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Report on the Human Remains Found by F. J. Bennett, Esq., F.G.S., in the Central Chamber of a Megalithic Monument at Coldrum, Kent.
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REPORT ON THE HUMAN REMAINS FOUND BY F. J. BENNETT, ESQ., F.G.S., IN THE CENTRAL CHAMBER OF A MEGALITHIC MONUMENT AT COLDRUM, KENT.

By A. Keith, M.D., F.R.S., Conservator of Museum, Royal College of Surgeons of England.

Mr. Bennett has described the monument and given an account of the position and depth at which the human remains described in this report were found. So far we know nothing of the physical characters of the people who built the Kentish Megalithic monuments. From the circumstances under which these remains were found it is reasonable to presume that they were built by the people whose remains are here described. Intrusive burials at a later date are of course possible, but seeing that no iron or metal implements of any kind were found with the remains and that worked flints and fragments of a crude pottery were the only evidences of a civilization discovered in the strata in which the remains lay, we may safely presume we are dealing with a race belonging to the Neolithic period and very probably the one which was concerned in the erection of these monuments.

All the bones are of a greyish chalky colour, due to the fact that the soil in which they were embedded was composed chiefly of chalk. How far these remains had been disturbed subsequently to the original burial has been dealt with by Mr. Bennett; it is possible, when one considers the very broken and fragmentary nature of the remains, the irregular position of the various parts of the skeletons, that there may have been a disturbance in some or all of the original burials. The condition of the bones—many of them have quite a metallic ring when struck—and the racial characters are in harmony with the view that we are dealing with a Neolithic people.

Summary of the Chief Features of the Coldrum People.

The remains represent men, women and children—varying in age from birth to senility. The collection of thigh bones represents at least twenty-two individuals. Only five of these are approximately complete. The crania show certain peculiar features which suggest that all these remains belong to one family—or to several families united by common descent. The head form indicates that the race to which the Coldrum people belonged was one near akin to, or identical with, the race which built the long barrows. They were a people of short stature (5 feet 4½ inches, males; 5 feet 1 inch, females),[1] with heads above the average size (cubic capacity—males, 1,600 c.c.; females, 1,450 c.c.), sound teeth, ground down in the mature and aged,

[1] Males, 1,645 mm.; females, 1,562 mm.

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with flattened tibia, and foot bones which indicate short wide feet possessing free movements. They were a race with only a moderate muscular development.

List of Crania.

No. 1. (Platform 2.) A fragment of the frontal bone. Probably of a young woman.

No. 2. (Platform 1.) Man between 50 and 70 years. Peculiar elongated coffin-shaped skull. Palate.

No. 3. (Platform 1.) Woman. Probably between 50 and 70 years.

No. 4. (Platform 2.) Represented by temporal bones and fragments of the parietal. Probably male.

No. 5. (Platform 2.) Woman. Aged. Frontal bone, face and base of skull are absent.

No. 6. (Platform 2.) Young man, 18 and 20 years.

No. 7. (Platform 2.) Young man, 30 and 40 years; occipital bone absent.

No. 8. (Platform 2.) Woman 20 and 25 years. Skull with face and palate.

No. 9. (Platform 1.) (Mr. Lindsay of Edinburgh.) Man 20 and 25 years.

TABLE 1.—*Coldrum Crania.*

	No. 2. Platform 1.	No. 3. Platform 1.	No. 4. Platform 2.	No. 5. Platform 2.	No. 6. Platform 2.	No. 7. Platform 2.	No. 8. Platform 2.	No. 9. Platform 1.	No. 1 Platform 2.
Sex.	M.	F.	M.	F.	M.	M.	F.	M.	F.
Age.	aged.	aged.	adult.	aged.	18–20	30–40	20–25	20	20 ?
Maximum length ...	200	177		178 ?	187	190 ?	190	186	
Maximum width ...	140	142		140	142	140	141	138	
Width to length ...	70	80·2		78·7?	75·9	73·7	74·2	74·2	
Cerebral height ...	105	106		102	104	103 ?	104	98	
Auricular height ...	117	122			124		124	113	
Min. front. width ...	98	98			94	98	96	100	
Ext. orbit. width ...	104	104			101	108	100	104	

Mean length of males 190·5 mm., of females 182 mm.
„ width „ „ 140 „ „ „ 141 „
„ height „ „ 118 „ „ „ 123 „

The crania.—Although nine crania are enumerated in the list, two of these, Nos. 1 and 4, are so fragmentary that little more than a statement of their sex can be given; two are very incomplete, No. 5 consisting of the parieto-occipital segment of the cranial vault; No. 7 of the fronto-parietal part of the vault. There are thus only five specimens sufficiently complete to afford definite evidence as to the cranial

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form. Three of these are of male subjects and two of female. There can be no doubt that the race to which these crania belonged was one with elongated heads.

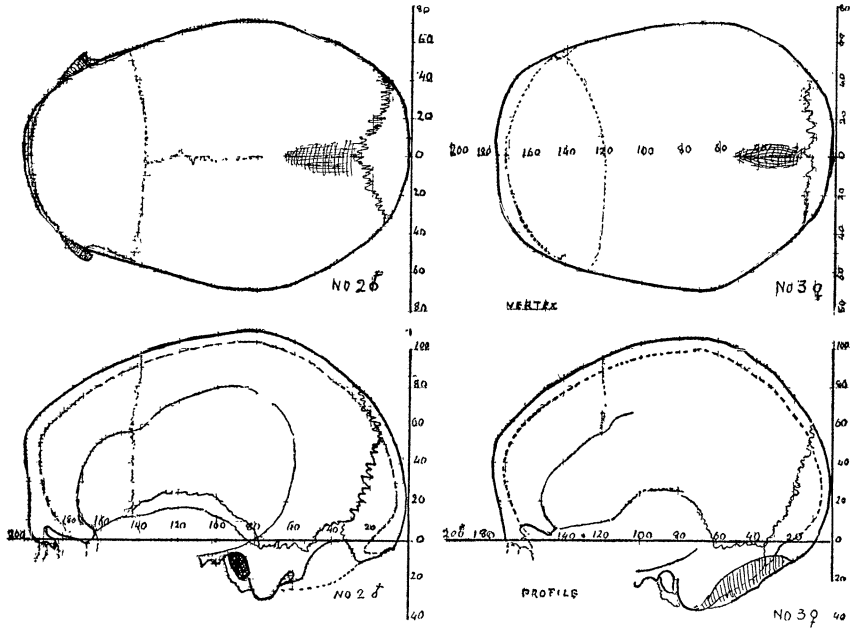

FIG. 1.

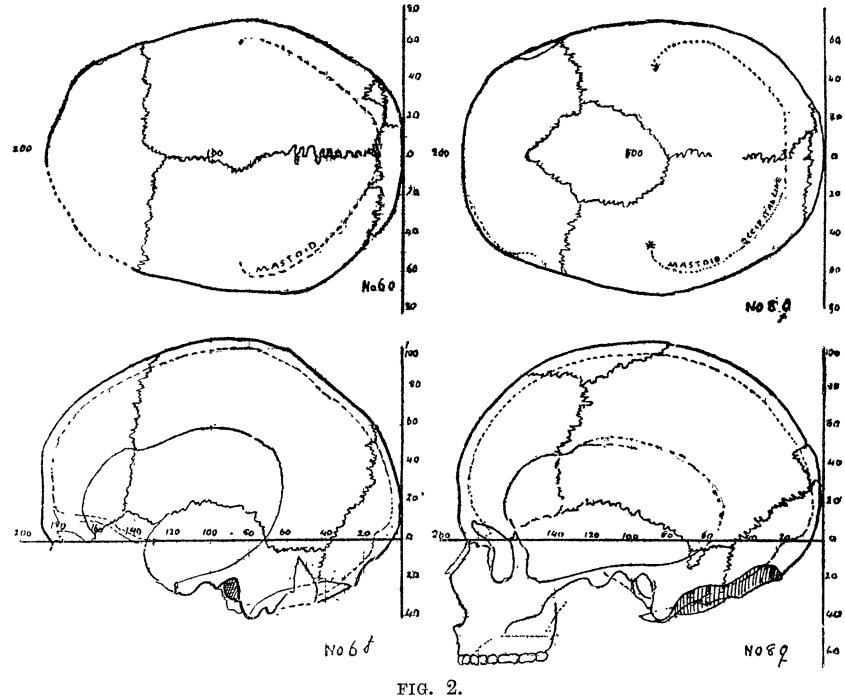

FIG. 2.

The cranial measurements are given in Table 1; in the crania of the three males the maximum width is 73·3 per cent. of the maximum length; in the two females

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the relative width is 77·9 per cent. It is usual to find that the heads of women are relatively wider in long-headed races. We are thus dealing with a people in which the width of the head varied from 70 to 80 per cent. of its length. The heads were of medium height. When the crania are oriented on a plane which corresponds approximately to the base of the cerebrum—a plane indicated by the groove for the lateral sinus on the posterior inferior angle of the parietal bone and by the fronto-malar junction—the highest point of the vault of the skull indicates what may be termed the cerebral height. In the Coldrum crania this height for the three males is 102·4 mm.; for the two females 105 mm. In the table the auricular heights are also given. The cranial capacity is of rather more than medium size. Using the formula given by Professor Pearson the mean cranial capacity for the three males is a little over 1,600 c.c., and for the two females, 1,450 c.c. In absolute and relative measurements the Coldrum crania do not differ materially from the skulls found in long barrows. For comparison with modern and ancient crania the reader is referred to Mr. Parsons' paper on the Rothwell crania (*Journ. Roy. Anthrop. Inst.*, 1910, vol. xl, p. 483). The Coldrum crania differ from the crypt crania of Hythe, Upchurch, and Rothwell in having a greater absolute length and a smaller absolute breadth; in these same points they resemble the crania from the long barrows.

There are certain cranial features in the Coldrum bones which suggest that we are dealing with members of the same family. These features are: (1) the presence of Wormian or extra sutural bones; in No. 8 there is a large and uncommon bone at the junction of the coronal and sagittal sutures (see Fig. 2), and also a large inter-parietal bone with an irregularity in the posterior end of the sagittal suture; in No. 9 there are two inter-parietal Wormian bones; in No. 6 there is a vertical suture in the supra-occipital showing that an inter-parietal had been separated during development. Thus three of six crania possess large and uncommon Wormian bones. (2) The crania show irregularities of ossification. In all—even the oldest—the lamboid suture is open; on the other hand the sagittal and coronal show premature union. In No. 2 the skull has an elongated coffin-like shape; associated with this peculiarity of form is a closure of the sagittal and coronal sutures—evidently of long standing; in Nos. 3 and 5 there is evidence of a premature closure of the sagittal and coronal sutures. All the crania show the same forward prominence or bulging in the upper part of the forehead, due to the vault of the skull expanding more than the base during growth. The supra-orbital bars or ridges are almost absent or of no great prominence. In two of the male crania (Nos. 7 and 9) these parts reach a moderate degree of development; in the women the glabella and eye-brow regions are practically flush with the contour of the forehead, the nose, Grecian-like, springs straight from the frontal, without the intervention of a nasal recess or depression. We are dealing with a race in which the features of the face may be said to be refined. The skull bones are not thick; in the young they vary according to position from 3 to 6 mm., in the aged they vary from 3 to 8 mm.

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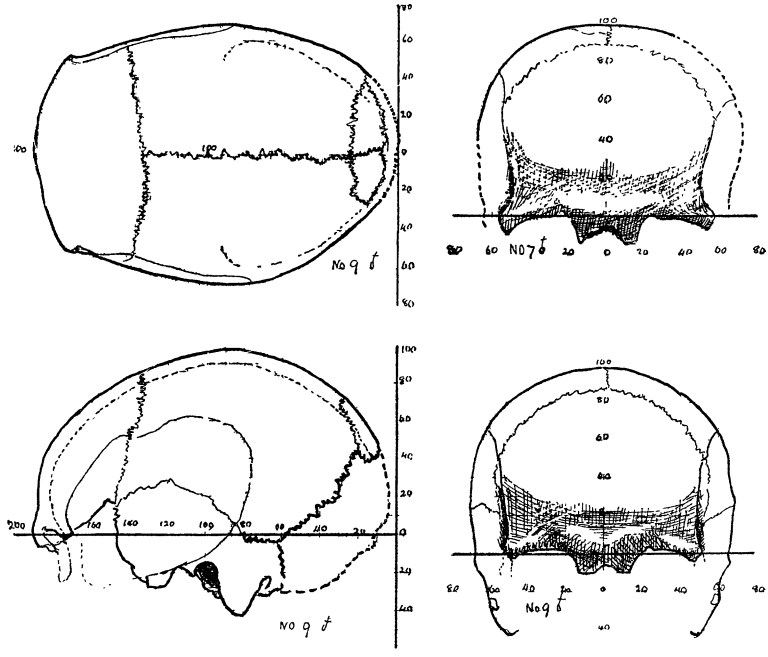

FIG. 3.

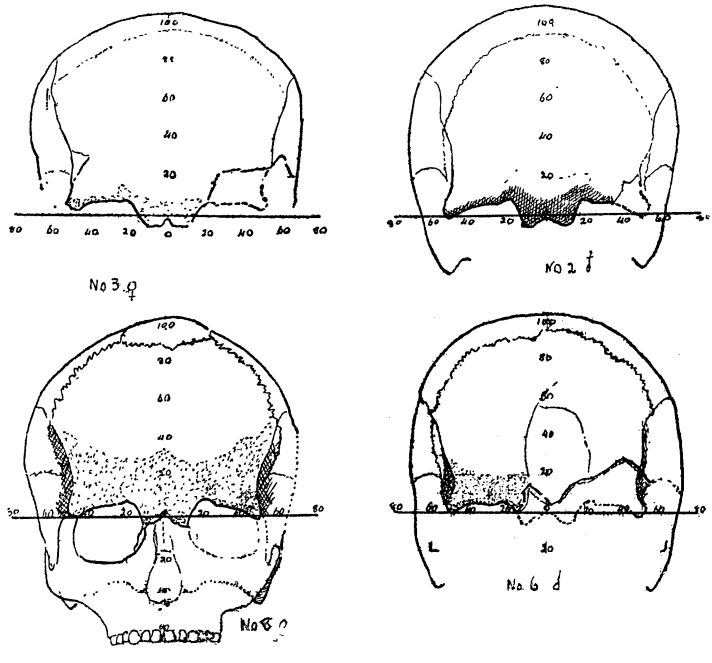

FIG. 4.

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As regards the face and nose little can be said. In only one case (No. 8, female) are the facial parts preserved. In that case the naso-alveolar length of the face is 60 mm.; the bizygomatic width, 120 mm.; the face in this case is short and wide. A number of malar bones show that the facial bones were not massive and strong. There are fragments of five mandibles. In only one is the ascending ramus approximately complete; its height is 60 mm., a measurement which indicates a comparatively short face. In that case the breadth of the ramus was 34·8 mm. The sigmoid notch of the ascending ramus is of moderate depth. The mean height of the symphysis (four specimens, including male and females) is 32·5 mm. (2·5 mm. more than was found in six modern mandibles from the crypt at Upchurch, Kent). The thickness of the symphysis is 12 mm.—rather less than in the Upchurch mandibles. The chin is of medium prominence, and in the specimens preserved shows a square rather than a pointed form.

Masticatory system.—In the case of the older people the teeth are worn down so that the enamel has been worn away and the dentine exposed on the chewing area of the crowns. The wear of the incisor teeth shows that these teeth met edge to edge, thus differing from the modern "bite," where the lower incisors ascend behind the crowns of the upper. The teeth are of medium size, the incisors being somewhat larger, and the upper molars somewhat smaller than in the average dentition of modern English people. The following table gives the interdental width (proximo-distal diameter) of the various teeth (A), compared with the average dimensions of modern English students (B). It must be remembered that the number of teeth found at Coldrum are too few (in no series was the number of teeth found more than six) to give reliable results:—

	A.	B.
	mm.	mm.
Length of palate[1]	53·2	54·3
Width of palate[2]	61	60
Upper teeth—		
i^1	8·9	8·4
i^2	6·5	6
c	7·3	7·2
pm^1	6·8	6·2
pm^2	6·4	6·4

[1] Measured from anterior alveolar point to mid-point between distal borders of third molar teeth.

[2] Between outer borders of second molar teeth.

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	A.	B.
Upper teeth—		
m^1	10	10·37
m^2	9	9·4
m^3	7·4	8·6
Lower teeth—		
i^1	—	—
i^2	—	—
c	—	—
pm^1	6·75	6·3
pm^2	7	6·4
m^1	10·5	10·1
m^2	10·5	10·1
m^3	10	9·1

As regards dimensions of the palate it will be seen that the Coldrum form is slightly shorter and slightly wider than the modern palate. In no instance was there any evidence of crowding or of irregularity of the teeth; the palate is less vaulted than is common in modern individuals. In the Coldrum people contracted palate and dental irregularity had not yet appeared. The incisors are of slightly larger size, but the upper molars are rather smaller than in modern people. The upper wisdom teeth in these Coldrum remains are as much reduced as in modern dentitions. On the other hand, the lower molars of the Coldrum people are less reduced than in modern English dentitions. Not a single case of caries of the teeth was observed.

The teeth and jaws were thus of medium size and strength, and we therefore do not expect to find traces of a great development of those parts connected with the muscles of mastication. In four cases it was possible to form an approximate estimate of the width between the zygomatic arches—to which the masseter muscles are attached. These include both male and female skulls; the mean is 122 mm. In modern Englishmen this measurement amounts to 126 mm., in women to 118 mm. The greater the muscles of mastication the more does the width of the supra-orbital bars (ext. orbit. width, Table 1) exceed the width of the forehead between the temporal lines (minimum frontal width, Table 1). In only one skull is the difference between these measurements 10 mm.; in the others the difference varies from 4 to 7 mm.—a very moderate amount. The greater the muscles of mastication, the higher do the temporal lines ascend on the vault of the skull. In the Coldrum crania it was impossible to estimate the height of these

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ridges above the zygomatic arches; one has to fall back on the distance of these ridges from the sagittal suture—a less reliable indication of masticatory development. In two male crania the temporo-sagittal distance (taken 20 mm. behind the coronal suture) was 67 mm.; in modern Englishmen this distance averages about 65 mm. One may safely infer that the temporal muscles of those people were not larger than the same muscles in modern people.

The neck and fixation of the skull.—It is possible by examining the impressions which the muscles of the neck make on the base of the skull to form an idea of the manner in which the head was carried and of the strength of the neck. The width of the neck is indicated by the bimastoid diameter; its thickness or front to back diameter is indicated by a line drawn from the inion (external occipital protuberance) to a point which is midway between the anterior borders of the mastoid processes. In the Coldrum skulls the width for males is 123 mm. (modern males, 126; for females, 119 mm.); the back to front thickness in males is 78 mm. (modern males, 80 mm.; in females, 67 mm.). The neck of woman is more slender than that of man, and we see that the Coldrum people, both male and female, had rather slender necks. The head was not deeply implanted on a short thick neck.

Professor Elliot Smith has pointed out that in right-handed people the occipital pole of the left cerebral hemisphere is the larger and usually projects more backwards than the right. In left-handed people it is the opposite. In all the Coldrum crania the impression for the left pole is much more extensive than the right, and we may infer that they were all right-handed. In every case the occipital region of the skull projects backwards in a cap-like prominence. The open lamboidal suture is associated with this occipital projection, which is a character of the race which built the long barrows and of that British type to which Huxley gave the name of "River-bed."

Femora.—Altogether there are representations of the femora of twenty-two individuals—in seven cases both the right and left bones are preserved. From the size of the head, muscular markings, and condition of ossification, I have come to the conclusion that of the twenty-two individuals thus represented eight were adult males, four were adult females, one adult (sex?); six between sixteen and twenty-five years of age, three between eight and sixteen years. Thus all sexes and ages are represented, but the number of males is in excess. As regards the total length of the bone—measured with the femur placed so that the condyles are on the same horizontal plane—only four were absolutely complete:—

"C"	...	...	right femur,	457 mm.;	left, 452 mm.
"F"	...	...	„	„ 435	„
"M"	...	...	„	„ 428	„
"D"	...	...	„	„ 435	„

In three other males the fragments were sufficient to give grounds for estimating the length "B" 465, "E" 440, "F" 435; two cases in which the sex is doubtful, 435 and 430 mm.; in one female "H" 425. Thus the mean for six males is 443 mm., and for two females 430 mm. Using Professor Pearson's

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formula, the stature may be estimated for the male at 1,645 mm. (5 feet 4½ inches); for the female 1,562 mm. (5 feet 1 inch). They were people of less than medium stature, thus recalling, as regards stature, Neolithic races of Switzerland and France, rather than the people who built the long barrows of England. From the data given by Rahon, Pearson estimates that the stature of the dolmen builders of the Caucasus was 1,643 for males and 1,524 for females (Karl Pearson, "Reconstruction of the Stature of Prehistoric Races," *Phil. Trans.*, 1898, vol. 192, Series A, p. 169).

The diameters of the upper part of the shaft of the femora, taken opposite the middle of the gluteal impression, gave the following measurements in six specimens, 39 × 33; 34 × 20; 28 × 29; 34 × 29; 33 × 25; 31 × 24. The proportion of the antero-posterior to the transverse diameter is 83·6 per cent. (varying from 69·4 to 103·6). As compared to Neolithic thigh bones those found at Coldrum have a comparatively great antero-posterior diameter—the usual proportion for European femora of the Neolithic period varying from 70 to 80 per cent. The width of the upper part of the shaft is due to a flange of bone which passes from the root of the neck of the femur to the inner part of the shaft in front of the small trochanter and serves as a supporting pillar between the shaft and the neck. The functional significance of the flange is obscure. In seventeen bones its development could be estimated; in two it was very pronounced; in five pronounced; in two of lesser size; while in seven it was merely indicated or absent. Its presence or absence is probably not due to a mixture of races or peoples, but simply to an individual variation within the same race. In one individual only could the right and left bones be compared; the flattening was greater on the left side (right, 34 × 26; left, 35 × 25).

In the middle of the shaft the antero-posterior diameter exceeded the transverse; the proportion of the one to the other was found to be 27 : 25·6 = 105·5 per cent. In eight the antero-posterior diameter was the greater, in three it was the less; in two the diameters were equal. The flattening of the shaft is rather greater than is common in modern bones and less than in Neolithic femora. The linea aspera in no case formed a prominent pillar or ridge. In the specimen where this muscular ridge was best marked its antero-posterior diameter or height of the ridge measured 5 mm.; in three, 4 mm.; in two, 2 mm.; and in two, 1 mm. A third or gluteal trochanter was well developed in only two specimens. In six specimens the transverse condylar width was measured; in two specimens this measurement was 76 mm.; in three, 77 mm.; in one, 78 mm. As regards the size and shape of the head of the femora, the following antero-posterior and proximo-distal diameters were noted: (1) males, 46·5 × 45 mm.; 48 × 46 mm.; 45 × — mm.; 44 × — mm.; 44·5 × — mm.; in females, 42 × 43 mm.; 39 × — mm. In size the heads of the femora resemble the corresponding parts of modern thigh bones.

Tibiæ.—About twenty individuals are represented in the collection of tibiæ but there is only one pair complete, although in four other cases sufficient of the bone is present to allow an estimate of the probable length to be made. About half of the specimens are from immature subjects.

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The total length of the tibiæ in the case where they are preserved entire is 368 mm. for the right and 365 mm. for the left. The pair just mentioned and another where the length is estimated to have been 360 mm. are from males; in two cases, where the characters are of the female type, the length has been calculated to have been 310 and 320 mm. Taking the average length of the male tibia to have been 362 mm. and the female 315 mm., and applying Pearson's formula for stature, the following results are obtained :—

male stature, 1,644 mm.; female, 1,487 mm.

The result as regards the male stature is the same as obtained from the femoral length; but as regards the female stature the result is considerably less. It must be remembered the female tibiæ were fragmentary. The tibia of the male is about 80 per cent. of the femoral length.

The tibia are compressed from side to side or platycnemic but not to an extreme degree. At the nutrient foramen measurements were taken of six bones, apparently males; the diameters were 22 × 37; 21 × 34; 27 × 37; 25 × 35; 22 × 37; 23 × 34, giving a mean transverse diameter of 23·3 mm. and an antero-posterior of 35·6 mm. The transverse diameter is 65·4 per cent. of the antero-posterior—a common proportion in Neolithic races. In two female bones the diameters were 18 × 28; 22 × 30, giving a mean of 22 × 29 with an index of 76. The tibia of women and of young people is less flattened than that of the male. The torsion of the transverse axis of the upper articulation to the lower varied from 25° to 50°. In one bone the joint surfaces showed rheumatic thickening.

There were seven knee-caps and fragments of twenty-six fibulæ, the latter bones showing deep flutings and projecting ridges.

The foot.—It is evident that the mechanism of the foot differed very materially to that which now obtains amongst Englishmen. The cause of the change is obscure; it may be due to a different fashion of footwear, or it may be that the characters to be described are really of the nature of racial peculiarities or they may be due to the change which modern civilization has effected in our roadways and methods of locomotion. For my part, I believe the change is due—not to an extinction of race—but to a change in habit.

Of the bones of the foot there are ten astragali or ankle bones preserved; seven of men, three of women, but only six of the former and one of the latter are complete enough for exact measurement. The bones are shorter and wider than those of modern English feet. The total length of the astragalus is 51·4 mm. on the average and the width 41·7 mm.—being considerably shorter and wider than modern bones. Mr. Sewell (*Jour. Anat. and Physiol.*, 1904, pp. 233, 424), in a series of nearly 1,000 bones, mostly of Ancient Egyptians, found the corresponding measurements to be 50 mm. long and 39 mm. wide, but in modern English the astragalus is markedly longer and narrower. The contrast between the Coldrum and modern bones is best brought out by the profile and horizontal tracings of the astragalus and os calcis given in Fig. 5. In both cases the bones are oriented in a similar manner and the differences between the ancient and modern forms are at

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once made evident. In the first place it is seen that the upper articular surface of the typical Coldrum astragalus is shorter and more convex; the ankle-joint works on a pulley-like surface with a short radius; in Jonathan Wilde's foot—a short man—not taller than the Coldrum individual used for comparison—the movement at the ankle-joint is one more of gliding as well as of rotation; in the Coldrum man the movement is one of rotation more than of gliding. The chief difference refers, however, to the anterior articular surface of the astragalus; in Jonathan Wilde this surface looks chiefly forwards and downwards; in the Coldrum specimen it is extended inwards and to some degree upwards to such an

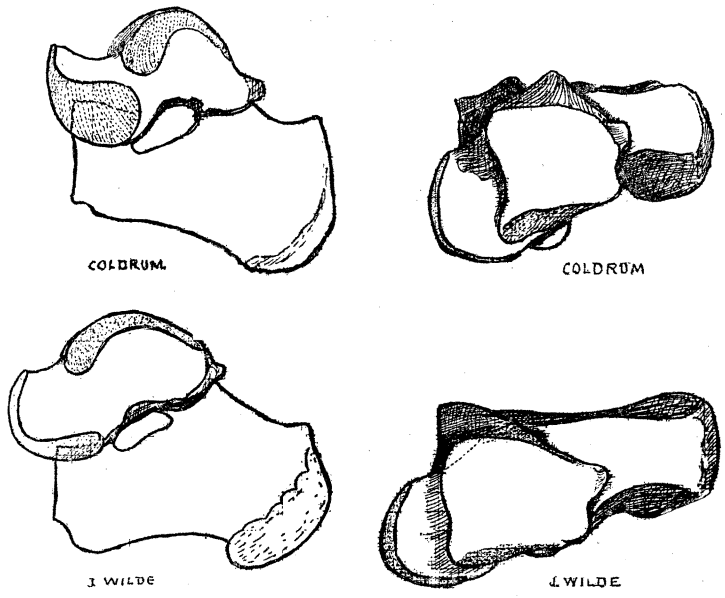

FIG. 5.

extent that a space of only 6 mm. wide separates the upper and anterior articular surfaces of the bones (Fig. 5). In Jonathan Wilde the separation is 14 mm. On the upper surface of the neck of the astragalus there is an impression—not an articular surface—caused by this surface coming in contact with the adjoining border of the tibia when the foot is bent against the anterior surface of the leg. (See Professor Arthur Thompson, *Jour. Anat. and Physiol.*, vol. xxiii, p. 616; vol. xxiv, p. 210.) It is evident that the ankle and foot movements were different in the Coldrum people and that difference is chiefly due to freer and more extensive movements at these joints. The foot was more inverted—the great toe and inner border more turned inwards than in modern feet. It is evident, too, from the comparison given in Fig. 5, that the os calcis was relatively short and wide in the Coldrum people.

In the under surface of modern English heel the external plantar tubercle takes a prominent place by the side of the larger internal tubercle; in races which walk bare-foot the external tubercle is relatively small and this is the case as

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regards the Coldrum heel bones. The metatarsal bone of the great toe is short and strong and its proximal articular surface is directed outwards as well as backwards, indicating that the great toe was turned inwards or set at an angle as regards the longitudinal axis of the foot. When all these characters are summarized we see that we are dealing with a race with short broad feet, in which the joints were strong and the movements free and extensive. The characters are such as we should expect to find in a race where the feet were actively used in locomotion and were untrammelled by modern foot gear.

Disease and injury.—No trace of healed wound or injury was seen. In the vertebræ and some of the bones of older individuals there was clear evidence of chronic rheumatism. Caries and abscess of the teeth are absent.

Humeri.—Fourteen individuals are represented; three bones are almost complete; seven are fragmentary; four are adolescents or young, one being under a year old. The three complete bones measure in their total length: 321, 315, 328 mm., giving a mean of 321 mm. All of these are probably males. In all the impression for the deltoid muscle is raised, prominent and triangular in shape. At this impression the transverse and dorso-ventral diameters are in these three humeri 25 × 22, 22 × 23, 18 × 22, there being thus a considerable variation. At the middle of the shaft the same diameters are 20 × 20; 21 × 19; 20 × 18 mm. The characters of these three humeri are also indicated by the following measurements: proximo-distal diameter of the head 46, 44, 44 mm.; transverse diameter of head and great tuberosity combined, 50, 47, 50; epicondylar width of lower extremity, 65, 60, 60; breadth of the trochlea, 47, 42, 43. The upper arm bones are not massive nor do they indicate great muscular strength.

Radius and ulna.—The bones of the forearm are fragmentary, there being only one complete radius, the total length of which is 245 mm. There are parts of the radii of ten individuals, two of these being adolescents. The fragmentary ulnæ represent ten adults, four adolescents and three children. The ulna is bent at the junction of the shaft with the upper extremity so that the concavity of the curvature is directed to the flexor and radial aspect of the limb.

Shoulder and pelvic girdles.—These are so poorly represented that a short paragraph will suffice to mention their characters. There are parts of six clavicles, one being of a child at birth, the other seven adults, one showing lesions due to chronic rheumatism. In only one case can the length be estimated (150 mm.). There are three imperfect scapulæ and numerous fragments. In one—that of an adult male, the axillary border, from glenoid to lower angle, measures 120 mm., from glenoid to vertebral border 100 mm. Fragments of the pelvic bones of eleven individuals are preserved, all ages being represented. The os innominatum is nearly complete in two males. The diameter of the acetabulum in each of these is 51 mm.; the distance of the anterior superior iliac spine from the posterior inferior is 137 in one and 167 in the other. The total length, from iliac crest to ischial tuberosity, is 198 in the first and 200 mm. in the second.

If one turns to the important record which Mr. Parsons made in this Journal

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last year of bones from a Saxon cemetery of the seventh to eighth centuries near Folkestone, it will be seen that the Coldrum and Folkestone bones are closely alike. Yet it is possible that two thousand years or more may lie between the dates of the Coldrum and Saxon peoples. So far as the evidence goes one may conclude that the people of pre-Christian Kent were physically not very different from the Kentish man of the Christian period.

Explanation of Illustrations in Text.

FIG. 1. Outlines of the vertex and profile of crania Nos. 2 and 3. The outlines were made on millimetre paper one half the natural size. The measurements and plane of orientation are indicated on the drawings.

FIG. 2. Outlines of the vertex and profile of crania Nos. 6 and 8. A bregmatic wormian and interparietal are present in No. 8.

FIG. 3. Outlines of the vertex and profile of cranium No. 9, with frontal (coronal) drawings of Nos. 7 and 9.

FIG. 4. Outlines of the frontal views of crania Nos. 2, 3, 6, 8.

FIG. 5. Profile and vertical views of the Coldrum astragalus and os calcis compared with the same views of corresponding modern bones (J. Wilde's). Reproduced half natural size.

APPENDIX.

DISCUSSION OF PAPER.

MR. A. L. LEWIS: I entirely agree with all that Dr. Keith has said respecting the value and interest of Mr. Bennett's work at Coldrum. I first became acquainted with that monument in June, 1869—just 43 years ago; I had been to see the stones in Addington Park, where I met an intelligent countryman, who told me of the Coldrum stones and took me to them. He also gave me an object found there or thereabouts, which he thought might be part of a backbone of a fossilized whale, blown out of a volcano, but which proved to be a mediæval drain pipe cut out of a solid stone. In July, 1870, I went again to make a plan, which was published with some notes upon it in *Anthropologia* in 1874. In 1878 I went there again by appointment with Mr. Flinders Petrie, who was then surveying the monument and met him for the first time, and from that time I saw it no more till last week, when Mr. Bennett kindly devoted a day to explaining to me what he had been doing there. I then found that during the last 34 years some little changes had taken place; the interior of the chamber had of course been cleared out, and, although Mr. Bennett had filled it up to the level at which he found it, the inside was a foot or two lower than it was when I first saw it: at that time there were two stones forming a vertical division of the chamber into two parts and only the tops of those stones were visible; now one has disappeared, and the other is lying on the slope outside the chamber. In 1869 a large stone, which now lies at the foot of the only stone or the lower level which is in an upright

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position, was leaning at an angle of about 45 degrees, from which it has since fallen nearly flat. In other respects my plan of 1870 remains substantially correct except as regards a dotted line which I put on the higher level to suggest that the fallen stones there had formed a circle or oval, separate from, and to the west of the chamber. This I regard as a mistake, as I am now convinced that the stones on the upper level are the remains of a rectangle which enclosed the chamber, and that those on the lower level have probably formed part either of the enclosure or of the chamber itself. I have no doubt that when the monument was constructed the higher level extended somewhat farther east than it does now, and that the chamber had a closed end, which would now be impossible, and that the enclosure passed very near that end, or that the end even formed part of the enclosure. It may, however, be a question whether all the stones on the lower level came down from above, or whether there were a separate monument or monuments there; the facts that one stone of those below is standing, and that another, now flat, formerly leaned against it, are in favour of the idea that they formed part of a separate erection on the lower level, but I think it not impossible that they may have slipped down from above: a little excavation to ascertain to what depth, if any, the standing stone is fixed in the ground would go far to settle this point.[1] In any case this large rectangular enclosure with a chamber near one end of it is, so far as I know, the only one quite of its kind in the British Isles, but the form is not uncommon in Scandinavia and Germany. I have brought with me a picture of one in Denmark, from a book by Worsaae, and some of others near Frankfort and in Hanover, reproduced in Borlase's *Dolmens of Ireland*, which are exactly of the form found at Coldrum; Borlase's authorities are Bekmann (1751) and Von Estorff (1846); the "hünenbedden" which they describe, appear to have occurred in groups, and stone, bronze, and iron objects seem to have been found in and about them; the conclusion Borlase draws is that there were "late secondary interments the remains of which were commingled with those of the more ancient ones in a place which traditionally was a tomb." It is well known that, if a line be drawn on a map of England from Hull to Southampton, all our rude stone monuments will be found to the west of it, except the group in Kent, of which this Coldrum monument is one; and taking into account its specially German form, its comparative isolation from the majority of the British stone monuments, and its practical contiguity to those of Germany, it seems probable that the stones at Coldrum were set up by a small prehistoric colony which came across from Germany and up the Medway. I gather from what Dr. Keith has told us that this view fits very well all the facts that the skulls and bones have revealed to him, and that this is another example of what we knew before, namely, that the population of Britain was considerably mixed before the Romans came here.

Professor G. Elliot Smith stated that the earliest forms in Egypt and Northern Africa were oblong and square, resembling those of Coldrum, while the later ones were circular. He thought the oblong shape being found over such a wide area was due to the spread of civilization. Professor Thane said the Kentish types of crania were similar to those of the Mediterranean race. Dr. Shrubsall asked if similar types were found in Denmark and Scandinavia.

[1] This has since been done, thus proving its original vertical position. F. J. B.

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MR. SMURTHWAITE said he quite agreed with the importance of Dr. Shrubsall's remark and pointed out that the oval or Iberian type, similar in all respects to those of Coldrum, were found from Germany to Sweden. The Frisians were mentioned by Beddoe as being an oval-faced race, and the speaker described his visit to the Isle of Marken. He found the majority of the people belonging to the oval or Iberian type, though there were some other types in lesser quantity.

The Frisians were acknowledged by authorities to be purest in Isles of Marken and Ur.

In Sweden, Retzius stated there were two types in the Stone Age, one dolichocephalic and the other brachycephalic. The former contained two types, one the oblong or Teutonic, and the other oval or Iberian, while the brachycephali contained the four facial forms of the Remian, Ligurian, Magian, and Celts. The speaker said that the oblong or Teutonic type was found along Northern Africa, though possibly not so predominant as the oval shape, while the contrary occurred in Sweden.

He quite agreed with Professor Keith in the persistency of Neolithic types to the present time, and that the cranial characters of the Coldrum skulls he had found well marked in children's heads during the medical inspection of school children. Not only the Coldrum, but the five remaining prehistoric types. He pointed out the difficulty of finding a pure race on account of the migrations of different tribes, instancing the migration of one race, followed by a second, with the suggested total extermination of the first one. This second race was followed by a third, and decimated and driven into the hills of the west; whereas instead of exterminating the earlier races, there was a gradual intermixture and blending of all three, with a continuity of these three types to modern times.

Referring to the shape of the dolmens, coinciding with those of both Germany and Scandinavia, and also those of Egypt and Northern Africa, he thought they might possibly be due to certain races, though he was more inclined to agree with Professor Elliot Smith until we had some further information or we had more definite ideas of what constituted a race or races.

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