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## HUMAN REMAINS FROM GEULA CAVE, HAIFA

### LES RESTES HUMAINS DE LA GROTTTE GEULA, HAIFA

B. ARENSBURG <sup>1</sup>

#### ABSTRACT

Three human skeletal fragments were unearthed by Wreschner during archaeological excavations in the Mousterian cave of Geula, in Haifa, during the years 1958-1964. The remains and especially the frontal bone belong, according to their morphology, to an ancient *Homo sapiens*. These finds enhance the long term discussion on ancient *sapiens* and so-called Neanderthal relationships in the Levant.

*Key words: Mousterian, Homo sapiens, Neanderthals, Levant, Middle Palaeolithic.*

#### RÉSUMÉ

*Lors de fouilles archéologiques conduites par E. Wreschner de 1958 à 1964 dans la grotte de Geula à Haïfa, trois restes humains ont été découverts dans les niveaux moustériens. Les fragments osseux et notamment l'os frontal, d'après leurs caractères morphologiques, peuvent être attribués aux premiers Homo sapiens. Ces fossiles viennent alimenter le débat sur les relations entre premiers hommes modernes et soi-disant Néandertaliens au Levant.*

Mots-clés : Moustérien, *Homo sapiens*, Néandertaliens, Levant, Paléolithique moyen.

#### INTRODUCTION

Geula cave is located on the northern slopes of Mount Carmel, in the suburbs of the city of Haifa, Israel. It was originally a very large cave but unfortunately was mostly removed by quarrying activities during the nineteenth century. The two remaining niches of the cave were excavated by E. Wreschner during the years 1958-1964. Based on geological observations, Avnimelech (1960) concluded that the two chambers were once the rear part of the cave. These two small chambers were named as Geula A and B. The excavations demonstrated that Geula A was devoid of any archaeological sediments. The

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prehistoric deposits of Geula B were subdivided by the excavator into three archaeological layers (A, B1 and B2) while at the base of the section there was a sterile level (C). All the lithics, faunal remains and human relics from Geula B were attributed by Wreschner to the Upper Mousterian (Wreschner, 1960, 1967a).

The bones are almost uncalcified and in a very fresh condition. Moreover, no concretions were present on the osseous material collected, proving that the cave sediments were always dry, similar to the present-day conditions. Thus, it was suggested that the original sediment was composed mainly of dust swept by wind into the cave, where the artifacts and bones accumulated due to human activities (Avnimelech, 1960).

According to Wreschner the analysis of the soil in strata B1 and B2 indicates that the climate, at the time, was warm and dry, probably belonging to an interstadial period. Radiocarbon dating of charred bones provided an age of  $42.000 \pm 1.700$  years BC (Grn-4121) for stratum B1 (Wreschner, 1993, 1967a; Dart, 1967). Obviously, this dating must be reconsidered using new dating methods.

Geula cave was rich in faunal remains as indicated by the 2,176 bones in stratum A and 9,412 in strata B1 and B2. Wreschner (1967a) mentions different species mainly *Gazella* sp., *Rhinocerus mercki*, *Sus scrofa*, *Hystrix* sp., *Bos* sp., etc. Angress (1960) describes 16 species including rodentia (e.g. *Hystrix* sp.), carnivora (e.g. *Crocota* sp.), insectivora (e.g. *Erinaceus* sp.) and artiodactyla (e.g. *Gazella decora*, *Dama mesopotamica*, *Cervus* sp., *Bos primigenius*, *Sus scrofa*). This author corroborates that all the bones were “not incrustated at all or covered by a very thin sheet of calcareous sinter, which peels off easily” and that “this skeletal assemblage appears *in situ*” (Angress, 1960, p. 84).

An outstanding characteristic of the faunal assemblage is the abundance of porcupine remains. Rabinovich and Horwitz (1994) consider Geula cave as unique “since as a species, porcupines exceed any other mammalian species found in this site” (Rabinovich, Horwitz, 1994, p. 99). Indeed, Dart (1967) found 420 porcupine gnawed large mammal bones among the faunal remains in the cave. It has also been suggested that the Geula cave was used alternatively by porcupines and humans in short term occupations of the site (Heller, 1970). Wreschner, however, based on the bone objects identified by R.A. Dart as tools, which were believed to have been made in place, suggested that humans inhabited the cave permanently (Wreschner, 1967a).

All the lithics of Geula cave belong to what was once called “Levalloiso-Mousterian” and today is being referred to as Levantine Mousterian. In stratum A points, burins, side-scrapers and other retouched tools are common. In strata B1 and B2 there are few retouched tools and the most common implements are Levallois points and flakes, although denticulated pieces, cores and hammerstones are also present (Wreschner, 1993). Several bone tools from layers B1 and B2 were also mentioned by Wreschner (1967a).

Wreschner's report from 1967 mentioned that among the lithics, bone tools and animal remains, three human bones were recovered. This material was sent to R.A. Dart who described them as "a flake from the distal portion of a right tibia, the distal diaphyseal portion of a left tibia and a left ulnar shaft fragment" (Dart, 1967, p. 113). According to Dart's identification of the so-called osteodontokeratic culture, at least one of the bones was "deliberately fabricated for use" (Dart, 1967, p. 113). Later on, Wreschner found, among the fauna of layer B2, another additional three fragments of human bones that were given to the present author for study. These bones are the subject of this short note.

#### HUMAN SKELETAL MATERIAL

The three fragmentary human bones which were found in layer B2 include: a small fragment of the right frontal squama including a part of the superior orbital rim, the distal epiphysis and part of the diaphysis of a left humerus, and the proximal epiphysis and part of the shaft of a right ulna (*fig. 1*). These bones, as well as all the animal bones found in this level, are impregnated by a thin patina that also covers the trabecula of the diploe and diaphyseal cavity of the long bones. The gracility of the three human fragments as well as their size indicates that they may belong to an adult female specimen.



*Fig. 1 - Human remains of Geula Cave. Right ulna (lateral view), left humerus (anterior view), right frontal squama fragment (external surface).*

*Fig. 1 - Os humains de Geula. Ulna droite (face latérale), humérus gauche (face antérieure), fragment droit d'écaïlle frontale (face exocrânienne).*

The size of the frontal fragment is approximately 4.6 x 5.4 cm. The superior orbital rim is thin and the whole bone thickness is between 5.0 and 5.5 mm.

The left humeral portion available is 13.5 cm long. The transverse size of the distal epiphysis is 5.0 cm. The diaphyseal measurements are: antero-posterior 1.3 cm and transverse 1.7 cm. The wall of the diaphysis is 2.5-3.0 mm thick. A small hypotrochanteric foramen is present. Following Steele's (1970) method for the estimation of stature from modern fragments of long limb bones, this humeral portion from Geula belongs, if it indeed portrays a female, to an individual 160-165 cm tall.

The proximal epiphysis and a 4.0 cm long shaft of a right ulna is the third human bone found at this site. The transverse size of the shaft is 1.12 cm and the antero-posterior diameter 1.28 cm. The maximum diameter of the trochlear notch is 2.20 cm.

#### DISCUSSION

The place of the Upper Pleistocene humans and their role in the evolution of modern populations has always been a subject of bitter discussions among anthropologists. Despite the relative homogeneity in the technological and cultural development of all Mousterian assemblages in the Levant during almost 200,000 years, the biometric and morphological variation among the human fossils induced some authors to classify them as two separated species, *i.e.* *Homo neanderthalensis* and *Homo sapiens*. The former inhabited mainly the European continent and parts of Western Asia, while the latter occupied Africa and parts of Western and Eastern Asia (Tchernov, 1998).

In three prehistoric caves of Israel human remains that have been assigned to the Neanderthals were found: among them the most complete adult specimens are the female skeleton Tabun C1, and the male skeletons of Amud 1 and Kebara 2. In two other sites, Skhul and Qafzeh, the remains of archaic *Homo sapiens* (early anatomically modern humans) were uncovered. The discussion on the significance of the morphological traits that relegated these groups to one or two different species or subspecies was aggravated by the uncertainty as regards to their chronological position. Where Neanderthals older than archaic *Homo sapiens* and thus their possible ancestors? Or do they appear later on in the Levant, as newcomers from the European-Western Asian population that displaced the local *Homo sapiens*? Or were both groups coeval in the Levant during more than 100,000 years?

Answers to these questions are possible only through a careful study of the chronology of the deposits where the remains were found, provided by TL, ESR and U-series techniques, as well as by the direct dating of human bones and teeth.

During the last decade the range of chronological age fluctuation attributed to the different Levantine Mousterian fossils has greatly increased. Thus, according to

Schwarcz *et al.* (1998) the mandible of the C1 female skeleton from Tabun may be dated to ca.  $34 \pm 5$  ka. These authors suggest that “she was buried in a grave excavated into layer B or C (Schwarcz *et al.*, 1998, p. 643). Therefore, “the Tabun C Neanderthal is younger than the Neanderthal from Kebara ( $60 \pm 4$  ka) and may overlap Amud 1 (less than 60 ka) (Schwarcz *et al.*, 1998, p. 644). In a rebuttal, Alpers *et al.* (2000) suggested that this date is unacceptable on the basis of stratigraphy and the dated cultural sequence of the Middle and Upper Palaeolithic in the Levant.

Bar-Yosef (1991, 2000 and references therein) placed the Tabun C1 skeleton in isotope stages 4 and part of 3, between 80 to 45 ka BP, together with the Shanidar layer D, Kebara, Dederiyeh and Amud Neanderthal fossils. The Qafzeh, Skhul and Tabun C2 mandible belong, according to this author, to isotope stage 5, dating to ca. 100 to 80 ka BP, thus excluding the possibility of coexistence between the two groups. The Early Upper Palaeolithic is dated to ca. 45 ka BP leaving “no doubt today that the rapid cultural changes through the Upper Palaeolithic times reflect the results of a major revolution” (Bar-Yosef, 2000, in fig. 2 and p. 143). These views are opposed to that of Grün and Stringer (2000) that believe on the basis of ESR dates that “the apparent ages (of Tabun C1 skeleton) are in the range of  $112 \pm 29$  ka (EU) and  $143 \pm 37$  ka (LU)”. For these authors the Skhul remains “are broadly contemporaneous in age with C1” while the latter is “earlier than the main Levantine Neanderthal sample” (p. 610).

Mercier *et al.* (1995) TL dates of flint artifacts recovered from Tabun provide an intriguing new chronology for the different archeological layers of this site. According to this scheme, the earliest Mousterian industry present in Tabun cave (layer D) may date to 250-270 ka BP and the industry of layer C dates to ca. 170 ka BP. No dates were obtained from the uppermost Mousterian layer B. The option that the Tabun I skeleton (C1) was buried from layer B and did not originally belong to layer C, as suggested by Bar-Yosef and Callander (1999) will make this fossil significantly younger than the Tabun C2 mandible. In the lack of an age determination for layer B, Mercier and his associates (1995) simply adopted as past scholar the attribution of the Tabun skeleton to layer C. These authors state, however, that even if the skeleton derives from layer B this “... will not make the Tabun I Neanderthal (*i.e.* the skeleton C1) significantly younger... (and then)... predated the *Homo sapiens sapiens* of Skhul and Qafzeh, dated to ca. 120-92 ka BP respectively (1955, p. 507).

The dating of Tabun C1 is crucial for the understanding of the relationships between all the ancient populations in the Levant. Indeed, if the almost recent chronology for this fossil as given by Schwarcz *et al.* (1998) is wrong (see Alpers *et al.* 2000), and if Tabun C1 was originally buried at the time of the deposition of layer C, for which Mercier *et al.* (1995) calculated an average TL date of  $171 \pm 17$  ka BP, then there was in this region a coexistence of ancient *Homo sapiens* and Neanderthals that lasted for more than 100,000 years.

The few human remains of Geula, found in a Mousterian context, accompanied by Upper Pleistocene fauna and chronologically assigned to an age of ca. 45 ka, confirm the long presence of archaic *Homo sapiens* in the Levant and specifically in the area of Mount Carmel. The fragment of the frontal bone, though small, indicates a morphology close to that of the frontal of Qafzeh 9, and strongly different from that of Tabun C1 and other Mousterian fossils such as Qafzeh 3 and 6, Skhul 5, Amud 1, and others. The humeral and ulnar fragments are small and gracile, a feature probably related to gender (see *tabl. 1*). In this respect the Geula upper limb is closer to that of the female from Tabun than to other Mousterian remains.

	Distal epiphysis transverse (cm)	Distal 1/3 of diaphysis (cm)	
		Ant.- Post.	Transverse
Geula cave (female?)	5.00	1.30	1.70
En Gev I (UP, female)	5.75	1.70	1.90
Nahal En Gev I (UP, female)	5.20	1.50	1.60
Ohalo II (UP, male)	6.25	1.90	2.00
Qafzeh 8 (MP, male)	7.20	2.40	2.40
Qafzeh 9 (MP, female)	5.40	2.00	2.10
Kebara 2 (MP, male)	6.30	2.00	2.30
Lahav (males) mean (N=11)	6.09+/-0.25	1.99+/-0.11	1.94+/-0.13
Lahav (females) mean (N=12)	5.36 +/- 0.26	1.68+/-0.15	1.65+/-0.12

UP: Upper Palaeolithic; MP: Middle Palaeolithic.  
Lahav: recent Beduins

*Tabl. 1 – Humerus*  
*Tabl. 1 - Humérus*

The presence in the Levant of morphologically different human types during the last 200 ka seems to be well documented. The first human fossil discovered in Israel was the fragmentary skull in Mugharet-el-Zuttiyeh excavated by Turville-Petre in 1925 (Turville-Petre, 1927). Keith described these remains as belonging to “a race which represented a variant of the extinct Neanderthal type of humanity” (1931, p. 196). From that time point until today the discussion on the phylogenetic significance of the Palaeolithic human remains found in the Levant continues relentlessly.

It will be worthless to continue here this debate, especially since the Geula remains are too scanty to provide substantial new morphological information. The importance of the Geula Cave, however, resides in the fact that it clearly indicates that ancient *Homo sapiens* are found in the late Mousterian of the Levant which together with the Skhul-Qafzeh

group, demonstrates a 100 ka overlapping time with the period when the Levant was also inhabited by the so-called Neanderthals of Tabun, Kebara and Amud.

Between 40 ka to 35 ka BP the Neanderthals disappeared in Europe, being replaced by or incorporated into modern human populations. What happened then in the Levant?

The Middle Palaeolithic human remains discovered in Israel disclose great morphological differences between European Neanderthals and the so-called Levantine Neanderthals. It has been, then, quite difficult to incorporate both groups into a single, homogeneous group. Conversely, the skeletal variance among all the Levantine Middle Palaeolithic fossils could hardly justify their segregation into two different populations. Moreover, the archaeological context indicate that all these groups had similar concepts in creating their stone tools during more than 100 ka, *i.e.*, the production of the same Mousterian lithic industry. They also shared other behavioral traits such as the control of fire, burial customs, the use of the same habitation-localities, and food sources.

The new chronological data pertaining to the Tabun C1 "Neanderthal" skeleton, on one side, and the human remains from Geula Cave, certainly a Mousterian modern human, on the other, indicates an overlap in time for the whole chronological range of the Middle Palaeolithic in this region. They reinforce the idea that the Levant was inhabited by a single, heterogeneous population, with biological ties with both African and European groups as shown by their variable morphometric traits.

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