

## Palaeolithic and Neolithic Occupations in the Témara Region (Rabat, Morocco): Recent Data on Hominin Contexts and Behavior

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**Abstract** In the 1970s, the discoveries of Palaeolithic human remains in the caves of Dar es Soltane 2, El Harhoura 1 and Les Contrebandiers reinforced interest in the sites of the Témara region. These sites, often cited, have been the object of numerous investigations which have produced a major contribution to the prehistory of Morocco. Over the past 15 years, research at two key sites, El Mnasra and El Harhoura 2, have considerably enhanced the available data for this region. Preliminary results obtained from excavations since 2001, allow us to present the palaeoenvironmental framework and describe the technological behaviour of

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prehistoric groups within a re-evaluated stratigraphic context. The microfaunal and macrofaunal assemblages are analysed according to systematics, taphonomy and palaeoecology. The lithic and bone industries document patterns of raw material acquisition and transformation. Within the context of the history of more than 60 years of research in the region of Témara, this contribution allows us to approach the question of Palaeolithic population on the basis of recent, and for the most part new, data and evidence.

**Resumé** Dans les années 1970, les découvertes de restes humains paléolithiques à Dar es Soltane 2, El Harhoura 1 et aux Contrebandiers ont renforcé l'intérêt des sites de la région de Témara. Ces derniers, souvent cités en référence, ont fait l'objet de nombreuses recherches et ont apporté une contribution majeure à la Préhistoire du Maroc. Depuis 15 ans, les recherches effectuées dans deux sites clefs: El Mnasra et El Harhoura 2 ont considérablement enrichi les données disponibles pour cette région. Les résultats préliminaires obtenus lors des fouilles menées depuis 2001 permettent de présenter le cadre paléoenvironnemental et de documenter les comportements techniques dans un contexte stratigraphique renouvelé. Les restes fauniques (microfaune et macrofaune) sont envisagés sous le triple aspect de la systématique, de la taphonomie et de la paléoécologie. Les industries lithiques et osseuses documentent les modalités d'acquisition et de transformation des matières premières. Replacée dans l'histoire des recherches menées depuis plus de 60 ans dans la région de Témara, cette contribution permet d'aborder la question du peuplement paléolithique sur la base de données récentes, pour la plupart inédites.

**Keywords** Aterian · Upper Palaeolithic · Neolithic · Cave · Témara · Morocco

## Introduction

The available fossil data for northwest Africa suggest an *in situ* evolution of *Homo sapiens*. From a palaeoanthropological point of view, there is no discontinuity between ancient populations (Jebel Irhoud) and more recent ones (Taforalt), with the fossils from the Témara region representing an intermediate phase of this continuum (Ferembach 1985; Hublin 1985, 1991, 1993; Smith et al. 2007). Archaeological data are currently experiencing a significant review, be it to reflect a longer chronological sequence for the Aterian technocomplex (Cremaschi et al. 1998; Wrinn and Rink 2003) or new palaeoenvironmental evidence (Barton et al. 2005). However, many questions remain unanswered about the evolution of the successive facies of the Aterian, not only about its origins in the Mousterian, but also about its middle and upper phases and its final fate. It is also important to note that certain aspects related to the origin of the cultures of the Upper Palaeolithic and the Neolithic (Daugas et al. 1999) remain equally obscure. Several authors have underlined the paucity of available data on the evolution and variability of Palaeolithic cultures in their palaeoenvironmental context in North Africa. It is therefore with the goal of attempting to improve the understanding of large-scale patterns in cultural phenomena and their causes, that we propose a detailed documentation of archaeological contexts at a regional scale.

With this perspective in mind, we chose to study the sites from the oft-cited Témara region (Debénath 1992, 2000, 2002; Debénath et al. 1986; Nespoulet 2005) where numerous stratified sites with still intact sediments can be investigated with modern excavation methods. We focus in particular on two cave sites: El Mnasra and El Harhoura 2. The results presented here are based on the totality of the available documentation from both the most recent excavations (2001–2006) and preceding campaigns.

### Historical Overview of Research in the Temara Region

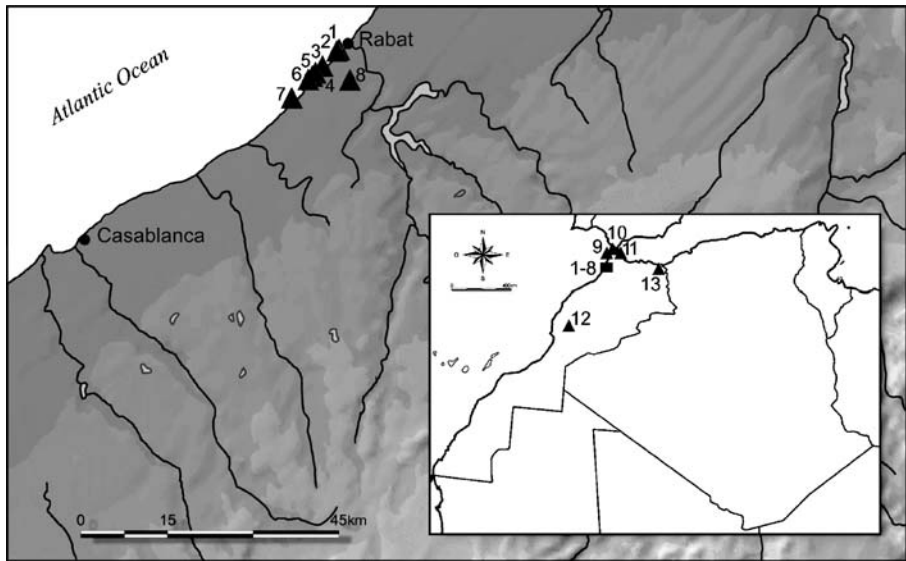
Known respectively from 1960 and 1977, El Mnasra and El Harhoura 2 belong to a set of exceptional archaeological sites spanning the human occupation of the Rabat–Témara coastal region. These include:

- Dar es Soltane 1, discovered in 1937 (Debénath 1972; Ruhlmann 1951; Roche 1956)
- Dar es Soltane 2, discovered in 1969 (Debénath 1972, 1975, 1976, 1980; Ferembach 1976b)
- El Harhoura 1, discovered in 1976 (Aouraghe 2000; Debénath 1982; Debénath and Sbihi-Alaoui 1979).
- El Harhoura 2, discovered in 1977 (Daugas et al. 1989; Debénath 1979; Debénath and Lacombe 1986; Debénath and Sbihi-Alaoui 1979; Oujaa 1992; Nespoulet 2005)
- El Mnasra, discovered in 1960 (El Hajraoui 1993, 1994, 2004; Ferembach 1976a,b; Lacombe et al. 1991)
- Contrebandiers, discovered in 1956 (Bouzouggar 1997a, b; Roche 1969, 1976; Roche and Texier 1976; Vallois and Roche 1958)
- Chaperon Rouge, discovered in 1974 (Texier 1986; Texier et al. 1982)
- Rouazi Skhirat, discovered in 1980 (Daugas 2002; Daugas et al. 1989, 1999; Lacombe et al. 1990)

These sites contain either brief occupations, such as Chaperon Rouge for the Aterian or the necropolis at Rouazi Skhirat for the Neolithic, or a succession of several occupation phases over a longer period, from the Middle Palaeolithic to the Neolithic, as at El Harhoura 2 and El Mnasra and the other cave sites in the region. Thanks to long stratigraphic sequences, the latter offer the possibility to study the evolution of the environment and behavior of hominids over a relatively long period of time after OIS 5.

### The Caves of El Mnasra and El Harhoura 2

The region of Rabat–Témara belongs to the coastal Meseta, a vast plateau delimited to the east by the Oued Beht, the west by the Atlantic Ocean, the north by the plains of Rharb, and the south by the central plateau, which corresponds to Mio-Pliocene outcrops (Fig. 1). The coastal morphology is characterized by a succession of consolidated dunes, oriented parallel to the coast and consisting mainly of sandstone.



**Fig. 1** Map of the Atlantic Coast of Rabat–Témara and sites mentioned in the text. 1 Dar es Soltane 1; 2 Dar es Soltane 2; 3 El Harhoura 2; 4 El Harhoura 1; 5 El Mnasra; 6 Contrebandiers; 7 Rouazi Skhirat; 8 Chaperon Rouge; 9 Tahadart; 10 El Khil, El Aliya, Idoles; 11 Kaf That El Ghar, Kahf Boussaria, Ghar Kahal, 12 Jebel Irhoud; 13 Taforalt

These were formed during the beginning of OIS 5, between 130 and 100 Ka. Near the shore, inactive limestone cliffs were incorporated into these dune formations. The caves of the region were formed by karstic activity.

## El Mnasra

### *History and Location*

After the first test excavations of Roche in the 1960s, in 1990 El Hajraoui began 12 seasons of excavation. Starting in 2004, the work has continued under the co-direction of El Hajraoui and Debénath. The site is located in the Témara commune on the coastal highway from Rabat to Casablanca (Fig. 2). Its entrance faces west onto Témara beach, about 500 m from the actual shoreline ( $33^{\circ} 55' 40.9''$  N,  $6^{\circ} 57' 13.3''$  W). The top of the cave is 14 m above sea level. The cave surface is approx.  $228 \text{ m}^2$  (maximum length 22 m, width 17 m, height 6 m). In total, a surface of  $51 \text{ m}^2$  was excavated, representing  $104 \text{ m}^3$  of deposit.

### *Stratigraphy*

The sediments that form the cave fill are composed mainly of sandy, silty, and clayey deposits with sand representing around 70% of the fine fraction, and clay not more than 10%. The stratigraphy contains 13 layers numbered from top to bottom. Layers 2 and 3 are attributed to the early Neolithic (Cardial for layer 3), and layers 4 to 7 to the Aterian. Towards the base of the sequence, layers 10, 11 and 12 yielded

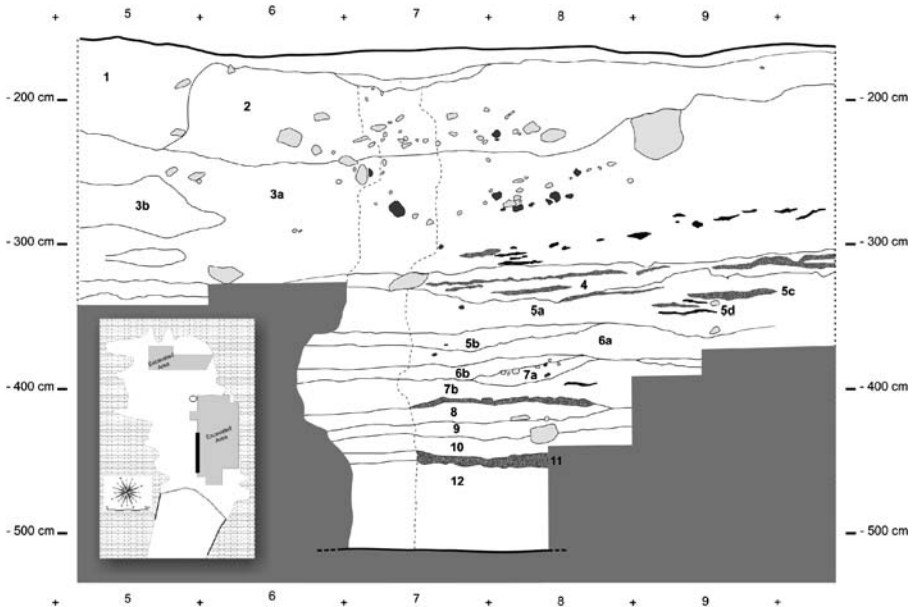
**Fig. 2** General view of the entrance of the cave of El Mnasra



relatively few diagnostic artefacts; hence the industrial attribution for them is broadly Middle Palaeolithic. Aside from layer 1, which consists of surface and disturbed material, the rest of the layers are sterile (Fig. 3).

#### *Main Archaeological Characteristics*

The early Neolithic levels yielded ten graves dated between 5450 and 4400 BP. The funerary practices include oval pits, often delimited by stones placed around and under the bodies, which are accompanied by beads made of ostrich egg shell. Several crania show depressions of 1 to 3 cm in diameter and 4–5 mm in depth,



**Fig. 3** Stratigraphy of El Mnasra

which are the result of unfinished trephinations which were subsequently completely healed (Lacombe et al. 1991).

The Aterian levels contain many combustion features, the first such structures to be documented in the Moroccan Aterian, despite previously known instances of burnt material. Among these features are closed fireplaces, with edges well-defined by the presence of limestone slabs but also open hearths of oval or circular contour, as well as those dug out of the consolidated clayey sediments, and, finally, combustion features with non-delimited edges (El Hajraoui 2004).

These levels contain another important discovery—the first bone industry in an Aterian context, and thus the earliest evidence for such behaviour in Morocco. The assemblage consists of one spatula, one point, one raclette, and several bone flakes that were reworked into tools (El Hajraoui 1994).

### El Harhoura 2

The cave is situated in the commune of El Harhoura, near of the coastal Rabat–Casablanca route. The entrance faces west, toward the ocean (Fig. 4), around 300 m away from the current shoreline ( $33^{\circ} 57' 08.9''$  N,  $6^{\circ} 55' 32.5''$  W) and about 10 m above sea level. As it is seen today, the cave is fairly large (maximum length 22 m, maximum width 9 m, maximum height 8 m, with a surface area of more than  $200\text{ m}^2$ ). Since 1977, a surface of  $37\text{ m}^2$  has been excavated, yielding a volume of  $161\text{ m}^3$ .

### Stratigraphy

Like El Mnasra, the deposits of El Harhoura 2 are dominated by sands, which represent more than 80% of the sediment. The silty-clay fraction does not exceed 25%. The sedimentary homogeneity of the fill can be explained by the nature of the calcarenite in which the cave lies. The stratigraphy has currently eight levels, numbered from top to bottom. Level 1 is attributed to the early Neolithic, although more recent phases are also documented. The archaeological material from level 2 places it within the Upper Palaeolithic. Levels 3 to 8 are assigned to the Middle

**Fig. 4** General view of the cave of El Harhoura 2



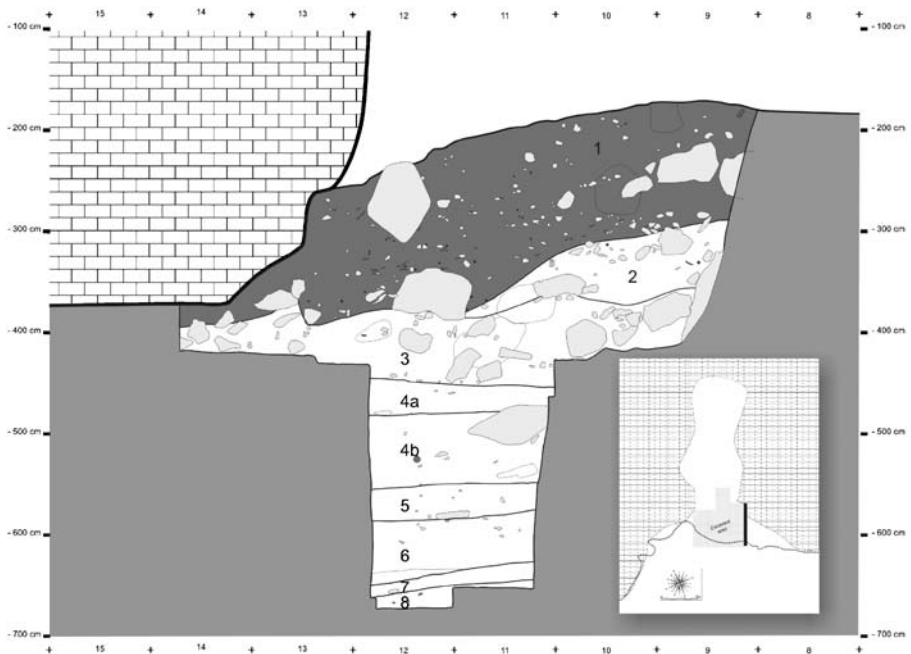
Palaeolithic although the low density of material recovered from levels 5 and 7 makes them difficult to characterize (Fig. 5).

### *Main Archaeological Characteristics*

The first excavations in 1977 yielded a Neolithic double burial. Since then, five more individual graves from the same period have been discovered. All the individuals are adults, and they include three males and three females. All the burials are primary, with good preservation of the bones, most of which were still in anatomical position. If we take into account all isolated bones, the minimum number of individuals is estimated at twelve: ten adults and two juveniles. Another burial was uncovered in 1996, this time containing Upper Palaeolithic individuals, according to the preliminary investigation. This burial has a number of features in common with the complex at Dar es Soltane 2. Several original structures were discovered in the Neolithic levels, including a circular pit (1 m diameter and 1.5 m depth) of unknown function, as well as combustion structures.

### *Dates*

There are relatively few dates for the Palaeolithic and Neolithic occupations of the Témara coast. Nevertheless, if we refer to the 22 available dates, it is possible to place the human occupation between 4,000 and more than 40,000 BP. A majority (13) of the dates are radiocarbon, but there are also eight TL dates and one OSL date. Since the chronology of the Middle Palaeolithic in general, and that of the Aterian in



**Fig. 5** Stratigraphy of El Harhoura 2



particular, has been reviewed very recently (Bouzouggar et al. 2007; Smith et al. 2007), how can we interpret these dates in the context of an extended chronology of the Aterian? The dates obtained by different methods are coherent, even given the methodological problems linked to the limit of radiocarbon. The Aterian occupation in the Témara region appears to belong to a recent phase of the Middle Palaeolithic. However, new dates are now in preparation, and we cannot eliminate the possibility of older occupations going back to OIS 5. The chronology of the oldest Neolithic levels seems to have changed less in relation to the new chronological framework (Daugas 2002).

## The Palaeontological Context

### Microfauna

The small vertebrates from El Harhoura 2 and El Mnasra are the subject of a doctoral dissertation (Stoetzel n.d.). Even if it may be premature to give detailed information on climate and landscape, the microfaunal study appears very promising, given the quantity and diversity of the material. At El Harhoura 2, the lowest levels are the richest in microfauna, with up to 250,000 identifiable skeletal elements per cubic meter in level 8. The taphonomic analysis will certainly give some clues as to why the quantity of material grows exponentially in relation to increasing depth. Because the large quantity is accompanied by high biological diversity, it will be possible to augment the types of palaeoecological indicators (in particular amphibians and reptiles).

### The Fauna from El Mnasra

Based on recently excavated material (2004–2005 seasons), the list for the Aterian levels at El Mnasra is composed of 15 species of mammals, two avian species (including ostrich, represented by rare fragments of egg shell), tortoise, several fish, as well as marine invertebrates (Table 1).

All the mammals are fairly common in Moroccan Middle and Upper Palaeolithic contexts: gazelle, aurochs (*Bos primigenius* or *Bos taurus*?) and hartebeest (*Alcelaphus buselaphus*) are ubiquitous. On the other hand, hippotragines are relatively poorly represented. The relative abundance of bovids attests to the existence of open environments in the vicinity of the site which would have been equally suitable for equids and probably rhinoceri (*Stephanorhinus hemitoechus*).

Carnivores are rarer, with only a mustelid (the ratel, or honey badger) and two canids (the fox and an indeterminate *Canis* sp.). Large carnivores such as lion, bear, and hyena are so far absent. The ratel (*Mellivora capensis leuconota*) has a varied habitat, being found in the mountains as well as on the plains. Coprolites from level 5 are attributed to this carnivore. We believe the ratel to have frequented the site for a rather long period of time and to be responsible for the transport and discard of the carcasses of some of the young mammals found.

Among non-ruminant artiodactyls, hippopotamus remains suggest the existence of small lakes near the site. Several bones of a warthog (*Phacochoerus africanus*)



**Table 1** Faunal list for El Mnasra

Order	Species	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 12	
Carnivores	Ratel ( <i>Mellivora capensis</i> )				+				
	Fox ( <i>Vulpes vulpes</i> )					+	+		
	<i>Canis</i> sp.	+							
Rodents	<i>Hystrix cristata</i> (porcupine)				+				
Lagomorphs	<i>Lepus</i> sp.					+			
Artiodactyls	Warthog ( <i>Phacochoerus africanus</i> )	+			+		+	+	
	Wild boar ( <i>Sus scrofa</i> )				+	+	+		
	Hippopotamus ( <i>Hippopotamus amphibius</i> )					+			
	<i>Hippotragini</i> indet.					?	+		
	Gnu ( <i>Connochaetes taurinus</i> )				+	+	+		
	Hartebeest ( <i>Alcelaphus buselaphus</i> )		+		+				
	Gazelle ( <i>Gazella</i> sp.)			+	+	+	+		
	Aurochs ( <i>Bos primigenius</i> + <i>Bos taurus</i> ?)		+	+	+	+	+		
	Perissodactyls	Rhinoceros ( <i>Stephanorhinus hemitoechus</i> )							+
		Horse ( <i>Equus</i> sp.)	+			+	+	+	
		Tortoise ( <i>Testudo graeca</i> )	+		+	+	+	+	
		Ostrich (fragments of egg shell)	+			+		+	

were identified at El Mnasra. Present in Morocco since the Acheulean (Geraads 2002), the warthog is unknown from Iberomauresian contexts, where it is replaced by the wild boar (*Sus scrofa*), absent before the Aterian. The presence of the rhinoceros (*S. hemitoechus*) must also be noted. This Eurasiatic pachyderm is known from Jebel Irhoud (Amani 1991). Its presence in the Atlantic Moroccan Aterian probably constitutes the last phase of its presence in North Africa.

Although carnivores are relatively infrequent and are limited to middle-sized species, they probably played a significant role in the transport to and deposit of small animals in the interior of the site. The ratel is a relatively fierce predator, attacking rodents and sometimes even small antelope. Moreover, because it burrows, it could have caused disturbance to the site. Nevertheless, at El Mnasra, prehistoric hominins remain the principal agent of transport and deposition of animal bones to the cave interior. This hypothesis is supported by the abundance of indeterminate bone fragments relative to the quantity of identifiable fragments. The large number of burned and sometimes calcined fragments should also be correlated with the different combustion structures found in the Aterian layers.

#### The Fauna from El Harhoura 2

The faunal assemblage from El Harhoura 2 has undergone significant post-depositional modification. A large number of the remains from all levels are either extremely corroded or covered with breccia which limits the possibility of

**Table 2** Faunal list for El Harhoura 2

Order	Species	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8
Carnivores		+	+	+	+	+	+	+	
Rodents	Porcupine ( <i>Hystrix cristata</i> )	+		+		+	+		
Lagomorphs	<i>Lepus</i> sp.	+	+	+	+		+		
Artiodactyls	Wild boar ( <i>Sus scrofa</i> )	+	+	+	+	+	+		+
	Hartebeest ( <i>Alcelaphus buselaphus</i> )	+	+	+	+	+	+	+	+
	Gazelle ( <i>Gazella</i> sp.)	+	+	+	+	+	+	+	+
	Bovids	+	+	+	+	+	+	+	+
Perissodactyls	Rhinocerotid		+	+	+				
	Horse ( <i>Equus</i> sp.)	+	+	+			+		
	Tortoise ( <i>Testudo graeca</i> )	+	+	+	+	+	+		+
	Birds	+	+	+	+	+	+	+	
	Ostrich (fragments of egg shell)	+	+	+	+		+	+	

identifying cut-marks or marks of gnawing by carnivores or rodents on the bones. Nonetheless, it seems obvious that hominins were present in all levels of El Harhoura 2, even though the vestiges of their activities have been only incompletely preserved (Table 2).

The presence of carnivores is attested in all levels of El Harhoura 2 by osteological and dental remains, coprolites, and for level 8, traces of regurgitation on some of the bones. It remains to be seen if these carnivores were exploited by hominins (hunted or scavenged?), or if they frequented the cave sporadically, or if the cave served as a den for one or more cave-dwelling predators during the periods when it was not occupied by hominins.

Ungulates are well represented (more than 90%) and their presence is principally attributed to hominin transport. For all levels, the taxa in question indicate a particularly open environment (e.g., *Gazella* sp. and hartebeest). The wild boar, relatively more abundant in level 1, but also present in levels 3–6 and 8, suggests the presence in this open environment of some small zones of the closed type which is not uncommon in this Atlantic coastal part of Morocco. The presence of forested patches is also implied by the presence of a cervid in level 2, the Barbary stag (*Cervus elaphus barbarus*), which migrated from Europe at the beginning of the Upper Pleistocene. Even if the frequency of gazelles and hartebeest seems to grow from level 1 to level 4, this trend is reversed in levels 4–8. This is in contrast with the opposite tendency noted for the bovids (*B. primigenius* and/or *Pelorovis antiquus*).

### Subsistence Strategies

In levels 1–3, there does not seem to have been much selection in the age of the prey, and it is difficult to distinguish hunting from scavenging. The presence of an adult rhinocerotid in level 3 and of adult or old bovids and equids in levels 1–3 could imply scavenging of large mammals. The ongoing study of the frequency of bones grouped by taxon and category may give some answers to this question. For levels

4–8, the data are still too incomplete to propose an interpretation of subsistence strategies. However, we can remark that among the ungulates, and in particular among the alcelaphins and the gazelles, adults dominate. This could be due to a tendency to take down sick or wounded individuals, or to the practice of taking parts of carcasses abandoned by large predators and bringing them to the site. In general, hunting seems to have been opportunistic, without prior selection of the prey.

It is clear that this preliminary study of the palaeontological material from El Harhoura 2 will be complemented by more in-depth analyses (qualitative description, metrics, systematics), and also by zooarchaeological and taphonomic approaches, all of which have already been initiated.

## The Archaeological Context

### Lithic Raw Materials

The raw materials are similar in the two sites. Local quartzite and flint were most heavily utilized, along with small quantities of quartz, limestone, and other rocks. The distance from the site to the sources does not exceed 15 to 20 km.

### The Cave of El Mnasra

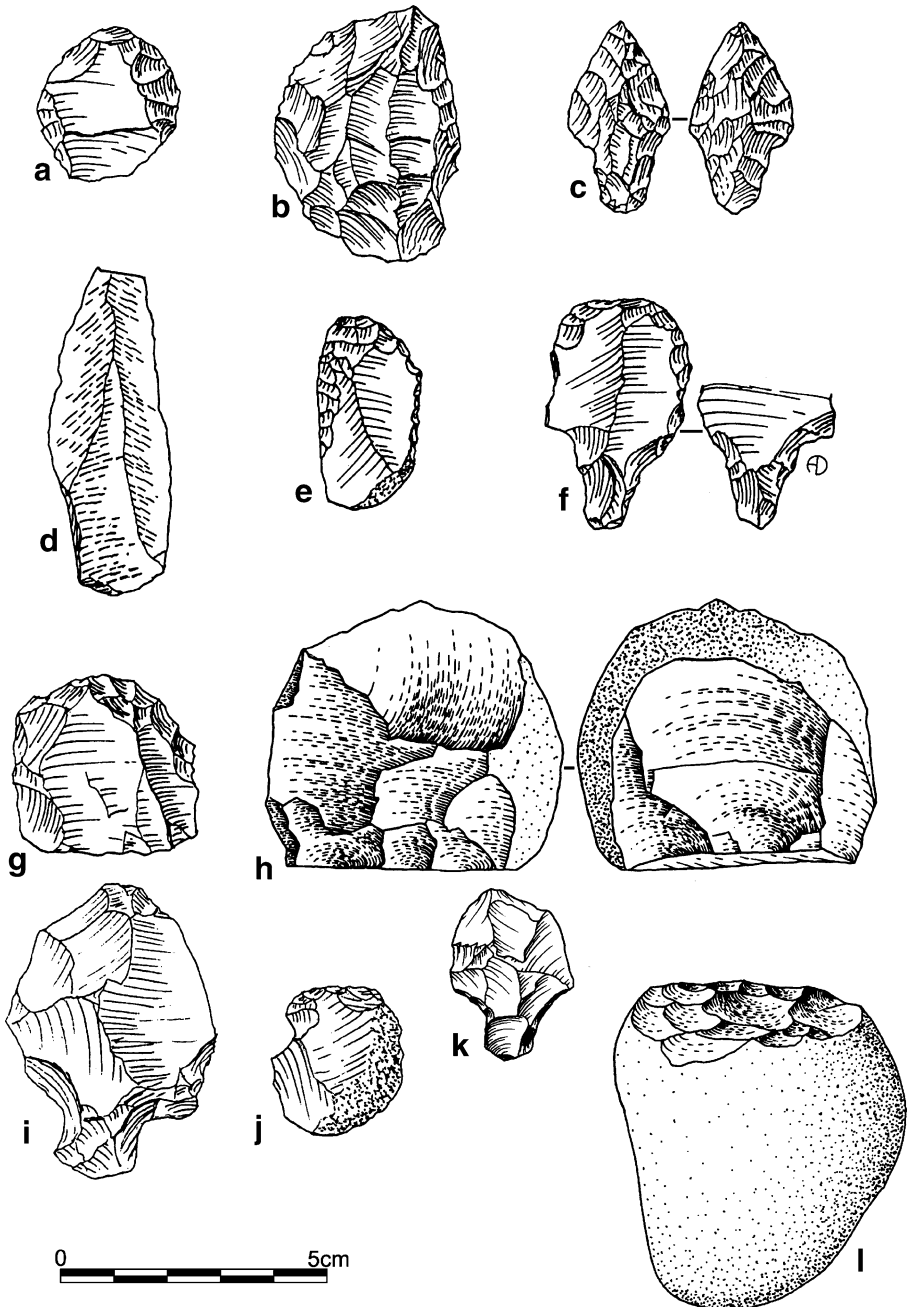
#### *Lithic Industry*

The industries of layers 2 and 3 (Neolithic) were neither excavated nor studied in the recent campaigns. We also emphasise that at El Mnasra, no layer containing an Upper Palaeolithic industry was discovered (Fig. 6).

Level 4 was recognized only on a small surface and yielded only a few objects identifiable to a Middle Palaeolithic origin (in particular, a unifacial foliate and a tanged Levallois blade). The underlying levels, especially levels 5 to 7, were assigned to the Aterian. Level 5, the richest of these, is characterized by a debitage technique with a low Levallois index ( $\approx 10$ ). Platforms are mainly unfaçetted. Although all stages of the *chaîne opératoire* are represented in the assemblage, there are very few unworked blocks of raw material, as well as few retouch flakes. Scrapers constitute the most important group of tools, with single and double types predominating, as well as convergent and transversal varieties. One specimen is a *racloir sur face plane*. Less common tool types are notches and denticulates, choppers and chopping-tools, as well as fragmentary and complete manuports.

Among the cores, we note the presence of several small Levallois cores of Asinipodian type (Bordes 1975), also known from El Harhoura 1 and 2, Dar es Soltane 1 and 2, Contrebandiers' Cave and the open-air site of Chaperon Rouge near Rabat. The Aterian character of this industry is reinforced by the presence of tanged pieces (one Levallois flake, two points, of which one is transitional to a *Pointe marocaine*, six sidescrapers, and an endscraper).

Layers 6 and 7 were not as intensively excavated, but the industries they contain appear to be identical to that found in layer 5: low Levallois index, importance of scrapers, presence of tanged pieces and choppers.



**Fig. 6** Lithic industry of El Mnsara. Level 4: **a** Levallois core of Asinipodian type; **b** unifacial foliate; **c** tanged bifacial point. Level 5: **d** Levallois blade; **e** convergent convex scraper; **f** tanged end-scraper; **g** Levallois core; **h** single striking platform core on pebble. Level 6: **i** tanged Levallois flake; **j** end-scraper. Level 7: **k** tanged Levallois flake; **l** chopper

### *Bone Industry*

Several worked bone pieces have been discovered in the Aterian levels, during the excavations in the 1990s (El Hajraoui 1994) and the more recent ones of the El-Harhoura-Témara project. It is the only Aterian site to have yielded such an industry, containing points as well as other tools that closely resemble polishers. These are made on large herbivore ribs that are cracked and scraped on the posterior surface while the other side as well as one of the distal extremities show signs of utilization. Several of these pieces are covered in ochre.

### *Pigments*

Pigments are represented at El Mnasra by a number of small blocks of hematite found in layer 7 that exhibit several subparallel traces of scraping on both sides of the polished blocks. Again, this is the first documentation of such behavior within the Aterian. These potential colorants are accompanied by a fairly large quartzite nodule (137×128 mm) whose top surface shows a use-related polish in its most concave part. Interestingly, the lateral part of the nodule, 1 to 2 cm wide, shows no transformations, but it appears to have traces of a dark red pigment.

### *Cultural Features*

These seem to be of two kinds: hearths and structures marked by stones. The hearths were first signaled in layer 5 during the 1990 field project. These are of three types: closed (from 30 to 70 cm in diameter) and well delimited, open (of oval or circular shape) with vague edges, dug-out (rectangular or elliptic) depressions often with sinuous edges. Traces of cleaning of the fireplaces have also been noted.

Stone-walled structures are known from Aterian contexts on the Atlantic coast of Morocco—at Dar es Soltane 2, El Harhoura 1 and Le Chaperon Rouge. However, the new data from El Mnasra exhibit some notable features, namely the presence of an accumulation of flat stones (not present in the deposits making up the cave fill) which fill a bowl-shaped depression in layer 7. Over a depth of 15 cm and a surface of approximately 1 m<sup>2</sup>, the hearth was filled by nine levels of limestone. The lithic elements are generally deposited flat, but some have served as wedges. No artefacts were discovered within this structure. This is all the more surprising as the whole level is rich in artefacts. This absence remains thus enigmatic and complicates the interpretation of this accumulation, which was obviously made by the Aterians.

### The Cave of El Harhoura 2

### *Ceramics*

Level 1 of El Harhoura 2 yielded pottery which, on the basis of typo-chronological studies, appears to come from three main phases of Neolithic occupation. The first is

an early Cardial Neolithic occupation (Ensemble 1). The presence of this ceramic type seems to correspond to the expanded geographic range of Cardial finds in the circum-Mediterranean and also to the Tingitan and Atlantic coast (Daugas and El Idrissi 1998; El Idrissi 1992, 2001). This is demonstrated by finds from the cave sites of El Khil, El Aliya, Idoles, Kaf That El Ghar, Kahf Boussaria, Ghar Kahal and El Mnasra, as well as the open-air site of Tahadart. El Harhoura 2, the best-documented site in this area, is thus a landmark in the area linking the Rabat–Casablanca zone to the Cardial Complex through the intermediary of the Tingitan Peninsula. Other groups of smooth beige ceramics are assigned to the Middle and the Middle-to-Late Neolithic (Ensemble 2), comparable to the pottery of Skhirat and Dar es Soltane, and to Chalcolithic smooth red ceramics with a flat bottom, Ahakar ware, and smooth black ceramics and Protohistoric (Ensemble 3) contexts. It must be noted that these remains are mixed with intrusions from later times (especially wheel-made historic period ceramics) (Fig. 7).

### *Lithic Industry*

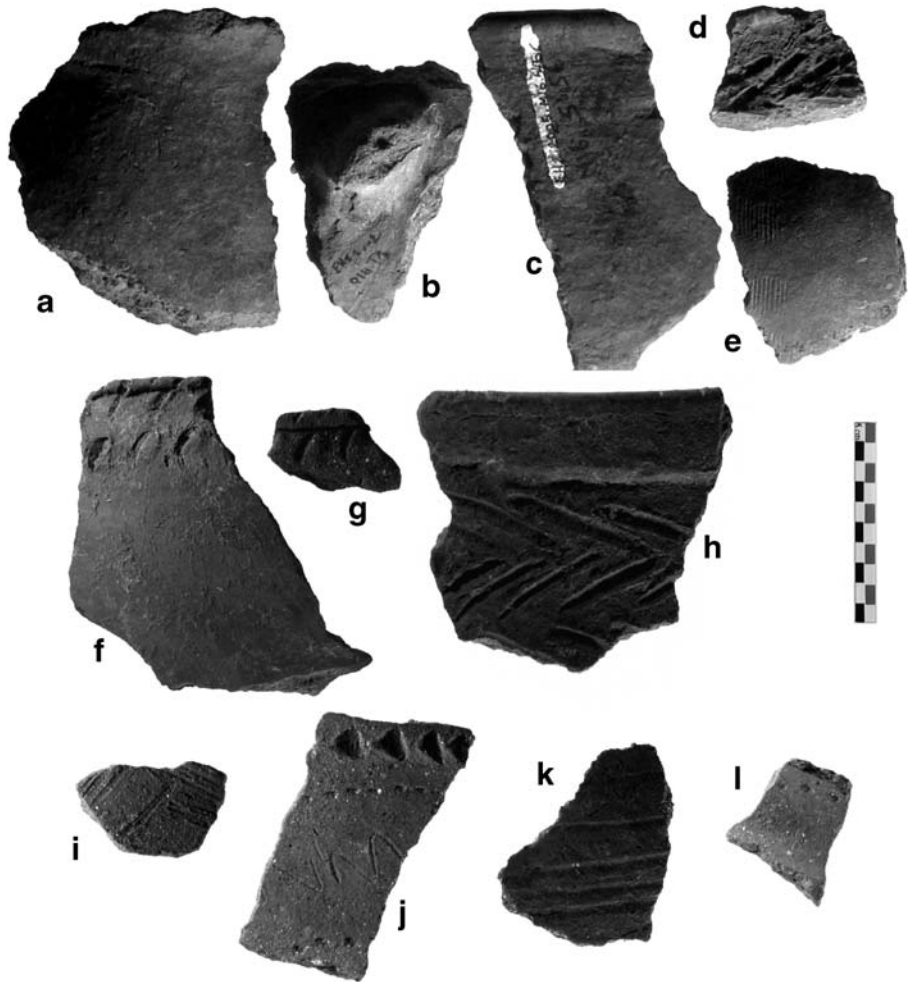
As mentioned above, level 1 was disturbed sometimes after the Neolithic occupation. These disturbances had an effect upon the Palaeolithic levels as well (e.g. the presence of Levallois flakes). The characterization of the lithic assemblage of this level is made even more difficult by the absence of diagnostic pieces. The dominant trait is laminar production, evidenced by both cores and blanks (five backed and 12 unretouched bladelets) (Fig. 8).

The raw materials of level 2 are dominated by flint. In layers 3, 4 and 5, quartzite and flint have similar frequencies, while quartz is slightly represented in layers 2, 3, 4 and 5.

The small number of nuclei (25 for the whole site, 15 in level 1), the rarity of the *pièces techniques* (five for the whole site) and the large number of blanks without cortical surfaces (equal or higher than 50%), evokes an ultimate phase of the *chaîne opératoire* and argues in favour of short occupations, during which the debitage products were brought from elsewhere.

Of the cores, 14 are for bladelet production and four are Levallois cores of Asinipodien type: two in level 3, one each in level 4 and level 8. The other cores produced flakes. Of the blanks, flakes are most numerous (nearly 75%) while blades and the bladelets represent 2% and 4% respectively. Blades are slightly represented as well in level 1 and level 2 (3% in both cases). In level 2, bladelets represent more than 12% of blanks. In levels 3, 4 and 5, the blanks are exclusively flakes. In level 3, there are 11 Levallois flakes out of a total of 298 (3.7%). Eight Levallois flakes were also counted in level 4 ( $n=1$ ), level 7 ( $n=1$ ) and level 8 ( $n=6$ ), and the average size of these flakes (from 3 to 5 cm) is greater than the Levallois Asinipodien cores.

The small number of tools does not allow, for the moment, a detailed description. The main characteristics can be summarized as follows: (1) taphonomic problems in levels 1 and 2 (disturbance by animals—porcupine for example—and the digging of seven pits and burials during the Neolithic which caused mixing of artefacts); (2) presence of more Palaeolithic tool types (backed pieces, *pièces esquillées*) in level 2; (3) relative importance of notched and denticulate pieces and scrapers in layers 3, 4 and 5; (4) a significant number of Asinipodien cores.



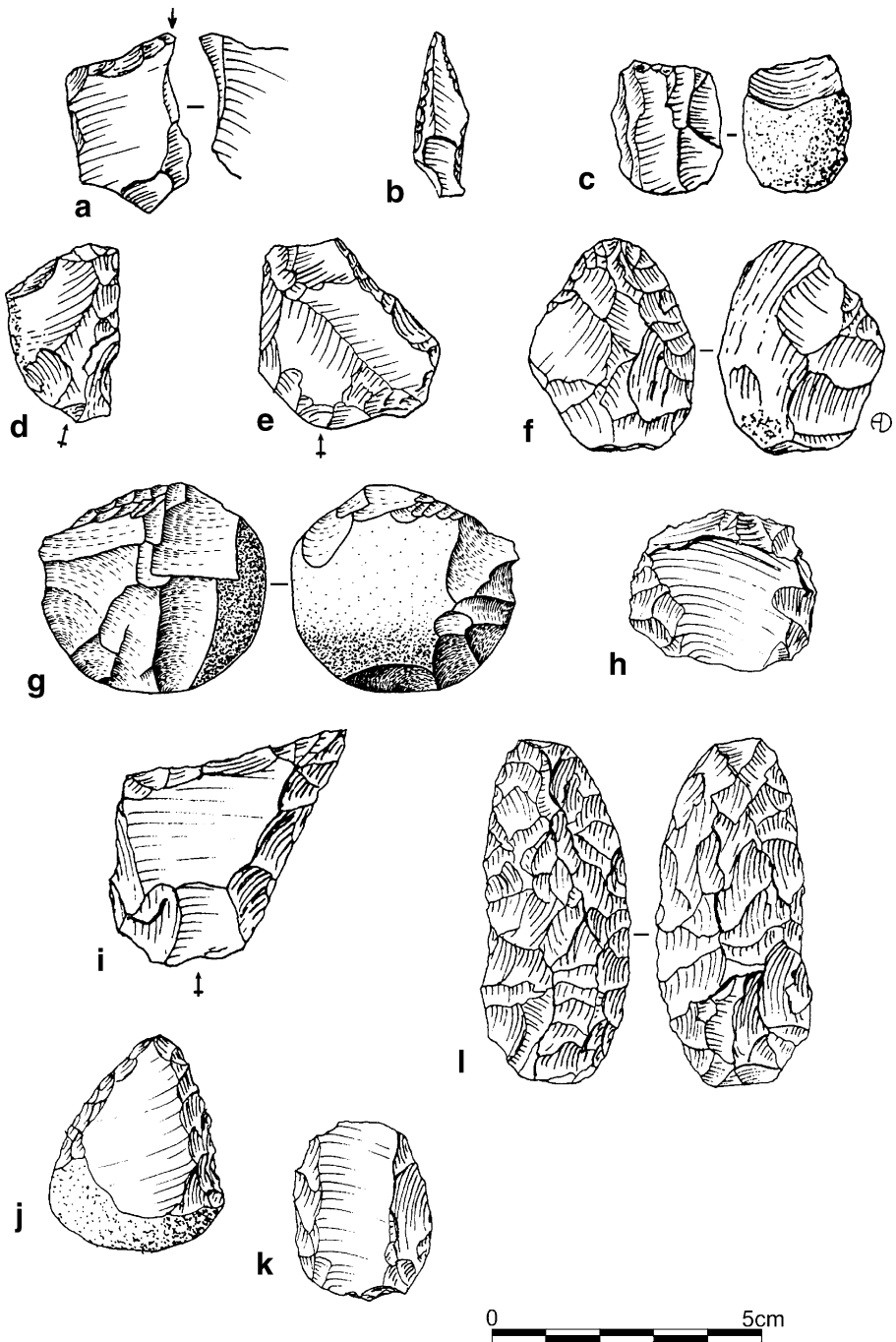
**Fig. 7** Ceramics of El Harhoura 2. **a** Cardial ware, rimsherd; **b** Cardial ware, knobbed pottery, body sherd; **c** smooth beige pottery, rim sherd; **d** pottery with deep impressions, body sherd; **e** Achakar ware, dragged comb ware, body sherd; **f** & **g** pottery with finger nail impressions, rim sherds; **h** pottery with deep geometrical impressions, rim sherd; **k** canneled ware straight channels, body sherd; **i**, **j** & **l** Micaceous grit pottery with different patterns of impressions, body sherd

## Conclusion

This brief synthesis of the recent research undertaken at El Harhoura 2 and El Mnasra demonstrates that these two caves have many similarities, even if their stratigraphies differ in certain aspects (thickness: El Mnasra <4 m and El Harhoura 2 >5 m; no evidence of an Upper Palaeolithic at El Mnasra; six layers of Aterian at El Mnasra and only four at El Harhoura 2). Their faunal and archaeological contents seem relatively homogenous and are characterised by low density.

Until we have the results of the dating programme we are unable to propose a chronological framework for human occupations in the region of Témara.





**Fig. 8** Lithic industry of El Harhoura 2. Level 2: **a** burin on truncation; **b** retouched backed bladelet; **c** bladelet core. Level 3: **d** & **e** déjeté scrapers; **f** scraper with thinned back; **g** flake core; **h** Levallois core of Asinipodian type. Level 4: **i** convergent scraper; level 6: **j** bifacial foliate. Level 8: **k** convergent scraper; **l** convex scraper

Faunal assemblages come mainly from human activity: carnivores are also present, but the effects of their activities remain to be determined. Generally, species such as *Gazella* sp. and *A. buselaphus* indicate a rather open environment. Evidence of climatic variation should also be noted, for example a more arid phase in level 2 of El Harhoura 2 (Trappelaphine present: *Taurotragus* or *Tragelephus*). At El Mnasra, remains of hippopotamus testify to the presence of small lakes in the vicinity during the Aterian occupation. Hunting seems to have been carried out in an opportunistic way, and the largest animals (for example, rhinoceros) were perhaps scavenged. Gazelle was the animal preferentially hunted and consumed.

Suitable cleaning of the fauna should facilitate the analysis of osseous surfaces: the archaeozoological approach initiated in 2007 (Campmas 2007) will be able to test the interpretations presented here.

Lithic and ceramic industries testify to the relative homogeneity of the various cultural phases, both Middle Palaeolithic and Neolithic, in both caves. It is necessary, however, to note the originality of some artefacts from the Aterian levels of El Mnasra; several worked bones and a ‘pencil’ of haematite. A more precise study of these objects and their archaeological context will facilitate a better understanding of them, and of their place in the behavioural repertoire of the Aterian groups.

The various studies initiated at El Harhoura and El Mnasra and described here are necessary before proposing interpretive models. Continuation of these studies will allow new interpretations of palaeoenvironments and the behaviour of human populations in the coastal region of Rabat–Témara since OIS5.

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