

MIDDLE PALEOLITHIC NORTHWESTERN JORDAN, 1999 SEASON: INVESTIGATIONS IN WĀDĪ AL-YĀBIS AND WĀDĪ KUFRINJA

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Abstract

This is a report on survey and test excavations at sites in Wādī al-Yābis (وادي اليابس) and Wādī Kufranja (وادي كفرنجة), 'Ajlūn District conducted in conjunction with Department of Antiquities of Jordan excavation permit No. 53/99. Our research clarified the stratigraphy and cultural affinities of the ar-Raṣfa (وادي الرصفا) Middle Paleolithic site (Wādī al-Yābis) and it identified six new cave sites in Wādī Kufranja. This season laid the groundwork for future investigations of the Middle Paleolithic period in Northwest Jordan.

Introduction

The Southwest Asian record has furnished the strongest evidence for a bio-cultural transition between archaic and early modern forms of *Homo sapiens* (Frayer *et al.* 1993; Howell 1958; Trinkaus 1996; Vandermeersch 1992). The last fifteen years of archaeological and paleontological research in the Levant have led to important revelations about the role of the East Mediterranean Levant in human bio-cultural evolution:

1. Dating to 93,000-130,000 BP, the sites of Škhūl and Qafzah contain some of the oldest-dated occurrences of skeletally modern humans (Bar-Yosef 1998; Valladas *et al.* 1998). This suggests that Southwest Asia is part of the "ancestral environment" in which modern humans first evolved from anatomically-archaic ancestors, perhaps from ones such as the Zuttiyah Cave hominid (Howell 1998; Stringer 1998).
2. Early modern humans and Neandertals were both present in the Middle Paleolithic of the Levant, either simultaneously or alternately between 47,000-65,000 BP. Both are associated with superficially similar "Levantine Mousterian" assemblages (Bar-Yosef 1995; Clark and Lindly 1989; Henry 1995). Nevertheless, contrasting skeletal morphologies and subtle variation in the lithic and faunal records hint at more profound differences in their adaptive

strategies (Lieberman 1998; Lieberman and Shea 1994; Shea 1998; Trinkaus *et al.* 1998). It is possible that these differences may provide clues to the adaptive radiation of modern humans and the extinction of the Neandertals between 30,000-47,000 BP.

3. Upper Paleolithic assemblages, generally recognized as the earliest evidence for "modern" human behavior patterns appear in the Near East ca. 47,000 BP, earlier than in any other region in the world (Bar-Yosef *et al.* 1996; Marks 1993). The preponderance of archaeological evidence now available suggests that Upper Paleolithic adaptations played a major role in the demographic radiation of modern humans into temperate Eurasia between 30,000-40,000 BP (Klein 1998). However, the relatively small number of sites with Middle-Upper Paleolithic "Transitional" assemblages makes it difficult to understand how these "modern" behavior patterns emerged from their indigenous Middle Paleolithic precursors in the Levant.

Most of the evidence supporting these conclusions has come from sites in the central and coastal part of the Levant. Unlike the southern and interior parts of the Levant, these regions feature karstic landscapes with abundant sources of flint and water, numerous caves, and within the latter, generally favorable conditions for the preservation of bones and carbonized botanical remains.

Environmental considerations suggest Northwest Jordan would also have been an attractive area for human settlement during the Middle Paleolithic. The bedrock geology of Northwest Jordan is Senonian-Paleocene and Cenomanian-Turonian (Cretaceous) limestone up-thrust and faulted by the formation of the Jordan Rift Valley. Cenomanian-Turonian limestone predominates in the 'Ajlūn District and in the project area (Bender 1974: 27-28, 115). These chalky limestones feature numerous caves and contain abundant nodular deposits of high-quality flint. Numerous seasonal and perma-

nent rivers cross-cut these limestone hills, exposing a variety of Quaternary deposits. Even in today's hyper-arid climate, Northwest Jordan is the most humid part of the country, enjoying 400-800mm mean annual rainfall (Bender 1974: 10). This is approximately the same as the present rainfall for the Mediterranean watershed north of the Beersheva Basin (Horowitz 1979: 22). Pollen cores from the Jordan Valley suggest Mediterranean (*Quercus-Pistachia*) woodland vegetation was even more extensive in cooler Upper Pleistocene times (Horowitz 1987; Weinstein-Evron 1990), and the relatively high degree of topographic relief, from more than-150 m below sea level on the Ghawr to about +900 m at the edge of the Transjordan plateau, would have ensured the preservation of woodland habitats during even the most arid conditions.

The Mediterranean woodland supports greater numbers and higher densities of edible plants than any other plant community in Southwest Asia (Darin 1995; Zohary 1973). Animal population densities are also higher in the woodland (Qumsiyeh 1996). Not surprisingly, most of the known Middle Paleolithic sites in the southern Levant occur within the maximum extent of Mediterranean woodland (Shea 1998). Middle Paleolithic faunal assemblages from the Levant are dominated by woodland-dwelling species, such as boar, aurochs, and fallow deer, and by species that inhabit the ecotone between steppe and woodland, such as ibex, horse, and gazelle.

Northwest Jordan's location would have made it a persistent refuge for woodland species on the Transjordan plateau during periods of rapid and dramatic climate change, and thus there seems every reason to expect it to feature a rich Middle Paleolithic archaeological record. Surveys have indeed reported numerous Middle and Upper Paleolithic sites in Ṭabaqat Faḥl/Wādī al-Ḥammah (Macumber 1992; Macumber *et al.* 1997), Wādī Ziqlāp (Banning and Fawcett 1983), Wādī az-Zarqā' (Baubron *et al.* 1985), and Wādī al-Yābis (Palumbo *et al.* 1990; Shea 1998; 1999), and in the Ghawr (Jordan Valley bottom) (Muheisen 1988). However, most of these sites are known only from surface collections of stone tools, and none contain the kind of deep chronological sequences found in caves from adjacent parts of Mount Carmel or the Galilee.

Background

During their survey of archaeological sites in the Wādī al-Yābis in 1989, Ian Kuijt, John Mabry and Gaetano Palumbo identified a cluster of Mid-

dle Paleolithic surface sites in Wādī az-Zagh (Palumbo *et al.* 1990). At that time, they invited Shea to examine their collections. Shea confirmed the Middle Paleolithic status of their finds, and it was agreed that Shea would seek permission from the Department of Antiquities of Jordan (DoA) to investigate these and other Middle Paleolithic sites in the Wādī al-Yābis area.

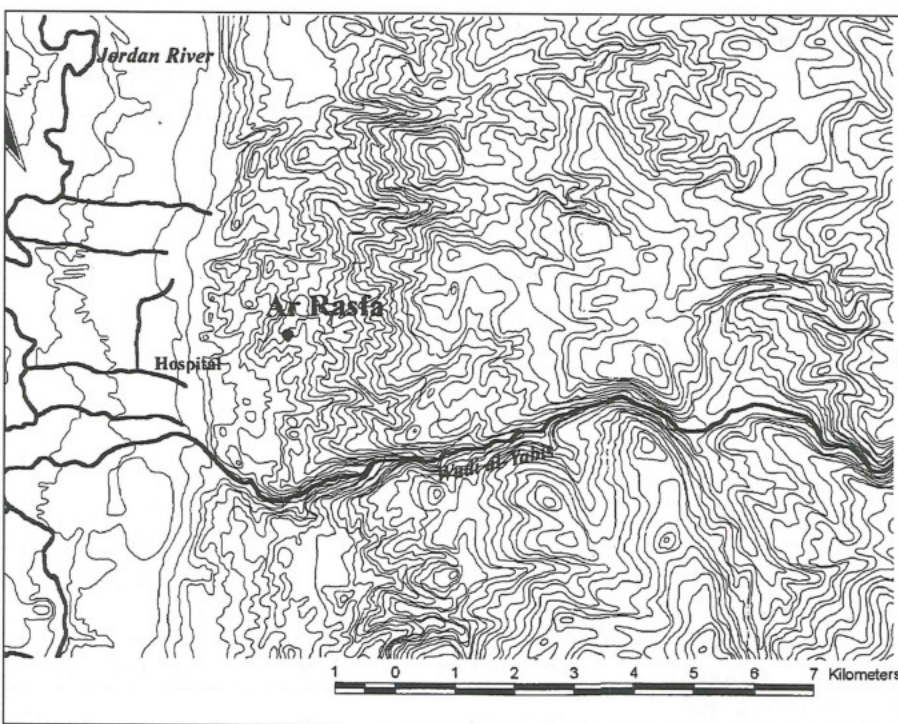
In 1997, Shea received permission (Permit No. 29/97) from the DoA to investigate these sites. Sixteen paleolithic sites were identified, of which three seemed likely to contain intact sequences of prehistoric occupations. The most promising of these sites, ar-Raṣfa Main Site, was test-trenched, resulting in the discovery of deeply-stratified Middle Paleolithic assemblages in a remarkably good state of preservation. The results of these excavations have been communicated in the *Annual of the Department of Antiquities of Jordan* and in the international peer-review journal, *Paléorient* (Shea 1998; 1999). Unfortunately, the hardness of the sediments at ar-Raṣfa prevented our excavating our deep sounding at that site to bedrock. Thus, the depth of Paleolithic deposits at ar-Raṣfa remained a significant unresolved question.

In the final days of the 1997 season, we observed several caves in the vicinity of 'Ajlūn (Wādī Kufranja and Wādī 'Ajlūn) that seemed worthy of examination for Paleolithic remains. Having received assurances from local officers of the DoA Office in 'Ajlūn that these sites had not been previously surveyed, we applied for a permit (No. 53/99) to examine them in 1999.

Financial support for the 1999 survey and excavation was provided by the L.S.B. Leakey Foundation and the Committee on Archaeological Policy of the American Schools of Oriental Research. The field staff of the project for 1999 included the author, Dr. Patricia Crawford of SUNY Stony Brook, and Mr. Yacoub Maryoud Oweis, the DoA Representative from the 'Ajlūn Office. Fieldwork was conducted between 28 September-10 October 1999 and focused on two main objectives, clarifying the depth and nature of Middle Paleolithic deposits at ar-Raṣfa and survey of caves and rockshelters in nearby Wādī Kufranja.

Excavation at ar-Raṣfa

Ar-Raṣfa ("Hill of the Paving Stones") is the name of a low hill on the northern side of Wādī az-Zagh, a seasonal stream that flows parallel, and roughly one kilometer north of Wādī al-Yābis. The ar-Raṣfa Main Middle Paleolithic site is located at 35° 36' 17" East and 32° 24' 50" North (UTM Zone 36, X = 744950, Y = 3589108) at an elevation of -



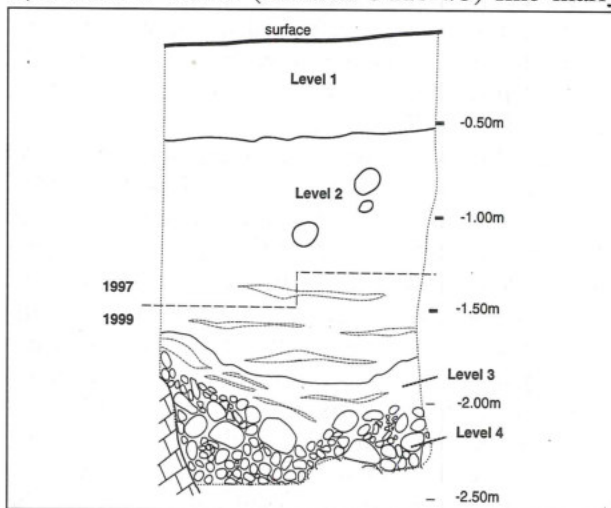
1. Topographic Map (25m contour) showing Lower Wādī al-Yābis and the ar-Raşfa Main site.

37 m below sea level (Fig. 1). The nearest modern landmark to the ar-Raşfa Main Site is the municipal hospital located about halfway between al-Mashāri' and Wādī ar-Rayyān along the main Ghawr highway. ar-Raşfa is an open-air Middle Paleolithic site containing deeply-stratified "Levantine Mousterian" lithic assemblages (Shea 1998; 1999). These assemblages manifest features of both the "early" and "late" Levantine Mousterian, at least as they are defined from Mediterranean coastal cave sequences (Bar-Yosef 1995).

Ar-Raşfa Main Site was discovered in 1997 during an investigation of Middle Paleolithic findspots first identified by Palumbo *et al.* (1990). Middle Paleolithic artifacts can be found on actively-eroding surfaces all over the western side of ar-Raşfa at elevations ranging from -180m (the maximum stand of Pleistocene Lake Lisān) to -130m. Muheisen's (1988: 515) site #48 ("Merazzah North-East") appears to be one of these disturbed localities, although we believe that Muheisen mistakenly identified it as Upper Paleolithic. (Middle Paleolithic assemblages from the Levant often contain blades, burins, and other techno-typological hallmarks of the Upper Paleolithic.) Our survey of the area in 1997 identified deeply-stratified *in situ* deposits of Middle Paleolithic remains on a southeast facing promontory above these disturbed areas. Four test pits were excavated in 1997, of which three struck bedrock or sterile rock scree at depths of less than 1.5m. Test

Pit #4, on the other hand, continued to yield large numbers of well-preserved stone tools to a depth of 1.65m, until the scheduled end of the field season compelled us to close the excavation. Our main goal for 1999 was to extend Test Pit #4 as far as possible, in order to clarify both the site stratigraphy and the affinities of the ar-Raşfa Middle Paleolithic assemblage.

Our 1999 excavations at ar-Raşfa focused solely on the excavation of Test Pit #4. Backfill was removed to the surface of the 1997 excavations and original datums re-established from spikes we had inserted into the wall of the test pit (Fig. 2). For the first 0.4m our excavation continued through Level 2, a reddish-brown (Munsell 5YR 4/3) fine marly



2. South Profile of ar-Raşfa Test Pit #4.

silt with few sub-angular limestone pebbles and white (Munsell 7.5Y 8/1) concretions. At a depth of-1.75, there was an abrupt disconformity and a change to fine sandy silt with a richer reddish-brown color (Level 3). The artifacts contained in this Level 3 differ from those in Level 2 in several respects. Mainly, there are greater numbers of cores and more tools lying at angles to the horizontal plane. The latter observation suggests a more dynamic depositional environment, but, curiously, there is not a corresponding increase in the incidence of edge-rounding and other abrasive indices of high-energy depositional processes. Level 3 is relatively thin (0.1-0.2m) and it lies conformably on top of a dense (almost conglomeratic) gravel deposit (Level 4). Level 4 is composed of limestone and flint clasts ranging from boulders (>0.2-0.3m long) to pebbles (0.05-0.10m). The matrix sealing these clasts together is essentially indistinguishable from Level 3. Interestingly, most artifacts continue to occur in Level 4, although most of these artifacts exhibit edge-rounding, battering, and other signs of physical abrasion. Level 4 became increasingly difficult to excavate with depth, and impossible after-2.40m, as large boulders and ridges of limestone bedrock began to appear at the base of the trench. Level 4 is probably an accumulation of gravel in an erosional channel cutting through bedrock. Similar such gravel deposits have formed recently in other parts of the ar-Raşfa hill and in adjacent areas.

The density of artifacts in the ar-Raşfa stratigraphy slowly increases with depth in Test Pit #4, peaking slightly around-1.30 and-2.20m. The most noticeable change in terms of the basic technological composition of the lithic samples is the increasing proportion of cores in lower levels. To a degree this is correlated with increasingly clastic matrix, and it may reflect dislocations of cores from upslope into conglomeratic deposits that are now trapped between bedrock ridges in the basal levels of the ar-Raşfa site.

At total of 477 artifacts larger than 3cm were recovered from excavations at ar-Raşfa in 1999. (Smaller artifacts were bagged together by excavation unit as "chips and debris") Tables 1 through 3 summarize the ar-Raşfa lithic collection in terms of major artifact categories. (Table 1) presents data on cores. As in previous years, the most common types of cores are Levallois cores and choppers. Levallois products account for about 13% of the flake tools (Table 2). Levallois points are relatively rare. It is also worth noting that many of the "Levallois blades" counted here could also be assigned to the "core-trimming flake" category on

Table 1. Major Core Types from ar-Raşfa.

Core Type	1997	1999	Total	%
Battered Cobble/Hammerstone	0	3	3	1%
Chopper	16	16	32	11%
Discoid	15	4	19	7%
Polyhedron	3	2	5	2%
Levallois Core	116	42	158	55%
Prismatic Core/Core Scraper	16	6	22	8%
Core-on-Flake	20	7	27	9%
Other	14	6	20	7%
Core Fragment	0	3	3	1%
Grand Total	200	89	289	100%

Table 2. Major Flake Types from ar-Raşfa.

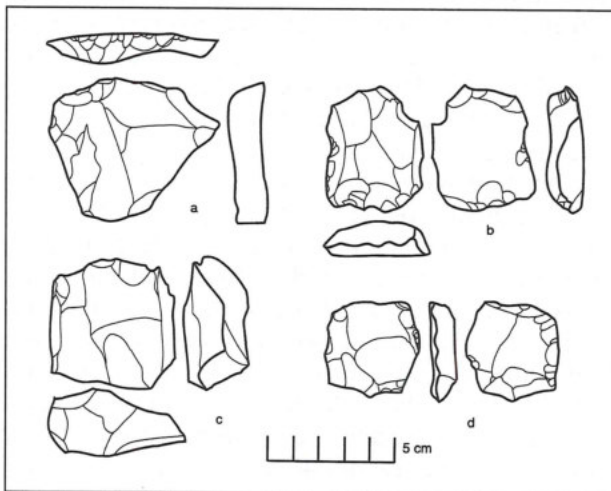
Flake Tool Type	1997	1999	Grand Total	%
Levallois point	42	19	61	4%
	26	8	34	2%
Levallois flake	144	35	179	13%
Core-trimming flake	67	13	80	6%
Naturally-backed blade	0	7	7	0%
Whole flake	496	167	663	46%
Retouched flake	35	19	54	4%
Flake fragment	224	114	338	24%
Blocky fragment	4	6	10	1%
Grand Total	1038	388	1426	100%

the basis of their distal-proximal and medio-lateral asymmetry. As is typical for most Levantine Middle Paleolithic assemblages, retouched flake tools are relatively rare (4% of flakes). The most common types of retouched tools are side-scrapers, notches, and truncated-faceted flakes (Table 3).

Although the complete battery of technological and typological measurements were made in the field, the analysis of the ar-Raşfa assemblage is still in its preliminary stages. Nevertheless, several general notes about the assemblage can be made at this point. First, the pattern of technological variability observed in upper parts of Level 2 continue in the lower part of this level. Bidirectional-opposed methods of core-preparation predominate on flake dorsal surfaces and on the surfaces of cores (Fig. 3). Cores are markedly smaller than flakes, sug-

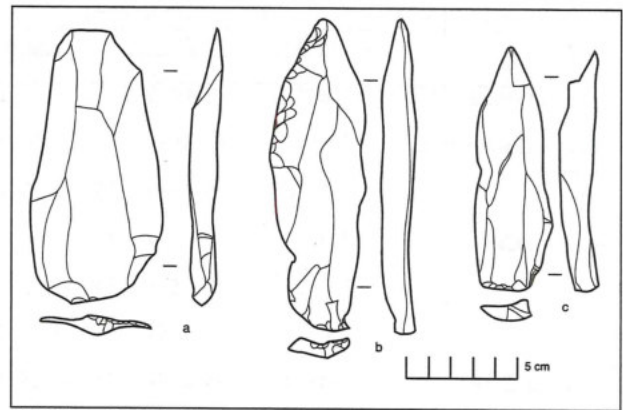
Table 3. Major Retouched Flake Tool Types from ar-Raşfa.

Retouched tool type	1997	1999	Grand Total	%
Transverse scraper	8	3	11	12%
Side scraper	12	3	15	16%
Backed knife	3	0	3	3%
Notch	14	1	15	16%
Denticulate	6	2	8	9%
Awl	3	0	3	3%
Burin	4	2	6	6%
Truncated-faceted flake	10	6	16	17%
Combination tool	8	0	8	9%
Other	6	2	8	9%
Grand Total	74	19	93	100%



3. Selected Tools from ar-Raşfa 1999 Excavations. a. Transverse scraper (AR99.017), b. Truncated-faceted flake (AR99.231), c. Levallois core with bidirectional-opposed surface preparation (AR99.150), d. Levallois core with radial/centripetal preparation (AR99.429).

gesting intense tool production. Numerous cores-on-flakes and truncated-faceted pieces reinforce a picture of raw material economization that seems at variance with the abundant supplies of high quality flint available from bedrock outcrops and gravel deposits all around the site. Retouched tools and Levallois points continue to be rare. These observations suggest support for the earlier interpretation of ar-Raşfa as a site where new tools were knapped to supply groups foraging along the marshy eastern edge of Lake Lisān. These areas have a marly substrate, and ar-Raşfa may have been one of the nearest places where high-quality flint outcrops were available. Burnt flakes, and in particular burnt microdebitage, also point towards



4. Selected Tools from ar-Raşfa 1999 Excavations. a. Levallois Flake (AR99.374), b. Levallois blade/elongated point (AR99.155), c. Levallois blade/elongated point (AR99.158).

prolonged human habitation.

One of the big surprises of the 1999 season appeared during the excavation of Level 3. Several very large Levallois flakes and two elongated Levallois points (so-called “Abū Sayf knives”) (Fig. 4). Typically associated with the earliest phases of the Levantine Mousterian, at *tābūn* Cave Unit IX, Hummal 1A, Abū Sayf, and ‘Ayn Difla, such elongated points suggest further connections between ar-Raşfa and earlier phases of the Middle Paleolithic. Elsewhere, early Middle Paleolithic assemblages have been dated to 150,000-250,000 BP (Bar-Yosef 1998), but the apparent persistence of characteristically “early” Middle Paleolithic tool production methods in the interior and southern parts of the Levant (Henry 1998; Marks 1992) makes estimating the age of any site from its typological characteristics liable to error.

Future analysis of the ar-Raşfa lithic assemblage will focus on the economy of lithic production, systematically evaluating the energetic and material costs and benefits associated with different phases of tool production. ar-Raşfa differs from several other recently-excavated Middle Paleolithic sites in the southern Levant (e.g., Hayonim, Kebara, Tur Faraj, Biqat Quneitra) in having abundant supplies of high-quality raw material available on site. If Middle Paleolithic humans – technological strategies were as contextually-flexible as those of later humans (a proposition that is still controversial in some paleoanthropological circles) we should expect to see markedly less economizing behavior in tool production at ar-Raşfa than at these other sites.

Clearly, the next stages of field research at ar-Raşfa involve establishing the horizontal spatial variability of the archaeological deposits and estimating the age of the site. At present, Middle Paleolithic artifacts are visible eroding from sediments on the surface of the ar-Raşfa site over an area of approximately 500 square meters. If Middle

Table 4. Locations of Major Caves in the Wādī Kufranja

NAME	X (UTM36)	Y (UTM36)	Latitude	Longitude	Altitude
Iraq en-Gharafis West	748072	3574055	35° 38' 02" E	32° 16' 39" N	150
Iraq en-Gharafis East	749593	3573835	35° 39' 00" E	32° 16' 31" N	200
El Agdi	752846	3574589	35° 41' 05" E	32° 16' 53" N	625
Kufrinja Caves	753874	3577754	35° 41' 47" E	32° 18' 34" N	625
Jebil	751728	3577586	35° 40' 25" E	32° 18' 31" N	700
Shtura	750235	3576687	35° 39' 27" E	32° 18' 03" N	700
el Wahaj Cave	754844	3578651	35° 42' 25" E	32° 19' 03" N	875

Paleolithic deposits extend to a depth of 1.50m (the mean of the maximum depth of the shallowest and deepest test pits) and if artifact densities across the site are comparable to those seen in Test Pit #4 (mean = 194 per cubic meter), then the site may contain as many as 150,000 artifacts preserved *in situ*. Because refitting sets of artifact have been recovered from the site, it would probably be most useful to open up several contiguous meter-squares at the site in order to obtain a more complete picture of Middle Paleolithic flint-knapping strategies.

The presence of burnt flints in the ar-Raşfa assemblage suggests that thermoluminescence dating (Mercier *et al.* 1995) could be applied successfully to estimate the age of the ar-Raşfa occupation. Indeed, this dating method could probably be applied using samples we have already collected and dosimetry at ar-Raşfa Test Pit #4 (which could probably be re-excavated in a matter of hours).

All of the artifacts from the 1999 excavation at ar-Raşfa were washed, labeled, separated into cores and flakes, measured, and placed into sealed plastic bags for storage. These bags were placed in several cardboard boxes (also sealed) that are now stored in the Department of Antiquities storeroom in 'Ajlūn Castle.

Survey of Wādī Kufranja

Our interest in Wādī Kufranja reflects our recognition that a comprehensive picture of Middle Paleolithic human adaptations in Northwest Jordan will require data from sites arrayed along an altitudinal gradient from the Jordan Valley floor to the edge of the escarpment. We had inspected several cave/rockshelter sites in Wādī al-Yābis in 1997, but none of these appeared as promising as those we observed in Wādī Kufranja. Apart from a passing mention of a Levallois flake found near the lower reaches of Wādī Kufranja (Muheisen 1988), no information is available on Paleolithic remains in this valley. The absence of

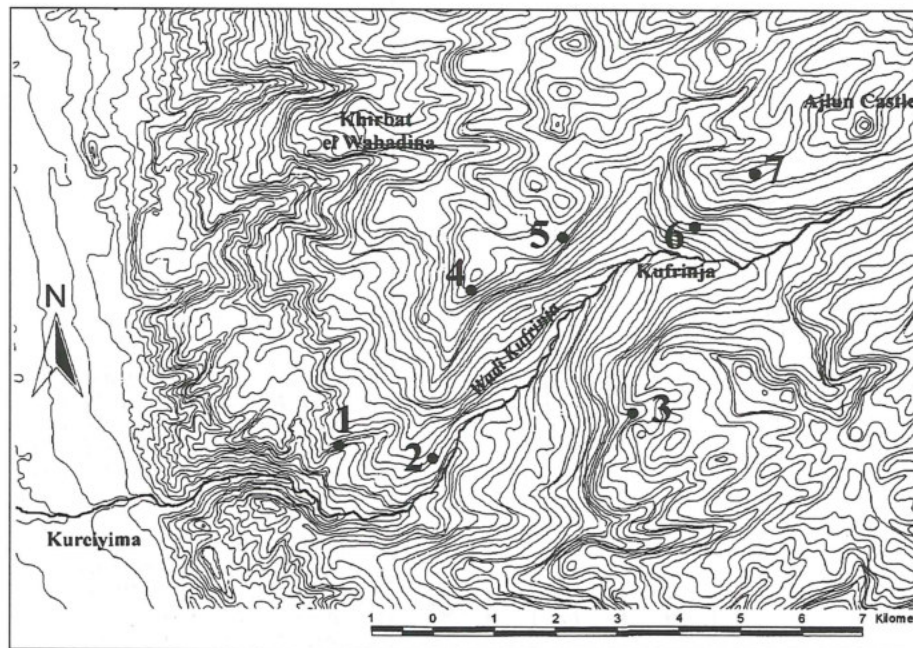
such remains is particularly striking, given the presence of several substantial and active springs and numerous cave/rockshelter sites located throughout the valley. Caves and rockshelters are almost continuously visible along the entire wadi course from al-Krayma in the Ghawr to the cliffs above the main traffic circle 'Ajlūn. The cultural remains discovered in this survey can be classified as Stone Age (in some cases identifiable as either Neolithic or Paleolithic), Historic (mostly Roman, Byzantine, Arab, or Ottoman), and ethnographic (mostly related to pastoralism).

Our first problem in surveying these caves was to rank them, both in terms of their likelihood of containing prehistoric remains and the probability that they had been disturbed by recent pastoralist activity. This led us to focus on those caves and rockshelters along the northern side of Wādī Kufranja that did not have stone walls and other structures built into them. All in all, we identified seven clusters of caves, and made surface collections at several of them (Tables 4-5 and Fig. 5).

('Irāq an-Gharafis) is a local Bedouin name for caves located on two limestone ridges on the northern side of Wādī Kufranja about three kilometers east of Krayma. This is the narrowest point in Wādī Kufranja, and a logical place from which to monitor game movements. (A function that continues to this day, to judge from the numerous plastic shotgun shells we found in the area) ('Irāq an-Gharafis) West consists mainly of rockshelters, and a single large cave (18m wide, 20m deep, 10m high), that have formed along a bed of soft limestone. ('Irāq an-Gharafis) East consists solely of caves of varying sizes, although most are less than 10m in any dimension. Most of these caves had been scoured to bedrock by recent pastoralist activity. At both ('Irāq an-Gharafis) West and East sites, stone tools (mostly unretouched flakes and flake fragments), as well as Ottoman-Era pottery were observed among ashy sediments in front of the caves. A small collection of stone artifacts was made on from these

Table 5. Summary of Archaeological Observations for Wādī Kufranja Caves.

Location	Disturbance	Historic Pottery	Stone Tools	Neolithic	Paleolithic
Iraq en-Gharafis West	severe	+	+	?	?
Iraq en-Gharafis East	severe	+	+	?	?
El Agdi	none	+			
Jebil	minor		+		+
Shtura	minor	+	+	+	+
El Wahaj Cave	minor	+	+		+



5. Topographic Map (25m interval) of Wādī Kufranja showing locations of the major cave sites examined in 1999. Key: 1. ('Irāq an-Gharafis) West, 2. ('Irāq an-Gharafis) East, 3. al-Jidayy, 4. Shtūra, 5. Jubayl, 6. Al-Wahj.

areas and from the flat area above both sets of caves (an area is called "Hoshni" by local shepherds) (Fig. 6).

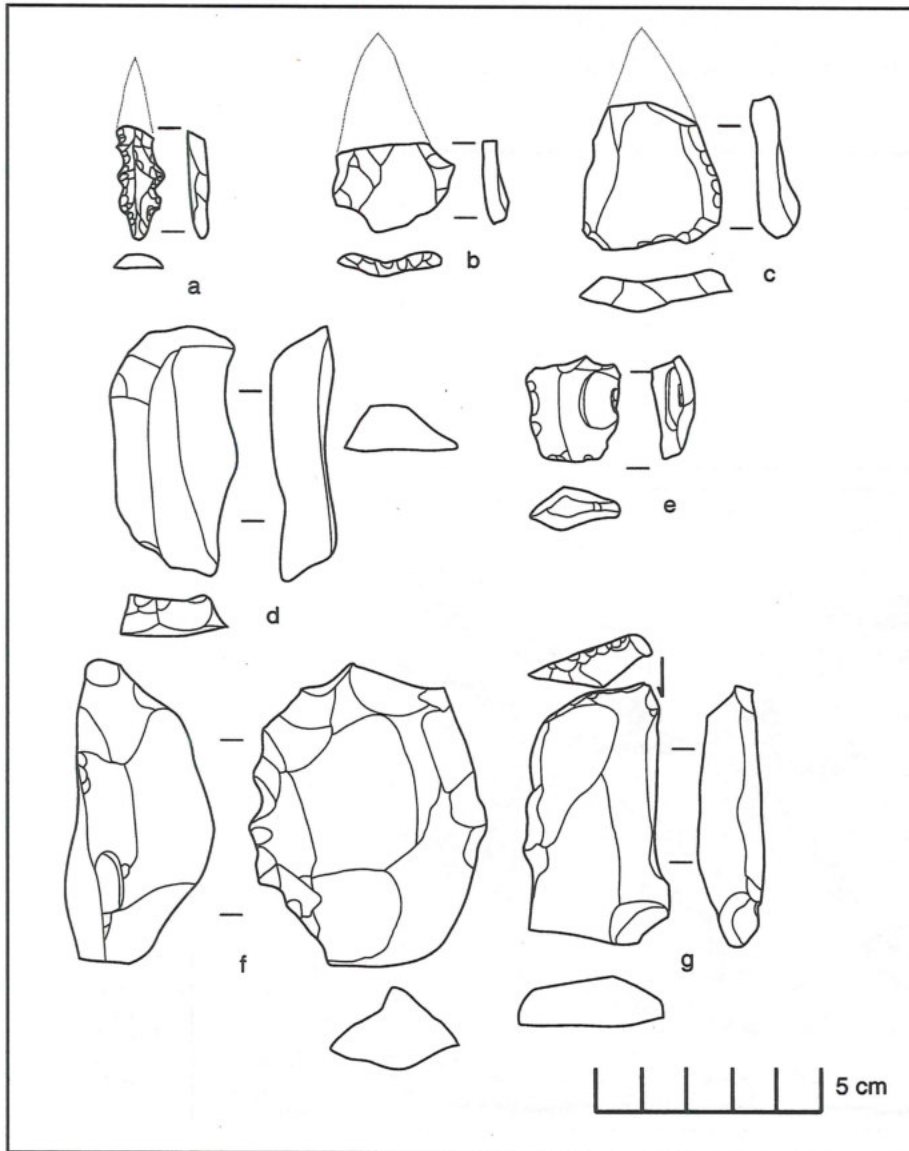
Jidayy is the only major rockshelter visible on the southern side of Wādī Kufranja. Jidayy is perched about 25m below the escarpment of a prominent limestone headland (Rās ad-Duwayriya) about 2.5km southwest of Kufranja town. The climb up to the site is extremely precipitous. The rockshelter itself is about 30m long, 1-2m high and no deeper than 2m behind its drip-line. No stone artifacts were found although there are numerous potsherds of Roman and post-Roman antiquity, possibly related to a mortuary complex (rock-cut, loculi tombs) several hundred meters below the site.

Shtūra is the name for a group of caves located on the northern side of Wādī Kufranja above the municipal landfill. The largest cave is about 10m

deep, 10m in maximum width and about 2m high. This cave consists of a smaller lower vestibule whose rear portion collapsed when a chimney eroded through its roof and an upper shelter separated from the vestibule by a steep talus cone. Sediments are actively eroding from the back of the upper shelter, and on the surface of this erosional area, we found a basal fragment of a Neolithic stone arrowhead. The basal fragment of a Levallois point was found in front of the lower cave.

Jubayl Cave is located further east along the same ridge as Shtūra, roughly 2km northwest of Kufranja town. This large (10 x 10 x 10m) cave has largely collapsed due to the erosion of a chimney into soft chalky limestone. Several stone flakes were found on the slope in front of Jubayl Cave, including a proximal fragment of a Levallois point and an obliquely-truncated blade.

Al-Wahj Cave is located 1.5km southwest of



6. Selected Lithic Artifacts from Wādī Kufranja Sites. a. Neolithic arrowhead (WK99.01, Stura), b. Levallois point proximal fragment (WK99.05, Jubayl), c. Levallois point proximal fragment (WK99.07, Jubayl), d. Levallois blade (WK99.38 Al-Wahj), e. probable gunflint (WK99.02, Jubayl), f. scraper (WK99.34, ('Irāq an-Gharafīs) West), g. burin on truncated blade (WK99.06, Jubayl).

Qal'at ar-Rabaḍ ('Ajlūn Castle) on the southeast side of a heavily-eroded limestone headland. The cave opening is deceptively small (4 x 5m) but the cave expands to at least 10m high by 10m wide only a short distance inside. The cave extends approximately 60m along a shallow grade (30°) to a massive rock-fall that chokes the main passage to a small (1.5 x 2m) opening. Beyond this choke-point is a steep cliff, roughly 8-10m to a larger chamber. At least one side-gallery (now sealed by thorn bush inserted into its entrance by local shepherds) extends north from the main chamber. Lacking ropes for rappelling and other essential spelunking gear, it was not possible to explore the lower depths of this cave. Local residents informed us that al-Wahj Cave continues much deeper into the mountain, but they warned us that to explore beyond the choke-point requires ropes,

illumination, and protection against the thousands of bats that live in the area behind the choke-point. Stone artifacts, including a Levallois flake were found in the vicinity of the front of al-Wahj cave, but surface survey in this area was constrained by heavy erosion. More stone tools were found on the southern side of the headland, where an historic occupation seems to have cut into older prehistoric sediments.

The principal justification for further exploration at al-Wahj is that its structure suggests there are side-galleries likely to contain deeply-stratified deposits. Furthermore, the enormous size of the cave and its steep internal gradient suggest that it is really only the chimney, or upper opening, of a much larger cave complex extending deeper into the mountain. It is likely that, in antiquity, the lower reaches of al-Wahj drained into nearby Wadi

'Ajlūn, and if this lower exit to the cave can be found, it may prove a productive area for paleolithic investigations.

Several other cave localities were identified and deemed likely to contain paleolithic remains, but could not be examined for a variety of reasons. The most prominent of these are the Kufranja Caves. These are a series of caves located on a prominent limestone ridge immediately north of Kufranja town. Although they are located near an active spring, these caves have been extensively modified by local farmers and shepherds into permanent storage rooms for local farms. No artifacts were collected in this area, but in part this reflects the intense agricultural activity carried out in the immediate vicinity of these caves.

A second set of such inaccessible caves is located in 'Ajlūn town. About 100m from the main 'Ajlūn traffic circle along the northern side of the to Irbid is a small cave facing directly onto the road (southeast). Given the proximity of this site to a spring (within 300m) it would seem a productive area for excavation. Unfortunately the cave is also located directly beneath the main police post, and security concerns makes casual inspection of this site problematical. A second set of caves is located at the foot of a tall cliff immediately north of 'Ajlūn town (these are most clearly visible from the road between 'Ajlūn and 'Anjara). Like their counterparts in Kufranja, these caves are used as storage rooms by local residents, and could not be examined.

Most of the caves and rockshelter sites of Wādī Kufranja preserve evidence for Stone Age occupations. At caves in lower elevations, these residues have been displaced to secondary contexts as the result of recent pastoralist activity. A similar pattern was observed in nearby Wādī al-Yābis (Palumbo *et al.* 1990), where paleolithic remains were concentrated in the lowest and highest elevations. al-Wahj Cave appears to have considerable potential for preserving archaeological residues.

All of the forty-two artifacts recovered by the 1999 Survey of Wādī Kufranja were labeled, placed in double-thickness plastic bags, and placed in labeled boxes in the Department of Antiquities storeroom in 'Ajlūn Castle. A full inventory of the artifacts collected in the field is attached to this report as Appendix 1. Countless other artifacts left in the field to preserve site visibility.

One cannot help but to notice a recurring theme in the artifacts encountered during the survey of Wādī Kufranja. Repeatedly, we encountered artifacts referable to hunting, such as shotgun casings, rifle cartridges of antique vintage, gunflints,

Neolithic arrows, and basal fragments of Levallois points. The steep walls of Wādī Kufranja, which persist up to its bifurcation with Wādī 'Ajlūn, may have made this valley a favorable area in which to hunt game in prehistory and historic times.

Concluding Remarks.

Geographic, geological, and ecological considerations suggest that Northwest Jordan should have been a major focus of human and hominid settlement for much of the Pleistocene; and indeed, those surveys conducted in Northwest Jordan that have looked for Paleolithic remains have been remarkably successful at finding them. Thus far, however, detailed investigations of the Middle and Upper Paleolithic of Northwest Jordan has been impeded by a scarcity of assemblages from excavated contexts. The discovery and excavation of the ar-Raṣfa Main site in 1997-1999 and our explorations in Wādī Kufranja are a small step towards the recognition of Northwest Jordan's importance for Levantine prehistory. Because of its high altitudinal gradient, from-200m in the Ghawr to more than 900m on the plateau, Northwest Jordan is well-situated to answer questions about mobility patterns and other aspects of prehistoric human adaptation. It is now clearly established that there are Middle Paleolithic sites in the lower elevations of the 'Ajlūn District. Now, our attention must shift towards cave/rockshelter sites at higher elevations whose Middle Paleolithic assemblages can be contrasted with those from lower elevations. It is also hoped that these caves preserve the kinds of zooarchaeological and paleoethnobotanical residues that will shed much-needed light on Paleolithic subsistence adaptations in the Levant.

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