

V.

THE CREMATIONS FROM THE CULDOICH,
LEYS AND KINCHYLE SITES.

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WITH A NOTE BY

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PREFATORY NOTE

In the last volume of these *Proceedings* (Vol. LXXXVIII, pp. 73-207) a report on the excavation of a ring-cairn at Culdoich and two passage-graves at Leys and Kinchyle of Dores was published. Reference was made to Dr Lisowski's examination of the cremated human bones present at each of the three sites, and his full report follows here. It will be seen that the relatively large amount of material from the intact Culdoich deposit only represents two individuals, and in the scanty fragments from the other two sites only one individual was represented in each instance. These facts, taken with the evidence from the Corrimony chambered cairn for the burial of a single individual (*loc. cit.*, pp. 82-83) are at variance with the normal concept of chambered tombs and their congeners as being built for the collective burial of a number of bodies. Here, as in other features, the Clava group of tombs show unexpected peculiarities.

S. P.

INTRODUCTION.

In the past the remains of cremated human bones were either thrown away or collected carelessly since it was thought that they were too fragmentary to give any useful anthropological information. The careful analyses of cremations by Gejvall (1947, 1948, 1951) have, however, shown that if every possible fragment is collected and recorded it may be possible to deduce from such material the number of individuals buried and sometimes, especially in the case of adults, their sex and age. Some of the pieces often can be put together. Investigations of cremated material have not only archæological and anthropological interest, but are also of medico-legal value since they lead to methods of identifying charred human remains.

The earlier work of Gejvall on the cremations from Horn and Mellby was followed by the studies of Zeuner, Cornwall and Summers (1951) and Weiner (1951) who examined the cremations from Dorchester, by Gejvall (1955) who worked on material from Vallhagar, and by the author (1956) on those from Barclodiad y Gawres. The present account relates to a study of the cremated remains from Culdoich, Leys and Kinchyle. All are of Neolithic date.

MATERIAL AND METHODS.

Cremated Remains.

The human cremations are from three sites, as follows:

- (1) Culdoich Ring Cairn, Inverness-shire 1854 gm.
- (2) Leys Cairn, Inverness-shire 19 gm.
- (3) Kinchyle of Dores, Inverness-shire 19 gm.

There was little material available from Leys and Kinchyle. All the remains were mixed with soil and with some charcoal.

Preparation of Material.

Each of these three batches was washed on a sieve of 2 mm. mesh (Atkinson 1953) so as to get rid of the soil and float off the charcoal fragments. The Culdoich material proved rather resistant to this method owing to the fact that the earth tended to stick firmly to the individual cremated fragments. Therefore the 20 per cent. acetic acid method (Rixon 1949) was tried so as to dissolve off the soil from the remains. This is quite useful when dealing with ordinary skeletal parts. But in this particular case it proved to be quite ineffectual. Finally a soft brush had to be used. Next, the material was allowed to dry and then teeth and animal bone fragments were picked out. After sieving off the dust the remaining cremated skeletal fragments were picked free of stones and other foreign material. The fragments of the various bones were then separated. The residue of material left over was grouped into fragments that belonged to unidentified long bones and miscellaneous unidentified cremated bones. All the various amounts were then examined in detail in order to establish as far as possible the number of individuals cremated, their sex and their age. Some of the fragments could be glued together, though actual reconstructions were impossible. Finally, the material was weighed.

Estimation of Number, Sex and Age.

The number of individuals cremated was established in these cases by the presence of certain definite skeletal parts. Parts of (*a*) the internal auditory meatus, (*b*) the region of the internal and external occipital protuberance, (*c*) the supraorbital margin, (*d*) the fontonasal process of the maxilla, (*e*) the mental region of the mandible, (*f*) the coronoid process of the mandible, and (*g*) the lower end of the humerus were used in the identification. Skeletal fragments of the axis, humeral head, upper or lower end of the femur, sacrum, talus or calcaneum were too fragmentary to be of use.

The sex was diagnosed anatomically from certain cranial elements (Gejvall). But here, by way of a cautionary note, it must be added that such a diagnosis is only approximate and not absolute owing to the absence of most of the vital elements.

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The age could not be assessed from the state of sutural closure. Therefore, an attempt was made to do this by examining the external and internal structure of the teeth (Gustafson 1950).

RESULTS.

The description of the material from the three sites is as follows (for weights see Tables I and II):

(a) *Culdoich.*

General.—Total weight 1854 gm. The length of these fragments is rather regular and tends to be on the whole under 20 mm., though the range is from 3 mm. to 62 mm. The remarkable feature is that most of the pieces are short and of an even length. The colour varies from bluish grey to white. The fragments are twisted, distorted and show elliptical cracks. Certain fragments could be glued together.

TABLE I.

TABLE I.—THE WEIGHT AND PERCENTAGE DISTRIBUTION OF THE TOTAL IDENTIFIED AND UNIDENTIFIED CREMATED HUMAN REMAINS.

Skeletal material	Culdoich		Ley's		Kinchyle	
	gm.	Percentage total	gm.	Percentage total	gm.	Percentage total
Identified total .	1147	61.9	13	68.4	16	84.2
Unidentified total	707	38.1	6	31.6	3	15.8
Total	1854	100.0	19	100.0	19	100.0

Skull.—697 fragments were found. Their length varies from 9 mm. to 50 mm. The frontal bone is represented by part of the frontal crest; two small pieces also showing this crest but with the outer table split off and having part of the frontal sinuses (these two could be glued together); a right zygomatic process, probably male; part of a male and part of a female supraorbital margin, as well as one supraorbital fragment (?male) of unknown side; and one fragment showing the right and part of the left frontal sinus with the major part of the outer table gone—this could be partially reconstructed.

The parietal bones are represented by two fused fragments. Probably other unrecognisable parietal pieces are to be found amongst the miscellaneous skull fragments. These two parietals show that the sagittal suture between them is obliterated on the endocranial and partially closed on the ectocranial surface. The groove for the superior sagittal sinus can also be seen.

Numerous fragments of the temporal bone are recorded. A right and a left zygomatic process are present, the latter with part of the articular fossa for the head of the mandible. Two right and one left petrous portion with their respective internal auditory meati were also found. Some of these could be reconstructed. Apart from these, there are part of a mastoid process and four other petrous fragments.

Various fragments of the occipital bone are present. These are pieces showing the internal occipital protuberance with the confluence of the sinuses, the transverse sinuses, the internal occipital crest, and part of the superior and possibly inferior nuchal lines. These fragments, though of the same region, show two different thicknesses. The foramen magnum is represented by three fragments. Two of these are of the left side and show in part the margin of the foramen and the occipital condyle, one being thicker than the other. The other shows part of the foraminal margin. None of these fitted together.

Three frontonasal processes of the maxilla were found. Two belong to the left and one to the right. Each has a serrated sutural edge, a groove for the nasolacrimal duct, part of the maxillary sinus, an infraorbital margin and a sidewall of the nasal cavity. A fragment of part of a tooth socket possibly premolar, with part of the hard palate is also present.

The mandibular fragments are made up of ten pieces. Their length varies from 14 mm. to 23 mm. Two fragments are of the inner symphyseal surface of the body and have genial tubercles. One of these is more massive than the other, indicating that it probably is a male specimen, whilst the other is possibly female. Several other pieces show tooth sockets and two also show the mylohyoid line.

In addition there are numerous miscellaneous fragments of the calvaria. In fact, they form the majority of the skull material. Some show either serrated sutural edges or closing or closed sutures. In quite a few pieces the outer table had split off and thus exposed the diploe.

Teeth.—Three could only be found, two of these are probably premolar and the other is a molar tooth. Here, too, there is some attrition. Secondary dentin half fills the pulp cavity and there is a possible trace of periodontosis. There is also some root resorption.

Ribs.—Two fragments were found. Both are of the shaft and show the costal groove.

Vertebral Column.—The four fragments are composed of part of an

TABLE II.

TABLE II.—THE WEIGHT AND PERCENTAGE DISTRIBUTION OF THE
INDIVIDUAL IDENTIFIED REMAINS.

Skeletal material	Culdoich			Leys			Kinchyle		
	gm.	Percentage identified	Percentage total	gm.	Percentage identified	Percentage total	gm.	Percentage identified	Percentage total
Skull	460	40.1	24.9	2	15.4	10.5	1	6.3	5.3
Humerus . . . . .	..	..	..	..	..	..	..	..	..
Radius . . . . .	..	..	..	..	..	..	..	..	..
Ulna . . . . .	..	..	..	..	..	..	..	..	..
Hand . . . . .	..	..	..	..	..	..	..	..	..
Upper limb total . . . . .	..	..	..	..	..	..	..	..	..
Ribs	2	0.2	0.1	..	..	..	..	..	..
Vertebral column	2	0.2	0.1	..	..	..	..	..	..
Pelvis	2	0.2	0.1	..	..	..	..	..	..
Femur and patella	6	0.5	0.3	..	..	..	..	..	..
Tibia . . . . .	..	..	..	..	..	..	..	..	..
Fibula . . . . .	..	..	..	..	..	..	..	..	..
Foot . . . . .	..	..	..	..	..	..	..	..	..
Lower limb total	6	0.5	0.3	..	..	..	..	..	..
Miscellaneous long bones	675	58.8	36.4	11	84.6	57.9	15	93.7	78.9
Identified total	1147	100.0	61.9	13	100.0	68.4	16	100.0	84.2

atlas vertebra with its superior and inferior articular surfaces, a body fragment of an unknown vertebra, a transverse process with part of the side of its body and an articular process.

Pelvis.—Of this there were two pieces, belonging to the iliac crest.

Femur.—All the three pieces found show the linea aspera. Two of these could be glued together.

Patella.—Only one fragment is present.

Miscellaneous Long Bones.—These are represented by 572 fragments. Their size varies from 7 mm. to 62 mm. But they all tend to be of rather uniform size. None of them could be reconstructed or identified as to which particular bone they belong to.

Miscellaneous Bones.—Again this forms the largest single group of the whole material. The size of the fragments varies from 3 mm. to 42-mm. Here, too, none of the fragments could be glued together.

Animal Bones.—None were found.

(b) *Leys.*

General.—Total weight 19 gm. The fragments vary in length from 3 mm. to 26 mm. and the colour from yellowish grey to white. The fragments are all small and show the usual cracks. None of the pieces could be fitted together.

Skull.—Four fragments ranging from 9 mm. to 20 mm. were found. Two of these show serrated edges. All the pieces belong to the calvaria.

Teeth.—One incisor is present with an open pulp canal. This shows some slight attrition and the formation of some secondary dentin. Root resorption is minimal.

Miscellaneous Long Bones.—Thirty-three fragments belong to this group. Their size varies from 8 mm. to 26 mm. None could be identified beyond belonging to the long bone variety.

Miscellaneous Bones.—The material under this heading ranges from 3 mm. to 16 mm. in length.

Animal Bones.—None were found.

(c) *Kinchyle of Dores.*

General.—Total weight 19 gm. The length of the fragments varies from 3 mm. to 27 mm. and the colour from grey-white to white. The fragments are small and some are slightly bent, but all show cracked lines. None of the pieces could be fitted together.

Skull.—Of this there are seven representative fragments varying in size from 7 mm. to 13 mm. All of them belong to the calvaria. One of the pieces has a serrated sutural edge.

Miscellaneous Long Bones.—Twenty-three pieces were found, ranging from 7 mm. to 27 mm. in length. None could be identified.

Miscellaneous Bones.—Their length varies from 3 mm. to 14 mm. There are only a few fragments.

Animal Bones.—None were found.

CONCLUSION.

The amount of material available has, however, not been very large and therefore it has not been possible to subject the data to a full quantitative analysis.

As primitive methods of combustion were used in ancient times one might expect that larger fragments would have survived. The material from Culdoich in particular is very fragmentary. The majority of the fragments are under 20 mm. in length and are approximately of the same size. This implies that they may have been broken up deliberately after the cremation, as was the case with those examined by Zeuner *et al.* (1951). There are, however, too few from Leys and Kinchyle of Dores to allow any conclusions to be drawn.

The available remains enable the number of cremated individuals to be established and their sex and age assessed. The results are as follows:

Culdoich.—This material represents the remains of two individuals, one male and the other female. The fragments comprise:

- | Male | Female |
|---|---|
| 1. Two supraorbital margins. | 1. Supraorbital margin. |
| 2. Right zygomatic process. | 2. Symphyseal part of mandible with genial tubercles. |
| 3. Symphyseal part of mandible with genial tubercles. | |

In addition there are the remains of two right and one left petrous portion of the temporal bone, occipital fragments of the same region differing in their thickness (squamous and foramen magnum), and there are also three frontonasal processes. Of these two belong to the left and one to the right side. An examination of the teeth indicates that the individuals had reached middle-age. As there are so few teeth, however, this diagnosis may apply to only one skeleton.

Lays.—Only little material was available and the remains are probably those of a single individual. The sex could not be diagnosed. The solitary tooth seems to indicate a young adult.

Kinchyle of Dores.—The available amount of material is probably that of one skeleton. Neither the sex nor the age could be ascertained.

Pathology.—No osteoarthritic changes were found in any of the remains that were examined.

As shown in Table I, over half the remains of each cremation could be identified, as in the case of those from Barclodiad y Gawres. Although the

total amounts found were small, more than two-thirds of the material from Leys and Kinchyle could be grouped. As shown in Table II, in each of the three cremations, the miscellaneous long bone fragments form the largest identified entity. This is followed by the percentage of skull fragments. The Barcelodiad y Gawres results give a similar picture.

SUMMARY.

1. The human cremations from Culdoich, Leys and Kinchyle of Dores were examined.
2. The methods used for cleaning the material are stated in the text.
3. The number of individuals cremated and as far as possible their sex was established. In those cases in which teeth were present, an attempt was made to determine the age.
 - (a) Culdoich is made up of one male and one female. One or both belong to the middle-age group.
 - (b) Leys represents one individual of young adult age. The sex could not be diagnosed.
 - (c) Kinchyle of Dores contains the fragments of one individual, whose sex and age could not be determined.

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