

The Upper Paleolithic Record in the Asón River Basin, Eastern Cantabria (Spain): Research & Publications, 2000-2005

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Introduction

Until about 25 years ago, the Paleolithic prehistory of Cantabrian Spain had generally been written at the level of the individual site. Each site tended to be seen as the mine-like repository of a sequence of artifact assemblages to be placed within a chrono-cultural scheme largely borrowed from SW France and to be compared with assemblages from other sites, regardless of their location and setting within the landscapes of the Pleistocene (but for an early exception to this geographically unengaged approach to Cantabrian prehistory, see Sierra 1908). Gradually, in part due to the direct participation of American archeologists who did dissertations in the region in the decade between the mid-1960s-mid-1970s (L.G. Freeman, G.A. Clark, L.G. Straus, M. Conkey, F. Harold) from the Chicago “processualist” school (see, for example, papers in Straus 2000), as well as with the theoretical influence of British “economic prehistorians” from the Cambridge school, the focus of Cantabrian Paleolithic prehistory has shifted from site-centered to territorial. This has happened as individual excavations have become increasingly meticulous and thorough in their recovery of complete and diverse data sets, with growing interdisciplinary emphasis on paleoenvironmental and paleoeconomic evidence. The synergy between the “Chicago” archeologists and a significant group of young Spanish doctoral students, all influenced and mentored to varying degrees by J. González Echegaray (in whose Altamira Museum monograph series most of their dissertations were published), was primordial in creating a new, broader perspective on and a more *anthropological* practice of Cantabrian prehistory in the 1970s-1980s.

The excavations at La Riera Cave (eastern Asturias) were conducted by G.A. Clark and L.G. Straus in the late 1970s to understand the variable uses of a cave as a humanly occupied place in the changing landscapes of the Last Glacial Maximum, Tardiglacial and early Postglacial. The first Paleolithic project with an explicitly *regional* focus was that of the Nalón River Valley (central Asturias), organized by J. Fortea (Universidad de Oviedo) and including excavations at several sites directed both by him and by M.S. Corchón, M.R. González Morales and J.A. Rodríguez Asensio. The

work of the Sociedad de Ciencias Aranzadi (San Sebastián) in several Upper Paleolithic sites in Guipúzcoa (e.g., Ekain, Erralla, Amalda, Aitzbitarte) directed by J. Altuna has had a distinctly territorial cast to it, following on the broadly geographical (Basque Country) and ethnographic perspective of the seminal figure of J.M. de Barandiarán. This research recently has been bolstered by lithic raw material sourcing studies by A. Tarrío. A territorial view of the record has more recently figured heavily in the study of the Middle-Upper Paleolithic transition in central Cantabria per se (ex-Santander Province) by the late V. Cabrera, F. Bernaldo de Quirós, their colleagues (notably A. Pike-Tay) and students. P. Sarabia has further documented the lithic catchment areas of central Cantabria by means of flint sourcing. Most recently, the territorial approach has been applied to the study of late Upper Paleolithic human occupations of the Sella River Basin in eastern Asturias by M. Menéndez, A. Balbín and J.J. Alcolea, and of the Lea River area in eastern Vizcaya by E. Berganza and R. Ruiz. Thus, the ultimate subjects of much research and especially interpretation have moved from artifacts as objects and as chronological markers, to social groups who used technologies in their exploitation of territories.

In parallel with this shift in the study of sites and artifact assemblages (in which faunal assemblages are finally achieving near-parity in their interpretive significance, as a result of the efforts of Altuna, the American archeologists and new generations of Spanish archeozoologists, including P. Castaños, A. Morales, A. Mateos, J.L. Yravedra and A.B. Marín), there has been a noticeable change in how Upper Paleolithic cave art loci are viewed and studied – not purely as isolated, individual cavities or sanctuaries, but as integral elements of man-made territorial landscapes, the reflections of social networks with shared symbols and belief systems. Analyses of cave art now increasingly investigate geographical clusters of sanctuaries, inter- and intra-area relationships as marked by themes, canons and styles in both rupestral and portable art. This shift to seek to comprehend the role of Upper Paleolithic art within a wider context of socio-cultural relations has come as a result of explicitly materialist critiques of traditional approaches by González Morales and other Spaniards, as well as more limited contributions from American “func-

tionalist” archeologists. The present paradigm in Cantabrian Upper Paleolithic prehistory increasingly seeks to develop chronology by means of independent chronometric dating (mainly ^{14}C), while seeking to integrate all anthropogenic manifestations (large, multipurpose residential base camps, small, special-purpose sites, cave art sanctuaries, potential lithic “quarrying” loci) into potential territorial entities, and then to try to reveal the nature of inter-area human relations, by means of evidence from non-local lithics, distinctive art objects and styles, and personal ornaments, as recently manifested by a major exhibition organized in Torrelavega and Madrid by P. Arias and R. Ontañón (2005), as well as by doctoral dissertations completed by R. Schwendler (University of New Mexico) and under way by E. Álvarez (Universidad de Salamanca).

As outlined by C. Vita-Finzi and E. Higgs in their now-classic “site catchment analysis” and L.R. Binford’s ethnoarcheological model of lifetime land-use cycles, mobile hunter-gatherers of the Late Pleistocene lived in series of territories that can be described as more or less concentric rings deformed by the effects of topography and resource distribution. In the case of the physically confined coastal region of Cantabrian Spain, those distortions are significant: a shore only c. 5-12 further north under conditions of full glacial sea level regression than it is today; the extremely steep relief of the Cantabrian Cordillera and Picos de Europa whose crest lines are no more than 25-50 km from the present shore and which were glaciated during much of the Upper Pleistocene; a narrow to non-existent coastal plain; and a large series of short, deeply incised river valleys. It is important to recall that in terms of resources, we must include not only a wide variety of mobile and sessile, terrestrial and aquatic food sources, but also raw materials (both organic – animal and vegetal, used for clothing, shelter, tools, ornaments and fuel – and mineral – mostly lithics used for tools and weapons, as well as for art) and other people (as sources of information, mates, fellowship, and “insurance” in times of subsistence resource scarcity).

Some of the major game species (especially red deer and ibex, but also bison, horses and chamois) and fish (notably salmon) moved the (albeit short) distances between the uplands and lowlands of the region, in part seasonally and certainly along the axes of the river valleys. Under glacial conditions trees and even shrubs would have been generally scarce and limited to only the most favorable settings (e.g., sheltered south-facing lower slopes with local water), requiring humans to periodically move at least their major base camps as wood for fuel was exhausted within reasonable transport radii of each site. The best and most readily available flint types are geologically not evenly distributed throughout the region. There are a few notable formations (usually Cretaceous limestones) that were frequently exploited during the Paleolithic by people, who either traveled short to moderate distances to them or who acquired the materials through inter-group exchange. Because of the narrowness of this region (sandwiched between the ocean and the high, inhospitable northern *meseta* of Old Castile) and the overall north-south orientation of the deep river valleys that descend from the Cordillera to the Canta-

brian Sea, it is a plausible hypothesis that there was (were) no more than one or a very few band(s) occupying each valley, meaning that mates would have to be sought “down-the-line” from among bands distributed along a west-east axis stretching from central Asturias to the western Pyrenees. This fact would require the maintenance of “friendly” (i.e., open) relationships both between neighboring bands (with rights of territorial transit) and among more distant ones, in order to overcome the demographic problem posed by long, narrow regions, as described by H.M. Wobst in his classic articles on small-group hunter-gatherer mating networks. It is possible to envision the human population of Paleolithic Cantabrian Spain as a loosely-set “string of pearls” arrayed from east to west, with each “pearl” being a band or group of families that usually oscillated up and down “its” kink on the string (i.e., its valley), but that would sometimes slide along the string, impacting other pearls from side to side (i.e., from valley to valley along the coast), as subsistence, raw material and/or social needs/wants required. At times, there would be more distant contacts – direct and indirect.

The distorted concentric rings of land-use would have included daily foraging radii around each residential or logistical site (*sensu* L.R. Binford), a set of logistical radii for the establishment of temporary special-purpose (mainly hunting, fishing, gathering or quarrying) loci arrayed around individual residential sites, an annual territory within which members of an individual band would habitually move both residentially and logistically during the course of a normal year, a mating range generally outside the area of the annual territory, and a lifetime range which could potentially include an even larger area in which individuals might have traveled and visited other people during the course of their lives. It is useful to contemplate the notion of a yet even broader “known world”, within which contemporary bands that did not necessarily directly interact (especially if they lay at the peripheries of the then-inhabited regions of a macro-region such as Western Europe) maintained contacts, as reified by exotic materials (shells, fossils, amber, unusual minerals or flints), distinctive ornaments or portable art objects, shared rock art styles and, presumably, symbols and beliefs. In the Cantabrian region, we contemplate the possibility of small, topographically constrained annual band territories, defined by river valleys – of which there are no more than 18 with known alignments of Upper Paleolithic sites. In practice, these would have been interconnected by networks of social relations and exchanges among them and – to the East (sometimes more tenuously, but at others less so) – with band territories in the French Basque Country and Pyrenees. Although partly an artifact of uneven archeological survey and excavation, there seem to be geographical gaps in the distribution (and sometimes formal technological characteristics) of Upper Paleolithic sites between the Basque Country and Cantabria and between eastern and central Asturias. The isolated cluster of sites along the Nalón River in the latter area seems to have been “the end of the line”, at least in the present state of our knowledge, since Galicia is virtually devoid of known Upper Paleolithic sites and the Douro Basin sites (especially the Côa Valley) may have been more directly connected to those of central and even eastern Spain than to the Cantabrian region, based on the work of J. Zilhão, T. Aubry, *et al.*

It is in the context of this territorial perspective on the Upper Paleolithic of northern Spain that we report on developments in the study of the Río Asón Basin in eastern Cantabria during the last five years, centered on long-term projects in both the lower and upper courses of this valley.

Overall, prehistorians are coming to realize that the scope and frequency of human contacts among regions (e.g., the different sectors of Vasco-Cantabria, the French Pyrenees, the Spanish Mediterranean) varied through time, with there being clear periods of marked “provincialism” (e.g. Solutrean and Lower Cantabrian Magdalenian) versus others of significant long-distance contact (e.g., Middle and Upper Magdalenian).

The Río Asón Basin

The Asón River drains an area of about 800 km² in eastern Cantabria Province (and a small area of westernmost Vizcaya in the Basque Country/Euskadi), constituting about 15% of the cis-cordilleran surface of the Province (i.e., excluding the high, montane Campoo-Valderredible area of Cantabria, south of the Cordillera and drained by the Ebro River into the Mediterranean). The Asón rises at a source which is a dramatic waterfall near the 680 m-high Los Collados Pass (6 km from 1200 m-high Sia Pass over the Cordillera) and its upper course is a deep, glacially-scoured U-shaped gorge. The first chain of Cordilleran summits in the Asón sector rise up to 1335-1535 m above present sea level. The main tributaries of the Asón are the Bustablado (source near the 675 m-high Alisas Pass, which provides access to the main known concentration of Upper Paleolithic sites in central Cantabria’s Miera and Pas river basins), the Gándara (source also near Los Collados), the Calera (source near 920m-high Los Tornos Pass, one of the lowest along the Cordillera, providing historical access to the *meseta* of Burgos and about 100 km north of Atapuerca), and the Carranza (sources at c. 1000 m in the Cordillera of western Vizcaya, and providing the easiest natural access between the Basque Country and the rest of the Cantabrian region). The upper-middle course of the Asón actually runs west-east between the second (Sierra del Hornijo, maximum elevation: 1415 m) and third (maximum elevation, La Alcomba: 911 m) chains of the Cordillera. The river then cuts through the third mountain chain via a deep gorge (El Portillo) immediately below which it is joined by the Carranza. There is a short, fairly entrenched middle course and finally a broad lower course in the (presently) 12 km-wide coastal plain, terminating in a major estuary of Holocene age between the cities of Laredo and Santoña and fed by short, lowland tributaries (the Ríos Silencio, Clarín and Clarón).

The lower Asón Basin is isolated from the short, but deep Río Agüera valley to the East by a high, continuous ridge of hills anchored at the south by Pico del Carlista. The Agüera in turn is separated from Vizcaya by the Campo Ventoso massif (maximum elevations: 645-730 m), which plunges down to the present shore. To the West, the lower Asón is separated from the broadest coastal plain in central Cantabria around the city of Santander (which is partially flooded by the Holocene Bay of Santander) by a line of hills running northeast

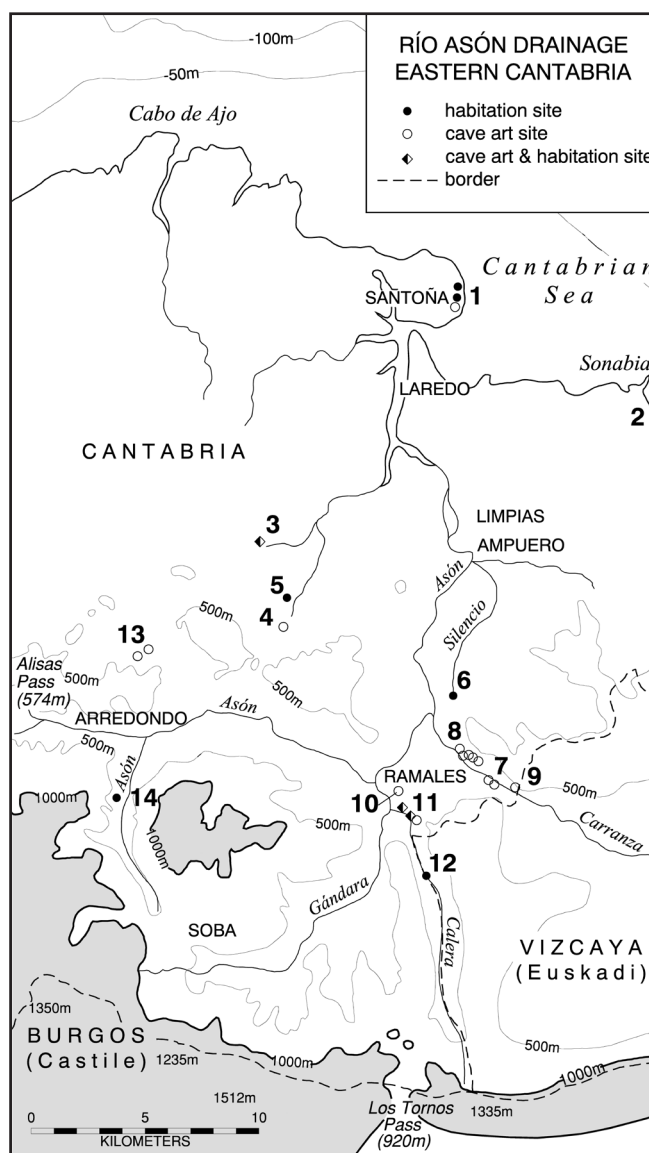


Figure 1. Upper Paleolithic sites of the Río Asón Valley (Eastern Cantabria, Spain) mentioned in the text. 1, La Fragua, El Perro; 3, El Otero; 4, Cobrantes; 5, La Chora; 6, El Valle; 8, Pondra, Arco; 9, Venta de la Perra, El Polovorin; 10, Cullalvera; 11, El Miron, Covallanas, La Haza, La Luz, El Horno; 13, Cofresnedo, Cubio Redondo; 14, Cubera.

from Alisas to the present coast. During the various climatic phases that existed during the course of the Upper Paleolithic, the shore would have been about 3-6 km north of its present position at the foot of 378 m Monte Buciero, which dominates the mouth of the Asón estuary. In short, the Asón is a physically well-delimited and bounded geographic entity, propitious as a potential local hunter-gatherer band territory. More easily accessible to areas immediately to the West, the Asón would have been connected eastward to the Basque Country by only narrow corridors via the interior Carranza Valley and the now-flooded coastal strip north of the Campo Ventoso massif.

Research & Publications since 2000

Some of the archeological work reported on here was actually conducted before the 2001 UISPP Congress, but was (at

least preliminarily) published in the period which is the subject of this report: 2000-2005. Most of the Upper Paleolithic research has concerned the Magdalenian and Azilian periods, but there have been some developments concerning the early Upper Paleolithic and Solutrean.

Early Upper Paleolithic

Mousterian and supposedly (but undated) Aurignacian materials had been found in the mid-1960s in El Otero Cave in the lower part of the Asón, while Mousterian, Aurignacian and Gravettian assemblages were discovered in the adjacent caves of Venta de la Perra and El Polvorín, just inside the Vizcaya border along the Carranza gorge, in the 1930s and restudied in the early 1990s by A. Baldeón, R. Ruiz Idarraga and A. Arrizabalaga (see discussion and references in González Sainz & San Miguel 2001). On a wall of Venta de la Perra, a non-figurative engraving (adjacent and technically similar to an engraving of a bison) is overlain by a calcite deposit that has been experimentally dated by thermoluminescence (TL) to 25,983±2,157 BP (Arias *et al.* 1999). A maze of other linear, non-figurative engravings on a section of bedrock floor in Venta de la Perra has also been *terminus ante quem* dated by TL on overlying calcite to 25,948±2,752 BP. If essentially accurate, these dates would confirm the long-held suspicion that Venta de la Perra may contain some of the oldest (i.e., Aurignacian or initial Gravettian) rock art in the Cantabrian region (along with El Conde and La Viña in central Asturias and possibly Hornos de la Peña in central Cantabria).

The nine Carranza caves with Paleolithic artifacts and/or rupestrian art were studied (although without excavations) and thoroughly published by C. González Sainz and C. San Miguel (2001). Among their new research findings are experimental TL dates in Ponda Cave: 35,740± 4,730 BP on calcite overlying a red line and underlying an engraved horse figure; 22,595± 2,338 BP on calcite apparently overlying the same engraved horse; 26,972±2,747 BP on calcite overlying a red painted deer 32,946±3,440 BP on concretion underlying the same red painted deer. If accurate, these dates would also indicate artistic activity during the Aurignacian and/or Gravettian periods. Note, however, the enormous standard errors associated with these dates, but also the fact that, being TL determinations, they might be closer to “true” (i.e., calendrical) ages than radiocarbon dates, which are known to be about 5-6,000 years “too young” in this time range.

Scant evidence of at least ephemeral visits to the upper reaches of the Asón during early Upper Paleolithic times comes from a 2m² *sondage* at the rear of the El Mirón Cave, which has yielded a few non-diagnostic artifacts, faunal remains and charcoal chunks, some of which – specifically from Level 128 – yielded an AMS ¹⁴C date of 27,580±210 BP (Straus & González Morales 2003a; Straus *et al.* 2001). This horizon (presumably pertaining to the final Aurignacian or early Gravettian) overlies a layer (130) also containing scanty artifacts (including two flake denticulates), bones and charcoal chunks, the latter dated by AMS ¹⁴C to 41,280±1,120 BP, presumably terminal Mousterian. This finding confirms the presence of a Mousterian occupation of the upper Asón, as suggested from

surface finds in the nearby Abrigo Rojo. The latter are eroding out of cemented deposits of ancient appearance that contain faunal remains and artifacts, such as the sidescrapers and denticulates recently found in a small test pit by González Morales. On-going surface survey in the area by I. Gutierrez and D. Cuenca has yielded cleavers, etc.

Recent excavations by speleologists and archeologists in a series of caves in the huge karstic depression of Matienzo within the third (northernmost) Cordilleran chain have tantalizingly revealed the apparent existence of early Upper Paleolithic and possibly Mousterian deposits particularly in Cofresnedo Cave, although their project centered on the recent prehistory of the area (Ruiz Cobo & Smith 2003). Although the descriptions are difficult to follow, apparently in the vestibule of Cofresnedo Cave one *sondage* of 0.5 m² revealed the presence of a deposit with a few flake sidescrapers, denticulates and a “point”, attributed tentatively to the Mousterian. Another nearby *sondage* (apparently 1 m²) revealed, at an apparently higher stratigraphic position (mainly in Level 4.3) a large artifact assemblage. These are mostly small flakes, but there are also a few blades – the assemblage being composed of items produced on local flints of poor quality as well as quartzite, mudstone and sandstone – plus limited numbers of pieces (generally non-cortical) made on non-local flint of excellent quality. There are only 27 formal retouched tools (often made on large mudstone flakes), including several sidescrapers and denticulates, but also a few endscrapers, perforators and a backed blade. Although classified as a sidescraper, one pictured item (no.515) looks like a blade continuously retouched on two edges (conceivably even an “Aurignacian blade”) (Ruiz Cobo & Smith 2003:113, 115). Most interesting is the presence in this assemblage of three perforated *Littorina obtusata* shells and a fragment of a worked antler, possibly a wand or round-section *sagaie* fragment, according to the authors. The small faunal assemblage (181 identifiable items and 1083 non-identifiable), studied by P. Castaños (2003), is dominated by remains of bovines (MNI=3), followed by red deer (MNI=2), then horse (MNI=4) and ibex (MNI=2), with traces of chamois (MNI=1), cave bear (MNI=2) and fox (MNI=1). Charcoal from the uppermost spit of Level 4.3 produced an AMS ¹⁴C date of 31,360±310 BP (GrA-20267), which seems to support a late Aurignacian age for this occupation in Cofresnedo Cave. The associated microfauna is notable for the presence of *Pliomys lenki*. In general, the microfaunal assemblage is indicative of cold, humid conditions, which makes sense for the end of Isotope Stage 3/beginning of Stage 2.

Cofresnedo contains red dot outline paintings (including some depicting ungulates – possibly red deer hinds) in the style of better preserved images in the nearby caves of Covalanas and La Haza in Ramales and in Arco and Ponda in the Carranza Gorge (as well as several other caves in western Vizcaya and central Cantabria) (Ruiz Cobo & Smith 2003). Based on theme, style, representational canons and technique, these paintings could be assigned to the so-called Ramales group and therefore dated at least to the Solutrean period (or, if the new TL dates from Ponda are accurate, even earlier).

Solutrean

The Solutrean, corresponding to the Last Glacial Maximum, is very poorly represented in the Asón, and not at all (so far) in its lower and middle courses. Indeed, the 85 km stretch of coastal zone between the drainage basins of the Holocene Bay of Santander and Guernica Estuary east of Bilbao is devoid of known Solutrean sites. Geographically separated concentrations of Solutrean sites are in reality found in central Cantabria, eastern and central Asturias – generally linked by the presence of numerous concave base points – on the one hand, and, on the other hand, stylistically rather different kinds of Solutrean assemblages are found clustered in central Vizcaya and dispersed throughout Guipúzcoa and in the adjacent French Basque Country (notably in Basse-Navarre, centered on the great site of Isturitz). Until the (still on-going) excavation of El Mirón Cave in the upper Asón, the only hint of Solutrean occupation had been a single bifacial willow leaf fragment from the adjacent painted cave of La Haza.

The 2m² *sondage* at the rear of the El Mirón vestibule yielded a series of some 8 levels or lenses with Solutrean points, two of the lower of which (126 and 125) have been ¹⁴C-dated to 18,950 ± 350 and 18,980±360 BP (GX-24471 & 24470) (Straus & González Morales 2003a). There is ambiguity concerning levels immediately above Level 120 at the rear of the vestibule, since the lowest “Magdalenian” levels excavated over a broader area (3-9 m²) there often include a few apparent Solutrean point fragments. These objects could have been either picked up (and sometimes reworked) by later human inhabitants of the cave and/or brought up accidentally during “Magdalenian” pit-digging (or other ancient disturbances). Although the excavated area of the Solutrean levels will hopefully be expanded in the near future, some preliminary observations can be made:

1. Beside the Solutrean points, there are relatively few other retouched artifacts;
2. The Solutrean points are very numerous considering the small area excavated (n=19, although since all are fragmentary and many very small, some of these may be problematic);
3. Among the pieces complete enough to be classifiable, there is a striking diversity of recognizable types, including laurel and willow leaves (bi- and unifacial), 2 very different shouldered points and a concave base point (a second concave base fragment was found in disturbed surface sediments nearby, at the edge of the huge clandestine “pothole” from whose base we had dug the 2m² *sondage*);
4. There is also a striking diversity of lithic raw materials represented among the Solutrean points (including some unusual, bright-colored flints and – for the concave base points – fine-grain quartzite, reminiscent of the “favorite” material used for concave base point manufacture in Asturias);
5. The points are associated with an unusually large number of perforated objects (n=43), including red deer canines and shells of *Trivia* sp., *Littorina obtusata*, and especially *Dentalium* sp.

One could speculate that these levels represent repeated visits to the cave by hunting parties whose base camps were located

at some distance away. As a working hypothesis, based on the diversity of point styles and lithic raw materials found so far, perhaps they came to El Mirón from different directions. The facts that all the points are broken and that there are few other artifacts are suggestive of specialized, short-term occupations. In a 1m² *sondage* dug at the midpoint of a 1m-wide trench that connects the large excavation areas at the front and rear of the El Mirón vestibule, Straus & González Morales recently encountered a moderately rich cultural horizon (313) that underlies an extraordinarily prolific one (312) pertaining to the early Magdalenian. The middle spit of Level 312 is dated to 15,850±170 BP (GX-31932) and Level 313 to 17,400±270 BP (GX-31194). At least in this very limited area excavated, Level 313 lacks Solutrean points, but by its stratigraphic position and ¹⁴C date, it might pertain to either the Solutrean or initial Magdalenian. There are only 37 retouched tools, half of which are backed bladelets.

It is worth noting that during the Last Glacial Maximum there were significant mountain glaciers in the Cordillera not far from El Mirón and the other Ramales sites and no major Solutrean residential base camps are currently known in the upland interior of the whole Cantabrian region – only small, possibly specialized hunting loci. In this regard, it is also of interest that a apparent Solutrean (unifacial willow leaf mesial) point fragment, associated with two backed bladelets, a sidescraper with invasive retouch and 11 other tools, was found during house construction work at the upper end of the town of Ramales, not far from La Haza Cave (Bohigas *et al.* n.d.). In addition, there has been a recent surface discovery of a shouldered Solutrean point fragment in the cave of La Luz, near El Mirón and El Horno caves. An engraved figure of a horse has also recently been described in La Luz (Montes *et al.* 2003).

The famous cave of Covalanas (the second cave art site to be discovered in Cantabrian Spain—after Altamira) is located directly above El Mirón and therefore on the same Pando Mountain as La Haza, La Luz and El Horno caves, above the Río Calera 1 km east of Ramales and only a few hundred meters from the border of Vizcaya. Repeatedly studied since its initial publication by Alcalde del Río, Breuil and Sierra in the classic *Les Cavernes de la Région Cantabrique* (1911), and the key site in the formulation (especially by J.M. Apellániz) of the so-called “Ramales School” of red dot outline paintings (of mainly red deer hinds, but also stags, bovines and horses) chiefly in Cantabria, but also in easternmost Asturias and westernmost Vizcaya (at nearby Arenaza Cave), Covalanas has recently been restudied, resulting in a magnificently illustrated monograph by M. García Diez and J. Eguizábal (2003). Eguizábal is the long-time guide of Covalanas and La Haza caves and García recently completed a doctoral dissertation on the Upper Paleolithic cave art of the upper Asón at the Universidad del País Vasco in Vitoria (2002). While earlier studies have proposed a wide range of possible dates for the red dot outline style (mostly converging on the Solutrean, in part because of archeological associations, not only in La Haza but also at other sites such as La Pasiega, El Pendo, La Garma and Llonín), García and Eguizábal (2003:95), taking into account the possible implications of the Pondra TL calcite

dates, suggest only that the Upper Paleolithic figures in Covalanas predate the Magdalenian and probably were executed between the late Gravettian and late Solutrean. If true, the upper Asón was visited not only for the purposes of hunting expeditions, but also presumably for artistic-ritual reasons during the time of the Last Glacial Maximum. In any event, it was an integral part of a regional cultural territory centered on Cantabria and the most closely adjacent parts of Vizcaya and Asturias, a strip ca. 150 km long by no more than about 30 km wide (under conditions of full glacial sea level regression). Such an area might have been “home” to perhaps some 10 “valley” bands, which in turn maintained more or less frequent social contacts with more distant bands in central Asturias and in the greater Basque Country (hence the presence of a few concave base points – so abundant in Asturias – in the latter region and in the French Pyrenees).

Early Magdalenian

It was definitely during the Tardiglacial that the whole Asón Basin (and so many other valleys in the Cantabrian and Pyrenean regions) witnessed a major “boom” in human population and a spread of large-scale human occupations (at least seasonally) up into the montane zone – a phenomenon successively well-documented in the Pyrenees by L. Méroc, P. Bahn and J. Clottes.

The Magdalenian in the Asón Basin was until fairly recently known essentially from excavations done in the early-mid 1960s by J. González Echegaray and M.A. García Guinea in the nearby lowland cave sites of El Otero and La Chora, both with Upper Magdalenian (and Azilian) deposits (although without radiocarbon dates it seems possible that the supposed Aurignacian of El Otero *might* in reality pertain to the Lower (“macrolithic”) Magdalenian. As things currently stand in the Asón Basin, the Lower and/or Middle Magdalenian are found only in El Mirón and possibly El Valle (see Straus *et al.* 2002).

The subject of Cantabrian Magdalenian chrono-cultural systematics is currently under considerable debate, particularly concerning the question of temporal “phases” and/or functional “facies”. Whether or not it is credible to speak of Archaic, Lower, Middle, Upper and Terminal Magdalenian phases for the region is at the heart of the discussion, in light of syntheses developed in the 1980s by P. Utrilla, C. González Sainz, M.S. Corchón and others versus the more minimalist (and functionalist) approach taken by Straus. The combination of El Mirón, El Horno, El Valle and La Fragua – with the significant application of radiocarbon dating – is likely to help clarify matters at least for Cantabria (see Straus & González Morales 2005).

El Mirón has so far yielded evidence of early (i.e., pre-harpoon, >13,000 BP) Magdalenian occupations in the dark inner cave (in a *sondage* at the base of an old trench: 14,620±80 BP, GX-22347), on the erosional slope between the vestibule and the inner cave (preserved as the fill of a natural niche within the cave wall: 16,600±90 BP, GX-30398), in the vestibule front excavation area (Levels 15-17, with 6 coherent dates between

15,010-15,700 BP, plus a date of 14,600±190 BP for Level 14 [GX-32383]), in a *sondage* within the mid-vestibule connecting trench (Level 312, see above) and in the vestibule rear excavation area (Levels 108-119, with 13 dates between 13,660 and 17,400 BP). Throughout this impressively large area, the early Magdalenian deposits are characterized by dark “chocolate” brown sediments extremely rich in organic matter (including abundant charcoal, ash and bones), artifacts, ochre and fire-cracked rocks. The bones are often blackened, probably due to a combination of humic staining and light charring (per R. Shahack-Gross & S. Weiner n.d., and A.B. Marín n.d.).

Essentially the *whole cave* was being used (probably not strictly simultaneously) by humans, who repeatedly and intensively occupied it, abandoning impressive quantities of “waste” and frequently “churning” it by such activities as at least shallow pit-digging or simply trampling. The base of the early Magdalenian deposit has not yet been reached in the front of the vestibule (although coring suggests that it – and perhaps an underlying Solutrean – continues at least several decimeters below its current 70 cm thickness). In the mid-vestibule *sondage* Level 312 alone (undoubtedly a massive palimpsest of potentially distinct levels and lenses) is 35-40 cm thick (combined with Level 313, 50 cm.) and in the vestibule rear the combined thickness of Levels 108-119 can attain 110 cm. These are figures comparable to the massive early Magdalenian horizons in Altamira, El Juyo and El Rascaño, and almost to that of the famous Magdalenian “beta” horizon in El Castillo – 1.2-2 m thick – which was apparently composed of two strata (which could have been further subdivided) (Cabrera 1984:92, 298). All these deposits are filled with evidence of hearths and huge amounts of bones, lithic debitage, tools and weapons, bone points, needles and other implements, as well as ornaments and portable art objects. As in the other famous “Cantabrian Lower Magdalenian” sites, the El Mirón horizon is a tremendous aggregate of occupational debris that is difficult to subdivide, although we have assiduously tried to do so in the two main excavation areas. Despite the suspicion that there had been some mixing (probably mostly anthropogenic in nature), as suggested by the stratigraphically incoherent order of the ¹⁴C dates in the vestibule rear, the clear presence of hearths (some being pits filled with fire-cracked rock) provides hope that activity areas centered on those important features can be more or less individually studied (dissertation research of Y. Nakazawa).

Another question is whether the early Magdalenian can really be subdivided into regionally *generalized* phases. Nonetheless, at least in the particular case of El Mirón it is now clear that a distinction can be made between the initial (“transitional”) Magdalenian occupations dating to c. 17-16 kya and at least the later ones (c. 16-14 kya) in terms of lithic raw material exploitation, technology and typology, as well as distinctions in antler *sagaie* typology (González Morales & Straus 2005). The basal “post-Solutrean” levels (117-119) in the vestibule rear are characterized by significant quantities of “macroliths”: large flakes, both unretouched and formed into notches, denticulates, sidescrapers, etc. They are made on locally available quartzite, limestone and mudstone (“lutite”). These artifacts give the assemblages an “archaic”, “Mousteroid” ap-

pearance. However, they are accompanied by other artifacts made on flint, including limited numbers of backed bladelets, simple burins, endscrapers, etc. (but almost no *raclettes*, the hallmark of the “Badegoulian” in France). As in the overlying Magdalenian, the flints are dominated by excellent-quality types that are not found locally, but which may come from Cretaceous limestone sources exposed along the present-day seacliffs in eastern Cantabria and western Vizcaya, as well as other possible non-local sources (J.D. Risetto, dissertation research in progress). However, we can preliminarily hypothesize that the earliest “Magdalenian” occupations of El Mirón witnessed limited mobility and therefore restricted territories and/or contacts with the coast zone, relying heavily as they did on local raw materials for expedient tool manufacture. Interestingly, in the later (but still “pre-harpoon”) Magdalenian assemblages, excellent-quality, non-local flint comes to dominate overwhelmingly and the percentages of backed bladelets rise dramatically. Quite tellingly, among those spits of Level 312 in the mid-vestibule *sondage* which have significant numbers of retouched tools, backed blades rise from 15 to 42% (the latter relative frequency being from the spit dated to 15,850 BP). Also rising from the base upwards is the percentage of nucleiform endscrapers, the other lithic hallmark of the classic “Lower Cantabrian Magdalenian”. Phenomena like those of the “initial Magdalenian” at El Mirón have been observed widely in the period of transition from the classic Solutrean to the classic Lower Magdalenian both in Spain and in France, although both the exact timing and nature of technological changes varied regionally.

So after an initial phase of “archaic” Magdalenian occupations (as also identified in other sites in Cantabria, such as El Rascaño, and, in Asturias), there is a series of extraordinarily rich palimpsest levels in both the vestibule rear and front at El Mirón that have very high percentages of backed bladelets and nucleiform endscrapers. One level in particular (17), whose base has not yet been reached in the vestibule front, has yielded objects that are absolutely typical of the Cantabrian Lower Magdalenian: engraved scapulae. One of these, found in 2004 in a spit nearest to the ^{14}C date of 15,700 BP, is an essentially whole red deer stag scapula of large size that is engraved with the head and neck of a red deer hind, as well as part of a possible bovine (González Morales, Straus & Marín 2005). The hind is finely striated using a “shading” technique and stylistic and proportional canons that are characteristic of numerous such images on both scapulae and cave walls in Cantabria. The most famous examples are from early 20th century excavations in Altamira and El Castillo (both scapulae and parietal art), but engraved scapulae have also been found in El Juyo, El Pendo, El Rascaño and El Cierro (the latter an outlier site in eastern Asturias). The best-dated is the El Mirón scapula. The inhabitants of El Mirón were part of a stylistically well-defined social territory centered on present day Cantabria. It is in the subsequent period, which some researchers call the Middle Magdalenian, that there is clear evidence of more extra-regional contacts, especially the presence of *contours découpés* – absolutely characteristic of the French Pyrenees ca. 14.5-14 kya – in a growing number of sites in Cantabria and Asturias (although not [yet] in the Asón Valley). All these indications might suggest a trend

toward expanding territories and/or social networks from the Archaic to the Lower to the Middle Magdalenian, a trend which may have continued and consolidated in the Upper Magdalenian.

Although the evidence of subsistence intensification from the Lower Magdalenian of El Mirón is dominated by an apparently high degree of specialized ibex hunting in many levels (not surprising, given the steep, rocky terrain (i.e., high cliffs) surrounding the site—in contrast to the heavy slaughter of red deer at contemporary lowland sites such as Altamira and El Juyo), red deer is also well represented in some levels, and the presence of some marine molluscs would tend to confirm the flint evidence for contacts with the coastal area. Future research will hopefully determine whether these were seasonal or situational in nature, the result of residential or logistical moves, or reflections of inter-group exchange rather than actual displacements of humans. Under Tardiglacial conditions, the distance to the shore from El Mirón would have been about 30 km via the Asón Valley, but the distance to the Vizcayan flint sources (Sopelana, Barrika, Plentzia) would have been at least 55-60 km via Carranza and the Bilbao area. However the same geological formation exists offshore of the present mouth of the Asón, so perhaps those excellent flints were available closer to the site during Magdalenian times.

The importance of El Mirón is further highlighted by rock art stratigraphically datable to the Lower/Middle Magdalenian. In the vestibule rear there is a very large block that had fallen from the cave ceiling, landed external surface facing down atop Level 110 (dated to 16,130±250 BP), was engraved with series of both fine/shallow and broad/deep, apparently non-figurative, linear incisions, and then was successively covered by occupation levels dating between about 15-12 kya (González Morales & Straus 2000). Masses of fine engravings (including the image of a horse and a less clear bison) on the cave wall at the vestibule rear may also date to the Lower/Middle Magdalenian, based on their style, height above occupational surfaces and the assumption that the artist(s) worked in the standing position (García Díez, González Morales & Straus n.d.).

Recent testing by M.P. García-Gelabert in the classic site of El Valle in the middle course of the Asón yielded possible radiocarbon evidence (i.e., a date of 13,820±610 BP [GX-24640]) for the presence of a heretofore unreported Middle Magdalenian at the base of one of several small *sondages*, although no diagnostic artifacts were recovered (García-Gelabert & Talavera 2004). The ^{14}C assay has a very large standard error, thus in reality not precluding an Upper Magdalenian attribution.

Late Magdalenian and Azilian

El Mirón was apparently not abundantly occupied during the Upper Magdalenian, although there are levels in both the vestibule front (with a date of 12,970±70 BP closely associated with the only antler harpoon fragment as yet found in the site), middle (with a date of 12,350±180 BP) and rear (with a new date of 12,460±180 BP for Level 106 [GX-32382]). Similarly

or perhaps even more limited, short-term visits to the cave occurred during the Terminal Magdalenian or Azilian with seemingly discrete hearths again present in the vestibule front (11,720±140 BP), middle (11,650±50 BP) and rear (11,950±70 BP), characterized by limited lithic artifact assemblages containing curved and straight backed micro-points and small flake (“thumbnail”) endscrapers, but with virtually no osseous artifacts. For reasons that are not known (perhaps some aspect of the once-again harsh climatic conditions of Younger Dryas?), El Mirón Cave – high up on the west face of Monte Pando and strategically dominating the whole upper-middle valley of the Asón – was no longer preferred for human habitation. But three valley-bottom sites in the upper and middle Asón, as well as several in the lower valley, definitely were: El Horno, Cullalvera, El Valle, El Otero, La Chora, Cobrantes, La Fragua and El Perro. In this period one gets the impression that the whole Asón Valley – like some many other deglaciated valleys along the northern front of the Cantabrian Mountains and Pyrenees – finally harbored a relatively “dense” hunter-gatherer population. The distribution of bands seems to have been quite continuous the length of this entire region and even began to spill over onto the highlands south of the mountains. The lower valley sites of Perro, Otero and Cobrantes all have engravings, some of which have been stylistically attributed to the Upper/Final Magdalenian or Azilian (González Echegaray & González Sainz 1994). The paintings in upper valley cave of Cullalvera (including claviform signs) are also attributed to this period and a non-figurative black charcoal mark (near the black outline drawings of two horses) has been dated to 10,400±90 BP (González Sainz *et al.* 1997; González Sainz 2002). An engraved bone (also with claviform figures) and a decorated antler tip (probably the end of a *bâton*) were recently found on the surface during construction-related archaeological survey, followed by a series of test pits by Y. Díaz and A. Astorqui. This shows that Cullalvera once had an Magdalenian living site that has been all-but destroyed by fluvial erosion.

La Fragua is a small cave on Monte Buciero overlooking the present shore at the Holocene mouth of the Asón, about 8-10 km from the Tardiglacial shore. The basal deposit (Level 4) was excavated in an area of 6 m² and has recently been AMS ¹⁴C-dated to 12,960±50 BP (GX-29440). This deposit – apparently temporally equivalent to the beginning of the Upper Magdalenian despite the lack of harpoons – is distinguished by the presence of an antler wand with the engraved image of a horse (González Morales 2000a, b) and a small, but diverse ungulate fauna in which the principal species are (especially) red deer and ibex, with small numbers of roe deer, boar, bovines, and chamois (Marin 2004). The lithic industry is characterized by the use of excellent-quality flint, presumably from Cretaceous source outcrops along the present-day sea cliffs (or perhaps on the narrow, now-flooded continental shelf). There are relatively abundant cortical lithic debris, suggesting local flint acquisition and *in situ* knapping. The cultural remains are distributed in thin, separated lenses, indicating occasional, discontinuous human visits to this site, perhaps using it as a short-term hunting camp. La Fragua was abandoned after the early Upper Magdalenian and was used again in the late Azilian and Mesolithic, with shell middens

dating 9600-6650 BP. The possibly Azilian midden (Level 3, with no diagnostic artifacts) is composed almost entirely of landsnails (*Cepaea nemoralis*=94% of the total minimum number of individual molluscs) plus small numbers of marine molluscs (Gutierrez 2005). Level 3 yielded remains of 1 individual each of a bovine and ibex, and 2 each of red and roe deer (Marin 2004).

The Final Magdalenian and mid-Azilian, absent in La Fragua, are present in the nearby El Perro, which is a small shelter also on the steep, rocky seaward slope of Monte Buciero. The Upper Magdalenian level (2c) is dated to 12,140±180 BP and has yielded relatively scarce artifact assemblages – including an eyed needle and 4 sagaies (3 of which are decorated)(González Morales & Díaz 2000). The overlying level (2a/b) is Azilian, as indicated by its ¹⁴C date of 10,160±110 BP, but the lithic assemblages between the two units intergrade considerably, with relatively many small endscrapers (including the “thumbnail” type), backed bladelets and micro-points (including Azilian points), and a few continuously retouched pieces, denticulates and burins. Again the flints used are of excellent quality and probably from local/semi-local sources. The terminal Pleistocene sequence is capped by an early Mesolithic shell midden as at La Fragua. The Azilian levels are rich in limpet (36% of total MNI) and periwinkle (55%) shells, as well as some mussels, while the Mesolithic midden (Level 1.3) – dating to 9,260 BP, after a substantial rise in sea level and change in littoral substrate – is dominated by mussels (47%), limpets (32%), topshells (12%) and small quantities of oysters and landsnails (Gutierrez 2005).

Far more substantial are the residues of Upper/Final Magdalenian and Azilian occupations in El Otero and La Chora, which in those times of lowered sea level would have been situated toward the interior end of the coastal strip. The only recent work in these two nearby sites has been the ¹⁴C-dating of an oyster and limpet shell midden which caps the Terminal Paleolithic sequence in La Chora (6,360±80 BP), proving that the cave had also been used in the Mesolithic (González Morales *et al.* 2000). The Cave of Cobrantes – known for its engravings of ungulate and anthropomorphic figures attributed to the Upper Magdalenian by González Sainz and González Morales (1986) – was recently tested, revealing a series of Upper Paleolithic levels (Rasines 2000), perhaps attributable to Upper Magdalenian-Azilian (I. Gutierrez Zugasti, personal communication, 2005). This large cave looks out over and strategically dominates a lobe of the coastal zone from an elevation of about 250 m above sea level on the north face of the third Cordilleran range, about 6 km west of the Asón and the great Upper Magdalenian-Azilian site of El Valle.

Like Mas d’Azil, El Valle was critical in the history of understanding the relationship between the Upper Magdalenian and Azilian at the end of the Holocene. Discovered by L. Sierra in 1905 and excavated in 1909-11 by the *Institut de Paléontologie Humaine* team (Sierra, H. Obermaier, J. Bouyssonie and H. Breuil), but (like El Castillo) never substantively published by its excavators, El Valle is also famous for the fabulously decorated perforated antler *bâton*, engraved bird radius, and decorated Magdalenian harpoons (Obermaier 1924). It is an unusual cave to be chosen for what was apparently a major

site, because it faces North (with no view, unlike the panoramically dominant El Mirón) from the base of the third Cordilleran chain in an Asón lateral tributary valley (that of the Río Silencio, whose extensive karstic system resurges at the mouth of El Valle), making its complex outer area dark, cold and dank. In 1996-98, in an effort to verify the state of the intact stratigraphies remaining in various parts of the El Valle mouth, M.P. García-Gelabert excavated four 1m² sondages. The results have recently been published in a monograph (García-Gelabert & Talavera 2004, see also García-Gelabert 2005), from which the following summary observations have been derived. The sheer scale of the areas occupied during the Upper Magdalenian and Azilian, the abundance of lithic and osseous artifacts, and the wealth of works of art and ornaments known to have come from this cave, would suggest that it was repeatedly used as a habitation site despite its seemingly negative physical characteristics.

García-Gelabert found evidence of Upper/Final Magdalenian occupation in all 4 sondages:

- GIC 2/2, Stratum II.7 (a round section, decorated, unilaterally barbed harpoon with 7 hooked barbs and a basal swelling, some 30 cm below an Azilian-age ¹⁴C date);
- G1, Strata I.1-I.2 (another round section, decorated, unilaterally barbed harpoon with 6 hooked barbs and a basal swelling and a perforated, decorated antler *bâton*, 3-8 cm below an Azilian-age ¹⁴C date);
- C, Level I (worked and decorated osseous artifacts, including 6 *sagaies*, an awl, and a deer leg bone decorated with stylized ibex or flower motifs); and
- GDSS/1, Level III (supposedly on the basis of diagnostic lithic artifacts—unspecified).

Faunal analysis from *Sondage C*, Level I by A. Morales, M. Gabaldón and S. Martín (2004) found the bones to be extremely fragmented (presumably due to both marrow extraction and posterior trampling). Of 1004 identifiable ungulate bones, however, fully 947 (94.3%) are of red deer. These represent more or less complete carcasses, indicating primary butchery (as well as secondary processing) at El Valle, especially of young-young adult individuals of very large size (presumably mainly males), which may have been killed after they had shed their antlers, i.e., in late winter. Among the small number of other animal remains, there are 21 ibex bones/teeth, a handful of molluscs and fish bones in this Upper Magdalenian assemblage.

Traces of Azilian occupations, spanning 1000 years, were found in three of the sondages:

- GIC 2/2, Stratum II.2, ¹⁴C-dated to 11,130±170 BP (GX-24638);
- GDSS/1, Level II, Strata II/II.4 and II/II.3, separated by less than 3 cm and ¹⁴C-dated to 11,050±150 BP (GX-23799) and 11,040±150 BP (GX-23798), respectively;
- G1, Level I, Stratum I.1, ¹⁴C-dated to 10,120±280 BP (GX-24639).

Although it is difficult to decipher the published lithic descriptions and to correlate them to the dated levels, it is appar-

ent that backed blades, bladelets and micro-points and small endscrapers are present in these levels, while burins are very rare.

Analyses of faunas from the Azilian levels in GDSS/1, Level II and GIC 2/2, Stratum II by B. Pino (2004a,b) indicate a continued overwhelming specialization in red deer hunting (90.3% of the 497 identifiable remains in GDSS/1). There are also very small numbers of ibex remains (and traces of other species). Juveniles and young adults were most often killed, in addition to small numbers of old individuals. The carcasses were both primarily butchered and processed for consumption on-site, although axial remains seem less common than in the Upper Magdalenian sample studied by Morales. The vast majority of the bone fragments are unidentifiable as a result of heavy breakage. Given the fact that these remains come from just a few small test pits, one can only imagine the overwhelming quantities of fauna materials that once existed (and still remain, even after a century of excavations and looting) in the extensive Azilian and Upper Magdalenian deposits in El Valle. It is worth noting that El Valle is barely 2 km from the confluence of the Río Carranza with the Asón, just downstream of the gorge (“El Portillo”) that separates the upper valley from the middle. Despite its lack of a view, the cave would have been a strategic location from which to mount slaughters of red deer bands moving up or down both rivers.

The final significant Upper Magdalenian/Azilian site in the Asón Basin is El Horno, which is a relatively small cave at the base of the dramatic cliff of La Pared on the south face of Monte Pando, “behind” Covalanas and El Mirón, and close to La Luz. El Horno is near the bank of the Río Calera near Lanestosa (Vizcaya), just above the point at which this tributary of the Asón plunges from the top of its hanging valley down to its confluence with the Gándara below El Mirón. Like El Valle, El Horno lacks a view, but is at a strategic location along the narrow upper course of the Calera, surrounded by steep rocky slopes. The top of the archeological deposit was disturbed by the activities of speleologists and clandestine excavators, leading to the surface discovery of a flat-section, bilateral, antler harpoon of Azilian type. In 1999 and in association with the Cueva Mirón Project as part of a wider study of the Paleolithic prehistory of the Upper Asón, M.A. Fano began a limited excavation at the rear of the El Horno vestibule. Occupation layers pertaining to the Upper-Final Magdalenian were identified in 1999-2001 in an area measuring 3m² (Fano 2005b, n.d.) and in 2004 a second phase was begun to expose the Magdalenian levels over a wider area. Chronocultural attribution of these levels is based on the recovery of diagnostic artifacts and on radiocarbon dates. The lowest level in the deposit (3), with thumbnail endscrapers, backed bladelets and perforated *Turritella* shells probably pertain to the Upper Magdalenian.

Level 2, dated to 12,250±190 BP (GX-27456) has yielded an osseous industry that is particularly diagnostic (Fano *et al.* 2005), notably two decorated, antler harpoons of a type that is common in the Cantabrian region after 13,000 ¹⁴C BP. One is definitely unilaterally barbed. Other decorated items include a perforated antler (*bâton de commandement*) with non-figu-

rative engravings and a horse rib which is profusely engraved with deep, wide lines. There are two round-section *sagaies*: a mesial fragment and another reworked into a chisel. In addition, Level 2 produced remains of antler blanks. The small lithic assemblage (all flint) is composed of endscrapers, burins, backed bladelets and other types such as continuously retouched pieces, all consistent with the rest of the chrono-cultural indicators for Level 2. There are also several beads made of red deer teeth and shells of *Nassarius reticulatus* and *Trivia* sp. (Vanhaeren *et al.* 2005).

Level 1 currently lacks a diagnostic bone industry, but the lithic industry (mostly flint and composed mainly of endscrapers, burins, burin/endscrapers and backed bladelets) is consistent with its radiocarbon date of 12,530±190 BP within the standard error. There are again several ornaments made on a red deer canine and shells of *Turritella* sp., *Trivia* sp. and *Nucella lapillus*.

Overlying Level 1 is Level 0 whose sediments are variegated and contain archeological materials of various periods. The discoveries in this layer of a perforated harpoon base and a decorated chisel with stylized, frontal-view images of ibex suggest the presence of Upper-Final Magdalenian materials in this unit (Fano 2005a; Fano *et al.* 2005). In addition, the retouched lithics from Level 0 do not contradict the idea that the cave was also used during the Azilian, since they include many thumbnail endscrapers and backed micro-points (including Azilian points) – the latter more abundant than in the underlying levels, while burins are scarcer. These observations would jibe with the sporadic presence of osseous artifacts in general and *sagaies* in particular, as well as with the find of a flat-section Azilian harpoon before the start of Fano's excavation. In addition, a date of 11,630±170 BP (GX-26410) obtained in 1999, supports the hypothesis that El Horno did have an Azilian occupation, which needs to be tested in the current phase of excavations.

S. Costamagno has recently studied the rich ungulate faunal assemblages from *in situ* levels 1-3. Taphonomic analysis strongly suggests a human origin for the remains. The faunal spectra are highly specialized, being dominated by ibex (>80% of the identifiable remains in Level 1, for example). Red deer is much less abundant and there are merely traces of other taxa in the three levels studied. Mainly adult animals were probably hunted in late winter and early spring by Magdalenian inhabitants of El Horno. Parts of ibex and red deer carcasses seem to have been transported to the cave after field butchery at the kill loci. The study of butchering marks and bone fragmentation suggest exhaustive exploitation of the carcasses for meat and marrow (Costamagno & Fano 2005). (Another possible "high-altitude" Upper Magdalenian/Azilian site is Cubera, at the "mouth" of the U-shaped uppermost Asón gorge, but essentially nothing is known of it beyond the presence of a rib with finely engraved hatch-marks [Chaline 1965]).

Codicil and Conclusions

Following the "boom" of Upper Magdalenian and Azilian sites the length of the Asón Valley (typical of many Cantabrian val-

leys), there was a major shift in settlement pattern in the early-mid Holocene Mesolithic period (see Straus & González Morales 2003b). Several Mesolithic sites have been discovered in the vicinity of the then-new Asón estuary (El Perro, La Fragua, Ilso de Hayas, La Chora, La Baja and, further to the east on the estuary of the Agüera River, La Trecha), with ¹⁴C dates ranging between c. 9300-5500 BP. (González Morales 1995, 2000b; González Morales & Díaz 2000; González Morales *et al.* 2000; Serna 2000). Shell middens characterize most of these and artifacts (especially formal types) are quite scarce. Recent excavations in Cubio Redondo and Cofresnedo caves in the Matienzo depression within the third Cordilleran chain, 15 km from the Holocene mouth of the Asón, show the existence of Mesolithic occupations with marine (and terrestrial) molluscs there too, with dates between c. 6,800-5,800 BP (Ruiz Cobo & Smith 2003). On the contrary, further inland, evidence of Mesolithic visits to El Mirón is very sparse: scattered, non-diagnostic lithics and a few bones in levels of the vestibule front dated to around 9,500 and 8,500 BP, separated by an apparent depositional hiatus (Straus *et al.* 2001). Finally, there is limited indication of human use of Tarrerón Cave, which is located on the west face of the Calera valley about 1.5 km upstream of El Horno: a small lithic assemblage including a double-bevel retouched segment, but without ceramics (as at Cubio Redondo), associated with a ¹⁴C date of 5780±120 BP (Apellániz 1971).

In general, it seems that, with the Holocene sea level transgression and dense reforestation of the Cantabrian Mountains, human settlement concentrated on the coastal zone (especially near inlets and estuaries) and all but abandoned the interior (Straus & González Morales 2003; González Morales *et al.* 2004; but see Arias & Fano 2005). Subsistence increasingly depended on aquatic resource exploitation (shellfish gathering and fishing), hunting of less mobile, less aggregated, woodland-dwelling animals (roe deer, boar – as well as the usual and very adaptable red deer), and plant collection. A settlement-subsistence system based on occupation of *both* the coastal and montane zones that had been fully developed during the Tardiglacial and based on a somewhat higher degree of mobility and probably large territories, had come to an abrupt end, probably as a consequence of environmental and resultant subsistence changes. This situation was to change only with the arrival and adoption of Neolithic food production economy and ceramic technology, which occurred in well-documented fashion at El Mirón c. 5,600 BP (Peña *et al.* 2005). This was soon to be followed by a new form of marking the anthropization of the landscape, namely the construction of megaliths on prominent ridges, beginning as early as 5,500 BP at Hayas between the lower valleys of the Asón and Agüera (Serna 2000). Long-established in the upper reaches of the Ebro River Basin in the Mediterranean drainage just to the south of the Basque sector of the Cordillera (Alday 2005), the Neolithic of Navarra-Alava-Treviño-La Rioja had "stalled" for nearly a millennium while their transcordilleran neighbors had continued to live a foraging existence. Social contacts with the Upper Ebro across the mountains or with early Neolithic groups in SW France ultimately may have brought the Cantabrian Mesolithic groups into the world of farmers and pastoralists. But that is another story yet to be fully explained...

The past decade, and especially the past 5 years, have seen a rapid growth in our knowledge of the Upper Paleolithic human occupation of the Asón River Valley as a result of several projects: the Prehistory of the Marshlands Project of González Morales, the Prehistory of Matienzo Project of Ruiz Cobo and Smith, the El Valle Cave Project of García-Gelabert, the Caves of the Carranza Gorge Project of González Sainz and

San Miguel, the Cave Art of the Upper Asón Project of García Diez with J. Eguizabal, and the Prehistory of the Upper Asón Project of González Morales and Straus (El Mirón) and Fano (El Horno). This important basin has gone from being a rather little-known prehistoric “no-man’s-land” halfway between Santander and Bilbao, to a center of synergetic and interdisciplinary prehistoric research activity.

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(Abbreviations: AAC=Actuaciones Arqueológicas en Cantabria; INORA=International Newsletter on Rock Art)

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