west.

Nos. 54, 55, 56 and 85 had their hands crossed behind the back, the others had straight arms. The head end of no. 77 lay in a shallow chalk-grave overlapping the deep grave containing skeleton no. 92. The latter was a carefully cut rectangular grave, 6 feet long, 1 foot 9 inches wide and 3 feet deep (Pl. vi, c). Three isolated skulls, nos. 53, 72 and 89 adjoined this group, and on the west side was a skeleton, no. 76, with head towards the south-south-east.



## GROUP H.

Four skeletons, nos. 57, 62, 70 and 71, roughly parallel, with heads towards the west. Nos. 57 and 70 had their hands crossed behind the back. The head-ends of nos. 62 and 71 lay over the eastern end of the grave of no. 83, which, therefore, antedates them.

## GROUP J.

Three skeletons, nos. 63, 84 and 91, lying parallel, with the upper parts to the north-west. Nos. 63 and 84 had their hands tied together. The skulls had been removed in making room for the grave containing nos. 80 and 81, and lay together over the upper part of no. 91, with a heap of loose bones. Further, the legs of nos. 84 and 91 had been disturbed in cutting the grave for no. 83. It is thus evident that this group was buried earlier than the two adjacent graves.

## GROUP K.

The remaining burials consist of three chalk-graves ; in each case the heads were to the south-west. Skeletons nos. 80 and 81 lay in a shallow grave, 6½ feet long, 2 feet 9 inches wide and 12 inches deep. No. 81 had its hands crossed ; the hands of no. 80 were tied together on the left side. An isolated skull, no. 82, lay between the knees of no. 81. Skeletons nos. 69 and 83 lay in a shallow grave ; no. 83 had the hands tied together. No. 69 was buried first, as the bones had been disturbed and then replaced in the wrong order in burying no. 83. Skeleton no. 74 lay in a grave 5 feet 9 inches long ; the arms were straight.

South-west of this group was a large shallow grave, 4 feet 9 inches wide, with its long axis to the south-west ; this was not excavated.

Reference to the plan (Fig. 1) shows that the majority of the skeletons were orientated approximately north-east and south-west, with heads to the south-west. About one-fifth of the burials are placed

almost at right angles to the main series, that is, with heads towards the north-west and north, while a few skeletons lay in haphazard positions with heads to the east. In general, the heads are towards the west, and nearly all the deep-cut graves and large groups, for instance Groups B, F and G have this direction.

A notable feature of many, about one-third, of the burials, is that the hands had been tied together behind the back. In normal Saxon burials the arms lie straight down the sides of the body or may be placed over the front. The practice seems definitely to point to the burial of captives.<sup>1</sup> The majority of skeletons with crossed hands were men, but a few of the women also had their hands tied.

Burial at different times is shown by several groups. In Group E, the grave for skeleton no. 88 was cut obliquely across and above the grave for nos. 93 and 94, and in turn underlay one end of the shallow trench grave for no. 27. The skulls of skeletons nos. 63, 84 and 91 had been removed in making the grave for nos. 80 and 81. On the other hand, skeletons nos. 42 to 45 had obviously been buried simultaneously, and the skeletons in Groups B and F were probably all buried at the same time, and the same applies to the general lay-out of Groups G and H.

On the whole, in view of the haphazard nature of most of the burials, it seems best to refer the whole series to one period, with the proviso that certain sections or groups were added at some subsequent time. Moreover, it is clear that we are not here dealing with a formal cemetery with a definite scheme of separate burials, each provided with grave goods, weapons, ornaments, etc., such as normally occur in Saxon burials, but rather with prisoners stripped of their belongings, hastily executed, and thrown into shallow common graves carelessly made on and near a pre-existing mound. Standing at this, the most prominent point of the Downs immediately

<sup>1</sup> Secondary burials in a barrow outside Old Sarum also had their hands tied behind their backs. Dr.

J. F. S. Stone is publishing instances of execution in Saxon times in *Wilts. Arch. Magazine*, June, 1932.

to the west of Dunstable, the barrow is appropriately situated for the erection of a gallows, although no historical hint of the former presence of a gallows here has been found.

#### DATE OF THE SURFACE BURIALS.

The absolute dating of either of the two main series of burials (those in trench-graves and those buried superficially) is difficult. So close were they all to the surface of the mound that, with the exception of Group B, it is impossible to affirm that any of the objects found in the same layer were, in the archaeological sense, associated with them. Nevertheless, the general character of these objects is reasonably uniform and consistent. They are all, or mostly, either of Roman or of Pagan Saxon date, and are such as might be expected in a settlement or cemetery of

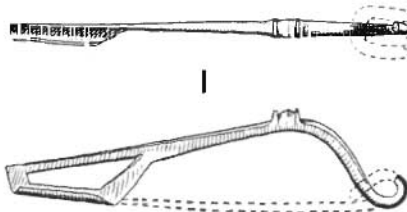


FIG. 5. BROOCH OF THE PERIOD LA TÈNE III. (†)

the fifth or sixth century A.D. The general tenor of this evidence is that the surface of the mound was disturbed not later than the early Saxon period, and it is inferred that the burials (or the majority of them) are of the fifth or sixth century A.D.

#### THE FINDS (Figs. 5-7).<sup>1</sup>

(1) Bronze brooch of La Tene II type, found in the earth above the right leg of skeleton no. 54. In view of the presence of later objects at the same level, this brooch has no bearing on the date of the burials.

The brooch is 2.1 inches long, with open catch-

<sup>1</sup> Other than the flint knife and Bronze Age urn, referred to above, pp. 194, 198.

plate and moulding on the top of the bow in the position of the collar which, in the preceding La Tène II type, had secured the free end of the foot. It may be dated 100-50 B.C., and closely resembles an example from Walmer, Kent, illustrated in the *British Museum Early Iron Age Guide*, 1925, p. 95, Fig. 100. This fine brooch is the first example of any La Tène type to be recorded from Bedfordshire, although several cremation-burials of this period are known from the county (*Swarling Report*, p. 29). This scarcity of brooches is all the more surprising as brooches of all the La Tène periods occur in Cambridgeshire.

(2) Roman goblet of tinned bronze found 3 feet north of skeleton no. 31. The bowl,  $3\frac{1}{2}$  inches in diameter, has a stamped pattern inside the lip. The foot is missing but part of the stem, which had been filled with lead to give stability, retains the head and shoulders of a lion or panther. The modelling of the animal is good, and the whole vessel (whether used for drinking or as a receptacle for sweetmeats or condiments) is of exceptional interest.

(3) Iron arrow-head found close to the buckle near skeleton no. 35. Roman and post-Roman type.

(4) Small iron key found on the right of skeleton no. 42. A type common both in Roman and post-Roman times.

(5) Iron buckle found near the right foot of skeleton no. 21 (see Fig. 4). A common Roman and later type. Identical buckles have recently been found in a Saxon cemetery near Guildford.<sup>1</sup>

(6) Worn '3rd brass' of Claudius Gothicus (A.D. 268-270), found on the breast of skeleton no. 22 (a woman). The coin is pierced for wearing on a necklace, a common Saxon custom well illustrated by a necklace recently found in a Saxon (early sixth-century) cemetery at Luton (*Antiquaries Journal*, viii, 184, Pl. xxxiii, 2).

(7) Worn '3rd brass' of the emperor Valens (A.D. 364-378), found close to skeleton no. 31. (Late

<sup>1</sup> *Surrey Arch. Coll.*, xxxix, 25, Pl. xvi, 4-7.

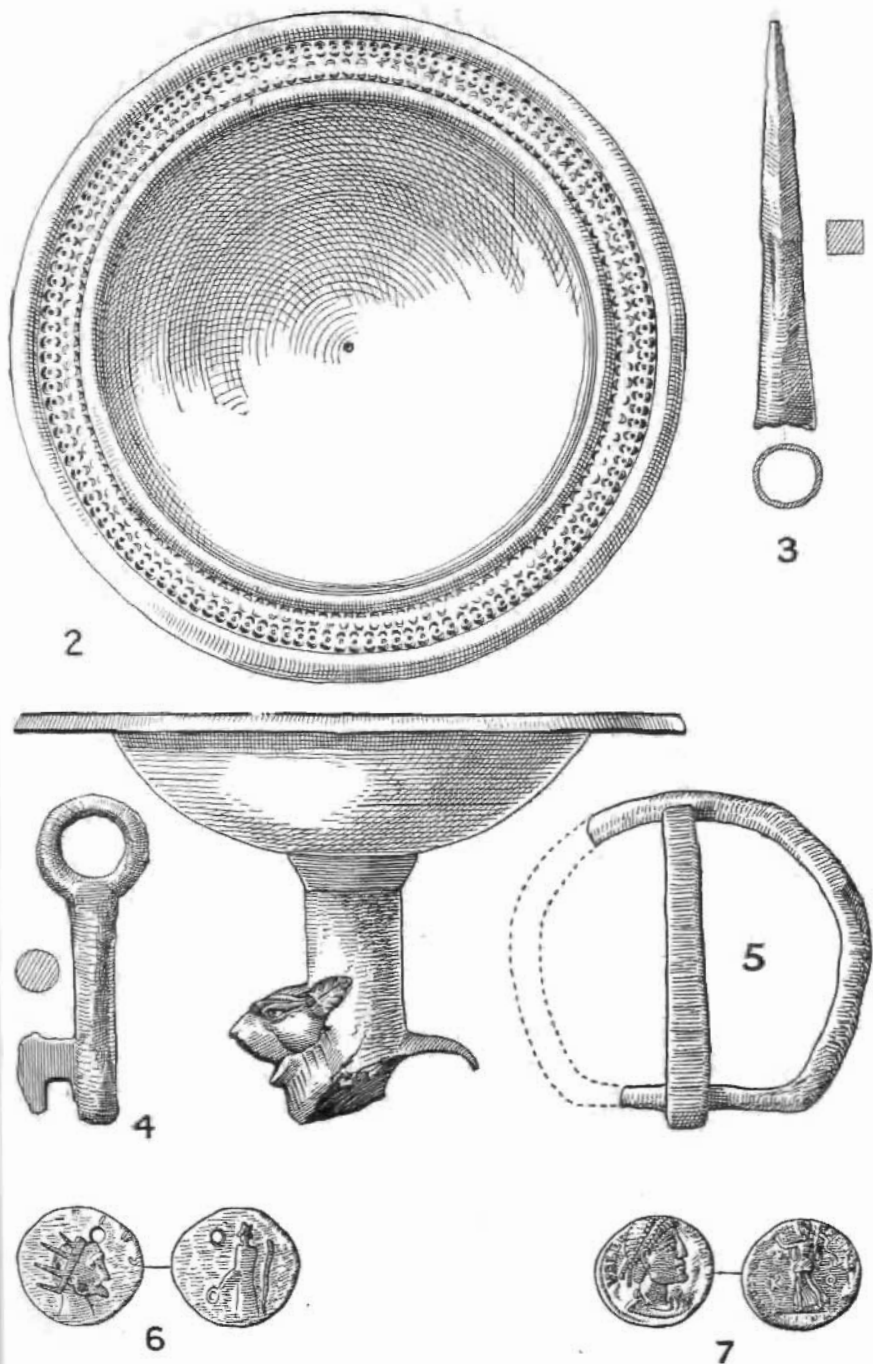


FIG. 6. OBJECTS FOUND WITH SKELETONS (†)

Roman coins, pierced or otherwise, are commonly found in Saxon deposits.)

(8) Gilded bronze buckle with iron tang, found near skeleton no. 35. It was held by two rivets, but retains in the looped ornament on each side of the upper end a reminiscence of the triple rivetting normal to the type. Pagan Saxon, probably fifth century A.D.

(9) Ornament found behind the lower ribs of skeleton no. 21 (see Fig. 4). It consists of a thin sheet of bronze bent with a tapering tube 2.85 inches long, the free end closed and the other end covered by a leather sheath, stitched across and pinched together by a cord. The object resembles modern decorative military tassels, and is possibly of Roman or Saxon date.

(10) Fragments of Saxon pottery, found together 12-18 inches below surface, about 4 feet west of the primary burial. Soft black paste with sparing admixture of crushed flint. The decoration consists of rows of horse-shoe shaped cord-impressions above and below the shoulder, formed by pressing a loop of cord into the clay with the finger-tip.

#### SUMMARY AND CONCLUSION.

Barrow no. 5, Five Knolls, Dunstable, dates from the early Bronze Age, and the primary burial was that of a long-headed woman in an oval grave. The burial was surrounded by a wide flat-bottomed ritual ditch. There were two secondary burials by cremation, one contained in an inverted urn of middle Bronze Age date. The date of the other cremation is uncertain, but probably also Bronze Age.

The other barrows of this group probably also belong to the early Bronze Age, though, of course, this can only be definitely settled by excavation. With the two other round barrows on the west of the Dunstable Downs, excavated by Worthington Smith in 1887, and also containing crouched inhumation burials,<sup>1</sup> the Five Knolls form an interesting group

<sup>1</sup> W. G. Smith, *Man the Primeval Savage*, pp. 332-9.

witnessing an intensive occupation of this chalk downland during the Bronze Age.

The more striking and novel feature of our barrow is the extensive use of its surface and that of the neighbouring land-surface for a conglomeration of inhumation-burials during the historic period. The objects associated with these burials suggest the fifth or sixth century A.D. for the date of the whole group. Of these two centuries, the former is perhaps

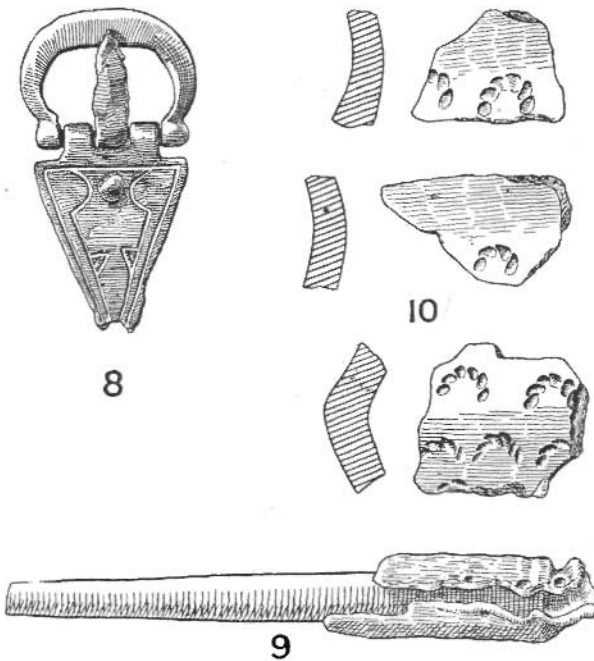


FIG. 7. OBJECTS FOUND WITH SKELETONS. (i)

the more probable in view of the presence of several Roman objects, though objects of late Roman date occur in Saxon graves even as late as the beginning of the seventh century. Moreover, it is evident that most of the burials were carried out at one time. At the foot of the promontory on which the barrow stands lies the Icknield Way, which Dr. Cyril Fox<sup>1</sup>

<sup>1</sup> *Archaeology of the Cambridge Region*, p. 287.

and Mr. Thurlow Leeds<sup>1</sup> have shown reason to regard as one of the main lines of advance taken by our earlier (fifth century) Saxon invaders. It is not unreasonable to conjecture, therefore, that the main series of our skeletons, consisting mostly of men in the prime of life, represents part of a Saxon raiding party which had been worsted by the local inhabitants and summarily executed. It may be added, finally, in this connection, that the marked broadening and flattening of the backs of several of the Dunstable skulls is closely paralleled by several of the seventeen seventh-to-ninth-century skulls found in 1928 in a large coffin in the Saxon church at Glastonbury.<sup>2</sup> It is possible that these skulls were those of early Saxon abbots of Glastonbury; in any case, they sufficiently indicate the presence of a Dunstable type of skull in early Saxon England.

## PART II.

### THE SKELETAL MATERIAL

By DORIS DINGWALL

#### I. THE PRIMARY BURIAL

(Professor Elliot Smith described the skeleton found in this burial in *Man*, 1927, 12. Part of his account is reprinted here by kind permission of the Royal Anthropological Institute.)

'The bones are those of a slenderly-built woman of Mediterranean type, about 5 feet (1.49 metres) in height, of middle age. Many years before her death her left ulna had been broken near the wrist, presumably fending a blow from a stick.

'The feature of most interest, however, was revealed in the skull which presented a condition of very advanced symmetrical thinning that is extremely rare in Europe, but very common in the aristocracy of Ancient Egypt from the Third to the Nineteenth Dynasties. . . .

'In the Dunstable skull the symmetrical thinnings have extended right into the diploe, and in the front of the thinnings even into the inner table of the skull, to such an extent that the floor of some of the meningeal grooves has been eroded. There is complete

<sup>1</sup> *History*, July, 1925, pp. 97 ff.

<sup>2</sup> *Trans. Somerset Arch. Soc.*, 1928, p. 8.



closure of the coronal and sagittal sutures, and almost complete closure of the lambdoidal. The teeth, however, are moderately worn, and none of the pulp cavities have been opened. There is no sign of caries, although all the teeth are thickly encrusted with tartar. The skull is ovoid in form, with a prominent occipital bulging. The chin has a typical pointed form of the Mediterranean, and the facial characters as a whole are quite characteristic of this race.'

The measurements he gives are :—

The maximum length of the skull .. ..	180 mm.
The maximum breadth of the skull .. ..	134 mm.
The minimum frontal breadth of the skull .. ..	93 mm.
The basi-bregmatic height of the skull .. ..	123 mm.
The total facial height of the skull .. ..	110 mm.
The upper facial height of the skull .. ..	61 mm.
The maximum length of the right femur .. ..	406 mm.
The oblique length of the right femur .. ..	404 mm.
The maximum length of the left femur .. ..	409 mm.
The oblique length of the left femur .. ..	404 mm.

The following indices for the skull can be obtained from these figures :—

Cephalic index .. .. .	74.4
Altitudinal (length-height) index .. .. .	68.3
Height-breadth index .. .. .	108.9

#### II. CREMATION NO. I,

*found inside the Bronze Age Urn (Fig. 3)*

Fragments of a skull were found among other burnt bones. These have been partially reconstructed, but so incompletely as to make measurements impossible (Pl. ii, B).

The inion is well marked and this, taken with the structure of the right parietal in the region of the temporal lines, would seem to indicate that the skull was that of a male.

Closure of the sagittal suture is complete, but the coronal and lambdoidal sutures are still open. The individual was probably about 35 years old.

#### III. THE LATER BURIALS

The skeletal material comprises the remains of probably a hundred or more persons. A large proportion of this is fragmentary or incomplete and is not included in the statistical account. Most of the bones are in a good state of preservation and only those that were actually in the humus have suffered seriously. The group gives the impression of containing divergent types, extending from marked dolichocephalic to brachycephalic skulls and other variations in form and contour are apparent. The male and female skeletons show a wide range of build as regards size, muscular and ligamentous markings and the so-called sex characters. One skull is so typically smooth and feminine that it was unhesitatingly classified as female

until examination of the pelvis and limb bones proved that it was undoubtedly male. In order to ascertain whether the group could be regarded as a homogeneous one, the standard deviations of the maximum length and breadth of the skulls were obtained; the former being 5.9 and the latter 5.4. It would appear, therefore, according to Professor Karl Pearson's criterion, that the group may be considered to be fairly homogeneous. The general disposition of the material *in situ* has been described and the archaeological evidence for its date has been reviewed and the conclusion has been reached that the remains are of Anglo-Saxon date. It may be of interest in this connection to note that by the Coefficient of Racial Likeness the group of males in our present series has been compared with the Neolithic, the Bronze Age, the Anglo-Saxon in the London Museums and the Whitechapel (seventeenth century) male groups tabulated by Dr. G. M. Morant in *Biometrika*, xviii (1926). The values of the coefficient obtained seem to indicate that both in regard to shape characters and characters generally, the skulls as a group are more nearly related to the Bronze Age than to the Anglo-Saxon type. To use Professor Karl Pearson's terminology the degree of association with the Bronze Age type is 'close,' that with the Anglo-Saxon is 'moderate,' that with the Neolithic is 'slight,' and that with the Whitechapel seventeenth-century Londoners is 'doubtful.' Whether this be of profound significance, or of any significance whatsoever cannot be determined; its interpretation must await further evidence, but it is of interest to note that Professor V. Gordon Childe in his recent work on the *Bronze Age* (Cambridge University Press, 1930) suggests that there was probably a considerable survival of Bronze Age culture and racial types throughout the Early Iron Age and the Migration Period (pp. 239 ff). Such a survival is a common feature of most populated areas which suffer an incursion of peoples.

#### THE SKULLS<sup>1</sup>

In the appended table the skulls have been grouped according to sex and the measurements made on each group have been given. The small number of female skulls has not justified detailed analysis. The skulls have been submitted to a number of standard measurements, various indices have been calculated and the mean and range of these indices are indicated. In the accompanying tables only a portion of the anthropometric data is summarised.

The skulls have several points of interest that cannot be shown in the tables. The presence of Wormian bones is very frequent, especially in the lambdoidal suture and in several cases they obscure the position of the lambda. When this is so, the right and left limbs of the lambdoid suture are continued until they meet and the point of intersection is taken to be the lambda. In three cases Wormian

<sup>1</sup> I am much indebted to Professor H. A. Harris for discussing with me the interpretation of the radiograms,

and to Dr. M. Young for help in the statistical work.

bones are present in the coronal suture, on one occasion forming an ossicle at the bregma. In seven skulls the metopic suture has persisted, two of these being female. In four cases the left frontal articulates with the right parietal, in one case the right frontal articulates with the left parietal and in two cases the sagittal and metopic sutures meet at the bregma. This is probably of no significance. In one skull there is a triangular interparietal bone, the sides articulating with the parietals measuring 4.5 cms.

Marked asymmetry is to be seen in several of the skulls and this is not due to post-mortem factors as in several skeletons there is clear evidence of compensatory adjustment in the spine and long bones of the skeleton.

Skull N.S. 93 is an excellent example of an asymmetrical skull, having a mandible which bears out in a marked way the irregularities of the skull. The skull is one in which the metopic suture has persisted. The norma verticalis shows marked asymmetry, the right frontal and left parietal oblique diameter being considerably longer than that of the left frontal and right parietal. In the norma lateralis the skull displays a marked transverse depression in the neighbourhood of the bregma, a feature which has been described for skulls of various races. The norma basalis shows a considerable degree of asymmetry. The right mastoid is large and protuberant; the left is small in all dimensions. This is shown in Pl. vii, A, by the marked irregularity of the extent of pneumatisation of the two bones, as the right mastoid presents extensive air cells as compared with the left. This also dates the beginning of asymmetry as probably occurring before the rapid growth of the air cells, extending from the onset of the second dentition to puberty. The distance from the tip of the right mastoid to the right scaphoid fossa is 2 mm. longer than on the left. The right occipital condyle is displaced upwards and outwards (in the erect attitude) and the articular facet is elongated. The left occipital condyle is nearer to the midline than its fellow and is not so elongated. This asymmetry is clearly seen by noting how the sagittal suture appears to divide the foramen magnum into two unequal parts (Pl. vii, A). The frontal bones and the nasal septum show marked asymmetry, and this is reflected in the position of the dental arch and zygomata.

The mandible viewed from above is asymmetric and the distance from the gnathion (chin) to the gonion (angle of the jaw) is 77 mm. on the right and 82 mm. on the left. The ascending ramus of the mandible on the right side is slightly longer and narrower than that on the left. The right condyle is lighter and more obliquely placed than the left.

The spine shows asymmetry and some hypertrophic osteoarthritis. The left hip shows ossification of the reflected head of the rectus femora and the surrounding portion of the capsule of the hip joint. Synostosis has taken place in the right tibio-fibular joint with a large mass of well ossified callus filling the gap between the tibia and fibula below the joint. This mass of callus is about the size of a filbert. The interosseous ligament on the inferior aspect of the

right talus grooves the bone deeply but fails to groove the os calcis deeply, so that the middle articular facet of the sustentaculum tali is continued with the main facet on the os calcis. On the left side this condition is not so well marked.

#### FRACTURES

Detailed examination of the skeletons for fractures has not been possible. The fractures which will be described are those which have been noticed during the handling of the material for other purposes.

##### *Fractures of the skull.*

One skeleton (N.S. 65) displays a mass of bone on the left parietal near the sagittal suture. The mass is bounded on the right by a depression about 6 cms. long, partly involving the suture. The fracture was probably due to a glancing blow with a sharp instrument and did not involve the inner table of the skull (See Pl. vii, B).

Another skeleton (N.S. 54), a male of about 25 years old, has a large fracture of the left frontal and parietal bones, stretching from a point 15 mm. superior to the left supraorbital margin to a point about 55 mm. behind the coronal suture. The fractured portion is roughly a four-sided figure, bisected by the coronal suture. The radiogram does not give conclusive evidence of the laying down of new bone, and the severance of the bone is so complete that no bony fusion could have taken place.

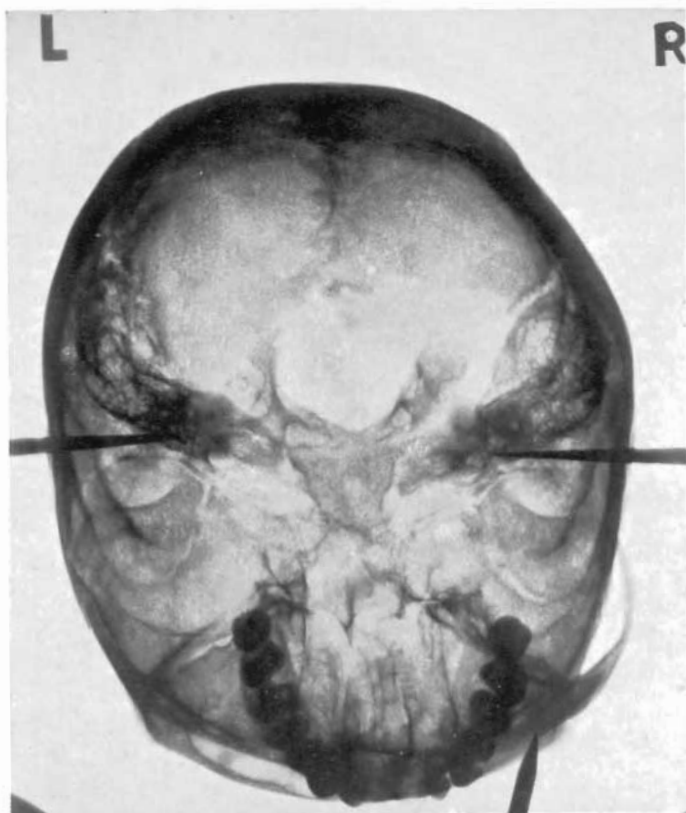
##### *Fracture of the mandible.*

A male skeleton (N.S. 92) of about 35 years old, has a double fracture of the mandible. The mandible was fractured near the symphysis and at the left angle. The latter has caused displacement resulting in the alteration of the course of the inferior dental canal, which now perforates the bone in the neighbourhood of the third molar. This fracture appears to have caused a slight shortening of the ascending ramus, and this has resulted in extra wear on the three molars on the left side. The fracture near the symphysis was joined by fibrous union. The central left incisor is missing, and was probably knocked out at the time of the injury. The small central foramen which occasionally persists in the region of the genial tubercles is visible in the radiogram (Pl. viii, A).

##### *Fractures of the ulna.*

The adult female skeleton found in the primary burial has a fracture of the left ulna near the wrist. In the opinion of Professor Elliot Smith it occurred many years before death. Skeleton no. N.S. 22, which is also female, had the lower ends of both ulnae fractured before death.

The female skeleton (no. N.S. 50) displays an unusual feature. On the anterior margin of the foramen magnum is a bony process,



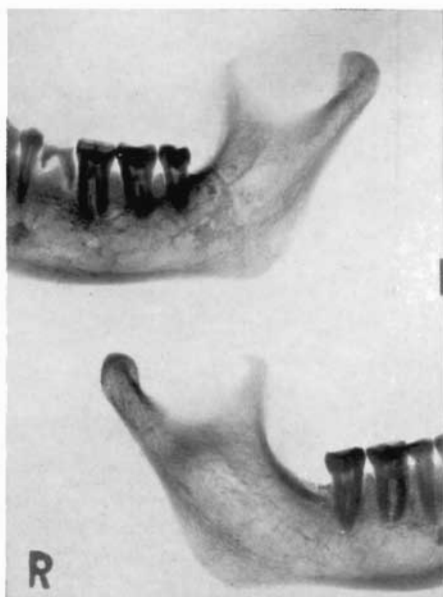
A. SKULL NO. 93. NORMA BASILIS SHOWING ASYMMETRY



B. SKULL NO. 65, SHOWING GROWTH OF NEW BONE NEAR SAGITTAL SUTURE



A. MANDIBLE OF NO. 92, SHOWING DOUBLE FRACTURE



B. MANDIBLE OF NO. 88. Above, retained milk-molar on left side. Below, absence of third-molar on right side.

roughly the shape of an equilateral triangle with the apex pointing downwards, the sides being about 4 mm. long. The structure is perforated near the middle of the base line by a central venous foramen. This process is due to calcification and ossification in the central portion of the anterior atlanto-occipital membrane running from the anterior arch of the atlas to the anterior margin of the foramen magnum. It cannot be regarded as a third condyle, as it does not articulate with the dens of the axis and shows no cartilaginous surface.

#### TEETH

No detailed study of the teeth has been made. The reduction in size of the third molar and occasional absence of this tooth are features of this group. In one mandible, skeleton no. N.S. 88, there is a retained milk molar, with total suppression of the permanent second premolar on the left side. The same jaw shows the absence of the third molar on the right side (Pl. viii, B).

On the whole, the spacing of the teeth is very regular, and in only a few cases is there any crowding of teeth on the dental arch. The teeth generally, and the molars especially, show marked attrition even to the pulp cavity. The bite of the incisors is usually of the overlapping type, although some of the lower incisors tend towards the 'edge-to-edge' type. Caries is not uncommon, and traces of alveolar abscesses are seen in some of the upper and lower jaws.

#### SKULL FORM

The range of the variation of skull form, as expressed by the cephalic index, is such as would characterise any collection of modern English skulls. The range of this index is from 72.9 to 85.3, with an average of 78.7 for 52 males. This figure (78.7) does not differ sensibly from the average given for Cambridge undergraduates (79.6), for adult criminals (78.5) and for convicts (79.6) (*Biometrika* xvi, 1924, p. 131, Tab. xi). The norma lateralis of two skulls (N.S. 81 and N.S. 88) with cephalic indices of 72.9 and 84.3 respectively, illustrates the range (Pl. ix, A, B). The brachycephalic skull (N.S. 88) displays in a marked degree the shortening of the cranial axis and the extent to which it fails to develop a well-marked spheno-ethmoidal angle. This is a primitive character which is said to be seen frequently in the skulls of the mentally deficient. A number of the skulls show a distinct flattening in the parieto-occipital region. Skull N.S. 40 is the best example of this, and it is of interest to note that this female skull is also the most brachycephalic of the series, having a cephalic index of 87.2 (see Pl. x).

The skulls represent a group of relatively young persons. Their ages have been estimated by the amount of synostosis of the sutures, and this has been supplemented by examination of the epiphyses of the limb and pelvic bones. Wingate Todd's classification of the

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relative times of closure of the cranial sutures has been used. In the following table it must be remembered that the ages given are only approximate.

*Ages.*

Under 20 years old ..	4 persons (2♀; 1♂; 1 child).
20-24 years old ..	14 ,, (3♀; 11♂).
25-29 ,, ,, ..	24 ,, (2♀; 22♂).
30-35 ,, ,, ..	15 ,, (2♀; 13♂).
36-40 ,, ,, ..	5 ,, (2♀; 3♂).
About 42 years old ..	1 person (1♂).

## TABLE OF INDICES

## SEX ♂

<i>Index.</i>	<i>No. of skulls.</i>	<i>Average.</i>	<i>Range.</i>	
			<i>Min.</i>	<i>Max.</i>
Cephalic ..	52	78·7	72·9	85·3
Altitudinal ..	50	73·4	66·3	82·6
Height-breadth ..	49	107·3	97·1	118·6
Orbital (R) ..	32	77·7	68·2	85·4
Orbital (L) ..	34	79·1	68·9	92·3
Nasal (R) ..	35	49·0	41·5	63·0
Nasal (L) ..	36	49·6	41·8	63·0
Total facial ..	18	51·7	47·6	57·4
Upper facial ..	31	73·3	65·3	81·7
Palatal ..	30	80·8	69·2	91·5
Foraminal ..	43	82·6	69·4	97·1

## SEX ♀

Cephalic ..	11	80·1	70·7	87·2
Altitudinal ..	12	71·3	66·3	77·0
Height-breadth ..	11	112·8	102·2	120·8
Nasal (R) ..	7	50·5	42·6	59·2

Average cubic capacity of ♂ skulls based on Hooke's formula  
= 1,536 cc.

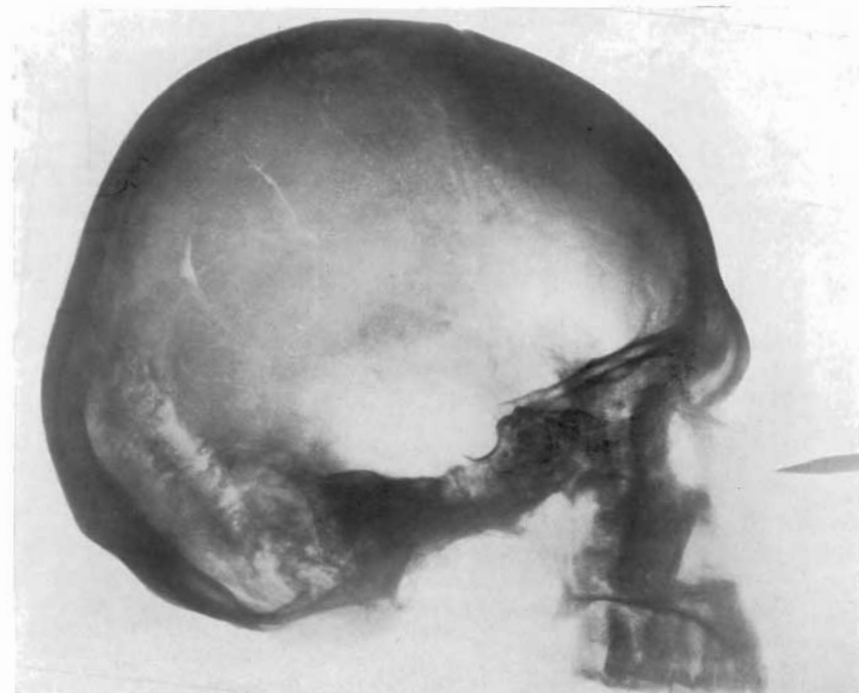
## DEGREE OF PROGATHISM

This classification is based on the facial profile angle taken with a stationary goniometer when the skull is placed in the Frankfort plane. Of the 27 male skulls in which this measurement was possible, 1 was hyperorthognathous, with an angle of 93°+; 24 were orthognathous, with angles between 85° and 93°; and 2 were mesognathous, with angles between 80° and 85°. Of the 3 female skulls which admitted of measurement, 2 were orthognathous and 1 was mesognathous.





A. SKULL NO. 81. CEPHALIC INDEX 72'9



B. SKULL NO. 88. CEPHALIC INDEX 84'3



SKULL NO. 40. CEPHALIC INDEX 87.2

## LIMB BONES.

*Femur.* *Platymeric Index.*  
 48 ♂ skeletons, average 76.8; min. 61.1; max. 92.9.  
 9 ♀ " " 77.0; " 62.8; " 77.1.  
 The femurs are moderately platymeric (below 85).

*Tibia.* *Platycnemic Index.*  
 46 ♂ skeletons, average 70.4; min. 60.3; max. 84.4.  
 10 ♀ " " 71.3; " 63.0; " 81.8.  
 The tibiae are eurycnemic (over 70).

## STATURE

This has been calculated by use of the Pearson formula based on the actual length of the femur.

41 ♂ average	168.4 cm.	=	5 ft. 6 in.
min.	156.5 cm.	=	5 ft. 2 in.
max.	178.1 cm.	=	5 ft. 10 in.
9 ♀ average	158.4 cm.	=	5 ft. 2 in.
min.	153.4 cm.	=	5 ft. 1 in.
max.	162.3 cm.	=	5 ft. 4 in.

## SKELETON N.S. 91.

This skeleton displays a rare abnormality, in that there is partial suppression of the fibulae. The right tibia has no facet on its postero-lateral aspect for the fibula. The posterior aspect of the tibia has a heavy bony ridge bounded laterally by a deep rough groove. The ridge is an exaggeration of the line which normally divides the origin of the tibialis posticus from that of the flexor longus digitorum. It is suggested that the ridge is due to the crowding of the origin of tibialis posticus and soleus muscles on the tibia in the absence of the bony fibula. The shaft of the bone is rotated so that the internal malleolus is directed antero-medially. The left tibia has a small fibular facet, circular in shape, and 4 mm. by 3 mm. in diameter. The diminutive facet indicates that the head of the left fibula was not fully developed. The shaft of the bone shows the same excessive development of the ridge on the posterior surface as the right fibula. Inferiorly the area on the tibia for articulation with the fibula is normal but for the presence of a small cartilaginous facet of crescentic shape, separated by a sharp ridge from the articular facet for the talus. It is suggested that this facet articulated with the lower end of the fibula, so that the external malleolus of the fibula articulated not only with the lateral aspect of the talus but also with the crescentic facet on the infero-lateral aspect of the tibia. This rare condition is bilateral. The general configuration of the bones of this subject indicate that the fibulae were suppressed to a varying degree as regards the shaft, the right fibula also being suppressed as regards the head and superior articulation with the tibia. Both tibiae were outwardly rotated on the shaft and the feet were carried in the position of valgus.