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AURIGNACIAN CHILDREN AND MORTUARY PRACTICE IN WESTERN EUROPE

ABSTRACT: *This paper investigates the evidence for funerary practice during the Aurignacian in western Europe by a focus on well documented juvenile remains. The skeletal remains are described in the context of what is known about excavation conditions and the archaeological context at each site. This report draws on less well known documents to provide a careful overview of the topic. Alternative processes are considered as processes that explain the fragmentary nature of the evidence. Evidence for definitive burial among the Aurignacian in western Europe is not definitive.*

KEY WORDS: *Upper Palaeolithic – Human remains – Aurignacian – Juvenile – Funerary practice – Western Europe*

INTRODUCTION

According to the various catalogues of fossil hominids (Hué 1937, Vallois, Movius 1952, Oakley *et al.* 1971, Fabbri 1988, Gambier, Houët 1993), excavation reports and observations of the archaeological material, about fifty sites have produced human remains from Aurignacian context of variable credibility.

Analysis of the circumstances of discovery, recent revision of the stratigraphy of the sites and the lithic industry as well as direct accelerator dating of the fossils, show that only half of these sites can be seriously considered to contain Aurignacian remains.

Reasons for disregarding the fossil remains from the remainder of the sites include:

The stratigraphic provenience of the human bones cannot be established, and the site in question contains a sequence that extends from the Aurignacian to the post-Palaeolithic.

The associated archaeological industry is so impoverished that it cannot be accurately assigned to the Aurignacian.

The stratigraphic provenience of the fossils is known but field observations suggest that the bones are more recent intrusions into Aurignacian levels, as is the case of the human remains from the sites of La Rochette (Dordogne) and Bouil Bleu (Vienne). Recent AMS ¹⁴C dating shows that they should be assigned to the post-Palaeolithic (Foucher *et al.* 1995, Gambier *et al.* in prep.).

Consequently, only the remains from the twenty-five sites indicated in *Table 1* will be considered in this paper. Some of these remains are still questionable and accelerator dating of the fossils themselves would be the only unequivocal way to determine their true age.

These sites are rock-shelters or caves. Except for Finochietto, Riparo Bombrini, Fontana Nuova and El Castillo in Italy and Spain, the others are situated in France. Most of these are concentrated in the Charente and Dordogne regions.

Thirteen of these sites have produced juvenile remains (*Table 1*). A single site, Cro-Magnon (Dordogne), has produced some children who have been buried. The subadults from the other sites are very fragmentary. Their

TABLE 1. Western Europe: Aurignacian sites with human remains.

N°	Aurignacian sites - Western Europe	Department/region	Country	Age at death
1	Arcy-sur-Cure (Grotte du Renne)	Yonne	France	Adult and Juvenile
2	Bize - grotte Tourmal-	Aude	France	Adult (?)
3	Blanchard	Dordogne	France	Adult
4	Brassempouy (Grotte des Hyènes, Grotte du Pape, Abri Dubalen)	Landes	France	Adults and Juveniles
5	Castanet	Dordogne	France	Adult
6	Chez Leix	Gironde	France	Juvenile
7	Cro-Magnon	Dordogne	France	Adults and Juveniles
8	El Castillo	Province de Santander	Spain	Adult and Juvenile
9	Finochietto	Latium	Italy	Adult
10	Font de Gaume	Dordogne	France	Juvenile
11	Fontana Nuova	Sicile	Italy	Adult
12	Fontchevade	Charente	France	Adult and Juvenile
13	Gatzaria	Pyrénées-Atlantiques	France	(unpublished)
14	Gourdan	Haute-Garonne	France	Adult
15	Isturitz	Pyrénées-Atlantiques	France	(unpublished)
16	La Chaise, grotte Duport	Charente	France	Juvenile
17	La Combe	Dordogne	France	Adult
18	La Crouzade	Aude	France	Adult
19	La Ferrassie Grand Abri	Dordogne	France	Adult
21	La Gravette	Dordogne	France	Adult
22	La Quina	Charente	France	Adult and Juvenile
23	Le Flageolet	Dordogne	France	Adult
24	Le Piage	Lot	France	Juveniles
25	Les Abeilles	Haute-Garonne	France	Adult and Juvenile
26	Les Rois	Charente	France	Adults and Juveniles
27	Les Vachons	Charente	France	Adult
28	Riparo Bombrini (Balzi-Rossi)	Ligurie	Italy	Juvenile

remains were dispersed and mixed with animal bones and cultural remains.

As it has been the case for the other Upper Palaeolithic cultures, hypotheses concerning the existence of primary or secondary burials, cannibalism practices, skull or mandible worship or simply abandonment of dead corpses have been proposed to explain the state of conservation and spatial arrangement of the Aurignacian remains. However, these interpretations have been criticised because they seriously underestimate the role of natural agents of destruction in the history of skeletal deposits (Patte 1960, Leroi-Gourhan 1971, Quechon 1971, Le Mort 1981, Villa *et al.* 1986).

The present article reviews anthropological documents for a perspective on the nature of evidences for a human intervention or funerary practice during that time period.

The first part of this paper describes the human juveniles and provides data concerning conditions of excavation and archaeological context. It is critical to understand taphonomic context of each site in order to evaluate the importance of the natural destruction of the bones before, during, and after interment and thus to prevent misinterpretation of the remains as the result of human intervention (In: *Outilsage ...*, 1994).

The age at death has been evaluated from the degree of calcification and eruption of the deciduous and permanent dentition in reference to the data published by Ubelaker

(1978) on some modern populations. When teeth were not preserved, we have considered ossification of the bones. These methods only provide a biological age which, even in modern contexts and ages-at-death, is not very precise. Applied to ancient fragmentary skeletons and unsexed, where we cannot guarantee that the processes and rates of growth and ageing were comparable to those of modern populations, these methods give results whose reliability is still more doubtful. For these specimens, the state of skeletal preservation prohibits the determination of sex (Majo *et al.* 1993).

The cause of death for these specimens is unknown. The remains are very fragmentary, of course, not all processes leading to death leave evidence in the skeleton.

For the present report both gross observation of any fractures and modifications of the bone surface (degradation and alteration¹⁾) and microscopic analyses of all human bones have been performed. The pathological lesions have not been studied yet.

¹⁾ Degradations are the gradual modifications of the cortical bones by natural physical and chemical processes ("*édaphiques et climatiques, végétaux et animaux*") or anthropic which result in bone destruction.

Alterations are the marks resulting from a limited action, such as perforations, punctuations, cut-marks, trampling marks, etc.

TABLE 2. Western Europe: Aurignacian juvenile human remains.

Individuals	CM	CM	CM	ST	LCh	LQul	LRA	LRB	LRC	LRD	LRE	LRF	BR	BR	BR	BR	BR	FTC	FDG	Arç	Le Piag.	Le Piag.	Leix	Abell.	Bomb	Cast.	ST	Total
N° site	7	7	7	1	16	22	26	26	26	26	26	26	26	4	4	4	4	12	10	1	24	24	6	25	28	8		
Frontal	1	1	1	1																						1	1	3
Parietal	1	1	1	1																						1	1	3
Temporal				0																						0	0	0
Occipital				0	1																					2	2	2
Sphenoid				0																						0	0	0
Maxilla				0																						0	0	0
Zygomatic				0																						0	0	0
Mandible				0		1	1	1	1																	1	5	5
Upper dec. teeth				0																						3	3	3
Lower dec. teeth				0		1	2																			2	10	10
Upper perm. teeth				0																						8	8	8
Lower perm. teeth				0		3	8	10	2	1	3	4														40	40	40
Clavicle				0																						0	0	0
Scapula				0																						0	0	0
Humerus				1																						0	0	0
Ulna				0																						1	1	1
Radius				0																						0	0	0
Hand bones				0																						0	0	0
Pelvis				0																						1	5	5
Femur	1	1	1	2																						0	0	0
Patella				0																						1	9	9
Tibia	2	2	2	4																						0	0	0
Fibula				0																						0	0	0
Foot bones				0																						0	0	0
Sternum				0																						0	0	0
Ribs				0																						0	0	0
Vertebrae				0																						0	0	0
Sacrum				0																						0	0	0
Total	3	3	3	9	2	5	11	11	3	1	6	7	2	1	1	1	1	6	1	1	3	2	1	1	1	6	73	82

The duration of the Aurignacian civilisation in western Europe is around ten thousand years (based on radiometric dating) for which fifty individuals have been discovered and only twenty-five are juveniles. It is important to note that these human remains represent a sample that is geographically and chronologically very incongruous. Furthermore, the research objectives and the methodologies of the excavations differ between sites. Many sites were excavated between 1860 and 1950 and the reliability of the data is different in each site. Some of these remains are unpublished.

Cro-Magnon rock-shelter (Dordogne, France)

The diaphyseal tibia and femur represent two children. The dimensions of these bones indicate an age at death around birth. The dimensions of the diaphyseal humerus suggest a child who was older than the other two (around one-year – Gambier 1986, 1997). It is impossible to determine to which child the skull fragments belong. There are at least three children discovered in this site.

At least four adults (*Table 3*), three men (CM 1, 3, 4) and one female (CM 2) are also represented, and as the bones are fragmentary, there were associated with the juvenile remains (Vallois, Billy 1965). Some of the bones have traces of the effects of excavation tools. The surface of the CM 1 cranium is covered with traces of calcite. This deposit is the result of precipitation of carbonates out of solution from seeping water, likely due to the position of the remains at the bottom of the rockshelter. No evidence of carnivore gnawing has been identified on Cro-Magnon remains.

The remains at the Cro-Magnon rock-shelter were discovered in 1868 by workers preparing a railroad bed nearby and, thus, there is little information documenting the state of the fauna and the positions of the individuals in the site. According to L. Lartet, who arrived at the site after the skeletons had been excavated, the adults lay at the bottom of the rock-shelter and at the top of the archaeological levels (level 1). The children bones were found near the woman (CM 2). All the bones occupied a little area (1.50 m in diameter).

In the absence of structural markers (stones and/or graves) to demonstrate the funerary character of the site, the number of individuals and the presence of body ornaments (shell and ivory pendants and ochre) constitute the only evidence to demonstrate that it is a burial. However, the position of the skeleton and the relations between bones and ornaments remain unknown. It is not possible to determine whether it is a primary or a secondary burial because we do not know if the bones were in anatomical connection at discovery. For the same reason, the question of the chronology of corpse deposits (simultaneous or differed deposits) cannot be resolved.

In spite of the missing information, the human remains from Cro-Magnon are considered a funerary deposit and is the only Aurignacian burial in Europe. The chrono-cultural position of this burial is uncertain. The skeletons were at the top of the "Aurignacien ancien" levels and D. Sonneville-Bordes (1959, 1960) associated them to an "Aurignacien évolué" context. While this is possible due to their age, only direct accelerator dating of the fossils themselves will unequivocally determine their true age.

The cave is situated to the east of the Bourgeois-Delaunay and Suard rock-shelters and was excavated by P. David in 1955. Two bone remains, one occipital fragment and one proximal diaphyseal section of left femur were discovered in an "Aurignacien ancien" level (level 2) with split bone points (Sonneville-Bordes 1960, Bouvier *et al.* 1969). There are no radiometric dates for this level.

The femur fragment measures 11 centimeters. It is broken 13 millimeters below the nutritious foramen at the midshaft of the bone. The dimensions of the bone suggest an age at death around 8–10 years. The variability in stature documented for modern children of this age range does not permit to set up a more exact age at death.

The occipital bone is not complete but corresponds to a triangular portion of the left squama. The lambdoid suture is opened and is preserved on 10 centimetres. The bone is thin (1 to 3 mm) and there is no relief on the exocranial surface. These last characteristics suggest a juvenile individual. There is no reason to think that the occipital bone and the femur do not represent the same individual.

The fracture of the distal extremity of the femur is a transverse fracture at a right angle. Below the trochanter there is a bony gap. The fractures of the occipital bone are

Individuals	CM	CM	CM	ST	BZ	LCZ	FTC	LR	LR	LVA	BLA	CAS	LCB	LFE	LFE	LGR	LFI	AB	BR	BR	BR	AR	ECA	FTN	FON	FON	FON	FON
N° site	7	7	7	7	2	18	12	26	26	27	3	5	17	19	19?	21	23	25	4	4	4	1	8	9	9	11	11	11
Frontal	1	1	1	3	1																	1				2	5	
Parietal	2	2	2	6	1		1												2			1	1	1	1	7	13	
Temporal	2	1		3																					0	3		
Occipital	1	1	1	4																		1			1	5		
Sphenoid	1		1	2																					0	2		
Maxilla	2	1	1	4		1																	1		2	6		
Zygomatic	2	1		3																					0	3		
Mandible	1		1	3				1												1					2	5		
Upper teeth	2	3	5	5	1	4		4	3	3	1	1	1	1	1		1	1	1	2	2		7	1	1	28	33	
Lower teeth	1		4	5				5	5	3									1	1	1	1			23	28		
Clavicle																												
Scapula	1			1																					0	1		
Humerus	1	1	2	4																					0	4		
Ulna	2	2	2	6												1									1	7		
Radius				0												1									1	1		
Hand bone	6			6															2						2	8		
Pelvis	2	1		3																					2	3		
Femur	2	1	1	4																					0	4		
Patella				0																					0	0		
Tibia	2	1	1	4												1									1	5		
Fibula	1		1	2												1									1	3		
Foot bones	17			17												1									1	18		
Sternum				0																					0	0		
Ribs	21			21																					0	21		
Vertebrae	11			11																					0	11		
Sacrum	1			1																					0	1		
Total	80	16	19	3	118	2	6	1	9	8	4	1	1	1	1	1	4	1	4	4	2	3	1	4	59	177		

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TABLE 4. Les Rois (Charente): Isolated teeth.

N°	teeth	Age at death	N°	teeth	Age at death
1	DI > R	6 years ± 24 months	22	I2 < L	>=12 years ± 30 months
2	I(2) > L	8 years ± 24 months	23	I2 < R	>=12 years ± 30 months
3	I1 > L	8 years ± 24 months	24	I2 < L	>=12 years ± 30 months
4	I1 > R	Adult	25	C < R	11 years ± 30 months
5	I1/I2 > L?	Adult	26	C < R	Adult
6	I1 > L	Adult	27	C < ?	Adult (young ?)
7	P ? ?	Adult	28	P1 < L	12 years ± 30 months
8	P/C ? ?	Adult	29	P1 < L	Adult
9	P1/P2 > R	>=12 years ± 30 months	30	P2 < L	12 years ± 30 months
10	P1/P2 > L	Adult	31	M < ?	?
11	M1 > R	>= 8 years ± 24 months	32	M < ?	Adult
12	M1 > R	7 years ± 24 months – 15 years ± 36 months	33	M1 < R	Juvenile
13	M3 > R	15 years ± 36 months	34	M1 < R	>= 8 years ± 24 months
14	M3 > R	Adult	35	M1 < L	2 years ± 8 months
15	I/C < ?	Adult	36	M1 < R	4 years ± 12 months
16	I1 < ?	11 years ± 30 months	37	M2 < L	>= 12 years ± 30 months
17	I1 < L ?	11 years ± 30 months	38	M2 < R	9 years ± 24 months – 10 years ± 30 months
18	I1/I2 < ?	?	39	M2 < L	Adult
19	I1/I2 < ?	4 years ± 12 months	40	M2 < R	Adult
20	I1/I2 < ?	Adult	41	M2 < R	Adult
21	I2 < L	>=12 years ± 30 months	42	M3 < R	12 years ± 30 months
			43	M3 < L	15 years ± 36 months
			44	RM2 < L	9 years ± 24 months

in a straight line. All the fractures are old. Some degradations on the cortical bone surface as fissures and root impressions are also visible.

The authors note the lack cortical surface alteration bone due to natural modifications (carnivore marks, trampling marks) or human modifications (cut-marks, for example).

Context:

P. David (1955 and 1956) indicates that the extension and the thickness of the level 2 are very limited. Spatial indications about the human remains and archaeological material are not published. A few animal bones (isolated teeth, diaphyseal fragments of large animals) are noted and the presence of hyena is attested by gnaw-marks on some of these bones. There is no evidence of body ornaments and evidence of a bone industry is very poor and badly preserved.

La Quina – station aval (Charente)

Henri-Martin (1936) describes the discovery of two fragmentary adult femurs, two premolars, one adult patella and a child's mandible between 1934 and 1935 in the trenches X and Y. These six remains were found in an Aurignacian level, recently dated by the ¹⁴C method to 32,650 ± 850 BP – Oxa, 6147-Lyon 256 (Dujardin 1996).

Only a part of the left mandible is preserved and dm2 and M1 are present. The M1 eruption is not complete and the roots are half formed. The germ of the P1 can be observed in the alveolus, in front of the germ of the second permanent molar. Two thirds of the crown of the second

premolar are formed. We can estimate the dental age as somewhere between 4 and 8 years. The lower part of the mandibular body is not preserved. The fracture is old and characteristic of fractures that result from the dilatation of the dental canal by frost action. Bouchud and Guillen (1953) have described this process for reindeer mandibles.

On the cortical bone surface we can observe some root prints resulting from bone dissolution. No surface alterations, such as gnawing marks, trampling marks or cut-marks are present.

Context:

The Aurignacian layer was covered by fallen rock and the child's mandible was discovered in the lower part of the layer (Henri-Martin 1934). Body ornaments, bone industry and animal bones were very abundant. According to recent excavations, this layer is not disturbed (Dujardin, pers. comm.). The faunal analysis shows that the bones are well preserved. They present numerous cut-marks and the long bones had been broken to extract marrow. However, there is not evidence of carnivore activity (Dujardin *et al.* 1998).

Les Rois (Charente)

Two juvenile mandibles and 44 isolated teeth (Table 4) were discovered from the Les Rois cave by Mouton and Joffroy between 1950 and 1951. The human remains derive from levels A2 and B and were found in direct association with the Aurignacian I and II industries without split bone points (Mouton, Joffroy 1958).

The mandibles

Mandible A consists of the left and right parts of the body. The ascending ramus is not preserved and the body is broken at the level of the second permanent molar socket. The first and second deciduous molars, the first permanent molar, the first premolar and the canine are present. The second premolar germ can be seen in the socket. The alveolar margin is damaged. The anterior teeth have fallen out *post mortem*. No isolated incisors belong to this mandible. The canine and premolar are not yet erupted. The absence of wear facet on the M1 crown indicates that the second permanent molar was not yet in functional occlusion. The dental age is around 10 years ± 30 months.

The fractures are old and the edges are blunted (natural polishing). There is significant degradation of the cortical surface and some cracks are observable. The bone surface is too damaged to identify any possible gnaw-marks, trampling marks or cut-marks.

Mandible B is more fragmentary. The right alveolar margin with an I2, C and P1 socket is very damaged. The first and the second premolar are present. The lower part of the body is destroyed. A number of isolated teeth found in proximity to the mandible can be attributed to it: three incisors (Nos. 16, 17, 24), one canine (No. 25), two premolars (Nos. 28 and 30) and two molars (Nos. 33, 42). The stage of calcification of the teeth indicates an age at death near 12 years ± 30 months.

The destruction is old. The fractures are characteristic of the fractures which result from the dilatation of the dental canal by frost action. The degradation of the cortical surface is more significant than on the mandible A. According to Vallois (1958, p. 135) on the lingual surface below the canine, we can distinguish several cut-marks. The present study observations disagree as the state of preservation of the lateral surface of the mandible body does not permit an interpretation of these marks as flint tool marks.

Isolated teeth

The isolated teeth are presented in Table 4. Side and number cannot be determined when they are very badly preserved. Two of the teeth are too fragmentary and they have not been considered in this work (Nos. 18, 31).

Calcification and wear stages together with morphological characteristics have permitted the identification of six juvenile individuals.

Lower teeth

C – One child: 4 years ± 12 months – 5 years ± 16 months (Nos. 19 and 36)

D – One child: 2 years ± 8 months (No. 35)

E – One child: 9 years ± 24 months (teeth Nos. 44, 38, 34)

F – One subadult (Nos. 21, 23, 37, 43)

G and H – Two adults identified by the dental wear (Nos. 15, 22, 27, 39, 41 and Nos. 20, 26, 29, 32, 40)

Upper teeth

I – Child: 6 years ± 24 months (No. 1)

J – Child: 8 years ± 24 months (Nos. 2, 3, 11)

K – Subadult (Nos. 9, 12, 13)

L and M – Two adults identified by the dental wear (Nos. 4, 5, 6, 14 and Nos. 7, 8, 10).

It is possible to associate upper teeth with lower teeth on the basis of morphology and calcification stage. Six individuals are hypothesised to be present: C and I, D, E and J, F and K, G and L, H and M, giving an MNI at the Les Rois Cave should be equal to 8 with six juvenile individuals (A to F) and two adults (G–H).

The distribution of teeth by individuals shows that 3 of 6 children and the two adults are represented by upper and lower teeth. This suggests that maxillary bones were also present at the site. It is likely that the under-representation of maxillae results from differential conservation (they are weaker than mandibles) often observed in faunal remains. It is generally said that maxillae are more rapidly destroyed, liberating their teeth and leaving them to agents of destruction.

Comparison between the number of teeth discovered and the number of teeth expected (calculated on the basis of the MNI) reveals that all the types of teeth show an important deficit.

Context:

The layer B is situated on the terrace in front of the entrance of the cave (thickness = 30 to 60 cm). It resulted from the "accumulation continue perturbée au fur et à mesure de sa formation par les passages et le séjour continu des hommes" (Mouton, Joffroy 1958: 15). Level B contained a rich assemblage of flint, bones and antler artefacts (tools and body ornaments). The faunal composition indicates a period of rigorous cold with epiphyses, diaphyseal fragments and teeth, in anatomical order. A majority of remains cannot be determined because of their too fragmentary and degraded state. Bouchud (1958) has emphasised the importance of the non-natural fragmentation of these bones.

The layer A2 is less thick than level B (thickness = 15 to 35 cm). It would correspond to one or several rapid occupations. Bone is scarce but better preserved than in the level B. Several hearths have been discovered in this level. Mandible B and some isolated teeth have been found in hearth number one. Neither the mandible nor the teeth were burnt. They have been laid in this hearth when the fire was out. Spatial analysis of the other human remains is imprecise. Mandible A would have been found in level A2, and the other isolated teeth in level B.

Fontéchevade (Charente)

The Fontéchevade remains were discovered during the excavations of Durousseau-Dugontier between 1902 and 1912 and include a right mandible of a child and a parietal bone of an adult (Henri-Martin 1956–1957).

The body of the mandible is broken at the level of the right canine socket and the upper part of the ramus is not preserved. The second deciduous molar is present. Dental wear is weak. The crown of the two premolars and the

crown of the second molar are not completely formed. We can estimate the dental age as somewhere between 3–5 years.

Fractures are ancient and the edges of fractures are polished (natural polishing). Degradation is significant and the lateral surface presents several cracks. Below the first deciduous molar, a bone gap (15 mm × 10 mm) is evident, perhaps a carnivore gnaw-mark. On the medial surface, better preserved, there are several ancient cut-marks (5 mm in length), V-shaped. They are located on the *linea mylohyoidea*. There are probably flint tool marks.

Context:

The juvenile mandible has been associated with material described by Sonnevile-Bordes (1959) as typical Aurignacian, but the Dourousseau-Dugontier excavations are unpublished and no information exists describing the exact location of the human remains or the state of preservation of the faunal assemblage and bone industry.

Chez Leix (Gironde)

This little rock-shelter is situated at Pessac sur Dordogne and was excavated by R. Deffarge. Level IV produced a first left lower permanent molar, which has a little wear. Root calcification suggests an age at death between 5 years and 9 years.

Context:

Material selection during the excavations cannot be excluded as the excavations are unpublished. No information exists on the exact location of the isolated tooth or on the state of preservation of the faunal assemblage and bone industry. The available information indicates that the associated industry is Aurignacian (Brial *et al.* 1954).

Font de Gaume (Dordogne)

During earthworks (1967–1968) in the principal gallery of the cave, a first left lower permanent molar has been found in level 3 (Prat, Sonnevile-Bordes 1969).

The crown is completely formed and the root is just present (0.5 mm to 1 mm). Dental age is situated between 2 and 4 years (Gambier *et al.* 1990). There is no alteration of the enamel surface.

Context:

Level 3 is thin. It has produced some faunal remains, lithic tools and scarce bone artefacts. The state of preservation of the archaeological material is unpublished and F. Prat does not mention any carnivore (hyena) in the faunal assemblage.

The whole associated industry has been interpreted as "Aurignacien ancien" (Prat *et al.* 1969). There is no absolute dating.

Le Piage (Lot et Garonne)

Several human remains of a child and a subadult have been discovered in this cave by Champagne and Espitalié (1981). They are discovered in levels (J, K and F) associated with an Aurignacian industry. Absolute ¹⁴C dates of these levels are aberrant (Champagne, Espitalié 1981).

The infant individual (perinatal age)

A left lateral part of the occipital bone and two fragments of long bones represent this individual. These bones were identified during the study of the fauna (Beckouche, Poplin 1981).

The lateral part of the occipital bone (level J, trench 6-VIII) is almost complete and it measures 23 mm in length.

A tibia is represented by a proximal section of shaft (length = 30 mm) found in level K, trench 6-IX. The proximal extremity is destroyed and the edges of the fracture are irregular. The angle of the distal fracture is oblique.

A fragment (length = 40 mm) of left ulna has been discovered in level K, trench 6-IX.

The attribution of these three bones to the same child is based on the compatibility of the developmental stage. According to Poplin (1981) the dispersion within two trenches and two levels does not invalidate this conclusion because they come from two neighbouring trenches and levels K and J belong to the same stratigraphic unit.

The cortical surface of these bones is very degraded and fractures are old. No alterations such as cut-marks or gnaw-marks have been observed (Beckouche, Poplin 1981).

The subadult individual

A right upper third permanent molar and a left upper second permanent molar were recovered in level F, trench 3-XII (Champagne 1981). Calcification of the roots indicates an age at death around 15 years ± 36 months. The enamel seems well preserved but the distal extremity of the roots is slightly damaged.

Context:

S. Beckouche (1981) points out the importance of degradation of all the bone material. Animal bones and bone industry from levels J, K, F are very badly preserved. In the trench 3-XII, where the adolescent teeth have been found, the bone is fully destroyed. In this context, the preservation of the infant bones seems almost miraculous.

Grotte du Renne (Arcy-sur-Cure, Yonne)

Excavations in this cave led to the discovery of two teeth in an Aurignacian level (level VII). ¹⁴C dates for level VII is Grn 1717 – 30,800 ± 250 BP (Leroi-Gourhan 1958).

A second deciduous molar, upper or lower (unpublished material), indicates the presence of a child. Age at death cannot be determined exactly because the calcification stage of the root is not known (between 1 and 12 years).

Context:

Level VII has produced faunal remains, body ornaments, bones and lithic artefacts. This archaeological material is in study and there is no published information about it.

Brassempouy (Landes)

Grotte des Hyènes

Several adult and children teeth and some bone fragments (Table 5) have been recovered in three layers (2A, 2C, 2E) of the cave (Excavations H. Delporte from 1981 to 1995).

TABLE 5. Brassempouy (Landes): Spatial and stratigraphic distribution of the human remains.

Cave	square	N°	level	remains	Age at death
Hyène	BC9	69	2A	DM2< R	10 y ± 30 months
	BD8	112	2A	DM1< L	10 y ± 30 months
	BZ10	93	2A	P2>	At least 12 y ± 30 months
	BE4	16	2A	P1<	At least 12 y ± 30 months
	BE4	302	2A	Distal hand phalanx	Adult
	BA7	884	1C/2A	M2<	10 y ± 30 months
	BE2	344 (T269)	2C>	Distal hand phalanx	Adult
	BF5	542	2C>	M2>R	Adult
	BB8	1930 (T1929)	2C	M1<	?
	BB8	2879	2C	DM1>L	1 y ± 4 months
	BB7	3040	2C	P1/ou P2 > L	At least 12 y ± 4 months
	BY10	262	2E	I2>L	At least 10 y ± 30 months
	BY10	316	2E	Skull fragment	Adult
	BA10	2206	2E	I1>L	Adult
Dubalen Pape	BA9	3625(T3624)	2E	DM2>L	10 y ± 30 months
	UW5	441	I2	C< R	At least 10 y ± 30 months
	S6	909	2 F	Left mandible fragment with M1 or M2	Adult

TABLE 6. Western Europe: stratigraphic origin, ¹⁴C absolute dates and age at death of the Aurignacian juveniles.

Site	N°	Age at death	Culture and level	Dates ¹⁴ C	Interval.-2 sigma	Sources
Cro-Magnon	1	infant (neonate)	Aurignacian ? (C.I)	none		
Cro-Magnon	2	infant (neonate)	Aurignacian ? (C.I)			
Cro-Magnon	3	0–6 months	Aurignacian ? (C.I)			
La Chaise	1	8–10 years	"Aurignacien ancien" (C.2)			
La Quina	1	6 years±24 months	"Aurignacien ancien" (base niv.)	32650±850BP	30950–34350BP	OXA, 6147-Lyon 256
Les Rois	A	10 years±30months/ /11 years±30 months	"Aurignacien ancien" (A2)			
Les Rois	B	12 years±30 months	"Aurignacien ancien" (A2)			
Les Rois	C	4 years±12 months/ /5 years±16 months	"Aurignacien ancien" (B)			
Les Rois	D	2 years±8 months	"Aurignacien ancien" (B)			
Les Rois	E	9 years±24 months	"Aurignacien ancien" (B)			
Les Rois	F	15 years±36 months	"Aurignacien ancien" (B)			
Brassempouy Grotte des Hyenes	1	10 years±30 months	"Aurignacien ancien" (2A)	31820±550BP±510 BP		Gif 8568
	2	1 year±4 months	"Aurignacien ancien" (2C)			
	3	9 years±24 months	"Aurignacien ancien" (2E)	31940±160 BP		Gif/LSM-11035
	4	12 years±30 months	"Aurignacien ancien" (I2)	31520±360 BP		Gif/LSM-10657
Brassempouy (Abri Dubalen)						
Fontchevade	1	4 years±12 months	"Aurignacien ancien" (C. ?)			
Fontgaume	1	2 years–4 years	"Aurignacien ancien" (C.3)			
Arcy (Grotte du Renne)	1	1 year–12 years	Aurignacian (VII)	30800±250 BP	30300–31300BP	Grn 1717
Le Piage	1	neonate	Aurignacian (J,K)	Pollution		
Le Piage	2	15 years±36 months	Aurignacian (F)			
Chez Leix	1	1 year–12 years	Aurignacian (C.IV)			
Grotte des Abeilles	1	4 years±12 months	"Aurignacien ancien" (C.1)			
Riparo Bombrini	1	6 years±24 months	"Aurignacien ancien" (C.3)			
El Castillo	1	4 years–5 years	"Aurignacien archaïque" (Delta= C.18)	40000±2100 BP 37000±1800 BP 38500±1800 BP	35800–44200BP 33400–40600BP 35200–42400BP	AA2405 AA2407 AA2406

The archaeological material is an "Aurignacien ancien" with split bone points (Delporte, Buisson 1991, Buisson 1996). Several radiocarbon dates have been obtained on associated fauna (Table 6).

At least three children (combination MNI) have been identified. One is represented by two lower deciduous teeth ready to fall out (teeth Nos. 69 and 112, Table 5) and by a germ of a second lower permanent molar (No. 884). These

teeth were scattered in three neighbouring squares (Table 5). Age at death is around 10 years \pm 30 months. A second child is identified from a first left upper deciduous molar (No. 2879). Roots measure 2–3 mm. Dental age is evaluated around 1 year \pm 4 months. A second left upper permanent molar (No. 3625) represents a third child. Roots length is around 5 mm, indicating a dental age between 7 and 11 years. These teeth do not show any degradation or particular alteration.

The same levels have produced adult remains (six teeth, two hand phalanxes and one vault fragment from at least three individuals, Table 5). An upper second premolar (No. 93) and a first lower premolar discovered in the level 2A as the first child, present human modifications. The root of the fifth tooth is perforated below the enamel junction. The root of the second tooth has been made thin. We observe scraping marks. The root of a second upper molar (No. 542) recovered in level 2C as the second child, is also perforated. There are also some cut-marks on the root of an upper premolar (No. 3040).

Cortical bone of the vault fragment and phalanx are very well preserved. There is no anthropic alteration as cut-marks. The edges of the skull fragment are not blunted.

Dubalen rock-shelter

At the top of the deposit (level 12) a right lower permanent canine has been discovered. The root is still open and there is no wear of the crown. The dental age is situated around 12 years \pm 30 months. Enamel is well preserved.

Context:

In the Grotte des Hyènes, the Aurignacian deposits "résultent de l'accumulation de vestiges abandonnés par les hommes lors de passages répétés sur le site à un rythme qu'il est difficile d'apprécier" (F. Bon *et al.* 1998: 206).

The deposits of the upper stratigraphical unit (levels 11 and 12) of Dubalen gallery, fill it up. They result from the removal of occupation levels that are located between Dubalen gallery and the Grotte des Hyènes. The good preservation of some fragile material as perforated shells, shows that there has been little disturbance. Lithic and bone industry, ornaments and faunal remains are very abundant in these levels.

Bone is well preserved and the cortical surface does not show significant physical and chemical degradation. Anthropic fragmentation is considerable. Some marks of hyena (gnawing and digestion marks) indicate a sporadic presence of the hyena.

Riparo Bombrini Balzi Rossi (Italy)

Vicino (1986) excavated this rock-shelter. Level 3 produced a second left lower deciduous incisor. The crown is very worn and the root has disappeared (Formicola 1989). The age at death is situated around 6 years \pm 24 months.

Context:

The whole associated industry has been described by Vicino (1986) as an "Aurignacien ancien" with "lamelles Dufour" with a bone industry and ornaments characteristic

of this culture. The state of preservation of the bone is not described (Vicino 1986).

El Castillo (Spain)

During excavations between 1910 and 1914 by H. Breuil, H. Obermaier and P. Wernert, some child and adult remains were recovered in an Aurignacian layer (level Delta).

The child is represented by seven skull fragments (parietal and frontal bones) and by a mandible. This mandible consists of the right part of the body containing the chin and is broken at the level of the right first molar socket. The first and the second deciduous molars are present. The germ of the first permanent molar is unerupted. The age at death is between 4–5 years (Garralda *et al.* 1992). Fractures seem old but we have no information on the state of the cortical bone. Observing a figure published by Barnabe (1984), several cracks on the lateral part of the body can be seen.

The adult remains (Table 3), also fragmentary, are limited to three skull fragments and a second right lower permanent molar (Garralda *et al.* 1992).

Context:

Level Delta corresponds to the unit 18 (18-1, 18-2, 18-c) of the stratigraphy of the recent excavations. This level was attributed to the "Aurignacien archaïque" (Cabrera 1992). Split bone points were found during the Obermaier excavations. This level has been dated, and several AMS ^{14}C dates are known: ^{14}C – 40,000 BP \pm 2,100 BP (level 18c, AA 2405) and 37,000 BP \pm 1,800 BP (level 18-2, AA 2407), 38,500 \pm 1,800 BP (18-1, AA 2406).

The stratigraphy of level 18 is very complicated. Sedimentary characteristics testify the phenomenon of solifluxion, particularly intense at the top. It seems that animal bones are abundant, but no taphonomic information is published (Cabrera 1993).

Les Abeilles (Haute-Garonne)

This cave is situated in the Montmaurin site and was excavated by R. Cammas after WW II. Several human teeth were found. A germ of a first right lower permanent molar has been discovered in the level 1. The crown is completely formed and roots measure 2 mm. Dental age is evaluated around 4 years \pm 12 months.

Context:

The industry associated with level 1 is attributed to an Aurignacian with split bone points (Baylac *et al.* 1950). Excavations are unpublished. We have no information about the state of preservation of the animal bones and bone industry. However, we know that the archaeological material kept in the Musée national de préhistoire (Les-Eyzies-de-Tayac) is abundant.

DISCUSSION AND CONCLUSIONS

General remarks

Children and sub-adults from an Aurignacian context are represented by 82 anatomical elements (bone fragments and isolated teeth – Table 2). These remains correspond to at least 24 individuals (= sum of the combination MNI calculated for each site).

In spite of the existence of several Aurignacian styles whose signification (regional or chronological, or functional) are controversial, the human remains are in the majority associated with an "Aurignacien ancien" style with split bone point. Except for the human remains from El Castillo (Spain) which are produced by a level dating between 43,000 BP and 35,000 BP, the other remains are dated between 34,000 BP and 30,000 BP (Table 6). In several cases, the Aurignacian industry associated with the human remains is not well defined (Table 6).

If future studies confirm the antiquity of the Aurignacian in Europe, there is a gap in the anthropological sample of several millennia without human remains, which is very important. In addition to this, the strict contemporaneity between the remains is not proved and it is not very probable.

In the known sample, all the age stages are represented, from the infant stage to the subadult stage, although the latter is rather poor.

This small sample is a poor representative of the original population (24 individuals for all of western Europe during three or four millennia) and therefore, no demographic conclusions can be seriously proposed. In particular, it is impossible to evaluate the infant mortality rate for the Aurignacian populations.

Juvenile human remains from Cro-Magnon rock-shelter

Of the 24 children, three, the children from Cro-Magnon have been deliberately buried. But the characteristics of this burial are not really known because the excavation methods used were not rigorous.

We note that only two anatomical regions are represented, the cranial vault and the lower member. A comparison of the percentage of anatomical elements conserved between children and adults found in the same place at the same archaeological level shows that children are less complete than adults (Tables 7, 8). Indeed, differential conservation (children's bones are more fragile than adults' bones) explains a part of this difference, but the importance of differential conservation is relative. First, the bones that easily resist destruction are not represented. Second, for the Upper Palaeolithic, a similar comparison shows that buried children and buried adults are comparable. These data indicate that the state of preservation does not differ with the age at death when the corpses are buried.

The state of the bone surfaces from the three children and the adults does not implicate or exclude natural destructive forces. However, there are no stigmata of carnivore intervention on the bones. This is evidence that the bones have been protected quickly.

The hypothesis of a specific treatment of the children in this burial is not supported by the data outlined here. First the children have been buried in the same space as the adults. Second, the Cro-Magnon adults percentage of anatomically conserved elements is weaker than those for Upper Palaeolithic adult burials and close to the percentages for disturbed burials (Figures 1–2).

TABLE 7. Western Europe: Representation of the different anatomical elements. Comparison between the Aurignacian sample and the Upper Palaeolithic burial sample. (D = fragmentary remains; CM = Cro-Magnon, A = no disturbed burials from France and Italy; C = burials disturbed by carnivores – Baoussou da Torre Cave, Italy; B = disturbed burials from France and Italy).

Age type	Adults										Juveniles							
	A	%	B	%	C	%	CM	%	D	%	B	%	A	%	CM	%	D	%
Vault	131	7.3	31	6.2	9	5.9	18	15.3	10	13.9	17	5.1	66	6.2	2	22.2	4	5.5
Face	73	4.1	20	4.0	3	2.0	7	5.9	2	2.8	5	1.5	41	3.8	0	0	0	0.0
Mand.	20	1.1	5	1.0	2	1.3	3	2.5	2	2.8	5	1.5	10	0.9	0	0	5	6.8
"D déc.">											22	6.6	51	4.8		0	3	4.1
DP>	239	13.3	45	9.0	7	4.6	5	4.2	28	38.9	19	5.7	108	10.1		0	8	11.0
"D déc."C>											33	9.9	43	4.0		0	10	13.7
DP>	250	13.9	46	9.2	10	6.6	5	4.2	23	31.9	27	8.1	103	9.7		0	40	54.8
Pec+ST	79	4.4	11	2.2	6	3.9	1	0.8	0	0.0	14	4.2	32	3.0		0		0.0
Cox+Sac	50	2.8	16	3.2	4	2.6	4	3.4		0.0	3	0.9	29	2.7		0		0.0
C.V.	176	9.8	42	8.4	5	3.3	11	9.3		0.0	48	14.4	102	9.6		0		0.0
Ribs		0.0	50	10.0	23	15.1	21	17.8		0.0	91	27.2	99	9.3		0		0.0
Upper limb	128	7.1	25	5.0	13	8.6	10	8.5	2	2.8	15	4.5	59	5.5	1	11.1	1	1.4
Hand	282	15.7	77	15.4	25	16.4	6	5.1	2	2.8	17	5.1	131	12.3		0		0.0
Lower limb	150	8.3	37	7.4	14	9.2	10	8.5	2	2.8	9	2.7	73	6.8	6	66.7	2	2.7
Foot	222	12.3	94	18.8	31	20.4	17	14.4	1	1.4	9	2.7	119	11.2		0		0.0
Total	1800	100	499	100	152	100	118	100	72	100	334	100	1066	100	9	100	73	100

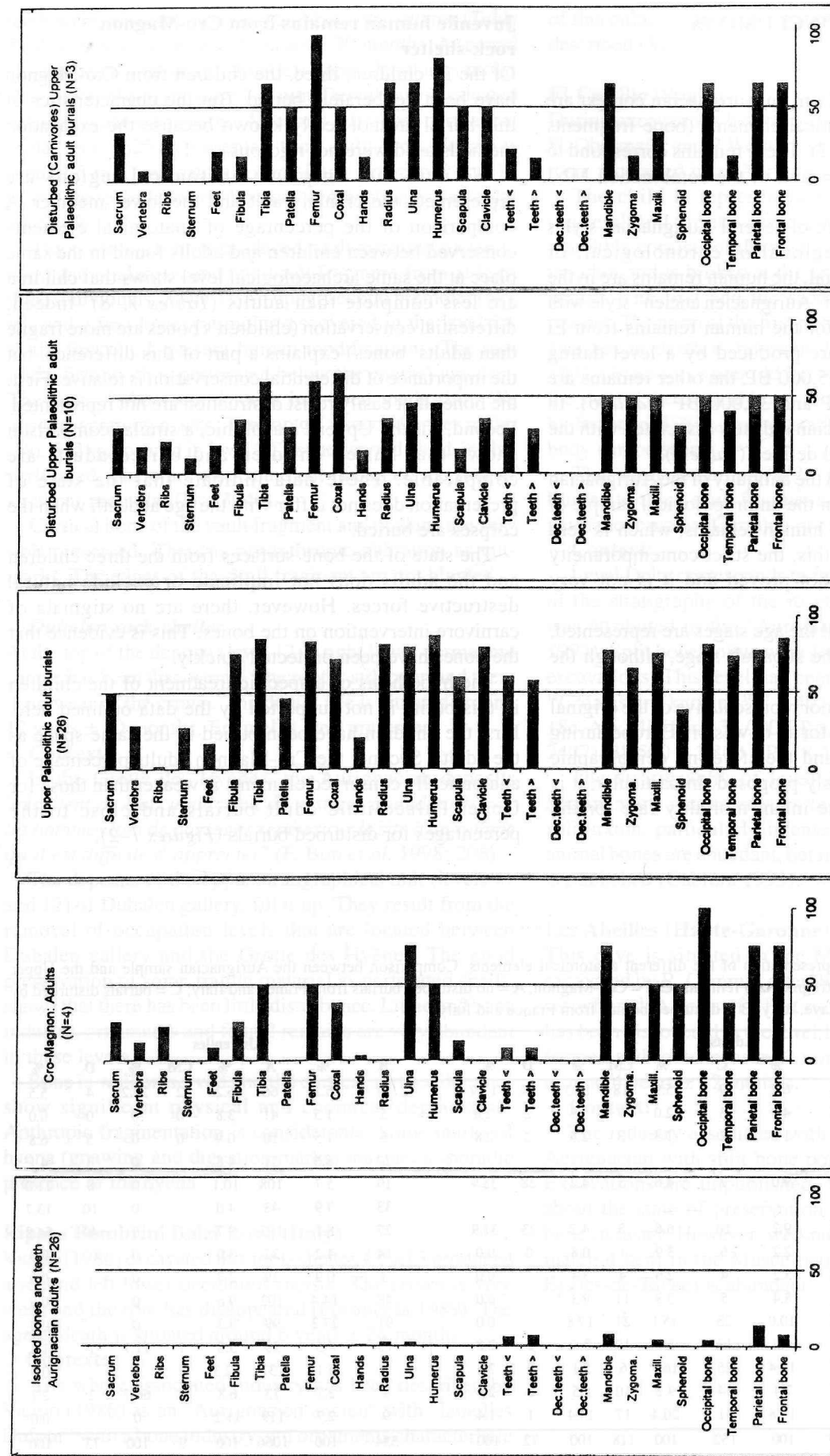


FIGURE 1. Conservation percentages of the different anatomical elements. Adult sample.

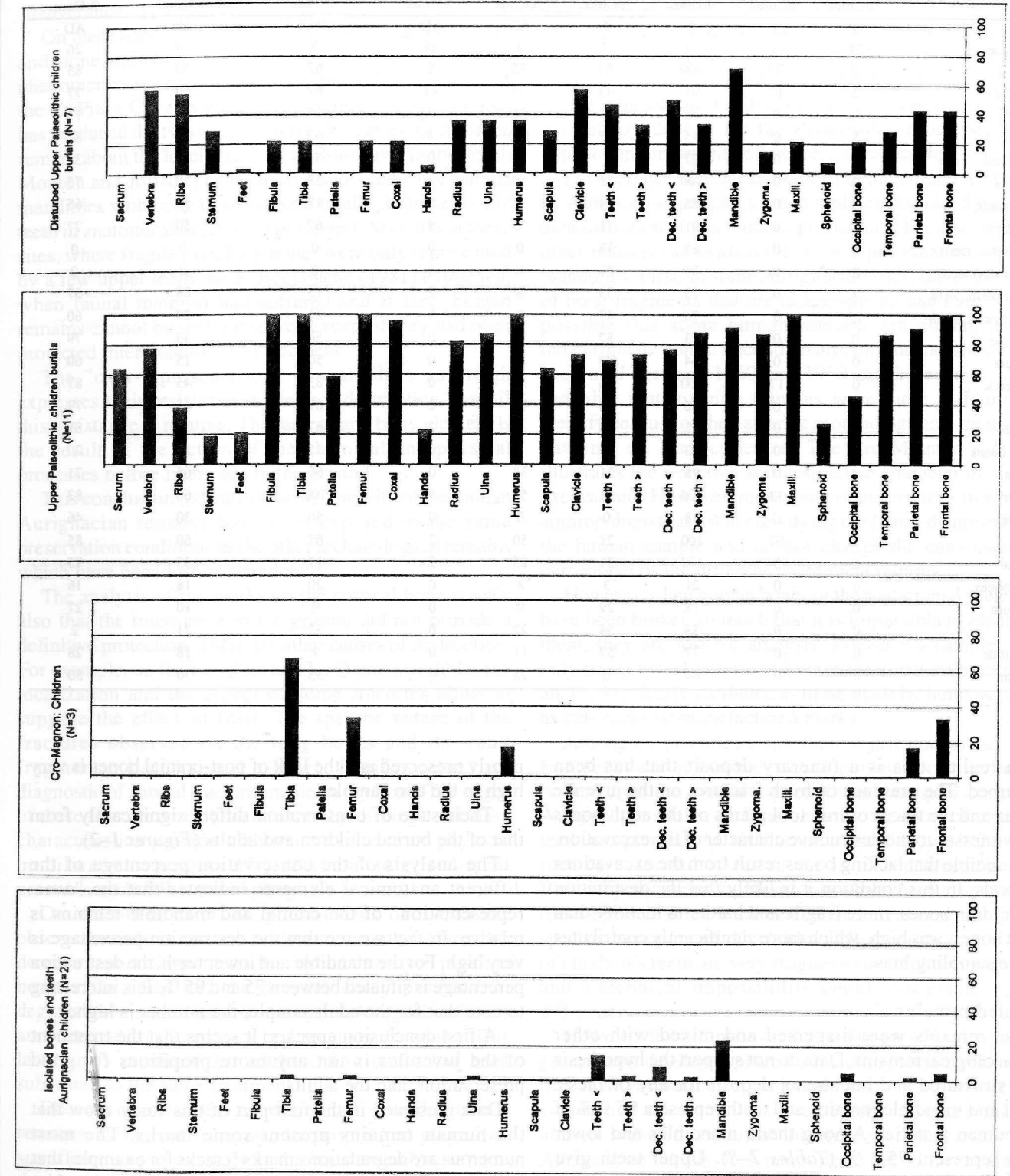


FIGURE 2. Conservation percentages of the different anatomical elements. Juvenile sample.

TABLE 8. Western Europe: Conservation percentages of the different anatomical elements. Comparison between the Aurignacian sample and the Upper Paleolithic burial sample. (AD = Adult; J = Juveniles; D = fragmentary remains; CM = Cro-Magnon, A = no disturbed burials from France and Italy; C = burials disturbed by carnivores – Baouso da Torre Cave, Italy; B = disturbed burials from France and Italy).

Remains.	AURI	AURI (?)	Upper Paleolithic		AURI(?)	AURI	Upper Paleolithic		A
	D	CM	A	B	CM	D	C	B	
	% Cons.	% Cons.	% Cons.	% Cons.	% Cons.	% Cons.	% Cons.	% Cons.	% Cons.
Age	J	J	J	J	AD	AD	AD/J	AD	AD
Ind. number.	21	3	11	7	4	26	3	10	26
Frontal	5	33	100	43	75	8	67	50	85
Parietal	2	17	91	43	75	13	67	50	77
Temporal	0	0	86	29	38	0	17	40	73
Occipital	5	0	45	21	100	4	67	50	81
Sphenoid	0	0	27	7	50	0	0	30	38
Maxilla	0	0	100	21	50	4	33	50	75
Zygomatic	0	0	86	14	38	0	17	50	65
Mandible	24	0	91	71	75	8	67	50	77
Upper dec. teeth	2	0	88	33	0	0	0	0	0
Lower dec. teeth	8	0	77	50	0	0	0	0	0
Upper perm. teeth	3	0	73	33	8	7	15	28	57
Lower perm. teeth	15	0	70	47	8	6	21	29	60
Clavicle	0	0	73	57	0	0	50	35	79
Scapula	0	0	64	29	13	0	50	15	60
Humerus	0	17	100	36	50	0	83	45	87
Ulna	2	0	86	36	75	2	67	45	79
Radius	0	0	82	36	0	2	67	35	81
Hand bones	0	0	23	5	3	0	15	14	20
Pelvis	0	0	95	21	38	0	50	65	71
Femur	2	33	100	21	50	0	100	60	83
Patella	0	0	58	0	0	0	50	30	46
Tibia	2	67	100	21	50	2	67	60	85
Fibula	0	0	100	21	25	2	17	35	75
Foot bones	0	0	21	3	8	0	20	18	16
Sternum	0	0	18	29	0	0	0	10	27
Ribs	0	0	38	54	22	0	32	21	2
Vertebrae	0	0	77	57	11	0	7	18	28
Sacrum	0	0	64	0	25	0	33	30	50

In reality, this is a funerary deposit that has been disturbed. The presence of fresh fractures on the juvenile crania and the traces of iron tool marks on the adult bones are witnesses to the destructive character of the excavation. It is credible that lacking bones result from the excavations methods. In this condition it is likely that the destruction of children bones, more fragile and harder to identify than adult bones, was high, which more significantly contributes to the sampling bias.

Isolated remains

These remains were dispersed and mixed with other archaeological remains. Data do not support the hypothesis of a structured and intentional deposit for any of these. Skull and mandible remains and teeth represent 95.9 % of the human material. Among them, mandibles and lower teeth represent 75.3 % (Tables 7–8). Upper teeth give evidence of the presence of the skull and face in some sites. A comparison with adult Aurignacian remains also discovered, mixed together with other archaeological remains, shows the same tendency: adults and children are

poorly preserved and the lack of post-cranial bones is very high in the two samples.

Their state of conservation differs significantly from that of the buried children and adults (Figures 1–2).

The analysis of the conservation percentage of the different anatomical elements indicates that the "over-representation" of the cranial and mandible remains is relative. In fact we see that the destruction percentage is very high. For the mandible and lower teeth, the destruction percentage is situated between 75 and 95 %. It is interesting to note that for the adult sample, the number is higher.

A first conclusion appears: It seems that the treatment of the juveniles is not any more propitious for good preservation than the adults.

Data presented in the first part of this study show that the human remains present some marks. The most numerous are degradations marks (cracks for example) that indicate an exposition on ground before being covered by sediment. It is especially the case of the Les Rois, Fontéchevade and La Quina mandibles and the Le Piage infant bones. The marks demonstrate the intensity of the

chemical and physical processes of destruction suffered by these bones. This explains a great part of their actual state of preservation. The dispersion of the teeth near the Les Rois mandible gives evidence of an *in situ* evolution where cracks have resulted in a bone fragmentation with "deliverance" of the teeth.

On these sites, the bad conservation of the animal bones and bone industry illustrates the weight of an abiotic phenomenon in the destruction of bone. For example, at the Le Piage Cave, bone is never preserved in level F that has produced the two subadult teeth. We can make the same remark about the level B in the Les Rois Cave. In this level, Mouton and Joffroy (1958) have discovered some animal mandibles with bone that had been totally destroyed; only teeth in anatomical order were preserved. Also, it is at these sites, where fragile maxillary bones were only represented by a few upper teeth. As S. Beckouche (1981) explained, when faunal material had suffered and is rare, human remains cannot be well preserved except if they had been protected intentionally or by accident.

The "over-representation" of mandibles and teeth expresses their resistance in the face destruction, even if this resistance is relative. The lack of any bony element is the result of the action of the chemical and physical processes before interment in the ground.

This conclusion indicates that the majority of the human Aurignacian remains have been exposed to the same preservation conditions as the other archaeological remains which have been lost or abandoned.

The analysis of the marks on the cortical bone reveals also that the interment in the ground did not provide a definitive protection. There are other causes of destruction. For example, on the Les Rois and La Quina mandibles the localization and the aspect of some fractures allow to suppose the effect of frost. The specific nature of the fractures observed on the long bones and the vault fragments (La Chaise, Le Piage, Fontéchevade) are diagnostic of natural fractures made on dry bone. The edges of these fractures are blunted (natural polishing). All these characteristics provide additional evidence of physical modifications produced by sediment (e.g. sediment pressure, rock fall, ...) trampling.

On the other hand, no gnaw-marks of hyena are observed, while hyena are evident at the sites. Also, data do not support a hypothesis that hyena destroyed possible burials. In addition, the present study proves that degradation marks observed on the adult Aurignacian bones are identical to those described on juvenile bones. This last remark confirms that adults and juveniles had been submitted to the same treatment.

Does the importance of the natural factors on the skeletal remains mean that Aurignacian people had played no significant role in the story of the bone assemblages? Are the sample characteristics, such as mandible and teeth "over-representation" explained only by the phenomenon of differential preservation and by the degradation resulting from natural factors?

This is not very probable. Bones, as the posterior part of the temporal, the talus or long bones for example, that generally resist destruction, are not represented. From this point of view, the state of conservation of the Le Piage infant specimen appears paradoxical. This suggests the complexity of the problems and raises questions about a possible inhumation that was secondarily disturbed (the bones were dispersed in many places). There is no evidence to come to any conclusion about the deliberate character of this inhumation. The traditional criteria to characterise a voluntary deposit for the Palaeolithic times (skeletal connection, ornament and ochre...) are lacking.

For the other sites, the hypothesis of intentional selection by Aurignacian people is not completely excluded but the demonstration of this remains problematic because several other reasons can explain the "over-representation" of the mandibles. First, in some Aurignacian sites, there are a lot of bone fragments that are indeterminate and burnt. It is possible that some human remains are among these indeterminate bones. Second, many Aurignacian sites were excavated between 1860 and 1950. At those times, it is probable that juvenile remains were more difficult to identify because of their specific morphology and, therefore have not all been collected. The Cro-Magnon sample illustrates the selective and destructive character of some excavations. However, more modern excavations in which anthropologists assist in classifying the fauna, do not enrich the human sample and do not change the conservation percentage of the different anatomical regions.

However, when human bones of the post-cranial skeleton have been broken so much that it is impossible to identify them, they are lost for analysis! For such a sample, the only unequivocal criteria of human intervention on bones are marks, clearly attributed as those made by humans such as cut-marks or manufactured marks.

Among the juvenile sample there is just such a case, the Fontéchevade mandible where cut-marks have been observed on the medial aspect. Other examples concern Aurignacian adults. At Brassempouy, the roots of several teeth are pierced. At La Combe (Mac Curdy 1912), the root of a second lower molar is also perforated. At Brassempouy where children's teeth have been also found, these children's teeth are not altered. Is this a sign of a specific treatment of the children? Perhaps, but the roots of children's teeth are very fragile or incompletely formed and a technical impossibility could also explain this difference.

However, these remains indicate that some Aurignacian groups have developed practices including corpse treatment that involves setting apart some bones. This may give evidence of the symbolic value devoted to some remains and to some individuals. In view of the scarcity of Aurignacian burials, it is tempting to see in this practice an alternative to primary inhumation. However, we must recognise that we have no direct evidence to demonstrate this hypothesis. Studies on the modern human societies show a great variability in the treatment of the corpses,

mortuary practices and the associated convictions. The greatest care must be taken in interpretation.

In conclusion, it appears that Aurignacian human juvenile remains are scarce, very fragmentary and poorly preserved. The only exception are the Cro-Magnon remains, but their antiquity must be verified. Isolated remains do not provide clear evidence of mortuary practices. The state of preservation of the isolated juvenile remains is widely attributable to natural factors that occur prior to their being covered by ground. These remains were thrown out and neglected such as other artefacts by Aurignacian people. As the adult sample that we have also studied shows the same state of preservation, we can conclude that juvenile individuals received no particular treatment.

There is no evidence of a significant intervention by the hyena. If some evidence in favour of an abandonment of the body exists, it is impossible to determine if one part or the entire corpse was concerned by this action. It is difficult to determine the importance of each factor that plays a role in the story of a bone assemblage. It is particularly true when the sample is weak and when methods of excavation have not always been rigorous.

However, in addition to the "surrender gesture" whose signification is unknown (it does not necessarily indicate a lack of funerary practice), there is evidence of human intervention with juvenile remains at Fontéchevade. Unfortunately, the archaeological context there is unknown. The analysis of the Aurignacian adult sample demonstrates two other examples of human intervention (Brassempouy and La Combe). They affect only teeth and their significance is unknown. The connection between these kinds of practices and funerary practices is possible, but is not demonstrated.

As a matter of fact, the funerary behaviours of the Aurignacian people in western Europe are unknown. Elsewhere in Europe, data support the same conclusion. At present, absolute dating for the most ancient Upper Palaeolithic burials in Europe put them around 25,000 BP and these burials are associated with Gravettian and Epigravettian industries.

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