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FIRST NOTE ON THE DISCOVERY OF A STRATIFIED PALAEOLITHIC SITE FROM THE BAYUDA DESERT (N-SUDAN) WITHIN MAG CONCESSION

This communiqué presents the circumstances of the discovery of a well-preserved Palaeolithic site during this year's reconnaissance in the Bayuda Desert in Sudan (2010), when initial prospection of the site and its vicinity was carried out and preliminary probing was made.

The site was discovered in the Bayuda Desert by the team from the Archaeological Museum in Gdańsk, Poland (MAG) led by Henryk Paner. The prospection in the Bayuda began in 2009, following the concession granted by the Director General of the National Corporation for Antiquities and Museums (NCAM), Sudan. The concession covers an area of some 140,000 km², excluding all the sites situated in the Nile Valley and at its edges, as well as any sites or areas earlier allotted to other expeditions. The aim of the project's first phase is to conduct an initial reconnaissance of the region in order to gain a general picture of its settlement history. This phase of works is planned to take place over five years. The details concerning the concession as well as preliminary results of the first season of the surveys have just been published (Paner & Pudło 2010).

of the Basement Complex. The predominating element of the desert's geological structure is volcanism, especially in its northern part built from Mesozoic basalt rocks of volcanic origin as well as from granites, gneisses and amphibolites (Rahaba Series). The southern part of the Bayuda (south of the Mero-we – Atbara line) is made from Cretaceous Nubian Sandstone Formation² with numerous volcanic cones still visible in the landscape. Due to abundance and easy accessibility of volcanic and sedimentary rock the Bayuda was a perfect source of raw material for prehistoric communities.

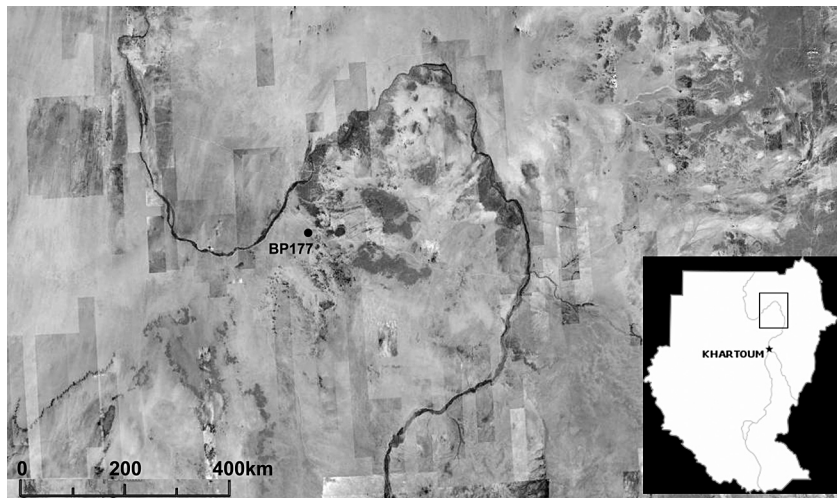


Fig. 1: The Bayuda Desert. Location of Goat Mountain – BP177 in the south-western part of the desert (photo Google).

THE BAYUDA DESERT

The desert, situated north of Khartoum, occupies the area of about forty thousand square kilometres within a great bend of the Nile, reaching as far as Wadi El-Melik in the south.¹ About 60% of the area of the desert is underlain by metamorphic rocks

RESEARCH OF PALAEOLITHIC SETTLEMENT IN THE BAYUDA SO FAR

Among the known Palaeolithic sites in Sudan undoubtedly one of the most important is a stratified site 8-B-11 of precise absolute chronology situated on the island Saï (Van peer et al. 2003). Additionally, the

1 Cf. Territorial range of the MAG concession in Paner & Pudło 2010, Fig. 1.

2 Meinhold, K-D. 1979, Fig. 1.

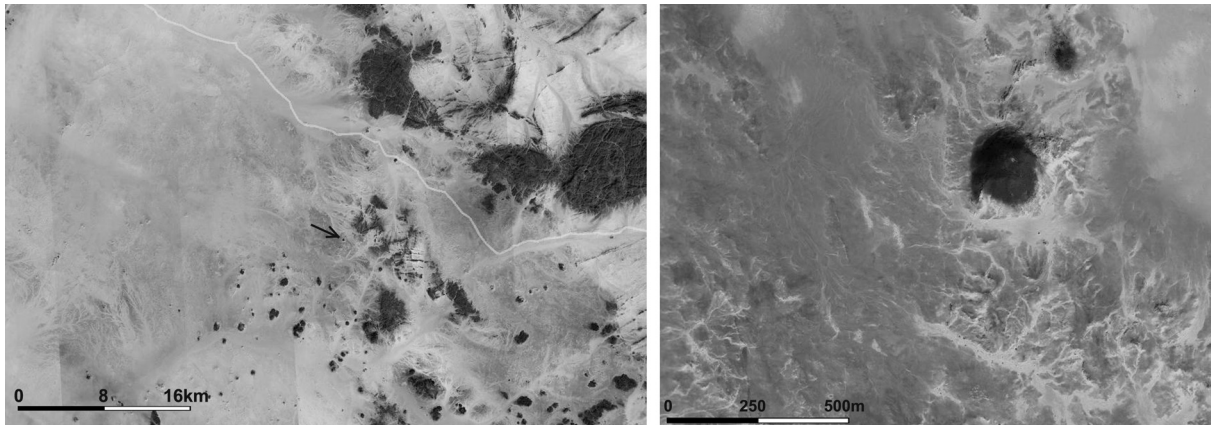


Fig. 2: Location of site BP177, Goat Mountain. The site is on the left, marked with an arrow, north of the site is the road to Atbara. On the right is the whole culmination with the place filled with the sediment (a white dot in the middle of the culmination); (photo Google).

CPE³ research in the region of Wadi Halfa (Wendorf 1968) and in the area close to the border with Ethiopia (Chmielewski 1987) have greatly contributed to the knowledge of the Old Stone Age in Sudan. The issues connected with the period have recently been presented by Lange (2008), who discussed the history of the research in detail.

The Bayuda is an uncharted territory on the map of prehistoric settlement. The desert's interior has never been explored from the Stone Age perspective. The history of archaeological excavations in the Bayuda has been recently mentioned in several publications,⁴ e.g. the work carried out in connection with the construction of the road from Khartoum to Ed-Debba, when a single handaxe and two early-Holocene sites were discovered (Fuller & Smith 2004).

The archaeological society knows of other finds from the Bayuda, including single Palaeolithic artefacts found by geologists Henner Barth and Klaus-Dieter Meinhold – the authors of the geological map of the Bayuda (Barth & Meinhold 1981). Meinhold also documented archaeological finds, marking them on the maps and cataloguing collections of artefacts found during geological work carried out in 1976–78.⁵ Most of the sites discovered at that time are situated in the eastern edges of the Bayuda, at the section between the settlements Berber in the south and Al Akaba in the north (Meinhold 2009).

More intensive research of the Palaeolithic settlement is being carried out in the area surrounding

the Bayuda, i.e. in various parts of the Nile valley surrounding the desert – on the island of Mograt,⁶ south of the fifth cataract in the area of Abu Hammed (Schulz 2008) and in the area of the fourth cataract, where the most interesting discovery is the Pleistocene site in Wadi Umm Rahau (Waş 2009).

First regular reconnaissance in the Bayuda Desert was carried out by the MAG team in 2009, who discovered several dozen new Stone Age sites. At the same time a project related to the period of functioning of the Kush kingdom is being carried out in the area of Wadi Abu Dom in the Bayuda, which has also resulted in the discovery of several Palaeolithic sites (Gabriel 2009; Lohwasser 2009, 2010).

THE SITE'S LOCATION

Most Palaeolithic sites in the Bayuda are situated either on the tops of culminations of volcanic origin or at their foot. In their majority they are eroded, devoid of original arrangements, which results in co-occurrence of older stone artefacts together with the artefacts from subsequent periods, including modern ones.

Among the above-mentioned several dozen sites discovered recently, site BP 177 (known locally as Goat Mountain) is an exception. Unlike in the remaining ones, the site's Palaeolithic material has been preserved in situ, in the original stratigraphic arrangement in a relatively small, enclosed space (Fig. 2, 3).

Goat Mountain⁷ is situated in the south-western part of the desert, within the Nubian sandstone

3 Combined Prehistoric Expedition.

4 Lohwasser 2009; 2010; Paner & Pudło 2010.

5 Altogether 32 sites were documented. The material handed over by Dr. Meinhold to the August Kestner Museum in Hannover is being catalogued by the author of this article.

6 Expedition H.U.N.E.

7 18° 4'42.21"N; 32° 1'41.72"E



Fig. 3: Site BP177, Goat Mountain. View from the north (photo M. Masojć).

formation, with dozens volcanic cones visible in the landscape. It is located ca. forty kilometres east of the Nile valley and over a dozen kilometres south of the road crossing the Bayuda Desert, running from Marowe to Atbara. The mountain is a small, spatially isolated volcanic cone of the diameter of ca. 200 m (Fig. 3).

The top of the culmination provided stone material and pottery (mainly Neolithic) and single products displaying features of predetermined techniques from the Middle Stone Age (MSA). It is thus a typical phenomenon observed on dozens of other culminations (*djebels*) in the Bayuda. The Middle Stone Age artefacts were also found at the foot of the mountain.

The site's exceptional character is substantiated by the fact that originally in the middle of the mountain's flat culmination there was a depression, a basin of the size of 15 x 8 m. The depression was undoubtedly of natural origin, being the consequence of how the cone of an extinct volcano formed (Fig. 4). The depression's fill is rock rubble and fine-grained material of Aeolian origin. Within the depression a horizon with Stone Age material was recorded under a layer of 15–20 cm of neutral very fine deposits.



Fig. 4: Site BP177, Goat Mountain. Top of the culmination with the plateau and the place where the Palaeolithic material was found (photo M. Masojć).

PROBING, STRATIGRAPHY

Probing was made within the depression during the season of 2010 (Fig. 5). Four probing trenches were cut, each of the area of 1 m², to determine the object's stratigraphy, the character of the stone artefacts' distribution and their taxonomic features as well to acquire samples for interdisciplinary research.



Fig. 5: Site BP177, Goat Mountain. Top of the culmination with the plateau and the place where the Palaeolithic material was found. The photo was taken while probing was being made (photo M. Masojć).

As it was mentioned above, the surface of the mountain's top and to some extent the surface of the depression's fill are covered with stones and Neolithic pottery material, which also include a smaller number of Palaeolithic artefacts. Ca. 15–20 cm below the ceiling's horizon there is a layer with Palaeolithic material. The layer separating the artefacts found on the surface from the Palaeolithic horizon is archaeologically neutral. It also does not include rock material. Below a several centimetre thick layer containing relatively few artefacts, there is the already-mentioned horizon with a considerable number of artefacts. It seems to be the main horizon, reaching the depth of ca. 40 cm. Below it, no stone material was found. The other horizon, much poorer than the one above, appears at the depth of ca. 50 cm. It is also less identifiable than the upper horizon. At the present stage of probing it cannot be unambiguously stated whether the artefacts occurring at the lowest level constitute a separate settlement horizon or whether they are somehow connected with the material deposited above. Preliminary analysis prompts that it is more archaic than the material deposited above, even though it also displays Levallois technology features. The raw material composition seems to be different as well – it is predominated by volcanic rocks. The exploration stopped at the depth of ca. 60 cm (Fig. 6); however we are not sure whether the probing trenches have reached the bottom of the

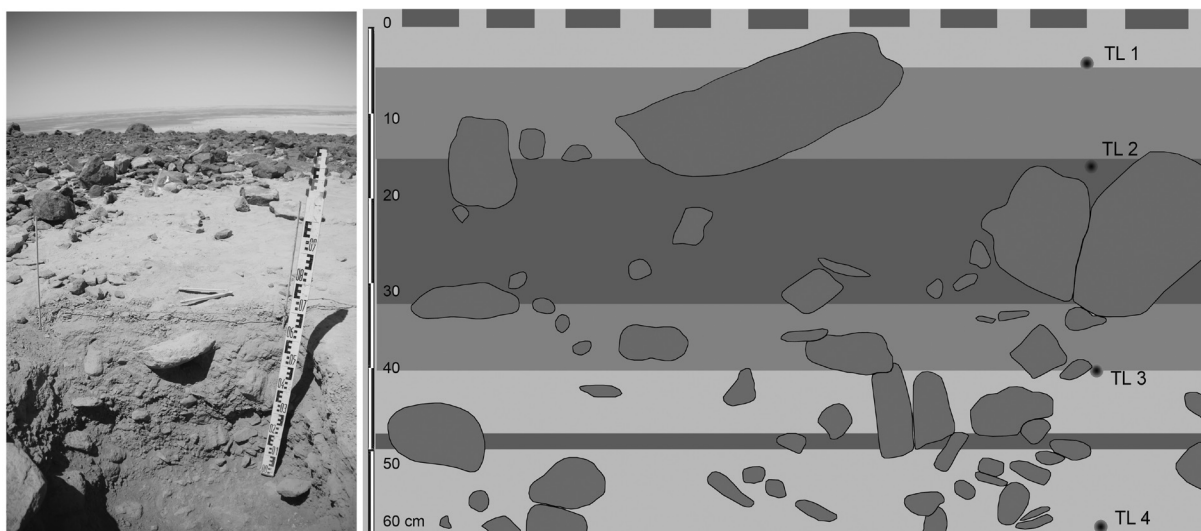


Fig. 6: Site BP177, Goat Mountain. On the left: profile of the probing trench no. 3. On the right: schematic drawing of the profile of probing trench no. 3. Broken line: single artefacts on the surface, horizon 5–40 cm MSA with the greatest density of the artefacts within 15–35 cm; horizon 47–50 cm – the other horizon (?) MSA; TL 1-TL 4: places of sample taking for TL dating (photo and drawing M. Masojć).

depression, which necessitates further excavations on a greater area.

No organic material was found in the four probing metres. Samples were collected for environmental analysis, including palynological analysis and thermoluminescent dating.

STONE RAW MATERIAL

Exploration in the probing trenches was carried out with mechanical layers. Artefacts were located three-dimensionally within each of the probing trenches. The explored material was additionally sifted.

The four probing metres provided altogether about 15 000 stone artefacts. Their raw material structure is surprisingly differentiated. Palaeolith-

ic sites discovered so far in the Bayuda provided almost solely the artefacts made from volcanic rocks (basalt, porphyry, among others), less frequently from quartzitic sandstone or quartz. Probing in Goat Mountain indicates that raw material economy of the Middle Stone Age community was certainly more complex. Apart from the raw material mentioned above, petrified wood and siliceous rocks constituted the basic category (Table 1).

All the probing metres display a similar raw material structure. For instance, in probing metre no. 4 of a very similar structure, a group of artefacts made from siltstone is better identifiable (Fig. 7). High frequency of products from fossilised wood is especially striking. The rocks present in the assemblage are easily accessible in the site's close vicinity. It is fossilised wood that seems to be relatively least

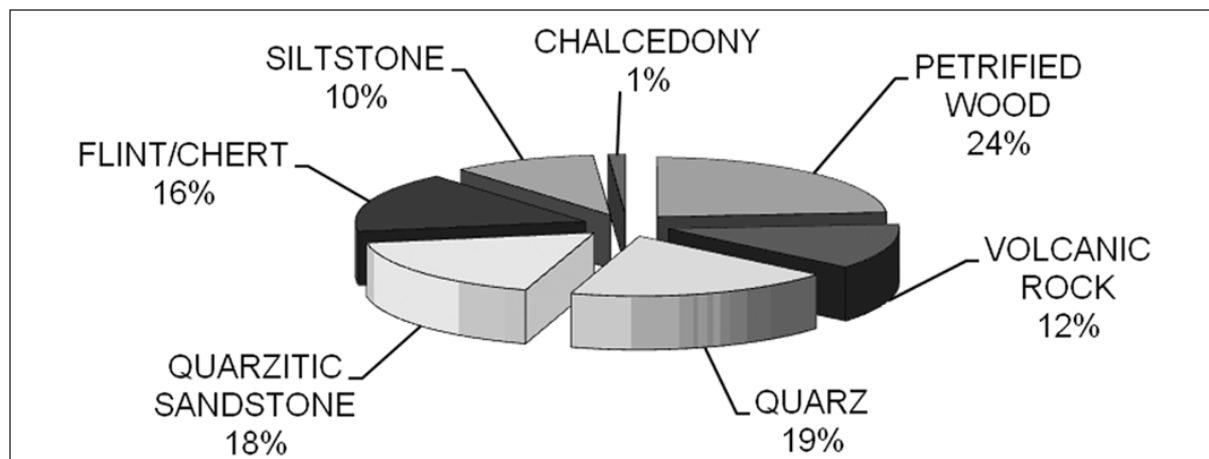


Fig. 7: Site BP177, Goat Mountain. Raw material structure of stone material from probing metre no. 4. Total number of artefacts – 1253



Horizon (cm)	petrified wood		volcanic rock		quartz		quartzitic sandstone		flint/chert		siltstone		chalcedony		total	
	Σ	%	Σ	%	Σ	%	Σ	%	Σ	%	Σ	%	Σ	%	Σ	%
5 – 10	7	0,85	4	0,53	7	1,22	0	0	4	0,48	0	0	0	0	22	0,68
10 – 20	68	8,27	39	5,17	29	5,06	9	4,94	21	2,56	1	4,16	17	34,69	184	5,7
20 – 30	75	9,15	107	14,2	59	10,34	30	16,48	107	12,92	0	0	1	2,04	379	11,77
30 – 40	658	80,04	575	76,39	462	80,76	139	76,39	676	82,55	23	95,86	31	63,27	2564	79,59
40 – 50	12	1,45	26	3,45	15	2,62	4	2,19	11	1,37	0	0	0	0	68	2,11
50 – 60	2	0,24	2	0,26	0	0	0	0	1	0,12	0	0	0	0	5	0,15
total:	822	100	753	100	572	100	182	100	820	100	24	100	49	100	3222	100

Table 1: Site BP177, Goat Mountain. Raw material structure of stone material from probing metre no. 3.

numerous in the area, though the conclusion may result from incomplete information on raw material resources acquired only from several instances of penetrating the surrounding area. Volcanic rocks were as a rule available everywhere, including the site or rather the culmination on which it is situated. The remaining raw material are pebbles covering the culminations in the surrounding area.

THE ASSEMBLAGE'S MORPHOLOGY AND TECHNOLOGY

A rich assemblage of the products from the probing trenches will be a subject of a separate study, while here only its general character is presented (Table 2).

Apart from single artefacts present on the surface of the culmination and related to Neolithic settlement, assemblages of stone products found in the probing trenches are connected with the Middle Stone Age and display Levallois technological and morphological features of the reduction strategy (Van Peer 1992, 1993).

A distinctive feature of the technology identified at the site is its predetermined character. Among the cores, the most visible characteristics is the classic Levallois method of core reduction, which is especially suited to the volcanic rock raw material. Apart from the classic method the assemblage also displays Nubian methods of reduction, both type 1 and 2 (Fig. 8). The most preferred raw material for these methods is fossilised wood.

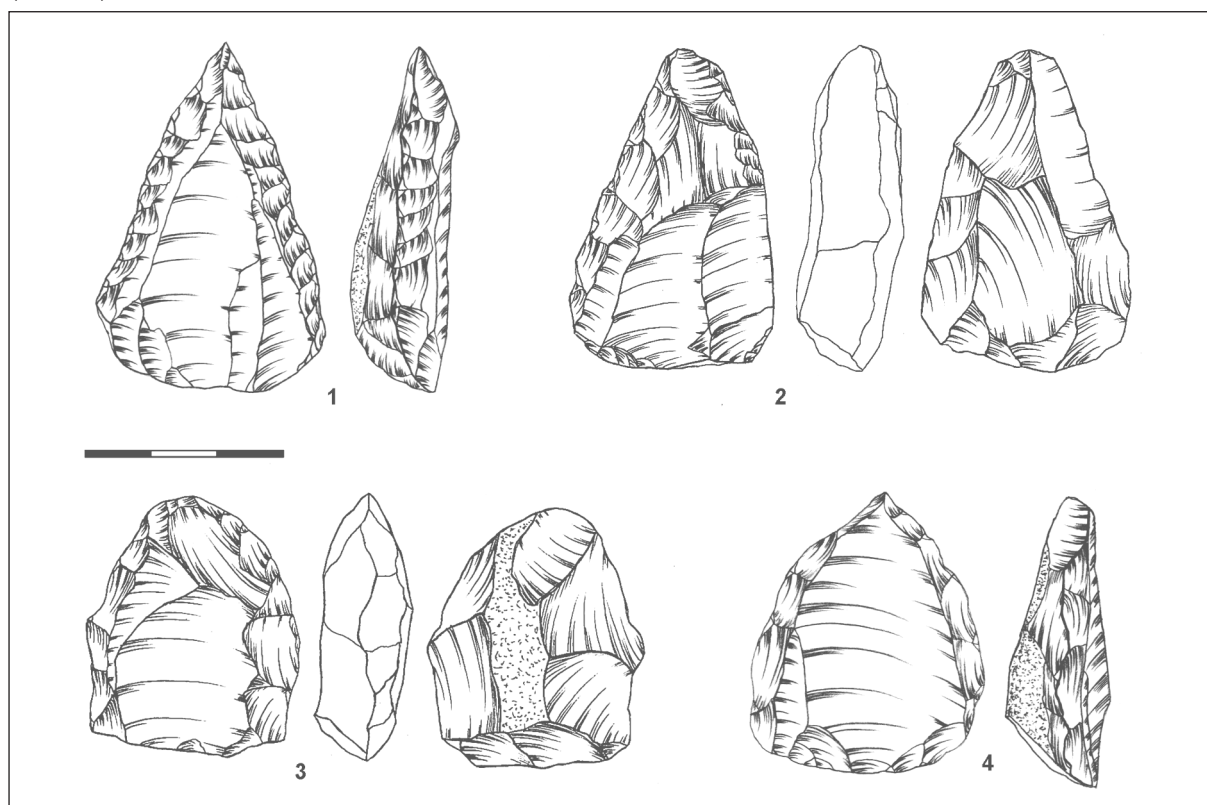


Fig. 8: Site BP177, Goat Mountain. Nubian Levallois cores: 1 (surface, petrified wood), 2 (4/40, petrified wood), 3 (1/36, petrified wood), 4 (surface, petrified wood), (drawing M. Masojć).



Probing trenches	cores		tools ⁸		flakes		blades		chunks		chips		total	
	Σ	%	Σ	%	Σ	%	Σ	%	Σ	%	Σ	%	Σ	%
probing 1	27	0,63	40	0,93	442	10,31	46	1,07	547	12,79	3181	74,27	4283	100
probing 2	43	0,69	42	0,67	628	10,13	70	1,12	729	11,72	4705	75,67	6217	100
probing 3	39	1,21	37	1,14	314	9,74	24	0,74	381	11,85	2427	75,32	3222	100
probing 4	28	2,23	30	2,39	258	20,59	18	1,43	129	10,32	790	63,04	1253	100
total	137	0,91	149	0,99	1642	10,96	158	1,05	1786	11,95	11103	74,14	14 975	100

Table 2: Site BP177, Goat Mountain. Number of stone artefacts in individual probing metres according to basic categories.

The four probing metres provided 149 tools, including final products of Levallois coring (Fig. 10). The site's most important products, proving its taxonomic affiliation are Levallois points, Mousterian points and foliate bifaces (Fig. 9), made mainly from petrified wood, less frequently from siliceous rocks or quartz. There was one fragment (the base) of a handaxe made from volcanic rock (Fig. 9:4).

The remaining categories of tools are represented by side-scrapers, denticulated and notched pieces as well as the group of irregularly retouched flakes and blades.

PRELIMINARY INTERPRETATION

The tool structure and technological features of assemblages provided by probing indicate that site

BP 177 from Goat Mountain should be related to the Nubian Middle Palaeolithic (Van Peer & Vermeersch 1990, 2000; Wendorf & Schild 1992). Such an affiliation is corroborated by the presence of foliate bifaces and Nubian methods of core production accompanied by individual handaxes. Such assemblages are dated to 250 – 150 thousand years ago and constitute the oldest assemblages from the Middle Stone Age in Africa. However, the site's younger chronology cannot be ruled out, i.e. 80 thousand years ago, when Nubian methods also were universally employed (Hendrickx & Vermeersch 2000). Absence of burins, denticulated pieces and end-scrapers in the assemblage with concurrent presence of the elements mentioned above speaks against the younger chronology and affiliation to the younger episodes of the Middle Stone Age, such as Denticulate Mousterian or Khormusan (Marks 1968a, b). These are, however,

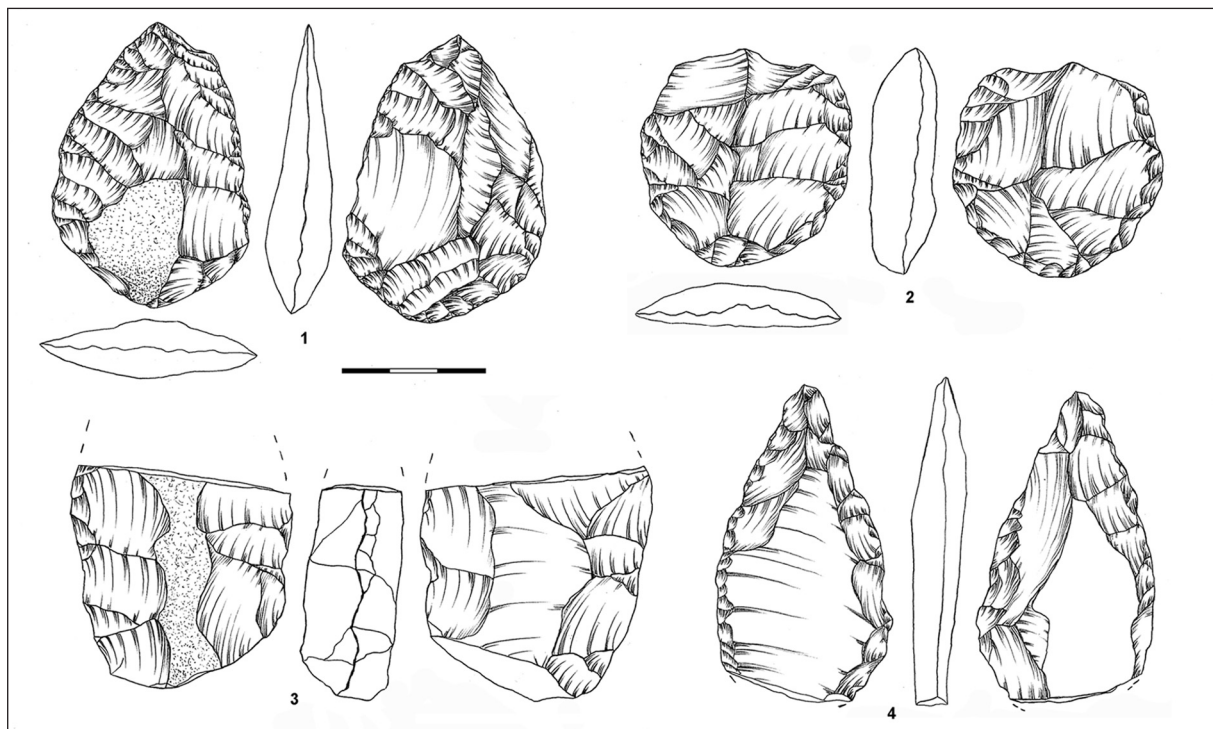


Fig. 9: Site BP177, Goat Mountain. Foliate bifaces: 1 (3/56, flint), 2 (4/1, quartz), 4 (2/44, petrified wood), fragment of a handaxe (2/78, volcanic rock), (drawing M. Masojć).

8 The group of tools also includes final Levallois products.

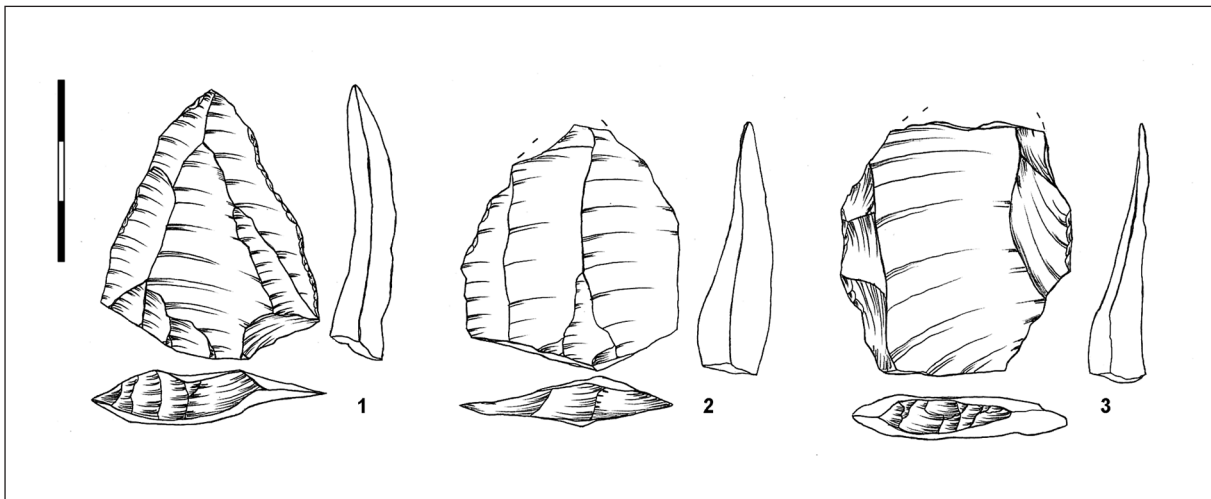


Fig. 10: Site BP177, Goat Mountain. Levallois point – 1 (1/61, volcanic rock); Levallois flakes – 2 (1/32, quartzitic sandstone), 3 (3/61, volcanic rock), (drawing M. Masojć).

preliminary observations to be verified after a greater surface of the site is uncovered and absolute dating is acquired.

The material from Goat Mountain has good analogies in the Nubian Desert in Egypt in oases Bir Sahara and Bir Tarfawi (Wendorf & Schild 1980) and in, e.g. Ethiopia in the Gademotta region (Wendorf & Schild 1974). Close analogies are seen in the material from more closely situated site Wadi Umm Rahau in Upper Nubia⁹ (Waş 2009) as well as from more distant Dongola area in Jebel Kobkabba (Kobusiewicz & Kabaciński 1996).

Comprehensive interpretation of the site and identified horizons /horizon?/ with the Palaeolithic material will be possible after next excavation seasons. Preliminary work carried out at the site prompts the view that it is an exceptional place of a great research potential. It is one of the few well-preserved Palaeolithic sites in Sudan, while for the Bayuda Desert it is its first. So far the probing has not provided any organic material. Further work at the site will aim at more precise adjusting of stratigraphic data and determining the absolute age of Palaeolithic settlement.

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⁹ The site was excavated by GAME in 2004



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ZUSAMMENFASSUNG

In der Bayuda-Wüste wurde vom Team des Archäologischen Museum Danzig, Polen, ein gut erhaltener paläolithischer Fundplatz entdeckt. Er befindet sich ca 40 km östlich des Niltals und mehr als ein Duzend km südlich der Straße, die die Bayuda von Marowe nach Atbara durchquert. Der Berg ist ein kleiner, räumlich isolierter Vulkankegel mit einem Durchmesser von 200 m. Die Oberfläche des Gipfels und bis zu einem gewissen Grad auch die Oberfläche der Talniederung ist mit Steinen und neolithischem Keramikmaterial gefüllt, zwischen dem sich auch einige paläolithische Artefakte befinden. Ca. 15-20 cm unterhalb der Deckschicht befindet sich eine Schicht mit paläolithischem Material. Zwischen diesem und den Artefakten an der Oberfläche ist eine archäologisch neutrale Schicht.

Es wurden Testschnitte angelegt und Stichproben für eine Umfeldanalyse (Pollenanalyse, Thermolumineszenz) genommen. Die insgesamt 4 m langen Testschnitte erbrachten ca. 15 000 Steinartefakte. Diese können mit der Mittelsteinzeit verbunden werden und zeigen Levallois-technische und -morphologische Befunde der Abschlagtechnik. Die Struktur der Geräte und technologischen Befunde der Sammlung, die aus den Testschnitten geborgen werden konnten, zeigen, dass die Fundstelle BP177 am „Ziegenberg“ mit dem Nubischen Mittelpaläolithikum in Beziehung gesetzt werden kann.