

1 **“The Red Lady of El Mirón”. Lower Magdalenian Life and Death in Oldest Dryas**  
2 **Cantabrian Spain: An Overview.**

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15

16 Abstract

17 This synthesis article summarizes the multidisciplinary evidence and interpretations of the first  
18 substantial human burial of Magdalenian age to be discovered on the Iberian Peninsula. A  
19 robust, relatively tall, apparently healthy, probably female adult was buried at the rear of the  
20 living area in El Mirón Cave in the Cantabrian Cordillera of Spain about 18,700 calendar years  
21 ago. She had lived in the cold, open environment of Oldest Dryas, with a subsistence based on  
22 hunting mainly ibex and red deer, fishing salmon and some gathering of plants, including some  
23 starchy seeds and mushrooms. The technology of her group included the manufacture and use of  
24 stone tools and weapon elements made on both excellent-quality non-local flint and local non-  
25 flints, as well as antler projectile tips and bone needles. Her burial may have been marked by  
26 rock engravings suggestive of a female personage, by red ochre staining of a large block adjacent  
27 to her skeleton, and by engravings on the adjacent cave wall, and the burial layer itself was  
28 intensely stained with red ochre rich in specular hematite specially obtained from an apparently  
29 non-local source. The ochre may constitute the only demonstrable “grave offering”. The grave  
30 was partially disturbed by a carnivore of wolf size after the corpse had decomposed. Then, it is  
31 hypothesized that the skeleton was covered over again and (re-) stained by humans after they (or  
32 the carnivore) had removed the cranium and most of the large long bones.  
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34 Keywords: Magdalenian, Human burial, Oldest Dryas, Cantabrian Spain, El Mirón Cave  
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36 **The Red Lady of El Mirón Cave**

37 About 19,500 years ago a very large chunk of the limestone ceiling of El Mirón Cave crashed  
38 down atop a surface that was (or recently had been) occupied by human foragers in a period that  
39 archeologists call the Initial Magdalenian. Human life resumed in the cave, with repeated stays  
40 in the montane hinterland of what is today eastern Cantabria. During these occupations,  
41 pertaining to the Lower Magdalenian period, people made tools and weapons from both local  
42 and non-local stone materials and from antlers and bones; they hunted ibex and some chamois on  
43 the high, abrupt, rocky slopes around the cave and red deer on the broad valley floor and lower  
44 slopes of the nearby upper River Aón and its tributaries, where they also fished salmon; they  
45 built fires, pits and possibly a wall (Straus and González Morales 2007); they butchered  
46 carcasses, processed their products (such as hides, bone marrow and grease); they made sewn

47 clothes and moccasins; they ate, sang, danced, told stories, reproduced, laughed, cried, slept...and  
48 they died. Only rarely were they buried in the caves where they had lived.

49 One of the people who died and the only one we know who was buried in El Mirón Cave  
50 (around 18,700 years ago) was an adult woman about 35-40 years old. Details of her skeleton  
51 and what can be learned directly from it, as well as the chronological, environmental,  
52 taphonomic, distributional, archeological, archeofaunal and arguably ritual contexts of her  
53 interment, are presented in the other eleven articles in this special issue of the *Journal of*  
54 *Archaeological Science*. Each of those articles should be read for the specialized analyses that  
55 are only very briefly summarized here. While many of the facts of the burial and its context are  
56 clear-cut, our reasoned interpretations of possible ritual activity associated with the interment are  
57 inevitably more speculative, although their importance to the whole story of Magdalenian human  
58 behavior in El Mirón should not be ignored.

59 For age-at-death estimation, the team of human paleontologists (Carretero et al., this  
60 issue) mainly relied on dental (lower P4, M1-4) formation stages, as well as postcranial fusion of  
61 the epiphyses. The sexual diagnosis is based on articular dimensions, mainly the acetabular  
62 vertical diameter and glenoid fossa size, plus the size of the carpals, metacarpals, tarsals,  
63 metatarsals and vertebrae. The woman was robust in build, fairly tall (ca. 159 cm; estimated  
64 weight 69 kg), and apparently healthy. Stature was estimated using regression equations derived  
65 from foot bones, as well as from estimations of the tibial length. Size comparisons with other  
66 Upper Paleolithic remains sexed as females confirm the diagnosis of the El Mirón specimen.  
67 Body mass was estimated from acetabular size. Her cause of death is unknown. The robustness  
68 of her foot phalanges suggest that she sometimes walked barefoot and/or wore soft shoes (e.g.,  
69 moccasins). Her teeth are heavily worn from mastication and possibly (especially in the case of  
70 the front teeth) from paramasticatory use. Based on analyses of tooth wear calculus and on  
71 stable isotope (C and N) analyses, she had a predominantly meat-based diet, but with a  
72 substantial contribution of aquatic food (probably fish, such as salmon), and she ate some  
73 amount of plant foods, including seeds, bolete mushrooms and fungi (García-González et al. and  
74 Power et al., this issue).

75

### 76 **Environment and Life in the Cantabrian Lower Magdalenian**

77 This Lower Magdalenian woman, her family and band members lived in a cold and (for this  
78 oceanic region) relatively dry environment that was largely treeless, with a combination of  
79 herbaceous/heath steppe and tundra vegetation, dotted with a few pines, junipers and the  
80 occasional birch, plus some shrubs such as sagebrush, as attested by palynology (Iriarte et al.,  
81 this issue). But, as ratified by micromammal analysis (Iriarte et al., this issue; Cuenca-Bescós et  
82 al. 2009), water was locally available in the rivers, fed by ice melt from the glaciers along the  
83 crest of the Cantabrian Cordillera only a short distance from this vast-mouthed, west-facing,  
84 strategically-located cave (Straus and González Morales 2012). Although the Last Glacial  
85 Maximum had ended and people could live a bit more “comfortably” on the northern flank of the  
86 Cordillera, conditions in the Oldest Dryas (Greenland Stadial 2) climatic phase were still  
87 rigorous, perhaps a bit attenuated in GS2b (possibly equivalent to the so-called Lascaux pollen  
88 zone).

89 The families who dwelled in El Mirón and who probably made the Asón Valley their  
90 core territory, maintained social relations with people living in adjacent valleys. They obtained  
91 excellent-quality Cretaceous flint from near-coastal outcrops in both central Vizcaya to the east  
92 and central Cantabria to the west (Rissetto 2009), either by visiting those areas themselves and/or

93 through trade with bands on whose home territories those outcrops were located. There are even  
94 traces of a distinctive flint whose source is to the south of the Cantabrian Cordillera in Treviño  
95 County within Alava Province (A. Tarrío, personal communication, July 2013). The people's  
96 most intensive contacts seem to have been concentrated within the confines of what today is the  
97 Province of Cantabria and eastern Asturias, as attested by red deer scapulae engraved with  
98 images of game animals (mainly red deer hinds) that are embellished with fine striations that  
99 give the impression of the animals' musculature. One large, nearly complete example of such an  
100 engraved scapula was abandoned in El Mirón during the Lower Magdalenian (together with  
101 fragments of others), thus linking this site with ones in both the coastal and the montane zones—  
102 including Altamira, El Castillo, El Juyo, El Pendo and El Rascaño. Similarly striated images  
103 have long been known in rock art of such caves as Altamira (González Morales et al. 2007;  
104 González Morales and Straus 2009).

105 The people who occupied El Mirón during Lower Magdalenian times manufactured and  
106 used abundant lithic and osseous tools and weapons. These included many nucleiform  
107 endscrapers that were also bladelet cores, vast numbers of backed bladelets, smaller numbers of  
108 other typical Upper Paleolithic tool types made on flint (endscrapers on flakes and blades, simple  
109 burins, retouched pieces that could have been knives), as well as “archaic” types such as  
110 denticulates, notches and sidescrapers often made on local mudstone, quartzite or limestone  
111 (Straus et al. 2008 ; Fontes et al., this issue). The production of bladelets was especially prolific  
112 in the burial layer (Level 504) at the rear of the vestibule. Antler artifacts include many  
113 projectile points (*sagaies*) and bone needles. The *sagaies* in this period are predominantly  
114 quadrangular in cross-section and sometimes bear geometric (“tectiform”) engraved decorations  
115 and longitudinal grooves for the hafting of bladelet barbs or cutting edges (González Morales  
116 and Straus 2005). The vestibule rear behind the block was very much an area where the  
117 activities of daily living were conducted, although it would also be used for our inhumation. In  
118 addition to hunting, butchering, manufacturing and maintenance artifacts, the Lower  
119 Magdalenian assemblages (including those of the burial layer) include marine shells, some  
120 (notably *Littorina obtusata*, *Trivia* sp. and *Antalis* sp.) perforated or sawed into beads. Two  
121 perforated caprid incisors and a perforated red deer canine were found in the burial area at the  
122 cave vestibule rear (but only one of the former was from the burial layer). However, such  
123 perforated ungulate teeth and shells (worked or not) are relatively common in all Magdalenian  
124 layers in the cave, so none of the ones from this area--so rich in “normal” faunal and artifactual  
125 “trash”-- can definitely be tied to the burial as offerings (Gutierrez-Zugasti and Cuenca-Solana,  
126 this issue).

127 The mammalian faunal remains from Level 504 (like those from penecontemporaneous  
128 Level 17 at the front of the cave vestibule) are dominated by red deer (*Cervus elaphus*) and ibex  
129 (*Capra pyrenaica*)(MNI=4 and 6, respectively). There are indices of hunting during winter and  
130 spring, unlike the spring-summer seasonality of Solutrean and later Magdalenian occupations of  
131 the cave. The ibex bones attest to fairly complete carcass transport to the site from presumably  
132 nearby kill locations on the surrounding steep, rocky cliffs, while there was a more selective  
133 transport of certain meaty red deer elements, presumably from the broad valley floor and lower  
134 slopes below the cave. Both juvenile and adult red deer and ibex were killed, and there are traces  
135 of horse and chamois, as well as one bone each of fox and wolf (Marín-Arroyo and Geiling, this  
136 issue).

137

## 138 **The Burial**

139 The burial itself is one of the most complex features of the Magdalenian record in El Mirón. It  
140 was originally interpreted as a secondary burial because of the lack of the cranium and most long  
141 bones. Field observations during the excavations in 2010, 2011 and 2013, followed by detailed  
142 taphonomic and spatial distribution analyses (Marín-Arroyo, this issue; Geiling and Marín-  
143 Arroyo, this issue) indicate that the woman's corpse was placed in a natural depression in the 1  
144 m-wide space between the cave wall and the big block which was deepened by leveling and  
145 digging into extant sediments of a rich Lower Magdalenian occupation layer (Level 505). The  
146 grave may have even cut slightly into underlying Level 506. The presence of the mandible and  
147 especially an upper incisor would suggest that the skull was attached to the woman's body at the  
148 time she was buried. The presence of many very small bones (including distal phalanges and  
149 sesamoids) and of representative elements of all the major skeletal regions indicates that a whole  
150 body had originally been interred in this place—hence probably a primary burial. The corpse  
151 seems to have been laid on her left side with her back toward the block and chest toward the cave  
152 wall. The head (as indicated by the mandible) would have been at the northern end of the burial.  
153 The corpse was probably tightly flexed in fetal position.

154 Because many of the bones are stained with red ochre, it is possible that either the  
155 woman's clothes had been stained with this material (for decoration and/or hide preservation) or  
156 her corpse was stained as part of a burial ritual. The corpse decomposed and only after no flesh  
157 was left did a carnivore (a wolf or conceivably a dog [?]) discovered the right tibia which (in a  
158 high position in a flexed skeleton) would have been lying close to the ground surface at the time.  
159 The animal gnawed on this bone, removing the two epiphyses and scored and pitting the  
160 diaphysis. No other human bone and only a dozen (1.6%) ungulate bones from Level 504  
161 revealed evidence of carnivore activity according to the detailed studies by Marín-Arroyo and by  
162 Marín-Arroyo and Geiling (in this issue). Although it is possible that the carnivore may have  
163 removed some large bones, this does not seem likely due to the lack of gnaw-marks on any other  
164 surviving bones. Natural manganese oxide (see Marín-Arroyo et al. 2008) was starting to be  
165 deposited on the surface of the tibia during the flesh decomposition process in a context of  
166 occasionally ponded water, before the carnivore gnawed it. Both that surface and the interior of  
167 the gnaw marks were later covered with red ochre. The presence of the manganese before the  
168 gnawing episode is proof that the skeleton was already completely defleshed at the time of the  
169 carnivore involvement. (Single remains of both wolf and fox were found in the Level 504 faunal  
170 assemblage [Marín-Arroyo and Geiling, this issue].) The scenario that is hypothesized is that the  
171 carnivore only minimally disturbed the skeleton, since the bones were unconnected by this time.  
172 Then humans apparently found the exposed tibia and thus the rest of the skeleton. They may  
173 have removed the cranium and most of the largest bones without totally rearranging the  
174 fundamental anatomical order of the former corpse, whose hands may have been placed near her  
175 head and feet tucked under her bottom. This is demonstrated by the three-dimensional spatial  
176 analysis of the human remains by Geiling and Marín-Arroyo (in this issue). It was during this  
177 whole sequence of events that the skeleton's anatomical order may have been partially disturbed,  
178 with some dispersal of small bones such as phalanges. It is hypothesized that people reburied the  
179 remaining bones of the skeleton with backdirt from Levels 505 and 504 mixed with a mass of red  
180 ochre that is most continuous and intense in the area of the center of the skeleton (square X7).  
181 A mixing of materials from both levels is suggested by nearly identical AMS radiocarbon dates  
182 of about 18,750 cal. BP from each that are slightly older than the date of the human fibula.  
183 Certain bones (including the tibia and mandible) seem to have gotten additional, deliberate thick  
184 staining during this hypothesized re-burial. The back (east) surface of the big block was stained

185 with red ochre in exactly the sector and depth where the corpse apparently had been laid up  
186 against it. The red ochre is the only clear “grave offering” associated with the “Red Lady”. The  
187 burial deposit is overtopped by a hearth layer (503.1) dated to about 18,200 cal. BP.

188 Mineralogical analyses of the red ochre by R. Seva et al. (this issue) reveals it to be  
189 specular hematite, very rich in crystals--so much so that the burial layer (and many of the human  
190 bones) sparkled. As we excavated, we could know we were in the burial context by the intense  
191 red color and sparkling crystals. Seva’s prospections at known outcrops of hematite in the  
192 historic iron-mining areas of the Carranza River valley near El Mirón failed to find any variety  
193 that matches the mineralogical signature of the ochre in the burial. In addition, the ochre of the  
194 burial resembles none of the ochres he sampled from many Magdalenian occupation layers in the  
195 cave. However, according to detailed mineralogical maps of this historic iron-mining region, it  
196 is possible that the Magdalenian people had obtained the distinctive ochre with which to stain  
197 and mark the burial from an outcrop in what is today the city of Santoña, at the present mouth of  
198 the Asón River, about 20 km from the cave. It is from the Oldest Dryas shore, about 8 km north  
199 of Santoña, that people brought marine mollusk shells and, of course much more abundantly,  
200 flints from various outcrops in the coastal zone to the cave.

201 None of the *sagaies* (all fragmentary and none typologically “out of the ordinary”), bone  
202 needle fragments, or the shells (perforated or not, and belonging to various taxa) from Levels  
203 504 or 505 in the small burial area (or a single perforated ibex incisor or a possible bird bone  
204 “tube” with many fine engraved lines on one surface from Level 504) can unequivocally be  
205 related to the skeleton as offerings, because all Magdalenian occupation layers in the cave  
206 contain such objects (sometimes abundantly) and the burial pit had been dug into and covered  
207 over with material with such layers. The few “beads” could simply be accidental “noise” in the  
208 backfill. There is one unusually large quartz crystal that was found in the center of the burial in  
209 close physical association with human bones, but its deliberate placement with the corpse is  
210 purely hypothetical.

211

### 212 **Art and a Grave Marker?**

213 The final and potentially most intriguing aspect of the burial regards the western face of the large  
214 (>2.1x1.4x0.9 m) block and the lower cave wall and bedrock ledge upon whose western lip the  
215 block had crashed before the woman was buried in the space between the block and the wall.  
216 After the block landed partly on the bedrock ledge and partly atop Level 110, humans began to  
217 engrave lines on the smooth, flat western face of the block (González Morales and Straus 2000  
218 and in this issue; García Díez et al. 2012). This had been the interior surface of the block that  
219 had separated along a plane of weakness from the bedrock wall of the cave near the ceiling. The  
220 weathered, undulating exterior surface of the chunk of cave wall that became the block landed  
221 atop early Lower Magdalenian Level 110, while the interior surface came to rest in such a way  
222 as to present a ca. 40° angle toward the mouth of the cave, upon which the sun shines at the end  
223 of the day. That the engravings could have been made at least roughly contemporaneously with  
224 the burial of the Red Lady is suggested by radiocarbon dates from later Magdalenian levels that  
225 overlie them: from 17,600-14,000 years ago. Furthermore and quite suggestively, among the  
226 engravings (mostly simple lines: one series deep and wide, the other shallow and narrow) there is  
227 a V-shaped motif (Moitinho et al. 2013) that could be interpreted as representing a pubic triangle  
228 and another that could also speculatively be seen as a schematic hand with fingers. Could these  
229 be indicators of the presence of the woman buried behind the block? In addition there are lines  
230 engraved on the bedrock lower wall and ledge against which part of the corpse had been laid

231 behind the block. These latter were probably made at the time of the burial (González Morales  
232 and Straus, this issue). (Other fine engravings on the rear wall of the vestibule [including a  
233 representation of a horse and another of a less clear bison] could--on the bases of style and height  
234 above living surfaces—have been made during the Lower Magdalenian, but no direct association  
235 with the burial can be reasonably postulated.) The eastern face of the block was intensely  
236 stained with red ochre in exactly the area adjacent to and extending above where the human  
237 bones were located and hence above ochre-stained Level 504, thus showing that the block had  
238 been deliberately stained.

239 Although her cranium and most of her long bones are missing, the Red Lady of El Mirón  
240 seems to represent a primary burial from which certain elements had been removed after  
241 disturbance by a carnivore. This burial of Magdalenian age is unique on the Iberian Peninsula,  
242 where the only other known Upper Paleolithic primary burial is that of Lagar Velho (Gravettian)  
243 in Portugal (Zilhão and Trinkaus 2002). The fact that certain elements may have been extracted  
244 from the El Mirón skeleton is interesting, since the Magdalenian both in Spain (e.g., nearby El  
245 Castillo Cave [Garralda 1992]) and in Portugal (Galeria da Cisterna [Trinkaus et al. 2011]), like  
246 that of France and Germany, is known for the presence of scattered, isolated human bones in  
247 several sites (e.g., Street et al. 2006; Pettitt 2011; Henry-Gambier et al. 2013). Although  
248 suggestive of skeletal manipulation practices during the Late Glacial, the deliberate removal of  
249 certain bones by humans is impossible to prove and disturbance by carnivores cannot be ruled  
250 out in many cases--and it is a fact that was part of the picture at El Mirón, as shown by the  
251 taphonomic study (Marín-Arroyo, this issue). In sum, our analyses suggest that this was a  
252 primary burial—albeit disturbed. Although lacking in clear grave offerings, the amounts of red  
253 ochre on the bones and in the burial infilling and the apparent association with rock art (both  
254 engravings and red ochre on the block against which the corpse’s back had probably rested), the  
255 evidence points to a ritualized interment, different from, but equally impressive as such famous  
256 primary burials of Magdalenian age and cultural affiliation on the territory of France as Duruthy,  
257 Saint-Germain-la-Rivière, La Madeleine, Laugerie-Basse, Bruniquel, or Chancelade (Gambier  
258 1992; Henry-Gambier 2006; Henry-Gambier et al. 2002; Pettitt 2011). But, at the end of the day,  
259 we are left with a mystery: who was the “Red Lady” of El Mirón and why was she given such  
260 special treatment after her death?

261

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