Topics in Contemporary Archaeology

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This series is addressed to students, professional archaeologists and academics in related disciplines in the social sciences. Concerned with questions of interpretation rather than the exhaustive documentation of archaeological data, the studies in the series take several different forms: a review of the literature in an important field, an outline of a new area of research or an extended case study. The series is not aligned with any particular school of archaeology. While there is no set format for the books, all books in the series are broadly based, well written and up to date.

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> I have had, of course, intimate friends among both scientists and writers. It was through living among these groups and much more, I think through moving regularly from one to the other and back again that I got occupied with the problem of what, long before I put it on paper, I christened to myself as the 'two cultures'. For constantly I felt I was moving among two groups – comparable in intelligence, identical in race, not grossly different in social origin, earning about the same incomes, who had almost ceased to communicate at all, who in intellectual, moral and psychological climate had so little in common.   (C. P. Snow 1959, 2)

> The only presence science has is as a matter of external reference, entailed in a show of knowledgeableness. Of qualities that one might set to the credit of scientific training there are none. As far as the internal evidence goes, the lecture was conceived and written by someone who had not had the advantage of an intellectual discipline of any kind. I was on the point of illustrating this truth from Snow's way with the term 'culture' – a term so important for his purposes. By way of enforcing his testimony that the scientists 'have their own culture', he tells us: 'This culture contains a great deal of argument, usually much more rigorous, and almost always at a higher conceptual level, than literary persons' arguments'. But the argument of Snow's Rede Lecture is at an immensely lower conceptual level, and incomparably more loose and inconsequent than any I myself, a literary person, should permit in a group discussion I was conducting, let alone a pupil's essay.   (F. R. Leavis 1962, 14–15)

The extracts above are taken from two Cambridge lectures. The first, delivered by the late Sir Charles Snow, a scientist and author, sketches the problem which he considers to be inherent to twentieth-century academia, that of the 'two cultures', divided conceptually between those who study science, and those who study the arts. The outline of the lecture, as indicated from this extract, suggested that the two disciplines were simply not talking to each other. This extract illustrates quite clearly the point that I wish to make in this opening chapter with regard to contemporary archaeology; that is, that archaeological scientists and theoretical archaeologists are quite simply speaking in different languages and have

quite different visions of what the study of archaeology entails. This paradoxical disciplinary position has served to force both a vigorous critique of positivism on the side of those practising interpretative or theoretical approaches (see Thomas 1990) and a whole-hearted rejection of poststructuralist theory on the part of those practising scientific archaeology. Here the position can be summed up by Dunnell's assertion that 'the effort, rigour and cost of physical analyses are lost in a humanistic approach where they serve only to aspire story telling' (1993, 164).

Of course, as Snow's extract indicates, the division of intellectual labour between the arts and sciences remains a long-standing problem. However, very few disciplines attempt to bridge the intellectual gap between these bodies of knowledge. The question I wish to ask in this first chapter is do we bridge the gap or do we in fact practise two different kinds of archaeology, each of which produces different orders of knowledge about the past? The aim of this book will be an attempt to examine the problems facing contemporary archaeology as a discipline that is essentially split in its theoretical and methodological aims. The second question I wish to consider is whether this split is theoretically and methodologically surmountable, or whether the two orders of knowledge are ultimately incommensurable?

The second quotation is from a lecture delivered some years later by the late F. R. Leavis, a professor of English Literature and a prominent literary critic. This second lecture inveighed against the coarse-grained nature of Snow's argument, against Snow himself and, to some extent, against science itself as the talisman with which to heal all ills. This extract illustrates the intensity that the debate between scientists and artists often reaches. Such intensity of debate certainly has its parallels in the archaeological literature since the 1960s.

While Snow was both writer and scientist, his sympathy lay with science. His interpretation of the problematic relationship between science and the arts was simplistic; he saw science as the way forward, believing it to be more rigorous than the arts, and more capable of providing both truth and answers for society's problems. Science would emerge as a latter-day holy grail, enabling the gap between rich and poor to be finally bridged. Leavis' main point concerned the quality and rigour of Snow's argument, and he rightly noted that science by itself held little promise if it was not linked to a clearer understanding of society. As we shall see, the debates between the arts and the sciences over rigour, truth and the application of science have considerable resonance with the problems we need to face in examining the position of science and interpretation in the wider archaeological programme.

The intellectual division outlined above is not peculiar to the subject of archaeology; rather, the epistemological division between arts and sciences is a major concern in the construction and understanding of all forms of knowledge. When discussing the different intellectual positions taken up in constructing different orders of knowledge, we find that there are a plethora of terms used to define these interpretative positions. The definition of terms is a traditional issue of contention for those criticising opposing knowledge claims (for example see Reyna 1995). Therefore, in the proceeding section I wish to clearly outline the major problems in our discussion of differing domains of knowledge, to define the terms in which they are discussed, and to examine the ways in which they relate to each other. This clarification exercise is necessary before we proceed on to consider how these varying theoretical positions have been discussed within archaeology. In the account below it will not be possible to define the precise details of each theoretical position; rather I intend to provide a broad overview of the epistemological problems which face both the natural and social sciences. Overall, I want to critically evaluate the practice of science and examine ways in which theoretical or interpretative archaeologists may engage with science. Meanwhile, I also wish to demonstrate the necessity of social theory within archaeology, and suggest ways in which scientific archaeologists may critically engage in social archaeology.

Objectivity and subjectivity

Conventionally, within Western philosophical traditions – at least since Descartes and the early work of Kant (see Toulmin 1990 for discussion of the historical origins of Cartesian dualisms) – the world has been perceived to be composed of two things with differing properties, generally described as objects and subjects. Nature – the world of objects – is seen as an inanimate and immutable essence that existed prior to its description by subjects. Subjects, on the other hand, are perceived as animate and are therefore invested with the ability to act and describe the inanimate world of objects. This section will consider the processes and methods by which scientists, philosophers and sociologists investigate this apparent division.

According to an objectivist position the world consists of objects which exist 'out there', beyond the internal world of human subjects. The relations pertaining between these objects can be adequately described, discussed and studied by perceiving them and then representing them through language. The relationship between our language terms and the

existence of objects in the world is seen as unproblematic and one-to-one. The core concept on which much of the empirical position of objectivism rests is that of phenomenalism. According to this position, the world can only be perceived through its direct apprehension by the senses. Through the description of externally perceived objects, language allows a direct representation of what actually exists in the external world (see Rorty 1991, 1–20). The position of objectivism allows for the possibility of an outsider's view that is able to accurately describe the nature of the world (Putnam 1975). This view can be taken up simply because, as thinking and acting subjects, we have a privileged and external view of nature. When we view objects in this objective manner our sense data correspond exactly with what is found in nature, and the language we use to describe these sense data accurately depicts these data using words. The use of these words in language allows us then to define the boundaries around objects and establish the relations of sameness and difference between described objects. What is more, the relationships between objects perceived in this way are generally seen as causal; in other words, they can be described by simple cause and effect systems. This generalised position broadly encompasses a number of epistemological positions, and each is characterised by the a priori assumption that this general division of the world exists. For instance, logical positivism holds that through building observation-based theories about the world, and testing those theories against the observed world, we are able to adequately describe the true nature of the world (Hempel 1965).

These positions are viewed as essential theoretical tools for the natural sciences. The objective existence of a prior natural world is essential for carrying out science. This is because it is only by assuming the real existence of the natural world that scientists can feel secure that their knowledge provides a description of the world that is valid and consistent. Since the goal of science is the steady and cumulative accretion of knowledge, in order for science to be carried forward and reproduced it must accept the notion of nature as a constant. This constant, the natural world, can always be drawn on to back up arguments concerning the real nature of observations (Latour 1987, 94–100). There are two important points we must draw from this: first, in order to carry out science we must believe in the constancy of the natural world; and second, we must take up a detached position to accurately describe that world.

But there are problems with this view. What if we cannot extricate ourselves from the world in order to describe it? If we consider this possibility, we then have to consider that maybe our senses are conditioned by the position that we take up within the world. If this is allowed as a possibility,

then it is also probable that we are not accurately describing our world, but categorising it in specific ways. If this is the case then our language cannot accurately represent the objects in the world. If we take all these possibilities into consideration, we can no longer consider the world as a constant. This is especially important if we wish to extend our analysis to animate subjects in order to examine their role in constructing society.

I will consider each of these points in order to explain the nature of subjectivism. At this point I wish to focus on the ways in which various processes of acculturation affect the way in which we describe and interpret the world. The main point here is that we can never step back from the world in order to describe and know it since the very apparatus we use to do so, our senses and our language, is determined by the cultural world in which we live.

I will commence my discussion with the problem of perception. Here the most important issue is the cognitive categorisation of our sense data and the subsequent categories we use to describe these data. Recent work by cognitive psychologists has questioned the notion that the categories we use to describe the world are essentialist in form. They concede that the mind has a particular and given structural organisation. However, the way in which this structure is ordered is dependent upon the cultural uses of devices such as metaphors in constructing relationships between perceived objects (Lakoff and Johnson 1980; Lakoff 1987).

If we consider the way in which we categorise the world to be determined not by a priori categories in the world, but by the metaphors we employ to describe those categories, then we reach a point at which the description of the world is contingent or emergent. Rather than viewing the world of objects and subjects as static, we have to see them as fluid and dependent for their apparently solid nature on our descriptions of them. Rather than accurately using sense data to describe objects, we are using culturally contingent values or metaphors. If we take this as a valid observation, then the language we use to describe those objects is also contingent. This point was made apparent through the early work of linguists such as Saussure (1916 [1966]) and philosophers such as Wittgenstein (1953). Importantly, Saussure noted that there was an arbitrary relationship between objects and the precise words used to describe them in language. There is nothing in the properties of objects that is reflected in the words used to refer to them in social language. For Saussure, language was an abstract code distinct from the world of objects.

This appraisal of language has given rise to two further important notions: most notably, structuralism (Lévi-Strauss 1966), the study of how such abstracts are ordered culturally, which is essentially a study of the codes employed in constructing culture; and semiotics, which has given

rise to a deeper understanding of how symbols are used. Rather than considering symbols as entirely abstract, the focus is on how meaning is created through the codified use of such symbols (Eco 1979; Ricoeur 1976). This presents us with a double problematic: we are not only conditioned by the cultural world around us, and are therefore not perceiving the world directly, but we are also investigating the manipulation of objects as cultural symbols, as cultural meanings. Thus we arrive at a position where neither the senses used to report the natural world, nor the cultural devices used to describe it (language), relate to the objective world in a simple way. Rather they are determined by our cultural expectations. This leads us on to a further important point concerning our interpretation of the world.

I have outlined the problems surrounding our cultural understanding of the world of inanimate objects, and have observed that our subjective examination of objects is bound up with the manipulation of cultural meanings; however, further problems arise when we turn to consider the world of animate subjects. First, our positions as interpreters are not divorced from the subject that we are interpreting – human society – since the very apparatus we use to describe society are the cultural meanings from which society is composed. We are then in a situated relationship in relation to our subject of investigation, and we must be extremely careful about our interpretations with regard to this relationship. The study of this situated relationship and the nature of the interpretations we make while a part of this relationship are essential components of the process of hermeneutics (Ricoeur 1981). What is more, while I have observed that for natural scientists the world of objects is composed of static entities with fixed relations between them, for social scientists society can be considered to be composed of social relations; however, these social relations are never static or constant. We cannot objectify them; rather they are created through a continuous dynamic, described as social practice (Bourdieu 1977). If we are to study society, we cannot appeal to an objectified and constant nature. We are not considering something which has a priori existence; rather we are considering something which is continually being made and remade.

Rationality and relativism

To reiterate, then, we are confronted by a world-view that divides off objects from subjects. While the relationship between the two is seen as problematic, there are two broad methods for achieving knowledge of the world. The first, natural science, studies nature and uses its privileged position as an active subject in taking up a detached view of the external

world. The second, social science, studies society and therefore cannot take up any such privileged position. Rather, it realises the conditional nature of the knowledge it produces while attempting to describe society. I now wish to explore in more detail two further theoretical positions taken up by natural science and social science, that is relativism and rationalism. Both of these positions focus on the nature of belief, certainty and the concept of truth. However, both positions rely on the assumption that the world is divided up into inanimate, essential nature and animate, contingent society, or objects and subjects.

Rationalism covers a wide series of debates (see Wilson 1971); however it is broadly concerned with the nature of belief, and how we arrive at that belief. Here rationalism overlaps considerably with the theoretical position of objectivism. According to a rationalist view, if we consider a priori that there is a nature that can be described, then the description of nature must follow a rational path. This in itself requires a specific form of reasoning that involves building up a series of law-like statements about the world. These statements follow an identical form in whatever context we care to consider them. For instance, if we believe p as a reason for believing q, then we will believe that p will equal q, wherever and whenever we observe either p or q. The connection between these two articles of belief is immutable and incontrovertible. A correlate of this is that if our knowledge is rationally constructed, then our beliefs can be considered as either true or false.

However, the relativist views things otherwise. Hollis and Lukes (1982, 5–10) define a series of relativist positions, including moral relativism, conceptual relativism, perceptual relativism, relativism of reason and relativism of truth. In the interests of space, the discussion here will focus on conceptual relativism, since this has most bearing on the issues discussed above. Put simply, relativist positions encompass the belief that 'people of different cultures live in different worlds' (Berger and Luckmann 1966; Sperber 1982). As Sperber (1982, 154) indicates, this does not mean that people literally live in parallel worlds, rather that they inhabit differing cognisable worlds. This basic position encompasses the idea that knowledge may be culturally constructed and that the very act of reasoning itself is culturally specific. Beliefs on a given topic can vary and the relations between knowledge are not, then, absolute. This position is particularly acute if we consider the way in which the world is categorised.

This view raises a series of problems. If the process by which beliefs are constructed cannot be viewed as following the same rational process in all parts of the world, how are we to assess competing knowledge claims? In other words, we can have no absolute rational knowledge and therefore no absolute incontrovertible truth. If we consider the possibility that belief

is culturally contingent – a conceptual position – then this opens up the possibility that truth itself is contingent, a moral relativist position. It is due to the fact that conceptual relativism blurs with moral relativism in this way that the entire concept of relativism has received such bad press. If we throw out the possibility of an absolute transcendent system of knowledge, i.e. rationalism, then we also dispose of an absolute truth. Therefore, one of the major issues in the debate between relativism and rationalism centres on our ability to assess knowledge between systems.

Again we are faced with differences in the order and goals of differing forms of knowledge, characterised by the natural and social sciences. It is essential for science to retain the idea of nature being 'out there', prior to human experience, for if nature was constantly changing we would be unable to observe it accurately and objectively. However, it is also essential to retain the notion of a science that is ordered according to unassailable universal laws, since if we consider the possibility that these laws change according to cultural context, then we lose certainty in the application of these laws in the generation of further scientific theories. If scientists had to continually check and recheck the reliability and validity of these laws, science would be unable to get on with the task of scientific and technological advancement. The belief in the generation of valid laws characterises a rationalist or positivist science.

On the other hand, the concept of some form of relativism allows historians of science, and anthropologists and archaeologists studying other cultures to consider the possibility of other knowledge systems as discrete and coherent forms of knowledge, which each generate their own forms of logic. If the social sciences were to take up a rationalist position, it would be necessary to consider the beliefs of other periods of history, or other cultures, as irrational or misguided. This would amount to a form of rational imperialism which would debilitate the enterprise of understanding other cultures. Furthermore, due to the hermeneutic involved in the interpretation of cultural knowledge, the critical stance of anthropology is seen as an important viewpoint, since by studying other cultural systems we are able to critically reflect on our own. As Strathern (1995) has recently noted in relation to the issues of global and local culture, knowledge is generated through our ability to shift between different contexts. In this regard Tambiah (1990, 111) describes the interpretative position of anthropologists as a 'double subjectivity'. The anthropologist must subjectively enter the minds of the people they are studying in order to understand them according to their own categories, while simultaneously translating those categories as if distanced from them. The critical distance that an anthropological viewpoint provides enables us to contrast a variety of different orders of knowledge, but this position brings

with it a whole series of problems. How are we to judge our knowledge systems against others? Can we utilise a single benchmark against which to judge other cultures? Is there any point at which knowledge may be considered as commensurable? Is there a core set of real or essential facts about the world from which the beliefs of other cultures are constructed?

The problem of how we go about judging knowledge claims has been tackled on a number of levels. I wish to examine this issue from a variety of angles by examining the problem of external perspective, as well as the difficulties surrounding the internal constructs used within rational statements. The major issue in the debate between rationalists and relativists concerns the nature of the paradigms, or the worlds, in which knowledge is constructed. Can we view these differing worlds as being composed of a core set of beliefs around which alternate paradigms are constructed, or do we simply classify alternate beliefs as equally true, equally false or equally true-or-false (Hacking 1982, 49). Each view leads us to an impasse.

First, we will consider the possibility that there is a core set of beliefs about the world that are incontrovertible. Such a view would propose that each alternate viewpoint was viewing the same set of data from differing perspectives, but that each of these perspectives could be bridged through an act of translation (Hollis 1982). For instance, both Kuhn (1970) and Feyerabend (1975) claim that differing paradigms can be observed within the history of science, and that such paradigms are incommensurable. In other words, the science practised by one set of practitioners, at a given period in time, could not be comprehended by another set of practitioners at another time. Each set of practitioners occupied differing worlds and the knowledge generated in each world was relative to that world. Here Kuhn (1970) indicated that each group was practising their own rational methods, but from our viewpoint the knowledge of each group stands in a relative relationship to the other.

For the rationalist, the view that these paradigmatic understandings can be translated and understood by us supposes that the two systems cannot be incommensurable. If we can translate between these two domains of knowledge, there must be some common ground by which the two belief systems can be compared. The assumption is that there is an external viewpoint from which we can measure the validity of either belief. But how do we externally measure the validity of either system? As Rorty (1991a, 49–50) indicates, there can be no position by which we can judge alternate paradigmatic positions, since such a position would involve taking up what he calls an 'ethnocentric' viewpoint in assuming that what we described as true or rational was actually true. On the other hand, if we take the relativist view that each paradigm or world has equally valid belief systems, we still run into a problem if we also believe that in each

world we are viewing the same external reality. This is partly because such a view presupposes that cultural beliefs are simply an adjunct to external reality (see Berger and Luckmann 1966; Ingold 1990; Richards 1990). A number of writers have observed that there is a tendency amongst both relativists and rationalists to employ both forms of belief system simultaneously (see Elkana 1981, 3). Elkana (1981, 3–4) describes this intellectual position as 'two-tier thinking', and I will consider this in more detail below.

At this stage I simply wish to note that both the rationalist and relativist viewpoints leave us with a series of problems. The position of rationalism ultimately relies on the notion that there is a set of rational core beliefs which must relate to external reality in a precise and determined way. Belief systems that do not accept the existence of these rational core beliefs are either classified as irrational or are considered to be translatable to an immutable system of understanding. Meanwhile, the relativist belief leaves us with the possibility that each paradigm or world is incommensurable, and therefore each system of beliefs has its own coherence and rationale. Each discrete belief system is seen to relate to and to construct external reality in its own manner. The former position is most applicable to the study of the natural world, since it relies on the concept of a constant and immutable nature. The latter position is most applicable to the study of a constantly changing set of social relations, since it relies on the notion of cultural or social difference. The relationship between the two points is problematic since, any attempt to find a 'bridgehead' (Hollis 1982) must rely on the notion of an overall external and neutral viewpoint by which to judge them.

Piecing together the past

The previous section outlined the problems involved in the broad approaches of both the natural and social sciences. In this section I want to examine the way in which the issues of objectivity, subjectivity, rationalism and relativism have been considered within archaeology as a means of understanding the underlying roots of the divided state of scientific and theoretical approaches to the past. I wish to consider the ways in which archaeologists relate to, and interpret, the material residues of the past: the archaeological record. Linda Patrik (1985) has undertaken the most detailed account of the contrasting approaches to the archaeological record. Here I will draw out some of Patrik's observations regarding the differing approaches to the archaeological record and set them against some of the generalised observations I have already made regarding the natural and social sciences.

The notion of an archaeological record is used as a heuristic device by archaeologists, as a means of conceptualising the way in which they perceive past human action to operate in relation to the remains of the past. However, as Patrik observes, archaeologists have no unified notion of what they understand the archaeological record to be (1985, 29–31). She defines two contrasting conceptions of the archaeological record: the physical model and the textual model. The physical model is characterised as considering the archaeological record to be composed of physical objects and features that are static effects of past causes; the record is perceived as a direct record of physical objects and processes. Given this, both the features and spatial order of the record are seen to be due to physical and behavioural processes that exhibit causal regularities – in other words, they can be seen to operate according to universal or probabilistic laws. By way of contrast, the textual model views the record to be composed of physical objects and features that are material signs or symbols of past concepts. The record is seen to record human actions, ideas and events of human importance. Following on from this, the structure of the record is viewed as being composed of rule-guided behaviour which is expressed in culturally specific ways; or in other words, the record is viewed as contextually specific (for a summation of these views see Patrik 1985, 36). Both viewpoints have their roots in the contrasting epistemological and methodological positions outlined above.

The physical model of the archaeological record

Those archaeologists taking up the physical model treat the archaeological record as the natural substrate on which the objective knowledge of the world is founded. The physical remains of the past are objects that have been separated from us by the passing of time. This approach to the archaeological record is typified by two main schools of thought: culture-historical archaeology and new or processual archaeology.

The first school of thought is exemplified by the work of Vere Gordon Childe. Childe was expressly concerned with distinguishing objective reality from subjective experience. He was specifically interested in distinguishing between the nature of knowledge itself and the observation of 'reality' within the archaeological record. Childe was aware of the situated position of the archaeological observer, since he noted that while archaeologists are concerned with observing cultures, their principle instrument of observation is itself culture (1949, 5). He realised that the categories we employ to understand other cultures are necessarily derived from our own. McNairn (1980, 135) has observed that this intellectual

realisation was critical to Childe's approach to archaeology. Since, due to the relative nature of the conceptual frameworks of culture, Childe was uninterested in reconstructing past cultures using our own conceptual frameworks; rather he was concerned with examining what he described as 'true knowledge'. This consisted primarily of practical or technical behaviour, since he proposed, quite reasonably, that technical behaviour was a distillation of cultural knowledge (see chapter 5 for a fuller discussion of this notion). Despite this theoretical position, Childe's writings embody some of the most imaginative reconstructions of the past ever to have been written. However apart from his use of Marxist approaches, Childe's theoretical approach to the study of past societies remains relatively implicit.

Much of Childe's writing on the nature of knowledge took special care to distinguish different orders of knowledge, specifically the magical and the scientific (Childe 1956). He was careful to distinguish the uniformitarian principles, which are observable in the present, from the cultural principles of action that he supposed to be both lost and moreover inconsequential to our understanding of past action. A similar position concerning the definition and verification of orders of archaeological knowledge was proposed by Hawkes (1954). Hawkes suggested that the degree of certainty or verifiability concerning statements about the past depended on the degree to which those statements were grounded in archaeological evidence. As statements moved further from empirical statements about archaeological remains, the inferences drawn from them could be made with less and less certainty. Interpretation progressed from the bottom up by a process of inductive reasoning based on the self-evidential nature of the evidence. It is notable in this regard that those domains of the archaeological record which remain closer to material 'reality' are most amenable to archaeological scientists. Since technological data are thought to be grounded in the material aspects of the record, the technological dimensions of archaeological materials provide the subject matter of much archaeological science.

A similar theoretical position persisted amongst new or processual archaeologists. This school of thought is exemplified by the work of Lewis Binford. Although, for processualists, knowledge about the past was also based on the foundations of the archaeological record, the possibility of reconstructing past social systems from this record was viewed with less pessimism. For instance, Binford noted that due to the static nature of the material remains of the past, the remains could not be treated as if they spoke for themselves. He correctly noted that the mere observation of remains was inadequate as a means of understanding the past (Binford 1983a and b). Rather, as with the subjectivist viewpoint outlined

above, he suggested that the observations by which the remains of the past
are apprehended are necessarily theory laden. Like Childe before him,
Binford's main concern was with distinguishing between objective reality
and subjective experience. However, unlike Childe, he sought to work
from the objective reality to describe the subjective experience of past
cultures (Binford 1962; Binford and Binford 1968). Rather than aban-
doning the interpretation of past cultures, Binford instead sought to make
theory an explicit component of the process of interpretation.

In order to provide a firmer basis on which to discuss past social sys-
tems, much new archaeology was concerned with producing an objective
account of material evidence prior to its involvement in interpretation.
Given a view of the archaeological record as the static remains of past
physical processes, the obvious step to take in the attempt to move from
the physical remains of the archaeological record towards more gener-
alised statements about past activity involved the creation of universalis-
ing laws. While new archaeologists realised their situated position with
regard to the material remains of the past, it should be noted that all
attempts to formulate universalising laws concerning the nature of the
archaeological record were distinguished by a single objective. That ob-
jective was the attempt to be divested of this situated relationship with
the aim of providing a more empirical account of the evidence.

The mode by which such laws were generated took a number of di-
vergent courses. The first involved ethnoarchaeology, the observation of
living populations creating material remains in the present. Here the sup-
position was that by observing the actions of various traditional popula-
tions in the 'ethnographic present', the archaeologist could provide an
objective model of the kind of probable formation processes which make
up the archaeological record (see Binford 1978; Gould 1980). I wish to
say little about this field of archaeological enquiry here; however, I will
note that such an activity, while providing increased knowledge concern-
ing site formation, says little about the social structure which brought
the site into being, to say nothing of the responsibilities and moralities
involved in the exercise (Gosden 1999, 58–61).

Given the problems of ethnoarchaeology, a further field of enquiry
emerged, involving the generation of laws that would more closely inform
the archaeologist about site formation processes. This second avenue of
study included two main strands of enquiry; the first of these, proposed
by Binford (1983), became known as Middle Range theory. By employ-
ing the principle of the uniformitarian behaviour of certain mechanical
and physical laws in the past and present, Binford sought to generate a
set of laws relating to the behaviour of objects which could be observed
in the present and related to the past. The central requirement of Middle

Range research involved archaeologists effectively stepping out of the pre-suppositions that bound them to the interpretation of the archaeological record. In other words, it supposed a position of absolute objectivity. As Barrett (1990, 33–4) notes, Middle Range research also relies on the objective observation of these laws in the present, a position of extreme empiricism.

A further attempt to formulate laws concerning site formation was made under the aegis of behavioural archaeology (Schiffer 1976). Here it was conceded that the record need not be a direct reflection of what happened in the past, and may be subject to numerous distortions, both natural and anthropogenic. Therefore, one of the primary and essential tasks for archaeological enquiry was the formulation of laws that would distinguish between the 'real' remains of the past and those that are the result of disturbance. The generation of laws of this nature is especially important with regard to attempts to understand the natural formation processes by which the archaeological record is itself created.

We can observe from this that those archaeologists who view the record as the trace of physical processes place a significant emphasis on distin-guishing between the 'real' as opposed to the distorted archaeological record. As I have observed earlier, there are difficulties with this approach. However, we can observe its legacy in the work of many archaeological scientists, most of whom take post-depositional changes, or taphonomy, into account in presenting their data. Indeed, taphonomic problems are used as one of the major means of refutation when criticising the validity of a body of scientific data. Furthermore, taphonomy is often used as an explanatory device in interpreting the structure of certain aspects of the archaeological record (e.g. Todd and Rapson 1988). The absolute necessity of making an adequate assessment of taphonomic factors con-cerns much of the practice of faunal and botanical analysis (for example see Chaplin 1971; Dimbleby 1985; Evans and O'Conner 1999, 78–92). In these accounts the physical appearance of the archaeological record has very little to do with anthropogenic or cultural processes, and greater weight is placed on its formation by physical processes.

While much emphasis was placed on investigating the material nature of the archaeological record, in the attempt to move beyond the physical nature of the archaeological record much new or processual archaeology was also concerned with the interpretation of past social systems. A num-ber of approaches were utilised in order to understand the nature of past social systems, but systems theory, ecological theory and cultural evo-lution were the most often employed. Systems theory was derived from biology, economics and computing (Watson et al. 1971). It conceived of any operating system, whether biological or man-made, as being divided

into inter-related parts, or subsystems, which each acted to create a holistic working system. When utilised in archaeology, isolated elements of the system could be studied as interacting processes. This enabled archaeologists to consider the relationship between differing elements of the archaeological record. These elements were not conceived as possessing simple one-to-one causative properties; rather, systems were perceived as operating through a series of interacting elements. The analysis of such complex systems required the mathematical or statistical treatment of data in order to make them amenable to study. The interactions between elements in complex systems were often viewed according to a model based on feedback mechanisms, a notion derived from cybernetics (Watson *et al.* 1971; Renfrew 1984). By modelling these feedback mechanisms, it was possible to explain or predict change in the system. Since the effect of variables could be modelled in this way, the state of systems could be described graphically.

Cultural evolution and ecological theory were both linked to a broad systems theory approach. A cultural evolutionary approach was traditionally used as a means of classifying social systems as they move through time, into bands, tribes, chiefdoms and states (Sahlins and Service 1960). This approach allowed given states within the system to be characterised and was a powerful tool in explaining how specific social formations came into being (Renfrew 1973, 1979). While systems theory explained the way in which various elements of the system interacted, cultural evolution was a means of ordering the changes within a system and provided a useful conceptual anchor around which to arrange past social formations. Ecological theory was more closely applicable to the explanation of stasis and change. If the relationship between social systems and the environment was conceived as open, then the environment could be viewed as having a feedback effect on the system. Such a view was founded on the notion of culture as an 'extrasomatic', or extra-bodily, adaptive mechanism for coping with the environment (Binford 1965, 205). According to ecological theory societies were bounded systems and, like the more general aspects of systems theory, ecological approaches enabled the relationships between variable components of a system to be modelled (see Evans and O'Conner 1999, 17–60). As such, ecological theory was particularly useful as a means of examining the relations between components of settlement systems, between members of a trade or exchange system, or more generally between social groups and the environment (see Watson *et al.* 1971, 91–107).

Each of the general theories that are applied to either culture or society by new or processual archaeologists relies on a number of core assumptions. The problem with the physical model of the archaeological record is

that, when we move away from statements concerning the regularities observed between static material remains and natural processes to consider the relationship between material remains and human action, it becomes necessary to also consider social relations as static. If we consider the archaeological record to be composed of static objects, and the relations between these objects as best studied through a theoretical framework which relies on the use of universal or probabilistic laws, then we run into a number of problems when we attempt to study society.

As noted above, an objective or rationalist viewpoint relies on the notion of nature as static and constant, yet society is neither static nor constant. However, the application of systems theory and its cognate theories, cultural evolution and ecological theory, all depend upon the notion of stasis. While systems theory attempts to describe the dynamics of systems, relationships between elements of the system are examined as if they were in distinct stable states. One of the core concepts of such a theory is the notion of homeostasis, the process of remaining stable. Ecological theory similarly relies on systematising and creating mathematical models as a means of understanding settlement patterns or trade systems. Finally, cultural evolution itself relies on the notion of stable bounded social formations such as tribes and chiefdoms.

Each of these theories carries with it a rationalist notion of being able to accurately map and model the world in a systematic way. In each case human societies are ordered according to a series of given absolutes, such as water, food source, etc. We can see then that those archaeologists who consider the archaeological record to be composed of relations between static objects must adopt two strategies for understanding the past. First, they systematise the physical objects from which the record is composed, by creating general laws applicable to the formation of the record. Second, because of adopting this viewpoint, they then find it essential to build on this approach by systematising social systems and creating laws that model the patterning of human behaviour in the past (see Toulmin 1990 for a discussion of the history of these ideas of society).

It is important that we should note the legacy of systems theory, and especially ecological theory, on the practice of archaeological science. An understanding of taphonomic factors provides a methodological backdrop for much archaeological science, especially faunal and botanical analysis. Ecological theory (Jones 1992) coupled to classical economics provides the theoretical framework within which the relations between humans and the environment are then studied (for example see Higgs 1975; Jarman, Bailey and Jarman 1982). Meanwhile, the systematic and law-like nature of systems theory and ecological theory provides much of

the impetus for the study of exchange systems. Archaeological science operates within a framework which allows the possibility of systematically classifying the composition of the material nature of artefacts, and due to this there is a concurrent emphasis on a theoretical framework within which exchange can be systematically modelled. Thus archaeological science provides a number of physical and chemical characterisation techniques, such as petrology (Middleton and Freestone 1991), Neutron Activation Analysis (Hughes *et al.* 1991; Neff 1992) and isotopic analysis (Gale and Stos-Gale 1992), which allow a more or less accurate means of distinguishing materials of different types. These methodologies are also considered as a further means of classifying material. When these techniques are employed to make more interpretative statements concerning the past, such statements are often made within a theoretical framework which also allows for a systematic description of the past (for examples see Renfrew, Dixon and Cann 1966).

The point here is not necessarily that all archaeological scientists are theoretically reliant on systems theory and ecological theory, but rather that the legacy of the concerns which were bound up with these theoretical frameworks have had an important bearing on the areas of study which archaeological scientists find of interest at present. Thus, much archaeological science is dedicated to the investigation of exchange networks or the interpretation of the relations pertaining between humans and the environment. While much archaeological science is eminently suitable for these tasks, one of the important questions I wish to consider in this volume is this: can archaeological science be employed to consider theoretical questions framed under a different philosophical background? In order to consider this possibility, I will turn to consider the textual model of the archaeological record.

The textual model of the archaeological record

As noted above, those archaeologists taking up a textual view of the past believe that the archaeological record is composed of the material remains of signs or symbols. The symbols are elements of a codified symbolic structure, and such signs or symbols are viewed as having operated in past communication systems. Therefore, the existence of material remains notifies us of events of significance. Given this, the record is viewed as structured, since each sign or symbol is seen to be a single element in a wider structure. The task of archaeologists with this viewpoint is to translate and read the past (Hodder 1986; Tilley 1991).

An important point to note here is that, following on from the approach of structural linguistics, the relationship between the material world and

the world of signs or symbols is not conceived of as one-to-one. Rather, the archaeological record is viewed as a representation. Like the earlier approach of Schiffer (1976), reading the archaeological record depends on translation (Patrik 1985, 50). However, unlike Schiffer, this translation does not involve distinguishing between the 'real' and the extraneous; instead this act of translation embraces the problems of discourse (see Ricoeur 1981).

Barthes (1977) notes the problem, common to the study and interpretation of cultural signs, that there is an interpretative distance between author and reader. Due to this interpretative distance, the validity of an interpretation is bound up as much with the expectations of the reader as with what the author wished to express (Ricoeur 1981, 131–45). Therefore, rather than searching for the underlying 'real' archaeological record, those archaeologists adopting a textual view of archaeology are interpreting the record at a distance; the interpretation of the archaeologist in the present is as valid as the meaning attached to the object in the past. The reading of the archaeological record therefore cannot be objective; at no point can the archaeologist step out of his or her interpretative relationship with the archaeological record in order to create a series of generalising laws. Rather, the process of reading the material remains of the past is conditional: it is conditioned by the prejudices, presuppositions and cultural values of the interpreter in the present (Shanks and Tilley 1987, 105–6). The interpretation of the past is then a political exercise (Shanks and Tilley 1990; Tilley 1989a). Archaeologists are bound up in an interpretative relationship, or hermeneutic, with the object of their study. Objects themselves are only given meaningful status through interpretation.

There are a number of important correlates of this view. First, the meanings attached to objects are not fixed. Instead, the assignment of meaning to objects involves a process of dialectics, a movement between the presuppositions of the interpreter and the material constraints of the object (Shanks and Tilley 1987, 110–12). Second, if we consider the view that meaning may be considered to change according to context (Hodder 1986; Barrett 1987a) then, rather than considering the assignation of meaning to an object as an entirely open and relativist exercise, meaning will be tied down and fixed by context. The process of interpreting the archaeological record is not a process of assigning fixed meanings to objects but rather of reading the patterns of structured differences between objects. If we consider the archaeological record as a text, then we can also consider this text to have a grammatical structure. Rather than considering the archaeological record to be composed of static objects with a fixed relationship to each other, the record is viewed as composed

of objects whose relationships are constantly changing according to their contextual relationships.

Interestingly this emphasis on the archaeological record as a text privileges the symbolic nature of the record over the physical nature of the record. The textual approach allows sophisticated examinations of the symbolic nature of objects; however, since the relationship between the object and its cultural use as a symbol is considered to be arbitrary, the physical nature of the object has little effect on the way in which it is employed symbolically. This problem has been addressed in recent years (see especially Gosden 1994; Tilley 1996) and will be developed further in chapters 4 and 8. Nevertheless, it is easy to see why this view of the representational nature of the archaeological record has had little effect on archaeological scientists. This is because the contingent nature of meaning makes objective assertions concerning the physical nature of material remains difficult to verify (see O'Conner 1991 and Rowley-Conwy 2000 for clear delineation of these views). An initial proposal that archaeological assemblages be treated as culturally structured (Moore 1982; Richards and Thomas 1984) has had a relatively low impact on the analysis of archaeological materials. I feel that (*contra* Rowley-Conwy 2000) the notable exception to this is the analysis of certain kinds of deposit in animal and human osteological studies (Hesse 1995; Marciniak 1999). Here the concept of structured deposition is viewed as having important implications for our understanding of the significance of differing modes of deposition (see papers in Anderson and Boyle 1996; Hill 1995; Kovacik 2000; Renouf 2000; Serjeantson 2000). In contrast, there has been little discussion of the problems and possibilities of structured deposits in relation to the study of plant remains or palynology (with the notable exception of Butler 1995; Hastorf 1991).

This view of the changing nature of the meaning attached to objects engenders a quite different approach to the interpretation of society. If we view the relationships between objects to be in a constant state of flux, this then allows us to see how the meanings attached to objects may change over time. By conceptualising the meanings of and relationships between objects as constantly open to change and re-contextualisation, it is possible to see how this view allowed contextual archaeologists to reconsider the relationship between material culture and society. Rather than studying societies as bounded and static social systems, archaeologists adopting a textual metaphor viewed societies as constantly changing. Here the dominant views of society were derived from either Giddens (1984) or Bourdieu (1977, 1990).

Both authors broadly view societies to be composed of a set of social structures that are informed by a set of structuring principles. These

structuring principles are not unlike the set of codified rules of structuralist thinking. However, structures are not fixed, as in structuralism, but are constantly being reproduced as individuals draw on them and rework them. This process is described by Giddens (1984) as *structuration*. Therefore, the reproduction of society is not due to an innate tendency towards homeostasis, as with earlier approaches, rather society is perceived to be in a constant state of flux. The constant process of making and remaking the social structures of societies is what carries forward social change. However, it is also this process which allows societies to remain stable. According to this view of society, the structures upon which individuals immersed within society draw, in order to act within the social world, tend towards dispositions of stability, and it is this process which is characterised by Bourdieu as *habitus*. However, while the process of drawing on these structuring principles may provide stability, this process may also provide the instrument of social change. Here the most important concept embodied in such a notion of society is that of agency; that is, that societies are created and recreated through the active involvement of knowledgeable and active human subjects (see Johnson 1989; Barrett 1994; Dobres and Robb 2000). In conclusion, then, society is not considered as static; it is considered to be in a constant process of flux. Both the theoretical positions of Bourdieu and Giddens provide interpretative archaeologists with a more refined view of both social stability and social change. Finally, rather than utilising external factors to explain either social change or stability, the notion of agency allows us to understand more clearly how societies are shaped internally.

Conclusion

At this point I want to step back from the details of these issues and provide an overview of some of the problems concerned with the attempt to harmonise each view of the archaeological record. As we have observed, each model of the archaeological record involves taking up an epistemological position which resonates strongly with the wider issues that were considered at the beginning of this chapter. Thus those archaeologists taking up a position which views the record as physical can be broadly characterised as objectivist, empiricist and rationalist, while those archaeologists who consider the archaeological record as textual can be broadly characterised as subjectivist and relativist. The labels are fairly broad, but at this point they serve as a means of characterisation. Many of the difficulties of integrating scientific archaeology with an interpretative archaeology based on a number of post-structuralist positions arise from the conflicting nature of these positions.

I do not wish to say too much here about how this integration of knowledge may be achieved; rather I will focus on the problems and benefits of both archaeological science and interpretative approaches to the study of past societies. A number of authors have noted that while many archaeologists have abandoned the central tenets of objectivism and rationalism as valid means of judging the past, archaeological science has retained these theoretical standpoints (Thomas 1990; Edmonds 1990). Moreover, it has also been suggested that archaeological science is reliant on methodological critique as a substitute for interpretation (Thomas 1990). While this may be so, neither of these points should be entirely unexpected since, as I have already indicated, the natural sciences are epistemologically bound to an objective and rational theoretical position. Methodology, on the other hand, is simply a procedure for distinguishing and defining the objective nature of the data. The precise definition of methodology within the literature of archaeological science has its place within the theoretical framework of objectivism and empiricism. While I am not proposing a return to empiricism or positivism, I feel that it is the rigorous application of precisely defined methodologies that lends scientific discourse its strength. It is this aspect of science in archaeology that is essential to retain.

I am not interested in considering methodology as a validatory mechanism; rather it is a device, which allows certain aspects of the archaeological evidence to be reproduced with reasonable accuracy. Science operates most comfortably within the wider field of archaeology when we are able to employ well-defined and rigorous scientific techniques to the archaeological record. I am thinking here of some of the techniques routinely used in archaeology which have been imported from the physical sciences (Tite 1972), or from chemistry (Pollard and Heron 1996). In other words, these are instrumental scientific techniques that can be usefully employed in order to provide a more detailed characterisation of the archaeological object. The problems arise when we utilise a broader empiricist philosophy as a means of understanding society. As noted earlier, as soon as we begin to frame society as a possible object of scientific study we must begin to place artificial constraints on our understanding. We reify it, or make it into a static object. It is this method of studying society that Bourdieu describes as social physics (1990, 26–7, 135). The process of objectifying society and the concurrent methodologies and interpretations derived from this process are a reasonable description of what may be considered as scientism (Edmonds 1990; Barrett 1990).

It was precisely because of the problems inherent in viewing societies as static objects that there was such a major shift in the interpretative framework employed in archaeology (see Hodder 1982a). Rather than

attempting to systematise society by viewing it through the lens of the natural sciences, archaeology moved to the interpretative position which had prevailed for a considerable period within a number of the social sciences (see Leach 1973; Gellner 1982; Miller 1982). One of the major strengths of an interpretative archaeology that embraces a variety of post-structuralist approaches is the rigorous nature of its theoretical framework. We are now able to begin to reconsider the complexities involved both in understanding how societies operate and in understanding the way in which the social operates to structure the archaeological record. What is more, interpretative approaches also allow a more critical understanding of our social position as interpreters.

In conclusion, I would like to propose that in order to begin to consider the possibilities of relating scientific archaeology with interpretative archaeology we must retain an aspect of each. The strengths of scientific approaches are reflected in their methodological rigour and reproducibility, while the strengths of interpretative approaches are reflected in their theoretical rigour and their ability to provide a coherent and satisfying account of society. The problems of embracing these two aspects of contemporary archaeology are manifold, and we must move through a difficult epistemological minefield in order to provide a more satisfying account of the past which encompasses both approaches. That will be the subject of the next chapter.