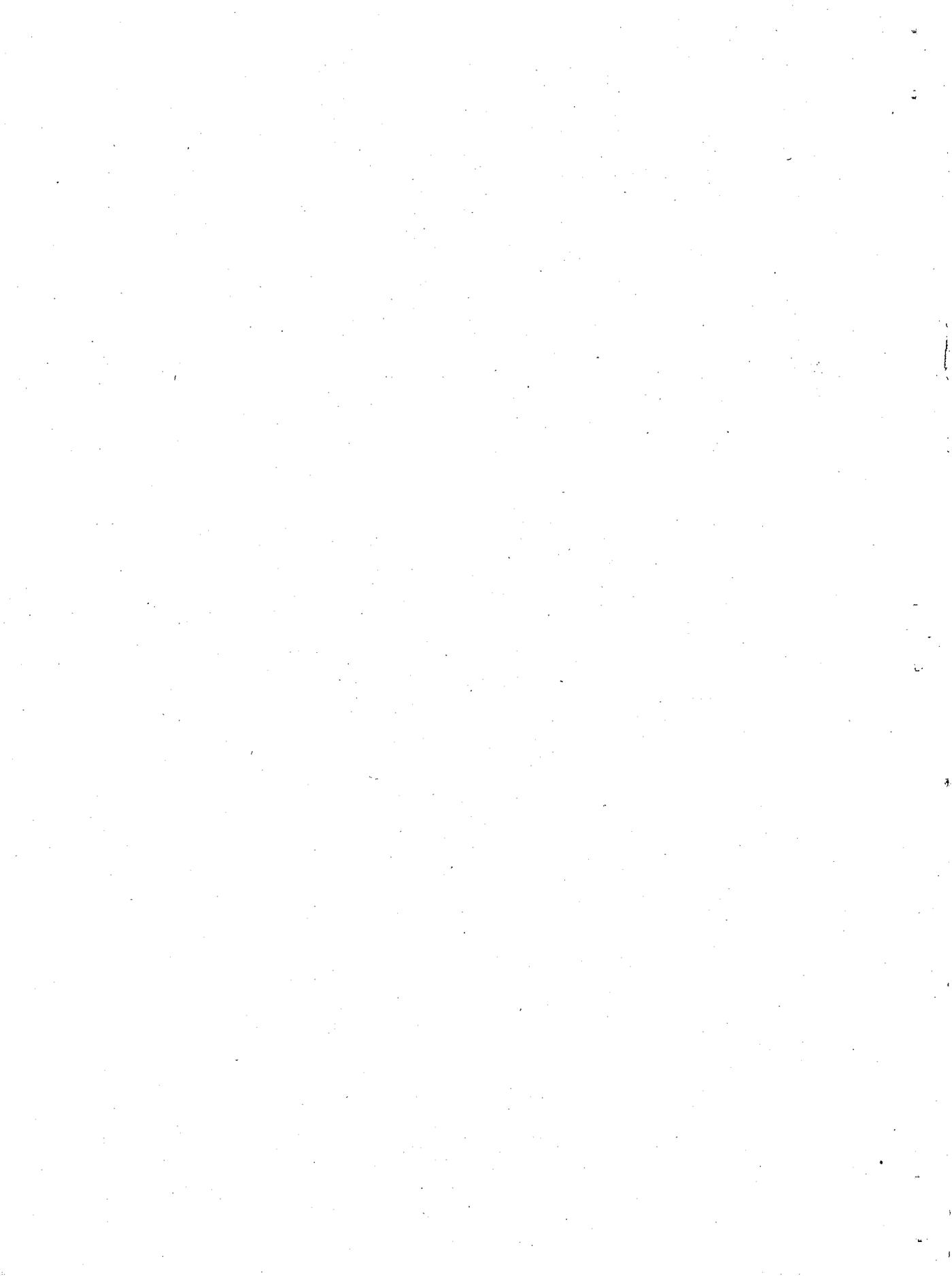


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# THE INITIAL EXCAVATION OF AN ANGLO-SAXON CEMETERY AT MELBOURN, CAMBRIDGESHIRE

D. M. WILSON, B.A.

THE initial excavation of the Anglo-Saxon cemetery at Melbourn, Cambridgeshire, was carried out in the early months of 1952 by the Cambridge Archaeological Field Club under the direction of the Hon. R. W. H. Erskine and the writer. Its discovery was reported by Mr G. O. Vinter, M.A., in the autumn of 1951.

## SITUATION OF THE CEMETERY

The cemetery is situated on the edge of the chalk escarpment, above the 100 ft. contour, close to the line of the Street Way, on the southern outskirts of the village of Melbourn, some 8 miles south of Cambridge on the main London Road. It was discovered during bulldozing operations which were being carried out by the Melbourn Whiting Company, to the principals of which we are indebted for their kind assistance.<sup>1</sup> The proximity of the site to the village was not in the best interests of archaeology, as some of the graves were opened by the villagers in search of souvenirs. The number of graves thus opened was not more than three.

## DESCRIPTION OF THE CEMETERY

During 1952 twenty-eight graves were opened, two of which contained a double burial. All save one (no. X) were extended burials, the exception was a crouched burial. As the top soil, overlaying the chalk, had been removed mechanically, it is difficult to estimate the depths of the graves and dangerous to particularize, but generally speaking it would seem that the more richly furnished graves were shallower than those with no furnishing other than the occasional knife. The deepest graves were probably about 4 ft. below the modern ground surface and the shallowest about 1 ft. 6 in.

The skeletons were very much decayed and fragile and, when found, many bones had disappeared; this was especially noticeable in the case of young children. Where possible the long bones, skull and pelvic bones were removed to the Museum of Archaeology and Ethnology at Cambridge and have been examined, sexed and measured by Miss F. E. Armstrong, whose report is appended (Appendix I).

<sup>1</sup> The voluntary help of many undergraduate members of the club must be acknowledged. Our thanks are also due to Mr T. C. Lethbridge and to the curators of the University Museum of Archaeology and Ethnology, Dr Bushnell and Miss Fell, for all their help.

The only structural features revealed by the excavators were two trenches or ditches running approximately north-north-west by south-south-east. The larger of the two ditches, that to the east, was definitely earlier than part of the cemetery as it was overlaid by grave XXVII. No comparative factor aided us in dating the smaller ditch, which was only half the size of the other. It may be that these two trenches defined the limits of the cemetery at various stages in its history; but on the whole it is more likely that the smaller one was a field boundary of medieval date, and although it is true to say of the other that the richer burials were found to the east of it, the trench may well be of Romano-British date.

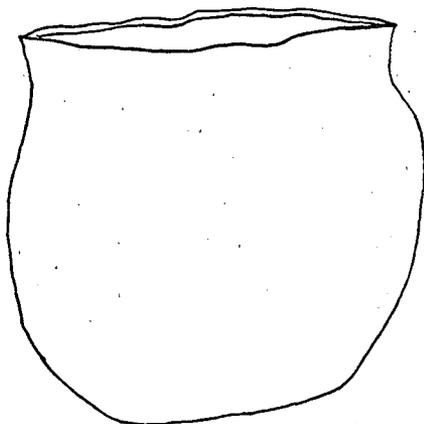


Fig. 1. Small vessel. Grave I.  
*Half natural size.*

The orientation of all the burials varied no more than ten degrees from the north-south line.

It is interesting to note on a matter of excavational technique that although the whole surface of the topsoil was removed by what may seem to have been very violent mechanical means, very little damage was done to the very fragile bones of the skeletons; and an added advantage for the archaeologist was that it minimized a great deal of the manual labour usually associated with cross-trenching such a site in search of graves.

#### THE GRAVES

GRAVE I. This contained the much decayed bones of a child (*aet.* 7-8 years) of indeterminate sex. From this grave came the only ceramic find of the cemetery: a very coarse hand-thrown pot of grey fabric (Fig. 1). This is of a type found at Shudy Hill<sup>1</sup> and Sleaford<sup>2</sup> and dated there to the early seventh century. The dating value of this pot is practically nil, as is suggested in the Whitby report,<sup>3</sup> where this type of pot is found to be not inconsistent with any date between the seventh and the ninth centuries. This type of pot has a very interesting continental history. It

<sup>1</sup> Lethbridge (1936), pl. I.

<sup>2</sup> Myers (1951), fig. 10, p. 90.

<sup>3</sup> Peers and Radford (1943), fig. 25, nos. 1 and 2.

appears first in the coastal areas of the North Sea in the seventh century and thence spreads up the Rhine into Central Germany, where it is found throughout the seventh, eighth and ninth centuries.<sup>1</sup> It would be interesting to know the connexion between these pots and the Rhenish ones—if there is any.

GRAVE II. This was a deep grave,<sup>2</sup> about 4 ft. deep, containing a short, rather muscular male; associated with him was a small knife on the left-hand side above the pelvis. The cervical vertebrae had been displaced, and he may have had his neck broken either before or after his death.

GRAVE III. This grave contained a very small, slight female, with crossed legs. To the east of the skull was an iron-bound box having angle-irons, a handle, a hasp and small clamps for securing the bottom to the sides. One angle-iron lay in position about 2 in. from the bottom of the grave. Mr Lethbridge, who excavated the box, says that it would seem to have been some 9 in. by 11 in. by more than  $2\frac{1}{2}$  in. in height. The lid was presumably flat and hinged with wire; the hasp hinged with two loops and engaged with a third on the lip of the box; the handle would be either on top or in front of the box. Also to the east of the head, some 3 in. from the bottom of the grave, was a double-sided bone comb, the strengthening strips of which were held by iron rivets. Attached to the comb by a bronze rivet was a contracting ring of bronze. Almost next to the skull and on the same side was a bronze mounted wooden cup, clearly a small object, perhaps 4 in. in diameter; its greatest girth was probably surrounded by a thin bronze loop (c.  $\frac{1}{4}$  in. in width); there was probably a crack in the lip, and this had been repaired with a folded strip of bronze ( $1\frac{1}{2}$  in. by 1 in.), secured to the bowl by thin bronze pins. An iron band and a bronze clamp had also been used to hold the crack together.<sup>3</sup>

Underneath her left arm were a pair of iron shears, a knife and a bronze ring.

GRAVE IV. A very old female with only ten teeth on the mandible at death. No grave goods.

GRAVE V. An old male with the skull resting on the pelvis. At his left-hand side between the ribs and the pelvis was a knife. The mandible was in position at the neck; this position suggests that the grave was disturbed and the skull moved at a later date.

GRAVE VI. A female with badly decayed teeth, her left arm bent across the belly. The spinal column was contracted as if the grave had been too short for the body. On her right-hand side on a level with her skull were the remains of a bronze-mounted cup of about four inches in diameter. At the left elbow was an iron knife and on the same side just below the pelvis was a complex containing one small jet bead, a larger blue 'melon' bead (Pl. IV, *i* and *j*) and a bronze hook and eye. On her left-hand side at the foot were the remains of an iron-bound box which is difficult to reconstruct satisfactorily.

GRAVE VII. A female(?) with the right arm laid across the stomach and the left

<sup>1</sup> *Jahrbuch* (1952), pl. 16.

<sup>2</sup> I am grateful to Mr Lethbridge for his descriptions of graves II and III which he made on the site.

<sup>3</sup> Cf. Fausett (1856), p. 113; Lethbridge (1936), fig. 7, no. 3; and British Museum (1947), fig. 13.

arm bent so that the hand was underneath the chin. On the shoulder was a silver disk pendant, about  $\frac{3}{4}$  in. in diameter, the centre is bossed and might have taken the head of a pin (Pl. IV, *l*). A pattern is formed round the boss of the disk by means of a series of triangles and dots, stamped, rather crudely, in a formal zigzag reserved pattern based on the central boss. The use of stamped triangles forming a reserved pattern is fairly common in Western Europe in the seventh century; we have examples from Germany at Gammertingen<sup>1</sup> in Hohenzollern and Weimar;<sup>2</sup> from Sjaelland, Denmark;<sup>3</sup> in Norway it appears on a fifth-century silver square-headed brooch from Rolighed, Larvik;<sup>4</sup> nearer home it appears at Market Overton on the border of the head of a square-headed brooch from a late sixth-century grave,<sup>5</sup> although, as Baldwin Brown remarked, it may be of an earlier date. Another use of it, on a circular field this time, occurs in the same cemetery on a double spiral dress fastener.<sup>6</sup> It will be seen from the wide variety of find spots of this type of ornament that little useful dating evidence is available. If, however, we place it at the end of the sixth century, we cannot be very far out. Below the left elbow was a knife, and by the left ankle were two bronze lace tags. By the left-hand side of the skull was a bronze pin which may have been a hood-fastener or shroud pin; the pin has a perforated head with the remains of an iron mounting in the perforation. This fragment of iron is probably the remains of an iron ring.<sup>7</sup> These ring-headed pins were probably only ordinary cloak pins, the movable ring being purely ornamental (Pl. IV, *o*).<sup>8</sup>

GRAVE VIII. A male(?) with an unusual tartar concretion on the molars of both jaws; the left arm was bent over the pelvis. The skull faced to the right, and at the back of the skull was a bronze pin about  $1\frac{1}{4}$  in. in length. On the breast was an annular brooch, the ring of which had a serrated decoration (Pl. IV, *r*). A bronze buckle (Pl. IV, *a*) on his left side and a small knife on a level with it by the backbone perhaps give evidence of a belt. By his left hand was a large bead, whorl or toggle.<sup>9</sup> A six-sided green glass bead completed the grave furniture.

GRAVE IX. A rich female burial. The head was facing to the left and her arms were by her side. Underneath her head was a bronze pin with a tubular head, perhaps a hood-fastener; the hollow head suggests that some perishable material formed an ornamental finish to the plain pin; if this is so, it cannot have been very heavy, for the pin is not much more than an inch and a quarter in length. To the right of the head were the iron handle and mounts of a wooden bucket, about 3 or 4 in. in diameter. On the left-hand side of her head were two bronze mounts for a gourd, similar to those of grave III. Round her neck was a string of beads (Pl. V, *top*):

One oval sectioned annular bead of blue paste with a white spiral starting at the perforation and working outwards.

<sup>1</sup> Gjessing (1934), fig. 1.

<sup>3</sup> Müller (1888-95), pl. XXXI and p. 55.

<sup>5</sup> Baldwin Brown (1915), pl. LXIV and p. 336.

<sup>6</sup> Baldwin Brown (1915), pl. LXXVI and p. 360.

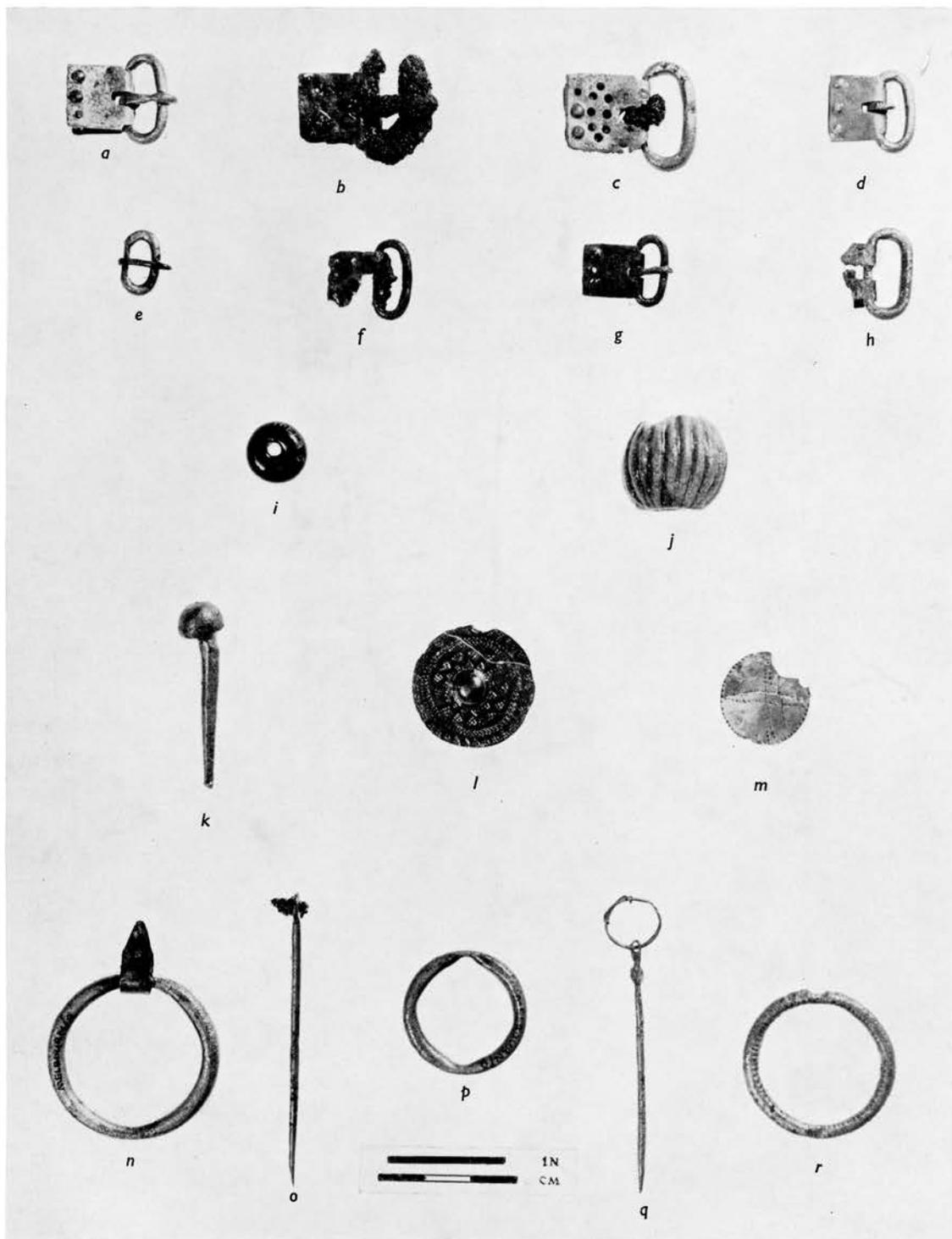
<sup>7</sup> Cf. the bronze example from grave XXVI.

<sup>9</sup> Vide Lethbridge (1931), p. 76.

<sup>2</sup> Götze (1912), fig. 2.

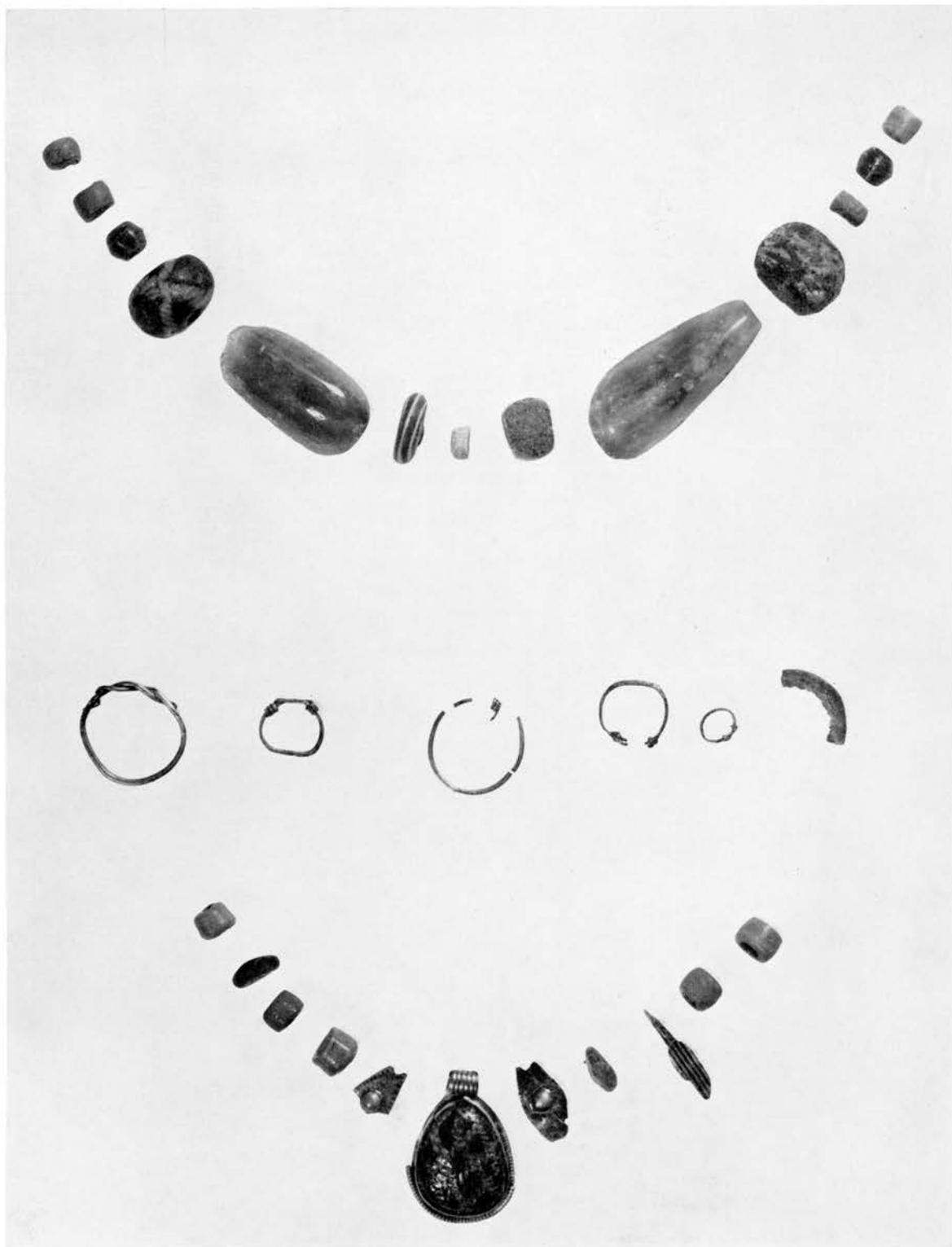
<sup>4</sup> Åberg (1924), fig. 36.

<sup>8</sup> Vide Baldwin Brown (1915), pp. 369f.



Buckles, rings and other ornaments; Melbourn Anglo-Saxon Cemetery.

(Photo, Museum of Archaeology and Ethnology)



Jewellery from Graves IX and XI; Melbourn Anglo-Saxon Cemetery.  
(Photo, Museum of Archaeology and Ethnology)

Two small biconic blue glass beads.

One cylindrical red bead.

One paste bead with a marbled effect in green, red, yellow, blue and brown, approximately half an inch in diameter.

One dark glass bead of Beck's form B4f.b.<sup>1</sup> (i.e. a short cylinder with two convex ends); on the sides of the bead are inset rough circles of twisted glass made up of green and cream strands.

One example of the type A2b.d. of Beck (i.e. chamfered conic disk).

One bone example of the above type B4f.b.

Two perfectly matched amethyst drop beads, each about an inch in length, one of which had been chipped in antiquity.<sup>2</sup>

To the inside of her left humerus was a double-sided comb of bone, about 8 in. in length; the strengthening strips on either side were fastened with iron rivets. A bronze hood-fastener and rivet was found on the right of her chest, and outside her left leg was a complex of small bronze plates, one of which had a punched design, made up of the well-known ring-and-dot ornament, set in the form of a saltire. There was evidence of a girdle or belt with two rings (Pl. IV, *n* and *p*), one of bronze (about an inch in diameter), which was probably a toggle, and the other of iron, which had two riveted bronze plates attached (one of which has a punched ring-and-dot ornamentation), which may have formed the mount of a purse or of the sheath of a knife. Two small riveted bronze plates may have formed part of the belt, or perhaps had something to do with the sheath mounting of the knife, which lay near by. By the left hand was a smaller bronze ring with a riveted bronze mounting. Between the ankles were two bronze lace-tags.

GRAVE X. A crushed male burial—the only crouched burial in the cemetery. The only find was an iron knife to his left side. It is possible that he died with his knees bent and could not be laid out, owing to the onset of rigor mortis.

GRAVE XI. This was a double grave; the lower skeleton, a female, having been pushed to one side to allow for the burial of the male on top. The upper burial must have been almost contemporary with the lower one—for although the lower one is in a somewhat distorted position the joints remained correctly positioned and the bones are not displaced. It may be that the double burial is the result of a very hard winter when, the ground being frozen, grave digging was difficult.

The top burial (male) had his skull facing to the right and behind the skull was a sheep's jaw bone, the only example from this cemetery of food associated with a burial. A bronze buckle (Pl. IV, *c*) and two knives were in position at his waist, and on his right femur were four pieces of iron, which proved to be the remains of the handle of a small wooden bucket, about 3 in. in diameter, on the surviving mount of which are traces of wood. Scattered throughout the grave, top and bottom, were a number of objects of iron—nails, pins or wire—which had probably been disturbed at the time of the second inhumation; they make little sense and cannot be reconstructed.

<sup>1</sup> Beck (1927), pls. 2-3.

<sup>2</sup> For a discussion of amethyst beads in the Anglo-Saxon period see Leeds (1936), pp. 77-8 et passim; Jessup (1950), pp. 52 and 90. In the Cambridge region they are known at Burwell, Exning, Little Wilbraham and Shudy Camps. A significant association in relation to grave IX is that at Sibertswold, Kent (see below, p. 34).

The bottom burial (female). On and in the region of the sternum was a series of small rings and pendants of silver and a series of beads (Pl. V, bottom). There were seven beads, one of red paste, four of green, all cylindrical, and two annular blue glass beads of circular section. Two small bossed mounts of silver of a sub-lozenge shape seem to have been added to the necklace as pendants, though it is strange that they both have broken perforations. The five silver rings varied in diameter between  $\frac{1}{4}$  and  $\frac{1}{2}$  in.; they were probably sewn on to the garment to form with the beads and other pendants a permanent festoon decoration.<sup>1</sup> There were two other pendants, one of silver in the form of a hand, the fingers being formed of a series of parallel ridges with intervening nielloed grooves; this hand symbol has contemporary German parallels.<sup>2</sup> The other pendant was of mosaic glass mounted in silver, forming an oval object just under an inch in length. The basic material of the centre piece was dark brown or blue glass, with a trellis pattern of twisted green and white glass. The mount consists of a flat silver plate turned over at the top to form a corrugated loop for suspension; on this the glass was mounted, enclosed by a strip of silver in turn surrounded by a length of segmented silver wire. The whole effect is very graceful. This is exactly paralleled in gold at Sibertswold in Kent,<sup>3</sup> and a very similar mount comes from Cowlow in Derbyshire,<sup>4</sup> although here the inlay is spiraliform. The type of mounting used on these pieces was most popular in the late Pagan period for the setting of Cabochon jewellery.<sup>5</sup>

On the pelvis of the woman was an iron buckle which revealed the imprint of a very coarse cloth.

GRAVE XII. A muscular male with his five lumbar vertebrae fused together by rheumatoid-arthritis growth. To the right of the skull was a shield-boss (Fig. 2) in a very strange position; it lay about an inch from the floor of the grave, and the edge of the flange on one side was touching the skull and on the other was only 2 in. from the head of the grave. There does not seem to have been much room for the placing of the whole shield in the grave. The boss stood about  $5\frac{1}{4}$  in. high and was about 6 in. in diameter; in form it is a flanged cone, the point of the cone being surmounted by a bronze-covered iron stud to form a small roundel about  $\frac{3}{8}$  in. in diameter. The flange was about  $\frac{1}{2}$  in. in width. Behind the boss was a plain bar of iron, forming the handle of the shield; this was bound round with cloth of linen texture, the impression of which is preserved in parts by the iron. The boss was constructed from a flat sheet of metal, much as we would form a cone of a flat piece of paper. The overlap was trimmed and the rather narrow flange was hammered out, resulting in a slight carination. This is a very unusual, if not unique type of shield-boss. It is certainly not paralleled in the Cambridge region, where every boss that I have been able to examine is hammered or cast hollow, with a few exceptions, into the traditional carinated form.<sup>6</sup> I have not handled the Kentish material, but I have been unable to find any illustrated parallel. The form of boss is not mentioned in the two standard

<sup>1</sup> Vide Lethbridge (1931), p. 76.

<sup>3</sup> Fausset (1856), pl. IV, figs. 8 and 9 and p. 131.

<sup>5</sup> E.g. at Roundway Down, Wilts, and Bafriston, Kent.

<sup>2</sup> Werner (1950), pl. 17.

<sup>4</sup> Leeds (1936), p. 109, fig. 23a.

<sup>6</sup> E.g. Lethbridge (1931), p. 86.

works on the subject,<sup>1</sup> and I have been unable to find any parallels in the museums of Scandinavia, which are particularly rich in weapons of this period. The nearest approach to the shape seems to be in the 'Zuckenhutform' shield-bosses of the Low Countries and the Rhenish area.<sup>2</sup> It would seem, therefore, that here we have a single odd example of a smith experimenting with a new, and possibly less expensive, method of constructing such objects.

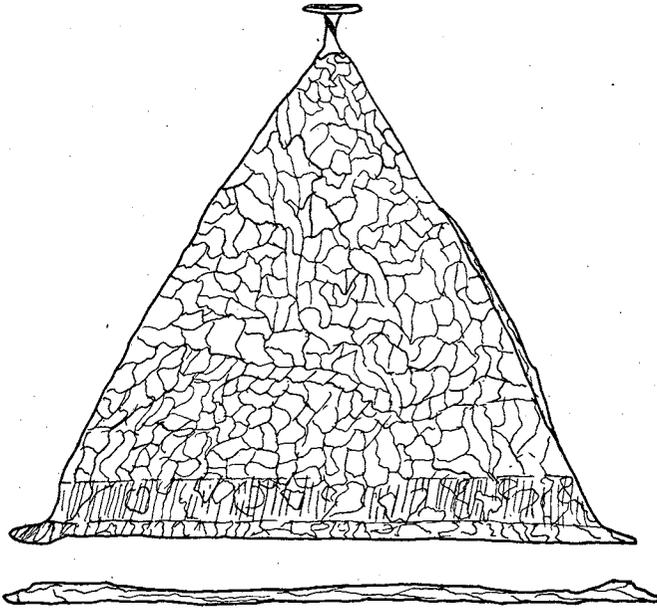


Fig. 2. Boss and grip of shield. Grave XII.  
*Half natural size.*

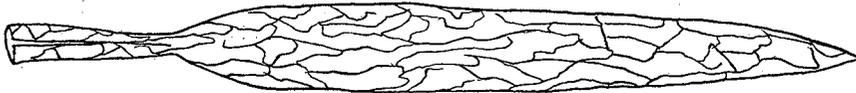


Fig. 3. Spearhead. Grave XII.  
*Half natural size.*

At the edge of the grave on the left was found a spear-head about 18 in. in length (Fig. 3). A knife from the lower ribs and a small bronze buckle (Pl. IV, *f*) from the pelvis, both on the man's left-hand side, complete the furniture of the grave.

GRAVE XIII. A very deep, well-made grave containing a male with a knife at his left hand on the lower ribs. The bottom of the grave was about three feet below the mechanically cleaned surface.

GRAVE XIV. A very old man with only nine teeth on his mandible at death. By his right-hand side between the elbow and the ribs was a double-sided bone comb,

<sup>1</sup> Keller (1906) and Izikowitz (1931).

<sup>2</sup> Zeiss (1950), p. 173.

about 5 in. in length, the strengthening bars on either side were attached by means of six iron and one bronze rivet: as is usual, the teeth were cut after the bars had been riveted into place, indicated by the cut on the bevel of the bar. This grave was very broad and ill-made.

GRAVE XV and GRAVE XVI contained infants whose bones in the main had disintegrated and dissolved away. The teeth of the child in grave XV indicate that it was about 18 months old at death.

GRAVE XVII. A muscular male, whose grave was disturbed by unauthorized persons. Photographs and plan have been preserved, however. An iron buckle attached by a bronze plate (Pl. IV, *b*) to what was presumably a belt or girdle holding the knife came from the centre of the body.

GRAVE XVIII. A double burial, both skeletons were male.

The upper burial had been crushed by the bulldozer, his right arm was by his side and his left was doubled up on to his shoulder. There was no associated find.

The lower burial, whose teeth were very worn, had his left arm across his belly. On the right side of his pelvis was a buckle, underneath which was preserved a piece of cloth of fine woollen material of worsted texture. The plate of the buckle was pierced with a number of small round holes in a roughly oval pattern (Pl. IV, *c*). Under his left arm and on his ribs was a knife.

GRAVE XIX. An old female with her skull facing to her left. Three silver rings probably acted as the supports of a festoon consisting of two red, two green and one blue cylindrical paste beads, and one irregularly crescentic-shaped bead of white pebble. A silver disk with a punched equal-armed cross-pattern (Pl. IV), about  $\frac{1}{2}$  in. in diameter, was also found in the complex; it is of paper thinness and was presumably cemented to a wooden or a leather base. A penannular ring was below her left scapula and a knife was on her left side between her pelvis and her ribs. Between her thighs were the remains of a large box, with a large spindle whorl or toggle placed, presumably, inside it.<sup>1</sup>

GRAVE XX. A male, the left-hand side of whose jaw had been broken and healed, in an imperfect manner, during life. This resulted in a very uneven growth and wear of the front teeth, and it is probable that the movement of the jaw would be very much restricted. The pain may have caused the very marked development of the frontal; this is discussed by Miss Armstrong. The right arm was folded across the body. There were no directly associated finds, but in the infilling of the grave were two glass beads, formed of the bead-rim of a glass jar, which had been pierced longitudinally.

GRAVE XXI was robbed and the grave goods were not retrieved.

GRAVE XXII. On the general structure of the pelvis and the legs this is considered to be a male burial. The left orbit and face of the skull had been crushed by the bulldozer, making the determination of sex difficult. He was facing right and had a knife in the usual position at his left-hand side. One shoe-lace tag was found by his left heel.

<sup>1</sup> Cf. Lethbridge (1931), p. 76. Toggles are also found in boxes at Burwell, graves 42, 76 and 121.

GRAVE XXIII. A child of about 10 years of age. The skull and pelvis were badly crushed, rendering sexing difficult. A knife was placed on the left-hand side below the pelvis.

GRAVE XXIV. The skeleton in this grave was too fragmentary to be sexed with accuracy; by the size of the femur it would seem unlikely that it was a female. A knife was placed in the usual position by the left-hand side.

GRAVE XXV. A muscular, but very old, male; all the lower molars had disappeared before death. At the head of the grave on his left-hand side was a spearhead about 12 in. in length (fig. 4). A knife was in position by his left-hand side; and preserved by a buckle of bronze were two fragments of cloth of fairly fine weave; the plate of the buckle was in a fragmentary state and the catch-pin had disappeared completely.

GRAVE XXVI. A boy of about 10 or 12 years of age with legs crossed. Under his chin was a pin, with a perforated head which carried a ring, the whole being made of bronze; the head of the pin was in the form of a figure of eight with the two elements bent at right-angles, the top one pierced to carry the ring. On his right-hand side, on the pelvis, lay a bronze buckle; a riveted bronze buckle was by his left hand.



Fig. 4. Spearhead. Grave XXV.  
*One-quarter natural size.*

GRAVE XXVII. A girl about 14 years of age with her left arm bent across her belly. This grave lay across the large trench or ditch, and was therefore probably of a later date.

GRAVE XXVIII. A girl(?) of about 7 years of age. In the centre of her pelvis lay a bronze buckle and a knife lay underneath her left forearm.

*The Kentish Connexion.* Several graves have given us evidence of the connexion between East Anglia and Kent.<sup>1</sup> This connexion has often been noted before;<sup>2</sup> here we would only mention it once again. We have already noted the similarity between the pendants from grave XI at Melbourn and barrow 172 at Sibertswold. These three pendants would all seem to have come from the same workshop. The amethyst drop beads are also a popular Kentish form and are, incidentally, also found at Sibertswold. This form of bead is also a popular continental form.<sup>3</sup>

*Loss of teeth.* I am grateful to Mr Lethbridge for drawing my attention to the many skulls which lack a number of teeth; this is seldom observed in the local pagan burials, but is frequent among the Romano-British. Its reappearance at Burwell, Shudy Camps and Melbourn perhaps indicates a change of diet.

*The date of the cemetery.* The cemetery at Melbourn fits into the well-known

<sup>1</sup> Graves IX and XI.

<sup>2</sup> Lethbridge (1931 and 1936); Leeds (1936), etc.

<sup>3</sup> They are found, for instance, in Sweden, e.g. Nilssonska, Lund Mus., no. 3597.

Cambridgeshire series of late date which contains, among others, Burwell,<sup>1</sup> Shudy Camps<sup>2</sup> and Saffron Walden. There is little doubt that the cemetery dates from the early seventh century and later. The arguments that the series represent Christian burial grounds has been repeated a number of times by Mr Lethbridge and will not bear repetition here. The cemetery shows the change-over from paganism to Christianity that took place in East Anglia at some time in the first half of the seventh century; the original, semi-pagan cemetery may have been delimited by the larger of the two ditches and was probably expanded as need arose.

*Note.* It is to be emphasized, in conclusion, that the cemetery is by no means completely excavated, and that new evidence may be forthcoming.<sup>3</sup>

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#### APPENDIX I

##### THE HUMAN REMAINS

In the first season of 'rescue work' at the Melbourn Anglo-Saxon cemetery during the summer of 1952, the remains of twenty-seven individuals were found. From an anatomical appreciation of the skulls and post-cranial skeletons nineteen adults have been sexed as male and five as female. An isolated frontal bone, however, almost certainly represents a sixth woman, and there are two children aged from above nine to eleven years. The topsoil of the site had been removed by bull-

<sup>1</sup> Lethbridge (1931).

<sup>2</sup> Lethbridge (1936).

<sup>3</sup> For this reason no plan of the cemetery is published here: such a plan would be misleading. The existing survey of the site is preserved in the University Museum of Archaeology and Ethnology, Cambridge.

dozing before the chalk was mechanically excavated, with the worst possible consequences for the human remains, which were often too damaged for measurement.

The anomalous conditions and ante-mortem traumata exhibited by the surviving material may be dismissed very shortly. Two of the crania (Eu. 1. 2. 231 ♂ and Eu. 1. 2. 239 ♀) have persistent metopic sutures. The tibia and fibula of an elderly subject (Eu. 1. 2. 241 ♂) are fused in the lower third of their length, presumably owing to arthritis. The mandible of another (Eu. 1. 2. 255 ♂) had been fractured when the owner was in the prime of life, and the injury had healed in an unusual way, the left condyle forming a bone cyst which was associated with an enlarged mastoid groove on the same side of the calvaria. As a result of the restricted jaw-movements and consequent lack of attrition, the growth of the incisor and the canine teeth was far from even. In almost every dentition examined the occlusal surfaces were extremely worn, indicating the presence of grit in the diet, and a good many teeth were carious. An irregular occlusion occurs in one case (Eu. 1. 2. 233 ♀), the crowns of the molar-premolar series being almost chisel-shaped.

As a general guide to ageing and sexing, the section on skeletal identification by Boyd & Trevor (1953) in *Modern Trends in Forensic Medicine* has been relied upon. The technique used in measuring crania and mandibles is that described by Trevor (1950), which is based in turn on Buxton and Morant (1933) and Morant (1936). Long bones were measured in accordance with the directions given in Mukherjee, Rao and Trevor (1955), and the multiple regression formulae of Trotter and Gleser (1952) have been used to reconstruct statures from their lengths. Five individuals from Melbourn appear in Tables XVI and XVII of Münter's (1936) study of Anglo-Saxon long bones, and it is very likely that the source of these is the same cemetery as furnished the present series. Münter makes no reference to any excavation report, however, and their recovery may therefore have been 'unarchaeological'. This appendix will be confined to a short discussion of the statures of the Melbourn Anglo-Saxons of both sexes and to a slightly more detailed metrical comparison of the male skulls with a larger series from a neighbouring site. A copy of the individual measurements of the Melbourn crania, mandibles, and limb bones, with observations on each specimen, has been deposited in the Duckworth Laboratory for purposes of record.

The statures of eleven Melbourn males estimated from the formulae already mentioned range from 160.6 cm. (5 ft. 4 in.) to 183.7 cm. (6 ft. 1½ in.), the mean value being 174.2 cm. (5 ft. 9½ in.). This compares well with the similarly calculated average height, 173.0 cm. (5 ft. 9¼ in.), of between twenty-six and forty-six male Anglo-Saxons from Burwell, a cemetery about twenty miles from Melbourn and of the same archaeological context. Only three females from Melbourn had the limb bones well enough preserved for estimates to be made of their statures when they were alive. These are 155.9 cm. (5 ft. ¼ in.), 165.2 cm. (5 ft. 6 in.), and 166.7 cm. (5 ft. 6½ in.), giving a mean of 162.6 cm. (5 ft. 4 in.). These women were thus 11.6 cm. (5½ in.) shorter than the men, a figure which is close to the usual difference in stature between the sexes. The average height of modern British men, which has remained unchanged for the past hundred years although full growth has been attained progressively earlier in life (Morant, 1950), is 168.7 cm. (5 ft. 7½ in.). The Melbourn people were two inches taller, but the ancestry of the modern British seems to hark back to a more remote and shorter-statured racial strain than the Saxon (Hooke and Morant, 1926; Trevor, 1954).

Did the small sample from Melbourn belong to the same population as the far larger Burwell series (Brash, Layard and Young, 1935)? To attempt to answer such a question an assumption must be made and a simple test applied. It will be assumed that the Burwell male means for cranial characters and their standard deviations are those of the total population, although this cannot be more than a first approximation to the truth. If  $n$  denotes the number of measurements on which the mean of any cranial character,  $\bar{x}$ , of the male Melbourn series is

based,  $\mu$  and  $\sigma$  are the respective mean and standard deviation for the same character in the male Burwell series, and  $d$  is the difference between  $\bar{x}$  and  $\mu$  irrespective of sign, then the standard error of that difference may be expressed as  $e_d = \sigma\sqrt{(1/n)}$ . If, again, the value of  $d/e_d$ , the so-called 'critical ratio', is 2.0 or more, the difference  $\bar{x} - \mu$  or  $\mu - \bar{x}$  may be taken to be statistically significant at the 5% probability level, i.e. the odds against its chance occurrence would be about nineteen to one.

TABLE I. *Differences between Means of Male Anglo-Saxon Crania from Melbourn and Burwell*

Character	Mean*		$d$	$e_d$	$d/e_d$ †
	Melbourn ( $\bar{x}$ )†	Burwell ( $\mu$ )			
Maximum glabello-occipital length, $L$	189.3 (10)	189.6 (45)	0.3	1.8	0.2
Maximum biparietal breadth, $B$	140.8 (10)	141.7 (45)	0.9	1.7	0.5
Minimum frontal breadth, $B'$	97.1 (8)	95.2 (44)	1.9	1.2	1.6
Basi-bregmatic height, $H'$	132.2 (10)	136.3 (40)	4.1	1.8	2.3
Sagittal arc, $S$	377.0 (9)	381.6 (42)	4.6	3.4	1.4
Maximum horizontal perimeter, $U$	526.0 (10)	527.8 (42)	1.8	4.1	0.4
Foraminal length, $FL$	39.7 (9)	37.3 (37)	2.4	1.2	2.0
Foraminal breadth, $FB$	31.9 (8)	31.1 (37)	0.8	0.8	1.0
Basi-nasal length, $LB$	100.7 (10)	102.4 (40)	1.7	1.7	1.0
Nasal height, $NH$	51.0 (7)	50.0 (34)	1.0	1.4	0.7
Nasal breadth, $NB$	24.8 (7)	24.1 (34)	0.7	0.7	1.0
Orbital breadth, $O_1$	42.1 (8)	41.8 (33)	0.3	0.6	0.5
Orbital height, $O_2$	34.9 (7)	32.8 (33)	2.1	0.8	2.6
100 $B/L$	73.8 (9)	74.8 (45)	1.0	1.1	0.9
100 $H'/L$	68.6 (9)	71.9 (40)	3.3	1.1	3.0
100 $B/H'$	107.2 (9)	104.4 (40)	2.8	1.7	1.6
Occipital index, $Oc.I.$	59.2 (8)	58.9 (42)	0.3	1.0	0.3
100 $FB/FL$	83.2 (7)	83.8 (37)	0.6	3.0	0.2
100 $NB/NH$	49.5 (6)	48.4 (34)	1.1	1.8	0.6
100 $O_2/O_1$	82.0 (8)	78.3 (33)	3.7	1.4	2.6

\* The sample size is given in round brackets (parentheses) after each mean, and the values of  $NH$ ,  $O_1$ ,  $O_2$ , 100  $NB/NH$ , and 100  $O_2/O_1$  are for characters measured on the left side, except where this was defective, when they were measured on the right.

† The following additional mean values are available for the male Melbourn crania: auriculo-apical height,  $OH$ , 113.0 (7); auriculo-bregmatic height,  $OH'$ , 112.7 (9); frontal chord,  $S'$ , 109.2 (10); parietal chord,  $S'_2$ , 118.5 (10); occipital chord,  $S'_3$ , 98.5 (9); frontal arc,  $S_1$ , 121.6 (10); parietal arc,  $S_2$ , 133.3 (10); occipital arc,  $S_3$ , 120.1 (9); transverse bregmatic arc,  $T'$ , 305.1 (10); basi-alveolar length,  $GL$ , 94.4 (5); bimaxillary breadth,  $GB$ , 93.8 (6); bizygomatic breadth,  $\mathcal{Y}$ , 132.0 (8); palatal length,  $G'_1$ , 45.1 (5); palatal breadth,  $G_2$ , 39.6 (7); nasal angle,  $N\angle$ , 64.2° (5); alveolar angle,  $A\angle$ , 73.6° (5); basal angle,  $B\angle$ , 41.8 (5); 100  $H'/B$ , 97.0 (9); 100  $S'_1/S_1$ , 88.9 (9); 100  $S'_2/S_2$ , 90.0 (9); 100  $S'_3/S_3$ , 79.7 (8); 100  $G'H/GB$ , 75.4 (4); 100  $G_2/G'_1$ , 85.0 (4).

‡ Statistically significant differences at the 5% probability level are shown in *italic* type.

Of the twenty comparisons made in Table I, five differences are significant but not highly so. The basi-bregmatic height is involved in two of them ( $H'$  and 100  $H'/L$ ) and the orbital height in two more ( $O_2$  and 100  $O_2/O_1$ ), while the fifth, the foraminal length ( $FL$ ), is exactly 2.0. Such a result might have been anticipated in view of the small size of the sample from Melbourn, and not much importance need be attached to the few instances in which the critical ratio is greater than the conventional level of probability chosen, because of the many more in which it is less. There is thus little reason to suppose that the Melbourn sample could not have been drawn at random from the Anglo-Saxon population represented by the Burwell series.

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