

Fig. 1.3.2. The sequence of notches interpreted in terms of lunar time reckoning. After A. Marshack, *The Roots of Civilization* (New York, 1991), fig. 3.

Case Study 1.4: The Astronomical Rock Panels in the Lascaux Cave, France

Presentation and analysis of the site

Geographical position: The Lascaux cave (Grotte de Lascaux) is situated in the valley of the river Vézère, 1200 m south-east of Montignac, Département de la Dordogne, France.

Location: Latitude 45° 3′ 17″ S, longitude 1° 10′ 44″ E. Elevation 185m above mean sea level.

General description: The Lascaux cave is embedded in the Santon limestone massif, its entrance being just below the top of Lascaux hill, c. 90 m above the valley floor of the Vézère. It comprises three long and narrow subterranean galleries in the form of a letter ‘K’ and measuring almost 250 m in length, including what have become known as the Axial Gallery, the Hall of the Bulls, the Chamber of Felines, the Nave, the Apse, and the Shaft. Covering most parts of the cave are numerous monochrome and polychrome paintings and engravings. The published corpus lists 1963 figures including animals (horse, aurochs, bison, ox, stag, ibex, feline, woolly rhinoceros, bird, bear), an anthropoid, a chimera, some possible abstract representations of plants, and symbols (geometric figures, series and sets of dots etc). Carbon-14 dates (from charcoal used sparingly for painting), pollen analysis and stylistic evaluations suggest that the majority of the rock pictures should be associated with the Lower Magdalenian, c. 17,000-15,000 BP, although it is possible that a few were created much later, in the Mesolithic (up c. 5000 BC).

Inventory of the remains: A number of the Lascaux pictures have a possible astronomical significance. These include the ‘Chinese horse’ and ‘fronting ibex’ in the Axial Gallery and the ‘crossed bison’ in the Chamber of Felines (natural calendars); the stag-and-horse motif

and related dots in the Axial Gallery and the five ‘swimming stags’ in the Nave (astronomical almanacs); the aurochs (no. 18) in the Hall of the Bulls with its clusters of dots (representations of asterisms); and two pictograph panels in the Shaft (cosmography). See also ‘Cultural and symbolic dimension’ below.

History of the site: The cave was discovered on 12 September 1940 and rapidly started to attract large numbers of visitors. In 1948 it was opened to the public, but serious deterioration due to biological contamination resulted in it being closed again in 1963. A detailed three-dimensional replica of the cave’s most impressive galleries, the Axial Gallery and the Hall of the Bulls, was created just 200m away and has been open to the public since 1983. Meanwhile, efforts to halt the continuing deterioration of the original cave continue through to the present time.

Cultural and symbolic dimension: The suggested astronomical associations fall broadly into four categories:

- *Natural calendars.* The majority of the animals depicted at Lascaux show seasonal characteristic features: the deer are represented in their rutting season at the start of autumn, the horses at their time of mating and foaling in late winter/early spring, the ibexes at the time when they congregate in same-sex herds during the late summer/early autumn, and so on. These indications of particular seasons are sometimes enhanced by the addition of stylized plants: an example is the ‘Chinese horse’ in the Axial Gallery that is shown in its summer fur, highly pregnant and surrounded by stylized branches, illustrating the time of foaling around summer solstice.
- *Astronomical almanacs.* Some abstract designs associated with ‘seasonal’ animals may relate to astronomical calendars. For example, it is argued that a set of 13 dots and another of 26 appearing beneath a roaring stag and a pregnant horse (representing autumn and spring respectively) in the Axial Gallery represent the 13- and 26-week intervals from the summer solstice to the autumn equinox and then to the spring equinox, each spot counting 7 days.
- *Representations of asterisms, particularly the Pleiades and Hyades.* A cluster of dots above the back of the aurochs (no. 18) in the Hall of the Bulls resembles the Pleiades, while the animal’s eye and surrounding dots resemble Aldebaran (α Tau) and the Hyades, suggesting that the aurochs may be a distant forerunner of the constellation Taurus.
- *Archaic cosmography.* Two pictograph panels in the Shaft have been interpreted as representing the sky panorama as perceived by Magdalenian people from the top of the Lascaux hill at, for example, around midnight around the time of summer solstice in c. 16,500 BP.

Comparative Analysis: If these interpretations are upheld, then Lascaux cave not only represents an extraordinary repository of Upper Palaeolithic Art but also contains the most elaborate and complex astronomical notations in earlier prehistory so far recognised, and the only known representation of the cosmos as perceived by Upper Palaeolithic hunter-gatherers possessing an archaic totemistic-shamanistic world-view.

Authenticity and integrity: At the time of its discovery in 1940 the cave was in a state of geological and climatic integrity. However, by the time it was closed to the public in 1963 it had undergone extensive modifications in order to create a safe environment for tourists: the cave entrance had been enlarged and the floor lowered, electric lighting and air conditioning had been installed, and sluices had been constructed to drain off standing water.

Documentation and archives: The Lascaux cave paintings have been extensively researched and catalogued. See Aujoulat 2005 and <http://www.lascaux.culture.fr/>.

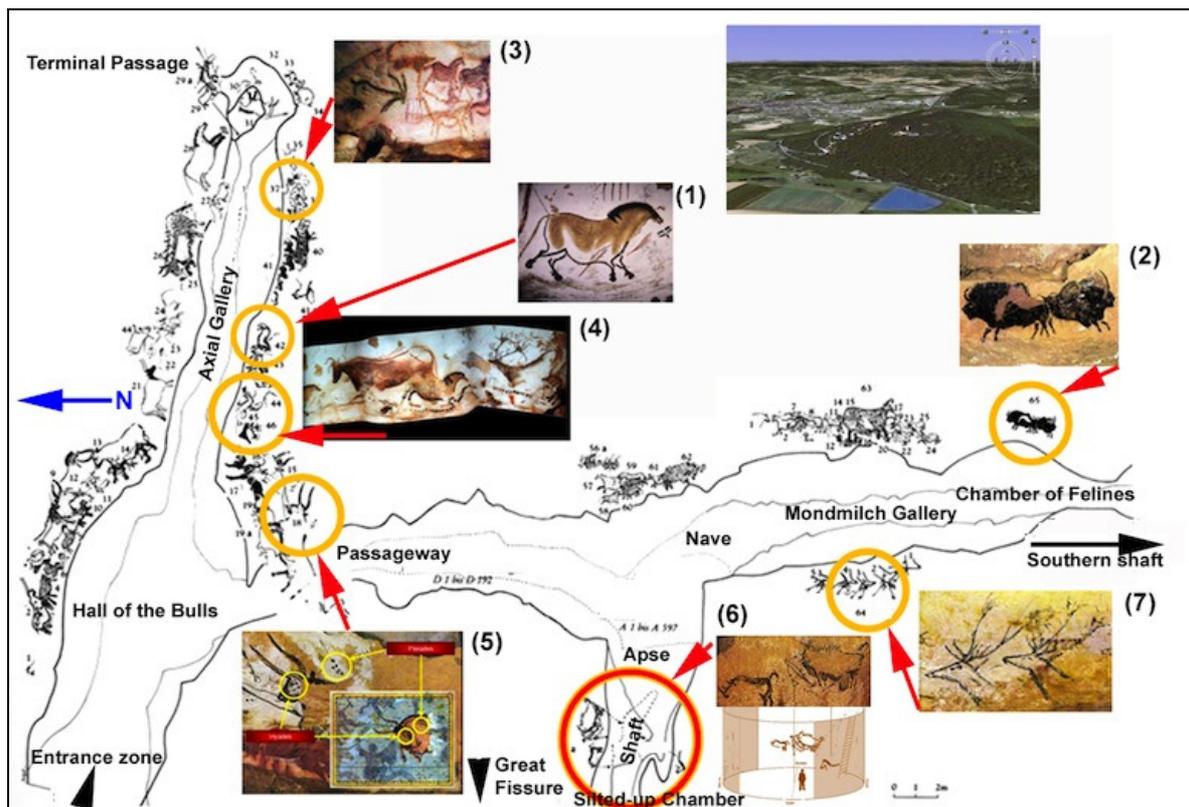


Fig. 1.4.1. Rock panels with possible astronomical associations in Lascaux cave. (1) The ‘Chinese horse’; (2) the ‘crossed bison’; (3) the ‘fronting ibex’; (4) the ‘roaring stag and pregnant horse motif’; (5) the aurochs (no. 18) and associated clusters of dots; (6) two pictograph panels of possible cosmographic significance; and (7) the ‘five swimming stags’. Adapted from a graphic by Michael Rappenglück.

Present management of the site

Present use: At present the cave is closed to all non-essential visitors.

Protection: On 27 December 1943, Lascaux cave was declared a historic monument of France and since 1979 it has been inscribed on UNESCO’s World Heritage List as part of ‘Prehistoric sites and decorated caves of the Vézère valley’ (no. 85). The site is in the care of the French Ministry of Culture and Communication.

State of conservation: From the late 1940s onwards, the effects of mass tourism and the measures put in place to support it upset the cave’s fragile ecological balance. Despite the closure of the cave to the public in 1963 the biological contamination of the soil and rock walls has caused a series of irreversible changes, and since 2001 further fungal attacks have caused renewed and rapid deterioration. The French Ministry of Culture has held scientific meetings and sponsored major programmes in order to comprehend the situation and to take appropriate conservation decisions.

Context and environment: Lascaux cave is situated within an area rich in earlier Prehistoric sites—caves, rock shelters, and settlements—along the valleys of the Beune, Vézère, and Dordogne rivers and in the surrounding hills. Many of these sites contained parietal and mobile art, dating from all Upper Palaeolithic epochs.

Archaeological/historical/heritage research: There exist numerous authoritative archaeological, historical and heritage studies concerning the cave and its artwork. Many of the astronomical interpretations, by contrast, have been unscientific and highly speculative, arguably undermining more serious research in this area.

Main threats or potential threats to the site: The growth of micro-organisms (fungi, lichens and algae) seriously threatens the likelihood that the cave's art will survive undamaged. In February 2009, French government statements, and monitoring procedures within the World Heritage Centre and ICOMOS (as the relevant advisory body) indicated that the biological contamination had been halted, although not removed.

Management: Although the Lascaux cave ('Lascaux I') is closed, the replica ('Lascaux II') attracts more than 250,000 tourists each year. Detailed copies of some of the important frescoes not replicated in Lascaux II, including those in the Shaft, are on display at the Musée d'Art Préhistorique du Thot (Tonac, Dordogne, France) and the Musée d'Aquitaine (Bordeaux, France). Since 2009 a virtual display of the Lascaux cave has been available on the internet at <http://www.lascaux.culture.fr/>.

Additional bibliography

Aujoulat, Norbert (2005). *Lascaux: Movement, Space, and Time*. New York: Abrams.

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