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CHAPTER 21

Parietal Art and Archaeological Context

*Activities of the
Magdalenians in the Cave
of Tuc d'Audoubert,
France*

*Robert Bégouën, Carole Fritz,
and Gilles Tosello*

ABSTRACT

Parietal art poses numerous questions to its observers about its meaning and its role in past societies. While it is often tempting to seek answers in the motifs, it is critical to include the preserved evidence in the sediments and walls of the sites and, indeed, the caves themselves. This context sheds light on the behavior of prehistoric human groups by revealing the activities that took place beneath the decorated walls. In the vast cave of Le Tuc d'Audoubert is an important assemblage of parietal art and other archaeological remains left by Magdalenian hunter-gatherers. Their dispersal within the subterranean space perfectly illustrates the value of a contextualized study of rock art.

A Companion to Rock Art, First Edition. Edited by Jo McDonald and Peter Veth.
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THE VOLP CAVES

The cave of Le Tuc d'Audoubert, along with the caves of Enlène and Les Trois Frères, collectively form the Volp caves, which lie in the district of Montesquieu-Avantès (Ariège), in the Pyrenean foothills of southwestern France. These caves contain abundant evidence of the material and, above all, spiritual life of the hunter-gatherer groups who lived in the region during the Middle Magdalenian period (about 16,500–13,500 cal BP). The easily accessible cave of Enlène has been known about for a long time. In contrast, Tuc d'Audoubert was discovered by the three sons of Count Bégouën and their friend François Carmel in two stages (on July 20 and October 10, 1912), while Les Trois Frères was discovered two years later, on July 20, 1914.

From the moment of their discovery, these two caves benefited from factors favorable for their study and conservation, primarily due to the curatorial roles assumed by their discoverers and their families. Due to the family's adherence to humanistic values, the implications of this discovery were fully realized. Emile Cartailhac, Professor of Prehistoric Archaeology in Toulouse, was consulted immediately. His advice was sought, and a conservation philosophy was adopted, whereby the sites were not opened to the public. Site visits were restricted solely to prehistorians, and modifications to the sites limited to the minimum requirements needed for access. At this time, this was a unique management approach. It was also decided to leave the vast majority of lithics and fauna brought in by the Magdalenians *in situ*.

Although discovered nearly a century ago, the vast cave of Tuc d'Audoubert remained largely unpublished. It was briefly described (Breuil 1949; Bégouën and Breuil 1958) and was the subject of several specialized articles (Vallois 1928; Bégouën et al. 1982), but it was not until 1992 that a team made up of Robert Bégouën, Carole Fritz, Gilles Tosello, Jean Clottes, François Faist, Andreas Pastoors, Sébastien Lacombe, Philippe Fosse, and François Bourges began an exhaustive study of this important Middle Magdalenian site. Their study resulted in a major monograph (Bégouën et al. 2009b).

Tuc d'Audoubert is 640 meters in length, and is the deepest of the three caves of the Volp. It is also the only one that comprises three geological levels (Figure 21.1). The lower network corresponds to the subterranean course of the Volp and, at its re-emergence above ground, is the current entrance of the cave. At 3 m above the right bank, the medial or middle network is a maze of partially flooded fossil galleries that contain habitation areas and associated parietal art and objects fitted into cracks in the walls. The upper network, now completely fossilized, is accessible by a 12-m high chimney. This extends along 500 m of a sometimes difficult passageway, which probably explains the absence of evidence for long-term settlement. The parietal art has unusual themes for the first part of the path; it is then absent in the second half, being replaced by footprints, drawings and clay sculpting and molding.

THE ART AND LIFE OF THE MAGDALENIANS AT TUC D'AUDOUBERT

About 875 m after it enters a substantial hill, the Volp re-emerges under a limestone butte (or *tuc*) at Audoubert. It is accessible today from a wooded valley. Fallen rocks



Figure 21.1 Location of the three geological networks, rooms, and galleries of Tuc d’Audoubert Cave, Ariège, France, showing areas of prehistoric settlements and archaeological remains, and parietal art and drawings on the ground. Réseau supérieur = Upper network; Réseau médian = Medial network; Réseau inférieur = Lower network; Entrée = Entrance; Aires de séjour et vestiges archéologiques = Habitation areas and archaeological remains; Art pariétal et dessins sur le sol = Parietal art and drawings on the ground. The names of the rooms and galleries are explained in the text.

from the overhang have created a natural dam in front of the cave, holding back water along the last 60 m of the subterranean course of the river. Today, the first part of the journey into the cave is by boat, then on foot upstream on the riverbed. Only the subterranean course of the Volp between the *Diverticule du Siphon* (Siphon Diverticulum) and its re-emergence at the opening of Tuc (around 300 m) is archaeo-

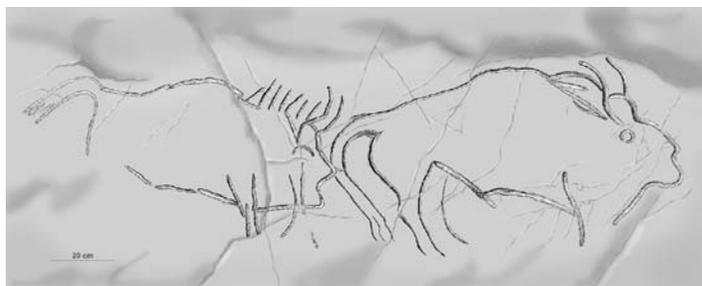


Figure 21.2 Tracing of two bison drawn with fingers in the soft limestone of the ceiling at the end of the *Diverticule du Siphon*.

logically interesting. The medial network was formed mostly in this sector close to the river.

The *Diverticule du Siphon*: an isolated parietal assemblage

At 295 m from the entrance, the *Diverticule du Siphon* is the deepest parietal composition of the medial network. The entrance is 3.7 m high, and it leads to a narrow passage 15 m long. The space is divided into two parts separated by a dangerous passage above a drop. The left wall has a horse and finger-flutings. Next, one must climb over a low, rocky bank on which the Magdalenians balanced precariously and drew a large panel with their fingertips: a claviform sign and, at the base, engravings of two bison and a snake. Farther along, at the end of a small room, is a passageway that is 5 m long and 0.8 m high. The Magdalenians chose this cul-de-sac, where one must crawl to enter, to create, by finger-tracing, the last figures on the ceiling: a couple of bison more than 2 m in length (Figure 21.2). There is not a single archaeological object in the *Diverticule du Siphon*. Very difficult access has presumably meant that brief visits here were dedicated purely to the creation of art on the walls.

From the *Galerie du Bouquetin* to the *Salle du Cheval Rouge*: a living floor below the decorated walls

Moving downstream some 120 m, one reaches the entrance of the *Galerie du Bouquetin* (Ibex Gallery), on a terrace 5 m above the course of the river. In the first part of the gallery, a stalagmite curtain and large concreted blocks hide a small room under a low ceiling. Excavations were conducted on the terrace of the entrance and in the small room. From an archaeological perspective, the *Galerie du Bouquetin* is the richest zone of Tuc (Bégouën et al. 2009a). The lithic assemblages attest to a domestic activity zone, characterized by a toolkit of burins, *pièces esquillées*, and laterally retouched pieces, fashioned from blades that were knapped *in situ* or imported (fashioned from Senonian and *Fumélois* cherts from the Périgord), and sometimes from even further away (Grand Pressigny is more than 400 km to the north). Economic and technical choices demonstrate a technological organizational strategy designed to prolong the use-life of exotic materials, including preserving the length of the

blades. This long-term planning for domestic needs, at the price of long-distance trips or trade, contrasts with lamellar production, which is less constraining in terms of raw material and flake reduction.

The faunal remains in the *Galerie du Bouquetin* comprise mostly reindeer (50 percent) and steppe bison (35 percent). The distribution of the various skeletal parts is consistent, and non-diagnostic fragments of diaphyses make up one-third of the remains. The frequency of these long bones confirms that few whole carcasses were brought into this part of the cave.

Tools (17), probable weapons (15), or engravings on bone or antler (14) contribute to a total of 46 pieces recovered. Besides debitage and some finished tools (which were often broken), there are also tools/preforms in the process of production that demonstrate that these were being produced *in situ*. Among the hunting weapons, a forked-base point (6.8 cm long) and a foreshaft of unusual length (34.4 cm) form a composite weapon of a type only known in the Middle Magdalenian of the Pyrénées and Cantabria. There are also eyed needles, *lissoirs*, and a small piece of Atlantic shell (*Pecten*).

There are 14 examples of portable art on bone and antler. For the most part, these are typical of the period and the region, but other pieces are unique. The *contour découpé* of a doe, the pendant sculpted in the shape of a vulva, and the chamois are rare themes. Engravings on pieces of bison mandible and fetal femur or tibia also demonstrate the capacity of the Magdalenians to transform modest quotidian objects. Nine dates put the two levels between $13,920 \pm 60$ BP (16,203–16,965 cal BP) and $14,120 \pm 70$ BP (16,402–17,235 cal BP). While the stratigraphy illustrates two occupational phases separated by a sterile flood layer, the radiocarbon determinations do not specify the duration of the occupations.

However, the most important discovery from this location is a block enclosure of 20 square meters below the low ceiling. On a base of gravel and sand, the first Magdalenians in the cave brought in heavy stalagmite blocks which they stood on end and wedged in place. This marked-off space, isolated from the axis of the passage in the gallery by the wall of blocks, became a small room lit by a central hearth. This heavy structure would have required a significant collective effort, which stands in contrast to the brevity of the visits that have been inferred from the low density of remains recovered. At the end of the small room, there is a large bone wedged high in the wall accompanied by drawings, notably a bison that was engraved and painted red, surrounded by red points and engraved lines. Closer to the passage, there is a black bison on the ceiling and a last bone fragment stuck in a crack.

At the crossing of the *Diverticule des Claviformes* (Claviform Diverticulum), 40 m from the entrance, there is a small hanging rock transformed into the head of a bear by adding two red points to form the eyes. Above the entry to the *Diverticule*, there is a horse and a large ibex after which this gallery is named. The parietal art of the *Galerie de Bouquetin* includes 35 items (26 graphic elements to which nine objects were also stuck into the walls). These are found in two concentrations separated by 30 m of blank walls. Even if taphonomic factors cannot be entirely eliminated, this separation of the compositions seems quite intentional.

The *Galerie du Bouquetin* is one of the most important sectors within Tuc. It is here that most of the paintings are found. The relationship between the decorated walls, the bones stuck in the walls, the plaquettes, and engraved bones indicates a

close contextual link between these different facets of Magdalenian life. The area that was hidden from view and surrounded by blocks seems to have been dedicated, above all, to symbolic practices.

The entrance to the *Diverticule des Claviformes* opens on the right-hand side of the *Galerie du Bouquetin*. This comprises a triangular sloping section in two parts, which zigzags over 58 m toward the right. In the first section, one can move about either upright or stooped, and the figures are placed at the height of a person. In the second part and toward the end, a sudden narrowing of the walls forces a short climb, with engravings and various traces of occupation continuing up above.

From the entrance, on the left-hand wall, one sees the first cluster of engravings (a bison and a reindeer) and a reindeer painted in black. Some 11 m from the entrance, in a small ascending passageway, there are engraved marks over a niche where a fragment of bone has been placed: the only archaeological object recovered from this spot. Then 30 m farther on, the chamber suddenly opens upward and the vault is entirely covered in engravings. Climbing the vertical walls over 3 m, one reaches a tilted ledge on the right on which one can sit in the center of a space that was judiciously used by the Magdalenians. Overhead, the cupola-shaped vault is covered in claviform signs and a horse. In front of the observer, the end of this tunnel-shaped passage has a series of claviforms (a characteristic geometric form that can be described as a kind of shouldered “sign”) aligned on either side. On the left wall, a passage containing drawings continues toward an inaccessible fault. High on the right-hand wall, the ledge extends under a low ceiling (40 cm) that ends with a panel of finger-flutings accompanied by episodic scratches and, at the very end, little balls of clay that had been thrown against the wall.

The *Diverticule des Claviformes* contains 119 graphic elements, but these comprise only 10 animals (three bison, two reindeer, one horse, and four indeterminate images). The main composition is an extraordinary assemblage of 95 claviform signs. The organization of the images seems to have the horse in the center with a series of claviforms surrounding it. This is not a successive accumulation of motifs but an intentional composition. Indeed, there is a similarity in the loops in each group of motifs, along with a strong similarity between the lines and the gradual increase in the size of the claviforms on the left-hand wall, which reinforces the impression of a dynamic sequence. One can imagine the vigorous and repeated gestures of the engraver seated in this chamber. The constricted configuration of the space and the strong thematic and technical homogeneity suggest that this series is the result of a single hand, the assemblage having been realized in one episode that may have lasted only minutes.

This leads to a question about the scratches left by a bear high in this passageway. It seems improbable that an adult bear could have shimmied through this small passage, turned over on its back, and scratched the ceiling, before leaving the way it came, without leaving other traces. We suggest that a more plausible and intriguing explanation is that these marks may have been made by people using bear claws.

Leaving the *Diverticule des Claviformes*, one returns to the *Galerie du Bouquetin* to find on the left the entrance of the *Salle du Cheval Rouge* (Red Horse Room), hidden by concretions. This vast space contains the remains of a Magdalenian settlement found at the south of the room, near the right wall. Test excavation covering 6 square meters revealed a single archaeological level between two sterile layers. The

Magdalenians occupied a floor littered with water-worn pebbles; later, the flooding of the Volp covered these abandoned remains.

A single, small, concave hearth was found here. Five bison bones were recovered and these were reused as tools (hammerstones, retouchers). A pierced ibex incisor is the single ornamental object present. Among the 21 fragments of plaquettes or pebbles, only two have engravings. The fauna is strongly dominated by reindeer (92 percent), followed by bison (6 percent). This distribution is in contrast to the *Galerie du Bouquetin*. The lithic industry consists of only 434 pieces, the majority of which are narrow-backed bladelets. The absence of cores suggests that the artifacts in the *Salle du Cheval Rouge* reflect hunting activity with the bladelets still in their haft or brought back in the body of a dead animal. The six dates yield a tight range between 13,340 and 13,750 cal BP. The limited production of lithic blanks, the rarity of portable art and worked bone objects, and the specialization of the tools indicate activities related to hunting and butchery during a short stay.

In the *Salle du Cheval Rouge*, the parietal images comprise 44 graphic elements (six bison, one horse, and 37 signs) and seven inserted objects. In this immediate vicinity is a composition of the densest (15 elements, two inserted cherts, and one inserted bone) and the best-structured elements (four animals, claviform signs). This proximity of elements is reminiscent of the *Galerie du Bouquetin*.

An essential characteristic of the *Salle du Cheval Rouge* is the important role played by a series of structured traces, both at the entrance of the room as well as in the immediate proximity of the signs or animal figures. Moreover, the secondary place accorded to the animals (only seven) is confirmed by their abrogated treatment; the repeated presence of a vertically oriented bison, represented by a hump and mane, transforms this figurative element into an abstract design, located at each end of the parietal composition. In a small room, just across from the chimney that leads to the upper network, are a couple of engraved bison hidden near the ceiling. Leaving this room, one must pass through the *Salle Nuptiale* (Nuptial Room) in order to get to the *Diverticule des Dessins* (Diverticulum of Drawings).

The *Diverticule des Dessins*: reliefs and engravings

This short and narrow gallery (19 m long) is isolated at the northwest extremity of the medial network. Two samples taken from bone tools recovered from the back dirt of an old excavation yielded dates between 34,600 and 37,700 cal BP: this reveals a very early incursion into the cave, not connected with the later Magdalenian parietal art on the walls (Figure 21.3). There are 84 motifs of which 27 are animals (10 bison, eight horses, one reindeer, one lion, one human, and six indeterminate) and 57 groups of signs (34 claviforms, four angular signs, and six red stains or dots). Slightly after the entrance, an alignment of resituated calcite plaques – standing on end – symbolically bars the passage and is reminiscent of the walled construction in the *Galerie du Bouquetin*. In the *Dessins*, the Magdalenian engravers did not spend much time here, nor did they leave any evidence of hearths for light; moreover, when they left, they even took their tools.

The three principal panels are organized around a vertical crack on the right wall, on irregular reliefs that the artists have transformed into zoomorphic figures. Several engraved bison and horses seem to hide in the crack or emerge from it, and the sur-



Figure 21.3 Tracing of an engraved panel (bison, reindeer, horse, and claviforms) in the *Diverticule des Dessins*.

rounding area is marked by red dots and traces. All of this indicates that this is the symbolic center of the decorated gallery. There is a perceptible symbiosis between the artistic works and their use of natural contours and shapes.

Long after the Magdalenians, medieval visitors (and others from the seventeenth century?) visited the cave. At this time, they dug a hole for an unknown purpose and brushed their torches against the engraved panels without apparently noticing the engravings.

Exiting the *Diverticule des Dessins*, we return to the *Salle Nuptiale* at the intersection of the cave. Magdalenians passed through here quickly: no archaeological remains have been found, and a modest engraved panel only has a dozen or so graphic elements, including two bison. The placement of this panel, across from the access chimney to the upper network and near the paired bison, is notable. On the eastern side of the *Salle Nuptiale*, the chimney leads one to the upper galleries. In this passage, which has a slope of 70 degrees, several hand- and foot-holds in the rock allow a difficult climb to the first engraved horse, then access to a cupola where three ibex and a claviform sign were traced by fingertips. The drawings have very few details, probably as a result of the awkwardness of access to this location.

From the chimney to the *Chatière*: when imagination takes over

The top of the chimney opens into the upper network, which starts as a long rectilinear corridor, suddenly interrupted by a large shaft where the surface irregularities assist access. One arrives in a small room in which a clearly engraved doe is found at 1.5 m from the ground. Following the wall to the right, the wall and ceiling are decorated with an exceptional concentration of monsters, imaginary animals, and signs under which one must pass on all fours. The passage is only 80 cm wide, and after curving around a column, the *Chatière* (Cat Passage), the narrowest passage of the cave, is found. The Magdalenians passed through here leaving a beautiful chert blade.

The *Chatière* opens into a small room with a low ceiling, about 1 m high. The engravings, mostly of bison, are located on the ceiling, all with the same orientation as the axis of the passage. As the observer continues on hands and knees, the exit of the room forms a new narrow passage between two stalagmitic columns, with the evocative name of *Laminoir*.¹ This leads to a long gallery that, in turn, leads to the *Salle des Lacis* (Room of Lattices).

About 15 m long and 6 m wide, the *Salle des Lacis* is characterized by its low ceiling. It is not possible to stand upright in this space. Toward the center of the room are the complex traces on the ceiling that were called *les lacis* (lattices or tracery) upon their discovery. The panel occupies more than 2 square meters. Incised curves cover the rock in every direction. These bands of three or four parallel striations, both rectilinear and sinuous and with a maximum width of 45 mm, seem to be interlaced at random. Between 25 and 30 gestures were required to create this panel. The asymmetrical section, made up of numerous grooves, does not appear to be made by rounded fingertips. The highly regular parallel grooves in the longest bands of the left panel, their slight spreading, and the vigorousness of the incisions suggests reliance on a tool with four prongs; for instance, a fishing gig. Returning from the *Salle des Lacis*, one arrives at a gallery with a low ceiling on the left. The sloping floor has been covered by stalagmites that have been broken into plaques approximately 20 cm long; a few of these were removed and piled up along the wall by the Magdalenians.

After the *Chatière*: traces, footprints, snake and bear bones

At 58 m in length, the *Galerie Cartailhac* (Cartailhac Gallery) is one of the most beautiful features of the cave, due to the brilliance and diversity of its natural formations. It is, however, rather sparse in prehistoric remains. Next to the path, a small chert flake was left behind, and two fragments of concretions were placed in the form of a cross on the floor. Further along, in the *Galerie de la Colonne* (Column Gallery), the Magdalenians laid bear bones on a collapsed pillar. On the clay of the floor, one can see human footprints and the first drawings, parallel lines, and dots made with people's fingers.

In the *Galerie des Effondrements* (Gallery of Cave-ins), the narrow and inaccessible shafts forced the Magdalenians to follow a path that they marked with various traces. The most spectacular remains are doubtless the bear bones, removed from their original dens and placed along the path. After the last shaft, the gallery becomes larger, with archaeological remains dominated by the deposits of bones, always located along the axis of the passage.

In contrast with the preceding spaces, the *Galerie des Empreintes* (Footprint Gallery) measures nearly 60 m long by 7–8 m in width and height, with an open appearance

and few concretions. On the left-hand side is a long clayey stretch completely filled with bear wallows and other traces. At the beginning, on the right, the path extends under a low ceiling (1.4 m high) under which there are human footprints and a drawing on the clay floor. Some 20 m further on, the gallery widens toward the right-hand side into a semi-circular room. The floor shows evidence of high levels of scuffage and intense Magdalenian activity. On a natural anvil formed by a small stalagmite, a bear skull has been smashed with the probable goal of extracting the teeth, none of which remain. Eight footprints are visible in the clay to the left of the skull. A nearby disturbance is likely the place from which the skull was removed.

Beyond this, at the center of the gallery, a large pool of water blocks the passage. On one side, near the floor, are traces of four parallel finger marks and inside the pool are a bear humerus and the articulated skeleton of a grass snake, identifiable by its gracility and length (0.75 m). How did this skeleton get here? The articulation indicates that the reptile arrived here either alive or recently dead. A natural explanation can be eliminated: as a cold-blooded animal, snakes never venture so far underground (500 m from the entrance and 30 m below the surface). A natural fall is also impossible, since there are no sinkholes or shafts toward the exterior in this sector. In addition, the location, in the center of a pool clearly visible from the path, the presence of the bear humerus, and the finger tracings in the clay constitute an indisputable anthropogenic context.

A narrowing of the space marks the end of the *Galerie des Empreintes*. Here, the Magdalenians deposited pierced teeth and red ocher against the wall. Just after this narrow passage, one enters the *Galerie des Petits Pieds* (Gallery of Small Feet). On a sloping surface on the right, one can see the parallel footprints from two small feet. These belong to a child of three to four years of age who slid on the clay, trying to plant his or her toes in the sediment – perhaps as a game or to avoid falling.

At the end of the sanctuary

At the end of the *Galerie des Petits Pieds*, one crosses a mass of concretions and descends to a lower level. On the left side, a group of dots printed with a finger is the only evidence in the passage of prehistoric people. Next, one takes a rectangular corridor about 40 m long. At 620 m from daylight, an abrupt curve to the left marks the entrance of a long room where bears have extensively marked the floors. A rockfall to the right has to be avoided to then encounter walls with regular shapes. Immediately, one senses that the atmosphere of the cave has changed. The concretions, omnipresent until now, are rarer and only a single row of stalagmites follows a longitudinal fault toward the middle of the room, limiting the view. A fragment of bone was placed on the floor. The nature of the limestone also marks a change; the Urgo-Aptien bedrock yields to a friable Middle Jurassic conglomerate. Veins of red clay are also present deep in the fissures of the ceiling.

***La Salle des Talons* (Room of the Heels)**

After about 20 m into this gallery, the floor plunges suddenly to the right, toward a small chamber, 3 m below. Bears have left their marks on the clayey embankment in this room. This clay passage leads to the threshold of a rotunda 8 m wide and 6 m deep, with an arched circular ceiling lowering progressively toward the bottom, such

that standing upright is no longer possible. A fine calcite film covers the clayey floor and often conserves the natural molds of prehistoric traces or fingerprints with surprising detail: in one place, the mark of a fingernail can be clearly seen. Every accessible part of the floor in the *Salle des Talons* was recorded, which in our estimation is only about one-tenth of the entire room.

The drawings in the clay On the left-hand side, drawings on the floor begin with two parallel vertical lines of dots next to a claviform sign. Another series includes at least three claviforms and three bars. A small structure occurs here, covering approximately a quarter of a square meter, being fashioned from a dozen or so cylindrical stalactites placed vertically, with a roll of clay next to a shallow pit which has been dug with the fingers. Further to the right, one can see two “signs” with rounded barbs and, unfolding over nearly 3 m, a sinuous line that ends in a curl. In the center, twelve dots were carefully made in a circle with the fingers. To the right, near the current path, another group of dots was carefully made with the fingers.

To the extreme right of the room, we discovered a series of at least 112 dots made with the fingers. These are organized in tangled groups of curved lines producing a cervid image. The separation of this “panel” and the absence of singular elements led us to conclude that this assemblage, covering nearly a square meter, is a sign in the broadest sense, in the same manner as certain panels of dots in parietal art, such as that at Niaux Cave.

Near the end of the chamber toward the right, a pit has been dug into the clay and measures 0.9 m long by 0.5 m wide with an average depth of 10 cm (Figure 21.4). In the upper left corner, a piece of a concretion is still standing at an angle, allowing us to deduce that the Magdalenians dug out lumps or plaques of clay using the concretion both as a pick and a lever, before abandoning it at the point of extraction. Opposite the pick, one can see a pile of kneaded balls of clay.

In the center and the left of the *Salle des Talons*, long traces head toward a cone of clay that has been hollowed out as if it has a central “crater,” being also marked with lines. The interior of the cone is empty. The furthest lines from the path are



Figure 21.4 *Salle des Talons*, right section. Pit dug in the clay using a concretion (on the right), molded clay cone (on the left), and drawings on the ground and heel prints (total length about 3 m).

only partially detectable. Their presence allows an estimate of the extent of the drawings that must have covered the floor of the entire room. Toward the right, isolated from the drawing and human heel prints, are five rolls of clay on the floor. Their elongated cylindrical form was first thought to represent phalluses (Bégouën and Breuil 1958), followed by the more prosaic suggestion that these rolls are likely “*colombins*,” made by sculptors or potters to test the plasticity of the clay (Beasley 1986). The uniqueness of the *Salle des Talons* is confirmed by its enigmatic features (the crater, accumulations of concretions) and the extensive complex traces. A series of claviforms reinforces the thematic and symbolic links between the two networks of the cave. While one cannot prove that the creators were one and the same, they had highly analogous behaviors.

The heel prints On the floor of the *Salle des Talons* other traces attract attention. By our count, there are 183 imprints present, some strongly and some less strongly marked in the floor. There may also be others, but these are now out of view or buried. Since their discovery, it has been acknowledged that these prints of modest dimensions belonged to children or adolescents who moved about beneath the low ceiling (between 1.2 and 1.5 m high), walking only on their heels, tracing paths. Early work estimated that five individuals produced the prints (Vallois 1928).

The heel marks are distributed primarily in the right half of the room (where the ceiling is higher), while the majority of the drawings are found to the left and at the extreme right, beyond the clay extraction pit (see Figure 21.4). This obvious disjunction in such a small and constrained space suggests that the creators of the drawings and the “walkers” were not the same, but this is perhaps an illusion created by the randomness of the traces shadowed by the calcite and brown clay. Our observations indicate that one cannot prove that the heels are those of the artists. Nonetheless, the coexistence of these two categories of traces in the same place is too remarkable to be the result of chance. The paths of the heels recorded by previous authors are not entirely clear, thus the number of individuals seems to us difficult to estimate, although we too conclude that it was a small number of individuals.

The shape and the depth of the imprints varies between circular, elliptical, and “water drop-like,” ranging from a very slight impression to penetrating more than 5 cm, with a roll toward the exterior. Without a doubt, the dynamics of the movements (particularly given the constrained position) explains most of the variation, but one might ask if knees and elbows are not also present. How is it that not a single complete foot is visible? How does one move about in such an inhabital manner without ever using the hands or stumbling? Certainly, we must bear in mind the randomness of the discoveries, but essentially the same problem exists for the drawings, executed with such grand gestures. No path has been isolated with any certainty over a sufficient distance, nor connected to any particular drawing. How does one draw a sinuous curve over more than 3 m in soft mud without leaving a footprint or a handprint? The very fine clay, which recorded the slightest details of other gestures, should have also recorded this evidence if it existed.

One exits from the *Salle des Talons* toward the *Galerie des Bisons d'Argile* (Gallery of the Clay Bisons) by climbing the clay embankment. At the end of the room, in the right half, the ceiling dips and it is necessary to crawl. It is in this position that the modern visitor first sees the two clay bison. The end of the cave is only 6 m away.

The *Galerie des Bisons d'Argile*

The clay bison have always aroused intense emotions. Located on a small promontory in the center of the room, they are leaning on the side of a rock pushed up from the floor and face rearward (Plate 14). One is struck by the realism of the animals, the detail of which easily allows the identification of the male and the female. Adjacent on the floor is a rough-hewn clay statuette and an engraving of a bison, deeply inscribed and oriented backward just like the two large bison. On the opposite face of the rock, a discrete engraving suggests the head of a bison and completes the ensemble, as a last sign.

The clay bison are in high-relief, since each animal is still attached to a support by one of its flanks. The right-hand sides of the bison, the only side truly visible, is also the more finished; the opposite side is more suggestive in form. The clay used for the sculpting of the statues almost certainly comes from the extraction pit in the *Salle des Talons*. The removal must have been done in plaques, the bedding of the clay making this task easier. These plaques were then brought from the *Salle des Talons* to this central rock.

Our observation of the male's posterior side shows that, besides stones to stabilize it, the front part of the body was formed by small balls of clay pressed together, while the rest of the body was made from a single block of clay. This difference in texture suggests that the artists did not knead a plaque of clay to give it the profile of a bison; rather, they cut out a rough shape that resembled the back part of the body and then they sculpted it, while orienting it and keeping it in place with the help of stones. The front part of the body is made up of successive additions of clay balls, just as modern sculptors do today. The horns and the ears were fashioned separately, then brought to each animal and finished. As the striations covering the body indicate, the last smoothing – the finishing touch – was done with a flat hand, slightly damp to avoid sticking. For the lines incised on the withers, a flat pointed tool (a flake, chert, or a bone or wood blade) was most likely used.

The sculpted bison on the floor was created with an entirely different technique. The artist started by making a deep incision with the aid of a robust tool (perhaps a chert burin or bone spatula) to create the cervico-dorsal line as the abrupt, angular border indicates. The hump was energetically sculpted, clearly separating the figure from the base. The clay that was extracted with the first incision was kneaded into balls and roughly applied to the body. At the same time, engravings were made in the floor with fingers depicting critical traits of the subject such as the muzzle, beard and withers, hoofs and leg. The final touch, the unique detail, is the horn (as for its illustrious brethren) which was sculpted separately and then attached. On the statuette of the bison, the minimal shaping evokes a silhouette pulled out from the clay more than a sculpture.

If the clay bison and their two lesser-known companions form a group, how do we explain such differences in treatment? For the bison on the floor, the term “sketch” seems more appropriate. In comparison to the clay bison, their execution and aspect are far more rudimentary, with a lack of finish that the creators of the neighboring sculptures carefully executed. Should we imagine a different hand, even a time difference between the principal couple and the others? This seems difficult to believe, since the archaeological evidence shows few incursions into this deep part

of the cave. We think instead that the bison sculpted on the floor and the statuette were deliberately abandoned in this state, likely during the process of their creation.

INTERPRETATIVE DIRECTIONS

Starting with the evidence collected in the cave, our ambition was to recreate the events lived by the people and to disentangle these from those caused by animals or natural processes (Fritz et al. 2007). Well before the arrival of the first people, the cave was inhabited by families of cave bears over thousands of years, and at least up to 30,000 years ago. Although there is little evidence for them in the medial network, the bears occupied the entire space of the upper network, accessing this by an entrance that is closed off and/or unknown today.

One of the major findings was to discover that the human visitations to the cave took place over a longer period than expected. While it is uncertain whether Middle Paleolithic peoples ventured underground, they were certainly nearby, on the plains and in the surrounding hills. The few remains that are present we believe originated from slippage from terrain outside to the floor of an upper gallery. One can be sure that the Aurignacians, the anatomically modern humans at the beginning of the Upper Paleolithic, made an incursion into Tuc by 34,000 years ago. But to what end? It does not appear to have been for long-term habitation, nor to decorate the walls. Following this earlier phase of occupation, the cave appears to have been abandoned for a period of some 20,000 years before the main occupants and artists of Tuc – the Magdalenians – entered some 16,500 calibrated years ago. Our debt to them is immense: as the cultural expressions they imbued this cave with graphically and archaeologically clearly signpost their genius.

The conservation of the remains and the floors has allowed us to literally follow the Magdalenians in their footsteps – in their movements, their gestures, and their habits. We have been able to discover the site just as they left it. The first Magdalenians entered the cave when the Volp River was at a lower level, and they climbed up with dry feet to the galleries of the middle network where they established campsites. The colder climate of the time, in comparison to today, would have resulted in little subterranean humidity. Access and pathways for the rest of the cave system appear to have remained unchanged over the millennia.

This permanence of the perception of space was a very important component in our study of the site. With the entrance being known, it was possible to study the direction of movement and the distances covered, with the certainty that the Magdalenians were subject to similar constraints. Because of the extent of the networks, the choices made by prehistoric people seem much clearer here than elsewhere. Immediately, one is struck by the dispersal of human presence throughout the entire available space of the subterranean network. While the habitation sites were logically situated in the most accessible parts (taking into account the considerable destruction of archaeological levels located at the current level of the bed of the Volp), the parietal assemblages were located in the most remote places. The differences between the two networks appear at first to be considerable, but they hide a strong homogeneity throughout the cave system when considered as a whole. A spatial continuity exists

between the two networks, as the drawings in the connecting chimney demonstrate. There are similar themes between the systems, such as bison couples and claviform signs (see Figure 21.3), and these link the most distant sectors of this subterranean labyrinth. The relative abundance of remains is only put into perspective when compared to the immensity of the galleries: we posit that it is very likely that a single expedition brought a handful of men and women to the *Salle de Bisons d'Argile*.

This incursion was possibly prepared for by a brief reconnaissance of the site, indispensable if groups were to venture in so far. It is estimated that the clay sculptures required at least several hours to execute, and given their location in the deepest part of the cave, implied a certain level of organization (ropes, lamps, tools) – even more so knowing that a small child accompanied the adults. The lack of any campsites in the upper network, due to the distance from the entrance and the difficulties of movement, suggests that the logistics of cave visits were organized from other settlements. It is thus plausible that the sculptors of the clay bison and the hunters who camped in the Volp were, if not the same people, at least members of the same group. We propose that the artists had the active support of the community. If symbolic behavior was the principal motivation for the presence of the Magdalenians in the cave system, then it can be proposed that another part of the group looked after necessary subsistence, fire fuel, and other aspects of the material and secular components of life.

We may ask how many people were members of the small group based at Tuc? The traces they left in the cave correspond to just a few individuals, counted in habitation areas or workshops, surfaces that were used, the number of fires that were lit, tools that were knapped and used, and footprints preserved in the clay. Even the hundred or so animal figures drawn on the walls are modest in total number. If one counts the number of animals killed and eaten, one arrives at the same conclusion: a small group visited a very large cave system. Further, we may ask: was there one family or several? What were the likely number of adults and children? It is highly likely that the four-year-old child who slid in the upper network had parents. They plausibly had brothers and sisters, since the families were necessarily skewed toward a younger demographic via selectionist pressures. Thus, it is likely that many children lived in the campsites but only some of them made it to adulthood. The group at Tuc might have comprised several families, since it is difficult to organize the hunting of large game without the participation of three or four men at a minimum. If one also adds as many women and some elders, we arrive at a total between 15 and 20 people. The group visiting the cave was likely smaller, if one considers that the stay at the cave was directed toward a precise goal: the practice of rites connected to parietal art.

We question why the Magdalenians ventured so far into this vast cave? Why did they leave paintings, engravings, and objects hidden on the walls in the deepest parts of the chambers, at times probably endangering their lives? The answers to these questions have occupied researchers since the first discovery of prehistoric art, well over a century ago. Many hypotheses have been advanced, each privileging specific explanatory frameworks of cave art. Originally being imagined as a leisure activity practiced by aesthetes, it was subsequently described by researchers as the result of magical destructive rites or fertility rituals, as proof of totemism, shamanism, or animism, or even as a bipolar vision of the world resting on binary complementary

principles. While each hypothesis may explain some of the variability observed, none satisfactorily explains the totality of the art and associated human imprints and other remains.

Like other decorated caves, Tuc sheds both light and shade on the discussion. One of the key issues seems to be found once again in the complex and branching topography of this cave. The comparable locations of the bison couples (see Figure 21.2 and Plate 14), isolated at the two extremes of the network after more than 800 m of difficult and near-acrobatic progress from one to the other, cannot be due to chance. If the additional bison couple, hidden across from the chimney at the only access point between them, is taken into account, this further cements this very real patterning and intentionality in theme and location. The Magdalenians did not have a tangible plan of their cave, but obviously they had a very precise cognitive map. They took advantage of the morphology of the subterranean galleries and their setting on two superposed levels. In the medial network, one notices a large proportion of animals in a vertical or upside-down position (*Cheval Rouge*, *Claviformes*), of panels composed around channels or rising reliefs (*Dessins*, *Nuptiale*), and of major figures engraved on the ceiling (*Siphon*, *Bouquetin*). After passing through the chimney (which hosts drawings in a cupola), one witnesses a collage of monsters, bison, and engraved meanders on the ceilings both before and after the *Chatière*. This is a last reminder of a major topographic feature that interrupts movement, in both a physical and perhaps symbolic sense. Beyond the bottleneck, the attention of the Magdalenians was apparently directed exclusively toward the floor: with the placement of objects, drawings, and sculptures. Their gestures thus moved with distance from the mineral ceiling toward the friable ground; from cold and hard rock to soft clay which was warm to the touch. The material chosen for their works was thus a malleable substance, transported into the cave, producing a unity between the sculptures and the cave itself. When the entirety of the site is considered, we posit that the groups of figures on the lower level may have incited groups to head toward, at least mentally, the upper spaces; those places where the critical expressions of the sanctuary are hidden.

Of course, we have no proof of a strict contemporaneity of the sectors of the cave. But in the end, this problem is subsumed by the very real patterning observed in the placement and themes of the art. If the sanctuary was created in several stages, which is possible, then successive artists may have linked their works to those of their predecessors, or perhaps even more remote ancestors.

At Tuc d'Audoubert, as in other caves of the period, the bison plays a principal role. The Magdalenians of the Pyrenees tracked it for food and often represented it on plaquettes, bones, and walls, with an empathy that can still be felt today. Contrary to what has sometimes been written, these groups of hunter-gatherers chose as the repository of their imaginations the very same animal that was also their favorite game. At Tuc, the structuration of the space and the nature of the themes suggest that the cave held a pre-eminent symbolic place, in all likelihood feminine, such as has been proposed for other sites of a similar age. The investment in this subterranean space, all the way to the most "intimate" depths in the form of bones wedged into fissures and lines incised at the back of a chamber, follows the same architecture of logic. The presence of a child at the feet of the sculpted bison, one of the most important facts recorded in the cave, provides hard evidence for intergenerational presence and

witness of the actions of artisans in the heart of the sanctuary. The paired clay bison mark the last step of the journey – and, remarkably, these are accompanied by two other specimens, barely disengaged from the material, symbols of progeniture in the process of being born.

The oppositional tension between wounded or killed animal, on the one hand, and the images of fecundity, on the other, reflect on the obligation to kill in order to live and the necessity for reproduction and regeneration. No doubt the rites that took place in this great cavern and the graphic representations embraced and sought to reconcile these two binary principles.

TRANSLATORS' NOTE

- 1 *A laminoir* is literally a laminator, but colloquially “passing through the laminator” means to go through a difficult challenge.

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