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ZOOMORPHIC FIGURES IN THE POST-PALAEOLITHIC ROCK ART OF FRANCE OR PAST SOCIETIES AS HYBRID COMMUNITIES

Claudia Defrasne

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ANIMALS IN PREHISTORIC ART
The Euro-Mediterranean region and its surroundings

ANIMALIAK HISTORIAURREKO ARTEAN
Euro-Mediterranean eskualdea eta bere inguruak

LOS ANIMALES EN EL ARTE PREHISTORICO
La región Euro-Mediterránea y su entorno



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ZOOMORPHIC FIGURES IN THE POST-PALAEOLITHIC ROCK ART OF FRANCE OR PAST SOCIETIES AS HYBRID COMMUNITIES

*Irudi zoomorfoak Frantziako Paleolito osteko labar-artean edo iraganeko gizarteak komunitate
hibrido gisa*

*Las figuras zoomorfas en el arte rupestre post-paleolítico de Francia o sociedades pasadas como
comunidades híbridas*

Claudia Defrasne (*)

Abstract

To study zoomorphic figures in prehistoric graphic representations is to study the relationship between human and non-human animals during Prehistory. The presence of these figures in the system of graphic representations testifies to their essential role as social agents and emphasises the importance of considering non-human animals and the non-human in general when studying and interpreting past societies. We are not only dealing with human societies but with hybrid communities. Engraved or painted animal species and/or types of interactions with human figures are different for each culture or chronological period. Here, the focus is on three Neolithic imageries, the engravings of the Armorican megaliths and of the Bego area and the schematic art from southern France and the western Alps, and one Iron Age imagery from the Maurienne valley, Savoie.

Key words

Rock art; Non-human animals; Neolithic; Iron Age; Interspecies social relationships; Hybrid communities.

Laburpena

Historiaurreko irudikapen grafikoetan irudi zoomorfoak aztertzea, historiaurrean gizakiak diren eta ez diren animalien arteko harremana ikertzea da. Irudi horiek irudikapen grafikoen sisteman egoteak, gizarte-eragile gisa duten funtsezko funtzioa erakusten du, eta nabarmendu egiten du garrantzitsua dela iraganeko gizarteak aztertzen eta interpretatzen direnean gizakiak ez diren animaliak eta, oro har, gizakia ez dena, kontuan hartzea. Ez dira soilik giza gizarteak, baita komunitate hibridoak ere. Grabatutako edo margotutako animalia-espezieak eta/edo giza irudiekiko dituzten interakzio-motak desberdinak dira kultura edo aldi kronologiko bakoitzean. Hemen, hiru konplexu neolitikotan oinarritzen da ikuspegia: Armorica eta Bego inguruko megalitoetako grabatuak, Frantzia hegoaldeko eta mendebaldeko Alpeetako arte eskematikoa eta Maurienne ibarrean (Savoia) dagoen Burdin Aroko multzo bat.

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Hitz-gakoak

Labar-arte; Gizakiak ez diren animaliak; Neolitoa; Burdin Aroa; Espezien arteko gizarte-harremanak; Komunitate hibridoak.

Resumen

Estudiar las figuras zoomorfas en las representaciones gráficas prehistóricas es estudiar la relación entre animales humanos y no humanos en la Prehistoria. La presencia de estas figuras en el sistema de representaciones gráficas testifica su función esencial como agentes sociales y enfatiza la importancia de considerar los animales no humanos y lo no humano en general, cuando se estudian e interpretan las sociedades pasadas. No se trata de solo sociedades humanas, sino también de comunidades híbridas. Las especies animales grabadas o pintadas y/o los tipos de interacciones con figuras humanas son diferentes en cada cultura o periodo cronológico. Aquí, el enfoque es sobre tres complejos neolíticos: los grabados de los megalitos armoricanos y del área del Bego, el arte esquemático de Francia meridional y de los Alpes occidentales, y un conjunto de la Edad del Hierro en el valle Maurienne, en Savoya.

Palabras Clave

Arte rupestre; Animales no-humanos; Neolítico; Edad del Hierro; Relaciones sociales inter-especies; Comunidades híbridas.

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Claudia Defrasne (*)

1. Introduction

To study zoomorphic figures in prehistoric graphic representations is to study the relationships between human and non-human animals during Prehistory. In the same way that multispecies ethnography argues that “*we cannot adequately understand humanity in isolation from nonhuman species implicated in human life*” (LOCKE, 2018). Archaeology cannot appreciate prehistoric societies without considering relationships between human groups and non-human beings sharing the same environment. Zoomorphic figures in prehistoric rock paintings and engravings demonstrate that humans and non-human animals maintained dynamic and interspecific social relationships (MLEKUZ, 2007: 267; WEISMANTEL and PEARSON, 2010: 31; INGOLD, 2013) significant enough to be part of ideational universes whose graphic systems are the material evidence. Engraved or painted animal species should not be considered as symbolic resources or totemic entities used by humans for their own benefit in ritual purposes (OVERTON and HAMILAKIS, 2013). Rather, their presence testifies that human and non-human animals were engaged in mutual relationships in which animal species played an active social role alongside humans and contributed to the constitution of hybrid communities (LATOUR, 1991; INGOLD,

2013). Animals, as well as other beings inhabiting the environment (such as plants), were engaged with humans in mutually influential relationships (HARAWAY, 2008; HILL, 2011; OVERTON and HAMILAKIS, 2013). They were part of prehistoric societies and participated in their structure, their functioning and development. Being autonomous and having their own agency, non-human animals should consequently be studied as archaeological subjects (LESTEL *et al.*, 2006; LOCKE, 2018; STÉPANOFF and VIGNE, 2018). Therefore, the study of zoomorphic figures in prehistoric graphic representations requires avoiding and rejecting interpretations based on western and modern dualisms, in other words, naturalist dichotomies between nature and culture, subject and object, human and animal as well as wild and domestic which have no equivalent in many traditional societies (DESCOLA, 2012; LOCKE, 2018). We know from ethnography, that even in agrarian societies the variety of interrelations between humans and non-humans is wide. “*What within this diversity of relationships allows us to tease out two overarching categories (wild and domestic) to which we assign such a priori importance?*” (MORRIS, 1998: 125; POLLARD, 2006: 137; ORTON, 2008: 28). We should also keep in mind that the wild/domestic dichotomy

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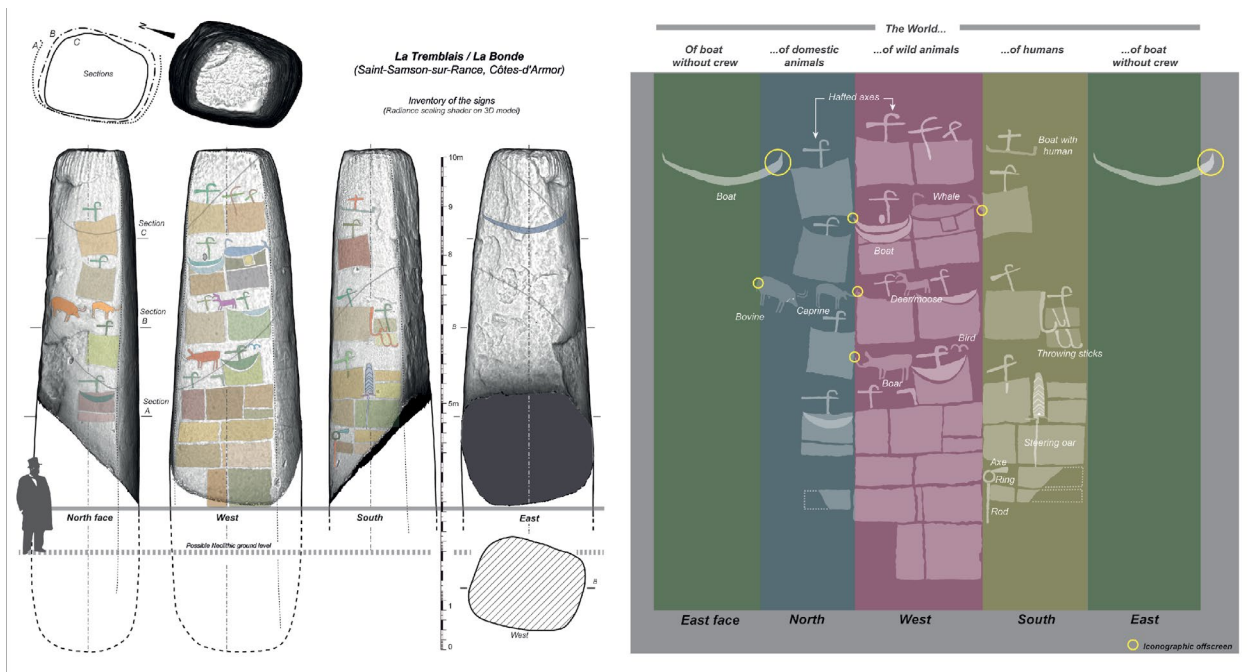


Figure 1. The Tremblais stela (Saint-Samson-sur-Rance, Côtes-d'Armor) (CAD: S. Cassen).

is not perfectly aligned with the nature/culture one. In some societies, the notion of wild is used to qualify artificial spaces (DESCOLA, 2005: 77). Formulating interpretations of past societies from such dualisms risks not identifying or understanding possible connections between the opposed categories. Such dualistic interpretations should only be envisaged when the archaeological data suggests them. However, dualisms are part of human cultures and, as western archaeologists, our methods and ways of thinking are completely determined by our “*naturalist ontology*”. Therefore, even if our interpretations should not be based on them, dualisms, just as scientific methods, could be used to question archaeological data and try to reveal clues for past ways of being in the world. We should be aware that they depend on our own ontology and that we should relativise their role in the conclusions we draw. As an example, species categories, often considered as dictated by ecological facts, are culturally built and can also be considered controversial (BENSON *et al.*, 2017). It is a cultural way to group beings on similarities and separate them on differences. Moreover, the use

of such categories could hide personal stories or biographies of non-human individuals taking part in transspecies socialising (LANGFORD, 2017). However, the use of such methods and categories can sometimes reveal some essential aspects of the functioning of prehistoric societies that an empirical approach could not. These are not immutable results but working hypotheses that other studies should support (DEFRASNE, 2018). Consequently, informative categorisation should be identified and researchers should consider their own cultural background when proposing anthropological conclusions.

Regardless, it is important to underline that to question zoomorphic figures and the evidence they represent of the status and role of non-human animals in past societies, these zoomorphic figures need to be considered against their iconographical and archaeological context. In France, the main imageries of post-Palaeolithic rock art which include zoomorphic figures are the engravings of the megalithic stone structures from western France (5th millennium BC), the engravings of the Mont Bego area (5th – 2nd millennia BC), the

Neolithic schematic representations composed of paintings and engravings (5th – 3rd millennia BC) and the Iron age engravings of the Maurienne valley. The studies of these series are at various stages of advancement and publication (recent systematic studies, studies in progress, studies that need to be revised) and the level of accuracy of the different parts of this chapter depends on these circumstances.

2. Zoomorphic figures in the engraved imagery of Atlantic Megaliths

One of the earliest and most important post-Palaeolithic imageries including zoomorphic figures is represented by the engravings from Neolithic megalithic graves and stelae of western France. This imagery dates back to the 5th millennium BC and is linked to the emergence of a new unequal political organisation represented by the building of gigantic stone structures (funerary and symbolic) and the accumulation of rare and long-distance materials, some of which are objects in alpine jade. As evidenced by similar iconographical representations from Armorica to the alpine region, for example, in the engraved imageries of the Paris basin, Burgundy, the Drôme, the Aosta valley (Italy), Wallis (Switzerland) and maybe even the Bego Area (Alpes-Maritimes, France), ideas connected to such a social phenomenon have been diffused alongside the circulation routes of polished stone axes (CASSEN, 2012; CASSEN 2017a and b). This Armorican engraved imagery, material traces of ancient myths on stones erected or gathered on the ocean shore, at the limit of the unknown, accompanied the emergence of new ways of thinking and seems to reflect new social divisions in the context of passage phenomenology (CASSEN, 2009; CASSEN *et al.*, 2015). Semiotic and structural analyses have been performed by Serge Cassen from the 1990s (CASSEN, 2000; CASSEN and VAQUERO LASTRES, 2003; CASSEN, 2007; CASSEN, 2009a and b; CASSEN, 2012). This review of the zoomorphic figures in the context of the Armorican imagery is based on his work.

The engraved Armorican imagery (like other prehistoric graphic representations) gathers artefacts, human figures, possible elements of the environment and non-human animals on the same rock surfaces, clues indicating they belong to the same stories and to the same myths. The Armorican engravings are composed of polished stone axes, evoking a possible sexual symbolism when associated with a stone ring, crooks, and bows (CASSEN *et al.*, 2015). These weapons become signs, conveying the idea of force, and are engraved for ideational reasons, beyond their original function. Axes and staffs, violent weapons engraved according to the gesture they require, figured in a static (straight) or a dynamic (oblique) way, are part of a semantic association between cutting (axes) and striking (staffs).

In addition, the myth expressed through this imagery is also built on animals. Some of the animals come from areas located beyond the ocean: the sperm-whale and the pigeon, a migratory bird coming from Eurasia to gather in autumn on the ocean shore of western France before heading to the Atlantic Iberian Peninsula (CASSEN, 2005). As suggested by Serge Cassen, these wild animals are systematically opposed to boats, to weapons or to domestic animals from the human world: bovids and caprinae. On stelae, these horned (and dangerous) animals, whose male character is emphasised just as for the sperm-whale, are often figured in couples. Their structural opposition to objects from the human world underlines ideational connections between both classes of entities. The composition of the Tremblais stela (Saint-Samson-sur-Rance, Côtes-d'Armor) may express such oppositions (Figure 1). On the north and west faces are engraved what Serge Cassen identified as an opposition between domestic (cattle, goats) and wild animals (suids, cervids, birds, cetaceans), on which horns and tusks are clearly visible and exaggerated and which are figured in confrontation. Some of them are sometimes represented with human feet, a possible mark of transformation. Such animals may consequently appear as a mediator with which the human fuses therefore increasing his or her power (CASSEN and VAQUERO LASTRES,

2003). As for the south face, it is reserved for the human figure and for iconic artefacts (polished axe, throwing stick, ring disk, steering oar). Static domestic animals are associated with weapons and/or tools and spatially separated from dynamic birds and sperm-whales. However, each face is engraved with boats, probably as part of the myth of the boat of a hero or as a means to reach the island of the Dead (CASSEN *et al.*, 2017). The interpretations as put forward by Serge Cassen can be summed up by this narrative sentence: “[...] *un cachalot sorti survolant de l’inconnaissable s’affronte aux armes des humains et aux animaux des hommes, tandis qu’une crosse en pleine poussée descendante de sa frappe assommante entrave une voie au pigeon terrassé venu d’un au-delà de l’horizon méridional... Images contraignantes énonciatrices des hiérarchies et du pouvoir, mythes cosmogoniques répondant aussi à l’interrogation: qui sont les plus puissants: dieu ou ange? Homme ou animal?*” (CASSEN, 2005). Here, the Armorican imagery appears as the story of a confrontation between competing powers aiming to justify the origin and place of humans in the world and probably the exceptional status of some men in society. In spite of the presence of the aforementioned animals previously cited, the presence of the snake is also worth mentioning (Carnac, orthostate 8 in Gavrinis (Bailloud *et al.* 1995), La Bretellière (Raux and Joussaume 2000; Joussaume and Raux 2006): it is considered a chthonian animal, sometimes associated with the bird both in the imagery of the stone architectures and in contemporaneous pottery. It is worth noting that the snake also appears in the mainly abstract/schematic imagery of Irish megaliths (ROBIN, 2012).

To complement the analysis of the role of animals in these Neolithic representations, discoveries of animal bones in some of the megalithic graves should be detailed. For example, beads made of bird bones have been discovered in the Mont-Saint-Michel in Carnac and in the Saint-Germain tumulus in Erdeven. In a central grave of the Teste du Fief de la Hougue-Boëte tumulus, where a horse has been buried close to a human(?) male (Boujot *et Cassen* 1992), two bird feet were discovered in a clay layer covering the

whole burial. In Kercado (Carnac, Morbihan), bird bones are associated with human bones. Other discoveries also attest to the sacrifice of bovinds, buried for example under the Er Grah tumulus in Locmariaquer.

A strict selection of non-human animal species, gathering birds, mammals and maybe reptiles is consequently part of myths accompanying one of the most striking phenomena of the European Neolithic. In the interpretation by Serge Cassen, and from the structural analysis he performed, they are included in this imagery because of their dangerous character and the biotope they represent, as symbols of the opposition between two universes. This includes the wild one and the human and domestic one.

3. Zoomorphic figures in the Neolithic engraved imagery of the Mount Bego area

The Armorican imagery previously described is probably, at least partially, contemporaneous to another well-known graphic assemblage: the 36 000 engravings from the Bego area (Alpes-Maritimes), one of the main prehistoric European rock art sites located in the southern Alps from 2000 to 2700 m.a.s.l. A recent study (HUET, 2012; 2017) based on the statistic seriation of the engravings proposed a revision of the chronology of the site. Fringed figures, interpreted as schematic human figures, would be the earliest images attributed to the second half of the 6th millennium BC. They are part of the figurative assemblage shared along the circulation routes of the alpine jade described earlier (CASSEN, 2012; CASSEN 2017a and b). The fringed figures seem to predate the “*geometrical figures*”, also called “*topographical figures*” attributed to the middle Neolithic. Then, the horned figures, which are either isolated or part of ploughing images, could have been engraved from the middle of the 4th millennium BC to the Early Bronze Age and are partly contemporaneous with daggers and halberds probably engraved from the end of the 4th millennium BC.

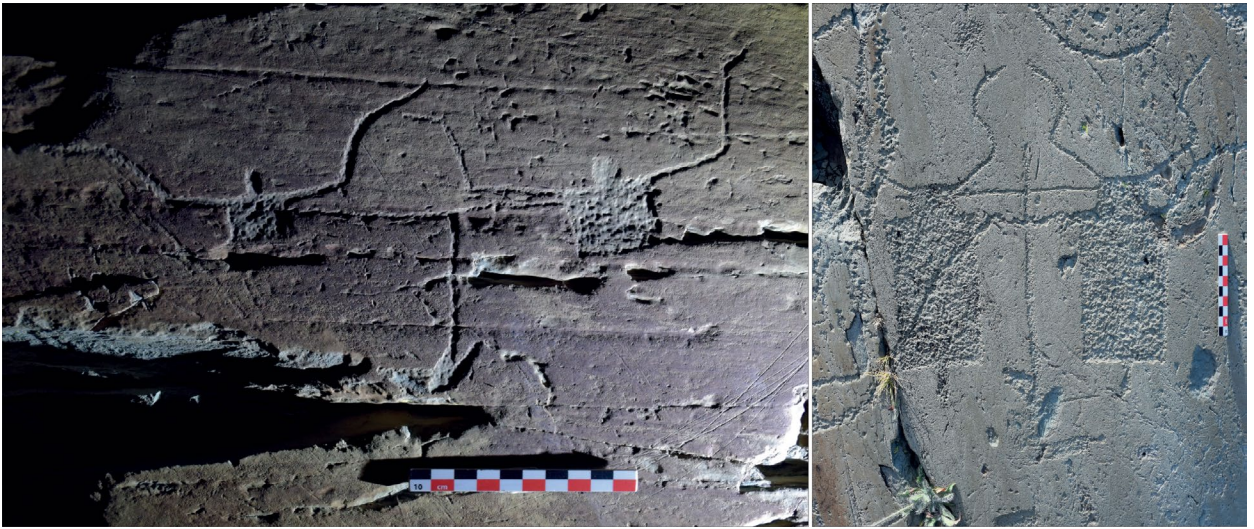


Figure 2: Horned figures from the Mont Bego site (photo: J. Masson-Mourey).

3.1. Bovids as the only zoomorphic figures

As for the zoomorphic figures engraved in the Bego area, they are exclusively “horned figures” (14098, i.e. 39% of the entire set). The most widespread interpretation of these typical engravings is that they represent cattle heads and horns. This is supported by the fact that, even if most of them are isolated (13 144, 93%), some are engraved as part of “ploughing/traction scenes” (779 are only associated with a plough (5%), 175 (1.2%) are associated with a plough and a human figure driving the team (mainly masculine) (HUET, 2012; 2017) (Figure 2). However, other interpretations have been proposed for some compositions of aligned horned figures: herds of sheep going to altitude pastures (BIANCHI, 2016). Here, the interpretation that the figures represent bovids is preferred because of the iconographical, archaeological and ideational context of the final Neolithic, even if the interpretation of some of the horned figures should probably be reconsidered.

Bovids are represented from above, a perspective different from other contemporaneous sets in which zoomorphic figures are preferentially figured in profile. However, when a human figure is associated with the bovids and the plough, it is

represented from the front along the axe of the plough or perpendicular to it. This appears clearly as a cultural choice. Two ways of representing bovids have been identified, either with legs and tail or with only the horns. Isolated figures and bovids associated with a plough are generally of this second type (horns only) whereas bovids associated with a plough and a human figure driving the team are preferentially of the first type (legs and tail) (HUET, 2017).

A quantitative approach is essential but insufficient to understand the prehistoric imageries and the hegemony of bovids on the rock outcrops of the Bego area. Even if the main proportion of the horned figures are isolated bovids, the social role of this animal species as essential partners in ploughing and more largely in towing carts or travois appears particularly striking in this imagery. This social and ideational value of such a technical innovation is reminiscent of the male statue-menhirs of the central Alps in the 3rd millennium BC and the use of such images in the conception of male identities (FEDELE, 2006, 2012; DEFASNE, 2018). The Bego imagery and the status of the engraved bovids should consequently be interpreted against the archaeological background.

3.2. *Ploughing: the archaeological background*

The spread of animal traction (yoke, drawbar, plough or wheeled vehicle) is well documented in the dated archaeological contexts of the north alpine and Jura lakeshore settlements. If the first elements may be dated to the 38th century BC, the earliest indisputable material proofs (new organisation of settlements and discoveries of yokes) date back to the 35th and 34th centuries BC in eastern Switzerland and to the 33rd-32nd centuries BC in western Switzerland and the French Jura (PÉTREQUIN *et al.*, 2006: 371). A yoke and a travois have been discovered in Chalain 19 in a context dating back to the 31st century BC. This spread seems to coincide with the Horgen expansion (PÉTREQUIN *et al.*, 2006: 372). Proof of animal traction increases during the 28th and 27th centuries BC (PÉTREQUIN *et al.*, 2006: 98-99). As for wheeled vehicles, they are documented from the 34th century in Slovenia and during the 32nd and 31st centuries on the Zurich lakeshore and in southwestern Germany (Zurich AKAD, Seekirch/Stockwiesen and Seekirch/Stockhausen). They are followed by an increase in Lüscherz and Corded archaeological contexts in the lakeshore sites of western and central Switzerland and in southwestern Germany (RUOFF, 2006). Finding a plough is rare in archaeological contexts prior to the Bronze Age, with the notable exception of the Lavagnone discoveries in northern Italy (MARZATICO, 2006). Additionally, a plough from Ezerovo in Bulgaria may date back to the 3rd millennium BC (PÉTREQUIN *et al.*, 2006b: 16).

In the southern Alps, material evidence of animal traction in archaeological contexts of the 4th millennium BC are rare. Fossilised furrows have been discovered in Chur/Areal Ackerman in a context dating back to the 34th century BC and in Castaneda/Pian del Ramit in the first half of the 3rd millennium BC (2350 – 2780 BC) (RAGETH, 1992a and b; SHERATT, 2006; PÉTREQUIN, 2006d: 361). Other discoveries have been interpreted as ploughing furrows in Canton di Trescore/Balneario and Cemmo (POGGIANI KELLER, 2006b; POGGIANI, 2009: 213) but should be reconsidered (SHERRATT 2006: 338). In northern

Italy, no plough or yoke has been discovered in an archaeological context prior to the Bronze Age (MARZATICO, 2006).

The earliest figurations of animal traction are probably the scale models of sleds and the one of wheeled vehicles from eastern Europe dating back to the 4th millennium BC (Tripolje and Boleraz cultures). Other representations are characteristic of the ceramic ware from the TRBK Culture (35th century BC) and Baden (3300 – 2900 BC) cultures. Such figurations are also engraved in the Züschen megalithic grave in Central Germany dated to the 35th century BC (MATUSCHIK, 2006). Finally, the deposit from Bytyń in Poland is composed of two copper statuettes of bovids and copper axes (MATUSCHIK, 2006: 285) attesting of the social and ideational value of animal traction. Such figures appear on the erratic boulders of Valcamonica in the Central Alps and on the rock outcrops of the Bego area at the end of the 4th millennium BC (FEDELE 2006: 54). Worth mentioning here is also the schematic painted cart towed by possible bovids from the Congosto de Olvena rock shelter in Aragon (Spain) where early and late Neolithic occupations have been identified (BALDELLOU *et al.*, 1996).

Animal traction is part of a radical and deep change in the European Neolithic in the middle of the 4th millennium BC characterised by the interruption of the production and diffusion of polished stone axes in alpine jade which structured Neolithic societies from the end of the 6th millennium (KLASSEN *et al.*, 2012: 1304; PÉTREQUIN *et al.*, 2006; FEDELE, 2012: 56). This change also includes the increase of transalpine mobility (BARFIELD *et al.*, 2003: 676), the use of altitude areas for pastoral activities, the decrease of flint blade production and long-distance flint exchange except for some specific products like daggers, arrowheads and sickles (BARFIELD, 2001: 507). From the second half of the 4th millennium, cultural influences come from the east with the arrival of copper metallurgy. The Bego imagery is produced in such a context and cannot be understood without this archaeological background.

3.3. Opening the ground: from bovids to seeds?

As mentioned earlier, most of the horned figures are isolated and are not part of ploughing images. Therefore, are these just bovids represented per se or are they a metonymic image evoking the whole ploughing action? It is of course difficult to answer in an assertive way. What is interesting is that, in both cases, bovids appear at the heart of a complex of social and ideational representations. Moreover, in the second hypothesis, bovid, an animal species, may have been used as a metonymy, instead of a human figure, to evoke a technological system. This second hypothesis can be reinforced by including the bovids on engravings of copper daggers and halberds, products of another technological innovation, copper metallurgy. This shows the social role of such animals and their status as social agents in human societies.

When complete, the ploughing image combines the human figure, a plough, a yoke and at least a couple of bovids in the same unit of meaning. Animals are joined with a shoulder- or withers-yoke (PELLEGRINI, 1994). The plough can be a body ard or a sole ard, suitable for small/cramped, sloping and stony-ground fields (HAUDRICOURT, 1955). Considering more precisely the type and functioning of the engraved plough leads to better understanding the nature and social background of the imagery. These ploughs are symmetrical and cannot be used to turn over the ground. They were probably used more often to open the soil to bury seeds (SIGAUT, 1988; 1989). Therefore, the engravings display a technical action, aiming at opening the ground with the aid of the bovids, whose presence in a wide number on the rocks of the Bego area demonstrates their social and ideational value. Such an image may have been connected to an important meaning attributed to the ground itself as well as to cereal culture and germination (PELLEGRINI, 1994; FEDELE, 2006). Just as can be observed in the central Alps of the 3rd millennium BC, the ideational meaning of the ground may be supported by the fact that travois (six) and carts (two) are much less represented than ploughs (257) (total numbers from HUET, 2017).

Therefore, it seems that the driving force was not as socially/ideationally valued as the connection of the plough to the ground and probably more generally to the territory. The different entities that constitute the image do not have their own meaning but receive it because they are necessary and essential to that technical activity. The plough, cart or travois are not engraved as objects and bovids as animals (FEDELE, 2006: 58; FEDELE, 2012: 58). It is the technical action and the opening of the ground that were probably at the heart of the meaning.

The ideational role of ploughing is widespread in archaeological, ethnographical and historical contexts (BRÉTAUDEAU, 1993). This was still the case in Europe during the 19th century. Beliefs generally focused on the magic properties of wood, on the supernatural origin of the structure of the plough and on the incisive action of the tool (HAUDRICOURT, 1955: 371-384). In the same way, ritual practices connected to ploughing aimed generally at favouring the growing of seeds.

In archaeological contexts dating back to the 3rd millennium BC, ritual ploughings have been evoked in the study of the Saint-Martin-de-Corléans funerary site in the Aosta valley and of the Cemmo ceremonial site in Valcamonica. However, those arguments are not convincing enough (PÉTREQUIN *et al.*, 2006: 16). Up until now, ritual ploughing has not been demonstrated in Neolithic contexts. However, as suggested by Francesco Fedele, the striped appearance of the limestone crest of the Anvòia (Ossimo, Lombardia, Italy) ceremonial site is reminiscent of plough furrows and may have led prehistoric people to choose this place to build a ceremonial site around stelae (FEDELE, 2006: 59).

The Bego imagery focuses on technical innovations of the 4th-3rd millennia BC, copper metallurgy and animal traction. Bovids are part of such technical innovations leading to important anthropological and social changes as essential partners. They are part of a group of representations probably around the subjects of fertility, territory and power. They are at the heart

of Neolithic societies of the 4th and 3rd millennia BC as social agents.

4. Neolithic schematic paintings from southern France and the western Alps

A third Neolithic graphic representation set attests of a third ideational universe/world. It is Neolithic schematic art, partly contemporaneous with the two previously described imageries. These graphic representations, studied by the author from 2014 in the context of a post-doctoral research project¹, are known from the Iberian Peninsula to the Italian Piedmont in a great diversity of environmental and cultural contexts. In Spain, where schematic paintings coexisted with what is called "*Levantine art*", the adjective "*schematic*" has been used from the time of the first discoveries to distinguish summarily executed figures, mainly reduced to their structure, from precise and finely depicted Levantine compositions. Such schematic representations are both engraved and painted. In southern France and the western Alps, 127 rock shelters and caves with schematic paintings are known so far. As regards the engravings, three main sites are known: Creysseilles-Pranles (Ardèche), the Signal de la Lichère (Branoux-les-Taillades, Gard) and the Caroux Massif but other scattered schematic engravings have been identified (COMBIER, 1972; HAMEAU AND VAILLANT, 1999; 2016). This schematic art is composed of about 40 recurrent shapes composing a coherent set, most of them non-figurative, shared across a wide geographical area. However, among this diversity, some themes recur. The anthropomorphic figures are those most systematically painted and appear consequently as the focus of the schematic "*discourse*" probably suggesting social preoccupations. The hegemony of these strictly anthropomorphic figures may be much more important than it seems if other themes which may also refer to a human shape are included, such as some ramiforms, which

are the second most important class of themes, T-shape figures, which are interpreted as sketches of a brow line and a nose when compared with contemporaneous stelae, and rare phi-shapes and eye-shaped figures. However, it is important to also consider that these anthropomorphic figures may refer to different entities and not only to human beings. The zoomorphic figures, the subject of this paper, form the third class of themes. Schematism differs also from figurative imageries in that meaning is also conveyed by the direction in which a theme is represented, straight or reversed.

Despite these schematic figures, a great number of simple marks, sometimes clearly related to some distinctive features of the rock surface (holes, concretions), testify to the social importance of the graphic act itself during social practices performed in the rock shelters.

Chronology remains one of the main challenges in the study of these schematic rock paintings. Because to date no absolute dating can be carried out on the paintings themselves, the beginning and the duration of this phenomenon are not known. Consequently, chronological markers must be identified. In southern France, the chronological milestones which can be set from the environmental and archaeological context or from the imagery itself are mainly situated between the 5th to the 3rd millennia BC (HAMEAU, 2002; DEFRASNE *et al.*, *in press* a and b).

4.1. Neolithic schematic art: Philippe Hameau's studies

From the 1980s onwards, Neolithic schematic art has been studied by Philippe Hameau who has identified characteristics of the rock shelters, performed archaeological excavations when possible and proposed anthropological interpretations from the structure of the imagery. These schematic

¹ The research, focused on southern France and the western Alps, was funded by the Fyssen Foundation from 2014 to 2016 and by Aix-Marseille Université/LabexMed from 2016 to 2018. Structural and spatial analyses are still in progress.

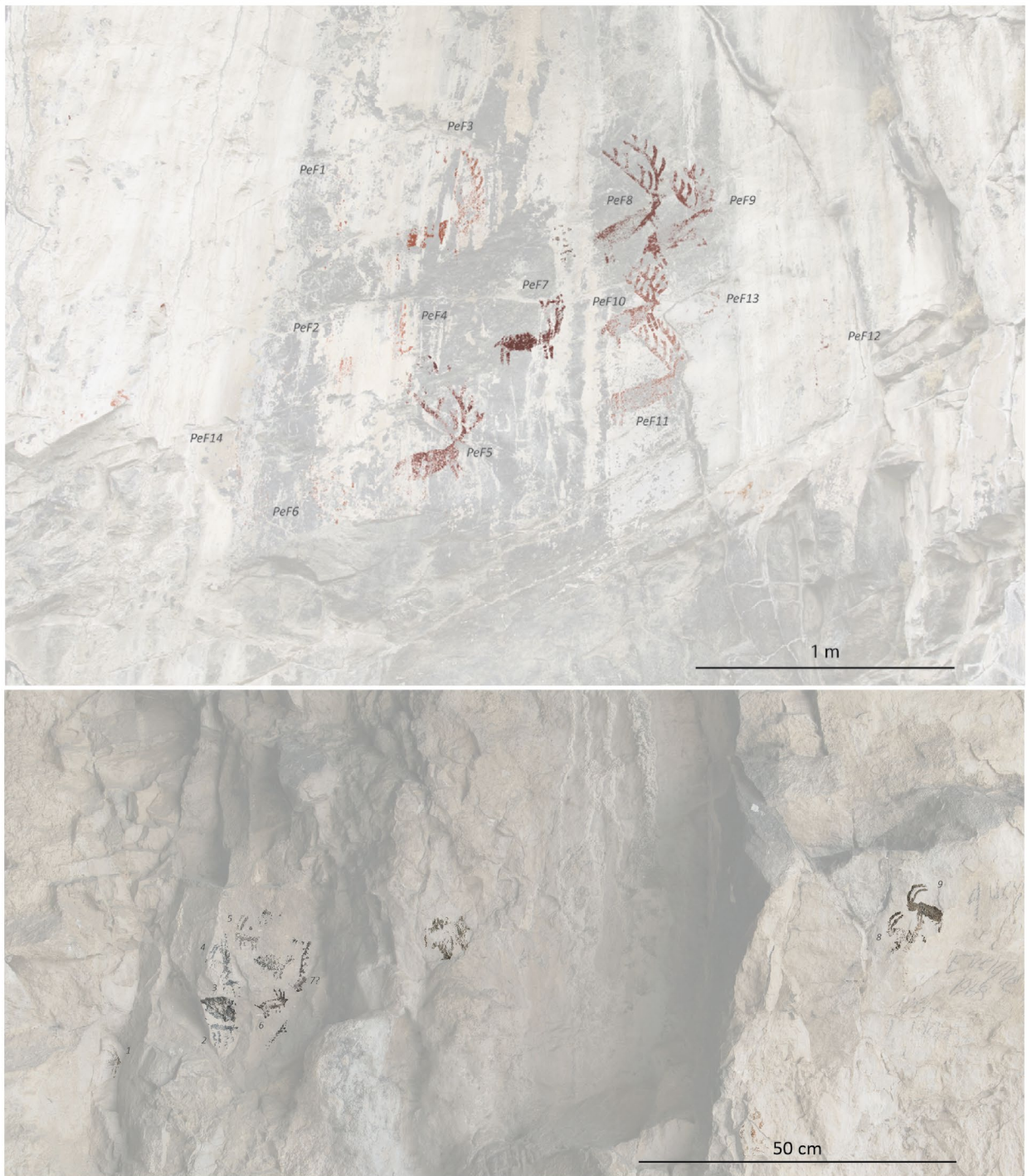


Figure 3: A group of red deer at the Rocher du Château site (Bessans, Savoie) and caprinae in the cavity n°12 of the Baume Brune limestone cliff (Gordes/Joucas, Vaucluse) (CAD: C. Defrasne).

rock paintings share common location criteria, mainly rock shelters with a southern exposure, distinctive topographies or impressive views of the surroundings, the presence of intermittent water flows and a colored rock surface (HAMEAU, 2002). In some cases, when several painted rock shelters belong to the same canyon, Philippe Hameau suggests that they are complementary and organised according to a cognitive itinerary. Rock shelters with a very large and diversified imagery should be considered as located at the end of the itineraries, whereas rock shelters with very few figures are located on the way to the first one (HAMEAU, 2009). Philippe Hameau recognises five main themes: living beings (the male human figure, quadrupeds and a human figure supposedly feminine, as compared to one found on stelae and called the idol) and “value-added” signs (the broken line (water) and the sun-like figure (sun)). These “value-added” signs would mark a change of status of the living beings with which they are associated. Living beings are often doubled as follows: a simple figure associated with the same figure accompanied with a dot representing an imperfect doubling. The direction of the figure could also change. Such variations are interpreted by the author as various states of the same entity and echo indications of flint knapping or mining, or clay mining which are evident on some of the painted sites. Therefore, the transformation of matter and living beings, including quadrupeds and particularly deer (HAMEAU, 2006), is seen as being central to the schematic discourse.

4.2. Understanding schematism: the cognitive perspective

Before going further in the study of zoomorphic figures as part of Neolithic schematic art, it is necessary to question the cognitive nature of schematism to better understand the structure of the graphic representation of which zoomorphic figures are part and to try to shed light on social practices surrounding the graphic act.

As demonstrated by cognitive semiotics (DARRAS, 1998), human societies produce two categories of graphic representations, called sketches and simili, whose cognitive origin and purposes are completely different. Simili aim at reproducing the optic experience whereas sketches result from a simplification. Indeed, a sketch only figures the generic and main distinctive features of the represented entity (human, animal species...). Simili are generally individual and slow productions. Since they reproduce the real view, their meaning and interpretation does not require other communicative actions. They are descriptions and imitations and are consequently autonomous and universally understandable images. Sketches, which are simple shapes from a fast, brief and consensual execution, are part of a pluri-media communication gathering gestures and speeches. They are intended for communication and repetition. Their meanings and interpretation depend on interactions surrounding their production. They are consequently part of a dynamic production that



Figure 4. Paintings from the Bergerie des Maigres site (Signes, Var) (CAD: C. Defrasne).

gathers people. Relationships of both categories of graphic productions with the rock surface are also different from one another. Spatial distribution of the sketch is based on proximity, inclusion and juxtaposition relationships between figures. They are often distributed in linear or reticular arrangements. Space separating a figure from another can be compared to the space between words. It is sign of separation. As for the simili, they are generally combined in scenes in which space represents distance and perspective (DARRAS, 1996; 1998; 2003).

These differences in nature should be kept in mind during the study of prehistoric imageries and particularly the study of Neolithic schematic art in question here. These semiotic studies help consider social practices and the social context that may have surrounded the creation of rock paintings. They also invite us to formulate new working hypotheses and to search for material clues of semiotic conclusions. Finally, this semiotic approach urges us to question the stylistic argument and the chrono-cultural interpretations used to distinguish the schematic expression from the Levantine imagery. Style is not the only cause of variability among graphic prehistoric representations.

As a conclusion, the following working hypothesis can be presented: Neolithic schematic art may have been produced during social practices bringing together people in chosen rock shelters to accompany speeches, perhaps narrations of myths.

4.3. Schematic paintings, special places and the socialised environment

Studying zoomorphic figures requires questioning in a more general way the relationships of human groups with their environment. Rock paintings testify to social practices performed in chosen, and consequently distinctive, places. The distinctive and striking topographical and geological features of many painted sites (rock arches or ridges, polygonal designs of the bedrock) can support

this argument. This probably means that the environment was culturally meaningful. Paintings reveal social practices and cosmographies connected to the environment and the integration of some places into the social memory of human groups. This graphic art does not appear as a means of appropriation of the environment but reveals the existence of a socialised and lived-in environment (INGOLD, 2000), imbued with social and ideational references and appearing consequently as territory. Therefore, zoomorphic figures and relationships with non-human animals should be thought in this context of tight connections between human societies and their surroundings. Zoomorphic figures consequently attest to the integration of some animal species to narratives connected to such socialised places and practices.

4.4. Zoomorphic figures in the schematic graphic expression

The schematic nature of the studied graphic representations makes the identification of the represented animal species quite difficult. Only two of them, red deer and ibex, could be easily identified thanks to their antlers and horns.

Animal species are only painted, never engraved (HAMEAU, 2006). They appear in 17 of the 127 identified painted sites (13%), as well in large isolated rock shelters in low altitude areas as in rock shelters in high mountain environments or in sites that are part of a group of painted rock shelters. In this research, the Gias des peintures site (Tende, Alpes-Maritimes), in which a hunting scene has been previously described (MANO, 1995), is not considered since the recording and more generally the study of the figures needs to be revised. In most cases (25 figures in nine sites), animals are red deer. However, there is roughly the same proportion of unidentified quadrupeds (25 figures in seven sites). Among the latter, some may be identified as canids. Finally, caprinae, maybe ibex, are painted in four sites (ten figures). Therefore, red deer and ibex are not the most numerous but are the most frequent.



Figure 5. Hunted deer from the Faravel rockshelter (Freissinières, Hautes-Alpes) (CAD: C. Defrasne).

Three sites should be distinguished for their high proportion of animal figures. First, with 12 figures, the Bergerie des Maigres (Signes, Var) is the most important one. However, all these animal figures remain undetermined. The analysis of this particular imagery, in which humans and animal figures seem to interact contrary to what is generally observed in the Neolithic schematic art from southern France, will be discussed further. A second site should also be highlighted. A group of at least ten red deer in a right profile is painted at the Rocher du Château site (Bessans, Savoie) (DEFRASNE *et al.*, *in press*). Finally, five caprinae, a possible deer and four undetermined animal figures, probably badly preserved caprinae, are grouped in the cavity n°12 of the Baume Brune limestone cliff (Gordes/Joucas, Vaucluse) (Figure 3). Despite the presence of ten other painted cavities in the same limestone escarpment, Baume Brune 12 is the only one with preserved animal figures. On the other sites of this French schematic art set, animal figures appear from one to five in number.

Some generalities can be raised from this. Red deer and caprinae are sometimes figured in groups, maybe in relation with the ethology of both species (HAMEAU, 2006). On the contrary, at the Bergerie des Maigres (HAMEAU, 2010), the numerous undetermined zoomorphic figures are not grouped together but mainly associated with different human figures (Figure 4). The representation of antlers differs from one site to another, either exaggerated or simply radial. Red deer antlers are often oversized compared to the body of the animals probably indicating a focus on this characteristic of the species (HAMEAU, 2006). However, despite this magnification, the representation of antlers is often accurate. At the Rocher du Château site, antlers are constituted of 12 to 16 points. Such antlers are rare but realistic. As mentioned previously, scenes are not represented in the schematic art from southern France. However, in two sites (Faravel, Freissinières, Hautes-Alpes and Pierre Escrite, Castellane, Alpes-de-Haute-Provence), red deer are figured with what looks like an arrow in their back (Figure



Figure 6: Hunted deer from the Pierre Escrite site (Castellane, Alpes-de-Haute-Provence) (CAD: C. Defrasne).

5 and 6). However, no human figure is associated with them and no interaction between human and red deer or ibex is described contrary to what can be observed for undetermined species. This is quite different from Spanish schematic art where red deer are sometimes part of hunting scenes or appear held by human figures. Indeed, three scenes of deer capture are known from Mallata (Aragon) (HAMEAU, 2006; PAINAUD, 2006).

Besides this strict selection of big mammals, there are some meander-like figures which could arguably represent snakes. Such figures are painted in the Gayette (Murs, Vaucluse) and Dalger 3 (Ollioules, Var) sites (DEFRASNE and HAMEAU, 2017) (Figure 7). At the Dalger site, the meander-like figure is associated with a probable human figure. The imagery from the Gayette site is special in the context of the schematic art from

southern France in that the figures, in spite of being meander-like figures whose most relevant parallel are engravings from Atlantic megaliths, are composed of triple lines of small dots (DEFRASNE and HAMEAU, 2017; ROBIN, 2010). The main argument in favour of these images representing snakes is the presence of a higher undulation at one end of each figure evocative of a reptilian way of carrying the head. These meander-like figures are also characterised by small appendices located in the middle or at the end of the figures. Such appendices are reminiscent of engraved figures both in megalithic monuments around the Irish sea and on Portuguese stelae on which the representation of snakes is much more evident (BUENO RAMIREZ ET BALBIN BEHRMANN, 1995; 2006). What is also striking is the presence of another poorly preserved figure which may have been a human figure at the Gayette site, just as in the Dalger 3 rock shelter. Moreover, this echoes what is observed in the schematic art of the Huesca province in Spain where snakes are associated with human figures in Mallata C and the Remosillo rock shelter (PAINAUD, 2006). Is this indicative of a significant association?

As regards now the direction of the animal figures (left or right), zoomorphic figures are represented in a right profile in 29 cases, whereas 22 are represented in a left profile. The direction of five figures cannot be determined.

4.4.1. An ideational and cultural filter

It clearly appears that all the animal species of the biocenosis are not part of the stories or myths that schematic art represents. Prehistoric people seem to have only selected big mammals, and more particularly two species: red deer and ibex, rarely associated, and whose antlers, horns and ethology of male individuals are particularly striking. In this respect, Philippe Hameau relates the cycle of the red deer antlers to the concept of transformation mentioned earlier (HAMEAU, 2006). However, in two cases, the Dalger 3 (Ollioules, Var) and the Gayette rock shelters (Murs, Vaucluse), the presence of snake figures can be questioned. These zoomorphic

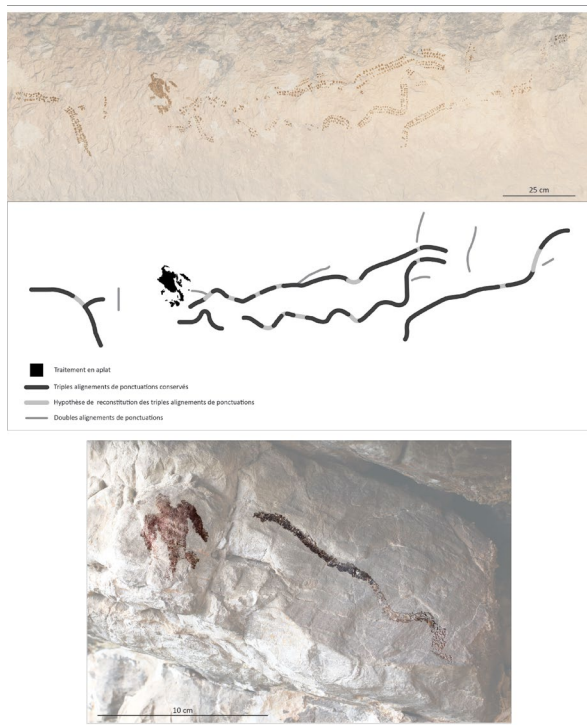


Figure 7. Meander-like figures and possible human figures from the Gayette (recording and schema of the painted composition) and the Dalger 3 rockshelters (CAD: C. Defrasne).

figures are clues for an ideational and cultural filter connected to stories and social practices performed in rock shelters. This strict selection of non-human animals and the relationships with the human groups that they testify to are a very different ideational universe from the Armorican and Bego ones. However, this situation is identical to Iberian schematic paintings and reminiscent of central alpine imagery of the 3rd millennium BC (DEFRASNE, 2018).

As mentioned earlier, scenes are absent from schematic graphic representations. Therefore, there are no hunting scenes strictly speaking. However, in two cases, deer are figured hunted. Consequently, it is possible that some painted sites and social practices performed on these sites are partly connected to hunting. However, this should not be presented as the only explanation for the presence of zoomorphic

figures. Reality may have been more complex. One of the main groups of deer has been painted at the Rocher du Château site (Bessans, Savoie). The excavation of the site revealed two periods of Neolithic occupation, a first one during the Middle Neolithic from 4500 to 4000 BC and a second one in the Final Neolithic from 3500 to 2300 BC (THIRAUULT, 2004; 2008). Coloured and colouring materials have been discovered in the archaeological layers of the first period attributed to the Square Mouth Pottery culture (SMP). Physico-chemical characterisation of these materials were performed in 2015 to compare their composition to the one of the preserved paintings and try to provide new chronological arguments for this schematic representations. The first conclusions do not go against a similar composition (DEFRASNE *et al.*, *in press*). What is interesting here is that, if SMP people are the authors of the paintings, they represented deer while they came on site to hunt ibex (ROUX, 2010).

4.4.2. Riding scenes: chronological and anthropological issues

As mentioned earlier, schematic figures are mainly part of topological relationships instead of scenes except in two sites, the Bergerie des Maigres (Signes, Var) and the Pin de Simon 2 (Gémenos, Var), located on both sides of the Sainte-Baume Massif, 20 km apart. Indeed, the use of DStretch enhancement to correct and complete the previous recordings led to the discovery of a new theme, the riding scenes, unknown in southern France up until now. Besides sharing such scenes, these sites also share stylistic patterns and associations.

The imagery from the Bergerie des Maigres site appears special in the context of schematic art from southern France. This imagery is exclusively composed of human and animal figures, focusing on interactions between both categories without which the represented practices could not be identified. In this context, a riding scene is obvious and two other animals poorly preserved may also have been part of



Figure 8: Riding scenes from the Bergerie des Maigres (Signes, Var) and Pin de Simon 2 (Gemenos, Bouches-du-Rhône) rockshelters (CAD: C. Defrasne).

similar scenes. At the Pin de Simon 2 site, the riding scene is much more uncertain, but one of the three characters seems to ride an unidentified animal. A halter connects two characters to the third one riding the animal (Figure 8).

Such riding scenes are known in the schematic representations of the Iberian Peninsula and characterised by synoptic (Gallinero IIA (Bárcabo, Huesca), Les Coves de Baldellou (Baldellou, Huesca), Los Estrechos (Albalate del Arzobispo, Teruel) or topological relationships (Los Estrechos I, La Fenellosa (Beceite, Teruel), abrigo de Tera, en Sierra de Minerva (Garlitos, Extremadura) (COLLADO, 2008; BEA *et al.*, 2009; LANAU and BEA, 2016). In the synoptic case, the human figure sits astride the animal, whereas in the topological case, the human figure is represented in full-length above the animal. In these examples, the species of the animal figures cannot be determined except for two horns in Los Estrechos I which seems to imply a bovid.

The presence of the riding scenes questions both the nature and chronology of the schematic art. Consequently, two working hypotheses can be considered depending on whether the ridden animal is interpreted as a horse or not (DEFRASNE, 2019).

Hypothesis n° 1: ridden animals are horses

The riding scenes are generally interpreted as equestrian, even when the animal species cannot be identified. In this case, they are attributed to later chronological periods, from the Bronze Age to the Iron Age. Indeed, the first material evidence for horse domestication in western Europe date back to the 2nd millenium BC. Earlier clues remain uncertain (BENDREY, 2012). Places and modalities of the first horse domestication are still in debate. Wild horse populations decreased at the beginning of the Holocene period but probably maintained themselves in certain European areas (BOYLE, 2006). Up until now, the first evidence for horse domestication and riding date back to the middle of the 4th millenium BC in Eneolithic contexts from Ukraine and Kazakhstan (OUTRAM *et al.*, 2009).

An independent Holocene domestication area has been documented in the Iberian Peninsula (WARMUTH *et al.*, 2011). In western Europe, the horse disappears from faunal remains in the middle Neolithic and reappears at the end of the Neolithic and at the beginning of the Bronze Age. From there, the remains continually increase. The expansion of the domestic horse has consequently often be associated with the Bell Beaker phenomenon in Europe during the second quarter of the 3rd millenium BC (VAN WIJNGAARDEN-BAKKER, 1974; 1986; CLUTTON-BROCK and BURLEIGH 1991; SHERRATT, 1997; UERPMANN, 1995; ALBARELLA, 1999; BLAISE, 2010; BENDREY *et al.*, 2013). However, this should be considered with caution. Detailed regional studies have not confirmed the association between horse bones and Bell Beaker material culture (BENDREY, 2007; BLAISE, 2010). Moreover, some faunal remains used to support such an interpretation have been revised and their dating appears more recent than the Bell Beaker context with which they were previously associated. This is the case for example of the horse teeth from Newgrange recently attributed to the Iron Age. Consequently, the earliest material evidence for horse domestication in Ireland date back to the Bronze Age. The situation in southern France is similar to that described for the rest of Europe. Horse domestication is clearly attested from the Bronze Age. Wild horses appear in the faunal remains of the archaeological contexts of the Middle Neolithic (grotte de l'Eglise, Baudinard, Var) but then disappear until the Bell Beaker period. Wild horses have been identified in the faunal remains from three sites dating back to the 3rd millenium BC (Les Calades, Orgon, Bouches-du-Rhône (2500 – 2270 BC); La Balance, Avignon, Vaucluse (2930 – 2405 BC); Le Bois Sacré, Saint-Côme-et-Maréjuols, Gard (2855–1985 BC). The causes of such a presence are not clearly understood (hunting, domestication of an endemic species or introduction of domesticated horses) (BARGE, 2009). In the present state of knowledge, its presence in the final Neolithic and Bell Beaker societies cannot be excluded as the social importance of the domestic horse considerably increased in cultures after the Early Bronze Age leading to important changes in the

economy of these human groups. It is possible initial domestication did not leave material traces clear enough to be detected in the faunal remains. The scarcity of the horse in the chronological periods predating the Bronze Age probably limited its use and impact but may also have conferred it a special and prestigious status (BENDREY, 2010: 12).

What about the riding scenes from the Bergerie des Maigres and Pin de Simon 2 sites? The main occupation of Bergerie des Maigres is attributed to the second half of the 3rd millennium BC, a period during which there may have been the first domestic horses. The morphology of the Pin de Simon 2 cavity did preserve well the archaeological layers. However, flint fragments have been discovered near the entrance and provide evidence for a prehistoric occupation (HAMEAU, 2002). The riding scenes may consequently be attributed to this period, thus confirming the chronology proposed by Ph. Hameau. A later chronology can also be considered leading to the production of these paintings during the Bronze Age. Indeed, schematic art may have lasted into the Early Bronze Age as documented by archaeological remains from the abris Perret (Blauvac, Vaucluse), the Levant du Leunier (Malaucène, Vaucluse) and Monier (Ollioules, Var) caves.

Hypothesis n° 2: ridden animals are not horses

However, it is also possible that the ridden animals of the Bergerie des Maigres and Pin de Simon 2 sites are not horses. The species remains unidentified. Consequently, other hypotheses are possible: representing myths or the riding of wild animals as seen in ethnographic contexts. Indeed, the graphic productions of prehistoric societies need not be interpreted in a literal manner since they may figure either daily or ritual social practices or myths. This is probably the case of the feminine statuette from Çatal Höyük (8th – 6th millennia BC, Turkey) leaning on two leopards. In the same way, animal riding appears in the myths of societies in which people do not ride animals on a daily basis (SAUMADE, 2004: 70). The occasional riding of bovids or wild animals is also attested both in ethnographic contexts and in other prehistoric imagery (LE QUELLEC, 2007). A zoomorphic pottery discovered in Hauza (Kapitan Andreevo, Bulgaria) attributed to the Karanovo IV period (end of the 6th millennium BC) represents a human figure on a bovid. The previously mentioned riding scene from Los Estrechos in Spain may also represent a ridden bovid. Such hypothesis should also be questioned in the case of the schematic paintings of the Bergerie des Maigres and the Pin de Simon 2 sites.

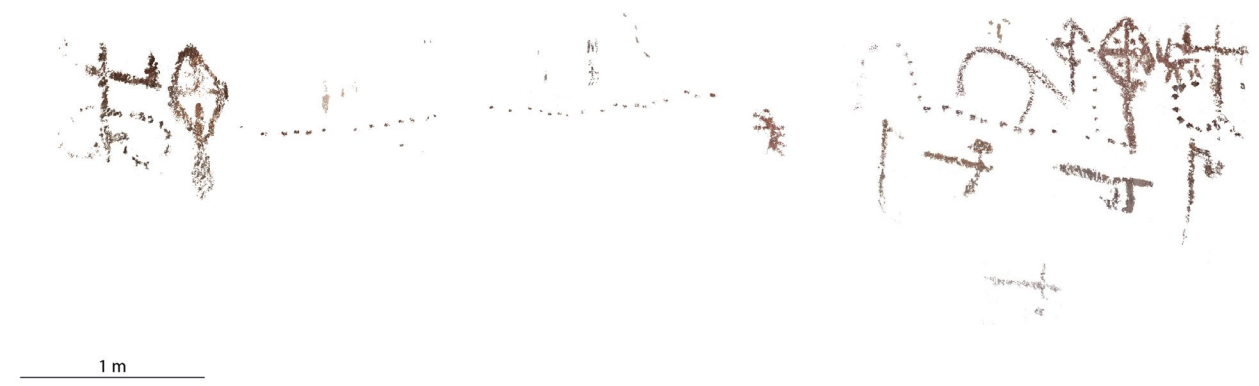


Figure 9. Recording of the southern painted composition of the Baume Peinte site (Saint-Saturnin-les-Apt, Vaucluse) (CAD: C. Defrasne).

Whatever the interpretation of such riding scenes, they are part of the representation of human/non-humans interactions which remain rare in the schematic paintings from southern France. At Bergerie des Maigres, human and zoomorphic figures are implicated in other types of scenes without which the nature of the interaction would remain unknown. The only other possible example of a scene attesting to such interactions is the Chuchy cave (Tourves, Var) because of the nature itself of the schematism and the topological relationship between the figures.

4.4.3. Animal species as social agents?

The conclusion that needs to be drawn from such observations is that these interactions between humans and non-humans appeared important enough to prehistoric groups to be expressed during social practices performed in rock shelters and made permanent through a graphic act. Consequently, a possible hypothesis is that these representations reveal the social role of at least some animal species and their presence in social practices, speeches and representations of the world.

In this respect, the painted composition from the Baume Peinte site (Saint-Saturnin-les-Apt, Vaucluse) should be evoked (HAMEAU, 1997) (Figure 9). The composition is divided into two superposed levels thanks to a horizontal line of dots perpendicular to figures located in the deep part of the cavity and vertically aligned. Figures painted above the horizontal line are represented in their “normal” position whereas figures represented under this line are in a reversed position. This is the case of an undetermined zoomorphic figure which could be a red deer. It seems that this composition materialises a representation of the world or a part of it as perceived by prehistoric human groups. This world is composed of two spaces (the “real” world and the underworld?) whose permeability is suggested by the discontinuity of the horizontal line. The passage from a space to another requires a change of status, affecting

both human, non-human animal and objects, indicated by the position of the figures. Such a representation of the world, with superposed universes, one being characterised by reversed figures, evokes some engraved compositions of the Armorican imagery. Non-human animals are part of this Neolithic cosmogony and are affected by the same transformations (HAMEAU, 2006).

Going further in such an analysis requires finalising the structural analysis of this set of graphic art which is currently in progress. However, some conclusions can already be drawn indicating that non-human animals should be considered as being social agents belonging to Neolithic hybrid communities.

5. Zoomorphic figures in the Iron Age engraved imagery of the Maurienne valley

In France, post-Palaeolithic rock art also comprises Iron Age engravings. Most of them are in the Maurienne valley in Savoie, in the western Alps. In this region, around 1000 engraved rocks have been identified distributed in 130 sites from 1000 to 2800 m.a.s.l. and gathering 50 000 engravings (BALLET, 2003; BALLET and RAFFAELLI, 1990; 1993; 2003). These engraved rocks are located in areas favourable to long-term or temporary settlements for pastoral activities or for working raw materials and close to circulation routes. Figures are engraved on calcschist and phyllitic sandy limestone outcrops and date back to a period from the Neolithic to the Middle Ages. However, most of the engravings are attributed to the Iron Age thanks to style and comparisons with material culture and could be compared to a wider alpine set of engravings located in Valcamonica in the Central Alps. This imagery is composed of cupmarks and abstract figures (labyrinths, spirals, meander-like figures, crosses, circular and quadrangular figures...), foot-shape figures often engraved in couples and figurative images limited to some sites. However, there are few zoomorphic figures mainly located in Aussois, Sollières and Lanslevillard and part of Iron Age compositions (4th - 3rd centuries BC) involving hourglass-shape human figures with

weapons, and mainly dogs and ibex. It is possible sometimes to also recognise wild canids, red deer and horses. Most of these figures seem to interact in what evokes hunting scenes; human figures on foot (or, on rare occasions, riding horses) with spears positioned towards ibex or wild canids and dogs hunting (are they hunting the dogs or are the dogs hunting with the people?). However, in some cases, there is no hunting scene strictly speaking but only the co-presence of human and zoomorphic figures. Finally, human figures are sometimes lacking. The presence of a snake on a rock in Lanslevillard should also be mentioned. As for the meander-like figures, they are very frequent, but it would be risky to systematically interpret them as representations of reptiles. Finally, this engraved zoomorphic imagery is also characterised by horses. Seven are ridden in Aussois and Sollières and three, at least, are represented driving carts.

It should be highlighted that recordings coupling 3D scan and photogrammetry aiming at correcting and complementing the previous tracings are currently underway (PI F. Ballet) and still unpublished. The observations are therefore made from former studies. In order to further our understanding of this set, a new systematic study is required, based on the important work of F. Ballet and Ph. Raffaelli using GIS and statistical analysis, rendering more precise the chronology and content of these imageries.

To conclude, in the imagery of the Maurienne valley, *Capra ibex* appears above all as a prey whose hunting probably engaged social representations.

6. Conclusion

The presence of zoomorphic figures in rock art from the Neolithic period to the Iron Age demonstrates both the relationships between non-human animals and human groups and the active social role of non-human animals in past societies. Selected animal species and/or types of interactions are characteristic of each culture or chronological period. In graphic art, in the

material traces of myths and in the systems of social representations, non-human animals are associated with human figures, artefacts, technological innovations and appear as an essential element of the ideational conception of the world. They take part in the structure and functioning of prehistoric societies. These zoomorphic figures underline the importance of studying and interpreting these past societies giving due consideration to non-human animals and more generally to the non-human. These are not human societies but hybrid communities (LATOURET, 1991), gathering objects, animals, etc. Prehistoric graphic systems are material traces of the social and ideational roles of each of these components and a reminder that they belong to the same meaningful universe.

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References

- ALBARELLA, U. (1999). "The animal economy after the eruption of Avellino pumice: the case of La Starza (Avellino, southern Italy)", In LIVADIE, C. A. (Ed.), *L'Eruzione Vesuviana Delle 'Pomici di Avellino' e la facies de Palma Campania (Bronzo antico) Edipuglia*. Bari: 317-330.
- BALDELLOU, V., PAINAUD, A., CALVO, MA J. AND AYUSO, P. (1996). "Las pinturas rupestres de Remosillo en el congosto de Olvena (Huesca)". *Bolskan*, 13: 173-215.
- BALLET, F. (2003). "L'art rupestre protohistorique de Savoie, expression symbolique et artistique des premières communautés alpines", In GUILAINE, J. (Ed.), *Arts et symboles du Neolithique à la protohistoire*. Errance. Paris: 263-283.
- BALLET, F. and RAFFAELLI, P. (1990). "Les gravures rupestres anthropomorphes de Savoie. Evolution de la représentation humaine du

- Néolithique à l'âge du Fer". 181-196.
- BALLET, F. and RAFFAELLI, P. (1993). "L'art rupestre de Maurienne". Mémoires et documents de la Société Savoisienne d'Histoire et d'Archéologie, 95: 63-78.
- BALLET, F. and RAFFAELLI, P. (2003). "Roches gravées de Savoie". Bulletin d'études préhistoriques et archéologiques alpines, 14: 251-271.
- BARFIELD, L. H. (2001). "Beaker lithics in northern Italy", In NICOLIS, F. (Ed.), Bell Beakers today: pottery, people, culture, symbols in prehistoric Europe. Proceedings of the International Colloquium, Riva del Garda (Trento, Italy), 11-16 May 1998. Trente: 507 - 518.
- BARFIELD, L. H., BERNABÒ BREA, M., MAGGI, R. and PEDROTTI, A. L. (2003). "Processi di cambiamento culturale nel Neolitico dell'Italia settentrionale", In ISTITUTO ITALIANO DI PREISTORIA E PROTOSTORIA (Ed.), Atti della XXXV Riunione Scientifica: Le comunità della Preistoria italiana. I.I.P.P. Firenze: 665-685. 127 / 050
- BARGE, H. (2009). "Des restes de chevaux sur l'habitat campaniforme des Calades à Orgon (Bouches-du-Rhône, France)". Bulletin du Musée d'Anthropologie préhistorique de Monaco, 49: 91-97.
- BEA, M., DOMINGO MARTÍNEZ, R., AGUDO, P., REKLAITYTE, I. and FATÁS FERNÁNDEZ, L. (2009). "Actuaciones arqueológicas en los abrigos de Roca dels Moros y Els Gascons (Cretas, Teruel) y de La Fenellosa (Beceite, Teruel)". Salduie, 9: 393-418.
- BENDREY, R. (2007). The development of new methodologies for studying the horse: case studies from prehistoric southern England. Southampton, University of Southampton.
- BENDREY, R. (2010). "The horse", In O'CONNOR, T. and SYKES, N. (Ed.), Extinctions and Invasions: A Social History of British Fauna. . Windgather Press: 10-16.
- BENDREY, R. (2012). "From wild horses to domestic horses: a European perspective". World Archaeology, 44(1): 135-157.
- BENDREY, R., THORPE, N., OUTRAM, A. and VAN WIJNGAARDEN-BAKKER, L. H. (2013). "The Origins of Domestic Horses in North-west Europe: new Direct Dates on the Horses of Newgrange, Ireland". Proceedings of the Prehistoric Society, 79: 91-103.
- BIANCHI, N. 2016. "Entre pastoralisme et art rupestre: la région du mont Bego au Néolithique. Premières observations sur la cohabitation de structures pastorales d'altitude et gravures". ARCHEAM, 22: 138-144.
- BLAISE, E. (2010). Economie animale et gestion des troupeaux au Néolithique final en Provence: approche archéozoologique et contribution des analyses isotopiques de l'émail dentaire. . BAR International Series 2080. Oxford.
- BOYLE, K. V. (2006). "Neolithic wild game animals in Western Europe: the question of hunting", In SERJEANTSON, D. and FIELD, D. (Ed.), Animals in the Neolithic of Britain and Europe. Oxbow. Oxford: 10-23.
- BUENO RAMIREZ, P. and DE BALBIN BEHRMANN, R. (1995). "La graphie du serpent dans la culture mégalithique péninsulaire. Représentations de plein air et représentations dolméniques". L'Anthropologie, 99(2/3): 357-381.
- BUENO RAMIREZ, P. and DE BALBIN BEHRMANN, R. (2006). "Cervidés et serpents dans la mythologie funéraire du mégalithisme ibérique", In HAMEAU, P. (Ed.), Animaux peints et gravés: de la forme au signe. Le bestiaire dans les expressions graphiques post-paléolithiques en Méditerranée occidentale. Colloque international, Le Val , FRANCE (16/07/2005).
- CASSEN, S. (2000). "Architecture du tombeau, équipement mortuaire, décor céramique et art gravé du Ve millénaire en Morbihan. À la recherche d'une cosmogonie des premières sociétés agricoles de l'Europe occidentale", In CASSEN, S. (Ed.), Éléments d'architecture. Exploration d'un tertre funéraire à Lannec er Gadouer, Erdeven, Morbihan. Constructions et reconstructions dans le Néolithique morbihannais. Propositions pour une lecture symbolique. Éditions chauvinoises. Chauvigny: 717-735.
- CASSEN, S. (2005). "Pigeon-vole ! Re-connaissance d'une gravure armoricaine du Ve millénaire". Bulletin de la Société préhistorique française, 102(2): 299-334.
- CASSEN, S. (2007). "Le Mané Lud en images.

- Interprétations de signes gravés sur les parois de la tombe à couloir néolithique de Locmariaquer (Morbihan)". *Gallia préhistoire*, 49: 197-258.
- CASSEN, S. (2009). *Exercice de stèles, une archéologie des pierres dressées*. Paris.
- CASSEN, S. (2012). "L'objet possédé, sa représentation: mise en contexte général avec stèles et gravures", In PÉTREQUIN, P., CASSEN, S., ERRERA, M., KLASSEN, L. and SHERIDAN, A. (Ed.), *JADE. Grandes haches alpines du Néolithique européen. Ve et IVe millénaires av. J.-C.* Presses Universitaires de Franche-Comté. Besançon: 1310-1353.
- CASSEN, S. (2017). "D'un signe l'autre, des Alpes à l'Atlantique: représentant et représenté", In PÉTREQUIN, P., GAUTHIER, E. and PÉTREQUIN, A. M. (Ed.), *Objets-signes et interprétations sociales des jades alpins dans l'Europe néolithique (JADE Tomes 3 et 4)*. Presses universitaires de Franche-Comté et Centre de recherche archéologique de la vallée de l'Ain. Besançon: 883-909.
- CASSEN, S. (2017). "Introduction", In PÉTREQUIN, P., GAUTHIER, E. and PÉTREQUIN, A. M. (Ed.), *Objets-signes et interprétations sociales des jades alpins dans l'Europe néolithique (JADE Tomes 3 et 4)*. Presses universitaires de Franche-Comté et Centre de recherche archéologique de la vallée de l'Ain. Besançon: 759.
- CASSEN, S., GRIMAUD, V., LESCOPI, L., PAITIER, H., RODRÍGUEZ-RELLÁN, C. and VINÇOTTE, A. (2017). "*Cambridge Archaeological Journal*". 28, 2: 259-281.
- CASSEN, S., LESCOPI, L., GRIMAUD, V., ALVIM, P. and DE JERSEY, P. (2015). "Sites de passage (3). La représentation de l'arc au cours du Ve millénaire d'après les stèles de Bretagne, des îles anglo-normandes et de l'Alentejo", In ROCHA, L. (Ed.), *Death as Archaeology of Transition: Thoughts and Materials. II International Conference of Transition Archaeology: Death Archaeology, Evora (Portugal) 29th April - 1st May 2013*. Archaeopress. Oxford: 95-125.
- CASSEN, S. and ROBIN, G. (2009). "Le corpus des signes à la Table des Marchands. Enregistrement et analyses descriptives." In CASSEN, S. (Ed.), *Autour de la Table. Explorations archéologiques et discours savants sur des architectures néolithiques à Locmariaquer, Morbihan (Table des Marchands et Grand Menhir)*. Actes du colloque international, Vannes, Université de Bretagne Sud, 5 - 7 octobre 2007. Nantes: 826-853.
- CASSEN, S. and VAQUERO LASTRES, J. (2003). "Le désir médusé", In GUILAINE, J. (Ed.), *Arts et symboles du Néolithique à la Protohistoire*. Paris: 91-118.
- CLUTTON-BROCK, J. and BURLEIGH, R. (1991). "The mandible of a Mesolithic horse from Seamer Carr, Yorkshire, England." In MEADOWS, R. H. and UERPMANN, H.-P. (Ed.), *Equids in the Ancient World, Vol. 2*. Dr Ludwig Reichert Verlag. Wiesbaden: 238-241.
- COLLADO GIRALDO, H. (2008). "Arte rupestre prehistórico en Extremadura: 1997-2006", In BALBÍN BEHRMANN, R. D. (Ed.), *Arte prehistórico al aire libre en el Sur de Europa*. Junta de Castilla y León. Salamanca: 287-322.
- COMBIER, J. 1972. "L'Art rupestre schématique dans le Midi de la France et les Alpes Occidentales". *Études Préhistoriques*. 3: 35-46.
- DARRAS, B. (1996). *Au commencement était l'image: du dessin de l'enfant à la communication de l'adulte*. Editions Sociales Françaises Nanterre.
- DARRAS, B. (1998). "L'image, une vue de l'esprit. Etude comparée de la pensée figurative et de la pensée visuelle." *Recherches en communication*, 9: 77-99.
- DARRAS, B. (2003). "La modélisation sémiocognitive à l'épreuve des résultats des neurosciences. Le cas de la production des schémas graphiques". *Recherches en communication*, 19: 175-198.
- DEFRASNE, C. (2018). "Stone bodies between social constructions and ontology: The copper Age statues-menhirs from the central Alps", In BICKLE, P. and SIBBESSON, E. (Ed.), *Neolithic bodies*. Oxbow Books. Oxford and Philadelphia: 113-131.
- DEFRASNE, C. (2019). "Scènes de monte et interactions humains/non-humains:"

- Apports de DStretch® à la compréhension des peintures pariétales néolithiques de la Bergerie des Maigres (Signes, Var)". *Cahiers de l'ASER*, 21: 11-22.
- DEFRASNE, C., BELLOT-GURLET, L., CHALMIN, E. and THIRAULT, E. (*in press*). "From archaeological layers to schematic rock art? Integrated study of the Neolithic coloring materials on an alpine rock art site". *Archaeological and Anthropological Sciences*.
- DEFRASNE, C. and HAMEAU, P. (2017). "Le point sur l'abri peint de la Gayette". *Bulletin archéologique de Provence*, 38: 5-16.
- DEFRASNE, C., MOCCI, F., TZORTZIS, S., WALSH, K. and DUMAS, V. (*accepted*). "Images rupestres, culture matérielle et matières premières: circulations du Néolithique aux âges des métaux dans les Alpes du Sud (Parc national des Écrins et Haute-Ubaye)", In (Ed.), « Les montagnes: frontières naturelles, frontières culturelles », 142ème Congrès du CTHS « Circulations montagnardes, circulations européennes » Circulations montagnardes, circulations européennes, Pau, 24-29 avril 2017.
- DESCOLA, P. (2005). *Par delà nature et culture*. Gallimard. Paris.
- DESCOLA, P. (2012): "Le dualisme homme/animal, une spécificité occidentale ? Les bêtes et nous. Conférence à la cité des sciences et de l'industrie. 30 mai 2012". DOI: <http://www.franceculture.fr/le-dualisme-homme-animal-une-specificite-occidentale>
- FEDELE, F. G. (2006). "La traction animale au Valcamonica et en Valteline pendant le Néolithique et le Chalcolithique", In PÉTREQUIN, P., ARBOGAST, R.-M., PÉTREQUIN, A.-M., VAN WILLIGEN, S. and BAILLY, M. (Ed.), *Premiers chariots, premiers araires. La diffusion de la traction animale en Europe pendant les IVe et IIIe millénaire avant notre ère*. CNRS Editions. Paris: 47 - 61.
- FEDELE, F. G. (2012). "Diffusione della trazione animale in Europa: il ruolo informativo e ideologico delle raffigurazioni rupestri centroalpina". *Preistoria alpina*, 46(II): 55 - 66.
- HAMEAU, Ph. (1997). "Les peintures schématiques de Baume Peinte (Saint-Saturnin-lès-Apt, Vaucluse, France)". *Zephyrus*, 50: 179-197.
- HAMEAU, Ph. (2002). *Passage, transformation et art schématique: l'exemple des peintures néolithiques du sud de la France*. Archaeopress. Oxford.
- HAMEAU, Ph. (2006). "Animal et expression schématique néolithique dans le sud de la France: entre réel et idéal". In HAMEAU, Ph. (ed.), *Actes du Colloque international "Animaux peints et gravés: de la forme au signe: le bestiaire dans les expressions graphiques post-paléolithiques en Méditerranée occidentale"*, 16-18 juillet 2005 (Carcès [...]). *Museum national d'Histoire naturelle*. Paris: 103-124.
- HAMEAU, Ph. (2009). "Site, support et signe: une cohérence de sens. L'expression graphique picturale au Néolithique". *L'anthropologie*, 113: 861-881.
- HAMEAU, Ph. (2010). « Peintures et gravures schématiques à la Bergerie des Maigres. la longue tradition graphique ». Université de Liège. Liège.
- HAMEAU, Ph. and VAILLANT, D. (1999). "Les gravures rupestres du Signal de la Lichère (Branous-les-Taillades, Gard)". *Archivo de Prehistoria levantina*, 23: 157-177.
- HAMEAU, Ph. and VAILLANT, D. (2016). "Les Rochers gravés de Creysseilles-Pranles". *Ardèche Archéologie*, 33: 29-34.
- HARAWAY, D. (2008). *When Species Meet*. University of Minnesota Press. Minneapolis.
- HAUDRICOURT, A. G. and J-BRUNHESDELAMARRE, M. (1955). *L'homme et la charrue à travers le monde*. Paris.
- HILL, E. (2011). "Animals as Agents: Hunting Ritual and Relational Ontologies in Prehistoric Alaska and Chukotka". *Cambridge Archaeological Journal*, 21(3): 407-426.
- HUET, T. (2012). *Organisation spatiale et sériation des gravures piquetées du mont Bego*. Mémoire de thèse. Nice, Université de Nice Sophia-Antipolis: 338.
- HUET, T. (2017). *Les gravures piquetées du Mont Bégo (Alpes-Maritimes). Organisation spatiale et sériation (VIe - IIe millénaire av.J.C.)*. Société préhistorique française. Paris.
- INGOLD, T. (2000). *The Perception of the Environment. Essays in Livelihood, Dwelling and Skill*. Routledge. Londres et New York.

- INGOLD, T. (2013). "Anthropology beyond humanity". *Suomen Antropologi: Journal of the Finnish Anthropological Society*, 38(3): 5-23.
- KLASSEN, L., CASSE, S. and PÉTREQUIN, P. (2012). "Alpine axes and early metallurgy", In PÉTREQUIN, P., CASSEN, S., ERRERA, M., KLASSEN, L., SHERIDAN, A. and PÉTREQUIN, A.-M. (Ed.), *JADE. Grandes haches alpines du Néolithique européen, Ve au IVe millénaires av. J.-C.* Presses Universitaires de Franche-Comté: 1280 - 1309.
- LANAU, P. and BEA, M. (2016). "Un núcleo de arte rupestre esquemático en el Noguera Ribagorzana: las estaciones decoradas del entorno del embalse de Santa Ana." In LORENZO LIZALDE, J. I. and RODANÉS VICENTE, J. M. (Ed.), *Actas 24 y 25 Noviembre 2015, Congreso de Arqueología y Patrimonio Aragonés.* Zaragoza: 131-140.
- LATOUR, B. (1991). *Nous n'avons jamais été modernes. Essai d'anthropologie symétrique.* La Découverte. Paris.
- LEQUELLEC, J.-L., DUQUESNOY, F. and DEFASNE, C. (2015). "Digital image enhancement with DStretch: Is complexity always necessary for efficiency?" *Digital Applications in Archaeology and Cultural Heritage*, 2: 55-67.
- LOCKE, P. (2018). "Multispecies Ethnography", In CALLAN, H. (Ed.), *The International Encyclopedia of Anthropology.* JohnWiley & Sons, Ltd.1-3.
- MANO, L. (1995). "Gias delle Pitture", In (Ed.), *Immagini alla Preistoria. Incisioni e pitture rupestri: nuovi messaggi dalle rocce delle Alpi occidentali*77-80.
- MARZATICO, F. (2006). "L'araire et le joug de Lavagnone et de Fiavé", In PÉTREQUIN, P., ARBOGAST, R.-M., PÉTREQUIN, A.-M., VAN WILLIGEN, S. and BAILLY, M. (Ed.), *Premiers chariots, premiers araires. La diffusion de la traction animale en Europe pendant les IVe et IIIe millénaire avant notre ère.* CNRS Editions. Paris: 63 - 71.
- MATUSCHIK, I. (2006). "Invention et diffusion de la roue dans l'ancien monde: l'apport de l'iconographie", In PÉTREQUIN, P., ARBOGAST, R.-M., PÉTREQUIN, A.-M., VAN WILLIGEN, S. and BAILLY, M. (Ed.), *Premiers chariots, premiers araires. La diffusion de la traction animale en Europe pendant les IVe et IIIe millénaire avant notre ère.* CNRS Editions. Paris: 279 - 297.
- MLEKUZ, D. (2007). "'Sheep are your mother": rhyta and the interspecies politics in the Neolithic of the eastern Adriatic". *Documenta Praehistorica XXXIV* 330-342.
- MORRIS, B. (1998). *The Power of Animals: an ethnography.* Berg Publishers. Oxford.
- ORTON, D. C. (2008). *Beyond Hunting and Herding: Humans, animals, and the political economy of the Vinča period.* Mémoire de thèse. University of Cambridge.
- OUTRAM, A. K., STEAR, N. A., BENDREY, R., OLSEN, S., KASPAROV, A., ZAIBERT, V., THORPE, N. and P. EVERSLED, R. (2009). "The Earliest Horse Harnessing and Milking". *Science*, 323: 1332-1335.
- VERTON, N. J. and HAMILAKIS, Y. (2013). "A manifesto for a social zooarchaeology. Swans and other beings in the Mesolithic ". *Archaeological Dialogues* 20, 20(2): 111-136.
- PÉTREQUIN, P., ARBOGAST, R.-M., PÉTREQUIN, A.-M., VAN WILLIGEN, S. and BAILLY, M. (2006). "La traction animale au Néolithique: diversité des documents, diversité des approches", In PÉTREQUIN, P., ARBOGAST, R.-M., PÉTREQUIN, A.-M., VAN WILLIGEN, S. and BAILLY, M. (Ed.), *Premiers chariots, premiers araires. La diffusion de la traction animale en Europe pendant les IVe et IIIe millénaires avant notre ère.* CNRS Editions. Paris: 11 - 20.
- PÉTREQUIN, P., ARBOGAST, R.-M., PÉTREQUIN, A.-M., VAN WILLIGEN, S. and BAILLY, M. (2006). *Premiers chariots, premiers araires. La diffusion de la traction animale en Europe pendant les IVe et IIIe millénaires avant notre ère.* Monographie du CRA; 29. Paris.
- PÉTREQUIN, P., PÉTREQUIN, A.-M. and BAILLY, M. (2006). "Vues du Jura français, les premières tractions animales au Néolithique en Europe occidentale", In PÉTREQUIN, P., ARBOGAST, R.-M., PÉTREQUIN, A.-M., VAN WILLIGEN, S. and BAILLY, M. (Ed.), *Premiers chariots, premiers araires. La diffusion de la traction animale en Europe pendant les IVe et IIIe millénaire avant notre ère.* CNRS Editions. Paris: 361 - 398.
- POGGIANI KELLER, R. (2006). "TRESORE

- BALNEARIO (BG) Località Canton. Nuovi lotti di scavo nell'insediamento neolitico ed eneolitico e scoperta di una strada del III millennio a.C." *Notiziario della Soprintendenza per i Beni Archeologici della Lombardia*: 34 - 37.
- POGGIANI KELLER, R. (2009). "Cemmo: il sito storico della scoperta dell'arte rupestre e le novità delle ricerche in corso", In POGGIANI KELLER, R. (Ed.), *La Valle delle Incisioni: 1909-2009 cento anni di scoperte, 1979-2009 trenta anni con l'UNESCO in Valle Camonica*. Brescia: 211 - 221.
- POLLARD, J. (2006). "A community of beings: animals and people in the Neolithic of southern Britain", In SERJEANTSON, D. and FIELD, D. (Ed.), *Animals in the Neolithic of Britain and Europe. Neolithic Studies Group Seminar Papers 7*. Oxbow Books. Oxford: 135-148.
- RAGETH, J. (1992). "Castaneda-Pian del Remit, jungsteinzeitliche Siedlungsreste und Pflugspuren." In CLAVADETSCHER, U. (Ed.), *Archäologie in Graubünden, Funde und Baufunde*. Bündener Monatsblatt. Chur: 37 - 42.
- RAGETH, J. (1992). "Chur-Areal Ackermann, Jungsteinzeitliche Siedlungsreste und Spuren eines Pflugackerbaus", In CLAVADETSCHER, U. (Ed.), *Archäologie in Graubünden, Funde und Baufunde*. Bündener Monatsblatt. Chur: 31 - 36.
- ROBIN, G. (2010). *L'architecture des signes: l'art pariétal des tombeaux néolithiques autour de la mer d'Irlande*. Presses universitaires de Rennes. Rennes.
- ROBIN, G. (2012). "The figurative part of an abstract Neolithic iconography: hypotheses and directions of research in Irish and British passage tomb art". In COCHRANE, A. AND MEIRION JONES, A. (Ed.), *Visualising the Neolithic: Abstraction, Figuration, Performance, Representation*. Oxbow Books. Oxford: 140-160.
- ROUX, P. (2010). « Étude de l'assemblage osseux des sondages du Rocher du Château, à Bessans (Haute-Maurienne – Savoie – France) », Université de Provence.
- RUOFF, U. (2006). "Roues et chars: les plus anciennes découvertes de Suisse", In PÉTREQUIN, P., ARBOGAST, R.-M., PÉTREQUIN, A.-M., VAN WILLIGEN, S. and BAILLY, M. (Ed.), *Premiers chariots, premiers araires. La diffusion de la traction animale en Europe pendant les IVe et IIIe millénaire avant notre ère*. CNRS Editions. Paris: 133 - 140.
- SAUMADE, F. (2006). "Animal de loisir et animal de rente: l'énigme de la monte du taureau au Mexique". In HAMEAU, Ph. (ed.), *Actes du Colloque international "Animaux peints et gravés: de la forme au signe: le bestiaire dans les expressions graphiques post-paléolithiques en Méditerranée occidentale"*, 16-18 juillet 2005 (Carcès [...]). *Museum national d'Histoire naturelle*, Paris: 61-72.
- SHERATT, A. (2006). "La traction animale et la transformation de l'Europe néolithique", In PÉTREQUIN, P., ARBOGAST, R.-M., PÉTREQUIN, A.-M., VAN WILLIGEN, S. and BAILLY, M. (Ed.), *Premiers chariots, premiers araires. La diffusion de la traction animale en Europe pendant les IVe et IIIe millénaire avant notre ère*. CNRS Editions. Paris: 329 - 360.
- SHERRATT, A. (1997). *Economy and Society in Prehistoric Europe*. NJ: Princeton University Press. Princeton.
- SIGAUT, F. (1988). "Critique de la notion de domestication". *L'Homme*, 28(108): 59-71.
- SIGAUT, F. (1989). "L'innovation mécanique en agriculture. Essai d'une analyse historique comparative". *Les Cahiers de la Recherche Développement*, 21: 1-9.
- STÉPANOFF, C. and VIGNE, J.-D. (2018). "Introduction", In STÉPANOFF, C. and VIGNE, J.-D. (Ed.), *Hybrid Communities. Biosocial Approaches to Domestication and Other Trans-species Relationships*. Routledge. London and New York.
- THIRIAULT, E. (2004) 2004. "Le site néolithique de Bessans / Le Château (Savoie) et la question des armatures perçantes en roches polies dans les Alpes occidentales". In Dartevelle, H. (eds.), *Actes de la cinquième session des Rencontres méridionales de Préhistoire récente. Auvergne et Midi – Actualité de la recherche*, Clermont-Ferrand, 8-9 nov. 2002.

- Cressensac: 421-444.
- THIRIAULT, E. (2008). "Le site néolithique de Bessans / Le Château et ses peintures rupestres". In (eds.), 2° Congresso Internazionale « Ricerche paleontologiche nelle Alpi occidentali » and 3° Incontro « Arte rupestre alpina », Pinerolo, 17-19 oct. 2003.
- UEPRMANN, H.-P. (1995). "Domestication of the horse – when, where, and why?" In BODSON, L. (Ed.), *Le cheval et les autres équidés: aspects de l'histoire de leur insertion dans les activités humaines*. Université de Liège. Liège: 15–29.
- VAN WIJNGAARDEN-BAKKER, L. H. (1974). "The animal remains from the Beaker settlement at Newgrange, Co. Meath First Report ". *Proceedings of the Royal Irish Academy: Archaeology, Culture, History, Literature*, 74 (section C): 313-383.
- VAN WIJNGAARDEN-BAKKER, L. H. (1986). "The animal remains from the Beaker settlement at Newgrange, Final report". *Proceedings of the Royal Irish Academy: Archaeology, Culture, History, Literature*, 86 (section C): 17-111.
- WARMUTH, V., ERIKSSON, A., BOWER, M. A., CAÑON, J., COTHRAN, G., DISTL, O., GLOWATZKI-MULLIS, M.-L., HUNT, H., LUIS, C., DO MAR OOM, M., TUPAC YUPANQUI, I., ZĄBEK, T. and MANICA, A. (2011). "European Domestic Horses Originated in Two Holocene Refugia". *Plos one*, 6(3): 1-7.
- WEISMANTEL, M. J. and PEARSON, S. (2010). "Does "the animal" exist? Toward a theory of social life with animals", In BRANTZ, D. (Ed.), *Beastly Natures: Animals at the Intersection of Cultural and Environmental History*. University of Virginia Press. Charlottesville: 17-37.