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CANTABRIAN SPAIN

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Introduction

The Cantabrian eco-geographic region and prehistoric culture area corresponds (east-west) to the modern Spanish autonomous regions of Euskadi (Basque provinces of Guipúzcoa, Vizcaya and Alava), Cantabria and Asturias (eastern half). Mention will also be made of sites in northern Navarra on the edge of the lowest sector of the Cantabrian Cordillera and at the western end of the Pyrenees. The region is a narrow, high-relief strip centered on 43º N latitude, sandwiched between the Atlantic Ocean (Bay of Biscay) and the Cordillera (including the Picos de Europa, maximum elevation=2650 m, 30 km from the present shore), which is in turn backed by the high *mesetas* of Castilla-León to the west and the upper Ebro basin in the eastern (Basque) sector (Figure 1). Upper Paleolithic research in the region began in the 1870s with the work of Marcelino Sanz de Sautuola in Altamira and other caves near Santander (see Straus, 1992).

The period 2005-10 was characterized by major excavations in a few key sites, testing or cleaning/sampling of old stratigraphic sections in many others, analyses and reports of earlier field work projects, new discoveries and studies of cave art, and publication of important syntheses. While the present purpose is not to review the latter, mention should be made of the volume, *Las Sociedades del Paleolítico en la Región Cantábrica*, edited by M.A.Fano ("2004", published in 2007), the 2004 Peninsular Archeology Congress proceedings, *O Paleolítico* volume, edited by N.Bicho (2005) and an Upper Paleolithic portable art/ornament exhibit catalogue, *La Materia del Lenguaje Prehistórico: El Arte Mueble Paleolítico en su Contexto*, edited by P.Arias and R.Ontañón (2005). Within the first of these books there are chapters on the Middle-Upper Paleolithic transition and the Aurignacian by the late V.Cabrera, A.Arrizabalaga, F. Bernaldo de Quirós and J.M.Maíllo, the Gravettian and Solutrean by M.de la Rasilla and L.G. Straus, the early and late Magdalenian by P.Utrilla and by C.González Sainz & J.E.González Urquijo respectively, and the Azilian by J.Fernández-Tresguerres. The second book has a major section on the Cantabrian Magdalenian organized by M.S.Corchón, which contains significant syntheses by Corchón and by C.González Sainz and P.Utrilla, focusing on debates and new results (including calibrated ^{14}C dates and ice core correlations) on Magdalenian origins, subdivisions, environments, territories and mobility. This section also has reports on the Magdalenian from current excavations in El Mirón (Straus & González Morales, 2005), El Horno (Fano, 2005) and La Garma (Arias *et al.*, 2005) (all in Cantabria), La Güelga (Menéndez *et al.*, 2005) and Las Caldas and other Nalón valley sites (Corchón *et al.*, 2005) (all in Asturias), and Praile Aitz in Guipúzcoa (Peñalver & Mujika 2005), as well as a synthesis of current dating and interpretation of Magdalenian cave art (González Sainz, 2005). The period also saw publication of *Homenaje a Jesús Altuna*–a trio of special numbers of the journal *Munibe* edited by K. Mariezkurrena (2005-06) commemorating the prolific, ongoing career of this Quaternary zoo-archeologist/prehistorian–and *Miscelánea en Homenaje a Victoria Cabrera*–a pair of memorial numbers of *Zona Arqueológica* edited by J.M.Maíllo and E. Baquedano (2007), plus a book published by the Universidad Nacional de Educación a Distancia on the Middle-Upper Paleolithic transition and on El Castillo Cave research that unfortunately ended up being posthumously co-edited by Victoria Cabrera together with her husband F.Bernaldo de Quirós and J.M.Maíllo (2006a). Also produced was a *Festschrift* for Ignacio Barandiarán published as volumes 24-25 of *Veleia* at the Universidad del País Vasco (Fernández & Santos, 2007-2008) and one for the late Francisco Jordá as volume 60 of *Zephyrus* (Corchón 2006a). All these books include chapters on the Cantabrian Upper (and Middle) Paleolithic, based on either new excavations or analyses of older collections.

Châtelperronian

Artifacts tentatively attributed to the Châtelperronian have been recovered recently in La Güelga Cave (eastern Asturias), adding new data, along with Labeko Koba (Guipúzcoa) and A Valiña (Lugo, Galicia) (but see Fábregas & Lombera, 2010, for doubts on the latter site), to the scant record for this cultural phenomenon in the Cantabrian region. Four AMS dates taken at face value would place this occupation of the site at 30.2-32.5 kya (all dates uncalibrated) (cave interior) or 29-29.5 kya (exterior) (Menéndez *et al.*, 2006). In light of the disputes over Châtelperronian-Aurignacian interstratification at El Pendo

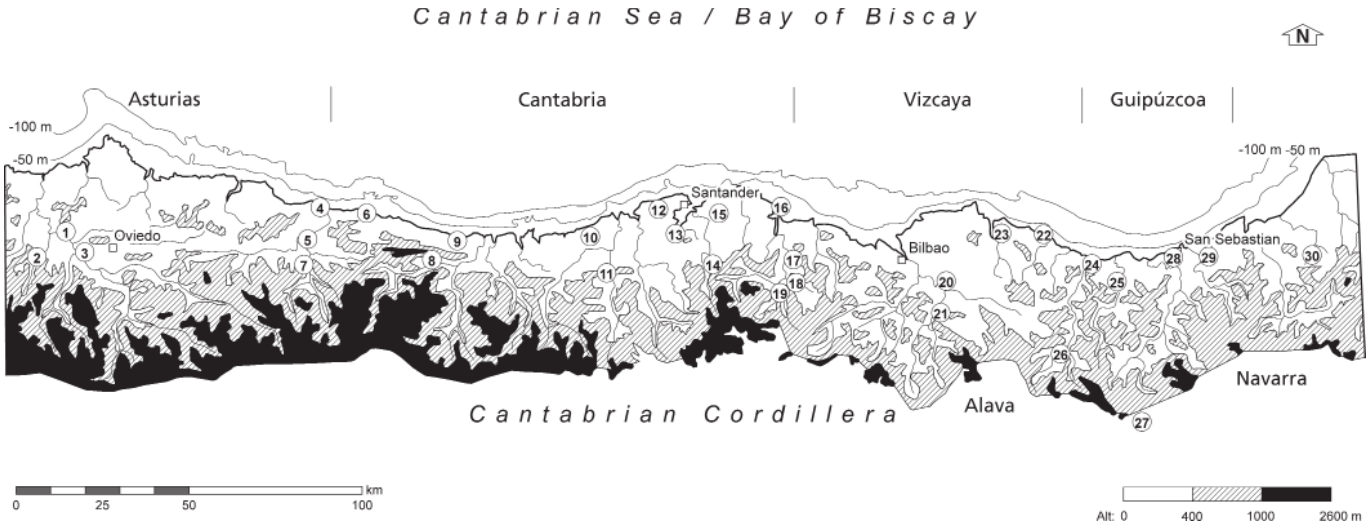

Figure 1 – Main sites mentioned in the text. Figure drafted by Ron Stauber.

1. Oscura de Ania; 2. El Conde, Santo Adriano; 3. Las Caldas, La Lluera; 4. Tito Bustillo, La Lloseta, La Cuevona; 5. Los Azules; 6. Cueto de la Mina, La Riera; 7. La Güelga; 8. Coimbre, Llonín; 9. Cordoveganes; 10. Altamira, Cualventi, El Linar, Las Aguas; 11. El Castillo; 12. El Juyo; 13. Morín; 14. El Rascaño; 15. La Garma; 16. La Fragua; 17. El Valle; 18. Polvorín, El Rincón; 19. El Mirón, El Horno; 20. Arlanpe; 21. Balzola; 22. Santa Catalina; 23. Santimamiñe, Antoliñako; 24. Praile Aitz; 25. Irikaitz, Ekain; 26. Labeko, Lezetxiki; 27. Mugarduia, Portugain; 28. Ametzagaina; 29. Aitzbitarte; 30. Alkerdi

and in SW France, La Güelga may shed light on the possible co-existence of these two technological traditions. There have been several review articles of varying degrees of detail on the Châtelperronian in the region (Maíllo, 2005, 2007; Arrizabalaga & Iriarte, 2005-2006; Ríos-Garaizar, 2008; Andrés, 2009), with notable re-analyses of the lithics from Cueva Morín and Labeko in the first and fourth of these publications. Defined largely by the presence of curved backed points, this industry seems to have been quite marginal in the records of both Vasco-Cantabria and Catalonia. In contrast, it is argued that there was a "Transitional Aurignacian" in Cantabria, especially at El Castillo Cave.

Aurignacian

The Castillo stratigraphically and chronometrically early (Levels 18c & 18b: 41-37 kya uncal.) Aurignacian is separated from uppermost Mousterian Level 20 (43 kya) by thick, archeologically sterile Level 19. As suggested by this author over 20 years ago, the Archaic Aurignacian industry here has been shown to display considerable continuity with the local Mousterian (Cabrera *et al.*, 2006b; Lloret & Maíllo, 2006; Bernaldo de Quirós & Maíllo, 2009; Bernaldo de Quirós *et al.*, 2010; Maíllo & Bernaldo de Quirós, 2010; see Bon *et al.*, 2006) and there have even been hints of possible Neandertal authorship (Garralda, 2006). Recent rediscovery of the long-lost Castillo Aurignacian human remains may lead to more definitive analyses and conclusions on this score. In addition, the recent discovery of a human fibula from small Castillo collections (in effect) sold to the American Museum of Natural History by H.Obermaier in 1913 that *might* be from the basal Aurignacian deposit, could be of critical importance in the Neandertal replacement debate once it is directly AMS-dated (Tejero *et al.*, 2010; see also White, 2007). A "progressive" transition from the Middle to Upper Paleolithic is also argued for the sequence in Lezetxiki Cave (Guipúzcoa), long being re-excavated by A. Arrizabalaga (2007-2008; see Arrizabalaga & Iriarte [2009] for a "through-the-looking-glass" perspective on this never-ending debate).

Excavation and analysis activity concerning the Aurignacian involve several other sites.

Antoliñako Koba (near Guernica in Vizcaya) has yielded an important late Aurignacian (with carinates and Dufour bladelets, but also sidescrapers and denticulates) (Ag[u]ire, 2006, 2007, 2008). At the contact between the Aurignacian and Gravettian horizons, a sandstone hammer with a possible deer hind engraving has been found. Re-excavation of Polvorín Cave on the Vizcaya-Cantabria border has uncovered an (undated) "early" Aurignacian level with retouched blades, Dufour bladelets, nose endscrapers and a split-base antler point (Ruiz Idarraga, 2008). A thoughtful oveview of the MP-UP transition evidence from the Basque "crossroads", stressing technological continuity, has been published recently by Arrizabalaga and Iriarte (2010).

Analysis of early 20th century Hornos de la Peña (Cantabria) excavation notes of H.Breuil and H.Obermaier by Tejero *et al.* (2008) tends to confirm the Aurignacian attribution of the well-known horse frontal bone with an engraving of a horse

hind-quarter, important due to the rarity of Aurignacian art in the Cantabrian region. A restudy of the panel of negative hand-prints in El Castillo Cave argues for an Aurignacian or Gravettian age (with the superposition of later–late Gravettian/ Solutrean and Magdalenian–paintings and engravings) (Ruiz Redondo, 2010).

In eastern Asturias, new hints of Aurignacian occupations have been found in Sopeña (a ^{14}C date of 33 kya) (Pinto *et al.*, 2006) and Tito Bustillo (also a ^{14}C date of 33 kya on the mashed bone plus ochre contents of a pit, underlain by a cave bear deposit), the latter with art stylistically attributed to this cultural period (Balbín & Alcolea, 2007-2008). In relation to the new excavations in Cueva del Conde (central Asturias), a study of the linear engravings on the cave wall dates them to the Aurignacian occupation, which in turn has been ^{14}C-dated to 31.5-30 kya (Fernández *et al.*, 2005; Arbizu *et al.*, 2009), confirming the existence of an Aurignacian "art" tradition in the Nalón Valley. Preliminary analyses of taphonomic questions surrounding the relationship between the final Mousterian and earliest Aurignacian in La Viña rockshelter (Nalón Valley) and of the lithic technologies of these important levels are reported by the late Javier Fortea and colleagues in a recent publication (2010).

Noted in passing are an otherwise paleontological site, Unikoté, in the adjacent French Basque Country in whose basal level was found a humanly incised bone dated to 30 kya (Michel, 2005) and another paleontological site, Lezika with a wooly rhino "family" pertaining to a cold Worm phase (Castaños, 2009). Also of interest is the AMS dating of a half-dozen megafaunal remains (rhino, mammoth and giant elk) from late Mousterian Level 20 of El Castillo to >47-42 kya and the apparent scavenging of a rhino fossil (dated to 32 kya) by people of the Upper Magdalenian (Level 6) in El Castillo (Bernaldo de Quirós *et al.*, 2006).

Gravettian

One of the signal recent developments in Cantabrian Upper Paleolithic prehistory has been the "boom" in Gravettian site discoveries and restudies (see overviews by Arrizabalaga [2007-2008] and by Barandiarán & Cava [2008]). In the Basque Country, these include a new open-air site within the city of San Sebastián, namely Ametzagaina, rich in Noailles burins (Tapia *et al.*, 2009), the Noailles-Gravette-Font Robert-containing Gravettian component of Irikaitz (also an open-air site in Cestona, Guipuzcoa) (Arrizabalaga & Iriarte, 2008), the Prado flint quarry-workshop (in Alava) (Arrizabalaga, 2007-2008), and the large open-air workshops of Mugarduia in Navarra (Barandiarán *et al.*, 2007a). Cave sites–old and new–continue to yield Gravettian materials, often including abundant, diminutive Noailles burins: Alkerdi on the Navarra-France border (Cava *et al.*, 2009), Aldatxerren (Mendaro, Guipúzcoa--non-Noailles in content) (Saenz de Buruaga, 2006, 2007), Polvorín (based on a Gravette point) (Ruiz Idarraga & d'Errico, 2006), and Antoliñako--with Noailles burins and a date of 22.6 kya (Aguirre, 2008). These Basque discoveries follow on a long list of Noailles-rich sites dug by J.M.de Barandiarán and more recently the (soon-to-be- monographically-published) work of J.Altuna and K. Mariezkurrena at Aitzbitarte III near San Sebastián. The existence of a major focus of Noailles Gravettian human settlement in both the Spanish and French (e.g., Isturitz) Basque Countries is clear (as is the continuation of Noailles burin manufacture/use in the subsequent Solutrean in this same area at the right angle of the Bay of Biscay, representing a regional technological tradition transcending the classic, but ultimately artificial culture-historical constructs--something this author has long argued).

In Cantabria, radiocarbon dates suggest the presence of Gravettian-age visits to El Mirón (27.6 kya) (Straus & González Morales, 2009) and now once again Altamira (two assays of 22 kya, bolstering the find of a Font Robert point made nearly 80 years ago by Obermaier) (Heras *et al.*, 2007; Rasines, 2009). More substantial is the Gravettian of La Garma near Santander: two levels with Gravette points dated to 21.7 and 22.2 kya respectively, that have yielded perforated marine shells studied by E. Alvarez (2007). The Gravettian of Cueto de la Mina (Asturias) is synthesized and contextualized by Rasilla and Santamaria (2007). It too is linked to the French Basque Country by the presence of Isturitz-type *sagaies*. Rasilla *et al.* (2010) have recently made a (rather hypothetical) argument that the lineal engravings of the bedrock wall of this rockshelter, discovered by the Conde de la Vega del Sella 1914, may have been made in the Gravettian.

Solutrean

In central Vizcaya there is a small, new Solutrean site in Arlanpe Cave with a shouldered point, a biface, a Noailles burin and backed bladelets (Ríos *et al.*, 2007, 2010). Antoliñako has produced a rich collection of Solutrean concave base points with Noailles burins and a date of 19 kya. (Ag[u]ire, 2006, 2008). A paleontological site, Kiputz IX aven in coastal Guipúzcoa, has yielded a LGM-age date of 19.9 kya associated with remains of bison and *both* red deer and reindeer (Castaños, 2006). The minor Solutrean occupation of Lezetxiki in the montane interior of the same province has been confirmed by Arrizabalaga (2006).

Cantabria produced several Solutrean indications during the period 2005-10, notably in El Miron, with at least seven levels dated between 19.2-17 kya and containing numerous point fragments (including shouldered and concave base types) and perforated objects (marine molluscs, teeth and stones) (Straus & González Morales, 2009a; Straus *et al.*, n.d.). Concave base points have also been found in a breccia remnant in La Güelga (Menéndez *et al.*, 2006). Recent re-excavation in Cualventi on the coastal plain near Altamira has uncovered two Solutrean points and red dot outline paints generally believed to be of Solutrean age have also been found (Lasheras *et al.*, 2005). New excavations in Altamira on the edge of the 1924-25 Obermaier and the 1980-81 Freeman/ Echegaray ones produced a series of four coherent ^{14}C dates ranging between 19.6-17.2 kya, just like El Mirón (Heras *et al.*, 2007; Rasines *et al.*, 2009). A test pit in nearby Las Aguas Cave, also with red dot outline paintings, has produced another four ^{14}C dates in the Solutrean range" 17.6-16.9 kya; a test pit in El Linar, also near Altamira, has produced a concave base point and a date of 19.7 kya (Rasines *et al.*, 2009). Following the earlier work of this author, Rasilla and Santamaria

(2005-2006) have highlighted the likely territorial significance of Solutrean concave base points, the center of whose distribution seems to be in the eastern half of Asturias and western half of Cantabria, with outliers in eastern Cantabria and Euskalherria (the Spanish and French Basque Country) (See Rasilla & Straus, "2004"[2007] for a review of the Solutrean [and Gravettian] of Cantabrian Spain.) A possible major discovery (if confirmed) is a pair of basal fragments of bifacial, invasively retouched "laurel leaf" points at the open-air site of Valverde in Lugo, Galicia, along with bladelets and bladelet cores of UP aspect (Fábregas & Lombera, 2010). This site could help close the gap in Solutrean site distribution between the Río Nalón in Asturias and the Duero in northern Portugal.

Several articles published during the 2005-2010 period (in addition to those mentioned above) have dealt with the question of the age of the red dot outline ("Ramales") style of cave paintings, the consensus (after the studies of C.González Sainz and experimental TL and U-series flowstone datings in sites along the Carranza gorge between Vizcaya and Cantabria and at La Garma) seems to be placing such images in the time straddling the late Gravettian and early Solutrean (see review by J.Fortea [2005]). In particular, I refer to Gárate (2008) on the red dot outline cave art sites of Cantabria; González Sainz & Gárate (2006,2007) for El Rincón in Carranza--which also has engravings of a wounded stag with a superimposed barbed sign and of an aurochs; García & Eguizabal (2007) for a superbly illustrated restudy of La Haza–a minor Solutrean cave site in Ramales, near El Mirón and Covalanas, the latter of whose essentially identical paintings were earlier monographically re-studied by the same authors. Highway salvage archeology in easternmost coastal Asturias led to the discovery of another such red dot outline sanctuary in Cordoveganes Cave, with drawing of a hind very similar to those of the Ramales sites (Santamaria *et al.* 2009, 2010). There is a clear archeological *terminus ante quem* with early Magdalenian sediments sealing a small side-chamber in Cualventi Cave (Cantabria) on whose walls there are newly discovered red dot outline paintings, which were obviously executed during the Solutrean if not before (Lasheras *et al.* 2005a, 2005b). Thus the Solutrean (and/or terminal Gravettian) stylistic territory of the red dot outline paintings (mainly but not exclusively deer hinds) is centered on the Pas, Miera and Asón valleys of central-eastern Cantabria, but with outliers in westernmost Vizcaya (Arenaza) and eastern Asturias, similar, but more restricted and a bit more easterly than the distribution of the concave base points and more westerly than that of the Noailles burins. In one of his last publications before the onset of an illness that would ultimately (and prematurely) take his life, Javier Fortea analyzed the exterior engravings of Santo Adriano rockshelter in Asturias, tentatively assigning them to the Solutrean after casting doubt on the current vogue of seeking Gravettian ages for many Cantabrian rupestral images.

Magdalenian

Far and away, the Magdelenian is the richest Upper Paleolithic period represented in Vasco-Cantabria and thus, not surprisingly, the most-researched. Some major, recently completed excavations (notably Las Caldas in central interior Asturias) are the objects of copious analytical reporting, while others (notably El Mirón in eastern interior Cantabria) are still being excavated after many years, but are also being published. Some long-known sites are being restudied with limited excavations and on-going reanalyses of old collections (e.g., Altamira, Santimamine), while test pits have been dug in many long-known sites and old collections sampled to obtain radiocarbon dates. The results of testing programs continue to lead to increases in the numbers of known sites dated to the Magdalenian either by radiocarbon or by diagnostic artifacts such as antler harpoons. The "biggest news" in terms of the Magdalenian in northern Atlantic Spain in the period 2005-10 have concerned:

(1) the definition and dating of an Initial or Archaic Magdalenian (non-Badegoulian, due to the lack or absolute scarcity of such diagnostic tools as *raclettes*) in El Mirón (confirming the finds in the basal levels at El Rascaño in the adjacent Miera valley);

(2) the consolidation at El Mirón of the notion of a distinctive, well-^{14}C-dated Lower Cantabrian Magdalenian (a.k.a "Altamiran" culture) in Cantabria Province plus eastern Asturias, defined by striation-engraved images of ungulates (mainly hinds) on red deer scapulae and on cave walls;

(3) the expansion of knowledge of a clearly individualized Pyrenean Middle Magdalenian in Cantabria and Asturias sandwiched between the Lower and Upper (true harpoon-bearing) Magdalenian phases, defined by the presence of thin bone *contours découpés* and *rondelles*, the centers of whose geographic distributions seem to be in the French Pyrenées, but that diffused as far west as the Río Nalón in Asturias.;

(4) the recognition of a long, early-starting, and often "normatively blurred" technological and artistic transition from the Final Magalenian to the Azilian during the Allerød (latter half of Greenland Interstadial 2);

(5) the discovery of lithic and osseous artifacts in imprecise association with two ^{14}C dates of 14.6 and 13.8 kya in Valdavara 1 Cave (Lugo)–the first dated evidence for Magdalenian occupation of Galicia (Vaquero 2009). The >40 radiocarbon dates from the complete Magdalenian sequence in El Miron (Straus & González Morales, 2003, 2007a, 2010), plus numerous dates from many other sites (most with shorter sequences) throughout the region now allow us to subdivide the Vasco-Cantabrian Magdalenian thus: Initial: 17-16 kya (20-19 cal kya), Lower: 16-14 kya (19-17 cal kya), Middle: 14-13 kya (17-16 cal kya), Upper/Final: 13-11.5 kya (16-13.5 kya), Azilian: 11.5-9 kya (13.5-10 cal kya) (cf. Corchón, 2005a; González Sainz & Utrilla, 2005; Utrilla, "2004"[2007]; González Sainz & González Urquijo, "2004"[2007]).

Given that many Upper Paleolithic assemblages in the Cantabrian region (especially in the center and west, where sources of high-quality flint are scarce, distant from the main known sites or altogether absent) alternate between classic Upper Paleolithic-type retouched tools made on flint and Mousterian-like ("archaic") tools made on local non-flint materials (quartzite, ophite, mudstone, limestone, etc.), a key question is whether the Initial Magdalenian of El Mirón, with its large flake tools (sidescrapers, denticulates, notches, choppers),

is a manifestation of actual ethnic/cultural identity *or* the artifactual signature of *local* lithic procurement under conditions of reduced human mobility and/or inter-group social contacts. In short, is it situation ("functional") or existential ("essential") in character? Given the widespread nature of a technological phase of "desolutreanization" in Cantabrian Spain (decrease in Solutrean points increasingly replaced by backed bladelets plus antler *sagaies*, sometimes associated with, sometimes substituted for by "expedient" non-flint flakes and flake tools), the reality of an Initial Magdalenian (parallel to the formally distinct French Badegoulian) now seems assured. In addition to the publications in *Radiocarbon*, significant articles wholly or partly on the El Mirón Magdalenian in the 2005-10 period include Cuenca *et al.*(2008, 2009, 2010) on the small mammal/paleoenvironmental record, Marín (2008, 2009, 2010; Marín *et al.*, 2008, 2009) on ungulate taphonomy and human hunting-based subsistence, seasonality and territorial organization, Straus and González Morales (2007b) and Nakazawa *et al.* (2009) on hearths and stone-boiling for grease rendering, Rissetto (2010) on flint procurement, Straus and González Morales (2005, 2008a,b, 2009b; Gonzalez Morales & Straus, 2005; González Morales, Straus & Marín, 2007) on lithic and osseous artifacts, including works of portable art, and García Diez, González Morales & Straus (n.d.) on the stratigraphically dated rupestral engravings. The overall picture of Magdalenian (plus Solutrean and Azilian) human use of El Mirón Cave is one of varying intensity and diversity; some levels (Solutrean, Upper Magdalenian, Azilian) are poor in remains of human activity (artifacts, features, bones), attesting to brief, ephemeral and limited-function visits to the site; others (Initial, Lower and Middle Magdalenian) are extremely rich and diversified in their contents, with abundant, complex features (notably fire-cracked rock-filled hearths), huge quantities of (local and non-local source) lithic debris and finished tools and faunal remains representing all parts of the carcasses of at least red deer and ibex, plus small numbers of remains from other game animals, as well as fish bones. The extraordinarily thick, dark brown, organic and culturally rich early Magdalenian levels in El Mirón are reminiscent of those of Altamira, El Castillo, El Juyo–major residential hub or base camps on or at the edge of the coastal plain, with the difference that El Mirón is in the montane interior of Cantabria, surrounded by peaks at and above 1000 m, making warm-season occupations the logical hypothesis (as A.B Marín has already shown for Middle Magdalenian-Azilian levels there).

The panorama of other Magdalenian research and discoveries during the 2005-10 period can be sketched by regions, beginning with the Basque Country. Two sites originally excavated by J.M.de Barandiarán with colleagues have been re-excavated, in both cases yielding important Magdalenian materials: Santimamiñe near Guernica (Vizcaya) and Ekain (Cestona, Guipúzcoa). The former, a famous rupestral art site also containing an impressive Mesolithic shell midden (ca. 7.5 kya) and Neolithic sequence, has produced evidence of episodic flooding and alternating use by carnivores and humans, including Lower-Mid (ca. 14.6 kya), Middle-Upper and Final Magdalenian (with harpoons), plus Azilian (ca. 10 kya) occupations (López Quintana *et al.*, 2006-2007, 2009; López Quintana & Guenaga, 2006, 2010). New finds of red paintings have been made during the current work. Ekain has produced a Middle Magdalenian dated to 13.9 kya with an unusual *contour découpé* of a bird with engraved details of feathers (Altuna, 2010). French prehistorians, N. Cazals and M. Langlais (2005-2006) did a restudy of the Lower Magdalenian lithic assemblage from the original excavations in Ekain, focusing on blade/bladelet production. Among the most stunning (Lower) Magdalenian discoveries in Euzkadi in recent years has been the group of 14 black stone perforated pendants found in Praile Aitz (Deva, Guipúzcoa) with 4 ^{14}C dates ranging between 15.2-15.8 kya (Peñalver, 2006; Peñalver & Mujika, 2005, 2007-2008). Upper Magdalenian (dated by ^{14}C and/or harpoons) occupations have been reported in Balzola (Dima, Vizcaya) (12.4 kya) (Zapata *et al.*, 2007, 2008, 2009; San Pedro *et al.*, 2010), Polvorín (Carranza, Vizcaya) with a horse image engraved on a stalagmite slab and harpoons (Ruiz Idarraga, 2007,2008,2009, 2010), Aizarotz II (Errezil, Guipúzcoa) (12.6 kya) (Arrese, 2010), Aizkolxo (Mendaro,Guipúzcoa) with harpoons (Mujika, 2006; Edeso & Mujika, 2007), plus other new sites with possible Magdalenian artifacts and/or rock art. Two superb engraved pebbles from the Final Magdalenian at the classic site of Urtiaga (Guipúzcoa) are reported on by R.Ruiz and E. Berganza (2008), who made experimental replications thereof. A series of 84 sawed ungulate teeth (including 22 reindeer incisors, which is unusual for Cantabrian Spain) plus an incised ibex incisor from the Vizcayan site of Santa Catalina–mainly Upper Magdalenian, but also Final Magdalenian and Azilian, with excellent photos of the sawing marks (Berganza & Arribas, 2010). There are paleontological finds dating to 15.5-14.4 kya in Kiputz IX (Castaños, 2006) which can serve as non-anthropic baseline assemblages to compare with Lower-Mid Magdalenian archeofaunal assemblages from the same Basque region.

A novelty is the recent discovery of probable Magdalenian materials in the basal deposits of Atxoste rockshelter (Virgila Mayor, Alava–on the south site of the Cordillera/upper Ebro Basin) in the age range of 12.5-11.7 kya (Alday, 2007). This site is near well-known sources of excellent-quality flint (Treviño, Loza, Urbasa), materials from which appear in many cis-Cordilleran Basque Country sites. The latter in turn are often near coastal flysch outcrops of different flint which also appears in small amounts in Atxoste, suggesting trade relations among Tardiglacial human groups on both sides of the mountains. (See Tarriño [2006] for a major study of flint sourcing in the Basque Country.) The likelihood of a Final Magdalenian territory in Alava (having relations with groups near the coast) is amply discussed by Barandiarán *et al.* (2007).

In Cantabria, besides El Mirón and adjacent El Horno (with extraordinary portable art objects and harpoons in Upper Magdalenian levels dating to 12.3-12.5 kya [Fano *et al.*, 2005; Vanhaeren *et al.*, 2005]– including a sandstone slab with the engraving of a red deer on one face and evidence of ochre grinding on the other [Fano *et al.*, 2010] and two dozen perforated sea shells [Fano & Alvárez, 2010]) and El Valle (small tests of which also recovered extraordinary works of portable art, ornaments and harpoons in contexts between 13.8 and 11.1 kya [García-Gelabert, 2005]), the major Magdalenian developments have concerned the (largely non-excavation) studies of living floors, structures and rupestral art in the

coastal La Garma karstic complex (Omoño) and the testing and dating program in and at other sites near Altamira (mentioned earlier). La Garma continues to yield spectacular works of portable art, such as an aurochs phalanx with a carved image of a complete aurochs found on the surface of a living floor with a stone structure deep under ground and dated to the Middle Magdalenian (14 kya) (Arias *et al.*, 2007-2008). Other structures of the same period, very rich in faunal remains (notably horse and cave lion, which are otherwise rather rare in the region), ornaments and works of portable, are argued to be ritual in character and are compared to other possibly ritual contexts of the same approximate time period in the region (notably not-distant El Juyo Cave in Camargo) (Arias, 2009). A charcoal black bison drawing in La Garma has been directly dated to the Middle Magdalenian (13.8 kya), like some of the bison figures from Altamira, El Castillo and Covaciella (González Sainz, 2005). Lower Cantabrian Magdalenian (*sensu lato)* lithic inter-assemblage variability in El Juyo Cave is the subject of analysis by J.González Echegaray and L.G.Freeman (2007), with sharp differences in the percentages of backed bladelets and endscrapers and hints that seasonal differences among the occupations might be related to some of this variation in artifact composition. Freeman and González Echegaray (2005-2006) also published on metapodial bone tubes found in one of the El Juyo stone structures that they argue may have been dice and on an engraved scapula that had been charred perhaps in an early version of "scapulimancy", possibly used to randomize the areas used for hunting forays. Lithic blank manufacturing trends throughout the long Magdalenian sequence of (specialized ibex-hunting) occupations in Rascaño (montane interior Cantabria) have been studied by A. Chauvin (2007).

The Altamira Museum team obtained ^{14}C dates from their tests in Altamira (Lower Magdalenian: 3 dates between 14.9-15.4 kya, confirming earlier dates from the deposit and from some of the paintings), Cualventi (Lower Magdalenian: 3 dates between 15.4-15.9 kya), El Linar (Lower Magdalenian: 4 dates between 14-15.9 kya), and Las Aguas (Lower Magdalenian: 6 dates between 14.4-16.1 kya; Middle Magdalenian: 1 date of 13.1 kya), all in coastal, west-central Cantabria (Rasines *et al.*, 2009; Heras *et al.*, 2007). They argue for this part of the region having formed a distinct Lower Magdalenian territory, with Altamira as one of its central sites. Las Aguas and El Linar yielded perforated bone discs ("*rondelles")*, which are suggestive of trade relations with the French Pyrenees (Lasheras *et al.*, 2005-2006; Heras *et al.*, 2007-2008).

The main Magdalenian developments during the period in Asturias concern Las Caldas and Tito Bustillo (and other parts of the Ardines karstic system in Ribadesella). M.S. Corchón (see 2007a) and her team continued to publish prodigiously on the first site, which is one of a cluster of Solutrean and Magdalenian habitation and art sites in the upper Nalón basin near Oviedo. Among the topics are a the broadly contextualized study of a stone sculpture of a horse head from the Middle Magdalenian (14.8 kya) (Corchón, 2007b), a splendidly illustrated article on the remarkable discovery of perforated seal (n=1), pilot whale (n=1–with an extraordinary engraving of a complete, albeit very miniature, bison!) and sperm whale (n=3) teeth also from the Middle Magdalenian (Corchón & Alvarez, 2008). These items were undoubtedly extracted from beached animals on the Tardiglacial shore (ca. 40 km downstream along the Nalón from Las Caldas), either by residents of the site themselves or by other people with whom they traded. It is worth noting that in addition to marine molluscs, Las Caldas has also yielded amber from Cantabrian coastal source outcrops (Corchón *et al.*, 2008). Las Caldas publications also include one on bone needles from the Solutrean and Magdalenian levels (n=104!) (Corchón & Garrido, 2007), one on a perforated pebble with a finely engraved horse image from the Middle Magdalenian (Rivero, 2007) (reminiscent of a perforated, horse-head-engraved, slate-like pendant from the Initial Magdalenian of El Mirón), and another on several fragments of finished and *unfinished* bone *rondelles* (plus a sandstone disc) also from the Middle Magdalenian (Corchón & Rivero, 2008). These latter pieces (like the *contours découpés* from Las Caldas and a string of sites from Isturitz to La Viña [Corchón, 2005-2006]) add significantly to the still-small Cantabrian sample of *rondelles* that include one each from La Viña (near Las Caldas, which also includes *contours découpés*), Llonín in easternmost Asturias, El Linar and Las Aguas in west-central Cantabria—clearly a western prolongation of the French Pyrenean distribution of such peculiar (and enigmatic) objects (see Schwendler, 2005). They also suggest that *both* objects *and* the ideas for them were circulating along the 43rd parallel of latitude during the Middle Magdalenian period, since at least some seem to have been manufactured in the Nalón territory, the western *finisterre* of a 13-14,000 year-old network of social relations and cultural diffusion. On the other hand, in a groundbreaking study, it has been demonstrated that amber found in Cantabrian Upper Paleolithic deposits (from Aurignacian to Magdalenian) is of *local* origins (Alvarez *et al.*, 2005). To the contrary, however, connections between Cantabrian Spain and the rest of the Magdalenian world, manifested by non-local shells, minerals and fossils, as well as peculiar portable art styles, are discussed by Alvarez (2005) and Corchón (2005b). M.Haber and Corchón (2005) published human deciduous teeth from Las Caldas Solutrean and Magdalenian levels.

Tito Bustillo is part of a complex karstic system in Ardines Hill, on the west bank of the Río Sella, near its present mouth; other caves in the complex include La Lloseta (a.k.a. El Río), La Cuevona and Pozo del Ramu. Following on the work led by Alfonso Moure in the 1970s and 80s, a team led by R.de Balbín has been prospecting, mapping, testing, excavating and cave art recording in the caverns for several years. Remarkable discoveries have been made (e.g., a cache of 4 *contours découpés* [Balbín *et al.*, 2008, 2009], a Mesolithic burial, the true original mouth of Tito Bustillo, rupestral art works [including a reindeer image, this one an engraving], a block of limestone shaped into a bison and stained red, a date of 11.8 kya on a surface upon which a human cranium found in 1948 had apparently originally been placed [Balbín & Alcolea, 2007-2008], etc.). The new excavations, one area–a midden or dump–has yielded an unfinished *rondelle* and a proto-harpoon (clear indicators of the Middle Magdalenian), an unusual painted and engraved red deer shoulder blade, a semi-sculpted horse head in bone (like the pseudo-*contours découpés* that had earlier been found both in Tito Bustillo and in El Juyo) and a short, sub-quadrangular section, single-bevel base, decorated *sagaie* of a type common throughout the Tito Bustillo

sequence, both Middle and Upper Magdalenian, as well as in the classic Lower Cantabrian Magdalenian (as in El Mirón) (Balbín & Alcolea, 2007-2008). Many of the seeming contradictions among the Tito Bustillo radiocarbon dates from the original excavations can be understood in light of the presence of a now-apparent Middle Magdalenian component in the cave, combined with inter-strata mixing due to the intensity of frequent human reoccupations of the site. The Middle Magdalenian has at last definitely "arrived" in the Cantabrian sequence!

Another Magdalenian site that is being re-studied (with new excavations), is Las Brujas Cave at Coimbre (interior eastern Asturias), originally worked by Moure and G.Gil in the 1970s and famous for its large, deeply engraved rupestral bison and a spectacular antler *sagaie* with inverted "teeth". The new discovery of a classic unilateral harpoon places at least the topmost level in the Upper Magdalenian (Alvarez-Alonso *et al.*, 2009). Notable in the overall lithic industry is the heavy use of quartzite, due to the local lithology, with flint being reserved for formal tools, including many backed bladelets, thumbnail endscrapers and poor-quality, simple burins. As in the similarly montane setting of El Mirón, ibex and red deer are the co-dominant game species in the Coimbre Magdalenian assemblage. The bones have been heavily processed.

At long last, Galicia (with its scarcity of caves, ancient eroded shield rock surfaces and dense forests and heaths) is producing significant evidence of Magdalenian settlement, as synthesized by Fábregas and Lombera (2010). The most notable recent discovery is the cave of Valdavara in Lugo, with two levels: Lower Magdalenian (14.6-15.1 ^{14}C kya) and Lower/Middle Magdalenian (13.8 ^{14}C kya), with several burins and an antler *sagaie*.

As always, the cave art of Vasco-Cantabria–mostly datable to the Magdalenian–was the subject of much research and publication, including syntheses by C. González Sainz ("2004" [2007], 2005, 2007), who also described the "wounded stag" motif in Cantabrian rock art (2007-2008). New studies of art in Ekain and Altxerri (Guipúzcoa) (Altuna & Mariezkurrena, 2008, 2010) El Castillo (Groenen, 2007; Mingo, 2011), Las Caldas (Corchón *et al.*, 2009b) and Peña de Candamo (Asturias) (Corchón & Gárate, 2010; Corchón *et al.*, 2009a; Olivares *et al.*, 2009) were published. Corchón ("2004"[2007]) updated her vast 1986 "corpus" on Cantabrian portable art. UNESCO declared 17 decorated caves (in addition to Altamira) World Heritage Sites. To light their way in such "sanctuaries", Upper Paleolithic people used torches and lamps; those found in Llonin and El Covaron, as well as in over a half-dozen other Vasco-Cantabrian sites are interestingly studied by Rasilla *et al.* (2010).

Azilian

The Azilian is now clearly seen as an Epi-Magdalenian phenomenon that arose during Allerød and that had at least early and late phases (pre- and post-Younger Dryas) and straddled the Pleistocene-Holocene transition. There was a fairly long, irregular and typologically blurred transition from the Final Magdalenian to the Azilian, during which it is essentially impossible to distinguish one construct from the other unless one is lucky enough to find round- or flat-section harpoons. The lithics (with many thumbnail endscrapers and backed micro-points) are similar between the two "cultures". El Mirón is a major case in point, with a series of levels in all parts of the vestibule that date ca. 11.9-11.7 that normatively, in the absence of diagnostic harpoons, could be labeled either Final Magdalenian or Azilian. Even the geometric art (e.g., "barbed-wire" motif engraved bone artifacts) of the terminal Paleolithic cross-cuts levels assigned to both these culture-stratigraphic units.

In the Basque Country two classic J.M.de Barandiarán sites in Vizcaya are once again yielding important Azilian materials in modern, interdisciplinary excavations: Balzola (10.3 kya) (Zaptata *et al.*, 2009) and Santimamiñe (2 dates of 10 kya) (López Quintana & Guenaga, 2006-2007, 2008), the former with a geometrically decorated bone). The Azilian site of Portugain, located at 925 m above sea level in the Sierra de Urbasa in Navarra, has been monographically published by I.Barandiarán and A.Cava (2008). The site was occupied during Younger Dryas (10.4 kya), despite its high elevation on the south side of the Cordillera (Iriarte, 2008). Other Basque region sites which produced possible or certain Azilian materials during the period 2005-10 include the caves of Astigarraga (Alberdi *et al.*, 2010), Ekain (Altuna, 2010) and Aizkoltxo (Edeso & Mujika, 2007), all in Guipúzcoa. The Terminal Pleistocene-Initial Holocene, including the Azilian, in Euskadi is discussed by Berganza (2005-2006).

In Cantabria, in addition to the rather poor Azilian of El Mirón (10.3-10.7 kya) above the Final Magdalenian/Early Azilian levels, there is a partially disturbed Azilian deposit (with a typical flat harpoon) in nearby El Horno (11.6 kya) in the upper Asón (Fano *et al.*, 2005) and a massive, classic deposit in El Valle, just a few km downstream.. The Azilian (and Mesolihic) subsistence strategies of the Asón coastal zone have been thoroughly analyzed at La Fragua Cave (Marín & González Morales, 2007). The Fragua malacofauna was studied by I.Gutiérrez (2008) as part of a much larger doctortal dissertation on the exploitation of marine molluscs in the Tardiglacial and early Holocene in the Cantabrian region.

Although covering the Azilian of the whole Cantabrian region, the syntheses of Juan Fernández-Tresguerres ("2004"[2007], 2006) provide particularly useful detail on the unusually long and rich Azilian sequence (excavated over a very long time by him) in Los Azules (Cangas de Onis, Asturias), as well as information on other important sites in Asturias (e.g., La Lluera, Cueva Oscura de Ania [Adan *et al.*, 2005]) with evidence of changes in technology and "art" (geometrically engraved harpoons) across the Pleistocene-Holocene boundary. The subdivision of the Cantabrian Azilian into phases, with clear continuity from the Final Magdalenian to the Early Azilian, is a significant development in scholarship during recent years, as is the dating of the cultural "transition" to the Allerød and the lack of any major shift in Azilian adaptations correlated with (or presumably caused by) the Younger Dryas cold event in this region (Straus n.d.). The real break seems to have come in Vasco-Cantabria at the end of Preboreal with the development of Mesolithic technologies and lifeways: i.e., the Asturian and "Basque"Mesolithic.

Northern Atlantic Spain continues to be one of the most active and productive regions for Upper Paleolithic research in Europe and it certainly was always one of the more densely populated.

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