The total number of cremated interments found was fifty-three. No relics of any kind were interred with any of them, except in three instances, where portions of burnt bone pins were found, and there was no trace of any cinerary urns having been used. None of the cremated deposits exceeded 16 inches in diameter.

A DESCRIPTION *of the* SKELETONS *found in* HOWE HILL BARROW.

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THE specimens from Howe Hill Barrow which have been placed in my hands for examination by Mr. J. R. Mortimer, of Driffield, consist of the skulls belonging to the skeletons he has designated in his paper on the exploration of the barrow, by the letters C, D, F, G, H, I, J, K, L, and M, and some of the long bones of the extremities of D, I, and K. He has also been good enough to furnish me with the measurements of some of the long bones, which have unfortunately not been preserved, belonging to C, D, G, I, L, and M, together with his notes and diagrams relating to the exploration of the barrow, which have been of the greatest assistance to me. The skulls and bones are in a very fragile condition, and many of the former are very incomplete, notwithstanding that Mr. Mortimer has bestowed much time and patience in restoring them as far as was possible.

Eight of the specimens belonged to adult males, and two to children of about six and ten years of age respectively. No female's bones appear to have been found in the barrow. According to the usual rule, the description of the specimens I am about to give will only include the adults of the series.

Stature.—As is generally the case with human remains from ancient barrows, the stature of the persons whom the skeletons represent can only be determined by calculation from the long bones of the extremities. Of these I have personally only measured the right femur of D, the right and left femora and tibiæ of I, and the two femora, the right humerus, and left tibia of K. The measurements of the other bones which I have given in the "Table of Measurements of the Long Bones" were made by Mr. Mortimer, on whose accuracy in measuring I must entirely rely. It is necessary to state that his measurements

were not made with instruments of such precision as were at my disposal for measuring those of the bones submitted to me, and although I have found some differences between his measurements and my own in the bones of D, I, and K, which we have both measured independently, I have little doubt that his measurements of the bones of the other skeletons which I have not measured, are sufficiently correct for comparison with measurements taken before such rigid accuracy as is now required was practised in anthropological research. The measurements made by Mr. Mortimer were supplied to me in inches and parts of inches, but for convenience I have carefully converted them into their equivalent in millimetres. By taking my own and Mr. Mortimer's measurements together I have been able to calculate the probable stature of seven of the adults, no long bones being found with the eighth adult skull (marked J). In doing this I have used the following formulæ given by Topinard in his "Éléments d'Anthropologie":—

$$\frac{\text{Femur} + \text{Tibia} \times 100}{49{\cdot}4}; \quad \frac{\text{Femur} \times 100}{27{\cdot}1}; \quad \frac{\text{Tibia} \times 100}{23{\cdot}3}; \quad \frac{\text{Humerus} \times 100}{20{\cdot}7};$$

As in my opinion the best and most reliable estimate of stature is obtained from the lengths of the femur and tibia added together, I attach most importance to the results yielded by the first of these formulæ. Having the measurements of both these bones in each of the seven skeletons, I have been able to estimate the stature in this way in each instance, and find that the average of the series is 1 m. 661, or 65·4 inches. Estimated from the length of the femur alone, the average is 11 mm. more, namely, 1 m. 672, or about 66 inches, while from the length of the tibia it is 1 m. 575, or about 62 inches. The tallest individual was that to whom the skeleton D belonged. His stature estimated from the femur and tibia is 1 m. 927, from the femur alone 1 m. 874, and from the tibia 1 m. 905, or 75·9, 73·8, and 75 inches respectively. It is fortunate that I am able to place before you the right femur of this skeleton and to demonstrate its length to you as 508 mm., otherwise you might think that there was some mistake regarding its measurement, on account of its being so unusually long. The two shortest skeletons are those marked C and L, each of which have an estimated stature from the femur and tibia of 1 m. 555, or 61·2 inches. From these figures it will be seen that there is a considerable degree of variation in this small series. The occurrence of D measuring 9 inches more than the tallest of the other six, without there being any skeleton correspondingly short, gives an erroneous idea of the average stature of the series. I have therefore had recourse to Mr. Galton's method

of arranging the different specimens according to their centesimal grades, by which means we get rid of the disturbing effects of the extremes at each end of the series, and so obtain the true mean of the group. When treated in this way the actual mean stature of the series is 1 m. 628 (64·1 inches). For the information of those who are acquainted with this method of dealing with statistics I may state that at the 25th centesimal grade the stature is 1 m. 564 (61·6 inches), the 50th, 1 m. 616, and at the 75th 1 m. 692 (66·6 inches); the value of Q, therefore, is 64 mm., giving a corrected mean for the series of 1 m. 628. This height indicates as nearly as possible, I consider, the mean stature of the persons represented by the skeletons we have to deal with. It is considerably lower than the mean stature of the male population of this country at the present time, which, at prime of life between the ages of 23 and 51 is 1 m. 715 (67·5 inches), according to the extensive observations of the Anthropometric Committee of the British Association[1] (*see* Reports for 1882).

The tibio-femoral index, which shows the relative length of the tibia to that of the femur, varies from 77·7 in G and M to 87·4 in D, and averages in the whole series 81·1, but excluding D, in which the index is very high, it averages 80 in the six other skeletons, which is almost the same as that given by Broca, Topinard, and Rollet for Europeans. Although in persons of tall stature Topinard found that the index is somewhat higher than in short persons (averaging 81·1 in males with statures between 1 m. 70 and 2 m. 06, and 79·7 in those with statures varying from 1 m. 43 to 1 m. 60) the index is so high in D as to lead us to suspect that some error has occurred in recording the length of the tibia in that skeleton.

The index of Platycnemism, or the relation between the transverse breadth of the tibia to its antero-posterior diameter was ascertained only in the two specimens K and I which were measured by me; in the former it is 64·9 and in the latter 67·6, giving an average of 66·3 for the two specimens. The measurements for this index were taken by Busk's method about 4 cm. below the nutrient foramen of the bone. The average index in English people is 73, so that the specimens from Howe Hill Barrow, are markedly platycnemic as compared with the existing inhabitants.

To trace the relations of the people represented by these skeletons it is necessary to study, as far as materials will permit, the characters and dimensions of those of the earlier races who have successively inhabited various parts of England.

[1] When these observations, as tabulated, are treated by Mr. Galton's method of centesimal grades, the corrected mean stature is 1 m. 703 (67 inches).

For this purpose I have calculated the stature of all the Barrow specimens of adult males described in the "Crania Britannica," by Dr. Barnard Davis. As, however, he only gives the dimensions of the femur, I have only been able to do so from it, and not from the femur and tibia, as I would have preferred to do. The results are as follows:—The average stature of eight Long Barrow skeletons is 1 m. 698 (66·8 inches), the average length of the femur being 460 mm., while that of twelve Round Barrow skeletons is 1 m. 793 (70·6 inches). Thus between the average stature, estimated from the femur, of the Howe Hill series, which I have previously stated, is 1 m., 672, and that of the Long Barrow specimens, the difference is only 26 mm.; while between the former and Round Barrow series it is 118 mm. It is therefore clear that the skeletons from Howe Hill correspond very closely to Dr. Barnard Davis's Long Barrow series, which, I may mention, includes specimens from Yorkshire, Staffordshire, Gloucestershire, and Wiltshire, from which counties also the Round Barrow specimens were likewise obtained. The tallest Long Barrow skeleton in the "Crania Britannica" series has an estimated stature of 1 m. 874, his femur being 508 mm. long, which is exactly the same length as the longest femur from Howe Hill; the shortest man has an estimated stature of 1 m. 546, which is also exactly the same as that of the shortest skeleton from Howe Hill. The range of variation in stature of both series is practically the same; in both there is a disturbing element owing to the presence of an unusually tall individual, which raises the average stature of each group to a figure higher than it should be. To get at the true mean stature of the groups I have again employed Mr. Galton's graphic method, which shows that the stature at the 25th and 75th centesimal grades is respectively 1 m. 585 and 1 m. 715 in the Howe Hill specimens, and 1 m. 652 and 1 m. 730 in the Long Barrow series, the respective values of Q (*i.e.*, half the difference between the statures at each of these two grades), are 65 and 39 mm., giving to the former series a corrected mean stature at the 50th grade of 1 m. 650, and the latter of 1 m. 691, the observed mean of the former being 1 m. 653, and of the latter 1 m. 702. On the other hand the tallest Round Barrow skeleton in the "Crania Britannica" has an estimated stature of 1 m. 920 (75·6 inches), and the shortest of 1 m. 686 (66·3 inches) while the rest of the series range themselves regularly between these extremes.

In the "Memoirs of the Anthropological Society of London," vol. iii, p. 41, Dr. Thurnam gives the length of the femur of twenty-five males from Long Barrows as 457 mm. which gives an estimated stature of 1 m. 686, while the femur in twenty-seven

males from Round Barrows averaged 477·5 which gives an average stature in them of 1 m. 761.

The Howe Hill specimens may also be compared with skeletons obtained by General Pitt Rivers from Rotherley, Woodcuts, and Winklebury. The medium stature of eleven skeletons found at Rotherley was 1 m. 562 (61·5 inches), and of seven from Woodcuts which were rather more mixed in type, 1 m. 644 (64·7 inches). The general conformation of the skulls obtained from these two places agrees with that of the Howe Hill series in being, as we shall afterwards see, markedly dolichocephalic. On the other hand the medium stature of twelve Anglo-Saxon skeletons from Winklebury was 1 m. 700. Thus we see that the stature of the Howe Hill Barrow series agrees very closely with that of the dolichocephalic race in the Pitt Rivers series, and is considerably less than that of the Anglo-Saxons in the same collection. The tibiæ of the Rotherley specimens are somewhat platycnemic, the average index in these being 70·2.

SKULL—*Characters of the Calvarial portion.*—The ridges for muscular attachments on the cranial vault are of very moderate size, but in one or two instances are fairly well developed in the stephanic region. The under surface, however, presents a marked contrast to the upper in this respect, the superior curved line of the occiput being in some cases very strongly developed; a well marked torus is present in three specimens and a smaller one on a fourth, the other muscular attachments on the base are well marked except the mastoid processes which are only moderately large. The bones forming the calvarial vault are thick and heavy and in one instance might be called massive. The sutures are moderately closed in some specimens and obliterated in others; stenosis of the sagittal suture is present in a greater or less degree in the majority of cases. Where the sutures can be traced their character is simple. In only one instance are wormean bones present, these are of small size and situated in the lambdoidal suture. The antero-posterior outline or curve of the calvaria is regular; in one case the forehead is vertical, in several it is low, and in others its curve is medium. Occipital elongation occurs only once, and in that instance it is probably more apparent than real, owing to post-mortem distortion. I may mention here that post-mortem distortion of some kind is noticeable in almost all the specimens, but varies in character, sometimes affecting the right and sometimes the left side. When viewed from above, the outline of the calvaria is seen to vary considerably; in four cases it may be described as extremely long and narrow, the forehead rounded, narrow, and with the orbital processes little marked;

the sides straight and the occiput elongated; in three specimens it is somewhat shorter and broader, and more or less pear-shaped in form or, as it has been termed by some writers, "coffin-shaped." In one of these latter (L) the forehead is very rounded, the frontal bosses are well marked, and the occipital region terminates very abruptly, so as to give a truncated appearance to the back of the head. The fourth specimen (G) presents characters intermediate between these two kinds; it agrees with the first four in being long and narrow, but in the details of its outline it agrees with the second three. When the skulls are placed in a row and viewed from the front, the form of the arch of the cranial vault is observed to be very characteristic, being pointed in the first four specimens, while it is flat in the other four. These varieties in the form of the cranial arch is equally observable when the skulls are looked at from behind. As the differences mentioned seem to me to be no mere accidental variations but probably racial, I have divided the series into two groups, the first of which is composed of the specimens C, D, I, and K, while the second includes G, L, J, and M. It will be noted that the skull of the primary interment belongs to the first group. The immature specimens F and H belong to the second group.

On each parietal bone of J, just above the parietal boss, a rounded opening occurs, that on the left side being 35 mm., and that on the right 20 mm. in diameter, the edges are bevelled inwards, and from them stellate fracture rays extend. There is little doubt that these holes are the result of sharp and quick blows delivered with considerable force, and would have been sufficient to have caused the death of the person. The skull was found by itself without the rest of the skeleton in the middle of the grave below the centre of the barrow.

Characters of the facial portion.—The broken condition of the facial portion of the skull renders it impossible to give anything like a satisfactory description of the characters of the face, but it appears to be longer in proportion to its breadth in the first group than in the second. As a rule the facial bones harmonise with those of the calvaria, except in L, in which the weakness of the former presents a marked contrast to the massiveness of the latter.

The glabella and superciliary regions vary from being almost quite flat in some specimens to being moderately or even markedly developed in others. In the case where it is most developed (I), the superciliary bosses and the glabella form a continuous ridge across the forehead. The orbits appear to be set at about the same angle with the horizontal in each case, and their upper margins are thin; in form they are

broadened rectangular to nearly square in the specimens complete enough to admit of their shape being determined.

The nasal spine is small, the lower margins of the nasal openings are sharp and well-defined, the outline in profile of the nasal bones appears to vary within the outlines of Nos. 1, 2, and 3 of Broca's nasal curve. The profile of the upper jaw is straight or nearly so, there is therefore no tendency to prognatism. The direction of the incisor teeth is vertical. In the majority of cases the teeth are moderately worn, but in one case (I) they are much worn, and in two (K and J), they are little worn. The last molar is sometimes absent through not being developed. The form of the palate or rather the outline of the upper alveolar arch is somewhat parabolic. The chin is narrow and pointed in the majority of cases, but it is more rounded and less pointed in M.

Measurements.—Turning to the measurements of the skull and comparing them, as far as possible, with the characters observed by inspection, we find that while some of these do not vary much in the two groups, others are markedly different. The measurements of G show that in some respects it agrees with those of the first group, but in the majority it resembles those of the second, among which it has been placed from its general characters.

The cephalic index of the series ranges from 65·5 to 79·6; five of the crania are hyperdolichocephalic, one is dolichocephalic, and two are mesaticephalic. All of the specimens belonging to the first group, and G, belonging to the second group, are hyperdolichocephalic. The higher cephalic index in the other specimens is due not only to their breadth being greater, but also to their length being less than those of the first group. The cephalic index of L being considerably higher than the others (79·6) is probably due to irregular or premature closure of some of the sutures, which has caused abnormal bulging of the parietal regions, its biauricular or base breadth being only 100 mm., or no less than 20 mm. less than any of the other specimens, so that it cannot be considered quite normal.

The height measurement and the height to length index are slightly less in the first group than in the second. The appearance of greater height imparted to the eye in the former is therefore due to the want of filling out of their lateral walls, and the acuteness of the arch formed by the upper and curved parts of the parietal bones, as it will be seen that there is little variation in the biauricular diameter in the whole series, except in L, which is unusually narrow in this region. Only in K does the height exceed the maximum breadth. Owing to the

imperfect condition of the specimens it was not possible to measure the cranial capacity, but as estimated from the cephalic module of Schmidt it is a little larger in the second group than in the first, though the antero-posterior or sagittal, the horizontal, and the traverse circumferences of the cranium are practically similar in both groups.

The narrowness of the cranium in the first group is not confined to the maximum breadth only, but extends to the minimum, and the maximum (bistephanic) diameters of the frontal bone, and also to the external biorbital and bizygomatic diameters, all of which are less than in the second group. This shows that the upper part of the face is quite in harmony with the width of the calvaria in each group. The minimum traverse diameter of the maxillary bones, that is, the maximum alveolar breadth, is if anything less in the second group than in the first, while the bigonial diameter of the mandible averages 6 mm. less in the former, showing that the lower part of the face is narrower in them than in the latter, thus reversing the conditions present in the upper part of the cranium. This narrowing of the lower part of the face in the second group appears more accentuated on account of the greater breadth of the upper part, and gives a somewhat wedge-shaped appearance to the face. Details of the characters of the nose, orbits, &c., from the measurements is unfortunately impossible.

The skulls are in all respects similar to those of Long Barrow specimens which have passed through my hands from different parts of the kingdom, but I have never examined a series of skulls in which there were such a large proportion of hyperdolichocephalic specimens. The two types found in this series I have long been familiar with among Long Barrow skulls. That which I have distinguished as group 2 may be thought from the description to be somewhat like the skulls of the Round Barrow period, but this is not the case, as although somewhat coffin-shaped they are quite distinct from them. It is very unfortunate that in the exploration of this barrow the importance of preserving most carefully every bone of each skeleton found was not understood, as the anatomy of the two types which existed in that remote period has not been worked out yet. As far as I am able to see, there does not seem to be any difference in stature between the two groups, nor was there apparently any preference as to the place of interment given to the one type more than the other; both were thoroughly mixed together, some of each group were in the grave with the primary interment, and some of both kinds were found outside it.

Let us now turn to the skulls from Long Barrow described in the "Crania Britannica" and by Dr. Thurnam in the "Memoirs of

the Anthropological Society of London," vol. iii, and to the specimens figured by General Pitt Rivers from Rotherley and Woodcuts. The cephalic index of 17 Long Barrow skulls, including the nine specimens whose height has been estimated from the femur previously discussed, from the "Crania Britannica" series, varies from 67 to 75; three are hyperdolichocephalic, 13 dolichocephalic, and 1 mesaticephalic. The measurement of length from which Dr. Davis calculated the index was that from the ophryon to the occiput which generally is a little shorter than the maximum length measured from the glabella, as now universally done, consequently the cephalic index calculated from the former is somewhat higher, and it is probable that several of the 13 dolichocephalic specimens would have fallen within the limits of the first group had Dr. Davis measured their length from the glabella, many of them having indices according to him of 70, 71, and 72. In a more recent paper Dr. Thurnam[1] gives the cephalic index of 48 Long Barrow skulls as varying from 65 to 75. Of these 16 are hyperdolichocephalic, 29 dolichocephalic, and 3 mesaticephalic; their length averaged 195, the breadth 139 mm., the height 143, the face length (probably from the ophryon to the chin) 111 mm., face breadth 128 mm.; the cephalic index of the series averages 71 and the altitudinal index 73. Coming to the same race in post-Roman times we find that the cephalic index in the specimens from Rotherley varied from 68·9 to 82·6; and that 3 were hyperdolichocephalic, 6 dolichocephalic, 3 mesaticephalic, and 1 brachycephalic. The Woodcuts specimens are not so markedly dolichocephalic and not so pure in character.

Arranged in tabular form, the cephalic index in these series are as follows:—

	Hyperdolichocoph.	Dolichocoph.	Mesaticeph.	Brachyceph.
Howe Hill Barrow	5	1	2	0
Long Barrows "Cran. Brit."	3	13	1	0
" " Dr. Thurnam.	16	29	3	0
Rotherley, Gen. Pitt Rivers.	3	6	3	1
Woodcuts	0	5	7	1

From this it is evident that the general form of the Howe Hill Round Barrow skulls agrees entirely with the Long Barrow skulls of Davis and Thurnam. In neither group of the Howe Hill barrow skulls, if we except L, which as I have already said is an abnormal specimen, have we any approach towards the brachycephalic type. The only other mesaticephalic specimen, J,

[1] "Memoirs Anthrop. Soc. Lond.," vol. iii, p. 41.

is at the lowest end of the group, only 4 above the dolichocephalic group. As it is very imperfect in the posterior part of the base, and as it is shorter than any of the others, it is not unlikely that in drying, the unsupported part of the occipital may have curved inwards somewhat and so reduced the length. If this be the case, which I think is very probable, it would also fall into the dolichocephalic group.

I have not been able to compare these specimens from Howe Hill with any of the actual specimens described by Drs. Davis and Thurnam, but I have done so with drawings of them. On plate 33 of the "Crania Britannica" is an engraving and on the opposite page of the letter-press are some woodcuts of a skull which has a cephalic index of 68·0 from Long Lowe Barrow in Staffordshire, and on Plate 50 is an engraving of a skull from West Kennet Barrow in Wiltshire of which the cephalic index is 67·0; both of these specimens resemble the skull C from Howe Hill. Again on Plate 59 we have an engraving of a skull from the Long Barrow of Rodmarton, Gloucestershire, with a cephalic of 72 which agrees in its characters with M of our series. The skull depicted on Plate 5 from the Long Barrow of Ulley, Gloucestershire, fairly represents D, I, and K of our series. In the "Crania Britannica," therefore, we have specimens from the Long Barrows which represent very accurately both groups of our series from Howe Hill Barrow. I need scarcely occupy time in comparing them with the Round Barrow skulls described by Drs. Davis and Thurnam, as these are all brachycephalic and of very different type, except in cases where crossing or mixture has occurred.

Having established the fact, sufficiently clearly I hope, of the identity as regards the physical characters of the Howe Hill specimens with the Long Barrow race, there remains to be considered the question of the Archæological evidence of their affinities. For this we have to refer to the abstract of Mr. Mortimer's notes which I made previously to examining the skeletons, so as to do away with the chance of any bias being produced on my mind by the specimens. In the outer layer of the barrow we find flint, bone, and *iron* implements; British, Roman, and Anglo-Saxon pottery, and some of more recent date; of animals remains those of dog, red deer, ox, and horse. There were well marked traces of this outer layer having been used for secondary interments, but neither these nor the various explorations which had been previously made had extended beyond this layer. Next there is a layer of Kimmeridge clay 1 foot in thickness in which no relicts were found, which as it were cemented in the interior mound containing the interments which may be considered as the *raison d'être* of the

barrow. This inner mound consisted of two layers in the outer of which were found 7 deposits of burnt bones, with flint and bone implements and piece of a food vase. In the inner or core of the barrow were numerous cremated deposits extending to half its thickness, but fewer in number below that. Towards the base line of the barrow and in the central grave we have the skeletons placed in different directions chiefly lying on one or other side with the limbs drawn up towards the body. With them were found flint implements carefully manufactured, worked flints, and flakes, bone pins, some of which were burnt. With K, the primary interment at the bottom of the grave, was a semi-globular vase of Kimmeridge clay, but no cinerary urns were anywhere found; the animal remains found in connection with the skeletons were those of fox (identified as such by Mr. Newton), ox, deer, boar, and beaver. It is a matter of regret that the pieces of bones from the cremated deposits, so numerous in the barrow, were not preserved, as it might have been possible to determine from them whether they were human or belonged to domestic or other animals. From these data I think we have undoubtedly to deal with the remains of a Neolithic people interred in an age before metal had been introduced among them. The bronze age which succeeded the stone period is to tally unrepresented in the barrow, from which I think we may conclude that a considerable interval of time elapsed between the primary interments in the inner mound and the secondary ones in the outer layer. Although the various flints and other articles found have not, as far as I am aware, been submitted to the examination of a well-known acknowledged expert, the full description which Mr. Mortimer has given us of them leads me to the conclusion that the Archæological evidence corroborates the conclusions I have arrived at from my examination of the skeletons, and shows that the people interred in this Round Barrow are identical with the Long Barrow people.

In conclusion I should like to point out the advantage it would be if, when local explorations of ancient barrows are about to be undertaken, intimation thereof was given to the Council of this Institute in order that the matter might be referred to the Committee of Aid, of which General Pitt Rivers is Chairman, not for the purpose of taking the matter or credit out of the hands of local authorities, but for drawing their attention to the various points to be noted during the course of the work and giving them hints which would be valuable as to how the exploration could best be conducted. Had this been followed in the exploration of Howe Hill Barrow much valuable information would probably have been gained, which has

inadvertently been lost, and the money spent in the work would have been laid out to greater advantage.

NOTE.—Since this paper was written I have calculated the stature of the skeletons by Rollet's formulæ for the *femur* and *tibia*, which have been prepared after very careful measurements of these bones in persons whose height was known prior to their skeletons having been disarticulated. The stature from the *humerus* is calculated from Topinard's latest formula for that bone.[1]

	Humerus × 100. / 20·0	Femur × 100. / 27·3	Tibia × 100. / 22·0	Fem. & Tib. × 100. / 49·3	Average from H. F. & T.
C ..	1,650	1,556	1,559	1,558	1,588
D ..	—	1,861	2,018	1,931	—
I ..	—	1,608	1,577	1,594	—
K ..	1,710	1,707	1,700	1,703	1,706
G ..	—	1,677	1,618	1,651	—
L ..	—	1,535	1,586	1,558	—
M ..	1,625	1,677	1,618	1,651	1,640
	4,985	11,621	11,676	11,646	4,934
	1,662	1,660	1,668	1,664	1,645
	Average excluding D.				
	1,662	1,627	1,610	1,619	

As the length of the tibia in D is quite out of proportion to that of the femur, and gives an excessive height to the individual by the above formula, I think that some error has occurred in recording its measurement. The above formulæ appear to give better results than the earlier ones of Topinard used in the paper, as the estimates from the femur and tibia more closely correspond to one another. The earlier formulæ are those used by General Pitt Rivers in his works on "Excavations in Cranborne Chase;" the formulæ used in the paper for the estimate of stature from the lengths of the femur and tibia added together is almost the same as that just given, and the difference between using the one or other is only 3 mm. on the indicated stature, that is to say, when the divisor 49·4 is used the stature indicated by the answer is 3 mm. greater than when 49·3 is used as the divisor.

The length of the humerus in these specimens being greater proportionately than usual, is possibly to be accounted for from the longest bone having been measured instead of the mean

[1] Topinard, "L'Homme dans la Nature," 1891, p. 112.

of the right and left having been taken. Topinard's last formula has been given in this additional note in preference to that of Rollet's which would have given a still higher estimate, and therefore differed more from the results given by the other bones.

Discussion.

The Chairman asked to be informed whether the dilapidated condition of the skulls was to be inferred to injuries caused by the pressure of a great superincumbent mass of about 30 feet depth upon them, or to injuries received during life; and whether the superficial cross-shaped excavations might not be due to some earlier exploration. He also offered some remarks on the evidence afforded by these discoveries in contradiction of the anciently-accepted maxim which associated long barrows with long skulls, and round barrows with round skulls, and on the circumstance of so large a number of interments by cremation being found without any cinerary urns.

Mr. T. V. Holmes said that he would like to make a few remarks from a geological point of view. The barrow was situated on the Chalk Wolds, and the material composing it was almost entirely either chalk or the "clay-with-flints" common on the surface in a chalk district, the insoluble residue left on the dissolution of the chalk at the surface through the action of rain water. But, in addition, there was, between nine and ten feet from the surface of the barrow, a layer of one foot of Kimeridge clay. Now, this must have been brought from some distance—Kimeridge clay being a formation below the chalk—for some definite purpose; and he could only suppose that it had been placed where it appeared with the view of preserving the remains below from the destructive action of rain. The skulls, &c., exhibited, which were not enclosed in any kind of receptacle, probably owed much of their good condition to the presence of this Kimeridge clay, and it was a fortunate thing that the early explorers had not pierced through that stratum. He did not remember having read of anything similar in accounts of the exploration of barrows, and should be glad to know if Dr. Garson, or any other member present, had known or read of other cases resembling this.

Mr. A. L. Lewis said the occurrence of soil brought from a distance was very frequent in burial mounds, and a covering of clay to keep the wet out was not altogether a new feature.

	Maximum length.	Maximum breadth.	Basio-bregmatic height.	Minimum frontal breadth.	Stephanic breadth.	Frontal curve length.	Parietal curve length.	Occipital curve length.	Antero-post. curve length (nasion to opisthion).	Length of foramen magnum.	Basio-nasial length.	Total longitudinal circumference.	Horizontal circumference.
C	200	133	—	100	118	145	140	113	398	—	—	—	536
D	202	139	132	87	*c*116	132	147	130	409	—	—	—	540
I	194	132	—	94	*c*111	132	127	—	—	—	—	—	*c*500
K	198	131	135	—	—	sutures obliterated.			371	41	114	526	531
Total	794	535	267	281	345	409	414	243	1,178	41	114	526	2,107
Average ..	198·5	133·7	133·5	93·7	115	136·3	138	121·5	383	41	114	526	527
G	205	142	140	106	122	133	145	123	401	—	—	—	555
J	186	140	—	100	*c*120	*260		—	—	—	—	—	*c*513
L	191	152	140	103	125	143	146	114	394	—	—	—	549
M	194	145	133	100	129	126	139	114	379	42	103	523	540
Total	776	579	413	409	496	402	430	351	1,174	42	103	523	2,157
Average ..	194	144·7	137·7	102·2	124	134	143	117	391	42	103	523	539

c means *about* and the measurements to which it is attached are approximate only, owing to the specimen being so

Measurements

	Humerus.	Femur.
C	330	425
D	—	*508*r*
I	—	‡*439
K	*342*r*	§*466
G	—	458
L	—	419
M	325	458
Total	997	3,173
Average	332	453

* Means measured by myself: when only one bone

† The relation which the length of the tibia bears t
femoral index of the six specimens, omitting D, is 80·0.

‡ Femur, *r* 438, *l* 440; Tibia, *r* 348, *l* 346.

§ Femur, *r* 467, *l* 463 worn. All measurements of

Basio-nasial length.	Total longitudinal circumference.	Horizontal circumference.	Auriculo-brymatic curve length.	Bi-auricular breadth.	Nasio-mental length.	Nasio-alveolar length.	Basio-alveolar length.	External bi-orbital breadth.	Bizygomatic breadth.	Maximum breadth of maxillæ.	Minimum breadth of maxillæ.	Bigonial breadth.	Interorbital breadth.	Orbital breadth.	Orbital height
—	—	536	315	*c*110	120	70	—	104	124	88	60	104	—	—	3
—	—	540	314	118	—	—	—	—	—	—	—	—	—	—	—
—	—	*c*500	*c*290	*c*116	130	73	—	101	*c*123	102	60	*c*100	26	38	3
114	526	531	312	121	96	—	—	—	—	—	60	103	—	—	—
114	526	2,107	1,231	465	346	143	—	205	252	190	180	307	26	38	6
114	526	527	310·2	116·2	115·3	71·5	—	102·5	126	95	60	103·3	23	38	3
—	—	555	311	120	124	75	—	114	132	—	61	98	—	—	—
—	—	*c*513	—	—	—	—	—	*c*116	—	—	57	—	—	—	—
—	—	549	341	100	—	—	—	*c*102	—	—	54	88	—	—	—
103	523	540	309	121	114	64	97	109	134	100	63	105	*c*23	40	3
103	523	2,157	961	341	238	139	97	441	266	100	235	291	23	40	3
103	523	539	310	113·7	119	69·5	97	110·2	133	100	59	97	23	40	3

ng to the specimen being so imperfect as to prevent the actual dimension being made. * Fronto parietal curve length. ‡ When the nasio n

Measurements of the Long Bones, and Stature estimated from them by Formulæ stated in Paper.

erus.	Femur.	Tibia.	F. and T.	From humerus.	From femur.	From tibia.	From F. and T.	Averag F. T.
30	425	343	768	1,594	1,568	1,472	1,555	1,5
–	*508*r*	444	952	—	1,874	1,905	1,927	-
–	‡*439	*347	*786	—	1,620	1,489	1,591	-
42*r*	§*466	*374*l*	*840	1,652	1,719	1,605	1,700	1,6
–	458	356	814	—	1,690	1,528	1,648	-
–	419	349	768	—	1.546	1,498	1,555	-
25	458	356	814	1,570	1,690	1,528	1,648	1,5
97	3,173	2,569	5,742	4,816	11,707	11,025	11,624	4,8
32	453	367	820	1,605	1,672	1,575	1,661	1,6

nyself: when only one bone has been measured it is marked *r* or *l* as it was right or left.
he length of the tibia bears to that of the femur shows that probably some error has occurred in measuring, or recording the measurement of the tibi
cimens, omitting D, is 80·0.
Tibia, *r* 348, *l* 346.
vorn. All measurements of long bones unmarked with * have been supplied to me by Mr. Mortimer.

	Interorbital breadth.	Orbital breadth.	Orbital height.	Nasal length.	Nasal breadth.	Palato-maxillary length.	Indices. Cephalic.	Height.	Sup. facial.	Total facial.	Nasal.	Stephano-zygomatic.	Gnathic.	Orbital.
4	—	—	33	*c*50	*c*23	53	65·5	—	56·4	{103·3‡ 96·8}	46·9	95·2	—	—
	—	—	—	—	—	—	68·8	*c*6·3	—	—	—	—	—	—
0	26	38	33	54	*c*25	54	68·0	—	—	—	46·3	85·9	—	86·8
3	—	—	—	—	—	—	66·2	6·2	—	—	—	—	—	—
7	26	38	66	104	48	107	268·5	133·5	56·4	96·8	93·2	181·1	—	86·8
·3	23	38	33	52	24	53·5	67·1	66·7	56·4	†96·8	46·6	90·5	—	86·8
8	—	—	—	56	*c*22	—	69·3	68·3	56·8	{106·4 93·9}	39·3	92·4	—	—
	—	—	—	—	—	—	75·3	—	—	—	—	—	—	—
8	—	—	—	—	*c*23	—	79·6	*c*73·3	—	—	—	—	—	—
5	*c*23	40	33	52	24	54	74·7	68·6	47 8	{117·5 85·1}	46·2	96·3	94·2	82·5
1	23	40	33	108	69	54	298·9	210·2	104 6	179·0	85·5	188·7	94·2	82·5
7	23	40	33	54	23	54	74·7	70·0	52·3	89·5	42·7	94·3	94·2	82·5

n. ‡ When the nasio mental length is the divisor. † When the Bizygomatic breadth is the divisor.

STATED IN PAPER.

From F. and T.	Average from F. T. and H.	Tibio-femoral Index.
1,555	1,545	80·7
1,927	—	†87·4
1,591	—	79·0
1,700	1,659	80·2
1,648	—	77·7
1,555	—	84·9
1,648	1,596	77·7
11,624	4,800	5,676
1,661	1,600	81·1

he measurement of the tibia in D. The average tibio-