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BETWEEN FORAGING AND FARMING

AN EXTENDED BROAD SPECTRUM OF PAPERS
PRESENTED TO LEENDERT LOUWE KOOIJMANS

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16 Were beavers aware? A change of perspective on the neolithisation of Britain

Bryony Coles

16.1 Introduction

Prehistorians, I think rightly, tend to assume that in north-western Europe the outcome of neolithisation led eventually to a very different way of life to that known in the Mesolithic, even if the processes of change happened in different ways and at varying speed from region to region. In the course of his career, Leendert Louwe Kooijmans has made major contributions to our knowledge and understanding of this period of transformation, not least through a series of exemplary excavations which have been research-led and aware of, yet unconstrained by, the archaeological theories of the day. He has shown how, in different environments, we can detect different human responses to the prospect of the new, and thereby see the process of neolithisation in a different light. In this paper, I would like to look for another new perspective, to see where we might arrive by examining the effects of neolithisation as seen by an indigenous population, but not a human one.

For the last ten years or so, much of my research has focused on the archaeology of European beavers, *Castor fiber* (Coles 2006). Initially designed to recognize beaver presence in the archaeological record from Britain, the research has involved, amongst other things, fieldwork in present-day beaver territories in western Europe, to record and analyse the physical signs of beaver presence and to investigate how these signs might decay and which might survive for an archaeologist to discover in the future. When puzzled colleagues and other visitors questioned the field team's purposes, we legitimised this somewhat unusual archaeological task with the name ethnozooarchaeology, but what was at first something of a jest is in fact an appropriate descriptive term for what we were doing: living in beaver territory and recording the aspects of archaeological interest.

Another strand of the research was more traditional, gathering together evidence for beavers from museums, excavation reports and all other possible sources. The period covered was from the Late Glacial to the time when beavers became extinct in Britain, which was thought to be in the Middle Ages, but moved closer and closer to the present as the research proceeded.

In the course of both field and desk-based work, the focus on beavers led to a number of comparisons with the archaeology of humans, and a realisation that in archaeological practice we take many things for granted. So my new perspective for this paper is that of beavers (fig. 16.1), and I doubt that this will be a surprise to Leendert who once rashly co-authored a short note with me on a beaver artefact (Coles/Louwe Kooijmans 2001).

16.1.1 Presence

The ice sheets of the last glaciation drove most mammalian species out of what is now Britain. As conditions began to ameliorate, the different species spread northwards at varying rates, depending primarily on the availability of their food sources and other necessities of life such as shelter. In theory, humans could have re-colonised what was then the northwest corner of mainland Europe ahead of beavers: the latter would have needed to build up large food stores of twigs and branches to survive cold winters, a difficult task when woody vegetation was scarce, whereas humans could probably have survived the winter months on a diet of other animals.

In fact, the archaeological evidence currently available suggests that both humans and beavers re-colonised the southwest of Britain during the Windermere interstadial.

Figure 16.1 A beaver swimming along a stream in Brittany. Photo Lionel Lafontaine.

During the succeeding Loch Lomond cold phase both species retreated southwards through Europe, but probably no great distance as their presence is attested again early in the Holocene, at the classic site of Star Carr in northeastern England (Coles 2006, 76-78). From this time onwards, we assume that humans have always been present in Britain, and that beavers were here until their extinction in historic times.

I do not know whether anyone has made a detailed check of the British record for human presence, but for beavers it is patchy in time and space. For the Mesolithic, there is good evidence from England, a little from Scotland and none from Wales. For the Neolithic, the record from England remains good, from Scotland there is one possible site, and from Wales none. Yet because Britain became an island at some time between the Mid Mesolithic and the Mid Neolithic, and beavers rarely cross salt water, it is reasonable to assume that between the first and the last of the Holocene records they were present in Britain, and ubiquitous, though not always captured in a recognisable way by the archaeological record. As for Ireland, as far as we know, beavers were never part of the indigenous Holocene fauna (Woodman *et al*. 1997).

16.1.2 Beaver self-defence

Beavers live in families, alongside water, and they exploit water and earth for their defence. They often stay underwater for five to six minutes, and occasionally up to 15 minutes, and they can dig underwater and swim along flooded tunnels. So their safe haven is an underground den in the bank of a lake or watercourse, reached by a burrow with an underwater entrance, proof against most of the predators. Figure 16.2 shows how these dens can develop over time.

Where bank height is insufficient for a den that is above the water table but still underground, the beavers build a heap of wood, mud, uprooted tussocky plants and stones on the ground surface, and hollow out a chamber-like den, well-protected by the thickness and solidity of the mound. These are the structures known as lodges in North America, and '*huttes*' in France, and most are reached by more than one burrow, and grow over the years into sprawling heaps of considerable size.

Where the depth of water is insufficient to cover and protect a burrow entrance, the beavers build a dam of wood, mud, uprooted plants and stones to raise the water level. Dams are built only across relatively narrow watercourses, from less than one metre up to 14-16 m wide, but with time some may be extended onto the adjacent land surfaces. Thus, for defence, beavers adapt their surroundings through building, and predators have either to catch them away from these defences or to dig into dens or break down the lodges and dams. Out in the open, the beavers' massive sharp incisors provide their main defence, used as much on other beavers as on predators, for the species is highly territorial and an adult pair does not tolerate visitors.

16.1.3 Being hunted

Beavers of all ages are preyed upon by humans, bears, wolves and wolverines, while youngsters may also be taken by foxes, pike, and the larger birds of prey. Of these predators,

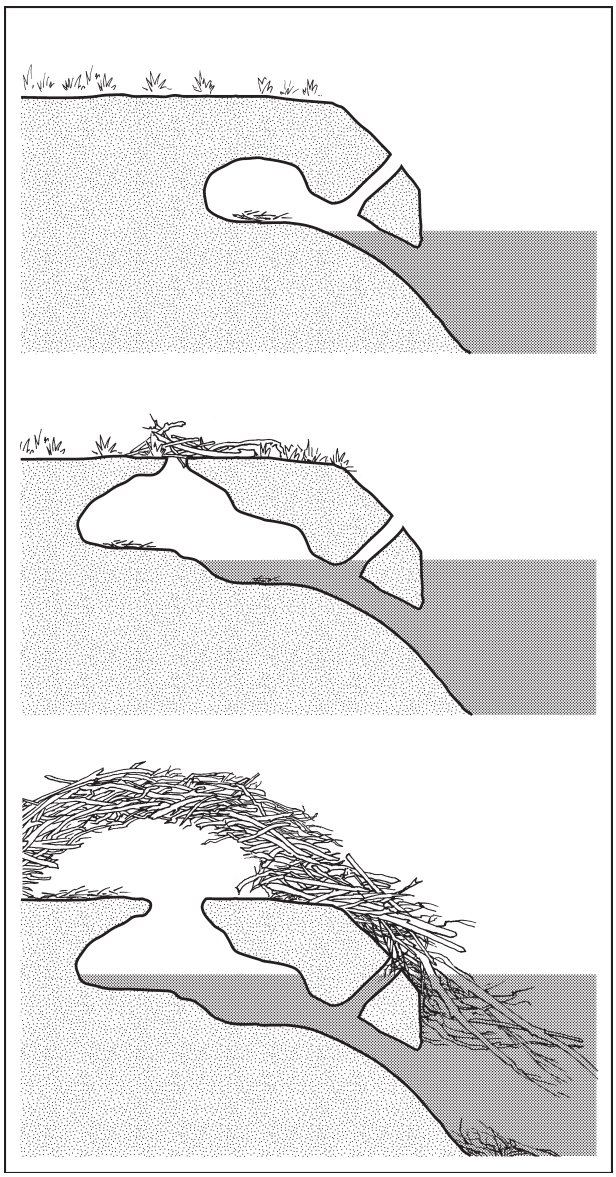

Figure 16.2 Top: a burrow with entrance underwater, leading up to a dry below-ground den. Middle: over time, beavers dig out new den floors at higher levels, mainly in response to rising water levels. Bottom: as water levels continue to rise, the den becomes too high to be concealed and protected underground, so the beavers build a lodge.

humans were perhaps the most persistent, wily and dangerous. Humans would quite likely have broken into a lodge using a stone-bladed axe, or broken a dam with the help of an elk-antler mattock, tool-using giving them an edge on their competitors. Furthermore, control of fire enabled humans to smoke out the beavers from underground dens, once the entrance was exposed, while an axe was perhaps the most efficient means of slaughter.

Humans may have snared beavers, either on their regular overland paths, or with difficulty underwater, a tricky job but maybe worth trying as a snared beaver would soon drown. Setting a wooden foot-trap, as for deer, was perhaps less likely, as a beaver's incisors rival or surpass most human tools for cutting through wood. Beavers are vegetarian, and would not be lured by a lump of meat, but their strong territorial instincts lead them to investigate the smell of strange beavers, and human hunters use castoreum taken from dead beavers' scent glands to lure further victims. All of these techniques were available to humans of the Mesolithic and Neolithic alike, though the details of the equipment varied regionally and through time.

Whatever the methods used, beavers were hunted within their own territories or home range, which for a family usually extends for between 500 m and 2 km along a watercourse or around a lake, the length depending on food supplies, while the width of land in regular use is normally up to 20 m or so from the water's edge. Beavers could have been profitably hunted at all times of year, not just in the late autumn when their thick waterproof fur was in peak condition and their teeth at their sharpest, for the beaver has much more than its skin and teeth which are of value to the humans amongst its predators.

16.1.4 Before death

Humans, both deliberately and without realising it, make use of the changes brought about by beavers living alongside watercourses; this is not surprising, as in ecological terms beavers are a key-stone species of great significance, and this is true of *Castor fiber* as well as *Castor canadensis*. I have discussed elsewhere the attractions of beaver territories for humans, who come to exploit the results of the beavers landscape manipulation (Coles 2000), and the considerable effect of beavers on local hydrologies (Coles 2001), so these aspects of beaver-human interaction are not the subject of this paper, although they deserve further research.

However, in the present context, we should note that neolithisation involved human imitation of beavers in several respects: in the felling of trees, in the creation of small clearings in the woodlands, and the encouragement of re-growth from felled stumps to produce a harvestable supply of shoots for weaving into hurdles and traps, and browse for cattle. In these respects, beavers may have found humans becoming more active within their own territories, and sometimes providing more food whilst also causing various disturbances. Humans may have observed that the sediments in and around former beaver ponds, rich in moisture and organic matter, encouraged early and vigorous plant growth. They may have learned water control from beaver dams and canals, and realised the advantages of building causeways from using dams as routeways across marshy ground. These potential imitations are not specific to Britain nor to the Neolithic, but it is in the Neolithic that we see some of their first manifestations.

16.1.5 After death

Figure 16.3 illustrates some of the uses that humans make of beavers. Humans eat beaver meat, and in the late winter when many other prey species and domestic animals were lean, the fat stored in a beaver's tail would be particularly valuable. Beaver bones, being chunky and strong, could be used for making tools, and their wood-working teeth were put to just the same use by humans: incisors to cut wood and molars to grind or rasp down a surface, naturally hafted in the mandible or else in wood. For some purposes, humans

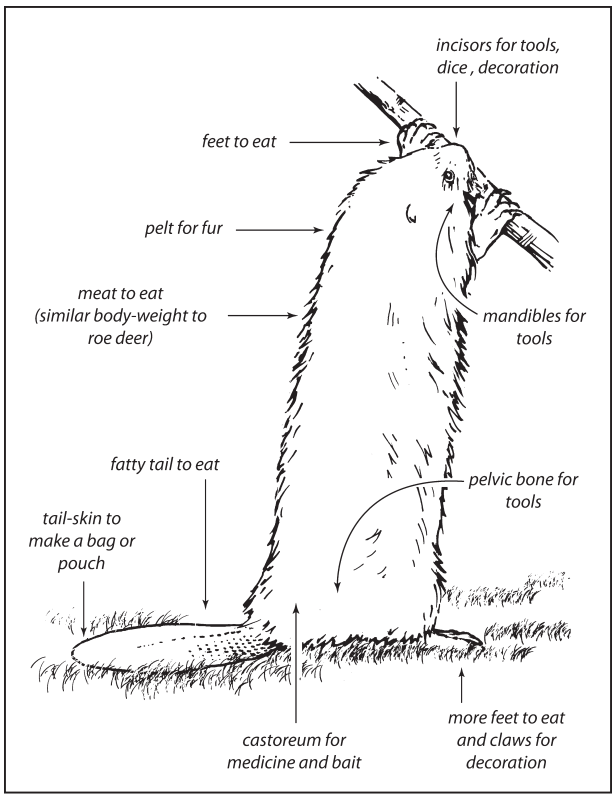

Figure 16.3 The resources which a human predator might gain from a dead beaver.

may have preferred the bones of a young adult beaver, old enough for strength, young enough to take the skeleton apart with moderate ease (Osgood 1940). Both male and female beavers are worth hunting for castoreum, since both sexes have the requisite glands; this was probably a fortunate characteristic as far as human predators were concerned, for beavers show no external visual signs of their sex except when females are lactating. As well as providing bait to catch more beavers, castoreum could be used as medicine, effective thanks to its aspirin-like qualities derived from the willow bark and meadowsweet (*Filipendula ulmaria)* that beavers feed on (Kitchener 2001, 76-77). Beaver fur is very dense, warm and waterproof, and a pelt is about 50 by 70 cm, making one beaver pelt equivalent in size to about five or six marten pelts.

In Britain, we can assume that a dead beaver was put to many of the same uses by humans of the Neolithic as in the Mesolithic. As far as we know, fur was not supplemented by wool until a later date, and beaver fur remained of value to the humans of Britain long after beavers had become locally extinct (Coles 2006, 165-166). Fat in late winter was as necessary for farmers as for hunters, and the domestic plant crops grown in neolithic Britain were not major fat providers to the extent of replacing beaver tails as a welcome late winter source. Nor were the known domestic plants and animals of the Neolithic major sources of human medicine. The Opium Poppy, *Papaver somniferum,* was to become used in ways similar to castoreum but never replaced it, and castoreum was being imported for pharmaceutical use in the twentieth century, falling away only with the development of aspirin (Kitchener 2001, 114). Nor did the lithics repertoire, change though it did from the Mesolithic to the Neolithic, develop anything to equate to a beaver's teeth (fig. 16.4), which in Britain are known to have been used by humans into later prehistory at least.

Figure 16.4 The skull of a beaver showing its large, sharp incisors set in robust jaws. When gnawing wood, beavers pause to sharpen their incisors one against the other.

16.2 The archaeological evidence

Much of our knowledge of beavers in prehistory comes from the identification of animal bones, and some of it from the recognition of beaver gnawed wood, from archaeological sites. Therefore what follows is primarily about beavers once dead, although elsewhere I have endeavoured to reconstruct some aspects of their lives (Coles 2006).

16.2.1 Mesolithic

For Britain, it is difficult to discuss whether or not, from the perspective of a hypothetical beaver, the pattern of events after death at the hands of a human predator changed from the Mesolithic to the Neolithic. This is because there is still relatively little evidence to shed direct light on how human settlement patterns differed between the two periods (see Bayliss *et al.*, this vol.; Bradley, this vol.). However, we can approach the question by looking at the evidence for where and how human predators processed the corpses of their victims. Primarily, this means looking for well-dated beaver bones from secure contexts, and there are not many.

In general terms, a beaver corpse must have been close to the weight limit for a human to carry home in one piece rather than processing at or close to the kill site, for the younger adults weigh 20-25 kg and older individuals are usually heavier, occasionally close to 40 kg. This weight range is similar to that of roe deer, or prehistoric sheep. But there are factors to consider in addition to weight: mesolithic and neolithic humans may have been stronger than those of today, and the distance from kill site to hunter's home may have been short, for beavers and humans often live in close proximity, while if there was a journey to be made it could have been by water, making transport of a number of corpses relatively easy. However, the archaeological evidence for processing suggests it generally took place at or near the kill sites, as it comes mainly from locations suitable for beaver habitation.

In looking for sites with evidence for humans having hunted, killed and processed beavers, in other words procurement sites, the vagaries of archaeological preservation are striking. Beavers and humans were widely distributed through Britain from the early Holocene onwards, if thinly at first, but the evidence for their presence and interaction

Figure 16.5 Beaver evidence from Britain, 13500 BC – 4000 BC (for site codes, see Coles 2006, Appendix 1).

survives only patchily (fig. 16.5). For the Mesolithic, the Thames catchment is the most prolific area, and it remains significant through the Neolithic when Yorkshire and the Fens of East Anglia also have relatively abundant evidence.

Along the Thames and its tributaries the Colne and the Kennet, beaver bones have been found in the course of excavating sites where mesolithic humans had settled. A small cluster of sites in the Colne valley, immediately west of Heathrow airport, suggests that from time to time humans had settled on a gravel island in the marshy valley, or perhaps on the banks of a river channel. The debris of occupation, at sites such as Three Ways Wharf, and the Sanderson Factory, Denham, indicates that the humans sometimes came as family groups, sometimes in smaller parties, for a few days or for longer spells (Lewis 2000; Lakin/Halsey 2004). Amongst hearth remains and burnt flint, the majority of the animal bones are from deer and wild pig, with just a few molars and rare limb bones to show that beavers were also taken. Either most of the beaver corpses were taken away for processing elsewhere, unlike the deer and pig, or the humans had less desire for beavers than their other prey.

The Kennet, a river of considerable archaeological renown, joins the Thames at Reading. The river is also well known to beaver enthusiasts, as many beaver bones have been found in the valley peats and clays over the centuries, most of them unfortunately not dated. A number come from around the town of Newbury, where human sites of mesolithic date such as Thatcham, Faraday Road and Marsh Benham, provide evidence of predation (Churchill 1962; Wymer 1962; Healy *et al*. 1992; Ellis *et al*. 2003; Reynier 2006). As in the Colne valley, there are hearths and worked flints and animal bone, and again the evidence is suggestive of variety in the size and duration of human settlement, with repeated visits to favoured locations.

Beavers were clearly not the main prey here, either, but there is more evidence for local processing, with chopped and probably cooked beaver from Thatcham. The range of prey species includes wild cat and pine marten, suggestive of hunting for furs, in which case the beaver corpses were almost certainly skinned and the pelt taken for curing and use; indeed, it is hard to imagine any human hunters leaving a beaver pelt behind, and one site where skinning is suggested is Faraday Road, upstream of Thatcham.

At both of these sites, it seems that the humans settled themselves firmly within a beaver territory, for at Thatcham there are indications in the sediments for still water, possible lakes or beaver ponds, and gullies that were probably beaver exit paths or canals, while at Faraday Road gullies were also noted. In fact, at all of these mesolithic sites the marshy valleys, scrub vegetation, side channels, still and flowing water, and occasional disturbance of vegetation and of sediments, on the Kennet as along the Colne, all point to beaver activity. Both adult and young beavers fell prey to the humans; at Thatcham, there were bones from at least six adults, indicating that at least three beaver families were affected, either separate generations of one resident family or the resident family and others taken from further afield.

From northern England in the early Holocene there is a further example of mesolithic humans settling in beaver territory and preying on the local fauna including the beavers, and here too there appear to have been repeated human visits of varying intensity and duration. In this case the beaver territory was along the shores of a lake, and may have extended to one or more of the offshore islands, and the humans appear to have taken over a beaver bank lodge as a convenient platform for waterside activities. As at Thatcham, more than one beaver family suffered losses when the human predators were around, maybe in the course of several visits, with absences allowing the beavers to re-establish their social order. Human activity, like that of the beaver, extended along the lake shore, the two species probably alternating in their use of shore-line heaps of wood, each adding material during their spells of occupation. The beavers brought in mud and stones as well as bits of wood, while the humans contributed wood, antler and animal bone and worked flints. Thus, over the generations and with maybe three to four beaver generations to every human one, the evidence accumulated for several centuries of the early Holocene, to be preserved by waterlogging. In the late 1940s AD, a local amateur found flints exposed in the soils just above the waterlogged zone. Then Grahame Clark, the leading archaeologist of the Mesolithic in Britain, came to excavate, and the site became known to the world as Star Carr (Clark 1954; Mellars/Dark 1998; Conneller/Schadla-Hall 2003). Humans being what they are, the beaver input to the origins and development of the site has on the whole been neglected, although their presence as prey has been recognised.

There is one rather different context where beaver bones have been found in association with human activity, and that is in caves. At Gough's Old Cave in the Mendips, for example, a beaver bone has been dated to the 9th millennium BC (Hedges *et al*. 1987). However, many caves open onto a watercourse, in addition to which beavers frequent cave systems of their own volition, especially those with streams, and they may even make their dens in a cave. It is quite possible, therefore, that the cave finds derive from beavers hunted close by, and some may even represent natural deaths (Coles 2006, fig. 5.3).

Overall, the mesolithic record for beavers is biased towards places of human activity, because that is where archaeologists work, and where most resources for identification and dating are directed, but there are also stray finds of beaver bones dated to the earlier Holocene. They range

geographically from Abbotsbury in Dorset, close to the present coastline, to southeastern Scotland where bones have come from Middelstot's Bog, West Morriston Bog and Linton Loch. The Scottish finds date between about 6500 and 5000 cal BC, and represent the first evidence for beavers living in northern Britain, although if they had reached Star Carr by about 9000 cal BC it is likely that they had spread into what is now Scotland within a few centuries at most.

16.2.2 Neolithic

From 4000 cal BC onwards, as farming became established in Britain (see Bayliss *et al*., this vol; Bradley, this vol.) were beavers at greater or lesser risk of predation by humans? Were there any changes in the ways they were caught and killed? Just asking these questions underlines that we do not as yet know much, from a beaver perspective, about the pre-farming days: how did humans kill beavers in the supposed heyday of hunting, prior to neolithisation? All we have are some of the places and approximate times that the remains of the corpses came to rest. Nor do we have much detail of the uses humans made of their prey, just the occasional hints of cooking or skinning. During the Neolithic, the evidence becomes more diverse, but still leaves plenty of room for speculation (fig. 16.6).

Humans continued to settle in beaver territories, and they continued to prey on beavers. Sometimes, it is the evidence for human and beaver presence in the same waterside territory that is strong, for example from a side channel of the Thames at Dorney, now turned into the Eton Rowing Lake. The co-existence seems to have endured here for more than half a millennium, from the early Neolithic onwards, and in the first decades of human presence it seems people were most active precisely within the main land zone of beaver activity, that is within 50 metres or so of the channel edge (Allen *et al*. 2004). Runnymede, a short distance downstream from Dorney (Needham 1985; Needham/Trott 1987) has also revealed the comings and goings of beavers and humans, as has West Cotton in the Nene valley in Northamptonshire (Harding/Healy in press). At all of these sites, the presence of both beavers and humans is evident, possibly but not necessarily contemporaneous, but with little to show that the humans were hunting the beavers.

A different picture emerges from around the East Anglian Fens, an area that was relatively well-drained earlier in the Holocene, but increasingly marshy and fen-like as sea-level rise caused the inland rivers and streams to back up. Both before and after the spread of fen conditions, there were beavers and humans in the area, but it is from the mid to late Neolithic that predation becomes apparent, from Burwell Fen and Babraham in the southeast and from Barholm in the west. In the nineteenth and early twentieth centuries numerous beaver bones were acquired by the Sedgwick Museum and the Zoology Museum of Cambridge University from the Burwell Fen turbaries, mostly without any detail of context. However, there are hints of possible accumulations of bone, and a couple of instances of skinning and butchery marks, suggesting that perhaps the nineteenth century peat cutters had dug their way through a base camp of prehistoric beaver hunters (Coles 2002). Recent dating of some of the Burwell bones indicates beavers dying in the late 4th to later 3rd millennium BC (Coles 2006, 219). At Babraham, late twentieth century excavations ahead of development revealed human occupation debris from several pits and a hollow, dating to the mid 3rd millennium BC (Hinman 1999, 2001). The animal bone included several beaver teeth and a couple of forelimb bones, as well as bones from other fur-bearers such as marten. The marten appeared to have been skinned and the corpses discarded whereas one beaver at least was apparently chopped up as if for cooking a stew. At Barholm (Simpson 1993), a site similar in character and date to Babraham, there were just two beaver teeth amongst remains of both wild and domestic animals, and here too it is thought the human hunters were after furs as well as meat.

For procurement sites, therefore, the archaeology of the Neolithic is really very similar to that of the Mesolithic, in that we can say humans preyed on beavers, and sometimes that they skinned and cooked them. One difference is that the neolithic humans dug pits and hollows, which subsequently acted as traps for some of the remains of their activities. This has enhanced the archaeological record compared to that of the Mesolithic but probably had little effect on beavers at the time, unless any of the pits were suitable as dens once the humans had gone. Another difference lies in the humans' use of pottery, which required digging for clay, and foraging for fuel; this may have led the humans to interfere more directly than before with a beaver family's organisation of its surroundings, though not to the extent of driving them away. A third difference is a modern one, the tendency of archaeologists to have different expectations of the Mesolithic as compared to the Neolithic, which colours both their research designs and their interpretations. In this respect, Leendert's excavation and publication of sites such as Bergschenhoek, Hardinxveld and Schipluiden have been most valuable, in opening our eyes to the nuances of neolithisation and the possibilities of continuity alongside change (Louwe Kooijmans 1987, 2001; Louwe Kooijmans/Jongste 2006).

However, procurement sites are not the only types of places with evidence for the human exploitation of beavers, and that is perhaps the big development of the Neolithic, that we have a wider range of evidence for how and where humans made use of the beavers they had killed. Before the Neolithic, there is little evidence for humans taking dead beavers away from their kill sites. After 4000 cal BC, there

Figure 16.6 Beaver evidence from Britain, 4000 BC – 2000 BC (for site codes, see Coles 2006, Appendix 1).

is a marked expansion in the diversity of types of site where beaver remains have been found, although the quantities remain on the low side. Away from the procurement sites, beaver remains have been found in long barrows, in causewayed enclosures, in and around henge monuments and at 'one-off' sites, all of which can be termed 'consumption' sites as far as the beavers were concerned.

The examples chosen all come from southern Britain, where beaver evidence as a whole is more abundant than in the north; a reflection of geology, soils and bone preservation, and of the scope and intensity of recent development activity and associated archaeological investigations. It is not a true reflection of the past situation, for we know that beavers occurred as widely in Britain as humans. The gaps in the record for their exploitation by humans, from Wales for example where the first Holocene beaver finds are of Bronze Age date, serve to underline the patchy nature of the archaeological record in general. This question of bias is further discussed, from another angle, by Bradley (this vol.).

At the Coneybury Anomaly, a large pit near Stonehenge with no clear function (hence its name), the lower fills included red deer and roe deer, fish and bones from two young beavers, and at least one more beaver was found in the upper fills (Richards 1990). The site is not far from the River Avon, and the beavers most probably came from there. Further up the Avon valley, at the huge henge monument of Durrington Walls, the excavations of the late 1960s revealed a greater variety of wild animals: red deer, roe deer, wild cattle, and just a few bones each from badger, fox, pine marten and beaver (Wainwright and Longworth 1971). In the early 1990s a few more beaver bones were found in a pit to the north of the henge (Cleal *et al*. 2004). At Silbury Hill, beside the River Kennet and close to the enormous Avebury henge, deposits from the top of the massive mound included bones from a young beaver, and from red deer, fox, hare and frog; these finds are most probably of neolithic date (Whittle 1997). A few minutes walk down the valley from Silbury, at the West Kennet palisaded enclosures (Whittle 1997), one beaver bone was found and a few from red deer and roe deer. The Kennet flows through and around these two enclosures, which may well have been imposed on a beaver territory. At all of these sites, the remains of wild animals could be the debris of daily life and residues of hunting, while some of the smaller animals may have been hunted by children. Nevertheless, there is a close association with major monuments.

Elsewhere, the beaver remains seem to be more deliberately included within monuments, a perception coloured by our understanding of the sites as places to do with death. At Duggleby Howe in East Yorkshire, in the smaller of two graves cut into the ground and subsequently covered by a large mound, an adult human was buried along with various objects including flint arrowheads, a bone pin, 12 tusks from wild pig and two beaver incisors (Mortimer 1892). A token of beaver to associate with the dead person? At Hambledon Hill in Dorset, by contrast, diverse beaver bones have been found in all the major areas of the complex of causewayed enclosures and defences, including the areas with strong mortuary associations, and from early to late in the neolithic use of the hilltop (Mercer/Healy in press).

There are further finds of beaver remains from 'consumption' sites, but not many and none of them occur north of Yorkshire.

16.3 Discussion

Readers may wonder if it really mattered to beavers, that following neolithisation their skeletal remains came to rest in a greater diversity of places than in the Mesolithic, sometimes removed from their natural habitat. I would argue that it did, for the species if not for the individuals concerned, because the more uses humans had for them, the more frequent and intense their predation of beavers became. It is also likely that some of the uses went beyond subsistence exploitation of the corpse. At a number of the sites mentioned, the bones of wild animals are much less common than those from domestic species, and there tends to be just one or two bones from several species, as if each species had a distinct value which did not lie simply in its fur or meat or teeth, or other quantifiable physical property.

Neolithisation involved, amongst other things, a development in subsistence based on domestic plants and animals. However, none of the evidence from these 'consumption' sites relates directly to farming, to the places where domestic animals and crops were tended, nor as far as we know to where they were stored and processed once harvested. This gap in the record may be a reflection of the paucity of neolithic settlement sites known from Britain, and where they are known (principally from mainland Scotland and the Islands) either bone preservation is poor or, in the case of the Orkneys and Shetlands, beavers were not present. The consumption sites are places which archaeologists traditionally associate with ritual and ceremonial and death, places additional to the procurement and settlement sites of daily life and the acquisition of basic necessities. Humans took beavers, albeit most probably dead ones, into these new places, and that is one of the contrasts between the Mesolithic and the Neolithic, that we have evidence for beavers from outside their own habitat.

In both procurement and consumption sites, one element of newness in the Neolithic record for human activities is digging, on a much bigger scale at the consumption sites than the procurement ones, but present at both. And, in contrast to the procurement sites, the digging at consumption sites is accompanied by construction using earth and stone and wood.

From a beaver perspective, humans had begun to imitate some of their own activities, digging pits not unlike their own dens and gully-like ditches and building lodge-like mounds.

One consequence of this development was an increase in the opportunities for preservation of archaeological evidence, both within dug features and under or within mounded earth. If one feature of neolithisation was an enhanced archaeological record, giving an increased chance for activities to become archaeologically visible, it is not so surprising that what we know of the past becomes more varied than for the Mesolithic. But to what extent we are right to assume the variety reflects a more complex life is another matter. Beaver archaeology emphasises how many gaps there can be in our archaeological knowledge, due both to variable preservation of the potential record and to the way archaeologists treat the recovered evidence, as for example with their choices over what to study in detail.

Therefore, to conclude this attempt at a beaver perspective on the changes that took place from Mesolithic to Neolithic, I would suggest that it emphasises two things in particular. Firstly, it highlights some of the ways in which changes in past human behaviour can influence the whole of the potential archaeological record, beyond the aspects directly related to the new behaviour. Secondly, rather than the traditional themes of changes in settlement or material culture or subsistence, the beaver perspective identifies digging and building as the major change in human activity following neolithisation; what is more, the relevant earth-moving was not in the context of farming. It was the veritable explosion of digging and building by humans in the Neolithic that led to the significant enhancement of the potential archaeological record, which leads us now to interpret the Neolithic as a more complex period than the Mesolithic. This may be valid in terms of enduring physical manifestations, but not necessarily so in terms of the conceptual lives of humans.

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