The Neanderthal Remains from Dederiyeh Cave, Syria: Interim Report

TAKERU AKAZAWA1, YUKIO DODO2, SULTAN MUHESEN3, ADEL ABDUL-SALAM4, YOSHIRO ABE5, OSAMU KONDO2, and YUJI MIZOGUCHI6

1 Department of Anthropology and Prehistory, University Museum, University of Tokyo, Hongo, Bunkyo-ku, Tokyo 113, Japan
2 Department of Anatomy, Sapporo Medical College, S-1, W-17, Chuo-ku, Sapporo 060, Japan
3 Department of History, Damascus University, Damascus, Syria
4 Department of Geography, Damascus University, Damascus, Syria
5 Department of Archaeology, Keio University, Tokyo, Japan
6 Department of Anthropology, National Science Museum, Tokyo, Japan

Received December 18, 1992

Abstract Dederiyeh No. 2, a large cave site in northwestern Syria, was chosen for excavation after an extensive reconnaissance survey in the Afrin region in 1987 under the Syrian-Japan joint expedition. The cave is about 60km NW of Aleppo, the second largest city of Syria. The preliminary excavations of 1989 and 1990 uncovered a number of fragmentary human remains as well as rich lithic and faunal assemblages. The lithic industries of the cave are composed of two distinct assemblages. One was assigned to the Natufian class, and was found in the test excavation area. The other was assigned to the Levantine Middle Paleolithic, because of its large proportion of Levallois type cores and flakes. It was found in the main excavation area. The left humerus of a young infant was found in situ in the Levantine Middle Paleolithic context. Several adult bones and teeth, although found in secondary position in the main excavation area, appeared on anatomical grounds to be Neanderthals.

Key Words: Neanderthals, Homo sapiens, Mousterian, Natufian, Dederiyeh, Syria

INTRODUCTION

The evolution and dispersal of modern humans in West Asia has been a controversial subject since the discoveries of human remains in the caves of Tabun, Skhul, and Qafzeh (Garrod and Bate, 1937; McCown and Keith, 1939; Neuville, 1951), and in the caves of Amud and Shanidar (Suzuki and Takai, 1970; Trinkaus, 1983). Recent excavations at Qafzeh (Vandermeersch, 1981) and Kebara (Bar-Yosef and Vandermeersch, 1991; Bar-Yosef et al., 1992) have refocused attention on this issue.
At Qafzeh, reexcavations (1965–1979) by Vandermeersch provided a large collection of human skeletal remains assigned to *Homo sapiens sapiens* and associated with Levantine Mousterian industries (Vandermeersch, 1981). The Qafzeh hominids are one of the most important finds in the history of research on the evolution and dispersals of modern humans in Eurasia.

Thus, the excavations at Dederiyeh, Syria promise to also play an important role, though of a different nature, as the site is located far north of Palestine.

A wealth of Levantine Mousterian flints associated with human skeletal remains has been revealed in preliminary excavations in the cave deposits at Dederiyeh. These finds were the first evidence relating to the distribution of Levantine Mousterian human remains together with lithic materials in the northern extremity of the Dead Sea Rift Valley, as well as in Syria.

These finds have not been previously published and are now becoming better understood as a result of recent examinations of the collection. It is our purpose here to briefly describe the cave and to clarify the human skeletal remains.

**THE CAVE AND ITS SETTING**

Dederiyeh Cave No. 2 (the same was referred to by Bounni (1988) and Muhesen *et al.* (1988) as Houdeiriyeh II) is one of several found in an extensive reconnaissance survey in the Afrin Valley of northwestern Syria. It is about 400 km N of Damascus and 60 km NW of Aleppo, Syria. The cave (36°24'N; 36°52'E), at an elevation of 450 m above sea level, lies on the left bank of Wadi Dederiyeh, which crosses the western slope of Jabal Semaan, the east boundary of the Afrin Valley (Fig. 1a; Fig. 2).

The cave is located in a transitional zone between distinct physical environments: a mountainous zone to the east and the green open plains of the Afrin River to the west. The present mountainous zone is completely open and very sparsely vegetated, with no trees except for fruit trees under cultivation around the mountain villages. To the west, one of the most important grain-growing lands in Syria is found along the Afrin River plain.

The cave itself consists of a large chamber about 15 m wide and 8 m high at the cave entrance, and is about 50 m deep with a vaulted dome attaining heights of over 10 m at the back. The most impressive feature of the cave is a large vertical shaft, forming a natural chimney, whose mouth is some 10 meters wide in the ceiling of the vault. The name “Dederiyeh” means “two entrances” in Kurdish (Fig. 1b).

**STRATIGRAPHIC SEQUENCE**

The preliminary excavations of 1989 and 1990 were concentrated in two areas, the main excavation area of some 16 square meters at the back of the cave and a
Neanderthals from Dederiyeh, Syria

Fig. 1. a. View of Wadi Dederiyeh (left) crossing the western slope of Jabal Samaan, Afrin, Syria (upper).
b. View of a chamber of the Dederiyeh Cave from the main entrance showing the chimney-lighting at the back (lower).
Fig. 2. Map of the Wadi Dederiyeh region in Afrin, showing the distribution of Paleolithic sites located in the 1987 reconnaissance survey (1. Qartal Cave, Levantine Mousterian; 2. Dederiyeh Cave No. 1, Upper Paleolithic; 3. Dederiyeh Cave No. 2, Levantine Mousterian and Natufian; 4. Hammam Cave No. 2., Levantine Mousterian and Natufian; 5. Hammam open-air site, Levantine Mousterian flint factory site; 6. Hammam Cave No. 1., Upper Paleolithic; 7. Hammam Cave No. 3, Upper Paleolithic).
test excavation area of eight square meters close to the cave mouth. The excavations were
coordinated by the use of a grid system. The units were 2 m squared and
designated with numbers (1, 2, 3...) from south to north and with letters (A, B, C...)
from east to west. In 1989 and 1990 the main excavation was concentrated in eight
units (D-07, D-08, E-06, E-07, E-08, F-06, F-07, F-08). At the same time, two test
units designated M-24 and L-24 were dug close to the cave mouth in order to
investigate the depositional context of the cave in more detail.

Each square was excavated by geological and sedimentological levels. Excavated
sediments were screened through a 2 mm (sometimes a 1 mm) mesh to increase
recovery of smaller remains. In addition, after artifacts and other materials had been
exposed in situ, they were mapped in a three dimensional coordinate system. Also
a number of sedimentological samples were systematically taken from the deposits
for sieving and other analytical studies in the laboratory.

The stratigraphic sequence at the Dederiyeh Cave covers an interval of time
extending from the Levantine Mousterian to the Natufian, although the Levantine
Upper Paleolithic sequence is completely missing according to the results so far.
The following summary of the stratigraphy is based on the sequence recovered in
the preliminary excavations of 1989 and 1990.

Main Excavation Area

Although the main excavation deposit was divided into a number of geologically
defined layers, there were five major stratigraphic units, designated I to V numbered
downward.

The first unit (I), which was partially destroyed by large pits dug by humans at
a later period, was characterized by light brown and grayish loose sediment
containing angular to subangular limestone fragments and lying in a gritty, sandy
matrix. The pit, circular in outline, was about 2.5 m in diameter with a hard, flat
bottom (about 2.0 m maximum depth from the present surface). The collection is
not homogeneous. It contained two major archaeological elements, large quantities
of abraded and broken flints of Middle Paleolithic character and many pottery
fragments assigned to the Late Aramean period dating to ca. 6th to 7th century B.C.
The Middle Paleolithic deposits had been dug out in order to make the construction
mentioned above, but the function of the construction has not been determined yet.

The underlying stratigraphic units are characterized by a different depositional
context from the overlying unit I. The microstratigraphic evidence of color,
hardness, homogeneity, compactness, and stickiness suggested that all these units
had been primarily formed during the Levantine Mousterian period. This inference
is supported by the evidence of numerous hearths found in a discontinuous series
in Units II and III; also, the matrix of Unit IV consisted of a very fine-grained ash
layer, the color of which was dark gray to black as if the result of firing.
Test Excavation Area

A Natufian horizon was detected in situ in the two test-square units (no traces of Middle Paleolithic horizon has been found to date). It consisted of a thin hearth and an abundance of large- to medium-sized limestone blocks. The blocks, which rested horizontally on the surface of the stratum, suggested the final collapse of an artificial construction, since there were a number of relatively standardized blocks. Throughout, this horizon represented a single Natufian occupation of the cave.

LITHIC INDUSTRIES

The lithic materials collected in situ have been divided into two major categories: Levantine Mousterian and Natufian. We are able to present some preliminary views on the lithic industries of the Dederiyeh Cave, although much laboratory work on the collection remains to be done.

Levantine Mousterian Industry

The lithic assemblages of stratigraphic units II through V have much in common, although the collection from stratigraphic unit V was very small in number. The most outstanding feature of the assemblages is the dominance of the prepared core technique of typical Levallois type in the production of tool blanks, as reported by Copeland (1975, 1981); several cores of classic Levallois tortoise type have also been found. Another significant feature is the popularity of broad oval Levallois flakes in the production of blanks. An examination of the flaking direction showed that these oval flakes have centripetal preparation on their dorsal surfaces (Fig. 3). The great majority of the tools are Levallois type, and the remainder are Mousterian, Upper Paleolithic and miscellaneous (including denticulates) tools: side-scrapers, Mousterian points, denticulates, notches, and burins (Fig. 4). Also included among the Levallois and non-Levallois flakes are miscellaneous use-retouched pieces.

Natufian Industry

The archaeological material from test-pit excavations at the main entrance of the cave has the same characteristics, both typologically and technologically, as the industries now well defined as Natufian in the Levant (e.g., Bar-Yosef and Valla, 1992). It is characterized by microlithic tools of such geometric forms as lunates, which were modified by a series of abrupt retouches; by grinding and pounding stone tools; and by bone tools (Fig. 5).

HUMAN SKELETAL REMAINS

We discovered about 70 human skeletal fragments at Dederiyeh Cave in the 1989
Fig. 3. Levantine Mousterian industry of Dederiyeh Cave.
Fig. 4. Levantine Mousterian industry of Dederiyeh Cave.
Fig. 5. Natufian industry of Dederiyeh Cave.
and 1990 seasons. Among these, only an infant humerus was unearthed in situ in the Mousterian stratum. All other human remains were obtained from deposits disturbed in later times. However, several adult skeletal remains appeared anatomically different from those of modern humans. The remains were a mandibular central incisor, a proximal end of the ulna, a third proximal phalanx of the hand, a first proximal phalanx of the foot, and a lateral part of the scapula. Close metric and nonmetric analyses of these found close similarities to Neanderthals, or so-called late archaic Middle Paleolithic humans, such as those from Shanidar, Amud and Tabun. In this brief note, we report the anatomical outlines of these remains and the results of comparison with Middle Paleolithic and modern specimens.

Measurements of the postcranial bones in question were taken mostly following the definitions of Martin (Bräuer, 1988), Trinkaus (1983) and Baba (1991). The measurements defined by Martin are marked with "#", which corresponds to Martin's number. Measurements for the transverse flatness of the ulnar trochlear notch were devised by Dodo and Kondo (in preparation). For the postcranial bones, we used only indices calculated from linear measurements for comparison.

The comparative materials of modern humans consist of two skeletal series: one is the series of modern Japanese from the dissecting room at Sapporo Medical College, and the other is an Iranian series, ranging in date from the later Bronze Age to the Islamic period, from the Tokyo University Iraq-Iran Archaeological Excavations in 1960 and 1964 (Egami and Ikeda, 1963; Ikeda, 1968). All the metric data on the comparative series of moderns were collected by Dodo and Kondo without taking sexes into consideration.

The metric data of the Neanderthal skeletons used for comparison were those from Shanidar 1, 3, 4, 5, 6 and 8 (Trinkaus, 1983), Amud 1 (Endo and Kimura, 1970), Tabun 1 (McCown and Keith, 1939) and Kebara (Vandermeersch, 1991). In addition, we were able to use a few indices on Neanderthal 1, La Chapelle-aux-Saints, La Ferrassie 1, 2 and Spy (individual numbers unknown) of the European Neanderthals, and Skhul 4 of the Near Eastern Middle Paleolithic. For measurements of proximal phalanges of the big toe, available were the raw data on La Ferrassie 1, 2, Kiik-Koba 1, Krapina 250.2, 250.4, Spy 25F, 25G and Skhul 4 (Trinkaus, 1975), from which we could calculate the indices necessary for comparison. In comparison, sexes and sides were not taken into account, but when both sides were available in a given specimen, the data from the same side as the Dederiyeh remains were used.

Dental measurements were taken with sliding calipers to the nearest 0.1 mm, according in large part to the definitions of Fujita (1949). For comparative purposes, a root-neck index for anterior teeth was devised as follows:
Neanderthals from Dederiyeh, Syria

\[ \text{Root-neck index} = \frac{\text{Maximum mesiodistal diameter of the root}}{\text{Mesiodistal diameter of the neck}} \times 100. \]

For the tooth in question, nonmetric observations as well as linear measurements and indices were taken into account for comparison. The labial surface convexity of the incisor crown was nonmetrically observed on the basis of the following grading system: 0 – the labial side of the horizontal cross section of the crown is flat or concave at the middle level of the crown; 1 – the labial side of the cross section is slightly convex; 2 – the labial side of the cross section is relatively strongly swollen; 3 – the labial side of the cross section is markedly swollen like a semicircle.

Two modern samples of mandibular central incisors from Indian (of South Asia) and Japanese individuals were measured and observed as controls. These samples are housed in the Department of Anthropology, National Science Museum, Tokyo. We observed the labial convexity of the mandibular central incisors of Neanderthals based on published photographs or figures, or plastic casts. The data sources for these and the measurements of the Neanderthal incisors are as follows: Sakura (1970) and plastic cast for Amud 1; McCown and Keith (1939) for Tabun 1; Gorjanović-Kramberger (1906) and Wolpoff (1979) for Krapina mandibles H and J; and Virchow (Weidenreich, 1937) and Wolpoff (1971) for the Ehringsdorf Child. Since the Dederiyeh skeletal remains under consideration were not reliably sexed, all the samples compared were combined for sexes.

The following are brief descriptions and the results of comparison for the skeletal remains suggestive of Neanderthals.

**Left Humerus of a Young Infant (No. 9001) (Fig. 6)**

This is an almost complete diaphysis colored dark brown. The bone was unearthed in situ in the Mousterian formation. Thus, we could regard it as the humerus of a genuine Middle Paleolithic infant. The maximum length of the shaft is 69.9 mm, which corresponds to the humeral length of the Japanese infant aged 3 to 5 months. The maximum and minimum diameters of the midshaft are 6.1 mm and 5.4 mm, respectively, and the maximum breadth of the distal end is 18.4 mm.

**Proximal End of the Left Ulna (No. 8901) (Fig. 7)**

This specimen contains the olecranon and trochlear notch and is brown. The coronoid process is broken off. The vertical ridge of the trochlear notch is very prominent compared with those of modern humans (Fig. 7: bottom). Such a tendency is recognized in the plaster casts of Amud 1, Neanderthal 1 and Spy Neanderthals.

The olecranon breadth (#6) and the depth of olecranon (#7) of Dederiyeh 8901
are 22.3 mm and 24.0 mm, respectively. Thus, the olecranon-depth-index (#7/#6) amounts to 107.6. The indices in Shanidar 4, 6, Tabun 1 and Amud 1 also exceed 100, whereas the averages of this index in the modern Japanese and excavated Iranian series are both less than 100. The olecranon-depth-index of Dederiyeh 8901 is compared with those of the Neanderthals and two modern samples in Fig. 8, using box and whisker charts. In these charts, the horizontal bar indicates the range of variables, and the three vertical lines show the first quartile, median and third quartile, from the left to the right. The index of Dederiyeh 8901 is close to the upper limit of the range of variation for both the Japanese and Iranian series, whereas it is at about the middle of the Neanderthal range of variation.

Fig. 6. Left humerus of a young infant (Dederiyeh 9001). Left: anterior view, Right: posterior view.

Distributions of the transverse flatness index of the trochlear notch and the olecranon depth index in the Middle Paleolithic and moderns are given in Fig. 9. It is apparent that the Dederiyeh specimen is situated within the range of variation of Neanderthals.
These suggest that Dederiyeh 8901 should be considered the ulna of a Neanderthal.

**Proximal Phalanx of the Hand (No. 8909) (Fig. 10)**

The distal half of the proximal phalanx is preserved. It is colored dark brown. Based on comparison with the manual phalanges of modern Japanese, Dederiyeh 8909 is considered most likely the third proximal phalanx of the right hand. The midshaft breadth and midshaft height are 12.0 mm and 7.2 mm, respectively, and thus the breadth-height index of the midshaft is 60.0. The midshaft of Dederiyeh
Fig. 8. Comparison of olecranon-depth-index of the ulna by box and whisker charts. In these charts, the horizontal bar indicates the range of variables, and the three vertical lines show the first quartile, the median and the third quartile, from the left to the right.

Fig. 9. Transverse flatness index of trochlear notch and olecranon depth index of the ulna in the Middle Paleolithic and modern humans. ○: modern Japanese, ★: Dederiyeh, ▲: Neanderthal 1, AM1: Amud 1, SPY: Spy no identity nos., SK4: Skhul 4)
8909 is very flat in the dorso-palmar dimension. The distal breadth is 13.2 mm and the distal height 8.4 mm. Therefore, the breadth-height index of the distal end is 63.6. The distal end of Dederiyeh 8909 is also quite flat.

The midshaft index of Dederiyeh 8909 is compared with those of the Neanderthals and two modern series in Fig. 11. The index of Dederiyeh 8909 is below the range of variation for the modern Japanese series. It is near to the lower limit of the range of variation for the Iranian series, but well within the range of variation for Neanderthals. The distal end index of Dederiyeh 8909 is compared with those of the Neanderthals and two modern series in Fig. 12. This index of Dederiyeh 8909 is below the lower limit of the range of variation for the Japanese. It is approximately intermediate between the ranges of variation for the Iranian and Neanderthals. However, it is slightly closer to the median for the Neanderthals than to that for the Iranian series.

Distributions of the breadth-height indices of the midshaft and distal end in the Middle Paleolithic and modern humans are shown in Fig. 13. Obviously the position of Dederiyeh 8909 is within the Neanderthal range of variation.

These results, in particular that for the midshaft index, strongly suggest that Dederiyeh 8909 should be considered the third manual proximal phalanx of a Neanderthal.

![Fig. 10. Third proximal phalanx of the right hand (Dederiyeh 8909). Left to right: dorsal view, palmar view and medial view.](image)
Fig. 11. Comparison of midshaft breadth-height index of the third manual proximal phalanx.

Fig. 12. Comparison of distal end breadth-height index of the third manual proximal phalanx.
Neanderthals from Dederiyeh, Syria

Left First Proximal Phalanx of the Foot (No. 8906) (Fig. 14)

This bone is in a good state of preservation, with only slight damage to the dorsal surface of the proximal end. It is brown in color. The phalanx length (#1) is 29.0 mm, the midshaft breadth (#2) is 15.5 mm, and the midshaft height (#3) is 10.7 mm. Consequently, the robusticity index [(#2+#3)/#1] is 90.3. The robusticity index of Dederiyeh 8906 is compared with those of the Neanderthals and two modern series in Fig. 15. The index of Dederiyeh 8906 is far above the range of variation for the Iranian series. It is within the range of variation for both the modern Japanese and Neanderthals, though closer to the typical Neanderthal value than the typical Japanese average.

The height and breadth of the distal end are 11.1 mm and 18.6 mm, respectively, and thus the breadth-height index of distal end is 59.7. Figure 16 shows the distributions of distal end index and robusticity index for the Middle Paleolithic and moderns. The Dederiyeh specimen is situated around the middle of the Neanderthal range of variation.
The height and breadth of the proximal articular facet of Dederiyeh 8906 are 12.5 mm and 16.9 mm, respectively. Thus the breadth-height index of the facet is 74.0. Figure 17 shows the distributions of breadth-height indices of the distal end and proximal articular facet for the Middle Paleolithic and modern humans. The position of the Dederiyeh specimen is within the range of variation for Neanderthals. These results suggest that the left hallucial proximal phalanx of the Dederiyeh collection is that of a Neanderthal.

Fig. 14. Left hallucial proximal phalanx (Dederiyeh 8906). Left to right: dorsal view, plantar view and medial view.

Fig. 15. Comparison of robusticity index of the hallucial proximal phalanx.
Fig. 16. Distal breadth-height index and robusticity index of the hallucial proximal phalanx in the Middle Paleolithic and modern humans.

*: modern Japanese, ○: Iranian, ★: Dederiyeh, ▲: Middle Paleolithic (KR2, 4: Krapina 250.2, 250.4, FE2: La Ferrassie 2, KK1: Kiik-Koba 1, SH1, 3, 6, 8: Shanidar 1, 3, 6, 8, SK4: Skhul 4)
Lateral Part of the Right Scapula (No. 9015) (Fig. 18)

This specimen contains a part of the acromion and the proximal part of the axillary border. The glenoid cavity is damaged. The color of the bone is tan.

The anatomy of the axillary border of Dederiyeh 9015 is of the typical dorsal sulcus pattern seen in the scapulae of Neanderthal 1, Shanidar 1 and Tabun 1. According to Trinkaus (1977, 1983), the dorsal sulcus pattern is extremely rare or absent in most recent samples, but it appears in more than 55% of Neanderthals. Therefore, this scapula is probably that of a Neanderthal.

Mandibular Incisor (No. 8902) (Fig. 19)

This is a left mandibular central incisor in a good state of preservation. One fourth of the crown is worn off, with the dentine exposed (Broca’s grade 2). The color
of the root is brown.

The measurements, indices and labial surface convexity of the Dederiyeh 8902 tooth are compared with those of the Neanderthals and two modern series in Table 1. Figure 20 shows the standardized deviations of tooth measurements from the means for the mandibular central incisor of modern Japanese. It is apparent from Table 1 and Fig. 20 that Dederiyeh 8902 is totally different from the central incisor of the modern Japanese and Indian specimens. In particular, the mesiodistal diameters of the dental neck and root, and the root-neck index are far larger than

Fig. 18. Right scapula (Dederiyeh 9015). Top: lateral view, Bottom: dorsal view.
those of modern humans. Moreover, the grade 2 expressivity of the labial surface convexity seen in Dederiyeh 8902, and all the Neanderthal incisors compared, is completely absent in the modern Japanese and Indian data. These results strongly suggest that Dederiyeh 8902 is the mandibular central incisor of a Neanderthal.

![Fig. 19. Left mandibular central incisor (Dederiyeh 8902). Left to right: labial view, lingual view and distal view.](image)

![Fig. 20. Standardized deviations of metric traits of the mandibular central incisor (Dederiyeh 8902) from the means for modern Japanese.](image)
Table 1. Comparisons of the central mandibular incisor from Dederiyeh Cave with those of modern humans and Neanderthals in several metric and nonmetric characters\(^1\)

<table>
<thead>
<tr>
<th>Sample</th>
<th>Side</th>
<th>LL diameter of the crown</th>
<th>MD diameter of the neck</th>
<th>LL diameter of the neck</th>
<th>Max. MD diameter of the root</th>
<th>Root-neck index</th>
<th>Labial surface convexity</th>
<th>Expressivity (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>M (n) SD</td>
<td>M (n) SD</td>
<td>M (n) SD</td>
<td>M (n) SD</td>
<td>M (n) SD</td>
<td>n 0 1 2 3</td>
<td></td>
</tr>
<tr>
<td>Dederiyeh (No. 8902)</td>
<td>L</td>
<td>6.1 (1) –</td>
<td>4.2 (1) –</td>
<td>6.0 (1) –</td>
<td>4.4 (1) –</td>
<td>104.8 (1) –</td>
<td>1 – – 100.0 –</td>
<td></td>
</tr>
<tr>
<td>Modern Japanese</td>
<td>R+L</td>
<td>5.75 (30) 0.41</td>
<td>3.43 (29) 0.24</td>
<td>5.43 (25) 0.39</td>
<td>3.43 (29) 0.24</td>
<td>100.0 (29) 0.00</td>
<td>26 84.6 15.4 –</td>
<td></td>
</tr>
<tr>
<td>Modern Indians</td>
<td>R+L</td>
<td>5.66 (16) 0.46</td>
<td>3.25 (16) 0.23</td>
<td>5.30 (15) 0.64</td>
<td>3.25 (16) 0.23</td>
<td>100.0 (16) 0.00</td>
<td>16 25.0 75.0 –</td>
<td></td>
</tr>
<tr>
<td>Neanderthals(^2)</td>
<td>R+L</td>
<td>7.23 (7) 0.13</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>6 – – 100.0 –</td>
<td></td>
</tr>
</tbody>
</table>

\(^1\) The samples compared were combined for sex.
\(^2\) Amud 1, Tabun 1, Krapina H and J, and Ehringsdorf Child.
Afrin Valley is the northern extremity of the Dead Sea Rift Valley that is linked to the Great Rift Valley of Africa. In the Rift Valley are many prehistoric sites directly concerned with the anthropological problems of when, how, and why human beings evolved. To date, a long series of fossil hominid remains have been found at many different locations in the Rift Valley.

When early hominids spread beyond their African homeland into other continents, the Dead Sea Rift must have been one of their major dispersal routes. Their dispersals into Eurasia from the Dead Sea Rift must have been through the Afrin Valley. Thus, the Afrin region is expectably a most important paleoanthropological field, but investigations there have been few to date.

Although the 1989 and 1990 excavations at Dederiyeh were restricted in area, the data we have obtained strongly support the expansion of excavation work in this region. Also, interesting subjects for future research have become clear, especially that of early hominids in Syria and their adaptive strategies in relation to the environmental conditions in the Afrin Valley.

Seventy or so pieces of human bones and teeth were discovered at Dederiyeh Cave. Of these, the left humerus of a very young infant was identified as a Middle Paleolithic humerus on the basis of the archaeological and geological evidence. Further, one adult tooth (the mandibular central incisor) and four adult postcranial bones (the proximal end of the ulna, the third manual proximal phalanx, the hallucial proximal phalanx and the lateral part of the scapula) are considered most likely those of Neanderthals on anatomical grounds.

Because of some variations in the Levantine Middle Paleolithic industries found with human remains, it has been proposed that the Levantine Mousterian can be subdivided into three sequential phases termed Tabun D, Tabun C, and Tabun B. The phases were first defined by the depositional contexts of Tabun Cave and their associated lithic assemblages (Copeland, 1975), and recent investigations of succeeding excavation materials have primarily confirmed the sequential model of the Levantine Middle Paleolithic (e.g., Bar-Yosef, 1992; Meignen and Bar-Yosef, 1988, 1992; Nishiaki and Copeland, 1992).

Phase D, the earliest, contains predominantly unipolar convergent cores of Levallois type with minimum preparation of the striking platforms; numerous Levallois and retouched points, frequently elongated; numerous blades; and a high proportion of Upper Paleolithic tools. This industry is found at Tabun Layer D, Abou Sif, and Douara IV.

Phase C, next in the sequence, is characterized by numerous broad, oval flakes frequently struck from Levallois cores with radial preparation. This industry is common in Tabun Layer C, Skhul, and Qafzeh.
Characteristic of the final Phase B are mainly unipolar convergent Levallois cores and numerous broad based, short, thin points and flakes. Examples of this industry are Tabun Layer B, Kebara Units VI-XII and Keoue. Radially prepared cores and their products were found in the upper context of this entity (Bar-Yosef, 1992, p. 197).

In comparing the Dederiyeh Middle Paleolithic assemblages with the scheme described above, the Dederiyeh assemblage seems to match the Phase B or Phase C Mousterian, but not Phase D. The Dederiyeh assemblages are characterized by the common presence of broad, prepared flakes derived from radially prepared Levallois cores, and also broad-based points.

Apparently, excavations at Dederiyeh Cave can promise new perspectives on the Levantine Mousterian sequence and its relation to the evolution of fossil human types.

ACKNOWLEDGEMENTS

A joint Syria-Japan project under the auspices of Damascus University on the one hand and the University of Tokyo on the other is well in progress through the kind arrangements of the Director General of the Syrian Department of Antiquities and Museums, Dr. Ali Abu Assaf. Dr. Adnan Bounni, Director of Excavations in the Department, was most helpful in facilitating our permission and in making necessary arrangements. We also acknowledge our gratitude to Dr. Wahid K. Khayata, the regional representative of the Aleppo Museum, who provided invaluable support to us.

Throughout the project, the major source of financial support was Japanese Grant-in-Aid for Overseas Scientific Survey, and on behalf of the University of Tokyo, we wish to express our profound thanks to the Japanese Ministry of Education, Science and Culture for the grant G-01041016 (1989-1991), without which the successful accomplishment of this undertaking would have been impossible.

REFERENCES


Ikeda, J. (1968) Anthropological Studies of West Asia II (The Tokyo University Iraq-Iran Archaeological Expedition Report 9), The Institute of Oriental Culture, The University of Tokyo, Tokyo.


Wolpoff, M. H. (1971) Metric Trends in Hominid Dental Evolution (Case Western Reserve Studies in Anthropology 2), Case Western Reserve University, Cleveland.