Man and environment in the Palaeolithic
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Mortuary practices in the Palaeolithic - reflections of human-environment relations

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Abstract
Mortuary practices in the Palaeolithic have been of special interest to archaeologists reconstructing ritual and burial of Palaeolithic man. Very often expressed and widely accepted is the opinion that Palaeolithic humans buried the entire intact corpses of most of their dead. The results of an anthropological approach to Palaeolithic mortuary practices do not confirm such a conclusion. This approach is based on two main aspects: 1. patterns of skeletal representation for 826 individuals from the European Palaeolithic and 2. human bone modifications of fossil human remains and their interpretation.
The results of this anthropological approach, which will be discussed in detail in the present paper, and the archaeological record of the Palaeolithic human remains clearly demonstrate that mortuary practices in the Palaeolithic were usually celebrated with disarticulated human bones resulting from activities involving human corpses and bones of "favoured" dead. After completed and finished mortuary ceremonies for the deceased the human remains (mainly broken bones) were either thrown away, intentionally deposited or buried.
Only 6.1 % of the Middle Palaeolithic and 15.9 % of the Upper Palaeolithic individuals are represented by complete or nearly complete skeletons resulting from burials/depositions of the entire intact corpse of "highly favoured" dead. Burials of entire intact corpses were first celebrated about 100,000 to 80,000 years ago by anatomically modern humans in Kafzeh and Skhul, but later on in the Middle Palaeolithic of the Near East and Europe exclusively done by populations of archaic *Homo sapiens*.
Mortuary practices in the Palaeolithic were necessarily closely connected with reflections on life and death and began with late *Homo erectus* about 500,000 - 300,000 years ago independently in Europe, Africa and Asia. Reflections on life and death also initiated reflections on the world in which humans were living and on the afterworld. The great variety and complexity of mortuary practices and mortuary rites in the Palaeolithic reflect the many unsolved problems and contradictions between life and death, between humans and their natural as well as their socio-cultural environment, which faced the humans daily.

Key words: Palaeolithic, mortuary practices, skeletal representation, bone modifications, human-environment relations

Introduction

Mortuary practices in the Palaeolithic have recently again been of special interest to archaeologists reconstructing the ritual and burial of Palaeolithic humans (e.g. Harrold 1980, May 1986; Mussi 1986; Gargett 1989; Smirnov 1989, 1991; Holtkamp 1990; Binant 1991; Belfer-Cohen & Hovers 1992; Defleur 1993). But archaeologists have only focused on the archaeological background and have not taken into consideration the anthropological aspects of the fossil human remains. Very often expressed and widely accepted is therefore the opinion that Palaeolithic humans buried the entire intact corpses of most of their dead. Burial in the Palaeolithic is generally considered to be burial of the entire intact corpse of the deceased. The fact that usually only a few human bones are found at Palaeolithic sites is interpreted as being the result of natural processes and/or postdepositional disturbance of the initially complete skeleton at the place of burial by animal or human activity (e.g. Trinkaus 1985).

An anthropological approach to Palaeolithic burials based on the following aspects is contributing to a more profound, detailed and more

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specified comprehension of mortuary practices in the Palaeolithic. These aspects include: 1. patterns of skeletal representation, 2. bone modifications of fossil human remains and their interpretation, 3. reconstruction of close biological relationships in Palaeolithic burials. The results of these anthropological investigations and the archaeological background of Palaeolithic human remains give evidence that mortuary practices in the Palaeolithic reflect human-environment relations.

Patterns of skeletal representation

We have analysed the skeletal representation for 826 individuals from 320 Palaeolithic sites in Europe: 43 individuals from the Lower Palaeolithic, 258 from the Middle and 525 individuals from the Upper Palaeolithic (Ullrich 1991a, 1992, in prep.). According to the patterns of skeletal representation the European fossil hominid record can be divided into: 1. disarticulated bones (skulls, skull bones, postcranial bones/broken bones, isolated teeth) and 2. complete or nearly complete skeletons.

Disarticulated bones

Concerning the mortuary practices we have taken into consideration that all known Lower Palaeolithic individuals (100 %), 93.9 % of the Middle Palaeolithic and 84.1 % of the Upper Palaeolithic individuals are represented by disarticulated bones only. We have evaluated the number of skeletal parts per individual and found that within this group 94.3 % of the *Homo erectus*, 76.0 % of the archaic *Homo sapiens* and 73.0 % of the anatomically modern *Homo sapiens* are represented by only 1 - 2 (mainly one) disarticulated bones. The individual representation of the skeletal parts is very low: parts of the cranium are generally represented in less than 20 % of the individuals, parts of the postcranium in less than 5 % and hardly more than 10 % of the individuals (Fig. 1). It is necessary to mention that there are no differences in the patterns of skeletal part representation either between adults (more robust bones) and infants (more fragile bones) or between males and females.

Considering the patterns of skeletal part representation for disarticulated bones at Palaeolithic sites (Fig. 3) we have to recognize that Palaeolithic individuals are represented by:

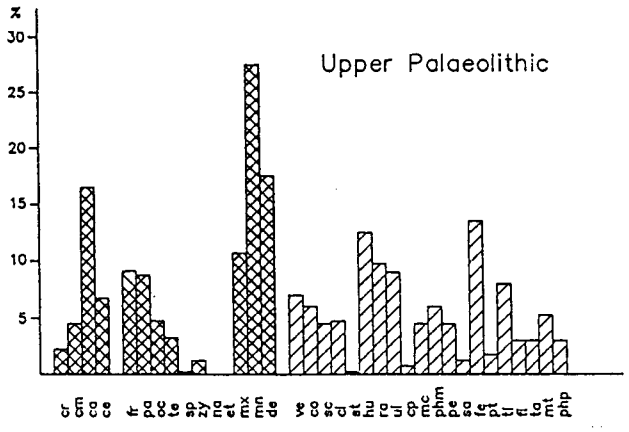
- incomplete/complete skulls,
- skull bones,
- mandibles,
- isolated teeth,
- skull and postcranial bones or
- postcranial bones only.

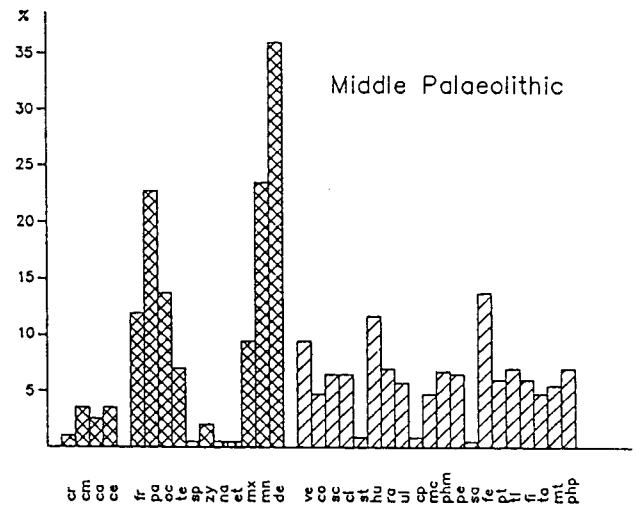
We have clear evidence that the patterns of skeletal representation for disarticulated human bones at Palaeolithic sites cannot be explained either by natural processes such as weathering and chemical processes or postdepositional disturbance of initially complete skeletons at the site where bones were found. They have to be interpreted as the result of intentional human activity in connection with mortuary practices. It is most reasonable to conclude that entire intact corpses of the deceased were never left nor buried at Palaeolithic sites where disarticulated human bones have been found.

Skeletons

Complete/nearly complete skeletons are relatively seldom found at European Palaeolithic sites. Only 15.9 % of the Upper Palaeolithic and 6.1 % of the Middle Palaeolithic individuals are represented by skeletons. The individual representation of the skeletal parts is 70 - 80 % for the postcranial bones and 80 - 90 % for the skull (Fig. 2), that means very high as compared with those for disarticulated bones (Fig. 1). Missing skeletal parts are usually the result of weathering, animal activities or other processes of disturbance and destruction.

Complete or nearly complete skeletons of archaic and anatomically modern *Homo sapiens* have their bones in anatomical positions. Therefore it can be concluded that the entire intact corpses of these individuals have been deposited or buried at Palaeolithic sites, where the skeletons have been found. But Middle and Upper Palaeolithic man deposited or buried the entire intact corpse only of a very few, during their life obviously "highly favoured", dead. Burial of the entire intact corpse of the dead was not a common mortuary rite during the Middle and Upper Palaeolithic in Europe. In the Near East in contrast to Europe more Middle Palaeolithic (10.6 %) and Upper Palaeolithic complete/nearly complete skeletons (40.9 %) are preserved. From the Lower Palaeolithic of Europe, Africa and Asia neither incomplete nor complete skeletons are known resulting from deposition or burial of intact corpses.





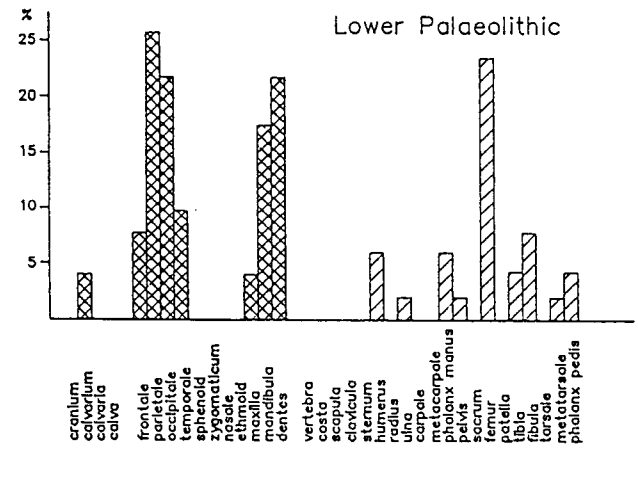
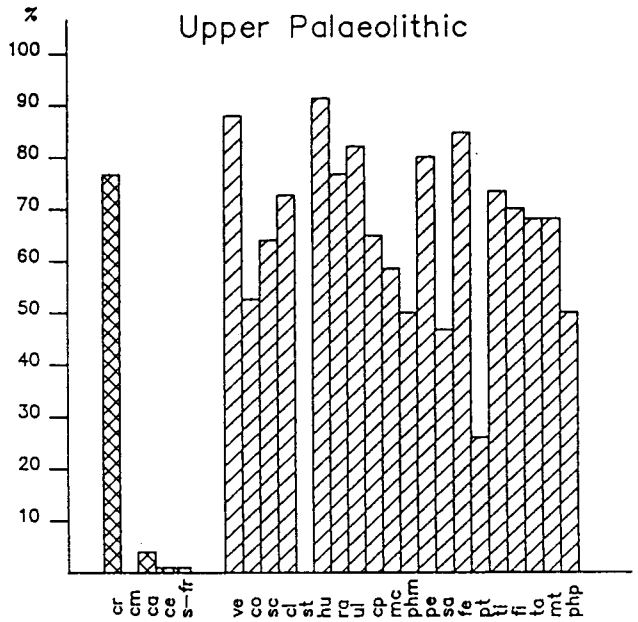


Fig. 1. Individual representation of the skeletal parts of the disarticulated human bones from the European Palaeolithic.



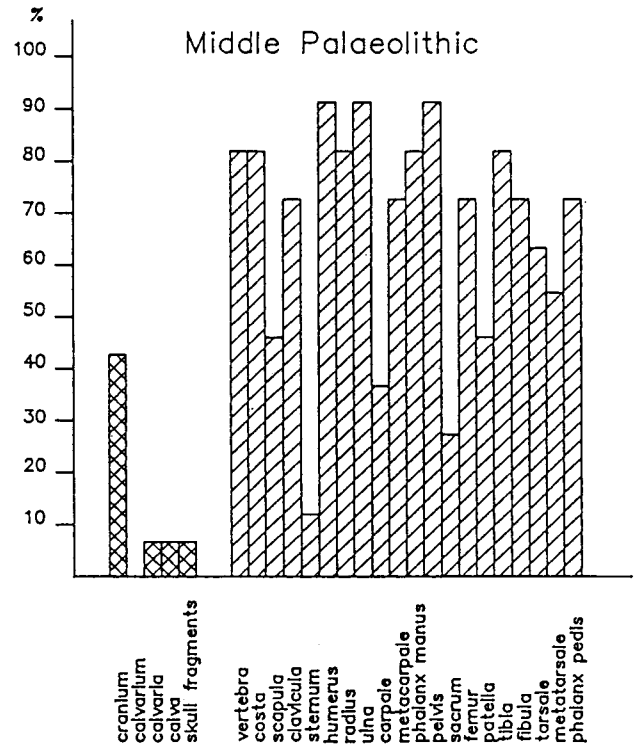


Fig. 2. Individual representation of the skeletal parts of the complete/nearly complete skeletons from the European Palaeolithic.

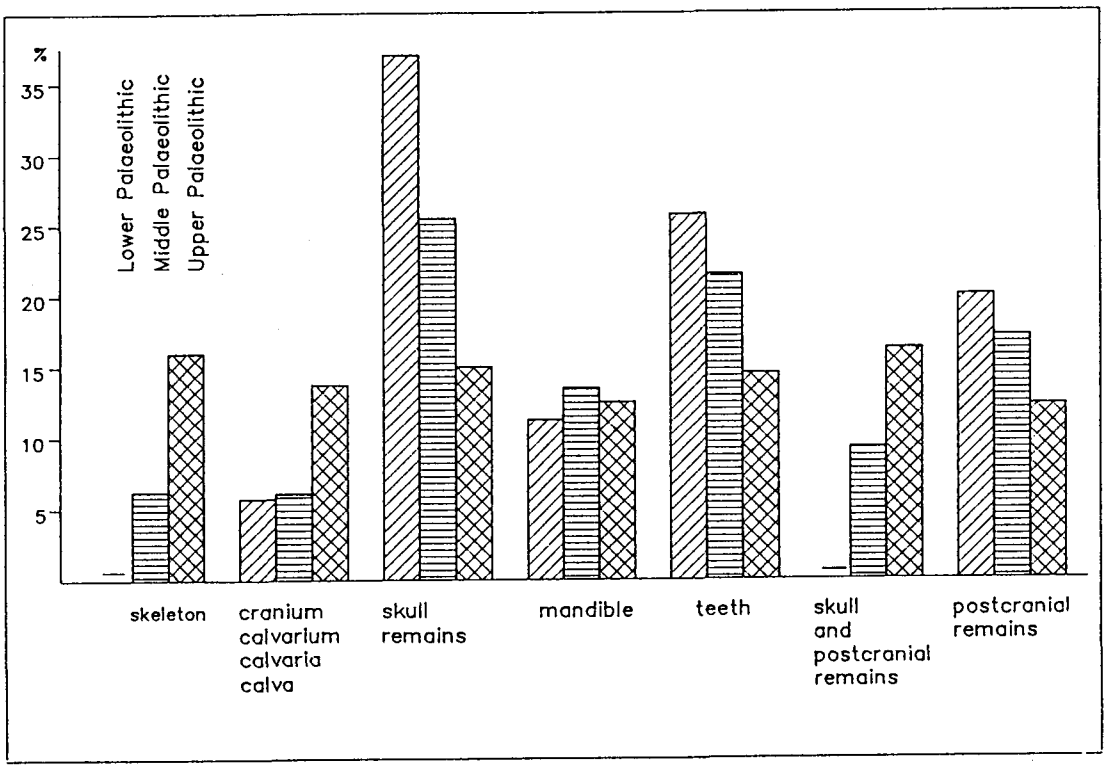


Fig. 3. Patterns of skeletal part representation for disarticulated bones at Palaeolithic sites in Europe.

Bone modifications

Detailed investigations on fossil human remains of more than 200 individuals from about 80 Palaeolithic sites in Europe have clearly shown that bone modifications sustained deliberately after death by man with tools are very often to be found on disarticulated bones: cutmarks, disarticulation patterns, bone breakage patterns (more than 90 % of the disarticulated bones are broken!), splitting patterns, chopping marks, percussion marks, scraping marks etc. (Cook 1991; Czarnetzki 1977; Gieseler 1977; Grimm & Ullrich 1965; Le Mort 1981, 1986, 1988, 1989; Le Mort & Gambier 1991; Malez & Ullrich 1982; Russell 1987; Ullrich 1978, 1979a,b,c, 1982a,b, 1984, 1986, 1989b, 1991b; White 1986a,b, 1987). These bone modifications (Fig. 4) were caused perimortem, that means on the fresh, fat and elastic bone, not postmortem on the dry and brittle bone. Perimortem and postmortem bone modifications can be distinguished by several criteria.

Human-modified Palaeolithic human bones result from activities involving human corpses of the deceased with indications of defleshing, dismemberment of the corpse and from manipulations of human bones, such as breakage, scraping off and cleaning. The intention of interferences with human corpses in Palaeolithic times was apparently primarily to obtain bones and broken bones of the deceased for celebrating mortuary rites (Fig. 6).

Manipulations on human corpses were carried out obviously on individuals who died a natural dead. But we also have evidence that a few people had been intentionally killed before their bodies were defleshed and dismembered and their disarticulated bones were deposited or buried or thrown away. Evidence of intentional killing have been recognized on the Upper Palaeolithic male from Cioclovina (Romania), the child from Balla (Hungary) and the male Mladeč 5 (Moravia) as well as on the Middle Palaeolithic child Engis 2.

Mortuary practices with disarticulated human bones

Mortuary practices in the Palaeolithic were usually celebrated with disarticulated human bones resulting from interferences with corpses of "favoured" dead. We do not know what Palaeolithic humans normally did with their dead and where their corpses were left. It is very likely that most individuals died away from their temporarily or seasonally occupied home bases and that their corpses were left at the place of the death. Bones of these individuals have never been found at Palaeolithic sites.

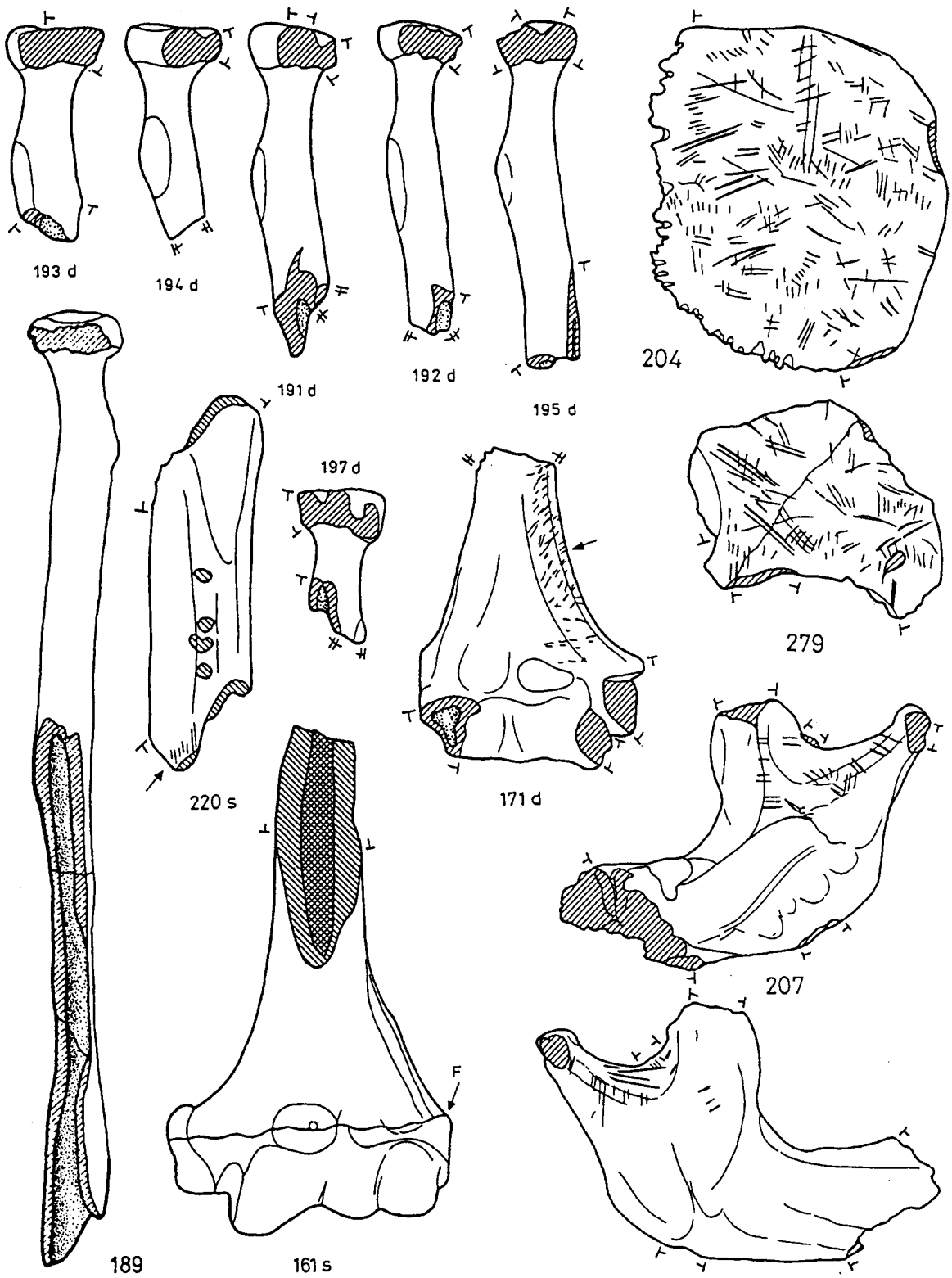


Fig. 4. Bone modifications on the Neandertal remains from Krapina and Vindija (Croatia).
Disarticulation patterns on the caput radii (189, 191-195, 197), distal humerus (171) and ramus mandibulae (207); bone breakage patterns on the distal radius (191-195, 197); spiral fracture (161); splitting pattern (189); blow marks (220); cutmarks and scraping marks (171, 207, 204, 279).

We only have disarticulated human bones from those Palaeolithic individuals whose corpses were the object of special mortuary practices. Alterations to human corpses of these "favoured" dead were carried out obviously at the place of death and resulted in bones and broken bones of the deceased. Bones and broken bones of the dead were of great importance to Palaeolithic man for celebrating further mortuary ceremonies within the whole group at the home base. Skulls and skull bones were of special interest to Palaeolithic man: they are known from about 80 % of the Palaeolithic individuals, postcranial bones from only 20 - 45 % of the individuals (Fig. 5). There is no evidence that interference with human corpses was carried out in caves and rock shelters or at open air sites occupied by Palaeolithic man. But we have clear evidence that most of the disarticulated human bones have been carefully selected and brought intentionally by Palaeolithic man to the sites occupied by him, where further mortuary practices were celebrated. After having completed and finished the celebration of mortuary ceremonies for the deceased, the disarticulated human bones were either simply thrown away and became mixed with animal bones as food remains or were deposited or buried at special places within the occupied home base (Table 1). We also have evidence that some caves and rock shelters (e.g. Cioclovina) were obviously used only for mortuary ceremonies and other rites and not as occupation sites.

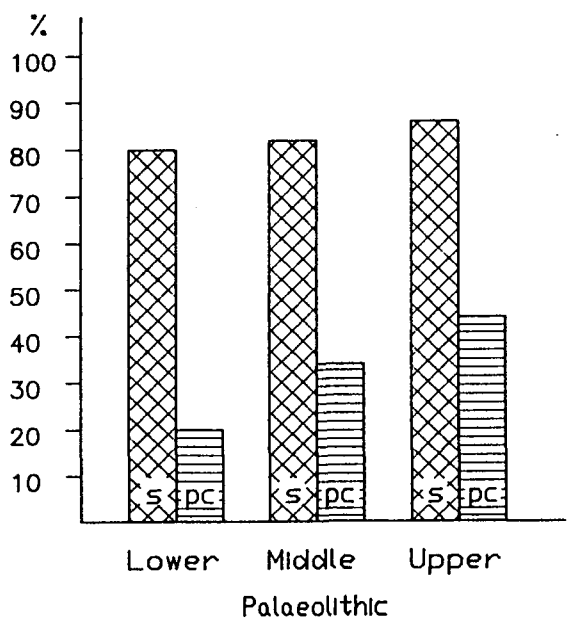


Fig. 5. Individual representation of disarticulated skull (s) and postcranial remains (pc) in the European Palaeolithic record.

Throwing away

Throwing away disarticulated human bones after having completed mortuary rites, and their subsequent mixing with animal bones at occupation sites was first practised by *Homo erectus* about 350,000 years ago and continued through the Middle and Upper Palaeolithic in Europe (Table 1). It was the most frequent and widespread mortuary ceremony in the European Palaeolithic, celebrated usually without recognizable ritual motivation. Broken bones were the main object of this ceremony.

The neandertal site Krapina (Croatia) is a very instructive example. Intentionally selected broken human bones (cranial and postcranial ones) of more than 30 individuals were brought into the rock shelter, thrown away after finishing mortuary ceremonies and became mixed with animal bones. The manipulations on human corpses and the bone fragmentation were done elsewhere outside the rock shelter. But there is evidence that the splitting of some long bones was carried out inside the rock shelter, obviously in order to extract marrow. In Krapina mortuary ceremonies were mixed up with some cannibalistic rites (Ullrich 1989b).

Many sites are known from the Lower, Middle and Upper Palaeolithic, where either human skull bones, mandibles, teeth or postcranial remains have been the object of mortuary practice.

Throwing away disarticulated human bones was practised also with recognizable ritual motivation. At the Lower Palaeolithic open occupation site Bilzingsleben (Germany) more than 20 skull fragments and 7 teeth were scattered not only on the living floor but had also been thrown intentionally into the nearby former small stream (Ullrich 1994). At the Upper Palaeolithic site Mladec in Moravia skulls and postcranial bones had been thrown through a chimney into the cave.

Intentional deposition

Intentional deposition of disarticulated human bones at special places within the occupation site has been recorded from the Middle and Upper Palaeolithic in Europe (Table 1). Skulls, skull fragments, mandibles, skull and postcranial remains or postcranial bones only, perimortem or postmortem human-modified, had been deposited along the walls of caves, in wall niches, under

stones, on or nearby fire-places or at other exposed places of the occupation site. Isolated exposed locations of human remains have been very often explained as randomly caused, but the number of sites is so high and the evidence is so strong that in most cases the chance had to be eliminated. In contrast to throwing away disarticulated human bones the intentional deposition of disarticulated human bones includes not only skull fragments but also more complete skulls (calvarium, calvaria, calva), that means that in many cases the cranium, respectively the neurocranium, had not been fractured completely either in the perimortem or post-mortem state.

Intentional deposition of disarticulated human bones was practised by Palaeolithic man at many occupation sites. The Middle Palaeolithic sites Ochoz and Šipka in Bohemia, Gánovce in Slovakia and the Upper Palaeolithic Cioclovina in Romania, Döbritz in Germany and Afontova gora in Russia can be quoted as examples. If the occipital fragment from Bilzingsleben discovered in the former small stream and covered by the antlers of a deer might be interpreted as intentional deposition of disarticulated human bones then this mortuary practice probably also originated at the end of the Lower Palaeolithic.

Burial of disarticulated bones

Burial in the Palaeolithic indicates in our opinion a stronger relation between life and death and is associated with more definite ritual motivation, often documented in grave-goods, grave-pits, stone markings of a grave, ochre and so on.

Burial of disarticulated human cranial and postcranial bones

Many Middle and Upper Palaeolithic human remains have been interpreted by archaeologists as burial of the entire intact corpse, but our investigations have shown that very often only disarticulated human bones have been buried (Table 1). Modifications on those bones caused by human activity clearly demonstrate that human manipulations on human corpses had been carried out before burial of the very often carefully cleaned bones. For example, at the site Brno 2 in Moravia only the skull (with many cutmarks, scraping marks and ritual motivated markings) and parts of the femora, humerus, clavicula and costae of the Upper Palaeolithic male were found together with many grave-goods, coloured with red ochre and covered with a shoulder-blade of a mammoth. It

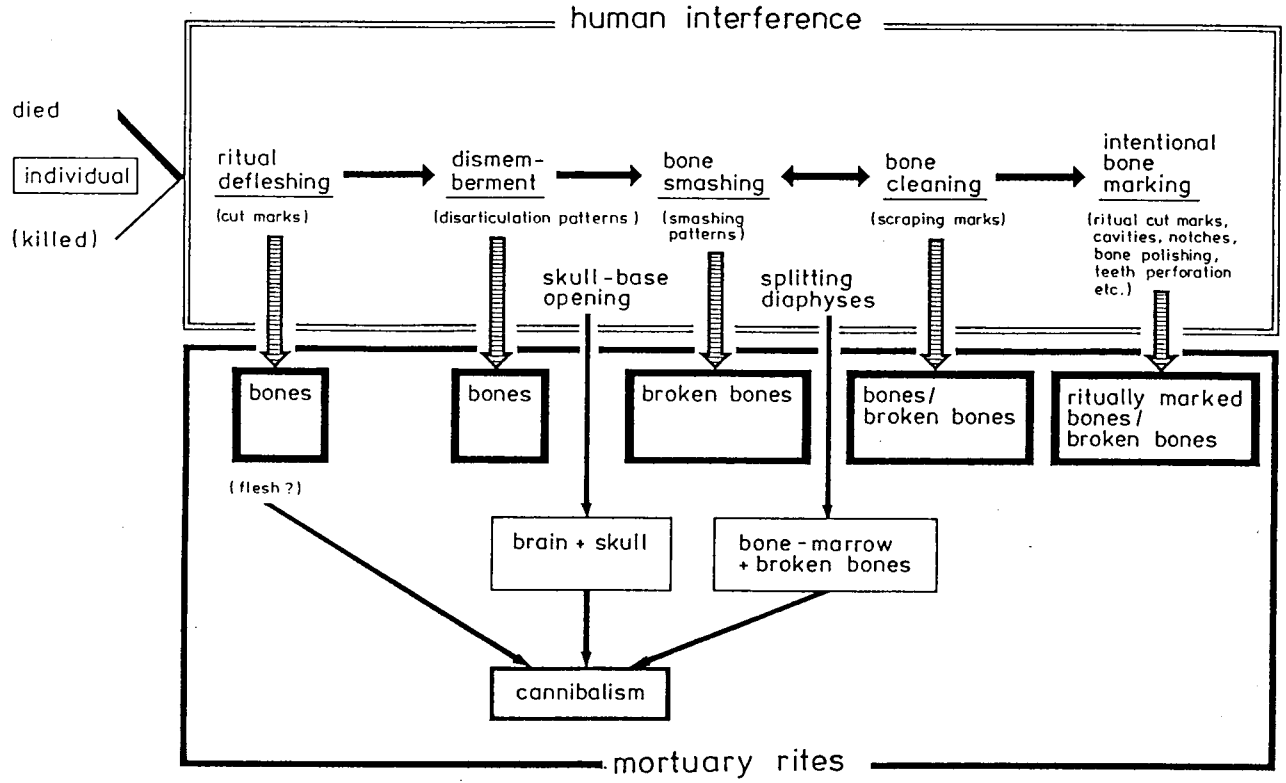


Fig. 6. Human interferences on human corpses, bone modifications and mortuary rites in the Palaeolithic.

can be definitely excluded that at Brno 2 the entire intact corpse of a male had been buried (Ullrich 1982a,b). A similar burial of disarticulated cleaned bones, but without grave-goods, has been discovered at Pavlov in Moravia. Pavlov is known in the archaeological papers along with Brno 2 as an entire corpse burial.

Burial of disarticulated human cranial and postcranial bones is also known from the Middle Palaeolithic sites Starosel'e in the Ukraine and Teshik-Tash in Uzbekistan, only to mention two examples.

Burial of the skull

Burial of the unfractured skull (cranium, calvarium) is a special form of the burial of disarticulated human bones based on activities involving human corpses. This mortuary practice obviously originated at the end of the Lower Palaeolithic (Petralona in Greece; Ullrich 1984) and occured, although not frequently, through the Middle Palaeolithic (Pech de l'Aze in France, Circeo in Italy ?) up to the end of the Upper Palaeolithic (Mas d'Azil and Pataud in France; Vetemica in

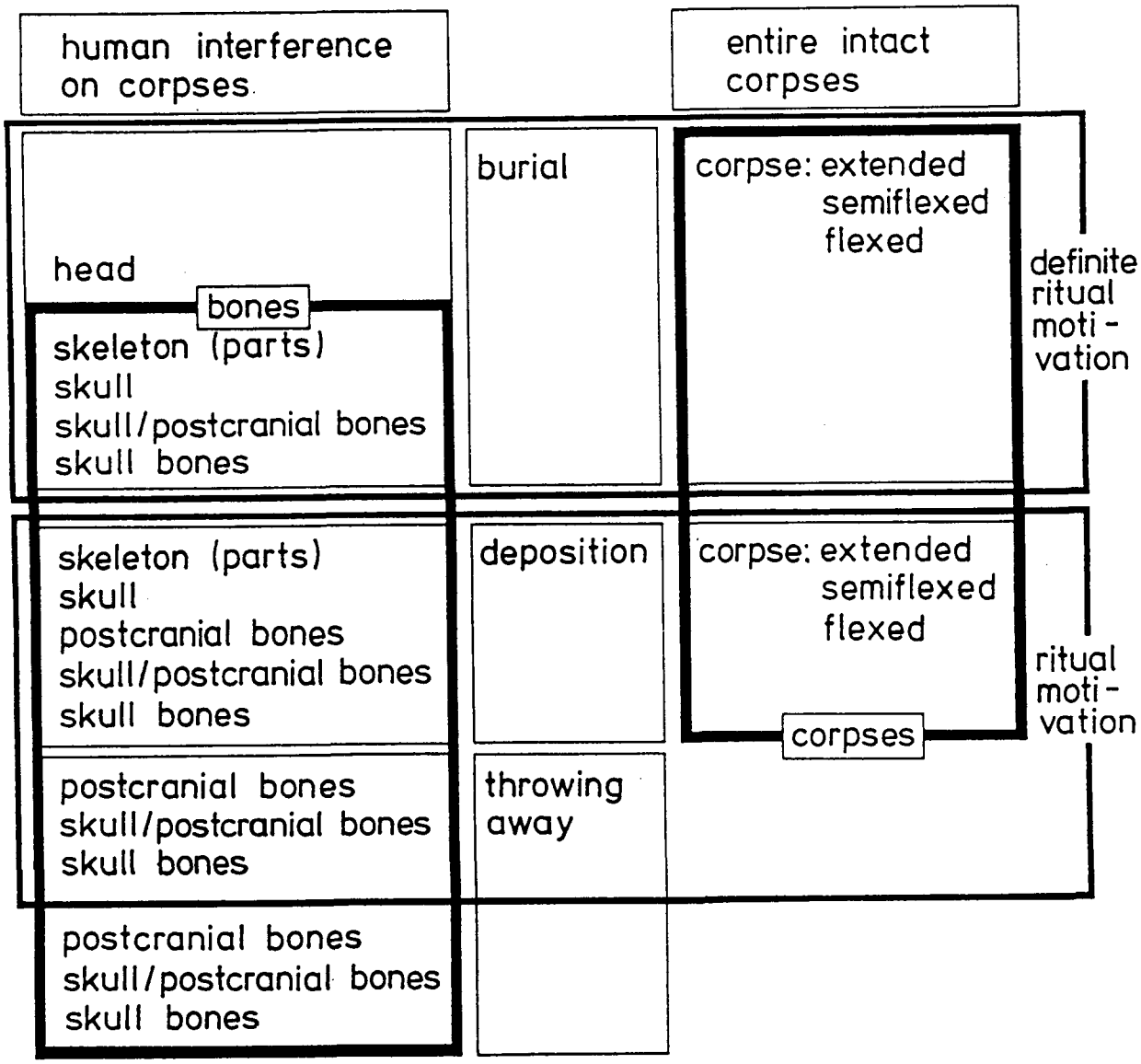


Fig. 7. Various ways of mortuary practices celebrated on human corpses and bones in the European Palaeolithic.

Croatia; Sungir' in Russia) (Ullrich 1991c).

Burial of the head

Burial of the head is known only from the end of the Upper Palaeolithic and Mesolithic, but was very rare. Examples of this mortuary practice have been found at Ofnet and Hohlenstein in Germany.

Mortuary practices with entire intact human corpses

In considering mortuary practices with human corpses we have distinguished between deposition and burial of the entire corpse in Palaeolithic times and would like to use the following criteria (Ullrich 1991b, in press a):

- *deposition:* complete/almost complete (or incomplete) skeleton in an extended, semiflexed or flexed position with more or less strong orientation;
- *burial*: complete/almost complete (or incomplete) skeleton with an extended, semiflexed or flexed position with more or less strong orientation; grave-pits and/or other elements of grave-structure (deposited earth, stones, bones etc.), grave-goods (animal bones, artifacts etc.) or other evidence of definite ritual motivation have to be present.

Deposition/burial of entire intact corpses

In debates on entire corpse burials during the Palaeolithic only archaeological criteria (body position, grave-pit, grave offerings, magical or ritual manipulations etc.) have been considered. Anthropological criteria have been completely disregarded. The main anthropological criteria for entire intact corpse burial are:

- *complete/almost complete (or incomplete) human skeletons* (skeletal representation),
- *anatomical position* (connection) *of the bones* (position of the skeleton),
- *absence of human bone modifications* as the result of perimortem or postmortem human alterations to corpses and bones.

There is no evidence either from Europe and the Near East or from Asia and Africa that Lower Palaeolithic humans ever deposited or buried entire intact corpses of their dead. Only 13 individuals (5.0 %) from 8 European sites and 21 individuals (31,8 %) from 6 Near Eastern Middle Palaeolithic sites may probably be classified as depositions/burials of the entire intact corpses following the anthropological criteria mentioned above (Table 2). From these results the conclusion can de drawn that only few "highly favoured" dead in the European Middle Palaeolithic were given such a mortuary practice, and that this practice was limited to a few areas (France, Ukraine) of the European Middle Palaeolithic, too. Entire intact corpse deposition/burial was first practised by Middle Palaeolithic humans in the Near East (Qafzeh, Skhul) about 100,000 - 80,000 years ago. In West Europe the oldest burials of the entire intact corpse date to 47,500 BP (La Chapelle, La Ferrassie). In contrast with the Near East there was no concentration of burials to few sites in Europe. In the Near East and in Europe deposition/burial of the entire corpse was only practised in caves or at rock shelters (Ullrich, in press a).

Ambiguous data about the number of Upper Palaeolithic burials in Europe are given in archaeological papers. The results of our investigations using anthropological criteria and archaeological evidence for ritual ceremonies have shown that 52 - 68 individuals (9.9 - 12.9 %) from 25 - 33 Upper Palaeolithic sites in Europe may probably be classified as deposition/burial of entire corpses. Compared with data from Middle Palaeolithic sites this mortuary practice was more frequent and widespread in the Upper Palaeolithic, but very rare and limited to some area (Bohemia/Moravia, France, Italy and mainly Russia) in relation to other mortuary rites practised at that time. Upper Palaeolithic humans deposited/buried the entire intact corpse in France and Italy usually or only in caves and rock shelters, in Bohemia/Moravia and Russia exclusively at open occupation sites.

According to our definition of deposition and burial only 0.8 % of the Middle and 0.6 % of the Upper Palaeolithic individuals may be classified as probable entire corpse depositions, and 4.2 % of the Middle and 9.3 - 12.4 % of the Upper Palaeolithic individuals as probable burial of the entire intact corpse.

Deposition/burial of defleshed corpses

Human modified human bones resulting from perimortem interference are usually absent in complete or nearly complete human Palaeolithic skeletons. There are only few Upper Palaeolithic exceptions, where defleshed skeletons have been de-

posited (e.g. Předmostí 3) or buried (Brno 3, Dolní Věstonice 3).

Reconstruction of close biological relationships

Obviously it was Bonnet (1919) who first raised the question of the close biological relationships of individuals from Palaeolithic burials. He compared the skulls of the Upper Palaeolithic skeletons from Oberkassel (Germany) in terms of their morphological structures, in measurements and in discrete traits and found a high degree of similarities and coincidences which could only be interpreted by way of close related kinship. There is also some evidence of probably close genetical relationship in the human remains from Předmostí (Matiegka 1934) and Dolní Věstonice (Vlček 1991), in Krapina (Smith & Smith 1986) as well as in the Mesolithic burial from Altessing, Germany (Kurth & Naber 1983).

The methodological background for reconstructing close biological relationships by means of skeletons from prehistoric and fossil human populations has for years been under discussion. Although there is still no generally accepted applicable method for the reconstruction of the genetic kinship of entire prehistoric populations (cemeteries) the results of many investigations have clearly shown that for several individuals in some cases it is possible to obtain from the skull direct indications of family or other closer related kinship. These indications may be obtained from the general shape of the skull, special morphological features, epigenetic traits, pathological morphostructures, metrical traits, but also serological characters, photostereometric results and reconstructed profiles of the face.

The results of our investigations (Ullrich, in press c) have shown that there are possibilities for ascertaining and reconstructing close biological relationships of individuals in Palaeolithic burials. This has been demonstrated in a pilot study for some Upper Palaeolithic as well as Mesolithic graves, where entire and intact corpses of two or more individuals had obviously been buried simultaneously. Until recently we had no idea of the biological relationships of these individuals. Current research, however, could make it probable that e.g. in the Mesolithic grave at Altessing "mother and her child", in the double burial Hoëdic 5 and 6 "brothers", in the Upper Palaeolithic burial Oberkassel "father and his adult daughter" might have been buried. For the triple burial of Dolní Věstonice Vlček (1991, 1995) is suggesting the diagnosis of "siblings". Questions are arising about the natural or unnatural death of these individuals. This is also the case with the children's burial at Sungir'. Both children were obviously not biologically related. There are no indications on the skeletons that one of the children had been killed or died of an unnatural death.

Further implications are related to Předmostí and Zhoukoudian. In Předmostí obviously individuals of a biologically closely related family group were buried in the mass grave But it is necessary to mention that this mass grave was not a burial place of exclusively entire intact corpses as supposed by Klíma (1991). In our opinion only a very few dead were buried as entire intact corpses there. For the majority of the deceased only defleshed parts of corpses or bones were buried (Ullrich, in prep.).

The Zhoukoudian site has recently again been under serious discussion (see, e.g., Binford & Stone 1986, 1987; Jia 1989). There are facts that in the cave Zhoukoudian only cleaned disarticulated bones (skulls, skull fragments and few postcranial bones) were deposited or buried. These bones resulted from manipulations on human corpses of the deceased carried out by Palaeolithic humans on the dead of an obviously biologically closely related group. The question of cannibalism cannot be definitely excluded for Zhoukoudian, but it is most reasonable that the human bones were deposited there in connection with mortuary practices or burial rites (Ullrich, in prep.). It is also very probable that the Zhoukoudian cave was not a regular occupation site of Palaeolithic man, but a site only occupied for celebrating mortuary practices and other rites.

Efforts for ascertaining and reconstructing close biological relationships in connection with Palaeolithic burials may help provide a deeper and more detailed comprehension of burial practices and burial rites in Palaeolithic times.

Reflections on life and death

Mortuary practices in the Palaeolithic were necessarily closely connected with reflections on life and death. Reflections on life and death began independently - as far as we know now - with late *Homo erectus* about 500,000 - 300,000 years ago in Europe, Africa and Asia and nearly at the same time (Ullrich 1994, in press d). Prerequisite for such reflections were a highly developed brain

with the capacity to develop speech, communication and abstract thinking as well as a high standard of cultural activities, cooperation and life in relatively stable units. These prerequisites were developed in late *Homo erectus*. The great variety of mortuary practice and ritual in Palaeolithic times is positive evidence of intensive reflections on life an death at that time (Fig. 7).

All mortuary practices of the Lower Palaeolithic and most mortuary rituals during the Middle and Upper Palaeolithic were closely connected with human manipulations on human corpses of "favoured" dead: defleshing and dismemberment of the corpse, appropriation and fragmentation of bones of the deceased. We have no evidence why Palaeolithic humans defleshed and dismembered (very often completely dismembered) many of their dead. We only know that bones and broken bones of those dead were very important for celebrating mortuary practices. A possible explanation for defleshing and dismemberment of human corpses and the appropriation and fragmentation of bones of the deceased could be given by the main activity of Palaeolithic humans - hunting. Mortuary practices might have originated in close connection with intensive hunting activities. Late *Homo erectus* was very much experienced in defleshing and dismemberment of animal carcasses and corpses as well as in appropriation and fragmentation of animal bones. Hunted animals, their meat and insides, but also their bones were important and essential for Lower Palaeolithic humans. It is obvious, therefore, that reflections on human life and death originated in reflections on animal life and death and their importance to the daily life of Palaeolithic man. It is obvious furthermore that Lower Palaeolithic humans as well as later on Middle and Upper Palaeolithic humans acted with some of their "favoured" dead in the same way as with hunted animals - with the exception that bones of the deceased had never been manufactured into tools but became the object of ritual mortuary practices and that we do not know, if the flesh of the defleshed dead had been eaten by Palaeolithic humans.

Burial/deposition of the entire intact corpse of the deceased, which was seldom practised in Middle and Upper Palaeolithic times and coexisted with other mortuary practices, reflects a new way of thinking by humans and a new form of confrontation with human life and death during the daily life of Palaeolithic man. In contrast to mortuary practices connected with defleshing, dismemberment and bone fragmentation, entire intact corpses of "highly favoured" dead carefully and intentionally buried at occupation sites demonstrate that it was most important for both the deceased and the living social group to preserve the entire intact body. This reflects a very close connection between the deceased and the living community and a rapid change in reflections on human death. Reflections on human life and death were no longer embedded in reflections on animal life and death, they became independent and attained a much higher meaning. The human being was no longer part of the animal life and death in the thoughts of Palaeolithic man, but became separated from the animals and was placed higher than animals. This new role of the human being in the thoughts and daily life of Palaeolithic humans was documented in completely new mortuary practices.

This new attitude towards human beings in the world of Palaeolithic man was first documented in the burials/depositions of the entire intact corpse at the sites Qafzeh and Skhul in the near East about 100,000 - 80,000 BP. The hominids from Qafzeh and Skhul are classified as early anatomically modern *Homo sapiens*. Later on all burials/depositions of the entire intact corpse were connected with Neandertal populations in the Near East (Kebara, Shanidar, Tabun, Amud; 60,000 - 28,000 BP) as well as in Europe (La Chapelle, La Ferrassie, Le Moustier, La Quina, Régourdou, Roc-de-Marsal).

There are no striking differences in the burials of the entire intact corpse celebrated by Middle Palaeolithic Neandertals and Upper Palaeolithic populations of anatomically modern humans in Europe. The only marked differences are reflected in grave furnishings. There are also no striking differences in the mortuary practices connected with defleshing and dismemberment of the corpse, appropriation and fragmentation of bones of the deceased between the Middle and Upper Palaeolithic in Europe.

The question of cannibalism

Cannibalism cannot be the reason for practices connected with defleshing and dismemberment of human corpses, of fragmentation and appropriation of bones of the deceased, although we can neither deny nor prove that Palaeolithic humans had eaten flesh of their defleshed and dismembered dead.

Table 1. Mortuary practices with disarticulated human bones.
(Examples given have been studied by the author; in brackets complements by dates from literature).

Mortuary practices	**Lower Palaeolithic**	**Middle Palaeolithic**	**Upper Palaeolithic**
Burial			
Skull/ calvarium	Petralona	Circeo 1; (Pech de l'Aze)	Sungir' 5; Veternica 2-4
calvaria	—	—	(Maz d'Azil 4)
mandibles	—	Předmostí 2,12-13,15,17, 19;21,24,26	—
skull/postcranial bones	—	Teshik-Tash	Brno 2; Pavlov 1; Předmostí 1,2,5,6-8,11,20,22,23
Deposition			
skeletal parts	—	—	Afontova gora 2
skull/calvarium	—	Saccopastore 1,2	Veternica 6
calvaria	—	Engis 2; Gánovce; Weimar-Ehringsdorf 9; Subalyuk 2	Cioclovina
calva	—	Veternica 1	(Röthekopf); (Le Placard 6,9-12)
skull bones	Bilzingsleben A	Kůlna 1-2; Ochoz 2-3	—
mandibles	—	Ochoz 1; Šipka	Ranis
skull/postcranial bones	—	Weimar-Ehringsdorf 7; Spy 1,2; Starosel'e; (Neandertal 1)	Balla; Döbritz 2
postcranial bones	—	—	Döbritz 1; Eliseevičí
Throwing away *(with ritual motivation)*			
skull bones	Bilzingsleben	Weimar-Ehringsdorf 1-4	—
mandibles	—	Weimar-Ehringsdorf 6	—
teeth	—	—	Dolní Věstonice 8; (Bédeilhac 1; La Combe; Pataud 8-9,13; Saint-Germain-la-Rivière 5)
(without ritual motivation)			
skull bones	Castel di Guido 3-6; Pofi 1-2; Vértesszöllös 2	Sakažia; Vindija	Bačo Kiro; Ruse; Tapolca; Pavlov 2-3; Čulatovo
mandibles	Azych; (Mauer)	—	Bačo Kiro 2-3; Bervavölgy; Pavlov 2, Samarkand 1-2
teeth	Bilzingsleben; Vértesszöllös 1	Taubach 1-2	Dolní Věstonice 7-11
skull/postcranial bones	—	Barakai; Krapina; Vindija	Maszycka
postcranial bones	Castel di Guido 1-2; Pofi 3; Sel'ungur 3	Achštyr; Romankovo 1-2; Škurlat; Ohaba-Ponor	Korman'; Pilisszánto; Škurlat

Table 2. Mortuary practices with entire intact human corpses.

Mortuary practice	Middle Palaeolithic		Upper Palaeolithic	
	Europe	Near East	Europe	Near East
Deposition	La Quina 5 Starosel'e 1	Amud 1,7 Qafzeh 15 Skhul 1,6,7 Tabun C1 Shanidar 3,6	(Gough's Cave 1) Le Veyrier 1 Kostenki 7	
Burial	La Chapelle La Ferrassie 1,2,4b,6 Le Moustier 1,2 Régourdou Roc-de-Marsal Kiik-Koba (1) , 2	Kebera 2 Qafzeh 8,9,10,11 Skhul 4,5,(9) Shanidar (1) ,4,5,7	Dolní Věstonice 3,13, 14,15,16 (Předmostí 3,4,9,10, 14) Bruniquel 24 Cap Blanc Chancelade Combe Capelle (Cro-Magnon 1) Entzheim Le Figuier Les Hoteaux 1 Laugerie-Basse 1 (La Madeleine) (Pataud 6) (Roc-de-Sers 2) Saint-Germain-la-Rivière Neuessing 2 (Oberkassel 1,2) (Paviland) Arene Candide 1 Grimaldi Torre 1,2,(3) Caviglione 1 Grande 1-5 Enfants 1-2,4-6 Maritza 1 Paglicci Romito 1-2 San Teodoro 1,3-4 Tagliente 2 Vado all'Arancio 1,2 Veneri 1,2 (Cueva Morin 1,2) Kostenki 1-4 Mal'ta 1 Sungir' 1-3,6	(Ein Gev) (Ein Gev I) (Ein Gev X) (Neve David)

Cannibalism in Palaeolithic times has again been under discussion for years. There is no conformity about the criteria of cannibalism on fossil and prehistoric bones. In our opinion neither cutmarks and bone breakage nor most of the other artificial bone modifications caused by humans can be interpreted as referring to cannibalism. Only the intentional forcible opening of the skull base and the perimortem breakage and longitudinal splitting of long bones might point to ritual cannibalism, if these activities were very probably connected with removing and eating the brain and the marrow. Contrary to Villa (1992) there is, in our opinion, some evidence of ritual cannibalistic behaviour in the Palaeolithic human record, but only on very few sites (e.g. Krapina) and *only within mortuary practices and mortuary rites* (Ullrich 1982, 1986, 1989a,b, 1991b - see also White 1992).

Reflections of human-environment relations

The great variety and complexity of mortuary practices and mortuary ritual in the Palaeolithic (Fig. 7) reflects the many unsolved problems and contradictions between life and death, between humans and their natural as well as their social-cultural environment, which faced the humans daily. Although Palaeolithic humans were intensively engaged in reflecting on life and death they had no universal conception of life and death.

Mortuary practices in the Palaeolithic enable important insights into reflections on life and death, but also on the world of ideas of Palaeolithic humans, their confrontation with the natural and the social-cultural environment.

Reflections on life and death in the Palaeolithic necessarily initiated reflections on the natural and cultural world in which humans were living and on the afterworld. First evidence of initial reflections on the afterworld might be the deposition of disarticulated human bones in the Middle Palaeolithic. Depositions of human bones are directed towards a temporary or permanent keeping of the relics, towards the time after the death. Deposition and burial of the skull (cranium, calvarium) might mark a progress in the initial obviously very nebulous and very contradictory reflections on the afterworld, because unfractured intact human skulls mediate between dismemberment of corpses and fragmentation of bones on the one hand and the entire and intact human body on the other hand. Fundamental changes in reflections on the afterworld were connected with depositions/burial of the entire intact corpse in the Middle Palaeolithic which may be interpreted as a way of keeping the memory of the dead in the living community and as a life after the death. This was documented also in the grave furnitures of the Upper Palaeolithic, which, in our opinion, do not reflect a social differentiation but only an attribute to the afterworld enabling a quick return into the living community. It is suggested that Palaeolithic humans were reflecting on an afterworld that was closely connected to the one in which they were living.

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