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Report on some human remains from Hyning in Westmorland.

By W. L. H. Duckworth, M.D., Sc.D., M.A.

In the early part of 1911, Professor Hughes kindly presented to the Cambridge Anatomical Department a collection consisting of four boxes filled with fragmentary bones. The circumstances under which these bones were found are very concisely stated by Professor Hughes, and his report is set out in the following terms.

"In laying the pipes for the new water supply for Hyning near Beethwaite Green in Westmorland a trench was dug about 3° W. of magnetic N. across the pasture land on the N. side of the wood that borders the drive up to the house. It was reported that bones had been turned out at several places in this field but no definite evidence was obtained until within about 29 yards of the point where the trench was taken through the wall of the wood. Here it cut across the legs of four skeletons A, B, C, D, which were lying parallel to one another 3·5° N. of magnetic E. and therefore almost at right angles to the direction of the trench. In digging the trench the legs only were cut across and, by the kind permission of Mr James Gandy of Heaves, on whose property they occurred, I had the opportunity of opening the undisturbed parts and observing the mode of occurrence and conditions of the remains.

"The distance between the graves was not quite uniform but ranged from 1 ft. 6 ins. to 4 ft. 9 ins. with a depth of about 2 ft.

"The bodies were oriented, the heads being to the W.

"In A there was a good clean skull but broken up.

"In B there were some large slabs and rough stones artificially laid one above the other close to the head but clear of it. The skull and bones were small and thin, but some of the teeth were much worn as though by long use. In this grave a

small fragment of reddish pottery with crisscross markings was found.

"In C the skull and bones were larger and stronger than in the others. Their crushed and decayed condition was probably due to the shallowness of the graves, the movement of the soil and the percolation of water.

"There was nothing found with the skeletons to indicate their age except the one fragment of pottery in B, but this was probably in the soil and had nothing to do with the interments.

"The 'Coin' mentioned in the newspapers was found in the surface soil much lower down the hill. It seems to be a York token.

"Many years ago a cist with human remains was opened on one of the moraine mounds between Hyning and Levens and in 1904 I published in the *Transactions of the Cumberland and Westmorland Antiquarian and Archaeological Society*, Vol. IV, pp. 71 and 201, an account of two small cairns which I opened on Sizergh Fell which rises behind Hyning. Those I referred to the late Neolithic and the Bronze Age.

"The position of the skeletons now found might seem to indicate Christian burial but there was not till recently any church nearer than Heversham on the other side of the valley, nor have I heard of any tradition except that of fighting or pestilence to account for the interment of bodies here. But their mode of occurrence does not agree with the hurried burial of those plague stricken or slain in battle.

T. McKENNY HUGHES."

My contribution to this account consists in a series of brief notes dealing with the characters of the bones. These notes will be found in the sequel (II), and here I will only remark that remains of six individuals have been identified, although Professor Hughes mentions only four skeletons.

I. In addition to the formal descriptions I wish to refer to two particular points which have occurred to me while investigating the bones.

(a) The first of these is the remarkable deformation of the skull described as "C." It is a small but adult specimen and I think it is of the female sex, though it bears certain male characters. Before distortion, it was probably of a broad ovoid

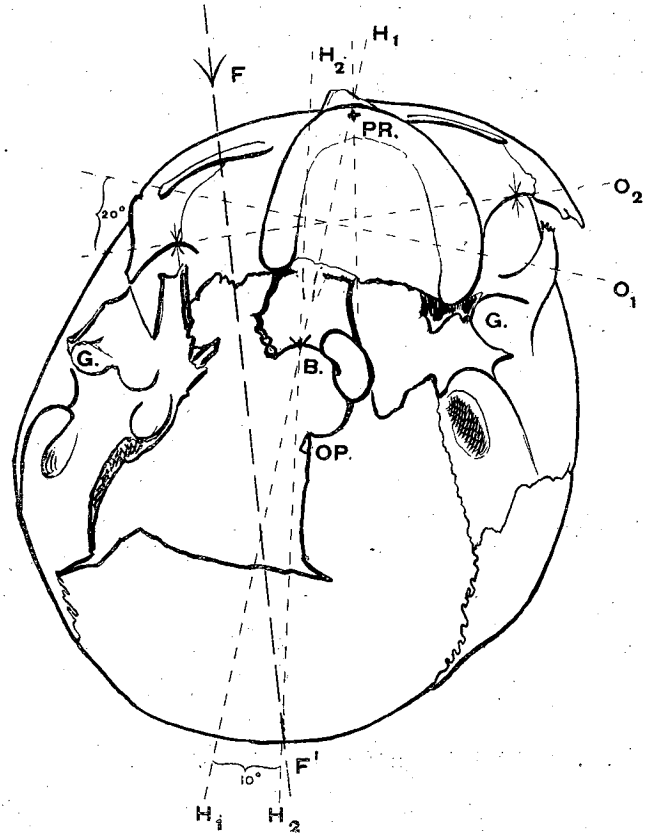

Fig. 1. Basal view ($\times \frac{1}{2}$) of the skull "C" from Hyning. The flexion of the facial part on the middle part of the base is well shewn. B. Basion, OP. Opisthion, G. Glenoid fossa, PR. Prosthion, BH_1 original sagittal axis of cranial base, BH_2 sagittal axis of cranial base after distortion, O_1 original transverse axis of the face, O_2 transverse axis of the face after distortion.

form, and though its cephalic index was certainly less than 83·6 (the value now yielded by the actual length and breadth), it was nevertheless broader and more brachycephalic than "A"

(the only other skull which could be reconstructed). The deformation is undoubtedly posthumous. It has had the following effects. First the face has been pressed back so as to give a high degree of the orthognathous character. Again the face has been flexed or bent as regards the skull, so as to be turned to the right, and the hind parts of the skull are bent in the opposite direction. Lastly the vertical axis of the face is distinctly inclined to that of the brain-case.

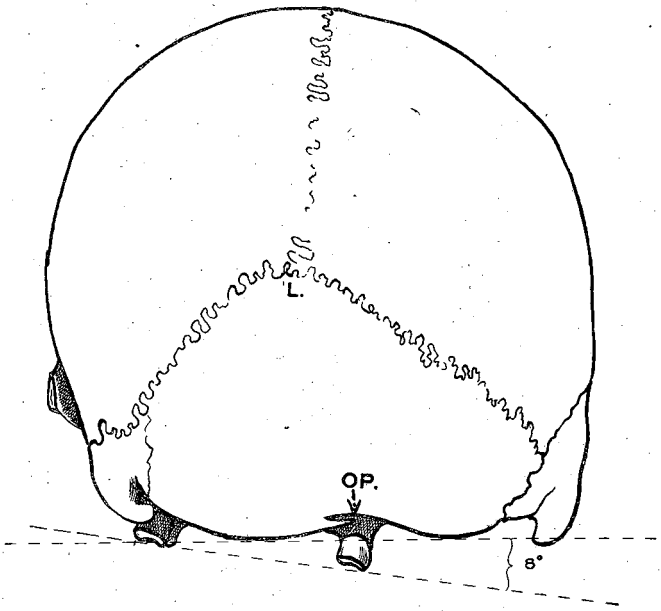

Fig. 2. Occipital view ($\times \frac{1}{2}$) of the skull "C." OP. Opisthion.

These characteristic features are best studied in the views of the base (Fig. 1) and of the occiput (Fig. 2) appended here.

The *flattening* of the face is denoted (Fig. 1) by the posterior position into which the palate has been driven.

The *flexions* of the various parts can be well illustrated in reference to the original basal axis of the skull, which is taken to be represented by the line BH_1.

Dealing with the face first, lateral movement (amounting to 11 mm. at the posterior palatine spine) has deflected the median

sagittal plane of the face 20 degrees to the right side of its original direction. This has affected the cranial base, and the left glenoid fossa (marked *G*) will be seen to have advanced beyond its fellow on the right.

Behind *B*, the cranial base has been bent in the contrary direction, to the extent of 10°, with a displacement of 11·5 mm. at the occipital end (and to the *left*).

The *torsion* of the face on the skull is illustrated in Fig. 2, the lower part of the face has been turned leftwards through an angle of about 8°.

The two halves of the mandible have been forced apart so that on one side the ramus has been partially torn from the body of the jaw.

The deformation is thus more complicated than that described by Professor Wyville Thomson in the *Natural History Review* (1862, pp. 397 et seq.). Up to a certain point, the conditions resemble those described by Professor Thomson and represented in Figs. 1 and 2 of his paper. Thus a force acting in the present instance along a line not very different from *FF′* might have produced the flexion results, in view of the known weakness of the human skull in a coronal plane passing through the frontal bone, the alisphenoids and the basilar suture. The "torsion effects" on the skull, and the lateral tearing strain on the mandible were passed over by Professor Thomson.

But it is more important to note that the general effects can be directly referred to conditions of interment. Under those circumstances, the head is apt to fall over to one side, so that the superincumbent weight is received on one side of the brow (cf. line *FF′*). Professor Thomson laid stress upon these considerations as a means of distinguishing posthumous from other deformations.

In the present instance I wish to submit that we may go further than this. I believe that deformation of this sort, with its complicated bendings and twistings, has a definite relation to the circumstances of an interment as contrasted with a simple deposition of a dead body. In an interment, or at least in some forms of interment, a considerable weight may

suddenly be laid upon the body. On the other hand, should the body be deposited on a surface, such as a bank of gravel or sand, to which additions are being made gradually, then the pressure would not be applied so quickly or effectively. In fact, we may have here a means of distinction between instances of deliberate interment on the one side, and those of accidental deposition on the other. The arrival of this specimen

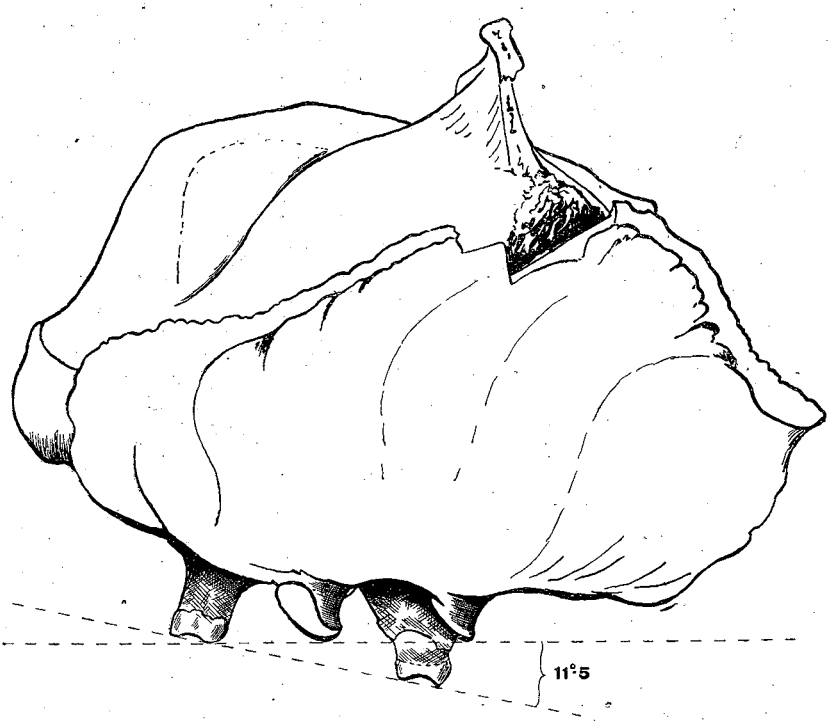

Fig. 3. Occipital view ($\times \frac{1}{2}$) of the skull of an adult male Gorilla in the Lübeck Museum. In this skull a torsion of the cranial base, similar to that of the skull "C" (v. Fig. 2) will be noticed.

at a time when I was commencing certain experiments on this problem, leads me to indicate the importance which such studies may possess. For in certain instances, notably in that of the bent and twisted Galley Hill skull, such a discriminating test would be very welcome.

I do not pretend to offer here anything more than a

suggestion. No doubt there are many sources of error. In particular, some forms of torsion of the bones of the skull on one another may be even proved to own a congenital nature. For instance, the very large skull of a Gorilla in the Lübeck Museum (cf. Fig. 3) presents a similar flexion and torsion, which are not of posthumous origin, so far as I can judge. So

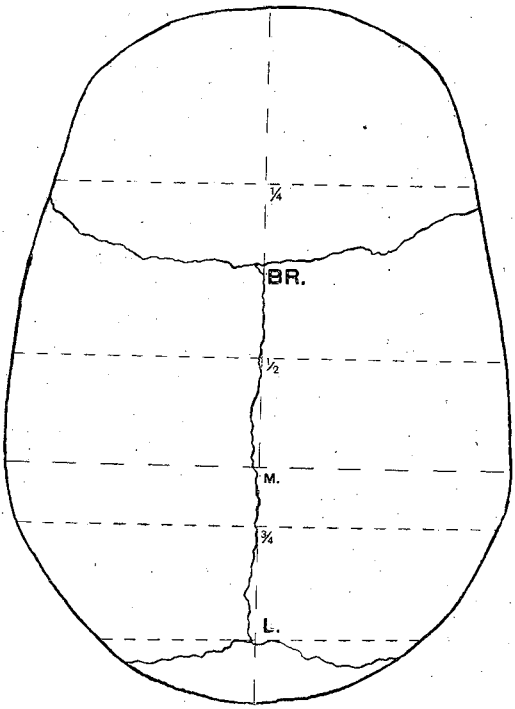

Fig. 4. Vertical view ($\times \frac{1}{2}$) of the skull "A" from Hyning. The transverse lines cut the sagittal diameter at three levels ($\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$ of its whole length). Other transverse lines are drawn in the position of maximum width and at the Lambda (L.). BR. is the Bregma. This specimen should be compared with Fig. 5 of Mr Parsons' memoir quoted in the text.

that the existence of this specimen at Lübeck provides some adverse evidence. Again, the well-known distortion of such specimens as the fragmentary crania of Hipparion or of monkeys in the Pikermi deposit, is adverse. Yet I would submit that at Pikermi, the sudden sweeping together of carcases would

probably act much in the same way on the lower skeletons in the mass as does the sudden filling of a grave on an uncoffined skull. Professor Thomson remarked the rarity of posthumous distortion in skeletons from modern graveyards, though on the other hand distorted skulls from cists in the peat-bogs of the Orkneys, are common. In the latter instance, another factor, i.e. the peat, has to be taken into account.

It must suffice for the moment to indicate these facts and the lines upon which enquiry should proceed.

(b) The second subject for special consideration arises out of the drawing (Fig. 4) of the calvaria of skeleton "A." The sex is female and the age mature. The point to which reference is made consists in a very remarkable coincidence existing between the dimensions of this specimen and certain skulls from Kent. No attempt has been made to assign to the Hyning skulls a racial designation. The skulls are of very variable proportions, and from this standpoint they probably do not differ from their modern representatives in the population of Westmorland.

But if they are ancient, they are probably not Saxon, for Professor Hughes holds that Westmorland was not invaded by Saxons.

Yet it should be noted that the skeletons were disposed in a row. This is strikingly recalled by Mr F. G. Parsons' description and plan of a Saxon cemetery near Folkestone (cf. *Journal of the Royal Anthropological Institute*, XLI, Jan., June 1911, p. 101). In that memoir, a set of standard tracings is provided for the use of those who may undertake similar researches. The dimensions of the Hyning (female) skull "A" can be compared with those provided by five Saxon crania. Table I shews the most singular resemblance between the skull "A" from Hyning, and the average *female* Saxon skull, as described by Mr Parsons. For it is to be noticed that of the five crania employed by Mr Parsons, four are female, so that the average dimensions are probably those of the average female Saxon cranium.

This resemblance leads to the consideration of the following possibilities.

(*a*) The Hyning skull "A" is Saxon, and thus Saxons are now shewn to have entered the Strathclyde territory hitherto deemed exempt from the Saxon invasion.

(*b*) The Hyning skull "A," and the Folkestone skulls described by Mr Parsons are not Saxon, but of some other

TABLE I.

Measurements of female crania. The principal dimensions are those of breadth measured to the middle line of the skull, at levels corresponding to the quarter-, half- and three-quarter way distances from front to back, measured along the middle line (cf. Fig. 4).

Measurement	Left side		Right side	
Transverse diameters	Hyning Skull "A"	Saxon Skull*	Hyning Skull "A"	Saxon Skull*
At the $\frac{1}{4}$ point	56 mm.	56	56	56
At the mid-point	67 ,,	66	65	66
At the region of maximum width	68 ,,	68	67	67
At the $\frac{3}{4}$ point	64 ,,	63	64	59**
At the Lambda	?41 ,,	33	?44	28
Longitudinal measurements	Hyning Skull "A"	Saxon Skull*		
To the Bregma	?68 mm.	82	—	—
To the region of maximum width	122 ,,	122	—	—
To the Lambda	?168 ,,	175	—	—
Breadth Index	72·6	73·2	—	—

* Average value from 5 examples (4 females and 1 male).

** Slight deformation admitted (v. Parsons' memoir).

stock, such as the Scandinavian, which is found in all regions near the coast.

(*c*) Even with the extensions provided by Mr Parsons, our knowledge does not admit of a distinction between Scandinavian and Saxon skulls, however distinct in other respects these two ethnic types may be.

(*d*) Female crania are not suitable objects for the demonstration of differences between the various long-headed types of Northern Europe.

(*e*) The Hyning skeletons are probably not representatives of the Neolithic inhabitants of Great Britain.

If the evidence be summed up, it will be found (as already stated) that the cranial resemblance of "A" to the Folkestone Saxons is very close. To this I would add again that in each instance the graves were in rows, and the bodies lay from N.N.E. to S.S.W., and that in both localities, instances occurred of more than one body in a grave.

I believe therefore that of the Hyning remains some were of Saxon origin. How the Saxon representatives reached Westmorland, I am not competent to say. With them, other individuals of almost pygmy size occurred.

II. *Brief notes on the various remains.*

The contents of the boxes labelled A, B, C, D, are considered in succession.

"A." An oval calvaria of moderate size: the small brow-ridges and mastoid processes denote the female sex: this is confirmed by the small size of the head of the femur (both right and left upper ends are preserved: v. Table II). The calvaria measures 186 × 135 mm. It resembles the corresponding parts in skulls of neolithic antiquity, though a detailed comparison with the data for female Saxon crania reveals an almost exact correspondence with these. The lower jaw is small with small teeth: the angle is large, the coronoid process relatively small. The remainder of the skeleton is very fragmentary.

"B" and "B′." Remains of two individuals, one certainly a male, the other probably of the same sex. One femur if complete would have measured about 450 mm., corresponding to a probable stature of about 1660 mm. or five feet five inches and a half. The femur is not platymeric and is not like the femora of neolithic man. The other bones are very fragmentary. One individual at least was not very aged. Some measurements of the femur are given in Table II.

"C." A small skull with mandible, both pieces much distorted by pressure: the brain case measures 171 × 143 mm. The small size together with the diminutive femora denote the

TABLE II.

HYNING SKELETONS.

Femur	Head: maximum diameter	Shaft		
		minimum transverse diameter	transverse diameter for index of platymeria	antero-posterior diameter for index of platymeria*
Skeleton A	R. ? L. 41	?	31 29	24 24
" B	? 45	29	33	27·5
" C	R. 44 L. 43	?	?	?
" D	R. 40 L. 40	24·5 23	25·5 28·5	25 23

Tibia	Transverse diameter	Antero-posterior diameter	Index of Platycnemia
No. 1	20 (L)	30	66·7
" 2	22·5 (L)	29	77·6
" 3	21 (R)	32	65·6
" 4	19 (R)	30	63·4
" 5	22 (R)	31	71
" 6	23 (R)	31·5	73
—	—	(Mean value of Index	69·5)**

* The average value of this index is 82·2, as against 84 for modern male femora, and 79 for Saxon femora of both sexes (Parsons).

** Parsons gives average values of 71 for modern bones, 73 for Saxon bones.

female sex. From the right humerus, an estimate of 1590 mm. (5 ft. 2½ in.) for the probable stature is obtained. In the skull,

Flower's alveolar index has the remarkably low value of about 84, the foramino-basal angle measuring 110°. Both values are modified by the deformation of the skull (v. supra). The mandible has a well-developed chin, a fairly small angle, and the coronoid height slightly exceeds that of the condyle. Altogether this skull is strongly contrasted with "A," the only other which could be put together for comparative purposes.

"D" and "D′." A fragmentary female skeleton (senile) of almost pygmy stature and size. The mandible is very small and edentulous (senile). Two fragments of the hip-bones are clearly referable to a female. Part of a third hip-bone with less definitely female characters is present so that this grave contained parts of certainly two skeletons. Other fragments include two lumbar vertebrae conjoined by synostosis (spondylitis) in the lifetime of the individual: and a very small clavicle and astragalus. Some measurements of the fragmentary bones are given in Table II.

Monday, 20 May 1912.

W. B. Redfern, Esq., President, in the Chair.

Professor W. W. Skeat, Litt.D., F.B.A., delivered a lecture on

The Place Names of Suffolk.

This paper will be published as one of the Society's 8vo. Publications.

CONTENTS

OF PROCEEDINGS, Nos. LXII. AND LXIII.

No. LXII.

Vol. XVI. (New Series, Vol. X.) No. 2.

No. LXIII.

Vol. XVI. (New Series, Vol. X.) No. 3.

n. p. means that the Communication has not been printed in full.