

AMALDA CAVE

SUMMARY

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The excavation and subsequent analysis of the prehistoric site of Amalda was part of a wider project which involved the study of a series of neighboring sites, including Ekain (ALTUNA and MERINO 1984), Arbil (Altuna and ARESO 1977), Erralla (ALTUNA, BALDEON and MARIEZKURRENA 1985), etc., in order to determine the existence or lack of relations among them.

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The cave of Amalda is located in Cestona at an altitude of 110 m. above the floor of a narrow valley and 205 m. above present sea level, at a distance of 8 air km. from the modern coast at Zumaia.

The cave has a large mouth (12 m. wide by 7 m. high) and consists basically of a 50 m. deep gallery. The archeological excavation, directed by J. ALTUNA, was carried out in 1979-84 in an area of 124 m² in the outermost 32 m. of the gallery. At the base of the stratigraphy in Amalda Cave there are several sterile levels rich in terrace deposits with cobbles and gravels alternating with plastic clays.

The first archeological level (VII) has a clayey-silt matrix, with palynological and sedimentological evidence of a slight cooling *vis a vis* the underlying deposits but still more temperate than the rest of the Paleolithic layers in the cave. The absence of collagen in the bones has so far prevented radiocarbon dating, but at the present time we suggest that Level VII may have formed in the early Wurm, overlying deposits of the Last Interglacial.

The lithic artifacts from Level VII are distributed among several groups which illustrate the processes of manufacture and reworking of the tools, which make up 9.7% of the whole assemblage—a higher proportion than in other Cantabrian Mousterian collections. Nonetheless, Amalda gives a good picture of the lithic reduction sequence, part of which probably took place in the cave. The raw materials are varied, since although 90% of the artifacts are flint, there are also pieces of sandstone, quartzite, quartz, ophite, limonite and other rocks. The technology is non-Levallois and non-facetted. The sizes of the pieces are closely related to raw materials; although the retouched tools are of medium size, those made of rocks other than flint are larger.

In regard to typology, the great variety of primary tool types is noteworthy. There are few Levallois tools (2.1%) for a Typical Mousterian assemblage, but this is also true

in other analogous Cantabrian Mousterian assemblages. Group II, along with the presence of Mousterian points and a limace, has an essential sidescraper index of 43.8%, situating this assemblage within the category of a sidescraper-rich Typical Mousterian. The essential Upper Paleolithic tool group index is 15.5%, as in other Cantabrian assemblages. Burins, endscrapers and perforators occur in practically the same proportions. Most of the knives are naturally backed. The Group IV index is high (25.6%), with many notches. In addition to the flake tools, there are 2 bifaces, 2 chopping tools, 2 choppers and a possible cleaver, all made on hard, non-flint rocks.

In sum, the Amalda Mousterian can be described as a Typical Mousterian rich in sidescrapers and with the presence of a few bifaces. The overall impression is of a habitation level, given the evidence for lithic manufacture, tool resharpening, the use of pigments, the lack of assemblage specialization, the presence of burned bones, etc.

The Level VII ungulate fauna includes a high percentage of *Rupicapra rupicapra* (chamois), followed by *Cervus elaphus* (red deer), *Capra pyrenaica* (ibex), Bovini (bison/aurochs), *Equus ferus* (horse) and *Capreolus capreolus* (roe deer). The bovines and red deer would have provided more meat than the chamois (if entirely utilized). Carnivores, especially *Ursus spelaeus* (cave bear), are abundant (as in other Mousterian deposits of the region), which brings up the problem of their participation in the bone accumulations of Level VII. However, upon analysis, it is concluded that the carnivore role was limited *vis a vis* that of the hominids.

Body part analysis of the hunted animals in the site shows that the chamois are represented by all anatomical elements, including large numbers of vertebrae and ribs. However the other ungulates, all larger than chamois, are different. The difficult accessibility of the cave helps explain why although chamois were brought in whole, the other ungulates were butchered at kill locations or at the foot of the slope below the cave and only the most valuable parts were brought up to the site. Three remains of salmon (*Salmo* sp.) and 13 marine mollusc shells (*Littorina* and *Patella*) round out the subsistence evidence.

Level VI, with a silty matrix and many limestone blocks and stones, shows evidence of marked climatic cooling relative to Level VII, although it continued to be humid. These indicators, together with the artifact assemblage (Perigordian V with many Noailles burins) and the

radiocarbon dates ($27,400 \pm 1,000$ and $27,400 \pm 1,100$ BP) would tend to place the deposit in the cold phase of Wurm III between the warm oscillations of Kesselt and Tursac.

The lithic artifact assemblage, which is well preserved, is made overwhelmingly on flint. The number of tools (including lightly retouched flakes and blades) is high relative to the total assemblage (18%). This suggests that relatively little flint knapping was done in the cave (or at least in the area excavated). The tools include a massive representation of Noailles burins (28.2%), but the endscraper index is low (10%) and many of these pieces are atypical; there are none on blades, although there are some nosed, flat and keeled endscrapers. There are 5 Dufour bladelets and among the other tools there are naturally and retouched backed knives. The only osseous artifacts are perforated teeth used as pendants.

the animal food subsistence base relied on specialized chamois hunting, an exceptional phenomenon since Upper Paleolithic subsistence in northern Spain was normally based on specialized red deer and ibex hunting, depending on site topographical locations. Reindeer is also present in this level, as is arctic fox (*Alopex lagopus*- this being the first published find in the Iberian Peninsula); both are further evidence of cold climatic conditions in Level VI times. The numbers of carnivores decrease sharply in this level, as is typical in the Cantabrian Upper Paleolithic.

There are also three vertebras of *Salmo* sp. and 44 marine molluscs. The shells are almost all small (*Littorina saxatilis*, *L. rudis*, *Trivia*), so they were probably collected as ornaments, not for food, although a few are perforated.

The interface between levels VI and V is dated to $19,000 \pm 340$ B.P. (I-11.663).

Level V has a sedimentary matrix similar to the underlying stratum, although a little more compact and containing many fewer blocks and stones. The sedimentological and palynological analyses indicate the existence of somewhat more temperate climatic conditions. However the study of the micromammals seems to contradict these indications, due, on the one hand, to a less diverse faunal spectrum and, on the other, to the absence of some woodland species. Based on the former analyses together with a radiocarbon date of $17,880 \pm 390$ B.P. and attribution of the industry to the "Protomagdalenian", we are inclined to assign this evidence of temperate conditions to the Laugerie-Lascaux interstadial.

The Level V lithic assemblages bears some similarities to assemblages labelled "Protomagdalenian" by F. BORDÈS in the DORDOGNE. Endscrapers are few (IG = 2.9%), but perforators are relatively abundant (IP = 4.38%) and the burins form a numerically very significant group (IB = 25.5%). Dihedral burins outnumber truncation burins. The abundance of backed bladelets (ILD = 23.5%) is striking, as is that of microgravettes (5.98%). However, in contrast to Level VI, there are neither DUFOUR bladelets nor backed knives. The general appearance of the industry is "Magdalenian-like", with many burins, perforators and backed bladelets. This fact, together with the stratigraphic position of Level V (above a Perigordian V and below a level with Solutrean points), could lead to its assignment to the Perigordian VII or "Protomagdalenian", which would be the first time such an attribution is made in the Basque Country. (However, it could also be a "Solutrean"

assemblage without points, by analogy with several assemblages at La Riera Cave in Asturias, for example, in which $IB \geq IG$ and perforator and backed bladelet indices are relatively high, despite radiocarbon ages in the range between 20,500-17,000 B.P. and chronostratigraphic assignment to Laugerie-Lascaux.)

The ungulate fauna is similar to that of Level VI, with the exception of reindeer, which is absent here. Carnivores are less numerous than in Level VII. There are again a few salmonid remains and mollusc shells (*Littorina*).

The Paleolithic stratigraphic sequence at Amalda ends with Level IV. With a compact, clayey matrix containing many cryoclastic limestone blocks and spalls (*éboulis*), this deposit indicates the existence of cold, relatively dry climatic conditions. The palynological analysis, which showed an increase in arboreal vegetation in Level V, testifies to a decrease in Level IV and indicates the replacement of ferns by *Cicoriaceae* in mid-Level. There are however signs of more moderate conditions in the upper part of the deposit. The lower half of the level could have formed during the cold phase between Laugerie and Lascaux or in an early cold phase of Dryas I. The micromammals also indicate a warming trend in the upper part of Level IV. The stratum is dated by three radiocarbon determinations: $17,580 \pm 440$, $16,200 \pm 380$ and $16,909 \pm 240$ B.P.

The Level IV industry is characterized by the appearance of large numbers of debitage items, core remnants, decortication flakes, splinters and other debris from the knapping process. The tools are more varied and the workmanship exhibited in the retouch of "domestic" implements is good. The pieces which define the cultural affiliation of this level are two shouldered Solutrean points. However, as is common in Basque Solutrean sites, there are also Noailles burins, as well as a Chatelperron knife and numerous backed bladelets and micropoints. So there are still many "Perigordian" tool types in this (by definition) Solutrean context.

Level IV also yielded some bone tools (unlike Level VI). These include sagaies or points of a variety of cross-sections: circular semi-circular, oval and quadrangular. There are also perforated teeth and shells, spatulas, needles, etc. Comparison with other Solutrean sites of the Basque Country leads to an attribution of the Amalda deposit within the "Upper Solutrean," which could have formed very late-contemporary with other levels labelled "Magdalenian." The fauna is essentially the same as in Level VI and also includes reindeer.

Level III was deposited after a long sedimentary hiatus; it is a post-glacial level with Chalcolithic burials. The lithic industry includes bifacial, invasively retouched, centrally tanged points. The presence of a copper dagger indicates the late age of the Amalda Chalcolithic, whose inventory is rounded out by some discoidal beads, *Dentalium* shell and a series of plain potsherds-plus one piece of ceramic decorated with a digitated cord motif and another with a wavy line decoration. The livestock is dominated by sheep-goats in terms of numbers of identifiable remains, but cattle would have supplied the most meat. Pig is in third place.

Levels II and I pertain to late Roman occupations, as defined by the presence of common Roman ceramic pots with dark paste, flat bottoms, curved sides, and comb-

decorated surfaces. the age of such vessels is well established at other sites in the region by coins dating to the IVth and early Vth centuries A. D. At Amalda there are some earlier elements which survived into this period and even into more recent periods in this region, such as a ring-shaped buckle. (C14 datation: 1740 ± 200 B.P. and 1460 ± 80 B.P.). However the livestock of the two Roman levels are totally different. Level II is dominated by ovicaprids, followed by pig and then cattle. In contrast, Level I is overwhelmingly

dominated by cattle, with only small amounts of sheep-goat and swine. The two levels are also different in terms of how the carcasses were butchered, for which reasons we deduce the existence of different kinds of occupations of the cave, although both pertained to the same cultural period. Remnants of a (cabin?) structure were found in Level II. The analysis of these levels leads to a general discussion of the phenomenon of late Roman materials in caves of the Basque Country.

translated by L. G. Straus