



PROCEEDINGS OF THE IFRAO CONGRESS
September 2010

2013 # 5

<http://www.palethnologie.org>
ISSN 2108-6532

directed by
Jean CLOTTE

PLEISTOCENE ART OF THE WORLD

Short articles



THE EXISTENCE OF ACOUSTIC SIGNS AND THEIR MEANINGS IN PALEOLITHIC CAVES

Igor REZNIKOFF

Considering it as accepted that there is a significant correlation between the placement of images (paintings, engravings, signs) and the acoustic quality of these locations in decorated Paleolithic caves, we will discuss the multiple meanings of this correlation.

Echolocation and functional signs of acoustic locations

We explore a cave in conditions similar to those in prehistoric times, most often using only small oil lamps that cast just a faint light, or when in larger spaces with torches (which cannot be used in narrow passageways). Our surroundings only a few meters distant thus remain almost totally obscure. A question that arises is thus, which way should we go? Since sound carries much further than a small light, especially in an irregular rocky environment, the only way to advance in the cave is to explore it using the voice and its resonating effects, especially its echo. The resonance indeed responds and we can hear where the response is coming from, as well as its approximate distance and intensity, which gives us an approximate idea of the direction and nature of the space toward which we are moving. It is thus natural to go in the direction of the best resonance, and we are naturally guided toward the paintings. When crawling through a narrow tunnel, even a small oil lamp is not very reliable, and the voice thus enables us to continue with at least a minimum degree of security.

This has been verified in narrow tunnels where red spots are often found in the exact locations of maximum resonance, showing the importance of this effect for those who explored the cave. The red spots applied when passing through can be found again, even in total obscurity, through sound. When making sounds while crawling through a tunnel, at a certain moment the tunnel will respond in a very powerful manner: if we then turn on a flashlight, we find a red spot (or several) on the wall. Statistically, the association of *maximum resonance/red spots* is impressive and leaves no doubt as to the purely acoustic meaning of these signs. They thus show the essentially acoustic and *functional* aspect of certain signs.

The ritual meaning of the relationship between images and the resonance quality of their placement

The fact that most images are located in acoustic locations shows the major importance of sound and thus of music for the Paleolithic people who decorated these caves. In effect, if the paintings are mostly found in locations with a high sound quality, it is because these people chose acoustic locations, and thus made sounds, especially through singing. We have shown that it is necessary to use a singing voice to progress in the cave, especially in narrow tunnels where we must crawl. Some niches are incredibly powerful instruments and, with voice sounds of a normal intensity (rather low *mm* or *hm*), we can make sounds resembling a mooing bison, which can be



Kapova Cave: panel of the mammoth procession
with acoustic niches below (photo: V. Kotov).

heard several dozens of meters away. We have discovered this “bison effect” in all of the caves, including Kapova Cave where in the Hall of Paintings, the largest panel with a procession of mammoths is located above two acoustic niches at ground level where these sounds can be made (figure).

Given that in many caves, the concordance between images and acoustic places is around 80 or 90%, or even 99% for red spots, the use of vocal and musical sounds is certain. This provides the best argument, or even proof, of a ritual use of some parts of caves and the ritual meaning associated with the images represented in these locations. We can distinguish two levels:

1. the level of the visible world, of the *physical* animal;
2. the relationship to the invisible world, for example, that of the *energy*, or even the *spirit* of the animal.

This latter is characteristic of shamanism: the notion of the spirit, and precisely, the future or the voyage of the spirit is essential.

Images are thus at the limit between two worlds, the visible and invisible, and sound – especially singing – provides the best tool for entering into this relationship between the visible and the invisible. In this manner, it is also functional in this relationship. We thus find, in parallel with the double function of images, the two acoustic functions: the level of *physical function*, necessary for navigation within caves through their resonance, and the level of *ritual function*, necessary to access the invisible through the use of sound in the deep levels of consciousness.

The complementarity of images and sound

With hindsight, the use of sound and the voice appears evident: all ancient primitive societies have rich oral traditions, with countless rituals and celebrations involving singing. It was nonetheless necessary to directly demonstrate the existence of ritual singing in the prehistoric space of decorated caves. It is illusory to think that we can understand the meaning of parietal art based on its visual aspects alone. We hope to have demonstrated the complementarity and undeniable association between the acoustic world and the pictorial world in this exceptional prehistoric context.





 **P@LETHNOLOGY**
Bilingual review of prehistory