EXPLOITATION DES ANIMAUX SAUVAGES A TRAVERS LE TEMPS
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Evidence for faunal exploitation during the Belgian Lateglacial : recent research on the Dupont collection from the Trou de Chaleux

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RÉSUMÉ

La faune du Trou de Chaleux, province de Namur, recueillie par Edouard Dupont au cours du siècle dernier offre une abondance de données de boucherie. Une faune dominée par le cheval a été exploitée de manière systématique. On compare cet assemblage avec un autre assemblage magdalénien et creswellien. On suggère qu'il peut y avoir des techniques de boucherie magdaléniennes distinctes.

ABSTRACT

The fauna from the Trou de Chaleux, Province of Namur, recovered by Edouard Dupont during the last century has an abundance of butchery evidence. A horse dominated fauna was exploited in a systematic manner. The assemblage is compared with another Magdalenian and Creswellian assemblage. It is tentatively suggested that there may be distinctive Magdalenian butchery techniques.

Introduction

The Belgian archaeological record for the Lateglacial (c. 16000 to 10000 BP[1]) contains evidence for the presence of a number of different archaeological

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(1) All dates cited in this paper are in uncalibrated years before present (BP).

technocomplexes. These appear to have occupied adjacent and to some extent interfacing territories, some of which may have been broadly contemporaneous. To date, Magdalenian, Creswellian, Tjongerian and Ahrensburgian lithic assemblages are known ; in addition to these are a number of assemblages which lack the characteristic *fossiles directeurs* of the aforementioned groups, but which nevertheless appear to be of Lateglacial age, based on their various stratigraphic and biostratigraphic associations. Conventional radiocarbon dates have been obtained from a number of sites, which agree to a greater or lesser extent with the expected typology-based temporal patterning : that is, the Magdalenian during Dryas I and Bølling (possibly as early as 16000 BP until roughly 11800 BP) Creswellian during the Bølling phase (c. 12800 to 11800 BP), Tjongerian during Dryas II possibly continuing into the Postglacial, and finally Ahrensburgian assemblages at or around the Lateglacial/Postglacial transition (c. 10000 BP).

Unfortunately, as with other areas, there are numerous problems which surround the radiocarbon chronology of this region. I do not wish to dwell in detail upon them here, but not least among these are the associations between the samples dated and the archaeology which they purport to date. To a great extent, the local chronology for Lateglacial human settlement relies heavily on parallels with the chrono-typological seriation developed for South-Western France. In an attempt to help clarify the temporal patterning of the actual human occupation of Belgium during the Lateglacial, a number of samples of humanly modified bone were submitted to the Oxford Accelerator Unit. So far 4 results have been obtained which directly date the Lateglacial (table 1). These, alongside a date on resin attached to a Tjonger point from the site of Rekem (OxA-942 11350 ± 150 BP), are the only dates which can be directly associated with human presence.

Lab code	Date	Site and sample details	Archaeological association
OxA-3632	12790 ± 100	Trou de Chaleux. Cut *Equus ferus* 3rd cuneiform	Magdalenian.
OxA-3633	12880 ± 100	Trou de Chaleux. Cut *Equus ferus* 3rd cuneiform	Magdalenian.
OxA-3635	12870 ± 95	Grotte du Coléoptère. Cut *Equus ferus* 1st phalange	Magdalenian.
OxA-3634	10320 ± 80	Grotte de Remouchamps. Cut *Rangifer tarandus* maxillary fragment.	Ahrensburgian.

Table 1. Lateglacial accelerator dates on humanly modified bone from Belgium.

The major theme of this paper is evidence for faunal exploitation during the Belgian Lateglacial. It is important to state at the outset that this research is still in its preliminary stages, and this paper is an initial report. To date, time has only permitted the examination of a limited number of faunal collections. Collections examined include those from the Grotte du Coléoptère (Magdalenian and Ahrensburgian), Grotte de Sy Verlaine (Magdalenian) and Grotte de Remouchamps (Ahrensburgian) and those made by Édouard Dupont from the caves at Furfooz and the Trou de Chaleux (Magdalenian) between 1864 and 1865. The Chaleux and Furfooz collections are held in the Institut

Royal des Sciences Naturelles de Belgique ; I wish to concentrate on the Chaleux collection in this paper.

Dupont initiated, organised and supervised the first systematic survey and excavation of Pleistocene and Holocene cave deposits in Belgium since Schmerling's 1833 study. He began his work under the auspices of the Société royale des sciences, lettres et beaux-arts de Belgique. During the initial stages of research, he published detailed accounts of his excavations and preliminary results in the Society's Bulletin (Dupont, 1865a and b ; 1868a and b). He also reported the results of his research in the form of a series of published letters to the minister of the Interior, M. Alphonse Vandenpeereboom (Dupont, 1865c and d ; 1867), followed by the apparently final publication of his research on these sites in 1872. During the initial post-excavation work Dupont was aided by M. Van Beneden (fauna) and M. Hazeuer (archaeology) (Dupont, 1865d).

Unfortunately, precise descriptions of the faunal collections he made from Chaleux and Furfooz have remained largely unpublished, and consequently unknown in detail to many archaeologists and palaeontologists. Instead, the faunal collections have languished in the store rooms of the Institut in Brussels, for almost a century virtually untouched. The results of Dupont's final analyses are thus largely unknown, although it has become apparent during my research that he continued to work on this material long after his final published account (1872). No primary archive (letters, notes or notebooks) relating to either Chaleux or Furfooz from Dupont remains at the Institut : it is believed that such material was lost during the occupation of Belgium during World War II (A. Leguebe, pers. comm.).

However, some of the original museum displays and printed labels relating to the Trou de Chaleux and Furfooz have survived, and give a skeletal indication of Dupont's later research. Those relating to the fauna are all initialed by Dupont, and dated « novembre 1906 » (Furfooz) and « avril 1907 » (Chaleux). The extent to which Van Beneden contributed to this later work is unclear, and it is assumed here that these labels reflect Dupont's, and no one else's, research. The labels outline the stratigraphy of the sites concerned, and discuss the archaeology and associated faunal assemblages. Minimum number of individual counts are included for the different species present (based on the most frequent anatomical element). Details of the presence and location of butchery evidence on the animal bones are provided, bone breakage patterns are described, and brief discussions of how these may relate to human behaviour are included. Sadly, although these relate to a large number of specimens they are extremely brief ; in effect they are a series of notes.

The traces of human modification on the bones are both clear and abundant. In my opinion, the Dupont collection is of outstanding importance. I will attempt to explain why below.

Description of the Chaleux collection

It is apparent that the collection was extensively curated before the labels were written in 1907, most probably with the aim of preparing an extensive comparative faunal collection and/or fuller publication of the material. All identifiable specimens are laid out on plaster trays, each tray has one of the printed labels described above.

The collection appears to represent a virtually complete faunal assemblage. All identified bones are labelled with species, anatomical element and side information. Small bone fragments were identified to element and species by Dupont where possible. The trays are sorted by species and anatomical element. Unidentified bones and fragments are preserved in large quantities : these are stored separately from the identified bones, and have also been sorted into ribs, vertebrae and indeterminate species/element groups. In an attempt to quantify the amount of this material, counts were taken of the number of unidentified bone fragments (20 689), ribs (2 394), vertebrae (464) and antler (82), giving a total of 24 656 fragments ; this material has a combined weight of 86,135 kg. These fragments have been sorted into size categories and into groups of fragments of similar morphology.

This is a vast quantity of bone material. On even recent archaeological excavations it is common to find that unidentifiable bone fragments are discarded as of no research interest. Collections dating to the last century are often composed of a selection of specimens which the excavator/museum curator regarded as « identifiable » or « significant ». They rarely have any associated contextual data. As such they are generally considered unrepresentative, and are often shunned by researchers.

Given the sheer quantity of material preserved from Dupont's excavations, and its meticulous curation, it seems unlikely that this material is a « selection ». Instead, it shows all the signs of a faunal collection which has been extensively curated, but from which nothing has been discarded. On this basis it is suggested that the collection held in the Institut is comprehensive and non-selective, potentially incorporating all archaeological and palaeontological material encountered and recognised by Dupont during 1865. This assumption underlies the following discussion of the fauna.

Examination of the surviving museum faunal displays revealed that Dupont was concerned with evidence for the human modification of bone, and the inferences which may be drawn from this data. Carnivore damage and butchery marks are frequently indicated on the specimens in ink. Points of bone fracture are also marked by ink annotations, and correlated with what Dupont identified as fixed points of impact along the shaft of the bones. From this it is apparent that Dupont's work on this fauna was relatively sophisticated and considerably in advance of his time, addressing the problems and potentials of butchery evidence which have only recently become an area of intense research. It has become part of popular archaeological mythology that Lewis R. Binford « discovered » cut marks and their archaeological potential. Binford made no such claim in his 1981 book (published in the same year as Potts' and Shipman's research on butchery evidence from East-African faunal assemblages), and a search through the archaeological literature of the 19th and 20th centuries shows that earlier workers were well aware of this type of evidence, and to a greater or lesser extent its investigative potential (see, for example, Dawkins, 1874 : 339 ; Lartet and Christy, 1875 : pl. B.XVII n° 2, 4 ; Martin, 1921).

Dupont retired from his post as Director of the Institut on the 31st. November 1909, and died two and a half years later, on the 31st March 1911, leaving behind a remarkable legacy of the archaeological and palaeontological collections from a number of sites. Subsequent research on this material has focused on the lithic and worked bone artefact assemblages (see, for example Dewez, 1987 ; Lejeune, 1987). In 1988 examination of the Dupont collection for butchery evidence began. Eventually it should be possible to

examine the similarities between the Chaleux and Furfooz collections (the sites are only 2 km apart, and their human occupation during the Lateglacial appears to have been broadly contemporaneous, possibly by the same human group). However, research on the Furfooz collection is only in its initial phase, and so for the moment I will concentrate solely on the evidence from the Trou de Chaleux.

The lithics, worked bone and ivory artefacts from the Trou de Chaleux are of « classic » late Magdalenian form. In addition to these, Chaleux is well known for the wealth of Magdalenian art objects, which are an integral part of this assemblage (Lejeune, *ibid.*). Dupont described the excavation of this material amidst a vast hearth, which covered much of the cave floor (1865d). He termed this layer the *1er niveau ossifère*, and it is the fauna from this layer which is discussed below.

Species range and identification

The mammal assemblage is dominated by wild horse (*Equus ferus*), though the following are also present : red deer (*Cervus elaphus*), reindeer (*Rangifer tarandus*), saiga antelope (*Saiga tatarica*), both a larger and smaller forms of bovid (identified as *Bison priscus* and *Bos primigenius*), musk ox (*Ovibos moschatus*), chamois (*Rupicapra rupicapra*), ibex (*Capra ibex*), wild boar (*Sus scrofa*), brown bear (*Ursus arctos*), fox (*Vulpes* sp.), badger (*Meles meles*), a felid identified as *Felis chaus*, and hare (*Lepus* sp.). Five radiocarbon dates (table 2) are associated with this level, falling within the time span of the Bølling Interstadial phase of the Lateglacial (c. 13000 - 12000 BP) ; likewise, the presence of saiga antelope in the assemblage, albeit a solitary specimen (a cranial fragment with partial horn core), is also indicative of the Bølling age (*cf.* Delpech, 1975 cited in Currant, 1987).

Species such as *Equus ferus*, *Rupicapra rupicapra*, *Bos* sp., and *Sus scrofa* do not appear to be out of place within a Belgian Lateglacial assemblage. All the bones from the *1er niveau ossifère* also appear to be in the same state of preservation. The presence of *Rangifer* in the faunal assemblage is not totally out of place for a Bølling assemblage ; however, it may indicate that faunal material was also incorporated in the *1er niveau ossifère* during a cooler phase, most probably the end of Dryas I or possibly the beginning of Dryas II. At least some of the reindeer are present due to human agency ; there is clear evidence for sinew extraction from the metapodials and other lower limb elements. Offcuts of grooved and splintered antlers (where identifiable all are reindeer) are apparent in the collection, so it seems clear that this raw material was worked at the site. A number of antler points with bevelled bases were recovered by Dupont. At present the assumption is that they form part of a broadly contemporaneous assemblage of Lateglacial age, more specifically covering the latter part of Dryas I, certainly the earlier phase of the Bølling, possibly into Dryas II. It is hoped that this may be more precisely determined by further AMS dates on modified bone.

« Exotic » species, such as *Felis chaus* and *Ovibos moschatus*, are present in Dupont's faunal list. This is surprising, given the indicators that the bulk of the assemblage dates to the Bølling Interstadial. The specimens claimed to be *Felis chaus* (jungle cat : similar to the Kaffir cat in colouring and build, present day distribution ranging across the Nile delta, Algeria, India and South-East Asia to Indochina : unrecorded from other Lateglacial

contexts in Northern Europe) were re-examined by myself and Mietje Germonpre in the Institut. We concluded that they were certainly felid, being inseparable from the comparative specimens of wild cat (*Felis* sp.) and/or lynx (*Lynx lynx*) available to us. It is unclear why Dupont should select *Felis chaus* as his species designation. It is likely that this reflects both his expectations of the Belgian late Pleistocene fauna and the limited comparative material available to him.

Ovibos moschatus poses another problem. Musk oxen are found today in extremely cold, arid environments, often in exposed areas with light snowcover. Their modern distribution is restricted to areas of Canadian Arctic and Greenland. They have not been recorded elsewhere in Bølling contexts from Belgium, or adjacent regions. Wilkinson (1975 : 10) commented that he felt the identification of this species from Chaleux to be dubious, although he did not examine the specimens concerned. These specimens were taken to the British Museum (Natural History), where their identification as *Ovibos moschatus* was confirmed by Andrew Currant and myself. A number of these fossils display very clear butchery marks, and one specimen has now been selected as a radiocarbon sample – it is hoped that the result of this date may shed light on the spatial and temporal distribution of this species in Europe during the Lateglacial.

The inclusion of *Capra, Meles, Lepus* and *Vulpes* may indicate that there is some mixing with later Holocene sediments. Our knowledge of the presence/absence of *Meles* during the Pleistocene and Holocene in Europe is extremely poor : the presence of badger is often taken as an indicator of later Holocene material being included within an assemblage. However the specimens from Chaleux are in a similar condition to other bones in the assemblage : whilst none of the specimens are modified the possibility that they are of Lateglacial age cannot be totally eliminated. *Lepus* sp. and *Vulpes* sp. are both present in high numbers ; at the time of writing it is unclear whether *Lepus timidus, Lepus europaeus, Vulpes vulpes* and *Alopex lagopus* are all present. It is probable that the hares and foxes may have been incorporated into the *1^er^ niveau ossifère* over a fairly long period of time.

That being said, it is assumed that the bulk of the fauna ascribed to the *1^er^ niveau ossifère* and discussed here is of Lateglacial age. As already mentioned there is little firm indication of the time span within the Lateglacial over which this assemblage was accumulated. As far as the material which can be directly ascribed to human activity is concerned, it could have been the result of the occupation of a few weeks duration in which a tremendous quantity of meat was processed (and some presumably dried and stored), or the residues of a number of visits over an extended period of time. There are 5 radiocarbon dates from this level of the site, three obtained by conventional means from bulked samples of unidentified bone fragments and two by accelerator mass spectrometry on cut left 3^rd^ cuneiforms of *Equus* (table 2). The accelerator dates are the only two which can be directly associated with Lateglacial human use of the site, and are very close to each other in time. They also seem to agree well with Lv-1136 and Lv-1569, although Lv-1568 lies in the latter part of the Bølling. It is suggested that the two accelerator dates should supersede the conventional dates in dating human presence where discrepancies occur, as they are dates on single modified bones rather than the mean of unidentified bone fragments. It is interesting that four of the dates (including the two accelerator dates) cluster in the earlier phase of the Bølling, and it is probable that the human use of the site may be restricted to this earlier part. With reference to this

Lab code	Date	Sample details
OxA-3632	12790 ± 100	Cut 3rd cuneiform *Equus ferus*. 1865 excavation.
OxA-3633	12880 ± 100	Cut 3rd cuneiform *Equus ferus*. 1865 excavation.
Lv 1136	12710 ± 150	Sp. indet. bone fragments. 1865 excavation.
Lv 1568	12370 ± 170	Sp. indet. bone fragments. 1985 excavation.
Lv 1569	12990 ± 140	Sp. indet. bone fragments. 1985 excavation.

Table 2. Radiocarbon dates from the Trou de Chaleux, Province of Namur, Belgium.

it is interesting to note another accelerator date for the Magdalenian in Belgium, on a cut partial 1st phalanx of *Equus* from the Grotte du Coléoptère of 12870 ± 95 BP (table 1). These three dates may indicate a more limited temporal span for the Magdalenian in Belgium than has been suggested elsewhere (*cf.* Otte, 1983 ; Dewez, 1987). It is hoped to test this assertion by further accelerator dating of single cut bones from Magdalenian sites.

There is also a substantial quantity of bone which does not bear any traces of human activity. Its inclusion as part of the assemblage could be due to carnivore, human or natural agency ; most likely to a combination of all three. Carnivore damage in the form of gnawed bones is present, although in low frequencies. Thus it is probable that faunal material was being accumulated within the *1er niveau ossifère* over a greater period of time than the period(s) of human occupation, perhaps by several agencies ; the need for further radiocarbon dates which can be tied directly to human activity is essential if we are to gain a detailed indication of the potential time span over which the site was in use during the Lateglacial.

Accordingly my study focused on specimens which showed clear cut marks. This approach clearly identifies which specimens within the assemblage have been subject to modification by human agency, and permits the detailed reconstruction of economic activities.

Butchery Evidence

Cut marks, made by the accidental contact of sharp flint edges with bones during butchery activities, are present in high frequencies. As mentioned above, carnivore damage, in the form of gnawing, is also present, although far less frequent. Research has focused on the identification and interpretation of humanly induced bone modification, seeking its correlation with particular hunting and butchery strategies. In general, evidence for this type of modification can be broken down into 3 broad categories :

1. *Bone lesions* either « fresh » or « healed », some of which may contain fragments of projectiles (such as those illustrated by Noe Nygaard (1975 : plate 1) or Bratlund (1991 : 195 ; fig. 18.2 to 18.6).
2. *Cut marks* produced during the processing of a carcass. Such marks relate to skinning, dismemberment/disarticulation, or meat filleting, depending on their location and orientation on individual bones.
3. *Bone breakage* as a by-product of marrow extraction.

Bone lesions

In the case of Chaleux, no hunting lesions, either « healed » or « fresh », were observed on any of the bones. Bratlund (1991) observed 27 separate lesions on the bones from the Stellmoor collection, a side effect of hunting with projectile technology. Given the size of the Chaleux faunal assemblage (3 181 specimens identifiable to species and element), it seems worth considering the possibility that these animals were obtained by a form of hunting and/or trapping which did not involve the use of projectile technology.

Little is known in detail about Palaeolithic hunting strategies : the number of people involved in a hunt, the logistical arrangements and the technologies involved are often suggested on the basis of ethnographic parallels. Dealing with an environment with no modern day analogue, such parallels, often observed only as passing comments by ethnographers and travellers during the last few centuries, can only really be used as general indicators and starting points for further speculation. It is extremely likely that the Lateglacial hunter-gatherers of Europe used a wide range of hunting and trapping techniques, some of which may not have been replicated by other groups in the more recent past. With this in mind I would like to suggest the possibility of the use of traps to obtain both large and small mammals.

Cut marks

The evidence of cut marks clearly indicates that a large proportion of the horse remains were deposited at the site as the direct result of human activity (1 982 identified bones of *Equus ferus*). Analysis of the butchery marks makes it possible to differentiate a number of activities on the part of the Lateglacial occupants. Meat removal is foremost in this list, filleting marks (usually located obliquely and longitudinally along the shafts of the bones) are extremely frequent. Likewise there is evidence for the dismemberment of limbs from the trunk, and subsequent disarticulation. As with Gough's Cave at Cheddar (Parkin *et al.*, 1986), there is consistent evidence for the systematic removal of tendons from the lower limbs. It is most likely that these tendons were used as raw material for the manufacture of thread, thongs and cord.

It is also probable that skins were removed, and used, either for the production of clothing, or for the manufacture of tents or wind-breaks. Evidence for skinning from cut marks is notoriously difficult to identify. This is because it is highly desirable to remove the skin without piercing the facia (a membrane which separates skin from muscle) and thus avoid contact with bone ; adhering meat increases the time needed for butchery and adequate hide preparation. If present at all, cuts are likely to be located transversely across specific areas of limb bones (this will vary for example between the humerus, radius, carpals and metacarpals, depending on how far down the limb it is required to remove the skin, frequently such marks circle the limb) and the skull/cervical vertebrae. This, in turn, may vary according to specific cases, individual preference or group style/ tradition. As an alternative it is possible to butcher an animal wholly within its skin, which may then be used as a container for the residues (P. Dransart pers. comm.). In such cases, skinning marks will not have been produced.

In the case of the *Equus* specimens from Chaleux, extensive cuts are present on the crania, and also circling the distal radius – carpals – metacarpals and distal tibia – tarsals – metatarsals articulations. This corresponds with skinning the carcasses from the head to the hock, and would provide a good area of hide for processing. The decision to take the major area of hide as far as the hock is one which is recurrent in the assemblage. The subsequent extraction of tendons from the lower limbs has already been mentioned ; it is possible that skin was not removed from this area as part of the main hide to avoid any accidental damage of the tendons, or that the hide from this region was of minimum utility.

A number of specimens from other species are also cut. Among these are the bones of brown bear (*Ursus arctos*), for which there is a MNI count of two - an adult and a juvenile. Cuts are located across three articulating metapodials from the adult, probably caused during skinning. It is possible that this individual was denning/hibernating at Chaleux when it was encountered by the human group which also used the site.

A few bones of hare are also cut, and it is probable that these were trapped for their fur, bone, sinews, and meat. Similar activities have been documented for other Lateglacial sites (Charles, 1990 ; Boyle, 1990).

To date it has been possible to re-articulate a few joints, although these are all from the rear limbs. If more time were available to invest on this area of the project, it is likely that further joints could be refitted and that unidentified bone fragments could be conjoined with broken specimens, potentially increasing the number of identifiable bones, and yielding detailed information relating to bone breakage patterns. However, at present it is unlikely that the return on this branch of enquiry would be proportional to the necessary time input.

Bone breakage

It is notoriously difficult to differentiate human bone breakage immediately post mortem from later « natural » breakage due to other agencies such as roof falls. I have not concentrated on this aspect because of the problems involved. However, the bones in the Chaleux assemblage have been extensively broken, and virtually no complete specimens are present for the large mammal species. This observation alone would not be sufficient to demonstrate that humans were the agents of breakage. In addition a number of anatomical elements show a remarkable and recurrent pattern of breakage. Many of the bones have been longitudinally split including the tibiae, metapodials and 1st phalanges. It is, of course, possible that such breakage patterns could be caused by « natural » agencies. However, I have not previously observed such trends in other faunal assemblages I have examined, neither has this patterning been described in the published taphonomic studies I am aware of. In all cases it occurs on a high proportion of the anatomical elements present. Indeed, with reference to the phalanges, it is extremely unlikely that this type of damage could be due to natural factors alone ; *Equus* phalanges are extremely robust, with a dense internal bone structure. This type of fracture/breakage is wholly uncharacteristic of « natural » breakage, where phalanges may be found broken into proximal and distal halves. Whilst this longitudinal splitting may be due to chance factors alone, it is extremely unlikely to be present in high

frequencies as a natural phenomenon ; instead, it is likely that this breakage pattern is the result of human intervention.

It is possible to draw a striking parallel between the breakage patterns found on these *Equus* 1st phalanges from Chaleux and those published by Bouvier (1979) from the Lateglacial faunal assemblage of La Madeleine. In both cases clear points of percussion can be seen, generally located in the centre of the posterior face of the phalanx, towards the proximal end. Of the 153 *Equus* 1st phalanges from Chaleux, only 36 are complete, whilst 96 are longitudinally split ; generally following this pattern a further 21 show a variety of damage/breakage. Presumably, this splitting was aimed to provide access to the marrow in the 1st phalanges. The 2nd phalanges (99 in total) are all complete. Bouvier *(ibid.)* is puzzled as to why the 2nd phalanges were apparently ignored for their marrow in his sample. An alternative suggestion (M. Levine pers. comm.) is that the potential marrow reserves in the phalanges are minimal ; she has noted that these bones were often used as cores for bone needles in other Upper Palaeolithic assemblages. In the case of Chaleux this does not, however, appear to be the case. There are no traces of secondarily worked *Equus* phalanges. Instead it appears that these bones were smashed for their marrow content. There is a considerable relative size difference between the 1st and 2nd phalanges of *Equus*, and it seems reasonable to suggest that their respective marrow reserves are different. The 1st phalanges were worthwhile breaking (and perhaps easier) whilst the 2nd phalanges were apparently not.

An interesting contrast can also be drawn between the Chaleux collection and the faunal material from Gough's Cave, Cheddar, Somerset. This collection also dates to the Bølling Interstadial, and is associated with a Creswellian archaeological assemblage ; the faunal assemblage includes a high proportion of horse. Many of the phalanges show traces of butchery marks, and it has been suggested that these correlate with the extraction of tendons for human use (Parkin *et al.*, 1986). Butchery marks in the Chaleux assemblage are positioned in similar locations, and it is assumed that they relate to the same economic objectives ; however, none of the Gough's Cave assemblage appear to have been smashed for marrow. It is tentatively suggested here that marrow extraction by the longitudinal splitting of 1st phalanges may be a distinctive feature of Magdalenian butchery.

Conclusions

The work relating to Lateglacial faunal exploitation in Belgium has only just begun. Initial results suggest that there was variability in the butchery practises of Lateglacial human groups occupying areas of North-Western Europe. This study will be expanded to examine specific evidence from a number sites and extended with the aim of reconstructing past butchering strategies.

The study of the faunal remains from the Trou de Chaleux indicates the intensive exploitation of wild horses (*Equus ferus*) during the Lateglacial by the Magdalenian occupants of the site. A parallel has been drawn with a late Magdalenian faunal assemblage from the Dordogne indicating that similar techniques were used by another Magdalenian group, and it has been suggested that this may be behaviourally specific to the Magdalenian. A brief comparison with a Creswellian assemblage of *Equus*

indicates both similarities and differences in the butchery « styles » which also suggest that butchery practices may vary between Lateglacial hunter-gatherer bands grouped within the term « Federmesser complex ». This theme will be investigated more thoroughly in subsequent research.

Negative evidence has been used to suggest that the faunal assemblage from Chaleux was not accumulated as a result of hunting, but rather from trapping. The idea of « hunting » during the Palaeolithic period automatically encapsulates concepts of active participants, tracking and intercepting their prey. The lack of projectile damage on the assemblage suggests that this may not have been the case at Chaleux. The use of traps, and the alternative « lifestyles » that a significant use of such equipment may have made possible, has not been discussed in detail in the archaeological literature relating to Palaeolithic and Mesolithic subsistence strategies. As the suggestion for a form of trapping rather than direct encounter hunting is based on negative rather than positive evidence, it does not seem a worthwhile exercise here to discuss in any detail what techniques might have been used. However, this may be a profitable field of enquiry for further research.

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