

## THE HOMINID REMAINS FROM GOUGH'S CAVE

by

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### *Introduction*

As part of the present study of the site, a number of hominid specimens from Gough's Cave were kindly loaned to the author for examination in London. Some had been published in detail, some had been briefly mentioned in published reports, some were unpublished but were referred to in notebooks or correspondence, and some were previously unrecognized. Some specimens have not been restudied, e.g. the 'Cheddar Man' (Gough's Cave 1) skeleton which it is hoped can be subjected to a thorough re-examination in the future, and the skeletal material found during the 1968 rescue excavations, which is probably of Holocene age (Tratman *et al.*, 1972). TABLE I lists the specimens discussed here, with a summary of data about them, and for further information about the circumstances of the discoveries the reader is referred to Jacobi (this volume), and to the *Catalogue of Fossil Hominids* (Oakley *et al.*, 1971) for specimens 1-7. It should be noted that Gough's Cave 2 and 5 are not now of unknown whereabouts and were examined by Tratman (1975) and the present author.

### *Gough's Cave 1* (line 1 in TABLE I)

The important male partial skeleton of 'Cheddar Man' was mainly excavated in 1903 from a fissure containing cave earth, described as lying beneath the 'upper stalagmite' (Davies, 1904). Further fragments were recovered from the area in 1935, allowing the present reconstruction to be completed in 1937. The cranium and skeleton were described by Seligman and Parsons (1914), who associated it with Upper Palaeolithic artefacts found by Davies, including a 'bâton de commandement'. This association was doubted by Donovan (1955) and Tratman (1975). The bâton was identified as deriving from the femur of an immature human (Savage, in Donovan 1955) but as reported by Seligman and Parsons (1914, p. 262), it appears to have been made from antler. The generally accepted age of the skeleton, based on radiocarbon dating of collagen from the left tibia (BM-525:  $9080 \pm 150$  bp) places Gough's Cave 1 in the early Holocene (Barker *et al.*, 1971; Tratman, 1975; Newell *et al.*, 1979; Oakley, 1980; Burleigh, in prep.).

Data concerning the skeleton were summarized in Oakley *et al.* (1971). Since then, the specimen has been discussed by Tratman (1975), Frayer (1978) and Newell *et al.* (1979). The evidence for trauma and cut marks reported by Tratman (1975), and quoted by Newell *et al.* (1979), certainly demands a thorough re-examination of the whole skeleton, which it is hoped can be accomplished in the near future. Frayer's dental data (Frayer, 1978, 1984) confirm the relative gracility of the specimen compared with average tooth size in Upper Palaeolithic and Mesolithic

TABLE I - *Hominid specimens discussed from Gough's Cave*

Line No.	C.F.H.*	Other No.	Discovery	Probable Spit	Inferred Age	Material	Main Reference
1	1	1.1/5-37 (G)	1903; 1935	9?	early Holocene	adult skeleton	Seligman & Parsons, 1914
2	2	1.1/4 (G)	1927-28	12-13	Pleistocene	adult cranial	Keith & Cooper, 1929
3	3	1.1/1 (G)	1927-29	10-11 (+ 14)	Pleistocene	child cranial	Keith & Cooper, 1929
4	4	(G)	1927-28	7	late Holocene	adol. cranial	Keith & Cooper, 1929
5	5	(G)	1927-28	7	late Holocene	adult maxilla	Keith & Cooper, 1929
6	6	1.1/3 (G)	1928-29	14	Pleistocene	adult mandible	Cooper, 1931
7	7	1.1/2 (G)	1950	14	Pleistocene	r. parietal	Tratman, 1975
8		unlocated	1927-28	6-7	late Holocene	postcranial frags.	
9		unlocated	1928-29	16	Pleistocene	humerus	
10		(B)	1949-51	12, 14	Pleistocene	postcranial frags.	
11		1.1/38 (G)	1959	15+	Pleistocene	l. scapula	
12		M.23.1/1 (U)	1959	15+	Pleistocene	l. clavicle	
13		M.23.1/2 (U)	1959	15+	Pleistocene	r. scapula	
14		1A.1/1-7 (U)	1968	(rescue site 2)	Holocene?	adult cranial	Tratman <i>et al.</i> , 1972
15		1A.1/8 (U)	1968	(rescue site 2)	Holocene?	r. humerus	Tratman <i>et al.</i> , 1972
16		(G)	1968	(rescue site 1)	late Holocene	skeleton	Tratman <i>et al.</i> , 1972
17		'7' (G)				l. scapula	

G: Gough's Cave Museum  
 U: U.B.S.S. collection, Bristol  
 B: B.M. (N.H.), London

\* C.F.H.: Oakley *et al.* (1971). *Catalogue of Fossil Hominids*



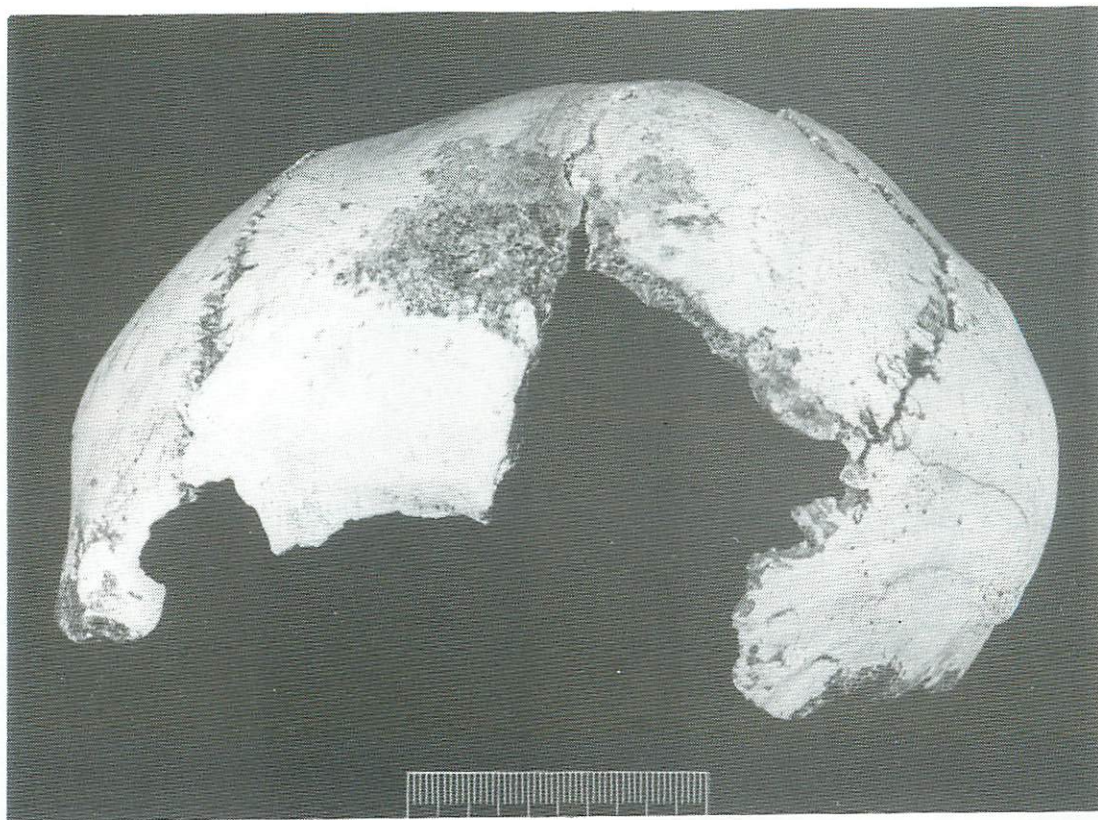


PLATE 1 — LEFT LATERAL VIEW OF GOUGH'S CAVE 2 (OAKLEY *ET AL.* 1971), SKULL 1 OF KEITH AND COOPER (1929). GOUGH'S CAVE MUSEUM 1.1/4 (LINE 2 OF TABLE I)

HOMINIDS FROM GOUGH'S CAVE

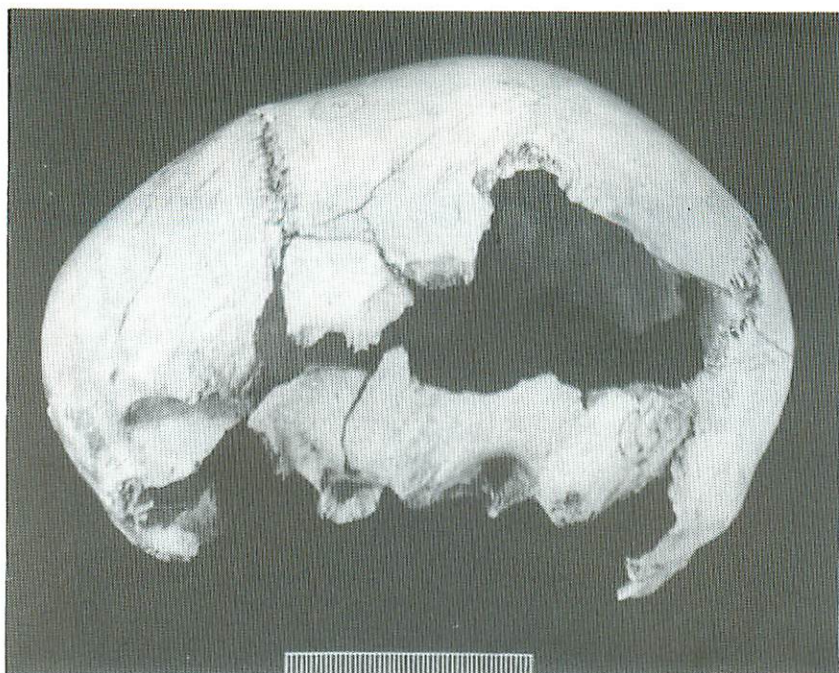


PLATE 2 — LEFT LATERAL VIEW OF GOUGH'S CAVE 3 (OAKLEY *ET AL.* 1971), SKULL 2 OF KEITH AND COOPER (1929). GOUGH'S CAVE MUSEUM 1.1/1 (LINE 3 OF TABLE I)



PLATE 3 — LEFT LATERAL VIEW OF ADULT MANDIBLE, GOUGH'S CAVE 6 (OAKLEY *ET AL.* 1971). GOUGH'S CAVE MUSEUM 1.1/3 (LINE 6 OF TABLE I)



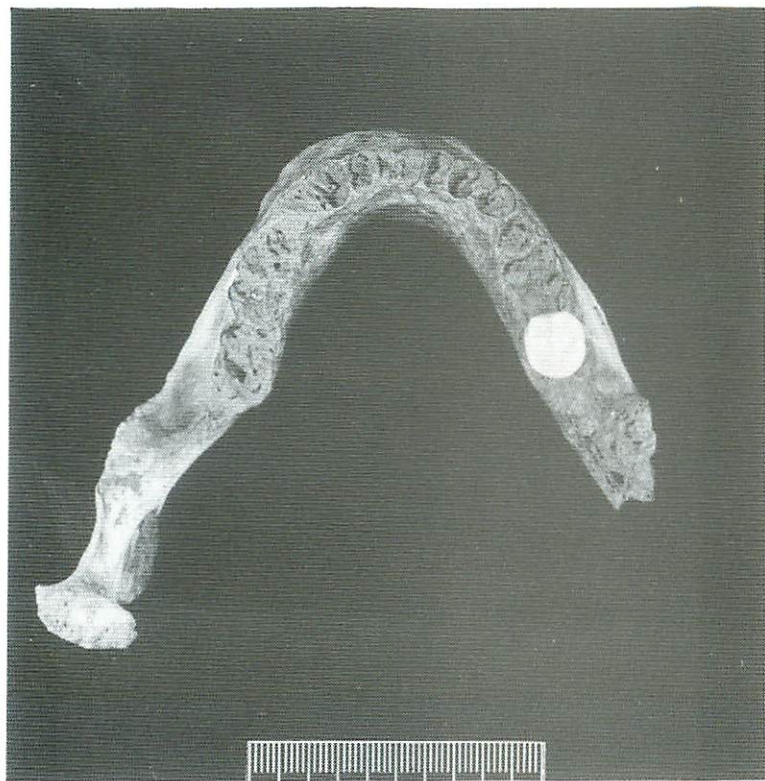


PLATE 4 — OCCLUSAL VIEW OF GOUGH'S CAVE 6 (LINE 6 OF TABLE I)

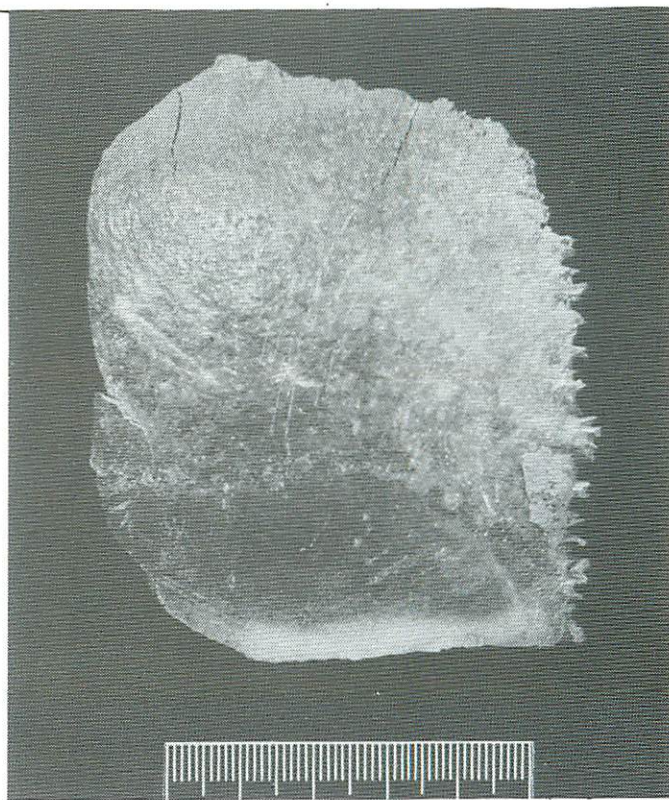


PLATE 5 — RIGHT PARIETAL FRAGMENT. GOUGH'S CAVE 7  
(OAKLEY *ET AL.* 1971). GOUGH'S CAVE MUSEUM 1.1/2  
(LINE 7 OF TABLE I)

HOMINIDS FROM GOUGH'S CAVE

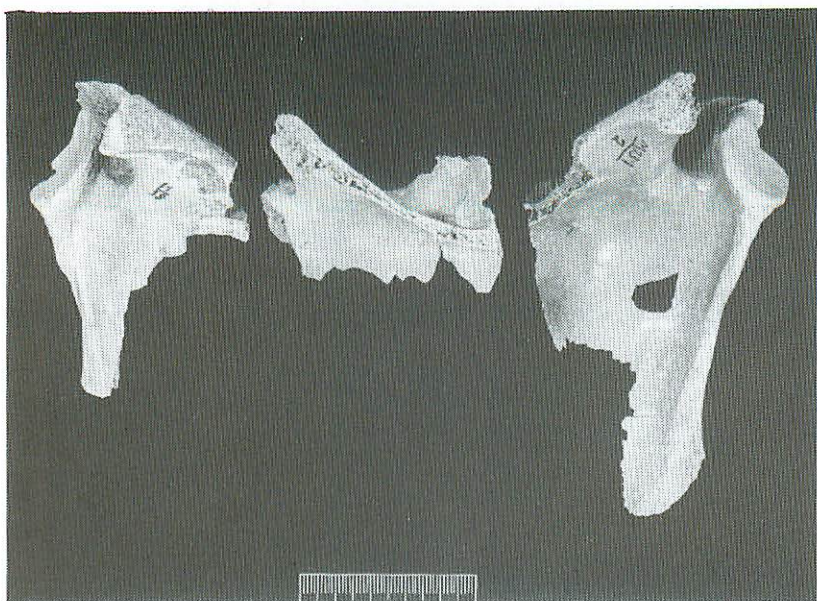


PLATE 6 — THREE SCAPULAE FROM GOUGH'S CAVE. FROM LEFT: LEFT SCAPULA, GOUGH'S CAVE MUSEUM 1.1/38; LEFT SCAPULA, GOUGH'S CAVE MUSEUM, NUMBERED ONLY AS '7'; RIGHT SCAPULA, U.B.S.S. M.23.1/2 (LINES 11, 17 AND 13 RESPECTIVELY IN TABLE I)

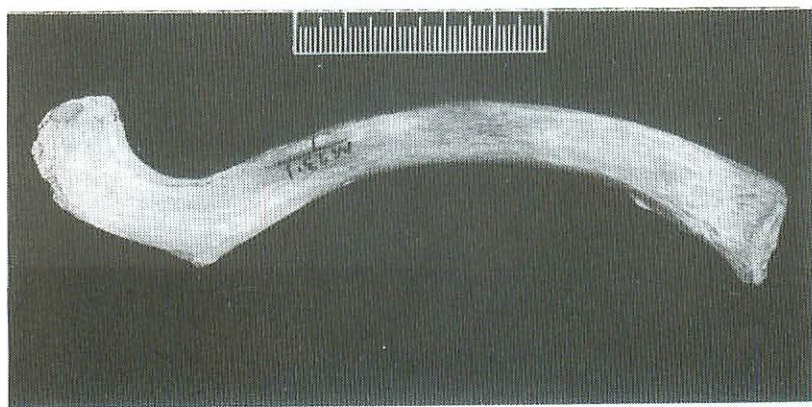


PLATE 7 — SUPERIOR VIEW OF LEFT CLAVICLE, U.B.S.S. M.23.1/1 (LINE 12 IN TABLE I)



male individuals. The post-incisor dentition is distinctly smaller than the mean figures for Frayer's (1984) Upper Palaeolithic sample, and it only approaches or equals the Mesolithic mean sizes for  $P_4$ ,  $M^2$  and  $M^3$ . Regarding body proportions, using the data of Seligman and Parsons (1914) and comparative data for Upper Palaeolithic and recent humans collated by Trinkaus (1981), the Gough's skeleton has a rather low claviculo-humeral index compared with modern means (42.4). It is closest to the Mesolithic and Afro-american sample means, while the brachial index is fairly high (76.6), without reaching Mesolithic and Upper Palaeolithic mean values. The humero-femoral index is high compared with Upper Palaeolithic and Mesolithic means, but remains within the ranges of the fossil and recent samples (73.8). Further conclusions about the Gough's Cave 1 skeleton must await further study, which will necessitate disassembling the present arrangement of the material.

#### *Gough's Cave 2* (line 2 in TABLE I; PLATE 1)

This cranial vault consisting of parts of the frontal, parietals and occipital, was recovered from spits 12-13 during excavations conducted by Parry in 1927-1928 (Parry 1929b). An additional fragment of the right parietal was thought to have been recovered from spit 7 but it cannot be clearly related to the cranium. The specimen was reconstructed and studied by Keith (Keith and Cooper, 1929; Keith, 1931) who noted its dolichocephaly and general similarity to the Gough's Cave 1 cranial vault, and considered it derived from an adult male of less than 25 years of age. Certainly there is a general resemblance between these two Gough's crania, although Keith correctly noted that Gough's Cave 2 was evidently somewhat lower in cranial height. Some basic measurements were provided by Keith, and I have remeasured the specimen to give the following data, using Howells's (1973) system where applicable: minimum frontal breadth 101 mm (estimated by doubling from mid-line), frontal breadth 120 mm (ditto), maximum parietal breadth 143 mm (ditto), bregma-asterion chord 135 mm (estimated), glabella-occipital chord 190 mm, parietal chord 117.5 mm, subtense 24 mm, and fraction 63 mm. The last three measurements provide a parietal angle of about  $135^\circ$ . Cranial thickness is moderate, 5.5 mm (mid-frontal), 5.0 mm at bregma (parietal) and near asterion (occipital), 8.0 mm (mid-parietal near tuber), and 6.0 mm at lambda (parietal). These data are well within the range of late Pleistocene and more recent European samples, although the cranium is certainly relatively long-headed. Some of the 'cut marks' noted by Tratman (1975) on the frontal bone appear to be anatomical (vascular) grooves.

#### *Gough's Cave 3* (line 3 in TABLE I; PLATE 2)

As with Gough's Cave 2, this calvaria of a child was excavated in 1927-1928, but from a slightly higher stratigraphic position (spits 10-11, Keith & Cooper, 1929). The calvaria consists of most of the frontal, left parietal and temporal, with part of the right parietal, left sphenoid and occipital. A small fragment of the right parietal was thought to derive from

spit 7 (Keith & Cooper, 1929) but is unlikely to belong to the skull, and the major fragment of the right parietal, which is not figured by Keith in 1929 or 1931, is marked in pencil '14' and may have been discovered subsequently in that spit. It may be the skull fragment found with mandible 1.1/3, but erroneously attributed to spit 13 (Parry, 1929a). The calvaria is slightly distorted, preventing perfect articulation of the fragments, but a number of cranial measurements could nevertheless be taken. As reported by Keith & Cooper (1929) and Keith (1931), the specimen probably derives from a child aged about 3-4 years by modern developmental standards. Possible cut marks on the posterior left temporal, anterior left side of the occipital, frontal and left parietal are under study.

The following cranial measurements were taken (values in mm, except where stated otherwise, estimated values bracketed): glabello-occipital length 160, nasio-occipital length 155, maximum breadth (118), minimum frontal breadth 89, maximum frontal breadth 103; frontomale breadth 82, subtense 12, and nasio-frontal angle 147°; frontal chord 96, subtense (27), fraction (55), angle (120.5°); parietal chord 105, subtense 21, fraction 49, angle 136°; occipital chord 90, subtense 27, fraction 39, angle 117°; bregma-asterion chord (123), preserved interorbital breadth (not bidacryal) 22. As noted by Keith, there is nothing in the morphological or metrical data of Gough's Cave 3 which is remarkable by the standards of recent European immature crania, although the specimen is certainly relatively long-headed and displays cribra orbitalia.

#### *Gough's Cave 4 and 5 (lines 4 and 5 in TABLE I)*

These specimens were discovered and published at the same time as Gough's Cave 2 and 3. However, the three extant parts of no. 4 (frontal, temporal, and maxilla) are differently preserved, and as they derived from the higher spits 6-7, are almost certainly Holocene and perhaps more specifically Iron Age or Romano-British in date (Tratman, 1975). The specimens consist of parts of an adolescent cranium with left maxilla (Gough's Cave 4) and an adult maxilla with M<sup>1</sup> present (Gough's Cave 5). For further discussion of these specimens see Keith and Cooper (1929), Keith (1931), and Oakley (1980).

#### *Gough's Cave 6 (line 6 in TABLE I; PLATES 3 and 4)*

This partial adult mandible retaining the crown of the right M<sub>2</sub> was found during the 1928-1929 excavations in spit 14 (Cooper, 1931). Of probable Pleistocene age, it shows a rare example of third molar agenesis in fossil hominids since radiographs show no sign of crypts or crowns for the third molars (Tratman, 1975 and this study). Radiographs also show that the other teeth did not all fall out prior to fossilization, since some incisor and molar roots remain, indicating that some of the tooth crowns were probably sheared off after death.

As Cooper notes, the mandible is robust by modern European standards and resembles a rugged late Palaeolithic specimen such as the mandible of the Oberkassel male more than it resembles the Gough's Cave 1 mandible.



The remaining second molar is also large even compared with Upper Palaeolithic means (Frayer, 1978, 1984) since it measures 11.2 mm buccolingual breadth by 12.4 mm (mesiodistal length allowing for mesial wear). Some other data on the specimen follow below, with comparative measurements taken from Twiesselmann and Brabant, 1967, and Trinkaus, 1983 (all data in mm). Corpus height and breadth are respectively as follows: at symphysis, 31 and 18; at mental foramen, 32 and 16; at canine alveolus, 30 and 17; at  $M_1/M_2$ , 33 and 16. Ascending ramus height and minimum breadth are 65 and 37.5, with the latter figure certainly large by modern European standards (recent European sample of 108,  $33.1 \pm 1.6$ , Twiesselmann and Brabant; early Palaeolithic sample of 8,  $36.3 \pm 1.3$ , Trinkaus). The estimated external bicondylar breadth is 124 (cf.  $122.7 \pm 2.6$ , Twiesselmann and Brabant), estimated bigonial breadth 100, alveolar length (to posterior socket on left) 43, superior length 95 (cf.  $95.3 \pm 2.3$ , Twiesselmann and Brabant). Breadth between mental foramina 47.5, bicanine alveolus breadth 26 (internal), 36.5 (external), bi- $M_1$  alveolus breadth 45.5 (internal), 62.5 (external). The index of superior length/bicondylar breadth is 76.6, close to a recent European mean of 77.7 (Twiesselman and Brabant).

Morphological details of the specimen conform to the anatomically modern pattern in the presence of single mental foramina on each side, lying beneath the  $P_4$  alveolus, and in the presence of a V-shaped mandibular foramen and open mylohyoid sulcus. Cut marks were reported from the inner surface of the left ramus (Tratman, 1975) but the only plausible marks seem to lie externally, and also close to the genial tubercles.

#### *Gough's Cave 7* (line 7 in TABLE I; PLATE 5)

This fragment of right parietal, probably deriving from an adult individual, was found in 1950 in spit 14 (Oakley *et al.*, 1971) in the 'vestibule'. Apparently found close to the locality of Gough's Cave 6, they were associated by Tratman (1975) on the basis of their preservation, which is certainly comparable. However, the relative dating results for the two specimens, published by Oakley (1980, but wrongly numbering the mandible as 8 on p. 17) are markedly different. The parietal fragment is an anterior superior portion measuring approximately 85 mm high (superior-inferior) and 65 mm wide (anterior-posterior). Maximum thickness, near the parietal tuber, is 8.5 mm. Possible cut marks were noted by Tratman (unpublished) and these are under study.

#### *Left scapula* (line 11 in TABLE I; PLATE 6)

This unpublished specimen was found at the same time as the decorated rib (1.5/72) in about March 1959, when a sediment remnant was removed from the south wall of the 'vestibule' (Hawkes *et al.*, 1970). The probable level, using the previous terminology, would have been below spit 15. The fossil represents the lateral portion of an adult left scapula including the glenoid fossa and parts of the spine, axillary border and coracoid process. It

is interesting to note that the specimen displays a bisulcate axillary border, which is typical of Upper Palaeolithic specimens but which is only found in about 24% of recent European scapulae ( $n = 120$ , Trinkaus 1977, 1983). Some measurements were possible and are given in mm as follows: preserved lateral spine height 33.5, glenoid maximum length 34, glenoid maximum breadth (24), giving a breadth/length index of (70.6), slightly below the range of mean values for modern and Upper Palaeolithic samples quoted in Trinkaus (1983). The specimen has possible cut marks on the axillary border.

*Left clavicle* (line 12 in TABLE I; PLATE 7)

This virtually complete adult left clavicle was excavated early in 1959 from Pleistocene sediments near the 'Cheddar Man Fissure' during construction work to lay a concrete path. It is large, with a maximum length of 153 mm (cf. European sample of 46 males, range 118.2–158.0, Olivier 1951-6). Other measurements in mm are as follows: articular length 149, vertical midshaft diameter 11, horizontal midshaft diameter 12.8, and midshaft circumference 38 (close to mean of 38.2 for male sample of 82 Europeans measured by Parsons, 1917). Because of the great length of the clavicle it is not especially robust, having a robusticity index of circumference/maximum length = 24.8 (cf. range of means of 38 male samples 21.2–27.7, Olivier 1951-6).

*Right scapula* (line 13 in TABLE I; PLATE 6)

This unpublished specimen was also found in 1959 during the same construction work which destroyed Pleistocene sediments on the north side of the cave near the 'Cheddar Man Fissure'. It consists of approximately half of an adult right scapula including much of the axillary border, the glenoid fossa, and part of the spine and coracoid process. The specimen was not complete enough to measure morphological length or axillary border length, but the following measurements (in mm) could be taken: preserved lateral spine height 34, glenoid maximum length 32, glenoid maximum breadth 26, giving a high breadth/length index of 81.3 compared with Upper Palaeolithic and most recent mean values quoted by Trinkaus (1983). The morphology of the axillary border is different from that of the left scapula 1.1/38 in that it displays the ventral sulcus pattern most common in recent humans, and rare in Upper Palaeolithic specimens (Trinkaus 1977, 1983). Possible cut marks occur extensively over the dorsal surface and on the axillary border.

*Left scapula* (line 17 in TABLE I; PLATE 6)

This unprovenanced fragment shows a preservation comparable to other Pleistocene specimens. It is probably from an adult left scapula, and mainly represents the lateral part of the spine, without the acromion. No measurements are possible on the specimen, but the preserved ventral surface displays scratches, some of which could be interpreted as cut marks, and there are two further marks on the preserved lateral border of the spine.



*Additional postcranial fragments* (lines 8, 9 and 10 in TABLE I)

Some additional postcranial fragments, all less than 160 mm in length, were reported by Keith and Cooper (1929).

These derived from spits 6-7 and reportedly included fragments of femur, tibia, 6 metatarsals and metacarpals and parts of a pelvis, sacrum and clavicle (line 8 in TABLE I). The only morphological comment made is that a tibial fragment 'shows a well marked crest and suggests a degree of platycnemia'. All these fragments are unlocated at present. An additional postcranial specimen (line 9 in TABLE I) which is also unlocated is an unpublished distal humerus from spit 16, mentioned by Bate in a letter to Parry (March 22nd 1929), and again in a letter from Parry to Bate (March 29th 1929) in which he acknowledges receipt of the humerus and states that he will pass it to Mr Cooper. However Cooper makes no mention of the specimen in his subsequent publication (Cooper, 1931).

Further postcranial fragments (line 10 in TABLE I) which may be human were found between 1949 and 1951 during excavations reported by Donovan (1955). These include five diaphyseal fragments from spit 14 (1949-1951) which may include a femoral and two humeral fragments, and three diaphyseal fragments from spit 12 (1950-1951). They are insufficiently complete or diagnostic to warrant further comment.

*The 1968 material* (lines 14, 15 and 16 in TABLE I)

Rescue excavations in November 1968 led to the recovery of eight hominid fragments from a probable late Holocene context at 'site 2'. Seven of these were probably parts of a single adult male cranium (line 14) while the additional fragment was a robust right distal humerus (line 15).

A partial skeleton (line 16) was also recovered from 'site 1' (Tratman *et al.*, 1972).

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