

DEBATES IN ARCHAEOLOGY

Series editor: Richard Hodges

- Against Cultural Property**, John Carman
The Anthropology of Hunter Gatherers, Vicki Cummings
Archaeologies of Conflict, John Carman
Archaeology: The Conceptual Challenge, Timothy Insoll
Archaeology and International Development in Africa,
Colin Breen and Daniel Rhodes
Archaeology and Text, John Moreland
Archaeology and the Pan-European Romanesque, Tadhg O'Keeffe
Beyond Celts, Germans and Scythians, Peter S. Wells
Combat Archaeology, John Schofield
Debating the Archaeological Heritage, Robin Skeates
Early European Castles, Oliver H. Creighton
Early Islamic Syria, Alan Walmsley
Gerasa and the Decapolis, David Kennedy
Image and Response in Early Europe, Peter S. Wells
Indo-Roman Trade, Roberta Tomber
Loot, Legitimacy and Ownership, Colin Renfrew
Lost Civilization, James L. Boone
The Origins of the Civilization of Angkor, Charles F. W. Higham
The Origins of the English, Catherine Hills
Rethinking Wetland Archaeology, Robert Van de Noort and
Aidan O'Sullivan
The Roman Countryside, Stephen Dyson
Shipwreck Archaeology of the Holy Land, Sean Kingsley
Social Evolution, Mark Pluciennik
State Formation in Early China, Li Liu and Xingcan Chen
Towns and Trade in the Age of Charlemagne, Richard Hodges
**Vessels of Influence: China and the Birth of Porcelain in Medieval
and Early Modern Japan**, Nicole Coolidge Rousmaniere
Villa to Village, Riccardo Francovich and Richard Hodges

The Anthropology of Hunter-Gatherers: Key Themes for Archaeologists

Vicki Cummings

B L O O M S B U R Y
LONDON • NEW DELHI • NEW YORK • SYDNEY

readers will have an understanding of the basic approaches to the study of modern hunting and gathering populations and an idea how to use this to inform our studies of past peoples.

Conclusion

In this opening chapter, the aims of the volume have been stated, and a very brief history of the study of hunter-gatherers has been considered. We now have a definition of the term 'modern hunter-gatherer' which will be referred to throughout the volume. We have also considered the issue of ethnographic analogy, and briefly explored how this has been used by past and present archaeologists. It has been suggested that there are different types of analogy, and that these can offer archaeologists different ways of understanding the past. The usefulness of ethnographic analogy from an *interpretive* background is now explored in different thematic chapters throughout the book.

Making a living: Hunter-gatherer subsistence

Summary of chapter

The chapter starts by discussing the ways in which hunter-gatherers find food: through hunting, gathering and fishing. It also details the importance attached to different food stuffs, and highlights, in particular, the significance of meat. The chapter then goes on to detail some of the key ways that anthropologists have characterized different hunting and gathering subsistence economies including the differences between 'immediate return system' and 'delayed return system' hunter-gatherers and we explore whether these terms are useful when thinking about prehistoric populations. While it is clear that food security is an essential component of life, the chapter then considers the symbolic importance of food, investigating the social role that food plays in people's lives. The significance of taste is explored through a case study which considers the introduction of farming into Europe at the start of the Neolithic. Finally, the intrinsic link between what you eat and how you understand the world is discussed, which is highlighted with a case study from Upper Palaeolithic Europe, and further developed in Chapter 5. We then evaluate the usefulness of studying the foodways of modern hunter-gatherers for understanding the use and meaning of food to past peoples.

Introduction

Food is an absolutely essential part of life, and as such has featured heavily in studies of hunter-gatherers. In addition to this, it is something that can be studied relatively easily, both among living populations as well as in the archaeological record. The study of what hunter-gatherers ate became very popular with the development of 'cultural ecology', an academic movement which was interested in the relationship between the environment and the effect that this had on the social organization of groups. This approach fitted into the broader 'New Archaeology' in America in the 1960s, pioneered by Binford (1962), which had a particular interest in the effect of the environment on people. It is relevant to note that Binford, the leading proponent of the New Archaeology, himself studied modern hunter-gatherers, conducting substantial fieldwork among the Nunamiut in order to understand prehistoric populations (Binford 1978). One of the key texts to come out of the cultural ecology approach was *Man the Hunter* (Lee and DeVore 1968), an influential and important volume which marked a key milestone in the study of hunting and gathering populations.

Since these important steps in exploring how groups utilized their individual environments, considerable research has been conducted on what hunter-gatherers eat. This chapter only offers a brief taste of that broader literature. In particular, it focusses on the importance of hunting, gathering and fishing to communities, in terms of calories as well as in relation to the ways these practices effect daily life. The chapter explores the meanings attached to different foods and practices, both ethnographically and in the past. It is argued that the economic and symbolic significance of meat, plants and fish are not diametrically opposed, but inextricably linked.

Hunting

Meat is an extremely significant part of hunter-gatherer diets, not just in terms of calories gained from eating meat, but also for the raw materials for making objects. As discussed later, eating meat is also very desirable, and there are considerable symbolic aspects to hunting, killing and eating meat. Meat is also important because it can also be stored for long periods of time, by smoking, salting, and in northern climates, freezing. This means that one large game kill can feed many people over a long period of time.

The types of animal hunted by different groups varies according to climate. In northern Eurasia and Arctic North America people rely heavily on reindeer (also called caribou: *Rangifer tarandus*). This includes the Evenki (Anderson 1999), Chukchi (Schweitzer 1999) and Caribou Inuit (Burch and Csonka 1999). Vast swathes of North American groups who lived on the plains such as the Crow, Comanche and Blackfoot groups relied heavily on buffalo (DeMaille 2001, 6). In other areas, such as Africa, smaller mammals are significant for diet. The Mbuti of northern Congo, for example, primarily rely on duikers (small antelopes), as well as occasional larger animals such as buffaloes and elephants (Ichikawa 1999, 211). Many hunter-gatherer groups eat smaller animals to supplement their diet, dependent on what is available locally, including beaver, rabbit, hare, monkey, squirrel and marmot. These are useful not only for meat but for fur as well. For many groups, then, the hunting of meat provides a substantial proportion of calories consumed (Table 2.1).

Hunting methods are as varied as the range of animals being hunted. Bow and arrow, including the use of poisoned arrows, clubs and spears have all been used by the Kutse group of the central Kalahari for hunting (Kent 1996). The use of a bow and arrow and spears enables a single hunter to kill animals, and is a frequent way of hunting in both Africa and Australia. There are other documented ways of killing

Table 2.1 Percentages of food deriving from hunting, gathering and fishing (data from Kelly 1995, 67–9), emphasizing groups who rely heavily on hunting

Group and location	Hunting %	Gathering %	Fishing %
Nunamiut, Arctic North America	87	3	10
Blackfoot, North American plains	80	20	0
Kiowa, North American plains	90	10	0
Comanche, North American plains	90	10	0
Mbuti, central Africa	60	30	10

game, especially big game. Blackfoot groups drove herds of buffalo over bluffs or into a corral where the animals could be killed more easily (Kehoe 1999). Large herds of reindeer were hunted in a variety of ingenious ways (Spiess 1979, Chapter 4). In North Alaska, the Tikkerarmiut created a funnel of willows, which the herd wandered into at one end: a series of snares captured up to 200 animals in one go (Gordon 1989). Other groups drove herds into lakes and rivers, where they would be killed by waiting hunters; these carcasses could then be floated to the shore where they were butchered. There are also records of reindeer being driven off cliffs and driven into snow drifts (Gordon 1989). These methods often required a large workforce, first hunters to drive and then kill the animals, and secondly people to butcher and deal with the large number of carcasses being produced in a single event.

Meat is a good source of calories, as well as other by-products, and there are a diverse range of methods for hunting. Optimal foraging models have been influential in anthropological studies of hunting and gathering groups (see Kelly 1995, 73–108 for an excellent summary). Quite simply, this involves looking at the potential calorific gains of living in particular environments and then seeing if hunting and gathering groups acquired food in the most efficient way possible. Studies have shown that, for the most part, people do acquire food very efficiently. They usually expend as little energy as possible,

while gaining the greatest calorific return. There are exceptions to this 'efficiency rule' however, and one of these exceptions involves meat. Many ethnographic accounts highlight the *desirability* of meat to hunter-gatherer groups. Of course meat is desirable in terms of calories gained (meat contains essential protein and fat for the human diet), but in addition to this, people will go to considerable lengths to acquire meat. Among the Ache of Paraguay, South America, gathering palm fibre and shoots acquires 2,630 kilocalories an hour of effort (Hill and Hurtado 1999). Hunting, however, only gains 1,340 kilocalories an hour (Kelly 1995, 107). Hunting is thus less efficient than gathering, but nevertheless is undertaken and this may be in part due to the desirability of meat as a food stuff as well as the status of meat.

Many hunter-gatherer groups consider meat to be higher status than plant foods or fish. This is partly because of its desirable taste and partly because hunting is considered higher *risk* than gathering plants or fishing. As such, it is possible for those involved with the acquisition of meat to gain considerable prestige; being good at hunting demonstrates skill and gains social prestige among many groups (Gurven and Hill 2009; Jordan 2006, 92). Among the Ache, men may gain more sexual partners as a result of acquiring more meat (Kelly 1995, 107). Bofi and Aka hunters actually use less efficient methods of hunting small game in order to gain socially and politically; in this case, the most efficient way of hunting would be to use snares but they use nets instead which is riskier and less successful in terms of calorific return (Lupo and Schmitt 2005, 341). This does not work in all societies, however. Among groups in the Kalahari hunting success is downplayed, so that no one individual is able to gain more prestige than anyone else (Kent 1989, 4). However, this specific example relates to a deliberate choice to not have people of higher status within a group (egalitarianism) and is explored in more depth in Chapter 4. Therefore, hunting, and meat in general, seems to have a higher status in hunting and gathering societies than is justified by its calorific contribution only. However, we should be aware

that ethnographers have reported that the vast majority of hunting is done by men (not exclusively, and there are notable exceptions: see Bliege Bird and Bird 2008, 678). Thus, there may be gender implications associated with the perceived value of meat (see Chapter 4 for more details about gender relations in hunter-gatherer societies).

In addition to the high status of hunting and meat in society, hunting is also significant because it plays a crucial part of complex relations between people and animals. Hunter-gatherer groups are *animist* in their belief systems (see Chapter 5 for more details on this). This means that hunter-gatherers understand themselves to be part of the animal world, where animals and humans are essentially interchangeable beings: put quite simply, people and animals are the same on the inside, just different on the outside (Viveiros de Castro 1998). Thus, among most hunter-gatherer groups it is inconceivable to just go out and kill an animal. Instead, special rites need to be carried out in order to keep the spirits of the animals happy (Binford 1978, 413). Among some groups, they must ask the permission of an animal before it can be killed (Ingold 2000, 48). Indeed, ethnographically, there are a whole variety of different rites and processes that must be undertaken before, during and after the hunting of an animal. This is detailed further in Chapter 5, but it is essential that we appreciate the significance of beliefs in everyday actions (Jordan 2006, 95).

Gathering

Plant foods provide a critical component of many hunter-gatherer groups' diets. It is only groups that live in the most extreme northerly climates that do not gather plant foods at all. Many other groups rely heavily on gathered foods, although there is considerable diversity across the world (Kelly 1995, 66–9; Table 2.2). Indeed, the importance of gathering to these societies has led to the use of the phrase 'gatherer-hunter' instead of the more traditional 'hunter-gatherer'

Table 2.2 Percentages of food deriving from hunting, gathering and fishing (data from Kelly 1995, 67–9), emphasizing groups who rely heavily on gathering

Group and location	Hunting %	Gathering %	Fishing %
Ju/'hoansi, southern Africa	15	85	0
G/wi, southern Africa	15	85	0
Hadza, central Africa	35	65	0
Aranda, Australia	40	60	0
Walbiri, Australia	30	70	0

(Bender and Morris 1988). There are a wide variety of foods that can be gathered and eaten. This includes nuts, berries, fruit, beans, tubers, seeds and roots. For example, among the Ju/'hoansi over two-thirds of their diet is gathered foods, including the staple Mongongo nut (Bieseke and Royal-/O/OO 1999, 206). The sheer range of edible plant foods in most environmental zones means that these foods provide an essential and variable range of resources that can be utilized at different points throughout the year.

Other things are gathered too; insects are eaten by many groups. In Australia, people eat both witchetty grubs and moths (Flood 1980). While these are not plant foods in our classification of the natural world, they are conceptualized in very much the same way as plants among hunter-gatherers; they are not considered animate beings like larger mammals, and therefore are 'gathered' like nuts or berries. We could also include here the gathering of shellfish, which again are considered broadly comparable to plant foods, but are discussed below with marine foods.

Gathering plant foods provides an essential and reliable source of calories for most hunter-gatherer groups, but in contrast to hunting, it is often not regarded as being a high status activity. This may partly relate to the fact that gathering is frequently, although not exclusively, done by women, and they tend, although again not exclusively, to be perceived as being lower status than men (Svensson 1999; and see

Chapter 4). This does not mean that people do not appreciate the value of plant foods, or indeed the role of women in collecting them, but it is not as highly prized as meat. Furthermore, although animistic belief systems understand the world as animate, plant foods, while potentially having a spiritual force, are rarely seen as being 'essentially the same as' human beings. This means there are rarely a strict range of practices that must be followed before, during and after gathering as there is with hunting. It is also worth noting that hunter-gatherer groups do not always eat absolutely everything that has calorific value. Some foods are deliberately not touched. For example, the Hadza of Tanzania will not eat insects, reptiles, fish or fresh-water molluscs, even though these provide a potential source of food (Kaare and Woodburn 1999; Woodburn 1988).

The one exception to the 'rule' that gathered foods are lower status is honey. This is highly prized among many hunter-gatherer societies and considerable effort is spent trying to acquire it (see de Heer 2006). Perhaps the best-known example of honey-loving hunter-gatherers are the Okiek of Kenya, among whom honey is highly prized (Blackburn 1982; Kratz 1999, 221). In a world with very limited supplies of sugar, and in keeping with the West's desire for sugary goods, it is perhaps not surprising to see that honey is so highly desirable and prized.

Case study: The introduction of domesticated animal and plant foods into Europe

One of the big questions in prehistoric archaeology revolves around the question of why Mesolithic hunter-gatherer populations throughout Europe adopted farming, particularly the incorporation of domesticated plant and animal foods into their diets (Hodder 1990; Whittle 1996; Whittle and Cummings 2007). Quite clearly this was a process, or series of processes, that took place over a vast area



over thousands of years, and to try and reduce this to a single 'cause' is impossible. There are a wide variety of interpretations surrounding this transition and these different models demonstrate a range of possibilities, but they can be very briefly summarized as:

- People wished to adopt a more settled way of life, which included farming.
- Neolithic people spread across Europe over thousands of years, essentially 'converting' or 'assimilating' Mesolithic people to a Neolithic way of life as they went.
- Mesolithic hunter-gatherers actively decided to adopt the Neolithic, perhaps because it represented a more attractive lifestyle (whether that related to food, new forms of material culture, or belief systems).

It seems highly likely that all of these different scenarios may have been relevant in different parts of Europe.

One aspect of the transition to the Neolithic that is rarely discussed, however, is that of taste. There is plenty of discussion surrounding the problems and benefits of keeping domesticated animals and plants, versus the relative merits of hunting and gathering. There is also discussion on the symbolic and status benefits of keeping domesticated animals. However, we should consider the fact that both domesticated animals and plants provided a new range of tastes for people eating them. An appreciation of taste is part of an understanding that the world is experienced through all of the senses (Rodaway 1994; Skeates 2010). Taste preferences are strongly influenced by one's cultural context (Skeates 2010, 4), and of course can change over time, and we will never be able to demonstrate what tastes people preferred in prehistory. However, we do know that people adopted the use of domesticated animals and plants across virtually the whole of Europe, and this may have been in part that these things offered new and various tastes not previously regularly encountered. Domesticated animals, particularly cattle, provided not only meat but also milk, which was not easily available in large quantities in the environments utilized by hunting and gathering populations. Milk could easily have been converted into other products, including cheese, butter and yogurt,



all of which are rich in fat (fat being very desirable in hunter-gatherer ethnographies) and each with a distinct and new taste. There is plenty of evidence from Europe to show that people were using milk and milk products from the start of the Neolithic onwards.

Likewise, the introduction of domesticated plants in the Neolithic also offered new tastes (bread being a staple of many cultures' diets) and made stodgy carbohydrates much easier to produce in large quantities. The other new taste made widely available to people with the introduction of domesticates is alcohol (see McGovern 2009). Domesticated plant species such as barley could easily have been used in the fermentation process; indeed there is clear evidence that this was the case in the Neolithic (Dineley 2000). Alcohol is certainly a new taste and it had additional side-effects which may have been highly valued and appreciated (the ability to enter other states of consciousness: see Chapter 5). While we know that alcohol leads to drunkenness, in a society with no knowledge of the chemical effects of alcohol, this may have been interpreted in quite different ways, with strong connections with belief systems. There is substantial evidence for ritual specialists entering altered states of consciousness as part of ritual practice, as discussed in Chapter 5.

The suggestion that domesticates were adopted in the Neolithic because they provided new tastes to the hunter-gatherer palate is conjecture, but we should not underestimate the non-practical or non-functional aspects of decision making in getting food. Variety in taste, as well as unexpected side-effects, may have been as good a reason as any for the adoption of domesticated plants and animals. Many who have even been on a dairy-free, low carb, alcohol-free diet will testify to the desirability of these foodstuffs in the diet.

Fishing and marine resources

So far we have considered the hunting of animals and the gathering of plant foods, but the use of marine foods are also very important for some hunter-gatherer groups. Indeed, this has led to the use of the 'hunter-gatherer-fisher' among some scholars, in order to highlight

the economic significance of fishing to these groups. A wide range of marine resources are used by hunter-gatherer groups, including fish, large sea mammals such as whales and seals and shellfish. These groups tend, historically, to be in colder climates, where the water is productive and there are not a range of year-round resources, particularly plants (Table 2.3). Fishing in rich waters enables groups to acquire considerable quantities of fish rapidly, which, like meat, can be stored for use later. Fish can be processed quickly, then smoked, salted or even frozen for consumption later on.

The relative merits of hunting and gathering have been discussed above, and it seems that fishing is perceived in a similar way to gathering, in that it is not considered a risky or prestigious process. However, among those groups that rely very heavily on seasonal fish supplies (see below) fish do play an important part in their mythology, and fish are considered to share many characteristics with humans just as other animals do (animism). This means that there are rules in place when dealing with fish, just like there are with the hunting and killing of animals (Jordan 2003, 115). Groups of hunter-gatherers from the Arctic North are well-known ethnographically for relying very heavily on marine resources (Riches 1982). For example, the Inupiat of Alaska hunt seals, polar bears, walrus, fish and whales (Worl 1999). These larger marine animals are considered as similar beings to people (see Chapter 5) and similar rituals to those involving land animals must be undertaken.

'When a whale is caught, just the body dies, but the whole whale gives itself to all the people. We believe that when you hunt the animals in harmony you won't have problems catching the animals' (Kimmialuk, Inupiat man, from Worl 1999, 64).

Secondly, a number of hunter-gatherers groups of the Northwest coast of America, and the Ainu of Japan, relied heavily on salmon (Inez Hilger 1971; Ohnuki-Tierney 1974). Large harvests of salmon were possible during the spring and autumn salmon runs, and they

Table 2.3 Percentages of food deriving from hunting, gathering and fishing (data from Kelly 1995, 67–9), emphasizing groups who rely heavily on fishing

Group	Hunting %	Gathering %	Fishing %
Chugach Inuit, Arctic North America	20	0	80
Haida, Northwest coast America	20	20	60
Ainu, Japan	20	30	50
Anbarra, Australia	13	22	65
Yahgan, southern South America	20	10	70

enabled these groups to develop extraordinarily complex domestic and ritual lives, which we explore further in the following chapters.

Immediate and delayed return systems

We now consider the notion of a 'return system.' This important idea was developed by Woodburn (1988) and was an attempt to differentiate between different types of hunter-gatherer economies. Anthropologists had noted that there were significant differences between hunter-gatherer groups in the way in which they acquired food. Woodburn describes one form of hunting and gathering as an *immediate return system*. Quite simply, this refers to groups who go out, acquire food and eat it straight away. There is no long-term planning for the acquisition of food, nor the storage of food, instead nutrition is acquired on a 'hand-to-mouth' basis. This contrasts with what Woodburn calls *delayed return system* hunter-gatherers. These groups not only go out and acquire food on a daily basis but they also invest time in longer-term strategies. So, for example, some groups spend time on things that do not have an immediate return; they make nets, traps and weirs which are set up one day, and returned to at a later date. A delayed return system also relates to planning, so large groups of hunters setting up droves to run

herds down also takes a long-term investment of time before there is a reward. Delayed return systems also involve storage. As we have seen, some groups store food after big kills of meat or catches of fish, through smoking, drying, salting or freezing.

Woodburn (1988) noted that the difference between immediate and delayed return system hunter-gatherers does not just seem to relate to how people acquire food. Woodburn went on to suggest that immediate return system groups were egalitarian ('simple' societies) in contrast to delayed return system groups who were ranked ('complex' societies). These important ideas are discussed again in detail in Chapter 4, but there are implications here for archaeologists. There is the strong suggestion in the anthropological literature that particular types of environment dictate how you make a living (i.e. some environments force you to adopt a hand-to-mouth subsistence strategy). This, by implication, would mean that you were forced to be egalitarian. If you follow this logic, then, hunter-gatherers are a product of their environment. This is certainly consistent with the approach advocated by the ecological approach to the past (see Chapter 1). We return to this issue later in the chapter when we assess the usefulness of ethnographic analogy for understanding past diets.

Beyond hunting and gathering: Dealing with domestication and domesticates

It would be easy to assume that modern hunter-gatherer groups only hunt, gather and fish, and that they stand in marked contrast to farming populations who make their living using a very different set of practices. This notion is often perpetuated in archaeology, where there is a tendency to suggest that hunter-gatherers are both economically and socially very different from farmers (but see Finlayson and Warren 2010 and Pluciennik 2005). First, modern

hunter-gatherer groups uniformly have one domesticated animal, and that is the dog. This has historical precedence, as the dog was first domesticated by hunting and gathering populations back in the Palaeolithic (Clutton-Brock 1999, 57–8). Thus the dog has been used by hunter-gatherers for thousands of years, both as food and to assist in acquiring food (Koster 2008). In addition to this there are some apparently wild animals which are domesticated, such as the reindeer herds in Eurasia which are tethered and moved around with people (Spiess 1979). There are also examples where wild pigs are sometimes kept as if they were domesticated (Kent 1996); these animals remain 'biologically' wild, but this should alert us to a key issue here, especially when we are thinking about the matter of domestication in relation to the past; just because animals are biologically wild does not always mean that they were not subject to treatment more akin to the keeping of domesticates. This can include restricting movement, restricting breeding, assistance with feeding, the introduction of animals into new environments, selected culling and familiarization with humans. There may well have been an intermediate position between animals simply being hunted, and animals being fully domesticated (see Clutton-Brock 1999; Outram forthcoming).

Many modern hunter-gatherer groups also actively assist with the growth of wild plant foods. It is common for hunter-gatherers to burn grassland in order to encourage the growth of tender shoots, which encourage game to the area; the Blackfoot of the Plains (United States) did this in order to encourage buffalo to graze in particular areas (Kehoe 1999, 38). There is also evidence of hunter-gatherers planting wild plants, weeding and tending to them and then harvesting them (e.g. Bird David 1992), very much like agriculturalists tend to domesticated plants (Harris forthcoming). As such, there also seems to be an intermediate position between gathering and full-scale agricultural cultivation which is difficult to fit into our rather simplistic division of 'hunter-gatherers' or 'farmers'.

This clearly blurs our distinction of what is a hunter-gatherer and what is not. This also potentially occurred many times in the past. But this did not always (or indeed very often) lead to full-scale domestication; that is, this was not a uni-linear path towards a different subsistence economy (Harris forthcoming). So when we consider modern hunter-gatherer groups, many of the plants and trees that would have been used by past hunter-gatherers are now domesticated in the modern world (nut and fruit trees, roots and tubers and seeds, cereals and pulses).

Various studies, therefore, show that modern hunter-gatherers treat wild plants and animals in a wide range of ways, some of which are broadly comparable to that of agriculturalists. Other studies highlight issues which reveal a different component of hunter-gatherer engagements with animals. It is documented that some modern hunter-gatherer groups who primarily make their living hunting and gathering also keep domesticated animals. The Kutse group of the central Kalahari, for example, get the vast majority of their meat not only from hunting wild animals but they also keep goats from time to time (Kent 1996). However, instead of carefully tending them and looking after them like their nearby pastoralist neighbours, they simply let them out in the morning and hope that they come back in the evening. If they return, this is good, but they are not particularly concerned if they do not as these goats are very much thought of as an emergency backup food, in case hunting and gathering supplies run out, and are thus treated as such. Indeed, it is suggested that these domesticated animals are treated as if they are wild (Kent 1996). All of this reveals considerable flexibility in how hunter-gatherers deal with plants and animals. There is quite simply no 'one size fits all'; wild animals are sometimes treated in similar ways to domesticates, and when modern groups keep domesticates, they are treated as if they are wild. All of this has very interesting implications for the study of prehistoric groups

(both hunter-gatherers and farmers) and further problematizes the notion of a strict dichotomy between these two seemingly different lifestyles (Smith 2001 and see below).

This leads us to a rather unusual situation, but one which still has relevance for the study of prehistoric groups. The Mbuti are a group of hunter-gatherers in central Africa who hunt game in the forest. However, over half of their food comes from the neighbouring Bantu-speaking agriculturalists, with whom they exchange hunted meat for domestic produce (Ichikawa 1999). Indeed, both groups are now reliant on each other, so that the hunter-gatherers rely on farmed produce and vice versa. This has led anthropologists to describe this as a 'symbiotic' relationship, where they are mutually dependent on one another. Interestingly, it is suggested that the Mbuti did not live in the forests prior to the arrival of agriculturalists in the region and thus they are actually a *product* of agriculture, not a response to agriculture (see papers on the 'Kalahari debate' which discusses the same issue: e.g. Solway and Lee 1990; Suzman 2004; Wilmsen and Denbow 1990). This highlights the fact that ethnographically modern hunter-gatherer groups live in the modern world, and that the reality of studying hunter-gatherer populations is that they are very much effected by, and a part of, the modern world. Very few peoples nowadays make a living purely from hunting and gathering, and even those that do are not isolated from the broader world. The vast majority of hunter-gatherers, as recorded by ethnographers over the last few hundred years, interacted with farmers in some form or other (Kent 2002). This is a massive field of study (essentially this is the study of colonialism on native populations, including hunter-gatherers: see, for example, van Dommelen 2004). This highlights the problems of using modern hunter-gatherers to understand past populations. Indeed, we now move on to consider the value of ethnographic analogy for understanding the past.

Case study: Statements in bone: Upper Palaeolithic mammoths

Reconstructing prehistoric diets is a problematic issue. Animal bone assemblages give us a valuable insight into diet in the past, but there are issues of preservation. Animal bone does not preserve well in many environments, and there are also likely to be biases in the record relating to pre- and post-depositional practices. Larger bones from larger mammals often survive better than smaller bones. Plant food remains are even less likely to survive. Where we have human skeletal remains surviving we can also use techniques such as stable isotope analysis which gives a general picture of what people ate (Mays 1998, chapter 9, 182–96). However, the study of modern hunter-gatherer groups indicate that what people ate was not just a practical or functional thing: the consumption of food had an important social and symbolic role in society. This gives us, as archaeologists, potential insight into other aspects of people's lives.

The Upper Palaeolithic period of Europe is a good case in point. This is a long period of prehistory, dating from roughly 40,000 years ago to the start of the Mesolithic c10,000 years ago (Pettitt forthcoming). There are only a limited number of animal bone assemblages from the period, and these are usually preserved in not only very specific types of site, often caves, but also at a range of open-air sites found primarily in eastern Europe. Vast swathes of Europe have very few assemblages at all, and we are even more restricted when it comes to investigating the role of plant foods in the Upper Palaeolithic diet. It seems that people were hunting the large herbivores found in Europe, such as mammoth, woolly rhinoceros, bison, reindeer, horse and wild cattle (Mellars 1994) and also using smaller animals for meat and fur.

One of the most intriguing sets of sites from this period are the large, late Upper Palaeolithic structures from eastern Europe. This area seems to have been one of the 'hotspots' for Upper Palaeolithic populations, a refuge occupied even during the harsh glacial expansions which made parts of Europe uninhabitable at particular points (Pettitt forthcoming). Mezhirich is a well-known site, and one of a cluster of at least 13 sites found around the Dneipr and Desna



ivers. It is in Ukraine and was occupied around 15,000 years ago. The site is not only famous for the dwellings constructed of mammoth bones but it also has external storage pits, hearths, midden areas and considerable assemblages of both artefacts and animal bones (Soffer et al. 1997, 51). The remains of over 100 mammoths have been recovered from the site, not only as the main construction material used for building dwellings but also as spreads of material and in storage pits (Pidoplichko 1998). These structures were clearly used for living in and conducting daily life; there is evidence for tool production (stone, bone and antler), clothing manufacture, food preparation and consumption (Pidoplichko 1998; Soffer et al. 1997, 59). Stays were for months at a time, and people returned a number of times to the location and reused the structures.

The dwellings made from mammoth bones are quite extraordinary structures. They were not quick constructions, but carefully built substantial dwellings. The base of house 1 was constructed from mammoth skulls, and the sides were carefully arranged with bones which created a herring-bone effect. In total, house 1 contained the remains of 95 individual mammoths (Pidoplichko 1998).

It is clearly the case that these animals were an important part of people's diets (see Germonpré et al. 2008), and that the animal bones provided a useful and convenient source of building material, especially when the cold environment meant that there was a lack of timber. But in addition to this, living in a house made of mammoth bones would have made a very strong statement. Imagine the risk involved in hunting the large megafauna of Upper Palaeolithic. Mammoths in particular were massive animals, providing not only enormous amount of calories in a cold and difficult environment but also the successful hunting and killing of a mammoth must have brought considerable prestige to a hunter or group of hunters. Living in a house made from your successful kills would be a powerful statement about your status and ability to provide. It is intriguing that at the site of Mezhirich, while all the houses contained mammoth bones, house 1 contained the most (the remains of 95 individuals as compared with 34 from house 2 and 18 individuals from house 3: Pidoplichko 1998). Reconstructions of the houses therefore reflect this, and house 1 is generally considered



to be more visually ornate than houses 2 and 3. This suggests that the house architecture here may have reflected social status (and see Chapter 3 for more on houses).

Mammoths were not small animals, and kills would have been spectacular, risky, if not downright dangerous and the stuff of stories, legends and myths. Prestige may have been gained or lost through hunting activity. The biography of the individual mammoths may well have been known about by the people living in the structures. Imagine living among the remains of a mammoth that you had killed. Mammoths almost certainly played a critical role in dominant mythologies at the time. We know that mammoth ivory was frequently used as plaques for the carving of symbols and motifs, including some examples from Mezhirich (Marshack 1979). Mammoths are also depicted in engravings at sites such as Gönnersdorf. It could be argued that these images depict the straightforward economic significance of these animals, however at Dolni Věstonice, mammoth bone dominates the faunal assemblage, but is rarely depicted in the art from the site (Bahn and Vertut 1988, 156). Instead, it seems more likely that art depicts important and symbolic creatures from mythology, and this would have changed through both space and time. Rock art is explored in detail in Chapter 6, but it adds yet another dimension to living in a structure made of mammoth bone. Thus, mammoths may have been not only important economically, for food and other animal products, but also as statements of a broader way of life. Being a mammoth hunter may have gained you considerable prestige in society, and living in the remains of your kills a powerful statement about your place in society and in the world.

Ethnographic analogy: Understanding past subsistence

The key debate in this volume is the value of ethnographic analogy, specifically how useful the study of modern hunter-gatherers is for gaining insights into past communities. This brief summary

of modern hunter-gatherer subsistence strategies reveals a whole variety of issues for archaeologists to consider when thinking about past peoples. First, one of the key insights that the study of modern groups provides is that people do not eat foods just for their calories alone. Certainly, people tend to utilize environments in efficient ways, gaining calories from a variety of sources, but this is not sufficient to explain every hunting and gathering choice. The craving for meat and honey in particular is interesting and strongly suggests that people are driven by a desire for foods which provide specific tastes and privileges (such as social status) in addition to nutritional gains. Indeed, the desire for both meat and sugar is not restricted to hunting and gathering populations (a quick look at our own dietary preferences should confirm this). Therefore, it seems highly likely that there was considerable desire for these foods in prehistory. This must surely give us insights into prehistoric diets, and it was suggested earlier that this may even have played a significant role in the adoption of agriculture. The study of modern hunter-gatherer groups also demonstrates that not all foods are eaten because they have calorific value; some food stuffs among some groups are taboo and deliberately avoided. This does not invalidate ecological approaches to the archaeological record which consider the environment and optimum foraging methods, but does instead highlight that caution, and context-specificity, should be employed if at all possible.

Ethnographic analogy also reveals high levels of variability among modern groups. This works on a whole variety of different levels, from the varied amounts of meat, fish and plant foods in different groups' diets, to the range of ways in which animals are hunted. Some groups employ or employed very complex methods for hunting and storing food, Woodburn's 'delayed return system' hunter-gatherers, while other groups are more 'hand to mouth' ('immediate return system' hunter-gatherers). Quite clearly, some of this variety is a result of

people living in different environments, and a good understanding of the environmental context of prehistoric groups is therefore essential for understanding the possibilities for resource exploitation. However, this variety cannot be explained by environmental context alone. Are hunter-gatherers really just a product of their environment? If that is the case, then it suggests that they have no autonomy and are passive figures at the mercy of the environment. This was one of the biggest criticisms of the New Archaeology by post-processual archaeologists from the 1980s onwards. Instead it is perhaps more useful to suggest that the environment *restrains or enables* people in particular ways, but within that environmental niche, people can make a whole series of choices and decisions about what they eat and how they acquire food.

As discussed in the following chapter, what you eat and how you exploit particular resources has an enormous impact on other aspects of life; indeed in the next chapter we explore the issue of mobility, which is directly related to subsistence. Again, this is a choice, not something forced onto people. The variability in subsistence strategies also highlights how problematic it is to label what is an incredibly diverse range of groups 'hunter-gatherers'; many modern groups would appear to have more similarities with past communities who farmed than hunting and gathering populations (see Kent 1989). This highlights a crucial problem with the study of hunter-gatherers; they are not an homogeneous group of people, but highly variable, and the suggestion that they are somehow in direct opposition to agriculturalists is far too simplistic. Indeed, there is the suggestion that there are many groups of people who can be considered low-level food producers, and this label fits both hunter-gatherers and agriculturalists (see Smith 2001). Again this is an issue discussed later in the volume.

The fact that virtually all ethnographically modern hunter-gatherer groups interact with farming populations demonstrates that the study of these groups for understanding prehistoric groups prior to

the advent of farming is going to be problematic. Contact situations always affect people, on both sides, and this is obvious when we see the impact on hunter-gatherer populations when they came into contact with farmers (see, for example, Spielmann forthcoming). All studies of modern hunter-gatherer subsistence are those where farming and farmers are known, and this is quite clearly problematic for studying much of prehistory prior to the advent of farming.

Conclusions

People have to eat. Resource security is an absolutely critical aspect of daily life and efficiency in getting food should not be underestimated. However, the acquisition of food is not just the procurement of calories. Certain foods seem to be much more desirable than other foods, in particular meat and honey, and hunter-gatherers go to extraordinary lengths to get these. Nevertheless, fish and plant foods are also very important in the diet. As we have already begun to explore, animals, fish and plants also all have symbolic roles in modern hunter-gatherer societies. As such, hunting, gathering and fishing is not just about acquiring food, but is part of a broader engagement of people, ideas and the environment, and which can potentially tell us as much about peoples' belief systems as it can about the ways in which they make a living. Furthermore, it has also been suggested that a simple hunter-gatherer – farmer dichotomy is not helpful in understanding either modern groups or prehistoric peoples.

3

Moving on up: Mobility and settlement

Summary of chapter

The chapter introduces some of the basics of hunter-gatherer mobility. It considers various different types of mobility, and the range of sites produced by different movements through the landscape. There are connections between the types of mobility employed by hunter-gatherers and the environment in which they live, but there are many other reasons why people chose to move around, which are discussed in detail. This chapter also considers hunter-gatherer groups who are sedentary. Many aspects of exploring modern hunter-gatherer mobility are extremely useful for understanding past populations, but once again we explore the problems with the use of ethnographic analogy in this field of study.

Introduction

In 1968, the *Man the Hunter* editors made two general, and now very famous, assumptions about hunter-gatherers. They were:

1. They live in small groups.
2. They move around a lot (Lee and Devore 1968, 11).