Article

What’s new about recent archeological fieldwork from the late Paleolithic site of Columnata (Tiaret, Algeria)?

Résultats préliminaires des nouvelles campagnes de fouilles de Columnata (Epipaléolithique, Tiaret, Algérie)

Yasmina Chaïd Saoudi¹*, Kahina Roumane-Amri², Abdelkader Chaïd³, Thomas Perrin⁴, Walid Azzoug³, Badredine Sitouah³, Saïda Kasri³, Sylia Sehila³ and Mustapha Meghraoui⁵

Abstract

New excavations carried out at Columnata focused on two points: one related to the site boundaries and a second to the archaeological data. The former locus is now better bounded spatially and above it, a new one reveals a more extensive Epipaleolithic occupation. At the road, the clay-sandy archaeological deposit is only of Iberomaurusian. Despite many disruptive factors, archaeological remains and stratigraphy stick perfectly to the function of prehistoric habitat in situ. The new C14 dates are older than those previously given but still place the iberomaurusian in the evolved cultural stage. At the foot of the cliff, burial H2 date fits in well with what we know about the Columnatian and funerary traditions show elaborate structures.

Keywords: Columnata, Algeria, Iberomaurusian, stratigraphy, archeological remains.

Résumé

Les premiers résultats des fouilles à Columnata enrichissent le corpus archéologique ibéromaurusien et apportent des éléments sur l’extension horizontale et verticale de l’occupation. La position stratigraphique et l’homogénéité du matériel archéologique de Columnata A s’accordent avec un dépôt de type habitat ibéromaurusien à datations plus anciennes que prévues. Au pied de la falaise, l’aménagement des structures funéraires est assez élaboré, voire à connotation protohistorique et le matériel associé aux sépultures peut être rapporté au faciès Columnatien. Au-dessus de l’ancien espace archéologique la découverte, jamais signalée, de matériel lithique fait apparaître

¹ Institute of Archaeology. University Algiers 2. Laboratory of Geodynamics, Sedimentary Basins and Orogens-University of Science and Technology Houari Boumediene.
² Institute of Archaeology. University of Algiers 2, Algeria.
³ Doctoral students.
⁴ UMR5608 TRACES CNRS- University of Toulouse Jean Jaures, France.
⁵ School and Observatory of Earth Sciences (EOST) University of Strasbourg and CNRS.

* Corresponding author’s e-mail address: yasmina.chaid@univ-alger2.dz

© Institut national des sciences de l’archéologie et du patrimoine/2022/ISSN : 0068-4015/e-ISSN : 2820-6908.
une occupation plus étendue avec des établissements épousant les paliers superposés du djebel Boughedou.

**Mots-clés**: Columnata, Algérie, stratigraphie, Ibéromaurusien, matériel archéologique.

1. **Geographical and historical settings**

The prehistoric site of Columnata is located in Sidi Hosni (formerly Waldeck Rousseau), northeast of the town of Tiaret in Algeria, a border zone between the Tell Atlas and the central and southern highlands (Fig.1). It is an open-air site facing the Tiguiguest valley and leaning against the Boughedou Jebel (Tiaret’s mountain, western part of Ouarsenis). The archeological fill is directly placed on the middle Miocene sandstone escarpments of Jebel Boughedou which closes to the east locally by a barred spur.

Shortly after the discovery of the site in 1937, Pierre Cadenat organized several excavation campaigns in 1938-39; 1954-1955; 56-57, 59-61. Later in 1969 and 1971, Claude Brahimi undertook two other ones. According to our investigation, a Pakistani doctor Lutfur Ahmed, in civilian healthy service in Sidi Hosni, carried out several prospections (1970 and 1980) and then an Algerian-Russian team (1975-1976). These two diggers did not leave any written records. The interest of the site and its originality lies in the cultural trends that have been highlighted, specially the Columnatian culture, an unknown one and the Upper Capsian culture which is considered the most westerly point. These cultures are:

- an Iberomaurusian level confirmed by C. Brahimi who dated it on shell *Unio* at 10,850 ± 425 BP. The deposit is composed of more than 80% of backed bladelets with half of them is obtained by direct retouching, the rest by bords retouching. These are dominated by arched shapes, *senestre* back and Ouchtata retouching. Cores are most often at one strike plane in striking platform but both strike planes exist.

- a Columnatian level dated on charcoal between 8280 ± 200 and 7250 ± 200 BP with backed bladelets, ultramicrolithism obtained without pressure knapping and polished bone is only recognized in two other sites Cubitus and Saint-Trivier. It is nowadays roughly included into Elassolithic group or Mediterranean Epipaleolithic group.

- an Upper Capsian level dated between 6850 ± 300 BP and 6350 ± 300 BP.

- a Neolithic level dated around 5850 ± 100 BP with featuring finned arrowheads, ostrich egg tests fragments and decorated pottery.

---

12 Cadenat P. 1966.
14 Aumassip G. 1986 ; Balout L. 1955 ; Camps G. 1974
More than a hundred human skeletons were also discovered and assigned to the Co-
olumnatian population. The anthropobiological study revealed a gracilization within the
Mechtoids and an increased sexual diphormism\textsuperscript{16}. Pathologies related to lifestyles revealed a
relatively high infant mortality, a dental avulsion, squatting work position and many others
identified by J. Dastugue\textsuperscript{17}.

Following F. Doumergue\textsuperscript{18} who drew up a summary wildlife list, a more detailed stu-
dy of mammalian preserved material\textsuperscript{19} stressed on the following taxa mainly provided from
the iberomaurusian level: \textit{Equus melkiensis, E. algericus, Syncerus antiquus, Bos primigenius,
Alcelaphus buselaphus, Damaliscus, Oryx dammah, Hippotragus, Kobus kob, Gazella cuvieri et
Ammotragus lervia}. The caballine species \textit{Equus algericus} and \textit{Kobus} are mentioned for the first
time here while \textit{Ammotragus lervia} presents a high degree of size variability, as for the large
antelope \textit{Alcelaphus buselaphus} which is predominant in this mammalian assemblage and
reflects a new behavior in large species resource management.

But in terms of stratigraphy all these data are almost unusable because they are relatively
poor and imprecise. P. Cadenat\textsuperscript{20} and after him C. Brahimi\textsuperscript{21} considered the Iberomaurusian
area as a discharge resulting from the sweeping of the upper layers by the Columnatians who,
in order to make space under the cliff, pushed down the deposits of their predecessors. For
the other cultural levels, there is no stratigraphic separation between them. Only the study
of their lithic composition, reinforced by two or three dates, allowed us to link them to Co-
olumnatian, Upper Capsian and Neolithic cultures. It is therefore important to review the im-
portant questions related to field data and verify the hypotheses put forward while collecting
a little more archaeological material to better understand the functioning of the site and the
behavior of these latter populations of Paleolithic hunter-gatherers.

2. Topography and boundaries

Fifty years after the first excavations, the morphology of the site has changed signi-
ficantly. The seismic, pastoral and wind activity, the widening of the roadway (road) have
seriously affected it. It was then difficult to find one’s field way with the old published plans,
photos and sketches given by P. Cadenat\textsuperscript{22} C. Brahimi\textsuperscript{23} and to choose the part to be searched.
The archaeological evidence left behind the \textit{butte témoin} no longer exists and we could hardly
follow the former excavated areas (trenches 1 and 2 and connection area) of those that have
remained untouched. The problem of the delimitation of the site also arose because, despite
its classification on the national list (November 1952) its boundaries remain unknown. Only

\begin{footnotes}
\item[16] Chamla M.-C. 1970.
\item[17] Chamla M.-C. 1970.
\item[18] Cadenat P. 1966.
\item[19] Chaïd Saoudi 2017 (This publication is an extract from a doctoral dissertation defended in 1987 at Lyon 1 University)
\item[20] Cadenat P. 1966.
\item[22] Cadenat P. 1966.
\item[23] Brahimi C. 1972.
\end{footnotes}
barbed wire in poor condition is used as protection on the northeast side. The other sides are free. Our first action was therefore to topographically map the archeological area (Fig. 2) using a Leica station 1200 and to prospect the shelters overlooking it.
Nine holes were drilled in the former site prior to the installation of the grid in two sectors A and B (Fig. 3) and a power shovel was used at road level to access the substrate. Very quickly, we noticed that the site is not only located under the foothills of the highest cliff at the bottom of the road but also above where a large number of prehistoric tools have been collected. So, we call the former site Columnata A and the new up Columnata B.

Columnata A

The former site in which the following studies will be conducted is a quadrilateral of 120.29 m of perimeter that extends over an area of 869.77 m² (against 750 m² according to P. Cadenat). Altitudes range from 998 m at the lowest level (the road level) to 1009 m at the highest point of filling (Point Z: B1). The difference in height at points B4 and B1 is 9 m and the slope calculated at points B1-B4 is about 22.54° (difference in height / length). This is high enough to receive the alteration materials, resulting from the water flows we have identified (Fig. 4) and the horizontal fracture of the sandstone cornice that directly shelters the site.

On the eastern part of the site, which remained intact, at the level of the barred spur (Fig. 5), we can notice that the large sandstone banks remain more or less in place or fall nearby, while the thinner products form a more or less conical accumulation along the slope. This morphology is reminiscent of scree deposits, that form on a slope by moving rock fragments, accumulated in slopes at the foot of slopes or rocky slopes. We believe that the sedimentary filling of “Columnata A”, which is contiguous to the filling of the described eastern part, has been implemented in the same way before and after the beginning of the oldest Iberomaurusian occupation.

Fig. 3: implementation of the first squares excavated (© Y Chaïd Saoudi, 2016).

Fig. 4: representation of flows at site level (© A. Chaïd, 2018).

---

Columnata B

On the surface of dominant shelves towards the southeast, we have collected an important archaeological material (Fig. 6). Two concentrations appeared. The first is directly above the site very close to the Neolithic levels according to P. Cadenat and the other more diffuse and towards the East occupies the sandstone steps above the barred spur.

Fig. 6: location of Columnata B (© Y. Chaïd Saoudi, 2017).

What’s new about recent archaeological fieldwork from the late Paleolithic site of Columnata (Tiaret, Algeria)?

These yielded numerous Epipaleolithic flint flakes, lamellar retouched tools and nuclei as well as bone fragments and a bovine tooth. Much further East, an Aterian tip was found. To check whether these lithic pieces had undergone a long geographical transport or were on site, we observed their surfaces under a binocular magnifier. We found traces of alteration such as microscoring, streaking and staining, but on the whole they are not very altered. The presence of cores aimed at lamellar production, epipaleolithic tools, dominant chalcedony and white flint make Columnata B close to the iberomaurusian level from Columnata A. Though we must wait for further results to draw the full report oncolumnatian B territory, we can at least assume that its boundaries were much more extensive than we thought.

3. Lithostratigraphic cross-section and sedimentology of Columnata A

The excavated sectors and the test-excavations carried out show from bottom to top (from the road to the foot of the sandstone ledge) the following stratigraphic succession (Fig. 7).

1 - A level of grey-green clay above the substratum of Miocene sandstone slabs that form the cornice and on which the filling took place (layer 1).

2 - A sterile brown sandy layer interspersed with centimetric to metric sandstone blocks that have previously fell and have been altered (layer 2).

Fig. 7: lithostratigraphic cross-section of Columnata A (© K.Roumane, 2018).
3 - A discontinuous level of blackish, millimeter-sized sands, finely smoothed and slightly encrusted (layer 3).

4 - A black archaeological layer with angular centimetric pebbles (layer 4).

5 – A centimetric pebble bed merging towards the current outcrop (layer 5).

The sedimentological study of all these beds shows a basic environment with an average pH between 7.93 and 8.63. The percentage of calcium carbonate (CaCO3) in Sector B is between 15.88 and 32.19 and classifies the sediment in clay-marly to clayey according to Vatan’s 1967 nomenclature. In Sector A and in Sections 3 and 4 the calcium carbonate content is low between 6.23 and 10.2, indicating some soil leaching. According to the granulometric study, it was observed that the blackish sediments of the pebbly archaeological layer (layer 4) and the sterile brown sediments (layer 2) have a trimodal distribution indicating a poor granular classification and probably several sedimentary
sources. The graphs (Fig. 8- Fig. 9) show a high hydrodynamism which corresponds to an agitated environment since the morphoscopic study (Fig. 10) displays quartz particles with rounded corners, a pitted and polished surface while a minority is matt. A rather strong current carried these particles a significant part of which must come from the sandstone erosion. The current is better identified by the water flow reconstruction (Fig. 4) which runs in a northeast and northwest direction. This is also the direction in which most archaeological finds are headed (Fig. 11).

4. Radiochronology

Dated samples were performed on bone material. Six are from black Iberomaurusian archaeological bed 4. The seventh and last comes from the upper deposits (burial 2) nearby the foot of the cliff where P. Cadenat has identified his transition level (= Columnatian).

Iberomaurusian samples were collected in the following squares and Z points: (I 21, Z 269- I22, Z 336- J22 Z 699- K22, Z 679) and targeted the middle part of the iberomaurusian deposit (layer 4) excavated in 2016 and 2017.

Radiocarbon dates (Fig.12) are given in calibrated expressed as chronological intervals associated with a percentage probability of 1 sigma (68%) and 2 sigma (95%). They are consistent, without large standard deviations (Perrin et al. 2020 and this article).
<table>
<thead>
<tr>
<th>Sample</th>
<th>68,2% probability</th>
<th>95,4% probability</th>
<th>R-date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Columnata Col-K22 Poz- 102998</td>
<td>10429BC (12,7%) 10383 BC&lt;br&gt;10356BC (6,9%) 10328 BC&lt;br&gt;10290BC (48,6%) 10113 BC</td>
<td>10449BC (95,4%) 10042BC</td>
<td>10340,50</td>
</tr>
<tr>
<td>Columnata Col-J22 Poz- 102999</td>
<td>10616BC (68,2%) 10441 BC</td>
<td>10686BC (76,4%) 10418BC&lt;br&gt;10409BC (13,8%) 10277BC&lt;br&gt;10263BC (5,2%) 10191 BC</td>
<td>10500,60</td>
</tr>
<tr>
<td>NeMeMOIA-52 Poz-102948</td>
<td>10721BC (68,2%) 10626BC</td>
<td>10765BC (95,4%) 10586 BC</td>
<td>10640,50</td>
</tr>
<tr>
<td>NeMeMOIA-53 Poz-103168</td>
<td>11201BC (68,2%) 11096 BC</td>
<td>11287 BC (95,4%) 11036 BC</td>
<td>11230,60</td>
</tr>
<tr>
<td>NeMeMOIA-54 Poz-102169</td>
<td>11146 (68,2%) 11013 BC</td>
<td>11171 BC (95,4%) 10881BC</td>
<td>11150,60</td>
</tr>
<tr>
<td>NeMeMOIA-56 Poz-103170</td>
<td>11156BC (68,2%) 11037 BC</td>
<td>11196 BC (95,4%) 10899BC</td>
<td>11170,60</td>
</tr>
<tr>
<td>NeMeMOIA-58 Poz-103172</td>
<td>7632BC (3,4%) 7625BC&lt;br&gt;7612BC (64,8%) 7548BC</td>
<td>7714BC (95,4%) 7533BC</td>
<td>8580,60</td>
</tr>
</tbody>
</table>

Tab. 1: results of calibration 14C dates (Given are intervals of calendar age, where the true ages of the samples encompass with the probability of ca. 68% and ca. 95%. The calibration was made with the OxCal software. OxCal v4.2.3 Bronk Ramsey (2013); r:5/ IntCal13 atmospheric curve © Reimer et al., 2013).
Compared to the date obtained on *Unio* shell in the same Iberomaurusian level\(^{26}\) these new ones are older and postpone the Iberomaurusian occupation by two thousand years. The seventh and more recent date comes from burial 2 and the upper level, probably corresponding to the Columbian\(^{27}\), due to its stratigraphic position and artifacts associated that lay 50 cm from the burial 2 in the same sediment and soil.

5. Archaeological remains

Fauna

Around 1400 bones were collected. One third is from the skull, mostly teeth and two thirds are the post-cranial skeleton. The determined preliminary fauna consists of the following taxa: *Canis aureus*, *Vulpes vulpes*, *Hyena hyena*, *Panthera pardus*, *Equus cf. algericus*, *Equus cf. melkiensis*, *Syncerus antiquus*, *Bos primigenius*, *Alcelaphus buselaphus*, *Oryx leucoryx*, *Ammotragus lervia*, *Gazella dorcas*. It includes fewer taxa than the previous list\(^{28}\) but it comes only from the Iberomaurusian layer 4 and research is still ongoing. Wildlife remains from more recent levels are low, represented mainly by a large bovine and alcelaphine species.

Although all the skeleton parts are represented in the Iberomaurusian assemblage, no whole long bones were found due the significant rate of the breaking. This bone fragmentation is probably linked to several factors such as local morphology, weather and actually a strong exploitation of bone for the manufacture of tools given the poor quality of lithic materials. These hunter-gatherers seem to have favored the medium to large masses animals as shown by the high percentage occupied by the Alcelaphini remains (53%) followed by the Bovini ones (19%).

The estimate of the cumulative abundance (which is the sum of the NMI of each species or group of species) in the Iberomaurusian level reaches 29 and the index of the relative abundance places *Alcelaphus buselaphus* at the top with 41.37 (= NMI of *Alcelaphus buselaphus* x100 / total NMI of all species present in the Iberomaurusian level). This imbalance in wildlife assemblage is generally linked to the predation of the hunter-gatherers.

Although the histogram does not show *Helix* and *Unio*, shells are relatively present and have been a complementary diet resource as usually for this culture.

Human burials

Nearly 9 individuals including 5 adults (H0-H1-H3a-H4a-H4b) and 4 children (H2-H3b- H4c- H5) were recently discovered. All are in a very poor state of conservation and often incomplete. Some have been disturbed. Only one the “H0” was found in the Iberomaurusian layer (survey 8, bottom of the road). It is represented by a cranial fragment

\(^{26}\) Brahimi C. 1972.
\(^{27}\) Dachy T. *et al.* 2018.
\(^{28}\) Cadenat P. 1948 ; Chaïd Saoudi Y. 1987.
and a first phalanx. The others come from the necropolis at the foot of the cliff, where the Columnatian level and then the Neolithic are located. We can describe here two of the burials entirely excavated. The others are still being in the excavation process.

H1: is an adult burial with funeral furniture and a grave arrangement. Despite a defective condition of the bones and obvious disturbances (humidity, tree trunk crossing the ribs, gluing of the bones to the slab, partial coverage etc.) we can see that this deposit is primary and that it has been placed in a blocky environment. The body was placed on his back his lower limbs raised and his feet well crossed. Interestingly, the funeral structure is made of flat stones laid all around the grave and superimposed on at least 3 rows on one side.

This tomb is also particular because of the presence of fragments of Bovini’s bone ankles of *Bos primigenius* species placed above the grave. A similar case was cited by P. Cadenat about the H27 grave which included many bony ankles of a large bovine animal. P. Cadenat would have opened and closed the tomb without searching it, as he wrote. Is it this one or another tomb? Although the figure Pl. XII places H27 in the same area we cannot be affirmative because many details such as a more precise location, shape of the grave etc. don’t coincide or only slightly with the given Cadenat’s description. The other part of what could be funerary furniture is a bladelet placed on the underside of the first phalanx 3 of H1’s right hand, Helix shells and a rigid cover occupying the front part of the grave that is currently under analyze. The biometric characters (size, gonion shape, strength of limbs) of this individual are close to the mechtoid shape.

H2: is an almost complete burial of a child whose dental age is potentially estimated at four years. Burial is a primary deposit (anatomical connection and presence of bone epi-physes and labile joints). Despite some topographical disturbances that have caused some bones to slide and post-mortem fractures, the space can be considered blocked. The body was placed in a semi-dorsal or weakly seated position as shown by the slopes measured at the level of each bone. The front part of the body was as if raised to skull. What remains of the jawbone the mandible and the cervical vertebrae were all below it. This skull was very fractured and tilted 30° to the left. The ribs are laid flat further apart on the left side due to the position of the head. The left forearm is in pronation with the hand facing the lateral part of the left femur. The right is in supination but slightly disturbed. The femurs are open the tibias meet distally so as to allow a tight crossing of the feet. This unnatural position of the feet was also observed on the nearby H1 grave, while no stop-type obstacles limiting their extension were noted.

In terms of funerary furniture, we can mention a distal fragment of caprine metacarpal found near the right humerus. This bone was used to date the burial and to link it to the Columnatian culture. A gastropod of the species *Rumina decollata* was also found in the inner space of the skeleton on the right ribs. Finally, polished bone industry (cutting-edges and awls) was collected about 20 cm from the grave, in the same sediment, which is finer and darker than elsewhere. Apart from the horns of large bovines, discovered several times in se-

---

29 Cadenat P. 1957.
veral tombs (H2- H27- H10 etc.), that can obviously be related to a deliberate funeral act in the archaeological material brought back by the sediment, it is difficult to distinguish the real funeral goods. There is no special arrangement for flints, animal bones and shells discovered in and around the dead that have been buried in the living habitat floor and very probably covered with the sediment that includes flint and bone tools and fauna.

On the other hand, the funeral architecture seems quite elaborate. The sepulchral space includes at least three concentric stone circles of generally medium size but not quite calibrated. The burial occupies the middle of the stone circles but also the middle of the enclosure of a *bazina* type monument whose basic stones are at the level of the burial. A large stele facing Northeast resembles those found by P. Cadenat in other tombs. It is not known whether this monument, which has a local appearance and which normally appears later in time, is contemporary with the Colummtian child’s burial or whether it was later built by the other populations who occupied the area during the Lower Roman Empire (notably between the 2nd and 3rd centuries) when Columnata became the capital of a military district on the Roman border. Whatever it’s even if the prehistoric man didn’t go so far as to build complex monument there is no doubt that he had the will to indicate by stone witnesses the places where he buried his dead.

**Lithic industry**

![Fig. 13: distribution of lithic and bone material in the excavated squares. (© W.Azzoug & S.Kasri, 2018).](image)

Nearby 1225 pieces were collected in the Iberomaurusian (layer 4) squares excavated (Fig.13). The raw material is chalcedony, white and dark flint provided from local and re-

---

30 Cadenat P. 1957.
31 Gsell S. 1911 ; Cadenat P. 1972 ; Cadenat P. 1988.
The industry is concentrated in squares I-J 20-21, M-L-I-H 22 and is mostly oriented towards the front of the deposits in the North direction which is almost the case for the bone industry and fauna.

Lithic material is composed of 44% waste, 11% flakes 8% nuclei and 11% bladelets. The rest is divided almost equally between blades segments, chisels, scrapers and drills. Among bladelets, there some straight ones (38%) straight with a rounded base (15%) and others with an arched edge (24%). The extension of debiting is rather low. The striking planes are mostly parallel in 40% and the cortex is often present.

**Bone industry**

In the iberomaurusian level, bone flakes knapping are countless (1300 pieces) and it is sometimes difficult to distinguish tools at the draft stage from damaged faunal remains since all long bones have been fractured. However, we were able to follow some cutting techniques on these flakes and on the manufactured tools. The techniques identified are direct and indirect percussion mainly bilateral but also bifacial debiting. One case of the segmentation of the matrix into lamellae was observed. This technique related to the capsian would appear later.

The shaping shows the practice of grooving, scraping and polishing. Epiphyses are usually saved on the tool. The flakes and tools are of large to medium size and were probably produced from bovid bones species.

Among perforating artifacts group, awls are the most predominant. The types that come up most often are the awl manufactured in bone split lengthwise with or without epiphysis as well as polished or incompletely polished awl. The pins are represented by a single polished one with rounded section and grooved diaphysis. This pin was discovered in the pebble bed which may have fallen from the upper. P. Cadenat described the same in the upper capsian level (the former lower Neolithic).

The number of the group of tools with a cutting edge is important. It is represented mainly with flat paring-knives with straight or oblique polish chisel edge. Though chisels are obtained by cutting or sawing and are never polished.

The group of blunted tools is poorly represented. It is composed by two thick and elongated smoother and one elongated flatted bone with blunted and polished surface at the distal extremity. The upper levels (Columnatian and Neolithic) are characterized by a lack of flakes so the bones are almost entirely transformed into tools. The matrix used here is medium to small and the most common tools are represented by awls and cutting-edged tools.

The polishing of the surfaces is almost complete. Observations under the binocular magnifier show that some have traces such as grinding glossed notches while other traces are related to diagenesis (prints, holes, fibers) but one must be careful because the condition

---

33 Petruullo G. 2016.
34 Cadenat P. 1957.
of the bone influences the functional wear records\textsuperscript{35} and Columnata bones are particularly sensitive and their surfaces can be severely altered when they are not covered by a grey strong gangue that prevents clear diagnosis.

6. Comments and interpretations

While much more will be done in the future to understand how the site formed and how prehistoric population operated over time, we were able at this research stage to highlight some insights.

The stratigraphy shows a succession of layers in which the archaeological layer 4 (the Iberomaurusian one) fits perfectly. This layer stands on a sterile brown one (layer 2) that can be followed with the same stratigraphic order from the end of the necropolis (altitude 1 003 m) to the road where it disappeared (altitude 995 m). The hypothesis that doubts of its stratigraphic position therefore seems unacceptable to us and does not match either with the coherence of the repartition of remains which is almost the same in all the search squares and the products of the lithic and bone industry which includes all the elements of the chaines opératoires. However, we note that this layer was seriously affected by flows very probably after the artifacts were abandoned. These flows are mostly in a north-east to north-northwest direction (Fig. 4) a direction favored by the majority of archaeological remains (Fig. 11).

The stratigraphy also highlights two “events” that occurred before and after the iberomaurusian occupation which took place, as argued, around the eleventh millennium B.C. These are illustrated by the sterile brown layer (layer 2) up discussed and the upper pebble bed (layer 5).

Despite the fact that their nature cannot really be clarified now due to a lack of deeper analysis, they support our field remarks and that the permanently fractured sandstone cornice was before in a more advanced position so the brown level is a result of its altered banks. To argue, we have in mind that this layer is sandy-clay pierced with large blocks - it shares the same sedimentary state as the follower archaeological one and is everywhere positioned but here after the greyish Miocene marls that precede the sandstone slabs of the cornice.

At the end of the Iberomaurusian occupation a second event occurred illustrated by the angular cobbles layer. It could be linked to a strong flow bed coming from the Djebel Bougdou and whose cobbles have penetrated through the underlying iberomaurusian layer. This flow has also seriously affected the archaeological material and bones which show a numerous diagenetic traces linked to a wet and disturbed environment (breaks, bioclasts, oxidation, gangue formation, etc.). We don’t know whether or not this event ended the iberomaurusian settlement, we can only notice long after that the same black sandy-clay deposit progresses upwards where other human cultures have taken place. Elsewhere, stone beds have been reported (T. Perrin, oral communication) and attributed to dismantled prehistoric settlement. At Columnata, there are no traces of charcoal or hut columns to support this hypothesis.

\textsuperscript{35} Sidéra I. et Legrand A. 2006.
The discovery of Colum B locus sheds new light on our understanding of the territory concept. The new highlighted could be added to the many others listed in the region and located along the sandstone cornice or “Kef line” as cited by F.E. Roubet\(^{36}\). As these, we don’t know more about them and if they were related. We considered the closest concentrations as belonging to the former Columnata A but the tools are also dispersed at many points along the cornice overlooking the site where white flint is more and more numerous. This fact tends to connect them to the sources of the raw white material located in the north-east near Dahmouni region\(^{37}\). Despite chalcedony which outcrops in local places another privileged axe which yielded dark flint is located south-east M’ghila up to 27 km from Columnata. We have here a factor that may explain the close human settlement around the cornice and the Holocene territory concept but many other factors should be deeply researched.

In the Iberomaurusian level, fauna, bone and lithic industry are present with their waste nucleus flakes and finished tools as if we were in an area of daily domestic work. The lithic industry is rather traditional but we are far from the huge percentages of bladelets reported in the literature and the presence of micro industry particularly at the end of the layer points in the direction of a Columnatian not yet completely differentiated rather than a true Iberomaurusian but as a safety measure we continue to use this last term. Chronologically, these dates are those that D. Lubell\(^{38}\) and R. N. E. Barton\(^{39}\) attribute to the advanced iberomaurusian phase.

It is important to note that the deposits that link the “iberomaurusian” to the higher layers where the former authors housed the post-iberomaurusian cultures have been completely destroyed and that we cannot restore anything about. However, we have excavated the few remains scattered between the graves at the bottom of the cliff. We noticed here that all inputs are entirely transformed as if they were brought from elsewhere and placed between the burials whose graves are rather sophisticated. No cores and no more important flakes have been discovered yet. Lithic industry shows Iberomaurusian backed bladelets with many ultra-microliths and an elaborate polished bone industry. This can be reported to the Columnatian culture.

**Conclusion**

In spite of the complexity of sedimentary dynamics and taphonomic processes that do not provide a clear understanding of all the modalities of passage from one culture to another, two settlement phases were highlighted.

Due to the global warming of the Mediterranean, human groups settled on the Kefs line downstream of the Tiaret Mountains. Their occupation took place above and below the sandstone ledge overlooking the site. Their lithic industry has a rather recent iberomaurusian

\(^{36}\) Roubet F.-E. 1951.
\(^{37}\) Sari L. 2014.
\(^{38}\) Lubell D. 2001.
\(^{39}\) Barton R. N. E. et al. 2013.
lamellar frame and the dates place it in the evolved phase. These populations favored the *Alcelaphus* hunting. A level materialized by a bed of cobbles separates the first occupation from those that follow it but it is not clear whether it should be linked to a local event or to the wider lower-middle Holocene global change.

The second phase is documented by tools of the Columnatian culture confirmed by several dates and burials that are in the process of being fully excavated.

**Acknowledgements**

We would like to thank Mr Djebbar Reda for his support and the staff of the municipalities of Tiaret, Sidi Hosni and Mghila especially Mr Ahmed Diab, Mr Adda Boudjelli and Hamri Miloud. Our gratitude also goes to the Ministry of Culture, the Tiaret’s direction of Culture and the Tiaret’s OGBEC specially Mourad. Thanks to the director of the National Institute of Education, Kacem Ahmed, the Institute of Archaeology as well as all the students, who have completed their field internship in Columnata during 2016-2017-2019 surveys.

**Bibliography**


ملخص

ركزت الحفريات الجديدة التي أجريت في كولومناتا على نقطتين: الأولى تتعلق بحدود الموقع والثانية بالبيانات الأثرية. صار المكان الأصلي أفضل تحديدا، وقد ظهر فوهة مستوى آخر يشهد بأن الاستيطان العصر الحجري القديم الانتقالي كان أكثر امتدادا. وعلى الطريق، فإن الرواسب الأثرية المكونة من الطين والرمل مؤرخة فقط بالفترة
What's new about recent archeological fieldwork from the late Paleolithic site of Columnata (Tiaret, Algeria)?

الإيبيروموروسية. وعلى الرغم من العديد من عوامل التخريب، فإن البقايا الأثرية والطبقية تأخذ شكل بناء سكني لفترة ما قبل التاريخ. إن تحاليل الكاربون 14 الجديدة تقدم توازيًا أقدم من تلك التي قدمتها من قبل ولكنها لا تزال تضع الإيبيروموروسية في المرحلة الثقافية المتطورة. عند سفح الهاوية، يتوفق المدفن H2 مع ما نعرفه عن التقاليد الكولونيانية، كما أن الطقوس الجنائزية تكتسي بنيات أكثر تطورًا.
