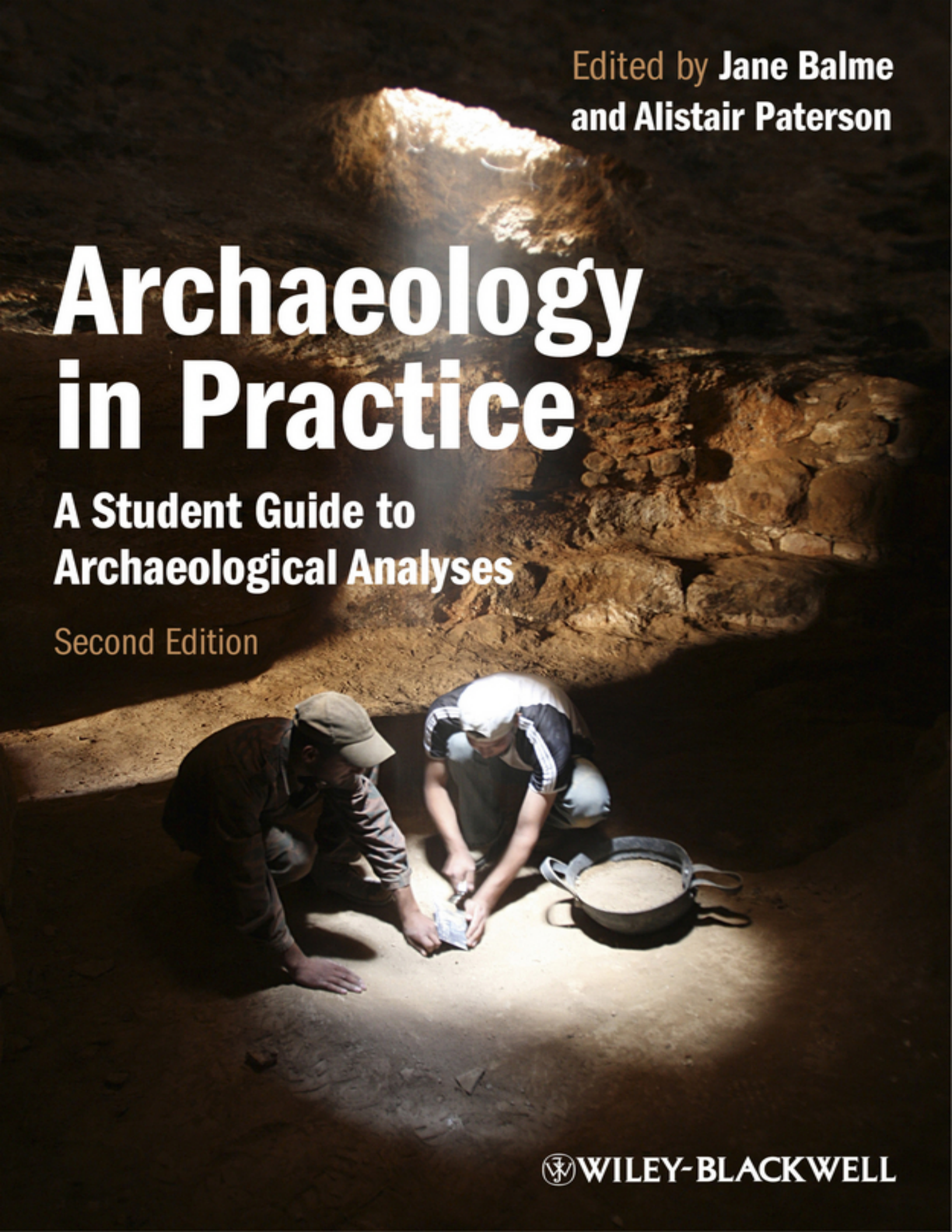
Edited by **Jane Balme and Alistair Paterson**

Archaeology in Practice

A Student Guide to Archaeological Analyses

Second Edition



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Preface and Acknowledgments

This volume is intended for students about the practices used by archaeologists in the analyses of archaeological materials. It can also be used as a sourcebook for professional archaeologists. Both of the authors have been involved for many years in teaching university courses in field and laboratory techniques in archaeology. The first edition of this book arose from the fact that, although there are many books for archaeology students on field methods (especially excavation techniques), much less is available for archaeological analysis techniques for students beyond the first-year university level. The gap, we believed, was a sourcebook on the practical methods of recording and analysis of different kinds of archaeological materials.

The process of archaeological research, which is summarized very simply in Figure 0.1, consists of much more than recording and analysis or even excavation as much of our public audience believes. Although most research follows this unidirectional step 1 to step 7 process, in reality, sometimes there will be feedback where, for example, data collection in step 5 may lead to some reformulation of the research plan.

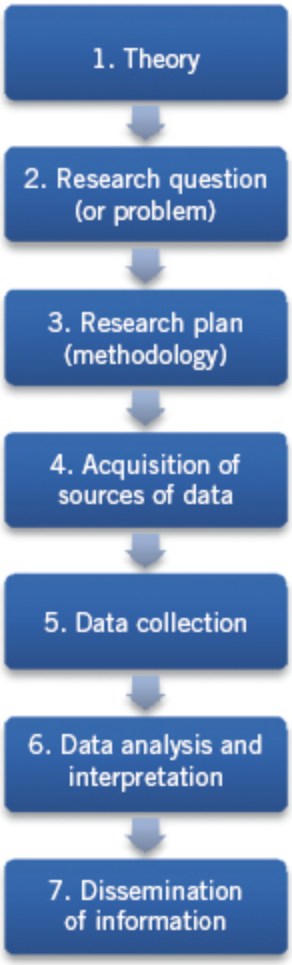

Figure 0.1. The process of archaeological research.

All archaeological research is driven by steps one and two, that is, a research question or problem which is informed by theory that could be high level, such as evolutionary theory, or from lower level theory, such as the relationship between gender and material goods. The precise research question has to also identify a gap in knowledge that is informed by previous work relating to the theory. It is only by having a research question that the research plan (methodology), including the principles, methods, and tasks that are needed, can be developed to examine the question (step 3). The research plan should identify the sources, such as sites, historical documents, artefacts, animal, and plant remains, from which data can be obtained.

The next step is to acquire these sources of data. This may include finding books in libraries, archaeological survey, excavation to recover artifacts, plant remains, charcoal for dating or the like, but, it should be made clear that books, objects, and so on, are not data in themselves, they are the sources from which the data, or information about the objects, are taken. The research plan informs the data that needs to be collected from these sources (step 5) and the analysis of that data that allows it to be interpreted (step 6), and it is these two steps with which this book is primarily concerned, although the individual chapters may sometimes necessarily touch on others steps of the archaeological process.

Not all data are collected in the laboratory. Some, such as the spatial position of archaeological sites or objects, sizes of buildings, and records of rock art motifs are collected in the field and some, such as data collected from texts and photographs, are collected in libraries and offices. Sometimes objects are recorded *in situ* (in place) in the field rather than being brought into the laboratory. Because numerous excellent books on field archaeology include advice on data collection in the field, we have concentrated on the data that are collected in the laboratory, office and libraries. We have, however, included a chapter on rock art recording (Chapter 5) and a chapter on stratigraphy (Chapter 2) because the former is usually not dealt with in detail in field method books, and the latter is needed for the discussion on chronometric techniques (Chapter 4).

We have also had to be selective about the kinds of data collection covered in the remainder of the book. There is such a variety of evidence in archaeology around the globe, and so many differences across time and space, that we could not possibly cover all material types in all places and all time periods. To make the book manageable, we have restricted ourselves to those topics that are usually covered

in general university courses on archaeological analyses. Topics such as DNA methods, while now widely used in archaeology, are too specialized for our target audience. The selection of topics was largely based on a questionnaire sent to university teachers in field and laboratory techniques before the first edition was published. These academics, mainly from North America, the United Kingdom, and the Australia Pacific region, were asked which topics they would want included in a text for higher undergraduate/lower graduate students. When a second, revised edition was proposed, the (now Wiley) editors obtained reviews of the first edition to identify any major changes that were required. Apart from updates to the existing chapters, the major result of that review is that a new chapter on human remains (Chapter 10) has been added and a chapter on finding sites included in the first edition was removed as it was thought to relate more to field techniques.

This book does not pretend to cover all aspects of all possible forms of analysis of the archaeological evidence discussed. To do so would have resulted in a book of insufficient depth for the target audience. We therefore had to make further decisions about what could and could not be included within each topic. Thus, for example, Chapters 6 and 7 are restricted to artifacts in prehistory, as this technology provides the major evidence for most of the human past and is an important aspect of most university courses. Rather than trying to include something on every historical period, we included a chapter on artifacts of the modern world (Chapter 13) as this topic in particular was nominated by our respondents.

One of the problems with “how to” books is that the “why” is often forgotten. From our own experience, we were very conscious of the need to ensure that students are aware of the links between the data collection methods and the

remaining steps in the archaeological research process. It is for this reason that we decided that our approach to the book would be a series of essays that showed students how different kinds of archaeological materials are used to answer research questions. In our experience, students are more likely to understand this link when they learn from archaeologists who are talking about their own research problems and how they solved them. All of the authors contributing to this book are a leading expert or experts in their subject area. As a guide to the content of each chapter, we asked authors to think about what they would like their students to know about their particular topic in a university course on laboratory methods in archaeology. The remaining part of their brief was to make sure that they explained the main techniques of analysis and to use examples from their own work to demonstrate how some of those techniques are applied and interpreted.

To further demonstrate the process of archaeological research we have included a chapter on writing up the results for an academic audience (step 7; Chapter 15). Of course this is not the only way that archaeologists disseminate their information as it is important to provide the results of our research to other audiences, including the wider public. These other audiences will require different methods of communication that are beyond the scope of this book. We have begun this book with a chapter on collaborating stakeholders for two reasons (Chapter 1). First, the topic was suggested by several respondents in the original questionnaire of topics that university teachers asked for and second, it is not covered well in other “how to” books on archaeology, but the ethical context of doing archaeology is an important part of all archaeological practice, and we thought it a good way to begin a book on the topic of practice.

Finally, we have not attempted to provide case studies from every corner of the globe. Our overall objective is to guide students on methods of data collection and analysis and to demonstrate the link between research question, analysis techniques, and conclusion rather than produce a book on world archaeology. By and large, the methods by which archaeologists achieve their aims are global. To show diverse applications of techniques, each chapter provides additional references to other work on particular archaeological evidence that has been discussed. We believe that the book will be relevant to many archaeology students across the globe and that it will provide insight into the breadth of modern archaeology. For students who are at the stage at which they are thinking about designing their own projects, the chapters in this book will be a guide to the possibilities from their evidence and the problems of which they need to be aware.

Jane Balme and Alistair Paterson

Acknowledgments

We would like to thank all of the people who have helped to bring this book into fruition. The contributors by and large produced to a schedule and responded promptly to our ongoing requests. Thanks are also due to the many anonymous reviewers of the first edition who suggested revisions for this edition and of the manuscript for the second edition. We think that the final book has benefited from all of this advice. Finally, we would like to give thanks to the Wiley Blackwell editors who guided us through this edition, particularly Julia Kirk, Rosalie Robertson, Kathy Syplywczak and Jennifer Bray, all of whose advice has been invaluable.

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Figure 10.12. Stature through time in Britain (from Roberts & Cox 2003).

Figure 10.13. Trochanteric fossa exostosis (arrow), a nonmetric trait.

Figure 10.14. Ear exostosis (arrow), a nonmetric trait.

Figure 10.15. Formation (a) and destruction (b) of bone in disease.

Figure 10.16. Maxillary sinusitis frequency data (Roberts 2007).

Figure 10.17. Tuberculosis of the spine (destructive lesions) at early medieval Addingham, Yorkshire, England.

Figure 10.18. Evidence of DISH in the spine in an early twentieth-century individual in the Robert J. Terry Collection, Smithsonian Institution, Washington, DC.

Figure 11.1. Sampling and recovery for plant remains (Drawing by K. Newman).

Figure 11.2. Plant recovery by water flotation (Drawing by D. Pearsall, 2000: Fig 2.23).

Figure 11.3. Example of an anthracological diagram showing relative frequency of each taxa indentified in assemblages of different contexts/time period (New Caledonia precolonial settlement sites, cf., Dotte-Sarout *et al.* 2010).

Figure 11.4. Example of wood atlas form with microscope images of wood charcoal used as reference for

identification (cf. Dotte-Sarout 2010).

Figure 11.5. Floor plan and profile of KACA (Drawing by D. Murphy).

Figure 11.6. Plant parts as percentages of plant weight in KACA J19 (Drawing by D. Murphy).

Figure 12.1. A flowchart for the analysis of shells.

Figure 12.2. Gastropod parts.

Figure 12.3. A Turbinidae shell and operculum (note that the sculpture on the latter varies from species to species).

Figure 12.4. Bivalve parts.

Figure 12.5. Chiton valves.

Figure 12.6. A cuttlefish gladius.

Figure 12.7. Crayfish mandibles.

Figure 12.8. Sea urchin teeth.

Figure 14.1. This handwritten document, which illustrates the difficulty of deciphering handwriting, is Beard's Survey of Anne Arundel Town, 1683/1684. Annapolis Mayor, Alderman and Councilmen (Land Record Papers). Accession Number: [11200 1-22-3-23].

Figure 15.1. Obscure and clear data presentation: (a) Several sets of data have been superimposed to save space; data are measured in unrelated units, unit labels are wrong, arrows are unnecessary. (b) The same data, separated into three components and using no more space (reproduced with permission from O'Connor 1991, *Writing Successfully in Science*, Harper Collins Academic, 1991).

Figure 15.2. This is probably one of the world's ugliest and most misleading graph forms. You should never use it. It crams in much data, but it is seriously difficult to retrieve this. Note, for example, that although there are six time

periods given (*x*-axis), there are only five time slots. It is hard to work out the value of a particular count – for instance, the gray column xxxiii/P3 (?P2) is actually a higher count than the white column in xxxiii/P6 (?P5) because it is the height of the columns which gives the count. It is easy for tall columns at the front rows to obscure shorter columns in the rear (created in Microsoft™ Excel by Trudy Doelman).

1
Collaborating with Stakeholders

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Introduction

In the first edition of this book, the title of this chapter was “Consulting Stakeholders.” The change to “Collaborating with Stakeholders” for this edition reflects the rapidly changing views of archaeologists in accountability to their many publics. Collaborating is a more comprehensive term, which incorporates everything from notification to full-scale engagement in which stakeholder groups set research agendas, actively interpret results, and sometimes use information from collaborative projects to generate social policy or change relating to their group. Sometimes, archaeologists take an activist role in suggesting possible uses of information and working with a group to implement social change.

This is a far cry from a time when archaeologists sometimes joked that they got into archaeology so they didn't have to deal with living people. The truth is, some archaeologists still do hope to avoid interaction with members of descendent communities or other stakeholder groups and give any number of reasons or excuses. Times have changed, and a lot of archaeologists now fully understand that the past has many stakeholders who may have as much right to the past as archaeologists, and in the case of descendent communities, even more right to it. In fact, the very phrase “the past” may be seen as nothing more than a convenient, generic reference because some archaeologists now understand that there likely are several

pasts, all of them capable of explicating a particular set of material remains an archaeologist might find.

Recognition by archaeologists of the rights of these stakeholders and the complexities of the past has taken decades, with no small amount of contention. Pressure to do so came primarily not only from Indigenous people, but also from other descendent communities, starting with demands for the return of human skeletal remains and sacred objects. As they articulated their concerns and anger, their distrust of archaeology and the pasts it generates became abundantly clear. Out of this came additional demands for consultation with descendent community members, which in some cases became part of governmental laws and regulations related to protection of cultural heritage. The result was that by the time archaeology entered the twenty-first century, many archaeologists began to consider consultation with stakeholders to be an important and expected part of their work. Although acceptance of the need for consultation became standard practice, what consultation really meant took time to sort out. A move toward collaboration, essentially a more engaged form of consultation, has been the result.

This chapter will explore some core theoretical and practical aspects of collaboration, that is, direct interaction by archaeologists with other stakeholders in jointly negotiated projects. This chapter may not be what you expect. Unlike some aspects of archaeological methods, collaboration cannot be a set of techniques to apply in standard ways or to “typical” situations. It is not intended to be a primer. To provide a “cookbook” for collaboration actually would be irresponsible and misleading because even within the same culture, descendent communities can be extremely diverse. Please heed this warning:

Approaches that work for collaborating with one group may bring disaster with another.

Still, several underlying epistemological (i.e., “how we know what we know”) issues and some practical matters seem to appear with regularity. The practical considerations discussed here also will include some of the primary consultation and collaboration laws, regulations, or policies in the United States, Canada, and Australia, along with a discussion of how collaboration works (or doesn't). Throughout, brief examples will illustrate key points.

What and Who Is an Archaeological Stakeholder?

Stakeholder theory is complex (see Mitchell *et al*. 1997: 854), but most of us have a basic notion of who or what an archaeological stakeholder might be – an individual, group, or agency with an interest or “stake” in some aspect of the archaeological record. In practice, however, there can be substantially greater complexity, as many archaeologists will tell you. There are concerns with possession of, or rights to, some “property” that is contested, property that will be turned over to the winner of the “contest.” Each stakeholder has resources such as tradition, identity, or money to be committed to the contest and what negotiators call *salience*, the level of commitment the stakeholder has in pursuing this issue over other issues, essentially how important an issue is to them relative to other concerns. The archaeological record often has multiple stakeholders, all of them contending for archaeological property, whether for artifacts or for control of the very nature of the past and how stories about it get told. To the contest they bring varied resources and salience that range from low levels where they do little more than announce that they are