

Douara Basin Sites Prehistoric Work-shop Station Near Palmyra, Syria

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Introduction

This paper is an analytic report on the flint artifacts collected from sites, presumably prehistoric work-shop stations, newly discovered in the Douara Basin near Palmyra, Syria. The Douara Basin is located in the Palmyra Mountains approximately 20 km northeast of the oasis town of Palmyra in the north Syrian desert. It is a typical anticlinal basin surrounded by Jebel ed-Douara and lies from about 500 to 600 m above sea level.

The present writer has been working on the Palaeolithic Douara Cave site at Palmyra, as a member of the Tokyo University Scientific Expedition to Western Asia, since 1967. Through partial investigations of the Douara Cave in 1970, it was found that the cave had a deposit more than 4 meters in depth, divided into several geologically and culturally defined layers with two distinct lithic assemblages: Middle Palaeolithic from the Lower Horizon and Upper Palaeolithic from the Upper Horizon (AKAZAWA, 1973, 1974; AKAZAWA et al, 1973; ENDO, 1973).

In 1974, a second season's excavation was initiated.¹⁾ The work was concentrated mostly on the excavation of the cave deposits, as had been done in the preceding season, in order to expose the complete sequence of cave deposits from the surface to the bed rock, and to examine the industrial succession according to the depositional sequence of the cave. In association with the excavation work, geological and geomorphological surveys in the vicinity of the cave were also undertaken for the purpose of clarifying the morphological and geological history of the surrounding area. During the surveys, physical geographers with the expedition found many flint strewn fields, characterized by concentrations of flint gravel on their surfaces, in the Douara Basin.

These flint strewn fields are usually located adjacent to exposed flint beds, although the fields vary in dimension and density of flint. In nearly all cases, the flint did not prove to be of human workmanship, or else was so crudely crafted as to be

1) The 1974 season's expedition was organized as one of the overseas field study projects of the University of Tokyo, headed by Professor Kazuro HANIHARA of the Department of Anthropology, the University of Tokyo. It was financed by the Grant for Overseas Research in 1974 from the Japanese Ministry of Education.

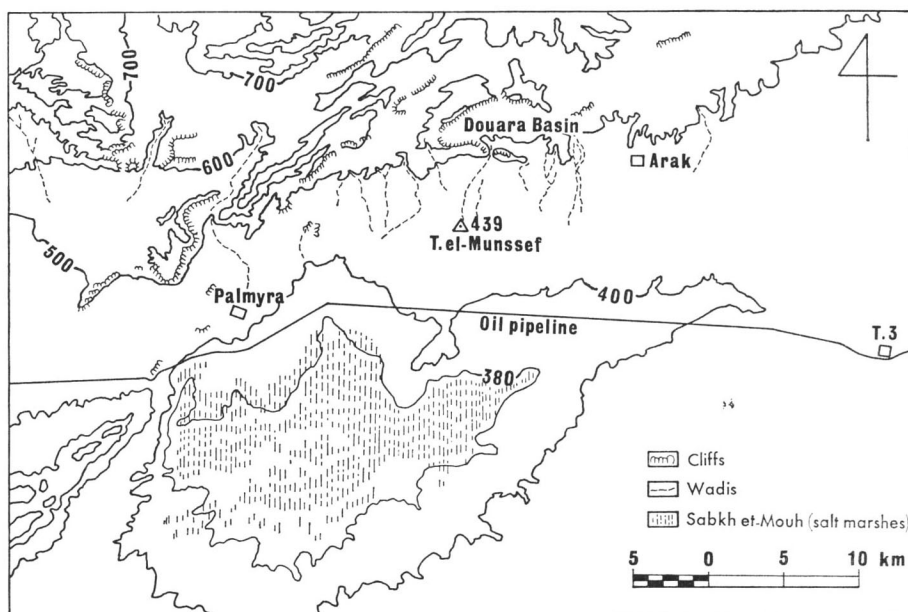


Fig. 1. General map of the Palmyra region showing the location of the Douara Basin.

undeterminable. However, in some fields, a certain percentage of artifactual specimens were found. During the surveys of the 1974 season, fifteen locations with concentrations of flints characterized by a moderately high frequencies of artifactual flints were located. These fifteen locations are numbered 33 through 42, and 59 through 63. The numerical sequence corresponds to the order in which each locality was investigated by the physical geographers of the expedition.

Thousands of pieces classifiable as artifacts were collected from these localities. Through brief examination of partial samples, it was found that the flint artifacts in each locality usually represented a single assemblage belonging to a single period, although occasionally flints of different periods were collected, suggesting a mixture of assemblages.

The assemblages are characterized by cores, blanks, and a large quantity of waste pieces produced in the preparation of the cores and in the production of tools. Tools with secondarily retouched working edges were negligible in number. This evidence suggests these localities, all very close to flint beds, were work-shop stations, but the collection is all surface material and pertinent analysis has not been completed.

The material described in this paper were collected from three Localities: 60, 38 and 35. Each of these localities was characterized by higher concentrations of flint gravel and flint artifacts than other localities discovered in the Douara Basin. However, the flint artifacts in these three localities are markedly different from each other, both technologically and typologically.

The artifacts from Locality 35 are characterized by a large quantity of naviform type cores belonging to the early Neolithic, but the artifacts from the other two localities exhibit Palaeolithic characteristics. Locality 38 produced Middle Palaeolithic type artifacts characterized by a high frequency of Levallois type cores, and flakes detached by a Levallois technique, while Locality 60 yielded a large number of bifacial tools, possibly belonging to the final stage of Acheulean industries in Western Asia.

Material and Methods of Description

The collections are all surface material, consisting of some 600 pieces from Locality 60, about 750 pieces from Locality 38, and around 600 pieces from Locality 35. At Localities 60 and 38, a 15×15 meter area was set up arbitrarily in order to obtain systematic sample data. In each unit every specimen showing human workmanship was collected. Next, the total number of flint material remaining was tallied.

The entire collection consists of surface material, and the technique of describing them is based upon techno-typology alone. The findings of the physical condition of

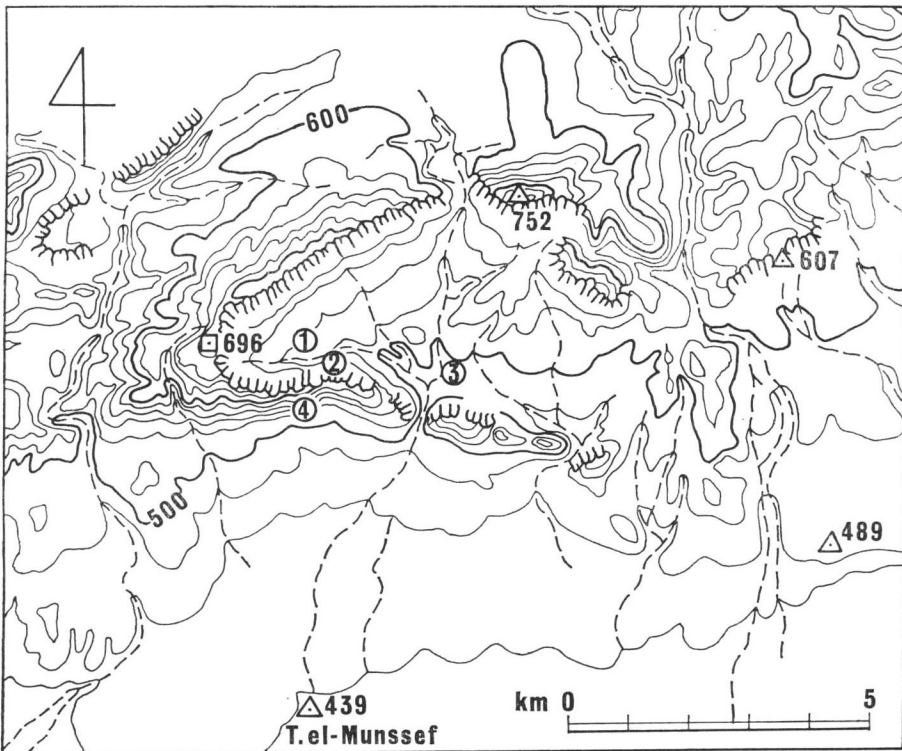


Fig. 2. Geographical map of the Douara Basin area showing the locations of the sites described in this paper (1. Locality 60, 2. 38, 3. 35, 4. Douara Cave Site).

the flint material is usually utilized as a guide to clarify an assemblage and its period when dealing with a collection of this kind. However, the physical condition of the material depends so much on factors which vary from place to place that it may be no guide for comparison of collections from different locations. Accordingly, it is not possible, in the absence of the material from stratified deposits, to form any conclusions on the collections merely by means of the physical condition of the flint material.

This paper will not introduce any quantitative or strictly analytic results in regard to the technology and typology of the collection, since these studies are still in progress, and remarks will be restricted to the general typological and technological characteristics of the artifacts. The present paper is, therefore, a brief progress report on the examination of the materials from these three localities.

Following a brief description of flint materials collected, and each locality from which the materials were derived, each collection will be described as follows:

- (1) A description of the technological categorization of cores from which blanks are removed,
- (2) A description of the technological categorization of tool blanks and by-products,
- (3) A description of typological categorization of tools, but bifacial tools collected from Locality 60 will be described in the second section as bifacial blank component.

Description of the Flint Artifacts

I. Locality 60

A total number of some 600 flint artifacts were collected from this locality. Among them, some 300 pieces were collected systematically from the 15×15 m unit, although a total of some 1,500 flint material were found scattered in the square. The flint materials are usually patinated grayish brown and mahogany. Almost all pieces are abraded, although the degree of wear varies to a large extent. Generally speaking, the physical condition of the flint, including patination and abrasion, is different from that of Localities 38 and 35.

(1) Cores

The pieces classifiable as cores, from which blanks were removed, are roughly divided into two types: a non-Levallois type, and a Levallois type.

The cores of the non-Levallois type are generally characterized by features such as a prismatic form, cortex on the reverse surface, an oval or roughly rectangular cross-section, and a series of roughly parallel and uni-directional flaking scars showing a number of removals from a single-plane striking platform. The flaking surface is generally observed on a single flat surface. The flaking scars are variable in shape, suggesting that different kinds of blanks, such as flakes, points and blades were removed. In any case, the morphological features of the cores are very primitive, without

any elaborate preparation before the removal of flakes.

The Levallois type cores are very few in number. The cores of this type are somewhat variable in form but share several characteristic features. All of them have more or less centripetal flaking scars along the perimeter for core preparation, and cortex on the reverse surface. The striking platform is prepared by secondary faceting. Almost all of the pieces are flake and point types, having a broad and triangular flaking scar on their main flaking surfaces, from which flake or point type blanks were removed. These Levallois cores are elaborately prepared for blank removal, as contrasted to the primitive preparation of the non-Levallois cores.

(2) Tool blanks and by-products

The most striking feature of the collection from Locality 60 is the occurrence of bifacial tools in association with a large quantity of non-Levallois flake elements detached from a non-prepared type of core.

Bifacial component

The bifacial component can be defined as tools made by flaking a nodule or a pebble of flint bifacially. This type of component is roughly classified into four types of hand-axes, cleavers, bifacially retouched scrapers and chopping tools.

Almost all specimens classified as hand-axes are of a pear-shaped type characterized by a roughly elongated triangular outline, elaborately pointed on one end and rounded at the other. Both surfaces are extensively flaked with a large, broad type of retouch for removing the cortex from the raw material and for shaping the material into its desired form. Along the margin of both faces, a somewhat flat, *écaillé* type retouch is applied for making a sharp cutting edge. However, another type of retouch, the Quina retouch, is applied along the margin of the tool in association with the *écaillé* type, particularly along the thickest part of the margin.

Among these hand-axes, some specimens have a series of large flaking scars on one surface. One of them has a large flaking scar removed from the butt, and centripetal flaking scars removed from the other margin, suggesting that it was prepared as a Levallois type core. However, it is definitely classified as a hand-axe of roughly the pear-shaped type, exhibiting an approximately oval outline with a rather pointed end, and having elaborate flaking to shape the edge.

The most abundant tools classifiable as bifacial components are bifacially retouched scrapers. Those can be distinguished from the hand-axe category due to features such as the total blank form and the flaking employed to make the tool. All specimens are roughly rectangular, oval and rounded in outline, with a plano-convex and relatively thin cross-section. Both faces of almost all specimens are completely or nearly completely covered with flat bifacial retouches. These specimens fall into two forms according to the type of their working edges: one is characterized by a plano-convex cross-section with a Quina type retouch on the edge of the convex surface of the tool, and the other by an extremely thin and roughly symmetrical cross-section resulting from an elaborate and highly controlled centripetal flaking of both surfaces. The latter is the most dominant type of tool identifiable as a bifacial

component in the present collection.

The other two types of bifacial tools are cleavers and chopping tools. Specimens classified as cleavers are characterized by having a broad working edge at right angles to the axis of a bifacially flaked blank. The working edge suggests the so-called tranchet-edge formed by a blow crossing the upper end of the piece removing a wide flat scar from one face.

Some pieces identified as chopping tools are pebbles characterized by having a cutting edge formed by a series of broad, flat retouch flakes taken off one end of the piece. The cutting edge is very sharp, resulting from flat and intensive flaking procedures. However, it is very difficult to identify these specimens as chopping tools, or unfinished tools, perhaps bifacially retouched scrapers.

Flake component

Flake blanks of the collection examined fall into two types: Levallois and non-Levallois, with the non-Levallois technique prevailing. The non-Levallois type of blanks fall into roughly two categories in form: large flakes, and small flakes.

The large flakes are generally characterized by extremely irregular and massive forms, with a patch of cortex on their upper surfaces. The upper surfaces of the flakes are usually covered with roughly parallel, uni-directional scars running from the platform, although there are a small number of flakes with roughly centripetal flaking scars on their main flaking surfaces. The striking platform is usually of an un-faceted type and characterized by a thick, smooth butt with a high angle of over one hundred degrees.

Among these large flakes, the Levallois pieces are recognized as being moderately numerous. They are generally characterized by centripetal flaking scars on their surfaces and a few have elaborately prepared striking platforms, although they appear in low frequency and are negligible in proportion to the total collection examined.

The small flakes vary in form. The most dominant is the small flake of 3 to 5 cm in maximum length, and relatively thin and irregular in shape. Generally speaking, these flakes fall into two types: one is characterized by cortex on the main flaking surface, and the other by rather centripetal flaking scars on the upper surface. Some of these small flakes have a faceted striking platform, although the faceting technique is not elaborate. The other type of small-sized blank is a flake with an elongated triangular outline, having well-controlled uni-directional flaking scars on the main surface. Almost all of these blanks have un-faceted striking platforms.

(3) Tools

Almost all flakes examined show an extensive edge-retouch along their margins. However, the retouch is, with a few marked exceptions, very abrupt, irregular, and intermittent on both faces of the flake. Evidence suggests that this is not an intentional retouch to make a true working edge, but produced accidentally by natural crushing. In addition, a certain proportion of these retouches are relatively fresh,

and patinated a distinctly different color from the rest of the flake, which is generally heavily abraded and deeply patinated mahogany, brown and cream in color. Accordingly, very few pieces are definitely classifiable as tools if we follow BORDES' (1961: 17) scheme, which defines the Levallois tool category as those flakes that were intentionally shaped on the core before removal, without significant secondary retouching along the margin.²⁾ Actually, almost all of the specimens classified as Levallois have a secondary edge-retouch along their margins. However, this retouch is not an artificial one, but an accidental, natural one, as mentioned above. Accordingly, it is difficult to distinguish blanks from which tools are made, from by-products produced in the preparation of the cores and bifacial tools collected.

II. Locality 38

A total of some 750 flint artifacts were collected from this locality, with some 600 pieces systematically collected from the 15×15 m selection unit. The total number of flint pieces scattered in the square unit was about 4,500.

The flint materials are all patinated, varying in color from cream to buff, or gray to brown. The majority are unabraded, and the small number of abraded specimens do not differ typologically from the rest. Interestingly, almost all of the flint artifacts collected in this locality are classified into the Levallois component, seen clearly in the cores and blanks.

(1) Cores

The majority of cores collected from this locality fall into three categories: a Levallois type, a discoidal type, and a prismatic type.

The Levallois type cores fall into three forms—a flake type, a blade type and a point type, from the type of blank intended. These Levallois cores are variable in form, but they share several characteristic features: all of them have centripetal flaking scars along the perimeter of both faces of the cores as preparation before blank removal, but have more or less cortex on the reverse surfaces as opposed to the main flaking surface. The striking platform is single for the flake and point type cores, and double for the blade type cores. All of them are characterized by having oblique and prepared platforms. Among these three Levallois type cores, only the blade type has characteristic features different from those of the other two type cores. The blade cores are roughly rectangular in outline with a series of bi-directional (from opposing directions), parallel flaking scars on their main surfaces.

2) Determination of "Levallois" and "non-Levallois" designation for blanks always becomes a subject of discussion in association with the classification of Middle Palaeolithic assemblages. Researchers do not present identical views as to what is or is not "Levallois". For example, MCBURNEY uses the term in a rather more restricted sense than that of BORDES. MCBURNEY (1967: 77) classifies only flakes showing evident traces of multiple preparation of the dorsal surface together with the use of a true faceted platform. In the present paper, a specimen has been categorized as Levallois if it was intentionally shaped on the core before removal and had centripetal preparation scars on the dorsal surface (BORDES, 1961: 17).

On the other hand, the flake and point type cores have generally single flaking scars, broad or triangular in outline, as their main flaking surfaces.

The discoidal cores, being the most popular type next to the Levallois cores, are characterized by having a number of centripetal flaking scars along the perimeter of a core on their main flaking surfaces. All of these cores are somewhat flat, and rounded in outline. The preparation of cores is generally elaborate, with oblique centripetal flaking scars along the perimeter of the reverse surface. The striking platform is simple, without any secondary retouching for platform preparation.

The prismatic type of core is characterized by a generally prismatic form, with a rounded or trapezoidal cross-section, and a series of uni-directional parallel flaking scars on the main flaking surface. The striking platform is single and plain. The physical condition of these flints fall into two types: one is heavily abraded and patinated cream, and the other is unabraded and patinated brown and mahogany. The unabraded specimens differ technologically from all the others at this location, including the Levallois and discoidal cores. They may be later specimens but dates can not be fixed with certainty.

(2) Tool blanks and by-products

The most striking feature of the total collection is the dominant role played by the Levallois technique in the production of tool blanks.

The blanks classifiable as Levallois fall into three types: flakes, blades, and points. The blades and points are the most popular type, with the so-called flake type blanks being few in number, and, in particular, very few Levallois flakes have centripetal flaking scars on their main surfaces. The blades are well-made specimens of elongated flakes with parallel-sided edges.

The striking platform of these blanks is relatively large-sized and massive in form, falling into two types: faceted, and unfaceted. The faceted type is elaborately retouched. The angle of the striking platform of the unfaceted type is relatively low, about ninety to one hundred degrees.

The naturally backed pieces are recognized as the prominent blank in the present collection. They are generally characterized by the presence of a naturally blunted edge along one margin, and a naturally sharpened edge along the other margin. The blunted edge probably corresponds to the original cortex of the core.

(3) Tools

Almost all of the flakes collected have extensive edge retouching along their margins, showing the same characteristic features as those of Locality 60. Clearly this was produced by natural crushing, not by intentional working for the production of scraping edges.

Accordingly, the specimens classifiable as tools with certainty are just the Levallois type tools. However, in contrast to a large amount of the Levallois type cores found, the amount of Levallois type tools is relatively small, and the majority of the flakes examined are irregular shaped pieces of the non-Levallois type. However, the Levallois tools identified according to BORDES' designation are generally well-made

specimens, and, in particular, many of the Levallois blades show elaborately controlled parallel-sided edges.

III. Locality 35

A total number of about 600 flint artifacts were collected from this locality. Almost all of these flints are patinated mahogany, and are somewhat abraded. In association with those flints, a small number of heavily abraded and deeply patinated pieces were found. These two types of flint artifacts are clearly different from one another, both technologically and typologically.

The majority of the collection from this locality differs completely from those of Localities 60 and 38, both techno-typologically and chronologically. The collection from site 35 consists of cores of the so-called naviform type, and a large quantity of by-products produced during the preparatory flaking of the cores. Cores of this kind indicate that they are a type peculiar to the pre-pottery Neolithic in the Levant, contrasting the collection from the other two localities which are basically characterized by a Palaeolithic character.

(1) Cores

The majority of cores collected in this locality belong to the naviform type. Together with them, a very small number of Levallois and discoidal cores are found. The physical condition, including abrasion and patination, markedly differs, with the Levallois and discoidal cores deeply patinated and heavily abraded in comparison with the rest. The Levallois and discoidal cores, although very small in number, are typical specimens. Almost all of the specimens became reduced in thickness, as blanks were removed continuously, in contrast with the same type cores found in the Locality 38 which are usually thick and massive.

The most prominent feature of the collection from this locality is the large quantity of naviform type cores and the by-products corresponding to cores of this kind. The naviform cores are characterized by having double and oblique striking platforms at both ends of the long axis and by trapezoidal or roughly triangular outlines as seen from the side. The striking platforms are produced by removal of a core-tablet. Over the front of the cores, a series of parallel and elongated flaking scars run bi-directionally from both platforms. The remaining portions are covered with irregular sized flaking scars, for core preparations.

Together with these cores, regularly or irregularly shaped pieces of flint chunks are found. These are characterized by a naviform shape of roughly rectangular outline, as seen from the side, and with some cortex retained on one or two faces. All the surfaces are flaked, but the preparation is not perfect, and presumably, they are unfinished specimens of the naviform type cores.

In connection with the naviform cores, a large quantity of by-products were found. These are roughly divided into several groups according to MORTENSEN's (1970) scheme: primary and secondary core-tablets, primary and secondary crest blades, and plunging flakes. All of these specimens correspond to manufacturing

processes of the naviform type core.

The core-tablets were produced during the preparation of the core to provide a striking platform (primary tablet), and to renew a striking platform (secondary tablet). The crest blades were produced by the initial flaking, just before the removal of a true blade, from cores with a central ridge and having flaking scar from the central ridge on both sides (primary crest blade), and by flaking along the perimeter of the main flaking surface of a core with a central ridge, having flaking scars from central ridge on either side (secondary crest blade). The plunging flakes have a hook-shaped outline seen from the side, with the hook being a part of opposite platform. These flakes are the result of unsuccessful attempts to remove a crest blade or to produce a true blade.

(2) Tool blanks and by-products

A large quantity of flakes and blades were found in this locality, and these specimens can be clearly divided into two categories: one is the pieces patinated mahogany in color, and the other is the pieces patinated cream in color and heavily abraded. These two categories are clearly different typologically from one another.

The deeply patinated and heavily abraded pieces have general features of regularly shaped specimens with elaborately prepared striking platforms, as if removed from Levallois type cores. However, the quantity of these specimens is negligible in the collection examined.

Therefore, the majority of the collection falls into a second category. These pieces are divided into two types: flakes and blades. Most of the flakes are relatively broad with several irregular scars on their main flaking surfaces, and with a roughly prepared striking platform. Some flakes are regularly shaped, but almost all of the pieces are irregular in form, suggesting by-products manufactured from the preparatory flaking of cores.

Elongated flakes classifiable as blades are also variable in form, and fall into roughly two types: the so-called blade blanks upon which tools can be made, and by-products left from the preparation of cores and from the manufacture of tools.

The pieces classified as blanks are relatively thin and elongated flakes, with parallel and slightly convergent edges, and with a series of bi-directional and roughly parallel scars running from both ends of the blades. The striking platforms of these blades fall into two types: faceted, and smooth. Blades struck from the naviform cores are the most prominent element of the flint artifacts in the collection examined. Another type of blade examined is clearly categorized as by-products struck from the naviform type cores, as described above.

(3) Tools

Again in the collection, the specimens classifiable as tools are negligible in quantity. Almost all of the flakes and blades have an extensive edge retouch along the margins, showing the same natural fractures as those from the collection from Localities 60 and 38.

Accordingly, the only specimens classified as tools are the Levallois type, but

the quantity is negligible in this collection.

Summary and Conclusions

During the third season's investigation, 1974, of the Tokyo University Scientific Expedition to the Douara Cave in Palmyra, Syria, many locations characterized by high surface concentrations of flint gravel were found. Along with these flint materials, a certain amount of artifactual remains were located, suggesting former habitation sites.

Locations 60, 38 and 35 were described here. Analysis of the artifacts showed that the collection from these three sites are markedly different, techno-typologically, from each other. Among several differences observed in the collections, the most striking is that each locality produced a collection belonging to substantially a single industrial period, although some mixture of artifactual types was observed.

The collection from Locality 60 is characterized by a large number of bifacial tools and a negligible proportion of Levallois type pieces. The collection from Locality 38 is mostly a single lithic assemblage with a large proportion of Levallois elements, and without bifacial elements. Finally, the collection from Locality 35 mostly has a single lithic assemblage consisting of a large quantity of special naviform type cores and a large quantity of by-products from core preparations.

The findings on the techno-typological characteristics of the three collections may provide a good basis for classifying industrial assemblages, and for establishing a chronology for these collections. For example, in the Locality 60 collection, the bifacial elements such as hand-axes and bifacially retouched scrapers played a most important role in identifying the period of the collection. In particular, the bifacially retouched scrapers in the collection are quite well-made and are characterized by oval, and discoidal-shaped outlines with rather symmetrical and thin cross-sections, and by sharp cutting edges along their margins. Comparative studies on certain collections, particularly those from Yabrud (RUST, 1950) in Syria and Tabun (GARROD, 1937) in Israel, show that bifacial tools with these morphological features may belong to the final stage of the Acheulean industries of Western Asia.

The collection from Locality 38 is classified as mostly a single assemblage consisting of a certain amount of Levallois and discoidal type cores, similar to the Levallois-Mousterian industry found in stratified deposits of many sites in Western Asia. Recently it has been pointed out that the long sequence of the Levallois-Mousterian industry might be divided into three phases (COPELAND, 1973; HOURS, COPELAND and AURENCHÉ, 1973). Although it is not possible to conclude to which the collection of this locality corresponds, it may safely be said that the collection has a very close relation to the so-called Levallois-Mousterian industry in the Levant.

The collection from Locality 35 seems similar to the early Neolithic in the Levant. The naviform type cores in the collection have the same characteristic features as those of the cores found in stratified deposits of the pre-pottery Neolithic horizon in

the Levant. According to CONTENSON (1973), cores of this type have been found in several sites at Bouqras (CONTENSON and VAN LIERE, 1966) and Aswad (CONTENSON, 1971) in Syria, and Saayideh (HOURS, 1969), and Tell aux Scies and Dik el-Mehdi (CAUVIN, 1968) in Lebanon, and Munhatta (PERROT, 1964) and Beidha (MORTENSEN, 1970) in Israel.

Interestingly, every collection from these three localities is characterized by only a negligible proportion of tools, with a certain amount of cores and a large quantity of flakes and blades, being presumably classified as by-products of the core preparation, as the dominant element. Accordingly, specimens definitely classifiable as tools are simply the bifacial tools from Locality 60 and Levallois type tools largely from Locality 38. In every collection, no specimen is definitely classified as a flake tool retouched intentionally. In addition, in that every locality has a close physical relation to the flint beds in the Douara Basin, it might be quite probable that these localities were work-shop stations for flint implements in prehistoric times.

It is not easy, in the absence of stratigraphic data from the deposits, to further analyze the present collections, and to further discuss the sites. However, these sites and the flint artifacts found in the Douara Basin provide considerably important information for further investigation of human activities related to the Douara Cave site, and the cultural succession in the Palaeolithic through Neolithic ages in this area. The Douara Cave is a natural cave eroded into a formation of Paleogene limestone, halfway down a series of steep escarpments which form the southern slopes of the Douara Basin. The distance between the Douara Cave and Locality 38, which yield the same type of flint assemblage, is only about 1 km in a straight line, crossing a ridge. Moreover, around the slopes of the Douara Basin, and many in caves and shelters in the area, a scattering of naviform type cores the same as those of Locality 35, plus a great number of regularly shaped blade blanks detached from those naviform cores and a number of tools were found (SUZUKI and AKAZAWA, 1971). Evidence that two distinct sites, one the cave site producing tools as well as cores and by-products, and the other the open-air site producing largely cores and by-products, were located in a restricted area during the same age may provide basic information for the reconstruction of behavioral patterns of prehistoric people and a better understanding of their lithic assemblages.

References

- AKAZAWA, T., 1973. The Palaeolithic assemblages from the Douara cave site, Syria and their relationship to the prehistory of Western Asia. *The Quaternary Research*, **12** (3): 77-99.
- AKAZAWA, T., 1974. Palaeolithic assemblages from the Douara cave site. In: SUZUKI and TAKAI (eds.), *The Palaeolithic site at Douara cave in Syria* (Part II), pp. 1-167.
- AKAZAWA, T., H. BABA and K. ENDO, 1973. Investigation of the Douara cave site, 1970 season. In: SUZUKI and TAKAI (eds.), *The Palaeolithic site at Douara cave in Syria* (Part I), pp. 9-27.
- BORDES, F. H., 1961. Typologie du Paléolithique ancien et moyen. Institut de Préhistoire de l'Université de Bordeaux, Mémoire (1).

- CAUVIN, J., 1968. Les outillages néolithiques de Byblos et du littoral libanais (Fouilles de Byblos, IV). Paris.
- CONTENSON, H. de, 1971. Tell Aswad. Fouilles de 1971. *Annales Archéologiques Arabes Syriennes*, **16** (2): in press.
- CONTENSON, H. de, 1973. Review on "Manufacturing technique of the stone artifacts from Palmyra, Syria" by SUZUKI and AKAZAWA, 1971. *Paléorient*, **1**: 136.
- CONTENSON, H. de and W. J. VAN LIERE, 1966. Premier sondage à Bouqras en 1965. Rapport préliminaire. *Annales Archéologiques Arabes Syriennes*, **16** (2): 181-192.
- COPELAND, L., 1973. The Middle and Upper Palaeolithic of Lebanon and Syria in the light of recent research. International Conference on Northeast Africa and Levantine Pleistocene Prehistory. Unpublished.
- ENDO, K., 1973. Sedimentological analysis of the deposits in the Douara cave site. In: SUZUKI and TAKAI (eds.), *The Palaeolithic site at Douara cave in Syria* (Part I), pp. 89-111.
- GARROD, D. A. E. and D. M. A. BATE, 1973. The stone age of Mount Carmel, Vol. 1: Excavations at the Wady es-Mughara. Oxford.
- HOURS, F., 1969. Saayideh et le Méolithique pré-poterie au Liban. *Mélanges de l'Université St.-Joseph*, **45**: 33-41.
- HOURS, F. and L. COPELAND and O. AURENCHÉ, 1973. Les Industries Paléolithiques du Proche-Orient, essai de corrélation. *L'Anthropologie*, **77** (3-4): 229-280, (5-6): 437-496.
- MCBURNEY, C. B. M., 1967. The Haua Fteah (Cyrenaica). Cambridge University Press.
- MORTENSEN, P. A., 1970. A preliminary study of the chipped stone industry from Beidha. *Acta Archaeologica*, **41** (1): 1-54.
- PERROT, J., 1964. Les deux premières campagnes de fouilles à Munhatta (1962-1963), premiers résultats. *Syria*, **41**: 323-345.
- PERROT, J., 1964. La troisième campagne de fouille à Munhatta (1964). *Syria*, **43**: 49-63.
- RUST, A., 1950. Die Höhlenfunde von Jabrud (Syrien). Neumünster.
- SUZUKI, C. and T. AKAZAWA, 1971. Manufacturing technique of the stone artifacts from Palmyra, Syria. *J. Anthrop. Soc. Nippon*, **79** (2): 105-127.
- SUZUKI, H. and F. TAKAI, 1973. The Palaeolithic site at Douara cave in Syria (Part I). *Univ. Mus., Univ. Tokyo, Bull.* (5).
- SUZUKI, H. and F. TAKAI, 1974. The Palaeolithic site at Douara cave in Syria (Part II). *Univ. Mus., Univ. Tokyo, Bull.* (6).

Explanation of Plates 1–5

All figures on Plates 2 through 5 are on a scale of 1/2.

Plate 1

- Fig. 1. The southern slope of Jebel ed-Douara, which borders the Douara Basin on the right, as seen from the east.
- Fig. 2. Flint strewn field at Locality 35, before sampling.

Plate 2

Representative flint artifacts of Locality 60

- Fig. 1. Hand-axe (broken tip). Mahogany flint.
- Fig. 2. Hand-axe. Brown flint.
- Fig. 3. Cleaver / bifacially retouched scraper. Brown flint.
- Fig. 4. Hand-axe. Brown flint.
- Fig. 5. Hand-axe / bifacially retouched scraper. Brown flint.

Plate 3

Representative flint artifacts of Locality 60

- Fig. 1. Bifacially retouched scraper. Brown flint.
- Fig. 2. Bifacially retouched scraper (slightly broken at the butt). Brown flint.
- Fig. 3. Core with an oblique plain platform. Brown flint.
- Fig. 4. Large flake with an unfaceted butt. Cream colored flint.
- Fig. 5. Large flake with an unfaceted butt. Cream colored flint.

Plate 4

Representative flint artifacts of Locality 38

- Fig. 1. Levallois blade type core. Dark brown flint.
- Fig. 2. Levallois point type core. Brown flint.
- Fig. 3. Flake with a smooth butt. Dark brown flint.
- Fig. 4. Levallois point type core. Grayish brown flint.
- Fig. 5. Blade (broken butt). Buff flint.
- Fig. 6. Blade with a faceted butt. Grayish flint.
- Fig. 7. Blade with a faceted butt. Whitish brown flint.

Plate 5

Representative flint artifacts of Locality 35

- Fig. 1. Naviform type core, before core-tablet removal. Mahogany flint.
- Fig. 2. Naviform type core, after core-tablet removal. Mahogany flint.
- Fig. 3. Naviform type core, after crest blade and true blade removals. Mahogany flint.
- Fig. 4. Flake with a faceted butt. Mahogany flint.
- Fig. 5. Blade with a faceted butt. Light grayish flint.
- Fig. 6. Primary crest blade / plunging blade. Mahogany flint.
- Fig. 7. Blade with a smooth butt. Mahogany flint.
- Fig. 8. Levallois blade with a faceted butt. Cream colored flint.



(1)



(2)



