

CHAPTER ONE

Introduction

What is archaeology?

What is archaeology?

It is unlikely that you will ever come across two archaeologists who will agree exactly what archaeology is. Some do not even see it as a subject in its own right. Obviously the word ‘archaeology’ – or ‘archeology’ if you prefer – has a dictionary meaning, but even here agreement is not universal. The *Shorter Oxford Dictionary* (6th edition, 2002), for example, states that archaeology is ‘the systematic study of human antiquities, esp. as revealed by excavation’: a good traditional view of the subject! The *Chambers Dictionary* (11th edition, 2008), however, sees archaeology as ‘the study of ancient people through their material remains, usually as discovered by excavation’. To non-archaeologists, archaeology involves three crucial elements: ‘the past’, ‘material remains’ and ‘excavation’. To many archaeologists, however, the meaning of the word and the discipline is more flexible and is shifting. When exactly is ‘the past’? It is not *now*, but it certainly was when you read the last sentence.

Most archaeologists agree that archaeology must have a material element – for example, ‘Archaeology: a sub-discipline of anthropology involving the study of the human past through its material remains’ (Renfrew and Bahn 2008) or ‘Archaeology: use of human remains to solve the problems of another discipline, such as anthropology or art history’ (Rouse 1992). It is the study of human material *remains* that makes archaeology different from anthropology, which, among other things, can study intact human material culture, not just its *remains*. Archaeology is different from history in that it requires the *remains* to be studied, not just written descriptions of those remains. Not all *remains* have, however, been lost or buried and require excavation to reveal them. The Great Wall of China (Figure 1.1) and the Parthenon in Athens are *remains*, but neither has ever been ‘lost’ or required much in the way of excavation to reveal it. Clearly, the study of material remains can be used in other disciplines: anthropology, art history or history – but archaeological methodology, theory and aims make it essentially different from these other disciplines. The fact that economists use the techniques of mathematicians in no way makes mathematics a sub-discipline of economics. Equally, the fact that archaeology provides data for anthropology or history in no way makes it a sub-discipline of these subjects. Archaeology is its own subject with its own theory, methodology and aims.

Archaeologists are therefore dealing with the *remains* of past peoples, societies and cultures. Remains have a tendency to be lost, buried and forgotten, so archaeology has developed a range of methods to recover partial remains. It has borrowed and adapted techniques, methods and theories from other disciplines, but has made them very much its own. In addition it has developed its own methods of studying palimpsests in the landscape and its



Figure 1.1 The Great Wall of China: an archaeological site never ‘lost’ (Photo: A. Drewett)

own unique methods of excavation. Archaeological excavation has its own theoretical basis, often passed by word of mouth from excavator to excavator rather than formally set down in textbooks. In addition, archaeology has adopted, adapted and evolved its own theoretical basis for the interpretation of the past through the study of material remains.

If we consider archaeology to be the study of the past through the study of material remains, clearly it becomes an enormous subject with time-depth back to the dawn of human existence and up to just before *now*. Geographically, it covers the whole of the world’s surface, the surface of the moon and all those scraps of failed hardware lost in space. Archaeology, however, is not just rubbish collection. Not all material remains left by humans have the same value to archaeologists. To collect merely rubbish is not only a waste of the resources available to archaeologists but also gets archaeology a bad name with the wider public, who generally, although they often do not know it, are footing the bill. Archaeologists who systematically record the position of a Coke bottle or of tin foil from a cigarette wrapper and then carefully bag and curate it as part of the archaeology of the site just make themselves (and other archaeologists) look silly. The presence of such artefacts may be significant in indicating modern disturbance, but nothing more. Note it and return it to a new archaeological context, your site backfill.

Even within the archaeological context of a period like the neolithic in Europe or the archaic in North America, not all material remains have the same value to archaeologists. A few broken shells on a coastal site may have less significance than the same shells hundreds of miles inland. On a medieval site the bulk of the material remains may be shattered roof tiles which, although important, will not provide as much information as the much smaller

assemblages of pottery or metalwork. Not all remains of human activity are of equal importance in the interpretation of the past. It is the job of the archaeologist to select what he or she considers to be important and then concentrate effort on that material.

Archaeologists therefore locate rubbish in the landscape, carefully select and record that rubbish and then, through analysis of that rubbish and the application of a variety of theoretical perspectives, produce a story about the past. Archaeologists cannot ‘reconstruct’ the past; the past is gone for ever. What they can do is create a series of stories or interpretations about what the past may have been like. They do this by collecting as many ‘facts’ about the past as they can. A pot is a fact. We can say how it was made, what it was made of, perhaps where it was made and, from residues, what it contained. We can perhaps say at what date it was made. From then on it can be woven into a story of what life was like in, say, the neolithic period.

To produce a story about what the past may have been like, archaeologists must put their material remains into the context of natural remains also surviving in the landscape. Were the people you are studying living in a forest, on grassland, by a river or by a former shoreline? This environmental context can be studied through the associated discipline of environmental archaeology. Through the study of naturally occurring – although perhaps humanly modified – remains, like pollen, shells or soils, an environmental story can also be built up. Both the human story and the environmental story have ‘facts’, theories and interpretations. This book will concentrate on the recovery of ‘facts’, but these have no value unless they form part of evolving theories and interpretations about the past.

What is field archaeology?

Field archaeology is, not surprisingly, what archaeologists do in the field. However, it also has a considerable pre-field element and an even more considerable post-field element. Sometimes the term ‘field archaeology’ is used to refer only to techniques, other than excavation, used by archaeologists in the field. ‘Field archaeology’ used in this way refers essentially to the battery of non-destructive field techniques used to locate areas of archaeological interest (sites). Excavation is, however, just one of the techniques available to field archaeologists and so is part of field archaeology. Excavation remains, however, both the most detailed and the most destructive, and yet potentially the most informative, technique available to the field archaeologist.

Field archaeology starts with the location of archaeological sites. Immediately this begs the question of what is an archaeological ‘site’. Most archaeologists see sites as places where there are clusters of artefacts, often – but depending on what period they are dealing with – associated with humanly made structures or features like dug pits. There may also be some human modification of the natural environment in or around the ‘site’. How small, however, does a cluster of artefacts have to be to constitute a site? Is a single projectile point found in a woodland environment a site? Clearly it constitutes the material remains of a specific human activity, presumably hunting, taking place at a specific place in the landscape. It clearly is a ‘site’, but equally clearly it is not going to provide the archaeologists with as much information as, say, a tell site in the Near East. In many ways one could see the whole surface of the earth as an archaeological ‘site’ with varying concentrations of humanly produced remains. Even areas with no remains are part of the human story of the region. Why was there no human activity in a particular area? A field archaeologist therefore has to look at data of different levels in the field. An ‘empty’ area or a single projectile point

provides some, but minimal, data. Sites with high concentrations of artefacts and features and a modified environment potentially provide masses of raw data about the past. These are the ones on which field archaeologists are likely to concentrate.

So what are the elements of field archaeology which make some archaeologists consider themselves to be field archaeologists while others are not? Clearly, it is perfectly possible to be an archaeologist studying material remains from the past without ever stepping into the field. Many people are surprised that out of the 50 or so lecturers/professors of the Institute of Archaeology at University College London (the largest university department in Britain), only about 20 could be safely let out to direct an excavation. This says nothing about their competence as archaeologists, just that they do not engage in field archaeology.

A key element of field archaeology is to decide ‘why?’ There is little point in simply going into the field to do field archaeology without having any questions to answer. At its simplest, the question may be ‘is there any archaeology there?’ Clearly, if an area of the earth’s surface is to be removed by, say, an industrial development, such a question would be the first to be asked. If there is no archaeology there it becomes somewhat difficult to ask any further questions, except perhaps, ‘why not?’ This question – ‘is there any archaeology there?’ – forms the basis of many site or landscape evaluation projects undertaken within the area of salvage or rescue archaeology. Such a question may, however, be equally valid when considering a research project. Clearly, if no archaeology is present, no further questions can be asked.

The project must then be designed. This involves the creation of a research design. The actual content of each research design is naturally going to be very different; there are, however, certain elements that should be common to all. The first element is a general introduction to the project. This will locate the project area, tying it into the national grid and preferably locating it on a map incorporated into the research design. The introduction should include information about site ownership and any legal restrictions in place on the site: in Britain it should ask, is the site protected as a Scheduled Ancient Monument under the 1979 Ancient Monuments and Archaeological Areas Act? It is usually useful to have had preliminary discussions with the landowner and statutory authorities before you prepare your research design. If you are simply not going to be allowed access to the land, then there is little point in proceeding in the preparation of a research design.

The second element of the research design should consider all previous archaeological work that has taken place in the area or on the site. Excavation, even of the highest standard, will destroy some archaeological information while recovering other. By a site being dug, the *in situ* evidence is destroyed, even if it is recorded on paper. Excavation is an unrepeatable experiment. Even surface archaeology like artefact collection from the plough zone diminishes the archaeological resource. Therefore, if there has already been sufficient archaeology done in the area to answer all or some of your questions, is it responsible to proceed with your destructive project? Naturally, when considering previous work in the area, its quality will have to be assessed. Was the project well executed and published? Even if it was an excellent project for its time, are there now techniques available which were not available at that time? Was the site dug before environmental samples were collected or before carbonized material could be radio-carbon dated? On the basis of all this previous work it may be possible for the third element of the research design to outline the sequence of occupation on the site or in the region. This will form the starting point for your project.

The fourth, and perhaps most important, element of the research design should outline the aims and objectives of the project. This element will be different in every case and may

involve both broad and specific questions. You will, however, be designing your project on the basis of very imperfect knowledge, and if the project involves excavation you will have only one attempt, as the process of excavation destroys the site even as it reveals it.

However careful your design, the fieldwork will inevitably throw up expected information and new questions. This is where archaeology differs from most other associated disciplines, like history or anthropology. A historian, when searching for evidence of the wool trade in fifteenth-century Europe, say, can reasonably ignore a reference he or she finds to the seventeenth-century wool trade or fifteenth-century pottery trade. An archaeologist working in the field cannot do this. If the evidence is found on or in the ground, then removed, but not recorded, it is gone for ever. Historians can return to the documents later; the archaeologist cannot return to the dug site and find data *in situ* to re-read it. Aims and objectives must therefore be flexible enough to allow redesign as the project progresses. The fieldwork may throw up new questions you had not even thought to ask. Field archaeology requires flexibility. An over-rigid research design leads at best to disaster, at worst to archaeological irresponsibility. Unfortunately some funding bodies, and especially in the realm of 'contract' archaeology in Britain and the USA, often require very rigid research designs. These designs are more often related to tight financial controls than to good archaeology.

Once you have decided what your aims and objectives are, the fifth element of a research design for a field archaeology project should cover methods. How are you going to achieve your aims and objectives? What techniques are you going to apply to the site or area? Are the techniques available and will they work in your area? The techniques available may simply not work. If techniques are not available to answer the questions you want to ask, you have three possibilities. You can either develop new techniques, ask new questions, or forget the field project.

The time spent on the field element of a field archaeology project may, of course, be only a fraction of the time spent on the whole project. The bulk of the time spent on the project will be on post-fieldwork analysis and publication. The sixth element of the research design should therefore consider the post-fieldwork or post-excavation and publication programme. Here you immediately run into a problem. As you have not yet undertaken the field survey or dug the site, you do not yet know what will be found, and thus what needs what analysis, or how such information should be appropriately published. With experience, however, it is usually possible to predict a surprisingly accurate picture of what may be found. On a palaeolithic site you will find lithics, but no pottery. On a dry, acid site organics will not survive unless they are carbonized. Organics will survive if the site is waterlogged or desiccated. Within certain parameters you can estimate the broad range of material and structures that could be expected. Your research design for the post-field element of the project must, however, remain flexible enough to incorporate the unexpected: the unique neolithic deposits with pottery found dug into your palaeolithic site, for example.

The publication element of the field archaeology research design is in many ways there purely to remind you of your commitment, and to remind your funding agencies of the potential cost of publication. Publication in some form, on the printed page, in electronic journals or on CD-ROM, must be seen as the final element of any field project. The data you recover in the field cannot be regarded as yours. You briefly hold it in trust for all humanity. If you do not make it available to other archaeologists and the public at large, you have, in effect, destroyed that information. The only truly bad archaeologist is one who does not publish the results of his or her field investigations. All else is opinion. By publication, of course, I mean making publicly known, rather than necessarily words printed on the pages

of a book, like this one. A properly curated archive in a public museum may constitute publication. The obsessive secrecy some archaeologists have for 'their own' data is not only unprofessional: it is also immoral.

The final element of a research design for any field archaeology project should consider requirements of staff, time and money. This is a requirement of the real world. It is not, however, straightforward. If you were building a bridge you could accurately determine quantities of materials and how long it should take how many people to put the various elements together. In excavation you can define only broad parameters. A dry site may suddenly reveal a perched water table containing preserved organic artefacts. The cost of the excavation may then double overnight. Your staffing, budget and timetable should therefore be kept as flexible as your funding agencies will allow. Even then a contingency amount should be built in.

Who does field archaeology?

Field archaeologists can be broadly divided into three groups: those involved in 'pure' archaeological research; those undertaking field archaeology as part of cultural resource management; and those essentially doing it for fun, that is as a leisure-time pursuit or hobby. All three groups can and do make a major contribution to archaeology. Although one group often makes disparaging remarks about another, all three groups contain good, bad and indifferent field archaeologists. All three groups profess an interest in archaeological knowledge, and therefore are clearly differentiated from treasure hunters, whose main interest is in the objects themselves – often, but not always, coupled with the monetary value of the objects. An essential interest in the context of an object makes the field archaeologist different. The treasure hunter may, however, be interested in the context if it enhances the value of the object. They are not usually interested in passing on the knowledge gained to the wider public.

The group of field archaeologists involved in 'pure' field archaeology is the smallest, and they usually engage in field archaeology as part of a much wider project. They may be university lecturers or professors, or sometimes museum curators. Their projects may be funded by the state, mainly through the British Academy in Britain, or the National Science Foundation in the USA. Funds are limited and fiercely fought for. Some universities and museums have their own limited funds available for field archaeology. This group should, in theory, have the knowledge, backup, time and resources to design and execute field projects to answer specific research questions. The reality is often very different, with limited resources, insufficient time and diminishing backup. These field archaeologists, often, therefore, have to compromise by running field schools or operating within a threatened area in order to gain access to alternative funding sources.

Perhaps the largest group of field archaeologists comprises those who undertake field archaeology as part of cultural resources management. 'Cultural resources management' (CRM) is a catch-all term coined in the USA to cover all aspects of the management of cultural resources. These include both objects produced by human activity in the past and sites of human activity. Humanly modified landscapes, even those given mythological significance, like a natural rock or a cave, can be considered cultural resources. The need to manage these resources comes from the realization that they are finite and diminishing. No new bronze-age sites are being created in Europe, but each year many are being lost.

Field archaeology is an essential element of cultural resource management or, as it is sometimes known, archaeological resource management (Hunter and Ralston 2000). It

employs more field archaeologists than any other area of archaeology. There are five basic elements to cultural resource management. Firstly, the resource cannot be managed until it has been found. Field archaeologists are therefore required to locate the resource. This will involve a search of existing knowledge, including the analysis of existing aerial photographs of the region being considered. New surveys may then be undertaken using all the non-destructive techniques considered in Chapter 3. Techniques must be non-destructive, as the value of the resource can be reduced by intrusive techniques like excavation.

Having located the resource, cultural resource managers must then record the resource in a user-friendly but readily enhanceable way. This will require the creation of some form of site record. These were formerly known as Sites and Monuments Records (SMR) but are now generally known by the more inclusive term of Historic Environment Record (HER). Usually this will involve a map recording the location of the site and a written description of the site. Most HERs in Britain are held at county level and are computerized to enable rapid data retrieval, cross-referencing and enhancement. Britain also has a non-intensive National Monuments Record (NMR) held by English Heritage at Swindon. It can be accessed at Swindon via computer terminals in its London office and much is now available online.

Having located and recorded the resource (a continuous ongoing activity), cultural resource managers must then consider the use and protection of the resource, and mitigation procedures, should the resource be threatened. All elements require field archaeologists. The resource needs legal and practical protection. Most countries in the world now have some form of legislation in place aimed at the protection of the cultural heritage. The cultural heritage is protected in Britain through the Ancient Monuments and Archaeological Areas Act of 1979 and the Town and Country Planning Acts, and in the USA by the 1979 Archaeological Resources Protection Act and related laws and regulations. We will return to more details of some of these laws in Chapter 5. Valuable as these laws are, sites cannot be protected simply by passing laws; they also require practical management. The law may stop people doing things to a site, ploughing it or building on it, but without practical management the site could become overgrown, with roots damaging the buried archaeology, or animals burrowing through archaeological deposits.

The use of the resource also has to be managed. Archaeologists may wish to use the site for damaging research through excavation, and teachers may want more information about the site to use it for educational purposes. Tourists and visitors will want access to the site. Any use of the site may result in damage, so the cultural resource manager will have to weigh up conflicts between use and preservation.

In addition to threats to the site through use, the site may be threatened through development or natural processes. Development threats often create the greatest impact on archaeological sites and this area involves the greatest employment of field archaeologists. In countries with the principle 'the polluter should pay', large sums are often made available to undertake field archaeology in advance of development. Often the field archaeologist is involved initially in a desk-top assessment of known information, followed by a field evaluation of the development area. This may lead to a major salvage or rescue excavation, and often an enormous post-excavation project, leading to publication.

The third group of people who do field archaeology are those doing it as a hobby. These are the traditional 'amateurs' of British archaeology. They form the backbone of British archaeology based on the county archaeological societies – some, like the Sussex Archaeological Society, with over 2,000 members. Some work in the field with professional archaeologists and others work on their own field projects. Their contribution in Britain is enormous,

as they are largely unfettered by the constraints of time, money and policy inflicted on many professionals. Unfortunately, many countries have no such tradition of amateur field archaeology.

Theoretical basis of field archaeology

Much has been written in recent years about the apparent split between archaeological theory and practice, as if the practice of field archaeology has no theoretical basis. Even the newest crew member on an excavation, digging her trowel into the ground for the first time, is working within a theoretical framework. If not, she would be simply a treasure hunter. This is not the place to review in detail the major theoretical movements in recent archaeology, although many of these, particularly the culture-historical, processual and post-processual schools have impacted on, or are in the process of impacting on field archaeology. Alternative texts are available to make these theoretical positions accessible to the field archaeologist (for example, Trigger 1994; Whitley 1998; Hodder 2001; Johnson 2009).

Field archaeologists deal first and foremost with data: fragments of fired clay; pieces of chipped stone; round, linear and oval holes in the ground; small piles of stones sometimes held together with mortar. At the moment the excavator starts revealing them in the ground, he or she begins the process of interpretation. The fired clay fragments become sherds from pots; the chipped stones become hand axes or bifaces; the round, linear and oval holes become 'postholes', 'ditches' and 'storage pits'. The piles of stones become 'walls'. Theories are being applied to the data.

Theoretical archaeology starts at the most abstract, but ends up by impacting on everything a field archaeologist does. A consideration of the limits and validity of the methods and grounds of knowledge (epistemology) is fundamental to how field archaeologists work. Essentially, can the field archaeologist prove or disprove what he or she is claiming? Archaeologists working in what became known as 'New Archaeology' in the 1960s, particularly in the USA, believed that hypotheses could be proved or disproved, essentially like a chemical experiment. These archaeologists, sometimes referred to as 'positivists', asserted that it was possible to test an archaeological theory and so 'prove' it to be either true or false (Binford and Binford 1968).

Some archaeologists maintain that, as the past is gone, we can never really prove that our ideas about it are true, or even that the certain function of a small round hole packed with stones (a posthole?) can be proved or disproved. Some maintain that it is possible to prove that an idea about the past is untrue, but that one can never really prove that it is true. The more times we find small round holes packed with stones (postholes?) and arranged in round, square or rectangular patterns, the more likely we judge ourselves to be dealing with timber buildings. It would be difficult, however, actually to prove that what we had found were not simply round, square or rectangular patterns of small round holes packed with stones.

The culture-historical approach to archaeology began as an attempt by the early archaeologists to use the approaches used by traditional historians. Archaeology was seen as a way of simply projecting history back into periods when there was no writing. The culture-historical approach attempts to 'reconstruct' the history of peoples. As much of the world consists of nation-states and much archaeology is, and has been for some time, state funded, the culture-historical approach remains important in much of the world. The culture-historical approach is dominated by the description and 'testing' of theories by applying

them to data. Essential to this approach is the gathering of detailed cultural data: pots, metal-work, house plans and the like, and their classification. From this database 'archaeological cultures' were defined. These were then seen by many as representing different peoples.

The culture-historical approach requires field archaeologists to provide detailed local sequences of artefacts and information about their geographic distribution. Under the leadership of nineteenth-century pioneers like General Pitt-Rivers, field archaeologists sectioned archaeological features such as ditches at right angles to create a vertical section through the site. Artefacts were then carefully plotted against the observed stratigraphy to give a sequence. The culture-historical approach therefore required field archaeologists to do certain things in certain ways. Whether knowingly or not, the excavator is working within a theoretical framework.

Field archaeologists working within a 'processual' theoretical framework do things rather differently to those working within a culture-historical framework, although field techniques inevitably overlap. Processual archaeology emphasizes the interaction between human culture and the environment, and sees this interaction as essential for understanding culture change. As you will immediately see if working within this theoretical framework, every seed, shell and bone becomes essential data in the way that it was perhaps not so significant to traditional culture-historical archaeologists. Processual archaeologists are positivists, believing that hypotheses about the past can be tested. Initially, processual archaeologists largely ignored the ideological and symbolic nature of some of the data they recovered, but this area has been incorporated by some processual archaeologists into a theoretical framework sometimes referred to as 'cognitive-processual' archaeology. Processual archaeology remains the dominant theoretical framework in which most field archaeologists in Britain and the USA work.

For some archaeologists, processual archaeology placed too many limits on the way data could be looked at. Particularly, the attempts to derive broad 'laws' from the data were seen as excluding the importance of the individual and of individual actions in the past. A mass of detailed criticism of the processual methods was loosely brought together under the umbrella of 'post-processual' archaeology. This term has never been entirely satisfactory and should at least be plural (post-processual archaeologies), although some have suggested that 'interpretive archaeologies' may be a better term. As so often happens, the first term used sticks so I will stay with 'post-processual'. The symbolic nature of much material culture found by archaeologists was stressed by post-processual archaeologists, and indeed, this area was adopted as important by archaeologists who retained essentially a processual framework, that is, 'cognitive-processual' archaeology. Post-processual archaeology, however, goes very much further and is impacting on how field archaeology is practised in the field.

At the simplest level, field archaeologists working within a post-processual framework will, for example, record not only the plan of a stone circle or stone row, but also how it is placed in the landscape in relation to natural stones, prominent peaks, short and long views. The context, in the widest sense of the term, is brought into play in the interpretation. Equally, when digging a site a processual archaeologist will be happy to recover every bone, small and large, from a defined deposit. A post-processual archaeologist will see intention in how certain bones or bone groups are deposited in the ground, in relation both to each other and to other elements of the site. The processual archaeologist is interested in big processes, the post-processual archaeologist is also interested in an individual's action: the careful placing of a bone or axe. As you can see, what a field archaeologist does in the field will be

determined to some extent by the theoretical framework in which she or he is working. There is also of course the problem of the archaeologists themselves: are they old or young, male or female, European or Asian, religious or atheist? The contexts in which the archaeologist was brought up, educated and works all present in-built bias when they look at what they see, or believe they see, in the field. It is unlikely that bias can ever be eliminated from field archaeology, but that does not mean that it should just be ignored (as most field archaeologists probably do). When they clearly explain their theoretical approach to data collection and interpretation, it may be possible for others working with different backgrounds and in different contexts to suggest alternative interpretations. This problem of bias has led to some interesting experiments in how archaeologists work in the field. Reflexive archaeology is one. In this the role and context of the archaeological writer is an important element (Hodder ed. 2000). The actual process of producing alternative narratives from field data was examined in depth during the study of a bronze-age settlement in South-West Britain. The team (not all field archaeologists) considered 'how the daily process of excavation generates alternative site histories which are subsequently abandoned, forgotten, perpetuated or transformed' (Bender, Hamilton and Tilley, 1997 and 2007).

In addition to the broad theoretical frameworks in which a field archaeologist works, there is, within the process of excavation itself, a considerable body of theory. A crew member or volunteer picking up potsherds in a ploughed field or carefully cleaning a layer of soil off a wall foundation may not always be thinking of the theoretical basis of what is being done, but nevertheless the theory is present in the practice. One area of theory is of such central relevance to the field archaeologist that the whole of Chapter 2 is devoted to it. This relates to how an archaeological site is formed, and then transformed into what may be located in the landscape or dug up today.

Stratigraphy is a core concept within field archaeology and has a strong theoretical basis going back into the eighteenth century. J. Hutton's *Theory of the Earth with Proofs and Illustrations*, published in Edinburgh in 1795, is in many ways a starting point in the evolution of stratigraphic theory. Surprisingly, however, many archaeologists failed to see the theoretical importance of the notions of stratigraphy being developed in geology. Indeed the real importance of stratigraphy was not widely accepted until the work of the American Alfred Kidder and the British archaeologists Mortimer Wheeler and Kathleen Kenyon in the twentieth century. Even today some archaeologists dig in arbitrary horizontal spits (levels of identical thickness), regardless of the natural contours of the site's stratification.

The basic theory behind archaeological stratification is that, as originally deposited, the layer at the bottom of a sequence is the earliest and each layer above it is progressively younger. The layer at the top of the sequence is the youngest. A layer has to be deposited on something, and that something has to be there first. Archaeological stratification, however, includes more than layers of soil or whatever. It also includes cultural interfaces like walls, ditches and pits, all of which are part of the stratigraphy. We shall return to this in Chapter 6.

On excavations, therefore, virtually all aspects of what field archaeologists do are theory laden. This includes both broad theoretical approaches, like 'processualism', and specific theoretical concepts, like stratigraphy. Non-excavation fieldwork is also theory laden. Much of this is tied up with the interpretation of field data, but unless the theoretical framework is evident in the field practice, then often the data will not be collected in a way which will enable it to be interpreted in a particular theoretical framework.

Polished stone axes, for example, are found by field archaeologists working in many parts of the world, from the Caribbean, through Europe, to the Far East. They are found widely

scattered throughout the landscape. Culture-historical archaeologists would see their value for dating, perhaps through classification. Processual archaeologists may see them as tools for cutting down trees to clear forests for agriculture. Post-processual archaeologists, while accepting their value for dating or for chopping down trees, would also recognize that, as they are often found unused, they are not all casual losses. Some at least may have had a symbolic or ritual role. If this is the case, where they are deposited and even the orientation of the blade may be significant.

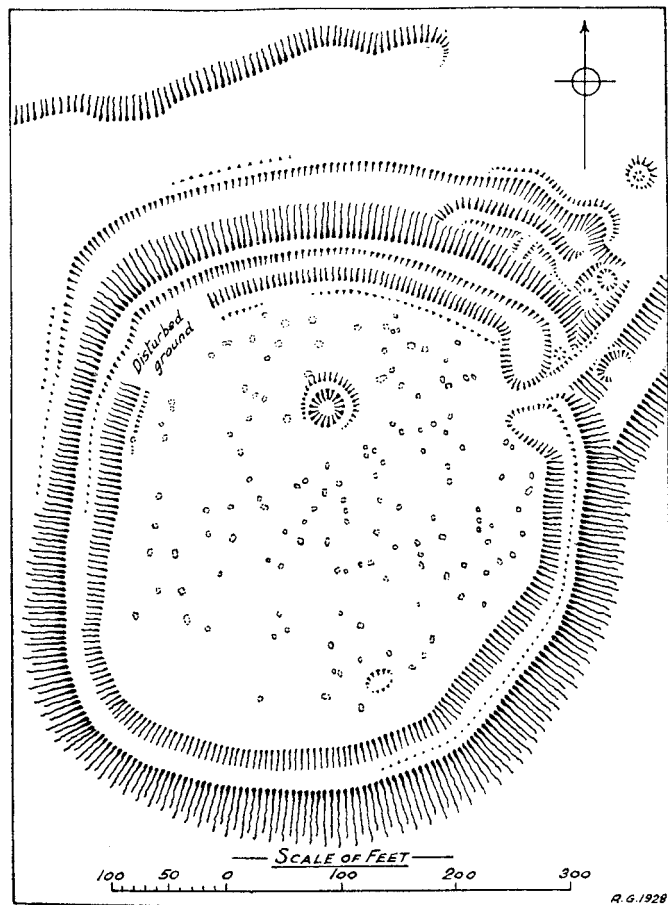
When working on a field survey around the neolithic–bronze-age settlement at Man Kok, Lantau Island with a group of Chinese archaeologists, we found two polished stone axes on the hill above the settlement. Working within a processual framework, the group carefully recorded the position of the axes in the landscape. Their interpretation was self-evident. They were axes. Axes are used to cut down trees. They were, therefore, lost in an area being cleared for agriculture. The fact that both blades were clearly facing away from the settlement was not formally recorded. Indeed, the orientation of stone axes is rarely recorded in field surveys. Are unused stone axes regularly found with blades facing away from settlement areas? Were they placed there to symbolize the limit of clearance or human control of the landscape? Do they mark the junction of tame and wild? The way one records field data may expand or limit how one can interpret it.

The same will apply to the recording of archaeological features in the landscape. How they are recorded will limit or expand the range of possible interpretations. Take an enclosure on the top of a hill: a British iron-age hillfort, for example. Mount Caburn, in Sussex, England, is a good example. Here a small ‘hillfort’ has been studied by archaeologists since General Pitt-Rivers first dug there in September 1877. This prominent hill has a bank and ditch dug around the top and has a single entrance (Figure 1.2). Clearly it is a defended enclosure: a ‘fort’. But is it? Two elements have been taken: hilltop and bank-with-ditch. Little else was considered in the field survey and publications, which show these two elements only. What was not recorded was the shape of the hill, which in fact makes the site largely indefensible. Within the enclosure is the top of a dome-shaped hill whose convex slopes make it virtually impossible to see anything other than a very small area within the enclosure or very short lengths of its ramparts at any one time. Unless defended by hundreds of people, it could quite easily be attacked, unknown to the defenders. Given the general absence of contemporary material within the enclosure and apparently low local population (based on site densities), what was being defended anyway (Drewett and Hamilton 1999)?

If one is working within a theoretical framework which sees bank-and-ditch as indicating defence, then they will be recorded in such a way that it will be difficult to see them as anything other than for defence. However, if you are working within a theoretical framework which recognizes the potential for symbolism in both constructions and artefacts, you may see the bank or ditch simply as a boundary, a dividing line between different spaces in the landscape. How these spaces relate to the natural landscape may be of crucial importance in their understanding.

Superficially similar enclosures may have very different functions, depending on where they are in the landscape. Take British neolithic causewayed enclosures, for example. When first studied in the 1920s and 1930s they were carefully surveyed, and all their plans looked remarkably similar: one to four circles of interrupted ditches. When groups of such enclosures are examined locally in their landscape context, it becomes clear that some were false-crested (apparently on a crest but actually below it), overlooking dense clay forest, while others were on hilltops overlooking thin chalk soils suitable for neolithic agriculture.

Figure 1.2
An early plan of Mount
Caburn, Sussex, an
iron-age hill 'fort'
(Sussex Archaeological
Society)



Visibility both from and to the enclosures is significant in their interpretation. Depending on the theoretical perspective of the field archaeologist, such data may or may not be recorded.

Some field archaeologists may claim that one must simply be 'objective' and record 'everything'. Clearly, such an approach is unrealistic in terms of time and money, but also what does 'everything' mean? In the 1920s everything thought to be archaeologically relevant about causewayed enclosures was recorded. Now we realize that much more is potentially relevant than just the archaeology as such. Location and orientation of sites and artefacts may be as significant as their sequence of occupation and date. The field archaeologist's theoretical perspective will, up to a point, always determine where and how he or she practises field archaeology.

Project management

It may seem odd to find a section on 'management' in an introductory textbook on field archaeology. Indeed, if one looks back at the classic textbooks on field archaeology, 'management' appears nowhere. Anyone running a field project, or even a section of a field

project, like a trench supervisor, is, however, a manager. ‘Management’ – like ‘archaeology’ – means different things to different practitioners, but essentially it is the process of planning, organizing, directing, co-ordinating, controlling and supervising any activity, with responsibility for results. It is usually seen in terms of business – making and selling ice-creams or constructing a housing estate. Its concepts are, however, equally significant for archaeological field projects. Each project has to be planned, undertaken and productive of results.

Project management was developed by industrialists like Frederick Taylor in the USA early in the twentieth century (Taylor 1911). The aim was to design specific work processes and sequences of work to get a job done in the most efficient manner. This generally involved specialist workers doing specific jobs in a predefined order. This, of course, was exactly what the great British field archaeologists like General Pitt-Rivers and Sir Mortimer Wheeler, with their military training, had been doing or were about to do. A gunner would shoot, a quartermaster would supply, a sapper would sap (dig trenches). So, on their excavations, labourers would dig, photographers would photograph and surveyors would survey.

Classic project management, often known as scientific management, blended well with the objective nature of ‘processual’ archaeology. Each element in the field could be dealt with by a specialist in their own area or field. Essentially, everything could be done in the field by highly trained technicians. The results could then be interpreted and reinterpreted after the field project, as ‘all’ the field data had been objectively recorded. Field archaeology, however, is not like making ice-creams or building housing estates, so the mindless adoption of ‘scientific management’ in some areas of archaeology, especially in British and American public archaeology, resulted in much dull, repetitious archaeology and a bored workforce. Archaeologists were often adopting ‘scientific management’ at times when industry was moving on into newer concepts, like matrix management. Archaeology has always been good at adopting and adapting from other disciplines. Its success in this process rests largely on its ability to adapt, modify and use only those elements that are really applicable and not blindly to accept theories and practices from other disciplines.

There are two main elements to the management of field projects. One relates to the process: in what order will what be done, with what techniques and equipment? The second is: who will do it with whom? People cannot simply be slotted in like a piece of equipment, such as a back hoe. The back hoe is hired, the hole is dug, the back hoe is laid off. People can be treated in a similar way, but rarely will a project benefit from this approach to people. People need to feel involved and be responsible for their actions within the project.

Managing the process of a field project is relatively straightforward; it just needs forethought and organizational ability. Certain things clearly have to be done before others. In 1991 English Heritage produced its model of scientific management as applied to archaeological projects (Andrews 1991). *MAP2*, as it has become known, following an earlier version known simply as *MAP*, argued that archaeological projects should be organized in clearly defined phases. Each phase should have clearly defined objectives and have adequate staff, equipment, time and costs allocated to it. Five phases were proposed (Andrews 1991):

- Phase 1: Project planning
- Phase 2: Fieldwork
- Phase 3: Assessment of potential for analysis
- Phase 4: Analysis and report preparation
- Phase 5: Dissemination.

The importance of reviewing results of the developing project is particularly stressed, with each phase being carefully documented. Particularly important is the need to update the project design as information becomes available from the field or preliminary analysis, that is, to be flexible. The desirability of external monitoring of the project and some form of quality control is stressed.

One of the most important aspects of archaeological project management is the ability to control time and money. A timescale for the project and individual elements of it must be defined, together with the order in which tasks should be performed. This information must be clearly and simply available to all those involved in the project. The best way to do this is visually. Such charts have been used in industry for almost a hundred years, but rarely appeared in the management of archaeological projects until the 1980s. One of the most widely used was designed by the American engineer Henry Gantt (1861–1919) and is named after him – the Gantt chart. A Gantt chart deals essentially with scheduling as relating to time (Coventry and Barker 1981). The Gantt chart is a bar chart with individual activities identified and arranged along the y-axis while time is arranged along the x-axis. For example, within a whole project, say 30 days will be allocated to excavation. This will be represented as a 30-day bar. This can be broken down into smaller time allocations, say three days for machine-stripping overburden on the site, 20 days' hand-digging, five days' final planning and photography, and two days' machine-backfilling. People, or groups of people, can be allocated to the specific tasks.

An alternative to the Gantt chart is to use a critical path analysis (CPA) chart. This, rather than using bar charts, uses an arrow diagram, sometimes also known as 'network analysis'. This involves producing a diagrammatic model of the real process of doing the project from start to finish. The idea is to produce a 'critical path' through the maze of individual activities required in any project (Coventry and Barker 1981). For example, a site may need to be cleared and fenced before the site accommodation and facilities for the labour force are put in place. This may take two or three days with perhaps only three or four people, so all of this appears on your chart before the arrival of the back hoe to dig off the overburden. Only at this stage should the larger digging crew arrive. The CPA chart, therefore, provides a graphic model of the most efficient way of getting the job done.

For archaeology, with all its unforeseen elements, like suddenly discovering a water-logged element to the site, a third management technique may be most appropriate; this is the Programme Evaluation and Review Technique, or PERT. Like CPA, PERT involves a model or network linked by arrows to represent all activities in a logical order. CPA provides one time estimate for each activity, while PERT is more flexible and therefore perhaps more appropriate to archaeology. PERT defines not one but three time estimates for all tasks. It provides the most likely time, but also indicates minimum and maximum possible times. Rain can seriously slow down the progress of excavation, while if a deposit turns out to be shallower than anticipated it will be dug very much more quickly.

A sound field project, therefore, requires a clear aim and a clear management plan to achieve that aim.