Introduction

Palaeolithic art is characterized by the very often realistic depictions of animals. Among the represented animals especially the group of herbivores is dominant. There are only a few representations of the Musk ox in the European Palaeolithic art though they had a large distribution area in Europe during the last glacial period. Astonishingly, however, the Musk ox was depicted only rarely in the Ice Age art. In the present article the few figures of Musk ox of the European Upper Palaeolithic portable art are described.

1 - The contemporary Musk ox 
(Ovibos moschatus)

The Musk oxen (Ovibos moschatus) are artiodactyls and nowadays they live in some regions of the open cold arctic tundra. Therefore their fossil remains are good indicators of the climate. They had a large distribution area during the last glacial period. Astonishingly, however, the Musk ox was depicted only rarely in the Ice Age art. In the present article the few figures of Musk ox of the European Upper Palaeolithic portable art are described.

Key-words: Musk ox, Contemporary Musk ox, Fossil Musk ox, Indicator of the climate, Upper Palaeolithic, Portable art.


Mots-clés : Bœuf musqué, Bœuf musqué actuel, Bœuf musqué fossile, Indicator du climat, Paléolithique supérieur, art mobilier.

Abstract: The Musk oxen (Ovibos moschatus) are artiodactyls and nowadays they live in some regions of the open cold arctic tundra. Therefore their fossil remains are good indicators of the climate. They had a large distribution area during the last glacial period. Astonishingly, however, the Musk ox was depicted only rarely in the Ice Age art. In the present article the few figures of Musk ox of the European Upper Palaeolithic portable art are described.

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Afterwards there will be a short chapter about the fossil Musk oxen. The main part of this paper is dedicated to the representations of the Musk ox in the European Upper Palaeolithic art.

1 - The contemporary Musk ox 
(Ovibos moschatus)

The Musk oxen (Ovibos moschatus) are artiodactyls and they are belonging to the family of the Bovidae and to the subfamily of the Caprinae. The very thick coat and especially the horns are characteristic (fig. 1). They start very close of the skull downwards and finally forward and are directed upwards at the end (fig. 2). The horns of the males are more massive. They form a massive front plate
in the forehead (fig. 3). With a shoulder height of 110 cm to 150 cm the Musk oxen are relatively small. They have a big head and pointed ears which are covered partially by the thick coat. The legs are short and chunky. Based on their thick coat they tolerate dry and cold weather and they are sensitive to too much humidity (Koenigswald 2002; Pederson 1958; Reichholf 1982).

Their natural contemporary distribution area is the open cold arctic tundra of Northern Canada and Eastern Greenland where they live in small herds. In some parts of Norway and Siberia they were successfully reintroduced (Reichholf 1982) (fig. 4).

2 - Fossil Musk oxen

The exact origin of Musk oxen is still not clear. The oldest hitherto known stratigraphic bone findings of the species Ovibos in Europe are from the alluvial terraces in Süssenborn (Thuringia, Germany). They are dated probably into the MIS 16 and therefore they have an age between 640'000 and 620’000 BP. During the coldest phases of the last glacial (MIS 5d – MIS 2) the Musk oxen had their largest geographic distribution (fig. 5). The most western and southern findings are from the Iberian Peninsula. Moreover their bone remains are known of the rest of Western Europe, Central Europe, Southern Scandinavia, the Russian Plain to the Ural Mountains and from there to Northern East Siberia and to Northern America. Their distribution was limited in the North by the Scandinavian ice shield, by the arid zones in central Eurasia and the regions of South Western Europe with high precipitation. Their remains are often associated with the mammoth (Mammuthus primigenius) and the woolly rhinoceros (Coelodonta antiquitatis) which were – like the Musk ox - important representatives of the cold and open tundra landscape of the last glacial period. For this reason the Musk ox belongs to the Mammuthus-Coelodonta Faunal Complex during the last glacial (Kahlke 2014; Koenigswald 2002).

3 - The Musk ox in the Upper Palaeolithic portable art

In contrast to their large distribution area the remains of Musk ox are rather rare in Palaeolithic layers. This could indicate that they were rarely hunted. But also in the Ice Age art – in the cave and portable art – the Musk ox is seldom figured in contrast to the horse, aurochs and ibex.
The Musk ox (*Ovibos moschatus*) in the European Upper Palaeolithic portable art.

**Figure 4** - Range map of the contemporary three sub-species of the Musk ox (Pedersen 1958).

**Figure 5** - Range map of the maximum distribution of the Musk ox (dark green shaded area) in the last glacial period (MIS 5d – MIS 2) (Kahlke 2014).
There are already compilations of the representations of the Musk ox in the older literature (see Barrière 1993; Capitan et al. 1910; Koby 1969; Mayet and Pissot 1915), but there have also been new findings hitherto. In this contribution only the figures of Musk ox in the European portable art will be presented and discussed.

Representations of Musk ox have been discovered in France, in Switzerland and in Germany (fig. 6). There are two sculptures, three engravings on organic material, two engravings on stone and one ronde-bosse in stone. With one exception all hitherto known figures are attributed to the late Magdalenian. There are also a lot of important portable art objects among them. Some show good parallels to objects of South Western France and of the French Pyrenees (Bosinski 1982; Bandi and Delporte 1984; Braun 2006, 2009).

The here presented head of a Musk ox (fig. 7a, 7b) is surely the most well-known representation of this animal in portable art. The object was already discovered during the first excavations by Konrad Merk and published by himself (fig. 7a) (Merk 1875). The head was sculptured in reindeer antler in the technique of the contour découpé and its length is 6.2 cm. The eyes, ears and especially the characteristic horns are very clearly indicated on both sides of the head. The part behind the horns is decorated with short grooves which probably show the coat. Bosinski (1982) regards this object perhaps as a part of a sculptured spear thrower. Spear throwers with a sculptured horse head are known from the Kesslerloch (Bandi and Delporte 1984; Bosinski 1982; Braun 2006, 2009; Guyan 1944).

3.1 - Kesslerloch (Canton Schaffhausen, Switzerland)

The cave of Kesslerloch was discovered in 1873 by Konrad Merk and belongs to the most important sites of the Swiss Magdalenian. The findings — stone and bone artefacts — are very abundant. The objects are attributed to the middle and late Magdalenian. There are also a lot of important portable art objects among them. Some show good parallels to objects of South Western France and of the French Pyrenees (Bosinski 1982; Bandi and Delporte 1984; Braun 2006, 2009).

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The Musk ox (Ovibos moschatus) in the European Upper Palaeolithic portable art

Figure 7a - Kesslerloch. Drawing of the sculptured Musk ox head (Merk 1875).

Figure 7a - Kesslerloch. Dessin de la tête sculptée du Bœuf musqué (Merk 1875).

Figure 7b - Kesslerloch. The sculptured Musk ox head (Adam and Kurz 1980).

Figure 7b - Kesslerloch. La tête sculptée d’un Bœuf musqué (Adam et Kurz 1980).
Nowadays the object belongs to the collection of the Rosgarten Museum in Constance. Its inventory number is U7.

3.2 - Grotte du Courbet (Tarn, France)

As the Kesslerloch the cave of Courbet was discovered in the second half of the 19th century and is known for its Magdalenian portable art objects. The presented object (fig. 8a, b) belongs to the de Lastic collection of the British Museum in London and its inventory number is 64.12.26.545.

It is a spear thrower carved in reindeer antler and its length is 8.9 cm. The upper part of the hook is broken old. The upper part of the object shows a groove as it is known from the spear thrower with a hook and a groove ("Haken/Muldenspeerschleudern") (Sieveking 1987; Stodiek 1993).

As the precedent object of the Kesslerloch the head of the Musk ox of Courbet cave was sculptured in a light relief on both sides. The eyes, the characteristic horns and the muzzle are indicated, the ears are missing. In contrast to the object of the Kesslerloch the eyes, the horns and the muzzle were not figured symmetrically. For this reason it could be that there were two different heads figured on the same object.

3.3 - Grotte d’Enlène (Ariège, France)

The Enlène cave belongs together with the caves of Les Trois-Frères and Le Tuc d’Audoubert to the so called "Cavernes du Volp". Enlène was a cave of habitation without Palaeolithic cave art during the Magdalenian. The first excavations started already in the 19th century. These researches were continued between the First and Second World War by L. Bégouën. Further excavations were carried out between 1976 and 1988 under the direction of R. Bégouën and J. Clottes. With its settlement structures – i.e. fire places – and numerous portable art objects, among them numerous engraved stone plaquettes, Enlène cave belongs to the important Magdalenian sites in the French Pyrenees and dates between 14'000 and 13'500 BP. (Bégouën et al. 1996). A monograph of the Magdalenian findings and settlement structures is in preparation (personal communication R. Bégouën).

3.3.1 - Head of a Musk ox on a fragment of calcareous sinter

The present object (fig. 9a, b) is a yellow fragment of an old calcareous sinter which was found in the "Salle du Fond" in the excavations under the direction of R. Bégouën and J. Clottes. Its inventory number is 290. Only one side is engraved whose surface is concave and plain. (Bégouën and Clottes 2007).

It is a head of a Musk ox which is orientated to the left and the engraving fits very well in the available space. The eye, the right horn and the muzzle can clearly be recognized. The eye is represented in a double oval alignment. The characteristic horn shows at its basis six short engraved lines. The nose is indicated with fine lines and the neck with a clear and single line. A row of short lines continues parallel to the line of the neck. The other lines in the area of the head could indicate the thick coat.

According to R. Gessain (in Bégouën and Clottes 2007) this head could be the profile of a male Musk ox.

3.3.2 - Head of a Musk ox on reindeer antler

This fragment of reindeer antler – probably a fragment of a broken bâton percé – shows an animal head on its both sides (fig. 10a, b).

The first head was originally interpreted as a head of a bison. However, recent studies interpret it as a head of a Musk ox (Bégouën and Clottes 2007). The reason for this is the horn which starts downwards and is orientated upwards finally as it is typical of the Musk oxen. Further the eye and the muzzle are indicated.

The other side probably shows a head of a bison with the indication of the eye and the muzzle.

3.4 - Abri de La Colombière (Ain, France)

Situated on the right border of the Ain river and in the southern part of the Jura mountains the rock shelter of La Colombière was already discovered in 1867 by A. Arcelin. L. Mayet and J. Pissot excavated there between 1913 and 1915, later H. Movius in 1948 and finally R. Desbrosse between 1975 and 1981.

The findings, especially the rich inventory of stone tools – there are only a few bone tools – were first attributed to the Gravettian by H. Movius. Nowadays the findings of La Colombière are attributed to the Magdalenian. (Mayet and Pissot 1915; Movius and Judson 1956; Paillet and Man-Estier 2010)

The site is known of its 15 engraved pebbles which were found during the excavations by L. Mayet and J. Pissot and they especially show different kinds of animals (Mayet and Pissot 1915; Paillet and Man-Estier 2010; Sieveking 1986-1987).

The present object (fig. 11a, b) is the pebble number 8 in the numbering of Mayet and Pissot (1915). It is a calcareous pebble of two fitting pieces – however the pebble is not complete – and its length is 14,4 cm, the width 13 cm and the thickness 4,1 cm (Paillet and Man-Estier 2010). The animal orientated to the left was interpreted by Mayet and Pissot (1915) as a moufflon. However it was H. Breuil who saw in this animal a Musk ox because of the shape of the horn (Mayet and Pissot 1915). On the other hand A. Leroi-Gourhan (1965) interpreted this animal as a bison. Due to the shape of the horn and the rest of the body with its thick coat it is rather a Musk ox as it is interpreted in the recent studies, too (Paillet and Man-Estier 2010). The
The Musk ox (Ovibos moschatus) in the European Upper Palaeolithic portable art

Figure 8a - Courbet. Spear thrower with a sculptured head of a Musk ox on both sides (Stodiek 1993).

Figure 8a - Courbet. Propulseur avec la gravure en léger relief sur les deux faces d'une tête de Bœuf musqué (Stodiek 1993).

Figure 8b - Courbet. Drawing of the spear thrower with a sculptured head of a Musk ox on both sides (Drawing A.-C. Welté).

Figure 8b - Courbet. Dessin du propulseur avec la gravure en léger relief sur les deux faces d'un Bœuf musqué (Dessin A.-C. Welté).
Figure 9a - Enlène. Fragment of calcareous sinter with the engraving of a Musk ox head (Photo R. Bégouën).

Figure 9b - Enlène. Drawing of the calcareous sinter with the engraving of a Musk ox head (Bégouën and Clottes 2007).

Figure 9a - Enlène. Fragment de plancher stalagmitique avec la gravure d’une tête de Bœuf musqué (Photo R. Bégouën).

Figure 9b - Dessin du fragment de plancher stalagmitique avec la gravure d’une tête de Bœuf musqué (Bégouën et Clottes 2007).
The Musk ox (Ovibos moschatus) in the European Upper Palaeolithic portable art

Figure 10a - Enlène. Fragment of reindeer antler with a head of a Musk ox (Photo R. Bégouën).

Figure 10a - Enlène. Fragment d’un bois de renne avec une tête de Bœuf musqué (Photo R. Bégouën).

Figure 10b - Enlène. Drawing of the fragment of reindeer antler probably showing a bison head (above) and a Musk ox head (below) (Bégouën and Clottes 2007).

Figure 10b - Enlène. Dessin du fragment du bois de renne montrant une probable tête de bison (en haut) et la tête d’un Bœuf musqué (en bas) (Bégouën et Clottes 2007).
eye and the ear are also indicated. As the legs are not covered completely by the thick coat it can be supposed that the animal is drawn in summer coat. Finally there are two finely engraved arrow-like signs on this side of the pebble.

The other side of the pebble shows two engraved woolly rhinoceroses (Paillet and Man-Estier 2010).

3.5 - Grotte Espalungue-Arudy (Pyrénées-Atlantiques, France)

Discovered in the 19th century the cave of Espalungue-Arudy is a reference site for the Magdalenian in the French Pyrenees and important portable art objects were found there (Schwab 2008). Some portable art objects as the
presented object were pictured in the book “L’art pendant l’Age du Renne” by E. Piette (1907) (fig. 12a).

The object is a fragmented bâton percé made in reindeer antler and shows on its both sides an animal head which was sculptured in a light relief. Its inventory number is MAN 47 011 in the Musée d’Archéologie Nationale in Saint-Germain-en-Laye.

It is attributed to the middle Magdalenian and its length is 22 cm, the width 4,2 cm and the thickness 2,5 cm. Most of the authors see in these two animal heads two ibexes. In my opinion the first head is without doubt an ibex with its horn orientated backwards. The other head, however, which is important for this article, is in my opinion rather a head of a Musk ox (fig. 12b). The horn starts close to the head downwards and is finally orientated forward as it is typical for the Musk ox. Furthermore the shape of the head is rather one of a Musk ox than of an ibex (personal communication H. Fahrni). The horn, the eye and the tongue are clearly represented. According to Capitan et al. (1910) the shape of the horn is figured in this way due to the limited space on the antler. In analogy of the explicit head of Kesslerloch (see 3.1.) E. Cartailhac originally (in Chollot 1964) saw in this figure a head of a Musk ox, too. According to Chollot (1964) it is rather a head of an ibex because the horn shows a channel which corresponds to the folding of the ibex’ horn.

3.6 - Kniegrotte (Thuringia, Germany)

The Kniegrotte is one of the most important Magdalenian cave sites in former Eastern Germany. The Kniegrotte was excavated completely between 1930 and 1938 by Martin Richter and numerous stone and bone artefacts were found. The findings were first analyzed by Rudolf Feustel (1974). Christiane Höck studied the material and the settlement structures again for her PhD thesis and published them (Höck 2000). There were also portable art objects found. Among them some are unique and do not show parallels to other known portable art objects of the European Magdalenian (Bosinski 1982 ; Braun 2012) as the presented object (fig. 13a).

The object is a piece of reindeer antler which is perforated longitudinally and its length is 23,8 cm, the width is 4,5 cm and the thickness is 2,9 cm. Both ends were rounded. The significance and the intended use of this object are unknown. It is decorated with different engravings (fig. 13b). There are two animals, one of them is an incomplete woolly rhinoceros with its two characteristic horns, and diverse geometric signs. The second animal (fig. 13c) is probably a Musk ox orientated to the right. The thick and shaggy coat which shows the outline, the right eye and the right nostril can be recognized well. The question is if the engraved appendix above the eye is the ear or a short horn which is still in growth. The hind legs are schematically depicted. Furthermore there are five grooves and two engraved lines on the body. Such signs are often interpreted in Palaeolithic art as arrows respectively as wounds. Very interesting is that the posterior of the animal was scraped later. In my opinion this representation of Kniegrotte could be a one
Figure 13a - Kniegrotte. Perforated reindeer antler with different engravings (Höck 2000).

Figure 13a - Kniegrotte. Bois de renne perforé avec des différentes gravures (Höck 2000).

Figure 13b - Kniegrotte. Unwinded engravings of the perforated reindeer antler (Höck 2000).

Figure 13b - Kniegrotte. Déroulé des gravures relevées sur le bois de renne perforé (Höck 2000).

Figure 13c - Kniegrotte. Detail of the engraving of the Musk ox (Höck 2000).

Figure 13c - Kniegrotte. Détail de la gravure du Bœuf musqué (Höck 2000).
year old Musk ox calf (fig. 14). According to Pedersen (1958) 11 to 12 months old Musk oxen have already horns with a length of 7 to 8 cm.

3.7 - Abri Laugerie-Haute (Dordogne, France)
Situated on the territory of Les Eyzies-de-Tayac and on the right border of the Vézère River, the rock shelter of Laugerie-Haute belongs to the important Upper Palaeolithic sites in the Périgord. The first investigations were already made by Edouard Lartet and Henry Christy in 1863 which were continued by further researchers. Very important is the complete sequence of the Solutrean. Till nowadays there is the only monograph about this important site by Denis and Elie Peyrony (1938). But there are recent studies on the chronology and environment of the Solutrean and Magdalenian occupation of this site (cf. for example Delpech 2012).

The presented object (fig. 15a-c) was found by Denis Peyrony in 1922 in the excavated material left by O. Hauser (Peyrony 1925). D. and E. Peyrony attributed it to the older Magdalenian (Peyrony 1925; Peyrony and Peyrony 1938). Nowadays it is attributed to the Solutrean (Grenon 2005). In this case it is until now the only known Solutrean portable depiction of a Musk ox.

The fully plastic (ronde bosse) of the head of the animal was sculptured in limestone and its length is 17 cm, its width 15 cm and a diameter of 9.5 cm (Grenon 2005). The characteristic horns, especially the left one, the massive front plate, the eyes and the muzzle can be recognized. According to the shape of the horns and the massive front plate this head probably represents a male animal. The question is whether it was originally a complete sculpture of a Musk ox or only the head of the animal.

Figure 15a - Laugerie-Haute. Sculptured head of a Musk ox in limestone. (Photo Musée d’Archéologie Nationale à Saint-Germain-en-Laye, Loïc Hamon).

Figure 15b - Laugerie-Haute. Tête sculptée d’un Bœuf musqué en calcaire. (Graziosi 1956).

Figure 15c - Laugerie-Haute. Tête sculptée d’un Bœuf musqué en calcaire. (Müller-Karpe 1966).
Conclusion

Despite their original vast geographical distribution during the last glacial in Eurasia the representations of Musk oxen are rare in the Palaeolithic portable art. The same is true for cave art. If the reason for this is that they were rarely hunted is not sure.

Nevertheless their fossil bone remains and the artistic depictions of Musk oxen can give a good indication of the former climate. It was a dry and cold climate. According to Koenigswald (2002) most of the dated bone remains of Musk oxen in Europe are from the time after the Last Glacial Maximum. This is also well documented in the Ice Age Art, because with the exception of the sculptured head from Laugerie-Haute all representations in the Palaeolithic portable art are dated in the Magdalenian. Two older depictions, however in cave art – probably from the Aurignacian – are known from Chauvet cave (Dép. Ardèche, France) (Le Guillou 2001) and they belong to the oldest dated representations of Musk oxen in the Ice Age Art. A sculptured Musk ox is known from the Roc de Sers which dates in the Solutrean (Martin 1928 ; Tymula 2002).

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Bibliography


