Archaic Aurignacian lithic technology in Cueva Morín (Cantabria, Spain)

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ABSTRACT Over the last years, the characteristics of the beginning of the Upper Paleolithic in the Cantabrian region as put forth by F. Bernaldo de Quirós have suffered a very important renovation. The identification of new industrial groups and the dates for El Castillo have promoted this "revolution". Cueva Morín is located in the region of Cantabria, 9 km to the south of the city of Santander. This cave, known since the beginning of past century, presents a stratigraphic sequence spanning from the Mousterian to the Azilian in 22 archeological levels. The study of the lithics from levels 9 and 8 (Archaic Aurignacian) have allowed us to know the lithic technology of this period in the Cantabrian region. These levels provide relevant bladelet production linked to two different operative schemes: prismatic core and carinated endscraper reduction. The characteristic bladelets have straight profiles and no torsion. The production of bladelets is mainly oriented to obtain Dufour bladelets. Blades are less important in these levels, but there is a continuum between blade and bladelet production. On the other hand, we must stress the importance of the production of flakes through a single, discoidal operative scheme. Flake production is mainly to obtain sidescrapers, denticulates and notches.

Introduction

The last twenty years have seen some interesting innovations in studies on the beginning of the Upper Paleolithic in Cantabrian Spain. After the end of the Mousterian, two groups of industries developed that can be called "transitional": the Châtelperronian and the Transitional Aurignacian. After these we find a clearly differentiated Archaic Aurignacian. In spite of this promising panorama, the Aurignacian often has been neglected in Paleolithic studies in Cantabrian Spain. This article therefore aims at reviving interest in this techno-complex, looking at it from a technological point of view, and at situating it in its regional framework.

Cueva Morín

Located in Villanueva de Villaescusa, Cueva Morín is also known as Mazo Moril or Cueva del Rey ("King's Cave", alluding to a visit made by King Alfonso XIII). It is situated in a small hill of Urgonian limestone, in the Solia drainage basin, 60 m above sea level, and 6 km from the present coastline (Fig. 1). The entrance faces northwest, and the cave is at first oriented to the southeast, and further inside to the southwest. The entrance is 2 m high (González Echegaray and Freeman, 1971).

The cave was discovered scientifically by H. Obermaier and P. Wernet in 1910. Two years later, in 1912, J. Carballo and L. Sierra carried out a trial dig, which was not published, although some time later O. Cendrero gave a description of some of the artifacts which had

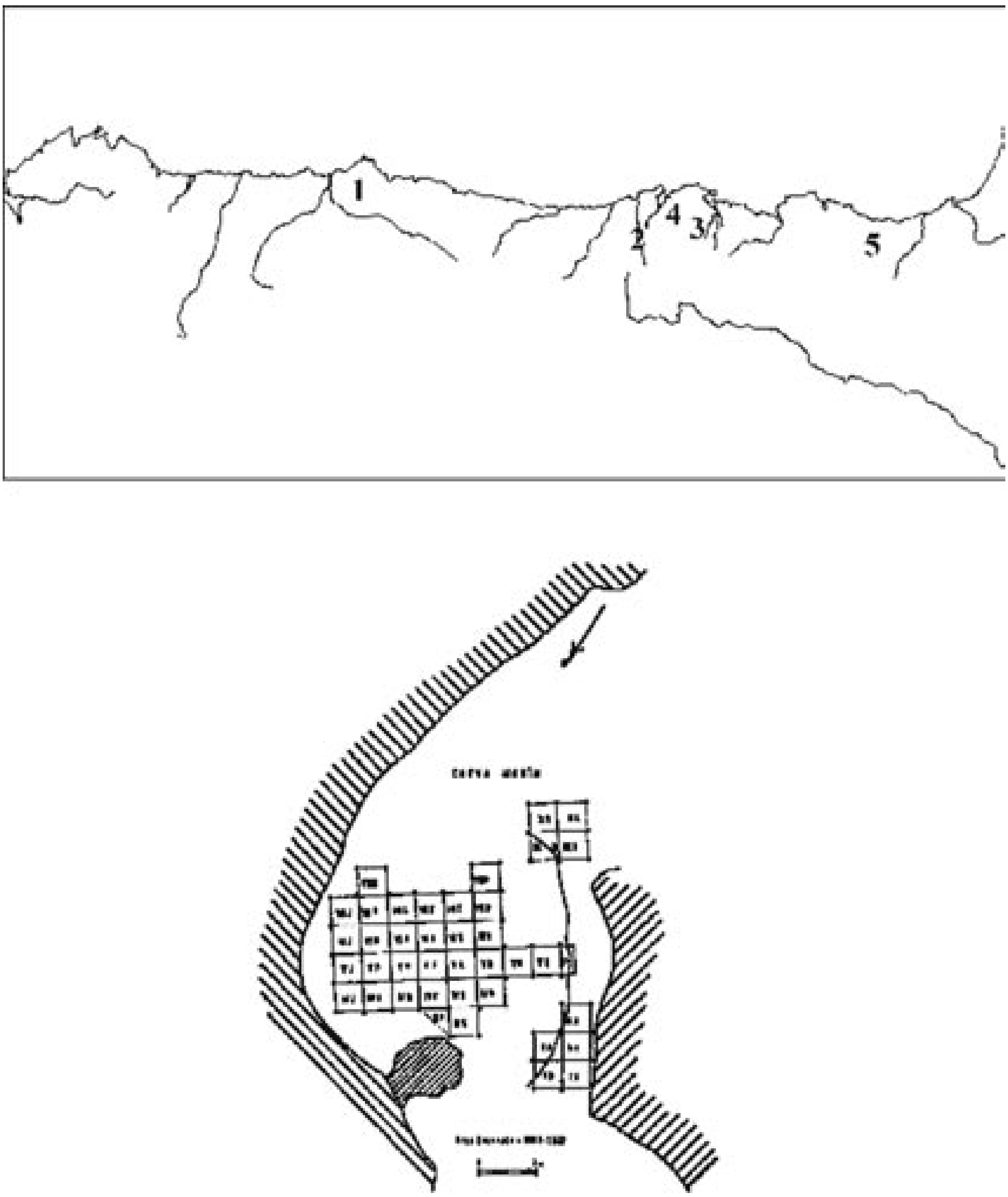

FIG. 1 – A) Map of Cantabrian Spain: 1. La Viña; 2. El Castillo; 3. El Pendo; 4. Cueva Morín; 5. Labeko Koba. B) Plan of Cueva Morín.

been excavated by the two prehistorians (Cendrero, 1915). Between 1917 and 1919, J. Carballo began a new study and carried out what can be considered as the first serious archeological work in the site. At this time, the layers of Upper Paleolithic age and two Middle Paleolithic layers were dug (Carballo, 1923). In 1918, after the first season of digs, Carballo invited the Count of the Vega del Sella to perform more excavations in the site, after he had finished his work. The results of these new studies of Cueva Morín were soon made public (Vega del Sella, 1921). However, it was not until 1966 that the site was studied again, in a series of seasons ending in 1969. These digs, by a Spanish-American team directed by J. González Echegaray and L. G. Freeman (1971, 1973, 1978), made two vital contributions to

Spanish Prehistory: first, the application of modern excavation methods, and second, the discovery of the first complete sequence between the Middle and Upper Paleolithic in Spain. This stratigraphic sequence revealed the presence of a Châtelperronian layer, and therefore the solution to the debate on the Moustero-Aurignacian (González-Echegaray, 1969; Moure Romanillo, 1969-70).

The site's stratigraphic sequence consists of 22 layers, whose assemblages are assigned as follows: layer 1, Azilian; layer 2, Magdalenian; layer 3, late Solutrean; layers 4 and 5b, Gravettian; layer 5a, Evolved Aurignacian; layers 6 and 7, Typical Aurignacian; layers 8 and 9, Archaic Aurignacian; layer 10, Châtelperronian; layers 11 to 17, Mousterian; layers 18 to 21, sterile; and layer 22, Mousterian.

The archaic Aurignacian: layers 9 and 8

Sedimentology

Layer 8 forms a single stratigraphic unit with underlying layer 9. Sedimentologically, it corresponds to reddish-brown silty-clays, with some disperse, altered gravel. It is formed of fine material transported by low energy, laminar water flow, that would occasionally be diffuse and not channeled (Laville and Hoyos, 1994).

Faunal remains

Very few faunal remains were found. In layer 8, they consist of only 22 remains, corresponding to a MNI of two individuals of *Equus caballus* and single individuals of *Capreolus capreolus*, *Cervus elaphus* and *Sus scropha*. From layer 9, the four remains belong to a bovid and a single *Equus caballus* individual (Altuna, 1971).

Bone tool assemblage

Layer 9 yielded a distal fragment of a sagaie point, probably with a split base, although it is badly degraded (González Echegaray, 1971). No artifacts in bone, elements of adornment, or symbolic objects, were found in layer 8.

Lithic assemblage: general aspects

Layer 8 is very rich in materials, both quantitatively and qualitatively. Nearly 3100 debitage products and 9462 pieces of knapping waste have been recorded. The debitage products are divided into 1010 flakes, 690 blades and 1023 bladelets.

The lithic assemblage of Layer 9 is less rich, being composed of over 1300 debitage products and over 3000 pieces of knapping waste. The former consist of 791 flakes, 178 blades and 167 bladelets.

The Aurignacian occupants of the site made use of a wide range of raw materials, including quartzite, sandstone, ophite, rock crystal, oligist, quartz and limonite. Nevertheless, the most common raw material is flint: 85% in layer 8, and 57% in layer 9.

Flint is also the material most often used to manufacture blades and bladelets. The debitage of flakes is carried out in a greater number of raw materials, and following a discoidal concept. All the stages of the *chaîne opératoire* are present in the site.

The number of retouched artifacts is 234 in layer 9, and 581 in layer 8. In layer 9, the most numerous objects belong to the substrate (sidescrapers, denticulates, splintered pieces, and notches) in a proportion of 44%. The next most important group of objects is that with continuous retouch (19%). In layer 8, the inverse pattern is found, as the objects with lateral retouch are the most numerous (25%), followed by tools from the substrate (24,7%). The group of retouched bladelets is significant in layer 9 (7%), and very important in layer 8 (20,3%).

Blade/bladelet debitage

The methods for the production of blades have been studied and known thanks to numerous research programmes in different sites, examining prismatic shaped cores (Ortega, 1998; Bon, 1998; Klaric, 1998; Chiotti, 1999). Recent studies on the production of bladelets in the Aurignacian propose three ways in which these artifacts can be obtained. These are carinated cores, burins, and prismatic cores (Schmider and Perpère, 1995; Lucas, 1997, 1999, 2000, 2001; Soriano, 1998; Chiotti, 1999, 2000; Bon, 1998, 2000; Chazan, 2001). In the Archaic Aurignacian assemblage of Cueva Morín, the morphology and technological characteristics of the objects and the cores themselves allow us to propose the existence of two methods for the production of blades.

Method I: prismatic cores

Thirty-seven examples of this type of core were found in layer 8 and fifteen in layer 9. They are made from small nodules or from flakes, and to a lesser degree, from thermoclasts or small slabs. It can be seen that there is a gradual reduction in the size of objects obtained, blades and bladelets being continuously produced along the reduction process.

Preforming of these cores is apparently simple, and debitage begins with the first blades. There is a previous morphometric preparation of the object, so that lateral crests are not found, except when the initial form is cubic, in which case some lateral crests develop, although not systematically (Fig. 2). From this first blade, the table is developed in the direction of the two flanks, due to the extraction of laminar flakes. This could explain the small number of cortical or semi-cortical blades in the collection. The objects are of different morphology, above all rectangular or square, with a certain tendency to a distal convergence.

The striking platform is prepared by extracting a core tablet, leaving a smooth and slightly concave surface. This surface is also rejuvenated in the course of the debitage, due to the numerous scars observed in the planes of percussion. These are not used when the blank of the prismatic core is a large flake. In this case, the bulbar face is used as the striking platform, and it is never rejuvenated. This gives them a very similar morphology to that of the large carinated cores (Fig. 2).

Most cores have a single debitage surface, which is developed parallel to the longitudinal axis of the object, on its widest face. This could indicate that the longest possible objects, of proportional width, were intended (depending on the limitations imposed by the size of the raw material). In the cores that have been examined, the mean size of the scars of the larger extractions is between 24,5 mm and 41 mm.

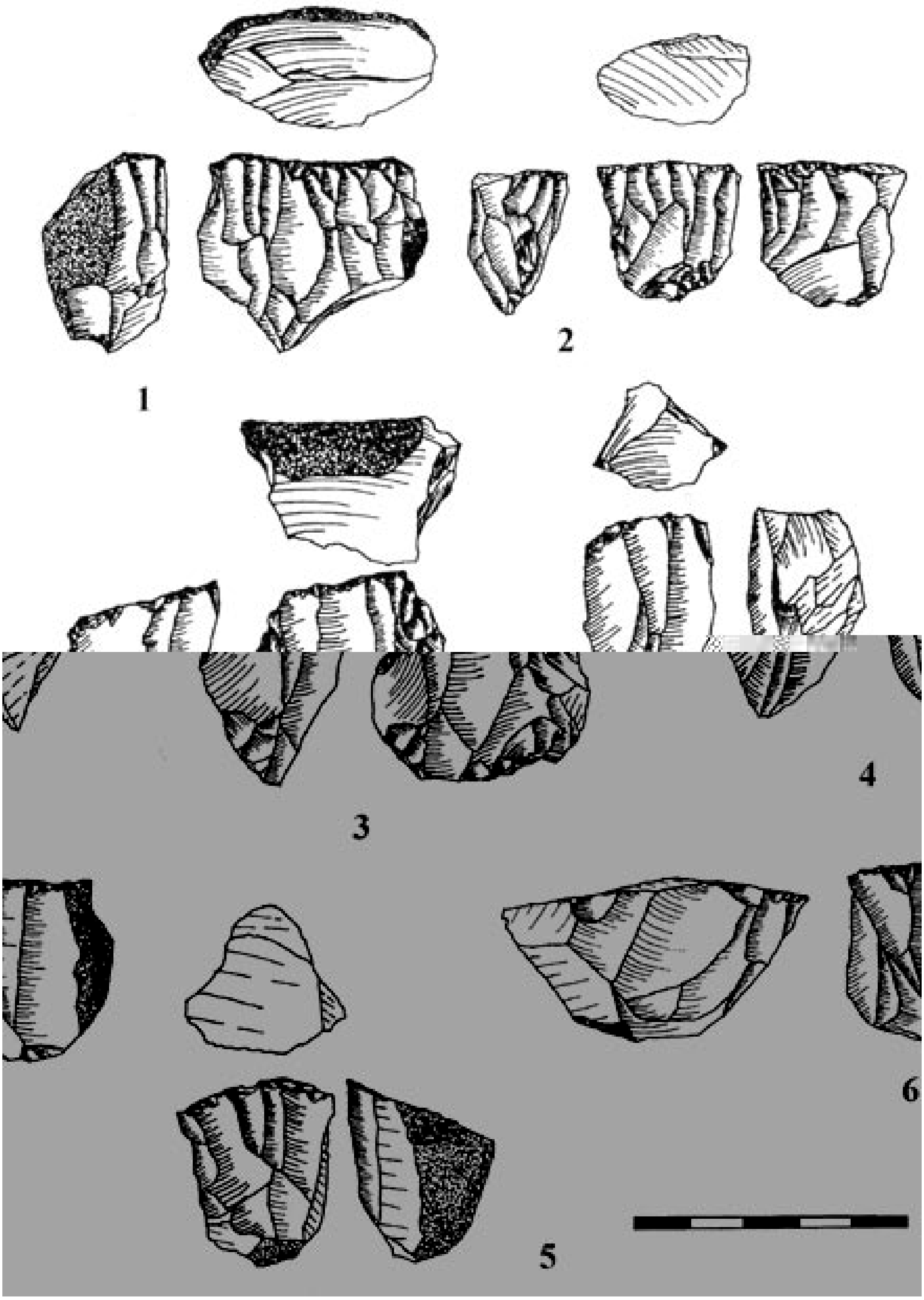

FIG. 2 – Cueva Morín, level 8. Prismatic cores.

The full debitage is unipolar, and two types of cores can be distinguished, the morphology of which is in relation to the position of the debitage surfaces. On one hand, there are cores of rectilinear shape, which show a slight curve, with parallel negatives of their dorsal face, extracted from the central part of the face and that do not cover its full length. On the other hand, there are cores with convergent scars and a definite curve in their profile (mostly in the distal part). Sometimes they have a lateral cortical face and are exploited in the contact between the debitage surface and a flank, so that the carination and curvature of the core are controlled. This can be completed (or replaced) by the creation of neo-crests or of semi-crests when the shape of the core allows it, for example when it has a cubic shape, in which case the debitage surface becomes almost perpendicular to the flank (Fig. 2, nos. 3-5).

The search for rectilinear objects can be seen in cores of this kind. In some cases, we can see a variation involving the intercalation of small straight bladelets with other, larger ones. This process of intercalation makes it possible for the small blades to be more regular and straighter, these parameters being in principle more variable in the larger blades. Nevertheless, the larger-sized blades/bladelets are not especially curved either. The reason for this could be that in some cores a basal zone is demarcated by large extractions which impede the existence of a curvature (Fig. 2, nos. 1, 3).

Most cores show a *semi-tournant* debitage, but some examples exist where it is *tournant*. Opposed platforms are rarely used and, when that is the case, only in the last stage of the core's exploitation (Fig. 2, no. 2).

In both core varieties, the edges of the cores are frequently regularized and reduced by small extractions or abrasion. Preparation products not only correct the carination and curvature of the debitage surface, but also, in many cases, are used to correct the lay-out of the guiding ridges or to recondition surfaces damaged by knapping accidents (generally, hinge fractures).

Many cores show serious knapping accidents or do not have the right morphotechnical conditions to be able to continue with debitage (inappropriate carination and curvature), which causes production to be halted. However, there are other apparently "apt" cores in which production was also halted. This fact suggests that the end of production could be linked in some way to economic aspects. Perhaps working of the smaller cores was not useful for these Aurignacian groups.

Method II: carinated cores

Many articles based on the observation of archeological material (Lucas, 1997, 2001; Chiotti, 1999; Bon, 2000; Chazan, 2001), as well as on experimentation (Soriano, 1998; Lucas, 2000; Chiotti, 1999; Hays and Lucas, 2001) have dealt with the description of quantitative and qualitative aspects of bladelet production using this method.

At Cueva Morín, carinated cores (52 examples in layer 8, and 11 in layer 9) are made from flakes or from termoclasts (28 in layer 8, and 8 in layer 9), but also, marginally, on small slabs or on blades. In all cases, the blank is morphometrically adjusted to the type of exploitation to be carried out. When the object is a flake or a blade, the bulbar face is used as the striking platform, and the extraction face is developed at the distal end or on one of the sides (Fig. 2). In the case of the termoclasts, the relationship between the striking platform and the face depends on the natural characteristics of the object.

Exploitation is initiated using the intersection between the flanks and the debitage surface. A notch or a lateral crest creates a ridge from which the extraction of bladelets can be

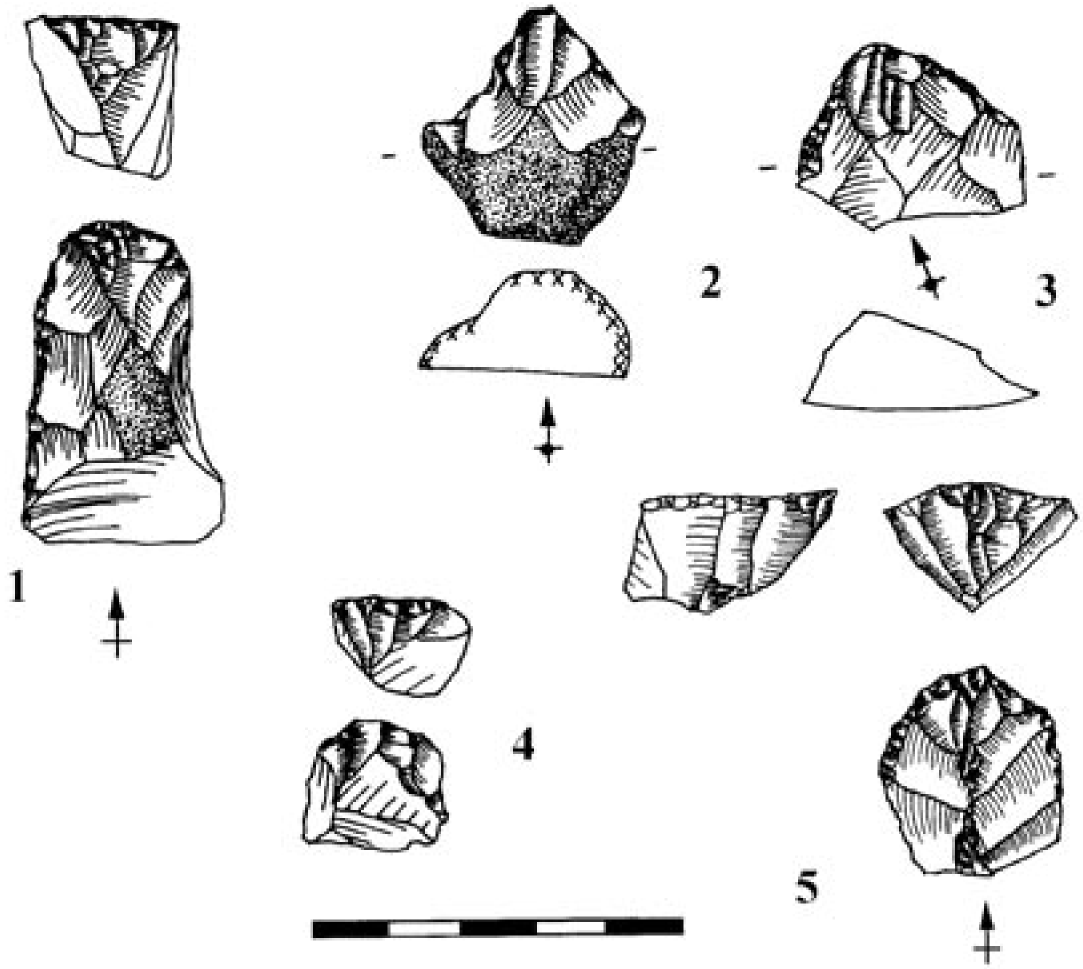

FIG. 3 – Cueva Morín, level 8. Carinated endscrapers.

developed. After having been prepared in this way, the face takes on a rectangular or triangular shape, and is generally laterally deviated towards the side where the notch or crest was made. The face is noticeably oblique in relation to the plane of percussion.

Debitage is unipolar. This type of exploitation requires the frequent reconditioning of the ridge surrounding the face, using conditioning flakes which reprepare the curvature. Numerous flakes of this type have been recognized during the study of the collection. In a single case, the carination is also controlled by means of a distal crest (a variation widely known in other collections, such as Tuto de Camalhot — Bon, 2000), as can be seen in Fig. 3 (no. 5). On occasions, the correction of the carination and curvature of the face is carried out by means of distal neo-crests whose preparation scars are very small and leave no marks on the core-scraper (Fig. 4, nos. 17-19).

Torsion bladelets are typical of this type of exploitation. They are the result of the extraction of objects along the ridges generated by the contact between the face and the scars of the lateral preparatory notches. This makes them appropriate for producing Roc-de-Combe type bladelets, which are not particularly numerous in our series (only eight retouched bladelets are of this type in layer 8, and none in layer 9), whereas there are 67 examples among the unworked objects. In any case, their proportion is very small in comparison with the total number of bladelets in the layer.

Most of the extracted bladelets display, as said earlier, a curved profile, whereas torsion is less characteristic. The objects showing these characteristics could have been made from

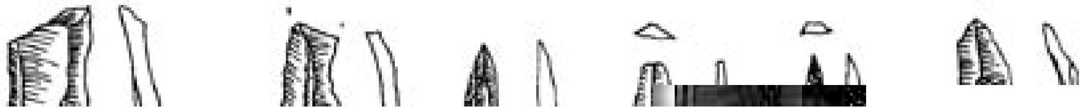

FIG. 4 – Cueva Morín, level 8. Unretouched bladelets.

carinated endscrapers which were extracted from the centre of the face and not from the side, in contact with the edge. This fact has been proved on numerous occasions, both archeologically (Bon, 2000) and experimentally (Lucas, 1999). The regularity and width of the objects could be related to the size of the face, which is considerable in the studied collection.

It is difficult to appreciate the degree to which carinated endscrapers were used, due to the heterogeneity of their measurements. But most of them display knapping accidents, mostly hinge fractures, which impeded further debitage (Fig. 3). In spite of their large number, these cores do not play an important role in the production of bladelets, retouched or unretouched, as suggested by the fact that number of bladelets characteristic of this type of exploitation is not large (Fig. 4, nos. 12-14).

The role of burins in the production of bladelets

Burins do not play an important role in the production of bladelets in these layers. None belong to the categories normally accepted as possible bladelet cores (busked and carinated). By observing the number of extractions they have, it can be seen that in layer 8 only two thirds have one or two bladelet scars (a fact corroborated also by the burin spalls, most of which are of first and second order). Their length suggest that small bladelets were produced (with a mean length of 19,9 mm). Therefore, after examining the morphology of these extractions, their rarity, as well as the simple preparation of the striking platforms, we have preferred not consider that these artifacts were involved in bladelet production.

Summary

To recapitulate, the production of bladelets in the Archaic Aurignacian of Cueva Morín is characterized by the following aspects:

a) There is a continuum between the production of blades and bladelets.
b) The most usual method of exploitation is with prismatic cores worked in a unipolar way.
c) The preforming is simple, and consists of a simple preliminary morphometric preparation of the shape; debitage begins with the first blades opening an exploitation surface; the striking platforms are prepared and rejuvenated during the debitage process through the extraction of core tablets.
d) Two types of artifacts are obtained:

- straight bladelets which are regular in form and would be obtained from the center of the face;
- bladelets with a curved profile, especially at the distal end, and with lateral cortex (which could be substituted by neo-crests), obtained at the intersection between the debitage surface and the core flank (Figs. 4-5); the purpose of these extractions is to control the curvature of the surface, allowing the core to reach the right shape for the production of bladelets of the first type.

e) The bladelet blanks are used to make Dufour bladelets of the Dufour subtype; retouched blades are of more diverse typology.

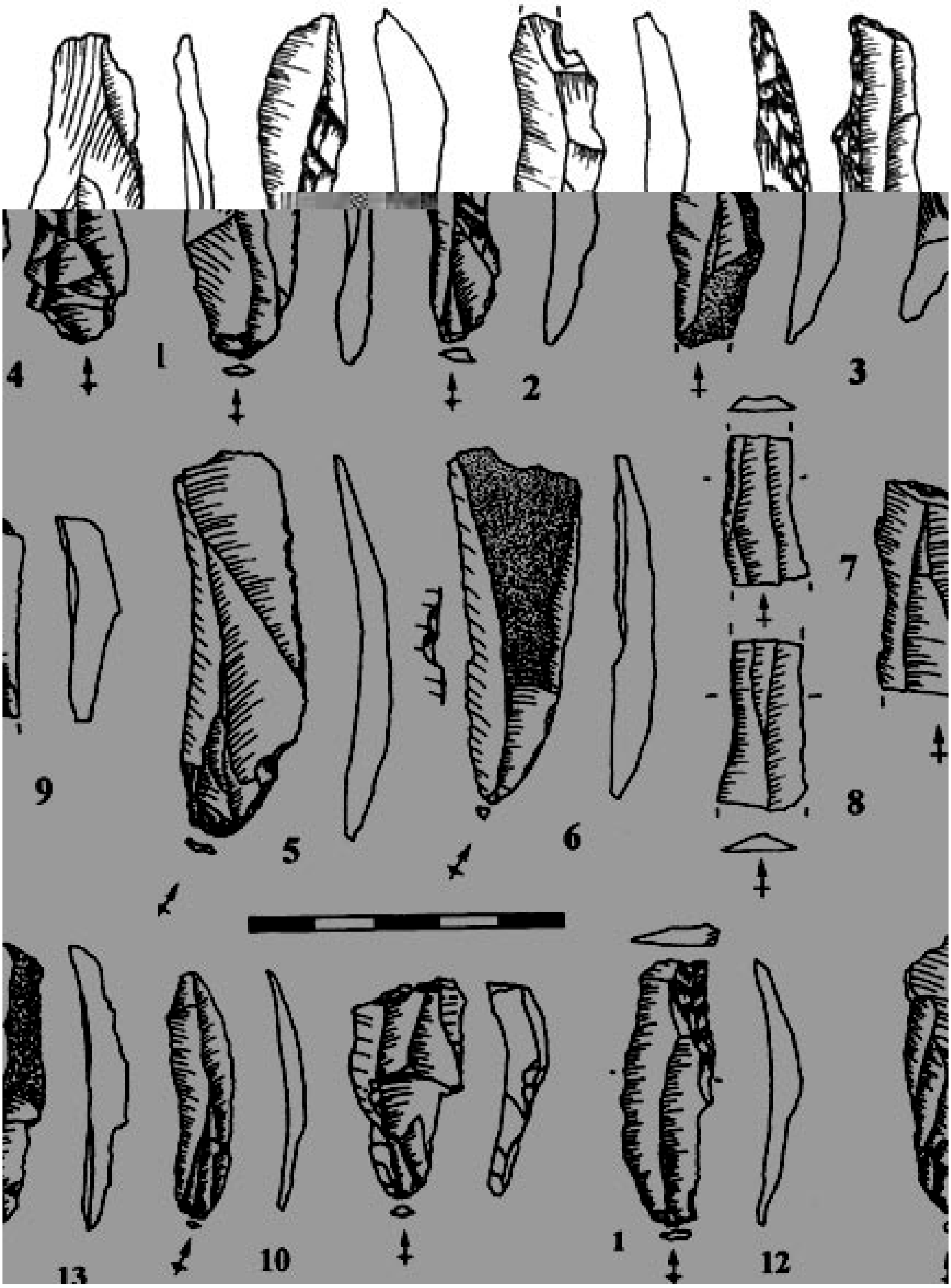

FIG. 5 – Cueva Morín, level 9. Retouched and unretouched blades.

Flake production

Flakes are a common component of the lithic assemblage in the Archaic Aurignacian from Cueva Morín. Layer 9 has 660 unworked flakes and 131 retouched flakes, whereas layer 8 has 768 unworked flakes and 234 retouched ones. Although some of these flakes come from the shaping out of the blade cores, most result from a discoidal concept of debitage. Regarding the cores, we have fourteen examples from layer 9 and three from layer 8 (Fig. 7).

The raw-materials are quite diverse, although sandstone and ophite are frequently utilized, as this is the only method used to knap these materials. We also find this type of production in quartzite, limestone and flint. The objects worked are cobbles or small slabs; only rarely are flakes used, in which case the ventral surface is exploited.

All the discoidal cores were exploited with unifacial methods, which is to say that exploitation is carried out from a single surface. The cores therefore show a hierarchy: one surface acts as the striking platform, and the other as the surface of exploitation. The latter is prepared by a series of secant, non-invasive extractions around the whole perimeter of the core. When the angles have the right conditions, the natural surface of the core is kept. The core is not decorticated prior to working; hence, the first products of discoidal knapping have a dorsal surface partially or fully with cortex.

The artifacts obtained with this method of production have been repeatedly described in numerous papers (Boëda, 1988, 1993, 1994, 1995). Two debitage directions can be observed in this kind of working: centripetal and cordal. These two forms maintain a paradoxical relationship, since centripetal removals eliminate the convexity required by the method, whereas cordal removals rejuvenate it (Fig. 6).

Typical centripetal flakes are wider than longer, and square in shape. Cordal flakes, in turn, are pseudo-Levallois points, *débordant* flakes and *à dos limité* flakes (Meignen, 1993), very common in our collection. They are not usually prepared on the obverse face, and when they are it is usually by means of small extractions (Figs. 6-7).

In the final phases, the exploitation surface flattens, giving the cores a morphology similar to that of recurrent centripetal Levallois. One of the cores from layer 9 has extraction scars that can be described as laminar; in this same core, the last extraction was bifacial (Fig. 7, no. 3). The exploitation of flakes ends when the core is used up, as well as a result of knapping accidents such as hinging.

In sum, flake production in the Archaic Aurignacian of Cueva Morín has the following characteristics:

a) Flake production takes place under debitage methods with a discoidal concept.
b) The discoidal method used is unifacial; preforming is simple, a debitage surface being exploited from a peripheral striking platform.
c) The artifacts obtained are typical of this kind of exploitation, with two directions, cordal and centripetal.
d) The blanks are mostly used to manufacture artifacts of the substrate (sidescrapers, denticulates and notches), but also endscrapers, or pieces with lateral retouch.

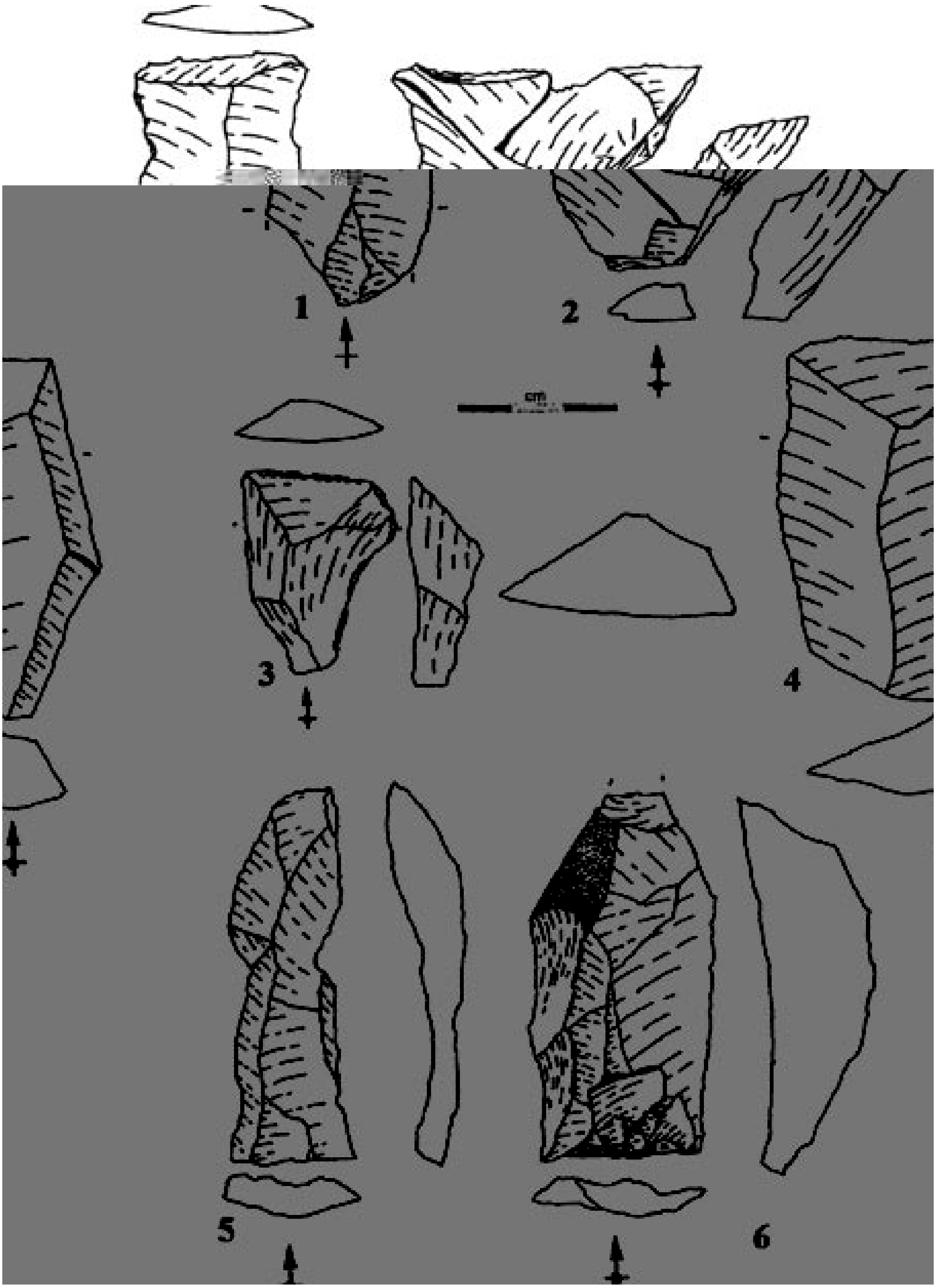

FIG. 6 – Cueva Morín, level 8. Discoidal flakes.

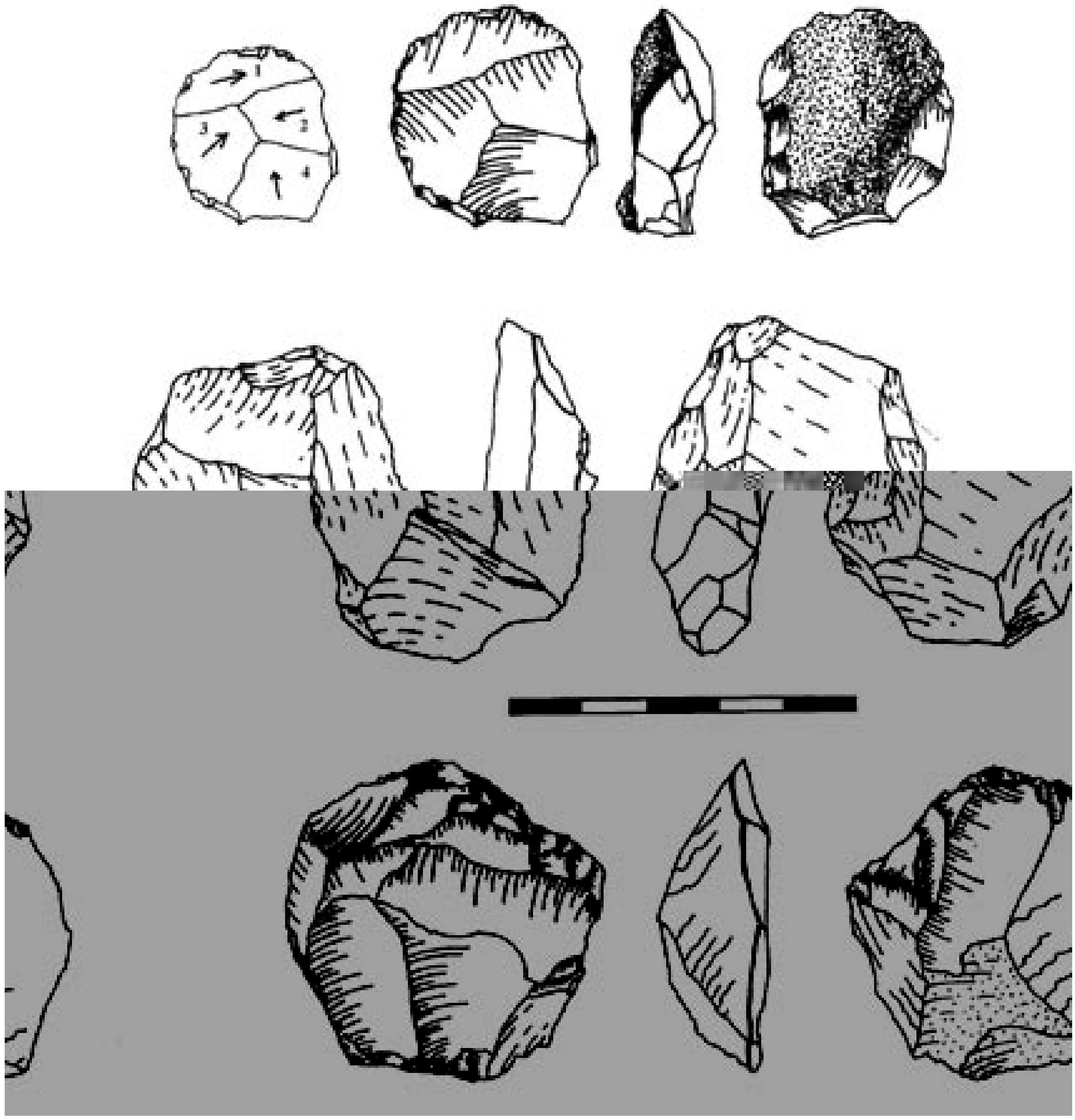

FIG. 7 – Cueva Morín, level 9. Discoidal cores.

Production goals

The production of lithic tools is clearly differentiated, according to the type of blank intended. In this way, blades and, above all, bladelets are produced from cores with prismatic morphology, worked with a unipolar approach. In contrast, flakes are made with a discoidal debitage concept, using the unifacial method.

Together with this dichotomy in the production of blanks, we find a dichotomy in the use of these blanks in the assemblages of retouched tools from both layers. Bladelets were used almost exclusively for the manufacture of Dufour bladelets, subtype Dufour (Fig. 8). Blade blanks had more varied uses, mostly for pieces with lateral retouch, as well as burins and endscrapers (in the latter case, in similar proportions to flakes). This is seen most clearly in layer 8, where retouched blades are more abundant. The massive use of bladelets for a single type, and the diversity of typological categories manufactured from blades, shows, from our point of view, that laminar production had a clear goal: bladelets.

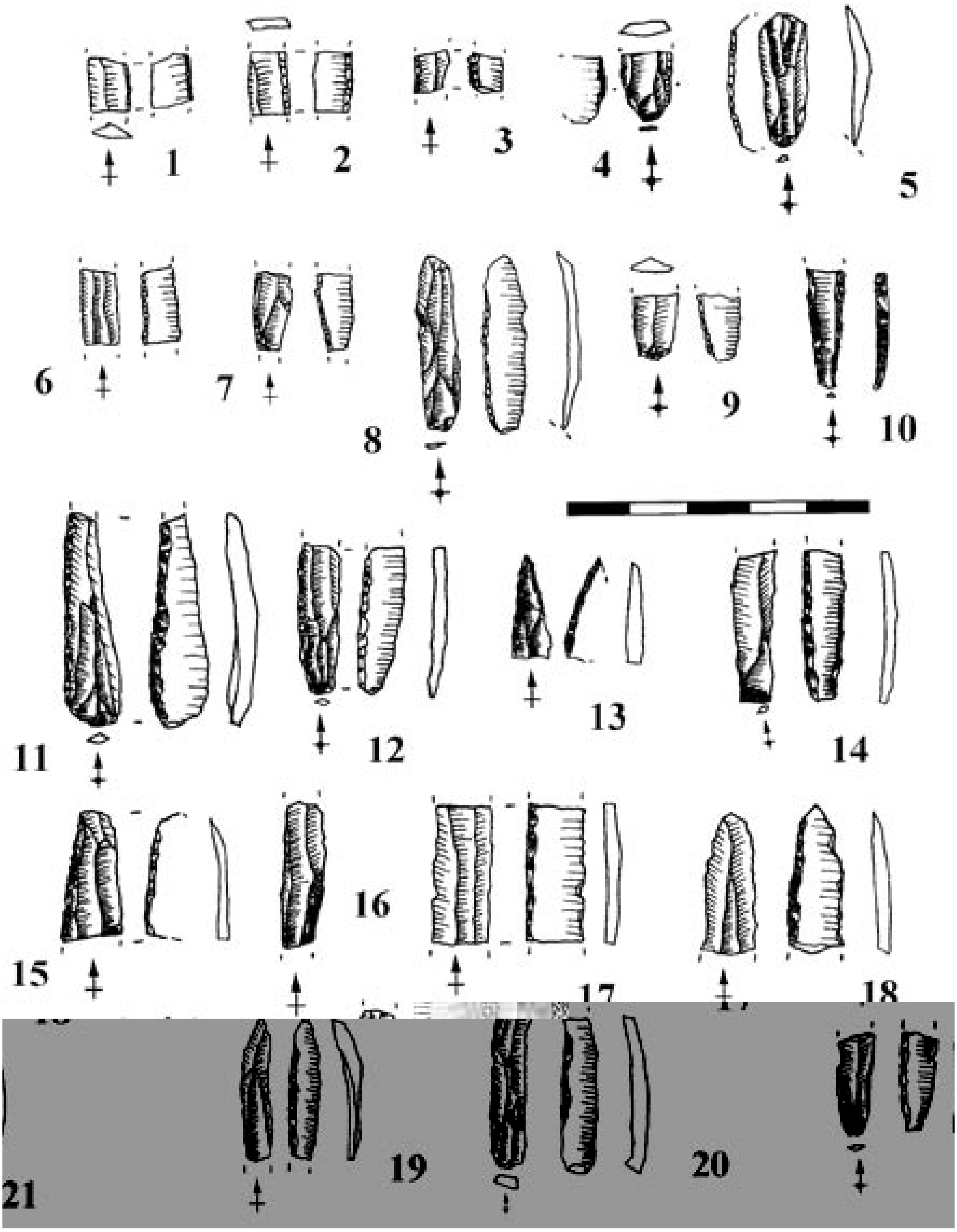

FIG. 8 – Cueva Morín, level 8. Dufour bladelets.

On the other hand, flake production was aimed at artifacts not as long as the blades, and "massive", i.e. thick and broad. We think that this desire for robust blanks is related to the function for which these elements were used. Furthermore, it must be pointed out that the flakes from the discoidal exploitation of sandstone and ophite are much larger and not retouched, possibly because they were used in unmodified form.

Cueva Morín in the context of Cantabrian Spain

Very few stratigraphies in Cantabrian Spain have levels from the beginning of the Upper Paleolithic. The sites with occupation layers that can be ascribed with a degree of certainty to the first phases of the Aurignacian are Labeko Koba in the Basque Country (Arrizabalaga, 1995; Arrizabalaga and Altuna, 2000), El Castillo in Cantabria (Cabrera, 1984), and La Viña in Asturias (Fortea, 1995, 1999). There are other sites where the archeological evidence does not allow us to be so sure about their chronology: Otero (layers 8 and 7), Covalejos and El Pendo, in Cantabria; Venta de la Perra, Polvorín, Ekain, Usategui and Lezetxiki, in the Basque Country (Fig. 1).

There are similarities between all these sites from both the technological and the typological points of view. At Castillo (layer 16) and Labeko Koba (layer VII), the same debitage method was applied: production of blades/bladelets from prismatic cores worked in a unipolar way, with a continuum in the production of blades and bladelets from the same prismatic cores as they became reduced in size. The blanks obtained are straight, non-twisted blades, with the extraction of *débordant* blades to maintain the core curvature. In all cases, the bladelets are the goal of the production. Typologically, the Dufour bladelets, subtype Dufour, are the most characteristic element in all these sites. In this group, we should also catalogue the assemblage from layer XII at La Viña (Fortea, 1999). Where the other typological categories are concerned, there is more variation, for example in Labeko Koba VII the burins predominate and pieces of the substrate are rare, the opposite of the situation in Morín levels 8 and 9.

Comparing the Archaic Aurignacian at Morín with the sites in Aquitaine, we find some important differences. Blades are be made with similar operative systems, but bladelet production is radically different, as is in the Aquitaine sites it uses carinated cores, as is the case at Brassempouy, Garet, Corbiac-Vignoble, Pataud or Barbas, although in the latter site bladelets are also made from prismatic cores (Tixier and Reduron, 1991; Ortega, 1998; Klaric, 1998; Chiotti, 1999; Bon, 2000). In none of these sites is there a continuum between blade and bladelet production.

In fact, the Archaic Aurignacian of Morín shows greater similarities with the Archaic Aurignacian or Proto-Aurignacian of the Mediterranean area. If we compare this site with others like Arcy-sur-Cure (Bon, 2000; Bon and Bodu, 2002) or, in the Mediterranean proper, L'Arbreda (Ortega et al., in press), Esquicho-Grapaou, La Laouza (Bazile et al., 1981; Bazile and Sicard, 1999), Riparo Mochi or Fumane (Bartolomei et al., 1994; Broglio et al., 1996; Kuhn and Stiner, 1998; Khun and Bietti, 2000), the similarities are important. At the technological level, except at L'Arbreda, there is a continuum between blade and bladelet production from prismatic cores worked with a unipolar method, with *débordant* blades to control the carination of the core, and extraction of straight blades in the middle of the surface. From a typological point of view, Dufour bladelets of the subtype Dufour are amply represented.

In the same way, similarities can be found with the sites of Gatzarria (Laplace, 1966; Sáenz de Buruaga, 1991) and Isturitz (Normand and Turq, in press). The former has two Proto-Aurignacian layers (Cjn1 and Cjn2). The first of these has recently been reclassified as early Aurignacian, whereas Cjn2 would not be classed as Proto-Aurignacian, nor does it bear relation with the Mediterranean Region (Bon, 2000). Cjn2 is in fact different from all the other in the morphological similarity of the carinated endscrapers and the bladelets with those of layers higher up in the sequence; it shows great similarity with Labeko Koba VII in that the percentage of burins is higher than that of endscrapers. It should not be forgotten that in series from Cantabrian Spain, it is less difficult to see similarities between levels from any given site than between different contemporary sites. Finally, to judge from the figures published for this site (Laplace, 1966; Sáenz de Buruaga, 1991), we think there are not sufficient arguments to decide one way or the other, but that Cjn2 of Gatzarria cannot be far removed from the Cantabrian Archaic Aurignacian.

Layer C4d is at the base of the Aurignacian sequence of the second site, Isturitz; it features laminar production based on prismatic cores with *débordant* blades/bladelets, and a large proportion of Dufour bladelets in the retouched assemblage, just as in Morín 8 and 9. Two dates are available for this layer, 34 630±560 BP (Gif-98237) and 36 650±610 BP (Gif--98238) which could place the base of the Aurignacian sequence in a similar time to the layers Morín 8 and 9, and La Viña XII. However, the area that has been dug is too small for this hypothesis to be proved, and it is not impossible, according to the excavators of this site, that there was a degree of local originality at that time (Normand and Turq, in press).

Bone assemblages must also be taken in account when classifying Aurignacian layers. The split-based sagaie point has traditionally been associated with the early Aurignacian or Aurignacian I. However, this type of sagaie points appears in numerous layers catalogued as Archaic Aurignacian or Proto-Aurignacian. Such is the case of L'Arbreda H, Fumane, or layer 9 of Cueva Morín, where a distal sagaie fragment has been classified in this way (González Echegaray, 1971). A similar situation pertains in layer XIII of La Viña (Fortea, 1999).

There are few absolute dates for the Archaic Aurignacian in Cantabrian Spain. Only La Viña, Labeko Koba and Morín have radiocarbon dates. Those from Labeko Koba are on bone, and the others from charcoal. In the 1970s, a series of dates were obtained from Cueva Morín which gave quite incoherent results (Stuckenrath, 1978). Recently, new dates have provided more precise data on the chronology of the site and, more exactly, on the chronology of the Archaic Aurignacian in the region (Valladas et al., in press). As can be seen in Table 1, the new date from layer 8 in Cueva Morín is similar to that from La Viña XIII, which means (if the assemblage from La Viña is Archaic Aurignacian) that this lithic complex was fully implanted in the region by 36 000 BP. Therefore, these sites are directly related with the Mediterranean Proto-Aurignacian. The dates from Labeko Koba VII could reflect the duration in time of this complex, or that these dates have some taphonomic problems (Arrizabalaga, 2000).

Discussion

The Archaic Aurignacian identified and described for Cueva Morín (layers 9 and 8) shows, from a technological point of view, close similarity with other sites in the region, such as Labeko Koba VII or Castillo 16. Typologically, in spite of a certain internal variability, these sites have elements in common, such as the great importance of microlaminar tools, especially Dufour bladelets of the Dufour subtype. The first Aurignacian layers in La Viña are similar in this respect. Chronologically speaking, Cueva Morín and La Viña have similar dates, around 36 500 BP.

These technological and typological elements relate both Cueva Morín and the other Archaic Aurignacian or Proto-Aurignacian sites (*sensu* Laplace) with those in the Mediterranean area, such as L'Arbreda, La Laouza, Esquicho-Grapaou, Fumane, Riparo Mochi, or Arcy--sur-Cure, although the latter site is outside that region. This Cantabrian-Mediterranean relationship accentuates the dichotomy existing between the Proto-Aurignacian and the early Aurignacian of the Aquitaine, both geographically and technologically (Bon, 2000). This situation regarding the beginning of the Aurignacian is further revealed by the older age of the Archaic Aurignacian: sites such as Fumane or L'Arbreda have been dated to between 42 000 and 36 000 BP, whereas the oldest date for the early Aurignacian comes from Castanet, whose basal layer has a date of 35 200±1100 BP (Bon, 2000).

The route communicating the Archaic Aurignacian of Cantabrian Spain with the Mediterranean region is still unknown. There are two possible ways: 1) via the north of the Pyrenees, or 2) up the Ebro river valley. No evidence has been found along either of these routes to indicate its possible use, although the Ebro valley has not been explored so systematically as the area north of the Pyrenees. Furthermore, the only sites that could be related with the Cantabrian Archaic Aurignacian are Gatzarria and Isturitz, and the data they provide do not clarify the situation. But the latter site, Isturitz, has flint that was brought in from the Ebro valley (Normand and Turq, in press).

The role played by elements that are called "archaic" or "substrate" in Aurignacian lithic collections from Cantabrian Spain is one of the most diagnostic features of this complex. As we have seen, the flake production method in Cueva Morín using a discoidal concept is very important, not only in the two layers belonging to the Archaic Aurignacian, but also in the Châtelperronian of layer 10. This importance has also been observed in Castillo 16, Labeko Koba VII, or Gatzarria Cjn2. The appearance, especially in Cueva Morín, of discoidal debitage, together with numerous substrate tools (sidescrapers, endscrapers and notches) should make us consider the extent to which earlier technological traditions were inherited. However, the study of flake debitage is all too often neglected in Upper Paleolithic research (Bracco, 1999). In the case of Cueva Morín, this type of exploitation on such a large scale, and in all kinds of raw materials, indicates a reality which allows these assemblages to be related to previous ones (Châtelperronian, or even final Mousterian).

Finally, following the technological identification and character of the beginning of the Aurignacian in Cantabrian Spain, we consider it is correct to maintain the name of Archaic Aurignacian, not only for the sites along the Cantabrian coast, but also for those in the Mediterranean region. This is due to the fact that the term Proto-Aurignacian has certain interpretative connotations which it should not lose, although de facto it has already been stripped of them.

TABLE 1

Radiocarbon dates for the Archaic Aurignacian of Cantabrian Spain.

Site	*Level*	*Method*	*Lab N.°*	*Result*	*Source*
La Viña	XIII	AMS	Ly-6390	36 500±750	Fortea, 1999
Morín	8	AMS	GifA-96263	36 590±1100	Maíllo et al., 2001
Labeko Koba	VII	AMS	Ua-3321	31 455±915	Arrizabalaga, 2000

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