

The Cantabrian Magdalenian. Lateglacial Chronology in Northern Iberian Peninsula

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ABSTRACT:

The aim of this paper is to provide a chronologic summary of the Magdalenian period in the Cantabrian region. The article includes data resulting from the latest C¹⁴ and AMS tests and is conceived as a tool that might be useful to all investigators of this field. In addition, we propose a structured chronologic subdivision for this period which will take into account investigations using paleoclimatic, cultural and chronologic data.

In order to analyse the different existent chronologies for Magdalenian levels in the Cantabrian region, we shall assess the main aspects of this lateglacial period, specifically its most conflictive aspects. We shall also propose a structural chronologic frame for this period along the lines set forward by González Sainz and Utrilla (2005).

A series of economic strategies and cultural relations exist during the Magdalenian period. These are expressed through cave wall and portable art and result in specific ways of controlling territory and in the different patterns of land occupation developed by human groups. Therefore it is necessary to analyse the diachronic and synchronic aspects of such occupation patterns when structuring the Magdalenian period as a whole. Hence, we will inevitably refer to radiocarbon results hitherto obtained for this period.

We have chosen to divide the Magdalenian in two major periods that indisputably follow one another: these are the Magdalenian without harpoons (Mwoh) and the Magdalenian with harpoons (Mwh), two concepts that have been approached previously (Corchón 1986; González Sainz 1995).

In this division, we insert the remaining phases and facies following criteria quite different from those that establish the classic "lower-mid-upper" subdivisions for the Magdalenian period. The subdivision we have chosen responds to cultural factors that we shall explain below and that are supported by chronologic evidence.

A wide range of criteria has been used when classifying sites. For example, criteria based on the frequency of occupation, criteria based on seasonality and the function of the site-workshop areas, long-term settlements, etc. Also, investigators have used criteria based on cultural and ritual practices, as those used for caves that contain art but are not associated to long-term habitation.

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All this information is deduced once the archeological evidence is obtained and processed. This includes interpretation as well as different types of analyses, such as sedimentological, geological, paleobotanical, tafonomic, zooarchaeological and chronologic analysis. The latter are specially important, as they allow us to establish chronologic frame for all this information corpus.

Human groups in Upper Palaeolithic present clear and progressive economic specialisation, adaptation to the environment and territoriality. The Magdalenian period shows all of these characteristics from its early stages². Hence, the existence of sites that reveal different industrial typologies but share the same resource-gathering patterns (notwithstanding regional variations throughout the Cantabrian region) responds to similar ways of exploitation and occupation of the environment. These adaptation strategies displayed by different groups of settlers, although reflecting a variability that responds to the different areas of the Cantabrian region, are however strikingly similar.

It is important to distinguish two concepts that are different but supplementary. The first is territoriality, generally envisaged by the occupation of the whole Cantabrian region by Magdalenian groups. The second idea we must bare in mind is the morphological and typological variety that we find at a small scale in the different territories. Typological and morphological variety reflect different activities developed within a territory. For example permanent habitation areas, specific hunting areas or areas that were used only for rituals. Such areas reflect that they were visited only occasionally by comparison to other sites.

It is therefore evident that although the Cantabrian region reflects a high degree of variability during the Magdalenian period, sites show that settlers share a way of understanding both exploitation and occupation of the environment and its resources. A basic element for understanding the tendency to territoriality that we find in this period is the deep knowledge and control of the environment. A deep knowledge of the environment can be perceived in hunting strategies, present in the early stages of lower Magdalenian and is simply an evolved consequence of exploiting and occupying the environment in ways that have been put into practice since earlier stages.

The Magdalenian period is thus a culminating phase of territorial evolution in Upper Palaeolithic, since environment exploitation strategies are clearly altered towards the end of the period. Moreso, the Magdalenian period represents the end of a world hitherto strongly influenced by cave wall art. A world where we find that fixation to the land grows as the exploitation of its sources becomes increasingly intensive. For this reason the economic spectrum is reduced, doubtlessly due to the effectiveness of the system which now focuses on obtaining a small number of preys hunted in an intensive way. An example of this is specialized hunting of certain species, doubtlessly associated to the gathering of vegetable resources, which, although we cannot quantify through archaeological evidence, probably constituted an important part of those human groups' diets.

The existence of territories with a functional and spacial diversification is rather difficult to prove but would account for typological variation in both the spacial and the chronologic aspect. Perhaps by applying a territorial approach, which would take into account land occupation and the exploitation of resources, important questions could be answered. We are referring to issues like internal evolution, identification and explanation of periods such as the mid- Magdalenian.

It is the internal evolution of the Magdalenian that explains aspects such the appearance of harpoons. Moreso, relations expressed by portable art at a microspacial scale and those expressed by cave wall art at a macrospecial scale (with an undeniable chronological identity) are questions that repeatedly refer to territoriality and group relations. (Balbín Berhmann 2005.)

On the other hand we must be prudent when talking about specific territorial patterns,

² Some of the works developed in the Cantabrian region insist on the strong tendency to territoriality that we find at this moment in Upper Paleolithic. For example studies on the Sella river area (Menéndez Fernández 2003) and the Urola river area (Altuna & Mariezkurrena, 1998).

since studies of the Cantabrian region often lack standardised data and investigation methods. This situation is partly due to the long history of investigations in the area and the resulting heterogeneous data from different decades.

However we can still accept the basic north-south structure based on Cantabrian river valleys for establishing territorial patterns. Hence, we can safely speak of a group-scale structuring and occupation of land showing different types of habitats and typologies and a major occupational structure for the whole Cantabrian region, where art is the clearest example of cultural and territorial homogeneity.

EARLY MAGDALENIAN: THE “NO HARPOONS” COMPLEX (MWOH)

The archaeological level no. 5 of the *Rascaño* Cave archeological site (González Echegaray y Barandiarán, 1981) was proven to be younger than Magdalenian III (hitherto considered the oldest period in this area). Level no. 5 of *El Rascaño* was dated 16.433 BP (BM-1455) and so became the oldest known Magdalenian level in the Cantabrian area. This originated the idea of an archaic (previous to Magdalenian III) facies soon to be known as *Rascaño 5 Facies*³. *Rascaño 5* coincides with the final stages of the Solutrean era, in the transition from Cantábrico II to the following phase (Hoyos Gómez 1995). More strata corresponding to this sedimentologic phase have been identified in different Cantabrian caves in the last few years, with industrial typologies that differ from solutrean industry.

Apart from *Rascaño 5* there exists an even earlier dating for the Magdalenian period. It corresponds to level F of the *Urtiaga* site. This archeological level, although not very accurately defined, is considered to belong to lower Magdalenian or even archaic Magdalenian (Soto Barreiro 2003). Its dating 17.050±140 BP places it in the Lascaux interstadial, although we shall not take it much into account given the doubts it presents.

The last few years have also seen controversy over datings and archeological levels in a number of sites. *Las Caldas* (Corchón 1995b), *La Riera* (Straus and Clark 1986), (Soto Barreiro 2003), *El Mirón* (Straus and González Morales 2003) and *Los Canes* (Arias and Pérez 1990, 1995) show levels placed between Lower Magdalenian and terminal Solutrean. We do not find a parallel retouch and the teams which are digging these levels simply consider them broadly as Magdalenian or intermediate. These levels offer datings above the 16.500 BP horizon and therefore within the Cantabrian II phase.

We can generally establish that the period between 17.000 and 16.500 BP is the moment when the Magdalenian begins in the Cantabrian region. There are several archaeological levels within this chronological frame, which we may call “final solutrean”, at the sites of *Caldas XIV*, *La Viña V*, *Buxu*, *Chufín*, *eEl Ruso*, *Amalda* or *Aitzbitarte IV* (Corchón 1997; Soto Barreiro 2003). Moreso, many of these sites show archeological levels which can be placed between Solutrean and lower Magdalenian and are referred to simply as Magdalenian.

The process suggested, which we will call “magdalenisation” shows typically Solutrean artifacts in some of its levels while other levels can be considered “non solutrean”. An example of this can be found in the levels 117 to 119 of the site of *El Mirón*. These levels follow one another and are stratigraphically placed between solutrean levels (showing typically solutrean spears) and levels which correspond to the lower Magdalenian period. The datings of these levels are 17.050±60 BP (GX-25857) and 16.960±80 BP (GX-25858). These levels do not present index fossils of classic Lower Magdalenian. These begin to appear from level 116, a level which has been problematically dated between 15.200 BP and 17.400 BP. In this first period we can also include level XIII of *Las Caldas*, considered Lower Magdalenian, or level 2b of *Los Canes*-16.700 BP (AA-12165)- (Arias and

³ The characteristic artifact of this facies is the plain-section assegai. This archaic phase also presents what has been called the *raclettes facies* to which level III at Aitzbitarte IV and 5-3 at Las Caldas (Utrilla 1996) have been associated.

Pérez, 1990; 1995), which also raises doubts as to where to place it in terms of cultural evolution between Solutrean and Magdalenian. This period unfolds during the Cantabrian II period, coinciding with the second Lascaux phase.

Datings from 16.500 BP on establish the limit from which archeological levels can be defined as Magdalenian. The threshold for this period is level no.5 of *El Rascaño*, a clear exponent of the classic Lower Magdalenian which reaches out until 14.000 BP. This period overlaps the early stages of mid Magdalenian (for it often coincides with clear mid-Magdalenian indicators) or even Upper Magdalenian. The unfolding of this period shows a homogeneous structure in the Cantabrian area, where Cantabrian Magdalenian phases II, IV and V follow one another. Cantabrian Magdalenian V presents Mid-Magdalenian characteristics.

We can establish that the mentioned 16.000 BP limit corresponds to levels associated with the Dryas I period in the beginning of the Cantabrian III phase. These levels are *Juyo 11*, *Las Caldas XI-XII* (with younger estimations than were originally established) (Corchón 1995b), *Rascaño 4* (González Echegaray and Barandiarán 1981), *Praile Aitz I* occupation floor (Peñalver and Mujika 2003), *Ekain VII* (Altuna 1984), *Erralla V* (Altuna et al. 1985), *Mirón 116*, *Mirón 17* (Straus and González Morales 2003), *Altamira 2* (González Echegaray and Freeman 1996) probably, although with some doubt, level 6 of *La Garma A* (Arias et al. 2000), maybe Lower Magdalenian in *La Lloseta* (Straus et al. 1978) and beta Magdalenian at *El Castillo* (Barandiarán 1988). These would be the first levels of the classic Lower Magdalenian in the Cantabrian area- with the obvious exception of levels located in the above mentioned initial phase which show characteristics of this classic Magdalenian.

The following phase, Cantabrian IV, coincides with the Angles pollen zone period. The number of datings for this period is comparatively limited. Fertile levels are scarce in this phase due to an increase in temperature and humidity which reactivates karstic processes in its fluvial dynamics.

Cantabrian V phase covers two different pollen zone periods, Dryas I and Prebolling, although the latter has not been accurately identified. In the upper Dryas I levels of this phase, evidence of mid-Magdalenian begins to appear. Levels found in this last phase of lower Magdalenian have been defined as belonging to the *Juyo* type Lower Magdalenian, with *Juyo 4* and *La Güelga 3b* being considered the clearest cases. Level 1 of *Tito Bustillo* and perhaps area I of the lower gallery at *La Garma* have also been included in this period although the latter seems to correspond to mid or upper Magdalenian.

LOWER MAGDALENIAN HUNTERS

We shall now refer to what has been called the *Juyo* facies. This facies is found throughout lower Magdalenian. It coincides chronologically with mid Magdalenian and even overlaps the oldest chronologies of upper Magdalenian. Generally it can be dated between 16.000 BP and 14.000 BP including all the Dryas I stadials and its most moderate interstadial phases. This corresponds to the last intensely cold phase of the Lateglacial period.

Juyo is thus a well defined facies which corresponds to hunting sites located in coastal areas with abrupt mountains. These are stational habitats where the main activity, goat and deer hunting, determines the location of the sites, generally located at an altitude from where vast rocky areas are dominated⁴ (Quesada 1998). Although *Juyo* facies sites are stational, they are nonetheless within the boundaries of a defined territory where the human group develops its economic and social activities. For this reason their territorial pattern can nearly be considered as sedentary.

The *Juyo* type Magdalenian is found in the Cantabrian area throughout the whole Dryas I period, nearly outreaching the end of the Cantabrian V sedimentologic phase. More accurately, we

⁴ Although present-day goats occupy abrupt habitats due to human impact on the environment, it is also true that during the Magdalenian period this species occupies mountain environments too. This makes hunters have to establish themselves near their prey.

must consider that this way of organising space and economy occurs, in an overall homogeneous way, over at least 2.000 years. The main change in economic and social patterns following this period is that associated with the emergence of harpoons⁵.

Two sites illustrate the early stages of the *Juyo* facies: *Ekain VII* and *Erralla V*. Both are found in the same territory in valleys that form the banks of the river Urola. The sites are as close to one another as a three-hour walking distance. *Ekain VII* is found in a closed valley, a not very abrupt area with fields surrounding it, where evidence of deer hunting has been found. *Erralla*, on the other hand, represents a different habitat, among more abrupt mountains which constitute the ideal environment for goat hunting. Both have been dated circa 16.000 BP, an early stage of Lower Magdalenian. Hence, datings for *Ekain VII* vary between 16.050±270 BP (I-12020) and 15.400±240 BP (I-12226) while datings for level V of *Erralla* vary between 16.270±240 BP (I-12868) and 15.740±240 BP (I-12540) (Altuna and Merino 1984) (Altuna et al. 1985). As well as these two sites located in Guipúzcoa we have the example of *Rascaño 4*, where similar strategies are put into practice in this period. *Rascaño* also constitutes a hunting area with a chronologic frame circa 15.988±193 BP (BM-1453) (González Echegaray and Barandiarán 1981).

The youngest evidence of these strategies developed by lower Magdalenian human groups is found in levels 4 and 6 of *Juyo*. Level 4 has been dated at 13.920±240 BP (I-10736) (Barandiarán et al 1985). Also at the site of *La Güelga* in Asturias, located in a closed valley with an easy access- an excellent environment for deers- where a specific hunting area, similar to that of *Ekain VII*, is found with a chronology similar to *Juyo*, 14.020±130 BP (GrN-18.255) and 14.090±190 BP (GrN-18255) and 14.090±190 BP (GrN 19610) for its 3c level (Menéndez et al. 2000; 2004; e.p.) and even similar to the datings associated to the Lower Magdalenian at *Cualventi* 14.210±220 BP (¿?) (García Guinea 2000) which may fit into this moment in cultural development. While its internal characteristics remain unclear it clearly seems to be a *Juyo* type level. We also consider that level 1c of *Tito Bustillo* belongs to this phase.

The *Juyo* type Magdalenian period is a clear exponent of the way in which human groups in the cantabrian area envisage space and territory. It has often been stated that this period is no more than a sub-phase of lower Magdalenian. We have nonetheless outlined that existent chronologies cover a well defined period outreaching to the so-called Mid –Magdalenian and ultimately followed by the early stages of the “no harpoons” complex. Our view is that the *Juyo* type Magdalenian reflects the development of economic strategies based on a variety of territories. As a process, the *Juyo* type Magdalenian develops throughout the Mwoh and would cover the period hitherto known as Magdalenian III.

We therefore need to establish which period is referred to as Magdalenian III and how it is internally structured. We shall not propose a strictly diacronic structure (followed by Magdalenian IV or mid Magdalenian and upper Magdalenian.) Rather, and according to the existent territorial pattern, we find that this period continues up to the emergence of harpoons. It develops alongside the mid Magdalenian, which also evolves towards the emergence of the complex associated to harpoons. The *Juyo* facies is simply a form of economic specialisation associated to a territory in the Magdalenian III period.

We can therefore establish a chronological frame for the *Juyo* phase between 16.000 BP and 14.000 BP. The following five-hundred years 14.000 BP to 13.500 BP would correspond to a phase of changes that evolved towards lower Magdalenian and the emergence of harpoons and complexes associated to them. This implies that territories where the *Juyo* facies is present share an economic and territorial pattern that remains unaltered until harpoons appear.

⁵ We must keep in mind that the concept of a harpoon is already present in the lower Magdalenian period. Since a harpoon is a tool made out of one piece, it is therefore an evolved version of complex tools made from two elements, assegais and mycolytes, as shall be seen below.

THE HARPOONS MAGDALENIAN COMPLEX (MWH)

We consider the appearance of harpoons as the true turning point in the unfolding of the Magdalenian period. This process is reflected in all sites in the Cantabrian region, by a radical change in the economic pattern, which clearly differs from the (Lower Magdalenian) *Juyo* facies. This facies (and its corresponding typology) disappears from the archaeological record in all sites younger than 14,000 BP. Harpoons can be considered as a form evolved from the projectile concept that we find in the Lower Magdalenian as reflected in assegais with specific marks inflicted to bear wafers. Our point is that one-piece harpoons would represent an evolved version of the same underlying idea of these tools.

Following the chronologic subdivision proposed by González Sainz (1994; 1995), the Harpoons Magdalenian would commence at approximately 13.500 BP, when Upper Magdalenian begins to develop. On the other hand it must be taken into account that other contemporary sites (where “Mid-Magdalenian” is developing) have also yielded *de facto* harpoons of unelaborated shape that have been dubbed proto-harpoons.

THE MWOH-MWH TRANSITION: MID-MAGDALENIAN

During the upper Prebölling and the Dryas I period (Cantabrian V), we find the highest degree of cultural variation within the Cantabrian Magdalenian. We can establish the period between 14.500 BP –early Preboiling, with traits of classic mid-Magdalenian and of *Juyo* type Magdalenian- and 13.500 BP- a date which we consider the beginning of the upper Magdalenian (González Sainz, 1995)- as the transition period between the Magdalenian without Harpoons (Mwh) and the Magdalenian with Harpoons, a period of great complexity.

As we have mentioned above, the *Juyo* type Magdalenian continues to develop throughout this period and appears during Dryas I on the west side of the Cantabrian coast, at sites such as *La Güelga* 3c (Menéndez *et al.* 2004.), (García Sánchez *et al.* e.p.) or *Juyo* 4 and 7 (Barandiarán *et al.* 1985). At a global scale this indicates the persistence of this facies over a period of at least 2.000 years, and overlapping the Mwh (Magdalenian with harpoons) period. Alongside the development of this *Juyo* facies, during this period of time we find the mid-Magdalenian both on the East and West ends of the Cantabrian coast, though it is notably not found in the centre region of the Cantabrian area.

Mid-Magdalenian unfolds during the period called Cantabrian V, throughout the Prebölling and Dryas I periods. This can be acknowledged by the following dates associated to many sites: *La Viña* IV 13.300±150 BP (Ly-3317) and 13.360±190 BP (Ly-3316) (Forteza 1991), *Las Caldas* IX to I –some of the dates of the series- 13.640±150 BP (Ua-10189) and 13.370±110 BP (Ua-10188) (Corchón 1995a), *Mirón* 111/108 14.850±60 BP (GX-27114), 16.130±250 BP (GX-23396), 15.530±230 BP (GX-24468) y 16.370±190 BP (GX-23395) (Straus and González Morales 2003), *Abauntz* e 13.500±160 BP (OxA-5983) (Utrilla y Mazo 1996) or *Berroberria* G 14.430±290 BP (BM-2375) (Barandiarán 1990).

In the same way, also towards 13.500 BP, the first evidences of upper Magdalenian appear over the Dryas I and Bölling periods, at the very end of the Cantabrian V period, with clear evidences at *Cueva Oscura* 3b⁶, *La Garma* A 5 and *Berroberria* low E level.. We can also include among these, dates proposed for Tito Bustillo, since we consider the upper part of this site’s level 1c as belonging to upper Magdalenian. However, the wide range suggested by dates proposed for this level makes it difficult to establish an accurate chronology. Pollinic analyses haven’t contributed to make this point clearer. In the case of *Tito Bustillo* we reject dates presently proposed for level 1a, which we consider too old and in contradiction with the cultural sequence. While we seriously doubt about

⁶ Although this level is considered as corresponding to mid-Magdalenian, it indicates the transition towards upper Magdalenian, with a date of 13.500 BP

the chronologic series corresponding to the upper sector we accept dates proposed for level 1a/b as a starting point of upper Magdalenian in this cave.

It must be highlighted that Mid-Magdalenian is clearly documented in the Cantabrian region only at its east and west coastal edges-the Pyrenees and the Nalón river and Cares-Deva area. These territories present a striking similarity as opposed to the rest of the Cantabrian area. While most Cantabrian landscapes can be understood in terms of contrast between north and south along the course of the main rivers, the territories we have been referring to can be described as inland areas. Unlike the rest of the Cantabrian landscape, which fits into the mountain-sea duality showing a continuity of Lower Magdalenian models until the emergence of Magdalenian with harpoons, these territories develop over inland spaces. The Nalón river valley is an open territory with a wide range of environments ranging from high-mountain to river landscapes. This produces a high availability of resources located in a reduced interior space which the mid-Nalón⁷ valley encloses and protects. Finally, the Pyrenees can barely be considered as forming a coast-mountain axis such as the rest of the Cantabrian area and can be better understood as mainly inland areas.

We can initially point out that all of this responds to a cultural or economic pattern which runs parallel to the late stages of the lower Magdalenian level, subjected to local variation which eventually evolves, alongside the former, into the upper Magdalenian period. The Cantabrian mid-Magdalenian period is clearly established between 14.000 and 13.500 BP, though the last date appears more obscure, with evidence surpassing such limit.

Corchón has divided this period into two clear phases, referring to the youngest as Typical mid Magdalenian (which we have mentioned above) and proposing dates near 14.500 BP for the oldest phase, which would include the earliest Cantabrian mid-Magdalenian findings (Corchón 1995a). In favour of this we can cite the intermediate levels of *Antoliña*, which have offered two dates within this range: 14.680±80 (¿?) and 14.680±100 (¿?) (Aguirre *et al.* 1998-2000) However, we lack the necessary information to resolutely include this site in any of the proposed periods.

In relation to what would be a well defined Pyrenaic mid-Magdalenian we must point out the following: against all that has been previously expressed, if we accept a short time range for the Cantabrian mid-Magdalenian based on associating classic pyrenaic sites with the range 13.500-14.000 BP, this pattern would fit into the classic diachronic structure with mid-Magdalenian bridging over upper and lower Magdalenian. Hence, we have two alternatives for placing mid-Magdalenian within the development of the Magdalenian period in the Cantabrian region (assuming that a short chronology can be applied to this period).

In connection with mid Magdalenian and its continuation with upper Magdalenian, the following must be mentioned: the proposed limit of 13.500 BP is merely approximate, for clearly final mid Magdalenian evidence has been found between 13.500 and 13.000 in contact with levels which correspond to upper Magdalenian, although obviously in different areas.

MID-MAGDALENIAN WITH HARPOONS

The first harpoons –proto-harpoons- located in contexts that do not correspond to the upper Magdalenian period appear in the following sites in Asturias: *La Viña* and *Las Caldas*. These sites are incidentally very similar in morphology to *Tito Bustillo* which corresponds to the Upper Magdalenian period⁸.

⁷ At this point we may refer to the Lionín site, undoubtedly a pyrenaic Magdalenian site, although no chronology is provided. We can also point out that the territory where the site is found is similar to that surrounding the Nalón river, since it forms a strip that is parallel to the Cuera mountains, in contact with the Deva and Sella river areas, as is reflected by artistic connections established between three Juvo type sites: Tito Bustillo, Covaciella and Coimbre. These three sites show a great similarity in chronology, style and economic patterns.

⁸ However, the difficulty to interpret the information offered by this site poses the doubt as to whether it corresponds to mid or Lower Magdalenian.

Alongside *La Viña* and *Las Caldas*, in the same context- in the Mid Nalón- we can place level 3b of *Cueva Oscura de Ania*. This level has been recently identified as more likely belonging to mid Magdalenian than upper Magdalenian (Adán et al. 2002). However, level 3b overlaps the appearance of upper Magdalenian evidence, a fact that contributes to obscure the definition of mid Magdalenian as it has been applied to the wide context of the Cantabrian region.

Datings for *La Viña* are: 13.360±190 BP (Ly-3316) and 13.300±150 BP (Ly-3317) for level IV (Fortea 1987; 1991); *Cueva Oscura* has been dated at its 3b level: 13.500±150 BP (Gif-5407) (Pérez Pérez 1992) (Adán et al. 2002).

This is a clear exponent of the end of mid Magdalenian and the beginning of Magdalenian with harpoons, which we have established at 13.500 BP. At the same time this level is clearly and indisputably associated to the Pyrenaic Mid Magdalenian through a time range that not only follows that of upper Magdalenian but in which we also find a harpoon. It must be remembered that levels with proto-harpoons are frequent in the Cantabrian region although we lack radiocarbon dates. This is the case of *Ermitia*⁹ and *Coimbre* at both ends of the Cantabrian coastline.

FINAL-UPPER MAGDALENIAN

González Sáinz (1994; 1995) has proposed the date 13.500 BP as the starting point for this phase. We completely agree on this point, since evidence precludes any possibility of a doubt. However, the period 13.500-13.000 BP presents mid and upper Magdalenian evidence, as well as transitional levels, reflected in sites such as *La Garma*, *Cueva Oscura* or *Tito Bustillo*. The Magdalenian-Azilian transition, which this author establishes at 11.500 BP¹⁰ has been duly backed by data.

The clearest aspect is the typologic evolution of harpoons, with the change in section shape (from circular to flat) being the most conspicuous indicator. Further evidence for this is the fact that these two shapes never coincide or overlap neither spatially nor chronologically. (González Sainz 1989; 1994; 1995).

This phase begins with a series of chronologies in relation with various levels bearing harpoons, both with one and two rows, and portable art. These Initial phases can be placed at 13.500 BP coinciding with the transition from the Dryas I period to the Bölling period, although becoming widespread from 13.000 BP (González Sainz 1995). The authentic changes which result in the emergence of harpoons and the beginning of the upper Magdalenian occur during the the Dryas I period in the Cantabrian V phase, with a clear precedent in the tool-kit associated to lower Magdalenian hunters. But the most striking similarities are with mid-Magdalenian artifacts, showing a great variety in bone industry and art.

The following dates establish the beginning of the Cantabrian upper Magdalenian, a moment when it is difficult to distinguish this period from the mid-Magdalenian: 13.860±100 BP (OxA-7181) and 13.490±100 (OxA-7204) *Garma A* level 5 (Arias et al. 2000), 13.870±220 BP (I-8331) and 13.520±220 BP (I-8332) for level 1c of *Tito Bustillo*¹¹ (Moure 1997). Another example is level 3 of *Cueva Oscura*, which can be defined as mid-Magdalenian (Adán et al. 2002) although transitional, with dates of 13.500±150 BP (Gif-5407). This ambiguity is parallel to that of the characterisation and interpretation of the mid-Magdalenian and contrasts the accuracy of the Magdalenian with Harpoons, beginning near 13,500 BP

There exists an internally coherent series of datings which places clear upper-Magdalenian

⁹ The *Ermitia* site offers AMS dates for its level III, though these are not coherent with one another and therefore not useful for dating proto-harpoons at this site.

¹⁰ We have decided in favour of establishing the end of the Magdalenian period at this date rather than 11.000 BP as González (1994) proposes, for he considers a number of datings younger than 11.500 BP definitive.

¹¹ Out of the variety of datings offered for for upper Magdalenian at this site, these might be the most useful for establishing a starting point of this period in the case of *Tito Bustillo*. Conversely, the lower stratus of level 1c would correspond to the final stages of the Juyo facies.

between 13,000 BP and 12,000 BP. The following dates and levels are part of this series: 12.750±130 (OxA-915) for *Paloma* 4 (Barandiarán 1988), 12.282±164 BP (BM-1450) and 12.896±137 BP (BM-1451) *Rascaño* 2.1 y 2.3 (Barandiarán and González Echegaray 1981), 12.070±100 (OxA-7203) level of *La Garma* A (Arias et al. 2000), 12.970±70 (GX-22128) for *Mirón* 12 (CABAÑA area), 12.350±180 (GX-28210) *Mirón* 308 (trench) (Straus and González Morales 2003), 12.530±190 (GX-27457) and 12.250±190 (GX-27456) from *Horno* 1 and 2 respectively (Fano et al. e.p.), or 12.050±190 BP (I-9240) for *Ekain* VIb (Altuna 1984). All of these levels present well-defined industry and both types of harpoons. (single barbed and double barbed) All of them have yielded different samples of mobile art and fall within the 13.000 BP horizon.

We must reflect on whether we establish levels older than 13.000 BP as Magdalenian merely in terms of their chrono-stratigraphic position, since the identification of periods is often complicated. At this point we accept that as from 13.000 BP one can only refer to the period as upper –Magdalenian. However, another conflictive point is the period 13,500 - 13,000 BP, in which upper-Magdalenian begins and mid-Magdalenian ends, with ambiguous levels.

THE END OF THE MAGDALENIAN PERIOD IN THE CANTABRIAN REGION

The coast area bears various caves with dates corresponding to the last moments of the upper-Magdalenian. The transition to the Azilian, however, is well established in chronology, both in coast areas and the pyrenaic environment, as in the case of *Zatoya* (Barandiarán and Cava 1994).

Hence, sites such as *Cueto de la Mina* (Barandiarán 1988), *La Paloma* (Barandiarán 1988), *La Pila* (Bernaldo de Quirós et al. 1992), *El Castillo* (Barandiarán 1988), *Peña del Perro* (González Morales & Díaz Casado 2000), *Mirón* (Straus & González Morales 2003), *la Garma* (Arias et al. 2000), *Cualventi* (García Guinea 2000), *Santa Catalina* (Berganza 1992), *Langatxo* (Soto Barreiro 2003), *Laminak II* (Berganza & Arribas 1994), *Ekain* (Altuna 1984), *Erralla* (Altuna 1985), *Zatoya* (Barandiarán & Cava 1994) y *Berroberria*¹² (Barandiarán 1988), offer final-Magdalenian dates or present transition levels, with a clear stratigraphic continuity in some cases.

This transition can be perceived through the following levels, all yielding final-Magdalenian or Azilian industries, without any major traits which might help to discriminate established cultural phases: 11.720±140 BP (GX-23391) *Mirón* 11.1 (cabin area); 11.630±50 BP (GX-24468) *Mirón* 306 (trench area), 11.950±70 BP (GX-23417) *Mirón* 102.1 (CORRAL); 11.270±150 BP (GrN-13774) *Cualventi* 1a.4; 11.900±125 BP (Ua-3327) *Langatxo* 1; 11.700±140 BP (Ua-2362) *Laminak II*; 11.900±130 BP (OxA-949) 11.750±300 BP (BM-2370), 11.600±130 BP (OxA-978) from the low D level of *Berroberria*, or datings of the *Zatoya* cave, which reflect the transition from final Magdalenian to Azilian 11.620±360 BP (Ly-1599), 11.480±270 BP (Ly-1399) y 11.840±240 BP (Ly-1400).

Dates for *Urtiaga D* and level III at *Erralla* do not fit into the otherwise very coherent series which illustrates the transition to the Azilian. It is well reflected in this sense that the turning point to establish the transition is at 11,500 BP in the light of evidence (Table 4) and research on the subject (Arribas, 1990), (González Sáinz, 1989a; 1989b; 1994). The earliest evidences for the Azilian period have also been dated from this point on. We must also note that dates offered for the final Magdalenian and the transition are placed near the 12,000 BP horizon, with a limit at 11,500 BP. In this context it is interesting to look at dates proposed for *Antón koba*, 11.800±330 BP (I-16236) y 11.700±180 BP (I-17479) (Armendáriz, 1990;1993).

In relation to the transition between one period and the next, it must be said that this transition operates as an evolving process, with one phase following another and never (at least within the

¹² This Magdalenian phase is the best supported by data and most clear both in its internal structure and its evolution towards Azilian.

same territorial bounds) overlapping. In the West area, industrial elements immediately preceding the Azilian are more frequent in the Magdalenian period, although industrial trends are alike in both the final Magdalenian and the Azilian periods (González Sáinz, 1995). Harpoons, which we have outlined as the most definite discriminating elements, evolve towards a progressive flattening. (Fernández-Tresguerres & Juceda, 1994).

CONCLUSIONS

We must outline our proposed subdivision of the Magdalenian period in order to structure its chronologic evolution. We thus find two major sub-periods: Magdalenian Without harpoons and Magdalenian with harpoons. In this division we have inserted the different facies or phases which have been traditionally referred to as reflecting the internal divisions of the Magdalenian. It must be said that these subdivisions do not follow one another in a strict chronologic order.

Our conclusion is that the starting point of the Magdalenian without harpoons period-MsA- is around 17.000 BP -19.500/20.000 BPcal-.

The Magdalenian period would end towards 11.500–13.000/13.500 BPcal-The unfolding of the Cantabrian Magdalenian would cover about 6000 years. Secondly, we find three major sub-periods within what has traditionally been called lower-Magdalenian. The first constitutes a transitional phase between Solutrean and Magdalenian and is scarcely represented in the Cantabrian area. It can be identified with levels 117/119 at *Mirón* and levels 2A/2B at *Los Canes*. This phase overlaps the last Solutrean evidences and is difficult to define. We therefore call it Protomagdalenian. The *Rascaño 2* phase has long been considered the starting point of the Cantabrian Magdalenian period. We still accept this view, notwithstanding *Rascaño*'s archaic traits, for it is the oldest clearly Magdalenian level in the area.

The second great phase can be identified with Juyo type sites. These sites are associated with stational occupation, specialised hunters of *capra pyrenaica*, *cervus elaphus* and *rupicapra rupicapra*. It must be highlighted that this specialisation appears in the early stages of the Cantabrian magdalenian period continuing up to the late stages in the transition towards Magdalenian with harpoons. The oldest datings for this phase are found at *Ekain VII*, *Erralla V* and *Rascaño 4*. Younger dates are found at sites such as *La Güelga 3c*, *Cualventi 6* and *Juyo 4*. It is clear that this constitutes a facies corresponding to economic hunting activities developed by lower Magdalenian peoples. This facies would run parallel to the development of the lower Magdalenian.

The third phase we can establish corresponds to classic Low-Magdalenian (Magdalenian III) sites. It develops over a period covering from the early manifestations of *Rascaño 2* until the end of the Magdalenian without harpoons period. This phase runs parallel to the Juyo facies and includes sites which vary in economic function although they correspond to the same period and culture. This variety of sites reflects different paleo-ecologic adapting patterns developed by Magdalenian groups between 16,500 BP and 14,000 BP. The Magdalenian without harpoons ends towards 14,000 BP and in some cases towards 13,500 BP. Beyond these dates one cannot speak of the Lower Magdalenian or of the juyo facies. It is at this very moment that the Magdalenian with harpoons period starts. The first evidence for this new period can be found in the early manifestations of the upper Magdalenian and the last remnants of the mid-Pyrenaic Magdalenian period.

The Mid-Magdalenian period develops over a period which overlaps both the Magdalenian with harpoons and Magdalenian without harpoons. However, the starting point for the Upper Magdalenian period adequately covers the latest mid-Magdalenian evidence.

We have already pointed out that lower and upper Magdalenian do not overlap. Rather, they seem to follow one another with the latter datings for lower Magdalenian (late Juyo type) and the earlier upper Magdalenian nearly coinciding. This corresponds with the MsA- McA sequence. The

Mid-Magdalenian period appears radically different since we have a Mid-Magdalenian with Harpoons and a Mid Magdalenian without harpoons (archaic and typical respectively), which develop over the Cantabrian V phase during the upper Dryas I period. At this point we encounter three different cultural manifestations: lower, mid and upper Magdalenian. The period is thus the most complex and rich in the cantabrian Magdalenian.

Many of the questions raised by this period cannot be duly assessed. It is clear that the Mid-Magdalenian overlaps both the upper and the lower Magdalenian, which places the exclusively Mid-Magdalenian period between 14.000 BP and 13.500 BP. It is clear that this phase such as we know it -Pyrenaic Mid-Magdalenian- presents a series of peculiar traits in the Cantabrian area. These traits appear difficult to explain in some cases though very defining in others, as we can see in the Nalón river area- *La Paloma, La Viña, Las Caldas, Cueva Oscura*- where sites show a very clear stratigraphic position and identification. In other cases the very existence of a Mid-Magdalenian phase is unclear and the identification of sites with this phase is often merely due to stratigraphic position.

We would like to underline the existent doubts about the mid-Magdalenian period, where the specific territorial models may be very important for understanding its appearance, as opposed to those areas where functional and economic patterns persist unchanged until the beginning of the McA. We have also formulated another approach which would consist of a “short chronology” for the mid-Magdalenian period. This “short chronology” seems to not only fit perfectly with pyrenaic sites with dates between 13,500 and 14,000 BP -*Abauntz, Cueva Oscura, La Viña, Las Caldas*- but also perhaps within a diachronic evolution within which the lower-mid-upper Magdalenian sequence finds an adequate chronologic correlation.

The starting point of the McA puts an end to conflictive scenarios. From this point we can trace an individual stream of evolution which begins in the upper Magdalenian and unfolds over the Cantabrian VI and (especially) the Cantabrian VII phases until the Azilian (González Sainz 1989;1994;1995). This evolving process can be traced in the development of harpoons, which gradually become flatter and reduce the size and number of spikes albeit that these traits cannot be traced overtime in a uniform pattern (Fernández-Tresguerres and Junceda 1994).

It can be established that existent levels for the end of the Magdalenian period and those presenting a trend towards the Azilian cannot be found beyond 11,500 BP. Thus, this date can set the end of the Magdalenian. Consequently the Azilian starts during the Alleröd period, which coincides with an easing of climatic conditions. However the relation between these two facts may not be direct.

Of course the proposed dates must not be understood as turning points *sensu stricto*, but rather as a general orientation, for it is evident that a turning point cannot be established in many cases. We are still not prepared to explain the most conflictive point in all this process i.e. the mid Magdalenian period.

The Magdalenian is a period developing over a period of about 6,000 years in the Cantabrian area. It shows a relative continuity in patterns of paleoecologic and territorial adapting. We must interpret that human groups from this period of the lateglacial followed highly stational strategies, linked to a restricted and defined territory. Mobility cannot be understood as a cyclic phenomenon, but rather as a series of local networks established upon the basis of a permanent core. This strategy is favoured by the environmental peculiarities in the Cantabrian area.

The dates we propose to mark turning points respond to a repeated chronologic coincidence in levels with similar characteristics. This has been established by comparing the existent datings corpus -164 C14 and AMS datings- and therefore reassures us that such patterns can be generally accepted.

ACKNOWLEDGEMENTS

This paper has been translated by Pedro Fermín Maguire, Universidad Complutense de Madrid.
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