



The hierarchy of animals in the Paleolithic iconography

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ABSTRACT

Several arguments show that in the iconography of Paleolithic art, horse played a role that was different from that of other species. It appears to be the main image in what can be interpreted as a hierarchy of animal images chosen for depiction by the paleolithic image-makers and in what may be seen as a conceptual dominance and a key image in the organizing principles for image making. Horse comprises more than one quarter of the bestiary and it is present in more than three out of four sites with great constancy throughout the Upper Paleolithic in all regions of Europe. Horses are often highlighted by their remarkable locations, size and what appears to us as the aesthetic quality of their representations.

The development and compilation of a database of more than 4700 animal representations enabled me to perform numerous quantitative analyses. These analyses show that horse depictions are markedly different from those of other animal species starting in the Aurignacian and continuing throughout the Upper Paleolithic, and across all of the Franco-Cantabrian area. I infer from this that there was a significant and expansive cohesiveness in the underlying beliefs and artistic expression of these Paleolithic hunters-gatherers. This cohesiveness can be taken as an indicator of the existence of “exchange” networks or connections, despite the multiple and significant changes that occurred across time and space. The regional variations that we observe are mainly stylistic and thematic. Even the higher number of hind depictions in the Cantabrian region or the “preference” for mammoth depictions in the Périgord do not undermine the primacy of the horse as the preferred subject.

1. Introduction

The identification of a common structure in Paleolithic cave art, despite the vast expanse of the region and period concerned, is a challenge of enormous interest because it confronts us to the fundamental anthropological question of how human groups structured their economic and cultural exchange networks. While regional specificities inform us of the degree of autonomy temporarily reached in some areas, the most interesting issue is how common behaviors arise and spread, showing the diffusion of ideas across large regions.

To address this question, I compiled a large database over several years. It is currently comprised of 4710 identified figurative representations and has increased by 42% since 1995 (Sauvet and Włodarczyk, 1995, 2001–2002). Nevertheless, the percentages of the main species have evolved very little, showing that the sample is now statistically representative, despite the recent discoveries of eighteen decorated caves in Viscaya (Spain) during the last decade (Garate 2017), among which Atxurra and Armintxe are the most important. This database reveals that horse and bison dominate the record, comprising more than 52% of the animals represented (Fig. 1). We will see, however, that these two species are far from constituting a

“fundamental dyad” as Leroi-Gourhan thought (1965), because horse seems to have a very particular status.

Within the study zone, horse is present in all regions (from Northern France to Andalusia) and in all times (from The Aurignacian to the final Magdalenian). In all locations, it is first or second in order of quantity in the iconography (Table 1). Horse is present in more than three out of four sites and in 44% of the panels (all regions and periods combined). The representation of bison is more heterogeneous. It is present in only one half of the sites and is absent from the center of the Iberian Peninsula and Andalusia. It is numerous only in the Pyrenees and the Cantabrian Region, from the Middle Magdalenian. These two regions contain 75% of the known bison depictions. Images such as those from Niaux, Covaciella, Altamira or Santimamiñe contribute to skewing our perception.

2. The special status of the horse

There are many ways to show that horse was preeminent among the animals depicted in Paleolithic cave art.

A first indicator is given by the lateralization of the animals. Psychologists and neuroscientists have shown that right-handed people

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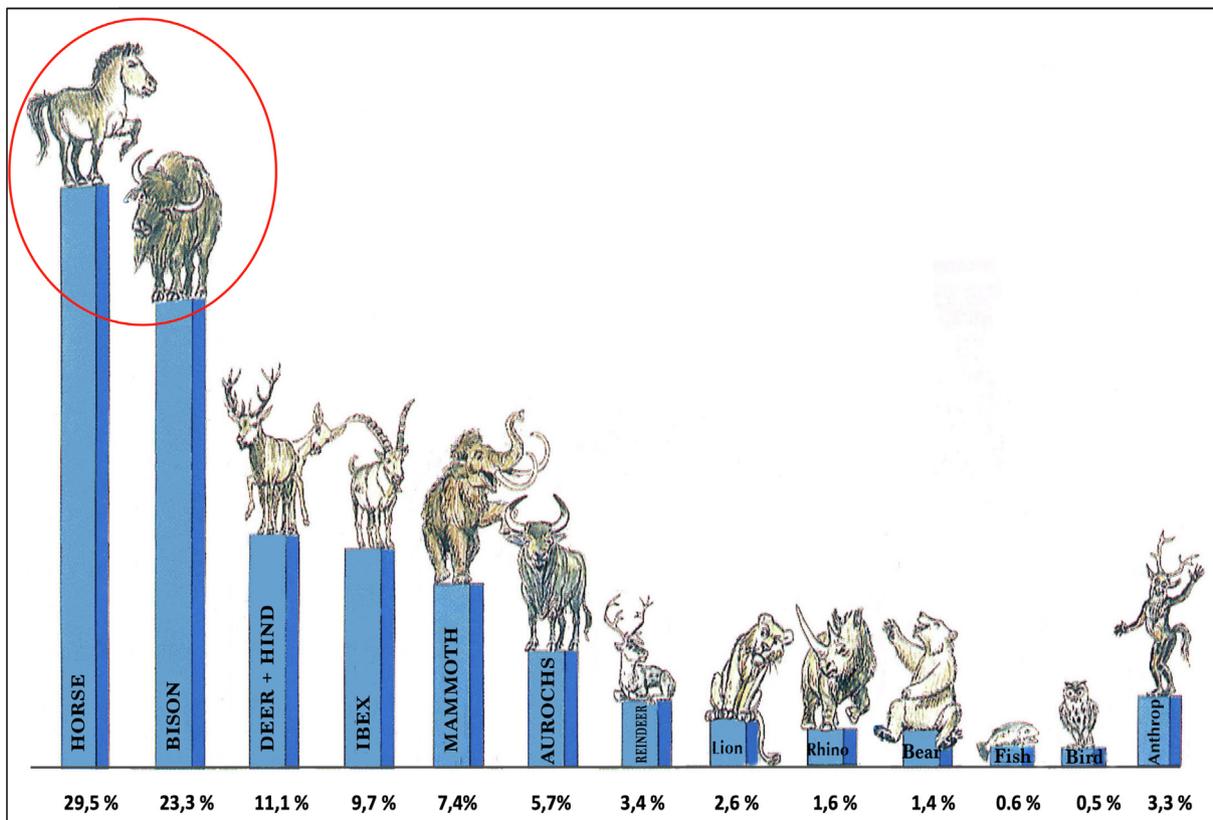


Fig. 1. The hierarchy of animals in Paleolithic cave art (after a drawing by Gilles Tosello in Fritz and Tosello, 2001).

Table 1

The three most numerous species depicted in various regional and temporal subsets of Paleolithic cave art (A.M.: ante-Magdalenian; Magd.: Middle and Upper Magdalenian).

Subset	1st species	2nd species	3rd species
Northern France A.M.	Mammoth	Horse	Rhinoceros
Northern France Magd.	Horse	Mammoth	
Aquitaine A.M.	Horse	Bison	Aurochs
Aquitaine Magd.	Horse	Mammoth	Bison
Quercy A.M.	Horse	Mammoth	Bison
Quercy Magd.	Horse	Reindeer	Bison
Pyrénées A.M.	Horse	Bison	Aurochs
Pyrénées Magd.	Bison	Horse	Ibex
South-Eastern France A.M.	Horse	Mammoth	Lion
South-Eastern France Magd.	Ibex	Horse	Aurochs
Cantabrian Region A.M.	Hind	Horse	Ibex
Cantabrian Region Magd.	Bison	Horse	Ibex
Iberian Pen. Center-South A.M.	Horse	Hind	Ibex
Iberian Pen. Center-South Magd.	Horse	Deer	Ibex

most often draw animals in left profile (Braswell and Rosengren, 2002). Many factors can contribute to this phenomenon: biomechanical factors (the arm more easily draws a horizontal line toward the exterior (from left to right); cognitive factors reproducing neuropsychological ones arising from a mental pattern issued from the experience of previous drawings and the counter-lateralization of brain hemispheres (the right hemisphere treats mainly the left half of the visual field) (Gazzaniga and Smylie, 1983). These factors result in the preferential drawing of left profiles. Counterexamples are known in rock art, nonetheless. For example, 91,3% of the bovids represented in the Moroccan Atlas are in right profile (Rodrigue, 1999), showing that the universal factors inscribed in human physiology may be overshadowed by a prominent cultural feature.

This led me to discover that horses has a behavior that is opposite to

that of other animals (Sauvet, 2005–06): it is the only species that is predominantly oriented to the right. Claude Barrière (1997) thought that the orientation could be linked to the entrance of the cave, but in his study of the Les Combarelles cave (Dordogne) he found that there were more horses “going out” on the right wall and more horses “entering” on the left wall and that the opposite was true for other species. The author rightly concluded that the orientation towards the entrance or the bottom of the cave is not significant and that the profile is the main issue. He wrote that “the relation of opposition between the horse and other species is very strong” (Barrière 1997: 518). Though this statement was largely overlooked at that time, the figures obtained from my complete database (Fig. 2) confirm Barrière’s conclusion.

The association of horse with other species is very similar to a random distribution (Fig. 3). One observes only a small deficit of horse-

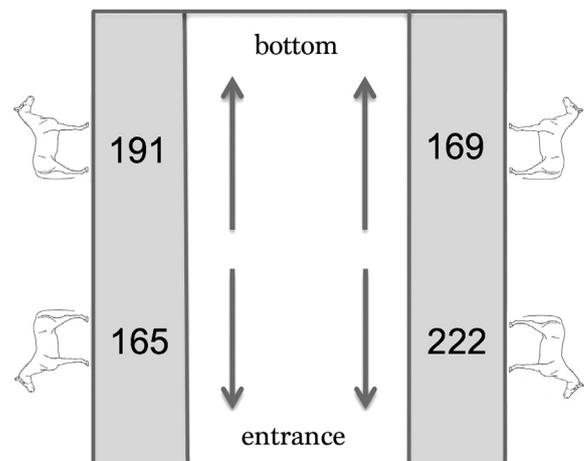


Fig. 2. Orientation of horses towards the entrance or the bottom of the cave.

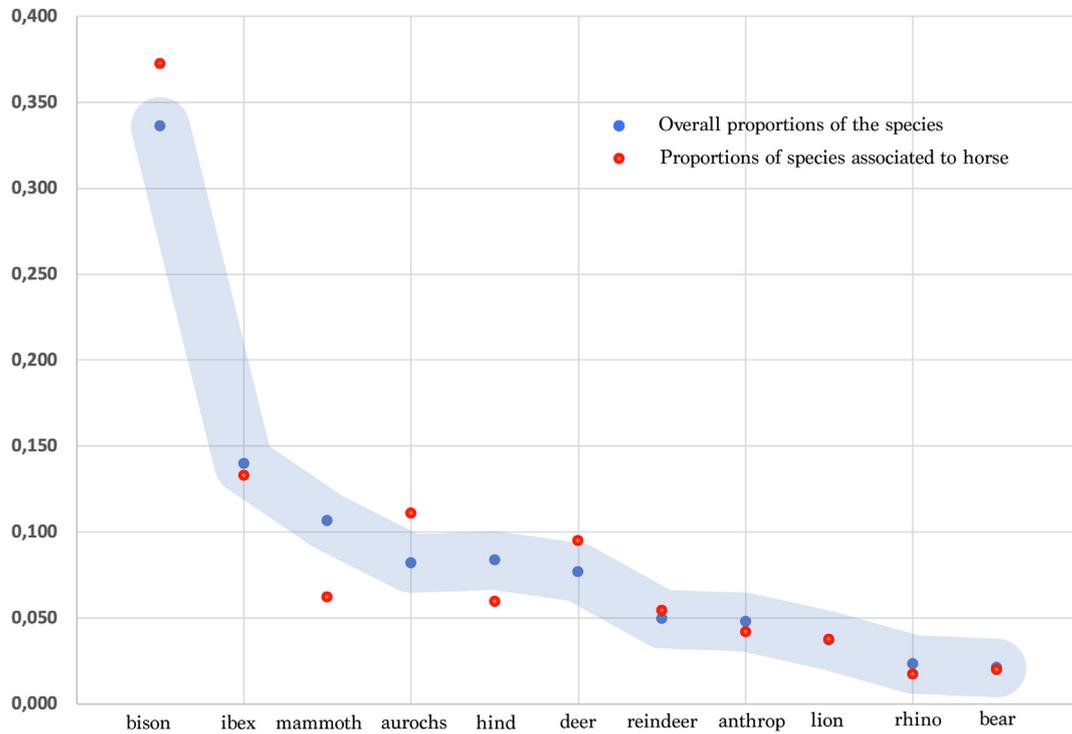


Fig. 3. Comparison of the overall proportions of species with the proportion of species associated with horse.

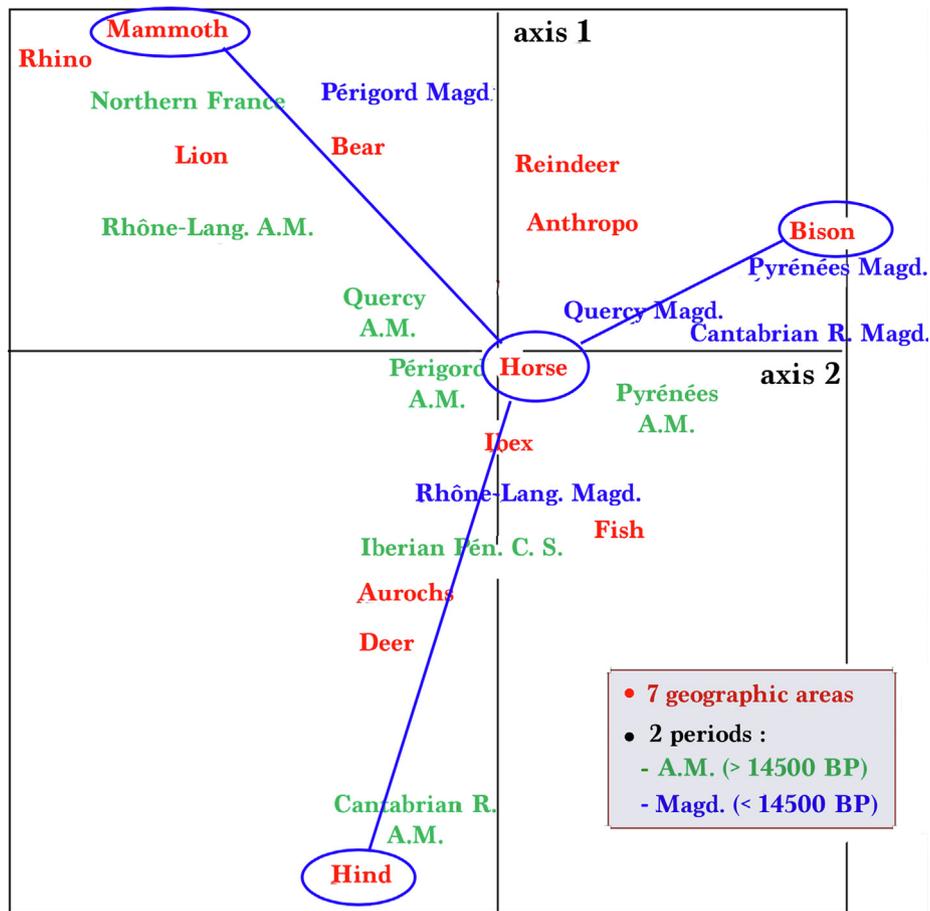


Fig. 4. Correspondence Factor Analysis of a corpus of 4619 animals divided in 14 regional and temporal subsets.

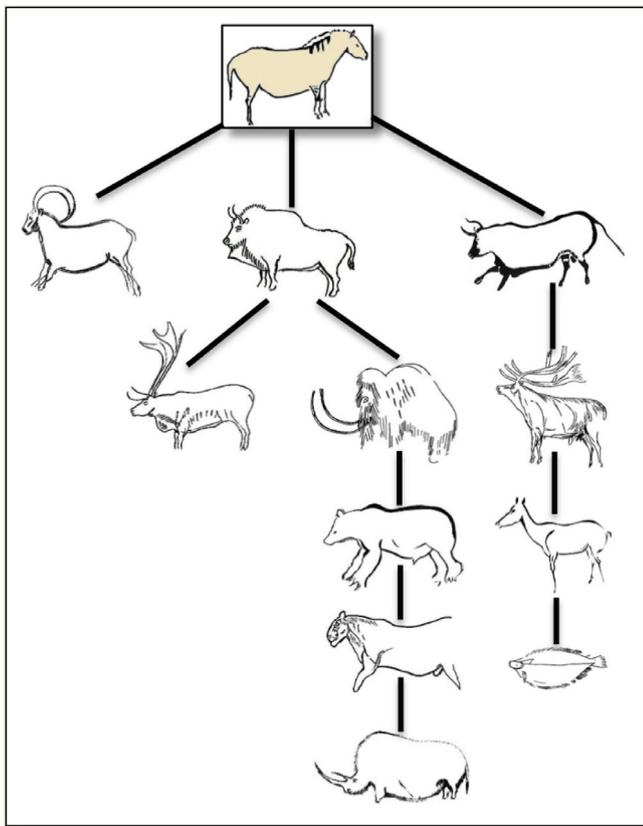


Fig. 5. Kruskal's tree showing that horse is at the top of a hierarchy.

mammoth associations and a slight excess of horse-bison. Globally, it seems that the associations of horse are random or neutral relative to most animals. A test of χ^2 comparing the animals that are associated with a horse to the animals in the full corpus indicates that the deviation is not statistically significant ($P = 0.75$). If we accept the hypothesis that rock art is linked to mythical stories, this could signify that the horse participates in most myths with and with all protagonists without exception, which could explain both its omnipresence and its prominent role.

The frequency of wounded animals is also quite different for the horse and the bison. In contrast to bison, horse is rarely represented with signs such as arrows or angular signs on its body. In the Salon Noir of Niaux (Ariège), for instance, only one horse bears a discrete angular sign whereas many bison appear profusely wounded.

Another way to show the central role played by horse in different regions and times is to perform a Correspondence Factor Analysis. For this purpose, I divided the corpus into 14 subsets on the basis of 7 regions and 2 chronological periods (Fig. 4). The graphical result of this statistical analysis shows that the horse is located at the center of gravity of the main factorial plane. It appears at the center of three poles – mammoth, bison and hind – which are more regionally marked, with mammoth in the Périgord, bison in the Pyrenees and hind in the Cantabrian Region. Horse seems to bind together the whole iconography and maintain the homogeneity of the edifice despite its evolution over time. Horse appears to serve as the pivot of Paleolithic iconography.

The particular role of horse may be confirmed with the calculation of the Kruskal's tree (Kruskal, 1956). First, a complete graph is considered with all the possible links between nodes. An algorithm cuts the weakest links until we get an unrelated graph, i.e. a tree without cycles. The branches of this tree represent the optimal paths to travel all the nodes. As could be expected, horse is the root of the tree, being the species with the strongest ties to other animals (Fig. 5). Its closest

neighbors are bison, aurochs and ibex, bison being the main branch to which reindeer and mammoth are attached. Deer and hind are on the side of aurochs, while bear and lion are on the side of mammoth. Once again, horse appears to be at the top of a pyramid.

3. The formal exemplarity of the horse

Statistical tools are useful to discover hidden structures, but they tend to dehumanize the art, which must remain an essentially aesthetic object. Fortunately, horse appears not only at the top of a hierarchy, but was also the object of exceptional formal investment that served to reinforce the strength of the symbol. The preeminent role of horse is exemplified by strong and salient achievements, and the artists were very attentive to this point. They chose remarkable locations, at high and visible places to draw large horses. It is as if the choice of spectacular locations served to symbolically signify that horse was “on the top”, above the other species.

One of the most paradigmatic examples of this situation is found in the dome which overhangs the apse in Lascaux cave (Dordogne). Here a large yellow horse 2.50 m long, accompanied by another large horse in red, occupies this dome from where it dominates hundreds of smaller animals that are crowded on the walls (Fig. 6). From a formal point of view, the symbolism has something in common with a Christ depiction appearing on a cloud in the dome of a cathedral.

Other examples show that Paleolithic artists sought spectacular visual effects. An extraordinary example is that of the *camarin* in the Candamo cave (Asturias) (Corchón Rodríguez et al., 2017). Located several meters above the ground and difficult to access, this alcove contains a large horse that, when seen from below, appears to be levitating in the sky. This location was undoubtedly deliberately chosen for its theatrical features.

The same spirit and goal guided probably the painter and engraver at Labastide cave (Hautes-Pyrénées) where a large horse, 1.90 m long, and located very high on a huge rock was made (Fig. 7). The view of this animal was probably as impressive for the prehistoric visitors as it is for us. What could it mean? Was it a guardian of the temple? A representative of superior spirits? Whatever the explanation, it is above all an intense source of emotion.

Another figure of exceptional size is the 2.70 m-long horse located in the great ceiling in Rouffignac cave (Dordogne). It is the largest figure in this ceiling and probably the largest horse in the Paleolithic cave art. Under this low ceiling with a sloping and slippery floor, on the edge of a funnel 10 m deep, 65 small animals (bison, ibex, mammoth, rhinoceros) are arranged in a circular arc around this horse (Fig. 8). Under these difficult conditions, drawing an animal with perfect proportions was an impressive artistic performance. It seems that the theme of the horse inspired the artists to surpass themselves and pushed them to carry out the most monumental, remarkable, and original work in order to captivate the attention and the emotion of the viewer through its form, dimensions and situation.

At Tito Bustillo cave (Asturias), the great panel of sector X appears at first sight like a vast red area in which horses, reindeers and thin engravings can be distinguished when approaching (Fig. 9). The most remarkable element, however, is the two great horses that seem to emerge from this red mass. They are the largest and most distinct figures (2.55 m long for the largest one). Once again, they are on an oblique wall and can be seen without deformation by kneeling down below them.

In the Cap-Blanc rock shelter (Dordogne), there is a carved frieze nearly 12 m long that occupies the entire space in which Magdalenian people lived. A frieze of at least five horses sculpted in deep bas-relief occupies the center of the shelter (the largest is 2.20 m long). Once again, this is a monumental work exceeding everything that had been achieved thus far, and seems to have been the driving force for the artists. And the same is probably true for the life-size horse in bas-relief carved in total darkness in Commarque cave (Dordogne) (Delluc and

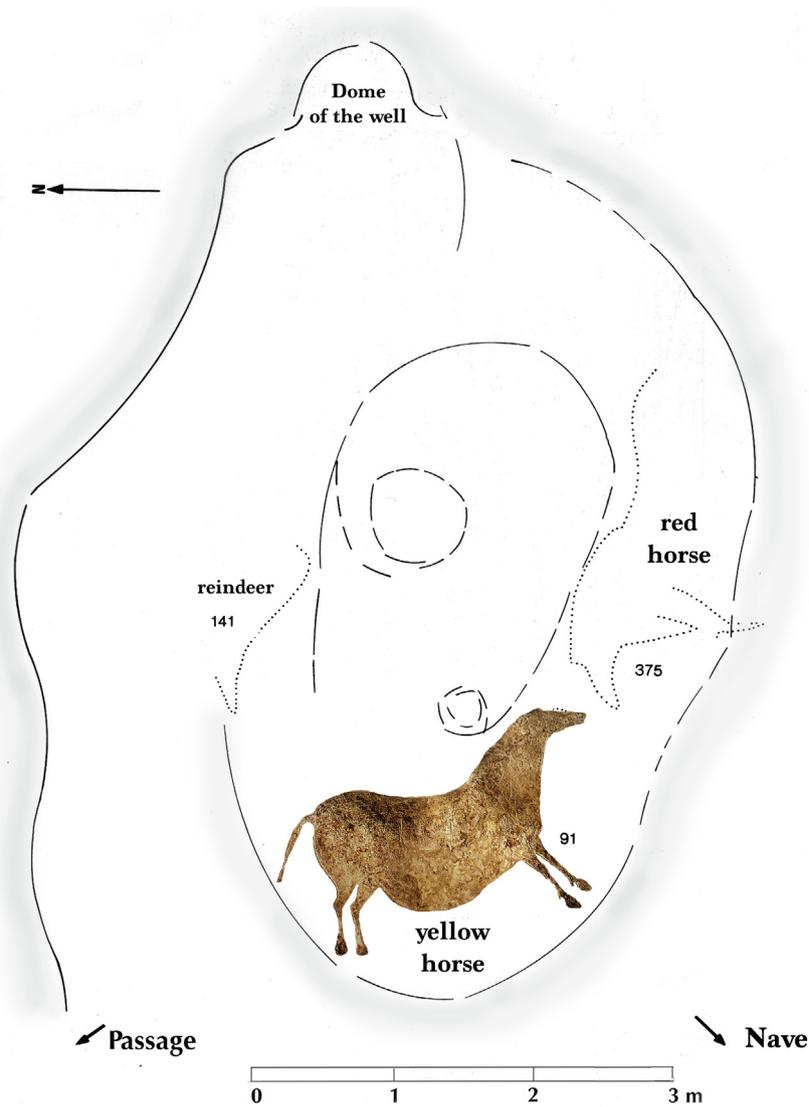


Fig. 6. Lascaux cave (Dordogne). Two great horses, yellow and red, dominate the dome of the apse, several meters above the ground (modified after B. Delluc).



Fig. 7. Labastide cave (Hautes-Pyrénées). A polychrome horse on a huge rock, 3 m height (Photo by R. Simonnet and J. Barragué).

Delluc, 1981).

In Pech-Merle cave (Lot), a remarkable composition, 7 m long and 3 m high, sheltered under a sort of canopy, was apparently constructed around a great horse (Fig. 10). According to Michel Lorblanchet (1981), who studied the order of execution of the figures, the horse in right profile, 1.30 m long, was first made at the center of the available space. It was then followed by two partly superimposed bison in left profile. This central group was surrounded by mammoths and four aurochs were added on the left side. An experiment carried out by M. Lorblanchet showed that the entire panel could have been made in less than one hour. There is no doubt that the horse was at the heart of this project, which was carefully conceived before it was realized with a remarkable skill.

The prominent role of horse seems to have been already present in the mind of the Aurignacian creators of Chauvet cave (Ardèche). Though horses are not very numerous in the cave, they are significantly enhanced by their special locations. For instance, on the big panel of the last room, even if there is only one horse among dozens of rhinos, felines and bison, our focus is drawn to it by its situation in a niche at the center of the panel.

All the examples described above possess the same exceptional characteristics, which are too numerous to be due to chance. It is likely

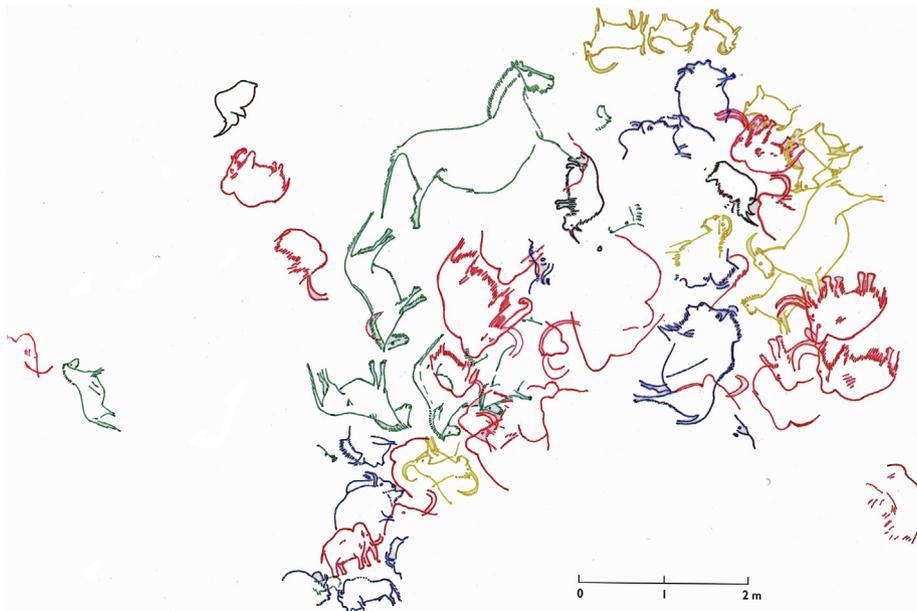


Fig. 8. The great ceiling in Rouffignac cave (Dordogne) (Drawing by J. Plassard after C. Barrière).



Fig. 9. Tito Bustillo cave (Asturias). Two great horses overlook a red panel covered by dozens of smaller animals (Photo by P. Saura).

that their location, size and aesthetic qualities were consciously chosen to exert a strong emotional power. Such impressive images may have provoked a *visual empathy* as described by Robert Vischer (1873) and linked all the viewers in the feeling they were sharing ideas with the rest of the world.

4. Horse effigies in portable art

In the small objects known as “portable art”, horse is still the most frequently represented animal. Comprising approximately one-third of all animal representations, it largely dominates the other species. As in caves, horse in this context was given special attention. At Vogelherd (Germany), a horse delicately carved in mammoth ivory is dated to the Aurignacian, about 35,000 years cal BP (Fig. 11a). This piece is one of the oldest expressions of the apparent attraction exerted by horse, and it is also extraordinary to find another horse sculpture, also made in

mammoth ivory at Les Espéluques (Hautes-Pyrénées) in the Middle Magdalenian (Fig. 11b). This remarkable work of art appears to show a continuity with the Vogelherd horse as if it were a sort of replica made some 20,000 years later. This indicates that, through the millennia, horse continued to occupy the minds of the artists who provide us with windows into Paleolithic thought.

The desire to create extraordinary works striking the imagination can also be found in other materials. For instance, a statuette in sandstone representing a kneeling horse from Duruthy (Landes) is probably the largest horse statuette ever made (26.3 cm long) (Fig. 11c). Once again, the technical prowess required to carve the largest block of sandstone was probably the main motivation.

We can also include the hundreds of cut-out contours made on horse hyoid bones that are found in the southwestern France and the Cantabrian Region. They reflect a true veneration for the horse (Fig. 11d). The large number of these small adornment objects, almost

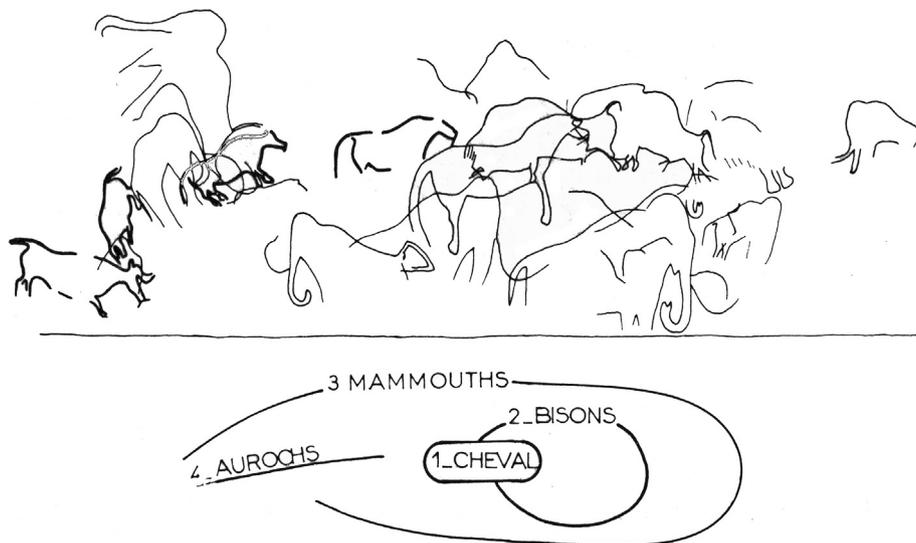


Fig. 10. Pech-Merle cave (Lot). The Black Frieze (Drawing by M. Lorblanchet, 1981).

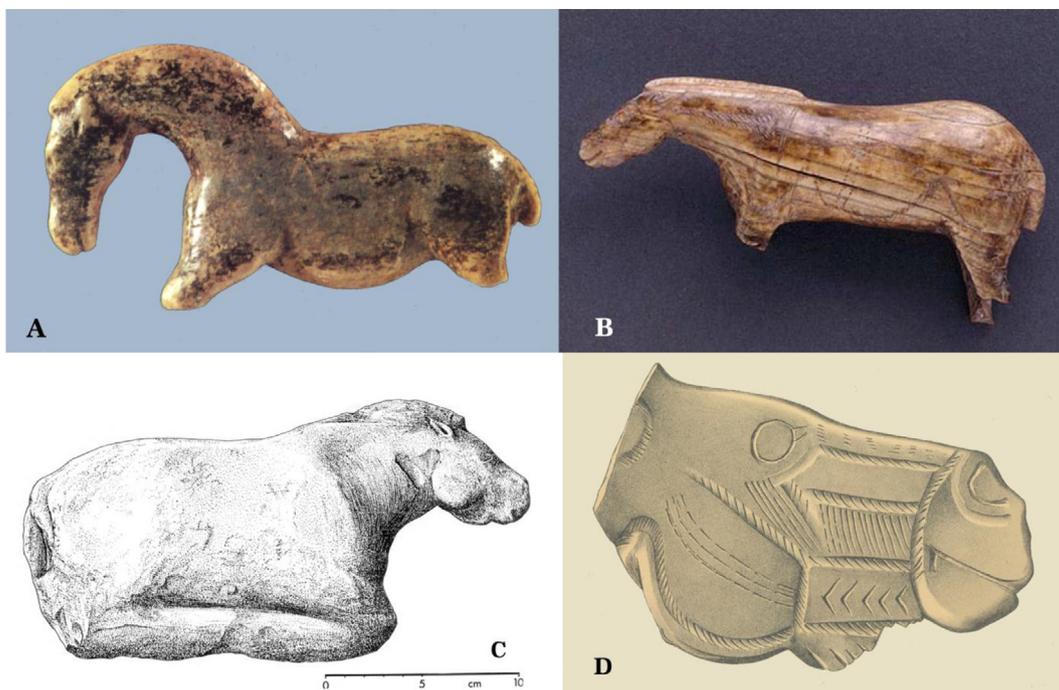


Fig. 11. Examples of horses in portable art. A. Ivory statuette from the Aurignacian in the Vogelherd (Germany); B. A similar statuette from the Magdalenian in Les Espéluques (Hautes-Pyrénées); C. A statuette in sandstone from Duruthy (Landes); D. One of the numerous cut-out contours: Arudy-St-Michel (Pyrénées-Atlantiques). (A. photo A. Marshack; B. photo RMN; C. tracing by P. Laurent; D. tracing by J. Pilloly in E. Piette, 1907).

identical and made from the same materials, across a large region, suggests a significant unity of Paleolithic art, which has implications for the structuring of Paleolithic society, showing both a transmission of values and beliefs over vast areas and a transmission of cultural and artistic skills.

5. Conclusion

The animals represented in Paleolithic art seem to have been structured in the same manner as the pantheons of many great historical religions (Egyptian, Greek and Roman). Formally and conceptually, the horse, very often “majestically” represented in an elevated position, seems to reign at the top of a hierarchy. This situation prevailed from the Aurignacian without interruption until the end of the Magdalenian

and even beyond, since the horse is still a major theme in the Azilian art at the Rocher de l'Impératrice (Finistère) (Naudinot et al. 2017) and in the Epipaleolithic of the Pont d'Ambon (Dordogne) (Paillet and Man-Estier, 2014).

What is the significance of this hierarchy? We have seen that the prominent form given to many horse images places them above other animals and contributes to bestowing them with the power to act on the world. In animistic thought, horse representations could acquire the same power as the entity they stand for. The images could thus attain the status of *hyperimages* (Hodgson and Helvenston, 2010).

Animism is generally viewed as one of the four ontologies classified by Philippe Descola (2005), but a proposal by Marshall Sahlins seems interesting to consider here (Sahlins, 2014). Sahlins argues that animism, totemism and analogism are but three forms of animism which

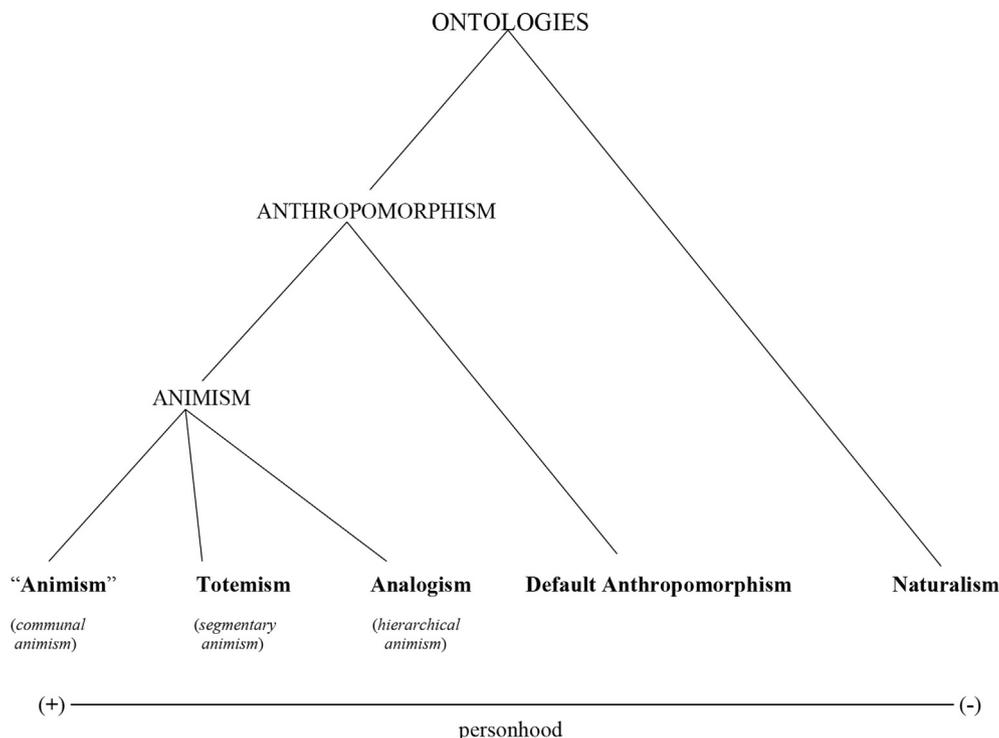


Fig. 12. An alternative proposal to Ph. Descola's four ontologies (2005) (after a scheme by Sahlins, 2014).

all derived from anthropomorphism (Fig. 12). For him, Descola's analogism is a *hierarchical animism* that consists of assuming that the world is divided into a multitude of singular entities. The hierarchy of animals in Paleolithic art would thus correspond to an attempt to classify the world and to reconcile its diversity by putting together opposite terms. It is worth noting that one of the characteristics of Paleolithic art is to associate species that do not live side by side in the environment.

We have seen that the horse is the unifying principle of Paleolithic art at all times and in all locations. It is the pivot of the system of representations, because it maintains the main role in the face of more ephemeral protagonists such as the hind, which passes to the foreground in the Cantabrian Region until the unification of the Middle Magdalenian or the mammoth in Périgord. Indeed, we have seen that even when mammoth seems to take precedence, at least numerically, it is still a giant horse that reigns on the ceiling of Rouffignac cave in the middle of mammoths. It is horse that maintains the cohesion of the system despite the diversity of the underlying myths of which it is undoubtedly a recurring character.

From an anthropological perspective, this teaches us one essential thing: powerful long-distance exchange networks existed, despite the fluctuations that sometimes nearly isolated certain regions, such as the Cantabrian Region during the Gravetto-Solutrean. These networks concerned not only raw materials such as flint, and tool-making techniques, but also, and especially, cultural elements, such as belief systems and artistic skills. It is in this context that the permanence of the horse in the foreground of Paleolithic iconography for more than 25,000 years appear to represent a hyphen linking the different Paleolithic cultures. Leroi-Gourhan observed that “in the life of a society, the models of weapons change very often, the models of tools more rarely, the social institutions still more seldom, while religious institutions persist through the millennia” (Leroi-Gourhan 1965: 40). Because art is strongly tied to beliefs, it is not surprising that we observe a certain unity of Paleolithic art, at least in thematic terms. The horse is certainly the incarnation of this permanency.

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