Article

New studies of the lithic industry at Guenfouda and its relation to other Neolithic sites in the Oujda Mountains (Morocco)

Nouvelles études sur l’industrie lithique de Guenfouda et sa relation avec d’autres gisements néolithiques des monts de Oujda (Maroc)

Sergio Almisas Cruz¹.*, Mohamed Souhir² and Hassan Aouraghe³

Abstract

In this paper, we present the lithic study of the Neolithic level of Guenfouda cave, localised in Jebel Metssila in the Jerada/Oujda mountains, in the Oriental Region of Morocco. This study focuses on the technology and typology of the worked lithic remains, but also on the lithic raw materials. We also analyse the other archaeological remains from this Neolithic level and we place them in a regional framework to apprehend the nature of the site.

Keywords: lithic studies, Neolithic, Guenfouda, Eastern Morocco

Résumé

Cet article présente l’étude du matériel lithique du niveau néolithique de la grotte de Guenfouda, située à Jebel Metssila dans les Monts de Oujda/Jerada, dans l’Oriental marocain. L’étude se focalise sur la technologie et la typologie des objets lithiques taillés, ainsi que sur l’origine et la nature de la matière première de ces outils préhistoriques. Cette étude analyse aussi le reste des objets archéologiques du niveau néolithique et la place de cet ensemble archéologique dans le contexte régional du site.

Mots clés : étude lithique, Néolithique, Guenfouda, Maroc oriental

Introduction

In this paper, we expose the results of the study of the Guenfouda’s Neolithic layer lithic industry. The interest in studying this site, which is already being excavated by Hassan

¹ Universidad de Cádiz, Facultad de Filosofía y Letras, departamento de Historia, Geografía y Filosofía Avda. Gómez Ulla s.n. 11003 Cádiz, España.
² Université Mohamed 1er, Faculté des Sciences, département de Géologie, Oujda, Morocco.
³ Université Mohamed 1er, Faculté des Sciences, département de Géologie, Oujda, Morocco.
*Corresponding author’s e-mail address: sergio.almisas@uca.es

© Institut national des sciences de l’archéologie et du patrimoine/2022/ISSN : 0068-4015/e-ISSN : 2820-6908.
Aouraghe’s team (Université Mohamed I, Oujda), is based on two facts. First, it has a high archaeological potential that has been documented since 2004 in an extensive archaeological assemblage that includes: pottery, bone industry, lithic industry, polished stones, hammers, etc. Second, it lies near to other sites such as Rhafas, El Heriga or Abri Rhirane. Our objective is to place Guenfouda site in its regional context and to propose some elements about its nature.

**Location and excavation**

![Fig. 1: site location and overview (© Almisas).](image)

The Guenfouda (also named Ghar Z’bouj) site is in the northern part of the Jerada Mountains, in the Oriental region of Morocco (Fig. 1). The cave is located 30 kilometers SW.

---

of Oujda city and 6 kilometers from the village of Guenfouda, in Douar Aït Bou Saïd à Mettsila - Ben Yala, a few kilometers away from the Algerian border. The cave is located at 930 m.a.s.l. and its entrance is oriented SW towards a valley crossed by tributaries of Oued Isly.

The cave, composed of a gallery with two chambers divided by a pillar, is 25 m. long by 6 m. width (Fig. 2). The cave is formed in limestone and oolitic dolomite unities that are characteristic of the Jebel Metssila and all the Jerada Mountains. We must, also, point out the presence of large basalt outcrops in the region⁵.

Fig. 2: site’s plan (© Almisas).

The excavation of the cave began in 2004 by opening two excavation areas: one in the entry of the cave and the other inside, near the pillar (Fig. 2).

**The stratigraphy**

The infill deposits of Guenfouda change depending on the position inside the cave: the deposits near the entrance are fairly shallow (max. 1,2 m.), while inside they become deeper (Fig. 3).

The stratigraphy shows a sequence of archaeological layers from the superficial one (0), the Neolithic layer (1) and the Iberomaurusian one (2). A Middle Paleolithic level has been also documented in the bottom of the known sequence. We should point out that beyond this general plan of the stratigraphy (Fig. 3), there is a problem due to the lack of absolute dating, which would make it possible to clarify and improve the chronology and the stratigraphy given here.

The Neolithic layer was divided into two sub-layers, 1a and 1b, in certain archaeological seasons. It is partly disturbed in its upper part by layer 0, which contains modern products.
like some metal objects and pottery localised in a few centimeters in the top of the deposits.

The sediment in layer 1 is composed of limestone blocs and silt that show in the granulometric analysis the significant presence of a silty-clay fraction and an abundant proportion of ash, due to human activity. This kind of sediment thin and ashy is not exceptional in the Maghreb’s Neolithic\(^6\) and is associated with the wind formation.

**The Neolithic lithic remains**

Since the first excavations in 2004, a large number of lithic remains have been documented in the upper layers. In this paper, we analyze the lithic industry of layer 1, associated with pottery pieces belonging to the Neolithic. The lithic remains assemblage is composed of more than 3,000 pieces, of which, we have studied 1,998 pieces in the frame of a PhD study at Cádiz University\(^7\). Except for the artefacts in squares I31, I32, I33, I38, I39, and I40 pieces from all other squares were studied.

In general, the pieces studied were documented in all the squares excavated, but their proportion was higher in squares 38, 39 and 40 inside the cave, due to its higher thickness.

The lithics were studied following the Logical-Analytic System methodology, which is based in the principles of Georges Laplace and developed by the team of Eudald Carbonell\(^8\). The typology used for the study of the retouched lithics can be found in Laplace (1973). The methodology of the study of these worked lithic remains can be found in other papers and books of our research group\(^9\).

The technical study of the lithic assemblage offers us these results (Tab. 1). In general terms, we document the presence of cores (First Generation Negative Base or BN1G by its initials in Spanish, 87 pieces), flakes and blades (Positive Bases or BP, n=1,094 pieces), knapping products (ORT, n=643 pieces) and retouched artifacts (Second Generation Negative Bases or BN2G, n=174 pieces). Continuing with this general approach, we highlight the utilization of three predominant raw materials: silicified green schist (34.37%), chalcedony (29.86%) and flint (27.01%). Other raw materials identified have a marginal entity in the assemblage: limestone (4.4%), poor quality pink flint (2.55%), basalt (0.85%), quartz (0.3%), quartzite (0.25%), radiolarite (0.2%), sandstone (0.1%) and siliceous limestone (0.1%). In general terms, the worked lithic remains do not have many traces of damage due to movement and only a small proportion show signs of patina (6.5% of the pieces), characterized by the colors white/grey and, to a lesser extent, red. Thermal traces are not prevalent and can only be found within 13,99% of the assemblage.

---

\(^7\) Almisas S. 2018.
\(^8\) Carbonell E. and Rodríguez X. P. 2002.
The analyses of the cores (BN1G) show us the presence of 20 unipolar cores (U), 30 bipolar cores (B), 25 polyhedric cores (Pol), 2 initial stage cores (IdT), 4 multipolar centripetal cores (CM) and 6 Prismatic cores (P). As we will discuss below, we document 5 Indirect Technical Operative Themes (TOTI) that show different knapping strategies (Fig. 4).

These cores share similar characteristics with the rest of the lithic remains: low patina (9.2% in white color) and thermal traces (12.6%); and mostly knapped in silicified schist (37.93%), flint (31.04%) and chalcedony (26.44%).
New Studies of the Lithic Industry at Guenfouda and its relation to other Neolithic Sites in the Oujda Mountains (Morocco)

Fig. 4: Guenfouda cores. BN1G-U: Unipolar cores; BN1G-B: Bipolar cores; BN1G-CM: Multipolar centripetal cores; BN1G-P: Prismatic cores; BN1G-Pol: Polyhedral cores (© Almisas).
Regarding the technical characteristics, we note the preparation of the striking platforms, which are usually non-cortical. Besides, the cores show a high degree of exploitation, most of them being entirely exhausted as the analysis of the last extractions shows. Most of these extractions are microflake, laminar microflake, microblade and narrow microblades\textsuperscript{10}.

The Positive Bases (BP) are present in a very important number, reaching 1,094 pieces, and allow us to understand the knapping and product elaboration strategies. This BP includes flakes related to the initial steps of the knapping process, which, at least in part, would have taken place in the cave. This would include the 17 cortical flakes (BP-D) and the 68 semi-cortical flakes (BP-SD), as well as 66 crested flakes (BP-C) linked to the core preparation process. The most abundant types represented are internal flakes, with 851 pieces (BP-I), followed by blades, up to 89 (BP-H) and there are also 3 Levallois flakes (BP-LE). These BP-LE come from the multipolar centripetal knapping strategies that we documented through the analysis of the cores.

As with the cores, the Positive Bases have similar characteristics as the whole assemblage in terms of physical alteration, thermal traces, and patina. The raw material is dominated by silicified schist (36.62%), chalcedony (27.95%) and flint (26.94%). Finally, the fragmentation rate is average: 52.6% of the pieces are fragmented.

In regard to the technical characteristics of the BP, there is a dominance of unmarked bulbs (66.8%) instead of marked ones (33.2%), which is related to the priority utilization of knapping techniques such as direct percussion with soft hammers or indirect percussion. This controlled knapping is coherent with the high presence of straight forms of the ventral face of the flakes (39.25%). In order to study the butts, we analyzed the pieces with its proximal part conserved (\(n=773\)). The ensemble is dominated by plain butts (\(n=319; 41.3\%\)); followed by shattered ones (\(n=172; 22.3\%\)); cortical (\(n=86; 11.1\%\)); dihedral (\(n=75; 9.7\%\)); convex faceted (\(n=71; 9.2\%\)); faceted (\(n=49; 6.3\%\)) and punctiform (\(n=1; 0.1\%\)).

The BP products are mainly of the flake types (length dimension is less than the double of the width), instead of blade type (length dimension is, at least, the double of the width) in a proportion of 68/32. Analyzing the Bagolini module (applied to 510 pieces), we note the main presence of pieces of little and micro types, mainly little bladelets, micro-bladelets, little laminar flakes, laminar microflakes, little flakes and microflakes.

In our assemblage, the retouched artefacts (BN2G) amount to 174 pieces. Among these products, there is a clear predominance of backed points and bladelets, notches and denticulated tools. Less well represented are end-scrapers, backed flakes, burins, truncations, backed bipoins, bi-truncations, perforators and backed truncated blades.

The physical characteristics are similar to the whole assemblage, and the same with the raw material, being dominated by silicified schist (38.5%), flint (34.5%) and chalcedony (24.14%).

\textsuperscript{10} Bagolini B. 1968.
Fig. 5: BP remains of Guenfouda. BP-D: Cortical flakes; BP-SD: Semi-cortical flakes; BP-C: Crested flakes; BP-H: Blades; BP-I: Internal flakes (© Almisas).
Compared with the BP, the BN2G have been knapped in a greater proportion of laminar supports (long dimension is at least twice the width) reaching 70.7% of the products, mostly in internal BP (n=148), but also in Blade BP (BP-H) (n=17). These supports are dominated by unmarked butts (77.4%). This latter, as well as the predominantly straight form of the ventral face, point at a careful knapping technique, choosing the straight supports with constant thickness. From the 118 conserved butts, most of them are shattered (n=62; 52.5%); but there are also plain ones (n=28; 23.7%); dihedral butts (n=8; 6.8%); convex faceted butts (n=8; 6.8%); faceted bulls (n=7; 5.9%); cortical butts (n=4; 3.4%) and punctiform butts (n=1; 0.8%).

The complete classification of the retouched products is:
- 16 end-scrapers (G): 6 frontal simple end-scrapers (G11), 4 frontal simple end-scrapers with lateral retouch (G12), 3 frontal simple end-scrapers of carinated type (G311), 1 frontal simple end-scaper with carinated retouch and lateral retouch (G312) and 2 end-scrapers with carinated retouch with a clear nose (G322).
- 37 notches and denticulated (D): 1 marginal notch (D11); 22 notches (D21); and 14 denticulated (D23). Some of these notches and denticulated have other retouch associated.
- 15 backed flakes (A): 6 with marginal retouch (A1) and 9 with abrupt retouch (A2).
- 9 truncations (T): 2 normal truncations (T21) and 6 oblique truncations (T22).
- 2 perforators (Bc1).
- 32 backed points (PD): 4 being backed points with marginal retouch (PD13), 1 double backed point with marginal retouch (PD15), 23 total backed points (PD23) and 4 double backed points (PD25). A significant number (6 products) have ‘sur enclume’ (anvil) retouch, generating perpendicular sections of triangular shape. These backed points are very homogeneous in their thickness (0.2-0.7 cm) and width (0.4-1 cm).
- 41 backed bladelets (LD): 5 backed bladelets with marginal retouch (LD11) and 36 backed bladelets with steep retouch (LD21). Five of these products have also retouch of ‘sur enclume’ type. As with the PD, the LD have an homogeneous thickness (0.2-0.6 cm) and width (0.4-1.1 cm).
- 6 backed bipoints (BPD): 5 backed segmentiform bipoints (BPD12) and 1 backed trapezoidal bipoint with trihedral point (BPDx31), made with the microburin technique. These 6 products have a similar thickness (0.3-0.4 cm.) and wide (1-0.6 cm.).
- 2 backed truncated bladelets (LDT): 1 backed truncated bladelet occluded (LDT11) and 1 backed bitruncated bladelet occluded (LDT21).
- 3 bitruncations (BT): 2 segmentiform bitruncation (BT1) and 1 opened trapezoidal bitruncation (BT32).
- 11 burins (B): 10 simple burins simples with one facet (B11) and 1 burin with lateral facets (B31).
New Studies of the Lithic Industry at Guenfouda and its relation to other Neolithic Sites in the Oujda Mountains (Morocco)

Fig. 7: retouched artifacts of Guenfouda. BN2G-PD23: total backed points; BN2G-LD21: backed bladelets with steep retouch; BN2G-BPD12: Backed segmentiform bipoints; BN2G-BPDx31: Backed trapezoidal bipoint with trihedral point; BN2G-BT1: Segmentiform bitruncation; BN2G-BT32: Trapezoidal bitruncation; BN2G-B11: Burins simples with one facet; BN2G-B31: Burin with lateral facets (© Almisas).
Finally, the debris or other knapping products (ORT) are documented at the site in high number, including microflakes (n=232), discards (n=405), burin spalls (n=4) and microburin (n=2). As elsewhere in the assemblage, these pieces are not covered by patina, or much altered by thermal processes. The raw material is also coherent, with a dominance of chalcedony (35.15%), silicified schist (28.93%) and flint (24.57%). These lithic remains seem to be associated with a lithic production area in the cave. A relevant number of the discards are exhausted cores (n=95), in correlation with the intense rate of exploitation of the studied cores. The sub-products of the burin blow and microburin techniques are coherent with the burins and some of the geometric microliths documented in our level (BPDx31).

To conclude, this lithic assemblage reflects the entire productive process of transforming the raw material into flakes/blades and retouched products.

Discussion

These general characteristics of the lithic assemblage that we have pointed out must be discussed to reach some conclusions. Raw material is mainly dominated by green silicified schist, flint, and chalcedony. As Luc Wengler’s studies highlight\(^\text{11}\), their origin is local. Future research and studies using archaeometric techniques should add further precision to this preliminary conclusion: a program of mineralogical, petrological and geochemical analysis of lithic materials, found in the site and its immediate area, should be carried out in order to determine the procurement strategies regarding the lithic materials.

In this Neolithic layer of Guenfouda site we are able to document the whole productive process of lithic knapping -also known as *chaîne opératoire*-. The study of the lithic assemblage shows all the phases of lithic knapping activities (BN1G, BP, ORT and, BN2G). Noteworthy here are the large number of cores (BN1G) and early discard cores (ORT-DES) in the assemblage, and the important presence of cortical and semi-cortical flakes (BP-D and BP-SD). A significant number of cortical butts, and cortex on the dorsal face in 22.6% of the Positive Bases, are also documented.

Regarding the technical characteristics of the lithic technology, the analysis of Indirect Technical Operative Themes (ITOTs) points to five techniques used in order to exploit the bases and cores: unipolar (1), bipolar (2), multipolar centripetal (3), polyhedric (4) and prismatic (5). These techniques are common in other Neolithic sites in Northern Morocco, as we have already studied\(^\text{12}\). In Guenfouda, the cores, mainly bipolar and unipolar, revealed a clear relationship with the Positive Bases, which are of very small size and have a moderate proportion of blades. The retouched products (BN2G) are composed of a large group of tools that are similar to what we found in other sites of the regional Neolithic. These include notches and denticulated (D) backed bladelets (LD) and backed points (PD) which are likely associated with hunting and plant cutting activities. We underline the presence, although marginal, of the microburin technique and microlith products such as LDT, which can be


\(^{12}\) Almisas S. 2018.
Fig. 8: origin of the lithic raw material in the Oriental region of Morocco.

1. Granite (Hercynian).
2. Quartzite (green and beige) and phtanite Siluro-Devonian.
3. Puddingstone and schist carboniferous.
5. Triassic basalt with chalcedony veins.
7. Continental Pontopliocene: clay-silty series crowned by the Hauts Plateaus limestone slab.
8. Plio-quaternary basanites.
10. Recent Quaternary.
11. Fault.
12. Oued.
13. Algerian-Morocco border

(Modified from Wengler, 1990: 355).
associated with the utilization of projectiles for hunt activities\textsuperscript{15}. This hypothesis can only be confirmed by the development of use wear and functional research projects in the site.

Finally, we remark on the pressure blades problem. We have documented some products that can be associated with this technique, due to some diagnostic features such as their parallelism of the edges and arris, their low thickness or their plain ventral part without undulations. Nevertheless, we can’t recognize the presence of the operational sequence or chaîne opératoire of this pressure knapping; essentially there is an absence of blade cores oriented to the utilization of this technique. As a hypothesis we suggest that it exists as part of the circulation of already elaborated or semi-elaborated tools, similar to what has been proposed for other Neolithic sites in Morocco\textsuperscript{14}.

In addition to the lithic industry at Guenfouda, we note the presence in layer 1 of the cave of the remains of fauna, malacofauna, fragments of pottery, stone grinding and polishing tools, polished tools, working pottery tools and beads and pieces of ostrich eggs\textsuperscript{15}.

The study of the malacofauna and fauna has revealed a wealth archaeological potential\textsuperscript{16}. Identification of Guenfouda’s fauna\textsuperscript{17} has revealed the presence of domesticated species such as \textit{Caprahircus}, \textit{Ovisaries}, \textit{CapralOvis} and \textit{Canis lupus} f. familiaris; but also, typical wild species of the Moroccan Holocene: Bovines (\textit{Bos primigenius}, \textit{Acelaphus buselaphus}, \textit{Gazella} sp. or \textit{Ammotragus lervia}), reptiles such as turtle, herbivores such as \textit{Equus} sp., suids like \textit{Suscrofa}; and lagomorphs like rabbit.

\textsuperscript{13} Aouraghe H. \textit{et al.} 2014.
\textsuperscript{14} Bailloud G. and Mieg de Boofzheim P. 1964 ; Almisas S. 2018.
\textsuperscript{15} Aouraghe H. \textit{et al.} 2014.
\textsuperscript{16} Aouraghe H. \textit{et al.} 2010.
\textsuperscript{17} Aouraghe H. \textit{et al.} 2010.
The presence of non-knapped lithic tools is confirmed by one stone axe that corroborates activities related to the wood working, and ground stone tools that may evidence activities related to the grinding of grains or minerals (Fig. 9).

We also documented 132 pottery sherds in layer 1, which are heavily fragmented, but amongst them we identified 15 rims and 1 base. No indication of shape can be observed due to the degree of fragmentation. Concerning technical aspects of production, these ceramics show evidence of irregular manufacture with a predominance of heating under reducing conditions and using medium-abundant proportions of medium-large temper. The surface treatment of the potsherds is characteristically smooth, but we also find signs of polishing and scraped surfaces.

The surface treatment is complemented by decoration and other elements, such as two rims, each one with one non-perforated lug. Incisions and impressions dominate the decoration techniques. We found comb impressions, making ear and frieze forms. We documented shell and scroll impressions too. Incision appears in linear shapes without much development. Finally, we documented sherds with channeled decoration. One conical base must be mentioned in this ensemble for its interest: it is similar to those previously documented in the Neolithic of the region\textsuperscript{18} (Fig. 10).

The absence of absolute dating of this site forces us to make a regional comparison in order to insert Guenfouda layer 1 into a relative chronology. The only site that has been well studied in the Oriental region, with a Neolithic layer (1 level), is Rhafas cave\textsuperscript{19}. The Rhafas Neolithic level is dated to between 4314-3772 cal BCE (Gif 6185) at two sigma\textsuperscript{20}. New dating of Rhafas level 1 sediments using the OSL technique, under the direction of Bouzouggar A. (INSAP), supports the fact that level 1 is earlier than the VI Millennium BCE.: 7800±600 BP (L-EVA-1210)\textsuperscript{21}. The archaeological assemblage of this level is composed of pottery sherds, fauna, a stone axe, bone tools, ostrich eggshell fragments and a significant lithic industry. We have studied this lithic assemblage\textsuperscript{22} and we can identify some similarities with the Guenfouda one. We did this, not only for its technology but also regarding the typology and the raw material utilized\textsuperscript{23}.

Concerning the Guenfouda pottery, we have noted that the comb decorations are similar to those of El Kiffen type\textsuperscript{24}, considered to be pre-campaniform, and associated with the Middle Neolithic\textsuperscript{25}.

The analysis of the cultural products in Guenfouda layer 1, i.e., its stone axe, ground stone, the incised and impressed pottery, and of course, the lithic industry here analysed, fur-
Fig. 10: pottery from level 1 of Guenfouda. A-C: Impressions; D-E: Incisions; F-I: Comb-impression; J: Channeled; K: Conical base (© Almisas).
ther point to a chronological position in the regional Middle Neolithic in the IV Millennium BCE.

Finally, we underline the importance of inferring the social activities and the nature of the society that have generated this archaeological record. The lithic industry, the pottery, the faunal and botanical evidence are all the result of human activities of prehistoric groups and allow us to reconstruct some aspects of social organization. Observations are necessarily limited at this stage, but we can infer that the documented cultural evidence is linked with hunting, harvesting and pastoral as well as farming activities. The last is very limited in the archaeological record at Guenfouda, but more generally, the cutting down of forests seems to be documented by stone axes, together with the extension of domesticated plant species across North Africa, and these point to the spread of farming activities. For a better understanding of these farming practices, we would need to research and excavate open-air sites, which are the preferred places for farming settlements all around the Mediterranean. As we have already demonstrated, it is at open-air sites where Neolithic groups would have developed pastoral and farming practices.

Social practices at our site and in others in the region (i.e., Rhafas) include evidence for animal domestication (marked by the presence of dogs), that inform us about the development of a pastoral lifestyle, maybe semi-sedentary, in this region in the Middle Neolithic, and reflecting great historical continuity (Fig. 11). This idea has already been proposed by Luc Wengler.

Fig. 11: pastoral activities in front of the Guenfouda cave. Year 2017 (© Almisas).

---

Our hypothesis about the characterization of Neolithic groups is that they were in a process of deep, yet very contradictory, social transformation. This process is the result of the dissolution of hunting-gatherer groups and the progressive appearance of tribal societies characterized by a new form of organizing, producing and reproducing the human group, exploiting the natural resources and relating with other human groups²⁹.

**Conclusion**

Guenfouda cave, in Oriental Morocco, is of great interest for the Maghrebian archaeology. The site, already being under excavation, offers an *in-situ* sequence which should be precise and well-dated. Its upper level corresponds with a Neolithic occupation. A sample of the lithic industry in level 1 has been studied in this paper. The homogeneity of the assemblage is clear and shows that all the lithic productive processes took place on site, as we have discussed, with only one exception shown by the presence of some pressure blades. The exploitation of raw materials that are apparently local, such as the silicified schist, flint and chalcedony, and the application of knapping techniques oriented to the production of lithic bases (BP) for producing serial retouched products (notches and denticulates, but mostly, backed points and bladelets), are some of the results of our research.

The study of the pottery sherds in the Neolithic level, and their comparison with the nearby site of Rhafas, allow us to propose the dating of Guenfouda in the IV Millennium BCE. Moreover, the site offers evidence of inferred hunting and animal domestication activities, but also the consumption of plants and vegetal resources. We have suggested the existence of a pastoral lifestyle inserted in a tribal social formation within the prehistoric groups that lived in Guenfouda cave and its surroundings in the Neolithic.

New studies must be carried out to better understand the nature of the site: petrological and usewear studies of its lithic assemblage, palynological studies of the sediments, absolute dating and territory studies to locate new sites. All these studies should be developed to complete the information of prehistoric societies of the Oriental of Morocco, which will either confirm or invalidate the hypotheses discussed in this work.

**Bibliography**


Bailloud G. et Mieg de Boofzheim P. 1964, La nécropole néolithique d’El Kiffen, près des Tamaris (province de Casablanca, Maroc), Lybica 12, p. 95-171.


Ramos J., Bernal D., Vijande E. et Cantillo J.-J. 2013, El abrigo y la cueva de Benzú, Memoria de los trabajos arqueológicos de una década en Ceuta (2002-2012), Ciudad Autónoma de Ceuta, Servicio de Publicaciones de la Universidad de Cádiz.
New Studies of the Lithic Industry at Guenfouda and its relation to other Neolithic Sites in the Oujda Mountains (Morocco)


ملخص

يُهتم المقال بدراسة الأدوات الحجرية لطبقة العصر الحجري الحديث (اليونتيك) في مغارة كنفودة، الواقعة بجبيل «متليل» الذي ينتمي إلى سلسلة جبال جراد - وشبة بالمغرب الشرقي. وتركز الدراسة على تقنية وتصنيف الأدوات الحجرية، كما ترمي إلى معرفة أصل وطبيعة المواد الأولية المستعملة، التي تعود لحقب ما قبل التاريخ. وتقوم الدراسة أيضاً بتحليل المواد الأثرية لطبقات العصر الحجري الحديث وتحديد المكانة التي يحتلها مجموع هذا السجل الأثري داخل السياق الإقليمي الذي يندرج فيه الموقع.

الكلمات المفتاحية: الأدوات الحجرية، العصر الحجري الحديث (اليونتيك)، كنفودة، المغرب الشرقي.