INTRODUCTION

'Why did *you* get involved in archaeology?' People have a variety of responses to this question. Some answer in ways which attempt to justify why we study the past at all, perhaps in order to defend the expenditure of resources on archaeology rather than another activity: phrases such as 'our past is vital' and 'it is part of our heritage' come to the fore. Others list the particular causes which have stimulated them, as an individual, to get caught up in the subject: 'I saw a television programme, tried a local dig and caught the bug' or 'I have always been interested in local history and archaeology seemed to offer me a way of getting more directly involved.'

Yet, whatever type of answer they give, many people will find that their involvement leads them, at some stage or another, to be actively engaged in gathering data in the field, rather than just using information obtained by other people. In archaeology, such data-gathering can take a great variety of forms, for example studying artefact collections in museums, analysing aerial photographs, surveying standing buildings and field-walking. These activities already play a significant role in augmenting the material base of the subject and, given current trends, will probably become increasingly important in the future. However, the material culture of past societies which archaeologists might wish to examine is not all stored in museums, and the occupation areas and artefacts related to them are not always accessible on the earth's surface. Sites and finds have become buried by a variety of mechanisms including the activities of construction, occupation and destruction by humans, together with accumulations due to natural agencies (of which the most extreme case would be 'burial' underwater, such sites requiring their own specialist approaches and techniques: Green 1990). Hence remote sensing, field-walking or building surveys each have their limits. At this point excavation, meaning the disturbance of the ground in archaeologically controlled conditions, may be needed to reverse the burial process.

Of course, it must be emphasised that excavation, although central to *this* manual, is not the only, or even the most desirable, way in which the discipline of archaeology acquires new data. Fowler (1980), for example, has argued that field surveys have a primary role, both historically and in terms of present cost effectiveness. However, it must also be acknowledged that excavation has become, in practice, the main way of capturing much of our data. Indeed, for certain questions, excavation is presently the only viable way for research to

proceed, even given the recent developments in more sophisticated techniques of remote sensing. In short, it seems likely that digging will remain central to archaeological fieldwork for the foreseeable future. The aim of this manual is to provide a coherent framework for understanding both general approaches and the practicalities of the digging process itself, together with some of the principles which underpin the subsequent stratigraphic analysis of the data created.

The book is aimed at a variety of audiences. First, there are those involved in excavation at the purely practical level. This includes both unit-based and independent field-workers, whether engaged full-time or part-time. Second, there are those interested in the excavation process because they use the resulting data in their analytical work. This embraces a great range of people, from the individual with a great interest and expertise in a particular artefact-type, right down to the polymath professor heading a university archaeology department – jack of all trades, master of none. Finally, there are those many people who have encountered excavations, either in a busy high street or intruding into the peace of a country walk, and wondered not just 'Have they found anything interesting?' but also 'How do the diggers go about their task?' and 'What do they do with all the records once they have finished?' (or, to be more realistic and accurate, the many people who wonder 'Why don't they stop all that writing, measuring and drawing, and get on with actually *finding* things?').

This is obviously a very large group of people to accommodate. Where there is a conflict of interest, I have erred on the side of looking in detail at the problems faced by the first category, the person working in the field at the cutting edge of excavation practice, rather than talking merely of general approaches and principles. This is presumably in keeping with the concept of a *manual* of archaeological excavation. It has also been designed to allow those with particular interests to dip into it at various points and look for solutions to their problems (e.g. 'What photographic and planning policy must be designed for our needs?' – 'See page such-and-such'). Thus I have endeavoured to provide practical responses to the problems which arise on excavations, as well as a theoretical overview of the whole process.

The manual attempts to give a description of the present 'state of the art' in excavation techniques. But, as anyone with an interest in the past would agree, that present situation can only be understood properly in terms of its previous development, not viewed in isolation. So these techniques are first set in context with a discussion of the recent history of their evolution. It is my belief that historical development is more comprehensible when explained in its material context than in terms of the activities of a particular genius in the field or, for that matter, of technological advances external to the discipline, for example in computer hardware. Most archaeologists readily acknowledge that an undue focus on known figureheads, or simplistic notions of technological determinism, are of limited use when looking at past societies: we should remember

this lesson when looking at our own, present practices. Thus Chapter 1 concentrates on the institutional and organisational background of excavation practice and the general economic and political context in which the subject exists. In doing so, it contrasts somewhat with those descriptions of methodological developments phrased in terms of the inventions of the 'great women and men' of field archaeology.

The conduct of excavations requires both a general perspective and specific arrangements. It thus involves a consideration of theoretical approaches and practical preparations. The former is considered in Chapter 2, where I have outlined my views on the 'total excavation versus research design' debate, favouring decisively the latter. My conclusion here is that what I would call perspective in site recording, and opponents would no doubt call bias, is something to be welcomed rather than worried about or shunned. The difficulty comes in devising an excavation strategy, and doing so in an explicit form, whilst at the same time retaining the fluidity of response which all such work requires. Though not all readers will agree with my conclusion, the issue itself is important, both in its own right and because the approach then colours the content, and provides the structure, of the remainder of the manual. However, I hope that those who do not concur will still find what follows of use.

If it is necessary to have particular perspectives when approaching any excavation, this implies the use of previous knowledge when structuring research objectives. Whilst the preceding chapter noted the need for interdisciplinary research at the most general level, it is the application of more directly *archaeological* methods which is required to gain sufficient information before constructing a detailed research strategy. In Chapter 3 I therefore outline what is required to discover sites and to evaluate their potential before full-scale excavation takes place.

The next chapters detail the practical preparations which any modern excavation involves. Most archaeological endeavour is engendered by a need to throw light on past societies – it is questions, whether related to general issues or specific off-the-cuff enquiries, which stimulated most of us to get involved in the discipline in the first place. However, much of any excavator's time, and certainly most of that of the site director, is really spent not on sophisticated academic thoughts but on organisational matters: it is all very well pondering on what your site is saying about the changing nature of Roman imperialism but this doesn't actually help to get the Elsan rota organised. Chapter 4 therefore looks at background preparations such as finance and administration, without which no project stands a chance of success; staff and their support facilities, site workers being the most important asset of any excavation; and general site safety plus special situations, safety being a fundamental responsibility of anyone organising an excavation. Chapter 5 then considers the more detailed issues which arise when excavation proper starts. This includes site clearance using mechanical methods, the establishing of site survey grids, and then spoil

removal, shoring, de-watering and finds retrieval systems. Difficulties during the excavation itself will be minimised if sufficient effort has been put in at this planning phase, even though continuous monitoring and modifications will then be needed at all later stages.

A central message of the foregoing discussion is the need to have an organised approach to the excavation as a whole, and to data gathering on site in particular. To reinforce these messages, Chapter 6 gives an itinerary for the recording and excavation of a stratigraphic unit: a day in the life (and death, usually) of a typical layer. This is not meant to be a definitive statement of what process should be followed in every conceivable situation. It has been said long ago by Wheeler (1954: 1), and is worth repeating here, that there is no right way to dig but there are many wrong ways. However, what is put forward is *one* way of creating a full record which fulfils the more abstract requirements of the subsequent chapters. It also makes the point that a structured approach to recording can usually be translated into an equally clearly ordered sequence of operations in the field, thus greatly simplifying the learning of such methods. One of the biggest battles on excavations, a battle more often lost than won in my experience, is to demystify the recording process. The itinerary presented here may help in achieving this.

The meat of the book is provided by a discussion of site recording in the remaining chapters, their order following the itinerary mentioned above. Chapter 7 considers the photographic record, an essential component of nearly every project but one whose role is rarely discussed, either in itself or in relation to the rest of the record. It gives details of recording systems and describes methods of cleaning for photography, followed by particular photographic techniques and finishing with some specialist uses. Correspondingly, Chapter 8 looks at the spatial record, starting with a discussion of drawing techniques and necessary equipment. Spatial information is still gathered mostly by hand-drawn plans and sections, although this is an area in which increased use of sophisticated surveying equipment and computer technology is starting to have a significant impact. For example, such hardware can greatly increase the efficiency with which individual finds can be measured-in, generating corresponding developments in the degree of detail which forthcoming research agendas might require in terms of artefact positioning.

Chapter 9 is concerned with the stratigraphic record, again an area which has undergone substantial change in recent decades. It considers the types of relationships which might be recorded; how they can be represented with the use of sequence diagrams, notably the 'Harris-Winchester' matrix; and a variety of systems which have been devised for calculating stratigraphic relationships and for checking the accuracy of the record presented in this diagrammatic form.

The next chapters examine the descriptive record of the physical characteristics of any stratigraphic unit. Chapter 10, prefaced with a discussion of who actually produces that record and at what stage of the excavation of the unit,

then proceeds with a résumé of approaches to deposits description – colour determination, particle size of soil matrix, compaction, inclusions and surface detail. Correspondingly, Chapter 11 considers masonry and brick features, timbers, skeleton recording, cut features and finds groups. Then Chapter 12 discusses a variety of other matters concerning finds recovery and the mechanics of soil removal. Here the need for an explicit sampling strategy is stressed, followed by a detailed discussion of methods of trowelling, still the most common way of removing archaeological deposits in controlled conditions, and of the vexed issue of how to decide where one unit ends and another starts. The completion of the record and the need to check the accuracy of the whole process is outlined finally.

No excavation manual would be complete without a consideration of the implications which both the general approaches and specific strategies outlined above have for manipulating excavated data. Hence, in Chapter 13, I discuss the stratigraphic analysis which takes place after the excavation has finished. Developments in excavation since the 1970s have ensured that data are gathered in a much more controlled and consistent fashion than previously. But this increased sophistication is rarely matched by the processing of that data. Finally, in Chapter 14, I speculate on how archaeological excavation might develop in the coming decade, based on a consideration of the intellectual, technical and organisational trends currently visible in the field.

Some people will find difficulties with the tenor of the manual. Archaeological excavation, by its very nature, is such that not all of the problems which arise can be predicted and catered for in advance. In addition, it could be said that nearly all such fieldwork now takes place under less than ideal circumstances, in rescue and salvage conditions ahead of modern redevelopment. So the idea that one has time to plan the work systematically, test alternative approaches, discuss results, etc. may be seen as hopelessly idealistic. To this it might be added that the whole topic is now so large that uniform coverage in a single book is not just increasingly difficult, which it clearly is, but actually impossible and can only mislead. Finally, it is inevitable that my own views will be biassed, for instance by my own political perspectives on what is wrong with this world and how we might change it. They will also be limited, for example by being derived from experience of only the last twenty years, mainly on urban sites in London and North Africa, and then concerned with recording layers, pits and structures rather than artefacts and ecofacts. Thus it would be true to say that this manual will be even less of a final word on its subject than many others in the Cambridge University Press series, and will become outdated more quickly than attempts from previous decades to discuss excavation techniques. On balance this is, no doubt, all to the good, and anyway an inevitable product of a modern world which reinvents itself at increasingly shorter intervals. However, though accepting this, I would make two additional responses.

First, in an attempt to defend myself from a charge of undue parochialism, I have endeavoured to remedy my own lack of breadth by reading directly what others have written about archaeological excavation techniques, and between the lines of many of the more significant publications of site-work in Britain and abroad. I have also discussed the issues involved in a variety of forums and drawn on the ideas of those with different, and often greater, experience than myself. Despite this attempt to 'broaden my mind', the case studies and illustrations will still seem to be drawn from a limited range of projects. Here I would argue that the deeply stratified, complex sites with which I have been mainly involved provide an advantageous starting point for discussing techniques as a whole. Droop suggested a long time ago that 'to be able to dig a stratified site well is to have attained to the highest and most remunerative skill in this particular work' (1915: vii). Even if such a claim is somewhat excessive, I have found it far easier to take the procedures involved with such sites and apply them to those with shallow stratigraphy, or with no stratigraphy at all, than to go in the opposite direction.

Second, to answer the charge that ideas and techniques expressed below are 'all very well for pure research but largely irrelevant to commercial work', I would note that my own knowledge of excavation practice derives almost entirely from sites concerned with rescue work in its various guises on which a mainly professional workforce was engaged. To me, that experience suggests, very clearly, that the pressures of the real world are better catered for by understanding basic principles and approaches, then cutting one's cloth accordingly, rather than adopting the seemingly more simple, but ultimately less useful, strategy of just rushing in and doing one's best with whatever has been made available. Thus I have set out in detail how things might be done in each sphere of recording but noted in passing some shortcuts, together with the impact that these will have on data quality and thus the questions which the fieldwork might be expected to answer. Such a sequence is essential if one is to put projects into practice, yet retain a hold over what any one piece of archaeological fieldwork can realistically hope to deliver in terms of data which are useful to future researchers.

In short, this manual cannot expect, and does not pretend, to be a complete guide to excavation practices and may seem, at first glance, to be a 'very British' book in terms of style, examples and terminology. Yet it is my belief that, with a little effort on the part of the reader, the general points of principle which I endeavour to draw out of it are relevant to the wide range of situations which excavation directors face in many parts of the world on a day-to-day basis. Any such attempt to present the underlying theory and logic of the excavation process in this way will be of direct relevance to many people in the field and of some interest to those nearer its fringes – or so I hope!

1

HISTORY OF DEVELOPMENT OF TECHNIQUES

Introduction

The discipline of archaeology has a long history, even if it has only recently been accepted by most people as an important and vibrant research subject. However, the point in time at which it might be defined as a distinct discipline varies, depending on whether one chooses as its central focus simply the *collection* of material culture from past societies, which took place at an early stage; the *classification* of this material, starting in a later period; or the *interpretation* of data, which occurred later still. None the less, by any definition, the subject has existed for at least a century and, naturally, it is not difficult to find authors who have charted the trajectories of its overall development. For the British audience, Daniel's various works (especially 1975) may take pride of place. Klindt-Jensen (1975) has provided a corresponding description of Scandinavian traditions, and Willey and Sabloff (1974) of American developments. Thus, the general history of the discipline is well known and easily accessible.

Publications which focus specifically on the nature of archaeological fieldwork and its history of development are less numerous. Initially such matters either were discussed by oblique reference within excavation reports, for example those of Pitt-Rivers (1887), or occurred in more general works on aims and methods within the discipline, as with Petrie (1904). Even where a book was centrally concerned with digging up the past, it might still contain very little on the actual recording of excavations (Woolley 1930). Later, this situation changed. Specialist authors such as Atkinson (1953) and Crawford (1953) discussed fieldwork *per se*, the latter admittedly being more concerned with surface configurations than digging. For excavation itself, Wheeler has pride of place, not just in his well-known book *Archaeology from the Earth* (1954) but, more importantly, in his 'technical papers' (1945 and 1946) on the use of a grid of excavation boxes.

Publications by Alexander (1970), Coles (1972) and Webster (1974) discussed the direction of excavation projects and endeavoured to set them in a more general institutional and organisational context. Even so, it must be said that each, and especially the last, has very little to say on detailed matters which are a central concern of this manual, for example the descriptive criteria which might be applied to archaeological strata. Furthermore, any recording

methods which are mentioned are mostly unsystematised and vague in their application. Finally, Barker has had the most recent word, both on techniques in particular (1977) and on the philosophy behind excavation in general (1986).

From these and other studies, it is possible to chart the progress of archaeological fieldwork. This might be seen as starting in the middle of the first millennium bc with interventions in the city of Ur, or with work by Greeks in Hippias Major, mentioned by Plato, which involved using material remains to write *archaiologia*. The latter term might be best understood as involving 'stories' about the past, rather than purported historical accounts drawing on evidence, in the way a modern reader might understand. Whether in Sumerian or Greek contexts, such activities arose not simply out of human inquisitiveness, but rather from social need. Recovering archaeological remains was part of the drive to extend a city's origins into the past, thus legitimating its position within the region, and when undertaken by particular families this would reinforce their own importance and authority. In this sense, such investigations were intimately bound up with the needs of maintaining citizenship within the ancient world.

These initial steps were followed by Roman interest in past societies, which included a strong focus on what would be now called anthropology, as is clear from the writings of authors such as Tacitus. Again the main objective was not simply knowledge for its own sake but, with the vast expansion of the Empire, either to contrast the tribal peoples which the legions encountered with their own, Roman 'civilisation', or to see them as 'noble savages' who became soft when they took on an urbanised lifestyle. Roman involvement extended to the collection of material remains, particularly in Italy, even though this often amounted to little more than glorified looting.

After the fall of the Roman Empire, attitudes towards the past developed in different directions within Europe. Islam, with its greater respect for academic learning, retained an interest in Latin authors and protected their works from the excesses of destructive Christian zeal when possible. By the same token the Byzantine Empire, where 'Roman rule', in some sense of the word, might be seen as lasting until the fifteenth century, continued to facilitate the archaeological work of such scholars as Cyriac of Ancona. The contrast between Islamic and Byzantine spheres and Western Christendom is clear, the latter being more often concerned to lay waste or marginalise earlier monuments than to protect or investigate them. Yet, even within Christianity, particular events should not go unremarked. Thus the monks of Glastonbury excavated to uncover their links with Arthur, and in the process legitimate the holiness of their foundation and promote its economic power. Equally intriguing, though problematic, is the suggestion (Clark 1978: 198) that Geoffrey of Monmouth may have made use of a Roman antiquity in the twelfth century to elaborate his story of the life of Cadwallo, king of the Britons.

The birth of Renaissance movements in Europe, concentrated in Italy but

with reverberations far beyond, prompted a renewed contact with Antiquity. Those at its epicentre, where Roman buildings often remained visible above ground, responded most forcefully. The pope, for instance, took the opportunity to excavate large areas of Pompeii in the late sixteenth century. However, even countries which had been on the margins of the Roman Empire, such as Britain, or entirely outside it, as with Scandinavia and much of Germany, became deeply involved. Antiquarian interest generated huge collections of objects derived from ancient cultures, initially from within home countries and then, with colonial expansion, from increasingly accessible sites abroad. Such collecting created a demand which could be best served simply by looting, an activity with a long, and in some ways venerated, history which continues in many parts of the world up to the present.

These huge numbers of artefacts in antiquarian collections were eventually classified into typological sequences, a process augmented by the concept of the three-age system. This, plus other general developments such as the notion of *biological* evolution later expressed in Darwin's *Origins*, was a product of the more general notion of 'progress' abroad in a society responding to the Scientific Revolution. Such forces led, understandably, to the use of archaeological material to elucidate *social* evolution. Arguably the late seventeenth century was a critical turning point in this respect, the time when the term archaeology, with its Latin root, was used by Jacob Spon to describe the activity of antiquarians studying objects and monuments with the explicit objective of shedding light on past societies. The questions raised in the process of this intellectual enquiry required, in turn, further fieldwork to furnish not just more artefacts, but also the structural and topographical information which would give such finds a meaningful context. Thus controlled excavation to provenance finds became, increasingly, the order of the day: it remains a requirement which field-workers in the twenty-first century still endeavour to satisfy (and, in my opinion, are becoming increasingly expert at achieving).

The objective of this chapter is not just to provide the above brief outline of these developments, but to consider the dynamic behind them. Some have portrayed the process as being driven forward by the dynamism of particular individuals (described in **1.1** below). Such terms of reference, though allowing convenient descriptions, ignore social forces. If we wish to understand the sequence of development more fully, we have to consider the three elements of intellectual framework, available technology and organisation of fieldwork, and to understand the way in which they react on, and interact with, each other. Thus the subsequent sections will consider the ideological background within contemporary society which both constrained and promoted new forms of explanation (**1.2**); the technical, usually technological, developments outside archaeology which the discipline then incorporated to mutual benefit (**1.3**); and the social and economic context in which archaeological excavation took place (**1.4**). In particular, recent professionalisation (**1.5**) has turned the excavator

into wage labour and thus transformed the way in which fieldwork is practised. The content of this manual is largely a product of attempts to cope with this new and challenging context.

The order in which these ideological, technical and organisational factors are discussed below reflects my own view of how change takes place in human society in general. Ideas are clearly *one* of the driving forces (see 1.2), but only develop in circumstances composed of a historically specific combination of technological and organisational factors (see 1.3 and 1.4 respectively). Thus fieldwork activity itself, in the techniques which it employs, and in the way people use these techniques and the organisational context in which they find themselves, constitutes the real motor for change in excavation practice. In short, the practice of archaeology underpins its ideological development (or, as Marx famously once put it, the material world precedes consciousness).

1.1 The role of dynamic individualism

The brief historical outline given above demonstrated that humans have long been interested in 'the past' and have often become involved in archaeology as a result. Indeed, such curiosity is seen by many commentators as a natural phenomenon evident in every social formation (or at least as far back as those for which we have documentary evidence to demonstrate conscious human intention, for example in the writings of the earliest classical authors). Yet that résumé also shows that, even if such interest is seen as part of human nature, curiosity is expressed in different ways in different societies, and that it changes through time. How are we to comprehend such diversity of response and evolutionary process?

As already noted, some commentators suggest that all intellectual enquiry passes through a similar sequence of development which starts with the collection of material, moves on to classification to impose order on chaos, then proceeds towards the explanation of any patterns derived. This process, they maintain, is visible in various disciplines including, most pertinently, archaeology. Hence, it could be said that early antiquarians gathered artefacts (the 'collection' phase); archaeologists in the eighteenth and nineteenth centuries imposed typological systems on them ('classification'); and twentieth-century scholars specified dynamics to facilitate the move from typological arrangement to interpretation ('explanation'). By the same token, when we consider specifically work in the field, early practitioners can be seen as collecting monuments, at least to the extent of noting their existence in particular places (Plate 1). Monuments were then classified into different types and their positions plotted on maps to elucidate distributions. However, in order to move towards interpretation, one had to know whether any patterns were 'real' or simply a product of intensity of fieldwork and/or visibility of the monument concerned.