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Gebel Karaiweb and Bir Nurayet (Sudan). The Oldest Settlement in the Red Sea Mountains

In the years 2010-12, owing to the grant received from the Ministry of Science and Higher Education No. NN109 244 239 and sponsored by Advertisement Agency “Just”, a group of researchers from the Institute of Archaeology and Ethnology, Polish Academy of Sciences, investigated the widely termed prehistory of the region known as Bir Nurayet located in the Red Sea Mountains (Fig. 1). Outstanding is a Lower Palaeolithic site known as Gebel Karaiweb codenamed BN-11-3/2. It is located approximately 7 km north of the village Bir Nurayet, in the north-eastern tip of Gebel Karaiweb, the eponymous rock massif forming the western edge of Wadi Diib. The massif is built mostly of sandstones with vertical and diagonal walls and its eastern edge is fragmented with small erosional cuts. Loose rock blocks and small boulders eroded from the massif lie scattered at its foot on the east side. The north-eastern edge of the massif is more gentle. It was on this hillside and on adjacent longitudinal elevations that abundant Lower Palaeolithic materials were deposited. The whole site is approximately one hectare in area (Fig. 2). Some 7 kilometres south of Gebel Karaiweb, in the vicinity of gebel Magardi by the village Bir Nurayet also several Middle Palaeolithic sites were discovered. The most rich of them, codenamed BN-10-1/5 was partially investigated.



Fig. 1. Location of Gebel Karaiweb



Fig. 2. Gebel Karaiweb. Location of Acheulian site BN-11-3/2

1. Lower Palaeolithic

All Lower Palaeolithic artefacts recovered from the site BN-11-3/2 at Gebel Karaiweb were made of dark brown, almost black, heavily diagenesed quartzitic sandstone¹. This raw material was procured from an outcrop forming a small hill, located on the edge of the site (Fig. 3). The collected objects are ever so slightly eolized.

¹ Kind information of dr Małgorzata Mrozek-Wysocka, Institute of Geology, Adam Mickiewicz University, Poznań.



Fig. 3. Gebel Karaiweb. Acheulian site BN-11-3/2. The outcrop of diagenesed quartzitic sandstone

Collected in the course of surveys, the assemblage comprises four types of re-touched tools fashioned using core technology:

Proto-handaxes (Fig. 4:1; Fig. 6)

– The specimen in size of 220 x 110 x 70 mm made of large flake. Almost a half of the dorsal side is covered by three large negatives of flakes. Ventral side is retouched along all of the right edge by the continuous fine retouch. The rest of its surface is rough. One end is pointed, the second one is oval, blunt .

– The specimen very similar to described above, 136 x 70 x 64 mm in size. Made of large chunk. Both edges are sharpened by wide negatives of flakes. Almost sixty per cent of one side is rough as well as a half of the second side. The tool tapers toward both ends where their edges are sharpened by bifacial retouch.

– The very stocky proto-handaxe 170 x 80 x 70 mm in size, made of thick chunk. Both surfaces covered by deep negatives of medium and large size. One end is pointed; the second one is oval, steeply retouched (Fig. 6).

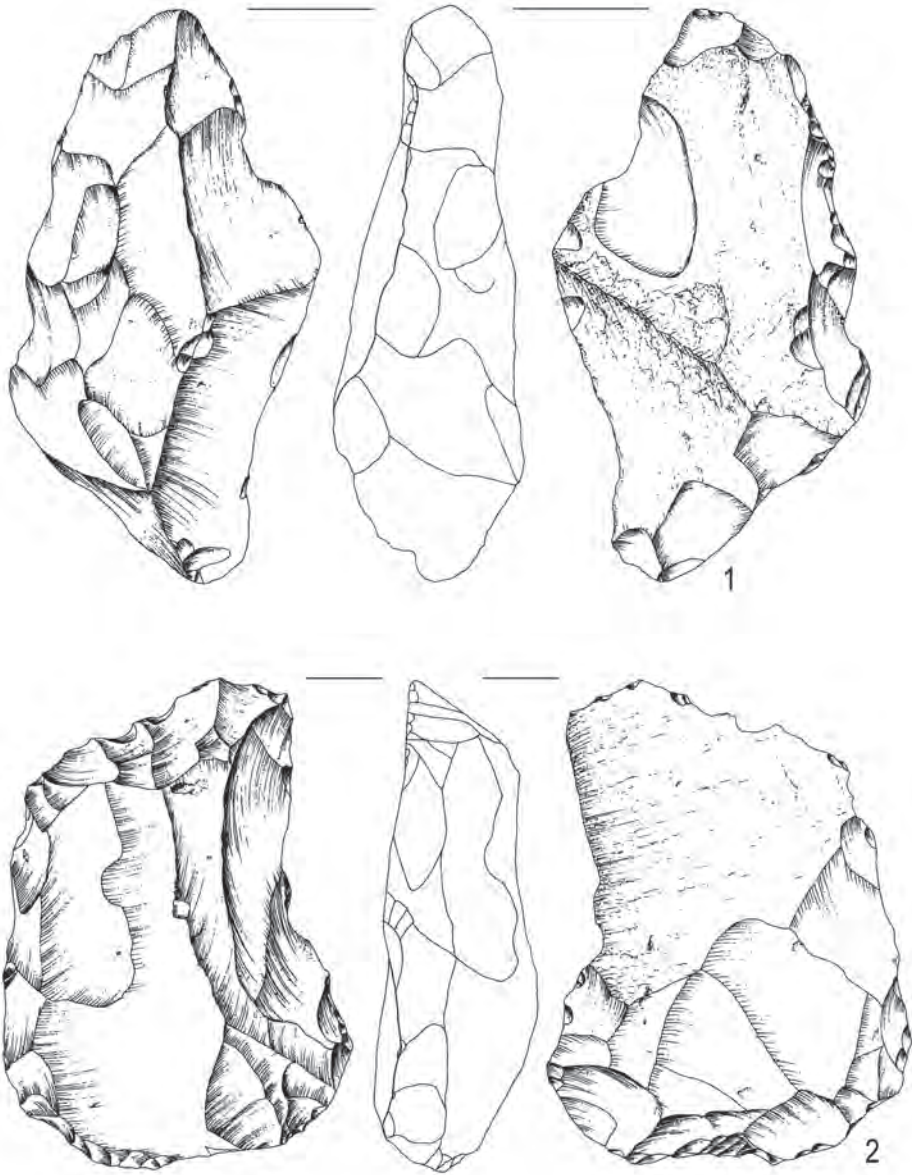


Fig. 4. Gebel Karaiweb. Acheulian site BN-11-3/2. 1 – proto-handaxe; 2 – cleaver

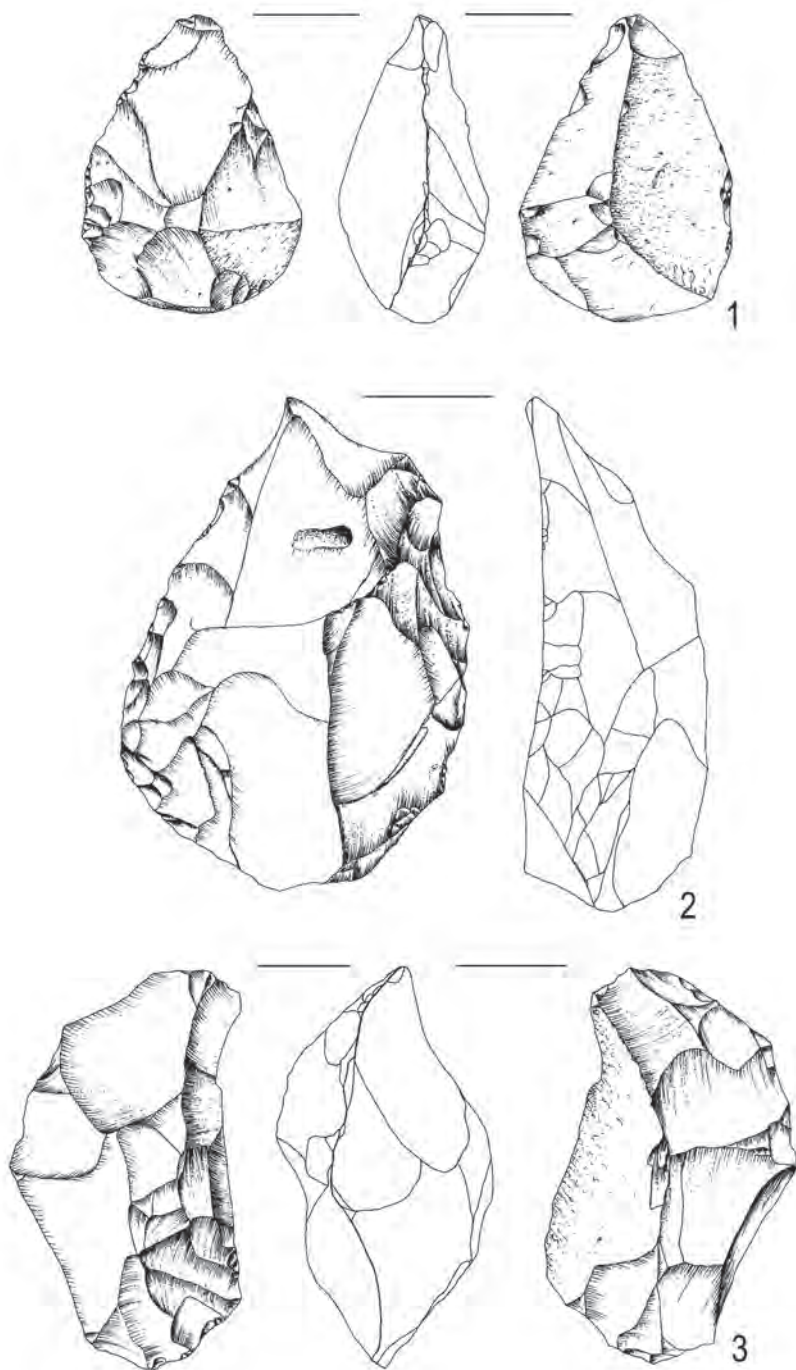


Fig. 5. Gebel Karaiweb. Acheulian site BN-11-3/2. 1 – handaxe; 2-3 –cleavers



Fig. 6. Gebel Karaiweb. Acheulian site BN-11-3/2. Proto-handaxe

– The specimen made of large flake 230 x 80 x 70 mm in size. Both surfaces are mostly rough. One end is pointed, partially shaped by fine irregular retouch. Second end is arched, also shaped by retouch.

– The specimen done of chunk measuring 125 x 80 40 cm. Both surfaces mostly rough. The arched edges partially retouched by fine obverse retouch, taper toward the end.

Handaxes (Fig. 5: 1; Figs. 7-8)

– The small handaxe 100 x 70 x 60 mm in size, made of thick chunk. One surface is covered by concentrically situated deep negatives of flakes. One half of the second surface is rough. On one edge it bears fine retouch.



Fig. 7. Gebel Karaiweb. Acheulian site BN-11-3/2. Hadaxe



Fig. 8. Gebel Karaiweb. Acheulian site BN-11-3/2. Handaxe

– A crude specimen made of chunk 170 x 120 x 60 mm in size. One surface is covered by concentrically located negatives of large flakes. The edges are retouched by negatives of small sharpening flakes. The second surface is rough.

Cleavers (Fig. 4:2; Fig. 5:2-3, Fig. 9-11)

– The cleaver made of large chunk 190 x 130 50 in size. The arched edge spans three-quarters of the circumference. It is retouched by striking small and medium sized flakes. One surface is entirely covered by negatives of large, elongated flakes. Similar negatives cover a half of the second surface. One edge in the lower part of the tool is covered by fine, continuous retouch.

– The specimen made of large chunk. Its measurements amount to 195 x 160 x 60 mm. One longitudinal straight edge and the second edge running downward at an angle of 80° are retouched by irregular obverse retouch composed of the negatives of fine flakes. One surface is entirely covered by deep negatives of large flakes. The second surface is rough.



Fig. 9. Gebel Karaiweb. Acheulian site BN-11-3/2. Cleaver



0 5 cm

Fig. 10. Gebel Karaiweb. Acheulian site BN-11-3/2. Cleaver



Fig. 11. Gebel Karaiweb. Acheulian site BN-11-3/2. Cleaver

– The cleaver done of large chunk 195 x 160 x 65 mm in size. Both surfaces are rough. One edge is retouched by striking off several large flakes. The second, straight edge is retouched by delicate irregular retouch.

– The cleaver of approximately triangular shape, 185 x 125 x 60 mm in size. One side is partially covered by negatives of large flakes. The second side is rough. Two converging edges are retouched by fine bifacial, irregular retouch.

– The specimen 180 x 132 x 60 mm in size, done of large flake. One surface is rough. Its edge is bifacially retouched by striking off several largish flakes. The second surface is also rough except some retouch on edge.

Retouched flakes (Fig. 12)

– The large, stocky, elongated flake 214 x 102 x 8 mm in size. Both surfaces are almost entirely rough. Sections of both edges situated toward the narrowing, pointed end are retouched by fine irregular retouch.



Fig. 12. Gebel Karaiweb. Acheulian site BN-11-3/2. Retouched flake

– The flake of more or less trapezoidal shape, 121 x 125 x 4 mm in size. Both surfaces are rough. Only one straight edge of trapeze is retouched by slight re-touch.

Core (Fig. 13)

– The fair sized cubical multiplatform core for flakes 220 x 187 x 165 mm in size. Any traces of core preparation.



Fig. 13. Gebel Karaiweb. Acheulian site BN-11-3/2. Multiplatform core in the middle of debitage concentration

The distinction between the types described above poses considerable difficulties in some cases. This applies particularly to cleavers and retouched flakes. It is hardly possible to determine whether a specimen with edge retouch is still a retouched flake or an intentionally produced cleaver. In general, the inventory is very homogenous in terms of technology and even typology. The range of technological and thus typological capabilities available to knappers working at the discussed site was extremely narrow. The raw material was procured exclusively from a single source, i.e., the outcrop of heavily diagenesed quartzitic sandstone. In

general, it seems reasonable to conjecture that the site of Karaiweb was not a camp but rather a workshop or a complex of workshops.

Virtually all these tools were made from large chunks scattered on the surface of the outcrop. They do not exhibit any ripples, bulbs or butts typical of flakes, much less common here. Flakes were probably produced using a technique called *bloc en bloc*. The chunks and a few flakes were most likely retouched with a hard hammer, as evidenced by the presence of deep flaking scars. Proto-handaxes, cleavers and retouched chunks and flakes are roughly similar in size – the artefacts range between 10 and 23cm in length, 9 and 16cm in width and 5 and 7cm in thickness. Surveys yielded very few handaxes – they are of slightly smaller dimensions. Although these figures were calculated for a small amount of specimens, they nevertheless give some idea as to the size of implements and exploited lumps of rock from which blanks were removed. Selected chunks show large and medium-sized deep scars left by retouch, which covered slightly arcuate or straight edges or their parts. With a few exceptions, the surface of the tools remained otherwise unretouched.

Whether artefacts we find here today were considered as failed and as such discarded or lost, and finely worked products were carried away is uncertain. The accessibility to the source of raw materials entailed a profligate use of raw material, markedly recorded in the inventory. A huge number of artefacts scattered over a wide area indicates that the outcrop of splintery quartzitic sandstone was repeatedly exploited throughout a very long period of time.

Visible *in situ* at the surface of the site are small, circle-like concentrations of flakes that are much smaller, yet too large to classify them as trimming flakes (Fig. 14). One such concentration yielded a cubic multiplatform core for flakes; the core was exploited from various directions, the sides or the striking platform were unprepared (Fig. 13). Perhaps the concentrations were left behind by a single individual who worked raw materials at this spot. In terms of typology, they seem to be of later chronology than earlier discussed proto-handaxes, handaxes and cleavers. No traces of Middle Palaeolithic techniques were registered.

Whether the products were considered to be failed or they were perhaps lost, and only the desirable were taken away – we do not know. The availability to the raw material prompted the prodigality clearly visible in the material. Given the huge amounts of artefacts scattered all over a large area, the quarry was often visited, probably for a very long period of time.

The chronology of the site remains, as in the case of the vast majority of Acheulian sites in Africa, the issue most problematic to address. Very preliminary at-

tempts at dating the Karaiweb inventory have not provided any satisfactory answers as of yet. With no direct analogies identified, the chronology of the site can for the time being be based solely on typology. In general, the site of Karaiweb appears to be one of the most ancient sites in North-East Africa. Very primitive tools such as proto-handaxes, scarce, very primitive handaxes and clumsily made cleavers or retouched flakes suggest a very early dating of the site – the earliest Acheulian attributable to the turn of the Late Early and Middle Pleistocene. It follows that the investigated assemblage must have been produced by *Homo erectus*.

A timespan throughout which the place was frequented has not been determined – even a few hundred thousand years seems a likely number. Most similar and geographically closest to the Gebel Karaiweb assemblage are Acheulian sites in the vicinity of Khashm El Girba, located 600 kilometres away, notably site 111, but also 102 and 122 (Chmielewski 1987). They differ, however, in the presence of choppers, which are absent in the Karaiweb inventory. The site of Abbasiya, located at a distance of 1100 kilometres (today in Cairo), shows some typological and possibly chronological resemblance (Huzayyin 1941). Of similar age, an Acheulian site of Nag'a Ahmed El Khalifa in Middle Egypt yielded merely primitive handaxes and proto-handaxes (Vermeersch *et al.* 2000), similar to those known from Karaiweb, yet produced no cleavers. Further south, assemblages attributable to the early Acheulian were found at different sites of East Africa, to wit: in Ethiopia, Kenya and Tanzania, where the oldest Acheulian materials are estimated to be 1.5 – 1.4 million years old. Even more distant are the early Acheulian sites from the western Maghreb, such as Sidi Abderrahman, levels II and III of Morocco or Ternifine and Lac Karar from Algeria. Early Acheulian sites have also been identified in north-western Sahara. Early Acheulian materials have recently been discovered in the Bayuda Desert in northern Sudan (Masojć and Paner 2014).

None of the sites listed above exhibits a marked similarity to the Karaiweb inventory, and some are in fact fairly different. The overall chronology of all these sites spans a vast period from about 1.5 to 0.5 million years ago. Multiple stays of *homo erectus* at Karaiweb can be therefore hypothetically supposed to have occurred sometime throughout this period. Notably more numerous are Middle Acheulian sites, typologically different from Karaiweb, e.g., Arkin 8, and Guishard's site 516 from Lower Nubia south of the Second Cataract, the Middle Acheulian site of Khor Abu Anga from Omdurman upon the Middle Nile (Arkell 1949), or Abu Hugar, lying south of Singa, upon the Blue Nile, already close to the border with Ethiopia (Chmielewski 1987).



Fig. 14. Gebel Karaiweb. Acheulian site BN-11-3/2. Surface concentration of debitage



Fig. 15. Bir Nurayet. Rocky cirque. Location of Middle Palaeolithic site BN-10-1/5

The Late Acheulian sites from the northern areas of Lake Chad basin, south of Tibesti, are of particular interest to us – they yielded stone tool workshops (Tillet 1983), possibly analogous to the Gebel Karaiweb workshop.

The workshop character of the Gebel Karaiweb inventory and, above all, the type of raw material used for making tools can perhaps explain the remarkability of the Karaiweb typology. People exploiting the local outcrop could have chosen between large, sharp-edged chunks or flakes, while their distant neighbours from the areas upon the Nile or Atbara worked on cobbles – this, among other things, can partly account for the noticeable differences, at least in this case.

The current state of research on the Lower Palaeolithic of North-East Africa, particularly its older phase, is far from satisfying. Extremely scarce sites from this period are widely dispersed over a vast area – Gamal El Deen Idris (1994) notices merely four Older Acheulian sites in Sudan. Karaiweb is the only site to have been identified in the Red Sea Mountains thus far. Highly promising, the site of Gebel Karaiweb should definitely be further explored – it is bound to provide new data on the oldest period of human prehistory.

2. Middle Palaeolithic

Six Middle Palaeolithic sites have been registered in the vicinity of the village Bir Nurayet, approximately seven kilometres to the south of Gebel Karaiweb while walking along the western edge of Wadi Diib. Among them, the site codenamed BN-10-1/5 stands out as particularly wealthy. Having furnished most abundant information, the site currently provides the basis for our present knowledge on this period in the region of Bir Nurayet.

The site is located almost in the centre of the so-called rock cirque marked with number 1. This oval, nearly circular in shape erosion valley is surrounded on all sides with almost vertical walls (Fig. 15). From the east, looking from Wadi Diib, there are two low hills, between which an entrance to the valley was located in a depression (a kind of saddle). The bottom of this valley is located a few meters above the bottom of Wadi Diib and the maximum level of the ceiling of its alluvial sediments. Therefore, in contrast to the neighbouring erosion valleys 2 and 4 in the eastern edge of the rock mass, Valley 1 was not flooded by water flowing through the main *wadi* and it is not filled with silts.

In 2010 and 2011 research seasons, lithic materials were collected from the surface of the site. An elongated, ellipse-shaped concentration of Middle Palaeolithic artefacts, approximately 30-40 meters in length and about 20-30 meters in

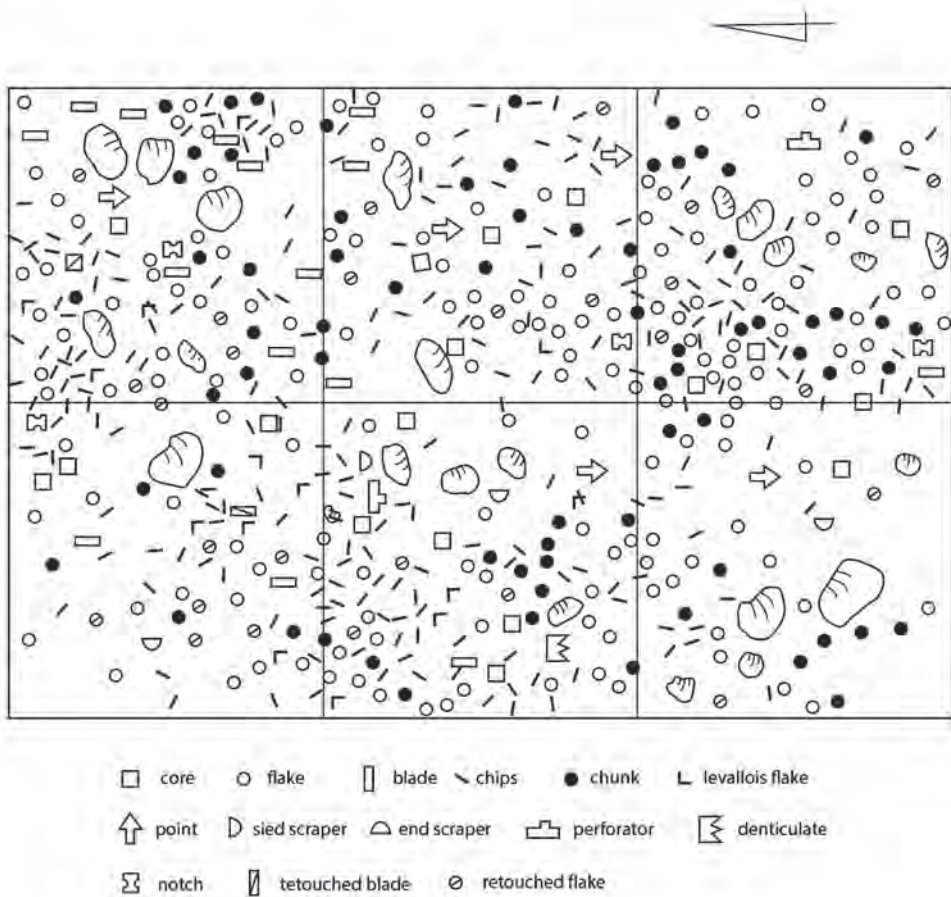


Fig. 16. Bir Nurayet. Middle Palaeolithic site BN-10-1/5. Scatter pattern of flint artefacts from six square meters of surface and from the layer ten centimeters below

width, extends along a high, steep rock wall. In the absence of clear-cut boundaries, it is not possible to determine its exact range. No stratigraphy or clusters of individual artefacts were registered. Artefacts were scattered on the surface of water and wind-deposited sands and just underneath the surface, up to a depth of 10 cm.

A unit sized 2 x 3 m was excavated at a spot where the maximum concentration of lithic artefacts was noticed on the surface. All material of archaeological inter-

est scattered on the surface of the trench and deposited within a ten-centimetre-deep layer beneath the surface was collected for analyses, in order to obtain, next to retouched tools and cores, a complete sample of debitage necessary to examine the technology applied by Palaeolithic tool makers (Fig. 16).

Importantly, the assemblage acquired thus far is too scanty to enable the calculation of indexes typically used for the description of Middle Palaeolithic materials, such as the Levallois index or index showing the frequency of particular types of tools, or group of tools. It is for this reason that this paper aims to explore only the typology and technology used by people working with lithic materials at the site.

Since there is no reason to assume that there were different episodes in the development and history of the site, assemblages of cores and implements collected from the surface and those from the excavated six square meters were analysed jointly.

Site BN-10-1/5 delivered a relatively small collection of artefacts numbering 432 pieces which amount to 2.31 percent for cores, 8.33 per cent for retouched tools and 89.19 percent for debitage. All artefacts from this site come from the heavily diagenesed quarzitic sandstone of different taint and different degree of patination, easy to procure in the vicinity. The structure is demonstrated in Tables 1-5.

Table 1. Bir Nurayet. Site BN-10-1/5. Absolute and percentage frequencies of cores and retouched tools

Core types	No	%
Levallois cores	10	66,67
Other cores	5	33,33
Cores total	15	100.00
Tool types	Ilość	%
Bifacial points	6	22,22
Mousterian points	4	14,82
Side-scrapers	6	22,22
End- scrapers	2	7,41
Noches	3	11,11
Denticulates	3	11,11
Retouched flakes	2	7,41
Retouched blades	1	3,70
Tools total	27	100.00

Table 2. Bir Nurayet. Site BN-10-1/5. Absolute and percentage frequencies of debitage types

Debitage type	No	%
Cortex flakes	3	0.78
Flakes from single platform core	30	7.88
Flakes from double platform core	1	0.26
Flakes from multiple platform core	46	12,07
Levallois flakes	13	3.41
Blades from single platform core	5	1.31
Unidentified flakes	45	11.81
Chips (less than 25 mm of diameter)	85	22.31
Chunks	153	40.17
Total	381	100

Table 3. Bir Nurayet. Site BN-10-1/5. Levallois flakes. Metrical parameters

Levallois flakes							
Category	l.		Σx	Σx^2	S	Mode	No. in mode
Length	12	40,58	487	20675	9,1	35-39	3
Width	12	39,08	469	19301	9,39	40-44	3
Thickness	12	9,75	117	1241	3,02	9-10	4

Table 4. Bir Nurayet. Site BN-10-1/5. Flakes from single platform core. Metrical parameters

Flakes from single platform core							
Category	l.		Σx	Σx^2	S	Mode	No in mode
Length	25	37,36	934	37850	11,1	25-29; 40-44	6
Width	25	32,64	816	28046	7,67	30-34	6
Thickness	25	9,08	227	2249	2,8	7-8	9

Table 5. Bir Nurayet. Site BN-10-1/5. Flakes from multiplatform core. Metrical parameters

Flakes from multiplatform core							
Category	l.		Σx	Σx^2	S	Mode	No in mode
Length	42	36,09	1516	58616	9,75	31-35	12
Width	42	32,71	1374	47474	7,85	26-30	11
Thickness	42	9,74	409	4363	3,04	9-10	11

Cores (Fig. 17-18) Tabele 1

– 15 pieces. Ten of them are Levallois cores. All for flakes. The dimension of the smallest one are 47 x 37 x 13 mm, the largest one 70 x 50 x 30 mm (Fig. 17). Also five cores other than Levallois are distinguished. The smallest is 30 x 30 x 25 mm the largest one is 60 x 50 x 39 mm in size. The small core is single platform specimen for blades, totally exhausted. Two other specimens are double platform cores for flakes (Fig. 18:1-2), one is a double platform core for flakes with opposite striking platforms, and one multiplatform unpatterned core for flakes (Fig. 18:3).

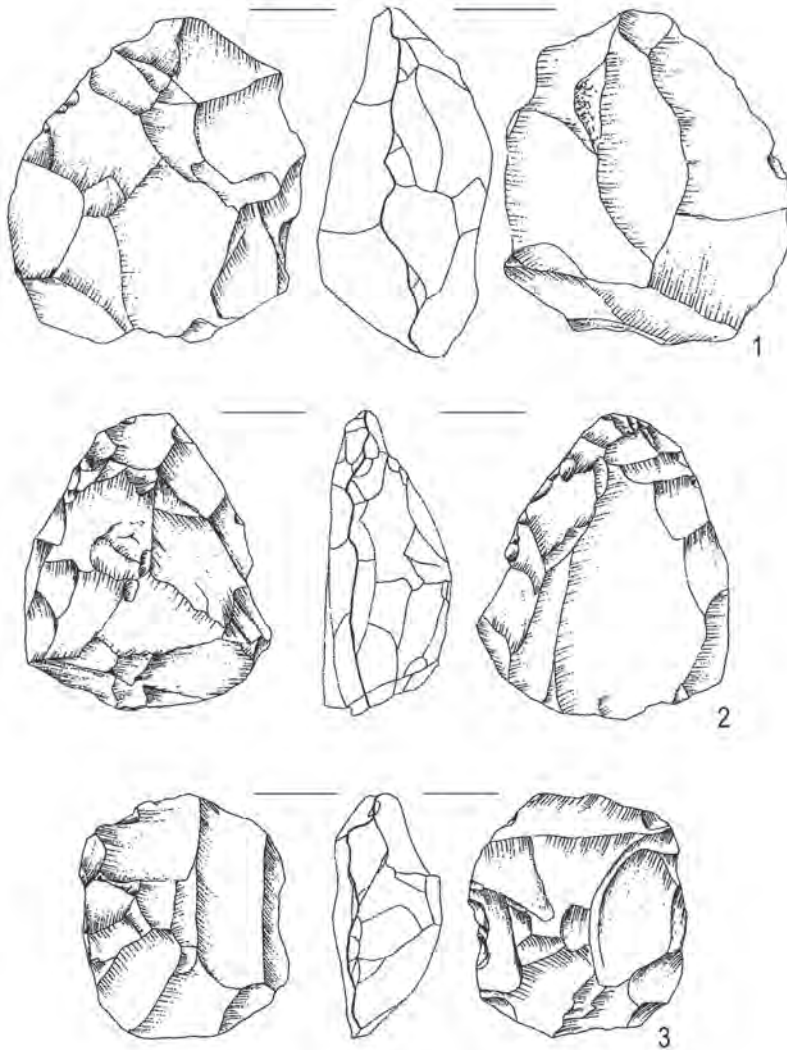


Fig. 17. Bir Nurayet. Middle Palaeolithic site BN-10-1/5. 1-3-Levallois cores

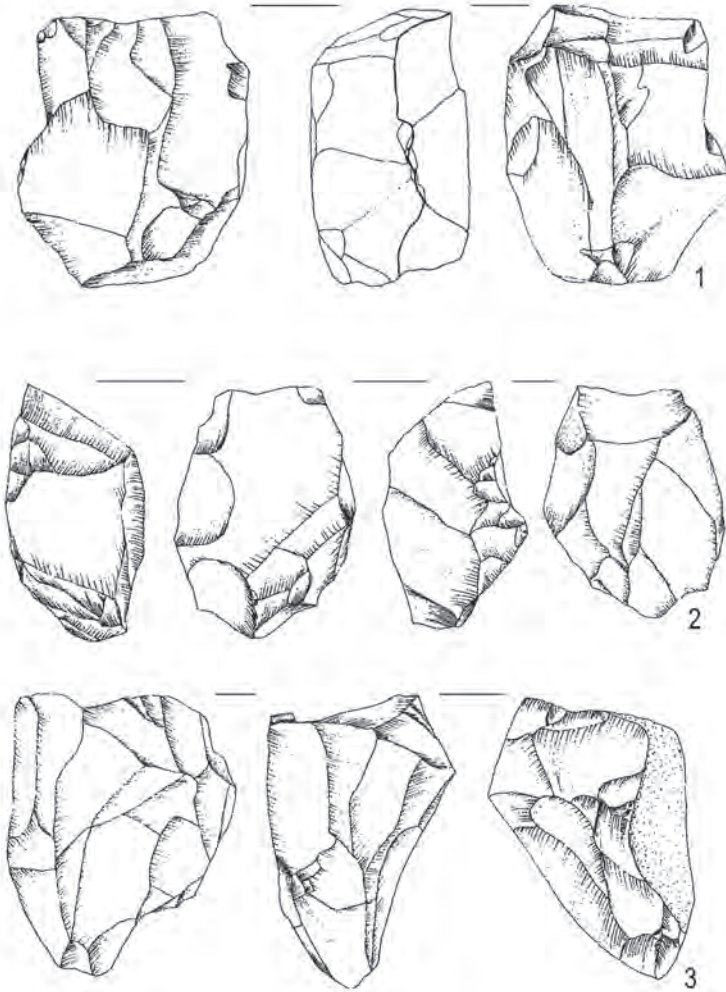


Fig. 18. Bir Nurayet. Middle Palaeolithic site BN-10-1/5. 1-2 – double platform cores for flakes; 3 – multiplatform core for flakes

Retouched tools

Bifacial points (Fig. 19) Tabele 1

– The most common are bifacial points – six specimens. The largest is broken. The dimensions of its preserved part are 60 x 50 x 12 mm. The dimensions of four remaining cores are: length oscillate between 40-50 mm, width 28-35 mm and thickness 9-14 mm. Both sides are entirely covered by retouch composed of medium and small negatives of flakes.

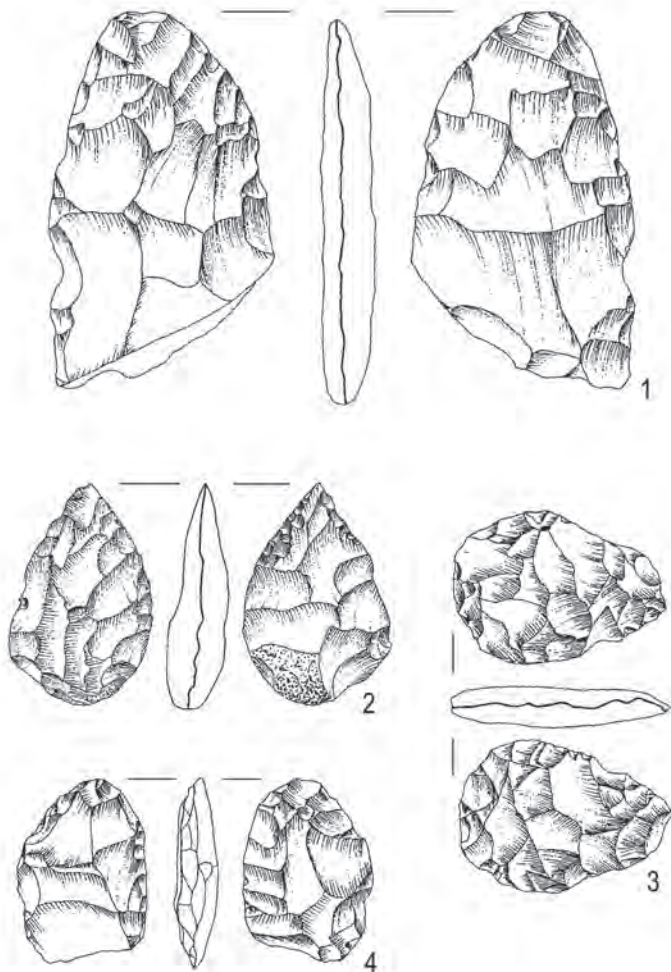


Fig. 19. Bir Nurayet. Middle Palaeolithic site BN-10-1/5. 1-4 – bifacial points

Mousterian points (Fig. 20) Table 1

– Four specimens. 5 x 27 x 9 mm up to 52 x 37 x 14 mm in size. On three pieces the dorsal side is entirely covered by retouch composed of negatives of flat flakes and the second side is smooth except, in two cases, the fragments of one edge have lateral fragmentary retouch and in one case both edges are retouched.

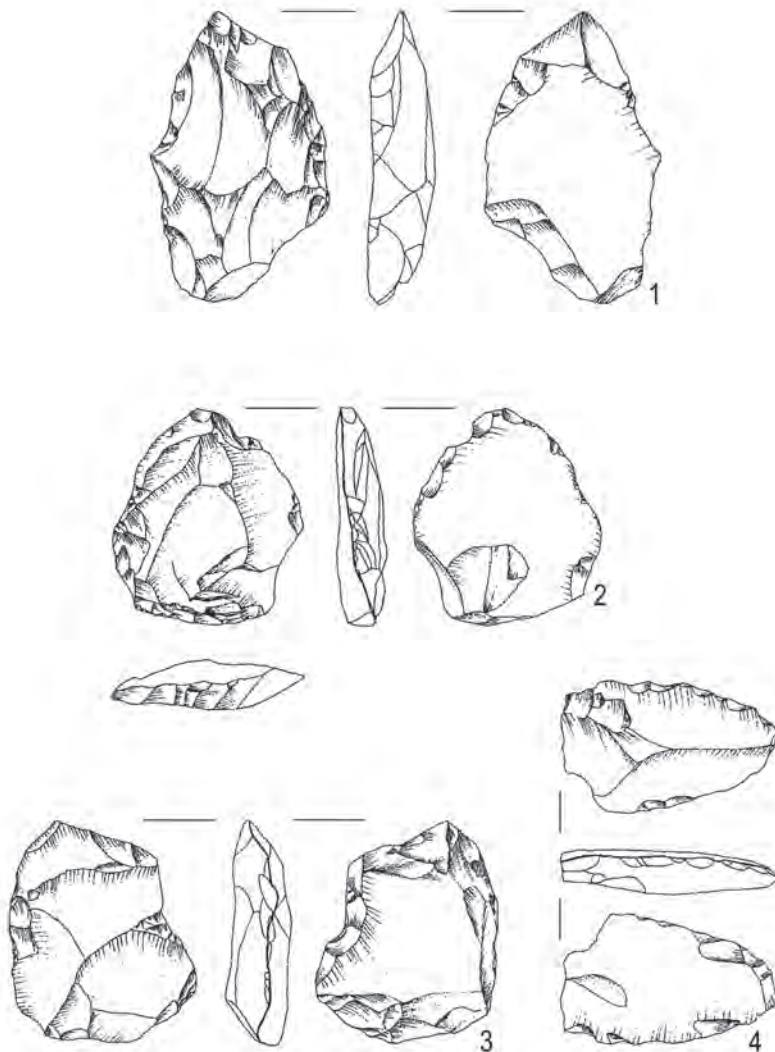


Fig. 20. Bir Nurayet. Middle Palaeolithic site BN-10-1/5. 1-4 – Mousterian points

Side scrapers (Fig. 21) Table 1

– Five specimens. 37 x 23 x 7 mm up to 63 x 37 x 13 mm. Two pieces are retouched on one, straight edge and one is retouched on the second, arched edge. One piece is retouched along the two straight, parallel edges. Two side scrapers are retouched along both convergent, slightly arched edges.

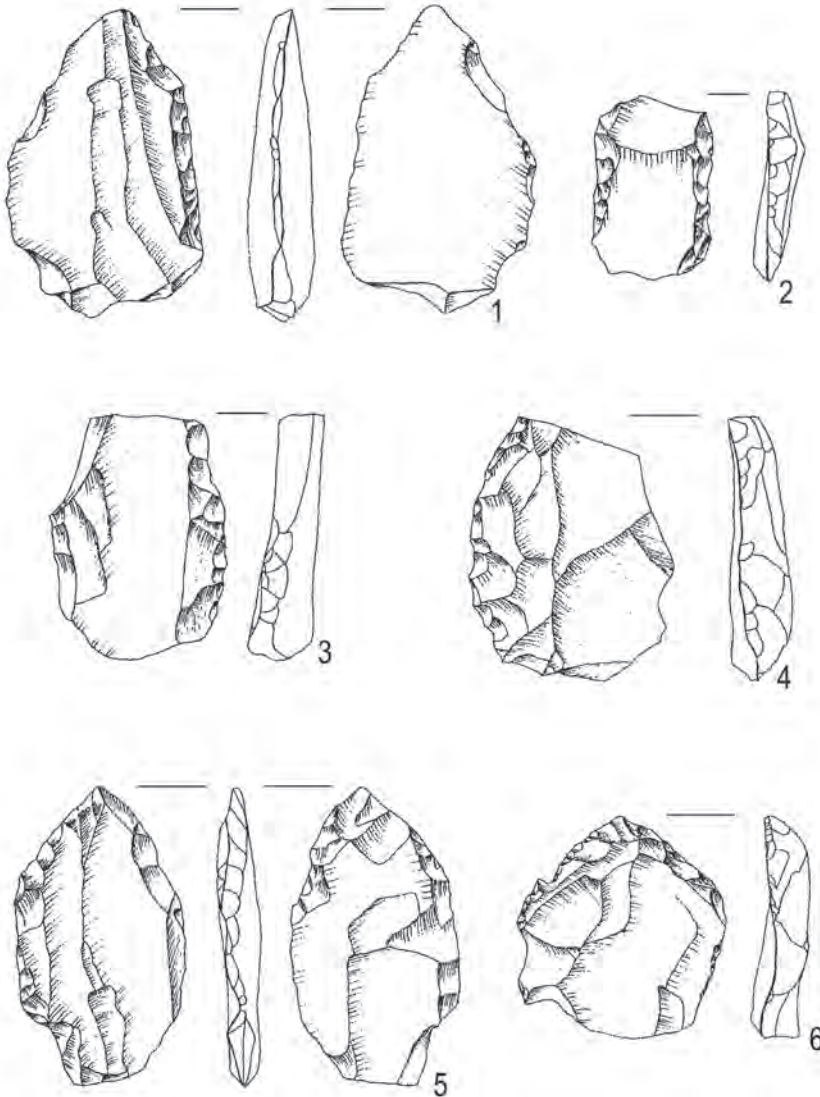


Fig. 21. Bir Nurayet. Middle Palaeolithic site BN-10-1/5. 1-5 – side-scrapers

End scrapers (Fig. 22: 1-2) Table 1

– Two specimens. One is made of massive flake 53 x 37 19 mm in size. The scraping edge is arched, symmetrically, abruptly retouched (Fig. 22:2). The second one, 97 x 41 x 16 mm in size is made of the large, massive blade (Fig. 22:1). The scraping edge, located at the distal end is similar to the nosed scrapers. One edge is retouched on the dorsal side by discontinuous retouch.

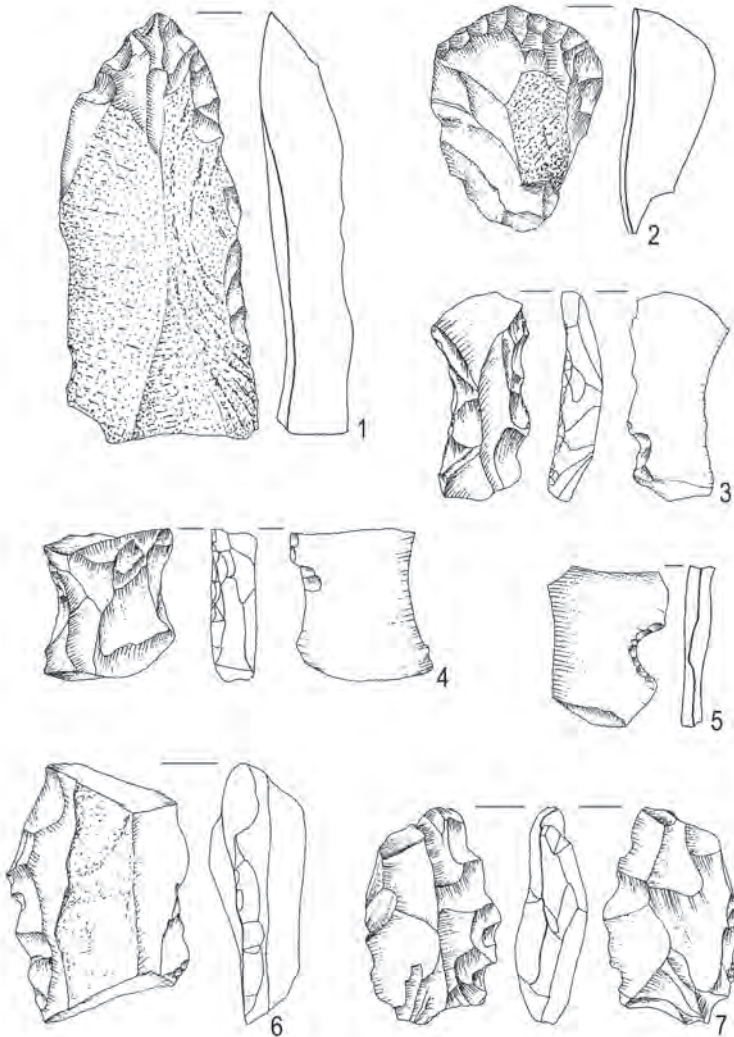


Fig. 22. Bir Nurayet. Middle Palaeolithic site BN-10-1/5. 1-2 – end scrapers; 3-5 – noches; 6-7 – denticulate tools

Noches (Fig. 22:3-5) Table 1

- Three specimens, 35 27 x 7 mm up to 48 x 17 x 10 mm. All done on blades. In two cases the noches are abruptly retouched on the dorsal side (Fig. 22:3-4). The third one is retouched on ventral side (Fig. 22:5)

Denticulated tools (Fig. 22:6-7) Table 1

Three specimens. 50 x 31 x 16 mm up to 62 x 37 x 22 mm in size. Two of them are retouched on the dorsal (Fig. 22:6-7) and one on the ventral side.

Retouched flakes (Fig. 23:1, 4) Table 1

- Two specimens. One of them is big, 150 x 80 x 22 mm in size. Made of flat triangular chunk with both surfaces rough. The base of the triangle is on one side retouched by alternating, regular and symmetrical retouch on one side and irregular, slightly denticulate, flat retouch on the other side. The second piece, 65 x 50 x 11 mm in size has the irregular, low angle retouch on one edge.

Retouched blades (Fig. 23:2) Table 1

- The single, flat piece 55 x 25 x 8 mm in size, retouched along both edges by irregular fragmentary retouch.

Absolute and percentage frequencies of retouched tools are given on Table 1

Debitage (Table 2-5)

381 pieces ofdebitage are distinguished. Most of them are unidentified (small chips, thermal chunks and unidentified flakes). The detailed structure ofdebitage presents Table 2.

- Only three cortex flakes were identified. Their size is 40 x 32 x 12 mm, 44 x 34 x 13 mm and 47 x 30 x 12 mm. Two have cortex platforms and one *lisse* platform.
- Between the identified flakes thirteen pieces are of Levallois type. The smallest is 29 x 26 x 4 mm and the largest 53 x 51 x 14 mm in size. The average main length is 40.58 mm, width 39.08 and thickness 9.75 mm. Seven Levallois flakes have platforms type *chapeau de gendarme*, two platforms are *lisse*, one dihedral and three unidentified. The detailed metrical data for flakes presents Tables 3-5.

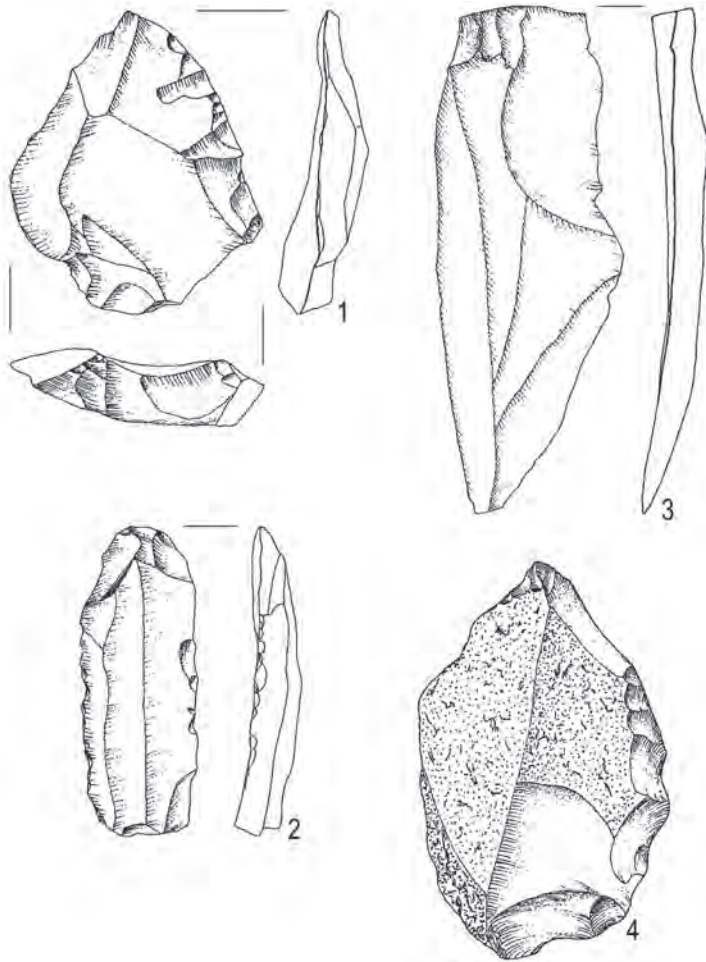


Figure 23. Bir Nurayet. Middle Palaeolithic site BN-10-1/5. 1, 4 retouched flakes; 2 – retouched blade; 3 – blade from single platform core (Table 2)

By far the most common are flakes from single platform (30 pieces) or from multi-platform cores one and a half more frequent. Between 25 of whole flakes from single platform core the smallest is 19 x 27 x 15 mm and the largest 68 x 34 x 15 mm in size. The mean length of flakes is 37,36 mm, width 32,64 mm and thickness 9.08 mm in size. The metrical data are demonstrated on Table 4. By this type of flakes the most popular platforms are *lisse* (11 pieces) then 5 faceted, 4 dihedral, one pointed and 6 unidentified platforms.

- Forty six flakes from multiplatform cores are distinguished. Between the whole pieces the smallest is 21 x 25 x 5 mm and the largest 63 x 38 x 9 mm in size. The main length of these flakes is 36.09 mm, width 32.71 and thickness 9.74 mm. Between identified flake platforms 19 are *lisse*, 4 are dihedral, 3 are faceted and one is pointed. 17 platform are unidentified.
- Only one flake was distinguished which may have come from the double platform core. Its size is 49 x 25 x 9 mm. The platform is unidentified.
- Between five blades struck from single platform core three pieces are whole (Fig. 23:3). Their size is 110 x 40 x 7 mm, 42 x 19 x 12 mm and 43 x 21 x 8 mm. Four blades have *lisse* platforms and one has Levallois platform type *cha-peau de gendarme*.

Except the flint inventory from the site BM-10-1/5 described above also the Middle Palaeolithic artefacts from several other sites were collected. And they are as follows:

- Site BN-10-1/1 Cordiform handaxe 77 x 55 x 20 mm in size (Fig. 24:1).
- Site BN-10-1/4 Single platform core for flakes made on flake 70 x 35 x 20 mm in size, and side scraper 88 x 52 x 25 mm in size retouched along the right, slightly arched edge by hefty retouch.
- Site BN-10-4/3 Big, stocky single platform core, cubical in shape, 90 x 91 x 70 mm in size (Fig. 24:2).
- On sites BN-10-6/1 and BN-10-12-8 several pieces of debitage were collected including Levallois flakes.

In terms of typology, there are several points of similarity between the inventory from BN-10-1/5 (and indeed other sites in the Bir Nurayet region) and the Middle Palaeolithic sites of Gademotta and Kulkuletti in Central Ethiopia (Wendorf and Schild 1974). Assemblages from both regions are typified by the occurrence of numerous bifacial and Mousterian points in different varieties, almost identical to analogous implements from Ethiopia, and the presence of similar sidescrapers and endscrapers. The frequent use of Levallois technology is another common feature. Similarly to Gademotta and Kulkuletti, site BN-10-1/5 is attributable to the Stillbay culture, spanning the vast areas of southern and eastern Africa. Site BN-10-1/5 is the northernmost site of this culture. Its close resemblance to the Ethiopian sites mentioned above can be explained by the way of adaptation to the similar environment of mountainous areas of Ethiopia and the Red Sea Mountains in north-eastern Sudan. Other Middle Palaeolithic sites registered in North-East Africa are notably different in terms of typology.

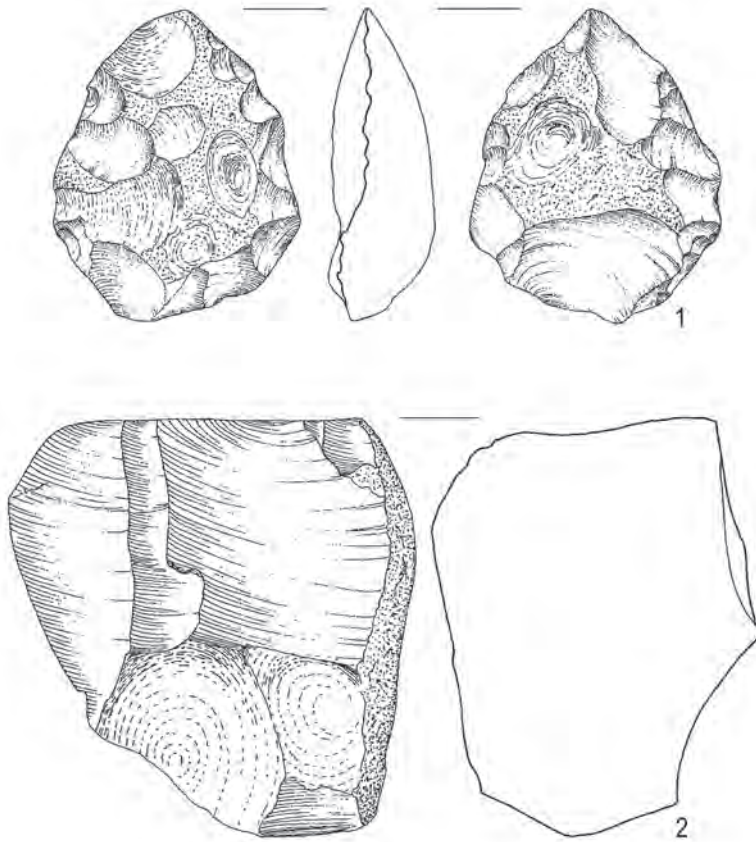


Figure 24. Bir Nurayet. Middle Palaeolithic site BN-10-1/1: 1 – handaxe; site BN-10-4/3: 2 – Core for flakes

Sites of the Stillbay culture in Africa date back to the period between 200,000 to 70,000 years BP, the timespan identical to that of site BM-1-1/5 and other Middle Palaeolithic sites in the area. The Stillbay cultural tradition lasted for a long time and there are no premises whatsoever to allow a more precise dating of our finds within such determined time frame. It is anticipated that further comprehensive research will provide a more exact chronology.

Given the wealth of artefacts, site BN-10-1/5 represents the remains of recurrent occupation of people using the technology and typology of the Stillbay culture. This multiplicity of stays can be explained by the favourable location inside

the rock cirque, above the water levels rising in the adjacent Wadi Diib, sheltered from the wind blowing from the north and west. The discovery of other traces of the same Late Palaeolithic culture in various places in the region of Bir Nurayet testifies to the fact that the Stillbay communities penetrated the vast areas of the Red Sea Mountains.

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