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Burial Practices of the third millennium BC in the Oman peninsula: A Reconsideration

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A thesis submitted in fulfillment of the requirements for the degree of
Doctor of Philosophy

School of Archaeology

University of Sydney

June 2006
I certify that the research contained within this thesis is the product of my own work, except where the contributions of others are acknowledged. The case study presented in Chapter 4, being the results of excavations undertaken in the tombs of Al Sufouh, was published during my candidature and has not been used in support of any other degree at any other institution.
Abstract

Understanding of the third millennium BC culture of the Oman peninsula, the Hafit and Umm an-Nar periods, has been enhanced over the past twenty years by the excavation of many sites with evidence dating to this era. Often the archaeological remains are mortuary in nature, usually comprising stone built tombs that have come to be a defining characteristic of the third millennium. Excavation of these monuments has presented archaeologists with many challenges due to both the complex nature of the mortuary practices used and the subsequent plundering the tombs have undergone. As a result, excavation and publication of these remains has been variable in quality and sometimes approached in a piecemeal manner. It has been the overriding aim of the thesis to approach the mortuary record of the Hafit and Umm an-Nar periods in a rigorous manner such that as much information as possible can be extracted from previously excavated sites, thereby illuminating potential patterns which can then provide the basis for a reconstruction of the burial practices of this fascinating millennium. To enhance the data collected, mortuary remains from three sites that span the period under study were excavated: Tell Abraq, Jabal el-Emaleh and Al Sufouh. The rigorous approach adopted for these excavations enabled accurate data collection concerning all aspects of the mortuary record and was an important tool in the reinterpretation of previously excavated material.

The collection of all data into a tailor made database enabled the use of multivariate techniques to explore patterning, the results of which, combined with an exhaustive review of the existing mortuary record, allowed for the reconstruction of the burial programme for the millennia. It was determined that although there is significant discontinuity between the pre-Hafit and Hafit cultures there is an overriding continuity of tradition from the Hafit era into the Umm an-Nar. Individual, successive interment of the dead into above ground, circular, stone built graves is the overall norm for the third millennium BC. Changes are, however, also apparent, with the burial practices becoming increasingly complex over time. Tombs of the Hafit period are smaller, more numerous, less architecturally refined, contain up to six individuals and tend to be located on ridges or prominent landscape features, potentially overlooking settlements. Umm an-Nar tombs on the other hand may be up to 14m in diameter, are overall fewer in number, display worked blocks sometimes with relief decoration, may contain up to 400 individuals and are generally located on low flats close to their associated settlements.
The manipulation of the dead in terms of the relationship to the living community is seen as interpretable, relating to the use of tombs as territorial markers during the Hafit phase, when kin groups were loosely bound as reflected by tomb membership. In the UAN era, settlements had grown; tomb membership became broad, including the whole community and tombs may have been used to bond the members of the communities together, sublimating the individual for the group. The communality of death in the latter half of the third millennium is further explored in relationship to the potential stratification within settlements, thought necessary to support their level of organisation and technological output (tomb and tower construction, ceramic mass production and metallurgy etc.). Could the communality at death be a mask for the stratification of the living? Although grave goods are plentiful, their interpretation is somewhat fraught. There is shift from utilitarian objects in the Hafit period to those relating to personal adornment in the UAN period, and the amount of wealth apportioned to the grave may support the notion of an ‘ancestor-cult’ which provides a means of redistributing wealth in pre-state societies.

The introduction of cremation in the latter half of the third millennium BC ushers in a new level of complexity to the mortuary programme. It is argued that although the notion of cremation may have come from abroad, its adoption into the established rituals of the Umm an-Nar period are likely to have been in response to practical necessity, showing adaptation and flexibility in what are otherwise very conservative traditions. Population density and labour requirements are considered factors that may have instigated the need to dispose of human remains from overflowing tombs using cremation as a tool.

The results of this study highlight the importance of a rigorous methodology at all levels of data collection and analysis, enabling a reconstruction third millennium society in the Oman peninsula that can be used as a platform upon which new research can be based.
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Abbreviations

Several abbreviations have been used throughout the text of this thesis. They are primarily site or tomb/site identifiers, but may also relate to periods of time or geographical locations. As a general rule, tomb identifiers throughout the text provide first the site name and then the tomb number.

Sites

QBS – Qarn Bint Sa’ud

Munay’i – Wadi Munay’i

RH – R’as al-Hamra

RJ – R’as al Jinz

Unar 1 – Umm an-Nar Tomb 1 from the site of Shimal, Ra’s al-Khaimah.

Unar 2 – Umm an-Nar Tomb 2 from the site of Shimal, Ra’s al-Khaimah.

TA – Tell Abraq

JaE – Jabal el-Emaleh

Other

UAN – Umm an-Nar period

ED - Early Dynastic

3M – Third millennium BC

MVA – Multivariate analyses
Preface

Death is a phenomenon which all societies must face. Throughout time and across cultures, people have devised a myriad of ways of disposing of the dead - both physically and spiritually. Generally, these methods revolve in some way around any given society's organisation and commonly held beliefs, and as such are 'meaningful and expressive'. The motivation for a culture's observance of a particular mortuary ritual and practice is likely to be multi-factorial. It is, however, difficult to separate individual determining factors due to the ritual and emotion that surrounds death.

From an archaeological perspective, once the ritual and ceremony that surrounds death and burial in pre-literate societies has disappeared into the sands of time, our interpretations become limited to (and based on) what remains in the archaeological record. Debate over the interpretation of these remains has flared sporadically over the past decades, resulting in an excess of literature on the subject. It is my interest in, and occasional impatience with, these theoretical discussions over mortuary issues that were in part the inspiration for this thesis.

The primary stimulus, however, lies in my fascination with the rapid cultural change manifest in the archaeological record of the 3rd millennium BC in the Oman peninsula. Archaeological investigation in this part of western Asia is young in comparison to its neighbours, encompassing less than four decades of research. Consequently, much remains to be done in terms of synthetic works addressing specific archaeological topics. To my mind, variability is apparent in all realms of third millennium material culture, but nowhere is it more obvious than in the realm of burial practices. As burial sites from the Hafit (3100-2600/2500 BC) and Umm an-Nar (2500-2000 BC) periods comprise the bulk of surveyed/excavated sites, their interpretation is an integral aspect of research into the cultural florescence that characterises this millennium. It is hoped that this present work will shed light on the transitions of this era and facilitate a practical application of some of the interpretational frameworks that fill the theoretical discussions mentioned above.

All research presented in this thesis comprises original work based on the results of the excavation of three sites combined with my own assessment and interpretation of previous studies. Presentation of the results of excavations at Al Sufouh in Chapter 4 comprises part of the original publication of this site, which was authored solely by myself. The illustrations presented throughout the text of this thesis are my own unless
stated otherwise. As the primary purpose of this thesis was not the presentation and discussion of material culture, not every item discussed in the text is illustrated. The objects illustrated in the Al Sufouh presentation in Chapter 4 do, however, exemplify many of the artefact classes discussed in Chapter 5, hence reference back to these illustrations is made where appropriate. Figures and tables throughout the text have a chapter signifier, for example Figure 3.2 refers to Figure 2 in Chapter 3. Figure numbers in Chapter 4, however, derive from the original publication and hence do not have Chapter number signifiers. The two maps in the introduction have been labeled as Maps A and B, as these will be referred to throughout the text.
Acknowledgements

I’m sure that I am not the only one surprised that this thesis has finally reached its conclusion. There have been many times when it seemed that it would just never get there, and with the entry into my life of my two beautiful daughters, time certainly became even trickier to manage. If it is only through the constant support from everyone around me that I have now managed to bring this study to its completion.

First and foremost my thanks must go to my supervisor, Prof Daniel Potts who not only introduced me to the wonders of archaeology in the Gulf region, but also offered me the opportunity to excavate burials dating to the 3rd millennium BC at Tell Abraq in the United Arab Emirates. Subsequently, Prof Potts facilitated my excavation of two other burial sites in the U.A.E., Jabal al-Emaleh (Sharjah) and Al Sufouh (Dubai). Without the first-hand experience of mortuary material from these three sites, spanning almost the entire millennium under study, this thesis would not have been possible. Not only for the data, however, do I appreciate his efforts. I am sure I was the most challenging PhD student a supervisor has ever had to manage, but whenever I needed him, he was there, with answers to my never-ending stream of questions and support when it all seemed too much. To him go my heartfelt thanks.

Excavation of the burial sites in the U.A.E would not have been possible without the exhaustive efforts of the then second year honours crew (1993 and 1994) and others. Their work generated the excellent data that made this study possible, so thank-you to: Dr. Lloyd Weeks; Dr. Cameron Petrie; Dr. Michelle Ziolkowski; Dr Soren Blau; Katia Davis; Brigette Oitzinger; Hannah Stephens; David Burke; David Young; Leanne Brass; Brendan Corrigan; Chris Kostman; Sean Pack and Dr. Jaimie Lovell. Skeletal remains were analysed by the ever enthusiastic Prof. Debra Martin (Hampshire College, USA) with assistance from Dr. Soren Blau; Pam Stone and Janet Cope. I also appreciate your patience with the e-mails and questions that poured in sporadically over the years.

On the ground support in the U.A.E was ever present from a variety of sources. In Sharjah, facilitation of the excavations at Jabal al-Emaleh was provided by Mr Nassir al-Aboudi, Director of Antiquities and Heritage with support from the entire staff of the Antiquities and Heritage Department. Funding for these excavations was received from the Wenner-Gren Foundation for Anthropological Research (New York, U.S.A.), the Australia Research Council and General Motors, Dubai. Iain Bain
Communication, Dubai); Peter Hudson (Dubai) and Peter Hellyer (Emirates News, Abu Dhabi) also provided invaluable assistance.

In Dubai, excavations at the site of Al Sufouh were made possible through co-operation with the Dr Hussain Qandil and Ms Ayesha Obaeid, Director of Archaeology and Museums, Dubai Museum. Funding for this project was received from Qassim Sultan Director of the Dubai Municipality and the Australia Research Council.

For the excavations at Tell Abraq, I am grateful for the support from HH Sheik Sultan Mohammed al-Qassimi (Supreme Council member and Ruler of Sharjah), the Diwan of Umm al-Qaiwain and Dr. Sabah Jasim.

Statistical analyses were made possible through extensive consultation with members of the Department of Consulting Statistics at the University of Technology, Sydney (Margaret Mackisack and Edip Odur) and Emeritus Professor R.V.S. Wright. Much assistance was also provided by Dr Lloyd Weeks.

Although a late addition to my list of acknowledgements, I appreciate the time and effort the examiners of this thesis put into their reports, which were detailed and informed. I appreciate these comments and ideas both for the betterment of this thesis and as a basis for the potential publication of this dissertation in the future.

Last but never least is the gratitude I have for the patience shown me by my family and friends, who never ceased to provide support and encouragement. My parents, Beverley Benton and John Benton, who independently and in their own ways gave me the strength and persistence to see this thesis through, eventually. Particular thanks goes to Phillip Cameron who never doubted I could do it and who took over full responsibility for the flourishing consultancy of OzArk EHM to ensure that I had the head space to finish. And of course the huge indebtedness I owe my immediate family – my gorgeous girls – Charlotte and Georgia Benton-Bryant and my partner Benn Bryant. Forever patient and forbearing, these three people have provided the uncompromising love and support without which this thesis would not have been possible. I can never thank you enough. Now we can all get on with life!
“What could be more universal than death? Yet what an incredible variety of responses it evokes. Corpses are burned or buried, with or without animal or human sacrifice; they are preserved by smoking, embalming or pickling, they are eaten - raw, cooked or rotten; they are ritually exposed as carrion or simply abandoned; or they are dismembered and treated in a variety of ways. Funerals are the occasion for avoiding people or holding parties, for fighting or having sexual orgies, for weeping or laughing, in a thousand different combinations. The diversity of cultural reaction is a measure of the universal impact of death. But it is not a random reaction; always it is meaningful and expressive (Huntington and Metcalf 1991: 24).
Introduction

The archaeological record of the third millennium in the Oman peninsula bears witness to profound cultural change. From an aceramic people at the outset of the millennium, the inhabitants of the Oman peninsula become the producers of fine, wheel-made ceramics by the end of the Umm an-Nar Period (2500-2000 BC). Population growth is attested by the rapid proliferation of settlements which are characterised by a new architectural style. Exploitation of resources, including copper bearing ore and soft-stone, intensifies. An increase and diversification of foreign contact and trade is manifest in the ‘exotic’ artefacts recovered from settlements and tombs, which, by the end of the millennium, are arriving from the Indus Valley, Bactria, Baluchistan, Iran, Mesopotamia and Bahrain. Mortuary practices also undergo great metamorphoses. From individual inhumations at the end of the 4th millennium to multiple interments, up to five or six individuals, placed in stone built cairns during the Hafit period (3000-2500 BC). By the end of the 3rd millennium, burial is in large, usually circular, stone built tombs, often with an ashlar face, and the internal space divided into two or more chambers. The number of interred individuals has by this time increased to quantities sometimes in the hundreds. It is the primary aim of this study to examine the nature and extent of these variations in funerary custom and to assess possible interpretations of this data as a window into the nature of the society that produced them and the general cultural transitions that characterise the third millennium BC.

No analysis of mortuary remains can be undertaken, however, without consideration of the large body of theoretical literature dedicated to its interpretation. Over the past decades discussion has primarily focussed on what kinds of information about a past society or individual can be inferred from the mortuary record and secondarily, the extent to which mortuary ritual can be reconstructed from physical remains. Discussion on this topic is limited to an overview of current approaches, outlined in Chapter 1, which results in a statement on the theoretical standpoint taken for the present work. Limited critical assessment of some of the more popular and commonly utilised theoretical approaches is delineated concluding with an assessment of their applicability to the case study of the third millennium in the Oman peninsula. Reasons for this are twofold. In the first instance I was struck by the narrow approaches inherent in much of the theoretical literature. In most cases only two inter-related steps in the sequence

1 The Oman peninsula is used throughout this thesis to include the United Arab Emirates and northern Oman, see Map A.
between mortuary activity and the creation of interpretations about past societies seemed to be adequately addressed. Secondly, it became increasingly apparent that many theoretical approaches, whilst aiming to be generally applicable, were in fact too specifically oriented to the interpretation of individual inhumations to be applicable to other forms of mortuary activity. As the focal case study of this thesis is characterised by multiple, successive burial, it was found that many current theoretical approaches were difficult or impossible to make use of. In light of these issues, I felt it important to include in Chapter 1 a description of my own analysis of the passage between mortuary activity at the time of death and archaeological approaches to its interpretation. Stemming from this is a brief overview of the relevance of the major theoretical works, and an assessment of their possible usefulness as interpretative tools for the case study in question.

Originally, the scope of this work was confined, temporally, to the latter half of the 3rd millennium BC, the Umm an-Nar period. Data was collected on mortuary remains dating to this era. However, it soon became clear that no understanding of variability in burial practice could be achieved without due consideration of the mortuary activity out of which the Umm an-Nar practices grew. The interrelationship between Umm an-Nar burial practices and those of the antecedent Hafit period (3000-2500 BC) is nowhere better attested than at the sites of Bat (Frifelt 1975a, 1976, 1985) and Jabal al-Emaleh (Benton and Potts 1994). Tombs thought to straddle the transitional period, around 2500 BC, are found at both sites, with ceramic styles and architectural features suggesting the outgrowth of Umm an-Nar funerary practices from those of the Hafit period. Due to this, the temporal limits for this study were extended so as to encompass the entire third millennium BC.

The end of the third millennium, on the other hand, witnesses a shift away from many traditions of the Umm an-Nar period. Indeed for many years scholars believed that the second millennium Wadi Suq period “completely differ[ed] from previous periods according to funerary customs, settlement patterns and pottery assemblages” (Cleuziou 1986: 146). Recent research has tempered this view, admitting that although changes did occur “the traditions of the Umm an-Nar period were not quite so suddenly abandoned...and ties to the preceding can still be discerned” (Potts 1990a: 234). For the purposes of this study, however, the variations in funerary practice from the third to the second millennium, best seen in architectural style, tomb visibility, ceramics, soft-stone vessels and beads, creates a discontinuity great enough for the Wadi Suq tombs to be considered as outside the cultural milieu of the third millennium BC.
To enable a comprehensive examination of funerary custom variability throughout this period in the Oman peninsula, it was first necessary to collect and assess all relevant data concerning mortuary remains. This included information on both excavated and surveyed burial sites. Information was collated into a design made FileMaker Pro database which is presented in Appendix 2 and accompanies this thesis in its entirety on CD. Discussion on the integrity of this dataset is entered into in Chapter 2, with due consideration being given to the impact of excavation history, methodological constraints and publication limitations. In this assessment, it becomes apparent that few sites have been excavated and published with enough attention to current methodological trends. Many excavated sites remain unpublished, and a number of reports are sadly lacking in detail. Such inadequacies in data cause difficulties in determining the “norm” of mortuary behaviour during a period of time. If no “norm” is recognised then aberrant or varied practice also remains undetected. As patterning in the variation of mortuary practice is commonly used to interpret information about past cultures, it is necessary that the data via which the mortuary practices are reconstructed is as accurate and detailed as possible. Chapter 3 outlines a new methodological approach to the excavation and publication of mortuary sites in the Oman Peninsula. Account is taken of the unique features of the funerary customs, as already understood from previously excavated sites, and the necessity for research design to be adapted to the individual characteristics of each mortuary context.

In light of the criticisms made of the available burial site data and the difficulties encountered in its interpretation, it was considered vital that new sites be excavated using the methodological design outlined in Chapter 3. As no single tomb spans the entire millennium, a series of tombs that would bear evidence of mortuary customs throughout the period under study had to be found. Jabal al-Emaleh (Sharjah), situated in the gravel plain to the west of the al-Hajjar mountain range, yielded the remains of three tombs dating to the first half of the third millennium (Map B). These tombs were excavated over two seasons in 1993 and 1994, and the preliminary results of these excavations are available in report form (Benton and Potts 1994). Al Sufouh (Dubai) is located in the sabkha configuration almost 1 km from the present coastline. Only one tomb was found, dating to the early Umm an-Nar period, c. 2400-2300 B.C. The results of the solitary 1995 season of excavation form the focus of this thesis and are presented in Chapter 4. Spanning the very last centuries of the third millennium is the tomb at Tell Abraq, located in the coastal sabkha zone on the border between Sharjah and Umm al-Qaiwain. Excavation of this tomb commenced in 1992/3, and although work was for some time suspended due to political friction, excavation was finally completed in 1997/8. Results of these excavations shed much light on the terminal phase of the
Map A: Location of the United Arab Emirates (pink) and northern Oman (purple) in relation to the Near East (adapted from map provided on www.ESCWA.org).
Map B: Map of the northern United Arab Emirates showing (blue text) the sites excavated for the purpose of this thesis.
Umm an-Nar period and will be available in a forthcoming publication (Benton and Potts forthcoming).

The results of the excavations at Al Sufouh were initially published within a year of the excavations taking place. This report is presented in Chapter 4 in its original publication format, due to the fact that this well illustrated format is part of the publication style advocated throughout this thesis. Consequently, the figure referencing does not have the chapter prefix that other figures throughout this text have. If figures from this chapter are referred to in other parts of the text, they will be given the ‘4’ prefix such that it is clear to the reader which chapter is referred to.

Through the new data on third millennium mortuary remains provided by the excavation of Al Sufouh as well as Jabal el-Emaleh and Tell Abraq, Chapter 5 presents a fresh perspective on what comprises funerary practices during the third millennium in the Oman peninsula. The reconstructions of burial practices from the surviving archaeological data allow for the characterisation of ‘normal’ practices, along with the identification of any variant practices. This categorisation of ‘normal’ vs variant practices is enabled through the breakdown of all mortuary activity into individual elements of practice, the presence or absence of which is then discussed. The recurring frequency of individual elements allows the reconstruction of what are the ‘norms’ of mortuary activity throughout the period under study. During this review focus is also drawn to the practices of the fourth millennium BC to enable a brief examination of the variations in mortuary practice through an extended time frame. Also within the scope of this and the following chapter is some reinterpretation of the practices from Al Sufouh.

Using the reconstruction of mortuary practices presented in Chapter 5, discussion then turns to their interpretation. Chapter 6 provides a review of all elements of the burial programme in an attempt to draw meaning from them. This discussion is based purely on data from within the body of the thesis in an attempt to reconstruct the possible realities of the third millennium BC culture that produced the mortuary remains under study. These reconstructions are based on varied interpretations of what factors appear most significant in the determination of mortuary ritual. Presented as hypotheses, suggestions are made concerning the potential sequences of events that may have generated the type of evidence that characterises the third millennium BC mortuary programme.

To augment the depth and breadth of interpretation presented in Chapter 6, the focus of Chapter 7 turns to the presentation of relevant Non-Arabian, archaeological and
ethnographic analogies for various aspects of the mortuary programme of the Oman peninsula. Throughout this review, reference is also made to elements of the theoretical literature discussed in Chapter 1, that provide a realistic framework for the interpretation of burial practices back to the society that generated them. Again suggestions are presented as working hypotheses against which new data may be reviewed.

The overall conclusions of this study are presented in Chapter 8, which also summarises the general aims of the thesis and areas of future research that may augment the results of this study. In summary, this thesis has tried to present a holistic approach to the understanding and interpretation of burial remains and mortuary variability in the third millennium in the Oman peninsula. From this, it is hoped that reconstructions of the type of society that may have created the burial remains under study will be richer and more substantial.
Chapter 1

Theoretical approaches to the interpretation of mortuary remains

For over a century scholars from various disciplines have examined the multitude of ways that past (and present) cultures have dealt with death, from poets and lyricists interested in the emotional responses to death to archaeologists attempting to learn about the social, ritual, philosophical and religious realms of past cultures through their treatment of the dead. One common belief runs through these diverse interests in mortality. That the manner in which individuals, and therefore cultures, respond to death is significant, “meaningful and expressive” (Huntington and Metcalf 1991: 24). Integral to this belief are notions concerning the relationship that exists between the living and the dead, best summarised in the sociological writings of anthropologist Lloyd Warner, who wrote:

Human culture is a symbolic organisation of the remembered experiences of the dead past as newly felt and understood by the living members of the collectivity. The human condition of individual mortality and the comparative immortality of our species make most of our communication and collective activities in the larger sense a vast exchange of understanding between the living and the dead. Language, religion, art, science, morality and our knowledge of ourselves and the world around us, being parts of our culture, are meaningful symbol systems which the living generation has inherited from those now gone...Communication between living and dead individuals maintains continuity of culture for the species.(Warner 1959 as quoted in Davies 1994: 12).

Once this notion is acknowledged, it follows that the point at which this living/dead communication is at its most expressive, is at the time of death itself. The subsequent mortuary rituals carried out by the living society are, therefore, a critical moment within this expressive, symbol-laden dialogue. Ethnographic studies across a wide range of societal types bear witness to the variety of ritualised responses to death and to the importance of carrying out such rituals to the remainder of the living community. It is the range of determinants of these rituals that have become of primary concern for the
mortuary archaeologist, and sometimes at the expense of other processes in the sequence towards the reconstruction of past societies.

Building on the concepts outlined above, the aims of this chapter are threefold. The first is to delineate the sequence of events that must logically occur between mortuary behaviour and the reconstruction of aspects of past societies. A flow-chart (Figure 1) presents this as a five stage sequence, of which Stages 1 and 5 have formed the focus of most literature dedicated to mortuary archaeology over the past decades. Neglect of the intervening stages is discussed in terms of the rift between the theoretical interpretation of mortuary remains and the practical retrieval of the burial data used in the reconstruction of funerary practice. The second aim involves closer inspection of the theoretical debate over which factors are paramount in the determination of mortuary ritual and practice, and a subsequent statement in regard to the general theoretical perspective adopted for the current study. Thirdly and finally, this chapter turns to the applicability of the various theoretical perspectives to the case-study at hand, namely the third millennium BC in the Oman peninsula. Discussion on this topic results in the formulation of a programme for testing the application of various interpretational frameworks, and subsequently comparing the validity of the results inferred by them.

From mortuary ritual to reconstructions of past society – The processes (Figure 1)

The simplest way to reach an understanding of this progression is to return to basic processes and ‘deconstruct’ the steps from mortuary ritual in its context to present day reconstructions of past society. The flow-chart (Figure 1) outlines the integral steps and filters thought to comprise the sequence. This five stage series begins at the time of death (Stage 1) and concludes with archaeologically inferred reconstructions of past societies (Stage 5). As the diagram suggests, this sequence is not considered to be linear, but cyclic, with Stage 5 necessarily deriving from Stage 1, in the need to understand the relationship between living society and mortuary practice. As the real events of Stage 1 can never be witnessed, cross-cultural ethnographic surveys of mortuary practices and their determinants are often employed as analogous reference points and middle-range theories are constructed as interpretative frameworks.

The descriptions of each stage in the flow-chart are self-explanatory, but a brief note on ‘filters’ is required. At each filter stage, there is opportunity for ‘noise’ or distortion to enter into the sequence. Between Stages 1 and 2 is the ‘time/preservation filter’. This takes into account the divergence between mortuary ritual and mortuary remains as a result of formation and transformation processes of the archaeological
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Figure 1.1: Flow chart of the proposed stages from mortuary ritual to reconstructions of past societies.

STAGE 1

Death and societal response

STAGE 2

Remnants of mortuary activity in the archaeological record

Methodology Filter

STAGE 3

Archaeological excavation of mortuary remains

STAGE 4

Reconstruction of mortuary ritual/practices from mortuary remains

Theory Filter

STAGE 5

Reconstruction of aspects of past societies

This is the moment in time when death occurs and the living community must respond to it. The possible dimensions of the response are broad, but achieve two primary ends:
1. The disposal of the corpse; and
2. The necessary dialogue between the living and the dead, which includes ritual and symbolic action. It is widely accepted that the cultural response to death is meaningful and expressive and can convey information about the living society. Determining factors of mortuary activity is a question of critical importance to mortuary archaeologists, as these factors must be understood before valid interpretations about the society (Stage 5) can be made. It is in response to this that theories for the interpretation of mortuary remains have been developed and the use of ethnographic and cross-cultural analogy employed.

Of the two major components of mortuary activity, a) the disposal of the corpse; and b) the associated ritual and ceremony, it is primarily a) that leaves archaeological traces. Only rarely, depending upon the sort of ritual and context will aspects of b) be found. From an archaeological viewpoint, the questions as to whether a) the physical remains adequately reflect b) the ritual and ceremony is of concern. It is an assumption within mortuary archaeology that that the physical remains will reflect, to some extent, the ritual of which they are a product, and the society from which they stem.

The practicalities of archaeological discovery:
- Overall excavation and survey strategies that detect mortuary sites, i.e. visibility of mortuary remains;
- Excavation techniques employed. This includes their rationale; research design and methodological approach, background, education and experience of excavators; time and money constraints, publication (accuracy and detail) or lack thereof and inclusion of illustrations in report.
All this contributes to the baggage that the archaeological remains are approached with.

This stage involves the interpretation of mortuary activity (from the previous stage) into inferences about past societies. It is this point that captures the interest and attention of most mortuary archaeologists. This stage leads us directly back to Stage 1 and the belief that information about various aspects of culture (social organisation, philosophical / religious beliefs etc.) are involved in shaping mortuary practices.

This stage involves the reconstruction of the physical nature of the mortuary practices from the excavated material. This is sometimes attempted by excavators in publication, or may be left to the individual researcher. For regional reconstructions this is a synthesis of published or known material, with the addition of ‘baggage’ from the researcher.
Chapter 1

record. It includes both alterations to the material remains as a result of the type of burial practices employed, whereby earlier burials are disturbed through the interment of subsequent corpses, and through secondary use of the tombs and their disturbance by robbers over the millennia. The rest of the filters, however, are human. They relate to the educational, experiential, psychological and cultural ‘baggage’ that each of us carries. At each of these stages there is opportunity for the cultural baggage of the investigator to impact upon the objectivity of the data. These filters are not emphasised here as necessarily negative aspects of the archaeological processes, but simply as unavoidable and therefore important to acknowledge.

Emphasis in the literature dedicated to the interpretation of mortuary remains is largely focused on Stages 1 and 5, with very little attention accorded the intervening stages. It is certainly the case that views on societal response to death (Stage 1) and reconstructions of past societies (Stage 5) tend to be controversial and thus of greater immediate concern. It is also true, however, that no matter how persuasively a particular scholar in the determination of mortuary practices debate can argue their case, their approach will bear nothing unless due consideration is afforded the mortuary record itself - how it relates to mortuary ritual (Stage 2), the processes by which we retrieve the data (Stage 3) and subsequently reconstruct overall burial practices (Stage 4).

The relationship between Stages 1 and 2, the leap from past ritual in its systemic context to present archaeological remains, has been addressed by archaeologists outside the specific mortuary realm (Schiffer 1976), but as Chapman and Randsborg note, “it seems surprising that there has been little explicit concern with the formation processes of mortuary practices” within the context of burial archaeology (Chapman and Randsborg 1981: 11). This lack of attention to Stage 2 was also noted by O’Shea who states “the existing theory of mortuary differentiation has concentrated on statements which specify the relationship between the organisation of a living society and its practices for the disposal of the dead [Stage 1]. It fails to predict the additional relationship between these mortuary practices and their archaeological observation” (O’Shea 1981: 40).

The two extremes of opinion on this issue are both relevant and useful. Ucko (1969), in his seminal paper cautioning against the ad hoc use of ethnographic analogy, stresses the gulf that can exist between mortuary ritual and remains, citing examples of the LoDagaa and Lober of Ghana and the Yoruba of Nigeria, as cases in which meaningful ritual displays would leave no traces in the archaeological record (Ucko 1969). Proponents of the New Archaeology, however, focus on the notion that all human action leaves patterned traces in the archaeological record, thereby placing the onus on the
archaeologist to quantify and identify these patterns as keys to understanding past behaviour. These views are not necessarily mutually exclusive. It is in overt acceptance of both that the most realistic assessment of any mortuary context can be achieved, thereby acknowledging the limitations of the mortuary record to mirror funerary ritual, and yet embracing the notion that the patterning of physical evidence is interpretable. As each burial site is the result of a particular and unique set of rituals, formations and transformations, each must be examined as an individual context so as to maximise the obtainable information.

With regard to Stages 3 and 4 (Figure 1), the excavation of burial sites and subsequent reconstruction of mortuary practices, even less reference is found within the relevant literature. Virtually no mention is made of methodological techniques for burial site excavation, or of methods for reconstructing intra- or inter-site ‘burial programmes’ from the excavated mortuary data. This neglect of what are considered to be necessary stages has caused a gulf between theoretical frameworks and practical fieldwork. Without accurate and detailed burial data, both with regard to intra- and inter-site studies, no valid interpretations about the nature of past societies, as evidenced through their mortuary remains, are feasible, no matter how well-constructed the middle-range theory or how many ethnographic analogies can be cited. The integrity of excavation strategy, is therefore, of paramount importance and yet is consistently neglected in the theoretical literature dedicated to the interpretation of mortuary remains.

The following chapter (2), devoted to the empirical evidence of third millennium BC mortuary practices in the Oman Peninsula, well illustrates this point. Despite the relatively large number of mortuary sites excavated to date, detailed knowledge of the overall ‘burial programme’ and its variants has been difficult to construct, past stating that it consists of multiple, successive interments in chambered tombs. This is primarily due to a lack of methodological design in excavation, inadequate post-excavation analysis of objects and skeletal material, poor detail in reports or a lack of publication altogether. In this case interpretations about society derived from reconstructed burial practices would be of little relevance as the reconstructed practices themselves are not accurately created. Chapter 3 of this work outlines a methodological approach designed to maximise the quantity and accuracy of data retrievable from the multiple, successive burial contexts of the third millennium BC in the Oman peninsula. Through the application of this approach to three new burial sites spanning the third millennium it is possible to reconstruct a more precise image of third millennium burial practices and thereby provide a framework through which to review previously excavated sites.
It is only through according due consideration to each of the five stages outlined in Figure 1.1 that accurate and well-informed interpretations about society, based on mortuary remains, can be developed. Scholarly attention has, however, remained focused on Stages 1 and 5. In consequence, a large body of literature devoted to the determinants of mortuary practice has grown. Consideration of these theoretical works is the second aim of this chapter, and provides a necessary understanding of the sorts of information that archaeologists hope to ascertain about past societies through analysis of their mortuary remains.

The theoretical debate

The primary focus of literature devoted to the interpretation of mortuary remains lies in the elucidation of which factors determine the shape and form of mortuary ritual. Given the broad spectrum of possibilities for body disposal and funerary ceremony, the choices made by any particular society are thought to be informative about aspects of culture. The general approaches are varied. Some believe that mortuary practices are like fashions and vary with the exchange of ideas (Kroeber 1927), while others argue that mortuary remains are reflective of social structure and organisation beyond all else (Binford 1971; Brown 1971; Saxe 1970; Tainter 1975, 1978; Goldstein 1981; O’Shea 1981; Chapman et al. 1981). Some hold that burials are the result of philosophical-religious or ideological belief (Tylor 1871 and Frazer 1886 in Binford 1971; Hertz 1907 (1960); Hodder 1982, 1984; Parker Pearson 1982), while others suggest that the determination of mortuary activity is complex and multi-factorial, including social, philosophical-religious, world-view, circumstantial and physical determinants (Carr 1995). Others again suggest that mortuary activity is primarily intentional behaviour and therefore more likely to reflect the ‘ideal’ rather than the ‘real’ world (Hodder 1982, 1984; Morris 1992; Härke 1994).

In their attempts to understand the motivation for mortuary ritual, the protagonists in this debate draw, seemingly at will, from anthropological, ethnographic, sociological and psychological writings. As anthropologists Huntington and Metcalf point out, their own "account of the anthropology of death has been drawn on widely for support, often by opposing sides in the same argument" (Huntington and Metcalf 1991: 14). This is not to say that other fields of research are not pertinent to mortuary archaeology, as in fact quite the opposite is true. As Carr summarises "the fields of structural anthropology, language and culture, comparative religion, mythology, the anthropology of shamanism and healing, thanatology, the psychology of death and dying, the symbolic and image-focused aspects of transpersonal and depth psychology, and the anthropology of
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consciousness are all relevant” (Carr 1995: 194). For the student of mortuary archaeology entering into the debate on mortuary practice determination, however, it is important to remember that particular lines of reasoning from many of these fields are drawn on, often in an ad hoc manner, to provide support for interpretational and reconstructional hypotheses. Just as Ucko warns of the “danger of haphazard bits-and-pieces analogies common in prehistory” (Morris 1992: 22), so too should a signal be sounded in relation to the selective use of excerpts from other disciplines, chosen subjectively to reinforce standpoints.

It is not within the scope of this study to historically review the derivation and development of the various perspectives outlined above. Such has been adequately achieved in the past (Binford 1971; Chapman and Randsborg 1981) and more recently and indeed thoroughly by Carr (1995) and Parker Pearson (2001). What is, however, relevant to the theoretical component of this study is to briefly outline the general perspectives that constitute the theoretical debate, and to assess their applicability to the case-study of the third millennium BC in the Oman peninsula.

**Determinants of mortuary practice - schools of thought**

Carr’s grouping of theoretical approaches into three distinct schools based on paradigmatic outlook is useful (Carr 1995: 108-112). The first, “mainstream American mortuary archaeology” is characterised by delineating social organisation as the essential determinant of mortuary practice, over-shadowing all other variables. Protagonists of this school include Saxe (1970); Binford (1964, 1971); Brown (1971); Tainter (1975, 1978); Rothschild (1979); Greber (1979); O’Shea (1981) and Goldstein (1981) just to name those whose work has been directly consulted. For a complete list see Carr on American mortuary archaeology (1995: 105-6). The basic tenet of this school generalises “that the form and structure which characterises the mortuary practices of any society are conditioned by the form and complexity of the organisational characteristics of the society itself” (Binford 1971: 23). Criteria for the detection of rank included the obvious grave goods, with Binford’s conclusion that “status was most commonly symbolised by status-specific ‘badges’ of office and by the quantities of goods contributed to the grave furniture” (Binford 1971: 23). Followers of this school developed certain strands of this premise, such as Saxe’s (1970) cross-culturally tested proposition concerning formal, bounded disposal areas and the development of unilineal descent groups, a proposition further developed by Goldstein (1981). Tainter (1975, 1978) on the other hand, developed quantitative methods to
measure energy expenditure in mortuary practice as another avenue for the detection of rank.

Over the last decade this approach has come under increasing criticism for several reasons. Firstly, as Morris notes, this approach “leaves no room for ritual statements: we move straight from graves to social complexity” (Morris 1992: 22). Secondly, “problems of symbolism were circumvented by being ignored” (Morris 1992: 22), or “treated inadequately” (Chapman and Randsborg 1981: 23). Binford reasoned that far from mortuary practice being symbolic of beliefs, it in fact “holds an arbitrary relationship to the beliefs or social identities it might reflect, which thus remain archaeologically unreconstructable” (Carr 1995: 118). Never does Binford consider that the variations noted in funerary practice may reflect the “organisation of a society’s philosophical-religious beliefs, i.e., the philosophical-religious themes that may, in part, comprise the society’s world-view” (Carr 1995: 118). Lastly, and along similar lines to my own criticism of theoretical literature outlined above, is a shortcoming noted by Chapman and Randsborg relating to the “insufficiently explicit attention given [by the American mortuary archaeology school] to the formation and transformation of the archaeological record” (Chapman and Randsborg 1981: 23).

The second approach to mortuary remains, as identified by Carr, is that of French sociological studies and British and American anthropological studies (Carr 1995: 110). Inherent in these approaches is the notion that the institutionalised beliefs or world-views of a given society affect mortuary practices as much as do social organisational factors. In clear opposition to the American mortuary archaeology school, the sociological/anthropological school “suggest[s] that the symbolic relationship between mortuary practices and the philosophical-religious meanings behind them is not fully arbitrary” (Carr 1995: 110). Accepting this, and the fact that cross-cultural regularities do exist, it should be possible to reconstruct some world-views or beliefs from the mortuary record. Of relevance to this argument is the suggestion of an intrinsic link between social organisation and world-view themes or beliefs. Social organisation is expressed in funerary practices “within the constraints of and through the filters of ‘collective representations’, including basic world-view assumptions and more specific beliefs about the nature of reality, time, space, the soul, death, the afterlife, disease and so forth” (Carr 1995: 111). Within this perspective rests the notion that social organisation and beliefs, as determinants of mortuary responses, are often indistinguishable from world-view themes and beliefs.
From a purely archaeological perspective, one difficulty with this general sociological and anthropological approach, as noted by Pader, is that such “theories have rarely had more than a peripheral interest in how material culture may fit into their frameworks” (Pader 1982: 3). As the majority of archaeological data is artefactual, it is important to try to understand how material culture fits into the society of which it is a product. Pader’s development of this idea concludes “material culture...is more than an ‘innocent’ byproduct of human behaviour, .. it is instrumental in the creation, recreation and maintenance of social life” (Pader 1982: 3). These sentiments, derivative of the contextual school, bring us to the third approach, as outlined by Carr.

The final school of thought is that labelled as “the recent, British, action-focused, symbolic, contextual approach” (Carr 1995: 111), which is considered to have closer alignment with sociological and anthropological studies than with American mortuary archaeology. Hodder, a major protagonist in this approach, has written much on the general interpretation of archaeological material (Hodder 1982, 1984, 1986). One central premise of what Hodder calls “the contextual approach” (1986: 171) is that “burial ritual is not a passive reflection of other aspects of life. It is meaningfully constructed” (Hodder 1982b: 141). Further, this approach seeks to recognise “that the individual need[s] to be a part of theories of material culture and social change” (Hodder 1986: 3). Burial practices need not be seen as “passive reflections of social organisation, they can be the product of active social and personal choices and strategies, which comprise the dynamics of social relations/organisation and which are made relative to beliefs” (Carr 1995: 111). It is therefore possible for burial practices, being the result of intentional behaviour, to either mirror daily life and social structure or indeed to disguise it. An interesting perspective that takes this notion further is presented by Härke (1994), who suggests “that all too often burials are not a “mirror of life” (Härke 1994: 31). His proposed methodology for establishing which funerary practices are likely to reflect life and which do not, involves distinguishing between two kinds of data - intentional and functional. “Burials are the result of ritual; ritual reflects the ‘ideal’ or imagined world, i.e. thought; and thought produces intentional data”, whereas functional data is considered to be that which is incidental or left behind unintentionally (Härke 1994: 33). Thus analysis of functional data, taken to be skeletal evidence and certain aspects of technical data relating to objects and the environment, provides information on past reality whereas intentional data, taken to be all archaeological data, reflects the thinking of the ritual community (Härke 1994: 37). The distinction between such data allows “the archaeologist to make inferences about the ideology behind the burial ritual” (Härke 1994: 37).
This brief overview well illustrates the diversity of approaches to the interpretation of mortuary remains. The specific direction in which each general school of thought has developed seems primarily based on paradigm, place and philosophy. Further, the numerous perspectives within each school are likely also to be the result of the processes of teaching. A particular approach is taught, reinterpreted by students, practically applied in the examination of new case studies resulting, no doubt, in subtle changes to the theoretical fabric. And so it continues, until another major paradigm shift occurs.

Perspective on mortuary practice determination adopted for the present study

Leaving aside for a moment the applicability of the theoretical frameworks outlined above to the case study in question, I wish to devote brief attention to the theoretical perspective of mortuary practice determinants adopted for the present work. It is important, I believe, to embrace an interpretational framework from a personal and philosophical standpoint, without the influence of its practical applicability to any particular case-study.

Having surveyed much of the anthropological, archaeological and sociological literature dedicated to the determination of mortuary practices, one of the soundest analyses, in my view, was that put forward by French anthropologist Robert Hertz in 1907 (translated by Needham 1960). Incorporating notions of liminality (van Gennep 1909 in Huntington and Metcalf 1991) and the transitional phase triggered by death (Turner 1967), Hertz too shows interest in the idea that death is not instantaneous (Hertz 1907 in Needham 1960: 86). Through examination of his essay entitled “A Contribution to the Study of the Collective Representation of Death”, and discussions concerning this work by Huntington and Metcalf (1991) and Carr (1995), the essence of his argument, as it relates to the determination of mortuary practices, has been distilled into a diagram, Figure 1.2. The three central personae comprise the corpse, the soul and the living community. The suggested relationship between each, incorporates a different aspect of determination. Factors of social organisation are thought to determine the dialogue between the living and the corpse (relationship 1); social-psychological elements impact on the relationship between the soul and the living (relationship 2) and philosophical-religious notions explain the link between the corpse and the soul (relationship 3). In this way, Hertz acknowledges multiple determinants of mortuary practice and provides an archaeologically applicable model against which to examine data from any case study (specifically for relationships 1 and 3). With regard to the third relationship, Hertz proposes that the corpse is a model for the state of the soul, and “thus the manner in which the body is handled in various mortuary practices may directly reflect a society’s
beliefs about the nature of the soul, the afterlife, the soul’s journey to the afterlife, and other aspects of world view” (Carr 1995: 177). Thus, from an archaeological perspective, the manner in which the body is handled may be indicative of beliefs and world-view. Despite certain criticism leveled at Hertz’s third relationship on the grounds that it lacks cross-cultural ethnographic validity (Huntington and Metcalf 1991: 111-113), Carr’s (1995) archaeologically focussed HRAF cross-cultural survey, suggested that “Hertz’s (1907) theory is largely supported by the data and that certain kinds of mortuary practices and remains, especially those related to handling the corpse, have good potential for reconstructing past world views and beliefs” (Carr 1995: 178). One necessary final comment relating to Hertz’s premise concerns the notion of ‘soul’. It is not possible to assume that all cultures subscribe to the existence of a soul as an independent entity from the body. Most ethnographic case studies suggest the belief in some kind of soul or spirit exists in the fabric of a majority of cultures, however, there are also some in which such an essence does not appear to exist.

To my mind, the important message in Hertz’s approach (1907) and that of Carr (1995), is first, that determination of mortuary practice is complex and multi-factorial and second, that “beliefs can determine mortuary practices directly and independently of social organisation, rather than simply serving as a framework for expressing social organisation” (Carr 1995: 177). It is from this general theoretical position that I approach the case study of the Oman peninsula in the third millennium BC.

Application of theoretical perspectives to the mortuary remains of the Oman peninsula in the third millennium BC.

The final issue of relevance to this chapter is the applicability of the theoretical perspectives outlined above to the case-study under consideration in this thesis - the third millennium BC in the Oman peninsula. Many of these theoretical frameworks, especially those from the American mortuary archaeology school of thought, relate best to mortuary programmes characterised by individual inhumation, or at least inhumations in which the attention accorded the focal individual is archaeologically detectable. For example, studies that attribute the quantity and type of grave goods (Binford 1971: 23) or notions of energy expenditure (Tainter 1978) as distinguishing features of ranked persons within society, are impossible to apply to the multiple, successive burials of the third millennium in the Oman peninsula. The communal nature of these burial contexts makes it impossible to ascribe particular grave goods to specific individuals and also causes the grave context itself to be unattributable to any individual. Clearly approaches

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Theoretical approaches to the interpretation of mortuary remains
Figure 1.2: A synthesis of Hertz’s (1907) theories on the factors of mortuary practice determination.

The state of the corpse at death may be seen as a model for the state of the soul. Thus the manner of body preparation and treatment may directly reflect a society’s beliefs about the nature of the soul, the afterlife, the soul’s journey there and possibly other aspects of world view.

Likely to leave archaeologically observable traces.

To do with the unfinished business between the living and the dead. Two levels, a) emotional, and b) economic ties between the living and dead have to be dismantled and replaced by new bonds between the living. This is achieved for a) through socially recognised and accepted forms of grief and mourning and for b) through inheritance and relocation of goods strategies, alteration to responsibilities.

Unlikely to leave archaeologically observable traces.

Relationship 3

Relationship 2

Relationship 1

To do with the relationship (obligations) between the living and the dead. The more prestigious an individual, the more of the community has social obligations to them and thus the greater the social disruption at death. It is from this premise that the social interpretations of mortuary practice have developed along the lines of Binford, Saxe, Tainter, and Goldstein.

Likely to leave archaeologically observable traces.

Philosophical-religious

Social Psychological

Corpse

Soul

Living community

Social Organisational
such as these are not applicable to the multiple, successive burials of the Oman peninsula due to the requirement of data concerning associative context.

Looking beyond theories that revolve around associative context in mortuary practice, however, there are aspects of theoretical frameworks that have wider application. Particularly useful in interpreting the funerary programme of third millennium Oman peninsula are the basic assumptions of Hertz which are reviewed against the reconstructed burial practices generated by the current study in Chapter 7 of this thesis. Augmenting interpretations presented in this chapter are the results of canvassing the archaeological and ethnographic literature devoted to burial practice determination for parallels to aspects of the funerary behaviour under study.

Before any analysis of 3rd millennium BC burial practices in the Oman peninsula is possible, however, attention must be given to the actual excavated burial data. The following chapter surveys all excavated mortuary contexts of the millennium under study and further reviews the history of excavation in the Oman peninsula so as to better understand the nature of the mortuary record and its potential shortcomings.
Chapter 2

Burial practices of the third millennium BC in the Oman peninsula: The evidence.

At the root of all archaeologically generated interpretations about past cultures lies fieldwork – survey and excavation. It is therefore at this fundamental level that investigation into the burial practices of the third millennium BC in the Oman peninsula must begin. As a result the primary aim of this chapter is to present the results of all excavations with a 3rd millennium burial component that have been undertaken in the Oman peninsula since the advent of archaeological exploration in the late 1950’s. The location of these sites and others referred to throughout this thesis can be found in Figure 2.1. To facilitate inter-site comparisons and detect underlying patterns, the information derived from published reports has been entered into a FileMaker Pro database expressly designed for this purpose. Information has been separated into individual features of mortuary practice under five main headings: structure; skeletal evidence; ceramic finds; non-ceramic finds and beads. This separation of features allows for the detection of patterning within the dataset and further enables comparison of the quality and quantity of data available between sites. Appendix 2 provides a users’ guide to this database as well as sample pages to show the manner in which the data has been organised. The database in its entirety has been attached to this on CD due to its sheer volume.

The second aim of this chapter is to assess the evidence collected, as it is largely upon this data that current interpretations concerning third millennium culture are based. As part of this assessment it was considered important to review the history of burial excavation in the region, due to the impact that this inevitably has on the quality and quantity of available data. This results in a general understanding of the backdrop to archaeological research in the region and further allows us to pinpoint shortcomings in the evidence at the individual site level. So doing enables best possible use to be made of previously excavated material. If not isolated, such data inadequacies can cause ‘noise’ when attempting to detect patterning within the mortuary record, and it is these patterns that provide the basis for the reconstruction of the mortuary programme and the subsequent interpretations of mortuary practices and their determinants.

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2 It is acknowledged that beads do in fact fall within the category of ‘non-ceramic’ objects, but the exceedingly wide variety of types and materials used and the fact that they are parts of composite objects causes them to be more effectively dealt with as their own category.
Figure 2.1: Map of the UAE and Oman showing the sites mentioned in the text.
Third millennium mortuary data – A general assessment

Whilst collecting the data relating to 3rd millennium burials of the Oman peninsula presented in the FileMaker Pro database, it became clear that much of our present knowledge of this era derives from mortuary sites rather than other site types. 2.1 presents a list of excavated sites dating to the 3rd millennium and notes whether they provide evidence on occupation or mortuary activity. For the first half of the millennium this preponderance is unavoidable as there is virtually nothing other than funerary monuments as yet recovered, apart from the earliest levels at Hili 8 (Potts 1987: 81) and a number of aceramic shell midden sites on the Omani Coast (Biagi 1994: 17-31). The second half of the millennium exhibits a more varied archaeological record, yet it is noteworthy that mortuary sites still constitute a large proportion of those excavated. Considering this heavy dependence on information derived from mortuary contexts, the issue of data integrity becomes paramount. Interpretations about third millennium culture can only be as accurate as the data from which they are derived. As the question was asked of prehistoric Europe, so must it be asked here: “whether earlier excavations are still capable of yielding significant patterning or whether the data samples available are too bad to be of any use” (Chapman 1981: 387).

Table 2.1: Excavated sites dating to the 3rd millennium BC: Occupation evidence vs mortuary evidence.

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<td>x</td>
</tr>
<tr>
<td>‘Amlah</td>
<td>B. de Cardi</td>
<td>de Cardi et al. 1976</td>
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<tr>
<td>Bat</td>
<td>K. Frifelt</td>
<td>Frifelt 1975a &amp; Frifelt 1975b</td>
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<td>Buraimi</td>
<td>Corps. Fallah and Buck</td>
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<td>x</td>
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<td>Falaj al-Qaba</td>
<td>K. Frifelt</td>
<td>Frifelt 1975a</td>
<td></td>
<td></td>
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<tr>
<td>Fath</td>
<td>B. Doe</td>
<td>Doe 1976</td>
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<td>Jabal al-Emaleh</td>
<td>J. Benton</td>
<td>Benton and Potts 1993</td>
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<td>Jabal Hafit</td>
<td>T. Odeh Danish team S. Ur-Rahman S. Cleuziou</td>
<td>Al-Tikriti 1981; Bibby 1965; Frifelt 1971; Cleuziou et al. 1978</td>
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<td>x</td>
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<td>W. Al-Tikriti</td>
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<td>Kalba</td>
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<td>No publication</td>
<td>x</td>
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</table>
In an attempt to answer this question, the following section reviews the history of archaeological research in the region, allowing us a better understanding of the shape of the archaeological record upon which current interpretations are based. At an individual site level, this study enables a clearer understanding of which aspects of the mortuary record have been adequately investigated and documented and which have not. Table 2.2 concludes this analysis, presenting, site-by-site, individual mortuary features together with an analysis on adequate investigation and documentation. In this way it is hoped to minimise the impacts of data inconsistencies and to learn, with the benefit of hindsight, ways to ensure improved data collection and documentation in the future.

**History of research in the Oman peninsula**

The beginnings of research into the 3rd millennium cultures of the Oman Peninsula is inextricably tied with the history of excavation in the region. In consequence the earliest interpretations of the archaeological evidence unearthed were both a reflection of what little was then known about the material culture, and a product of the popular explanatory mechanisms of the time. The review and evaluation of these previous works allows us a better understanding of the present state of archaeological knowledge of the Oman Peninsula and enables an assessment of the usefulness of much of this data.

**Early History**

The first archaeological reconnaissance into the Oman Peninsula was initiated by the Danish Archaeological Expedition, under the direction of P.V. Glob and T.G. Bibby in
1958 (Glob 1959a: 164; Thorvildsen 1963: 208). This region represented an eastern extension to the area of previous Danish interest, namely that of Bahrain, Kuwait and the Eastern Arabian mainland. The origins of Danish research in the Arabian Gulf stemmed largely from the lay-interests of Bibby, who was at that time, in the early 1950’s, an employee of the Iraq Petroleum Co. on Bahrain (Potts 1998: 191). In conjunction with Glob, a Danish prehistorian, a proposal was made to the Emir of Bahrain in 1952, that a Danish archaeological expedition begin work on the visible monuments of antiquity that characterised the appearance of the entire island. R. H. Dyson, under the auspices of the University of Pennsylvania, also expressed interest in initiating an archaeological field programme in the region, and thus a choice had to be made over who would receive the concession. A coin was tossed in favour of the Danish, and so began what was to become the largest foreign excavation project ever initiated by Denmark (Potts 1998: 5).

When analysing the history of archaeological research in the Arabian Gulf, the ramifications of the flip of that coin can certainly be witnessed. How different may it have been had the American team been granted the concession? It is a hypothetical endeavour to contemplate such a possibility, but it is nonetheless important to assess the way in which past archaeological research has influenced the current directions of archaeological investigation and the shape of many of the still accepted notions. A look at the form that Danish archaeological involvement took in the Gulf will illustrate this point.

The scale of archaeological penetration into the Gulf becomes visible when the number of sites being excavated at one time is noted, "with excavations in the principalities of the Kuwait, Bahrain, Qatar and Abu Dhabi, and.....extended to the western coast of Oman and to the oases around Buraimi. 27 archaeologists and assistants and several hundred local labourers took part in these investigations, with the author as Director and Geoffrey Bibby as Deputy Director." (Glob 1959c: 238 - my emphasis). Firstly the number of archaeologists/assistants involved, just in this 1959 campaign, is by modern standards far too few to adequately supervise several hundred workmen across so many different locations. What is also enlightening to look at are the archaeologists themselves. Using this 1959 season as a case in point, of the 253 participants, 60%

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3 For the 1959 season, as already quoted, Glob mentions 27 participants (Glob 1959: 238). In the back of his later volume, Al Bahrain (Glob 1968: 221-229), he provides an account of all the people ever involved in the Danish Archaeological Expedition. For the 1959 season there is only 25 mentioned, including himself and Bibby. The percentages presented were calculated on the 25 rather than the 27.
excavated in the region only once or possibly twice, 25% were involved for c. four seasons of excavation, but only one seriously went on to pursue Arabian archaeology after the Danish Archaeological Expedition ceased working in the Gulf in 1965, namely Karen Frifelt.

This somewhat transient nature of individual archaeological involvement was at least partially responsible for the problem of inadequate publication. Also an important factor was the lack of an academic framework in Near Eastern archaeology within Denmark. "Publication of ...results has been a major problem...exacerbated by the fact that most of the people involved went on to assume posts in Danish prehistory which gave them neither the time, nor the institutional context in which to adequately digest and analyse the results of their fieldwork." (Potts 1998:191-192). The subject was not taught to any great extent in the universities, there were thus no facilities for postgraduate involvement and insufficient research resources available (Potts, D.T. Pers. Comm.). This lack of an institutional context is doubtless the single factor most responsible for the dearth of Danish scholars pursuing Arabian archaeology in an academic sense. Any positions available were those within the realms of Danish prehistory, and the result was that archaeologists made their livelihood as museum curators or as local excavators (Glob 1968: 221-229), and dabbled in Arabian archaeology out of personal interest and as a relief from the cold European winter.

Would the current situation in Arabian archaeology be different had the coin landed giving the excavation concession to the American archaeological team? The answer to this would have to be yes. The University of Pennsylvania had a strong academic background in Near Eastern Archaeology, with the subject being taught at both undergraduate and postgraduate level by scholars whose research interests lay in the Near East. Other research capabilities including libraries and technological backing facilitated a professional and career oriented archaeological approach, thus providing a framework within which it would have been possible to deal adequately with excavated material. The realm of the Danish archaeological world of the 1950's, in contrast to that of America, most certainly created an environment in which the academic pursuit of western Asiatic archaeology was fraught with difficulties. This had unavoidable repercussions on the quantity and quality of published excavated data and through this affects our present state of knowledge.

A further factor similarly affects our present position regarding the nature and extent of archaeological knowledge, namely the theoretical and methodological viewpoint of the investigators themselves. The approach taken to field archaeology can often be a
reflection of the period of education of any particular scholar, whether they have progressively kept abreast with developments in archaeological method and theory, or remain a product of their generation. A brief survey of the early archaeology of the Oman Peninsula, and the effects this work has, or may have had, on modern research will allow a clearer vision of the archaeology that exists today.

P. V. Glob, after being involved in the initiation of so much archaeological activity in the Gulf, published in fact very little. There are many short descriptive articles in the journal *KUML* (Glob 1954-1960) and a popular book in Danish entitled *Al-Bahrain* (Glob 1968), neither of which constitutes anything in the realm of a professional archaeological publication. Glob then went on to become the director of "Culture/Antiquities" in Denmark, and with such a position, had not the time to research or publish his own material. At this stage he basically handed the reins and the responsibility of publication over to T.G. Bibby. In the following years little has been published of the Bahrain or Failaka material, although more recently another volume has appeared 4.

More salient in the present discussion is the impact of Danish involvement on the archaeology of the Oman Peninsula, particularly in relation to the third millennium. The island of Umm an-Nar had been first reconnoitered in 1958 after an invitation from the Ruler of Abu Dhabi (Glob 1959a: 164-5). The burial cairns identified then underwent excavation from 1959 until 1961 and were subsequently reported, in one article only, by K. Thorvildsen (Thorvildsen 1963: 191-219), who described the report as "preliminary" (Thorvildsen 1963: 209). Nothing further was made available however, until the final publication in 1991 of a volume by K. Frifelt5 (Frifelt 1991), 30 years after the completion of the excavations.

Further inland, in the oasis of Buraimi, "a group of about 200 stone burial cairns was discovered" in 1959 (Glob 1959c: 239). First mention of the excavation of these cairns is to be found in *KUML 1964* (Bibby 1965: 109-110). A previous season of excavation is mentioned, being that of 1961/2, but no publication of the results seems to be available, despite the fact that the season's work is referred to in the latter publication.

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4 The volume *Looking for Dilmun* was published by T.G. Bibby in 1969, but like Al-Bahrain by P.V. Glob, constitutes a descriptive volume, rather than a technical archaeological report. One volume of Failaka material was published (Højland and Anderson 1994) and more recently a Barbar Tempe volume has also appeared (Anderson et al. 2004).

5 K. Frifelt was not actually involved in the first excavations of the cairns on Umm an-Nar, and thus the information published in her volume relies on the accuracy of the notes and records kept by the original excavators. This is nonetheless a publication of very high quality.
The tombs "...all proved to be of the same construction as those excavated in the centre of the valley in the 1961/2 season:" (Bibby 1965: 109). It is within this latter publication that the finds of Cairn 20 are outlined, including the bronze sword which has its closest parallels in Luristan. According to this find, the tombs were originally dated to the 14th-13th centuries B.C., a date that remained uncontested until illustrations of the ceramics were published in 1969 (Potts 1986b: 122; Bibby 1969: 298). The subsequent interpretational history of the Hafit cairns, both chronological and cultural, will be discussed later. What is simply of note here is that of the two seasons of Danish excavation, no full archaeological report has been published that includes tomb plans and illustrations of all the finds, and further, that anomalies exist in what published material is available, even to the level of the number cairns excavated, which is variously reported as 27 (Bibby 1969: 306), and 25 (Frifelt 1971: 377, 378). In all only one tomb plan, that of Cairn 17, has been published, and one cannot help but be concerned when the rate of excavation is described as "...digging Hafit tumuli at the rate of one a day..." whilst concurrently carrying out preliminary excavation at the Hili Garden tomb (Bibby 1969: 302).

Characteristic of this early phase of archaeological activity is a lack of overall research design and an excavation bias towards monuments that were obvious in the landscape. These visible monuments happened to be stone built tombs, primarily of the third millennium BC, which has resulted in the predominance of mortuary sites representing this era. Considering that nothing was then known of the archaeology of the region, it is perhaps easier to understand the lack of a cohesive research design. The result for the student of mortuary archeology, however, is the same. A large number of excavated burial contexts for which published information, when available at all, is frequently inadequate. This assessment of the early history of excavation in the region is not aimed at denigrating the work of the Danish in their pioneering role of archaeological exploration. The point is primarily to understand the nature of this early research and how it affects our state of knowledge of the third millennium BC in the Oman Peninsula.

6 All the ceramics were not illustrated at this stage, and it wasn't until the publication of an article by K.Frifelt (Frifelt 1970), that a further proportion of the ceramics were illustrated.

7 The only report that attempts to present a body of information together is that of Frifelt 1970. In this publication, the cairns are described in text via their most interesting/salient points, and a catalogue of the tombs is provided which at least presents the minimum of data concerning the contents of each tomb.
Burial practices of the 3rd millennium: The evidence

Recent History

Since the end of the Danish Archaeological Expedition's involvement in the Gulf in the mid 1960's, many different nationalities have sporadically fielded excavation teams throughout the United Arab Emirates. B. de Cardi, a British archaeologist began survey work in the northern Emirates in 1968 (de Cardi 1971) and continued her involvement in Gulf archaeology so as to become one of the key figures in archaeological research, along with Karen Frifelt, previously of the Danish expedition. Frifelt went on to excavate sites both in the UAE and in Oman at the important third millennium site of Bat. French archaeological involvement began in the mid 1970's, with key figures such as S. Cleuziou, M. Mouton and more recently S. Méry, regularly fielding teams. German association began in the 1980's and B. Vogt's continuing commitment resulted in his becoming a key figure in the archaeological research of the region. Italian archaeological involvement has also shaped scientific investigations, particularly in Oman, with key figures including M. Tosi, S. Salvatori and G. Santini. D.T. Potts first began work in the UAE in the 1980's during his employment as a lecturer at the Carsten Niebuhr Institut in Denmark. His contributions to the field have greatly influenced the direction of archaeological research in the region. British involvement, initiated by B. de Cardi, then expanded during the 1980's to include figures such as G. King, C. Phillips and more recently D. Kennet. The appointment of D.T. Potts as Professor of Near Eastern Archaeology in 1991 opened a wave of Australian involvement in Gulf Archaeology.

The simple fact that the excavations mentioned above were undertaken in the 'modern era' of archaeological research, does not always prevent them from suffering the same maladies as those attributed to the early Danish excavations. Table 2.2, presented in the summary below, indicates the quality of data available from the more recent excavations in the UAE, as well as those from the early years. Archaeological work in Oman is also included in this analysis. Although divided from the UAE by a modern international boundary, the archaeological remains from this country are obviously from the same cultural milieu as those from the UAE. The following brief history of research in Oman, however, illustrates quite a different archaeological presence.

Research in Oman

In terms of archaeological exploration, Oman was not a viable option until after the deposition of Sultan Taimur in 1970. The Harvard Archaeological Survey then began, and throughout the 1980's many teams carried out both excavation and survey projects
within Oman. In particular reference to the third millennium, the new information acquired extended the geographical parameters of the two culturally identifiable phases that had been the subject of the Danish efforts for many years. In contrast to the UAE, archaeological activity concerning third millennium sites in Oman has been primarily of the survey nature rather than actual excavation. This is doubtless due to the changed nature of archaeological inquiry in the 1970's - 1980's, using survey as a method for gaining a broad, regional understanding, rather than the more site specific excavation based inquiry characteristic of the early Danish involvement in the UAE. As a result, we see a contrast between the two regions that is probably more artificial than real, with a seemingly far greater number and spread of third millennium funerary monuments throughout Oman than there is in evidence in the UAE. Also adding to this skewed image, however, is that the Al-Hajjar mountain range, which extends from the Straits of Hormuz in the north to the Arabian Sea in the southeast, lies for the most in the modern country of Oman. As this region provided access to resources such as stone and copper it became a focus during the third millennium and sites are found throughout its length. Unfortunately, however, due to the ascendancy of survey over excavation, the dating of the innumerable stone cairns and other features that characterise these mountains is problematic and it cannot be certain that all date to the third millennium BC, in fact it is likely that some may be as recent as the last century and were constructed / used throughout the intervening millennia.

Summary

This brief review of the history of archaeological inquiry in eastern Arabia shows that it is a relatively recent phenomenon, representing less than 40 years of research. Improved archaeological methodology and techniques combined with a tighter theoretical framework, leading to prompt and accurate publication, are to be expected considering this is a period of greater methodological sophistication and rigour than many of the previous decades. Unfortunately this has not always been the case, as was seen in the descriptions of the early Danish involvement. Similar research impediments to those found in areas with a much longer tradition of archaeological research can also be found in the Gulf. These consist primarily of:

1. a lack of cohesive research design and/or methodological regime at the time of excavation;

2. limited accuracy and/or detail in publication;
3. lack of publication altogether.

If data from these excavations are to be of any use to the present study there is a need to pin-point precisely any shortcomings in the information available for each site. If not isolated, these data inadequacies cause 'noise' when attempting to elucidate patterning in the variation of mortuary practice and it is these patterns that provide the basis for overall reconstructions of mortuary behaviour. To this end an elementary assessment of the adequacy of the published reports was undertaken through tabulating the information provided in each report under the five broad headings used in the database: architecture, skeletal remains; ceramic finds; non-ceramic finds and beads. A score of 0 was given when no information on that topic was provided, a score of 1 for partial information, a score of 2 for adequate reporting and a score of 3 for thorough, objective publication. If tombs from a single site were excavated and published separately, the scores for each tomb were averaged to arrive at an overall indication of the quality of the data for that site. The results of this assessment are presented in Table 2.2

A brief note on the contexts chosen for inclusion in this table is necessary before discussing the overall results. Firstly, it is only the sites/tombs that have some degree of publication or whose excavated material I have had access to that have been included in this table and indeed in the database compiled for this study. Hence there may well be other tombs that have undergone excavation to which I have had no access to the recovered material. Mention of these tombs is not included in Table 2.2.

Table 2.1: Assessment of site publication adequacy according to the five categories used in the database.

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<td>de Cardi et al. 1976</td>
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³ Excavations in this tomb are to date incomplete.
### Table 1: Excavation Quality Assessment

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<td>Al-Tikriti 1981</td>
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</tr>
<tr>
<td>Shimal Unar 2</td>
<td>C. Velde, D. Kennett, R. Carter, S. Blau</td>
<td>Carter 2002; Blau 1998</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Tawi Silaim</td>
<td>B. de Cardi</td>
<td>de Cardi et al. 1976, 1979</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Umm an-Nar: Tombs I-VIII</td>
<td>Danish Team</td>
<td>Frifelt 1991</td>
<td>3</td>
<td>2.6*</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Umm an-Nar: Tombs IX-XII</td>
<td>W. Al-Tikriti</td>
<td>Al-Tikriti 1981</td>
<td>2.5*</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Wadi Munay’i</td>
<td>partial publication in Phillips 1997</td>
<td></td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td></td>
<td></td>
<td>58.7</td>
<td>39</td>
<td>57.2</td>
<td>56.4</td>
<td>50</td>
</tr>
<tr>
<td><strong>Percentage</strong></td>
<td></td>
<td></td>
<td>75.3%</td>
<td>50%</td>
<td>73.3%</td>
<td>72.3%</td>
<td>64.1%</td>
</tr>
</tbody>
</table>

**Key:**

- 0 = no information provided at all
- 1 = some information, but inadequate
- 2 = adequate information
- 3 = excellent reporting of all relevant data
- * denotes averaging due to varying scores for different tombs from same site

Overall the results of this assessment show that the analysis of skeletal remains is the area most lacking, with a score of only 50%. The assessment of skeletal remains should, however, be an absolutely integral part of tomb analysis and as noted by Blau “whether the remains are well preserved or not, all bone specimens are irreplaceable, and consequently, it is our responsibility to protect, treat with respect and obtain as much information as possible from them” (1998: 269). The types of information that can be provided by the adequate analysis of skeletal remains include: the age and sex of interred individuals such that potential variable treatment at death can be ascertained as well as possible variation in grave good attribution; the diet of the interred population may be reconstructed to provide data on environmental exploitation, agriculture etc.; the genetic relationship between those interred may be determined thereby generating data towards understanding the kinship structure of the associate society and any reflection of

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9 Although this tomb remains only partially published, drawings were kindly provided by C. Phillips and some objects accessed through the Museum of Ra’s al Khaimah.
this in mortuary practices; the activities of daily life have potential to be determined through analysis of the alterations to the specific bones in relation to biomechanical stress, again providing a window into the lives of ancient cultures. Obviously this type of data is of overwhelming importance in trying to reconstruct the past societies that buried in the contexts being excavated and the fact that a score of only 50% for adequacy of archaeological attention in this area is indicative that the focus in many excavations has not been appropriately fixed.

Considering now the material record, it can be seen that the structures appear best reported and described in the archaeological literature, followed by ceramics, non-ceramics and then beads. The obvious statement that stone tombs of the third millennium BC make in the modern landscape has already been discussed as a reason for the predominance of attention paid to mortuary sites over those with settlement remains (see Table 2.1). It follows then that the description and presentation of information on the structures themselves dominates the published reports. The traditional place ceramic studies have held in archaeology would seem an acceptable explanation for the reason why the pots are relatively well presented (73.3%), followed closely by the non-ceramic evidence (72.3%), which includes the generally more exciting bronze or stone material, as well as many other exotica. Beads on the other hand, have been relatively poorly treated at both the excavation and publication level. One needs only look at the numbers of beads being generated by the most recent excavations (Al Sufouh, Jabal el-Emaleh) to see that it is likely this object category was not accorded appropriate attention during previous excavations. Due to their small size, beads are easily lost and the use of sieves is required for their appropriate recovery. Even at the point of publication, beads have rarely been afforded adequate attention, possibly due them being components of composite objects, or simply because they are not regarded as being very exciting.

In summary, this review has indicated that around a quarter of the excavated sites or tombs have either substandard excavation techniques or publication details. Important elements of burial data have often been ignored and/or misinterpreted and potentially informative facets of the mortuary record have not been adequately documented. This situation is probably the result of poor research design and/or a lack of controlled methodological procedures. It is as a result of this identified inadequacy in the available data, that a new approach to the excavation and publication of the types of tombs that characterise third millennium Oman peninsula has been developed. Excavating tombs that contain the primarily disarticulated remains of often up to hundreds of individuals, that have commonly suffered serious disturbance in the form of secondary tomb use
and/or grave robbing requires the use of a very fine-grained approach. The following chapter details a methodology tailor-made for the excavation of collective tombs. It further presents the outline of a format for the publication of the retrieved data that makes them a useable resource for the mortuary archaeologist hoping to reconstruct regional patterning in funerary practices.
Chapter 3

The necessity of a new methodological design

Introduction

The discussion of evidence for third millennium burial practices presented in Chapter 2 well illustrates the general lack of a cohesive and purposively designed approach to the excavation of burial sites. Early excavations were often undertaken without adequate research designs or trained personnel. Consequently, the large body of mortuary information produced can be difficult to use, particularly in a comparative sense, as certain burial features may appear absent when, in fact, they were simply paid little or no attention during either excavation or publication. Analyses aimed at detecting patterns in the mortuary record are based on the comparative presence or absence of mortuary traits, which in turn contributes to the reconstruction of the overall burial programme. Consequently, poor research design and the lack of a practical methodological approach can inhibit a thorough understanding of inter-site mortuary activity and hence of third millennium burial practices in the Oman peninsula as a whole.

This situation poses a significant problem to the progress of research in the field, and it was felt that the excavation of several new sites spanning the millennia under study would aid in reinterpreting the older material. The following chapter outlines a new methodological approach to excavating the successive interments in communal tombs that characterise the third millennium. Integral to this approach is an appreciation of the interdependence between methodology and theory in mortuary archaeology. Over the last thirty years, theories on the interpretation of mortuary remains, as outlined in Chapter 1, have become increasingly isolated from archaeological reality and more dependent upon social theory. Although much can be learnt from such interdisciplinary approaches, archaeological practicalities cannot be ignored. No plausible theoretical framework for the interpretation of burial remains can be constructed without due reference to the impact of excavation methodology upon the integrity of the excavated data. Much has been written on the interpretation of excavated data, but little on the methodology by which the data must be obtained.

Consequently a rigorous approach, tailored to suit multiple, successive burials, was designed and implemented in the excavations undertaken for the present study – i.e.
those at the sites of Jabal al-Emalah, Al Sufouh and Tell Abraq. This new approach has positively impacted on the quality of excavated data, resulting in the retrieval of detailed information which allows for more rigorous reconstructions of burial practices and hence enlightened interpretations on third millennium culture as a whole. The adaptation of this approach to these three quite different sites, well illustrates that this meticulous methodology is flexible enough to be adapted to the distinct requirements of individual sites, which is to my mind a very important feature, and one that requires brief discussion.

All archaeological sites, even those within a specific regional and cultural milieu, possess distinctive elements relating to local geophysical conditions and site specific formation/transformation processes. In order to extract as much data as possible from an archaeological site, these idiosyncrasies must be incorporated into the excavation strategy. Once excavations have commenced, the research design should remain flexible so as to incorporate new aspects of a site’s archaeological record as they are revealed.

**Formation of an appropriate methodology**

In devising the current methodology, the dual role of the human burial in providing evidence relating both to burial practices and the deceased’s manner of life was recognised. Simplistically, the burial context combined with the treatment of the deceased provides evidence concerning the burial practice or ritual. The skeletal remains, on the other hand, are more likely to provide data concerning the life led by the deceased in terms of interrelatedness, diet, disease, occupation and possibly, manner of death. The following methodology aims to optimise the evidence concerning burial context and treatment of the deceased whilst excavating the skeletal remains appropriately thereby enhancing the quality of data the physical anthropologist is able to extract (Figure 3.6).

Several manuals of burial excavation were consulted (Uberlaker 1978, Brothwell 1981, Stirland 1986, Barker 1993, Mays 1998) during the formation of this methodology. Although these generally focus on the excavation of cemeteries or graves containing either individual inhumations or at least articulated individuals, they nonetheless provide good basic principles for the physical process of bone excavation. Recording techniques however, vary and those set out below have been specifically designed for the communal style graves under study.
Methodology for the excavation of multiple, successive burials

Although it may seem simplistic, the foundation of successful tomb excavation lies in appropriate planning. To optimise the detailed information retrieved from burials whilst operating within a reasonable timeframe\(^\text{10}\), the following areas need to be addressed:

**Personnel**

Prior to commencing tomb excavation, an appropriate team is chosen, of which certain specialists should be considered indispensable:

- an experienced field director with a research design and excavation methodology based on knowledge of the site and conditions;
- a physical anthropologist with an understanding of and preferably experience with communal burials;
- a photographer and draughtsperson;
- a conservator with broad experience base in all material classes, and;
- archaeologists with experience in the excavation of human bone who can supervise students if necessary.

It is desirable that the team be well prepared for the excavation with an understanding of the research design, excavation methodology and proposed timeframes before going into the field. Each of the specialists listed above should also be responsible for ensuring that equipment necessary for their area of expertise is acquired.

**Equipment**

**Recording equipment**

Proforma recording sheets for bone excavation should be designed and printed. Space within these is required for the 1:10 drawing of each bone layer, preferably with a film overlay for recording the identity of major bones and the relative location of objects. It is also useful to have a polaroid or digital camera on site to photograph each bone layer before it is removed. The polaroids or printed digital images can be attached to the proforma and annotated. Figure 3.1 is an example of the proforma used in the

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\(^{10}\) A ‘reasonable timeframe’ will vary according to site accessibility (whether overseas or local), funding, availability of personnel etc.
excavations at Al Sufouh, Jabal el-Emalah and Tell Abraq.

Several laptop computers with appropriate software for the registration of small finds and bones are also necessary. A database designed in FileMaker Pro\textsuperscript{11} was used for the Al Sufouh excavations and presents the fields into which data was input (Figure 3.2). The detail required by the database fields ensures that adequate and comparable data is recorded for each object. The use of pop-up lists, as described in Figure 3.2, is vital in ensuring uniformity in descriptive terminology, especially when a variety of personnel are involved in data entry. This allows register searches to be executed quickly and accurately. The recorded data should compliment photographs and drawings enabling comparative analyses between like objects once excavations are complete and the original items are no longer accessible.

A database for bone recording is also necessary and is best designed by the physical anthropologist who will be carrying out the skeletal analyses. Obviously the standardised recording of osteological data will enable not only an internal site analysis of human remains but will make the data collected objective such that it can be used by other physical anthropologists who may wish to undertake broad regional or temporal studies, such as that undertaken by Blau (1998). The recording system designed by Buikstra and Ubelaker (1994) is appropriate and ensures that a variety of information about each skeletal element is recorded.

\textit{Excavation equipment}

Lists of the appropriate tools required for day to day burial excavation can be found in human bone excavation manuals (Uberlaker 1978, Brothwell 1981, Stirland 1986, Barker 1993, Mays 1998). The tools found most useful during excavations in the UAE included: small paint brushes and toothbrushes; dental probes, wooden skewers, teaspoons, small trowels, plasterers leaves and small plastic bottles cut in half (for dirt removal).

\textsuperscript{11} A Claris database programme. Any other commercially available database would suffice.
Figure 3.1: Example of the field recording sheet used for the excavation of communal burial contexts.

<table>
<thead>
<tr>
<th>Site: __________________</th>
<th>Date: ____________</th>
<th>Excavator: ____________</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tomb No.: _____________</td>
<td>Square: __________</td>
<td>Level: ________________</td>
</tr>
<tr>
<td><strong>Human Bone:</strong> Density:</td>
<td>Condition: ________</td>
<td></td>
</tr>
<tr>
<td><strong>Objects:</strong> __________</td>
<td>Photograph Nos.:</td>
<td></td>
</tr>
<tr>
<td><strong>Plan No.:_____________</strong></td>
<td>Comments: __________</td>
<td></td>
</tr>
</tbody>
</table>

1:10 scale drawing of bones to be drawn here with film overlay for annotation.

Digital photograph of bones to be placed here.
Figure 3.2: Example of the data entry layouts in the FileMaker Pro small finds database.

Al Sufouh Small Finds Register

Find location details
AS Reg. No: _________ Year: _________ Date: _________ Tomb No.: _________
Square: _________ Chamber: _________ Co-od E: _________ Co-od N: _________
Layer No.: _________ Level: _________

Object Information
Material: ceramic | bone | bronze | soft-stone | shell | flint | glass | iron | talc | carnelian
Object: agate | fishbone | jasper | plastic | lead | copper | sugalite | rock crystal | garnet | paste

Pop-up lists ensure that the same terminology is used by different persons entering data and also speeds up data entry as only the first letter or two of the word need be typed.

At this point in the data-entry layout buttons are available to go to either ceramic or non-ceramic layouts. Different fields are present in each of these layouts as different information is required.

Vessel Type: ___________
Sherd Type: ___________
Ware Description: ___________
Decoration: ___________
Comments: ___________
Rim diam.: ______ Base Diam.: ______
Height: ______

Diameter: ______ Length: ______
Vessel Type: ___________
Sherd Type: ___________
Description: ___________

Drawn: Yes/No  Drawing No.: ______
Digital Photo #: ______
Samples taken: ______

Diameter: ______ Length: ______
Width: ______ Thickness: ______
Drawn: Yes/No  Drawing No.: ______
Digital Photo #: ______
Samples taken: ______

Pop-up lists can also be used in the descriptions of wares or objects so that searches done for like objects will retrieve all the appropriate
In the field: excavation and recording

Once in the field, but before excavation begins, a north-oriented grid system is laid over the entire area suspected of containing human burial deposits. If the burial locale is part of a larger site complex, this should be tied into the broader grid established for the site as a whole. The grid allows for the tomb and environs to be broken down into metre squares, which may be identified by their southwest coordinates. Each metre square may then be further subdivided into 0.5 m squares designated as A, B, C and D (Figure 3.3). This system provides a

Figure 3.3: 0.5m grid format designed for excavations within tomb deposits.

Figure 3.4: Excavation of the Tell Abraq tomb using the divided metre square methodology (Photo: J. Benton).
Chapter 3

horizontal control on the location of all skeletal elements, objects and structural features. Vertical control is obtained by nominating a site reference point/datum, determining its elevation above sea level and then obtaining absolute levels on all skeletal layers, objects and structural features.

As tomb excavation commences layers of bone are revealed. More often than not in the tombs under study, the bones are disarticulated and in a variable state of preservation. The condition of the bone will determine what excavation tools are most appropriate. When bone is friable and soft, wooden skewers and soft brushes are used but if the deposits are concreted, then dental probes and toothbrushes may be more suitable. Each layer of bone and objects is cleaned and delineated as much as possible whilst remaining in situ. The layer is then drawn onto proformas (Figures 3.1 and 3.5) at a scale of 1:10 and photographed from above, preferably in colour, which can then be saved as greyscale should it be required. Drawings from the separate squares can eventually be joined, the aim being to reconstruct layers of bone across chambers and tombs which have in fact been excavated in small squares one at a time. The option to excavate whole chambers of bone simultaneously, layer by layer, is preferable but often limited by physical access. In these situations the grid recording system is particularly useful as it allows for horizontal bone associations where they may otherwise have been lost. The end result is a three-dimensional, visual record of the bone and artefact deposits that comprise the contents of the tomb.

Figure 3.5: Using the recording proforma's to draw the excavated bone to scale (Photo: J. Benton).
A working example of this recording method, as used at Al Sufouh, is presented in Chapter 4. Figures 4.205 - 4.274 represent the layers of bone from the pits outside the tomb containing cremated bone. Figure 3.5 shows this method in use at the site of Al Sufouh.

Once recording is complete, the human bone may be removed and placed in paper bags annotated with locational information, whilst objects are labelled and placed in snap lock plastic bags. All deposits should be sifted through e. 1 mm mesh sieves. At all of the sites excavated for this thesis, many microbeads, bone fragments and teeth were recovered in this manner. Depending on the density of the bone deposit, bone may be removed in layers of varying thickness. At Al Sufouh, this was approximately 3 - 5 cm when no other stratigraphic divisions were discernible. Elevations should be taken on each layer and on all small finds isolated during excavation.

Once finds and bone are returned to the dig-house they should be processed as quickly as possible. Objects may be registered in the database and then sent on for conservation if required. Bone should be analysed and stored appropriate to its condition and future requirements.

Analysis and publication

Although there is a comprehensive range of analyses that may be carried out on the material recovered from a tomb, it would be unrealistic to attempt them all. Basic analyses, within each artefact class, that place the tomb and its material contents within a broader regional and chronological framework should be undertaken. If certain artefacts demand it, and if time and money allows, further scientific analyses can be attempted, which will add to the body of information about the site. Study of the human bone is also a vital part of tomb investigation. At the very least the physical anthropologist should be able to ascertain the minimum number of individuals (MNI)
interred within tomb contexts, a basic breakdown of age/sex per chamber/context and any gross pathologies. Further analyses, dependent upon the condition of the skeletal remains, include investigations into relatedness, diet, disease and occupational stresses (Brothwell 1981, White 1991).

Prompt publication is the final stage of an effective tomb excavation campaign, and one that is often difficult to achieve. Effective publication should include as much detail about the deposition of material as possible and clear delineation between raw data and interpretation. Scale line drawings of all artefacts, preferably accompanied by photographs and information should form the basis of the report. There are obviously many constraints at this stage of the process, i.e. funding for writing up results, preparing drawings and photographs as well as the not insignificant challenge of finding a willing publishing house. The increasing accessibility of the internet with time will hopefully broaden the scope for the electronic publication of excavation results bypassing the problem of finding publishing companies willing to publish and making the data available to a much wider audience. Such methods are currently being investigated for the forthcoming publication of tomb excavations at Tell Abraq but are outside the scope of this thesis.

Preparation for the publication of excavations at Al Sufouh, the focal site of this thesis, took over a year. The following chapter comprises the published text relating to the excavations of the tomb at this site. It provides an example of the use of the methodology described in this chapter as well as the approach to analysis and publication advocated. If all burial excavations of the third millennium in the Oman peninsula had been excavated and published with such attention to detail, regional studies would be simplified and our understanding of the burial practices of the era would be greatly enhanced.
Chapter 4


Background

As has been argued in the last two chapters, despite mortuary sites dominating the archaeological record of the third millennium BC, the quality of the excavated data and accompanying publications does not always allow for the adequate collation of mortuary data at the regional level. As a result, a new methodology was designed for the excavation and publication of mortuary material specific to the communal context of the third millennium in the Oman peninsula. This was then utilised to excavate three sites in the U.A.E. which provide mortuary evidence that spans the millennia under study. Due to time and space constraints, however, only the comprehensive results of excavations at one of the three sites, Al Sufouh, will be included in this thesis. The excavations, writing up and publication of these results hopes to provide a working example of the methodology advocated in the previous chapter.

Before the presentation of the Al Sufouh excavation results, a few notes on the layout of this chapter are in order. This site has already been published in monograph form. The following pages have been taken directly from this publication as the manner of the layout, the detail provided and the quality of the photographs and drawings are all considered vital aspects of the report, and thus appropriate for inclusion in this thesis. Consequently, however, the figure numbers do not include a chapter number signifier as the other figures throughout this thesis do, and nor do they begin at number 1. If referred to anywhere else in the text of this thesis, the signifier ‘4’ will be used before the figure number such that the reader is easily able to locate the appropriate image.

In terms of the skeletal analyses it is noteworthy that subsequent to the Al Sufouh publication, further laboratory assessment of the human remains was undertaken (Blau 1998). The results of this study no doubt augment the results presented in the following chapter and include assessments of skeletal and dental health, including

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12 Some minor variations are appropriate to mention. Slight differences in the MNI's are as follows: According to Blau Tomb II has an MNI of 60 individuals; Tomb III - 59 and Tomb IV - 4.
reconstructions of diet, population affinities and pathologies.

Data from the excavation of sites that have become available since the publication of the Al Sufouh volume are not included in chapter 4, but will be discussed in Chapters 5 and 6, where a regional overview is undertaken so as to enable the reconstruction and interpretation of the mortuary remains. This applies particularly to the discussion presented in the Al Sufouh volume regarding the use of cremation, which has been revised in light of evidence that has become available recently. For a full discussion regarding the use of cremation practices see Chapter 6.

An introduction to the site of Al Sufouh

Occupation at the site of Al Sufouh flourished during the second half of the third millennium B.C., and of great interest was the discovery of a new feature of Umm an-Nar funerary ritual, namely mass cremation. Previously, burnt bone had been noted in quantity in Tomb A at Hili North (el-Najjar 1985: 38; 41) and in the unpublished Umm an-Nar tomb at Shimal (Sahm 1988: 2), but in neither case is the deposition in any way similar to that at Al Sufouh.

As a result the archaeological remains of Al Sufouh provide data on an interesting new

Figure 4.1: Map showing the location of Al Sufouh (after Benton 1996: Fig. 2).
Excavations at Al Sufouh

aspect of Umm an-Nar culture mortuary ritual. Detailed studies of the material recovered offer new insights into the coastal facies of late third millennium culture in the Oman Peninsula.

Location

Located on the southern outskirts of the modern city of Dubai, Al Sufouh (25°06.7'N / 55°10.4'E) is situated between the main Abu Dhabi - Dubai highway and the coast, in the suburb from which it takes it name (Figs. 1 and 2). At present the site lies 1 km. from the shoreline. However, the sabkha in the vicinity of Al Sufouh today suggests that in antiquity the site may have been directly on the coast. This stretch of coastline between Ghanada Island and Ajman, the two nearest sites of the Umm an-Nar period, provides a logical location for yet another settlement of this type.

History of Discovery

Whilst walking in the area of Umm Suqieim in September 1988, Dubai resident Caroline Lehmann noticed a series of sandy mounds, several of which were covered with ash, shells, bone, sherds and small stones (Lehmann 1993: 1). Artefacts recovered in what appeared to be the three main areas of occupation included chert nodules and flakes; stone net sinkers or fragments thereof; fragments of grinding stones or pounders; corroded green metal fragments, possibly copper; a single quartz bead; a large variety of animal bones including bird, bovid, dugong, fish and turtle, many of which were burnt; a great variety and quantity of shells, both gastropods and bivalves; and ceramic sherds representing a wide variety of wares including, according to W. Y. Al-Tikriti, typical Umm an-Nar coastal settlement pottery (Lehmann 1993: 2). In 1991 partial destruction of the site occurred when bulldozing was begun as part of the development of the area for residential housing. At this time part of the southwestern section of the main mound, Area A, was removed and an adjacent area graded, possibly revealing part of the tomb in what is referred to here as Area E (Lehmann 1993: 4, Fig. 9). This modification of the site obscured further visual determination of the remaining areas of occupation.

In January and February 1994, a number of the Tell Abraq team visited the site on several occasions, on one of which A.-M. Mortensen found a fragment of a bronze dagger together with some human bone in the area of the tomb. A human skull was also reported to have been found by a school child in the same year. April/May 1994 saw the resumption of bulldozing at the site, and a bulldozer is said to have come within metres of the south side of the tomb. At this time Dr Hussain Qandil of the Dubai Mueum undertook rescue excavations in the tomb in an attempt to convince the landowner to
preserve the area with archaeological remains. Excavation revealed the presence of a six-chambered, stone-built tomb of Umm an-Nar type. Three chambers yielded a minimal amount of bone along with classic Umm an-Nar funerary pottery; copper blades; carnelian, serpentinite, soft-stone and paste beads; and a single, undecorated soft-stone vessel. When human remains were encountered in excavation they were left in situ for subsequent excavation. To the south of the tomb, near the wall of the bulldozer excavation trench, a pit of cremated human remains was discovered. Excavation here was minimal, isolating the boundaries of the pit and leaving the bone in situ. Work ceased at this stage and a wooden frame with a plastic cover was placed over both interment areas. In early July 1994, the Dubai Municipality sent an official invitation to Prof. D.T. Potts of the University of Sydney, inviting him to excavate at Al Sufouh. Shortly after Christmas 1994, the Australian team arrived in Dubai and commenced excavations which were to continue until mid-February 1995.

Site Description

As noted above, Al Sufouh consists of several areas displaying obvious scatters of archaeological material across their surface. Prior to the commencement of the Australian excavations, a grid oriented to magnetic north was laid over the entire site with the use of an EDM. In all of our excavations, trenches or squares are referred to by the east and north co-ordinates respectively, of their southwest corner. Fig. 3 locates each of the major areas investigated which can be described as follows.

Two 5 x 5 m. trenches were located in Area A, the highest and broadest mound, on top of which is an old cemented elevation point. A third test trench was sunk into the northern limit of Area A, on a low mound referred to as Al. Areas B and C consisted of lower mounds characterised by a covering of ash and a thin scatter of sherds, shell, bone and stone. To the far north lay Area D where a small sondage was dug into an area characterised on the surface by a single large stone, thought to possibly indicate the remains of a structure. Area E encompasses the Umm an-Nar tomb (Tomb I), the burial pits (Tombs II-IV) and their environs.
Figure 4.2: Layout of the areas of investigation at Al Sufouh. Area E is the tomb (after Benton 1996: Figure 3).
**Methodology**

In order to obtain the optimum quantity and quality of data from the excavations in Area E at Al Sufouh, a carefully designed methodological approach was implemented. Integral to this approach is an appreciation of the interdependence between methodology and theory in mortuary archaeology. Over the last thirty years, theories on the interpretation of mortuary remains have become increasingly isolated from archaeological reality and more dependent upon social theory. Although much can be learnt from such interdisciplinary approaches, archaeological practicalities cannot afford to be ignored. No plausible theoretical framework for the interpretation of burial remains can be constructed without due reference to the impact of excavation methodology upon the integrity of the excavated data. Much has been written on the interpretation of the data, but little on the methodology by which the data must be obtained. With this in mind it was considered important to implement a rigorous approach to the burial excavations at Al Sufouh, tailored to suit multiple, successive interments, and similar to those implemented at both Tell Abraq and Jabal al-Emalah. Like all methods of excavation, the one employed at Al Sufouh had a great impact on the quality of the excavated data, resulting in more informed interpretations.

When the University of Sydney team began work at Al Sufouh, chambers 1, 5 and 6 were completely empty, i.e. devoid of bone, as were most of the passage ways. Linked into the wider grid established over the entire site (Fig. 3), Area E was divided into metre squares, which were identified by their southwest coordinates. Each metre square was further subdivided into 0.5 m squares designated as A, B, C and D (Fig. 18).

Bones and artefacts were revealed, cleaned and delineated as much as possible whilst *in situ* and then drawn at a scale of 1:10. Each 0.5 m. square was then photographed and the revealed material removed. Human bone was placed in paper bags annotated with locational information, whilst objects were labelled and placed in snap lock plastic bags. All deposits were sifted through c. 1mm. mesh sieves, in which many of the microbeads were recovered. Depending on the density of the bone deposit, bone was removed in layers of 3 - 5 cm. thickness when no other stratigraphic divisions were discernible. Elevations were taken on each layer and on all small finds isolated during excavation.
Structural Remains

As noted above, the dead of Al Sufouh were interred in four discrete locations (Tombs I, II, III and IV). Of these four locations, however, only one is a stone construction (Tomb I) whilst the other three are simply pits dug into the sand. Fig. 19 illustrates the physical relationship between the four tombs. We begin with a discussion of the structural aspects of each interment area. The stratigraphy and deposition within these locations are presented in the following chapter.

**Tomb I**

Initial excavations in Tomb I were carried out by the Dubai Museum in April/May 1994 when the site was threatened by major construction works. At this time the entire external ring wall of the tomb was revealed, and excavations were undertaken in all of its six chambers. Areas of dense human bone, concentrated in three chambers, were left in situ, but all other areas were excavated to the base level of the tomb. Objects recovered included sixteen complete ceramic vessels, many incomplete vessels and sherds, and thousands of beads. Precise co-ordinates for these objects are not available.

Both the internal dividing walls and external ringwall were then reconstructed to a uniform height of c. 1 m., leaving no record of the state in which these walls were originally found. Wooden beams with a plastic overlay were lain across the open top of the tomb to help protect the bones until the Australian excavations began in January 1995.

Structurally Tomb I (Figs. 19-21) is fairly typical of tombs dating to the Umm an-Nar period, being circular, six-chambered, 6.5 m. in external diameter and constructed of unworked stone blocks faced with a single outer ring-wall of well-masoned ashlars, often referred to as ‘sugar-lumps’ (Potts 1990b: 95). Although Umm an-Nar tombs were commonly built of limestone, Tomb I at Al Sufouh, like the tombs on Umm an-Nar island, is made of farush or beach-rock, doubtless the closest available stone resource (cf. the discussion of the sounding in Area D which revealed the presence of a bed of farush just north of the tombs). The ashlars of the external ring wall are characterised by a convex external face. They measure c. 70-90 cm. in length, 50 cm. in height and 10-20 cm. in thickness. The internal ring wall, dividing walls and floor were built of unworked slabs, apparently chosen for their flatness and usable dimensions. As farush forms naturally in flat ‘sheets’ which can be broken into pieces of varying size, it is well-suited to the construction of Umm an-Nar tombs.

The ring wall is set on a plinth which protrudes up to 20 cm. from the base of the wall. Entry to the tomb was via two doorways through opposite points of the ring wall, on a NE/SW alignment. Double access was necessary as the internal NW/SE dividing wall allowed for no communication between the two halves of the tomb. Each half was then further divided into three chambers through the construction of two short wall butts off-set from
both sides of the main dividing wall. The more northerly pair are set at a slight angle to the main wall. Remains of a paved stone floor were found in four of the six chambers, but it must be noted that skeletal remains were recovered even in areas where the flooring was no longer present. This may indicate that certain parts of the tomb, including their floor slabs, had been cleared out whilst the tomb was still in use.

The closest structural comparisons to Al Sufouh Tomb I are to be found at Hili, in the Al Ain oasis, and on Umm an-Nar Island. Looking first at Hili, Tombs C and J (Fig. 22 a and b respectively) have almost identical ground plans, although the orientation of the main dividing wall is in each case NE/SW or E/W rather than NW/SE, as at Al Sufouh. With diameters of 9 m. and 8 m. (Al-Tikriti 1982: 110), respectively, the Hili examples are also much larger. The closest structural parallel on Umm an-Nar Island is provided by Tomb IX (Fig. 22 c), which is 12 m. in diameter, and shows the same orientation as the Hili tombs (Al-Tikriti 1982: 137-138). Unfortunately, the Hili and Umm an-Nar tombs were all badly disturbed and contained very few grave goods, precluding a comparison of artefact assemblages between these structurally similar tombs.

**Tombs II and III**

Excavated directly into the sand to the south and west, respectively, of Tomb I (Fig. 19) these interment pits were oval and measured c. 2 x 1 m. Each had approximately the same depth of deposit (c. 65 and 63 cm., respectively) and neither exhibited any elements of structure to support the sandy sides of the pit, or to create a surface upon which to deposit the great quantity of
cremated human remains they contained. Tomb II was first revealed during the Dubai Museum excavations, and appeared at roughly the same level as the base of the tomb (c. 4.35 m. above sea level). When it was first excavated the deposit was left largely untouched, but a wall was built around the exterior of the pit in order to protect it. Visible in many of the photographs of Tomb II, it is important to remember that this is a modern wall and not part of the original archaeological deposit.

No parallels for this style of interment can be cited elsewhere in the Oman Peninsula, or indeed in the rest of Western Asia. Locally, the only interments in which disarticulated skeletal remains have been found outside of a circular tomb occurred at Ajman (Al-Tikriti 1989; Haerinck 1991) and Hili Tomb N (Haddu 1989), but in both cases the skeletal remains were interred in a subterranean, rectangular, stone structure, apparently built as a repository for bone originally interred in the nearby circular tomb. On Umm an-Nar island, Tombs V, VI and VII showed evidence of extramural burials (Frifelt 1991: 39). These, however, consisted primarily of articulated or semi-articulated individuals placed around the exterior ring wall of the tomb, rather than a pit of disarticulated remains as at Al Sufouh.
Tomb IV

Unlike Tombs II and III, Tomb IV is best described as a scatter of very fragmentary burnt bone and objects (Fig. 19). The deposit, c. 0.5 x 1 m. at its greatest extent, was only c. 10-15 cm. in depth, but nonetheless contained the remains of a minimum number of three individuals. Like the other two interment pits, Tomb IV lacked any structure.

Chronologically, Tomb I is thought to pre-date the other three tombs as it seems highly unlikely that it was constructed with reference to two unmarked pits in the sand. It is rather more likely that pits, dug specifically for the interment of corpses, would be located close to an obvious, previously designated burial area, i.e. Tomb I.

Stone Feature

Situated on approximately the same level as Tomb I to its north and east, was a broad scatter of farush stones spread over an area of c. 10 x 8 m. (Fig. 19). Consisting of almost 100 stones, this feature is undoubtedly not a natural occurrence and suggests several possible interpretations. In the first, a great number of farush blocks were cut and brought to the area in which the tomb was to be located. When construction of the tomb began, stones were chosen for their size and suitability relative to their position within the structure. After completion of the tomb, a scatter of stones remained, as we find them today. An alternative scenario sees these farush blocks forming part of a stone platform, or possibly an area for the construction of funerary pyres. As far as the latter theory is concerned, there was in fact no evidence of burning around the stones, and no fragments of charred human skeletal material to indicate that this was the case. It is still possible, however, that these stones are the remains of some kind of platform for the preparation of skeletal remains or for carrying out part of the mortuary ritual associated with the interment or incineration of the dead.

External stone features related to Umm an-Nar tombs have been found only at two sites, although this may be due to a lack of attention to the exterior of tomb structures. At Tomb A Hili North, a section of pavement is described as having led up to the western entrance of the tomb (Vogt 1985a: 21-22; Pl. 22), a feature seen also on the south side of the Umm an-Nar tomb at Tell Abraq (Potts 1995: Abb. 6). These pavements, quite unlike the stone feature at Al Sufouh, consisted of a connected series of stones directly abutting the wall of the tomb, rather than a scatter of stones unconnected to the main tomb structure, as at Al Sufouh.
Deposition of Artefacts and Human Remains

The following chapter presents data on the deposition of both the skeletal remains and the artefacts recovered from the four interment areas of Al Sufouh and their interrelationship with one another. Scale drawings and photographs of the bone deposits from Tombs II, III and IV are presented in Appendix 1.

Tomb I

At the outset of the January 1995 season of excavation, skeletal remains were present in only three of the six chambers of Tomb I (Fig. 23). According to Dr Hussain Qandil of the Dubai Museum, who undertook the rescue excavations in 1994, human remains existed only in a very fragmentary state in Chambers 1 and 5. Chamber 6 was evidently the target of modern plunderers, who disturbed and smashed the excavated human remains left in situ. With regard to the human remains in Chambers 2, 3 and 4, their deposition is reminiscent of most other reasonably well-preserved Umm an-Nar tombs. Some of the bone was in an articulated state, as whole or semi-complete individuals, e.g. in the lowest layers of Chamber 2 (Fig. 24),

Fig. 23. Plan of Tomb I showing top layers of skeletal remains as they were found by the University of Sydney team.
while in other areas, such as Chamber 3, only small patches of articulation were evident. In Chamber 4 (Fig. 25) and in the passageway to the west of Chambers 2, 4, and 6 (Fig. 26), the skeletal material was very fragmentary and totally disarticulated. The interrelationship between the skeletal remains and the artefacts from Tomb I is somewhat problematic. All of the objects excavated by the Dubai Musuem were removed while the skeletal material was left in situ. Thus the association between the two has been lost. Regarding the artefacts recovered during the excavation of the remaining skeletal material, beads were the most numerous, and a significant number were found in linear alignment suggesting that they were originally strung in necklaces. One particular string, found in the neck area of a partially articulated individual in Chamber 3 (Fig. 27), included beads of carnelian, paste and serpentinite, although all remnants of the fibre on which they had been strung had itself disappeared. Excavations in Chamber 1 revealed a 'patch' of white, tubular serpentinite beads found in association with dark, soft-stone beads (Fig. 30). Similar bead patches have been found at Umm an-Nar (Fripl 1991: 35, Fig. 51) and at Jabal al-Emalah (Benton and Potts...
Fig. 28. (right) Cremated bone, Chamber 2, overlying the articulated individuals in the basal layer.
Fig. 29. (below left) Beads found in linear alignment in the upper levels of Chamber 2.
Fig. 30. (below right) 'Bead patch', Tomb 1, Chamber 1.

1994: 25) where they have been interpreted as beads sewn onto fabric. Throughout the tomb ceramic vessels were found intermixed with human remains, and one small, grey vessel from Chamber 4 (AS 3577) lay below a flat stone, possibly one which had fallen from the wall or the roof. The recovery of a number of vessels from outside the ring-wall of Tomb I indicates the possibility of disturbance after the tomb had gone out of use.

Cremated remains were found only in one very discrete area of Chamber 2, near the passageway. Stratigraphically the incinerated bone overlay the inhumed bone, leaving no doubt that the cremated remains constituted the latest deposit (Fig. 28). The cremated bone was very fragmentary, and was intermixed with a great number of beads, some of which were still in rows as if strung (Fig. 29), identical to those found in association with the inhumed bone. Also present within this deposit was a quantity of burnt sand and farush fragments, as if part of the base of the cremation pyre had been scooped up together with the human and artefactual remains. Further discussion on this topic is reserved for the next chapter.
Tomb II

Sixteen layers of bone were excavated in Tomb II. Utilising drawings and the photographic record, Figs. 205-236 (Appendix 1) provide an illustrated account of the disposition of bone in all sixteen layers. There were, in fact, no stratigraphic divisions anywhere in the 65 cm. deep tomb deposit, and each layer represented an artificial division to ensure that as much bone as possible was recorded in situ. The uppermost layers appeared to contain larger bone fragments (Figs. 205-212) in comparison to the bone found in the lower layers of the pit (Figs. 225-236). There also seemed to be a slight tendency for skulls and intact long bones to appear around the edges of the pit. However, this may have been the result of a depositional accident rather than purposeful placement. Also worthy of mention is the colour variation occasionally evident when looking across complete layers. There was a defined area of bone in the west of Tomb II, between Layers 3 and 5 (Figs. 211-216), which was considerably darker in colour, more densely concentrated, and more difficult to excavate than the bone found in the eastern side of the pit. This colour variation was at its most obvious in Layer 4 (Fig. 213 and 214). The only ready explanation for a deposit of this nature is that homogenous, well-burnt material - possibly from the lower layers or the centre of the funeral pyre - was deposited in this part of the pit in a single ‘dumping’ or relocation episode, whilst material from the upper layers or the edges of the pyre happened to be dumped in the eastern area of the pit.

Changes in the dimensions of the pit were noted from Layer 6 onwards. The southwest corner had evidently not been excavated as uniformly as the rest of the pit when it was originally dug as a receptacle for the cremated remains. This manifests itself in the depositional layers as a ‘bite’ out of the human remains, best seen in Layer 9 (Figs. 223 and 224), accounting for a reduction in the dimensions of Tomb II as the basal layers were approached.

Artefacts found scattered, apparently randomly, throughout the jumbled bone, included copper knife blades (Fig. 31); thousands of beads, some in linear alignment; and ceramic vessels both complete and fragmentary. Also intermixed within the Tomb II deposit were fragments of burnt farush, one of which appeared (Fig. 31) beneath a copper blade.

After the removal of the lowest layer of human remains, a slightly compact, sandy matrix was revealed, with several small stones compressed into its surface. This appears to be the level to which the original pit had been excavated.

Tomb III

Tomb III was revealed when the University of Sydney excavations around the exterior of Tomb I located a scatter of human bone at approximately the same level as the base of the main tomb and the top of Tomb II (c. 4.40 m. above sea level). This deposit was similar in every way to Tomb II with almost identical horizontal dimensions and a 63 cm. deep deposit contain-
ing material (burnt bone, ceramics, copper artefacts and thousands of beads) identical to that found in Tomb II. As it was slightly shallower than Tomb II, one less layer of deposit was excavated in Tomb III. Figs. 237-266 illustrate the appearance of each layer. As in Tomb II the upper layers in Tomb III appeared to contain more complete bones than those in the lower layers (Figs. 237-226). Examples of deposition in the middle and lower layers of Tomb III can be seen in Figs. 227-266. A rare example of articulation, in the form of a shoulder joint in which the head of the humerus was still inside the glenoid cavity of the scapula, was found in Layer 11.

Artefactual deposition in Tomb III was also similar to that found in Tomb II. Copper, ceramic objects and beads were intermixed with fragmentary bone (Figs. 32-35), but a slightly different situation was evident in the basal level of the pit where a group of five complete, and several incomplete, fish skeletons were observed at the southern end of the lowest tomb layer (Figs. 36-37). Due to the soft, loose nature of the sand that characterises the entire site, it was impossible to delineate the edge of the pit at this point and thus the relationship between the fish and the pit of cremated human bone cannot be determined with certainty. One of two hypotheses, however, would provide an explanation. The fish skeletons may have been a part of an earlier deposit, most of which was disturbed by the excavation of the pit. Alternatively, the fish may have been placed purposefully in the bottom of the pit (as an offering?) before the cremated remains were placed within it. The former seems a more likely scenario, but the latter cannot be ruled out.

Tomb IV

Located some distance to the west of Tomb I, Tomb IV is best described as a scatter of very fragmentary burnt bone and objects. Only four layers were present in an 18 cm. thick deposit (4.48-4.30 m. above sea level), but contained the usual ceramic vessels and beads (Figs. 38-39) as well as a stone pendant. Figs. 267-273 illustrate the appearance of each layer and it is interesting to note the large number of broken farush fragments in the lowest layer.
Fig. 32. (left) Copper dagger blade, AS 7843, amongst disarticulated bone of Tomb III, Layer 10.
Fig. 33. (above) Beads found in linear alignment from Tomb III, Layer 1.
Fig. 34. (below left) Beads found in alignment from Tomb III, Layer 1.
Fig. 35. (below right) Ceramic vessel, AS 5590, in situ, Tomb III, Layer 4.

Fig. 36. (below) Fish skeletons at base of Tomb III.
Fig. 37. (right) Fish skeletons at base of Tomb III.
Fig. 38. Ceramic vessel, AS 3576, *in situ*. Tomb IV, Layer 1.

Fig. 39. Fragmentary vessel AS 3579 and nearby beads in uppermost layer of Tomb IV.
Preliminary Analysis of Human Skeletal Remains

Introduction

Within the six week period of excavation at Al Sufouh, over sixty crates (c. 70 x 50 x 50 cm.) of human remains were recovered. During this time only preliminary identification and analysis of the bone was undertaken. The aims of this chapter, detailing the preliminary results, are threefold: first, to present the methodology of bone recovery in the field and the recording techniques used in the laboratory; second, to present the data collected on MNI estimations; and thirdly, to discuss the burial practices of the ancient inhabitants of the site as evidenced by macroscopic observations of the skeletal remains. This latter aim is achieved through a brief discussion on recognition of body treatment from the skeletal remains, followed by a presentation of the evidence relating to the practices of inhumation and cremation at Al Sufouh.

Methodology

The skeletal remains of Al Sufouh all came from the four interment areas (Tombs I-IV) presented above. The excavation methods employed have already been described. After excavation, bags of bone were given a sequential catalogue number and information concerning location recorded in a database (FileMaker Pro 2.0). The bone was then cleaned using toothbrushes and dental probes. Finally, the bone was returned to the bone laboratory where identification and preliminary analysis were undertaken.

Early in the season all identifiable bone fragments underwent assessment and information on side, diagnostic part and condition was entered into the computer. Identification was assisted by the use of three major texts: White (1991); Bass (1979) and Steele and Bramblett (1988). Due to time constraints, however, it was eventually necessary to restrict the elements assessed to those which seemed likely to contribute to an MNI estimation. These included the clavicle, humerus, ulna, radius, femur, talus, calcaneus and patella, along with complete or semi-complete crania. The latter were numbered sequentially in the field as they were recovered. This reduction in the number of bones undergoing identification allowed for the entirety of the excavated bone to be examined, even if only preliminarily. In this initial investigation, focused primarily on MNI estimations, 3570 bones were identified and labelled with a sequential identification number.

Whilst undergoing the MNI identification process described above, the morphological and colour characteristics of individual bones were also recorded. A numeric code, from 1-10, was used to record the colour variation of each individual element. Table 1 provides a key to this code. It should be noted that bones which exhibited two or three colour variations on the one element, have been coded as to which colours were present
Table 1. Key for the colour code used in the assessment of all analysed bone.

Table 2. Raw data for calculation of Minimum Number of Individuals.

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(Codes 4, 6, 7, 8 and 9). The presence of surficial cracking or warping of the bone was also recorded. It must be stressed that this information has thus far only been recorded for bones that were likely MNI elements and not for the entire assemblage. It is, however, our belief that 3570 identified elements, deriving from all general areas of the body, comprise a representative sample.

**MNI Determination**

Introduced by White (1953) for the purposes of analysing faunal collections, MNI counts are employed for human burial studies where multiple, successive interments exist in one tomb. Where the skeletal remains are disarticulated, the only way to determine the numbers of individuals present is to “separate the most abundant element...into right and left components and use the greatest number as the unit of calculation” (White 1953: 397). Of the nine elements most suitable for MNI estimations at Al Sufouh, only six proved to be useful - crania, humeri, ulnae, radii, femora and tali. Crania and tali were identified only as complete or fragmentary, whereas long bones were categorised as complete, proximal, midshaft and distal. As the relationship between the latter three categories is impossible to determine, especially within such a large sample, only the category with the highest score can be used for MNI purposes. Added to this tally is the number of complete elements identified. Thus, after calculations for the minimum number of each of these elements were made, the diagnostic part of the bone and the side that provided the highest total were chosen to represent the MNI for each of the four tombs. Table 2 provides a breakdown of each possible MNI element at Al Sufouh, including statistics concerning side, diagnostic part and tomb location.
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<th><strong>Side</strong></th>
<th><strong>Diagnostic Part</strong></th>
<th><strong>Tomb I</strong></th>
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Table 2. (above and previous pages) Raw data for calculation of Minimum Number of Individuals.

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</tbody>
</table>

Table 3. Final scores for each possible MNI element. L = Left; R = Right and U = Unsided.

As Table 2 shows, the distal end of the left humerus provided the highest MNI reading, followed by the ulna, (left and right proximal end); and the radius and femur (left, proximal end). These figures have been extracted from Table 2 and presented in summary fashion in Table 3. The greatest frequencies are highlighted in bold type. The final scores for each tomb and the entire site are as follows:

Tomb I  Tomb II  Tomb III  Tomb IV = Al Sufouh
13  57  48  3  =  121

It is important to note that due to the extremely fragmentary nature of the skeletal remains from Tomb I, and the fact that the Dubai Museum had already undertaken excavations from which no bone was preserved, it is probable that the MNI estimation for Tomb I is only an absolute minimum.
**MNI Discussion**

A note on the use of the distal, left humerus as the element used in the calculation of the overall site MNI for Al Sufouh is in order. Firstly of interest is the fact that it was the same element, side and diagnostic part that provided the highest MNI figure for each of the tombs. Had the element exhibiting the highest frequency been different from tomb to tomb, the choice of which element to use for an across the site MNI would have been more difficult, particularly considering the problems of aggregation (clusters of bone) according to analytical units (e.g. archaeological strata/layers; individual tombs; or the whole site, cf Grayson 1984: 27-49). That it was consistently the distal end of the left humerus which provided the highest scores is likely to be the result of two interacting factors. First, this end of the humerus is a compact, solid diagnostic part which is easy to side, even in fairly small fragments, due to its many identifiable features. This was, for example, noted by Wells in his study of the Early Saxon urn-field at Illington, Norfolk, who wrote “Certain fragments tend to recur constantly and to be especially helpful for purposes of identification. These were...the head and trochlea surface of the humerus” (Wells 1960: 33). Second, the consistent preservation pattern of the distal, left end of the humerus probably reflects physical aspects of the burial practices at Al Sufouh which ensued the favourable preservation of this diagnostic element within each interment area.

A comparison of the preservation ratios of the five highest scoring MNI elements in each tomb provides an interesting pattern. Fig. 40 charts the frequencies of the humerus (site MNI element) as against four other elements from various parts of the body (radius, ulna, femur and talus). The scores charted in this figure result from dividing the MNI scores for each element (as presented in Table 2) into the score for the humerus, thereby providing a ratio of humeri against each other element. In this analysis it is postulated that similar treatment of the dead, even in distinct episodes, will result in similar patterns of element preservation, and it is thought that these patterns will override differentiations caused by variation in the body weight, age or health of each individual. Thus, if a certain burial ritual favours the preservation of the humerus over other elements, then it is this element that will be best preserved whenever the same ritual is performed. It follows then that when looking at several elements, the ratio of preservation between these elements, as presented in Fig. 40, will be similar as a result of the same ritual. The divergence of Tomb I from the pattern duplicated in Tombs II and III is noteworthy and will be discussed in the concluding section of this chapter.

**Age and Sex Determination**

No attempt was made at sexing the skeletal remains from Al Sufouh beyond noting simply that both male and female remains were recovered from all four tombs. This information was attained through a comparison of a selection of the Al Sufouh elements with tables presented in White (1991). Only very general age determinations were attempted using the
categories of ‘adult’ and ‘sub-adult’, the latter defined by the state of epiphyseal closure and/or the formation and eruption of the teeth (White 1991: 308-313). Of the 121 individuals recovered from Al Sufouh, 90 were adults and 31 sub-adults. Table 4 shows that both adults and sub-adults were present in each tomb. Ante-mortem tooth loss and resorption of tooth sockets in adult mandibles suggest that the elderly comprised a portion of the adult population.

### Determination of Body Treatment - Cremation vs Non-cremation

Duality in burial practice, represented by differential body treatment (cremation vs non-cremation) is an important feature of the mortuary ritual evident at Al Sufouh. As such it was considered important to understand the changes in appearance that bone undergoes when heated, so as to enable the quantification of cremated individuals vs those inhumed.
Table 5 presents the raw scores for each MNI element and what percentage was recognised as burnt or unburnt. The determination of burnt vs unburnt, however, is not as straightforward as it may sound.

In most cases the colour and texture of bone will show whether it has been burnt or not. However, changes in the surface colour of bone only begin to occur between 185° and 285° C. (Buikstra and Swegle 1989: 248). Thus, in a low-heat area of a pyre (e.g. on the edges), or in amongst overlying limbs, temperatures may not reach those required for colour change. This causes difficulty when visually assessing whether an element belonged to a cremated or unburnt individual. This is a problem rarely faced by burial archaeologists as interments in one tomb group from one era do not normally contain cremated inhumations and cremations. Nonetheless, distinctions between burnt and unburnt bone could only be made visually and in fact only a small percentage proved difficult to determine. Table 5 shows that the percentage of burnt elements varied very little, from 81.5% of the humeri to 89.9% of the tali (an 8.4% range). As these elements derive from different extremities of the body, it is probable that other elements would have shown similar percentages, suggesting that entire corpses were being cremated rather than parts thereof. An average 85% of the bone from Al Sufouh was burnt.

Within individual tombs, however, there is considerable variation in the percentage of burnt vs unburnt remains. Table 6 shows that most of the cremated remains came from Tombs II and III, with a much lower quantity in Tomb I. Tomb IV had such a small quantity of fragmentary and often unidentifiable bone that quantification was pointless. As for Tomb I, human remains from the lowest layers were unburnt, while the only cremated bone was concentrated in the upper levels of Chamber 2, the only chamber that appeared relatively undisturbed. As such it can be concluded that Tomb I was used primarily for the interment of uncremated individuals, with a small amount of cremated bone being deposited in a stratigraphically later deposit.
The fact that a small percentage of bone from Tombs II and III remained apparently unburnt relates no doubt to the problems discussed earlier concerning colour change and temperature, but the positioning of the corpses in relation to heat and oxygen may also be a contributing factor. Certain elements may have been outside the flames, remaining unburnt when in fact they belong to corpses that were cremated.

Following is a presentation of the evidence relating firstly to inhumation, and secondly to cremation, at Al Sufouh.

The Inhumations

As presented above, only 15% of the human remains from Al Sufouh were inhumed as opposed to cremated. These remains came from Tomb I, primarily chambers 2, 3, 4 and 6, and were in very poor condition. Their fragmentary nature meant that it was almost impossible to exhume any as complete bones. Of the thirteen (MNI) corpses from Tomb I, eleven were inhumations rather than cremations, and of this total, five were sub-adults. The deposition of the skeletal remains in Tomb I is discussed in the previous chapter.

This MNI estimate from Tomb I has implications for other Umm an-Nar sites in the region. Skeletal analyses, even in preliminary form of MNI estimations, are sadly lacking for other excavated tombs of the Oman Peninsula, making comparisons difficult. It would be most interesting to compare the Al Sufouh MNI estimates with those of Hili tombs C and J, as these are structurally similar to Tomb I. Unfortunately, apart from the fact that fragmentary remains were present in the Hili tombs, no further information is available on the skeletal remains from either of these tombs. With a diameter of 11 m., Tomb I on Umm an-Nar had c. 21 interments while Tomb V (6.5 m. in diameter) had c. 37. Hili Tomb A and Tell Abraq, on the other hand, both have interment estimates well into the hundreds. It seems likely that tomb disturbance is to blame for this this great variation in Umm an-Nar tomb population size.

The Cremated Remains

The almost 85% of human remains from Al Sufouh that were cremated constitutes a quantity unprecedented in any period in the Oman Peninsula. The term ‘cremated’, however, is often misused and needs some clarification. Technically, the term refers only to remains that exhibit "complete incineration of the organic phase and quantitative sintering. If they are not completely cremated, they should be addressed as smoked, incompletely burnt etc." (Hummel, Schutkowski and Herrmann 1988: 178). For the purposes of this report, however, ‘cremated’ or ‘burnt’ will be used interchangeably as descriptive terms for bone that has undergone any visually noticeable variation in appearance, apparently due to the effects of heat.

The rarity of cremation in the Oman Peninsula and the coinciding, unprecedented style of interment at Al Sufouh gives a particular interest to the human remains from this site. Following is a detailed presentation of
the macroscopic observations made on the cremated bone, including data on changes in the colour and morphology of the bone, fragment size as well as deposition within the four tombs. Following this data is an interpretative commentary which uses both the evidence presented and comparative material to reconstruct the possible cremation and burial practices that may have been responsible. This information, presented under the headings of body condition, pyre technology, body position, and collection/fragmentation processes, will shed light on the physical aspects of mortuary ritual. The significance of these practices and their place in the third millennium B.C. burial rituals of the region are discussed in the conclusion of this report.

**Colour variation and morphological change**
In charting the colour of the bone, through the use of the numeric code explained at the beginning of this chapter, it was hoped that information might be gathered on the condition of the bone prior to incineration, the temperatures attained by the fire, and the manner of placement of human remains at the burning site. Body condition prior to cremation and pyre temperatures are both topics around which archaeological interest in cre-
mated remains has long centred and experimental evidence, controversial as it is, remains the basis for most interpretations of these issues (Buikstra and Swegle 1989: 247). These topics will be discussed in detail, after a presentation of the evidence relating to colour and morphological change.

The photographs of burnt elements (Figs. 41-43) and the bar charts (Figs. 44-51) show that the Al Sufouh cremated bones exhibit a very high degree of colour variation. The colours range from black, through tan-brown to white, often with all three colours present on the one bone. Each MNI element is charted (Figs. 44-51) to illustrate the percentage burnt to each of the ten colour-coded categories. The proximal and distal ends of long bones are charted separately to check for possible patterns of burning according to different parts of the body. Figs. 46 and 47 present the breakdown of humeri from Tombs II and III separately, showing that the overall patterns detected across the site for various elements, are also reflected when the tombs are treated individually. Fig. 52 contrasts the percentage of bone from Tombs II and III burnt to a grey-white calcined state as opposed to brown-black. The possible significance of this comparative chart relates to fire temperature, body position within the funerary pyre and the repetition of ritual from episode to episode. These issues will be discussed in the conclusion to this chapter.

Other features noted on a selection of the Al Sufouh bones included surface cracking and possible fusion or melting. An example of calcined bone with surface cracking can be seen in Fig. 53, while transverse cracking is seen in Fig. 54. Obvious cracking patterns were noted on c. 15% of the entire collection, but it must be noted that in many cases the bone surface had exfoliated leaving little or no trace of its original condition. Two examples of bone, apparently melted or fused, are seen in Figs. 55 and 56. Less than 5% of the Al Sufouh bone exhibited such morphological change.

Fig. 44. Bar chart representing the colour codes to which all mandibles were burnt. Total number = 167 including fragments.
Fig. 45. Bar chart representing the colours to which all humeri were burnt.
Total number: proximal = 87, distal = 188.

Fig. 46. Bar chart representing the colours to which the humeri from Tomb II were burnt.
Total number: proximal = 43, distal = 99.

Fig. 47. Bar chart representing the colours to which the humeri from Tomb III were burnt.
Total number: proximal = 36, distal = 82.
Fig. 48. Bar chart representing the colours to which all ulnae were burnt. Total number: proximal = 146, distal = 37.

Fig. 49. Bar chart representing the colours to which all radii were burnt. Total number: proximal = 15, distal = 77.
Fig. 50. Bar chart representing the colours to which all femora were burnt.
Total number: proximal = 134, distal = 81.

Fig. 51. Bar chart representing the colours to which all talii were burnt.
Total number = 62 including fragments.
Element preservation
Most of the cremated bone from Al Sufouh was preserved in fragments large enough to enable identification. Almost 70% of the smaller, more compact bones, i.e. from the hands/wrists and the feet/ankles, were recovered as complete elements. 60% of crania were preserved in a condition that enabled their excavation as complete entities (usually without mandible). Of the long bones, however, only a small number were preserved complete: five humeri, six femora, six radii and three ulnae. Although this number may seem small, when this evidence is considered in the light of other cremation data, it can be seen that the preservation of any long bones as complete elements is a rare occurrence. These issues will be discussed further under the heading, 'collection and fragmentation', in the ensuing discussion.

Interpretation of evidence on cremation

Body condition prior to cremation
Much has been written on the problems of determining the state of a corpse prior to incineration (Buikstra and Swegle 1989; Stewart 1979: 59-68; Binford 1963; Baby 1954). The available evidence is derived primarily from experimental studies, either of a laboratory or replicative nature (Buikstra and Swegle 1989: 248). The importance of an accurate determination of whether a corpse was burnt dry, green (recently defleshed) or flesched lies in the implications this has for the reconstruction of funerary practices. Changes in the colour of bones, especially when burnt only to a smoked condition, together with patterns of surficial cracking and warping, especially with calcined (completely incinerated) bone, are the
Fig. 53. Cracking on a vault fragment from Tomb II, Layer 2.

Fig. 54. Transverse cracking on a long bone fragment from Tomb II, Layer 1.

Fig. 55. Melted or fused long bone from Tomb II, Layer 2.

Fig. 56. Melted or fused long bone from Tomb III, Layer 1.
1990b: 304), and went on to say that “it is this brilliant hue (very white) that offers the most reliable clue as to the temperature reached at the hottest part of the pyre” (Musgrave 1990b: 319).

The bar charts above (Figs. 44-51) show that most of the cremated elements (72.6% - 82%) from Al Sufouh were burnt to between grey and white in colour. Much bone was chalky in appearance (c. 50%), and a slightly smaller percentage (c. 30%) was homogenous in texture. This indicates that temperatures of at least c. 700-800°C., or according to Musgrave, 900°C., were reached (Musgrave 1990b: 319), and that enough oxygen was available for the burning off of most carbon. The fact that the rest of the bone was coloured between brown and black, however, indicates that such high temperatures were not reached consistently throughout the pyre (McKinley 1989a: 67; Musgrave 1990b: 319) and/or throughout the duration of the cremation episode. Brown and black colouration may also result from oxygen deprivation in parts of the pyre, resulting from the suffocation of individual elements by other elements or by the ash and fuel of the pyre itself.

Regarding fuel sources, it must be noted that reaching such high temperatures implies both a great quantity of fuel and possibly the use of hot-burning fuel, such as Acacia, a tree present in the general vicinity of the site in antiquity (Willcox 1992: 7; Willcox and Tengberg 1995). Avicennia marina and Prosopis cernaria would also have been available locally (Willcox and Tengberg 1995: 130-131). Another possible fuel source was animal dung, which was certainly in use throughout the Near East as an alternative to timber, but is also found at sites where timber is abundant (Miller 1984: 46; Willcox 1992: 6). As noted at the modern village of al-Hiba in southern Iraq, sun dried dung initially burns very hot, and then behaves somewhat like coals, staying hot for quite some time (Ochsenschlager 1993: 37). One plausible reconstruction of the funeral pyre used at Al Sufouh could involve a pyre of wood constructed around the bodies with dungcakes placed over the top, both as an added fuel and to create a more sealed atmosphere to keep heat in. This would have resembled an open kiln, in which temperatures are said to show “a very irregular flare-up of heat in the different parts of the structure” (Audouze and Jarrige 1979: 217). Conditions such as these could account for the colour variation noted in the bones from Al Sufouh.

**Body Position**

The manner in which individuals were arranged at the site of the cremation provides us with yet another window on the possible burial rituals of the ancient population. As McKinley noted, “By analysing the colour and condition of the bones within a cremation, we should get some indication of the position of the body and the tending of the fire” (McKinley 1989a: 72). In examining the cremations from Nea Mihaniona, Musgrave concluded that “The right elbow from the adult in Tomb II and the left elbow of the occupant of Tomb III were less well burnt, probably because they were poking out of the fire for a time” (Musgrave 1990b: 309). Other factors involved include whether corpses were laid above or below the fuel of the pyre, and whether they were in a prone or supine position. Wells (1960) has
macroscopic features most likely to indicate pre-incineration condition (Buikstra and Swegle 1989: 255). In discussing the results of their experiments, Buikstra and Swegle noted that, “Due to differential combustion of soft-tissue, fleshed bone developed marked variation in coloration...Dry bone showed less extreme color changes” (Buikstra and Swegle 1989: 255).

As evidenced in the photographs and charts presented earlier (Figs. 41-51), great variation in colour was noted on all elements, indicating the likelihood that they were burnt fleshed rather than dry. Examples of calcined bone from Al Sufouh showed much superficial (Fig. 53) as well as transverse cracking (Fig. 54). Cracking patterns such as these are most common in green or fleshed bone, but transverse cracking in particular has been commonly noted in fleshed samples (Buikstra and Swegle 1989: 256). A further indication that the inhabitants of Al Sufouh cremated their dead in a fleshed state comes in the form of bone that appears to be melted or fused (Figs. 55 and 56). As Krogman noted many years ago, “Where bone is deeply embedded in muscle tissue or protected by a large muscular mass, the action of heat on a bone is to produce a molten condition, characteristic of fusion by heat” (Krogman quoted in Stewart 1979: 60).

**Fire Temperatures and Pyre Technology**

The colour of burnt bone is often interpreted as evidence of the temperatures reached in a funeral pyre (Musgrave 1990b: 319). However, caution is necessary in equating colour with exact temperature. “The possibilities of concluding a definite exposition temperature from a certain stage of colour in prehistoric cremations are limited, since oxygen supply and duration of reaction cannot be reconstructed” (Lange et al. 1987: 18) and the only equations we have “depend upon the data derived from experiments where the conditions of burning and of the bones are known” (Buikstra and Swegle 1989: 248). Further complicating factors include the fact that colour variation is a direct result of the amount of carbon remaining in each bone, which is in turn dependent on the speed and duration of combustion. Some bones (either as individual elements or entire corpses) contain more body fats than others. Those with more fats will combust more rapidly, thus causing colour changes in the bony remains to occur faster than those elements with fewer body fats (McKinley 1989a: 66). Keeping these issues in mind it is perhaps wisest to acknowledge that “color alone is insufficient to identify precisely the temperature to which a tooth or bone has been burnt, although it can be used to deduce the range into which the temperature of heating falls” (Shipman et al. 1984: 313-314).

Generally accepted interpretations of colour can be outlined as follows. “Low temperatures will turn it [bone] to a brownish colour, followed by a dark-brown to black. With continuously rising temperatures the carbon is burnt to CO₂ thus leading to a bluish and finally chalky white appearance at temperatures above some 600° to 700°C...Above 700-800°C the physiological apatite crystal of the bone is changed...[leading] to a homogenous texture ...and a better prospect of preservation compared to uncremated bone” (Hummel, Schutkowski and Herrmann 1988: 179). When describing the remains from Nea Mihaniona, Musgrave considered the degree of cremation as “Excellent. Bones generally very white” (Musgrave
undertaken replicative experiments to determine the pattern of colour change undergone by various elements when placed in specific positions. The major drawback of most literature on this topic, however, is that it centres around the cremation of single individuals, rather than multiple corpses. The following examination of colour variation in the Al Sufouh skeletal remains attempts to detect body position and confirms that cremations were of multiple rather than single corpses.

As the photographs (Figs. 41-43) and bar charts (Figs. 44-51) show, there is considerable variation in the colour of the skeletal remains from Al Sufouh, ranging from black through to white. The implications of this for an assessment of fire temperatures have already been discussed, but further inferences can be drawn concerning the number of corpses involved in a single cremation event. The crucial evidence here is provided by individual bones displaying two or three different colours, often with abrupt lines defining the changeover from colour to colour, e.g. colour codes 4, 7, 8 and 9, examples of which can be seen in Figs. 41-43.

Abrupt colour changes are due to exposure to (white) or lack of exposure to (brown-black) either the flames themselves or an oxygen supply. The most likely explanation for such multi-coloured bone at Al Sufouh is that multiple individuals were being cremated in single pyre episodes, with limbs of bodies partially overlying others, thus causing abrupt changes in the amount of available oxygen and differential exposure to flames. Considering that Tombs II and III are single interment pits, as evidenced by the depositional data presented earlier in this report, and that the MNI estimations are high, it is possible that as many as 40 or 50 individuals may have been cremated in a single episode.

A final observation concerning body position is prompted by the lack of any patterning when looking at the colours of individual elements. If there were strict rituals centred around the positioning of corpses according to a specific orientation, one may expect to find the same bone in each individual burnt to the same or similar colour. Thus, if skulls were all pointing east on a pyre then they would probably all have been in a similar position with respect to the flames and heat and thus display similar burning patterns. The lack of such regularity in colour variation indicates the possibility that bodies were lain over each other fairly randomly without reference to any specific orientation point and without detailed attention to their physical relationship to each other. It should be noted, however, that as the precise conditions (i.e. wind, temperature, humidity etc.) can never be reconstructed, commentary on issues such as body position must remain speculative.

**Evidence for the repetition of ritual**

A final, colour-related point stems from a comparison between Tombs II and III, which contained the most cremated material. The pie charts in Fig. 52 contrast the percentages of bone burnt white-grey as against brown-black in each tomb. These charts show that there is only a small variation (12.2%) in the amount of white-grey and brown-black bone in each tomb. This suggests a great degree of similarity between the burning episodes which they reflect (on the assumption that the two tombs are repositories
for bone which originated in distinct cremation events). The 12.2% variation may be the result of the same cremation practices being undertaken on separate occasions when differing weather conditions (wind, temperature); fuel availability; or numbers of individuals being cremated caused variation in the carbon content left in the bones. If this is accepted then it can be further surmised that cremation episodes were a repeated ritual, possibly even within a single generation. The similarities within the archaeological evidence, both in the bone remains presented here, and the depositional evidence discussed earlier, suggest a common fund of knowledge and a parallel response to a situation that can only have been the result of common participation or observation by the individuals who prepared each cremation ritual.

Possible support for this hypothesis comes from the comparison presented above (Fig. 40) between the preservation frequency of the humerus (MNI element) as against four other elements from various parts of the body (radius, ulna, femur and talus) in all three tombs. As discussed, comparisons of these frequencies underscore the similarity between the skeletal deposits in Tombs II and III, which contrast with those from Tomb I. The fact that Tombs II and III exhibit very similar ratios between the humeri and each of the other elements on a consistent basis again indicates that they are likely to reflect similar or identical practices, suggesting that the cremations at Al Sufouh were a repeated ritual. A chart such as this highlights: 1) the quantity of corpses involved in the cremation; 2) the process of collection and removal of the cremated remains from the pyre to the place of inhumation; and 3) the fragmentation and hence recognisability of the bone elements that remain. Regarding the first point, it may be suggested that the consistent ratios illustrated indicate that complete corpses were being incinerated rather than parts thereof. If only partial bodies were being cremated, i.e. if individuals had died away from the site and been brought back after some time or inhumed elsewhere prior to cremation, one would not expect identical preservation of the bony elements of each corpse, nor would one expect to find such a large quantity of hand and foot bones as were recovered at Al Sufouh. The latter two points, collection and fragmentation are discussed in detail below. These also show that very similar actions were carried out in the cremations represented by Tombs II and III.

Collection and fragmentation
The further point raised by Fig. 40 introduces another issue in the consideration of cremation practices at Al Sufouh - the collection of the funerary remains (including skeletal material and funerary goods) from the pyre after burning and their relocation for final interment. In many ways this is related to fragment size, the evidence for which was presented above, and thus the two will be discussed together.

During cremation there are certain points at which bone is likely to become fragmented. “Movement of the pyre during tending would lead to break-up of the hot, brittle, heat fractured bone, as would the weight of any added wood or falling burnt timbers, i.e. much fragmentation of the bone would take place on the pyre” especially once it began to collapse (McKinley
Fragmentation may also be intentional, involving the mechanical break up of the cremated remains, where they may be “simply crushed with a stone after they had cooled, in order to get them into the burial container or to make them easier to handle” (Gejvall 1963: 470). The size of the resultant fragments, together with other elements of the cremation ritual, have a bearing on collection processes and what percentage of bone in fact reaches its place of final deposition. “Certain areas of the body may survive the cremation process better than others and some bones may thus be more likely to be collected, though not necessarily deliberately.” (McKinley 1989a: 68). The collection of remains had doubtless to wait for the funeral pyre to cool, a lengthy process, and was dependent on either ritual and/or expediency. In the process of collection at Nea Mihaniona and Derveni, “Great care was taken by the mourners to collect as much as possible of the burnt skeletons. Evidence for this comes from the fact that most regions [of the body] were represented and that the total amount collected was impressive” (Musgrave 1990b: 309). Thus the size, appearance and fracture patterns of the cremated bone reflect certain physical aspects of the cremation ritual.

Judging by the descriptions given in many burial reports, the bone remains from Al Sufouh are preserved in relatively large fragments (Musgrave 1990a, 1990b; McKinley 1989a; Gejvall 1963 and Wells 1960). Musgrave describes the cremated bony remains from Macedonian tombs in terms such as, “an enormous chunk of femur 26 cm long” and “one of the most extraordinary pieces I have ever seen: the whole back of the skull preserved intact. ...However it was burnt, the preservation of such a bowl-like and easily shattered piece remains a mystery” (Musgrave 1990a: 276). As noted above, the Al Sufouh collection contains complete skulls, six complete femora, five complete humeri, six radii and three complete ulnae, as well many complete vertebrae and a majority of whole hand and feet bones. This would therefore seem to be an extremely well preserved collection, which could indicate a number of things -

1) that the pyre was constructed and the bodies positioned in such a way that there was relatively little fragmentation of the bones as the fire burnt down and the pyre collapsed, and/or
2) that the primary fuel for the fire was not heavy logs of wood (which break down and collapse, splintering and thus fragmenting the bone) but possibly dung, as mentioned earlier, in which case the bodies may have remained more intact, and/or
3) at the time of collection, no intentional mechanical fragmentation of the bone was undertaken, and gentle handling in the relocation allowed for good preservation of individual elements, and/or
4) that the cremated remains were relocated directly to their primary and final place of inhumation, as secondary relocation of the skeletal remains would surely have resulted in further, although not purposeful fragmentation, and the loss of smaller elements such as the hand and feet bones. This point gains much support from the deposition of the funerary furniture, discussed in the previous chapter.
The recovery of what are apparently items of pyre debris - burnt farush fragments, burnt sand and shell - as well as loose microbeads and many hand and feet bones, from all four of the tombs is a further indication that the collection process was thorough, involving the scooping up of material, presumably via the use of some tool or receptacle, to enable relocation. The appearance and deposition of the remains in situ can also be cited in support of this. In fact, it seems that in the case of Al Sufouh, the good state of preservation of a relatively complete collection may enable these remains to yield more information than cremated remains are traditionally thought to be capable of.

Conclusion

In conclusion it can be suggested that Tomb I was used primarily for the interment of uncremated individuals, who would have originally been placed in all chambers. When cremation began to be practiced, some remains were put inside the tomb, preserved in Chamber 2, but most individuals were interred into the cremation pits, Tombs II-IV, dug into the sand outside Tomb I. These interments pits are likely to be the result of distinct cremation episodes.

A more detailed study of the human remains from Al Sufouh encompassing age and sex determinations; the identification of pathologies and evidence of occupational stress will eventually be carried out by Prof D.L. Martin. Radiocarbon dating (AMS) is currently being undertaken on bone from each of the four interment areas. Samples originating from both the upper and lower layers of each tomb have been submitted and should provide a good indication of the temporal relationship between tombs. Stable nitrogen, carbon isotope analyses and trace element analyses of femur samples are being undertaken by Dr. Kaare Lund Rasmussen at the University of Odense in Denmark. It is hoped that indications of diet and health will be obtained from these analyses, providing us with information on subsistence strategies and resource availability at Al Sufouh.
Ceramics

A total of 63 complete or semi-complete vessels, 12 rim/neck sherds, 6 base sherds, 2 large body sherds and 290 tiny ceramic flakes were found in the tombs of Al Sufouh. Fine black-on-red painted ware, characteristic of tombs dating to the Umm an-Nar period, comprised the majority of vessels found, but incised grey ware, black-on-grey ware and some apparently domestic Umm an-Nar pottery was also present.

Analysis of this ceramic corpus initially involved the grouping of vessels into broad categories primarily according to ware, and secondarily based on shape. In each ware category comparisons were drawn with other published tomb groups dating to the second half of the third millennium. In so doing it became clear that few Umm an-Nar sites have been fully published and illustrated, thus detracting from the meaningfulness of such inter-site comparisons. Affinities between sites, or lack thereof, may be as much a result of incomplete data sets, as of true regional or chronological trends. This should not, however, lessen the validity of the work presented here, as it is only by slowly piecing together the available ceramic evidence that a coherent picture of regional and chronological inter-relations during the Umm an-Nar period can begin to be formed.

What follows is a presentation and discussion of the vessels recovered from both the Dubai Museum and the University of Sydney excavations. These are presented primarily according to categories based on fabric and form. It was, however, also thought important to include a visual presentation of the ceramic vessels which formed the corpus in each individual interment area, due to the fact that Tombs II, III and IV are likely to be single event depositions and therefore comprised of vessels that were in use at the same time. As a result, a tomb by tomb presentation of the Al Sufouh pots at a scale of 1:4 has been included at the end of this chapter (Figs. 129-132).

Included at the close of each ware category discussion are 1:2 line drawings of each vessel, accompanied, where possible, by photographs in a similar scale. Each illustration caption includes data on the provenience, dimensions, fabric, surface condition and decoration of each vessel. The abbreviations used are explained in Table 7 below.

Table 7. Key to the abbreviations used in the Al Sufouh ceramic vessel descriptions.
* As the vessels often transcend individual layers, the layer number assigned indicates the layer being excavated when the vessel was removed.

<table>
<thead>
<tr>
<th>DM 47</th>
<th>Ch</th>
<th>Layer</th>
<th>E</th>
<th>N</th>
<th>Elev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registration Number - DM: Dubai Museum Exc. AS: Univ. of Sydney Exc.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ht: 9.5 cm.</td>
<td>RD: 4.6 cm.</td>
<td>BD: 6.1 cm.</td>
<td>MD: 9 cm.</td>
<td>HMD: 5 cm.</td>
<td></td>
</tr>
<tr>
<td>Maximum height of vessel.</td>
<td>Rim diameter.</td>
<td>Base diameter.</td>
<td>Maximum diameter of body.</td>
<td>Height at point of maximum diameter.</td>
<td></td>
</tr>
</tbody>
</table>

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Where information in any of these categories is unavailable, the space will simply be left blank, and where a measurement is impossible to provide due to the incompleteness of the vessel, "-" will be used. A list of closest parallels, where applicable, will be provided after each vessel description.

**Fine black-on-red ware (Figs. 57-107)**

The majority of the fine black-on-red funerary vessels from Al Sufouh can be divided, according to shape, into two broad categories: Group I - round shouldered to globular bodied vessels with flat or occasionally accentuated bases; short, broad necks; and everted rims; and Group II - canister like vessels with high shouldered to barrel-shaped bodies; broad, flat bases with short necks; and strongly everted rims. It must be noted, however, that as with most taxonomic divisions, it is always difficult to draw a line between various groups and sub-groups. If drawings of the Al Sufouh vessels were laid out in a line a continuum of variation from one end to the other would be apparent, with very different vessels at either end of the spectrum. Thus it should remembered that these divisions are loose and occasionally overlapping. Furthermore, some vessels do not fit into the groups proposed. Table 8 places each vessel in its appropriate category. The left, central or right alignment of each vessel number is intended to give some sense of the continuum of variation present in each group by clustering vessels with shared attributes. Vessels placed in the lowest line are those which belong generally to that group but do not fit easily into the proposed sequence of variation.

Figs. 57-107 illustrate the vessels from each Group in the same order as they appear in Table 8. As explained above, vessel descriptions, locational details, dimensions and parallels appear next to each illustration. Figs. 129-131, however, reproduced at a smaller scale (1:4), illustrate all the vessels from each tomb group as a unit, with the left to right sequence representing their stratigraphic relationship with one another, i.e. vessels from the surface layers in the top left hand corner as opposed to those from the lowest layers in the bottom right.

**Group I - Round shouldered-globular vessels with flat or accentuated bases (Figs. 57-80)**

Looking first at Group I, a division emerges between vessels with defined, offset or button bases, Type A, and those with flat bases, Type B. Decoration is poorly preserved on most vessels in this group, but those with some of the original surface still intact attest to the use of a reddish slip or wash overlain by dark painted decoration in the form of encircling horizontal bands enclosing multiple chevrons, primarily around the shoulder. A fine, well-levigated, orange-red paste with no visible inclusions or voids is the

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1 This general division, arrived at through an independent analysis of the Al Sufouh material, is mirrored in the distinctions noted by Cleuziou and Vogt whilst examining the corpus from Tomb A at Hili North (1985: 260).
Table 8. Categorisation of the fine black-on-red ceramic vessels from Al Sufouh.

<table>
<thead>
<tr>
<th>Group I.A</th>
<th>Group I.B</th>
<th>Group II.A</th>
<th>Group II.B</th>
</tr>
</thead>
<tbody>
<tr>
<td>AS 3903</td>
<td>AS 3576</td>
<td>AS 3903</td>
<td>AS 3903</td>
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<tr>
<td>AS 12048</td>
<td>AS 9929</td>
<td>AS 10645</td>
<td>AS 10645</td>
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<td>DM 48</td>
<td>DM 50</td>
<td>DM 51</td>
<td>DM 51</td>
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<tr>
<td>AS 9248</td>
<td>AS 10640</td>
<td>AS 7349</td>
<td>AS 7349</td>
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<tr>
<td>DM 36</td>
<td>DM 56</td>
<td>DM 33</td>
<td>DM 33</td>
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<tr>
<td>DM 55</td>
<td>AS 8435</td>
<td>AS 7348</td>
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<td>DM 37</td>
<td>AS 9245</td>
<td>DM 33</td>
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<td>DM 8</td>
<td>AS 7347</td>
<td>DM 29</td>
<td>DM 29</td>
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<td>DM 57</td>
<td>DM 51</td>
<td>DM 33</td>
<td>DM 33</td>
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<td>DM 80</td>
<td>DM 50</td>
<td>DM 51</td>
<td>DM 51</td>
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<td>DM 49</td>
<td>DM 50</td>
<td>DM 51</td>
<td>DM 51</td>
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<tr>
<td>DM 9</td>
<td>DM 101</td>
<td>AS 3576</td>
<td>AS 3576</td>
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<tr>
<td></td>
<td>AS 9929</td>
<td>AS 9244</td>
<td>AS 9244</td>
</tr>
</tbody>
</table>

prevailing fabric, with some variation in colour towards an orangy-buff or tan hue noted in some examples. Vessel AS 3903 (Group I.A, Fig. 57), unusual by virtue of its flared disc base, is also notable for its paste which is characterised by mica inclusions and tiny voids. Shapes similar to this are more commonly found in the imported Grey ware repertoire. Both DM 101 and AS 9929 (Figs. 79 and 80) are related to Group I.B but do not fit comfortably into the general sequence proposed.

It is important to note some general points which relate the Group I vessels to those from other sites. Individual parallels, found at almost every site with a completely published corpus of grave pottery are possibly less relevant than more general, inter-site comparisons. Probably the greatest number of parallels for the Group I vessel shape occurs in Ajman Tomb B (Haerinck 1991; Al-Tikriti 1989), where globular vessels predominate (Haerinck 1991: 11). Few of the decorated vessels from Ajman (Al-Tikriti 1989: Pl. 39, 40; Haerinck 1991: Fig. 5) can be cited as parallels, however, the majority having either an elongated, pear-shaped body or a maximum diameter below the mid-point of the vessel body, a characteristic possessed by none of the A1 Sufouh vessels.

The number of globular vessels from Umm an-Nar island was small and showed very little similarity to those from Al Sufouh. Most of the Group I style vessels on Umm an-Nar came from Tomb V (Frifelt 1991: Figs. 148-155; 161-168) and possessed much narrower and more
elongated necks than the Al Sufouh vessels, although they show a generally similar repertoire of decorative motifs consisting primarily of multiple, hatched chevrons enclosed by horizontal encircling bands. The lack of similarity between Umm an-Nar and Al Sufouh is surprising in view of the fact that Umm an-Nar represents one of the major coastal sites dating to the latter half of the third millennium, and, with only c. 150 kms. separating the two sites, one might have expected closer parallels. The possible cultural and chronological significance of this dissimilarity will be discussed in the conclusion of this section.

Looking to the inland Umm an-Nar sites, parallels can be found primarily in the tombs of Hili. The ceramic remains from ‘Amlah and Bat are often too fragmentary to be adduced as parallels, especially where overall shape is concerned. Hili Tomb B shows few parallels to the Group I vessels (Al-Tikriti 1982: Pl. 90.A-C - rim sherds only), but several more occur in Tomb A Hili North (Vogt 1985a; Cleuziou and Vogt 1983; Vogt unpub.). Over 50% of the ceramics from this tomb are domestic vessels and some very general similarities exist between the Group I vessels of Al Sufouh and some of the domestic ware ‘bowls’ from Tomb A, although these tend to be broader across the mouth and shorter in the neck (Vogt 1985a: Pl. 23, 3, 9, 10) than their Al Sufouh counterparts. Better parallels can be found in the fine wares (Vogt 1985a: Pl. 24.1; Vogt unpub. Pl. 2.6, Pl. 3.1-4, 6) but considering the large size of this corpus, very few vessels are in fact similar to our Group I.
Fig. 59. DM 48 - Group IA 1:2
Location: Tomb II
Dimensions: Ht: -; RD: -; BD: 3.2 cm.; MD: 7.0 cm.; HMD: 3.0 cm.
Parallels (Shape): - Umm an-Nar: Tomb I (Frifelt 1991: Fig. 61).

Fig. 60. AS 9248 - Group IA 1:2
Location: Tomb II; Layer 12; E 80.50; N 11.30; Elev 3.91-3.83
Dimensions: Ht: 8.3 cm.; RD: 4.8 cm.; BD: 4.0 cm.; MD: 8.6 cm.; HMD: 3.7 cm.
Well-levigated orange paste. Surface badly exfoliated. No visible decoration.

Fig. 61. DM 36 - Group IA 1:2
Location: Tomb I (outside).
Dimensions: Ht: -; RD: -; BD: 3.15 cm.; MD: 9.0 cm.; HMD: 3.5 cm.
Parallels (Shape): - Umm an-Nar: Tomb II & V (Frifelt 1991: Figs. 102, 177 = Grey ware vessel)
- Tell Abraq: Tomb I (Potts 1995).

Fig. 62. DM 55 - Group IA 1:2
Location: Tomb I (passage Chamber 1).
Dimensions: Ht: 11.0 cm.; RD: 7.0 cm.; BD: 5.1 cm.; MD: 12.1 cm.; HMD: 6.0 cm.
Parallels (Shape): - Tell Abraq: Tomb I (Potts 1995).
Fig. 63. DM 37 - Group IA 1:2
Location: Tomb I (outside).

Fig. 64. DM 8 - Group IA 1:2
Location: Tomb I, Chamber 5.
Dimensions: Ht: 6.2 cm.; RD: 3.7 cm.; BD: 3.0 cm.; MD: 7.1 cm.; HMD: 2.85 cm.
Parallels (Shape): - Umm an-Nar: Tomb I - (Frifelt 1991: Fig. 75).

Fig. 65. DM 57 - Group IA 1:2
Location: Tomb I (outside).
Parallels (Shape): - Tell Abraq: Tomb I - (Similarity only in base execution).

Fig. 135. DM 80 - Group IA 1:2
Location: Tomb I.
Dimensions: Ht: RD: BD: 4.3 cm.; MD: 10.05 cm.; HMD: 5.35 cm.
Fig. 67. DM 49 - Group IA 1:2
Location: Tomb I, Chamber 3.
Dimensions: Ht: -; RD: -; BD: 3.0 cm.; MD: 7.1 cm.; HMD: 3.0 cm.
Parallels (Shape): - Umm an-Nar: Tomb 1 - (Frifelt 1991: Fig. 75).

Fig. 68. DM 9 - Group IA 1:2
Location: Tomb I, Chamber 6.
Dimensions: Ht: 15.8 cm.; RD: 7.4 cm.; BD: 4.6 cm.; MD: 14.3 cm.; HMD: 7.6 cm.

Fig. 69. AS 7346 - Group IB 1:2
Location: Tomb II; Layer 8; E 80.60; N 10.75; Elev 4.07-4.00
Dimensions: Ht: -; RD: -; BD: 4.6 cm.; MD: 10.9 cm.; HMD: 5.2 cm.
Very well-levigated pale orange to tan paste with no visible inclusions or voids. Two well-defined striations around lower body and a well-defined burnt area on the upper body. Much surface exfoliation. Possible self-slip and the shadowy remains of a single black band.
Parallels (Shape): - Ajman: Tomb B - (Al-Tikriti 1989: Pl. 41,E)
- Hili North: Tomb A - (Vogt unpub.: Pl. 2.6; Pl. 3.6).
Fig. 70. AS 10641 - Group IB 1:2
Location: Tomb III; Layer 14; E 75.70; N 16.55; Elev 3.93-3.81
Dimensions: Ht: 11.4 cm.; RD: 7.9 cm.; BD: 4.8 cm.; MD: 12.0 cm.; HMD: 6.55 cm.
Very well-levigated orange to reddish paste with no visible inclusions or voids; badly encrusted and exfoliated surface but no obviously burnt areas.

Fig. 71. AS 5590 - Group IB 1:2
Location: Tomb III; Layer 4; E 75.80; N 16.45; Elev 4.35-4.24
Dimensions: Ht: 11.7 cm.; RD: 7.8 cm.; BD: 5.4 cm.; MD: 12.2 cm.; HMD: 5.8 cm.
Very well-levigated orange to tan paste with no visible inclusions or voids; brown to black discolouration due to burning, especially on one side of vessel where there is bad exfoliation. Surface striations around lower body and faint decoration visible in a few places.

Fig. 72. DM 12 - Group IB 1:2
Location: Tomb I, Chamber 3.
Dimensions: Ht: 12.7 cm.; RD: 8.4 cm.; BD: 4.9 cm.; MD: 12.8 cm.; HMD: 8.0 cm.
Parallels (Shape & dec' n): - Hili: Tomb B - (Al-Tikriti 1982: Pl. 71.h)
Fig. 73. AS 9930 - Group IB

Location: Tomb III; Layer 13; E 75.72; N 16.02; Elev 3.96-3.87

Dimensions: Ht: 10.0 cm.; RD: 6.3 cm.; BD: 3.6 cm.; MD: 10.3 cm.; HMD: 5.5 cm.

Very well-levigated buff to tan paste with no visible inclusions or voids. Relict streaky reddish-brown slip on exterior and inside rim. Dark brown to black multiple (4) chevron frieze between double horizontal bands on the neck and a single band below.

Parallel (Shape): - Ajman: Tomb B - (Al-Tikriti 1989: Pl. 42.A, E)
- Hili North: Tomb A - (Vogt unpub: Pl. 2.6, Pl. 3.2-4).

Fig. 74. AS 10640 - Group IB

Location: Tomb III; Layer 14; E 75.72; N 16.02; Elev 3.96-3.85

Dimensions: Ht: 11.15 cm.; RD: 8.2 cm.; BD: 4.6 cm.; MD: 12.3 cm.; HMD: 6.4 cm.

Very well-levigated orange to reddish paste with no visible inclusions or voids; surface burnt, especially on one side (blackened surface). Striations present around rim, bevelled around lower body almost forming a carination. Surface badly encrusted leaving no visible decoration.

Parallel (Shape): - Ajman: Tomb B - (Al-Tikriti 1989: Pl. 41.A, B, E)
- Hili North: Tomb A - (Vogt unpub: Pl. 2.6, Pl. 3.2-4).

Fig. 75. AS 10642 - Group IB

Location: Tomb III; Layer 14; E 76.06; N 16.82; Elev 3.95-3.86

Dimensions: Ht: 10.2 cm.; RD: 6.4 cm.; BD: 4.3 cm.; MD: 11.1 cm.; HMD: 5.8 cm.

Very well-levigated orange to reddish paste with no visible inclusions or voids. Surface badly exfoliated and with calcretions. No visible decoration. Very fragmentary vessel.

Parallel (Shape): - Ajman: Tomb B - (Haerinck 1991: Fig. 5.8).
Fig. 76. AS 8435 - Group IB 1:2
Location: Tomb III; Layer 10; E 76.31; N 16.42; Elev 4.16-4.05
Very well-levigated orange to tan paste with no visible inclusions or voids. Relict red slip over which two dark brown bands enclosing chevrons are painted. Surface of lower half of vessel fully exfoliated. Rim missing.
Parallels (Shape): - Ajman: Tomb B - (Haerinck 1991: Fig. 5.8)
- Hili North: Tomb A - (Vogt unpub.: Pl. 3.6).

Fig. 77. AS 9245 - Group IB 1:2
Location: Tomb III; Layer 10; E 75.73; N 16.55; Elev 4.07-3.97
Dimensions: Ht: 10.4 cm.; RD: 8.4 cm.; BD: 4.95 cm.; MD: 12.2 cm.; HMD: 5.95 cm.
Very well-levigated tan/buff to grey fabric with no visible inclusions or voids. Badly warped and discoloured. Striations around lower half of vessel. Surface very exfoliated leaving only small remnants of black painted decoration consisting of a single horizontal band with a chevron beneath. Incised curl present on base.
Parallels (Shape): - Ajman: Tomb B - (Haerinck 1991: Fig. 5.8).
Fig. 78. AS 7347 - Group IB 1:2  
Location: Tomb III; Layer 9; E 76.31; N 16.09; Elev 4.19-4.07  
Dimensions: Ht: 10.6 cm.; RD: 7.2 cm.; BD: 5.0 cm.; MD: 11.6 cm.; HMD: 5.90 cm.  
Orange to reddish paste with small dark inclusions, 0.1-0.2 mm. No visible decoration.

Fig. 79. DM 101 - Group IB 1:2  
Location: Tomb I (outside).  
Dimensions: Ht: -; RD: -; BD: -; MD: 10.3 cm.; HMD: -  

Fig. 80. AS 9929 - Group IB 1:2  
Location: Tomb III; Layer 13; E 76.20; N 16.18; Elev 3.97-3.89  
Dimensions: Ht: 9.4 cm.; RD: 6.0 cm.; BD: 4.0 cm.; MD: 8.3 cm.; HMD: 5.6 cm.  
Very well levigated orange to reddish paste with no visible inclusions or voids.  
Parallels (Shape): - Umm an-Nar: Tomb II - (Frifelt 1991: Fig. 117/118 - net pattern vessel).
Group II - Canisters (Figs. 81-107)

Turning to the Group II ceramics, the broad yet subtle variations in form observable make the definition of sub-groups necessary but difficult. Most vessels in this group have either high, rounded shoulders tapering to a medium-sized, flat base with a short neck and strongly everted rim (Type A, most similar to Group I.B), or else a more conical or barrel-shaped body and a broader, flat base (Type B). A few vessels fall somewhere between these categories. AS 3576 and AS 9244 (Figs. 105 and 106), each with an upright neck and sharply carinated shoulder tapering to a narrow base, are best seen as variants of Type B, as is AS 3579 (Fig. 107), which has a long, narrow neck with a strongly everted rim and a sharply defined yet rounded shoulder, tapering to a relatively narrow base. The final vessel requiring special mention is AS 9929 (Fig. 80), which probably falls somewhere between Groups I and II, with its long, straight yet slightly everted neck and round shoulders tapering to a narrow, flat base. In many ways this example resembles most closely the suspension vessels from the Hili tombs.

Decoration is rarely preserved on vessels in this Group, but in many cases the use of a red slip or wash is evident, over which traces of relict dark brown to black paint can be seen. Four canisters from Group II.B; AS 3580 (Fig. 100); AS 6978 (Fig. 98); AS 2855 (Fig. 95) and DM 47 (Fig. 99), show remnants of multiple, hatched chevrons enclosed by horizontal bands around the shoulder and upper body, often combined with bands around the neck or rim. Three vessels from Group II.A; AS 8437 (Fig. 83); AS 9249 (Fig. 82) and DM 51 (Fig. 89), show decoration around the neck and on the top of the shoulder in the form of horizontal or wavy bands; or collars of upright lines. Well-levigated, fine orange paste is the most prevalent fabric in this group, although pink and red variants also occur.

Parallels for the Group II vessels come primarily from Umm an-Nar and Hili. Looking first at Umm an-Nar island, canisters from Tombs I and II (Frifelt 1991) provide the closest parallels, although in general the Umm an-Nar canisters tend to exhibit longer necks combined with bodies which taper to a narrower base. This feature also characterises the canisters from Hili Tomb B (Al-Tikriti 1982: Pl. 71; 72 - rims only) and Tomb A Hili North (Vogt 1985a; Cleuziou and Vogt 1983; Vogt unpub.: Pls. 4, 5, 6) which, although providing several good parallels, were generally more elongated and tapering in body shape than those from Al Sufouh and often exhibited an angular shoulder carination, most similar to AS 3576 (Fig. 105) and AS 9244 (Fig. 106), two vessels which did not fit easily into the general categories devised for the Al Sufouh corpus. As a group, the canisters of Al Sufouh would have to be described as somewhat stout and squat in comparison to canisters from other Umm an-Nar sites.
Fig. 81. AS 10645 - Group IIA 1:2
Location: Tomb II; Layer 15; E 81.50; N10.95; Elev 3.80-3.73
Dimensions: Ht: 10.9 cm.; RD: 6.4 cm.; BD: 5.1 cm.; MD: 10.9 cm.; HMD: 6.5 cm.
Very well-levigated orange paste with no visible inclusions or voids. Surface discoloured to tan and grey as a result of burning, and body of vessel badly warped. No surface decoration visible.
Parallels (Shape): - Umm an-Nar: Tomb II - (Frifelt 1991: Fig. 100).

Fig. 82. AS 9249 - Group IIA 1:2
Location: Tomb III; Layer 12; E 75.68; N 15.90; Elev 4.07-3.92
Dimensions: Ht: 11.0 cm.; RD: 6.0 cm.; BD: 5.0 cm.; MD: 10.4 cm.; HMD: 6.0 cm.
Very well-levigated pale orange fabric with no visible inclusions or voids. Burning evident on base and one side of vessel. Relict deep red slip from rim to lower body and inside rim. Black band around neck, zigzag 'collar' decoration with the remnants of multiple chevrons between horizontal bands on the upper shoulder.
Parallels (Decoration): - Hili North: Tomb A - (Vogt unpub.: PI. 4.6)
- Umm an-Nar: Tomb II - (Frifelt 1991: Fig. 93, 99, 100, 101).

Fig. 83. AS 8437 - Group IIA 1:2
Location: Tomb III; Layer 10; E 75.75; N 16.43; Elev 4.19-4.10
Dimensions: Ht: 10.65 cm.; RD: 6.7 cm.; BD: 5.0 cm.; MD: 9.85 cm.; HMD: 6.85 cm.
Very well-levigated orange to reddish paste with no visible inclusions or voids.
Parallels (Shape): - Umm an-Nar: Tomb II - (Frifelt 1991: Fig. 101b)
Parallels (Decoration): - Umm an-Nar: Tomb I - (Frifelt 1991: Fig. 66).
Fig. 84. AS 7349 - Group IIA 1:2
Location: Tomb II; Layer 7; E c.80.5; N 11.0; Elev 4.04-4.01
Dimensions: Ht: -; RD: -; BD: -; MD: -; HMD: -
Very well-levigated orange to reddish paste with no visible inclusions or voids. Vessel incomplete and extremely exfoliated. No visible decoration. Too fragmentary to draw parallels.

Fig. 85. DM 56 - Group IIA 1:2
Location: Tomb I, passageway.
Dimensions: Ht: 10.8 cm.; RD: 7.0 cm.; BD: 6.1 cm.; MD: 11.2 cm.; HMD: 6.9 cm.

Fig. 86. AS 7348 - Group IIA 1:2
Location: Tomb III; Layer 6; E 75.67; N 16.92; Elev 4.355-4.31
Dimensions: Ht: 11.2 cm.; RD: 5.8 cm.; BD: 5.2 cm.; MD: 9.4 cm.; HMD: 7.0 cm.
Very well-levigated orange to reddish paste with no visible inclusions or voids. Fabric discoloured to brown, grey and black due to secondary burning. Severe surface exfoliation on one side of the vessel and no decoration visible.
Parallels (Shape): - Hili: Tomb B - (Al-Tikriti 1982: PI. 72.A)
- Hili: Tomb M - (Vogt 1985b: Taf. 53.6)
- Umm an-Nar: Tomb 1 - (Frifelt 1991: Figs. 62, 68, 71).

Fig. 87. DM 33 - Group IIA 1:2
Location: Tomb I (between Chambers 3 and 5).
Dimensions: Ht: 10.0 cm.; RD: 6.0 cm.; BD: 5.0 cm.; MD: 9.5 cm.; HMD: 6.4 cm.
Parallels (Shape): - Hili North: Tomb A - (Vogt unpub.: PI. 10.3, 4)
- Umm an-Nar: Tomb II - (Frifelt 1991: Fig. 112).
Fig. 88. DM 29 - Group IIA 1:2
Location: Tomb I, passageway.
Dimensions: Ht: 10.0 cm.; RD: 5.6 cm.; BD: 5.4 cm.; MD: 9.2 cm.;
HMD: 6.2 cm.

Fig. 89. DM 51 - Group IIA 1:2
Location: Tomb II.
Dimensions: Ht: -; RD: 8.2 cm.; BD: -; MD:12.0 cm.; HMD: -
Parallels (Shape): - Hili North: Tomb A - (Vogt unpub.: Pl. 5.4).

Fig. 90. DM 50 - Group IIA 1:2
Location: Tomb I, passageway between Chambers 2 and 4.
Dimensions: Ht: 8.0 cm.; RD: 5.3 cm.; BD: 4.2 cm.; MD: 8.9 cm.;
HMD: 4.65 cm.
Fig. 91. DM 35 - Group IIA 1:2
Location: Tomb I, Chambers 5-6.
Dimensions: Ht: 8.0 cm.; RD: 4.5 cm.; BD: 4.8 cm.; MD: 8.1 cm.; HMD: 4.8 cm.
Parallels (Shape): - Umm an-Nar Tomb I - (Frifelt 1991: Fig. 60).

Fig. 92. DM 34 - Group IIA 1:2
Location: Tomb I, Chamber 4.
Dimensions: Ht: 9.1 cm.; RD: 5.4 cm.; BD: 5.0 cm.; MD: 9.0 cm.; HMD: 5.15 cm.

Fig. 93. AS 10644 - Group IIA 1:2
Location: Tomb II; Layer 14; E 81.88; N 11.33; Elev 3.87-3.79
Dimensions: Ht: -; RD: -; BD: 6.2 cm.; MD: 11.25 cm; HMD: 8.4 cm.
Very well-levigated pinkish to orange paste with no visible inclusions or voids. Surface badly exfoliating as a result of heavy burning. Vessel incomplete and has no decoration visible.

Fig. 94. AS 6977 - Group IIA 1:2
Location: Tomb III; Layer 7; E 76.11; N 16.67; Elev c. 4.20
Dimensions: Ht: 8.7 cm.; RD: 4.7 cm.; BD: 4.4 cm.; MD: 8.2 cm.; HMD: 5.0 cm.
Very orange well-levigated paste. Deeply incised double line where neck joins body. Entire surface slightly exfoliated leaving a relict red slip on only the neck of the vessel.
Parallels (Shape): - Hili: Tomb M - (Vogt 1985b: Taf. 53.4)
- Hili North: Tomb A - (Vogt unpub.: PI. 10.6).
Fig. 95. AS 2855 - Group IIA 1:2
Location: Tomb II; Layer Surface;
E 80.45; N 11.91; Elev 4.31
Dimensions: Ht: -; RD: -; BD: -;
MD: 11.2 cm.; HMD: -
Orange-pink well-levigated fabric.
Shoulder of vessel only. Remnant of
red slip/wash around body with a
dark painted band and relict brown-
black painted crosshatching above
band. Too fragmentary to draw
parallels.

Fig. 96. DM 32 - Group IIA 1:2
Location: Tomb I, Chamber 4.
Dimensions: Ht: 10.0 cm.; RD: 5.8
cm.; BD: 5.8 cm.; MD: 10.0 cm.;
HMD: 6.2 cm.

Fig. 97. AS 3578 - Group IIB 1:2
Location: Tomb III; Layer Surface;
E 75.47; N 16.17; Elev 4.41-4.30
Dimensions: Ht: -; RD: -; BD: 6.4
cm.; MD: 11.2 cm.; HMD: 7.35 cm.
Well-levigated, fine reddish to
orange paste with no inclusions.
Surface striations present. Relict red
slip visible, but decoration
impossible to discern. Series of
diagonal depressions on inside of
vessel wall.
Parallels (Shape): - Umm an-Nar:
Tomb II - (Frifelt 1991: Fig. 101a).

Fig. 98. AS 6978 - Group IIB 1:2
Location: Tomb III; Layer 7; E
76.33; N 16.47; Elev c. 4.20
Dimensions: Ht: -; RD: -; BD: 6.4
cm.; MD: 10.15 cm.; HMD: 6.4 cm.
Very orange well-levigated fabric.
Striations around lower body and
circle/ curl on base. Relict red slip
all over exterior of body including
inside the rim and down into the
neck. Purple-black band where
shoulder meets neck with a wavy
collar below, followed by a band
then a frieze of chevrons enclosed
by a band around the mid body.
Parallels (Shape): - Hili: Tomb B -
(Al-Tikriti 1982: Pl. 71.1)
- Hili North: Tomb A - (Vogt 1985a:
Pl. 24.10)
- Umm an-Nar: Tombs 1 & II -
(Frifelt 1991: Figs. 72, 93).
Fig. 99. DM 47 - Group IIB 1:2
Location: Tomb II.
Dimensions: Ht: 9.1 cm.; RD: 4.4 cm.; BD: 6.0 cm.; MD: 9.4 cm.; HMD: 5.0 cm.

Fig. 100. AS 3580 - Group IIB 1:2
Location: Tomb III; Layer Surface; E 5.49; N 16.44; Elev 4.41-4.33
Dimensions: Ht: 10.35 cm.; RD: 4.6 cm.; BD: 5.6 cm.; MD: 9.9 cm.; HMD: 6.35 cm.
Orange/red through to tan well-levigated fabric, discoloured by fire. Striations on exterior, surface badly exfoliated. Relict red wash with a remnant of black decoration around the neck & mid-body.

Fig. 101. DM 54 - Group IIB 1:2
Location: Tomb I, passageway outside Chamber 1.
Dimensions: Ht: 10.5 cm.; RD: 5.35 cm.; BD: 5.9 cm.; MD: 9.7 cm.; HMD: 5.1 cm.

Fig. 102. AS 8436 - Group IIB 1:2
Location: Tomb III; Layer 10; E 75.50; N 16.88; Elev 4.13-4.07
Dimensions: Ht: 11.0 cm.; RD: 5.7 cm.; BD: 5.4 cm.; MD: 9.6 cm.; HMD: 6.25 cm.
Very well-levigated orange to reddish paste with no visible inclusions or voids; relict red slip around body and on base, with three black painted bands below carination, no other decoration visible due to surface exfoliation.
Fig. 103. DM 30 - Group IIB 1:2

Location: Tomb I, Chamber 3.
Dimensions: Ht: 11.0 cm.; RD: 6.3 cm.; BD: 5.6 cm.; MD: 9.4 cm.; HMD: 6.6 cm.
Parallels (Shape): - Umm an-Nar: Tomb I - (Frifelt 1991: Fig. 66)
- Umm an-Nar: Tomb II - (Frifelt 1991: Fig. 110).

Fig. 104. AS 3581 - Group IIB 1:2

Location: Tomb I; Ch 3; Layer 2; E 80.68; N 15.43; Elev 4.63-4.55
Dimensions: Ht: 10.6 cm.; RD: 6.1 cm.; BD: 6.2 cm.; MD: 9.8 cm.; HMD: 5.0 cm.
Well-levigated, fine, orange paste. Surface badly exfoliating and pitted on one side. Striations present around whole body, bevelled carination at shoulder and convex dimple on base. Vessel asymmetrical and unbalanced on base. Relict red slip on neck; lower body and inside rim. No further decoration visible.
Parallels (Shape): - Hili North: Tomb A - (Vogt unpub.: PI. 1.10)
- Umm an-Nar: Tomb II - (Frifelt 1991: Fig. 103)
- Kalba: - (Unpublished).

Fig. 105. AS 3576 - Group IIB sub-group 1:2

Location: Tomb IV; Layer 1; E 73.60; N 11.18; Elev 4.46
Orange to red to tan paste with some white inclusions. Relict patch of dark slip or paint evident from neck down to lower body.
- Hili North: Tomb A - (Vogt 1985a: Pl. 24.6; Vogt unpub.: Pl. 5.4)
- Hili Garden: Tomb 1059 - (Frifelt 1975a: Fig. 15b)
- Umm an-Nar: Tomb II - (Frifelt 1991: Fig. 114)
- Wadi Munay:t (Unpublished).
Fig. 106. AS 9244 - Group IIB subgroup 1:2
Location: Tomb III; Layer 10; E 75.50; N 16.27; Elev 4.14-4.07
Dimensions: Ht: -; RD: -; BD: -; MD: 9.4 cm.; HMD: -.
Very well-levigated orange to buff/tan paste with no visible inclusions or voids. Discolouration of surface due to fire. Neck, rim and lower body and base missing; no evidence of decoration remains.
Parallels (Shape): - see AS 3576.

Fig. 107. AS 3579 - Group IIB subgroup 1:2
Location: Tomb IV; Layer Surface; E 3.95; N 11.25; Elev 4.50
Dimensions: Ht: 9.7 cm.; RD: 6.0 cm.; BD: 4.9 cm.; MD: 10.2 cm.; HMD: 6.1 cm.
Finely levigated orange to red paste; no surface decoration visible; severe surface exfoliation; slight dimpling in interior on base and an interior ledge / carination above base not visible from the exterior. Vessel very fragmentary.

Fig. 108. Group I vs Group II fine black-on-red funerary vessels.

<table>
<thead>
<tr>
<th></th>
<th>Group I</th>
<th>Group II</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>47.1%</td>
<td>52.9%</td>
</tr>
</tbody>
</table>
Regional and chronological implications

An analysis of the presence of the black-on-red funerary ware groups across all four tombs of Al Sufouh results in the emergence of patterns which, although interesting, are difficult to interpret. Whilst Fig. 108 shows that the corpus is divided almost evenly between Groups I and II, Fig. 109 depicts the percentage presence and absence of the sub-groups in each tomb, providing us with an interesting distribution. Unfortunately only a small sample was recovered from Tomb IV making an assessment of the relationship between this and the other three tombs difficult. Nevertheless, a few observations are possible.

Tombs I and II display the greatest variety of vessel types, with all four sub-groups represented. Tomb II is linked to Tomb I in that both yielded Group I.A vessels. Tomb III is linked to Tomb II through the presence of Group I.B and II.A and B vessels while Group II.B vessels link Tomb III with Tomb IV. This pattern suggests a chronological hypothesis which is best illustrated in Fig. 110. This diagram interprets the percentages of the four ceramic groups in each tomb in terms of a proposed chronological order. Important to remember, but difficult to represent in this chart, is the fact that Groups I and II are not considered to be successive developments, but rather partially co-eval, Group I simply beginning earlier than Group II, a proposal also suggested for the red-on-black ceramic sequence at Tomb A Hili North (Cleuziou and Vogt 1985: 260-261). The right hand column shows the other sites at which the most parallels for each group have been noted.

Tomb I, the earliest, may have been used over a relatively long time, overlapping with Tombs II-IV, and therefore possessing the greatest variety of vessel types. The likelihood that Tomb I is the earliest of the four tombs was discussed in the presentation of the structure itself, for it seems unlikely that the cremation pits, placed with such obvious reference to the external walls of Tomb I, could possibly have pre-dated it. Further support

![Fig. 109. Percentage presence of black-on-red funerary ceramic groups across all four tombs.](image)
for this hypothesis and for the concurrent use of the tombs is provided by the deposition of the skeletal remains. Tomb I contains both inhumations and cremations, the latter stratigraphically post-dating the former. It is thus certain that inhumations preceded cremation at Al Sufouh as a burial ritual, but the fact that some cremated remains were found within Tomb I also indicates that the tomb was still open and in use when cremations began to be performed.

Tomb II is ceramically closest to Tomb I as both share Group I.A vessels which therefore may be the second interment area in the proposed sequence. Next comes Tomb III, with an increased frequency of Group I.B pots followed by Tomb IV, with only Group II.B vessels present. It is, of course, somewhat optimistic to think that changes in black-on-red funerary ware through time could be sensitive enough to reflect the chronological progression of tomb use at Al Sufouh, especially when interment in all four areas must have occurred over quite a short time archaeologically speaking (c. 100-200 years or less). Nevertheless it is important to attempt the detection of an internal sequence at Al Sufouh for this can contribute to the creation of a chronological framework for the Umm an-Nar period which is less dependent upon imported wares than is currently the case. In fact, since the depositional and skeletal evidence suggests that Tombs II, III and IV represent individual inhumation episodes which resulted from single cremation events, Al Sufouh is likely to be a pivotal site with respect to Umm an-Nar chronology. These tombs may, therefore, be interpreted as containing ceramics which were strictly contemporary, rather than a collection of items deposited sequentially over a number of years, as is the case with Tomb I and most tombs of the Umm an-Nar period. In this way Al Sufouh provides a rare opportunity to observe a single moment in time within the second half of the third millennium, illustrating what wares, vessel shapes and decorations were in use at that time.

With the proposed chronology of the Al Sufouh material in mind, a comparison with other sites provides us with a very preliminary view of their possible chronological inter-relationships. Looking at the right column of Fig. 110 and moving through the proposed time sequence brings us first to Umm an-Nar island. Frifelt assigned the tombs of Umm an-Nar to two chronological groups. However, the basis for this separation is unclear.

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**Fig. 110. A suggested chronological interpretation of the Al Sufouh black-on-red funerary ceramics.**

<table>
<thead>
<tr>
<th>Time</th>
<th>Group I.A</th>
<th>Group I.B</th>
<th>Group II.A</th>
<th>Group II.B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Late</td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Closest Parallels</th>
</tr>
</thead>
<tbody>
<tr>
<td>UAN T. V; UAN T. I</td>
</tr>
<tr>
<td>Ajman T. B; Hili N T. A</td>
</tr>
<tr>
<td>Hili N T. A; UAN T. I; UAN T. II</td>
</tr>
<tr>
<td>Hili N T. A; UAN T. I; UAN T. II</td>
</tr>
</tbody>
</table>
the only indication being that “the pottery from (cairns) I, II and VI con­trasts with the pottery from V, VII (and probably IV)... The first group is later than the Group with V and VII” (Frifelt 1991: 125). No explanations involving the black-on-red fine ware are given for this grouping. Indeed, only a general discussion of imported wares is adduced as evidence. As noted above the high-necked, globular vessels from Umm an-Nar Tomb V (cf. Fig. 110), are most similar to Al Sufouh Group I.A. Frifelt considers this group to be contemporary with Hili 8 Period II-a-c2, dated from 2700-2450 B.C. (Frifelt 1991: 125). Considering then: 1) the close but not exact parallels between Group I.A (Al Sufouh Tombs I and II) and the Tomb V Umm an-Nar globular vessels; and 2) the parallels between the Al Sufouh Group II.A vessels and those from Umm an-Nar Tomb I (from the second chronological group), one might then suggest a date falling between these two groups, c. 2450-2400 B.C., for the intial use of Tomb I and possibly II.

The best parallels for the Group I.B vessels, the type most frequent in Tomb III (Fig. 109), come from Ajman Tomb B. Regarding the Ajman corpus in general, Al-Tikriti states that vessels “with a bulge in the lower part of the body”, and decoration combining the wavy line with multiple chevrons “seem to be of a slightly later date than the classical Umm an-Nar pottery”. On this basis he links Ajman to the Tomb A Hili North corpus, which he feels belongs late in the third millennium (Al-Tikriti 1989: 94). As none of the parallels cited for the Al Sufouh vessels exhibit either of these features, can we then suggest that, although the use of the tombs at Al Sufouh seemingly overlaps with the use of those at Ajman, the latter may have continued in use after the former had been abandoned? A comparison with the ceramics of Tomb I at Tell Abraq (Potts 1995) confirms that this certainly seems to be the case. The Tell Abraq vessels, unusual in their small size, globular to sagging body shape, and string-cut bases, are con­sidered to date to the last century of the third millennium. As the Al Sufouh corpus shows no close parallels among any of the Tell Abraq vessels, it seems clear that the Dubai tombs predate the tomb at Tell Abraq, which is tentatively dated at c. 2100-2000 B.C.

Finally, Tomb A at Hili North probably provides the greatest number of parallels to the Al Sufouh Group II vessels. Cleuziou postulates that his Group I vessels have a long life span, beginning early in the Umm an-Nar period and continuing through to the end of the third millennium B.C., whereas Group II pots are restricted to the end of the millennium (Cleuziou and Vogt 1985: 260). As Fig. 110 shows, the distribution of the Al Sufouh vessels confirms this interpretation, both because Group I vessels appear to be predominantly earlier than Group II, and because the divisions between Groups is sometimes difficult, possibly suggesting that both types were in use at the same time. The lack of any very close parallels, however, be­tween the Group II canisters of Tomb A and those of Al Sufouh, may sug­gest that Al Sufouh was not in use as late as Tomb A, a probability already suggested by the Ajman parallels.

In conclusion, much more work needs to be done on formal varia­tion in black-on-red fine wares with the aim of creating an independent, locally-based ceramic sequence with which to seriate Umm an-Nar tomb use. Such a study is presently in progress, as is an examination of the
relationship between form and decoration in Umm an-Nar ceramics (Benton: forthcoming PhD thesis). To sum up, the general ceramic comparisons made between Al Sufouh, Ajman, Hili, Tell Abraq and Umm an-Nar seem to suggest that there are similarities in the black-on-red funerary wares from all of the sites, as well as distinct variation. The presence of very similar categories of fine wares in all tombs of the Umm an-Nar period provides an image of strong cultural unity across the peninsula, yet the subtle variations in the execution of form and decoration indicate the existence of distinct, regional styles. This holds true not only for the black-on-red fine wares, but indeed for almost all of the physical manifestations of funerary ritual typical of the latter half of the third millennium.

A Principal Components Analysis of Morphological Variation in the Al Sufouh Black-on-red Ceramic Corpus

After the completion of the above text concerning the black-on-red Al Sufouh ceramics, the opportunity arose to undertake a computer-aided analysis of the black-on-red funerary vessels, primarily through the active and continuing support of Emeritus Professor R.V.S. Wright (University of Sydney). The major aim of this analysis was to detect morphological variation within the corpus of black-on-red funerary pots and to test the validity of the ceramic groupings presented above.

Methodology
The choice of which vessels to include in this analysis was based solely on preservation and only pots with a complete profile were included. Of the 51 black-on-red vessels found at Al Sufouh, 36 possess complete profiles and were therefore included in the analysis. As described by Wright (Benton, Grave, Robinson and Wright 1992/3: 93), the first step is to create a database of measurements relating to the shape of each vessel. This is achieved by digitising the profiles of each pot, which results in the capture of 160 horizontal and equidistant measurements from the midline to the outer edge of the vessel. The height of the pot is not included as a variable and the vessels are automatically scaled to the same height. The 160 measurements are then subjected to a Principal Components Analysis (PCA), and the results plotted on two scattergrams. The first scattergram (Fig. 111), is the plot of principal components 1 (x-axis) & 2 (y-axis). The second (Fig. 113), is a plot of the 3rd (x-axis) and 4th (y-axis) principal components. Ommision of the height variable from the analysis means that shape, rather than height differentiation, is responsible for the resulting order evident in the results.

Results and Discussion
For the purposes of the PCA, the 160 measurements which describe the shape of each vessel become the variables to be analysed, and the vessels themselves become the objects. Table 9 presents both the eigenvalues for
Table 9. Eigenvalue scores and percentages of the first four Principal Components.

<table>
<thead>
<tr>
<th></th>
<th>1st PC</th>
<th>2nd PC</th>
<th>3rd PC</th>
<th>4th PC</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eigenvalues</td>
<td>91.14</td>
<td>38.23</td>
<td>17.22</td>
<td>6.31</td>
<td>152.9</td>
</tr>
<tr>
<td>%</td>
<td>56.96</td>
<td>23.89</td>
<td>10.76</td>
<td>3.94</td>
<td>95.55</td>
</tr>
</tbody>
</table>

Each component and their calculated percentages. From a possible eigenvalue total of 160, representing the total variation within the dataset, the first four principal components account for a 152.9 or 95.56%. Such a high percentage means that almost all variation is accounted for, and of the 95.56%, 80.85% is accounted for just in the first two components. These high eigenvalue scores mean that the PCA has captured all significant formal variation in the Al Sufouh corpus.

Fig. 111 is a scattergram plotting the vessels according to the first two principal components. The x-axis represents the first principal component, which places vessels in a sequence according to their volume as represented by mid-body shape. AS 9245, at the far right of the plot exhibits the most globular body form and has the greatest volume. At the other end of the spectrum is AS 7348, which has the smallest volume and is characterised by almost straight, conical sides. This feature of mid-body shape accounts for 57% of variation. The major variable creating the dispersion of vessels along the y-axis of the second principal component is the relationship between rim/neck and base. At the top of the scattergram is DM 47, which has a very broad base, combined with a narrow neck and rim. At the other end of the spectrum is AS 12048, which exhibits a very narrow base in relation to its broad mouth.

In order to test the validity of the suggested groupings it was necessary to code each vessel according to the group in which it was originally placed. Fig. 112 plots the vessel identification numbers with an accompanying shaded code representing the groups (I.A, I.B, II.A and II.B) to which it belongs. The results illustrate that most Group II.B vessels stretch diagonally along the upper left portion of the plot. Next, in diagonal succession moving right, comes Group II.A and finally Group I.B which, although somewhat more dispersed, still occupies only the lower right-hand portion of the graph. Some vessels require special comment (see below), but the overall trend of the scattergram confirms to a large extent the groupings proposed earlier in this chapter. The fact that the bands of division run diagonally through the chart indicates that the groups originally created took into consideration the most significant components of morphological variation. The fact that these diagonal bands are not clearly separated from one another reflects the continuum of variation which is characteristic of the Al Sufouh corpus.

AS 3580 and AS 3581 require special comment. Both vessels were originally assigned to Group II.B, but according to the PCA analysis, they relate more closely to Group I.A. Possibly of more importance, however, is the fact that Group I.A vessels are scattered fairly randomly throughout the plot, and do not group together according to the variables that prove to be so significant for the rest of the corpus. The plotting of the 3rd and 4th principal components onto a scattergram (Figs. 112 and 114) somewhat
Fig. 111. Principal Components Analysis scattergram of the first two principal components. Vessels plotted.
Fig. 112. Principal Components Analysis scattergram of the first two principal components. Groups plotted.
Fig. 113. Principal Components Analysis scattergram of the 3rd and 4th principal components. Vessels plotted.
Fig. 114. Principal Components Analysis scattergram of the 3rd and 4th principal components. Groups plotted.
clarifies this anomaly. The x-axis represents the 3rd principal component which arranges the vessels according to the relationship between the neck and the base. Vessels plotted to the far left are those with constricted necks and bases combined with a globular body. Those to the right have a broad neck and shoulder, relatively small body and an unconstricted base. On this scattergram, Group I.A forms a very coherent group in the mid left portion of the plot. The original criterion used in the creation of Group I.A was primarily the accentuation of the base, which is the main emphasis of the third principal component. A possible reason why base form differentiation only scored within the last 20% of variation (i.e. PC 3) may be that for the other three groups bases are certainly not primary distinguishing characteristics, with upper body form being of much greater significance. This fact also explains the lack of cohesive grouping evident in Groups I.B, II.A and II.B (Fig. 114), since base form in these three groups is not a significant variable.

A final issue to be discussed concerns the vessels that were difficult to assign to a group in the original categorisation. DM 9 falls into two very different areas according to the two scattergrams. Based on the first two principal components DM 9 (Figs. 111 and 113) falls in closely with Group II.B/A vessels, but when the third and fourth components are used (Figs. 112 and 114), it falls within the Group I.A region, although somewhat distant from the main cluster. According to both scattergrams, AS 9929 appears to be related more closely to Group II.A and AS 3579 to Group II.B. It is interesting to note that the three vessels which were difficult to assign to a specific group earlier in this chapter ended up at either end of the y-axis of the 4th component. As this component accounts for very little variation, it can be suggested that the distinguishing features of these vessels are unrelated to most of the Al Sufouh vessels, making them difficult to assign to a specific group.

Conclusion
From the results presented above it is apparent that the multivariate analysis of black-on-red funerary ceramics from Al Sufouh consistently confirmed the categories proposed at the outset of this chapter. Group I and II clearly separate out from one another, and despite some interweaving, the subcategories were also substantiated.

Domestic ware (Figs. 115 and 116)

Unlike Tomb A at Hili North where 50% of the ceramics consisted of domestic pottery, only two vessels of this type were recovered at Al Sufouh. The first example, DM 53 (Fig. 115), is a small, hand-made cup with few close parallels, and the second, DM 25 (Fig. 116) a bowl decorated with a wavy band. The closest parallels for this vessel comes from Period IIlf at Hili 8, dated to c. 2200 B.C. (Cleuziou 1980: 24; 1989: 78).
Fig. 115. DM 53 1:2
Location: Tomb I, Chamber 2.
Dimensions: Ht: 3.9 cm.; RD: 5.6 cm.; BD: 2.6 cm.; MD: -; HMD: -

Fig. 116. DM 25 1:2
Location: Tomb I, Chamber 2.
Dimensions: Ht: 4.7 cm.; RD 11.15 cm.; BD: 4.85 cm.; MD: -; HMD: -
Parallels (Shape): - Hili: Tomb N - (Haddu 1989: PI. 11)
- Hili 8: (Cleuziou 1978/79: Pl. 21 - although these bowls are more upright with a groove around the rim)
- Hili 8: Phase f - (Cleuziou 1978/79: Fig 28.f - similar rim treatment)
- Hili 8: Period II.f (Cleuziou 1989: Fig. 30.3-4).

Bottles (Fig. 117)

Only one vessel, AS 9243 (Fig. 117), is bottle shaped. It has a round, almost spherical body; rounded base; and a narrow neck flaring to an everted rim. The fabric is tan to buff with a medium density of voids. The surface is slipped with a streaky brown wash over which dark brown paint is evident. Decoration, confined to the almost horizontal plane of the shoulder, consists of two independent sets of double, multiple chevrons, enclosed by single horizontal bands. The best parallel is an upper body sherd, described as being black-on-red, from the Bat necropolis (Frifelt 1975a: Fig 30 c), while another good parallel derives from Tomb N at Hili, only a photograph of which is published (Haddu 1989: Pl. 5.2). Other bottle shapes generally tend to have some carination defining the shoulder, with vegetal motifs a popular form of decoration (see vessel parallels for references). Harappan affinities are often adduced for these vessels (Cleuziou and Vogt 1985: 262; Vogt 1985a: 28), but their relationship to the hatched bottles of the Al Sufouh type is unclear.

Miniature Vessels (Fig. 118)

AS 10643 (Fig. 118), the only miniature vessel found at Al Sufouh, is wheel-made and decorated in the typical black-on-red style. No close parallels exist for its unusual shape, with offset base, sagging body and broad neck, but a generally similar piece is known from Tomb B at Hili (Al-Tikriti 1982: Pl 77A). A large group of miniature vessels, found in Tomb A Hili North (Vogt 1985a: 31, Pl. 27.1-7), was manufactured in all fabrics including black-on-grey, incised grey, domestic and red fine ware. Of the black-on-grey ware from Al Sufouh, three vessels are in fact miniature, all less than 7 cm. in height (Blackman, Méry and Wright 1989: 66). These vessels will be discussed below when the imported grey ware is presented.
Fig. 117. AS 9243 1:2
Location: Tomb II; Layer 12; E 81.25; N 10.41; Elev 3.96-3.84
Dimensions: Ht: 12.0 cm.; RD: 4.9 cm.; BD: -; MD: 12.4 cm.; HMD: 5.4 cm.
Very well-levigated buff to tan paste with a medium density of small voids. Light burning apparent on one side of the vessel. Relict horizontal streaky brown wash all over vessel with brown irregular chevrons on the shoulder enclosed between single horizontal bands. The chevrons appear to be in two independent double sets.
Parallels (Shape): - Hili: Tomb B - (Al-Tikriti 1982: Pl. 76.A)
- Hili North: Tomb A - (Cleuziou & Vogt 1983: Fig. 7.3, 4; Vogt unpub.: Pl. 11 & 12.- only general bottle shapes).
Parallels (Shape & dec' n): - Hili: Tomb M - (Vogt 1985b: Taf. 53.7 - this eg. with flat base)
- Hili: Tomb N - (Haddu 1989: Pl. 5.2 - excellent parallel)
- Bat: Umm an-Nar cemetery (Frifelt 1975a: Fig. 30c - excellent parallel)
- Ajman: Tomb B - (Al-Tikriti 1989: PI. 42.B)
- Wadi Munay'1 - (Unpublished).

Fig. 118. AS 10643 1:2
Location: Tomb II; Layer 14; E 80.84; N 10.56; Elev 3.79-3.76
Dimensions: Ht: 5.0 cm.; RD: 3.5 cm.; BD: 2.5 cm.; MD: 5.0 cm.; HMD: 2.1 cm.
Very well levigated pale orange to tan paste with many fine voids. Fabric discoloured to grey in places due to burning. Surface badly damaged and exfoliated. Four painted bands can be distinguished from the neck down to shoulder. Miniature vessel.
Fig. 119. DM 83 1:2
Location: Tomb I (outside).
Dimensions: Ht: -; RD: -; BD: 6.95 cm.; MD: 12.3 cm.; HMD: 8.7 cm.
Parallels (Shape): NB: All parallels have a pierced shoulder ridge and the majority are decorated with the typical 'net pattern'.
- Hili: Tomb B - (Al-Tikriti 1982: Pl. 75.D; Pl. 75.A-E - described as undecorated)
- Hili: Tomb N - (Haddu 1989: Pl. 12 no mesh decoration)
- Hili Garden: Tomb 1059 - (Frifelt 1975a: Fig. 15a - more globular than DM 83; Al-Tikriti 1982: Pl. 70 A-G)
- 'Amlah: Site 1 - (de Cardi 1975: Fig. 17.4 a, b)
- Bat: (Frifelt 1975a: Fig. 29 c)

Fig. 120. DM 82 1:2
Location: Tomb I (outside).
Dimensions: Ht: -; RD: -; BD: 7.9 cm.; MD: -; HMD: -.

Fig. 121. DM 86 1:2
Location: Tomb I (outside).
Dimensions: Ht: -; RD: 8.8 cm.; BD: -; MD: -; HMD:-.
Fig. 122. AS 3577 1:2

**Location:** Tomb I; Ch 4; Layer 4; E 8.60; N14.36; Elev 4.61-4.57

**Dimensions:** Ht: 4.6 cm.; RD: 4.8 cm.; BD: 3.6 cm.; MD: 4.8 cm.; HMD: -

- Very well-levigated, fine grey fabric with a medium frequency of tiny-medium white inclusions. Striations around exterior of lower body. Relict greenish-black paint evident in a band around the lip, the neck and indistinct decoration on lower body.

**Parallels (Shape & dec' n):**
- Hili North: Tomb A - (Cleuziou and Vogt 1983: Fig. 8.5 & 6)

Fig. 123. AS 10638 1:2

**Location:** Tomb II; Layer 15; E 81.46; N10.95; Elev 3.77-3.72

**Dimensions:** Ht: 4.9 cm.; RD: 4.2 cm.; BD: 2.8 cm.; MD: 6.0 cm.; HMD: 2.1 cm.

- Very well-levigated grey paste with no visible inclusions and only minute voids. Fabric discoloured in places due to fire. Striations on exterior of lower half of vessel and a circular mark on the base. A zone of black painted decoration is located on the shoulder consisting of two broad bands enclosing squiggly diagonal lines.

**Parallels (Shape & dec' n):**
- Umm an-Nar: Tomb II - (Frifelt 1991: Fig. 120)
- Hili North: Tomb A - (Cleuziou and Vogt 1983: Fig. 8.3+ 4; Vogt unpub.: Pl. 13)
- Hili: Tomb B - (Al-Tikriti 1982: Pl. 81.a & e)
- Bat: Umm an-Nar cemetery - (Frifelt 1975a: Fig. 33.d)

**Parallels (Shape):**
- Umm an-Nar: Tomb I - (Frifelt 1991: Fig. 77 - shoulder)
- Umm an-Nar: Tomb II - (Frifelt 1991: Fig. 120)
- Hili: Tomb B - (Al-Tikriti 1982: Pl. 81.f, g)
- Bat: Umm an-Nar cemetery - (Frifelt 1975a: Figs. 33a & d)

Fig. 124. DM 58 1:2

**Location:** Tomb I, Chamber 2.

**Dimensions:** Ht: 6.4 cm.; RD: 3.8 cm.; BD: 4.6 cm.; MD: 6.4 cm.; HMD: 4.0 cm.

- Well-levigated, fine grey fabric. Greenish-black painted decoration consists of a band around the rim with the rest of the body decorated in two registers. The shoulder zone consists of encircling bands enclosing a frieze of upright squiggly lines, and the lower body of a hatched zig-zag band with vertical lines hanging from above and small hatched triangles pointing upwards from three encircling bands around the base.

**Parallels (Shape & dec' n):**
- Umm an-Nar: Tomb I - (Frifelt 1991: Fig. 77 - shoulder)
- Umm an-Nar: Tomb II - (Frifelt 1991: Fig. 120)
- Hili: Tomb B - (Al-Tikriti 1982: Pl. 81.f, g)
- Bat: Umm an-Nar cemetery - (Frifelt 1975a: Figs. 33a & d)

**Parallels (Shape):**
- Umm an-Nar: Tomb I - (Frifelt 1991: Figs. 76, 78)
- Hili: Tomb B - (Al-Tikriti 1982: Pl. 81.b, c, d, j).
Suspension vessels (Figs. 119-121)

The fragmentary remains of two or three suspension vessels were recovered from Tomb I. In shape these vessels belong to the elongated, round shouldered type, usually with wide mesh decoration, rather than the more globular, squat form which commonly exhibits narrow mesh patterning (Cleuziou and Vogt 1985: 260). No decoration remains, however, on DM 82 or 83 (Figs. 119 and 120) and the decoration visible on DM 86 (filled triangles around the neck with horizontal bands around the shoulder, Fig. 121) is unusual and finds no close parallels in the published material. Interestingly, DM 83 lacks the pierced, appliqué shoulder ridge which it must originally have possessed.

To date, suspension vessels have been found in both tombs and settlements of the interior, yet only in settlement contexts on the coast (Frifelt 1975a: 368). The significance of this distribution remains unclear, and may simply be a further manifestation of the regionalism discussed above. According to Vogt (1985b: 160), suspension vessels such as these are not found outside the Oman Peninsula.
Grey wares (Figs. 122-126)

Grey wares, both painted and incised, are a major ceramic component of Umm an-Nar period tombs but are rarely found in settlement contexts. The Al Sufouh grey wares comprise only a small percentage of the complete corpus, but nonetheless include all known shape and ware categories. The types include a small, relatively unusual, straight-sided cup (Fig. 122); a typical small, globular pot with everted rim (Fig. 123); a miniature canister (Fig. 124); and at least two (possibly three) large canisters (Fig. 125). The remains of one incised grey ware vessel were also found (Fig. 126). This belongs to the fairly common ‘truncated beaker with convex base’ shape (Vogt 1985a: 30) and is decorated with the typical ‘hut’ motif. The first

Fig. 126. AS 10639 1:2

Location: Tomb II; Layer 15; E 80.80; N 11.12; Elev 3.78
Dimensions: Ht: -; RD: -; BD: 9.8 cm.; MD: 12.2 cm.; HMD: 3.9 cm.
Well-levigated greyish paste with a few inclusions of less than 0.04 mm. and voids of less than 0.05 mm. Fragmentary vessel, only base and lower body preserved. Incised decoration in “hut” motif.
Parallels (Shape & dec’n): - Hili North: Tomb A - (Cleuziou and Vogt 1983: Fig. 9.3 & 4; Vogt unpub.: Pl. 14.4 & 7)
- Hili: Tomb B - (Al-Tikriti 1982: Pl. 88 F, H -possibly shape parallels, but egs. incomplete)
Parallels (Decoration): - Umm an-Nar: Tomb II - (Frifelt 1991: Fig. 123 - degraded and poorly executed hut motif)
Varied executions of hut motif: - 'Amlah: Site 1 - (de Cardi 1976: Fig. 15.4, 6, 7, 11 & 15).
- Hili Garden: Tomb 1059 - (Frifelt 1969: Fig. 12).
three of these vessels are miniature in size, a feature of the grey wares of both Umm an-Nar (Frifelt 1991: 94) and Tomb A Hili North (Blackman, Méry and Wright 1989: 66).

Although small, the Al Sufouh group shows some interesting patterns when compared with the grey wares from other sites. The predominant painted grey ware shape at Tomb A Hili North is the small, globular, miniature jar. Only one example of this shape was recovered at Al Sufouh. Whereas only one canister was found in Tomb A, where it was considered ‘atypical’, up to four came from Al Sufouh. Hili Garden Tomb 1059 and ‘Amlah site I, on the other hand, both display a preponderance of canister-shaped vessels and none of the globular form. Other tombs, including Hili Tomb B and the Umm an-Nar tombs, seem to show all types of grey wares together in the same contexts. A further difference between these assemblages (and indeed most Umm an-Nar tomb groups) and Al Sufouh is the lack of any animal or vegetal motifs on the painted wares from Al Sufouh, be they black-on-grey or black-on-red. Observations of this type are tantalising for their possible chronological significance, but are unfortunately inconclusive, primarily due to a lack of well-stratified material from any one site.

Comparisons have frequently been made between black-on-grey and incised grey wares from the tombs of the Umm an-Nar period and assemblages from southeastern Iran (Frifelt 1975a; Tosi 1976; de Cardi, Collier and Doe 1976: 118-122; Frifelt 1979b; Cleuziou and Vogt 1983; Cleuziou 1984; Vogt 1985; Cleuziou and Vogt 1985; Blackman, Méry and Wright 1989; Wright 1989; Frifelt 1991), and will not be repeated here. Suffice to say that with the results of scientific analyses undertaken on the painted grey wares from Hili (Blackman, Méry and Wright 1989), it is now recognised that these were indeed imported from southeastern Iran, rather than locally produced. This, however, helps little in the matter of Umm an-Nar chronology, since the temporal sequences in Iran are far from secure. The most reliable, stratified material comes from Shahr-i Sokhta IV, where both incised grey and black-on-grey wares were found together in the so-called Burnt Building, destroyed at the end of Period IV, phase 1 (Biscione 1979: 293-294). Carbon dates for this phase range between 2240 and 1840 B.C. (Voigt and Dyson 1992, Vol II: 133) but as Potts points out, evidence from Umm an-Nar “suggests a synchronism between late Umm an-Nar and early Shahr-i Sokhta IV” (Potts 1992: 69). It is increasingly apparent, however, that grey wares more often appear in securely dated deposits in the Oman Peninsula than they do in their homeland, Iran.

At Hili 8, the only Oman Peninsula site where a stratified sequence including grey wares exists, grey ware sherds are first seen in Period Ile (in very small numbers) increasing slightly in If (Méry 1991: 66). Cleuziou dates Period Ile-f between 2450 and 2100 B.C., and more precisely, Period Ile is related to the beginning of the Akkadian period, c. 2350-2200 B.C. (Cleuziou 1989: 78). The three C14 dates from Period Ile support this date (Cleuziou and Tosi 1989: 43, Note 5). Nonetheless, we know that grey ware probably reached the Oman Peninsula before this time primarily due to its presence in Tomb V on Umm an-Nar island, dated to between 2700 and 2450 B.C. Other ceramic parallels with Hili 8 suggest that Tomb V is
datable to Hili Period Ila-c (Frifelt 1991: 125), but with some possibility of overlap into Period IIc, suggesting that grey wares appeared in the Oman Peninsula around 2500 B.C.

This would then provide a date for Al Sufouh, based on the grey wares, of c. 2500/2450-2000 B.C. One important point, however, to note about the Al Sufouh grey wares is the fact that the incised grey vessel (Fig. 191) was ‘in use’ at the same time as the black-on-grey vessel (Fig. 188), both from Tomb II, thus mirroring the findings of Shahr-i Sokhta IV, where both were found in one sealed context, dated 2240-1840 B.C. This may indicate a slightly later date within the proposed time frame.

A final point of interest concerns the form of interaction taking place between Iran and the Oman Peninsula. Of relevance is the predominantly funerary nature of the deposits (Hili 8 being the exception) in which grey wares are found in the Oman Peninsula, in contrast to Iran where they are also recovered in significant quantities from settlement contexts (Wright 1989: 146). The differential use of these vessels in their homeland and region of importation suggests that a ‘luxury’ good status was applied to the imported vessels and they may have held a “specialised ritual function” (Wright 1989: 146), or been the containers of specific material.

Cordon Vessels (Figs. 127 and 128)

Only seven vessels of this type have been found in the Oman Peninsula. All are described as being made of a grey ware, with black painted decoration and plastic cordons. Comparable vessels were found by Stein in the region of Bampur in southeastern Iran, and at Shahdad (Hakemi 1972: Pl. V.A), where they were “manufactured exclusively in black-on-buff fine ware” (Frifelt 1991: 94, Fig. 82; Vogt 1985a: 29; Al-Tikriti 1982: 183). Appliqué cordons are common in southeastern Iran, although more common on bowls than on closed vessels. Surprisingly, the fabric of the two cordon vessels from Al Sufouh is buff to orange in colour, with remnants of a tan to orange slip preserved near the cordons. These two examples are also slightly larger (just over 10 cm. in height) than their Iranian counterparts. These vessels are unique in their combination of fabric and form and only an analysis of the paste will be able to determine whether their unusual fabric is a result of local imitation or whether they are simply rare imports.
**Fig. 127. AS 8434 1:2**

**Location:** Tomb III; Layer 10; E 75.80; N 16.55; Elev 4.18-4.05

**Dimensions:** Ht: 10.2 cm.; RD: 8.1 cm.; BD: 5.6 cm.; MD: 12.2 cm.; HMD: 4.1 cm.

Very well-levigated orange to tan paste with no visible inclusions or voids. Paste discoloured in areas by fire. Remnants of tan to orange slip on the exterior and three raised cordons, two horizontal enclosing a single wavy cordon, located around the shoulder to mid-body. The relict slip follows the wavy line of the central cordon.

**Parallels (Shape & dec'n):**
- Umm an-Nar: Tomb I - (Frifelt 1991: Fig. 82 - with painted decoration)
- Hili: Tomb B - (Al-Tikriti 1982: Pl. 82 N - described as black-on-grey, with painted decoration including goats)
- Hili: Tomb H - (Al-Tikriti 1982: Pl. 72 G - described as black-on-grey, with painted decoration)
- Hili: Tomb N - (Haddu 1989: Pl. 7 - without painted decoration?)
- Hili North: Tomb A - (Cleuziou and Vogt 1983: Fig 8.8; Vogt unpub.: Pl. 13.2 - both unpainted)
- Shahdad: (Hakemi 1972: Pl. V.A).

**Fig. 128. AS 9931 1:2**

**Location:** Tomb III; Layer 13; E 75.59; N 16.32; Elev 4.01-3.90

**Dimensions:** Ht: 9.9 cm.; RD: 7.95 cm.; BD: 4.2 cm.; MD: 11.5 cm.; HMD: 3.8 cm.

Very well-levigated orange to tan paste with a medium density of small voids. Surface badly exfoliating on one side, striation marks present just above base. Sharp plastic cordon around the shoulder. Wavy cordon lower on shoulder and a pronounced cordon on lower carination with a ridge just above base.

**Parallels (Shape & dec'n):** - See AS 8434.
Fig. 129. (opposite page)
Ceramic vessels from Tomb I.
Scale 1:4.

Fig. 130. (this page)
Ceramic vessels from Tomb II.
Scale 1:4.

DM 51 - Surface
DM 47 - Surface
DM 48 - Surface

AS 2855 - Surface
AS 3903 - Layer 3
AS 7349 - Layer 7

AS 7346 - Layer 8
AS 9243 - Layer 12
AS 9248 - Layer 12

AS 12048 - Layer 12
AS 10643 - Layer 14
AS 10644 - Layer 14

AS 10638 - Layer 15
AS 10639 - Layer 15
AS 10645 - Layer 15
Fig. 131. (opposite page)
Ceramic vessels from Tomb III.
Scale 1:4.

Fig. 132. (this page)
Ceramic vessels from Tomb IV.
Scale 1:4.

AS 3579 - Surface
AS 3576 - Layer 1
Fig. 133. A representative selection of the bead types present in Tomb I, Chamber 2. Scale c. 1:1.

Fig. 134. A representative selection of the bead types present in Tomb II. Scale c. 1:1.
Beads

Introduction and Methodology

Beads represented 13,841, or 97.3%, of the 14,228 finds recovered during the 1995 season at Al Sufouh, a quantity never before recorded within one Umm an-Nar tomb complex. The recovery of such a large number of beads, most of which were microbeads (see below), would not have been possible were it not for the fact that all of the deposits from Tombs I-IV were sieved using 1 mm. mesh sieves. The coordinates of each bead excavated by the Australian team were recorded either precisely to the millimetre, or when found in the sieves, to within a 50 x 50 cm. grid square. The dimensions and provenience of each bead were then entered into a FilemakerPro database. Time constraints and the vast number of beads recovered meant that it was impossible to measure every bead. Consequently, approximately half of the talc (7,621) and all of the remaining beads were measured using digital calipers. The data recorded provides an excellent basis for studies on a wide range of topics including resource availability and exploitation, manufacturing techniques, specialisation, standardisation and foreign trade.

In order to cope with 13,841 beads it was necessary to develop a typology which was based primarily on material and secondarily on shape. Table 10 summarises the numbers of beads found in each tomb, classified by material, and indicates what percentage of the total bead population in each tomb that figure represents. The following report will discuss each type of material attested in the bead corpus at Al Sufouh, looking first at geological composition and surficial treatment, followed by an illustrated presentation of the various sub-groups identified. Additionally, statistical analyses of metric standardisation will be examined, raising issues of specialisation and production. An examination of manufacturing techniques, and a presentation of the physical evidence for various modes of

Fig. 135. A representative selection of the bead types present in Tomb III. Scale c. 1:1.
production will also be presented.

From the find location of several bead types it is certain that they were originally strung together in a linear manner, suggesting their use as items of jewellery (Figs. 27, 29, 96 and 97). Whether this was so for the entire corpus is, however, difficult to determine. The presence of “bead patches” (Fig. 30) resembling those from Umm an-Nar island (Frifelt 1991: 35; Fig 51) and Jabal al-Emalah (Benton and Potts 1994: 25) is also attested. In both cases these have been interpreted as beads sewn onto fabric, either in items of clothing or shrouds.

The practice of including beaded necklaces, belts, bracelets and/or shrouds in tombs of the Umm an-Nar period is well-documented. In fact, even in the earliest stone-built tombs of the Hafit period, beads were often the only grave goods present. These items of personal adornment, whether incorporated in garments or shrouds or used in jewellery, were obviously important accompaniments for the corpse at the time of burial. Whether this indicates the popularity of beads as items of adornment in life, or whether it sets them apart as objects specific to funerary ritual, is impossible to determine.

Figs. 133-135 illustrate the wide variety of bead types recovered from Tombs I, II and III respectively.

### Serpentine/Talcose Steatite - Type A Beads (Figs. 136-140)

Despite many attempts by various scholars, the material of which the 12,608 beads in this category were manufactured has proven difficult to determine. Past identifications include bird bone, shell, paste, ‘clay-stone’,
enstatite/hypersthene, fired steatite and most recently, talcose steatite. Analyses undertaken by the Department of Geology at the University of Sydney (see Appendix 3), have recently identified this material as serpentinite. Serpentinisation is the process whereby any magnesium-rich silicate rock or mineral undergoes a hydrous alteration, thereby becoming a more stable mineral. This alteration occurs at low temperature and pressure in the presence of water and as such is often the end result of an ultramafic rock finding its way to the surface. Serpentinite includes soapstone and “talc” rocks and is associated with carbonate minerals, common opal and chalcedony as by-products. The identification of similar beads as talcose steatite (by the Geological Institute at Aarhus University, see Frifelt 1991: 114) is in keeping with that of serpentinite, as both are formed by the same process, and would show similar elemental peaks in x-ray diffraction analysis. The determination of enstatite/hypersthene (by the Mineralogical Museum Copenhagen: Frifelt 1991: 114), however, is untenable for the samples from Al Sufouh.

Serpentinite or ‘talc’ will be the identifications primarily used in this report. Talc or serpentinite is the softest common mineral, ranking only 1 on the Mohs’ Scale. It is a secondary mineral, generally found in low or medium grade metamorphic rocks. According to Frifelt, it “should be present on the Oman Peninsula, and the copper prospectors and miners no doubt knew their environment and its raw materials” (Frifelt 1991: 116). A member of the layer-lattice group of minerals, talc is pearly on cleavage surfaces, but otherwise dull (Berry and Mason 1959: 508). The cleavage is perfectly basal, which allows thin plates to break off from the original mass (Read 1970: 407). An understanding of this breakage pattern becomes important when considering the types of beads manufactured from this material, particularly the microbeads. It must be noted, however, that it is not certain that all beads in this category were necessarily created directly from the mineral serpentinite. After close examination of many shapes it seems drill marks are conspicuously absent and the possibility must be considered that a powdered form of the mineral, combined with other materials to create a paste, was used in the manufacture of these beads.

There is a wide variety of shapes in this category. Five major forms, divided into twelve sub-types, have been distinguished and their distribution throughout the four tombs is shown in Table 11 (and Fig. 136). Notable are certain shapes which are made of a particularly white material, often with a brown discolouration over at least part of the surface. It is thought that these may well be of a serpentinite paste(?) coated in glaze which has since degraded to a brown stain or cracked off all together.

**Type A1:** Square to rectangular in shape, lenticular beads - two varieties.

**Type A1a** *(Fig. 136.1)* - Square to rectangular in shape, lenticular in section and perforated longitudinally. One example has convex rather than straight sides. Material very white, with traces of brown staining.

**Type A1b** *(Fig. 136.2)* - Similar to A1a, but slightly smaller and with triple denticulations on either side. Material very white, with traces of brown staining.
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<th>Tomb III</th>
<th>Tomb IV</th>
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**Type A2**: Long cylindrical beads, divisible into three categories based primarily on dimensions.

- **Type A2a** (Figs. 136.3-6 and 137) - Long (+ 1 cm.), cylindrical tube (diameter c. 0.35-0.53 cm.). Three examples of very white material with traces of brown staining.
- **Type A2b** (Figs. 136.7 and 137) - Long (1.09-1.36 cm.), slender (0.25-0.31 cm.), cylindrical tubes. All of serpentinite. Parallels: Chanhu-daro (Mackay 1943: Pl. LXXXI.11, 13), said to be of paste.
- **Type A2c** (Fig. 136.8) - Short (0.23-0.93 cm.), cylindrical tube (diameter c. 0.15-0.53 cm.). Material very white and with traces of brown staining. Parallels: Chanhu-daro (Mackay 1943: Pl. LXXXI.1), described as steatite.

**Type A3**: (Fig. 136.9-10) - Slightly barrel-shaped cylindrical tubes (0.47-1.18 cm. in length x 0.27-0.47 cm. in diameter). Different than Type A2 due to chamfering at ends. Material very white with traces of brown staining.

**Type A4**: Large squat beads, divided into two categories according to body definition.

- **Type A4a** (Fig. 136.11) - Large (c. ≤ 0.5 cm. d. x ≤ 0.3 cm. l.) biconical beads.
- **Type A4b** (Fig. 136.12) - Same dimensions as Type A4a, but barrel-shaped rather than biconical.

Table 11. Distribution of serpentinite bead types in the tombs of Al Sufouh.
**Type A5:** - Microbeads, divided into four categories according to form and size. Often very difficult to assign to a specific sub-type due to the continuum of variation between the biconical type A5a and the cylinders of type A5d. Fig. 140 gives an impression of the variation in size common amongst beads of Type A5.

**Type A5a** *(Fig. 136.13; and 138)* - Small (0.15-0.23 cm. l. x 0.34-0.46 cm. d.), biconical beads.

**Type A5b** *(Fig. 136.14-17; and 139)* - Small (0.12-0.22 cm. l. x 0.25-0.41 cm. d.) microbeads between biconical and barrel shaped. Impossible to always distinguish shape, especially as one side of the bead would often appear to be biconical whilst the other was barrel-shaped.

**Type A5c** *(Fig. 136.18-19)* - Small (0.06-0.5 cm. l. x 0.16-0.41 cm. d.), cylindrical microbeads. Apparently no secondary working other then the cylinder being cut into tiny lengths.

**Type A5d** *(Fig. 136.20)* - Tiny (0.04-0.16 cm. l. x 0.10-0.30 cm. d.) micro-discs. Basically the same shape as Type A5c, but smaller.

Those remaining ‘untyped’ were too fragmentary to categorise.
Type A3
9. AS 3174  
Location: Tomb I; Ch 2; Layer 2; E 78.28; N 15.07; Elev 4.72  
Dimensions: Diam 0.39 cm.; Lgth 1.18 cm.
10. AS 10438  
Location: Tomb II; Layer 13; E 81.0-81.5; N 10.5-11.0; Elev 3.85-3.80  
Dimensions: Diam 0.33 cm.; Lgth 0.69 cm.

Type A4a
11. AS 1698  
Location: Tomb I; Ch 2; Surface; E 77.94; N 15.22; Elev 4.74  
Dimensions: Diam 0.68 cm.; Lgth 0.31 cm.

Type A4b
12. AS 6324  
Location: Tomb III; Layer 7; E 75.5-76.0; N 16.5-17.0; Elev 4.20-4.17  
Dimensions: Diam 0.43 cm.; Lgth 0.19 cm.

Type A5a
13. AS 2258  
Location: Tomb III; Surface; E 76.09; N 16.73; Elev 4.40  
Dimensions: Diam 0.44 cm.; Lgth 0.17 cm.

Type A5b
14. AS 7113  
Location: Tomb II; Layer 7; E 80.0-80.5; N 10.5-11.0; Elev 4.05  
Dimensions: Diam 0.46 cm.; Lgth 0.18 cm.

Type A5c
15. AS 1632  
Location: Tomb I; Ch 3; Layer 1; E 81.27; N 15.82; Elev 4.58  
Dimensions: Diam 0.41 cm.; Lgth 0.20 cm.
16. AS 1673  
Location: Tomb I; Ch 3; Layer 1; E 81.29; N 15.66; Elev 4.61  
Dimensions: Diam 0.22 cm.; Lgth 0.19 cm.
17. AS 7159  
Location: Tomb II; Layer 7; E 80.51; N 10.70; Elev 4.07  
Dimensions: Diam 0.41 cm.; Lgth 0.14 cm.

Type A5d
18. AS 2102  
Location: Tomb I; Ch 3; Layer 1; E 81.0-81.5; N 15.5-16.0; Elev 4.70-4.60  
Dimensions: Diam 0.32 cm.; Lgth 0.12 cm.
19. AS 3598  
Location: Tomb I; Ch 2; Layer 2; E 78.0-78.5; N 15.0-15.5; Elev 4.7-4.65  
Dimensions: Diam 0.36 cm.; Lgth 0.20 cm.

Type A6d
20. AS 14028  
Location: Tomb I; Ch 2; Layer 2; E 78.0-78.5; N 15.0-15.5; Elev 4.7-4.65  
Dimensions: Diam 0.25 cm.; Lgth 0.11 cm.
Beads of both serpentinite and serpentinite paste have been found in many Umm an-Nar period tombs across the Oman Peninsula. A look at their distribution and some of the hypotheses concerning them is enlightening, if inconclusive. The Danish expedition to Umm an-Nar island recovered c. 11,190 talc beads (Frifelt 1991: 112). Many more were later found in the tombs dug by the Iraqi team, although neither quantities nor illustrations are available (Al-Tikriti 1982: 139-141). Most Umm an-Nar serpentinite beads belong either to type A2b or A5 and a local origin is assumed by Frifelt (Frifelt 1991: 116). Considering the disposition of both bead types in Tombs II and V (Frifelt 1991: 31, 35, Fig. 51), they may have been embroidered onto cloth rather than used in jewellery. As previously mentioned, beads were found in a similar disposition at Jabal al-Emalah (Benton and Potts 1994: 52-53), although whether they were sewn onto articles of clothing or a shroud is impossible to determine.

During two seasons of excavation in Tomb B at Ajman, 3,981 serpentinite beads were recovered (Haerinck 1991: 18). Originally described as ‘fritte’ (Al-Tikriti 1989: 95), these beads were later identified as fired steatite, and considered by the excavator to have been “produced by artisans in the Indus Valley” (Haerinck 1991: 18). Much has been written on bead production in Harappan centres and it is certain that micro-beads similar to those found in the Oman Peninsula (especially types A5 and A2b) were produced there (Beck 1940: 392-4; Mackay 1943: 140-210; Hegde 1983: 70; Tosi, Bondioli and Vidale 1984: 9-38; Pracchia, Tosi and Vidale 1985: 233-240; Kenoyer 1991: 85, 89, Fig. 5.3-6). The technique of firing steatite to create a hard, white material is attested at Mehrgarh by the Chalcolithic period (Kenoyer 1991: 90). Later, steatite was powdered to form a paste at
Chanhu-daro. "Pieces (of steatite) that could not be used for any other purpose were ground into powder and then compressed into blocks, from which beads and occasionally seals were made. This made-up steatite is always white in colour and was probably calcined before compression. It is often very difficult to detect... The composition is apt to crumble after long sojourn in a salty soil, whereas the natural stone remains unaffected" (Mackay 1943: 210).

Mackay debated whether steatite paste beads would be distinguishable from those of true stone, especially after they have undergone firing at the high temperatures to which the Chanhu-daro beads were exposed, estimated at 1200° C. (Mackay 1943: 213). A find of thousands of these beads strung together in the beadmaking area (Locus 404) at Chanhu-daro provides further interesting information. A furrow, spiralling clockwise, characterises the perforations of these beads, and the fact that the spiral continues unbroken from bead to bead, suggests they were perforated when they were still part of one long cylindrical tube, rather than individually (Mackay 1943: 213). Whether this spiralling furrow within the perforation is the result of drilling or the impression of a thin rope or cord around which the beads were fashioned, is impossible to determine.

Further evidence can be cited from a second Harappan bead-making centre, Lothal, where a dump of dehydrated limestone was recovered next to the kiln used for beadmaking. This is thought to prove "conclusively that limestone was used for completely dehydrating steatite" (Rao 1985: 582-583). Finally, 34,000 talcose steatite microbeads were recovered in two jar hoards at Zekhada (Hegde 1983: 70). These beads are said to have been created from a paste that was "pressed through an aperture and carefully trimmed into individual beads" before firing (Hegde 1983: 70). Hegde noted that "this method would explain the striation marks", which may correspond to the spiralling furrows noted by Mackay on the Chanhu-daro beads.

A final point of interest concerning serpentinite beads is their absence from tomb deposits dating to the end of the third millennium B.C. or
later in the Oman Peninsula. Neither the Tell Abraq tomb, nor the published tombs of the Wadi Suq period at Shimal (Vogt and Franke-Vogt 1987; Donaldson 1984), contained beads of this type, where the material carnelian dominated the bead assemblages. The chronological significance of this factor is difficult to interpret. If, as Haerinck suggests, these beads were Harappan imports, their absence in later contexts may be attributable to the decline of the Harappan civilisation and the subsequent reduction in trade relations between the Indus Valley and the Oman Peninsula. To date very little post-Harappan material has been recovered from the Oman Peninsula, the only pottery being a few sherds from an early Wadi Suq context at Tell Abraq (Potts 1994: 622-3) and the remains of four vessels from Nud Ziba in Ras al-Khaimah (Kennet and Velde 1995: 94).

While the serpentinite beads of Al Sufouh could have been made by one of the processes described above, it is too early to assume that all beads of this type in the Oman Peninsula must have been imported from the Indus Valley. Serpentinite was probably available locally (Frifelt 1991: 116) and the lack of any archaeological evidence of bead production does not exclude the possibility of local manufacture. Until further analyses are undertaken, comparing the composition of beads from Umm an-Nar contexts with those of the Indus Valley, it will be impossible to determine conclusively the origin of the Al Sufouh serpentinite beads. Chronological implications and production techniques will be assessed at the conclusion of this section.

**Soft-stone - Type B Beads (Figs. 141-143)**

The term ‘soft-stone’ is used in this report to describe a dark grey to black stone, commonly referred to as either steatite or chlorite (Frifelt 1991: 116; de Cardi et al. 1979: 74. Table 1.h). A total of 661 soft-stone beads were recovered at Al Sufouh, of which all but eight were from Tomb I. A variety of colours was represented, but formal variation was limited, as can be seen in the types described and illustrated in Figs. 141-143.

**Type B1:** Microbeads, always greater in diameter than in length.

**Type B1a (Fig. 141.1-2 and 143)** - Microbeads, circular in cross-section.

Dimension range: Diameter 0.09 - 0.41 cm.; Length 0.19 - 0.55 cm.

**Type B1b (Fig. 141.3-4 and 143)** - Microbeads, square to irregular in cross-section. Dimension range: Diameter 0.11 - 0.56 cm.; Length 0.07 - 0.71 cm.
Fig. 141. The various sub-groups of Type B - soft-stone beads. Scale 1:1.

Type B1a
1. AS 3729
   Location: Tomb I; Ch 4; Layer 4; E 79.0-79.5 N 14.0-14.5; Elev 4.46-4.41
   Dimensions: Diam 0.55 cm.; Lgth 0.17 cm.
2. AS 258
   Location: Tomb I
   Dimensions: Diam 0.31 cm.; Lgth 0.14 cm.

Type B1b
3. AS 2900
   Location: Tomb I; Ch 3; Layer 2; E 80.5-81.0; N 15.5-16.0; Elev 4.6-4.5
   Dimensions: Diam 0.34 cm.; Lgth 0.15 cm.

4. AS 2002
   Location: Tomb I; Ch 3; Layer 1; E 80.5-81.0; N 15.0-15.5; Elev 4.7-4.65
   Dimensions: Diam 0.31 cm.; Lgth 0.15 cm.

Untyped
5. AS 5155
   Location: Tomb III; Layer 4; E 75.75; N 16.39; Elev 4.31
   Dimensions: Diam 1.28 cm.; Lgth 0.71 cm.

Colours present varied from basic black and dark grey (75.3%), to brown, green, grey and red. Fig. 142 illustrates the breakdown of colour according to shape.

Soft-stone beads have a very similar distribution pattern to talcose steatite ones and have been found at Umm an-Nar (Frifelt 1991: 112,116; Fig. 236a.2 & 5; Fig. 245); Jabal al-Emalah (Benton and Potts 1994: 54-55; Fig. 80); Ajman Tomb B (Haerinck 1991: 18, Fig. 9.33C; Al-Tikriti 1989: 95) and Tawi Silaim (de Cardi et al. 1979: Fig. 8.h). Many soft-stone beads (unpublished, Al Ain Museum) were found in Tombs A and B Hili North. Type B beads are often found in direct association with type A2b talcose steatite beads and appear to have been sewn onto fabric like the talcose beads (Fig. 30). The temporal distribution of this bead type also mirrors that of talcose steatite beads, for they are unknown after the third millennium B.C. in the Oman Peninsula.

The almost exclusive presence of soft-stone beads in Tomb I may indicate two things. Firstly, it may be a chronological indicator reflecting the fact that Tomb I predates the other three tombs. A second possibility relates to the two different funerary rites at Al Sufouh, cremation and inhumation. As the comparisons drawn with other Umm an-Nar period sites
have shown, talcose steatite beads of type A2b and dark soft-stone microbeads are a frequent accompaniment to burials in collective, circular tombs. Their disposition at Umm an-Nar island, Jabal al-Emalah and Al Sufouh suggests that they were sewn onto fabric. If the garment were a shroud, and shrouds were used only on inhumed corpses then their presence in Tomb I and absence in the other interment pits can be explained by differences in burial practice between these areas. The inclusion of just a few microbeads in Tomb II may simply indicate that beads such as these were also used as spacers in jewellery. Dark, soft-stone beads were found embedded as spacers in the perforations of carnelian beads on Umm an-Nar (Frifelt 1991: 113).

Two unusual soft-stone beads require brief mention. The first, AS 5155, from Tomb III, is a large, circular, red bead (Fig. 141.5). As can be seen, the bead is much thicker on one side than on the other. No close parallels can be cited, however, generally similar beads thought to be of jasper were found at Jabal al-Emalah (Benton and Potts 1994: 55, Fig. 73.8-9, Fig. 81). The second unique bead is of dark soft-stone and appears as a perforated, inverted V, the perforation piercing horizontally the apex of...
the V (Fig. 143 - lgth: 1.43 cm.; wdth 1.0 cm.; th. 0.39 cm.). While no close parallels can be cited, 'fly' amulets from the Royal Cemetery at Ur are quite similar in general form (Woolley 1934: 375). In this regard it is interesting to note the presence of such a 'fly' amulet in Tomb B at Hili North (Al Ain Museum Ref. DLB-97). These will be discussed further in the chapter devoted to Miscellaneous Finds.

**Carnelian - Type C Beads (Figs. 144-148)**

Carnelian, a reddish variety of chalcedony (Berry and Mason 1959: 478), is formed at low temperatures (100° - 300° C.) and ordinary pressures (Helffer 1970: 132). It occurs primarily in hydrothermal veins or as amygdales filling in sediments (Whitten and Brooks 1972: 413), and its colour is variable, dependent on the quantity of haematite present (Helffer 1970: 132). As a form of quartz (rating 7 on the Mohs' Scale), carnelian is also a silicate, and thus has no cleavage, causing it to fracture according to its microfine structure. Analyses undertaken by the Department of Geology at the University of Sydney on several beads from this group confirm their determination as chalcedony (see Appendix 3). The analytical results of this group showed a strong silica peak indicative of a quartz polymorph. An interesting feature of carnelian is that it holds water within its structure. This affects its appearance when heated. Heat treatment of carnelian was a commonplace technique of altering the surface colour of the stone so as to achieve certain desired effects.

Approximately 300 carnelian beads were recovered at Al Sufouh. A more exact figure was unfortunately impossible to calculate as some were strung and on display in the Dubai Museum and could not be studied. The distribution of the majority of the carnelian beads is presented in Table 10. Great variety, both in form and surface treatment, is evident in the collection (Fig. 144). In the following typology the beads have been classified primarily according to shape, with body definition, end definition, size and surface treatment as the major classificatory criteria.
**Type C1**: Biconical beads, approximately 65% of total.

**Type C1a (Fig. 144.1-3)** - Long beads, over 1.5 cm. in length. Usually with no truncation evident on the ends. A series of heat-treated beads of this type can be seen in Fig. 145.

**Type C1b (Fig. 144.4-6)** - Medium length beads (longer than their diameter, but less than 1.5 cm. in length). Some, c. 30%, with truncation evident on the ends (Fig. 144.6). A series of beads of this type can be seen in Fig. 146.

**Type C1c (Fig. 144.7-8)** - Squat beads (length less than diameter). Truncation on ends evident in c. 80% of beads in this category (Fig. 144.8).

**Type C1d (Fig. 144.9-10)** - Squat beads (length less than diameter), with deeply chamfered perforations, c. 25% exhibit truncated ends. A series including type C1c and d beads is illustrated in Fig. 147.

**Type C2**: Barrel-shaped beads, approximately 35% of total.

**Type C2a (Not illustrated)** - Long beads, over 1.5 cm. in length. Only 2 examples from Al Sufouh, both broken.

**Type C2b (Fig. 144.11-12)** - Medium length beads (longer than their diameter, but less than 1.5 cm. in length). Some, c. 50%, with truncation evident on the ends (Fig. 144.12).

**Type C2c (Fig. 144.13-14)** - Squat truncated beads (length less than diameter). Truncation on ends evident in c. 95% of beads in this category (Fig. 144.13).

**Type C2d (Fig. 144.15-16)** - Squat beads (length less than diameter), with deeply chamfered perforations, c. 50% exhibit truncated ends. A series, including type C2c and d beads, is illustrated in Fig. 147.

**Type C3**: Various shapes with diamond or lenticular sections.

**Type C3a (Fig. 144.17)** - Rectangular shaped bead with convex sides and a diamond section, one example only.

**Type C3b (Fig. 144.18)** - Long, concave sided bead with lenticular section, one example only.

As the bead descriptions for Fig. 144 show, the colour of the carnelian at Al Sufouh varied considerably. Beads ranged from a deep, blood-red hue through to a pale, translucent orange, while some were pale pink to white with darker internal veins. Most of this colour variation can be attributed to heating. In many cases such heat-treatment was an intentional part of bead manufacture, often serving a dual purpose (Possehl 1981; Roux and Pelgrin 1988/9). Firstly, heating alters the grain of certain stones causing them to become finer and better suited to knapping (Possehl 1981: 41-42; Roux and Pelegrin 1988/9: 51). Secondly, heating chalcedonies results in colour changes (Sax and Middleton 1992: 18) such that “yellow chalcedonies in the rough state...become red when heated; the latter are the most prized” (Roux and Pelegrin 1988/9: 51). At Al Sufouh many of the carnelian beads seem to have undergone intentional heat-treatment (Figs. 145 and 148), while others, especially from the cremated deposits, appear to have been
Fig. 144. The various sub-groups of Type C - camelian beads. Scale 1:1.

Type Cla
1. AS 3405
Location: Tomb II; Layer 1; E 80.5-81.0; N 10.5-11.0; Elev 4.24-4.20
Dimensions: Diam 0.89 cm.; Lgth 2.08 cm. (extant). Almost whitened throughout. Apparently moderate heat-treatment.

2. AS 7804
Location: Tomb II; Layer 8; E 80.50; N 11.72; Elev 3.98

Type Clb
4. AS 3165
Location: Tomb I; Ch 2; Layer 2; E 77.68 N 15.09; Elev 4.61
Dimensions: Diam 0.62 cm.; Lgth 1.45 cm. Translucent orange.

5. AS 2210
Location: Tomb IV; Layer 1; E 74.02; N 11.06; Elev 4.52
Dimensions: Diam 0.52 cm.; Lgth 0.62 cm. Milky opaque orange with white flecks. Apparently light heat-treatment.

Type Cld
9. AS 4254
Location: Tomb I; Ch 2; Layer 1; E 77.50 N 14.54; Elev 4.51
Dimensions: Diam 1.13 cm.; Lgth 0.52 cm. Very pale opaque/translucent whitish orange.

Type Clc
7. AS 5410
Location: Tomb III; Layer 6; E 75.5-76.0; N 15.50-16.0; Elev 4.24-4.20
Dimensions: Diam 0.48 cm.; Lgth 0.55 cm. Whitish grey. Apparently moderate heat-treatment.

8. AS 3194
Location: Tomb I; Ch 2; Layer 3; E 77.72 N 15.04; Elev 4.61
Dimensions: Diam 0.88 cm.; Lgth 0.89 cm. Translucent orange.

6. AS 3487
Location: Tomb I; Ch 2; Layer 2; E 78.96 N 15.26; Elev 4.63
Dimensions: Diam 0.90 cm.; Lgth 1.04 cm. Translucent orange.

10. AS 2387
Location: Tomb II; Surface; E 81.21 N 10.70; Elev 4.263
Dimensions: Diam 0.92 cm.; Lgth 0.39 cm. Pale translucent orange.
Type C2b
11. AS 1840  
Location: Tomb I; Ch 2; Surface; E 78.03 N 15.12;  
Elev 4.72  
Dimensions: Diam 0.46 cm.; Lgth 0.69 cm. Whitish-grey  
12. AS 7743  
Location: Tomb II; Layer 8; E 80.41 N 10.67; Elev 4.03  
Dimensions: Diam 0.52 cm.; Lgth 0.73 cm. Whitish-grey  

Type C2c
13. AS 1835  
Location: Tomb I; Ch 4/6; Surface; E 78.74 N 13.48;  
Elev 4.71  
Dimensions: Diam 0.57 cm.; Lgth 0.38 cm. Translucent  
orange.
14. AS 3702  
Location: Tomb I; Ch 3; Layer 2; E 81.175 N 15.69;  
Elev 4.56  
Dimensions: Diam 1.26 cm.; Lgth 0.89 cm. Dark brownish  
orange, translucent.

Type C2d
15. AS 3421  
Location: Tomb I; Ch 3; Layer 2; E 80.855 N 15.42;  
Elev 4.55  
Dimensions: Diam 1.03 cm.; Lgth 0.57 cm. Dull opaque  
orange.
16. AS 2530  
Location: Tomb IV; Layer 1; E 73.75 N 11.30; Elev 4.45  
Dimensions: Diam 0.97 cm.; Lgth 0.52 cm. Translucent  
amber-orange with a creamy surface. Apparently light heat-  
treatment.

Type C3a
17. AS 4541  
Location: Tomb II; Layer 3; E 81.20 N 11.28; Elev 4.16  
Dimensions: Lgth 2.17 cm.; Width 1.25 cm.; Th. 0.55 cm.  
Whitened surface yet still translucent orange. Apparently  

Type C3b
18. AS 3094  
Location: Tomb III; Surface; E 75.42 N 16.24; Elev 4.33  
Dimensions: Lgth 1.26 cm.; Width 1.29 cm.; Th. 0.40 cm.  
Translucent orange.
burnt as a result of being worn by the corpses being cremated. This inference is supported by the fact that several beads show only partial colour changes, while others have been burnt so as to almost disintegrate and show black char marks on their surface. Beads in this category were sometimes totally white and crazed, indicating extended exposure to intense heat. Fig. 148 illustrates the variation of external appearance due to the effects of heat, from AS 10480 at the top, which has apparently undergone minimal heat-treatment, to AS 9189 at the bottom which has become crazed on the surface, probably due to overheating in the cremation pyre.

Camelian beads are common, not only in graves of the Umm an-Nar period in the Oman Peninsula, but all over Western Asia. Sources of the stone can be found in India, Afghanistan, eastern Iran (Reade 1979: Map 5), some parts of the Arabian Peninsula and on the Iranian coast near Bushire (Whitehouse 1975: 129). To date, however, no sources have been located on the Oman Peninsula. The origin of the Al Sufouh camelian beads is, therefore, indeterminate, although an Indus Valley source for at least some of the beads, including of course the etched examples, would seem likely.

Etched Camelian Beads - Figs. 149-150
Nine etched camelian beads were found at Al Sufouh, the greatest number recovered at any site in the Oman Peninsula. Six originated in Chamber 2 of Tomb I, while the other three came from Tomb II. All but one exhibited the same motif consisting of three concentric circles. The ninth, although similar, had only two concentric circles. These beads are characterised by designs etched into their surface using an alkali solution in paste form (Beck 1933: 143-145), a process still in use today. The design is dried next to hot coals and subsequently covered by them for a short period of time. The heating allows the alkali solution to penetrate the surface layers of the camelian, which it is able to do thanks to the fibrous nature of the stone. This produces the 'white-on-red' effect characteristic of most etched camelian beads. However, only one of the Al Sufouh beads (AS 232) is of this type (Fig. 150, right). To achieve a slightly different effect with the design appearing as black on a white background, an alkali solution is applied first over the entire stone. A metallic solution, probably copper, is then used to trace the desired design (Beck 1933: 143-145). Although this
style is less common (Reade 1979: 5), eight of the nine Al Sufouh beads were decorated in this way (Figs. 149-150). Two of the black-on-white etched beads from Tomb I appeared very burnt, probably a result of their inclusion in the cremation (Fig. 150, left).

The Al Sufouh examples belong to Reade’s Type B3 (Reade 1979: 12-13; Fig. 1). Similarly decorated beads have been recovered at Ur, Tepe Hissar, Harappa and Chanhu-Daro (Reade 1979: 12-13), and locally at Hili Tomb B and Hili North Tomb B (Al Ain Museum Reference DLB-103). The chronology suggested by these parallels is unfortunately broad, 2600-1800 B.C., and thus of no help in dating the Al Sufouh tombs. The idea that etched carnelian beads indicate a “post-2300 BC dating” (Tosi 1976: 88) has proven untenable. Table 12 presents an inventory of the known etched carnelian beads from third millennium B.C. contexts in the Oman Peninsula, typed according to Reade’s study and accompanied by the dates.

![Fig. 149. Etched carnelian beads. Scale 1:1.](image)

Table 12. Inventory of the known etched carnelian beads from third millennium B.C. contexts in the Oman Peninsula.

<table>
<thead>
<tr>
<th>Reade’s Type</th>
<th>No. Found</th>
<th>Site and Tomb</th>
<th>Reference</th>
<th>Reade’s Proposed Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type A1</td>
<td>1</td>
<td>Umm an-Nar T. II</td>
<td>Frifelt 1991:115-116</td>
<td>2550-1800 BC</td>
</tr>
<tr>
<td>Type B3</td>
<td>9</td>
<td>Al Sufouh</td>
<td></td>
<td>2600-1800 BC</td>
</tr>
<tr>
<td>Type B3</td>
<td>5</td>
<td>Hili North Tomb B</td>
<td>Al-Tikriti 1989: 95</td>
<td>2600-1800 BC</td>
</tr>
<tr>
<td>Type B8</td>
<td>1</td>
<td>Ajman Tomb B</td>
<td>Al-Tikriti 1989: 95</td>
<td>2600-1800 BC</td>
</tr>
<tr>
<td>Type B8</td>
<td>1</td>
<td>Hili Tomb B</td>
<td>Cleuziou &amp; Vogt 1985:</td>
<td>2350-1460 BC</td>
</tr>
<tr>
<td>Type D7/8</td>
<td>1</td>
<td>Hili North Tomb A</td>
<td>Vogt 1985a: 33</td>
<td>2300-1800 BC</td>
</tr>
<tr>
<td>Type D7/8</td>
<td>1</td>
<td>Shimal Tomb 1</td>
<td>Unpublished</td>
<td>2300-1800 BC</td>
</tr>
<tr>
<td>Type D10</td>
<td>1</td>
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<td>Vogt 1985a: 33</td>
<td>2300-1800 BC</td>
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<td>1</td>
<td>Ajman Tomb B</td>
<td>Al-Tikriti 1989: 95</td>
<td>2300-1800 BC</td>
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<tr>
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<td>1</td>
<td>Shimal Tomb 1</td>
<td>Unpublished</td>
<td>2300-1800 BC</td>
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<tr>
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</table>
suggested by their parallels. As can be seen, the Al Sufouh type B3 beads predominate in the region, although it should be noted that only one other example in the black-on-white style is known (type D10 from Tomb A Hili North).

Evidence for the production of etched carnelian beads is available from only two sites, Lothal (Rao 1973: 103) and Chanhu-daro (Mackay 1943: 199-201). It is likely that the etched beads of the Oman Peninsula came from this area, although the possibility that the technique was practiced in other locations cannot be ruled out (Reade 1979: 24). The many unusual and unique designs noted on Mesopotamian examples (Woolley 1956: Pl. 28), some of which are not found in Indus Valley contexts, prompted Reade to postulate Mesopotamian attempts at etched bead production (Reade 1979: 24-25).

**Paste - Type D Beads (Figs. 151-152)**

In all, 114 paste beads were found at Al Sufouh. The majority, 76.3%, were recovered from Tomb I; a further 19.4% from Tomb III; and 4.3% from Tomb II. Before discussing their form, a word on terminology is necessary. Firstly, as mentioned above, there is a distinct possibility that many of the talcose steatite beads were in fact manufactured from a white talcose paste. Such beads, however, are not included in this section, which concerns only beads made from the more traditionally recognised faience or frit compositions. The term ‘faience’ refers to finely powdered quartz grains cemented by fusion with small amounts of alkali, lime or both. It is usually colourless, but may be tinted brown or grey by impurities or a bluish/green by the addition of copper compounds (Stone and Thomas 1956: 38). ‘Frit’ is a double silicate of lime and copper and has a sintered, polycrystalline body. A variety of colours are possible, including white, blue, red, black and yellow, the most common of which is blue (Moorey 1994: 177). As Moorey notes, however, the distinction between frit and faience is problematic. Generally speaking faience is glazed while frit is not. In many archaeological contexts, however, glazes are not well preserved and faience is easily mistaken for frit (Moorey 1994: 167). A further complicating factor is the frequent mis-use of these terms by archaeologists. In view of these difficulties the term ‘paste’ will be employed in this report as a generic term for beads of an artificial, composite material, the exact composition of which is unknown.

Only three of the paste beads from Al Sufouh showed any trace of colour or glaze. In two cases the colour was a pale blue to green, while in the third the bead was yellowish with brown surface discolouration. It seems likely that all of our paste beads were originally coloured. Due to burial
Fig. 151. Various sub-groups of Type D - paste beads. Scale 1:1. (this page and next)

Type D1a
1. AS 3699
Location: Tomb I; Ch 3; Layer 2; E 81.18 N 15.67; Elev 4.57
Dimensions: Diam 0.69 cm.; Lgth 1.55 cm.

Type D1b
2. AS 3181
Location: Tomb I; Ch 2; Layer 2; E 78.25 N 15.32; Elev 4.70
Dimensions: Diam 0.67 cm.; Lgth 0.30 cm.
3. AS 3716
Location: Tomb I; Ch 3; Layer 2; E 81.10 N 15.71; Elev 4.55
Dimensions: Diam 0.58 cm.; Lgth 0.61 cm.

Type D2a
4. AS 3700
Location: Tomb I; Ch 3; Layer 2; E 81.18 N 15.69; Elev 4.58
Dimensions: Diam 0.78 cm.; Lgth 1.63 cm.
5. AS 3705
Location: Tomb I; Ch 3; Layer 2; E 81.16 N 15.67; Elev 4.54
Dimensions: Diam 0.63 cm.; Lgth 1.07 cm.
6. AS 3706
Location: Tomb I; Ch 3; Layer 2; E 81.15 N 15.67; Elev 4.58
Dimensions: Diam 0.71 cm.; Lgth 1.07 cm.

Type D2b
7. AS 3710
Location: Tomb I; Ch 3; Layer 2; E 81.13 N 15.705; Elev 4.57
Dimensions: Diam 0.65 cm.; Lgth 0.75 cm.

Type D3a
8. AS 3712
Location: Tomb I; Ch 3; Layer 2; E 81.11 N 15.70; Elev 4.58
Dimensions: Diam 0.51 cm.; Lgth 1.64 cm.
9. AS 3713
Location: Tomb I; Ch 3; Layer 2; E 81.10 N 15.70; Elev 4.57
Dimensions: Diam 0.51 cm.; Lgth 1.11 cm.
10. AS 3714
Location: Tomb I; Ch 3; Layer 2; E 81.09 N 15.70; Elev 4.56
Dimensions: Diam 0.49 cm.; Lgth 1.33 cm.
11. AS 3715
Location: Tomb I; Ch 3; Layer 2; E 81.095 N 15.71; Elev 4.55
Dimensions: Diam 0.47 cm.; Lgth 1.62 cm.

Type D3b
12. AS 5355
Location: Tomb III; Layer 5; E 75.86 N 15.00; Elev 4.27
Dimensions: Diam 0.52-0.54 cm.; Lgth 1.32 cm.
conditions, however, the surface has exfoliated leaving only a core of colourless paste. Mackay noted that salts in soil affected the surface colour of beads (Mackay 1943: 169), and the high salinity of the soil at Al Sufouh is noted in the Conservation Report (Appendix 2).

Paste beads come in a variety of shapes (Fig. 151). The quantities of each type are presented in Table 13.

**Type D1:** Biconical.
- **Type D1a (Fig. 151.1)** - Long beads, over 1.0 cm. in length. Usually with no truncation evident on the ends.
- **Type D1b (Fig. 151.2-3)** - Medium-length beads (less than 1.0 cm. in length). Fig. 152 illustrates a series of type D1b and D2b beads from Tomb I.

**Type D2:** Barrel-shaped.
- **Type D2a (Fig. 151.4-6)** - Long beads, over 1.0 cm. in length.
- **Type D2b (Fig. 151.7)** - Medium length beads (less than 1.0 cm. in length). Fig. 152 illustrates a series of type D1b and D2b beads from Tomb I.

**Type D3:** Cylindrical.
- **Type D3a (Fig. 151.8-11)** - Cylindrical tubes up to 2 cm. in length, all with a circular cross-section.
- **Type D3b (Fig. 151.12)** - Tubes up to 2 cm. in length, with a square to irregular cross-section.

**Type D4:** Spherical to squat discs.
- **Type D4a (Fig. 151.13)** - Undecorated spherical beads.
- **Type D4b (Fig. 151.14-15)** - Spherical to disc-shaped beads with longitudinal, incised furrows.

Looking at paste beads from other sites in the Oman Peninsula, one is struck by the wide variety of forms. Many, such as those from Tawi
Table 13. Quantities of Paste Bead Types.

<table>
<thead>
<tr>
<th>Bead Type</th>
<th>D1a</th>
<th>D1b</th>
<th>D2a</th>
<th>D2b</th>
<th>D3a</th>
<th>D3b</th>
<th>D4a</th>
<th>D4b</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantity</td>
<td>5</td>
<td>59</td>
<td>3</td>
<td>14</td>
<td>16</td>
<td>3</td>
<td>1</td>
<td>13</td>
</tr>
</tbody>
</table>

Fig. 152. A series of type D1b and D2b paste beads from Tomb I. Scale c. 1:1.

Silaim (de Cardi et al. 1979: 74-77; Fig. 8), are microbeads (Fig. 8.d); segmented beads (Fig. 8.m); small cylinders (Fig. 8.w) or spheroids (Fig. 8.bb), very unlike the paste beads from Al Sufouh. Analysed by X-ray powder diffraction, the Tawi Silaim beads are called ‘Egyptian faience’, explained as a “sintered quartz body” (de Cardi et al. 1979: 74). More similar to the Al Sufouh paste beads are those from Ajman Tomb B, where limited numbers of our types D1b, D2b and D4a & b are present (Haerinck 1991: Fig. 9.33E; Al-Tikriti 1989: Pl. 46). The type D4b (“melon”) beads from Ajman, however, are made from a dark rather than a whitish paste. Other dark, paste melon-shaped beads were recovered from the Umm an-Nar tomb at Shimal (RAK Museum), where many other blueish paste beads were also found. “Fritte” beads are mentioned in the reports on Tomb A at Hili North, but no further descriptions or illustrations have been published (Cleuziou and Vogt 1985: 257; Vogt 1985a: 33). Whitish-blue examples of Types D1b, D2b, D3 and D4 paste beads were recovered from Tomb B at Hili North. However, only two faience beads are reported from the tombs on Umm an-Nar island (Frifelt 1991: 112).

Fishbone - Type E Beads (Fig. 153.1)

Eighty-three fishbone beads were recovered at Al Sufouh. All are made from individual vertebrae. Considering the site’s proximity to the coast, this seems a rather small quantity. Comparatively small vertebrae were used, varying from .07-.25 cm. in length and .21-.47 cm. in diameter. Other fish vertebra beads from the Umm an-Nar tomb at Shimal were often very large and sometimes burnt. Jabal al-Emalah has also yielded 43 fish vertebra beads and the inland location of this site is a positive indication of trade in such items. Some examples from this latter site were in fact found in situ, strung together with pink and white soft-stone beads (Benton and Potts 1994: 51). Neither the tombs from Umm an-Nar island nor the Ajman tomb yielded any fish bone beads.
For a coastal site, Al Sufouh yielded very few shell beads. *Conus catus* and *Engina mendicaria*, two of the most common shells used for the manufacture of beads in the third millennium B.C., are not represented at all. Only *dentalium* (*Dentalium octangulatum*) beads were recovered, numbering 30 in all. None of this number were found in situ, however, and due to the nature of the surrounding sand, which included shell, it cannot be said for certain that these were all used as beads. The general paucity of shell beads at many coastal sites (e.g. Umm an-Nar, Ajman, Al Sufouh, Tell Abraq) may reflect a lack of interest in materials that were commonly available. Greater numbers at inland sites such as Jabal al-Emalah and Jabal Hafit, may reflect the opposite, with a greater interest in shell beads due to their lack of immediate availability.

**Rock Crystal - Type G Beads**

Only seven beads from Al Sufouh have been identified as rock crystal, a silicate belonging to the quartz family. It should be noted that this identification is based purely on a visual determination of the translucence of the stone, rather than on an examination of crystalline structure. Analysis of one example from this group (AS 11223) proved it in fact to be an agate bead, which is usually a banded variety of quartz (see Appendix 3). This example is in fact opaque rather than translucent.

Of the seven beads in this category, three are squat barrels and four are squat bicones. The latter closely resemble the rock crystal beads characteristic of Hafit period graves.

**Agate - Type H Beads (Fig. 154)**

Agate is another member of the silicate family, related to quartz (Sax and Middleton 1992: Fig. 2). As such it is a variegated chalcedony, comprised of different bands of colour. There may be obvious distinctions between these bands (AS 9195, Fig. 154.3), or they may fade into one another. Agate is generally found in amygdaloidal volcanic rocks as filling in vesicles (Read 1970: 442-443). Banding in agates is formed by the intermittent nature of the mineral’s depositon in these vesicles or cavities and the bands run parallel to the walls of the cavities.

Five agate beads were recovered at Al Sufouh. Four, from Tomb II, were barrel-shaped while the fifth, from Tomb I, was biconical. Two were analysed by X-ray diffraction analysis, the results of which are presented in Appendix 3.

**Lapis Lazuli - Type J Beads (Fig. 155)**

The major mineral component of the semi-precious stone lapis lazuli is lazurite, a member of the complex feldspathoid sodalite group (Whitten
Fig. 155. Type J - Lapis lazuli Beads

1. AS 7203 Scale 1:1
   Location: Tomb II; Layer 7; E 80.67 N 10.63; Elev 4.05
   Dimensions: Lgth 0.42 cm.; Wdth 0.69 cm.; Th 0.28 cm.
2. AS 11041 Scale 2:1
   Location: Tomb II; Layer 15; E 81.0-81.5 N 10..5-11.0; Elev 3.75-3.70
   Dimensions: Lgth 0.46 cm.; Wdth 0.68 cm.; Th 0.32 cm.

and Brooks 1972: 174). Rating 5.5 on the Mohs’ scale (Read 1970: 438), lapis lazuli occurs in crystalline limestone near granite contacts, and is therefore of contact metamorphic origin (Read 1970: 438). The very specific interaction between a restricted range of igneous rocks and carbonate (metamorphic) sediments explains the infrequent natural occurrence of lapis lazuli (von Rosen 1988: 11). In thin section lapis is transparent to translucent, and is vitreous in lustre. It cleaves imperfectly to a rhombohedral pattern.

Five artefacts made from lapis lazuli were recovered at Al Sufouh, including two beads from Tomb II (three frog amulets are presented in the Miscellaneous Chapter). Both are diamond-shaped and lozenge-like in section. No precise parallels for this combination of form and material can be found in the Oman Peninsula, although small numbers of lapis beads in other forms are present. Three tabular disc beads (Beck 1927: Pl. 1) were found in Tomb B at Hili North. Two beads from Umm an-Nar island have been identified as lapis lazuli, one a short cylinder, the other a small barrel (Friifelt 1991: 112, Fig. 247 and 251). Two carnelian beads from Tell Abraq are similar in shape to the Al Sufouh lapis beads. At Tomb A Hili North (Vogt 1985a: Taf. 73.12), a white paste and a dark red carnelian bead also show a similar shape.

The closest source of lapis lazuli to Al Sufouh is in Badakhshan, Afghanistan, and it is widely believed that most of the lapis found in Iran, Mesopotamia and the Gulf originally derived from this location (Casanova 1992: 56). Research concerning the trade routes used for the movement of lapis confirm the use of a northern Iranian route, the Khorasan Road (Herrmann 1968: 21-57), as well as a southern conduit through Kerman, Fars and Khuzistan (Majidzadeh 1982: 59-70). It is also certain that lapis lazuli was traded directly south resulting in its presence at sites in the Indus valley. That it was traded as a raw material as well as in finished form is attested both archaeologically and in Mesopotamian cuneiform sources (van Rosen 1988, 1990). Objects of lapis lazuli were produced in Iran at Shahr i-Sokhta (Tosi and Piperno 1973) and Tepe Hissar (Bulgarelli 1979); in Pakistan at Mehrgarh (Tosi and Vidale 1990); at sites in the Indus Valley including Chanhu-daro (Mackay 1943: 140) and Mohenjo-daro (Pracchia, Tosi and Vidale 1985) and possibly in the Gulf on the island of Tarut (Zarins 1978: 67). Despite the fact that cuneiform sources indicate the import of lapis as a raw material, workshops have not yet been located in southern Mesopotamia. That this is a reflection of a concentration of excavation on palaces and temples rather than domestic areas seems likely (Lamberg-Karlovsky 1975: 356).

The source of the lapis beads found at Al Sufouh is difficult to determine. No exact parallels for form and material have been found. Evidence from other categories of material culture indicates that the site was in contact with Iran, Mesopotamia and the Indus Valley suggesting that any of these areas may have been the source. The fact that the lapis lazuli frogs (Miscellaneous Chapter) are of probable Mesopotamian origin may or may not be relevant.
Miscellaneous Stone Beads - (Figs. 156-157)

A total of 29 unidentifiable stone beads were recovered from the tombs. These display a wide variety of forms. Of particular note in this category is an irregular, black cylindrical bead from Tomb I (AS 12375, Fig. 157). The stone is lustrous, without inclusions, and shows swirls of translucent brown. The bead was perforated longitudinally, drilled from both ends with the axels not completely aligned. Both ends of the bead were concave. The material most closely resembles obsidian.

Evidence for the Reconstruction of Manufacturing Techniques

When examined carefully, the Al Sufouh beads provide a great deal of information relating to the mode of their production. Despite the fact that we are still uncertain of the origins of the Al Sufouh beads, it was considered important to record and present the information available on possible manufacturing techniques. This data is presented in Tables 14 and 15.

Serpentinite Beads - Type A, Table 14
Although this table relates primarily to the beads of type A, the data on bead types created from a serpentinite paste is also applicable to other paste bead forms.

Carnelian Beads - Type C, Table 15
The observations on the production of carnelian beads presented in Table 15 are likely to be valid for beads made from other various chalcedonies and agates.

Standardisation and Bead Production

As a large number of the total bead population from Al Sufouh were measured it is possible to broach the issue of standardisation in bead manufacture. The complexity of the relationship between technical systems and social organisation is acknowledged (Roux 1990: 142), but further discussion of this topic will not be attempted here. As there is no evidence in the
<table>
<thead>
<tr>
<th>Serpentine Bead Types</th>
<th>Perforation</th>
<th>Sectioning</th>
<th>Shaping</th>
<th>Production Hypothesis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type A2b</td>
<td>No evidence of drilling from either end. The length and thinness of the walls suggests drilling would not be an effective technique for the perforation of beads of this type. Thus perforation may be a result of moulding around a fibre which disintegrated during moulding.</td>
<td>Apparently cut before firing.</td>
<td>During the moulding process.</td>
<td>A serpentine paste was created and formed around a reed or suitable combustable material, or squeezed through a perforated disc. Desired lengths were cut then fired.</td>
</tr>
<tr>
<td>Type A3</td>
<td>As Type A2b.</td>
<td>As Type A2b.</td>
<td>During the moulding process, and certainly after the individual beads had been sectioned, if indeed they were originally in a longer tube.</td>
<td>A serpentine paste was created and formed around a reed or suitable combustable material, or squeezed through a perforated disc. Desired lengths were cut then fired.</td>
</tr>
<tr>
<td>Type A5a</td>
<td>Furrows spiralling in the interior suggest drilling - possibly from both ends. Sometimes a shoulder remains where the two drill holes met. Also possible to interpret the furrows as a combustable cord that left a perforation once the bead was fired.</td>
<td>Evidence of sawing - whether prior to or after firing is difficult to determine. Ends differ in appearance to those of Type A2b and A3.</td>
<td>After perforation and sectioning.</td>
<td>Possibly not manufactured from a paste(?)</td>
</tr>
</tbody>
</table>

Table 14. Evidence for the manufacture of Type A, serpentine beads. (continued next page)
**Table 14. Evidence for the manufacture of Type A, serpentinite beads. (continued)**

<table>
<thead>
<tr>
<th>Serpentine Bead Types</th>
<th>Perforation</th>
<th>Sectioning</th>
<th>Shaping</th>
<th>Production Hypothesis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type A5b</td>
<td>As Type A5a.</td>
<td>Evidence of sawing</td>
<td>As Type A5a.</td>
<td>As Type A5a.</td>
</tr>
<tr>
<td>Type A5c</td>
<td>As Type A5a.</td>
<td>As Type A5b.</td>
<td>As Type A5a.</td>
<td>As Type A5a.</td>
</tr>
<tr>
<td>Type A5d</td>
<td>As Type A5a.</td>
<td>Degraded</td>
<td>As Type A5a.</td>
<td>As Type A5a.</td>
</tr>
</tbody>
</table>

**Table 15. Evidence for the manufacture of Type C, carnelian beads.**

<table>
<thead>
<tr>
<th>Carnelian Bead Types</th>
<th>Perforation</th>
<th>Sectioning</th>
<th>Shaping</th>
<th>Production Hypothesis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type C1a-c</td>
<td>Achieved by drilling from both ends. In almost every case a shoulder is evident where the perforations meet.</td>
<td>Variable. Some appear to have been fully shaped and then the ends truncated, whilst others appear to be truncated and then shaped secondarily.</td>
<td>General shaping prior to drilling and the rest after drilling.</td>
<td>Unworked stone, roughly formed into blank; drilled; shaped; either truncated or left; then polished</td>
</tr>
<tr>
<td>Type C2a-c</td>
<td>Achieved by indirect percussion to either end resulting in the dislodgement of a large flake.</td>
<td>Some are then truncated, others not.</td>
<td>General shaping prior to percussion and the rest after.</td>
<td>Unworked blank, roughly shaped (always squat); indentation hollowed on perforating surface, partial drilling to achieve depth; indirect percussive blow removes flake on opposite end then turning of tool through to separate shoulders further (Chevalier, Inizan and Tixier 1982:62).</td>
</tr>
<tr>
<td>Type C1d</td>
<td>Achieved by drilling from both ends. In almost every case a shoulder where the perforations meet is evident.</td>
<td>Variable. Some appear to have been fully shaped and then ends truncated, whilst others appear to be truncated first and then shaped secondarily.</td>
<td>General shaping prior to drilling and the rest after drilling.</td>
<td>Unworked stone, roughly formed into blank; drilled; shaped; either truncated or left; then polished.</td>
</tr>
<tr>
<td>Type C2d</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type C3</td>
<td>Achieved by drilling from both ends. In almost every case a shoulder where the perforations meet is evident.</td>
<td>Variable. Some appear to have been fully shaped and then ends truncated, whilst others appear to be truncated first and then shaped secondarily.</td>
<td>General shaping prior to drilling and the rest after drilling.</td>
<td>Unworked stone, roughly formed into blank; drilled; shaped; either truncated or left; then polished.</td>
</tr>
</tbody>
</table>
Oman Peninsula for the production of beads of any type, the presentation of statistical data relating to specialisation will be brief, in the hope that we will, in future, be able to ascribe the various bead types to an area of manufacture.

The following graphs plot the lengths and diameters of the various types of serpentinite and soft-stone beads. A short summary follows, calling attention to some of the salient points raised by the graphs (Figs. 158-171).

Serpentinite Beads - Type A (Figs. 158-167)
Fig. 160. Graph charting lengths of Type A5a beads.
Length Mean: 0.18 cm.
Length Standard Deviation: 0.02 cm.

Fig. 161. Graph charting diameters of Type A5a beads.
Diameter Mean: 0.40 cm.
Diameter Standard Deviation: 0.03 cm.
Fig. 162. Graph charting lengths of Type A5b beads.
Length Mean: 0.17 cm.
Length Standard Deviation: 0.04 cm.

Fig. 163. Graph charting diameters of Type A5b beads.
Diameter Mean: 0.32 cm.
Diameter Standard Deviation: 0.05 cm.
Fig. 164. Graph charting lengths of Type A5c beads.
Length Mean: 0.14 cm.
Length Standard Deviation: 0.05 cm.

Fig. 165. Graph charting diameters of Type A5c beads.
Diameter Mean: 0.21 cm.
Diameter Standard Deviation: 0.04 cm.
Fig. 166. Graph charting lengths of Type A5d beads. 
Length Mean: 0.08 cm. 
Length Standard Deviation: 0.03 cm.

Fig. 167. Graph charting diameters of Type A5d beads. 
Diameter Mean: 0.23 cm. 
Diameter Standard Deviation: 0.04 cm.
Soft-stone Beads - Type B (Figs. 168-171)

Fig. 168. Graph charting lengths of Type B1a beads.
Length Mean: 0.15 cm.
Length Standard Deviation: 0.04 cm.

Fig. 169. Graph charting diameters of Type B1a beads.
Diameter Mean: 0.30 cm.
Diameter Standard Deviation: 0.06 cm.
Fig. 170. Graph charting lengths of Type B1b beads.
Length Mean: 0.15 cm.
Length Standard Deviation: 0.03 cm.

Fig. 171. Graph charting diameters of Type B1b beads.
Diameter Mean: 0.28 cm.
Diameter Standard Deviation: 0.04 cm.
Summary of Statistical Results

The graphs relating to Type A2a/b beads (Figs. 158 and 159) show that while diameter is quite standardised, length is extremely variable. This would support the notion presented earlier in this chapter that these beads may have been formed in long tubes, possibly from a paste, and then cut into lengths. Such a manufacturing technique would result in standardised diameters and variable lengths.

Regarding the serpentinite microbeads of types A5a-c, (Figs. 160-165), very high levels of standardisation are evident, both in length and diameter. The sheer quantity of beads of this type found at one site is further confirmation of a high level of standardisation in production.

Of the soft-stone bead types (Figs. 168-171), Type B1b shows greater evidence of standardisation than does Type B1a. Of further interest is a closer examination of Fig. 170, a plot of the lengths of type B1b beads. The very abrupt beginning to this curve may indicate a manufacturing boundary. It is possible that very thin microbeads of soft-stone were the desired product but that it was physically impossible to create a bead, of this material and with the operational technique in use, that was smaller in length than 0.07 cm.
Copper Objects

Introduction

Sixty-six copper objects were recovered from Tombs I, II and III. This includes material from both the Dubai Museum and University of Sydney excavations. Table 16 presents the general object categories recovered at Al Sufouh and the quantities of each item found in the three principal tombs.

The availability and exploitation of copper in the Oman Peninsula (ancient Magan) is now well-proven (Costa 1981; Weisgerber 1980, 1981a; 1981b; Hauptmann et al. 1988; Potts 1990b: 119-125). Evidence for primary smelting has been found at inland sites close to exploitation areas, while secondary refining and casting is documented at Umm an-Nar (Frifelt 1991b: 98), Tell Abraq (Potts 1990b: 122-123), and as far afield as Masirah in the south (Potts 1990b: 125). No evidence has been recovered for the refining or casting of copper at Al Sufouh. However, considering the evidence from both Umm an-Nar Island and Tell Abraq, it is certainly possible that copper objects were manufactured at Al Sufouh, despite the distance of the site from source areas.

The term copper will be used in reference to the objects presented in this report because none have as yet undergone trace element analyses to determine their composition. Objects previously analysed from third millennium B.C. contexts on Umm an-Nar Island and Tell Abraq showed no evidence of tin alloying (Frifelt 1991: 99; Craddock 1982: 242-243; Hauptmann 1995: 246-248; Pedersen and Buchwald 1991: 8). It is therefore certainly possible that the Al Sufouh metal objects were cast from pure copper rather than a tin/copper alloy. Tin bronze has, however, been detected in three late third millennium contexts: the clay lining of a furnace at Hili 8, period IIf (Cleuziou 1989: 74); a dagger from Hili Garden Tomb 1059 (Berthoud et al. 1982: 47; Cleuziou 1989: 74); and in a surprising number of metal objects from the Umm an-Nar settlement and tomb at Tell Abraq (analyses in progress. Lloyd Weeks: Pers. Comm.). Such finds are nonetheless unusual in the third millennium and evidence of a sustained tin bronze industry in Oman does not appear until the second millennium B.C. Tin bronzes may have been imported as finished products, but considering the Hili 8 evidence it is also possible that tin was imported as a raw material and then alloyed with local copper (Potts 1990b: 124-125).

Table 16. Distribution of copper object types present in the Al Sufouh tombs.

<table>
<thead>
<tr>
<th></th>
<th>Tomb I</th>
<th>Tomb II</th>
<th>Tomb III</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dagger Blades</td>
<td>9</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Blade-axe</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Rivets</td>
<td>-</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>Awls/Pins</td>
<td>6</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Rings</td>
<td>6</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Fragments (unident.)</td>
<td>3</td>
<td>14</td>
<td>14</td>
</tr>
</tbody>
</table>
Finally, a note on the general deposition of the copper objects is warranted. None were found in association with specific individuals or parts thereof. In Tombs II and III, the copper objects were randomly dispersed amongst the burnt bone and it seems likely that they, along with the ceramics and beads, were included in the funerary pyre and then deposited in the burial pits. Burnt bone was found embedded into the corrosion products of two of the daggers and a further three showed grey-black corrosion products on the surface, often overlying the chunky, green carbonate corrosion. These grey-black corrosion products are likely to be oxides, and oxide scaling can form on the surface of metals when they are heated. Without cross-section metallographic analyses it cannot be proven beyond doubt that these objects underwent secondary burning (Jo Willey: Pers. Comm.), but their inclusion in the cremation ritual seems likely.

There follows a brief discussion of each object category, including an illustrated presentation of the individual objects together with their find location, measurements and closest parallels.

**Daggers (Figs. 173-186)**

Gordon (1953: 67) arbitrarily defined the dagger as a sword-like weapon less than 35.5 cm. long. The only Al Sufouh weapon not to conform to this criterion, DM 4 (Fig. 173), will be included under this definition due to its morphological similarity to the others. The use of the term dagger, however, does not presuppose that the Al Sufouh weapons were wielded by hand. It is possible that they were mounted on shafts and as Gordon notes, “the spear is just a dagger at the end of a shaft” (Gordon 1953: 68).

The corpus of daggers from Al Sufouh can be divided very broadly into three groups. The first group, Type 1, (Figs. 173-178) encompasses daggers that are long (25-38 cm.), with well-defined shoulders leading to a rectangular tang that has a minimum of three evenly spaced rivet holes down the centre. The midrib is generally flattened and the blade characterised by parallel sides, converging only at the tip of the blade. The second group, Type 2 (Figs. 180-183), consists of shorter (13-21 cm.), blunt or rounded-end blades with ill-defined shoulder transition, causing a gradation from the blade into the tang, which is characterised by single or double rivet holes. A similar blade from Ajman has been described as a spatula (Haerinck 1991: 15). Type 3, the final category, consists of only two blades (Figs. 184-185), both of which are short, (13-15 cm.) very flattened in section and with sides which converge quite sharply to form the point. Neither blade has a tang. One has three rivet holes in triangular alignment through the base end of the blade (DM 46, Fig. 184) while the other (Fig. 185) has two centrally placed holes.

Two blades do not conform to the above groupings. AS 3755 (Fig. 178) is probably closest to Type 1, but is much shorter with a pointed rather than a flattened midrib, and none of the rivet holes characteristic of the Type 1 blades. DM 11 (Fig. 186), on the other hand, is quite unusual in shape with the definition between tang and blade consisting of a convex point rather than the traditional shoulder. The remains of a further two
blades (Figs. 190 and 191) are too fragmentary to assign to a specific type. AS 9910 (Fig. 191) is notable by virtue of its comparatively thick midrib, giving it a lozenge-shaped section.

An interesting feature of the Al Sufouh daggers is that all possess rivet holes, either through the tang or the base of the blade, a feature which suggests they were hand-held weapons rather than projectiles. Seven of the complete or semi-complete daggers showed evidence of bending in the upper part of the blade. This may be the result of warping due to heating or it may be evidence of deliberate bending. The very uniform angle to which many of the dagger tips are bent, lends support to the notion of deliberate bending (Appendix 2). Such bending over of weapon tips has been noted in Palestine, where it is thought to reflect a ritual practice (Tubb 1988: 64), and bent weapons have also been found in Margiana at Togolok 21 (Hiebert and Killick 1993: 193, Fig. 12,14 and 15).

When comparing Al Sufouh with other late third millennium tomb groups in the Oman Peninsula, one is struck by the large number of weapons/tools present. This is especially true in comparison to the largest tomb deposit in the area, Hili North Tomb A, which surprisingly had no weapons or implements at all (Vogt 1985: 33). This may of course be the result of plundering (Cleuziou and Vogt 1985: 183-184), but copper blades were even absent in Chamber 3, where no evidence of robbing was found and the interred individuals were fully articulated. In this respect, the daggers of Al Sufouh represent a unique collection, as very few Umm an-Nar period tombs managed to escape the plundering that has stripped most assemblages of their larger copper artefacts.

A closer look at each of the three types described above and their deposition in Tombs I-III reveals some interesting patterns (Fig. 172). Tomb I, the earliest, contained all of the Type 1 daggers along with examples of Types 2 and 3, while Tomb II contained only Type 2 daggers and Tomb III contained both Types 2 and 3. That Tomb I possesses the greatest variety of types is a feature already noted ceramically.

Fig. 172. Distribution of dagger types present in the Al Sufouh tombs.
Type 1 (Figs. 173-178)

Daggers such as these are extremely rare in the Oman Peninsula, the only parallels being two pieces from Hili Garden Tomb 1059 (Bibby 1966: 150, Fig. 4; Bibby 1967: 94, Fig. 13) and a third, unpublished dagger from the Umm an-Nar tomb at Wadi Munay'ı (C. Phillips: Pers. Comm.). There is nonetheless notable variation among the eight Type 1 examples identified to date. The longer of the two Hili daggers (Bibby 1966: Fig. 4) and the Wadi Munay'ı dagger both have a very sharply pointed midrib and sides that begin to converge from the shoulder to form the point. The Al Sufouh examples, like the second Tomb 1059 dagger (Bibby 1967: Fig 13), have a rather flattened midrib, when present at all, and very parallel sides, leading to a rounded point. One other similar dagger from Tomb XII on Umm an-Nar, although not strictly of Type 1, should also be mentioned (Al-Tikriti 1982: 144, Pl. 160). This object, described as a spearhead, has a short, lanceolate blade with convex sides leading to a point. The exceptionally long tang has a rectangular section with four rivet holes centrally and evenly placed, and is in this regard similar to the daggers from Hili and our Type 1.

The presence of Type 1 daggers only in Tomb I may be chronologically significant. As Tomb I is the earliest, the daggers of Type 1 may have been in use as early as c. 2400 B.C., with daggers of Types 2 and 3 becoming popular slightly later, and thus being present in all three of the tombs. Further discussion of chronology will be reserved for the conclusion of this report.

The rarity of Type 1 daggers calls for an examination of possible external parallels, a task originally undertaken by During Caspers (1970), who classed these daggers as her Type 5, describing them as short tanged swords or dirks (During Caspers 1970: 262-270). In her analysis, based only on the two Hili daggers, trade with the Indus region was offered as an explanation for their presence in the Oman Peninsula and parallels were drawn to weapons from the upper levels of Mohenjo-Daro. The Hili daggers were thought to fit into a proposed developmental sequence moving from shorter daggers with centrally placed rivet holes (Mackay 1938: Pl. CXXIII.6; Pl. CXXIII.7) to those with rivet holes in the shoulder of the blade (Mackay 1938: Pl. CXXIII.3; Pl. CXIX.9). Chronologically, this implied “contact between Hili and the Harappan Civilization during the Period Late Ib or Late II which would lead to roughly the same date for the Hili swords.....namely ca. 2000-1900 B.C.” (During Caspers 1970: 268). According to the chronological indications from Al Sufouh mentioned above, this date would seem several centuries too late. More importantly, on close inspection the parallels suggested appear unfounded.

In light of more recently excavated material, a reassessment of the Type 1 daggers and their origin seems to be in order. In reviewing copper and bronze weapons recovered at sites extending from Palestine to India, one is struck primarily by the fact that very few daggers or swords have tangs as long as those of Type 1 (up to 14 cm. long). This feature, as well as the unusual parallel sides leading to a rounded point, seems rather to indicate a probable local origin for this form, especially as no close, external parallels can be adduced. Inspiration for this type, however, may have come from either Iran or the Indus region as parallels for some of the features.
Type 1 daggers. Scale 1:3.

Fig. 173. DM 4
Location: Tomb I, South entrance.
Dimensions: Lth: 37.8 cm.; Max. Brdth: 3.2 cm.; Max. Th: 0.8 cm.
Parallels: - See DM 2.

Fig. 174. DM 2
Location: Tomb I, Chamber 6.
Dimensions: Lth: 34.7 cm.; Max. Brdth: 3.5 cm.; Max. Th: 0.62 cm.
Parallels: - Hili Garden: Tomb 1059
- (Bibby 1966: Fig. 4; Bibby 1967: Fig. 13)
- Wadi Munay'i: UAN tomb - (pers. comm. C. Phillips)
- Umm an-Nar: Tomb V - (Frifelt 1991: Fig. 213. Blade only - no tang)
Foreign Parallels: - India: Rewari - (Yule 1985: PI. 99.1068)
- Mohenjo Daro - (Mackay 1938: PI. CXXXIII.7)
- Susa - (Tallon 1987: 162.125; 172.166,167; 173.169)
Fig. 175. DM 3
Location: Tomb I, Chamber 6.
Dimensions: Lth: 33.6 cm.; Max. Brth: 4.9 cm.; Max. Th: 0.9 cm.
Parallels: - See DM 2.

Fig. 176. DM 7
Location: Tomb I, passageway between Chambers 4 and 6.
Dimensions: Lth: 31.9 cm.; Max. Brth: 3.6 cm.; Max. Th: 0.4 cm.
Parallels: - Umm an-Nar: Tomb II - (Frifelt 1991: Fig. 211.c. This example is shorter and has a more pronounced and thickened midrib).
- Umm an-Nar: Tomb X - (Al-Tikriti 1982: Pl. 160.F. This example is without rivet holes, and with a raised midrib).
described above do exist in these areas (Fig. 179). The most similar published piece (Fig. 179.1), is an undated, but probably mid-second millennium B.C. dagger from Rewari, in the upper Gangetic region of central India (Yule 1985: Pl. 99.1068). Other daggers (Fig. 179.3–4) with somewhat shorter tangs, converging sides, and three rivet holes, are known from Susa, the earliest of which is dated to the 23rd century B.C. (Tallon 1987, Vol. 2: 24, 172). Two daggers from Susa, dated to the ED III period (Tallon 1987, Vol. 1: 126; Vol. 2: 172-173) exhibit the straight-sided blades of the Al Sufouh Type 1 daggers (Fig. 179.5–6). Another parallel (Fig. 179.2) comes from Mohenjo Daro and is the Harappan piece most similar to ours.

With respect to the proposed local origin of Type 1 daggers, it is relevant to note the trace element analyses carried out on one of the daggers from Tomb 1059 at Hili (Cleuziou 1989: 74). Results showed a 6% tin content, but unfortunately none of the publications concerned with the analysis actually state which of the two daggers was analysed. This is relevant because of the fact that the longer of the two Hili daggers was somewhat different in appearance, as explained above, and it is the shorter one that appears closest in shape to the Al Sufouh daggers. Nonetheless, the presence of such a quantity of tin is evidence of purposeful alloying, for
Hauptmann notes that “considering the geochemistry of the copper ores from Oman there is no doubt that even tin contents below 0.5% were intentionally added” (Hauptmann et al. 1988: 46). If the Type 1 daggers are local in origin as proposed, then the tin content must either be the result of alloying with imported tin or of melting down and recasting using an imported tin bronze object. Until further scientific work on the blades from Al Sufouh, Wadi Munay’i and Hili is undertaken, no firmer conclusions than these can be proposed.

Type 2 (Figs. 180-183)
As shown in Fig. 172, blades of Type 2 are present in the three major Al Sufouh tombs. DM 40 (Fig. 180) and AS 6980 (Fig. 181) are both quite spatula-like and have centrally placed rivet holes through the narrow base of the blade. AS 6979 (Fig. 182) and DM 1 (Fig. 183), with three rivet holes for securing the handle, are slightly squarer. It is certainly possible that these blades are tools of some type rather than daggers in strict definition. The closest and only local parallel for these comes from Tomb B at Ajman, but even this example differs in possessing a more defined tang than our Type 2 blades.

Only one foreign parallel for Type 2 can be adduced, a blade from Harappa (Vats 1940: Pl. CXXIII.66). It is certainly possible, and indeed probable that, like the Type 1 daggers, Type 2 may also be of local Omani origin.

Type 3 (Figs. 184-185)
Although somewhat different from each other, the two blades assigned to Type 3 share enough features to constitute a type within the Al Sufouh assemblage. No parallels exist in the Oman Peninsula, but one very close parallel for AS 7843 (Fig. 185) comes from Chanhu Daro (Fig. 186.1) while a second comes from Diraz on Bahrain (Lombard and Kervran 1989: 29). Mackay suggested that these knives were so small that they were probably used in craft rather than ordinary household activities (Mackay 1943: 182). Regarding DM 46 (Fig. 184), no near parallels can be cited, but the most similar blades are those of Type 16 (Fig. 186.3) and 22 in Maxwell-Hyslop’s typology (1946: Pl. II.16 and Pl. III.2).

These dagger types are widespread in the Eastern Mediterranean, with several examples known in Anatolia c. 2400-1600 B.C. (Maxwell-Hyslop 1946: 19-20). Geographically closer is a vaguely similar blade from Susa (Fig. 186.2), described as being of a type found in northern Syria and Mesopotamia throughout the third millennium B.C. (Tallon 1987, Vol. 1: 118).

The final blade to be considered is DM 11 (Fig. 187). Although not of Type 3, it has a generally similar form. No close parallels can be found, but Maxwell-Hyslop’s Type 21 blades, found in North Syria c. 2200 B.C. (Maxwell-Hyslop 1946: 24), are generally similar.

Summary
The Al Sufouh collection is unique among the copper weapon and tool
Fig. 179. Foreign parallels for the Al Sufouh Type 1 daggers.
Scale 1:3

1. - India: Rewari - (Yule 1985: Pl. 99.1068)
2. - Mohenjo Daro - (Mackay 1938: Pl. CXXXIII.7)
3. - Susa - (Tallon 1987: 162.125)
4. - Susa - (Tallon 1987: 172.167)
5. - Susa - (Tallon 1987: 173.169)
Type 2 Daggers. Scale 1:2

Fig. 180. DM 40
Location: Tomb I, South entrance.
Dimensions: Lth: 21.0 cm.; Max. Brdth: 3.0 cm.; Max. Th: 0.4 cm.
Parallels:- Ajman: Tomb B - (Haerinck 1991: Fig. 8.30)
Foreign Parallels: - Harappa - (Vats 1940: Pl. CXXIII.66; Pl. CXXI).

Fig. 181. AS 6980
Location: Tomb III; Layer 8; E'76.0, N 16.50; Elev 4.20-4.15.
Dimensions: Lth: 13.0 cm.; Max. Brdth: 3.5 cm.; Max. Th: 0.38 cm.
Parallels: - See DM 40.
Fig. 182. AS 6979
Location: Tomb II; Layer 4; E 80.575; N 10.915; Elev 4.125
Dimensions: Lth: 14.9 cm.; Max. Brdth: 3.4 cm.; Max. Th: 0.30 cm.

Fig. 183. DM 1
Location: Tomb 1, top of tomb wall.
Dimensions: Lth: 14.3 cm.; Max. Brdth: 3.3 cm.; Max. Th: 0.25 cm.
Type 3 daggers. Scale 1:2

Fig. 184. DM 46
Location: Tomb I, South entrance.
Dimensions: Lth: 15.0 cm.; Max. Bth: 2.54 cm.; Max. Th: 0.4 cm.
Parallels: - Umm an-Nar; Tomb II - (Friisfelt 1991: Fig. 211.b)
- Alisar-Höyük - (Maxwell-Hyslop 1946: Type 16, Pl. II).

Fig. 185. AS 7843
Location: Tomb III; Layer 10; E 75.955; N 17.11; Elev 4.09
Dimensions: Lth: 13.4 cm.; Max. Bth: 2.77 cm.; Max. Th:.20 cm.
Foreign Parallels: - Chanhu-Daro - (Mackay 1943: Pl. LXXI.7; Pl. LXX.21)

Fig. 186.
Type 3 - Foreign Parallels:
1 and 2 - Scale 1:2, 3 - Scale 1:3.
1. Chanhu-Daro - (Mackay 1943: Pl. LXXI.7; Pl. LXX.21)
assemblage of the third millennium B.C. in the Oman Peninsula. That these
types are primarily local in origin seems evident from the clear absence of
close parallels outside the region, although evidence of local production
and the results of compositional analyses are not yet available. The lack of
close parallels within the Oman Peninsula seems attributable to the paucity
of copper artefacts in the Umm an-Nar material record rather than any lack
of a local copper tool and blade industry.

**Blade-axe (Fig. 188)**

There is an extremely wide distribution of blade-axes across the whole of
Western Asia in the third millennium, with very little stylistic differentia­
tion evident. Local parallels for DM 5, found in Tomb I, can be cited at
Maysar (Weisgerber 1981a: Abb. 34; 1983: Pl. 7), Tell Abraq (Potts 1990a:
Fig. 36) and Umm an-Nar (Frifelt 1975a: Fig. 46; Frifelt 1995: Fig. 276).
External parallels can be found in the Indus Valley (Fig. 189.1), Iran (Fig.
189.2) and Mesopotamia. References for these parallels are included in the
object description.

**Rivets**

Only two rivets, both from Tomb III, were recovered at Al Sufouh. These
are similar to those found still in situ in some of the blades discussed above.
The fact that few were found may be an indication that they were lost
during the transferral of bone and objects from the funeral pyre to the inter­
ment pits, or simply left behind at the pyre site.

**Awls/Pins (Figs. 192-193)**

The function of objects in this category is often impossible to interpret.
One example from the settlement on Umm an-Nar Island, however, with a
bone handle intact around the rectangular end of the copper shaft, has been
interpreted as an awl (Frifelt 1995: Fig. 277). In some cases, e.g. DM 42
and 45 (Fig. 192.1 and 6), the shaft is square in section, grading to circular
towards the tip, or circular in section throughout as the other four examples
illustrate. Awls or pins of this type are common in all periods from the early
third millennium onwards in tombs across the Oman Peninsula.

**Rings (Figs. 194-195)**

Copper rings are another common feature in tombs of the Umm an-Nar
period, and are found at almost every site. The form is predictable, with
ends either meeting (Fig. 194.7-9) or overlapping slightly (Fig. 194.1-6).
Unfortunately, none were found in situ on an individual. Thus whether
they were finger or toe rings is unclear. At both Tomb A Hili North (Vogt
1985a: 33) and Tell Abraq (Potts 1995: Abb.8) rings have been found
in situ on the toes of interred individuals. Interestingly, no rings were
recovered from any of the tombs on Umm an-Nar island and Frifelt notes that no other forms of jewellery were found either, “just weapons and tools, grave gifts for men - unless leather work was female labour” (Frifelt 1991: 98). The assumed gender roles inherent in this statement deserve brief comment as they imply a cognitive knowledge of Umm an-Nar society which we certainly do not have. The notion that jewellery is an artefact class to be identified with females only must be rejected, so too the notion that weapons and tools are the domain only of males. In Tomb A Hili North an absolute minimum of 64 males were interred (el-Najjar 1985: 38), yet no weapons were recovered, only pins and rings (Vogt 1985a: 33). Unfortunately, there are few undisturbed funerary deposits dating to the Umm an-Nar period, making it impossible to associate particular objects with specific individuals and hence not allowing us to determine what role if any, gender played in the choice of grave goods.

Fig. 187. DM 11. Dagger. Scale 1:2
Location: Tomb I. Passageway between Chambers 2 and 4.
Dimensions: Lth: 17.7 cm.; Max. Brdh: 3.4 cm.; Max. Th: 0.22 cm.
Parallels: - Jabal al-Emalah: Tomb IV (Benton and Potts 1994: Fig. 21- Not very close parallel, main similarity in the diagonal rivet hole placement).

Fig. 188. DM 5. Blade-axe. Scale 1:2
Location: Tomb I. Passageway between Chambers 4 and 6.
Dimensions: Lth: 21.4 cm.; Max. Brdh: 3.2 cm.; Max. Th: 0.5 cm.
Parallels: - Maysar-4: Grave 1 - (Weisgerber 1983: Pl. 7)
- Maysar-4: Grave 3 - (Wesigerber 1981a: Abb. 34)
- Tell Abraq: Late Umm an-Nar Locus 7 - (Potts 1990a: Fig. 36)
- Umm an-Nar: Settlement - (Frifelt 1975a: Fig. 46; Frifelt 1995: Fig. 276)
- Umm an-Nar: Tomb X - (Al-Tikriti 1982: Pl. 160)
Foreign Parallels: - Mohenjo Daro - (Mackay 1938: Pl. CXXXI.22; CXX.29 = his Type I Blade Axes)
- Chanhu-Daro - (Mackay 1943: Pl. LXII.21, 23; Pl. LXIV.8; LXXI.11)
- Harappa - (Vats 1940; Pl. CXXI.277)
- Ur: Royal Graves - (Woolley 1934: Pl. 229, Chisels Type 3, U. 9072).
Fig. 189. Blade-axe parallels. 
Scale 1:2 
1. - Chanhu-Daro - (Mackay 1943: Pl. LXII.23) 

Dagger Fragments

Fig. 190. AS 7844. Scale 1:2 
Location: Tomb III; Layer 10; E 76.23; N 16.945; Elev 4.12 
Dimensions: Lth: 9.77 cm.; Max. Brth: 3.62 cm.; Max. Th: 0.89 cm.

Fig. 191. AS 9910 Scale 1:2 
Location: Tomb III; Layer 13; E 76.30; N 16.36; Elev 3.93 
Dimensions: Lth: 8.3 cm.; Max. Brth: 3.1 cm.; Max. Th: 1.0 cm.
1. DM 42
Location: Tomb I, Chamber 5.
Dimensions: Lth: 9.8 cm.; Max. Diam: 0.45 cm.
Parallels: - Ajman: Tomb B - (Haerinck 1991: Fig. 7.27)
- Hili North: Tomb A - (Vogt 1985: Pl. 28.2)
- Umm an-Nar: Tomb V - (Frifelt 1991: Fig. 215, 216).

2. DM 41
Location: Tomb I, Chamber 3.
Dimensions: Lth: 7.7 cm.; Max. Diam: 0.4 cm.

3. DM 28
Location: Tomb I, Passageway outside Chambers 4 and 6.
Dimensions: Lth: 7.1 cm.; Max. Diam: 0.4 cm.

4. DM 38
Location: Tomb I, North entrance.
Dimensions: Lth: 9.6 cm.; Max. Diam: 0.38 cm.

5. DM 10
Location: Tomb I, Chamber 1.
Dimensions: Lth: 8.5 cm.; Max. Diam: 0.4 cm.

6. DM 45
Location: Tomb I, surface outside Tomb.
Dimensions: Lth: 6.1 cm.; Max. Diam: 0.4 cm.
Parallels: - Ajman: Tomb B - (Haerinck 1991: Fig. 7.23).
Fig. 193. Copper awls/pins.
Scale 1:1.
Left to right: DM 42, DM 41, DM 28, DM 45.
Fig. 194. Copper Rings. Scale 1:1.

1. DM 44
   Location: Tomb I, Chamber 5.
   Dimensions: Ext Diam: 2.7 cm; Th: 0.55 cm.
   Parallels:
   - Hili North: Tomb A - (Vogt 1985: Pl. 24.6-8)
   - Ajman: Tomb B - (Haerinck 1991: 7.17, 19)
   - Wadi Munay' - (Unpublished).

2. DM 23
   Location: Tomb I, Chamber 5.
   Dimensions: Ext Diam: 2.63 cm.; Th: 0.42 cm.

3. DM 26
   Location: Tomb I, Chamber 5.
   Dimensions: Ext Diam: 2.58 cm.; Th: 0.36 cm.

4. DM 27
   Location: Tomb I, Chamber 5.
   Dimensions: Ext Diam: 2.4 cm.; Th: 0.24 cm.

5. DM 52
   Location: Tomb I, Chamber 5.
   Dimensions: Ext Diam: 2.4 cm; Th: 0.40 cm.

6. AS 3286
   Location: Tomb III; Layer 1; E 76.06; N 16.27; Elev 4.38
   Dimensions: Ext Diam: 2.05 cm.; Th: 0.46 cm.

7. DM 43
   Location: Tomb I, Chamber 5
   Dimensions: Ext Diam: 2.5 cm; Th: 0.24 cm.
   Parallels:
   - Hili North: Tomb A - (Vogt unpub.: Pl. 2.5, 9)
   - Ajman: Tomb B - (Haerinck 991: Fig. 7.15).

8. AS 2872
   Location: Tomb II; Layer 1; E 81.30; N 11.65; Elev 4.19
   Dimensions: Ext Diam: 2.25 cm.; Th: 0.37 cm.

9. AS 12049
   Location: Tomb II; Layer 2; E 80.72; N 10.80; Elev 3.89
   AS 9011
   Location: Tomb III; Layer 1; E 76.03; N 15.82; Elev 4.05
   Dimensions: Ext Diam: 2.40 cm.; Th: 0.43 cm.
Soft-stone

Only one soft-stone bowl was recovered at Al Sufouh, a low quantity for a third millennium burial context. This bowl (DM 31, Fig. 196), made of a very dark grey almost black soft-stone, has a slight central bulge around the body flaring to an open, upright rim. This form is rare in the Umm an-Nar period repertoire, and is related to what is commonly described as the bell-shaped bowl series. Decoration is limited to a single incised line immediately below the rim, around the exterior of the vessel.

Parallels for this bowl type are widespread geographically, although relatively few have been published. In the Oman Peninsula only two similar vessels have been found. The first, a rim sherd only, was found in a poorly preserved tomb in the Wadi Suq, near Falaj al-Qaba (Frifelt 1975a: Fig. 18e), a structure which contained no other datable finds. The second was found in Tomb A at Hili North (Cleuziou and Vogt 1985: Fig. 4.2). In neither case is the appearance of the soft-stone described, although, the Hili vessel is said to differ in texture and colour from the bulk of série récente vessels (Cleuziou and Vogt 1985: 255). Two similar vessels were recovered from unstratified deposits on the island of Tarut. Both are said to be of a highly polished steatite and the core of one was described as greenish in hue (Zarins 1978: Pl. 64: 33; 43). The best parallel to date comes from Tepe Yahya in Iran and possesses a bulge similar to that of the Al Sufouh vessel (Kohl 1979: Fig. 18, top right). This parallel and others in the same 'bell-shaped bowl' category, come from levels assigned to period IVB4-2 (formerly referred to by Kohl as IVB1, D. T. Potts: Pers. Comm.). Tepe Yayha is known as a production centre for soft-stone vessels of the Intercultural Style, and although not stated, it is implied that plain vessels such as these bell-shaped bowls may also have been produced there (Kohl

Fig. 196. DM 31. Scale 1:2.
Location: Tomb 1, Chamber 3.
Dimensions: Ht: 7.7 cm.; RD: 15.2 cm.; BD: c. 5 cm.
1974: 218-220). The stratigraphic problems at this site, however, provide no secure dating for this period. Additional bell-shaped bowls have been found at Shahdad (Hakemi 1972: Pl. IX.E), and in the Royal Cemetery at Ur (Woolley 1934: Pl. 245.51), where they date approximately to the ED III period (20 out of 26 examples), while continuing to appear in Akkadian and post-Akkadian graves (T.F. Potts 1994: 247).

Without the aid of scientific analyses it is difficult to assess the origins of the Al Sufouh soft-stone vessel. Evidence for the exploitation of Omani soft-stone sources comes from Maysar (Weisgerber 1981a: 212), where série récente vessels were recovered in various stages of completion. Evidently the colour of the soft-stone available varies considerably “from a light grey and greenish to brown and black” (Vogt 1985a: 31), although the soft-stone from Oman is more frequently described as light grey in colour (Frifelt 1991: 105; Zarins 1978: 67). While a local Omani origin for DM 31 cannot be excluded, the combination of both form and material points to an origin outside the Oman Peninsula, possibly in Iran.

No série récente soft-stone vessels were recovered at Al Sufouh, a factor which may well have chronological ramifications. As Cleuziou and Vogt have noted, soft-stone vessels with dotted double circles are “common in Umm an-Nar type burials and their absence in some monuments, at Umm an-Nar itself or in Tomb M at Hili is probably a matter of chronology” (Cleuziou and Vogt 1985: 254). They go on to postulate that soft-stone vessels were primarily made for funerary purposes during the last quarter of the 3rd millennium B.C. (Cleuziou and Vogt 1985: 254), implying that tombs without série récente vessels predate c. 2250 B.C. The evidence from Umm an-Nar does not contradict this, but the recovery of one sherd of a hemispherical bowl with dotted double circle decoration from the settlement on Umm an-Nar island indicates that the island was still occupied after the introduction of série récente soft-stone vessels, even if only briefly (Frifelt 1995: 198, Fig. 281).

Evidence of série récente vessels outside the Oman Peninsula is relevant to this question of chronology, especially in establishing an external terminus post quem for their production. Of the datable examples from Mesopotamia, two from Ur were found in the middle of the Akkadian period (2269-2218 B.C.), while another from Telloh has been dated to the Neo-Sumerian era, 2164-2004 B.C. (Potts 1990b: 109). The Middle Akkadian examples set the earliest date for the export of these vessels at the middle of the 23rd century B.C. This may be evidence of a slightly earlier manufacture date in their homeland, the Oman Peninsula, perhaps c. 2300 B.C. No more specific evidence for the inception of production is available, even from Maysar 1, the sole production centre discovered to date. The radiocarbon evidence from Maysar 1 dates the beginning of occupation there to c. 2200 B.C. (Weisgerber 1981a: 211-212; 251). In conclusion, Al Sufouh is likely to have been occupied prior to the full-scale production of série récente vessels, otherwise examples ought to have been found in the graves. This suggests that the use of Tomb I and the interments found in Tombs II-IV pre-date c. 2300-2250 B.C.
Miscellaneous

Cylinder Seal (Fig. 197)

A single cylinder seal was recovered in Layer 13 of Tomb III. The stone from which the seal was carved was mid-dark grey in colour and comparable in texture to the soft-stone used in the manufacture of série récente vessels. A well-preserved scene, framed by single horizontal bands, illustrates two figures, connected by a wavy line (hand-foot?), next to a stylized tree. An unrecognizable motif fills the space between the upper bodies of the two figures. The figure on the left is seen with outstretched arms bent at the elbows, with a possible (?) indication of a breast, in profile, under the left arm. The feet of this figure are also shown in profile, pointing towards the right. A second figure is connected to the first via a continuation of the incised line that constitutes the right lower arm. This line becomes the left leg of the second figure, which can be interpreted as either human or animal. The arms of this figure are outstretched and raised from the elbows. The legs are bent up at the knees in an unusual pose. With a rounded body and features on the head that may be a face, this figure also exhibits a line between the legs that can be interpreted as a tail or a phallus. To the right of this figure is a stylized tree with a series of five upwardly angled, paired branches.

Cylinder seals are rare in the Oman Peninsula, and only two other seals can be cited from third millennium B.C. contexts. The first, from Tomb B at Hili North (Al Ain Museum), exhibits two oryx in a style that also appears to be local in origin. The second, found in Tomb B at Ajman, is described as steatite and has no preserved decoration apart from a series of dots and deeply incised grooves which appear to be the remnants of at least two superimposed scenes (Al-Tikriti 1989: 94-95). Several cylinder seals of later date have been found in the region, two from second millennium levels at Tell Abraq, one of which is Middle Elamite (Potts 1990a: 91-92; 122-123), and two, of Iron Age date, from Rafaq (unpublished, on display in the Ras al-Khaimah Nat. Museum).

There are no close parallels for the Al Sufouh cylinder seal, although certain stylistic features are found on other objects in the region. A square stamp seal recovered from Room 1, Building VII at Ra’s al-Junayz (Cleuziou
et al 1994: 456, Fig. 3.1) shows two crudely carved figures with their arms and feet in positions not unlike the left figure of the Al Sufouh seal. Also present on the left side of the Ra’s al-Junayz seal is a stylised tree with five paired branches, this time, however, angling downward. The impression of a seal from Susa, dating to the 22nd-21st century B.C., shows a figure joined by the arm to the horn of an animal in a manner similar to the connection between the two figures on the Al Sufouh seal (Porada 1965: 41, Fig. 17). Also of interest is the pair of figures accompanied by two oryx decorating the ring wall of Tomb A in Hili Garden (Potts 1990b: Pl.IVa). These figures are shown joined by their hands in a manner similar to that on the Al Sufouh seal. Other, more general parallels derive from undated Omani rock art. Anthropomorphs such as those from Ghubra Tanuf and Wadi Daiqa (Jäckli 1980: 31, 35, 39) bear close resemblances to the Al Sufouh figures.

As most of the stylistic comparisons made above derive from the local region rather than Mesopotamia or Iran, it can be suggested that the cylinder seal from Al Sufouh is a local rather than an imported item.

Amulets

Frog representations (Fig. 198)
A total of three frog amulets made of lapis lazuli were recovered from Tombs I and II. In each case the hind legs are well-defined, leading to a less sculpted, or worn upper body. Perforation is horizontal and lateral through the head of the animal. Both style and material point to Mesopotamia, where similar amulets have been found at many sites. According to Limper, frog pendants first appear in Mesopotamia during the Jamdat Nasr period and continue to occur into the middle of the second millennium B.C. (Limper 1988: 32). The great variety of styles, ranging from those that are realistically sculpted from Ur (Woolley 1934: Pl. 142, U. 10008) and Nuzi (Starr 1937: Pl. 131 F, G) to quite stylised, squared versions from Ur (Woolley 1956: Pl.
28, U.19047) and Telloh (de Genouillac 1934: Pl. 36c), suggests there may have been changes in the execution of these frogs through time. Contexts, however, are such that no attempt has been made here to place this variation in a chronological framework, a situation not improved by the dearth of published illustrations.

Four lapis lazuli frog amulets were recovered in Cemetery "A" at Kish, all from the graves of children (Mackay 1929: 133). At Ur, Woolley suggested they were important items in the graves of warriors (Woolley 1956: 39). Limper (1988: 32-33) argues that evidence for the interpretation of these frogs in graves is ambiguous and that even if they did possess a specific symbolic meaning, this is surely not transferable to contexts outside of Mesopotamia. Frog amulets have also been found at Uruk, Khafaje, Nuzi, Susa, Tell Asmar, Tello and Nippur (Limper 1988: 32-33). No parallels exist within the Oman Peninsula.

**Fly representations (Fig. 143)**

A small amulet of dark soft-stone in the shape of a stylised fly was recovered during the Dubai Museum excavations in Tomb I. This piece resembles the fly amulets found in Mesopotamia throughout the third millennium B.C., although it possesses only two incised grooves on each wing, rather than multiple grooves, as exhibited by many Mesopotamian examples. In Mesopotamia fly amulets of various types had a wide temporal distribution (Jamdat Nasr through Middle Assyrian times) (Limper 1988: 33-34).

Only one other fly amulet of Mesopotamian style can be cited from the Oman Peninsula. This amulet, of greenish stone, was recovered from Tomb B at Hili North and more closely resembles the typical fly amulet form (Limper 1988: 33, Abb. 28) than does the Al Sufouh example.

**Pendant (Fig. 199)**

A small, flat, parallel-sided, round-ended pendant made of a dark grey, schist-like stone was recovered from Tomb IV. One of the long ends is
perforated by a hole (0.44 cm. in diameter) with very slight chamfering on one side. The surface of this piece is characterised by close, parallel, diagonal scratch lines, becoming less uniform in direction near the rounded distal end. White discolouration marks on the surface appear to be the result of biological activity rather than part of the stone itself (Conservation Report, Appendix 2). No parallels for this simple personal ornament can be cited.

**Tin/Silver (?) Spiral (Fig. 200)**

A small, corroded grey spiral was found in the passageway of Tomb I between Chambers 4 and 6. From the lightweight nature of the piece it has been suggested that it may be a tin alloy (Conservation Report, Appendix 2). Spiral elements in jewellery items have a widespread distribution both geographically and chronologically, and have attracted the attention of many scholars over the past fifty years. Double-spiral headed pins have been examined most recently by Huot (1969: 57-98), who considers their origins to be in Iran; and by the Khlopins (1989: 99-107) who believe they originated in southwestern Turkmenia, in the second half of the 4th millennium B.C, whence they spread into Iran. Spiraliform jewellery is known in Mesopotamia from Early Dynastic times (Maxwell-Hyslop 1971: 19), becoming especially popular during the Ur III period (Maxwell-Hyslop 1971: 35). Unfortunately, the Al Sufouh spiral is only a fragment of a piece of jewellery now lost and we are unable to reconstruct the piece from which it came, making it impossible to suggest any closer parallels. Later local examples of spiraliform ornament come from Wadi Suq burial contexts at Qattarah (Potts 1990b: Pl. IX a-b) and Dhayah (Kästner 1991: Fig. 6a), where the spiral forms part of a zoomorphic pendant, in these cases of gold and electrum.

Silver alloyed with either lead or tin is quite often found in small quantities in tombs dating to the Umm an-Nar period. This material most frequently occurs as beads, either small bicones, comparable to those from Tomb B at Ajman (Al-Tikriti 1989: 95, Pl.46 and 56 C; Haerinck 1991: 18, Fig. 9.33 F and Pl. VII B); and at Tombs A and B at Hili North (Cleuziou and Vogt 1985: Figs 4 & 5); or as slightly larger, more elongated beads such as those from Ajman Tombs A and B (Al-Tikriti 1989: 95, Pl. 46 and 56 C); Jabal al-Emalah (Benton and Potts 1994: 56, Fig. 83); Tomb M at Hili (Vogt 1985b: Taf. 55.7); Tomb A Hili North (Vogt 1985b: Taf. 73.5 &6) and Shimal Tomb I (Ras al-Khaimah Museum). One finger ring of a silver-lead alloy was recovered from Tomb A at Ajman (Al-Tikriti 1989: 92, Pl.46 and 56 C). Unfortunately, however, none of these pieces has, as yet, been analysed.

**Shell Rings (Fig. 201)**

Four shell rings were recovered during the Dubai Museum excavations in Tomb I. Parallels for these can be cited from Ajman Tomb B (Haerinck 1991: 20, Fig. 9.34); Tawi Silaim Cairns 2 and 3 (de Cardi, Bell and
Stalling 1979: Fig. 9); Tomb A Hili North (Al Ain Museum); Shimal Tomb I (Ras al-Khaimah Museum); and Tell Abraq. Such rings are most commonly made from mother-of-pearl or derived from a large gastropod.

Shells (Figs. 202-203)

Commonly known as ‘feeding shells’, these large bivalves belong to the species *Ficus subintermedia*. Two examples were recovered in Tombs I and III. Feeding shells are a common artefact in graves dating to the Umm an-Nar period, and have been found on Umm an-Nar island (Frifelt 1991: 184-186); in Ajman Tomb B (Haerinck 1991: 20, Fig. 9.31,32); at Tell Abraq; and in Tomb I at Jabal al-Emalah (Benton and Potts: 1994). It seems probable that shells of this type were used as vessels or utensils and ethnographic studies, as noted by D. and E. Bosch, testify to the modern use of *Ficus* shells in Oman as instruments for feeding babies (Bosch and Bosch 1982: 87).

One further shell recovered from Tomb III is of the *Cypraeidae* family (Smythe 1983: 32-33), more commonly known as a Cowrie shell. This particular example is very large, coarsely broken across the dome, and shows no evidence of working.
Conclusion

The following pages attempt to synthesise the wide range of data presented in the previous chapters of this report. For the sake of clarity this will be done by assessing chronology and then turning to burial practices.

Chronology

Until AMS C14 dates of the Al Sufouh samples are available, only relative chronological conclusions are possible. Table 17 consolidates the time frames suggested throughout this report and Fig. 204 presents this data in a temporal sequence, highlighting the most likely period during which the tombs from Al Sufouh were in use.

Burial Practices

The skeletal remains from Al Sufouh fall broadly into two categories. Traditional inhumations, common to Umm an-Nar period graves across the Peninsula, were only found in Tomb I. These were placed in the tomb, presumably accompanied by grave goods such as ceramic vessels, copper tools and personal adornments, bead necklaces and bead embroidered clothing or shrouds. As subsequent corpses were interred, earlier burials were disturbed, thus dispersing both the skeletal remains and grave goods. All third millennium tombs in the Oman Peninsula, from the Hafit period through to the end of the third millennium, display this style of body treatment, best described as multiple, successive inhumation. Throughout this long period of time the only major change, apart from an architectural one, is in the number of interments per tomb. From relatively few in the Hafit period, the numbers of bodies interred reaches the hundreds by the end of the third millennium B.C.

As described in the Human Remains chapter of this report, cremation was the other form of body treatment at Al Sufouh. In brief, this practice entailed the incineration of multiple corpses on pyres that reached at least 800° C. Grave goods of the same types as were found with the inhumations in Tomb I, accompanied the corpses during incineration. Pits were dug for the interment of the burnt remains, which were apparently deposited in single episodes. As for the cremated remains from Tomb I, Chamber

<table>
<thead>
<tr>
<th>Material Evidence</th>
<th>Proposed Time Frame</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ceramics: Black-on-red Ware</td>
<td>2450-2200 B.C.</td>
</tr>
<tr>
<td>Ceramics: Grey Wares</td>
<td>2500-2200/2100 B.C.</td>
</tr>
<tr>
<td>Soft-stone</td>
<td>pre 2300-2250 B.C.</td>
</tr>
<tr>
<td>Beads</td>
<td>2700-1800 B.C.</td>
</tr>
</tbody>
</table>

Table 17. Summary of chronological conclusions.
2, these also appear to have been the result of a single deposition and the stratigraphic situation in this chamber proves conclusively that inhumation predated cremation at Al Sufouh.

Turning to the two unusual features of mortuary practice at Al Sufouh, we will look first at the disposal of multiple corpses in single events and secondly at the practice of cremation. Both the skeletal and depositional evidence presented earlier in this report points to cremations at Al Sufouh being multiple rather than individual. Such a possibility requires some speculation. Either the death of many individuals over a short period of time or the collection of corpses, previously placed or interred elsewhere, can explain the need to dispose of multiple bodies. Regarding the former, two causes need to be considered, warfare or disease. The fact that both sexes and all age groups were represented in the cremation pits makes warfare seem unlikely, unless the settlement was attacked and the inhabitants treated
uniformly, regardless of age or sex. No evidence of war-like injuries was
found on the bones examined. The second possibility, disease seems more
likely, although further discussion on this topic must await a full analysis of
the skeletal remains.

The inception of cremation, however, remains to be explained. Why
was cremation practiced at Al Sufouh? Was it practiced in response to dis­
ease? Where did the idea come from? Did the knowledge of how crema­
tion was physically performed accompany the idea? Was the practice of
this new form of mortuary ritual accompanied by a change in other beliefs?
What do other contemporary sites in the region contribute to our under­
standing of cremation?

The Oman Peninsula
The skeletal remains from Tomb A at Hili North were presented in a report
by M. el-Najjar (1985) who provides very limited commentary regarding
burning. We are informed that “the bony remains are severely fragmented
(and) badly burned (over 50% of the collection)” (el-Najjar 1985: 38). Also
evident at Hili North were signs of warfare in the form of cuts and unhealed
wounds. El-Najjar surmises, “The cuts on the long bones could be inter­
preted as indicating possible dismemberment of those who may have at­
tacked the village, for whatever reason, killed the inhabitants and as a way
of revenge burned their village. This is supported by the over 50% of the
total skeletal collection showing evidence of burnt bones” (1985: 41). An­
other possibility mentioned is “that socio-religious changes from within or
from outside influence could have changed the typical semi-flexed burial
type of practices to cremation” and the advent of cremation practices in
India and the North American Southwest long before the time of Christ are
alluded to (el-Najjar 1985: 41).

Information concerning the deposition of the burnt skeletal remains
at Tomb A Hili North is limited. A rather enigmatic statement by Vogt
explains that, “The existence of many sooty stones and partly burnt human
bones may not point to a violent destruction of the structure nor to the
practice of cremation which has not been proved satisfactorily for a 3rd
Mill. BC. context. From a clear stratigraphical situation in compartment 3
it is evident that almost all burnt bones belong to the upper floor of the
tomb. But also in the lower storey minor patches of ash were recorded
amid the burial layer” (1985a: 22). Later in the deposition description it
was noted that “bones from the destruction layer are heavily burnt and
sooted in parts - something we did not find in the underlying burial layer or
in find units 2 and 3 in compartment 1” (Vogt 1985a: 25).

Some clarification of these enigmatic statements about the Tomb A
Hili North data can be found in Vogt’s PhD dissertation (1985b), where the
views of el-Najjar are reiterated and the possible interpretations of the burnt
bone are discussed. The issue of warfare is raised as evidenced by bones
with unhealed fractures and cuts, and this is related to the ash levels seen in
nearby sections of what may be the settlement associated with the use of
the tomb (Vogt 1985b: 139). Further information on deposition is provided;
firstly, that many of the objects found in the tomb also showed signs of
burning (Vogt 1985b: 139), a fact which contradicts the idea of people
incinerated in a combat situation; secondly, we are told that the interior walls, presumably of the upper storey, showed scorch marks in some places. As the remaining structure is all stone, it is postulated that combustible materials from outside must have been brought in (Vogt 1985b: 139, fn 2). These fires are thought to have occurred after the tomb had been abandoned as some of the burnt ceramics were obviously broken prior to burning. This evidence is inconclusive since it is plausible, even probable, that vessels placed on a funerary pyre in a cremation situation would easily end up in a broken state, either due to explosion from the heat or falling timbers within the pyre. Vogt finally concluded that there is no certainty about the past events which led to the present configuration of archaeological remains. It seems unlikely, however, that fires lit in the upper layer of the tomb after its abandonment, by shepherds or the like, could have caused as much as 50% of the human remains to be burnt (Vogt 1985b: 139, fn 2).

Information on the Umm an-Nar tomb at Shimal provides far less detail. Excavations carried out in the tomb in 1988 remain unpublished, the only available data deriving from a report submitted to Ras al Khaimah Musuem (Kästner, Sahm and Velde 1988), where the skeletal remains are described as fragmented, totally disarticulated, and a great number of them burnt (Sahm 1988:2). No further information on the appearance of the bone or on deposition is presented.

Evidence of cremation from other Umm an-Nar sites is limited. Kunter (1981: 198) notes that evidence of cremation exists at Maysar, where the remains of two male corpses are said to have undergone incineration. The only clarification of this is a note by Vogt (1985b: 138) stating that the cremations were of an elderly male and a child, found in Grave 1 at Maysar 4, who were cremated at between 300 and 500°C. Further cremation evidence is said to have been found at Maysar 3a. The reports on Maysar, however, do not mention either of these occurrences (Weisgerber 1980 and 1981a).

The primary conclusion which can be drawn from the mortuary situations described above is that the cremated remains from Al Sufouh are not a totally anomalous feature of late third millennium B.C. burial ritual. Rather the picture beginning to emerge is one of dual mortuary practice. The question which then arises is where did the practice of cremation originate, and why did it appear at this time?

The first issue, where did the practice of cremation originate, necessitates a knowledge of the burial rituals in the Oman Peninsula prior to the second half of the third millennium B.C. The available publications on Ras al-Hamra make no mention of cremation, despite a note by Vogt (1985b: 138) suggesting that evidence for cremation was found there. Personal communication from S. Salvatori (1995) indicates that any evidence of burning is thought by the excavators to be associated with later occupation and not with cremation. At a second site, located at the foot of Jabal Buheis in Sharjah, excavations directed by Dr Sabah Jasim of the Sharjah Musuem in February 1995, revealed a broad, shallow communal type grave of a style unknown elsewhere in the peninsula. From brief observation of the stone tools found in association with those burials and in view of a lack of ceramics, a date prior to the 3rd millennium is likely. Both disarticulated and articulated corpses were recovered, many of which had apparently been
cremated, generally to a uniformly grey colour. In no published reports are there any references to the incineration of human remains in the later Hafit tombs.

The temporal discontinuity between the Jabal Buheis and Al Sufouh cremation and the dissimilarity in the manner of cremation suggests that there may be no connection between the two traditions. In this case it seems necessary to look outside the region for possible sources of influence.

**Mesopotamia, Baluchistan and the Indus Valley**

One reported instance of cremation in northern Mesopotamia comes from Yarim Tepe II, a mound occupied solely in the Halaf period (Hole 1989: 158). These cremations were apparently individual with the remains subsequently placed in jars and buried under floors (Hole 1989: 159). In the Indus Valley and Baluchistan, however, cremation was more common. In discussing Mohenjo-daro and Harappa, Marshall (1931: 89) surmised that “as far as our evidence goes at present, it seems probable that the most usual method of disposing of the dead during the flourishing period of the Indus Civilization was by cremation. That cremation was practiced is conclusively proved... by the finding of cinery urns or other receptacles containing calcined human bones and ashes together with vessels of burnt and other offerings for the dead and sundry articles for use in the after-life.” By extrapolation, Marshall concluded that the many other urns discovered which contained “vessels for offerings and other articles intended for the dead, but without any actual human bones” were the result of the grinding up of burnt bones into powder “as they are in the Punjab today, and cast into the river or disposed of in some other way” (Marshall 1931: 89). Marshall saw confirmation of this line of reasoning in Sir Aurel Stein’s discovery of “similar urns at various sites in Baluchistan, many containing both human bones and vessels with offerings, but many only the latter” (Marshall 1931: 89).

In Baluchistan, Stein found evidence of cremation at both Kulli and Mehi. Trial Trench I at Mehi revealed that the mound that was “covered by a thick layer of debris in which the remains of cremated human bodies were buried during a period approximately co-eval with the prehistoric occupation of the mound. This custom of disposing of the dead after burning agrees in essentials with that observed at the early Chalcolithic sites of Zhob as well as Sutkagen-dor. But while at these sites large pots were used for the deposit of the ashes and bones from completely cremated bodies, the remains found in different sections of [trial trench] I indicate that besides this other and more perfunctory methods were in use here” (Stein 1931 as quoted in Possehl 1986: 138). From this appraisal of the mortuary customs in Baluchistan as early as the Chalcolithic period, it is obvious that cremation was certainly not unknown, but was practiced in both cinerary urn burials and in inhumation-style deposits as well. In Area II.2 a burial was found containing calcined bones overlying a copper mirror and hairpin. Stein noted, “This burial deposit is of special interest because the find having been made in the ground obviously undisturbed definitely proves that cremated remains were sometimes buried without having been placed first in cinerary pots, as was the case with the burials of I.4, III.10 etc., and at the Zhob sites” (Stein 1931 as quoted in Possehl 1986: 140-141).
conclusion Stein stated that the practice of leaving cremated corpses and their personal relics at the incineration site was a step towards complete interment as found in the later levels of Shahi-tump and Nal (Stein 1931 as quoted in Possehl 1986: 146).

Regarding Mehi, Stein concluded that the excavated remains were the remains of the same era of use and people as those found at Kulli, Siah-damb of Jhau, Shadinzai and the lower layers of Shahi-tump, which in turn bore a close relation to the chalcolithic sites of Zhob (Stein 1931 as quoted in Possehl 1986: 145-146). The most relevant site in the Zhob region appears to be Periano Ghundai during its second major phase of occupation known as the Incinerary Pot Burial Phase (Fairservis 1959: 329-330).

As far as the dating of these sites is concerned, much uncertainty still prevails. The general consensus is that Mehi dates to c. 2500-2000 B.C., and Periano Ghundai to c. 3900-2300 B.C. (Shaffer 1986: Table 3). Given these dates, is it plausible to suggest that influence from this region may have brought notions of cremation, or possibly groups of individuals who practiced cremation, to the Oman Peninsula?

A more detailed comparison of the cremated skeletal remains recovered from the Oman Peninsula with those of unburnt Umm an-Nar burials might perhaps determine whether or not there is any population variation between the two groups. The full publication of other Umm an-Nar burials is also important and may finally prove that cremation, rather than being an aberrant form of body treatment for the Umm an-Nar period, was a ‘normal’ aspect of mortuary behaviour in the Oman Peninsula in the late third millennium B.C.
Skeletal Deposits of Tombs II–IV

The following drawings and photographs illustrate the layers excavated in each of the Al Sufouh interment pits.

Figs. 205-236 illustrate the excavated layers of Tomb II,
Figs. 237-266 illustrate the excavated layers of Tomb III,
Figs. 267-273 illustrate the excavated layers of Tomb IV.
Fig. 205. Uppermost layer of cremated and disarticulated bone in Tomb II
Scale 1:10.

Fig. 206. Uppermost layer of bone in Tomb II. Scale c. 1:10.
Fig. 207. Tomb II, Layer 1. Scale 1:10.

Fig. 208. Tomb II, Layer 1. Scale c. 1:10.
Fig. 213. Tomb II, Layer 4. Scale 1:10.

Fig. 214. Tomb II, Layer 4. Scale c. 1:10.
Fig. 215. Tomb II, Layer 5. Scale 1:10.

Fig. 216. Tomb II, Layer 5. Scale c. 1:10.
Fig. 219. Tomb II, Layer 7. Scale 1:10.

Fig. 220. Tomb II, Layer 7. Scale c. 1:10.
Fig. 221. Tomb II, Layer 8. Scale 1:10.

Fig. 222. Tomb II, Layer 8. Scale c. 1:10.
Fig. 223. Tomb II, Layer 9. Scale 1:10.

Fig. 224. Tomb II, Layer 9. Scale c. 1:10.
Fig. 225. Tomb II, Layer 10. Scale 1:10.

Fig. 226. Tomb II, Layer 10. Scale c. 1:10.
Fig. 229. Tomb II, Layer 12. Scale 1:10.

Fig. 230. Tomb II, Layer 12. Scale c. 1:10.
Fig. 231. Tomb II, Layer 13. Scale 1:10.

Fig. 232. Tomb II, Layer 13. Scale c. 1:10.
Fig. 233. Tomb II, Layer 14. Scale 1:10.

Fig. 234. Tomb II, Layer 14. Scale c. 1:10.
Fig. 235. Tomb II, Layer 15. Scale 1:10.

Fig. 236. Tomb II, Layer 15. Scale c. 1:10.
Fig. 237. Uppermost layer of cremated and disarticulated bone in Tomb III. Scale 1:10.

Fig. 238. Uppermost layer of bone in Tomb III. Scale c. 1:10.
Fig. 239. Tomb III, Layer 1. Scale 1:10.

Fig. 240. Tomb III, Layer 1. Scale c. 1:10.
Fig. 243. Tomb III, Layer 3. Scale 1:10.

Fig. 244. Tomb III, Layer 3. Scale c. 1:10.

0.5 m.
Fig. 247. Tomb III. Layer 5. Scale 1:10.

Fig. 248. Tomb III, Layer 5. Scale c. 1:10. 0.5 m.
Fig. 249. Tomb III, Layer 6. Scale 1:10.

Fig. 250. Tomb III, Layer 6. Scale c. 1:10. 0.5 m.
Fig. 251. Tomb III, Layer 7. Scale 1:10.

Fig. 252. Tomb III, Layer 7. Scale c. 1:10.
Fig. 253. Tomb III, Layer 8. Scale 1:10.

Fig. 254. Tomb III, Layer 8. Scale c. 1:10.
Fig. 257. Tomb III, Layer 10. Scale 1:10.

Fig. 258. Tomb III, Layer 10. Scale c. 1:10. 0.5 m.
Fig. 259. Tomb III, Layer 11. Scale 1:10.

Fig. 260. Tomb III, Layer 11. Scale c. 1:10.
Fig. 263. Tomb III, Layer 13. Scale 1:10.

Fig. 264. Tomb III, Layer 13. Scale c. 1:10.

0.5 m.
Fig. 267. Uppermost layer of cremated and disarticulated bone in Tomb IV. Scale 1:10.

Fig. 268. Uppermost layer of bone in Tomb IV. Scale c. 1:10.
Fig. 271. Tomb IV, Layer 2.
Scale 1:10.

Fig. 272. Tomb IV, Layer 2.
Scale c. 1:10.
St. = Stone (*Farush Fragments*)
Chapter 5

A reconstruction of third millennium burial practices in the Oman peninsula

Introduction

As has been discussed throughout this study, the broad interpretation of burial practice and ritual can provide a great deal of information regarding the society of which they are a product. To ensure the value of such interpretations, care must be taken when initially building or reconstructing the burial practices and rituals, which together will be referred to as the “burial programme”. Reconstructing the physical aspect of mortuary practice is a relatively straightforward task, as the picture can be built up through the compilation of all available archaeological evidence. It will of course always be limited from the perspective of both what activities leave physical evidence by their nature and the subsequent preservation of these remains (i.e. post-formation processes).

At the outset, this chapter provides a survey of the burial evidence predating the third millennium BC in the Oman peninsula, thereby setting a context for the practices of the subsequent Hafit period\(^1\). Following is a review of each class of mortuary evidence relating firstly to the Hafit period and secondly to the Umm an-Nar period, which hopes to distil the core funerary behaviour for each era. Included in these reviews will be a summary of the results of a series of multivariate analyses that were undertaken on both Hafit and UAN datasets. Results of this series of analyses were somewhat less rewarding than hoped, but it was considered important to challenge the data compiled in the database built for this study with multivariate techniques in the search for latent patterning. The most successful of the statistical studies have been written up and are provided as Appendix 1 to this thesis.

In conclusion, this chapter will present a reconstruction of the burial programme for both the Hafit and Umm an-Nar periods, arriving at what may be regarded as the ‘burial norm’ for each era. Once a ‘norm’ is arrived at, it is easier to pin-point divergent practices, which in turn draws focus to these sites or tombs as areas for further research.

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\(^1\) As this chapter reviews and collates data relating to all third millennium BC sites in the Oman peninsula, references for every piece of information have not been provided in text, due to the disruption this would cause to the reader. All information is, however, presented in the database of tombs presented as Appendix 2, and all references are present within that database.
and interpretation. Such reconstructions also enable a better understanding of changes through time or across space such that broad variation may be interpreted meaningfully.

The review of mortuary evidence presented below has been augmented in an invaluable fashion by data from the three sites which were excavated for the purpose of this thesis, namely: Jabal al-Emaleh, Al Sufouh (presented in Chapter 4) and Tell Abraq (Map B, p. 11). The importance of these sites due to their relatively good preservation as well as their exemplary excavation is that they help to act as filters to assist us to understand material that is not as well excavated or published.

A Review of burial practices pre-dating the Hafit period

To best understand the burial programme of the Hafit period, it is necessary to examine the evidence which immediately precedes it. This allows us to see whether the mortuary practices of the Hafit era represent an evolution from the preceding period or a divergent pattern which might suggest the arrival of a new tradition from outside the region. It is worth noting here that archaeological evidence in the Oman peninsula is generally slim on the ground for most of the fifth and fourth millennia (Uerpmann 2003), despite the fact that the climate here did not seem to have suffered the same aridity as in the north (Potts 1990a: 68). Other than a few lithic sites located around the Al Ain oasis and along the coastlines, there are only two extensively excavated sites that provide occupation and burial evidence predating the third millennium BC – the site of Jabal al-Buhais 18, located inland on the western foothills of the Hajjar mountains and the site of Ra’s al-Hamra, on the Batinah coast of Oman (Figure 2.1). A third site (Site 2 – Umm al Qaiwain), although excavated, has not been published and thus reference to the material from this site remains limited. More recently another east coast site with limited burial evidence has been excavated, that of Wadi Shab-GAS1, the results of which will be briefly reviewed, as will a single burial from the island of Merawah, off the coast of Abu Dhabi.

Jabal al-Buhais 18 is an aceramic Neolithic site belonging to the Arabian Bifacial Tradition and carbon dated to c. 5100-4300 BC (Kiesewetter et al. 2000: 240).
A reconstruction of third millennium burial practices

137). Other than human burials, this site contains the remains of numerous fire pits with evidence of animal bones, hearth stones and ash. The available data on this site leads excavators to conclude that it was used seasonally (in spring) by a herding, nomadic people (Uerpmann et al. 2000: 233), and that it appears to have been a central place within the nomadic cycle, where the deceased were interred and funerary rites took place over many generations (Kiesewetter 2003: 42).

After five seasons of excavation, the skeletal remains of c. 346 individuals have been recovered, and the limits of the burial area have not yet been reached (Kiesewetter 2003: 36). Two main types of burial are in evidence – primary interments in simple pits (Figure 5.2) and secondary burials including either skulls alone or skulls with bundled long bones, sometimes known as “depot” burials (Figure 5.1). Single and multiple inhumations occurred in both the primary and secondary burials, with up to five individuals interred at the one time. No age or sex bias was noted amongst these burial types (Kiesewetter et al. 2000: 137).

Body position in the primary graves was usually flexed, lying on the right side (although some were on their left), with the head pointing east. Secondary burial seems to have involved leaving the corpses out to decompose before collecting the larger bones, including the crania, scapula, pelvis and long bones. Smaller bones including the ribs and the hand and feet bones were usually left behind. The long bones were placed in a pile oriented east-west with skulls placed at the eastern end, often facing east. Pelvic bones were sometimes used to delimit the bone pile along its sides. There is no obvious stratigraphic or horizontal division in the type of burial custom employed and thus it has been concluded that both primary and secondary burial practices were in use contemporaneously (Kiesewetter et al. 2000: 137-8).

Although items of personal adornment often accompanied the primary interments, no grave goods have ever been found in association with the secondary burials. One stone adze may be associated with a primary interment, however, the context was uncertain and all other finds with burials at Jabal al-Buhais are objects of personal adornment (Kiesewetter 2003: 38). A great variety of jewellery items have been recovered to date,
including necklaces, bracelets, anklets, headbands and "loin cloths". These are primarily made with beads of varying shape and material, including shell, coral, crenoid, chert, carnelian, serpentenite, agate, limestone and marine fossils (Kiesewetter et al. 2000: 140). Often, alternating light and dark coloured beads are used in jewellery items to provide interesting visual contrast. Pendants, made of mother-of-pearl and sometimes decorated with incised dots, were rare.

Analyses to date suggest little distinction between the items of personal adornment found with males, females or children. One item found solely with females, however, is a single carnelian bead placed at the nose. Numerous tiny beads found around the head, presumably adorning the hair, were also found in association with female burials. Pierced snail shells were found around the waists of both males and females, but are more frequent with female interments, leading the excavators to conclude that they form part of a loin cloth, whereas in male burials they stud a belt (Kiesewetter et al. 2000: 140). The jewellery placed with children tends to be simpler than that found with adults. Some of the tiniest beads, said to be very fragile, are considered as being specifically funerary in purpose, and have not been found in associated settlement contexts. There is to date no evidence for items of food being placed as grave offerings with the dead and no direct evidence to suggest ritual feasting.

In terms of the skeletal remains “the preliminary palaeodemographic profile described a representative sample of adult skeletons. The male (53) to female (49) is near to unity”, with 30% dying before age 20, 45% before age 25 and 61% before age 30. Most individuals (25%) died between the ages of 30 and 39 (Kiesewetter 2003: 39). Female mortality in the late teens and early twenties is higher, interpreted as resulting from childbirth related issues. Children younger than 15 represent only 21% of the skeletons from the site, which is seen as low, possibly due to the poor preservation of smaller bones, or due to differential funerary practice (Kiesewetter 2003: 39). Physically, the Jabal al-Buhais population seems quite homogenous, with typically Neolithic type skulls, developed muscular attachments in both sexes, a preponderance of right-handedness and squatting facets on the lower limbs. Nutritional stress is noted as being relatively low in adults but higher in children (often the case as the children represented were non-survivors thus potentially not representing the overall condition of children at the site). Compared to the population from Ra’a’s al-Hamra, those from Jabal al-Buhais were apparently in excellent health, even if they did appear to suffer from a high incidence of cranial trauma likely to be the result of interpersonal / intergroup aggression (Kiesewetter 2003: 41). Palaeopathological analyses undertaken on the skeletal remains indicate that 11.9 % of the examined skulls showed evidence of injuries.
caused by blunt force, and that these were mostly to males between the age of 20 and 40 who were likely to have been protecting the group's herds from aggressors (Kiesewetter 2003a: Para 1). Three cases of trephination were also observed, of which in all cases, the subject survived without apparent complications (Figure 5.3).

Conclusions drawn by the excavators of Jabal al-Buhais include that use of primary and secondary burial may be the result of the nomadic nature of the population, who wished for those who died away to be buried back at the group's burial ground. Similar burials were found at RH5 and it is suggested that a similarity in burial custom may indicate some connections with the earlier population of Jabal al-Buhais (Kiesewetter 2003: 42).

Another site requiring brief mention is Site 2 in Umm al-Qaiwain, said to date to the fourth millennium BC. Burials from this site are known through both primary (Phillips 2002) and secondary sources (Blau 1998, Uerpmann et al. 2000, Kiesewetter et al. 2000 and Kiesewetter 2003). Excavations were undertaken in 1993, with an area c. 50m² being opened. Underlying apparent occupation deposit (shell midden deposits overlying hearths) was a group of articulated and disarticulated human burials, in which there was no evidence of cremation. A minimum of 42 individuals is said to have been interred here, within the confines of an area delineated as a cemetery (Phillips 2002: 173). At least three phases of interment were detected and nine individuals recorded as undisturbed burials, all of which were in a flexed position. Burial of individuals is reported to have often disturbed previous interments causing much disarticulated bone to be present, although this is not interpreted as evidence for secondary burial (Phillips 2002: 172-174; Kiesewetter 2003: 42). Both males and females were represented and three sub-adults were noted.

Surrounding the designated cemetery area were a series of hearths which appeared archaeologically as an ash rich level including burnt animal bones (Phillips 2002: 175). Also originating from these surrounding deposits were the Ubaid period sherds, thought to date to Ubaid 3/4, used to date the use of the cemetery to the fifth millennium BC.
Also recovered from the site were two bifacially worked projectile points, an elongated stone pendant, a bone applicator and red ochre ball as well as several types of beads, predominantly shell, but also of soft-stone (1) and bitumen. Beads of the latter material were recovered in situ around the neck of an interred individual and upon analysis were proven to be Mesopotamian in origin (Phillips 2002: 177-178).

Interpretation of this cemetery suggests that the age and sex ratios are indicative of a local population as is the interment style, which is not replicated from contemporary Mesopotamian burial processes. Analysis of the associated faunal remains points toward the population being engaged in fishing activities, marine zone and local plant foraging as well as hunting and herding, potentially seasonally. There is evidence nonetheless of contacts with the Mesopotamia world (Ubaid pottery and bitumen), be they direct or indirect. Comparisons of the burial data recovered from this site have been made with that from the roughly contemporary Jabal al-Buhais described above, concluding there is a high degree of similarity in practice between the two sites, and alludes to potential contact / overlap as both populations appear to have been semi-nomadic and the multitude of shells recovered from Jabal al-Buhais indicate at minimum contact with coastal zones (Phillips 2002: 182-184).

The final major site exhibiting early burial evidence in the Oman peninsula is Ra’s al-Hamra, located on the Qurum promontory, specifically sites 5 and 10 (RH5 and RH10). Although occupation evidence dates to far earlier, the 32 graves from RH10 have been established at c. 4000 BC, through the C¹⁴ dating of intersecting stratigraphic associations (Santini 1987: 180-181). This is thought to be chronologically synchronous with the earliest occupation phase at the adjacent site of RH5, although further C¹⁴ dates are sought to confirm this. A second cemetery has been located at RH5, of which 121 graves containing 215 individuals have been excavated (Salvatori n.d.: 7).

At RH5, three chronological phases of cemetery use have been documented, spanning 3800 – 3300 BC (Salvatori n.d.: 9, Santini 1987: 181). Burials of the earliest phase from RH5 and those from RH10 conform closely in terms of grave type, body placement and grave goods. Graves from the later phases of the cemetery at RH5 also show considerable cultural continuity. Funerary ritual conformed to a fairly specific schema, consisting of primary interments, usually single but also multiple, placed in shallow, oval pits. Bodies were arranged lying on their sides in a flexed position. Often resting on their right sides, the individuals were oriented with their heads towards the rising sun (north-east) and, where position was ascertainable, with the right hand close to the head.
and the left hand near the elbow of the right. A bivalve mollusc shell or pearl was sometimes found clasped in the right hand of the deceased. Bodies were covered with stones, beach gravel or limestone blocks, which closed off the pits.

Both males and females were fairly equally represented, indicating no sex bias, as were all age groups other than newborns and children (0-6 yrs). This age bias has been interpreted as differential treatment due to probable non-inheritance of rank (Salvatori n.d.: 27). The low frequency of infants may also be an artefact of poor preservation. More detailed palaeobiological studies suggest a degree of in-breeding resulting from a low rate of genetic drift or population isolation (Salvatori n.d.: 27).

Grave goods include items of personal adornment, tools and some poorly preserved faunal remains, including sea turtles or parts thereof. Simple shell pendants of several types comprise the most frequently occurring grave good. As these are not found on associated settlements, they have been interpreted as ornaments made specifically for the grave (Santini 1987: 183). Other items of personal adornment include pierced sharks’ teeth; beads of stone (steatite) and shell; shell earrings and bracelets and bone pins. A few shell fish hooks (one incomplete), bone awls, net weights and schist knives are the only implements recovered from the graves.

Secondary burial is also attested at RH5, apparently undertaken in a specific part of the cemetery. Some are single or double, not unlike the primary interments. However taking into account that primary interment is considered as the “normal practice”, it is suggested that disparate factors (i.e. type or place of death or status of the deceased) must have dictated the need for secondary burial (Salvatori n.d.: 21). Multiple secondary burials are more difficult to interpret due to their complete divergence from the norm. Notions of epidemic, massacre, ritual burial (sacrifice) at the death of a prestigious individual or the presence of a culturally distinct group present within the community for a time, have all been tentatively proffered as explanations. This latter suggestion is partially supported by the presence of soapstone beads, bone and shell necklaces associated with these burials, which are peculiar to this burial area (Salvatori n.d.: 22).

The practice of cremation is also in evidence, specifically at site RH10, where at least six of the 32 individuals were burnt, in situ, after deposition within the grave pit (Tosi 1981: 17). In some cases the heat of the fire was such that the bones were calcined, some almost dust, and the associated pebbles were cracked.
The faunal remains found in nearly all graves, including molluscs, fish and marine turtle, have been interpreted as the remains of a food offering or ritual funeral banquet. Sometimes these remains are placed on the body before the pit is covered and sometimes they are above the filling (Tosi 1981: 16-17). The placement of turtle heads or carapaces on the deceased may indicate that the turtle held a particular place in the eschatological beliefs of this population (Salvatori n.d.: 14, Tosi 1981: 17). Body position of the deceased has also been identified as a significant variable, with interpretation revolving around possible social or religious explanations, particularly as sex and age do not seem to have been significant determining factors.

Multivariate analyses carried out on the RH5 cemetery (Santini 1984 as reported in Salvatori n.d.: 36ff) failed to delineate significant groups, despite the inclusion of variables such as type of grave covering, primary vs. secondary burial, mortuary gifts, age and sex of the deceased. Some variability in the composition of mortuary gifts was noted, but this has been attributed to chronological factors rather than the demarcation of social rank. Grave covering, however, apparently lends itself better to interpretations of vertical differentiation, although it is generally concluded that “representation of social rank was expressed only partially in that segment of the funerary ritual which is archaeologically perceivable” (Salvatori n.d.: 38).

More detailed research concerning mortuary gifts against age/sex shows the major concentration of grave goods in burials of mature and very mature males (over 30) and women of sub-adult or mature age (14-20 or 30-35). These age/sex classes are interpreted as those with the highest productive or control capacity (Salvatori n.d.: 39). Despite this, there appears to be no funerary items specifically for either men or women only, or for distinctive age classes.

A final point of interest from the RH5 graveyard derives from grave 43, a collective burial containing c. 76 individuals and being in use for c. 200 years (Salvatori n.d.: 41; Santini 1991: 4). Some of the burials from this context are described as being primary inhumations, while the majority is secondary depositions (Salvatori n.d.: 41). This grave is said to be contemporary with the second phase of the graveyard, between layers 3a and 3b of the site sequence (Salvatori pers. comm.) and is used concurrently with single inhumation practices. Interpretations of this communal burial revolve around the proposed onset of a more collective societal psyche becoming prevalent in a community of social equals (Santini 1991: 4).
In summary, the general cultural milieu of which these graves are a part has been described as fisher-gatherer, basing their subsistence on the seasonal exploitation of available resources, including limited hunting and raising of animals. Although this type of society should not be immediately interpreted as egalitarian, burial evidence from RH5 does suggest this, despite the apparent presence of a "tenuous and unstable social hierarchy". This is based on several aspects of the burial programme, including the presence of grave goods cross-cutting the divisions between sexes; discrimination of sub-adults in relation to grave goods and the correlation of grave goods versus type of grave covering. Marginal integration with other similar groups is likely, and the formal organisation of a cemetery at RH5 is seen as a clear sign of a direct right to the area's local resources (Salvatori n.d.: 47). Other social data drawn from the RH5 cemetery includes the practice of infanticide and possible ritual female suicide at the death of their male. The lack of cranium in a series of burials, and the long bones from another, did lead to exploration of the notion that they may have been purposefully removed from the grave and used for ceremonial purposes. Salvatori concludes, however, that the post-depositional disturbance factors are so prevalent that much if not all of these removals are likely to be have resulted from them rather than ceremonial manipulations of the human remains (n.d.: 49).

Final impressions show a community with social behaviour indicating strong isolation, a factor which is hard to explain in environmental or economic terms. Salvatori concludes that a better understanding of the regional resource exploitation system is necessary so as to explain whether this is something restricted to the RH5 community or whether it is the sign of crisis in an economic model "now in competition....with newly emerging economic forms, and therefore, with antagonistic groups, whose presence will characterise the area in the next millennium" (Salvatori n.d.: 51).

More recent excavations at Wadi Shab-GAS1, located on the northeastern coast of Oman, provide limited evidence (7 graves to date) for a burial ground dating to the early fourth millennium BC (Gaultier et al. 2005: 12). Overall burial practices are described as being similar to RH5, with secondary inhumation practices in use as well as a possible decantation pit (Gaultier et al. 2005: 19-20). The almost complete absence of funerary offerings is considered an intriguing fact, especially considering the soapstone jewellery items recovered from associated settlement deposits. It is unfortunate, however, that the bone preservation was so poor that little could be ascertained about the biology of the population or any other reconstructable aspects of social behaviour (Gaultier et al. 2005: 19).
The single, tightly flexed male inhumation from the island of Merawah, Abu Dhabi, has been dated (relatively) to between c. 5500-4500BC. The skeleton was buried in a room that was no longer in use and may be associated with a painted ceramic jar, thought to represent possibly the earliest almost complete vessel from the Oman peninsula (Beech et al. 2005: 46). Association of the vessel and the interred is not absolute and the origin of the vessel is still very much in question, with Mesopotamian (Ubaid tradition) or possibly an Iranian origin currently favoured. As this funerary evidence relates to one individual only, patterns of burial practice in this part of the peninsula cannot be elucidated.

**Summary of the pre-Hafit burial programme**

The few excavated burial sites dating to the fifth and fourth millennia BC in the Oman peninsula are all characterised by the use of a formalised cemetery area, in which both primary and secondary burials have been recorded. Single and multiple interments occur, indicating that whatever the prevailing belief system, individual interment was not a prerequisite. Both sexes and various age categories receive similar treatment in death and cremation was practiced at Ras al-Hamra and Jabal al-Buhais. The recovery of varied quantities of the limited grave goods at Ra’s al Hamra led to postulations concerning the potentially stratified nature of the society, although this was described as tenuous and unstable. Analyses undertaken on the skeletal remains from these sites indicates that the populations led similar lifestyles, essentially pre-agricultural, probably nomadic and predominantly exploiting marine and mangrove resources (for the coastal populations), supplemented by meat from hunted wild animals (Blau 1998: 230) or from domestic herded animals (Uerpmann et al. 2000: 232).

**Burial practices of the Hafit period: c. 3100-2600/2500 BC**

This period derives its name from the characteristic graves first excavated in the vicinity of Jabal Hafit, near the Al-Ain oasis, in the central Oman peninsula. To date over 100 tombs dating to the late fourth early third millennium BC have been excavated across the Oman peninsula and hundreds of others, potentially dating to this era, have been identified through survey. Although this should provide us with a sample large enough to enable the reconstruction of a generalised burial programme, a combination of tomb disturbance and poor documentation works as a constraint to this end. Nonetheless, the following pages review what evidence does remain for the burial regime of the Hafit period, based on the seventy Hafit tombs from the database compiled for this study (presented on disc with Appendix 2). The remaining 30 excavated tombs were excluded.
from the database for this work due to being either unpublished or so poorly published that the data was seen as unreliable, and likely to create "noise" in any analyses.

The data from this group of tombs\textsuperscript{14} was converted from the FileMaker Pro database into Excel spreadsheets for the purposes of undertaking Multivariate Analyses (MVA). Despite subjecting the data to a wide range of statistical techniques, patterning in the results was hard to detect. A range of reasons for this are discussed in the presentation of results (Appendix 1). In brief they primarily relate to the incomplete nature of tomb assemblages and the problems encountered in categorising finds into meaningful divisions, especially the ceramics corpus. Review of a hypothesis relating to the chronological range of the tombs was, however, generated and will be discussed in the conclusion to this section.

The multitude of tombs thought to date to the Hafit period is found distributed in a wide arc from Tawi Silaim in the southeast to Ras-al Khaimah in the north. They are most frequent along the foothills of the Al-Hajjar range, in a trajectory thought to follow significant ancient trade routes (Figure 2.1). More recently, tombs of this era have also been documented at Ra's al Jinz (RJ-6) on the east coast of Oman (Santini 1987), and indeed all across the Ja'alan (Cleuziou and Tosi 2000: 26; Cleuziou 2003: 137-139).

Many of the stone built tombs recorded across the mountains of Oman have proven chronologically problematic due to the lack of associated skeletal material or finds datable to the potential construction phase of the tombs. This is particularly challenging due to frequent re-use of such structures in later times. For example, a review of tombs from Shir in the Jaylah area near Ibrī, catalogues dozens of tombs into five general types, including a series known as "tower tombs" (Yule and Weisgerber 1998). Unfortunately, although there is some attribution of a group of tombs to the Hafit period, there is no firm evidence for this and attribution is made on the questionable basis of construction technique and general appearance (Yule and Weisgerber 1998: 209). This example of problematic chronological attribution plagues the overall interpretation of stone built tombs across the peninsula and indeed beyond, and forces the current study to rely heavily on tombs that can be definitively dated.

In essence, burial practices of this period can be described as multiple successive interments inside single chambered, circular, stone graves, often composed of a double

\textsuperscript{14} Not all tombs from the database were included in the multivariate analyses due to data inaccuracies or limitations.
Chapter 5

or triple ring wall. The number of interments in each tomb rarely exceeds five individuals, and there is often a small selection of associated grave goods. Although the chronological span for this period was initially suggested as c. 3100-2800 BC (Cleuziou 1978: 13), more recent research suggests this period extends to the middle of the third millennium BC, eliminating any notion of a gap between it and the subsequent Umm an-Nar period (Potts 1986b).

Burial structures

Although all Hafit period tombs consist of above ground, circular, single chambered stone wall structures, there is nonetheless a fairly high degree of variation in the types interpreted as dating to this era. Relying on the excavated examples compiled in Table 5.1, two main groups can be delineated:

1. The cairn type: comprises structures up to 11m in external diameter, which have the external appearance of an enormous pile of un-worked stone (3-5m in height), which covers a “false dome” (Bibby 1965: 109). This is sometimes referred to as the Hafit type (Potts 1990a: Fig. 8 a, b and e). The chamber is usually round to oval in shape, ranging from c. 1.5 – 3m in diameter.

2. The beehive type: comprises structures with 2–3 ring walls or curtain walls encircling a small chamber ranging from c. 1.5–2.5m in diameter. Some of this type includes a low plinth around the exterior wall.

Figure 5.4: Cairn tombs at Jabal Haft (Photo J. Benton).

Figure 5.5: Reconstructed beehive type tomb at Jabal Hafit (Photo J. Benton).
Tombs of both general types have been recorded across the Oman peninsula, from Qarn Kabsh in the west to Jabal al Hammeh in the east (Potts 1990a: 77). Extensive surveys undertaken in the region serve to identify the almost ubiquitous presence of cairns or beehive type mounds, especially in the Al-Hajjar range and its environs, but cannot date them with any certainty. From surface appearance/description there is a fair degree of variation between types, but many may nonetheless prove to be of Hafit date.

Generally speaking, Hafit period tombs tend to be located on low slopes or ridgelines, and often appear to be clustered or laid out in lines along the slopes (Orchard 1995: 145). This type of prominent location suggests a tradition in which the tombs are required to be visually obvious and indeed dominant in the landscape. This is particularly interesting when compared to the preferred burial locations of the preceding and subsequent periods, both of which differ considerably in concept. Further discussion on this topic will be entered into in the following chapter.

A previously postulated notion that the beehive tomb type post-dated the cairn type structure, providing a transitional type between the Hafit period and the Umm an-Nar period (Frifelt 1975a: 389-391; 1975b: 69) has been challenged due to the inconclusive nature of the available evidence (Potts 1986b: 132). Another study (Vogt 1985b: 79) suggests that both the described types represent variations on a single architectural form and can probably be considered as contemporary. Results from the current study of excavated Hafit period tombs largely concur with this analysis, although the co-occurrence of different tomb types at the one site (Table 5.1) may indicate some chronological variation. This, however, is likely to be fairly site specific and not interpretable as a general rule.

Entry into Hafit era tombs was almost always through a single doorway, which was either quite small or somewhat larger (Jabal al-Emaleh, Figure 5.6), leading through a passageway, 1-3m in length, into the burial chamber. The generic description provided for the vast majority of the excavated Jabal Hafit tombs indicates that the doorway was located at ground level and led into a passageway (c. 0.5m wide and c. 1m high), which was often found partly or completely blocked (Bibby 1965: 109).

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16 Maysar 22/5 – doorway measures 40 x 46cm (Weisgerber 1980: 92).
Table 5.1: Simplified tabulation of excavated tomb types.

<table>
<thead>
<tr>
<th>Sites</th>
<th>Cairns: 3.5 – 11m diam. enclosing a c. 2m diam. chamber; generally un-worked stone; floors either natural or paved with cobbles/gravel.</th>
<th>Double walled or beehive: 5-11m diam. with evidence of corbelling; chambers 2m diam.; floors either sand, natural or paved with cobbles/gravel.</th>
<th>Other: excavators description unclear/inadequate OR single wall with internal divisions (JaE example only)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asimah</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jabal Hafit</td>
<td>24</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>Q Bint Sa’ud</td>
<td>12</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>J Buheis</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buraimi</td>
<td></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Bat</td>
<td></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>I bri</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>J al-Emaleh</td>
<td>2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Tawi Silaim</td>
<td>3</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Maysar</td>
<td>2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>TOTALS</td>
<td>45</td>
<td>20</td>
<td>4</td>
</tr>
</tbody>
</table>

Tabulation of available data concerning the orientation of Hafit tomb entrances (Table 5.2), demonstrates that this factor may be more determined by geographical location than chronology. This table has been organised such that tombs located in the northern reaches of the Oman peninsula are presented at the top, through to those located in the south at the bottom. As can be seen, tombs from Jabal al-Emaleh and Wadi um al-Ghaff, located on the northern plains, have entrances that open exclusively to the west, while tombs from the central oases (Jabal Hafit, Mazyad and Qarn Bint Sa’ud), almost without exception have doorways opening south. Tombs from the southern Omani mountains, at sites such as Maysar and Tawi Silaim, on the other hand, have doors that open to the east. This clear separation of regions according to entrance orientation implies two things:

Figure 5.6: View of the entrance to Tomb III at Jabal el-Emalah. Photo M. Ziolkowski.
• That orientation is not a totally random variable;

• Whichever ritual or custom dictates the direction towards which the entrance opens, is not rigid across regional boundaries. In fact there is a variety of directions listed, from which north is conspicuously absent.

Table 5.2: Data concerning the orientation of Hafit period tomb entrances.

<table>
<thead>
<tr>
<th>Site</th>
<th>Tomb No.</th>
<th>Door orientation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wadi Um al Ghaff I</td>
<td>West</td>
<td></td>
</tr>
<tr>
<td>Wadi Um al Ghaff II</td>
<td>West</td>
<td></td>
</tr>
<tr>
<td>Jabal al-Emaleh I</td>
<td>West</td>
<td></td>
</tr>
<tr>
<td>Jabal al-Emaleh III</td>
<td>West</td>
<td></td>
</tr>
<tr>
<td>Jabal al-Emaleh IV</td>
<td>West</td>
<td></td>
</tr>
<tr>
<td>QBS 16</td>
<td>South</td>
<td></td>
</tr>
<tr>
<td>QBS 17</td>
<td>South</td>
<td></td>
</tr>
<tr>
<td>QBS 20</td>
<td>South</td>
<td></td>
</tr>
<tr>
<td>QBS 21A</td>
<td>South</td>
<td></td>
</tr>
<tr>
<td>QBS 21B</td>
<td>South</td>
<td></td>
</tr>
<tr>
<td>QBS 25</td>
<td>South</td>
<td></td>
</tr>
<tr>
<td>Jabal Hafit 4</td>
<td>South</td>
<td></td>
</tr>
<tr>
<td>Jabal Hafit 5</td>
<td>SSE</td>
<td></td>
</tr>
<tr>
<td>Jabal Hafit 6</td>
<td>SSE</td>
<td></td>
</tr>
<tr>
<td>Jabal Hafit C17</td>
<td>South</td>
<td></td>
</tr>
<tr>
<td>Jabal Hafit A36</td>
<td>South</td>
<td></td>
</tr>
<tr>
<td>Jabal Hafit B37</td>
<td>South</td>
<td></td>
</tr>
<tr>
<td>Jabal Hafit C38</td>
<td>West*</td>
<td></td>
</tr>
<tr>
<td>Mazyad 1317</td>
<td>South</td>
<td></td>
</tr>
<tr>
<td>Mazyad 1319</td>
<td>South</td>
<td></td>
</tr>
<tr>
<td>Mazyad 1320</td>
<td>South</td>
<td></td>
</tr>
<tr>
<td>Mazyad 1321</td>
<td>South</td>
<td></td>
</tr>
<tr>
<td>Bat 1137</td>
<td>SW</td>
<td></td>
</tr>
<tr>
<td>Bat 1138</td>
<td>West</td>
<td></td>
</tr>
<tr>
<td>Maysar 22/5</td>
<td>East</td>
<td></td>
</tr>
<tr>
<td>Tawi Silaim C1</td>
<td>East</td>
<td></td>
</tr>
<tr>
<td>Tawi Silaim C2</td>
<td>East</td>
<td></td>
</tr>
<tr>
<td>Tawi Silaim C3</td>
<td>East</td>
<td></td>
</tr>
<tr>
<td>Tawi Silaim C4</td>
<td>East</td>
<td></td>
</tr>
</tbody>
</table>

* According to the excavator, the western orientation of the entrance to this tomb is due to the steep drop away from the tomb to the south, where the entry would usually be.

Interpretation of the orientation factor leads to two hypotheses:

1. These regionally varied orientations may nonetheless all point to a single location, somewhat like the orientation of the Islamic graves towards Mecca. This hypothesis was tested and is not tenable: the southernmost tomb entrances point into the Gulf of Oman, while the northernmost point to the Persian Gulf, resulting in no focal intersection.

\[17\] Tombs from this site were not included in the database due to an overall lack of information.
2. Orientation of tomb entrances may be more locally focused either towards or away from the associated settlement or some other relevant geographical feature. This may indicate that at any one site the tombs may open towards or away from the settlement or other particular feature. This hypothesis in relation to settlements is not really testable due to a lack of knowledge regarding their location. Further research into the relationship between the tombs and other features such as mountains, water sources etc. would be required to further test this possibility.

Summary

The burial programme of the Hafit period, as it relates to structures, shows a remarkably uniform use of stone built circular structures for the interment of the dead across a broad geographical area. Such uniformity indicates a degree of cultural cohesion never seen before in the Oman peninsula. The orientation of tomb entrances alludes to a regional component within this broader regime, which is difficult to ascribe meaning to, although a relationship to settlement or geographical features would seem likely.

Treatment of the corpse

Of the sixty-seven (67) excavated tombs dating to the Hafit period, skeletal remains from only fourteen (14 – 21%) have been analysed in any way. Furthermore, Table 5.3 demonstrates that in 25% of grave contexts skeletal remains were not even mentioned in the publication, whilst a further 11% allude to the presence of skeletal material which is then not adequately described or analysed. Only fragmentary skeletal remains were recovered from 25% of the excavated tombs while a further 18% of the graves contained no skeletal remains at all. As a result, the following descriptive summary of data relating to the human remains found in Hafit period graves is based solely on the 14 adequately published tomb contexts.

Table 5.3: Data relating to the reporting and analysis of skeletal remains from the Hafit period tombs.

<table>
<thead>
<tr>
<th>Skeletal remains not mentioned</th>
<th>Skeletal remains not present</th>
<th>Only fragmentary skeletal remains present</th>
<th>Skeletal remains present but not adequately described</th>
<th>Some degree of analysis on skeletal remains</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>12</td>
<td>17</td>
<td>7</td>
<td>14</td>
</tr>
<tr>
<td>25%</td>
<td>18%</td>
<td>25%</td>
<td>11%</td>
<td>21%</td>
</tr>
</tbody>
</table>

18 There are in fact 70 tombs in the database, the additional tombs being added after analyses had been completed.

19 These tombs are: Mazyad 1317, 1320; Jabal Hafit C14, 2, 3, B(37), C(38); Tawi Silaim C1, C2, C3, C4 and Jabal al-Emaleh I, III, IV.
Due to the disarticulated nature of the skeletal remains at the time of excavation, a result of the mode of burial practice combined with later tomb disturbance, determining the minimum number of individuals (MNI) interred in Hafit period tombs has been a challenging task. Most often, only between one and three individuals can be certainly identified. Four skulls were retrieved from Jabal Hafit Tomb C14, while elements of seven, five and four (?) individuals were recovered from Jabal al-Emaleh Tombs I, III and IV respectively. Age and sex estimations of the interred population are also limited and all that can be safely extrapolated is that males, females and children were all interred in these tombs.

Analysis of some teeth from unpublished tombs at Jabal Hafit was undertaken in the 1980’s. This analysis suggested that the inhabitants of this inland area had a very different diet to those who lived in the Wadi Suq area, toward the east coast and slightly later in date (c. mid third millennium). Teeth of the Hafit area population showed evidence of carious lesions, a status characteristic of a sedentary people engaged in agriculture and animal husbandry. On the other hand, the population living in the Wadi Suq showed small fractures along the masticating borders, a feature similar to that found on teeth of the inhabitants of the island of Umm an-Nar, who subsisted predominantly on marine resources (Højgaard 1985: 152). This remains the only available analytical data relating to the diet of populations dating to the Hafit era.

Turning to body placement, there is very little data concerning the positioning of the bodies within the graves, especially considering the fairly large number of Hafit tombs that have been investigated. Only seven of the excavated tombs provide evidence for body position, and in all of these the deceased appear to have been placed in a flexed position. Four individuals were lying on their right side, one with the head to the west and facing southeast, another with the head to the southwest and facing east and two

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20 Mazyad 1317, 1320; Tawi Silaim C1, C2, C3 and C4; Jabal Hafit 2, 3, B(37), C(38) and Maysar 3 17 and 18 (Bibliographic references for these tombs are contained within the Tomb Database: Appendix 1).

21 The only tomb which definitively records the presence of seven individuals is that of Jabal al-Emaleh I. Both this and JAE IV were reused in the UAN period and skeletal remains may date to this era. The tentative dating of JAE I to the end of the Hafit/beginning of the UAN period may also explain the greater number of interments.

22 Tombs from which these teeth were taken include Jabal Hafit tombs 1303 and 1317. Both of these tombs are contained within the database compiled for this thesis but were excluded from all analyses due to inadequate publication. These tombs then are not part of the calculations presented in Table 5.2.

23 Jabal al-Emaleh I (Benton and Potts 1994); Mazyad 1317 and 1320 (Frifeldt 1975b); Mazyad 1314 (Frifeldt 1975a: Fig. 9); Jabal Hafit C(38), B(37) (Al-Tikriti 1981) and Cairn 3 (Cleuziou et al 1978).

24 Jabal al-Emaleh I – Sk2 (Benton and Potts 1994).

with their heads to the south and facing east\textsuperscript{26}. Three were lying on their left side, one (a child) with the head to the south and facing west\textsuperscript{27}, the second with the head to the southwest and facing north\textsuperscript{28}, and the third with the head to the east\textsuperscript{29}. A partially articulated skeleton in a flexed position with the head to the south and facing east, was recorded in Mazyad tomb 1320. The two individuals from Jabal Hafit tomb C(38) were in contracted positions facing one another. Finally, a single, articulated leg in a flexed position was recorded in Jabal Hafit tomb 3, although the side was not noted. Reported articulated individual for Jabal al-Emaleh tomb 1 was too badly disturbed to assess original position (Figure 5.7)

Anecdotal evidence for body placement within the tomb confirms the positioning described above. Frifelt (1980: 276) observes that “where conditions are favourable the dead are found placed on their side with the hands in front of the face, the head is bent forward and the knees drawn up in ...(a) flexed position”. As Frifelt was involved in the excavation of numerous cairns in the Jabal Hafit area, most of which were poorly published if published at all, her observations provide useful data concerning the position of the deceased.

No evidence exists concerning any form of post-mortem body treatment and there is a significant lack of cremated remains or evidence for burning from any Hafit period

\textsuperscript{26} Hafit grave 1314 (Frifelt 1975a: Fig. 9).
\textsuperscript{27} JH B(37) (Al-Tikriti 1981).
\textsuperscript{28} JH C(38) (Al-Tikriti 1981).
\textsuperscript{29} Mazyad 1317 (Frifelt 1975b)
tombs. None of the published material refers to the presence of any burnt human bone at all, leading us to the conclusion that cremation was not practiced during this era. The significance of this is that cremation does appear to have been practiced in burials of both the preceding and subsequent periods, an issue that will be discussed in greater depth in the following chapter.

Summary

Much of the ritual and practice associated with the treatment of the deceased during the Hafit period is not easily reconstructed, primarily due to a paucity of evidence. Interments within one structure usually numbered between 1 and 5 and a contracted position was clearly favoured, although there is not enough evidence to suggest that either side or orientation of the body were important factors. Interments appear to have remained articulated or at least suffered minimal disturbance from the interment of further individuals, probably from the same family group. We do not know whether the deceased were placed on mats, in shrouds or simply lain directly on the floor of the tomb. The large quantity of bronze pins found in these graves may allude to the use of some type of garment or shroud which required fastening, although no pins have been found in situ.

Grave goods

Grave goods of the Hafit period include ceramic vessels, beads of many materials, especially shell, clear quartz and soft-stone, and infrequently, bronze objects. Presumably organic items were also included as part of the burial furniture, (wooden or basketry items, clothing, shrouds) although evidence for them has been entirely destroyed by the processes of decay. Once again looting and other post-depositional factors are responsible for incomplete assemblages of the non-organic grave goods, with a suggested bias against the more intrinsically valuable or reusable items such as those made from bronze. These factors are also partially responsible for a lack of data concerning the placement of grave goods in relation to the deceased and/or the tomb. Also complicating the recovery of this aspect of the funerary ritual is the mode of multiple, successive burial itself, which inevitably leads to the disturbance of previous burials and thus the loss of original associations. Due to the overall smaller number of interments in Hafit period tombs, looting and other post-depositional factors are considered to have had a greater negative impact on contexts than the successive interment regime.
Also of relevance to this discussion is the lack of data available from contemporary settlements. To date, no settlements dating to the first half of the third millennium, other than Hili 8, have been excavated. This gives us little scope to assess whether goods found in the grave are the same as those used in everyday-life, or whether certain types of objects found in tombs were made exclusively for burial purposes. Such data can obviously be a valuable tool for interpretation, as it provides us with a window into the belief system and/or tradition that lies behind the burial ritual.

Ceramics

Before launching into an overview of the ceramic corpus from the Hafit period tombs, a general reminder is pertinent. Ceramics were not a feature of the material record of the Oman peninsula prior to the Hafit period. A few sherds of black burnished ware were recorded in the settlement levels of Ra’s al Hamra, dating to the fourth millennium BC (Biagi et al. 1985: 45), and some imported ‘Ubaid pottery was recovered from a series of graves in Umm al-Qaiwain (Site 2, as described earlier). The only settlement site to date that provides evidence for this early development of a local ceramic industry is that of Hili 8, where the earliest levels (Phase I) are thought to slightly post-date the beginning of the Hafit period, yielding a few sherds of buff ware (Potts 1990a: 80). In its entirety, the excavated levels dating to Phase I only revealed sherds belonging to a maximum of 60 vessels, of which c. 50 % were analysed as being of Mesopotamian origin (Cleuziou and Méry 2001: 282). The consistent appearance of ceramic vessels in the tombs of the Hafit period can therefore be seen as heralding a new horizon in the material culture of the region. Imported Mesopotamian vessels and possibly local imitations from the Hafit period tombs together with Mesopotamian parallels to the buff ware sherds from Hili 8 (Potts 1990a: 80), confirm considerable contact between these cultures, and attest to the incipient trade relationship that was to flourish throughout the third millennium BC.

In total forty-three (43) complete or semi-complete ceramic vessels have been recovered from thirty-one (31) of the sixty-seven (67)
excavated tombs of the Hafit period. Table 5.4 provides a simplified tabulation of the available data concerning the general fabric, surface decoration and shape of these vessels. Over 90% of this corpus is of the type most often described in the literature as Hafit Jamdat Nasr or Hafit vessels (Figure 5.8). They are generally biconical with a short neck and an everted rim. Approximately 36% show evidence of a cream slip and/or plum or black painted geometric designs in panels, whilst the remainder were either unpainted, or the paint has not been preserved. Pear shaped vessels and flat based jars comprise less than 10% of the corpus, and it is feasible that the flat based jars may be intrusive (i.e. dating to later re-use of the tombs).

There is little data concerning the placement of ceramics in relation to the deceased. One example of an undisturbed portion of a body from Jabal al-Emaleh (Figure 5.7) shows the ceramic vessel to be positioned very close to the face of the deceased. A second vessel from this tomb was also located close to two broken skulls, but the rest of the skeletal material nearby was too fragmentary and disarticulated to confirm that the vessel and skulls were in their primary position. Also relevant here is a general comment recorded by Frifelt whilst describing tombs of the Hafit period, where she notes that vessels are found close to the walls of the tombs, often on either side of the entrance (Frifelt 1980: 276). The vessel from Jabal al-Emaleh tomb IV was found next to the wall (Figure 5.9).

30 Since the original compilation of data for this work, a couple of further tomb contexts containing Jamdat Nasr style vessels(s) or part thereof, have been recovered, particularly on the east coast in the Sultanate of Oman at R'as al-Jinz (Cleuziou and Tosi 2000: 26).

31 Jabal al-Emaleh Tomb I, ISk-2 (Benton and Potts 1994: 64).
Scholarly focus has traditionally centred on the painted vessels from the Hafit tombs and the identification of some of these vessels as imports from the Jamdat Nasr phase of Mesopotamian material culture was arrived at almost simultaneously, by Frifelt (1971: 378) and During-Caspers in 1970 (1970: 250, 1971). This realisation instigated a spate of inquiry into the nature of the relationship that must have existed between the Oman Peninsula and Mesopotamia during the first half of the third millennium. At this time it was suggested that the painted vessels, in particular, may indicate that the burials were of traders, possibly foreigners (Mesopotamians?) who were involved in the movement of goods between the Oman peninsula and the Mesopotamian world. In support of this premise, other similarities between grave assemblages from the two regions were cited, including beads and bronze items (Frifelt 1971: 380; During–Caspers 1971: 42-43).

Table 5.4: Tabulated shape, decoration and fabric data for the ceramic vessels recovered from the excavated Hafit tombs.

<table>
<thead>
<tr>
<th>SHAPE</th>
<th>Biconical vessels, generally with an everted rim (known as Jamdat Nasr or Hafit vessels)</th>
<th>Pear shaped vessels</th>
<th>Flat based jars</th>
</tr>
</thead>
<tbody>
<tr>
<td>DECORATION</td>
<td>Cream slip; and/or purple/plum paint</td>
<td>Unpainted (decoration not preserved)</td>
<td>Unpainted (decoration not preserved)</td>
</tr>
<tr>
<td>FABRIC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reddish/brown grit/sandy/mica tempered ware</td>
<td>9</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>Fine buff fabric</td>
<td>3</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Orange fabric</td>
<td>2</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Pinkish red fabric</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fine green fabric</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fabric not described</td>
<td>1</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Subtotals</td>
<td>1 (36%)</td>
<td>25 (64%)</td>
<td>1 (2%)</td>
</tr>
<tr>
<td>Total: 43 vessels</td>
<td>39 (91%)</td>
<td>1 (2%)</td>
<td>3 (7%)</td>
</tr>
</tbody>
</table>

Although this theory has now been widely discounted, it partly provided impetus for a more detailed examination of the painted ceramics, the results of which concluded that variation in form was in fact great within this relatively small corpus. One explanation presented suggests there is considerable chronological difference between these painted vessels, which had originally been thought of as a homogenous group dating to the Jamdat Nasr period (Potts 1990a: 75-76). Now generally accepted, this suggestion extends the duration of the Hafit period well into the third millennium BC. Debate continues as to whether all the vessels found in these graves were imported, or whether some are likely to have been locally produced in imitation. The types of tempers and fabric colours within the recovered corpus originally sparked assertions that some of these vessels were unlikely to be Mesopotamian imports. However, recent
archaeometric analyses undertaken on a wide sample of these vessels, suggests that all were indeed manufactured in Mesopotamia and imported into the Oman peninsula (Méry and Schneider 1996: 81-83; Méry 2000: 169-189).

The inclusion of ceramic vessels as offerings for the dead is a fairly ubiquitous practice within ceramic cultures. Their function is nonetheless more difficult to interpret and probably varied. Some vessels may have functioned as containers for food or liquid offerings for the deceased, or for the use of mourners during the burial ritual. If this is the case, no evidence for the substance they contained has as yet been recovered in the Oman peninsula (Potts 1997: 223-224). The fact that c. 90% of the vessels found in Hafit era tombs are of a very particular Jamdat Nasr/EDI-II type is also an intriguing question, and is particularly relevant when this limited shape repertoire is compared to the extensive ceramic assemblages found in Mesopotamian tombs of the same era. One explanation proffered during early research implied that other vessel types, such as the four lugged jars so common in graves at Jamdat Nasr, may have been removed by robbers due to their contents (perfume or incense) being intrinsically valuable, like the metals (Frifelt 1971: 379). Although more recent evidence suggests this is unlikely\(^{32}\), this theory does instigate the notion that the imported vessels may have contained some intrinsically desirable or valuable substance, and may have been brought in (from Mesopotamia) through the nascent trade network developing around the export of Omani copper (as payment?). Further into the realms of conjecture is consideration as to whether the contained substance itself was an important part of the Hafit burial ritual, or whether the vessels themselves, minus their contents, took on a somewhat prestigious quality within the Hafit culture due to their rarity/novelty value in an essentially pre-ceramic culture. The statement that these pots were valued independently of their contents (Cleuziou and Méry 2001: 286), although possible, is not substantiated by the available evidence.

That these vessels were specifically chosen as grave offerings from a series of imported products is also an interesting notion (Cleuziou and Méry 2001: 284), especially in light of the fact that the cairn type collective burial was in itself a new cultural form. The distinct lack of a ceramic corpus from associated settlements limits our ability to compare the types found in each context. Evidence from Hili 8, dated slightly later, provides no evidence for the presence of the painted biconical vessels found in the tombs. There is, however, evidence of ties with EDI-II Mesopotamia in the buff ware

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\(^{32}\) There are no examples of this ceramic type, nor even sherds of this type from any Hafit period grave investigated to date.
Chapter 5

Sherds from the earliest levels (Cleuziou 1982: Fig. 2; Potts 1990a: 80), and in fact almost half the vessels from this phase have been analysed and found to be of Mesopotamian origin (Cleuziou and Méry 2001: 283). At present, indications suggest that the types of vessels included as grave offerings differ from those used in a settlement context, however, until further settlement sites dating to the first half of the third millennium BC are located and investigated, it is impossible to confirm this apparent distinction.

A more detailed assessment of the possible meaning of these vessels within Hafit period graves will be presented in the following chapter, which addresses the issue of interpreting grave goods in general and imported goods in particular.

Non-ceramic finds

Non-ceramic finds from the Hafit period tombs (excluding beads which will be reviewed independently) have been recorded in only 27 (40%) of the excavated tombs. Table 5.5 provides a breakdown of the types and frequencies of objects recovered.

Bronze / copper objects are certainly the most numerous material class, with rivets and pins scoring highest. As rivets were used in multiples as fastening devices for the handles of objects, their frequency is a little misleading, and doubtless indicates a lower quantity of composite objects, such as daggers. Certainly in Jabal Hafit Cairn 23, a dagger was recovered with at least 2 rivets still in situ (Figure 5.10).

The low number of daggers or other copper items recovered, on the other hand, most likely attests to the disturbance and plundering the tombs have undergone. This is emphasised when we consider that four tombs\textsuperscript{33} contained rivets and no other copper objects, although it is possible that these rivets were used in the fastening of items made from perishable materials. A further two tombs\textsuperscript{34} contained fragments of copper but no copper objects.

\textsuperscript{33} Mazyad 1317; Jabal al-Emaleh III, Tawi Silaim C4 and Jabal Hafit 5.

\textsuperscript{34} Jabal Hafit 3and Cairn 9.

Figure 5.10: Copper rivets from Cairn 23, Jabal Hafit (Photo J. Benton).
Table 5.5: Type and frequency of non-ceramic finds from the corpus of excavated Hafit period tombs.

<table>
<thead>
<tr>
<th>Copper Objects</th>
<th>Stone Objects</th>
<th>Shell Objects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency across all tombs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pins/Awls</td>
<td>Rivets</td>
<td>Ring</td>
</tr>
<tr>
<td>19</td>
<td>34</td>
<td>3</td>
</tr>
</tbody>
</table>

The most frequently occurring copper object in its own right is the pin or awl, of which nineteen (19) were recovered from twelve (12) tomb contexts. One is described as a needle, up to 25cm in length\(^{35}\), whilst another two appear to have slightly flattened ends and were possibly more a small spatula or cosmetic tool\(^{36}\). The more complete examples of the remaining sixteen pins indicate a fairly high degree of uniformity. Most measure between 10.5 and 13.3cm in length, are square in section at one end, tapering to a fine, round-sectioned point (Figure 5.11). The function of these pins is impossible to ascribe with certainty as none have been found in situ. They may have been used as pins to fasten clothing or they may have been hafted in some way and used as awls or tools of some kind. One example, from a later Umm an-Nar period context, was recovered with a bone handle intact around the rectangular end of the copper shaft, and has been interpreted as an awl (Frifelt 1995: Fig. 277).

Three copper rings were recovered from two Hafit period tombs and it is noteworthy that they were found in tombs which showed evidence of re-use either in the Umm an-Nar period\(^{37}\) or later\(^{38}\), during which time bronze rings become a very popular funerary artefact.

Two daggers were retrieved from Jabal Hafit C23 and Jabal al-Emaleh Cairn IV respectively. The presence of UAN period finds in the latter tomb and the parallels this example has with other

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\(^{35}\) For example the pin from Jabal Hafit Cairn 1 (Frifelt 1971: 380).

\(^{36}\) Examples found in Mazyad 1319 (Frifelt 1975b) and Buraimi 1 (During-Caspers 1971).

\(^{37}\) Jabal el-Emaleh I (Benton and Potts 1994).

\(^{38}\) Jabal Buheis BHS 64 (Jasim 2003: 87).
UAN period daggers leads one to suspect this item may be intrusive. Publication of the Jabal Hafit tomb, however, shows no other indications of reuse in later periods and further, the dagger has no close parallels to its very rounded tip with a central ridge.

Of the relatively infrequent stone objects recovered, three whetstones came from tombs at Jabal al-Emaleh\textsuperscript{39} and Jabal Buheis\textsuperscript{40}, all of which showed signs of later re-use. A grinding slab was found outside the tomb entrance of Jabal Hafit tomb 5\textsuperscript{41}, and a flint knife was recovered from another Jabal Hafit tomb\textsuperscript{42}.

Fig shells (\textit{Ficus subintermedia}), also described in these contexts as “feeding shells”, were found in five tomb contexts (Figure 5.12). The only \textit{in situ} recovery of one of these items was from Tomb I at Jabal al-Emaleh, where a feeding shell was found close to the skull of one individual, together with a ceramic vessel (Figure 5.7; Benton and Potts 1994: Fig. 92). These shells were probably used as vessels or utensils, and ethnographic studies testify to the modern use of these shells, in Oman, for the purpose of feeding babies (Bosch and Bosch 1982: 87).

Six shell rings of a decorative or fastening purpose were found in two of the Tawi Silaim tombs\textsuperscript{43}. These rings, three made from mother-of-pearl and three from marine gastropod shell, constitute a unique item in the Hafit funerary repertoire. They are all between 2 and 3cm in diameter, and have a uniform thickness of 6mm. Despite not being found \textit{in situ}, it is suggested that these rings formed part of a girdle, either sewn or threaded onto a strip of material, as decoration or used as a means of adjustment, not unlike the metal rings on the belt and sheath of the modern \textit{khanjar}. The concept of their use as finger or toes rings may be discounted due to the thickness of the band, which would have been uncomfortable (de Cardi 1979: 78-9). Numerous parallels from Mesopotamian contexts dated from the late Jamdat Nasr through to Early Dynastic III are cited, several of which attest to the function of similar rings decorating belts at Ur, and in the Diyala (de Cardi 1979: 84). Although unique in the Hafit period, similar shell rings have been found in the Oman peninsula in graves dating to the Umm an-Nar period (Benton 1996: 168-9).

\textsuperscript{39} Jabal el-Emaleh Tombs I and IV.
\textsuperscript{40} Jabal Buheis BHS 64 (Jasim 2003: 87).
\textsuperscript{41} Jabal Hafit tomb 5 (Cleuziou 1978).
\textsuperscript{42} Jabal Hafit Cairn 7 (Frifelt 1971).
\textsuperscript{43} Tawi Silaim cairns 1 and 2 (de Cardi 1979).
As noted by Potts (1990a: 77) one object class that is interestingly absent from grave assemblages of the first half of the third millennium BC is soft-stone vessels of any kind, particularly série ancienne. This is particularly odd considering ED II/III vessels were reaching the Oman peninsula at the same time as the série ancienne vessels were spreading far and wide through Mesopotamia and Iran. There is no easy explanation for this other than an apparent focus on imported ceramics, which excluded other object classes, which is tenuous, or the possibility that these vessels were simply not reaching the Oman peninsula in quantities great enough for them to reach the grave. The answer may also be chronological and the série ancienne material reaching the gulf may be simply later.

**Summary**

The range of non-ceramic finds in the Hafit period graves, although relatively limited, includes a new material that was never present in the excavated graves of the preceding periods, copper. Due to its intrinsic value we can’t be sure whether copper would originally have been present in all tombs, but it is interesting to note that despite its value, it was considered appropriate to remove copper objects from circulation by placing them in tombs. A more comprehensive treatment of this subject will be presented in the following chapter.

**Beads**

As noted in Chapter 2 beads have traditionally been afforded poor attention during both excavation and publication. This is unfortunate because considering the general paucity of objects found within Hafit period tombs, beads are artefacts that are unlikely to have been robbed, broken or have decomposed, and are thus a useful comparative object class. Nonetheless, a minimum total of 4,543 beads have been reported from 29 Hafit tomb contexts. In tombs that have undergone re-use it is impossible to determine to which phase of use the beads belong, although some conjecture can be made in specific cases, which will be outlined below.
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Table 5.6 provides data on the numbers of beads recorded within the excavated tomb contexts. The fact that 56% of the excavated tombs report either the recovery of no beads or simply do not mention beads at all, is indicative of the quality of recovery and reporting. To my mind it is not tenable that this proportion of tombs were originally without beads, and the excavation of twenty cairns over a fortnight in the Jabal Hafit area (Bibby 1965: 109), where many of the bead-less tombs were located, is indicative of the level of care taken.

Table 5.6: Quantities of beads found in the excavated tombs of the Hafit period.

<table>
<thead>
<tr>
<th>No. of beads</th>
<th>0</th>
<th>1-10</th>
<th>11-50</th>
<th>51-200</th>
<th>201-1000</th>
<th>1000+</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of tombs</td>
<td>38</td>
<td>12</td>
<td>8</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>67</td>
</tr>
<tr>
<td>Percentage of total</td>
<td>56%</td>
<td>19%</td>
<td>12%</td>
<td>6%</td>
<td>4%</td>
<td>3%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Beads from the Hafit period tombs were manufactured from a wide variety of materials including frit/faience, carnelian, quartz, soft-stone, bone, shell and several indeterminate types of stone, possibly jasper and chalcedony. The attribution of material type has always been a problematic area for two main reasons: accurate assessment and terminology. Often the types of materials in use, which may be stones or composites, are assessed by individuals who do not have the appropriate tools or knowledge to accurately classify them. Also relevant is the terminology used to describe various materials. This seems to differ even when specialists are brought in to analyse the materials, and it becomes apparent that there are a multitude of terms for similar materials. All this creates problems when attempting to compare materials between sites, especially from published reports. Some of the terms used in the following section have been arrived at through geological analyses undertaken on some of the materials present at the Hafit period sites of Jabal al-Emaleh and Tawi Silaim, while others have been accepted from published reports.

Table 5.7: The various broad material classes from which the beads of the Hafit period tombs were made.

<table>
<thead>
<tr>
<th>Materials</th>
<th>Shell</th>
<th>Metals</th>
<th>Frit/ Faience</th>
<th>Talcose</th>
<th>Bone</th>
<th>Clear Quartz</th>
<th>Carnelian/ Chalcedony</th>
<th>White Stone</th>
<th>Soft-stone</th>
<th>Other Stone</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantity across all tombs</td>
<td>330</td>
<td>7</td>
<td>798</td>
<td>2006</td>
<td>57</td>
<td>93</td>
<td>147</td>
<td>97</td>
<td>975</td>
<td>40</td>
<td>4550</td>
</tr>
<tr>
<td>Percentage</td>
<td>7</td>
<td>0.2</td>
<td>18</td>
<td>44</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>22</td>
<td>0.8</td>
<td>100</td>
</tr>
</tbody>
</table>

Bearing in mind the constraints outlined above, the following pages look at the beads from the Hafit tombs in terms of the direct information they provide us, and conjecture as to their role in the burial programme of the Hafit period. Table 5.7 presents data
relating to the broad classes of material from which the beads of the Hafit period were made.

*Talcose steatite/serpentine*

The most prominent raw material is talcose steatite/serpentine, numbering 2006 beads and comprising 44% of the total. Two main forms are represented, small microbeads (n=1297), normally as long as they are thick with diameters c. 2.5-3mm; and long tubular beads (n=709), c. 1-1.2cm. long and 2-2.5mm. in diameter (Figure 5.13). It is important to note at this point, that all beads of this material come from only three (3) tomb contexts, all from the site of Jabal al-Emaleh, two of which have produced other evidence of re-use during the Umm an-Nar period.

Beads of the same material have been variously described in the literature as bird bone, shell, paste, 'clay stone', enstatite/hypersthene, and talcose steatite (Frifelt 1991: 114). In 1995 analyses undertaken by the Department of Geology at the University of Sydney on beads from the site of Al Sufouh, identified this material as serpentinite, which includes soapstone and other "talcy" rocks (Benton 1996: 113). The identification of similar beads as talcose steatite (by the Geological Institute at Aarhus University, see Frifelt 1991: 114) is in keeping with that of serpentinite, as both are formed by the same process, and would show similar elemental peaks in x-ray diffraction analysis.

The long tubular bead type from the Jabal al-Emaleh contexts (Figure 5.13), has an absence of drill-marks or any other signs of manufacture, suggesting they may have been made from a talc paste moulded around a thin stalk of plant matter, which disintegrated when the bead was baked. If the beads were manufactured in this manner it would explain their longitudinal shape, suggesting that they may have been made in lengths which were then cut into smaller sections.

![Figure 5.13: Tubular talcose steatite beads from Tomb III at Jabal al-Emaleh (Photo M. Ziolkowski).](image-url)
This tubular form has traditionally been associated with Umm an-Nar period burials. On the island of Umm an-Nar, numerous identical beads were recovered, while similar, though slightly larger forms were found in the Hili tombs and at Shimal. The fact that over 700 of these beads were recovered from Tomb III at Jabal al-Emaleh, which produced no other evidence for re-use during the Umm an Nar period, contrasts with the meager 3 and 2 respectively which were reported from Tombs I and IV, both of which exhibited other evidence for re-use during the latter period. Obviously the chronological attribution of bead types in re-used graves is going to be problematic, although here there are only two possible interpretations, neither of which can be substantiated using the currently available evidence:

1. That talcose steatite beads of the long, tubular type were in use from the Hafit period and into the Umm an-Nar, or

2. That this bead type is restricted to the Umm an-Nar period, and that those from Tomb III at Jabal al-Emaleh relate to a later phase of use not indicated by any other datable material culture.

The manner of deposition of these beads in Tomb III at Jabal al-Emaleh, found lying in a vertical alignment (Benton and Potts 1994: Fig. 31), is reminiscent of those recovered in Tomb V at Umm an-Nar (Frifelt 1991: Figs. 51 & 246) and Tomb I at Al Sufouh (Benton 1996: 40-41, Fig. 30), where they are thought to represent the remains of bead-embroidered cloth. This evidence provides one of the few windows into the original use of such beads in tombs of the third millennium BC. Whether these beads decorated shrouds or were a part of clothing items also used in life is, unfortunately, impossible to determine. An interesting comparison may be made here to the evidence of shell-studded loin clothes from the nearby fifth millennium BC site of Jabal al-Buheis (Kiesewetter et al. 2000: 140).

The small, micro-bead type made from talcose steatite, sometimes appears as if it had been cut off a long tube, but many are in fact barrel-shaped or biconical, showing that they were individually worked. In contrast to the tubular beads, the talc microbeads were most common in Jabal al-Emaleh Tomb I (n=701), followed by Tomb IV (n= 596), with none at all recovered from Tomb III. These two tombs are those in which other evidence for re-use in the Umm an-Nar period was present. Again, nearly identical beads were recovered from the tombs on Umm an-Nar island (Frifelt 1991), while the superficially similar examples from the tombs at Hili and Shimal are generally larger and more discoid.
A reconstruction of third millennium burial practices

Relevant to the chronological attribution of both these bead types is the recovery of similar types from the fifth millennium BC site of Jabal al-Buheis. At this site, tubular beads of serpentine and microbeads of coral have been found in great quantities (Kiesewetter 2000: Figs 3-4; 40) both of which are similar in appearance to the beads from nearby Jabal al-Emaleh described above.

Soft-stone

Soft-stone beads comprise 22% of the bead assemblage, numbering 975 in total. The colour of the soft-stone used in the manufacture of these microbeads varies from black through grey to white, and can also be dusky red or dark green. The beads, measuring 2.5-3.5mm in diameter and 1.2-2mm in thickness, can be circular through to squared in cross-section. From a purely visual assessment, they appear to be made of stone rather than a paste, and may have been made in lengths and then cut.

Like the beads of talcose steatite, beads of soft-stone were also only recovered from the tombs at Jabal al-Emaleh. Once again the problem of chronological attribution is raised and there is insufficient evidence to ascribe them to either phase of use. In Tomb III at Jabal al-Emaleh, these soft-stone beads were found in situ with the tubular talcose steatite variety (Benton and Potts 1994: Fig. 31) indicating that both types were in use at the same time, and were used to decorate fabric. The fact that soft-stone microbeads are also found in several Umm an-Nar tomb contexts at Hili, Umm an-Nar and Shimal, may provide some circumstantial evidence that this bead type should be related to the Umm an-Nar re-use of the Jabal al-Emaleh tombs rather than to the initial Hafit phase.

Evidence for the manufacture of steatite and other soft-stone beads from Ra’s al Hadd is to date incompletely published, but may shed light on the issue of whether these beads were locally produced or imported and their chronological associations.

Summary - talcose steatite and soft-stone

As mentioned, the chronological attribution of the talcose steatite and soft-stone beads is very problematic. We cannot discount the possibility that they were part of the first phase of use of the Jabal al-Emaleh tombs. Tomb III in fact showed no definitive evidence of re-use in the Umm an-Nar period, other than the presence of the soft-stone and talcose steatite beads. On the other hand, it is indeed possible that these bead types

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were all deposited as part of the Umm an-Nar period re-use of these tombs. The co-occurrence of both types may lend greater weight to the argument that they belong to the latter era. Parallels cited above to bead types from the nearby early site of Jabal al-Buheis, on the other hand, lend weight to the argument that these bead types are not to be associated only with the Umm an-Nar period and that this inland gravel plain area may have generated such types or their precursors far earlier. Without the discovery of better chronological associations for these bead types, the question of chronological attribution must remain unanswered.

Table 5.8: Tabulation of raw materials from which the beads of the Hafit period tombs were made (excluding soft-stone and talcose steatite).

<table>
<thead>
<tr>
<th>Materials</th>
<th>Shell</th>
<th>Metals</th>
<th>Frit/Faience</th>
<th>Bone</th>
<th>Clear Quartz</th>
<th>Carnelian/Chalcedony</th>
<th>White stone</th>
<th>Other stone</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantity across all tombs</td>
<td>330</td>
<td>7</td>
<td>798</td>
<td>57</td>
<td>93</td>
<td>147</td>
<td>97</td>
<td>40</td>
<td>1569</td>
</tr>
<tr>
<td>Percentage</td>
<td>21</td>
<td>1</td>
<td>51</td>
<td>3</td>
<td>6</td>
<td>9</td>
<td>6</td>
<td>3</td>
<td>100%</td>
</tr>
</tbody>
</table>

In an attempt to mitigate the impact of such multitudinous types on the relative proportions of bead material types outlined in Table 5.7, new calculations were made omitting these two chronologically problematic types. Table 5.8 tabulates data relating to the proportions of raw materials excluding talcose steatite and soft-stone.

Frit/faience or paste

Once beads of talc and soft-stone are omitted, frit/faience beads become the most numerous, comprising 51% of the total (n=802) and being found in 16 Hafit tomb contexts (24%). Before discussing their form, a word on terminology is necessary. Beads in this category are made from the traditionally recognised faience or frit compositions. The term ‘faience’ refers to finely powdered quartz grains cemented by fusion with small amounts of alkali, lime or both. It is usually colourless, but may be tinted brown or grey by impurities or a bluish/green by the addition of copper compounds (Stone and Thomas 1956: 38). ‘Frit’ is a double silicate of lime and copper and has a sintered, polycrystalline body. A variety of colours are possible, including white, blue, red, black and yellow, the most common of which is blue (Moorey 1994: 177). As Moorey notes, however, the distinction between frit and faience is problematic. Generally speaking faience is glazed while frit is not. In many archaeological contexts, however, glazes are not well preserved and faience is easily mistaken for frit (Moorey 1994: 167). A further complicating factor is the frequent mis-use of these terms by archaeologists. In view of these difficulties the term ‘paste’ will be employed as a
generic term for beads of an artificial, composite material, the exact composition of which is unknown.

The only paste beads from the Hafit period in the Oman peninsula that have been analysed are several examples from Tawi Silaim (de Cardi 1979: 74-77; Fig.8). X-ray powder diffraction has determined these beads as being made from ‘Egyptian faience’, which is explained as a “sintered quartz body” (de Cardi 1979: 74).

![Figure 5.14: Double diagonally perforated beads from a Jabal Hafit cairn (Photo J. Benton).](image)

Paste beads are seen in a variety of shapes, the most frequent in Hafit tombs being the short cylindrical variety, followed by long cylinders, spheres, discs, segmented variants, double diagonally perforated squares (Figure 5.14) and barrels. To my knowledge no beads of this material have been found in situ, nonetheless it is likely that they were used in items of personal adornment.

The occurrence of several types of paste beads in the tombs of Tawi Silaim, prompted discussion on the more general distribution of faience beads across western Asia, concluding that such bead types were numerous in graves and on religious sites in northern Mesopotamia from the fifth millennium BC up to and throughout the Jamdat Nasr era (de Cardi 1979: 80-82). More detailed discussion specifically concerning the chronology of segmented faience beads determined that although this type has a very wide geographic spread (Europe to the Indus valley) and multiple centres of production, quantifying the occurrence of early examples suggests an origin for the Hafit beads in the West. Further evidence for this hypothesis is found in numerous other parallels of

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45 515 of this type were recovered from 7 contexts – Mazyad tombs 1317, 1320, 1321; Jabal Hafit B(37) & C22; Tawi Silaim C2 & C3.

46 These beads have been determined in the excavation reports as being made of bone. They will therefore be discussed under this heading, although the accuracy of this determination is questioned.
bead types cited between Hafit period sites and Mesopotamian sites of the Jamdat Nasr - Early Dynastic period, particularly the square/diamond shaped bone spacers and their associated types (de Cardi 1979: 82-83).

Shell

Next in frequency are shell beads, which comprise 21% of the total (n=331) and occur in twelve tomb contexts. Tombs I and III from Jabal al-Emaleh contained the highest quantities of shell beads (I = 150 and III = 113), followed by Jabal Hafit 6 (=24) and Tawi Silaim C4 (=23), while the other eight contexts all contained less than seven per tomb.

At least seven different species of shell were used as beads in the Hafit period tombs. The most numerically frequent species is Conus catus, (n=156), all examples of which were recovered from the three tombs of Jabal al-Emaleh, predominantly from Tombs I (n=88), and IV (n=55). Of particular interest was the in situ recovery of a necklace made of Conus catus beads from around the neck of a primary burial in Tomb I, showing that in this case, the shells were strung directly adjacent to each other, head to base, without any intervening spacer beads (Figure 5.7, 5.15). Individually the Conus beads tend to range from 1-2cm in length. Fifteen sawn or sectioned Conus shells were also found, five of which were from tombs at Jabal Hafit and the remainder from Jabal al-Emaleh. The Conus examples used for sectioned beads of this type tend to be larger, resulting in disc shaped beads sometimes 2-3cm in diameter. This practice is widely attested throughout the Indo-Iranian borderlands (Durante 1979: 333).

Although identified as a different species of shell, Oliva inflata shells are generally similar in shape to Conus, but tend to be a little smaller
and finer. Once again these were found only in the tombs of Jabal a-Emaleh (Tombs I – 14, III – 1 and IV - 9).

Beads of *Dentalium* (n=73) were recovered from 4 tomb contexts, over three sites, namely Tawi Silaim, Jabal Hafit and Jabal al-Emaleh. Evidence from Cairn 2 at Tawi Silaim, revealed a dark grey/green soft-stone bead impacted in the end of a dentalium bead, possibly reflecting their relative position when threaded (de Cardi et al. 1979: 76). Perforated black and white striped shells (*Engina mendicaria* – n=23) were recovered from five tomb contexts, from Jabal Hafit and Jabal al-Emaleh (Figure 5.16). These, together with *Dentalium* beads have also been found in numerous Mesopotamian contexts, dating to the early Dynastic period (Cleuziou 1978: 17).

Cowrie shells (*Peribolus arabica* – n=11), cut longitudinally to reveal their section and with their broad tips knocked off, were present in only three tombs from Jabal Hafit and Jabal al-Emaleh. Mother of pearl discs (n=6) have been found in three Jabal Hafit tombs and are either a square to rectangular shape with a single perforation or sometimes small circular discs (Cleuziou 1978: Fig. 17).

The *columella* of a shell such as *Xancus pyrum* was used to manufacture a tubular bead, originally perforated at both ends, which was the centrepiece of the *Conus* necklace found in Tomb I at Jabal al-Emaleh (Figures 5.7 and 5.15). Very close parallels for this bead come from the late fourth millennium site of Aqab in Umm al-Qaiwain (Prieur and Guerin 1991: Figs. 5, 6.8) and from the contemporary, Jamdat Nasr-period settlement at Tell Gubba in the Hamrin district of northeastern Iraq (Li 1989: Fig. 16.9 and Pl. 38.9).

The final type of shell beads from Hafit period tombs have been classified in this work as small rings or discs (Figures 5.17 and 5.18). These tend to be of a relatively non-descript nature and appear to be manufactured from shell, rather than simply modified. The majority of these come from Tawi Silaim, but are also found at Jabal Hafit. It is possible that they are made of a composite material that comprises a lot of calcite, which gives the appearance of being
shell. Certainly the beads of this type from Tawi Silaim that have been analysed by x-ray diffraction are presented as aragonite-shell (types g and p) or calcite (types b, c and o) (de Cardi 1979: 74, 77).

It is obvious that considering the inland location of most of the Hafit period tombs, they nonetheless have a significant quantity of shell beads, the raw materials for which probably came both from the Arabian Gulf and the Arabian Sea. This is not an unusual situation, with the inhabitants of coastal sites often showing far less interest in the locally available raw materials such as shell, especially for items of personal adornment, than those from inland sites where such items must have been rarer. This is certainly the situation in the later Umm an-Nar period, and at the fifth millennium BC site of Jabal al-Buheis, where shells were a very popular material for the production of jewellery, despite the distance from the coast.

Another interesting point in contrasting the shell items from earlier sites such as Jabal al-Buheis and Ras al-Hamra with those of the Hafit period, is that those from the earlier sites tend to be far more elaborate in design and execution (Kiesewetter 2000: Fig. 6; Santini 1987: Figs 8-10). This may reflect the more limited overall repertoire of possible grave goods available to the earlier communities, a feature of the material culture that was just beginning to change in the Hafit period, when copper and ceramics were beginning to make their entrance.

**Carnelian/chalcedony**

Beads of carnelian or chalcedony from the Hafit period tombs (n=147) comprise 9% of all bead finds and are found in 16 tomb contexts -24% (Figure 5.19). Carnelian is simply a reddish variety of chalcedony (Berry and Mason 1959: 478) and its colour is variable, dependent on the quantity of haematite present (Helfer 1970: 132). There is considerable variety in form and all beads have been classified using the system devised for the
A reconstruction of third millennium burial practices

carnelian beads from the Umm an-Nar period site of Al Sufouh (Chapter 4). This
categorises primarily according to shape, with body definition, end definition, size and
surface treatment as the major criteria. The majority (63%) are squat (length less than
diameter), either in barrel form (77%) or biconical (33%). Of these, over half show
evidence of end truncation and/or deeply chamfered perforations.

Although present in Hafit period
tombs, carnelian beads become far
more frequent in tombs of the Umm
an-Nar period in the Oman
Peninsula, and are indeed present all
over Western Asia. Sources of the
stone can be found in India,
Afghanistan, eastern Iran (Reade
1979: Map 5), some parts of the
Arabian Peninsula and on the
Iranian coast near Bushire
(Whitehouse 1975: 129). To date, however, no sources have been located on the Oman
Peninsula. The origin of the carnelian beads from the Hafit period tombs is therefore
indeterminate. When looking back in time, however, at the presence of a considerable
number of carnelian beads from the fifth millennium BC site of Jabal al-Buheis
(Kiesewetter 2000), one must begin to suspect the presence of a local source of
carnelian, or at least one within reasonable trading distance from the territory covered by
this nomadic group.

White stone

Ninety-seven (97) beads are included under this rather non-specific designation. It
comprises beads that have been described in published reports as being made of white
stone, but no doubt includes examples from different material classes. From personal
experience, baked carnelian, which has the external appearance of a white stone, may be
mistaken as being a stone other than carnelian, and I suspect that some of the examples
in this group may be just that. The majority of this group, however, is comprised of
beads from the site of Tawi Silaim, several examples of which have been analysed using
x-ray diffraction. The results show that some (71) are made from calcite/limestone,
others (14) a mixture of calcite and other carbonates and three are of fired soapstone (de
Cardi 1979: 74).
Quartz / rock crystal

Ninety-three beads of clear quartz (6%) were recovered from six tomb contexts (Figure 5.20). The material appears to be rock crystal, a silicate belonging to the quartz family. Beads of this material are generally squat and biconical or barrel shaped with deeply chamfered perforations.

Bone

A total of fifty-seven beads (3%) of bone have been recovered from the Hafit period tombs. The majority of these (51) are loose fish vertebrae recovered from the tombs of Jabal al-Emaleh. Their definite function as spacer beads in items of jewellery was ascertained during excavations in Tomb I, where they were found in situ, spacing beads of pinkish soft-stone (Benton and Potts 1994: 51, Fig. 77). Two other bone beads were reported from a Maysar tomb, but no greater detail was available.

Four bone beads in this category are somewhat better known. They are square or diamond shaped beads with double perforation, and although only four examples of this type (from Hafit tombs) have been properly published\(^\text{47}\), numerous examples are alluded to (with photographs - Frifelt 1980: 275), and others have been observed in the Al Ain Museum by myself. They are often described as being made from bone (Cleuziou 1978: 15, 17), although this determination may be incorrect. Nonetheless, these beads have close parallels in Mesopotamia, from the Diyala, level 6 at Khafadje (EDI), Tell Asmar and from a jewel hoard under the floor of Sharab temple of Agrab, also dated to EDI (Frifelt 1980: 275). In Iran parallels have been cited at Tepe Hissar level II C and Susa proto-Elamite level 15 (Cleuziou 1978: 17). They have been found in contexts as early as Jamdat Nasr, but continue into the Early Dynastic period (Potts 1975). In Jabal Hafit cairn 6, this bead type was found in association with small frit/faience beads, shell beads of Dentalium, Engina mendicaria, Conus catus and mother of pearl as well as beads of carnelian. This composition compares closely with bead finds from Level 6 at Khafadje (Cleuziou 1978: 15-17).

\(^\text{47}\) Three (3) were recovered from Jabal Hafit Tomb 6 and one (1) from Jabal Hafit Tomb 2 (Cleuziou 1978).
Other stone

Forty beads of unidentified stone, comprising 3%, were found across ten tomb contexts. Some of these (29) are of a hard, dark brown to pale buff, fine-grained stone which may be jasper. Jasper has been mentioned in two excavation reports (Jabal al-Emaleh and Tawi Silaim) and although no positive identification has been made, it seems likely that this identification is correct (Benton and Potts 1994: 55; de Cardi 1979: 77). It is suggested that the 27 jasper beads from Jabal al-Emaleh tomb IV may have come from the same necklace due to the homogenous nature of their external appearance, which shows beads graduating in size from the smallest (diam. 0.725cm to the largest (diam. 1.29cm), all with the same slightly wedge-like appearance – thicker on one side than the other (Benton and Potts 1994: 55). No close parallels for this type of bead have been found in the Oman peninsula, as the two reported from Tawi Silaim are much smaller and very commonplace in form.

A further two unidentified stone beads are described as being green in colour while seven others are described as being of dark coloured stone. The remaining two beads are of stone but not even a colour designation has been provided.

Metals

The final category comprises beads made from various metals. Seven have been reported, comprising <1% and occurring in three tomb contexts at two sites, Jabal al-Emaleh and Tawi Silaim. A single, minute gold cylinder was recovered from Cairn 4 at Tawi Silaim (de Cardi 1979: 78), and represents the only gold bead recovered from an Hafit period tomb. According to the excavators, this bead represents one that must have been missed by tomb robbers, implying their belief that there would originally have been more such beads.

Five barrel to biconical shaped beads and one tubular bead of an apparently silver/lead alloy were discovered in Tombs I and III at Jabal al-Emaleh. All are made of a single sheet of metal which was rolled or folded but never fused. These beads range in size from 2.75cm in length and 1.025cm in diameter, to 1.5cms long and 0.5cm in diameter. One of the Jabal al-Emaleh beads differs from the rest in that it is a very tightly rolled, straight, tubular bead measuring 3.7cms long with a diameter of 3.3mm. The only close parallels within the Oman peninsula for the biconical shaped beads come from the Umm an-Nar tomb (1) at Shimal. Other tombs, such as the Umm an-Nar tombs at Mowaihat (Ajman) and Hili North Tomb A, have small numbers of silver or silver alloy beads but
none of these show the characteristic technique of manufacture using sheet metal. Very similar silver beads showing what appears to be the same technique of manufacture have recently been excavated in an Old Akkadian context at Tell Brak in northern Syria (Oates and Oates 1993: Fig. 13), thereby being broadly contemporary with the silver alloy beads from Jabal al-Emaleh.

**Summary**

Items of personal adornment comprised of beads and cloth with beaded embroidery no doubt formed an important feature of the burial programme of the Hafit period. Evidence from the very occasional undisturbed areas within excavated tombs suggests individuals were buried wearing items of jewellery such as necklaces and articles of clothing or shrouds that were bead embroidered. This is in keeping with the traditions of earlier identifiable cultures in evidence at Jabal al-Buheis and Ras al-Hamra and with that of the subsequent Umm an- Nar period. Whether these items were used in day-to-day life or were made specifically for the grave is once again impossible to tell due to a lack of information from the elusive contemporary settlements.

**Review of the results of Multivariate Analyses (MVA) on the Hafit dataset**

When it comes to interpreting the results of the MVA on the Hafit data, the major limitations and complexities can be seen as: the overlaying of different factors of variance (regional, temporal etc.) and the ‘noise’ inherent within the data-set (explained in Appendix 1). With these issues in mind we may turn to possible interpretations.

Dual cluster analysis identified three groups within the Hafit tomb corpus (Appendix 1: Figure 22). The division into these groups appeared primarily based on the ceramic divisions, which were somewhat problematic due to being based on decoration, an issue discussed in Appendix 1. One of the three groups included only the tombs of Jabal al-Emaleh, and their clustering is interpreted as partly a result of excavation technique and also a result of the re-use of the tombs. Nonetheless, the resultant groups were interpreted through the lens of chronology and regionality to see if patterning was evident and in the least to see if any hypotheses could be generated. Appendix 1: Figures 23-25 provide firstly an intuitive chronological schema for Hafit tombs, then this schema overlain with the groups detected and finally a reordered chronological schema based on the groupings. Looking at Appendix 1: Figure 25, it can be seen that each major site has tombs from both groups. If the tombs are grouped through variance that could be interpreted as chronological, then this lends itself to the interpretation of burial.
grounds being utilised from early in the Hafit period and continuing in use into the later phase.

**Ritual and practice of the Hafit period - Summary**

There is very little evidence from Hafit period graves that can be directly interpreted as resulting from ritual activity. In attempting to reconstruct a Hafit funeral, only a few factors can be sure:

- In preparation for the disposal of the dead, tombs were constructed, using locally available rock, in a relatively uniform style, across a broad geographical area. Entry into these tombs was never to the north, varied across regions, but was often uniform within local areas;

- There are often many tombs close to one another, indicating that the inhabitants of one settlement probably used a number of tombs. This suggests a division of the population, which is likely, from the available evidence, to be along familial lines. The relevant evidence includes:

  1. The presence of individuals of both sexes and all ages in the tombs; and

  2. Numbers of interments in each tomb (three-five), suggests that their composition was restricted;

- It seems that no great amount of time elapsed between death and burial. In the few undisturbed areas of the excavated tombs skeletal articulation appears to be the norm.

- There is no obvious post-mortem treatment of the corpse (cremation, smoking, embalming, etc.).

- Individuals were taken to the place of burial. It is not possible to say whether they were wrapped in shrouds or simply dressed in garments that were worn in life. The likelihood that they were dressed in some fashion is high considering finds such as shell rings from belts and beads from jewellery and embroidered cloth.

- Considering the small amount of space within the chambers of most tombs it is likely that any ceremony and/or ritual activity was held either outside the structure (there is no evidence for this) or at some other location (settlement?).
• Bodies were placed in the tomb with associated grave goods. It does not seem to have mattered if earlier burials were disturbed during this process, although it does seem that objects were placed in some (meaningful?) relationship to the deceased at the time of burial.

• Tomb entrances were often blocked. This seems to have been done even when the tomb was to be re-used for the burial of the next appropriate individual. The circumstances behind the decision to close a tomb for good remain unclear.

• To date there is no direct evidence for the possible ritual use of objects found within the tombs, although this does not discount the possibility. There are, however, no objects whose function seems to be overwhelmingly associated with ritual.

In summary, evidence for ritual activity surrounding the burial of the dead in the Hafit period is scanty. The evidence presented above does, however, indicate that rules of some origin (tradition, beliefs) did govern mortuary behaviour, hence the similarity in burial style across a broad physical area. Of particular note is the fairly extreme divergence in burial practice from the previous period – from interments in cemeteries to stone built tombs and from cremation and secondary burial to primary interments only. These changes in the mortuary realm no doubt herald significant alteration to subsistence and hence social organisation and possibly belief systems. These issues will dealt with in greater detail in Chapter 6.

The Umm an-Nar period: c. 2500-2000/1900 BC

This period derives its name from a small island off the west coast of Abu Dhabi, where the impressive circular, stone tombs characteristic of this era were first excavated in the 1950’s (Figure 5.21). So far around 70 tombs dating to the second half of the third millennium BC have been excavated, and many others, potentially dating to this era, have been identified through survey. This provides us with a sample large enough to enable the reconstruction of a generalised burial programme, although a combination of tomb disturbance and poor documentation have a negative impact on the result. The following pages primarily review evidence from the 67 Umm an-Nar period tombs included in the database compiled for this study (Appendix 2). Due to variability in the quality of reporting, not all tombs were included in the database, although relevant information from these and more recently published tombs has been included in the following review where appropriate.
A reconstruction of third millennium burial practices

Figure 5.21: View of Umm an-Nar period tombs on the island of Umm an-Nar where they were first discovered (source www.uaeinteract.com/history).

Following the trend of the Hafit period, Umm an-Nar burial practices can be generally described as individual, successive interments in communal graves. These collective burial contexts may encompass as many as 438 individuals although the majority seem to contain between 20 and 100 people. Grave goods are numerous, reflecting the greater number of interments and comprise a wide range of materials including ceramics, metals, stone objects and beads, both locally produced and imported from a variety of locations. The chronological span for this period is traditionally seen as being the second half of the third millennium BC, although carbon dates from Tell Abraq suggest use of the tomb may extend slightly into the first century of the early second millennium BC (Potts 2003a: 11).

The distribution of Umm an-Nar period tombs describes a very different area than those of the preceding Hafit period (Figure 2.1). Tombs and their associated settlements are found all along the west coast of the peninsula from Abu Dhabi in the south to the northern-most parts of Ras al-Khaimah, throughout the interior and along numerous wadis draining into the Gulf of Oman, and as far south as Ras al-Hadd (Potts 1990a: 94-5). The close proximity of Umm an-Nar burial structures to their related settlements and their preferred location on alluvial flats or low plains are also features of this era that set it apart from the earlier Hafit period. These features are some of the few definitive and
purposeful changes in mortuary practice between the two periods which otherwise shows steady, logical development.

**Burial structures**

In general terms, tombs of the Umm an-Nar period are circular constructions primarily of un-worked local stone, although often faced with worked blocks, which form a single, outer ring-wall (Figure 5.22). These finely worked limestone or *farush* blocks, commonly referred to as 'sugar-lumps', have come to be a signature of the Umm an-Nar period. These stones can be of considerable dimension, up to 2 m in some cases (Tomb A Hili North ~ Vogt 1983: 38) and of varying shapes, sculpted to lock in with one-another.

Figure 5.22: Reconstructed, Tomb II on Umm an-Nar Island provides a good example of the ashlar masonry characteristic of UAN tombs across the peninsula (after photo by Peter Hellyer, www.adias-uae.com).

Figure 5.23: Tomb A Hili north (source www.uaeinteract.com/history).
There are a wide variety of layouts which serve to divide the internal space into anything from one to twelve chambers. This diversity defies attempts to create a useful type series, with almost twenty permutations recorded. The most popular layout sees tombs divided into a minimum of six chambers, with an internal wall that divides the tomb in two halves, with two walls emanating from this on both sides (Figures 5.23 and 5.25a). Tombs of this plan range in size from 12m (ext. diameter) to 6.5m and are found at Hili, Al Sufouh and on Umm an-Nar island. A slight variation to this type sees three rather than two offset walls, thereby creating eight chambers (Figure 5.25a.i). An example of this type is located on the Shimal plain in Ras al Khaimah (Unar 1). A variant on this is tomb 1 at Ra’s al-Jinz 1, which has eight chambers that are apparently completely unconnected. It is possible, however, that only the foundations of this tomb remain and that flooring would have seen connection at a higher level. Also with eight chambers created in a similar fashion is a type only recorded to date on Umm an-Nar island, which has a central passage way (Figure 5.25 a.ii). Tombs of this type have been recorded with ‘shelves’ built into the chambers, thereby providing two layers for the deposition of human remains.

Figure 5.24: Layout of Unar2 tomb at Shimal (source www.rakmuseum.gov.ae).

48 Tomb plans are presented in the database for this thesis, Appendix 2.
Figure 5.25: Schematic drawings of the most popular internal layout plans of Umm an-Nar period tombs.

Figure 5.26: The UAN tomb at Tell Abraq simply divided into two (after photo by L. Weeks).
Another variation to this type sees one of the off-set walls emanating from the ring wall rather than the central dividing wall. Also popular was the cruciform plan (Figure 5.25b) which sees tombs of between 6 and 7m diameters divided into four chambers. Tombs of this type have been recorded at Hili and on Umm an-Nar island, with variations found at Bat (Figure 5.25b.i). Also effectively dividing the interior into four chambers is the layout comprising a central dividing wall, with a parallel wall on either side (Figure 5.25c). This layout, from Tomb A at Hili North, is mirrored in an upper and lower level, the lower being subterranean (Figure 5.23). Also using parallel walls for division is the proposed plan for tomb A at Ajman, which sees a central passageway with chambers off to each side. Disturbance to this structure, however, makes its original plan unclear, and a layout along these lines is not seen elsewhere in the Oman peninsula. Some tombs are divided very simply into two halves by a central dividing wall that either meets the ring wall at both ends, or only at one, thereby leaving a passageway between the two halves (Figure 5.26). Tombs of this type are found at Maysar, Bat, Tell Abraq and on Umm an-Nar island. Some tombs from the island of Umm an-Nar have no divisions at all, although the date of these appear no discernibly earlier or later according to their assemblages (although Grave VIII was empty - Al-Tikriti 1981: 142; Frifelt 1991: 36). One completely unique layout, recently excavated in Mleiha sees the internal space divided into 9 chambers by the construction of a single wall emanating from the ring wall which then has eight shorter, chamber dividing walls radiating out (Figure 5.27 - Jasim 2003: Fig. 24). This is the second largest UAN tomb excavated to date, at 13.85 m.

Analysis of layout with other variables such as relative date (based on assemblages) or geographic location, in the search for some patterning, has proved to be rather fruitless. Tomb plan does not seem to vary according to site, nor is there an obvious, logical development through the period from simple/smaller tombs to larger, more elaborate examples, as was suggested on the island of Umm an-Nar (Al-Tikriti 1981: 142). In fact one of the latest examples, the tomb at Tell Abraq, has a very simple plan with only two chambers and has the modest diameter of only 6m. Compounding the problem of identifying any patterns in the structural development of these tombs is the issue of the length of time the tombs were in use. This creates chronologically merged artefact assemblages which makes providing the tombs with a *terminus ante quem* all the more difficult.

Irrespective of layout, most Umm an-Nar tombs over 4m in diameter have, as their basic unit of division, two halves. This is very likely to have been a structural requirement, reducing the span of the area which required roofing. In some, the halves are connected
internally by passageways, whilst others have no internal connections and access to each half is through opposite doorways in the outer ring wall. The significance of this connection aspect, if indeed there is one, is as yet undetermined. As Table 5.9 reflects, division into more numerous chambers is thought to reflect roofing requirements, with tombs of the greatest diameter often having the highest number of chambers. The tombs of Asimah (except for As 100) are all single chambered and of generally early appearance, often cairn like or beehive in shape and yet with finds that date to the UAN period. It is true, however, that these tombs were generally in very poor condition and although excavated carefully, they are less able to provide assemblages useful for dating.

Figure 5.27: Unusual floor plan of the UAN tomb at Mleiha (after Jasim 2003).
Table 5.9: Relationship between external diameter and no. of chambers in circular UAN period tombs.

<table>
<thead>
<tr>
<th>Site/Tomb no.</th>
<th>External Diameter m</th>
<th>No. of chambers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unar 2 Shimal</td>
<td>14.3</td>
<td>12</td>
</tr>
<tr>
<td>Meilha</td>
<td>13.85</td>
<td>9</td>
</tr>
<tr>
<td>Hili Garden 1059</td>
<td>12</td>
<td>6? (uncertain)</td>
</tr>
<tr>
<td>Umm an-Nar II</td>
<td>12</td>
<td>10</td>
</tr>
<tr>
<td>Umm an-Nar IX</td>
<td>12</td>
<td>6</td>
</tr>
<tr>
<td>Unar 1 Shimal</td>
<td>11.5</td>
<td>8</td>
</tr>
<tr>
<td>Hili B</td>
<td>11.4</td>
<td>8</td>
</tr>
<tr>
<td>Umm an-Nar I</td>
<td>11</td>
<td>8 (+ passageway)</td>
</tr>
<tr>
<td>Hili North A</td>
<td>10.5</td>
<td>4</td>
</tr>
<tr>
<td>Jabal Buhais</td>
<td>9.6</td>
<td>1?</td>
</tr>
<tr>
<td>Kalba</td>
<td>9.3</td>
<td>2</td>
</tr>
<tr>
<td>Munay'i</td>
<td>9</td>
<td>4</td>
</tr>
<tr>
<td>Hili C</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>Umm an-Nar X</td>
<td>8.75</td>
<td>5</td>
</tr>
<tr>
<td>Hili A</td>
<td>c. 8.5</td>
<td>4</td>
</tr>
<tr>
<td>Umm an-Nar IV</td>
<td>8.5</td>
<td>4 (+ passageway)</td>
</tr>
<tr>
<td>Ajman A</td>
<td>8.25</td>
<td>8</td>
</tr>
<tr>
<td>Bat 87</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>Hili J</td>
<td>c. 8</td>
<td>6</td>
</tr>
<tr>
<td>RJ-I, Tomb 1</td>
<td>7.7-7.9</td>
<td>8</td>
</tr>
<tr>
<td>Asimah As 16</td>
<td>7.25</td>
<td>1</td>
</tr>
<tr>
<td>Hili H</td>
<td>7.25</td>
<td>4</td>
</tr>
<tr>
<td>Hili M</td>
<td>c. 6.9</td>
<td>4?</td>
</tr>
<tr>
<td>Bat 55B</td>
<td>6.75</td>
<td>3</td>
</tr>
<tr>
<td>Al Sufouh</td>
<td>6.5</td>
<td>6</td>
</tr>
<tr>
<td>Umm an-Nar V</td>
<td>6.5</td>
<td>4</td>
</tr>
<tr>
<td>Bat 53</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Tell Abraq</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Bat 54</td>
<td>5.75</td>
<td>2</td>
</tr>
<tr>
<td>Bat 84</td>
<td>5.75</td>
<td>3</td>
</tr>
<tr>
<td>Asimah As 6</td>
<td>5.7</td>
<td>1</td>
</tr>
<tr>
<td>Umm an-Nar VI</td>
<td>5.5</td>
<td>2</td>
</tr>
<tr>
<td>Asimah As 100</td>
<td>5.5</td>
<td>2</td>
</tr>
<tr>
<td>Maysar 4/1</td>
<td>5.4</td>
<td>2</td>
</tr>
<tr>
<td>Asimah As 21</td>
<td>5.2-5.5</td>
<td>1</td>
</tr>
<tr>
<td>Asimah As 17</td>
<td>5.1</td>
<td>1</td>
</tr>
<tr>
<td>Asimah As 12</td>
<td>3.7-4.1</td>
<td>1</td>
</tr>
<tr>
<td>RJ6, Cairn 1</td>
<td>3.3-3.4</td>
<td>1</td>
</tr>
<tr>
<td>Umm an-Nar VII</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Umm an-Nar VIII</td>
<td>1.5</td>
<td>1</td>
</tr>
</tbody>
</table>

The number of entrances into Umm an-Nar period tombs was dependent upon their size and to a greater extent upon the connection between the two halves and the chambers. Some of the smaller examples from Bat, Kalba, RJ6, Tell Abraq and Umm an-Nar island have only one entrance, usually comprised of a gap in the external ring wall. The more complex internal layouts tend to have two entrances located on opposite sides of the tomb, usually on the opposite orientation to the main dividing wall (Figure 5.25). In these tombs, the entrances once again usually appear archaeologically as gaps in the
The orientation of tomb entrances, charted in Table 5.10, shows no obvious patterning. Not all tombs from individual sites are oriented the same, a pattern that was apparent in the preceding Hafit period. Nor does there seem to be a regional pattern, whereby tombs from the west coast or inland show similar orientation preferences. It is possible that tomb orientation was a chronologically sensitive variable, thereby changing over time, even at the one site, although the lack of absolute dates makes such postulations difficult to confirm.

Table 5.10: Orientation of tomb entrances during the Umm an-Nar period.

<table>
<thead>
<tr>
<th>Site/Tomb no.</th>
<th>Entry orientation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ajman A</td>
<td>E / W</td>
</tr>
<tr>
<td>Al Sufouh</td>
<td>SE / NW</td>
</tr>
<tr>
<td>Asimah As 6</td>
<td>N</td>
</tr>
<tr>
<td>Asimah As 12</td>
<td>N</td>
</tr>
<tr>
<td>Asimah As 16</td>
<td>ESE</td>
</tr>
<tr>
<td>Asimah As 17</td>
<td>E</td>
</tr>
<tr>
<td>Asimah As 21</td>
<td>E</td>
</tr>
<tr>
<td>Asimah As 100</td>
<td>SW</td>
</tr>
<tr>
<td>Bat 53</td>
<td>NE / SW</td>
</tr>
<tr>
<td>Bat 54</td>
<td>W</td>
</tr>
<tr>
<td>Bat 84</td>
<td>SE</td>
</tr>
<tr>
<td>Bat 87</td>
<td>SE</td>
</tr>
<tr>
<td>Hili A</td>
<td>SSE / ?</td>
</tr>
<tr>
<td>Hili B</td>
<td>SSE / ?</td>
</tr>
<tr>
<td>Hili C</td>
<td>SSE / NNW</td>
</tr>
<tr>
<td>Hili Garden 1059</td>
<td>N / S</td>
</tr>
<tr>
<td>Hili H</td>
<td>SSE / NNW</td>
</tr>
<tr>
<td>Hili J</td>
<td>N / S</td>
</tr>
<tr>
<td>Hili North A</td>
<td>E / W</td>
</tr>
<tr>
<td>Kalba</td>
<td>W</td>
</tr>
</tbody>
</table>
A reconstruction of third millennium burial practices

<table>
<thead>
<tr>
<th>Site/Tomb no.</th>
<th>Entry orientation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mleiha</td>
<td>N</td>
</tr>
<tr>
<td>RJ-1, Tomb 1</td>
<td>?</td>
</tr>
<tr>
<td>Tell Abraq</td>
<td>NE?</td>
</tr>
<tr>
<td>Umm an-Nar I</td>
<td>N / S</td>
</tr>
<tr>
<td>Umm an-Nar II</td>
<td>N / S</td>
</tr>
<tr>
<td>Umm an-Nar IV</td>
<td>E / W</td>
</tr>
<tr>
<td>Umm an-Nar IX</td>
<td>N / S</td>
</tr>
<tr>
<td>Umm an-Nar V</td>
<td>NNE / SSW</td>
</tr>
<tr>
<td>Umm an-Nar VI</td>
<td>E</td>
</tr>
<tr>
<td>Unar 1 Ras al Khaimah</td>
<td>ENE / WSW ?</td>
</tr>
<tr>
<td>Unar 2 Ras al Khaimah</td>
<td>E / W</td>
</tr>
</tbody>
</table>

The flooring of Umm an-Nar period tombs is not always described in great detail, nonetheless, it is possible to say that many of the larger tombs were built on plinths of large, flat slabs, that often protruded out from the external ring wall by c. 20cm (Al Sufouh, Hili tombs C, J and Tomb A Hili north; Umm an-Nar island tombs I, V, IX and X; Tell Abraq – Figure 5.26 and Mleiha). Others are simply described as being paved with large flat slabs, indicating that the pavement did not continue beneath the walls (Hili D, F, M; Umm an-Nar island VI, Jabal Buheis BHS 69, 71,73 and ‘Amlah 5a). Tomb 1 from ‘Amlah was paved with small hand-sized cobbles, whilst ‘Amlah tomb 2 was paved with irregular stones including old ashlar ‘sugar lumps’ (presumably re-used from an older Umm an-Nar period tomb). Tombs A and B from Hili are said to have patches of clay or compact earth and gravel floors, although it is suggested that these may originally have been overlain with large flat slabs. Tomb C and H at Hili are described as having a plinth underneath the ring wall which was not continued as an internal floor. Finally, Maysar tomb 4/1 has subterranean chambers excavated into the rock with a capstone floor protruding as a plinth. Unusual for a tomb of its size is the sand flooring described for tomb II on Umm an-Nar island, although a few stone slabs were considered as coming from the floor, possibly indicating that it originally had flagstones.

Figure 5.29: Reconstructed tomb 1059 in Hili Gardens (photo by J. Benton.)
Only one tomb of this era has been fully reconstructed, primarily using the original masonry (Figure 5.29). Tomb 1059 from Hili Garden now stands over 3.5m in height (Frifelt 1975a: 369, Cleuziou and Vogt 1983: 38) and 12m in diameter. Estimations regarding the original height of other Umm an-Nar tombs are usually based on the preserved height and the quantity of stone surrounding the structure and thought to have originally comprised it. Most tombs have between one and five preserved courses, which translates to a preserved height of between 20cm and 1.5m. Suggested original heights for tombs include 3m for Ajman; 1.5-2m. for ‘Amlah 1; 3.5m in total, 2m above ground for Tomb A at Hili North and 2.5m for Tomb II on Umm an-Nar island. From this evidence it would seem reasonable to suggest that the majority of Umm an-Nar period tombs were over 1.5m in height, most probably reaching around 2m.

Direct evidence for the roofing of these structures is slim, although radiating slabs over tomb 5a at ‘Amlah indicate that it was definitely roofed. Although not remaining *in situ*, large, flat slabs recovered from the interior chambers of Tombs A and B at Hili and I and II from Umm an-Nar island, have been interpreted as fallen roofing slabs. Many other tombs from Hili and Umm an-Nar island, those that are preserved to a height of at least 80cm, are described as having corbelled internal walls. This is interpreted as an attempt to reduce the gap requiring roofing and is therefore taken as positive evidence for the original presence of roofs over these structures. This evidence, combined with
the issue of air quality (most Umm an-Nar tombs are located relatively close to their associated settlements), both indicate the likelihood that all Umm an-Nar period tombs were roofed. The material with which they were roofed no doubt included flat stone slabs where available, and it is possible that organic materials were used as well, including branches and puddled mud.

Although the majority of tombs are single storey and built above ground, there are a few examples that differ. Tomb A at Hili North has been described as a two storey tomb, with an entirely subterranean lower layer (Figure 5.30) and Unar 2 from Ra’s al Khaimah has also been described as having a lower level. Here a number of upright stone slabs c. 60cm in height were initially thought to have supported ‘shelves’ such as those on UAN island tombs. After excavation of a similar tomb in Mleiha, however, which revealed similar upright slabs supporting a pavement, the uprights of Unar 2 were reinterpreted as also having supported a pavement (Blau 2001: 576). The other tombs often described as two storey, in fact have chambers into which a stone ‘shelf’ has been built, thus providing an extra level for burials. The passageways and the structure itself, however, remains as a single storey. Tombs with this feature can be found on Umm an-Nar island (tombs I, II, IX and X). One tomb from Wadi Samad (Maysar 4/1) is described as being semi-subterranean, and has secret chambers sealed below the floor stones of both chambers, somewhat like tomb I from Ra’s al-Jinz 1. This is in fact more similar to the two-storey construction of Tomb A at Hili North, in which the lower layer had no independent entry, but appears to have been accessed from the upper chambers.

Five Umm an-Nar tombs in particular can be singled out as exceptional from the rest due to the presence of carvings in bas relief on the limestone ashlars comprising their outer ring wall. Depictions of a bull, dromedary camel and possibly an oryx (Potts 1991a: 97), as well as a human figure (idol?) and a snake were found on ashlars from Grave II on Umm an-Nar island. The half cylindrical stone on which the two snakes were carved has been interpreted as a possible gutter stone. Two similar stones was also reportedly recovered from two Hili tombs including Tomb 1059 (Frifelt 1991: 27-28). The carved oryx from Grave IV on Umm an-Nar Island appears to have been re-used on the inner ring wall and was probably plundered from an earlier tomb (Frifelt 1991: 24-33). More elaborate still were carvings from Tomb 1059 at Hili Garden, a structure since rebuilt and
incorporated into a family park (Figure 5.31). Carvings were located around the northern and southern tomb entrances and include scenes such as a human figure riding a donkey with a second figure, holding a staff or bow and sword, following behind; a couple engaged in sexual intercourse; a pair of figures holding hands flanked by an oryx; and possibly two lions holding a gazelle or oryx in their jaws. Unar 2 also revealed the presence of a petroglyph in the form of a human right foot. The final tomb showing relief decoration although not figurative, is the Mleiha example which has 4 raised balls next to a bell or comb shaped decoration (Figure 5.32). This block was immediately over the entrance to the tomb (Jasim 2003: Fig 28: 94). These tomb reliefs comprise the only figurative representations dating to the Umm an-Nar period. It is potentially relevant to note that in three cases the relief stones were situated close to (flanking) tomb entrances, while in one case the entrances weren’t detected (Unar2) or the relief stone appeared to be re-used (Tomb IV UAN Island). The special significance that these particular structures may have had is impossible to reconstruct, although some possibilities will be explored in Chapter 6.
A reconstruction of third millennium burial practices

A final group of tombs that require brief mention are found in association with the more recognisable circular Umm an-Nar burial structures. Two of these (Ajman B ~ associated with Ajman A and Hili N ~ associated with Hili E – Figure 5.33) are rectangular, stone-built subterranean structures, with a possible third reported from the site of Wadi Munay’i (Phillips 1997: 208). The other type is a simple oval pit dug into the sand (associated with tomb 1 at Al Sufouh, Unar 2 in Shimal and Tomb 1 at R’as al-Jinz 1).

Looking first to the built examples, both are approximately 4m long in internal length, c. 2 m wide and c. 1m in depth. It appears that Tomb B from Ajman was roofed, due to the internally projecting upper courses, although no roofing slabs were recovered. Hili N was also roofed, with slabs being found in the upper layers. Both the built type and pit type tombs contained human skeletal material and associated grave goods and have been interpreted as ossuaries, created for placing the contents of their associated circular tombs, during episodes of ‘clearing out’, undertaken so as to make way for new burials. A noteworthy notion concerning Tomb N at Hili (Al-Tikriti 1989: 97), alludes firstly to the presence of some later ceramic types such as beakers and subsequently to the possibility that the juxtaposition of these very different tomb types may represent a transitional phase from classic Umm an-Nar culture, with the below ground tombs being a response to pillaging in the more noticeable circular tombs. Relevant to this discussion is the distinct possibility that many other external burials and or burial structures/pits may have existed at other sites, but were not detected due to failure to examine features outside the ring walls of tombs (Blau 1997: 230, fn 1). More recent analysis of Tomb N at Hili

Figure 5.34: The Tell Abraq tomb showing the stone platform and low wall associated with the tomb entrance (photo L. Weeks).
suggests that there are at least two episodes of interment present, the earlier/lower being interpreted as a possible clearing out of Tomb E, and a later use as a primary interment area. The bone pits found associated with the circular tombs at Al Sufouh and Ra’s al-Khaimah had no built, structural elements and no remaining above-ground marker indicating their location. These pits were c. 2 x 1.5m in size, roughly oval in shape, and up to 2m in depth.

The fact that the local area immediately surrounding Umm an-Nar period tombs has not always been afforded as much attention during excavation as they should have also impacts on the evidence of associated structural elements which may have related to the functioning of the tombs. Two tombs (Tomb A at Hili north and Tell Abraq) have a paved area outside the tomb situated in the vicinity of the entrance. In both cases there are a series of interconnected flat-lying slabs. At Tell Abraq there is also a line of upright slabs heading in a slightly semi-circular trajectory around the paved area c. 2m to the west of the tomb (Figure 5.34). At Tomb A Hili North, again there is a segment of a semicircular line of upright slabs, although this lies c. 2.5m to the north of the tomb and not in association with the remnant pavement, located outside where the western entrance to the tomb is presumed to have been. Despite these minor differences, there is nonetheless a degree of similarity here that is suggestive of a structural element associated with at least some tombs of the Umm an-Nar period. Both vestiges of this architectural element described above have been damaged greatly, primarily it appears by later plundering for usable stone. The tomb from Al Sufouh also exhibited over a hundred flat lying slabs in the immediate vicinity of the tomb, however they were not connected in the pavement style of the other two examples, and it may be that they were excess to the stone required for the construction of the tomb. It was certainly the case at Tomb A Hili north, that blocks were fashioned on the spot, as many flakes were found and also a hammerstone that may have been used for working the stone.

Finally we come to the graves of Alignment A from Asimah (Figure 5.35). This unique structure has been dated to the last centuries of the third millennium BC and comprises a series of stone platforms interspersed with individual cist burials. Although several parallels are described (Vogt 1994: 134-135) none have been excavated and deemed to be of third millennium date. Structural assessment of Alignment A has determined that grave A1 appears to have been the original monument, associated with Platform 1. Subsequent graves and platforms were built onto these, but it appears unlikely that too much time elapsed due to the similarity in construction techniques and grave good inventories.
Accompanying this unusual structure are many other graves apparently dating to the third millennium, characterised by their lack of conformity to known architectural forms. The tombs have suffered badly at the hands of robbers and as a result of more recent agricultural activity; hence there are a paucity of finds from which to attribute the date of these structures. Many deemed to be of UAN date appear from a purely architectural point of view to be potentially earlier (As 15, 16, 17) utilising ring or curtain walls somewhat like the beehive graves of the Hafit era. Only one tomb appears to have a classic UAN style appearance (As 100) while several have features more akin to the later Wadi Suq style burials, with subterranean cists (As 12, 6, 15, 17, 21). Overall, the dating of many of these structures is determined to be problematic, but the nonetheless exceedingly wide variety of architectural types within the one cemetery is noteworthy and may indicate its use over a long period.

Summary

Stone built tombs of the UAN period are architectural monuments that would have required combined, communal resources for their construction as well as a high degree of workmanship not seen in structures that predate this era. Their features (size, number of chambers, regional location, entry, orientation etc.) show little interpretable patterning, although their general presence in varying forms across a broad geographic area does show a high degree of cultural uniformity, beyond that of the Hafit era.
**Skeletal remains**

Better quality data exists for this era than for the preceding Hafit period, although a meager c. 30% of excavated graves contain skeletal material that has been well described and has undergone some degree of analysis. The biggest overall change evident in corpse treatment during the Umm an-Nar period appears to be the introduction of cremation. Many tombs are now found to contain considerable quantities of burnt bone, although the practice of inhumation continues side-by-side. The second major divergence from previous practice lies in the number of interments, which increases from c. 3-5 during Hafit times to as many as several hundred by the end of the Umm an-Nar period.

The following detailed review of skeletal evidence is based primarily on information from the better reported sites\(^{49}\), but also comprises data from all tombs presented in Appendix 2. Firstly, a survey of the evidence relating to the disposition of skeletal remains, including aspects such as location within the tomb, articulation, body position and the relationship between burnt and unburnt bone. Subsequently, scientific data retrieved through the analysis of skeletal remains will be examined, providing information on lifestyle, health and population affinities. Finally, a synthesis of all evidence provides a starting place for the reconstruction of burial practices and rituals of the Umm an-Nar period, which are definitely more complex than has been previously thought.

**Deposition of skeletal remains**

Generally speaking human remains from Umm an-Nar period tombs are found disarticulated at the time of excavation. This is primarily the result of the successive interment style, but is also due to the plundering tombs have undergone over the subsequent millennia. Much of the bone from these tombs is unburnt, although more recent excavations (Al Sufouh, Shimal, Ra's al-Jinz 1) and the re-analysis of older collections (Tomb A Hili North, Ajman, Tomb N Hili), suggests that varying quantities of burnt bone are also present in most Umm an-Nar period tombs and must be the result of contemporary funerary practices. Table 5.11 details the tombs in which burnt bone

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\(^{49}\) The tombs include: Ajman A and B; Al Sufouh; Umm an-Nar island tombs I, II, V and VII; Tomb A Hili North; Unar 1 Ras al Khaimah; Tell Abraq; Falaj al-Qaba and ‘Amlah 5a. Skeletal data from Unar 2 Ras al Khaimah has also been included in this review, although it was omitted from the database due to a lack of information on its contents other than human remains.
A reconstruction of third millennium burial practices has been reported and the quantities in which it was recovered\textsuperscript{50}. The high percentages of burnt bone and its presence in tombs across the region show that it was not the result of an isolated or aberrant practice, but something that was relatively prevalent, both throughout the Umm an-Nar period and across the peninsula. Interpretation of the practices resulting in the burnt bone will be pursued in the following chapter.

Table 5.11: Evidence of burnt bone in UAN period tombs.

<table>
<thead>
<tr>
<th>Site/Tomb</th>
<th>% Burnt bone</th>
<th>Tomb type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Al Sufouh 1</td>
<td>53.5</td>
<td>Circular</td>
</tr>
<tr>
<td>Al Sufouh 2</td>
<td>93</td>
<td>Ossuary</td>
</tr>
<tr>
<td>Al Sufouh 3</td>
<td>91.1</td>
<td>Ossuary</td>
</tr>
<tr>
<td>Al Sufouh 4</td>
<td>63.5</td>
<td>Ossuary</td>
</tr>
<tr>
<td>Ra's al Jinz pits</td>
<td>?</td>
<td>Ossuary</td>
</tr>
<tr>
<td>Ajman B</td>
<td>c. &lt;1</td>
<td>Ossuary</td>
</tr>
<tr>
<td>TAHN</td>
<td>50</td>
<td>Circular</td>
</tr>
<tr>
<td>Unar 1 RAK</td>
<td>73</td>
<td>Circular</td>
</tr>
<tr>
<td>Unar 2 RAK</td>
<td>90.7</td>
<td>Circular</td>
</tr>
<tr>
<td>Tell Abraq</td>
<td>c. &lt;1</td>
<td>Circular</td>
</tr>
<tr>
<td>Wadi Munay'i</td>
<td>c. 10?</td>
<td>Circular</td>
</tr>
<tr>
<td>Hili tomb N</td>
<td>c. 10?</td>
<td>Ossuary</td>
</tr>
<tr>
<td>Maysar</td>
<td>?</td>
<td>Circular</td>
</tr>
<tr>
<td>Ra's al Jinz 1</td>
<td>?</td>
<td>Circular</td>
</tr>
</tbody>
</table>

Despite the prevalence of disarticulated remains, a few undisturbed tomb corners can provide some insight into initial body placement. Looking first to the circular monuments, Tomb 1 at Al Sufouh contains unburnt, disarticulated bone in all chambers. The lowest layer of chamber 1 revealed two relatively complete individuals, both of whom were placed in tightly flexed positions, lying on their left sides, with their heads to the southwest (towards the chamber dividing wall), facing southeast (Figure 4:24 and 28). One of these individuals was preserved well enough to determine that the hands were drawn up underneath the head in a ‘sleeping’ position. A partially articulated individual from chamber 3 was in too poor a condition to ascertain body position. The burnt bone from this tomb came solely from chamber 1 and was found overlying the articulated individuals in the lowest layer of this chamber (Figure 4.28).

This is not entirely dissimilar to the situation described as occurring in Unar 2 at Shimal. In this tomb, Blau (2001: 567) notes that there appears to be two structural layers within the tomb, a lower level in which the deceased individuals were inhumed, and then an

\textsuperscript{50} It is important to note here that some poorly reported tombs may have contained burnt bone, and care has to be taken not to interpret these tombs as being definitively devoid of burnt bone and thus being representative of differing practices.
upper level, overlying a pavement between the two levels, upon which the burnt remains were placed. Two articulated burials were recovered from this lower layer, both of which were in a flexed position, heads facing west, one lying on its right side (male) and the other on its left (female). Although the upper body was not well-preserved, it appears that the latter may have had her hands drawn up to her head. Another partially articulated individual was facing south, although due to the position of the lower legs, it is possible the cranium has been disturbed and may also have originally faced west (Blau 2001: 566-7).

Skeletal remains from tomb Unar 1 at Shimal show a similar deposition pattern, with some partially articulated, unburnt remains and a large quantity (73% - Blau 1998) of burnt bone. Information on areas of potential articulation is unfortunately not yet available.

Most of the graves from Umm an-Nar island contained unburnt, disarticulated remains in all chambers. Early interpretation of this material by the original excavators (Thorvildsen 1962:210) determined that earlier burials were swept aside to make space for the new burials. Immediately outside chambers AE and AF of Grave I, a semi-articulated individual was recovered in a flexed position, apparently on their right side, backbone against the ring wall and feet pointing south. The skull of this individual was unfortunately missing (Frifelt 1991: 131). No articulated remains were recovered from any other graves on the island, although several individuals were found buried outside Graves V-VII. Of the four individuals outside Grave V, the two northernmost (northwest portion of the tomb) were found in a flexed position, heads pointing south, one placed on its left side, facing northwest, the other on its right side, facing southeast. Of the two individuals outside the southwest quadrant of the tomb, the southernmost was outstretched, lying on its right side against the tomb wall, head pointing north/northwest and facing southwest. The other individual had been disturbed and was disarticulated. Disarticulated remains were also found outside (south) of Graves VI and VII. There is evidence to suggest that some of these burials may have been placed on stones or at least had their heads resting on stones (Frifelt 1991: 39). A few potsherds found outside to the north of Grave V relate to vessels found within tomb, and thus their relationship to the extra-mural bodies is difficult to determine. If these sherds do relate to the external burials, then these would seem to be of Umm an-Nar date as well. It is noteworthy that no burnt bone is mentioned as coming from any of the Umm an-Nar island tombs.
At Tell Abraq a similar picture emerges, integrating a few partially articulated burials together with a mass of primarily unburnt, disarticulated bone. Several individuals in the lowest burial layer of the southern chamber were partially articulated, their heads against the chamber dividing wall, and their upper bodies preserved near the wall, but missing from the waist down (Figure 5.36). These burials seem to have been disturbed by movement in the chamber, especially in the central area, where traffic involved in subsequent burials must have been the greatest. One noteworthy individual from within the Tell Abraq tomb was found completely articulated, despite being situated amongst predominantly disarticulated bone layers. This young female was placed in a flexed position lying on the right side with the arms drawn up towards the face (Figure 5.37). The bone pathology of this individual indicates disease (poliomyelitis) and it may be that she was treated differently at death as a result. This interesting case will be discussed further in the following chapter. A small quantity of burnt bone was recovered from the tomb at Tell Abraq, found scattered throughout the bone layers.

One other burial from Tell Abraq also requires brief mention (Blau 2001a). An individual cist grave was found built into the foundations of the third millennium tower, the manner of which gave the excavators to believe that it was of contemporary date. Inside the stone lined cist was an articulated individual lying in a tightly flexed position
on her right side, head to the south facing west, with hands drawn up under the head. Although no grave goods were recovered, a late third millennium date (c. 2200 BC) has been inferred from the relationship of the cist to the tower.

Skeletal remains from the tombs of Asimah were in very poor condition when preserved at all and have been only recorded as present or absent with a determination of the weight of bone recovered. From cist graves A2 and A3 within alignment A, some better preserved human remains were recovered. Within A2 was the remains of a single inhumation, badly disturbed but with position reconstructable to see they were in a flexed position, lying on their right side, head to the east and with arms contacted in front of the chest (Vogt 1994: 118). This was the same position as the better preserved individual in grave A3 and possibly also that of the very poorly preserved remains from A4. These individual inhumations in cist graves are exceptionally unusual for the UAN period, but are reminiscent of the single individual from the tower at Tell Abraq.

Tomb N at Hili, originally interpreted as an ‘ossuary’ for bone cleaned out from Tomb E, has been more recently described as also being used as a primary burial location51. The earliest levels contain disarticulated

Figure 5.38: Skeletal remains from Tomb N at Hili. Note the area of burning in the centre (after W. Yasin www.aam.gov.ae).

51 Since submission of this thesis, an abstract regarding Tomb N at Hili was published from the International Congress on the Archaeology of the Ancient Near East. This indicates that after further excavation, Tomb N is thought to have contained mostly primarily interments (Bendezu-Sarmiento 2006: 9).
remains and scattered burnt bone, while the upper layers apparently contain “very fragile anatomical connections” such as feet and hands as well as semi-complete individuals. More burnt bone is present in these upper levels, where it was found in two discrete concentrations. This is interpreted as having being burnt in situ, thus attesting to the practice of cremation, albeit only partial (Figure 5.38, Al-Tikriti and Méry 2000: 208). Tomb B at Ajman is another example of a subterranean, built tomb containing primarily disarticulated remains. Also subterranean and associated with a circular tomb are the burial ‘pits’ excavated into the sand outside the tomb at Al Sufouh. These contain predominantly disarticulated, burnt bone (Figures 4.206-4.273). The degree to which bone was burnt varied considerably, generating discussion as to the practices that may have been in use. A single articulated joint was recorded in Pit III at Al Sufouh, although in general deposition of the bones lead us to the conclusion they were carefully placed and not simply thrown in. Very similar overall evidence was found at Ra’s al-Jinz where bone pits containing disarticulated, burnt bone were recorded around the circular structure (Monchablon et al. 2003). Here the bones were similarly assessed as having been not simply thrown in, but carefully placed. Although not described in great detail in the preliminary report, it is also important to note the presence of a bone pit similar to those at Al Sufouh and Ra’s al-Jinz outside the large tomb of Unar 2 at Shimal (Carter 2002: 5).

One of the final tombs requiring discussion is the two storey Tomb A from Hili north. Repeated plundering in antiquity has badly disturbed the human remains from this tomb although a few areas are preserved well enough to indicate the original articulation. Five skeletons were enclosed in a platform in compartment 1. Of these, two were lying in a flexed position on their right sides with their bodies aligned north-south. The central part of this compartment revealed a great number of burials, including several skull “piles” in which articulated individuals were also present. The best preserved example, similar to those within the platform, was placed in a flexed position and lying on the right side, head to the south (Vogt 1985a: 24).

The most famous chamber from Tomb A at Hili north (Chamber 3) contained the in situ remains of 31 individuals52, which are interpreted as relating to the final stages of the chamber’s use (Bondioli et al. 1998: 233). Some were resting directly on the paved floor of the chamber, while others overlay one another (Figure 5.39). All were placed in a flexed position with the right arm bent upwards leaving the hand close to the face. The

52 Estimates of the number of interments in this chamber vary – 29 (Vogt 1985a); 21 (El-Najjar 1985) and 31 (Bondioli et al. et al. 1998).
left arm is described as stretched out almost as if to “embrace the neighbouring skeleton” (Vogt 1985a: 25). The upper layer of bodies were all oriented with their heads to the south, however the lower individuals appear to have been inhumed with different orientations.

The deposition of the burnt bone from Tomb A Hili north is difficult to reconstruct, due to both post-depositional disturbances and inconsistencies in reporting. It seems that the burnt bone came predominantly from the upper floor of the tomb, with the lower storey revealing only minor patches of ash amongst the burial layers (Vogt 1985a: 22). The report makes no attempt to provide an explanation for the presence of burnt skeletal material. When the whole collection was studied from a human anthropological perspective, El-Najjar notes that at least 50% of the bones are badly fragmented and burnt (1985: 38). His findings also indicated fresh wounds and cuts (obvious on long bones) which were interpreted as occurring at the time death, indicating that at least some individuals in the tomb may have come to a violent end. This is then linked with the burnt bone to suggest the possibility of some kind of invasion (El-Najjar 1985: 41). Subsequent studies have interpreted the burnt bone from the upper level as being the result of burning the already decomposed bodies cleared out from the subterranean compartment (Bondioli et al. 1998: 233). This study further interprets the cut marks on some bones as relating to the purposeful disarticulation of bodies, presumably to enable their transit to the upper level for burning.

This review of evidence pertaining to the deposition of human remains has attempted to elucidate the physical evidence as distinct from interpretation of the sequences of events involved. Discussion of this aspect is left for Chapter 6.
The analysis of skeletal remains

Analysis of skeletal remains, either during or post-excavation has been undertaken on a surprisingly small sample of UAN tombs. Table 2.2 (Chapter 2) outlines the adequacy of reporting in terms of each excavated burial site, revealing this as the least adequately addressed aspect of the burial excavations/reports. This is at least in part due to a combination of poor skeletal preservation and the disarticulated nature of most skeletal remains (Blau 2001b: 174). Despite this, the following section attempts to compile the available information, looking at the numbers of individuals buried in the tombs and their age/sex ratios; health, diet and population affinities. Of great use is a recent re-analysis of bone collections from two UAN period sites, Al Sufouh and Ajman, combined with in-field analysis of bone from Unar 2 (Blau 1998, Blau 2001b).

Minimum number of individuals and age/sex ratios

The determination of the MNI (Minimum Number of Individuals) for tombs of the Umm an-Nar period remains a difficult task due to the multiple, successive nature of the burial programme exacerbated by cremation / clearing out practices, later plundering, poor preservation and sometimes mediocre excavation technique. Determinations may also vary as a result of using different skeletal elements in counts and discussions on this topic can be found in several relevant reports (White 1953 and 1992; Benton 1996: 47; Blau 1998: 91; Kunter 1991: 163). Table 5.12 collates the available MNI data for tombs of the Umm an-Nar period, together with general relative dates, organised from earliest to latest. It may be suggested that the earlier tombs had fewer interments than those dating to the terminal phase of the period, a progression one may expect considering the few interments from Hafit period graves, and the obvious increase in population size throughout the second half of the third millennium manifest in other parts of the archaeological record.

Looking at the MNI estimates for Al Sufouh, the low numbers noted within the circular structure (tomb 1), lend support to the notion that the pits, with their relatively high numbers, are potentially the result of clearing out the ‘main’ tomb.

Until very recently, none of the published Umm an-Nar period tombs showed any bias in terms of age or gender ratios, with males, females and all age groups represented in the skeletal collections from both circular tombs and ossuaries. This remains true for most contexts, but the Tell Abraq tomb population has been assessed as containing c. 85% males (Cope et al. 2005: 398). The issue of the use of varied skeletal elements for
sex determination within this collection appears to have some bearing on the male/female ratios, however, even when gender is assessed using alternative bones, no less than 65% of the group are still assessed as male, which is an unusually high proportion. Also of note in this regard is the bias noted between males and females on Umm an-Nar Island (Kunter 1991: 166) where males again apparently dominate.

Table 5.12: MNI estimates for tombs of the UAN period.

<table>
<thead>
<tr>
<th>Site/Tomb</th>
<th>MNI</th>
<th>Tomb type</th>
<th>Rel. date</th>
</tr>
</thead>
<tbody>
<tr>
<td>UAN VII</td>
<td>2-4</td>
<td>Circular</td>
<td>2700-2500BC</td>
</tr>
<tr>
<td>UAN V</td>
<td>37 (4 outside)</td>
<td>Circular</td>
<td>2700-2500BC</td>
</tr>
<tr>
<td>UAN I</td>
<td>18-21</td>
<td>Circular</td>
<td>2500-2300BC</td>
</tr>
<tr>
<td>UAN II</td>
<td>34-38</td>
<td>Circular</td>
<td>2500-2300BC</td>
</tr>
<tr>
<td>UAN VI</td>
<td>5</td>
<td>Circular</td>
<td>2500-2300BC</td>
</tr>
<tr>
<td>Al Sufouh 1</td>
<td>13</td>
<td>Circular</td>
<td>2400-2300BC</td>
</tr>
<tr>
<td>Al Sufouh 2 - pit</td>
<td>60</td>
<td>Ossuary</td>
<td>2400-2300BC</td>
</tr>
<tr>
<td>Al Sufouh 3 - pit</td>
<td>59</td>
<td>Ossuary</td>
<td>2400-2300BC</td>
</tr>
<tr>
<td>Al Sufouh 4 - pit</td>
<td>4</td>
<td>Ossuary</td>
<td>2400-2300BC</td>
</tr>
<tr>
<td>Ajman B</td>
<td>160-180</td>
<td>Ossuary</td>
<td>2400-2200BC</td>
</tr>
<tr>
<td>Wadi Munayi</td>
<td>35-50</td>
<td>Circular</td>
<td>Late 3rd mill.</td>
</tr>
<tr>
<td>Unar I RAK</td>
<td>438</td>
<td>Circular</td>
<td>2400-2200BC</td>
</tr>
<tr>
<td>Hili Tomb N</td>
<td>c. 400-500 (650)(^{53})</td>
<td>Ossuary</td>
<td>2300-2000BC(^{52})</td>
</tr>
<tr>
<td>TAHN</td>
<td>300+</td>
<td>Circular</td>
<td>2300-2100BC</td>
</tr>
<tr>
<td>Unar 2 RAK</td>
<td>431</td>
<td>Circular</td>
<td>2300-2100BC</td>
</tr>
<tr>
<td>Tell Abraaq</td>
<td>300+</td>
<td>Circular</td>
<td>2200-2000BC</td>
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</tbody>
</table>

The overall factor that all ages and both sexes were interred in both tomb types does not, however, preclude the possibility that age and/or gender may have influenced other parts of the burial programme such as choice of grave gifts or ritual behaviour at the time of death, but this aspect of mortuary practice is not reconstructable from the available evidence. Interesting in this regard is the preliminary assessment of Tomb N at Hili, which suggests a high ratio of immature remains, including foetuses, neonates, infants, children and adolescents (Méry \textit{et al.} 2001: 174), although adults are certainly present as well. The bias noted above between males and females on Umm an-Nar is used as a possible explanation for the lower rate of infant/child burials which is associated with the lower numbers of females. This is interpreted by Kunter as potentially exemplifying that Umm an-Nar island was not a ‘normal’ community but rather a trade colony, potentially dominated by males, with close contacts to the interior. The assessment of males versus females in any disarticulated skeletal collections should, however, be treated with caution (Blau 2001b: 193) as should further use of these assessments to interpret the composition of the society at any site (D. Martin: Pers. Comm.).

\(^{53}\) The MNI estimate has recently increased through publication of an abstract (Bendezu-Sarmiento 2006: 9), which also indicates a later date for the tomb, c. 2100-2000BC, contemporary with Tell Abraaq.
It is unfortunate that to date the skeletal remains from Alignment A at Asimah have not been assessed by a physical anthropologist, as the recovery of articulated individual inhumations are so rare in the UAN period, and the association of grave goods attributable to the deceased would make determinations regarding the age and sex of these unusually interred corpses all the more interesting.

**Skeletal analyses**

Stature of UAN tomb populations is also rarely addressed. Preliminary analysis of the skeletal remains from Tomb N at Hili indicated that the population was of small stature, males averaging 167cm and females 155cm (Méry et al. 2001: 174). This stands in stark contrast to the earlier analyses undertaken on the population of Tomb A Hili north, where males were assessed as being on average 1.78m in height with females at 1.72m (El-Najjar 1985: 39), an assessment not that different from the later analysis by Bondioli, where males were 1.77m and females 1.70m (Bondioli et al. 1998: 233). The *in situ* analyses of interments from Tomb A Hili north used in the latter stature estimates increases their validity. Whether this is to be assessed as a significant divergence possibly to do with varied population elements or a variation based on different assessment techniques is not determinable. The average stature of the Umm an-Nar island inhabitants has been assessed at 1.67cm for males and 1.57cm for females (Kunter 1991: 173), very close to those from Hili N. Also from the coast, preliminary estimates of stature from the tomb at Tell Abraq (based on talus measurements) indicate a mean stature of 170.3cm, with some individuals estimated to have exceeded 180cm. Diet is considered to be a contributing factor in the observed “tallness” (Turner et al. 2002: 157). The new stature assessments based on Hili N and Tell Abraq bring into question the hypothesis forwarded by Kunter (1991: 173) that inhabitants of the interior were of larger stature than those on the coast, possibly being the result of dietary considerations.

Evidence relating to the health and lifestyle of inhabitants of the Oman peninsula in the UAN period, is often primarily derived from the study of dental remains. Blau’s research (1998) showed that there is definitive evidence for changes to the oral pathology of the individuals studied, which parallels the archaeological evidence for changes to settlement patterns and the concomitant...
alteration in the exploitation of resources (Blau 1998: 1270). A major player in this scenario is the domestication of the date palm, thought to have occurred during the third millennium BC, which definitively affected dental health. Evidence gleaned from the analysis of individuals buried in the tomb at Tell Abraq, which showed a general increase in oral pathology, led Blau to conclude that it was not until late during the third millennium BC that a fully developed mode of agriculture was in use. Preliminary analyses of dental remains from Tomb N at Hili corroborate the high incidence of dental pathology with 65% of adult jaw fragments missing teeth and bearing dental abscesses as a common feature (Méry 2001: 174). The dental remains from Tomb A Hili north provide similar data, where an “impressive number” of caries related ante-mortem teeth loss has been recorded, also involving the primary dentition (Bondioli et al. 1998: 233).

This is in contrast to the studies of teeth from the Umm an-Nar island tombs (Højgaard 1980) and from the UAN tomb in Wadi Jizzi (Højgaard 1985), which are roughly contemporary. Dentition wear patterns from both these sites indicate a population whose primary subsistence is not agricultural and comprises fish, turtle and sea cow on Umm an-Nar island (supported by the faunal finds from the settlement) and a carnivorous (fish or meat) diet in the Wadi-Jizzi. This may be indicative of the early UAN date and coastal location for Umm an-Nar island, where also the lack of a water source would have inhibited agricultural practices.

Recent analysis of the Tell Abraq skeletal remains (Cope et al. 2005) with regards to osteoarthritis has revealed that a significant proportion (53%) of the trapeziometacarpal joint facets showed signs of osteoarthritis, which is a disease of the joints often occurring at sites where biomechanical stress has caused wear. Combined with this were observations on the size of the first and second metacarpals together with the trapezium bones, showing them to be enlarged or hypertrophic. Conclusions of this study indicate that the individuals at Tell Abraq, specifically those of greater robusticity, were engaged in activities that were particularly demanding of the hands (Cope et al. 2005: 398).

A major constraint to the analysis of disease within the UAN period population is the disarticulated nature of the skeletal remains (Blau 1998, 2001b). Due to this, few attempts were made to undertake such analyses, and it is only more recently that some skeletal collections have been properly assessed (Blau 1998, Méry 2001). Because disarticulation prevents analysis of the whole body, only the more obvious pathologies that can be analysed at the individual bone level were able to be addressed. With regards to trauma, the primary conclusion drawn from Blau’s analysis of the Al Sufouh, Ajman and Unar 2 skeletal collections (in contrast with collections from the preceding and
subsequent eras) was that compression fractures were apparently more common in the UAN period (Blau 2001b: 192). Joint disease, primarily grade one osteophytes, were recorded at all sites, although the Ajman collection showed a greater number of skeletal elements with evidence of osteoarthritis. Without more complete skeletons the aetiology of these changes is difficult to assess (Blau 2001b: 197). Infectious disease is likewise difficult to confirm using disarticulated remains, however, Blau was able to make the following observations (2001b: 197-198):

- Alterations to the external auditory meatus were noted at all UAN sites studied, a feature that has been interpreted elsewhere as relating to the development of ear infections or auditory torus, which may be indicative of a long term response to diving (for aquatic resources);

- Possible evidence of leprosy or treponemal disease was recorded at Unar 2. These are known as ‘crowd’ diseases, related to larger groups of people living in close proximity, and their presence may allude to the changing demographic situation occurring in the Oman peninsula in the late third millennium. Blau urges caution with regards to this interpretation, however, due to the fact that the earliest evidence for these diseases post-dates the third millennium and they have a low incidences in the UAE today; and

- Indications of sinus infection were present at Al Sufouh, and suggested causes of this elsewhere have been smoke inhalation from cooking hearths (and cremations?), and/or sandstorms.

Finally, anaemia as evidenced by *cribra orbitalia*, was recorded particularly in UAN period collections in contrast to those of the Wadi Suq era. Whether the forms of anaemia are genetic or dietary is not determinable, however the latter is more likely, with iron deficiency being the probable cause (Blau 2001b: 199-200). It is noteworthy that Bondioli et al. recorded only a few cases of *cribra orbitalia* in his study of the skeletal remains of Tomb A Hili north (1998: 233).

There have been very few analyses undertaken concerning the population affinities of the people interred in the UAN period graves. Blau (1998: 270), notes that the population may be best summarised as predominantly and typically Caucasoid, but with some degree of admixture, a theory supported by both genetic and archaeological evidence. Kunter (1991: 178) also notes that assessment of crania from across the Oman peninsula shows a remarkable degree of morphological similarity, classifying the population type as ‘coarse’ Mediterranean, the type most common throughout Western Asia, the Levant and Pakistan during the Bronze Age.

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Summary

The picture emerging here is that the “disposal of the corpse” component of Umm an-Nar burial practices has become a far more complex and multi-staged ritual than the preceding period and also more so than was previously thought. A generalised reconstruction sees the interment of deceased individuals into the circular structures together with their accompanying funerary gifts. Previous interments were often disturbed during this process. From an analysis of the few interments which remain intact enough to look at body position, there is definitive preference for a flexed position, resting on either side, often with the hands drawn up under the head. At some later time, possibly once the tomb was becoming full, previous interments along with their funerary gifts may be gathered up and re-deposited into another tomb or pit, often subterranean (Al Sufouh, Tomb E Hili, Ajman), or onto an upper storey (Unar 2, TAHN) at which time they may also be burnt. The question of how this process may have been undertaken is reserved for the following chapter.

The MNI estimates for UAN period tombs shows an increase through time in the number of interments placed in the circular tombs, reflecting the obvious intensification evident in all other aspects of the archaeological record. Even skeletal pathologies such as compression fractures, osteoarthritic changes and possibly disease manifestations, not to mention dental pathology, reflect the changed demographics of the late third millennium BC.

In many aspects this burial programme provides a fairly dramatic alteration from the interment regime of the preceding Hafit period, despite the basic format of circular graves with multiple interments remaining the same. The changes in practice are, however, seen as slow additions over time, building on the same foundations as were established in the Hafit era. Discussion of what prompted these changes is again reserved for Chapter 6.

Grave goods

The following sections deal with the classes of grave goods recovered from UAN period tombs. As noted by Blau (2001: 564), the find context of the majority of grave goods bear no interpretable relationship to either tomb structures or the deceased due to the impacts of the multiple, successive burial style, often combined with the relocation of bodies and goods once tombs were full, and the high degree of post-depositional disturbance that most tombs have undergone. As a result there is no way of knowing
whether certain objects were buried with particular age or gender groups, or whether objects were deposited in a specific relationship to the deceased.

Ceramics

Both the type and the frequency of ceramic vessels recovered from UAN period tombs stand in stark contrast to those from tombs of the Hafit period. While only one or two vessels, usually of Mesopotamian type, were found in the earlier graves, a multitude of vessels were placed in graves of the UAN era, the majority of which were locally mass-produced, although there is also a healthy component of fine, imported ceramics.

In general, tombs of the UAN period contain pottery types and wares not found in abundance on settlement sites, in particular the painted black on red ware said to be a "funerary ceramic", created particularly for use in the grave (Figure 5.41, Potts 1990a: 104). Also a common find in graves of the UAN era were black on grey and grey incised ceramics, the majority of which were imported from Iran. The following pages look at the types of ceramics found in UAN period tombs and their relative frequencies.

Around 1,450 complete or semi-complete ceramic vessels recovered from UAN period tombs have been published. As noted in Chapter 2, the quality of publication does not allow for precise determinations (of either vessel number or type), but does enable assessment of gross relative frequencies. What follows looks briefly at the ceramics by tomb, before turning to a breakdown of individual ceramic categories and their representation within the funerary corpus.

Figure 5.41: A selection of the ceramic vessels from the tomb at Tell Abraq (photo D.T. Potts).

54 Also known as Omani fine red ware (Méry 2001) or Fine Red Grave Ware (Carter 2002).
55 Although this was the count at the time of this analysis, many more vessels have been recovered from UAN period tombs as a result of excavations, but often publication does not allow for numbers of ware types to be apportioned. When only sherds are recorded, a note is made in the database, but the information has not been used in the tables that accompany this chapter.
Ceramics by tomb

Table 5.13 details the breakdown of ceramics by general category and by tomb. The tomb containing by far the most ceramics is Tomb A Hili North, with 624 vessels recovered. Hili 1059 contained 224 and Hili B 108. These correspond with some of the largest tombs (over 10m in diameter), although other large tombs, such as Umm an-Nar island I, II and IX did not contain anywhere near these quantities. One of the largest tombs, Unar 2 from Shimal, is difficult to assess in terms of vessel numbers due to its highly fragmentary state and the site’s preliminary publication status (Carter 2002: 5-6). As a result only percentage frequencies have been provided in Table 5.13. Minimum Number of Individuals per tomb (MNI) may indeed relate better to ceramic frequencies, but cannot be adequately tested due to their poor preservation, treatment, analysis and reporting. Tomb A Hili north contained over 300 individuals, however no skeletal remains at all were derived from Hili Tomb 1059 and no information exists for Hili Tomb B.

Table 5.13: Quantity of each ceramic category by tomb

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<tr>
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<th>Dom. Black on red</th>
<th>Suspension</th>
<th>Grey Wares</th>
<th>Other imp. vessels</th>
<th>Misc. vessels</th>
<th>TOTAL CERAMICS</th>
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56 The total vessel count for Tomb A Hili north is based on attempting to synthesise the information from original and subsequent publications. The numbers here remain those used for the multivariate analyses. Since that time, a more comprehensive publication of the contents of this tomb has been compiled (Méry 1997), but the general proportions of wares remains the same. In this publication it is indicated that 904 vessels were recovered, 662 from inside the tomb context.
A reconstruction of third millennium burial practices

<table>
<thead>
<tr>
<th>Site</th>
<th>Tomb #</th>
<th>Dom.</th>
<th>Black on red</th>
<th>Suspension</th>
<th>Grey Wares</th>
<th>Other imp.</th>
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**TOTALS**       | 569    | 566  | 7     | 25.1   | 10.00    | 5   | 47   | 2047  | 1453  |

% frequencies     | 39.2%  | 39%  | 5.8%  | 7.2%   | 5.3%    | 3.2%| 0.3%| 100%  |

Ceramic categories

Of the published corpus\(^{58}\) (presented by category in Table 5.14), the majority of ceramic types are either domestic or black on red funerary forms in almost equal proportions. Next in frequency are black on grey or grey wares\(^{59}\), followed by suspension vessels\(^{60}\), and other imported vessels including Harappan, Mesopotamian Dilmun and Kaftari types and miscellaneous vessels. When looking back at Table 5.13, however, it is

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\(^{57}\) References to Jabal Buheis tombs and the Mleiha tomb were added to this table after calculations were made. The vessel numbers are small and will not affect the overall ratios compiled in the table.

\(^{58}\) Taken here to be 1453 vessels. Five vessels more than used for the multivariate analyses presented in Appendix 1, because the Asimah and Jabal Buheis sites were not included in the MVA.

\(^{59}\) Of this, 7.2% are black on grey wares, while the remaining 5.5% are other grey ceramics including cordon, incised and red on grey types.

\(^{60}\) Of which 0.8% have the net pattern but no suspension lugs.
interesting to note that the tomb with the largest number of ceramic vessels, Tomb A Hili north, also has a proportion of domestic to fine red funerary ceramics not duplicated in other tomb contexts, even when domestic forms outweigh funerary. As this one tomb context accounts for 43% of the ceramic corpus, it is interesting to retabulate the results excluding this tomb. Table 5.15 shows that with tomb A Hili north excluded, the proportions are roughly the same for all categories except domestic vs. funerary, of which the latter now dominates at 52.6% to only 18.2% of domestic forms. These proportions seem to more appropriately reflect the individual tomb ratios, which see 63% of tombs yielding more black on red ceramics than domestic forms.

Table 5.14: Relative frequency of various ceramic types in the UAN funerary corpus.

<table>
<thead>
<tr>
<th>Ceramic Categories</th>
<th>Domestic Black on Red</th>
<th>Grey Wares (imported)</th>
<th>Suspension type vessels</th>
<th>Other imported</th>
<th>Misc.</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Black on Grey</td>
<td>Other Grey forms</td>
<td>True suspension vessels</td>
<td>No lugs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Numbers</td>
<td>569</td>
<td>566</td>
<td>103</td>
<td>79</td>
<td>72</td>
<td>13</td>
</tr>
<tr>
<td>Relative Frequencies</td>
<td>39.2%</td>
<td>39%</td>
<td>5.8%</td>
<td>7.2%</td>
<td>5.3%</td>
<td>3.2%</td>
</tr>
</tbody>
</table>

Table 5.15: Relative frequency of various ceramic types in the UAN funerary corpus not including Tomb A Hili North.

<table>
<thead>
<tr>
<th>Ceramic Categories</th>
<th>Domestic Black on Red</th>
<th>Grey ceramics (imported)</th>
<th>Suspension type vessels</th>
<th>Other imported</th>
<th>Misc.</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Black on Grey</td>
<td>Other Grey forms</td>
<td>True suspension vessels</td>
<td>No lugs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Numbers</td>
<td>151</td>
<td>436</td>
<td>55</td>
<td>90</td>
<td>56</td>
<td>8</td>
</tr>
<tr>
<td>Relative Frequencies</td>
<td>18.2%</td>
<td>52.6%</td>
<td>6.5%</td>
<td>10.9%</td>
<td>6.8%</td>
<td>3.5%</td>
</tr>
<tr>
<td>Totals</td>
<td>18.2%</td>
<td>52.6%</td>
<td>17.4%</td>
<td>7.8%</td>
<td>3.5%</td>
<td>0.5%</td>
</tr>
</tbody>
</table>

The following pages briefly describe each of the ceramic groups tabulated above. It is due to necessity that the categorisation of wares has been based on gross morphological characteristics rather than fabric assessment as I have not had direct access to the corpus and have relied on often poorly described / illustrated examples.

Domestic ceramics

Wares of this category vary between the interior and the coast. Those from the interior are generally red-orange-buff grit tempered fabrics that may be slipped. In settlement contexts, the most common forms are open bowls and hole-mouth jars, which are often painted with a black meandering line or groups of parallel lines (Potts 1990a: 103). Coastal domestic wares are usually buff, sand tempered and grey slipped, very much
A reconstruction of third millennium burial practices like the imported Mesopotamian ceramics also characteristic of the coastal assemblages (Potts 1990a:104), and much of which may indeed be imported (Frifelt 1991: 97).

In terms of frequencies within tomb assemblages (Table 5.16), various jar forms are the most prevalent, together accounting for 77% of the corpus. Cup forms follow at 13% with bowls and miniature vessels accounting for 6 and 4% respectively. The overwhelming abundance of jar forms and concomitant lack of bowls in the assessed funerary contexts (so prevalent in settlement contexts) may be interpretable in terms of either use in burial ritual or choice of funerary offering. This issue will be discussed in greater detail in the ensuing chapter. The storage vessel category is limited to Umm an-Nar island tombs.

Miniature vessel forms account for only 4% of the domestic ceramic assemblage, but it is interesting to note that this form is also present in the black on red funerary corpus, the black on grey and incised grey assemblages and fine red wares.

Table 5.16: Breakdown of domestic pottery types and their relative frequencies in UAN period tomb assemblages.

<table>
<thead>
<tr>
<th>Ceramic Categories</th>
<th>Bowls</th>
<th>Miniature vessels</th>
<th>Jars</th>
<th>Cups / beakers</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Painted</td>
<td>Unpainted</td>
<td>Storage</td>
</tr>
<tr>
<td>Numbers</td>
<td>35</td>
<td>24</td>
<td>221</td>
<td>203</td>
<td>11</td>
</tr>
<tr>
<td>Relative Frequencies</td>
<td>6%</td>
<td>4%</td>
<td>39%</td>
<td>36%</td>
<td>2%</td>
</tr>
</tbody>
</table>

Black on red funerary ceramics

As noted above, this category of finely levigated, wheel-made, well fired ceramics is found predominantly in graves of the UAN period, although limited examples have also been found in settlement contexts (Tell Abraq – Potts 1993: 189, Umm an-Nar – Frifelt 1995: 168). Vessels of this group, also known as Omani fine red ware (Méry 1997: 177), are of a very different fabric to the domestic wares. In the Hili area analyses have shown that the fabric of these vessels is both mineralogically and chemically consistent with a local, Hajjar Mountain area.

Figure 5.42: Example of a globular black on red jar from Tell Abraq (photo D.T. Potts).
manufacture zone (Blackman et al. 1989: 68-71). Table 5.17 provides a breakdown of the various vessel types within the black on red corpus, based on form. 

Most fine black-on-red funerary vessels are jars of globular shape with round shouldered to globular bodies, flat or accentuated bases, short, broad necks and everted rims (Figures 4.57-80, 5.42 and 5.42a). Second in frequency are canisters with high shouldered to barrel-shaped bodies, broad, flat bases with short necks and strongly everted rims (Figures 4.81-107). Together these two general categories account for c. 91% of the black on red corpus. The remaining vessel shapes are limited both in relation to the corpus as a whole and also in distribution. Pear-shaped and squat forms are found only at Tell Abraq (late in the Umm an-Nar sequence), while the bottle shapes are predominantly from Hili, with only one example being found on the coast at Al Sufouh. The miniature vessels together with the ‘other’ category are, however, fairly wide-spread, found both on the coast (Al Sufouh, Umm an-Nar island and Ajman) and inland at Hili, but in low numbers.

Decoration in this group is usually comprised of a red slip or wash overlain with dark painted decoration. Preservation of decorative motifs is dependent upon burial conditions and often in many contexts, vessels have lost almost all surface manifestations of design. As a result, interpretation of design motifs in terms of chronological / regional variation is somewhat limited. Designs most often include encircling horizontal bands around the shoulder enclosing multiple chevrons. This design is widespread across the Oman peninsula, both geographically and temporally (Méry 1997: 178). Variations to this theme include a band of parallel, oblique lines or wavy lines above the enclosed chevron motif. Less frequently found motifs include the step pattern (Frifelt 1991: Fig. 138), arched pattern and hatched meandering bands (Frifelt 1991: 92).
Table 5.17: Breakdown of black on red pottery according to shape and their relative frequencies in UAN period tomb assemblages.

<table>
<thead>
<tr>
<th>Ceramic Categories</th>
<th>Bottles</th>
<th>Miniature vessels</th>
<th>Pear shaped jars</th>
<th>Canisters</th>
<th>Globular jars</th>
<th>Squat</th>
<th>Other</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Numbers</td>
<td>16</td>
<td>11</td>
<td>6</td>
<td>162</td>
<td>329</td>
<td>20</td>
<td>22</td>
<td>566</td>
</tr>
<tr>
<td>Relative Frequencies</td>
<td>2.8%</td>
<td>2%</td>
<td>1.1%</td>
<td>28.6%</td>
<td>58.1%</td>
<td>3.5%</td>
<td>3.9%</td>
<td>100%</td>
</tr>
<tr>
<td>Total frequencies</td>
<td>2.8%</td>
<td>2%</td>
<td>91.3%</td>
<td>3.9%</td>
<td>100%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Some work has been undertaken attempting to categorise jars of the black on red corpus according to form (Benton 1996: 90-96, Méry 1997: 179), and there is preliminary potential for chronological interpretation of the resultant groups.

**Grey wares**

Both painted black on grey and incised grey wares comprise a fairly major ceramic component of UAN tombs, totaling around 17% of the overall corpus61 (Table 5.15), and, like the black on red category, are rarely found in settlement contexts. Of this category, 57% are black on grey painted jars, commonly globular or canister jars, but also miniature vessels. Incised grey wares account for around 32% of this group and cordon vessels and plain grey wares comprise c. 5% each (Table 5.18).

Vessels of this group demonstrate clear connections with southeastern Iran and the numerous comparisons made over the past decades will not be repeated here (Frifelt 1975a; Tosi 1976; de Cardi, Collier and Doe 1976: 118-122; Frifelt 1979b; Cleuziou and Vogt 1983; Cleuziou 1984; Vogt 1985; Cleuziou and Vogt 1985; Blackman et al. 1989; Wright 1990; Frifelt 1991). Suffice to say that with the results of scientific analyses undertaken on the painted grey wares from Hili (Blackman et al. 1989), it can now be accepted that the majority of these vessels were indeed imported from southeastern Iran, rather than locally produced.

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61 Excluding tomb A Hili north.
Table 5.18: Breakdown of the various categories of Grey wares.

<table>
<thead>
<tr>
<th>Ceramic categories</th>
<th>Grey cordon vessels</th>
<th>Black on grey</th>
<th>Incised grey</th>
<th>Plain grey</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>miniature vessels</td>
<td>jars</td>
<td>other</td>
<td>imported</td>
<td>imitation</td>
</tr>
<tr>
<td>Numbers</td>
<td>9</td>
<td>19</td>
<td>41</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td>Relative Frequencies</td>
<td>5%</td>
<td>10.5%</td>
<td>22.5%</td>
<td>12%</td>
<td>12%</td>
</tr>
<tr>
<td>Totals</td>
<td>5%</td>
<td>10.5%</td>
<td>34.5%</td>
<td>12%</td>
<td>31.5%</td>
</tr>
</tbody>
</table>

Of the black on grey corpus (n=104), the majority of vessels are jar forms, with canisters comprising 40% of this group (Figure 5.43) and globular shaped jars 21%. Vessels of this group exhibit a range of decorative motifs beyond those usually found on the black on red ceramic corpus, this group often with the entire vessel covered by decoration. Motifs include hatched and solid triangles; parallel oblique lines; vertical, wiggly lines; wavy, horizontal bands; architectural patterns and sigmas, sometimes with enclosed dots. These motifs are usually continuous around the vessel and enclosed / separated by horizontal encircling bands. Less frequently, motifs include friezes of bulls or goats (e.g. Umm an-Nar Tomb I, Tomb A Hili North).

The miniature black on grey vessels mimic the shapes and decoration of the larger vessels, and it is possible that at least some of vessels of the plain grey category have in fact simply lost their surface decoration.

Incised grey vessels are frequently truncated beakers with convex bases, jars of canister form or flat based cup/beaker forms. Some vessels of this category have been recognised as imitations based on analysis of fabric (Hili – Méry 1991, 1997: 182), which indicates that at least some of those recovered from Hili are made locally. Decorative motifs are all incised, cover most of the vessel and include the typical ‘hut’ motif (or sagging lintel motif) and cross hatched panels of triangles (Figure 4.126). Some vessels have simply parallel horizontal bands encircling the entire exterior surface and are sometimes referred to as ‘beehive’ designs. Interesting vessels also from Tomb A Hili north appear to be locally made in imitation of the grey incised ware, but are of either red fabric (similar to that of the fine black on red category) or of a sandy fabric but black slipped (Méry 1997: 185).

Plain grey ware vessels account only for 6.5% of the grey corpus. In some instances, these vessels appear very similar in shape to vessels of the painted grey category, such as those from Tomb I on Umm an-Nar Island. These two canister shaped vessels are
described as having a “black, shiny coating” (Frifelt 1991: 135). The vessels from Tomb 1059 at Hili are all fragmentary and little can be said about their shape other than they appear to be globular shaped jars with fairly small bases. There is no information concerning the appearance of the surface and it is possible that they were originally painted, but that the decoration has exfoliated. More unusual in this category is the clearly burnished, bell-shaped bowl and carinated jar from Tell Abraq (Figure 5.44). These vessels are unusual and the bell-shaped bowl has its closest parallels at Tepe Yahya (Potts 2001: Fig. 4.36E). The technique of burnishing grey wares is not uncommon at Tepe Yahya during this period (D.T. Potts: Pers. Comm.).

Cordon vessels are of grey fabric, squat / globular in shape and characterised by an applied, wavy appliqué cordon around the mid-upper body and often raised, horizontal, encircling bands above and below (Figures 4.127-128). These vessels comprise only a small proportion of the grey ware fabrics (5%) and have been found at Al Sufouh, Umm an-Nar Island and Hili. As a result of the recovery of a very well-preserved example from Umm an-Nar Island, it is possible to predict that these vessels may all originally have had black painted decoration.

In summary, the grey ware vessels from tombs of the UAN period comprise an important feature of the ceramic assemblages of these contexts as they enable comparison with stratified sites from the Indo-Iranian borderlands. There has been considerable effort expended on this task (Frifelt 1975a; Tosi 1976; de Cardi, Collier and Doe 1976: 118-122; Frifelt 1979b, 1991; Méry 1997: 182-184; Cleuziou and Vogt 1983, 1985; Cleuziou 1984; Vogt 1985; Blackman et al. 1989; Wright 1990; Benton 1996, Potts 2003b) and the predominance of certain forms within tomb contexts has been interpreted chronologically. There is also scope for interpretation concerning the presence of these vessels in tombs of the UAN period across the Oman peninsula, their relative paucity on coeval settlement sites, matched by their rarity in tombs of their homeland yet relative abundance on associated settlement sites. These issues will all be explored further in the following chapter.
Suspension vessels

Vessels placed in this category include both true suspension vessels and those of the same shape and decoration but without lugs. They account for just under 10% of the assessed UAN tomb assemblage\(^6\). True suspension vessels are either of the elongated, round shouldered type, usually with wide mesh decoration, or the more globular, squat form which commonly exhibits narrow mesh patterning (Cleuziou and Vogt 1985: 260). It is possible that some of the vessels without lugs may have originally had them (Benton 1996: 101) or that they may be precursors to the lugged varieties as proposed by Frifelt (1991: 93). At tomb A Hili North, suspension vessels are made in both the sandy domestic fabric and the fine black on red funerary ware (Méry 1997).

Suspension vessels have been found in both tombs and settlements across the Oman peninsula. Early indications that these vessels were less frequent in tombs of the coast (vs. the interior) may have been a sampling issue rather than a reflection of their true distribution.

Other imported vessels

Vessels of this broad category may be of four distinct types: Dilmun, Harappan, Mesopotamian or Kaftari imports. Table 5.19 provides a breakdown of types, context and frequencies, which shows that Harappan imports are dominant, followed by those from Mesopotamia, Dilmun and then Iran (Fars province – Kaftari).

Table 5.19: Breakdown of imported ceramics (other than Iranian) in UAN tomb contexts

<table>
<thead>
<tr>
<th>Ceramic Categories</th>
<th>Dilmun imports</th>
<th>Harappan(^{63}) imports</th>
<th>Mesopotamian imports</th>
<th>Kaftari imports</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tell Abraq</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td>7</td>
</tr>
<tr>
<td>Wadi Munay’i</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Ajman</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Jabal Buheis BHS69</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Jabal Buheis BHS72</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Hili N</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Tomb A Hili North</td>
<td>18</td>
<td>1</td>
<td></td>
<td></td>
<td>19</td>
</tr>
<tr>
<td>Tomb 1059 – Hili Garden</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Umm an-Nar I</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Umm an-Nar II</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td>4</td>
</tr>
</tbody>
</table>

\(^{62}\) 5.8% of all included tombs, or 8% if Tomb A Hili North is excluded.

\(^{63}\) Using the more recent publication of tomb A Hili Nth, the number of imported Harappan vessels rises from 18 to 26, and one Mesopotamian vessel is also included.
A reconstruction of third millennium burial practices

<table>
<thead>
<tr>
<th>Ceramic Categories</th>
<th>Dilmun imports</th>
<th>Harappan imports</th>
<th>Mesopotamian imports</th>
<th>Kaftari imports</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tombs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Umm an-Nar IV</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Umm an-Nar VI</td>
<td></td>
<td>2</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Shimal Unar 2</td>
<td>One + sherds</td>
<td>sherds</td>
<td>One</td>
<td></td>
<td>(2)</td>
</tr>
<tr>
<td>'Amlah 1</td>
<td></td>
<td>5</td>
<td></td>
<td></td>
<td>5</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td>6</td>
<td>22</td>
<td>21</td>
<td>2</td>
<td>51</td>
</tr>
<tr>
<td>% frequency</td>
<td>12%</td>
<td>43%</td>
<td>41%</td>
<td>4%</td>
<td>100%</td>
</tr>
</tbody>
</table>

The Harappan imports have been found in five tomb contexts: Tomb A Hili north, Hili 1059, Wadi Munay'i, Shimal Unar 2 and Ajman. These vessels are all of a beige-orange fabric characterised by macroscopically visible black inclusions and a petrographic signature similar to black slipped jars manufactured in the Indus Valley (Méry and Blackman 1999). These vessels are predominantly bottles with a variety of base forms and decorative motifs including palm trees with hatched leaves, net (or grid trapezes) and scale patterns as well as geometrical patterns / dotted squares and other geometrical motifs (Figure 5.45). Rarer are the peacock and pipal leaf decoration, found on only two vessels, both from Tomb A Hili north, while another vessel has the remains of a short Harappan inscription. Such inscriptions in the Oman peninsula are rare, but those recorded (from Asimah and Ras al-Jinz) are usually found on Indus black-slipped jars which were used for the transportation of foodstuffs (Méry 1997: 187). Other vessels from Tomb A Hili north have also been interpreted as being possibly Harappan in origin due their micaceous paste, including five miniature vessels, a wide mouthed jar and a spouted vessel64.

One vessel from Ajman is the typical bottle form (Al-Tikriti 1989: Pl 42a) and decorated with what appears to be the remnants of stylized palm tree leaves. Although possibly a Harappan vessel, this may be more akin to the fine red wares. A description of the paste is not provided.

The Mesopotamian imports primarily fall into the red-brown collared jar category which pertains

64 As accurate determinations for vessels from this context were unclear, they have been omitted from the counts in Table 5.18.
Chapter 5

particularly to the pear-shaped, micaceous ware vessels found in the tombs from Umm an-Nar island, ‘Amlah and Jabal Buheis. These vessels have been analysed as being of Mesopotamian origin (Piesinger 1983: 40 as noted in Frifelt 1991: 96) and petrographic analyses (Mynors 1983) show that some of the Umm an-Nar examples have signatures comparable to jars from Abu Salabikh. Southern Mesopotamian origin was then confirmed by neutron activation analyses. A further Mesopotamian vessel from tomb A Hili north is a very different form to those described above, being a globular, round-based bottle, whose Mesopotamian origin has also been confirmed using petrographic characterisation (Méry 1997: 187-188). Parallels have been made between this vessel and those retrieved from Tello and from Ur between ED II and ED III.

Ceramics imported from Dilmun are relatively rare and occur in only three confirmed tomb contests – Tell Abraq, Shimal Unar 2 and Wadi Munay’i. Al-Tikriti and Méry note (2000: 211) that Barbar wares have thus far only been recovered from tomb contexts in the northern parts of the emirates and do not occur as far south as Hili. Sherds are, however, also present in settlement contexts of the northern emirates (Tell Abraq, Shimal, Kalba and Wadi Munay’i) some of which have been analysed confirming their Dilmunite origin (Méry et al. 1998).

Figure 5.46: Examples of imported Dilmun pottery from the tomb at Tell Abraq (photo D.T. Potts).

The single vessel recovered from Unar 2 is a typical Barbar grave vessel comparable to examples from Early Dilmun grave mounds in Bahrain dating to the last century of the third millennium (Carter 2002: 9). Five vessels were found in the tomb at Tell Abraq (Figure 5.46) but only one was of a type similar to that found at Unar 2, being a round-based, reddish ware vessel with a scored rim. Vessels of this type are more often associated with second millennium contexts (Potts 2003b: 157). A second vessel is of a similar shape, but without the scored rim and exhibiting the characteristic exploding lime grits. The three remaining jars are of a different ware, being of a soft, buff-orange
coloured fabric, with a plum slip (poorly preserved), round bodies and relatively upright rims (although one example had a strongly everted rim) and wide mouths. Parallels to these vessels can be found in the burial mounds of Madinet Hamad on Bahrain (Srivastava 1991: Figure 47, Plates XXXIII-XXXVII). Two bronze spearheads were found in one of the vessels recovered from the Tell Abraq tomb.

Kaftari wares are present only at Tell Abraq and Unar 2. The fabric is fine, wheel made, yellowish with black painted decoration, and has been identified as Kaftari Buff ware, possibly originating in Fars province, Iran. The two vessels from Tell Abraq are both small jars with geometric black painted decoration in encircling bands, while the Unar 2 examples are sherds only (Figure 5.47). In its homeland, this ware is thought to date to the last century of the third millennium, and evidence for this ware in other contexts supports this (Carter 2002: 9), although compositional analyses of potential Kaftari wares from Southern gulf contexts should be undertaken to confirm their origin, especially due to their visual similarities with wares of the Wadi Suq period (Potts 2003b: 157).

Figure 5.47: The two imported Kaftari vessels from the Tell Abraq tomb (photo & drawing courtesy of D.T. Potts)

Non-ceramic finds

Soft-stone (chlorite) vessels

Before looking at this category, a brief note on terminology is appropriate. The term soft-stone has been assessed as somewhat misleading when referring to the corpus of stone vessels from the gulf region. It relates to vessels of both steatite and chloritite, and determinations of the petrographic composition of the assemblage indicate that none have a greater quantity of chloritite than steatite. Consequently ‘chloritite’ or for ease ‘chlorite’ is a more accurate term to describe these vessels (David 1997: 5).
As no chlorite vessels were recovered from tombs of the Hafit period, the abundance of this artefact class in the subsequent Umm an-Nar period graves provides clear temporal distinction. Included in this broad artefact class are all vessels made from both chlorite and alabaster. Of the chlorite group are vessels of the série ancienne and the série récente traditions, the distribution of which has often been interpreted chronologically. Vessels of the earlier série ancienne type are characterised by incised, naturalistic motifs while those of the subsequent série récente tradition have simplistic dot-in-circle motifs (Figure 5.48), usually in bands around the rim (bowls) or in panels on the walls (rectangular boxes). Many vessels are also left plain. Another variation is the ‘beehive’ beaker group, characterised by incised, parallel lines encircling the body and covering the entire vessel (Figure 5.49).

Manufacture of chlorite vessels of the série récente tradition in the Oman peninsula began in the latter half of the third millennium BC, thus providing a useful chronological tool in terms of the relative dating of tomb contexts. As Cleuziou and Vogt have noted, chlorite vessels with dotted double circles are “common in Umm an-Nar type burials and their absence in some monuments, at Umm an-Nar itself or in Tomb M at Hili is probably a matter of chronology” (Cleuziou and Vogt 1985: 254). Such vessels are also absent from the assemblage of Al Sufouh, a feature used to indicate a date early in the UAN sequence. It has be postulated that soft-stone vessels were primarily made for funerary purposes during the last quarter of the third millennium BC (Cleuziou and Vogt 1985: 254), implying that tombs without série récente vessels predate c. 2,250 BC. The evidence from Umm an-Nar does not contradict this, but the recovery of one sherd of a hemispherical bowl with dotted double circle decoration from the settlement on Umm

65 following the classification of Miroshchedji 1973. These have been since re-named by David (1996: 34) as the “Figurative” and “Umm an-Nar” traditions respectively.
A reconstruction of third millennium burial practices

an-Nar island indicates that the island was still occupied after the introduction of série récente soft-stone vessels, even if only briefly (Frifelt 1995: 198, Fig. 281).

Around 275 chlorite vessels recovered from tombs dating to the Umm an-Nar period have been published. It is noteworthy that several tomb assemblage descriptions indicate that soft-stone vessels were indeed present, but gave no information concerning the number or types recovered. In these cases, crosses have been included on Table 5.20 to indicate presence. Soft-stone vessels were also recovered from settlements of the later third millennium, and it is estimated that c. 20% of the overall soft-stone vessel corpus were from this context. This factor has led David to conclude that “the domestic occurrences (of soft-stone vessels in settlement contexts) were not merely casual, and that soft-stone vessels were not exclusively devoted to the dead” (David 1996: 35).

Table 5.20: Soft-stone from the UAN period graves according to decoration.

<table>
<thead>
<tr>
<th>Site</th>
<th>Tomb #</th>
<th>Série Récente</th>
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<th>Plain</th>
<th>Série Ancienne</th>
<th>Alabaster</th>
<th>TOTAL SOFT-STONE</th>
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</table>
A breakdown of chlorite vessels by category, decoration and tomb is presented in Table 5.20. The tomb containing by far the most soft-stone vessels is Tomb A Hili North, with 85 vessels recovered and mirroring its abundance in the ceramic department. Hili N contained 42 and Hili B, 39 vessels. Again Tomb A Hili Nth, one of the largest tombs (over 10 m in diameter), has the greatest quantity. Although a large tomb, Hili B has no information concerning the number of interred and the excavation of Tomb N is still incomplete, and more soft-stone vessels may be recovered from this tomb. As with ceramics there does not appear to be a direct link purely between size of tomb and abundance of finds and as expected, it is more likely to be related to the number of interments.

Table 5.21 provides a breakdown of relative frequencies of vessels by form and decoration. By far the predominant type is the série récente category exhibiting the double-dot-in-circle motif (Figure 5.48 and 5.50). This motif may have been produced by the use of a drill with a point and an outer tube (Potts 1990a: 106; 2000: 74), or using a compass style tool (David 2002: 184, nt. 2). Local manufacture of these vessels no doubt contributes to their immediate availability and thus their relative frequency. Bowls are the most frequent form, followed by rectangular boxes, some with compartments, and then beakers. The
lids in this category have been included as a separate category, as most publications include them separately if there is no box to match, indicating that originally a corresponding box may have been present.

**Table 5.21: Breakdown of the various type of soft-stone categories and their relative frequencies**

<table>
<thead>
<tr>
<th>Chlorite Categories</th>
<th>Série Récente DDC</th>
<th>Série Récente SDC</th>
<th>Plain</th>
<th>Beehive beakers</th>
<th>Série Ancienne</th>
<th>Alabaster</th>
<th>Misc.</th>
<th>Total</th>
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<tbody>
<tr>
<td>Numbers</td>
<td>Bowls</td>
<td>Boxes</td>
<td>Beakers</td>
<td>Lids</td>
<td>Bowls</td>
<td>Sq flask</td>
<td>Lid</td>
<td>Beaker</td>
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<td>1</td>
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<tr>
<td>Relative Frequencies</td>
<td>43%</td>
<td>12%</td>
<td>8%</td>
<td>4%</td>
<td>1.25%</td>
<td>2.5%</td>
<td>.25%</td>
<td>.25%</td>
</tr>
</tbody>
</table>

Assigning single dotted circle motifs as a separate category may prove to have been a fruitless division, but there is a possibility that the varied mode of production may indicate an alternative manufacture location or temporal variation. Vessels of single-dotted circle motif are more often found in Wadi Suq period contexts (Figure 5.51; David 2002: 178).

Vessels of the plain category include a variety of types, too numerous to categorise separately. They include a component of the locally produced *série récente* vessels devoid of decoration, but also some vessels that were probably imported. According to David (2002: 181), seven stone bowls from tomb A Hili North were imported, including one bell-shaped bowl, which finds parallels at Al Sufouh and Falaj al-Qaba (Figure 4.196). Parallels for this bowl type are widespread geographically, although relatively few have been published. A review of bowls of this type indicates they may have been manufactured in Iran (Tepe Yahya?) and are found in ED III, Akkadian and post-Akkadian contexts (Benton 1996: 163). Other imported stone vessels include undecorated beaker shapes, possibly imported from the area of Shahdad (David 2002: 181). A dark green, cylindrical steatite vessel from Tomb I on Umm an-Nar island, paralleled by a vessel recovered from Hili Garden 1059, relates more closely to shapes of the *série ancienne* tradition, but a local origin has not been ruled out (Frifelt 1991: 104-5).
One unusual vessel was recovered from Tomb N at Hili is an open cup shape incised with a feathered motif interpreted as a ‘palm frond’. Such decoration is not known in the Umm an-Nar period, but is reminiscent of the decorations known from the Wadi Suq (série tardive) repertoire (Vogt and Velde 1987). Parallels have also been drawn between this design and a seal dated to the last third of the third millennium BC from Ra’s al-Jinz RJ-2, Period III (Méry et al. 2001: 168).

Grooved beakers, comprising c. 8% of the soft-stone assemblage, have been recovered from at least eight published tomb contexts (Figure 5.49). These vessels are usually convex-sided with flat to slightly rounded bases and covered by parallel, horizontal grooves. Some examples have a thin band of parallel oblique lines around the base (Hili Garden 1059 and Tombs M and N Hili) and have been compared to chlorite vessels of the early second millennium (Méry et al. 2001: 168). Vessels of this exact description have also been recovered from grave mounds on Bahrain (Cleuziou 1986: 150).

Only two vessels of série ancienne type have been recovered from UAN period tombs, one from Umm an-Nar Island, tomb IX and another from tomb A Hili North. This finding on Umm an-Nar island is not surprising considering there are many indications that this site flourished early in the Umm an-Nar sequence. The recovery of a vessel from tomb A Hili North is somewhat more difficult to interpret, possibly representing an heirloom. This vessel is unusual in both shape and decoration, being a small cup with alternating encircling bands of wavy lines and parallel, vertical lines (David 2002: 181, Fig. 11.6).

Not included in the table above is an absolutely unique object from the tomb at Tell Abraq, being a round beaker shape vessel attached to a fenestrated base (Figure 5.52; Potts 2000: 125). Parallels to this object in both soft-stone and

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66 Two série ancienne vessels were also recovered from the second millennium tomb at Sharm (Ziolkowski 2001: 11, Figs 1 and 2).
bronze have been drawn from Shahdad (Kerman province) and Susa, in Khuzistan, and this example is assessed as being a definite import (Potts 2000: 125). Also from Tell Abraq and likely to be imported (Bactria?) comes a small, square flask with a single dot-in-circle design (Figure 5.53).

Alabaster (or calcite) vessels comprise 7% of the UAN stone vessel assemblage and were recovered from nine published tomb contexts, spanning the entire period – from Umm an-Nar island graves and the Tell Abraq tomb. Although bowls are the predominant form, there is wide variation in shape, including simple open bowls; small straight-sided examples; deep, V-shaped bowls and slightly enclosed forms, some with everted rims. Small jars in alabaster have also been recovered. The Tell Abraq alabaster assemblage is one of the largest, but the majority is very fragmented. Of the complete or semi-complete profiles comes a small spouted lamp, which has parallels in the Royal Graves of Ur and Togolok in Margiana (D. Potts pers. comm.); several (four) open bowls, one containing the remnants of an ivory comb; one incomplete vessel that may have had small lugs and two very degraded forms described as oblong “boat” shaped vessels.

Alabaster or calcite sources can be found locally in the Oman peninsula but are also present in Iran, near Shahr-i Sokhta and Tepe Yahya. Frifelt has noted that alabaster vessels found in the UAE may have either originated in Iran themselves or potentially simply the idea for production was imported. Certainly no local production sites have been located and the forms found in the peninsula are reminiscent of those recovered in greater quantities in Iran, particularly around Shahr-i Sokhta in Iranian Seistan.

In no excavated tomb contexts can information about the original deposition of chlorite or alabaster vessels be ascertained. One vessel was, however, recovered from a funerary (?) context at Jabal Buheis, where it was found to contain silver and gold earrings (Jasim 2003: 97). Hypotheses concerning the potential function of chlorite and alabaster vessels in the overall UAN burial programme will be explored further in the following chapter.

Metal finds

The availability and exploitation of copper in the Oman Peninsula (ancient Magan) is now well-proven (Costa 1981; Weisgerber 1980, 1981a; 1981b; Hauptmann et al. 1988;
Potts 1990b: 119-125). Evidence for primary smelting has been found at inland sites close to exploitation areas, while secondary refining and casting is documented at Umm an-Nar (Frifelt 1991b: 98), Tell Abraq (Potts 1993: 122-123, Weeks 1997), and as far afield as Masirah in the south (Potts 1991b: 125).

The term copper will be used in reference to the objects described below (other than those made from precious metals). Trace element analyses to determine the true composition of the copper artefacts from the UAN period has been undertaken at a number of sites, with variable results. Copper objects from Umm an-Nar Island show no evidence of tin alloying (Frifelt 1991: 99), while those from Tell Abraq prove to be predominantly made from tin bronze (Weeks 1997: 70). Tin bronze has also been detected in two other late third millennium contexts: the clay lining of a furnace at Hili 8, period IIIF (Cleuziou 1989: 74) and a dagger from Hili Garden Tomb 1059 (Berthoud et al. 1982: 47; Cleuziou 1989: 74). The discovery of tin bronze in third millennium contexts is nonetheless unusual and evidence of a sustained tin bronze industry in Oman does not appear until the second millennium BC.

Metal artefacts, predominantly of copper, recovered from UAN period tombs are definitely more plentiful than in the preceding Hafit period and also represent a far greater range of objects. In the Hafit period, pins and awls were surprisingly common in graves, especially as they represent a relatively new artefact class (these items represent some of the earliest copper artefacts from the Oman peninsula). This is also surprising due to the very nature of metal finds, which because of their intrinsic value and reusability, often suffer the fate of removal by grave robbers. This is certainly the case in the subsequent Umm an-Nar period, where the frequencies of metal artefacts recovered from tombs indicates that they suffered targeted plundering. In exposed tombs where plundering is apparent, few metal artefacts remain, whereas in covered tomb contexts (such as at Tell Abraq), the representation of metal artefacts shows them to be a fairly major component of the funerary assemblage.

Around 420 metal objects (including fragments) recovered from UAN period tombs have been published. As noted in Chapter 2, the quality of publication does not always allow for precise determinations of exact classes of artefact, but does enable assessment of gross relative frequencies. What follows looks briefly at the metal finds by tomb, before turning to a breakdown of the individual metal artefacts classes.
## Table 5.22: Metal finds from the UAN period graves according to type.

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<th>Weapons</th>
<th>Pins/awls</th>
<th>Miscellaneous</th>
<th>Br frags</th>
<th>Precious Metals</th>
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| % frequencies      | 47.5%  | 20.1%            | 11.3%   | 7.1%      | 11.6%         | 2.4%     | 100%            |

A reconstruction of third millennium burial practices
Of the 47 tombs included in Table 5.22, 16 contained no metal at all, although the presence of fragments may not always have been noted. The tomb containing the most plentiful metal repertoire is at Tell Abraq. As noted above, this tomb, unlike the majority of UAN period tombs, was buried beneath debris outside the fortification wall. Its close proximity to the settlement is an unusual feature of this tomb's location, but one that ensured its ultimate conservation. Despite one edge of the tomb being targeted by stone robbers probably during the Iron Age, the rest of the structure and its contents remained relatively intact. Over two hundred copper items, of which 84% were rings, and several precious metal objects were recovered from this tomb. The next in frequency was the tomb and associated burial pits at Al Sufouh, which contained 66 metal items, although this frequency is slightly skewed by the number of fragments (31) included in the count. Excluding these, Al Sufouh still has 35 metal finds, well in excess of those from Tomb A Hili north which amount to ten only. Considering the scale and relatively high comparative find frequencies of other artefact classes in Tomb A at Hili North, the metal finds are very likely to have been plundered. As noted, however, these frequencies are more indicative of tomb preservation than of original funerary assemblages.

In terms of artefact types, the most numerous are items of personal adornment such as rings and bracelets. These comprise 49% (n=201) of all metal objects, with rings accounting for 99.5% of this category (n=200). These were recovered from nine tomb contexts. The form is fairly predictable, with ends either meeting or overlapping slightly (Figure 4.194-195). Although not often recovered in situ, these rings have been found in their original association at a couple of locations. Tomb A Hili North (Vogt 1985: 33) revealed rings on the toes of interred individuals and at Tell Abraq (Potts 1995: Abb.8; 2000: 84) they were recovered on fingers and toes (Figure 5.54). Interestingly, no rings were recovered from any of the tombs on Umm an-Nar island and Frifelt notes that no other forms of jewellery were found either (Frifelt...
1991: 98). Only one copper bracelet has been recovered from an UAN period tomb, being from Tell Abraq. This particular type of jewellery may be just beginning to appear at the terminal phase of the UAN period before becoming more popular in the ensuing Wadi Suq and Iron Ages.

The next in frequency were weapons, accounting for 20.1% of all metals, with daggers being the most common type, followed by socketed then tanged spearheads. Weapons were recovered from nineteen tomb contexts. Interestingly, two contexts, Al Sufouh and Tell Abraq both had the greatest number of weapons, contrasting starkly with Tomb A Hili north, which contained none, even in the chamber that was assessed as undisturbed (Cleuziou and Vogt 1985: 183-184).

The variety of weapon types is relatively limited, but there is a high degree of variation within the classes. Beginning with daggers, a word on terminology is necessary. Table 5.17 has entered data regarding weapon type according to presentation in publications. This may see some misassigning between the dagger and spearhead class, as there have been no strict classificatory methods used. Gordon (1953: 67) arbitrarily defined the dagger as a sword-like weapon less than 35.5cm. long. The use of the term dagger, however, does not presuppose that these weapons were wielded by hand. It is possible that they were mounted on shafts and as Gordon notes, “the spear is just a dagger at the end of a shaft”. A majority of daggers possess rivet holes, either through the tang or the base of the blade, a feature which suggests they were hand-held weapons rather than projectiles (Figure 5.55). At Al Sufouh, seven of the complete or semi-complete daggers showed evidence of bending in the upper part of the blade (Figures 4.179-187). This may be the result of warping due to heating (much of the bone was cremated) or it may be evidence of deliberate bending. Also bent was at least one of the Umm an-Nar island daggers (from Tomb II – Frifelt 1991: 101). Such bending over of weapon tips has been noted in Palestine, where it is thought to reflect a ritual practice (Tubb 1988: 64), and bent weapons have also been found in Margiana at Togolok 21 (Hiebert and

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67 Subsequent to Frifelt’s investigations, one ring was recovered from a tomb (IX) excavated by the local excavation team led by al-Tikriti (al–Tikriti 1981: 139).
Killick 1993: 193, Fig. 12,14 and 15). A final point of interest regarding daggers is the embedded tip of one such item found lodged in a human bone at Tell Abraq, showing that, amongst other uses, these weapons were also used for inter-human combat.

Blade axes have been found in four tombs, while socketed weapons have only been recovered in two – Tell Abraq and Asimah Alignment A (Figure 5.57). As socketed weapons become more prevalent in the ensuing Wadi Suq period, their presence in fairly great numbers at Tell Abraq and Asimah is not surprising, considering the terminal UAN date of these contexts and their undisturbed nature.

Pins and awls comprise 11.3% of all metal objects and were found in twelve tomb contexts. As no-one is sure what these objects were used for, their descriptions remain general. One such item recovered from the settlement on Umm an-Nar island had the remains of a bone handle intact around the rectangular end of the shaft, and has been interpreted as an awl. It is also possible some were used as pins to fasten clothes or shrouds.

Rarer artefacts such as razors (n=5) and spatulas (n=1) are found in few tombs. Only two copper vessels have been recovered from UAN tomb contexts, again being that of Tell Abraq and Asimah Alignment A (Figure 5.58). The latter vessel is described as a pedestal chalice and finds its closest parallel at Hamala North, Bahrain, where its context was dated to late third early second millennium BC (Vogt 1994: 129). The miscellaneous class includes these vessels and other objects such as rivets, hooks and chain links. The only hooks recovered are from coastal sites (Umm an-Nar Island and Tell Abraq), while rivets are found in many contexts (n=8) as they were often used to secure handles to tools and weapons. The rivets and fragments, although not artefacts in their own right, can provide evidence for the original presence of bronze artefacts that have since been removed through plundering. It is interesting to note that although formal metal objects were only found in 28 of the 42 tombs tabulated, a further three tombs (‘Amlah 1, Qarn Bint Sa’ud
7 and Umm an-Nar I) contained rivets or fragments suggesting they originally held complete copper objects.

Precious metal objects are of course rarer and were recovered in only four tombs. From Tell Abraq came two gold pendants depicting rams and a gold ring. In silver, came a sheep pendant, perforated longitudinally and several rings (Figure 5.59). A unique golden hairband was recovered from Tomb X on Umm an-Nar island (Al-Tikriti 1981: 141), a silver spiral was found in the Al Sufouh tomb and a silver ring from Ajman Tomb A (Al-Tikriti 1989: 92, Pl.46 and 56 C). It is fairly certain that Umm an-Nar period tombs would originally have had greater quantities of previous metal objects, which have since been removed by plundering. Although not excavated at the time of compiling evidence for this thesis, excavations at Jabal Buheis have since recovered a soft-stone box said to contain gold and silver earrings (Jasim 2003: 97).

Beads

The generally poor attention beads have received both during excavation and publication is unfortunate because as an artefact class, they are unlikely to have been robbed, broken or have decomposed, and are thus potentially useful as a comparative object class. Table 5.23 provides a breakdown of bead types by material as published for tombs of the UAN period, showing that over 37,200 beads have been reported. Considering a great deal remains unpublished or poorly presented, this is still a comprehensive assemblage likely to be interpretable as representative for the Umm an-Nar period.
Beads from the UAN era tombs were manufactured from a wide variety of materials including talcose steatite or serpentinite, carnelian, soft-stone, frit / faience, bone, shell, lapis lazuli and several indeterminate types of stone. As in Hafit period bead assessment, the attribution of material type is problematic and stones or composite materials may not be correctly determined. Further, the terminology used to describe various materials differs, even when specialists are brought in and it becomes apparent that there are a multitude of terms for similar materials. All this creates problems when attempting to compare assemblages between sites, especially from published reports. Some of the terms used in the following section have been arrived at through geological analyses undertaken on some of the materials present at the Hafit period sites of Jabal al-Emaleh and Tawi Silaim where some scientific analysis has occurred, while others have been accepted from published reports.

The following pages look at the beads from UAN tombs by material and in terms of the direct information they provide us, and conjecture as to their role in the burial programme of the Hafit period.

**Talcose steatite/serpentinite**

The most prominent raw material is talcose steatite/serpentinite, numbering 31,756 beads, comprising 85.2% of the total and being found in sixteen tomb contexts. Two main forms are represented, small microbeads (n=25,356), normally as long as they are thick with diameters c. 2.5-3mm (Figures 5.60 and 5.62); and long tubular beads (n=6,951), c. 1-1.2cm. long and 2-2.5mm. in diameter (Figures 5.60 and 5.61). Also present, in fewer numbers, are a variety of other forms including rectangular shaped beads with lenticular section, long barrels etc.

As large quantities of these bead forms were recovered from the Jabal al-Emaleh tombs, possibly dated to the Hafit period, they have been outlined in detail under the Hafit period bead section, and only a brief summary will be presented here.

![Figure 5.60: Talcose steatite tubular beads (top), microbeads (middle) and dark steatite microbeads with square and circular cross-sections (bottom). From Unar 1 Shimal (photo J. Benton).](image-url)
### Table 5.23: Bead types and frequencies in tombs of the UAN period.

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## Chapter 5

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* X indicates presence of this type is mentioned in reports but not in any way quantified.
Despite being published under a variety of material types, beads of this material were scientifically identified as serpentinite (Benton 1996: 113) or talcose steatite (Frifelt 1991: 114). The long tubular forms may have been made from a talc paste moulded around a thin stalk of plant matter, which disintegrated when the bead was baked. This would explain their longitudinal shape, suggesting they were made in lengths and then cut into smaller sections.

This tubular form has traditionally been associated with the Umm an-Nar period and has been found on the island of Umm an-Nar, in the Hili tombs, from Al Sufouh and at Shimal (Figure 5.61). The recovery of a considerable number of these beads from Jabal al-Emaleh Tomb III, which revealed no other evidence of UAN intrusion, may indicate that they came into circulation in earlier than the UAN period. This is potentially confirmed by similar beads from the fourth millennium contexts at Jabal Buheis. The manner of deposition of these beads in Tomb III at Jabal al-Emaleh, found lying in vertical alignment (Benton and Potts 1994: Fig. 31), is reminiscent of those recovered in Tomb V at Umm an-Nar (Frifelt 1991: Figs. 51 & 246) and Tomb I at Al Sufouh (Figure 4.30), where they are thought to represent the remains of bead-embroidered cloth. This evidence provides one of the few windows into the original use of such beads in tombs of the third millennium BC. Whether these beads decorated shrouds or were a part of clothing items also used in life is, however, impossible to determine.
The small, micro-bead type made from talcose steatite, sometimes appears as if it had been cut off a long tube, but many are in fact barrel-shaped or biconical, showing that they were individually worked (Figure 5.62). Again, nearly identical beads were recovered from the tombs on Umm an-Nar island (Frifelt 1991), while the superficially similar examples from the tombs at Hili and Shimal are generally larger and more discoid.

Carnelian/chalcedony

Beads of carnelian or chalcedony from the UAN period tombs (n=2,848) comprise 7.6% of all bead finds and are found in 21 tomb contexts (Table 5.23). Carnelian is simply a reddish variety of chalcedony (Berry and Mason 1959: 478) and its colour is variable, dependent on the quantity of haematite present (Figure 5.63; Helfer 1970: 132). There is considerable variety in form and all beads have been classified using the system devised for the carnelian beads from the Umm an-Nar period site of Al Sufouh (Chapter 4). This categorises primarily according to shape, with body definition, end definition, size and surface treatment as the major criteria. The primary group is unfortunately "shape unclear" because most publications simply state that carnelian beads are present. Of those with shape information, the most abundant type is regular in length (longer than wide, but not greater than 1.5cm) and biconical in shape. This is followed by regular barrels, then squat (wider than long) bicones and then squat, truncated bicones. Some of these beads show signs of heat treatment, which causes them to become milky and when extreme they become solid white (Figure 5.64).
A reconstruction of third millennium burial practices

Although present in Hafit period tombs, carnelian beads become far more frequent in tombs of the Umm an-Nar period in the Oman Peninsula, and are present all over Western Asia. Sources of the stone can be found in India, Afghanistan, eastern Iran (Reade 1979: Map 5), some parts of the Arabian Peninsula and on the Iranian coast near Bushire (Whitehouse 1975: 129). To date, however, no sources have been located on the Oman Peninsula, although their presence at the fifth millennium BC site of Jabal al-Buhais (Kiesewetter 2000) may indicate the presence of a local source.

Etched carnelian beads comprise a specific subgroup. Twenty three have been recovered from seven tombs, as shown in Table 5.24. These beads are characterised by designs etched into their surface using an alkali solution in paste form (Beck 1933: 143-145). The design is dried next to hot coals and subsequently covered by them for a short period of time. The heating allows the alkali solution to penetrate the surface layers of the carnelian, which it is able to do due to the fibrous nature of the stone. This produces the ‘white-on-red’ effect characteristic of most etched carnelian beads (Figure 5.66 bottom left). A less common effect shows the design appearing as black on a white background (Figure 5.66 top left and above; Reade 1979: 5). To achieve this, an alkali solution is applied first over the entire stone. A metallic solution, probably copper, is then used to trace the desired design (Beck 1933: 143-145).

The importance of these beads to tomb assemblages lies primarily in the work that has been undertaken on their classification, according to design, and their potential dating (Table 5.24). Evidence for the production of etched carnelian beads is available from only two sites, Lothal (Rao 1973: 103) and Chanhu-daro (Mackay 1943: 199-201). It is likely that the etched...
beads of the Oman Peninsula came from this area, although the possibility that the technique was practiced in other locations cannot be ruled out (Reade 1979: 24).

Table 5.24: Etched carnelian beads from Oman peninsula tomb contexts

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<th>Reference</th>
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Soft-stone beads comprise 5.1% of the bead assemblage, numbering 1,886 in total. The colour of the soft-stone used varies from black through grey to white, and can also be dusky red or dark green. The beads, measuring c. 2.5-3.5mm in diameter and 1.2-2mm in thickness and can be circular through to squared in cross-section (Figure 5.67). From a purely visual assessment, they appear to be made of stone rather than a paste, and may have been made in lengths and then cut.

Figure 5.67: Soft-stone (steatite) microbeads from Unarl at Shimal. Note the variation in shape from square through to round in section (photo J. Benton).

Soft-stone beads have a very similar distribution pattern to those of talcose steatite and have been found on Umm an-Nar Island, at Al Sufouh, Tawi Silaim and Ajman Tomb B. Many soft-stone beads (unpublished, Al Ain Museum) were also recovered from Tombs A and B Hili North. Beads of this type are often found in direct association with talcose steatite beads and also appear to have been sewn onto fabric. The

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56 Compiled using Reade 1979; De Waele & Haerinck 2005 and the relevant excavation reports as referenced.
temporal distribution of this bead type mirrors that of talcose steatite beads, for they are unknown after the third millennium BC.

**Frit/faience or paste**

Frit/faience beads are the next most numerous, comprising 0.57% of the total (n=201) and being found in 8 UAN tomb contexts (24%). Before discussing their form, a word on terminology is necessary. Beads in this category are made from the traditionally recognised faience or frit compositions, which were described earlier in this chapter. Again the term ‘paste’, a generic term for beads of an artificial, composite material, the exact composition of which is unknown, is more appropriate for beads of this category.

Paste beads are seen in a variety of shapes, the most frequent in UAN tombs being biconical in shape (Figure 5.68 - left), followed by fluted and plain spheres. No published beads of this category have been found in situ, nonetheless it is likely that they were used in items of personal adornment.

**Shell**

Next in frequency are shell beads, which comprise 0.4% of the total (n=195) and occur in six tomb contexts, both from coastal and inland sites. At least seven different species of shell were used as beads in the UAN period tombs, the most frequent species being *dentalium* closely followed by *Conus catus* (Figure 5.15). Also represented are conus shells that have been sectioned, *Oliva inflata* shells, which are generally similar in shape to *Conus* but tend to be a little smaller and finer and a couple examples of the black and white striped *Engina mendicaria* shells (Figure 5.16).

**Metals**

Beads made from various metals account for 0.4% of all beads (n=149). The majority are made from silver (n=139), with only ten of bronze and three of gold.
Most silver beads are likely to be alloyed, possibly with lead (Al-Tikriti 1989: 95 and Haerinck 1991: 18) and are often biconical in shape (Figure 69 top right and fused examples Figure 5.70). The 81 beads of this type found in Ajman tomb B were fused together forming a necklace. Similar shaped beads were recovered from Tombs A and B Hili Nth, from Hili M and Shimal tomb I. The silver beads from Tell Abraq were also more predominantly spheres, and many were recovered fused as though strung. A couple of examples were different in shape, including a barrel, a bicone and one described as ovoid.

The bronze beads (n=10) were recovered from Tell Abraq, Ajman, Shimal tombI and Hili M. Those from Tell Abraq were general spherical, while another from Ajman, described as copper, was barrel in shape.

Gold beads were recovered only from Tell Abraq (n=3). One was a simple sphere, while the other two were more unusual, being flattened, one ovoid the other circular, with a raised midrib through for the perforation. These unusual shaped beads find parallels at Mohenjo Daro and Tell Asmar.

*Other stone*

Beads included in this non-specific category (n=102) have been described in published reports as being made of stone but with no determination as to the type. The five described as white stone, may be baked carnelian, which becomes white as a result of the heating process. The majority of this group, however, is described as being dark stone (blue, green, black) or reddish.

*Bone*

A total of 84 beads (0.2%) of fishbone have been recovered from only three UAN period tombs – all coastal (Figure 5.71); Shimal, Tell Abraq and Al Sufouh). Although their function as spacer beads in items of jewellery was recorded at Jabal al-Emaleh (Tomb I, Benton and Potts 1994: 51, Fig. 77), none have been found *in situ* in UAN period tombs.
Neither the tombs from Umm an-Nar Island nor Ajman yielded any fish bone beads, which seems unusual considering their proximity to the coast.

**Miscellaneous**

The remaining categories contain so few beads that they will be considered together. Twenty-two beads of clay were recovered, nine from Ajman Tomb B and the remainder from Umm an-Nar island tombs V and VI. Those from Ajman were predominantly biconical, although two were fluted spheres and all were described as being black. It is worth noting here that these may in fact be paste beads of the same type as described above. Those from the Umm an-Nar island tombs are not individually described, although ten are noted as tubular and further three as flat, rectangular and yellow in colour. Again it is possible that these latter beads are in fact paste rather than clay.

Fourteen beads of clear quartz were recovered from three tombs and for some there is no information regarding shape (those from Ajman). Of the remainder, three are squat barrels and four are squat bicones (being the examples from Al Sufouh). The latter of these closely resemble the rock crystal beads characteristic of Hafit period graves. The examples from Tell Abraq vary in shape and include short barrels/bicones and one squat bicone again reminiscent of those from the Hafit period.

Thirteen beads of lapis lazuli were recovered from four contexts: Tell Abraq, Al Sufouh, Umm an-Nar Island V and Hili Nth Tomb B. The Tell Abraq examples are of two main forms – being tubes (n=6) or flat discs (n=4). Those from Al Sufouh are both diamond-shaped and lozenge-like in section and have no precise parallels in the Oman Peninsula (Figure 4.155). Three tabular disc beads of lapis were found in Tomb B at Hili North (similar to those from Tell Abraq and two beads from Umm an-Nar island have been identified as lapis lazuli, one a short cylinder, the other a small barrel (Frifelt 1991: 112, Fig. 247 and 251).

The closest source of lapis lazuli is in Badakhshan, Afghanistan, and it is widely believed that most of the lapis found in Iran, Mesopotamia and the Gulf originally
derived from this location (Casanova 1992: 56). It was traded both as a raw material and in finished forms as attested archaeologically and in Mesopotamian cuneiform sources (van Rosen 1988, 1990). Objects of lapis lazuli were produced in Iran at Shahr i-Sokhta (Tosi and Piperno 1973) and Tepe Hissar (Bulgarelli 1979); in Pakistan at Mehrgarh (Tosi and Vidale 1990); at sites in the Indus Valley including Chanhu-daro (Mackay 1943: 140) and Mohenjo-daro (Pracchia, Tosi and Vidale 1985) and possibly in the Gulf on the island of Tarut (Zarins 1978: 67). The source of the lapis beads found in the Oman peninsula is difficult to determine. No exact parallels for form and material have been found. Evidence from other categories of material culture indicates that the site was in contact with Iran, Mesopotamia and the Indus Valley suggesting that any of these areas may have been the source.

The five white stone beads are either soapstone or potentially may be burnt carnelian that has been classified incorrectly.

**Summary**

As in the preceding Hafit period, items of personal adornment such as necklaces and cloth with beaded embroidery no doubt formed an important feature of the burial programme of the UAN period. Occasionally undisturbed areas within tombs suggest individuals were buried wearing jewellery such as necklaces and clothing or shrouds that were bead embroidered. Whether these items were used in day-to-day life or were made specifically for the grave is difficult to tell. Beads are found amongst finds in contemporary settlements, although infrequently. The vast increase in the numbers of beads found in the UAN era as against the Hafit period is thought to be commensurate with the vastly increased numbers of interred individuals, and the concomitant rise in all other grave good frequencies.

**Miscellaneous objects**

This category includes objects of many types, as presented in Table 5.25. They have been separated generally into categories according to the material from which they are made.

Looking first to objects made from stone, the most frequent are grinding slabs, hammer stones and whetstones which have all been predominantly recovered from Umm an-Nar island tombs and also at Tell Abraq. Many of the grinding slabs are noted as having been found on top of or outside the tombs, especially the larger ones (in three cases), although smaller examples were definitively found within tomb contexts (five
examples). According to Frifelt (1991:104) the recovery of these types of stone objects as grave gifts is not surprising as they may have been used by craftsmen and were not necessarily kitchen utensils. Net sinkers and polished pebbles were similarly only found on Umm an-Nar island, potentially reflecting the significant dependence of this community on marine resources. Flint tools have only been reported from two tomb contexts - Mleiha and Ajman.

Stone pendants were found in three tombs - Al Sufouh and Tombs X and XII on Umm an-Nar Island. The example from Al Sufouh was a small, flat and parallel-sided, round-ended pendant made of a dark grey, schist-like stone (Figure 4.199). Those from Umm an-Nar Island have not been described or illustrated.

**Table 5.25: Miscellaneous objects from UAN period tombs.**

<table>
<thead>
<tr>
<th>Site</th>
<th>Tomb #</th>
<th>Miscellaneous</th>
<th>Stone Objects</th>
<th>Shell Objects</th>
<th>Seals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Amulets</td>
<td>Ivory</td>
<td>Ostrich egg shell</td>
<td>Other</td>
</tr>
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<td>Ajman</td>
<td>A/B</td>
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</table>

**57** The recovery of ostrich egg shell from this tomb is noted in the Asimah publication, Vogt 1994: 48.
Shell objects (other than beads) have been recovered in eleven UAN period tombs. The most frequent shell artefacts (other than beads) are the *Ficus subintermedia* shells (Figure 5.12). These large bivalve shells are commonly known as ‘feeding shells’ and are widespread in graves dating to the Umm an-Nar period, having been found on Umm an-Nar island (Frifelt 1991: 184-186); in Ajman Tomb B (Haerinck 1991: 20, Fig. 9.31,32); at Tell Abraq and Al Sufouh and al Mleiha and Hili (Tomb A Hili Nth and Tomb N). It seems probable that shells of this type were used as vessels or utensils and ethnographic studies, as noted by D. and E. Bosch, testify to the modern use of *Ficus* shells in Oman as instruments for feeding babies (Bosch and Bosch 1982: 87). Flat open shells (*Marcia hiantina*) were also used as cosmetic containers only found at Tawi Silaim and Tell Abraq. During the Iron Age, examples of shells of this type were found to contain atacamite pigment (Thomas & Potts 1996: 13). It is possible that shells of this type (and indeed other types) may have been overlooked during excavation, especially those excavated prior to the more careful modern techniques. Many of the cosmetic shells found at Tell Abraq contained kohl residues, confirming their function as containers for cosmetic substances. Kohl may have been used around the eyes as a measure to decrease the amount of sand, dust and glare affecting the eyes.

Items of personal adornment made from shell were also found. Rings, pendants and buttons of shell are all attested to (Figure 5.72-73), and although only

<table>
<thead>
<tr>
<th>Site</th>
<th>Tomb #</th>
<th>Miscellaneous</th>
<th>Stone Objects</th>
<th>Shell Objects</th>
<th>Seals</th>
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<tr>
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</table>

Figure 5.72: Shell pendant from Tomb A Hili north (photo J. Benton).

Figure 5.73: Shell ring from Tomb A Hili north (photo J. Benton).
reported from coastal sites (Al Sufouh, Ajman, Tell Abraq, Shimal and Umm an-Nar Island), examples of shell rings and pendants from Tomb A Hili Nth were seen in the Al Ain museum and are present at Tawi Silaim (Figure 5.73). These items are most commonly made from mother-of-pearl or derived from large gastropods.

Six seals have been recovered from four published UAN tomb contexts, four being stamp seals and two cylinder seals. Another cylinder and stamp seal were recovered from Tomb B Hili Nth, which have not been published only observed in the Al Ain museum (Figure 5.74).

The single cylinder seal from Al Sufouh was carved in dark grey stone comparable in texture to the soft-stone used in the manufacture of série récente vessels (Figure 4.197). The scene, described in Chapter 4, illustrates two figures, connected by a wavy line (hand-foot?), next to a stylized tree and has no close parallels. The square stamp seal from Room 1, Building VII at Ra’s al-Jinz (Cleuziou et al. 1994: 456, Fig. 3.1) shows two crudely carved figures with their arms and feet in positions not unlike the left figure of the Al Sufouh seal. Also present on the left side of the Ra’s al-Jinz seal is a stylised tree with five paired branches, this time, however, angling downward. Also of interest is the pair of figures accompanied by two oryx decorating the ring wall of Tomb A in Hili Garden (Potts 1990b: Pl.IVa). Further parallels cited in Chapter 4 lead to the conclusion that this seal is likely to be local in origin.

The example from Tomb B at Hili north (Figure 5.74 left - Al Ain Museum), exhibits two oryx in a style that also appears to be local in origin. The third, found in Tomb B at Ajman, is described as steatite and has no preserved decoration apart from a series of dots and deeply incised grooves which appear to be the remnants of at least two superimposed scenes (Al-Tikriti 1989: 94-95). Several cylinder seals of later date have been found in the region, two from second millennium levels at Tell Abraq, one of
which is Middle Elamite (Potts 1990a: 91-92; 122-123), and two, of Iron Age date, from Rafaq (unpublished, on display in the Ras al-Khaimah Nat. Museum).

Stamp seals were found at Tell Abraq, Ajman, Hili tomb N and Tomb Hili north. The Tell Abraq example is made of ivory and is a Persian Gulf seal showing two oryx feeding from a stylised tree. The Ajman seal bears an incised checked pattern while one of the Hili N seals was made of chalcedony and engraved with a horned quadruped. This latter seal was found strung on a necklace and is said to be of similar shape to a seal recovered from R’as al-Jinz 2 and comparable to a second seal from the same site in terms of quadruped decoration (Méry et al. 2001: 168). The second seal from Hili N is square with incised decoration in the form of four petals (?) with a dot in the centre of each and one in the centre of the design. There are no close parallels to this design and the only cited belong to later periods (Méry & Al-Tikriti 2000: 213). On one of the vertical sides was an oblique line intersected by three short lines, which has been interpreted as a sign of some type, which unfortunately has no parallels. The final stamp seal from Tomb B Hili north showing a pair of human feet (Figure 5.74) provides a striking parallel with the relief carving on the ashlар block from tomb Unar2 at Shimal and provides an avenue of possible connection.

Of the remaining classes of miscellaneous objects, ivory and ostrich egg shell have been recovered only from the tomb at Tell Abraq, while amulets came only from Al Sufouh and Tomb B at Hili North, Figure 5.75). Four amulets were recovered from Al Sufouh (Chapter 4, Figure 4.198), three made of lapis lazuli, all frog representations and one fly representation in a dark soft-stone. Perforation through the frog amulets is horizontal and lateral through the head of the animal. Both the style and material of the frog amulets point to Mesopotamia, where similar amulets have been found at many sites. As presented in Chapter 4, frog pendants first appear in Mesopotamia during the Jamdat Nasr period and continue to occur into the middle of the second millennium BC. (Limper 1988: 32). Many parallels can be found in Mesopotamia, but no parallels within the Oman Peninsula.

The stylised fly amulet resembles similar examples found in Mesopotamia throughout the third millennium BC., from Jamdat Nasr through Middle Assyrian times (Limper 1988: 33-34), although it is a little more stylised than most. A similar amulet of greenish
A reconstruction of third millennium burial practices

stone was recovered from Tomb B at Hili North and more closely resembles the typical fly amulet form (Limper 1988: 33, Abb. 28) than does the Al Sufouh example.

Ostrich egg shell was recovered from only the tomb at Tell Abraq and over 70 pieces were recorded (of varying sizes). Some fragments were also recovered from outside Tomb As 15 at Asimah, but the late finds in the vicinity make the dating of this material to the UAN period uncertain. A brief note is made concerning the recovery of ostrich egg shell from Tomb A Hili north within the Asimah volume, although this is not presented in the publications directly regarding this tomb (Vogt 1994: 48). Ostrich egg shell items are discussed in greater detail in the following chapter.

Ivory was also found only at Tell Abraq, in the form of combs and hairpins (Figure 5.76). Although the ivory itself has been assessed as from Indian elephants, the incised, floral decoration several combs is indicative of Bactrian origin from northern Afghanistan / southern Uzbekistan.

Figure 5.76: Dot-in-circle motif ivory combs from the Tell Abraq tomb (photo D.T. Potts).

(Figure 5.77; Potts 2000: 100). The decoration, comprised of dotted circles and long-stemmed tulips is known only from this region. The find location of several combs, adhering to the back of crania, or recovered in close proximity to skulls, confirms their function as hair ornaments. One was also found in conjunction with a hair pin.

Figure 5.77: Incised tulip decoration on an ivory comb from the Tell Abraq tomb (photo D.T. Potts).
Review of the results of Multivariate Analyses (MVA) on the UAN dataset

As with the Hafit data analyses, there are circumstances that create ‘noise’ in the statistical results, namely that tomb contexts are used over long periods of time, contain multiple, mixed interments and are found in very different landscape units. The inclusion of beads in some of the analyses appeared to skew results as well, an issue again to do with data quality being better from sites than from others. The discussion in Appendix 1 outlines these constraints in greater detail.

Keeping these limitations in mind, we look at a summary of the results of the MVA presented in Appendix 1, concentrating primarily on the more comprehensive results of the dual cluster analyses. This analysis identified three major groups, one of which was comprised of 3 subgroups (Appendix 1: Figure 14).

Chronological interpretations

Although seeking chronological sequencing within the entire corpus of UAN tombs is a difficult task not hitherto attempted, the results of the dual cluster analysis were interpreted through this aspect of variance. Firstly, an intuitive relative chronology was established (Appendix 1: Figure 15) as a control against which the multivariate results could be compared. Overlaying this chart with the groupings that resulted from the dual clustering analyses revealed an interesting result (Appendix 1: Figure 16).

The tomb from Tell Abraq, as expected, stands alone at the terminal end of the UAN period. The majority of tombs from UAN Island and coastal locations fell into group 3 while some of the inland tombs associated together in group 2, and in sub group 3b. One primary differentiating factor between groups 3a and c as contrasted against 3b seems to be the presence or absence of série récente soft-stone vessels. It is interesting that this variation is evident at the sub-group level, not the major group level, indicating that although this is a significant variable it is only one of several that may be interpreted as providing chronological distinction.

This overlay, which shows group 3a and c to be early while groups 3b and 2 are later indicates that at least part of the variation between tombs picked up by the MVA may be chronological in origin.
Regional interpretations

To check whether the results of the dual cluster analysis also incorporated variation between tombs as a result of their geographical location, a chart was devised (Appendix 1: Figure 17) which simply places tombs along a continuum originating on the west coast and terminating in the south-eastern highlands at Maysar. Overlaying the colour-coded dual cluster groups, there once again seems to be broad consensus between the MVA groups and geographic location. Certain anomalies such as the Maysar tomb grouping with those from the west coast can be explained by the fact that this is likely to be an early tomb context, deduced from its lack of soft-stone vessels, which is particularly relevant considering its proximity to soft-stone sources.

Ritual and practice of the Umm an-Nar period - Summary

The following reconstruction is based on the majority of the evidence from representative types of UAN tombs. The variant practices that resulted for example in the evidence from Alignment A at Asimah, will be considered in the following chapter which will review variants to the established burial programme.

Only limited evidence from Umm an-Nar period graves can be directly interpreted as resulting from ritual activity. In attempting to reconstruct an Umm an-Nar 'funeral', only a few factors can be sure:

- In preparation for the disposal of the dead, tombs were constructed, using locally available rock, in a relatively uniform style, across a broad geographical area. In some tombs, the stones were worked to form ashlars that connected into an external ring wall, while in others the stones were either natural or roughly hewn. The tombs were always circular and varied only in size and number of chambers. They are distinctly different from those of the preceding and succeeding periods. There are a small group of subterranean tombs or pits, always associated with the circular tombs, which also date to the UAN period. These may be associated with more tombs than previously thought, as often excavation surrounding the circular tombs has been inadequate.

- There is a high degree of workmanship in UAN tombs that would have required combined resources and communal input from the societies that were to use them. This is a step well beyond the organisation that would have been required for the construction of the previous era's Hafit tombs. It must be noted here, however, that this comment relates specifically to organisation within a community (i.e.
specialisation and co-ordination) and not to energy expenditure per se. It is no doubt the case that Hafit period tombs were often large and demanding in terms of stone resources and construction time. Further, they seemed destined for fewer interments, hence increasing the energy expenditure requirements per interment. This issue will be discussed further in the ensuing chapters.

- Entrances into these tombs were small and orientation appears varied with no regional patterns emerging. Not even within individual sites are the entrances fixed in terms of orientation as they were in the Hafit period.

- At some locations (e.g. Hili, Umm an-Nar Island) there are a number of tombs, while at others (e.g. Tell Abraq, Ajman, Al Sufouh), there are only single tombs, albeit sometimes with associated subsidiary tombs. Sites / areas with several tombs may be interpreted as having tombs built in succession over time or they may have been active concurrently. If the latter, then what division of the community determined tomb use? In the previous period there is considerable evidence for family units to be linked to tomb use, however, in the UAN period, the greater numbers of individuals interred in the tombs and the sites that appear to have only one major tomb, indicates that family relationship may not have been the sole factor determining tomb choice. Umm an-Nar Island, occupied early in the UAN sequence shows some evidence from skeletal remains for family based units to be buried in specific tombs. Other tombs such as at Tell Abraq which contained over 300 individuals were obviously not constructed as burial places for individual family groups.

- In terms of interments, tombs of the UAN period exhibit the following features:
  1. The presence of individuals of both sexes and all ages in the tombs;
  2. Numbers of interments in each tomb do not appear restricted other than by space. Up to 300-400 interments may be found within an individual tomb.
  3. It seems that no great amount of time elapsed between death and burial. In the few undisturbed areas of the excavated tombs skeletal articulation appears to be the norm. This is more difficult to determine with certainty than in the Hafit period as tomb re-use disturbs previous interments.

- There is no obvious post-mortem treatment of the corpse (cremation, smoking, embalming, etc.) prior to initial interment.
• Individuals were taken to the place of burial. It is not possible to say whether they were wrapped in shrouds or simply dressed in garments that were worn in life. The likelihood that they were dressed in some fashion is high considering finds such as the remnants of textiles, hair adornments and jewellery.

• Considering the often small entrances and chambers of most tombs it is likely that any ceremony and/or ritual activity was held either outside the structure or at some other location (settlement?). Some evidence of a partial stone platform and low wall immediately outside the entry at a couple of locations may be interpretable as structural remains for ceremonial and/or functional activities to do with the burial process, although there is no direct evidence for this.

• Bodies were placed in the tomb with associated grave goods. It does not seem to have mattered if earlier burials were disturbed during this process, although it does seem that objects were placed in some (meaningful?) relationship to the deceased at the time of burial.

• Tomb entrances were often blocked. This seems to have been done even when the tomb was to be re-used for the burial of the next appropriate individual. The circumstances behind the decision to close a tomb for good remain unclear, especially when considering the ossuary style association of subterranean tombs at several locations. If tombs were cleaned out and the remains placed in nearby holding places, this allows for the constant re-use of the original circular structure.

• Evidence for the use of cremation appears increasingly widespread, and may have had a ritual function (within the circular tombs) for cleansing or fumigation and a practical outcome when used in conjunction with the clearing out of tombs.

• There is no direct evidence for the possible ritual use of objects found within the tombs, although this does not discount the possibility. There are, however, no objects whose function seems to be overwhelmingly associated with ritual.

In summary, direct evidence for ritual activity surrounding the burial of the dead in the Umm an-Nar period is limited. The evidence described here does, however, indicate that rules of some origin (tradition, beliefs) did govern mortuary behaviour, hence the similarity in burial style across a broad physical area. The divergence in burial practice from the previous period is not as extreme as from pre-Hafit to Hafit, but is nonetheless distinct. The burial programme has moved from family interments in single chambered tombs to interments in the 100's in significantly larger, well constructed mortuary...
monuments. The accompanying use of potential ossuaries and the reappearance of cremation within the burial programme are also noteworthy.

These changes in the mortuary behaviour indicate potential change to subsistence, demography and hence social organisation and possibly belief systems. Such issues, briefly alluded to throughout the summaries for both the Hafit and Umm an-Nar periods, will be dealt with in greater detail in Chapters 6 and 7.

Figure 5.78: The Jabal al-Emaleh plain. The tombs excavated for this thesis are situated at the foot of the Jabal (photo J. Benton).
Chapter 6

Discussion of third millennium burial practices

The view from within

The reconstructions of burial practice presented in the previous chapter offer many avenues for interpretation, on both micro and macro levels. On the micro level, discussion of the presence of various elements of material culture in tombs and changes to this assemblage through time provides a window into other processes at work in third millennium Oman. For example, a review of the introduction of soft-stone série récente vessels in tombs of the late 3M, leads to discussion ranging from their potential ritual function to international relations, viz a vi their distribution. The same can be said for the interpretation of other classes of material culture. The first section of this chapter will be dedicated to a review of the various classes of material culture found in tombs of the third millennium BC and their potential for useful interpretation.

This naturally leads into the broader view, overall interpretation of changes to aspects of the burial programme across the Oman peninsula e (i.e. tomb type, location, interment method, ritual etc.), which can be seen to reflect the generally more invisible aspects of third millennium society in terms of social organisation and religious / eschatological beliefs. The second component of this chapter will review these broader aspects of funerary behaviour again in the hope of detecting information relating to aspects of third millennium society difficult to access though other aspects of the archaeological record. Interpretations elucidated in this and the preceding section are based on the reconstructions of the burial programme presented in the previous chapter, and will not reiterate this evidence, but will simply build on it. Interpretations that are the focus of this chapter are those that are generated internally through examining the reconstruction of practices as presented in Chapter 5. The use of cross-cultural archaeological case-studies as analogies through which to view the Oman peninsula material together with use of pertinent theoretical approaches will be reserved for the following chapter.

Elements of material culture

The objects chosen for placement with the dead may be telling of many aspects of ancient culture. Objects may have been those used in everyday life, or may have been created specifically for the grave. They may include items that were owned by the
deceased or that someway related to their life, such as the 'toolkit' of the interred person, or they may be gifts for the dead from those mourning them. If gifts, the objects may have been chosen to reflect the deceased individual's character, their status/rank in life or they may represent objects considered necessary as burial accompaniments due to broader societal/eschatological beliefs. In all cases, however, the goods found in the grave, along with all other aspects of the burial programme, are imbued with meaning and are considered likely to reflect aspects of the overall society that governed the lives of those interred.

Elucidating patterns concerning what goods were present in third millennium BC tombs in the Oman peninsula was the focus of the previous chapter. Interpretation of these patterns through analysis of the individual classes of material culture will be central to this component of the current chapter. Understanding changes in patterns either through time or across space may provide insight into the more archaeologically invisible aspects of ancient life in third millennium BC Oman peninsula.

Ceramics

The placement of ceramic vessels in graves may be interpreted in many ways. Most commonly ceramics have been interpreted as containers for food or drink for the deceased to use in the afterlife (Parker-Pearson 2001: 10). Although this may at times have been the case, there may often be deeper symbolic meanings attached to such offerings reflecting the broader community's attitudes, values and beliefs. Such vessels may have contained food offerings for the dead, or may have simply symbolised food or sustenance. They may have been used by the mourners for undertaking rituals or for ritual feasts at the time of burial. In some societies, pots are used as containers for the soul or are broken over the interred to ensure the dead remain in the grave (Parker-Pearson 2001: 10). A review of the types and frequencies of vessels found in tombs spanning the third millennium BC may provide insight as to their role in the overall funerary programme and hence something about the nature of the society to which they belonged.

The following section examines the broad ceramic categories relating to the entire third millennium and documents their presence/absence in tombs versus settlement contexts, and if imports, the contextual use of the vessels in their homeland. This and any other pertinent evidence will be reviewed culminating in a summary of potential interpretations of the ceramic corpus in third millennium tombs of the Oman peninsula.
Discussion: Third millennium BC burial practices

Hafit period

As previously discussed, ceramics were not a local feature of the material record prior to the middle of the third millennium BC. Nonetheless, over 40 ceramic vessels were recovered from almost half of the excavated Hafit period tombs analysed for this study. All were either imported Jamdat Nasr vessels, or potential local imitations. Analyses discussed in the preceding chapter indicate that more of these vessels than originally estimated are likely to have been imported (Figure 6.1; Méry and Schneider 1996: 81-83; Méry 2000 169-189). Morphological analyses of the Hafit corpus further indicates that these vessels potentially span a considerable period (Potts 1990a: 75-76) extending well into the 3rd millennium BC. This provides a possible temporal span for the graves from c. 3000 – 2600/2500 BC (to ED I-II).

The lack of excavated sites dating to this era makes assessment of the presence of ceramics in graves more challenging to interpret. Hili 8 Phase 1 ceramic evidence indicates the presence of relatively few vessels, of which at least half were thought to be imported from Mesopotamia (Cleuziou & Méry 2001: 282). These were not, however, of the same Jamdat Nasr type as those recovered from the graves. Thus the evidence indicates that Jamdat Nasr vessels from Hafit period graves were overwhelmingly a feature specific to the burial programme.

In their homeland, Jamdat Nasr vessels of the type known from Hafit period tombs have been recovered from both tomb contexts and settlement sites (Wilson 1986). Consequently these vessels can not be regarded as created specifically for the grave, but
are appropriate for funerary purposes within their homeland. This contrasts to their apparent use in the Oman peninsula, which appears to be specifically funerary in nature.

Having established that the primarily imported Jamdat Nasr vessels were not specifically made for the grave, are found in both settlement and funerary contexts in Mesopotamia but only in funerary contexts in the Oman peninsula, the question must then be asked why they are used differently in these two places. Initial interpretations suggested that the link between the grave form (which is also new) and the ceramics was strong enough to propose the burials to be those of traders/prospectors from Mesopotamia who had traveled into the interior of the Oman peninsula in search of raw materials, particularly copper (Frifelt 1971: 380, 1980:278; During-Caspers 1971: 42-43). More recently these hypotheses have been discounted, with most scholars now believing the tombs to be “an indigenous burial form created by the local inhabitants but containing imported Mesopotamian vessels of Jamdat Nasr type” (Potts 1997b: 70). Accepting this premise, the question concerning the rationale behind the inclusion of this particular type of vessel in the Hafit graves remains unanswered. Further, the appearance of both elements at the same time is still likely to be more than coincidental, and the fact that these vessels came to the Oman peninsula through the coeval nascent trade network with Mesopotamia (through Dilmun?) is almost indisputable.

Potential explanations for the presence of Jamdat Nasr vessels in Hafit graves will first be examined through considering the question of whether they were buried specifically with an individual at the time of interment, or placed in graves as a communal offering (Méry 1997: 171). The latter hypothesis was developed to explain why only one or two vessels were placed in each tomb, and was based on a general comment made by Frifelt (1980: 276) that vessels were found close to the tomb wall often on either side of the entrance. Qualifying this hypothesis is intuitive assessment of how the burial form (multiple, successive) and potential disturbance / robbing will influence the appearance of the archaeological record and secondly, archaeological evidence from Jabal al-Emaleh that appears to contradict this statement. Firstly, multiple, successive burial requires re-entry into tombs that have already been used. Bones and associated objects are moved out of the way – most likely towards the sides – to make way for the new burial. This may create a notion that vessels were placed near walls. It is also possible that looting may result in a similar movement of unwanted objects to the periphery. Secondly, a small area of potentially intact Hafit funerary deposit from Tomb I at Jabal
al-Emaleh\textsuperscript{58} shows a vessel in direct association with the skull of an interred individual (Benton and Potts 1994: 64). In the same tomb, a second vessel was found close to two skulls, somewhat distant from the entrance, although disturbance in the area inhibits their definitive association. Although this constitutes fairly scant evidence, it is suggestive of an alternative explanation which sees the inclusion of ceramic vessels in graves as offerings for individuals rather than as communal grave contributions.

The choice of placing a ceramic vessel with the newly dead may be associated with the gender, status or livelihood of the deceased or with the broader societal structure as it influences burial (social, religious etc.). This generates the following possible scenarios:

- Individuals involved in trade came to own such vessels and had them buried with them as part of their ‘toolkit’, identifying themselves in death by items associated with their livelihood. If this were the case, then we may expect that other buried individuals may have items through which we can identify their trade or livelihood;

- Due to the rarity and novelty of such vessels, they may have held value either in real terms or as curiosities. Consequently they may have been buried with an individual who had come to possess them either due to their wealth and status within the community or due to the fact that they had come across it as a curiosity and held onto it. The latter appears less plausible due to the widespread nature of the practice, in which 31 of the excavated 67 graves contained Hafit vessels. Considering the former, the value of these vessels may have related to a substance they originally contained when imported, and it is possible that the vessel represented the value of this substance even when empty. In this case the vessels may have been tangible indicators of status. Further it cannot be discounted that gender or age may have played a role, and it is of note that the only direct association between vessel and interment proved to be that of an adult, sex undetermined;

- Another possibility is that the vessels were not buried in the graves for their own sake, but for the substance contained within them. This may be a substance that was imported from Mesopotamia within the vessels, although it seems unlikely or may be another substance that was placed in the vessel for the purpose of burial. In this light it is interesting to refer to a Jamdat Nasr vessel recovered

\textsuperscript{58} Assessed as intact due to the articulation of skeletal remains close to the find spot of the vessel.
from a tomb in Uruk, which contained the distal end of a sheep’s tibia. This is interpreted as being a gift of meat – although whether a food offering for the dead or the gods of the underworld is unknown (Potts 1997a: 223-224).

Assessment of these scenarios with the limited data available is problematic. For the moment they will be left as thought-provokers, before data from other classes of material culture from Hafit tombs (to be discussed later in this chapter) can be added. The addition of other contextual information may enable a stronger argument to dismiss or favour some of the above postulations.

Umm an-Nar period

Moving into the Umm an-Nar period, some fairly serious changes to the presence of ceramics in tombs can be noted. Around 1,450 complete or semi-complete vessels have been published from excavated tombs and individual tombs may contain hundreds of vessels (Figure 6.2; Tomb A Hili North - 624; Hili Garden – 224; Tell Abraq-74 etc – Table 5.13), many of which were too badly broken to be included in counts. This may be seen as a gradual change, with the earliest Umm an-Nar period tombs containing fewer vessels, and with quantities increasing throughout the third millennium. Although there is no direct correlation between interment and vessel numbers, there tends to be a concomitant increase in the number of interments in tombs with higher vessel numbers. An attempt to correlate vessel numbers with interments determined that in the Hafit period there was considerably less than one vessel per body, while in the UAN period, there may be up to two vessels per body59 (Méry 1997: 171). This was interpreted as implying the evolution of the ceramic vessel from being a collective funerary object, to an individual one (Méry 1997: 171). The evidence, as discussed below, does not definitively support this theory and the primary reason determined here for

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59 This was correlated for Tomb A Hili north.
the increasing presence of vessels in graves is their increasing overall availability. Also relevant to this line of argument is that although Tomb A Hili north, upon which the above postulations was based, provided a corpus of over 600 ceramic vessels, enabling there to have been at least one if not more per body, this is not the case in all UAN period tombs. Certainly at Tell Abraq, more than 300 individuals were interred and there is a minimum of 74 ceramic vessels. Although the counts do not include sherds, there are insufficient to bring the vessel count even close to 300. Both UAN period tombs at Shimal have similar interment to ceramic ratios, while the Umm an-Nar island tombs have ratios that may see at least one individual per pot. Overall, the ceramic evidence available indicates no specific pattern relating interment number with vessel quantity.

The somewhat sudden availability of ceramics for use in tombs of the UAN era is another aspect that requires brief attention. Tombs of the early UAN period on Umm an-Nar Island show evidence of Mesopotamian imports primarily of the red-brown collared jar category also found at ‘Amlah. These were chemically assessed and proven to be imports. Vessels of this type although with lugs were also recovered from settlement contexts at Hili (Méry 2000: Fig. 105). Other vessels appearing in tombs from Hili and Umm an-Nar Island, amongst other locations, are the sandy red and black on red wares that are the hallmark signatures of the Umm an-Nar period, as well as the typical black on grey and grey incised wares imported from Southeast Iran. A recent review of UAN period ceramics in the Oman peninsula through assessment of recently published material from the Jiroft Plain in Iran, has provided a new interpretation of the Omani corpus within its broader chronological context to date. Potts (2005) suggests that there is now a body of evidence substantial enough to support the notion that the local ceramic industry was launched by an actual influx of Iranian potters. The evidence cited in support of this theory will not be repeated here, but comprises the most plausible interpretation available to date to explain the appearance of such a well-developed ceramic industry in the middle of the third millennium BC. Acceptance of this theory provides a rationale for the relatively sudden appearance of well-made ceramics in quantities such that they became commonplace in both settlement and tomb contexts.

This abrupt appearance of ceramics in all aspects of UAN life, but particularly in the grave, is one aspect of divergence from the preceding Hafit times. From the perspective of availability, this divergence is seen as less of a change to burial practice or programme, and more about what is available in daily life to be included in the grave. In the Hafit period the only available ceramics were Mesopotamian in origin. Once ceramics became more readily accessible, by way of both locally produced or imported varieties, all were seen as appropriate for inclusion with the dead. Consequently, the
massive change in the quantity of ceramics as present in tombs of the Hafit period as against those of UAN times belies no change in overall practice and hence belief / social structure.

Because there is now a much broader collection of ceramic forms and fabrics than in the Hafit period there is need to review firstly whether the varied ceramic categories are represented differently in the various grave contexts and secondly how this representation relates to their occurrence within settlements. In relation to the latter issue, it is relevant that although there is much more settlement evidence relating to the UAN period than the preceding Hafit era, there is nonetheless still a relative scarcity of well excavated and published sites, and much will be based on the sites of Hili 8, Tell Abraq, Umm an-Nar Island, Ra’s al Jinz and to a lesser extent Bat.

Chapter 5 explored in detail the various categories of ceramics present in published UAN period tombs and their frequencies. The results of these tabulations are presented in Tables 5.13 – 5.15. The following pages explore again these categories of ceramics, in order of frequency, so as to have better grounding from which to interpret their role in the burial programme.

**Domestic ceramics**

On pure percentages, domestic vessel forms very slightly outweigh the black on red vessels (39.5% vs. 39%) in UAN period tombs. It is, however, definitely noteworthy that if one tomb context, Tomb A Hili North, is removed from the analysis, black on red vessels easily become the dominant form at 52.5% vs. 18%.

As the name implies, vessels of this category are to be found primarily in settlement contexts, are locally produced and are used for a wide variety purposes. Their presence in tombs is variable and as noted above, although Tomb A Hili north contains c. 70% domestic wares, most UAN period tombs contain between 4 and 30% of this category. In this regard Tomb A Hili north is somewhat anomalous.

Various jar forms are the most prevalent of the domestic shapes, together accounting for 77% of the corpus. Cup forms follow with bowls and miniature vessels accounting for 6 and 4% respectively. The abundance of jar forms and concomitant lack of bowls (so prevalent in settlement contexts) is considered interpretable in terms of choice - either due to their use in burial ritual or in their appropriateness as a funerary offering.
Black on red funerary ceramics

This category predominates in the majority of UAN period tomb assemblages and appears to be locally produced (Méry 1997: 177). The dominance of this ware in funerary assemblages versus its limited presence on settlement sites\(^6\) has instigated discussion on whether it was a ware created specifically for the grave or whether it was an 'elite' ware reserved for individuals of high status (Potts 1997b: 65). If it is true that this fabric was specifically made for use within the burial programme, in whatever role, one would not expect to find it in other contexts. On the reverse, if it is an elite ware reserved for the use of a high status group, one may indeed expect to find it in either funerary or settlement contexts. In terms of settlement contexts, however, it is anticipated that it would not be recovered everywhere, but in limited (domestic?) contexts. A permutation of the notion of an elite ware may be that it is not necessarily reserved for a specific high status group, but rather for special occasions – general ceremonial, festival or burial ritual/grave offering – open to the broad community, but possibly more of it owned by those that were wealthier or of higher status. These possible interpretations of how the black on red ceramic corpus fits into the broader cultural milieu of the UAN period will be discussed further after the following review of the remaining ceramic classes, which will feed into this discussion.

Of the black on red funerary corpus, jars are again the most predominant form, comprising c. 90%. Most are of a globular shape followed by those canister–like in appearance. Miniature jars were recovered in lower frequencies, but were present in most contexts, while others such as pear shaped or squat jars or bottles were found in limited contexts.

Imported grey wares

Painted black on grey, plain grey and incised grey wares are a fairly major ceramic component of UAN tombs, and like the black on red category, are rarely found in settlement contexts on the Oman peninsula\(^6\). That the majority of these vessels were imported from southeastern Iran, rather than locally produced is now widely accepted. In their homeland, few sites have been well excavated and published, hence a

\(^6\) Only a small number of sherds of this type have been recovered from the settlement of Hili 8 (Potts 1990a: 104), however they are more frequent at Tell Abraq (Potts 1993: 189). Some has also been recovered from the Umm an-Nar island settlement from initial occupation throughout the sequence (Frifelt 1995: 168-169).

\(^6\) A couple of sherds (Black on grey or Incised grey) are reported from Umm an-Nar Island and from Hili 8 (Frifelt 1995: 169).
determination of the variable presence of these vessels in tombs versus settlement contexts is challenging. Bampur provides the most reliable excavated site containing black on grey ceramics and here they are indeed found in settlement contexts (de Cardi 1970, Potts 2003a). Other settlement contexts include Shahr-i Sokhta and Tepe Yahya (Wright 1989: 146). They are also found in the recently published looted Jiroft plain cemetery (Majidzadeh 2003; Potts 2005) and in graves from Shahdad (Hakemi 1972), as well as at Shahi Tump and Khurab (Wright 1989: 146) indicating their use also in graves of the third millennium. While interesting, Stein’s observation (1931: 93) that the great numbers of grey ware vessels found closely packed in graves at Shahi Tump were of a fabric too thin and brittle to have been of use in everyday life is difficult to accept, especially as these wares are represented on settlement sites. The abundance of grey ware ceramics in burials led some to believe that these vessels may have had a specialised ritual function (Piperno and Tosi 1975 as referenced in Wright 1989: 146). Nonetheless, Wright concludes from her review of context, that although the black on grey vessels from southeast Iran are recovered in quantity from funerary contexts, they appear to have been used for other purposes as well.

Once again jars are the most common form of the black on grey corpus in Oman peninsula funerary contexts (Figure 6.3). This may indeed provide a point of variation from burial contexts in SE Iran, where vessels of every shape are represented in funerary assemblages. It is plausible that the black on grey jars were imported into the Oman peninsula for their contents and hence functioned somewhat like the Hafit vessels may have, as residues of trade rather than imported for their own sake. The incised grey vessels and some open bowl forms are, however, harder to interpret in this context. The incised grey vessels tend to be of a truncated beaker form not well suited to the transport of substances. The same goes for bowls and cups. If this is so and they are not the residue of trade then how did they end up in graves of the Oman peninsula? Were they imported for their own sake as luxury goods, indicating a trade in ceramics as a product or were they brought in along with the Iranian potters/immigrants that may have migrated at this time?
Suspension vessels

Suspension vessels are locally made in both the sandy domestic fabric and the fine black on red funerary ware (Méry 1997) and have been recovered from both tombs and settlements across the Oman peninsula.

Other imported vessels

Of the four primary import categories other than grey wares, Harappan imports are dominant, followed by those from Mesopotamia, Dilmun and then Iran (Fars province – Kaftari). Imports are not found in all UAN period graves, but are recovered from enough contexts to indicate that they, like the grey Iranian wares, are suitable as grave offerings and were used when available. As the import categories appear to wax and wane through time the following assessment of the role of these categories in UAN period graves will be treated chronologically rather than according to volumes recovered, firstly looking to the ED II/III ceramics from Mesopotamia

Mesopotamian imports primarily consist of red-brown collared jars and have been recovered from nine tombs contexts, the majority of which date early in UAN tomb sequence (Umm an-Nar island tombs, Jabal Buheis). Similar red-brown collared jars have been recorded at Abu Salabikh, where they were recovered from grave contexts, in which one saw the vessel drawn up to the mouth of the deceased (Frifelt 1991: 96). An unusual shape was recovered from Tomb A Hili north, being a globular round-based bottle. Parallels have been drawn between this vessel and those retrieved from Tello and Ur between ED II and ED III (Méry 1997: 187-188).

In terms of the black painted bottles, these have been positively identified by petrographic analyses as Harappan in origin and in the Oman peninsula context, these vessels are not found in settlement contexts. In their homeland, however, these vessels are used both in tombs and on settlement sites. The Harappan fabrics usually associated with settlements of the Oman peninsula are the black-slipped jars which have been interpreted as being transportation vessels for provisions (Méry 1997: 187).

Ceramics imported from Dilmun are limited in distribution occurring in only three tomb contexts. Sherds are, however, also present in settlement contexts of the northern emirates (Tell Abraq, Shimal, Kalba and Wadi Munay’i) some of which have been analysed confirming their Dilmunite origin (Méry et al. 1998). Of the shapes recovered from the Tell Abraq tomb, only one has close parallels elsewhere, while others are of distinctive forms. This is thought to be related to chronological variation rather than
funerary practice. Kaftari wares, possibly originating in Fars province, Iran, were only recovered from two contexts, both assessed as being late in the UAN sequence.

Summary

In synthesising the information presented above, it can be seen that UAN period tombs contain large ceramic corpuses that include a wide variety of types. While domestic pottery, as found on settlement sites, is present, the collection is generally dominated by ceramics that may be labeled as “luxury” goods – i.e. not found on settlements in any great quantity. This luxury group includes the locally produced black on red as well as imported pottery. This situation provides evidence that can be used to generate a number of interpretations.

The first point is to assess the purpose for which the ceramics were produced (regarding local wares) or how they came to be in their final resting place (for imported ceramics). Looking first to the black on red ‘funerary’ ware, discussion above alluded to the potential for this fabric to be the preserve of a social élite or a more general ‘fine’ ware reserved for special occasions of which funerary ritual was one. The finer nature of this fabric and the more complicated, well-executed painted decoration all indicate that it took more time to produce and may have been poorly suited to everyday activities due to being less durable. It is also noteworthy that that the production of these ceramics may have been via migrant Iranian potters or their local apprentices (Potts 2005). The presence of great quantities of vessels in tombs definitively indicates their suitability as grave offerings, but were they only buried with individuals of high status, or did a wide cross-section of the community have access to these vessels for use in the grave? Unfortunately there is a lack of associative context between the inhumed individuals, the vessels and other grave offerings resulting in our inability to reconstruct the initial interment in its material component parts. Without such contextual data this question will endure, forcing us to look at the evidence in other ways in an attempt to extract meaning. The resultant interpretations will, however, always be weaker due to lack of association but should nonetheless enable the generation of speculative hypotheses based on what data is available.

The same lack of associative context impairs analysis of all other ceramic groups from funerary contexts as well. For example, the imported vessels - first from SE Iran - of which there is a wide range of wares and shapes. Some (the predominant jar forms) are likely to be trade residues, whereas others - shapes unsuitable for the import of substances - appear to have been brought in along with the movement of people. It is
thought unlikely that there would be an actual trade in ceramic vessels for their own sake, especially due to the now flourishing UAN ceramic centres of the Oman peninsula. Given that the potential exists for a component of the population in the major UAN towns to be migrants or descended from migrants, is it possible that the imported grey wares were part of their funerary offerings? There is certainly no direct evidence of a different type of burial rite that may have been for foreigners, and even the subterranean graves of the UAN period have similar assemblages to the traditional circular structures. So if there were any variation in burial accorded the foreign population component, it can only be via either the associated burial ritual or the grave offerings themselves. The other possibility is of course that foreigners were treated no differently in death than the indigenous population, and that access to and use of grey wares for funerary purposes was somewhat ad-hoc due to their fairly wide availability. Again, a lack of contextual data causes these conjectures to remain unsubstantiated.

Other imported wares tend to be generally of shapes that indicate their probable original use as containers for transported substances. For example the black on red bottles of Harappan origin, Mesopotamian jars or Dilmunite vessels. Other occasional or rare vessels, such as the Kaftari vessels, may have been brought in along with travelers or traders passing through the Oman peninsula.

A further issue requiring exploration is the use of ceramic vessels with regard to the burial programme itself. This line of enquiry, introduced earlier, revolves around what function the vessels played and whether there is any evidence that can lend itself to interpretation in this realm. Were the vessels, or some of them, used in any form of ritual associated with the burial? Were they used to contain food or liquids for the dead or were they simply gifts that were traditionally placed with the dead, possibly with vessel quantity or type alluding to age, sex, social status or population affinity? Again, due to the multiple, successive burial form, the evidence remains inconclusive. The only data that may relate to this question is the definitive preponderance of jar forms. From the domestic corpus, 77% of vessels are jars of some form. From the black on red category, jars again heavily predominate, comprising 91.5%. Of the black on grey repertoire, jar forms comprise 60.5%. With relation to domestic wares, there was obviously a wide choice of shapes available, as recorded for settlements across the peninsula. Consequently, the decision to use primarily jars may be interpretable. Furthermore, considering the entire black on red assemblage, it seems that jar forms in

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62 No counts include miniature vessels.
general dominate the manufactured shapes. This limited shape corpus feeds back into the argument that this ware is likely to have been manufactured for an élite group or as a special purpose fabric, where a wide range of shapes may not have been required. There is also potential for this shape preference to relate to this fabric possibly being primarily funerary in nature because if this ware had a multitude of other uses, surely the repertoire of shapes would have been wider. Looking also at the black on grey vessels, these jars may be residual items having contained a traded substance with potential for the other shapes to be entering with the movement of people. Hence there is a wider range of shapes available, as this ware in its homeland is extensive in its variety of form. Again the preponderance of jar forms may be interpretable in terms of the burial programme of the UAN period. Were they somehow used in a ritual process (pouring of liquids? libation?) that was part of funerary ceremony and then placed in the ground afterwards or were they containers of an important substance (potentially a liquid although not necessarily) that was placed with the deceased? The lack of residue analyses undertaken on these vessels means that we have no way of knowing what they may have contained or been used for, but the dominance of the jar shape is nonetheless thought to be of significance. Perhaps residue analyses in the future, specifically targeting the ceramic jars from tomb contexts may illuminate the role of these vessels in the overall burial programme of the third millennium BC.

A slight aside is warranted here with regards to the interpretation of a dominant ceramic form selected as appropriate burial furniture. In the Wadi Suq period that follows the UAN era, the assessed high incidence of cups, beakers and spouted jars that dominate funerary assemblages of the era has led to an interpretation relating to the importance of providing the dead with drinking vessels, which is seen as a ritual requirement (de Cardi 1989: 12). Was the jar form that dominated UAN period assemblages also chosen due to its ability to hold liquids for the dead?

The notion that a correlation exists between interment number and vessel quantity, as introduced above, (Méry 1997: 171) does not appear to be borne out by the evidence. It seems that the lack of available vessels in the Hafit period caused them to be interred only with some individuals, but by the UAN period, pottery was widely available and thus became a traditional / common part of the burial programme. This doesn’t necessarily mean, however, that at least one pot was buried with every individual. Some interments may have had no ceramic accompaniments, while others may have had many. There is again little archaeological information that sheds light on this issue. The only known location where an articulated individual was recovered with a definitively associated vessel was at Tell Abraq, where a small black on red jar was found between
the drawn up arms and the skull of young mature female lying on her side (Figure 6.4; Potts 2000: 92). A second vessel found beneath her is unlikely to have been associated with her interment. Two other articulated individuals recovered at Unar 2 had no grave goods in association (Blau 2001) and nor did the individual from the cist grave outside the tower at Tell Abraq (Blau 2001a: 11). Further, as discussed in the introduction to this section, considering all tombs, there are generally not enough pots per tomb for one to have been interred with every corpse. Indirectly, this leads us to the conclusion that although pots were appropriate for burial, there was no strict overall component of the burial programme that required all dead to be buried with a pot. It then may be inferred that corpses were inhumed with variable quantities of grave goods, potentially implying differential access to resources and the existence of an élite or ruling class with greater access to wealth through material possessions. This speculation will be revisited as we interpret evidence from the other material classes.

In summary, the use of ceramics in the burial programme of the UAN period is undoubtedly meaningful in terms of the society that produced these tombs. A range of potential interpretations concerning various aspects of the ceramic evidence has been explored here, however the unfortunate lack of associate context results in an inability to confirm or dispel many of the theories. The conclusion to this section will delve a little more deeply into the funerary assemblage as a whole in relation to the interments, and in the following chapter some cross-cultural evidence for the use of ceramics in graves will be reviewed which may illuminate further some of these issues.
Chapter 6

Non-ceramic finds

Soft-stone vessels

The following discussion has been divided into two sections, the first pertaining to soft-stone vessels of local Omani manufacture, belonging to the série récente or "Umm an-Nar" tradition, and the second to the more limited category of imported soft-stone / steatite and alabaster vessels. The distinction is made due to the very diverse nature of the shapes in each repertoire and their potentially different role in the burial programme.

Omani soft-stone

No chlorite vessels were recovered from tombs of the Hafit period as such items are unknown from this era. The lack of settlement evidence may be skewing this situation, although it is thought unlikely that such vessels were present on settlement sites and not at all in graves. Despite the overall lack of soft-stone from this period, it is worth noting that soft-stone as a resource for the creation of other objects was known during the fourth millennium, as evidenced by soft-stone earrings recovered from Ra’s al-Hamra and indeed the steatite beads (Santini 1987: 184).

Their local production is not known in the Oman peninsula until later in the third millennium, and the earliest evidence of an imported vessel is a single sherd of a série ancienne vessel from the settlement on Umm an-Nar Island (Frifelt 1995: 198) and the fragments of a vessel from Tomb IX at the same site (al-Tikriti 1981: 139). A second vessel of this type was recovered from Tomb A at Hili North, and sherds of two other vessels are said to have come from Sharm and Kalba (Ziolkowski 2001: 12; David 2002: 181). It is conjectured that like the Jamdat Nasr vessels of the Hafit tombs and the ED pottery from Umm an-Nar island, these rare items are likely to have entered the Oman peninsula through the nascent exchange network and may have become somewhat precious or valuable due to their rarity.

Once the local Omani production of the série récente tradition was under way, soft-stone vessels became a major item used in the burial programme of the UAN era. Several hundred chlorite vessels have been recovered from tombs dating to the Umm an-Nar period. They have also been found in settlement sites of the later third millennium.

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63 It is thought that production of soft-stone vessel production did not begin until around 2300 BC, according to stratigraphic evidence from Ra’s al Jinz (David 1996: 34) and Al Sufouh, and according to the review presented in Chapter 4.
millennium, contradicting a previously held premise that they were primarily made for funerary purposes (Cleuziou and Vogt 1985: 254). Around 80% of the overall soft-stone vessel corpus analysed by David (1996) originated in tombs and the remaining 20% were recovered from settlement sites. This has led David to conclude that "the domestic occurrences (of soft-stone vessels) were not merely casual, and that soft-stone vessels were not exclusively devoted to the dead" (David 1996: 35). With respect to the recovery of série récente vessels from other centres, examples are found relatively far afield but not in great quantities, with only two recovered from the Indus Valley, less than twenty from Iran and around fifteen from Mesopotamia. This led David to the conclusion that the Omani soft-stone vessels were not intended for export, at least no further than Dilmun where around ninety have been found (David 1996: 38). This reduces their potential as containers of a substance that was being exported from the Oman peninsula as suggested by Potts (2000: 53), although does not preclude it.

The variety of shapes in the série récente repertoire is fairly limited to boxes with lids, beakers and bowls, with the latter shape being the most prolific, comprising around 65% of the analysed soft-stone corpus. This may be of interest when related back to the general paucity of bowls in the ceramic assemblages. Either single or double compartment rectangle boxes are the next most frequent soft-stone artefact, while beakers/ cups follow in popularity.

In virtually no excavated tomb contexts can information about the original deposition of chlorite vessels be ascertained, with one important exception. At Jabal Buheis a rectangular box from a funerary context was discovered potentially in situ, where it was found to contain silver and gold earrings (Jasim 2003: 97). As a result of this discovery, Jasim extrapolates that all boxes of this type would have been used for the same purpose. Unfortunately, this find is only referred to in a related publication, and the details of the actual discovery remain unpublished.

Although alluded to only briefly, the potential for the soft-stone boxes with lids to have been containers for items such as jewellery is a very tantalizing notion. Firstly it would explain several aspects of overall depositional features of UAN tombs, including that boxes are rarely found with lids on and that lids are often missing from boxes they must have belonged to or vice versa. This indicates a high degree of looting, and if it was well known that soft-stone boxes were the containers of precious metal items, then they would have been an easy target for robbers. The example of Tomb I at Jabal al-Emaleh (re-used in the UAN period) may be relevant, where looting of the tomb had occurred.
and near the hole the robbers had entered the grave through lay an empty, rectangular, soft-stone box.

The likely use of the soft-stone bowls, is however, harder to interpret. As mentioned above, none have been found in undisturbed contexts and furthermore, no residue analyses have been undertaken to determine what substances may have been placed in them. There has certainly been no reports of obvious visible residues as may be left by resins or unguents, and certainly nothing of the kind of residue recorded on the incense burner recovered at Ra’s al-Jinz 2 (Cleuziou and Tosi 1997: 60). Without any further evidence, understanding the role of the soft-stone bowls in the burial programme remains highly speculative. Interpretations canvassed include that the beehive style série récente beakers may have been used to contain honey, and that soft-tone vessels in general were prized as containers for fatty/oily substances, possibly unguents / aromatics (Potts 2000: 53). The basis for this statement resulted from an examination of the aetiology of the word ‘steatite’ which is derived from the Greek ‘steas/steatos’ meaning fat, and also from a reference in Pliny (Natural History 36.159), where both steatite and alabaster are mentioned as the preferred materials for containing perfumes and unguents (D.T. Potts: Pers. Comm. 28.4.05).

An interesting aspect of the soft-stone vessel corpus at Tomb A Hili north noted by David (2002: 183) is the high frequency of broken rims. She observed that often a sherd appears broken out of the rim on one or both sides of a vessel, be they bowls or boxes. The presence or absence of this feature was then assessed across all UAN period tomb assemblages and found to be so prevalent that she deemed it could not be interpreted as incidental, despite the fact that not all vessels were treated in this manner. Consequently, she concluded, “the systematic breaking of stone vessels may have been part of some special ritual, possibly limited to a particular period, or to a particular category of the population” (David 2002: 183). This provides an interesting interpretation of these vessels, not in the least as it alludes to David’s belief that there was indeed some form of ritual associated with the burial of the dead in UAN society. The same breakage pattern being found on vessels of different shape, and potentially different use (if the above postulation concerning boxes has any validity) is challenging to interpret. If these are indeed deliberate fractures made at the time of burial, then the only possibilities may be:

1. To break the item such that is has no use a second time around, making its value from a tomb looting perspective limited, other than for contents;
2. That the vessels were broken as suggested by David as part of a burial ritual that is unreconstructable today; or

3. That the objects were already broken and thus not as useful in everyday life, but fine for the tomb.

The third option would seem unlikely, as many soft-stone vessels from funerary contexts were not broken, which also makes the first option less sustainable. This leaves the second hypothesis as the most likely based on the limited evidence. Potentially supporting intentional breaking of objects destined for tomb use may also be found in the copper dagger repertoire from Al Sufouh, many of which showed signs of intentional bending/breaking. If the ritual did result in the breakage of some soft-stone items, there is also potential that it was less intentional and more a by-product of ritual use and hence all soft-stone vessels did not suffer the same fate.

In keeping with the theme of soft-stone vessels and their potential role in funerary contexts it is worthwhile noting an observation made by Christian Velde (Pers. Comm. to D.T. Potts) of the soft-stone corpus from the Tell Abraq tomb. A significant proportion (c. 75%) of the vessels or sherds showed signs of either notching in the rim or scoring on the vessel body, with a further proportion having sherds broken out of rims like those from Tomb A Hili north. Velde suspected that this treatment may have had some significant and interpretable meaning to the local people such as an indication that the vessel had moved out of circulation and was destined for tomb interment. This was particularly as similar such marks were not noted on vessels recovered from the settlement at the site.

When considered with reference to David's hypothesis discussed above, this theory poses some new issues. The evidence of the Tell Abraq examples, being deliberate scoring or notching, is unlikely to be the secondary result of undertaking some kind of ritual at the time of burial, unless the ritual involved the deliberate marking of such vessels as they were about to be placed in the tomb. The corpus also shows such markings on vessels that were otherwise entire and thus still useful. As a result, the only hypothesis noted above that is potentially supported by the Tell Abraq evidence is the first, concerning the breaking of vessels destined for the tomb such that they were no longer useful. Although not broken, much of the soft-stone corpus from this site showed deliberate marking which may have indicated that these vessels were grave offerings, thus making them a less appealing target for tomb robbers. Was this process undertaken due to the fact that grave robbing was already a problem in the late third millennium and
attempts were already being made to discourage it? Or were these vessels marked during their useful life to show ownership, indicate their contents or possibly just incidentally as a result of their everyday use?

A final observation of the overall soft-stone corpus is that the vessels are generally small, thus unable to hold significant quantities of anything, and there is scope for the different shaped vessels to have had different functions, as postulated above regarding the rectangular boxes. The presence of circular lids at some sites indicates that some of the beakers may also have been lidded vessels. This category of vessels may indeed have held items of personal adornment, while the bowls contained some kind of unguent or paste. Their potential role in ritual associated with burial has been suggested, but cannot be substantiated.

Imported stone vessels – alabaster and soft-stone

Alabaster vessels are relatively rare in UAN tombs, yet are nonetheless found in contexts that span the era. Bowls forms predominate, although small jars, a spouted lamp and two possible boat shaped vessels have also been recovered. Although alabaster or calcite sources are present in the Oman peninsula the vessel forms are more reminiscent of those recovered in Iran, particularly around Shahr-i Sokhta in Iranian Seistan.

Other imported soft-stone vessels include bell-shaped bowls, undecorated beaker shapes and a couple of other unique forms. These have parallels in Iran and to a lesser extent Mesopotamia and are generally thought to be imports from SE Iran.

Generally imported soft-stone vessels are not found in settlement contexts and their relatively small number and variety indicates once again that they were unlikely to have been the subject of trade themselves, but may have arrived incidentally through the trade network, or along with individuals moving into the region. Contextual data is as limited as for the Omani soft-stone, and although unproven, the use of these relatively rare and potentially valuable vessels in graves may be interpretable in terms of the status / rank of the associated interred individual.

Metals

Accompanying the wide range of copper artefact categories (weapons, tools, items of personal adornment etc.) is a diversity of interpretations as to their function in the burial programme of both the Hafit and Umm an-Nar periods. Accordingly, this section will be
Discussion: Third millennium BC burial practices
divided into general category headings to distinguish their distinctive contexts (when known) and potential role in the grave. Before doing so, however, a few points have relevance to this material class as a whole as recovered from funerary contexts. Discussion in the previous chapter evinced the systematic plundering that tombs of this millennium had undergone. This factor will of course hinder explanations as to the role of these objects in the burial regime because inter-site comparisons within in the one era are less meaningful, as are interpretations of changes through time. The more complete nature of the assemblages from Tell Abraq and Al Sufouh is interesting in this regard, as potentially the comparative frequency of various artefact classes is more likely to be indicative of the role metals may have played in other UAN period tombs, although as Tell Abraq is quite late in the UAN sequence, its applicability to earlier sites is somewhat more limited. At Tell Abraq over 200 copper items were recovered, demonstrating their frequent rate of inclusion. Al Sufouh had only around 35 copper items, but they nonetheless span the artefact categories implying a degree of intactness. Even when tombs have suffered a less significant degree of looting, there is still the ongoing issue of the multiple, successive burial format which removes trace of individual associations. These issues acknowledged we can move on to a review of copper artefacts by category.

Wanting to begin with the most plentiful copper artefact category leads immediately to a dilemma. In the Hafit period the pin / awl category is the most common, while in the UAN era, personal adornment items (predominantly rings) are more numerous. A response to this may be simply to review the categories separately under their own chronological divisions, although this may diminish appreciation of apparent changes.
through time in the choice of burial accompaniments. As a result, the categories will
remain the primary classifiers, based on frequencies in the more prolific UAN era
tombs, while comparisons back to the Hafit period will be made under each heading.
Leading into assessment of the general categories will be a brief survey of the
assemblages as a whole.

Looking broadly at Hafit versus UAN copper assemblages, it is of note that almost half
of all copper objects recovered from tombs in the UAN period belong to category of
personal adornment, specifically rings. This contrasts significantly with the preceding
Hafit period, where pins /awls\(^{64}\) were the most common, and it is likely that no rings are
attested at all\(^{65}\) (Figure 6.5). This shift from an item important in the functions of daily
life (copper pins are attested at most settlement sites, albeit from the later UAN era) to
one that is purely for adornment is interesting. It is conceivable that during the Hafit
period, when the copper industry was still young, only items for use in daily life were
being produced. The Hafit assemblage also reveals a large number of rivets indicating
that composite objects were being created, as well as a couple of daggers. By the UAN
period, items of personal adornment are followed by weapons with pins/awls comprising
only 12% of the metal assemblage. This, like the ceramic corpus, may reflect the
increasing diversity of the copper industry as it flourished from c. 2500 BC towards the
close of the third millennium. Obviously non-utilitarian items are being produced and
significantly these are chosen over other items for inclusion in the grave.

Of further interest is the overall societal willingness to place items of copper into graves.
This process removes these potentially durable and reusable items from use and
circulation. The decision to undertake this process occurred across a wide geographic
area and is indicative of a uniformity of belief and/or pervasive social organisation
common to the entire Oman peninsula.

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\(^{64}\) Artefacts of this category are notoriously difficult to classify. There is considerable variety in detail
with some having lightly flattened ends or a squared shaft. They may have been used as pins to fasten
clothing/fabric or may have been hafted in some way and used as awls or tools of some kind. One
example, from a later Umm an-Nar period context, was recovered with a bone handle intact around the
rectangular end of the copper shaft, and has been interpreted as an awl (Frifelt 1995: Fig. 277).

\(^{65}\) The two rings recovered from Hafit period contexts were both from tombs that had been reused in the
UAN period and hence the rings may have dated to the latter era.
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**Items of personal adornment**

As noted above items of this category—primarily rings—were potentially not found at all in the Hafit period, but comprise the majority of UAN era assemblages. Only one bracelet has been recovered, being from the tomb at Tell Abraq, and is not considered a typical UAN era artefact. The recovery of these items from graves is prolific, and they are definitively less frequent in settlement contexts, with only one recovered from excavations on Umm an-Nar Island and none from Hili. The lack of rings from the settlement on Umm an-Nar Island is not considered unusual, however, as they are rare in the graves from this site as well\(^66\). Like the *série récente* vessels, the lack of these items may well be the result of chronology rather than any other interpretable factor. On the island of Ghanadha, a child’s ring was recovered from the surface (Ghanadha 1: Al-Tikriti 1985: 13) and rings are said to have been recovered in the UAN period settlement deposits at Ra’s al-Jinz on the coast of Oman (Weeks 1997: 19). Rings have also been retrieved from settlement deposits at Tell Abraq, and these non-funerary find locations indicate that rings were used in daily life and were not necessarily the preserve of the dead. When found *in situ* in graves, such as Tell Abraq (Potts 2000: 94) and Tomb A Hili north (Vogt 1985: 33), they may be found on either fingers or toes (Figure 6.6), sometimes more than one per digit, and bodies were obviously interred wearing these adornments. There is no evidence, however, for whether rings may have been buried as grave gifts as well.

Interpretations concerning whether rings can be attributed to specific sub-groups of the community based on gender, age or population affinity are limited. There are certainly ethnographic parallels where rings are worn by women on either fingers or toes to signify, for example marital status, but these meanings cannot be ascribed to third millennium Oman society. Further, the generally

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\(^{66}\) Other than a single example from tomb IX.
disarticulated nature of the human remains means that identifying the sex of the skeletons found wearing rings is problematic and even if possible in a few cases, would not provide a sample large enough to extrapolate from. Frifelt’s gender role assumptions based on the lack of rings in the Umm an-Nar Island graves suggest that jewellery is an artefact class to be identified with females and that weapons and tools are the domain only of males. On this topic Frifelt writes that “weapons and tools,...(were) grave gifts for men - unless leather work was female labour” (Frifelt 1991: 98). These assumed gender roles imply a cognitive knowledge of Umm an-Nar society which we unfortunately do not have. Most of the rings from tombs are large and considered to be appropriate for adults, although a smaller ring recovered on the settlement at Ghanadha is noted as being a child’s ring, although it could have had another function.

Recent sexing of the skeletal population from the Tell Abraq tomb, in which 156 bronze rings were found (Figure 6.7, suggests that c. 85% were male67 (Cope et al. 2005: 398). This high ratio of males versus females is unusual when contrasted both against sex ratios in other UAN period tombs, as discussed in Chapter 5 and in relation to the finds from the tomb which include many rings, not to mention combs and other items of jewellery. Unfortunately the lone articulated foot complete with toe rings was not able to be sexed, thus providing no foundations for any further interpretation of this artefact class in terms of gender. What the Tell Abraq tomb data does indicate, however, is that we should be wary of attributing gender roles to specific artefact classes based on current modes of accepted societal behaviour. In summary, the frequent examples of corpses wearing rings on either fingers or toes for burial in the developed UAN period, and the multitude of rings recovered, indicates that the practice

67 Regarding this percentage, Martin (Pers. Comm.) has confirmed that the use of different skeletal elements can result in different counts of males versus females, but that the absolute minimum of males based on any element was 65%.
Discussion: Third millennium BC burial practices

was widespread and potentially not restricted in terms of rank or status, even if there was division along other lines such as age and sex that have since been lost.

Precious metal objects (excluding beads which will be treated in a later section) are of course rare in third millennium tombs, found in only a few tombs of the UAN period. The only considerable quantity, however, derives from the Tell Abraq tomb, which escaped significant looting. Can we then extrapolate that if such items were found at Tell Abraq then they are likely to have been present to some extent in other UAN period tombs? This question is not easily answered because much of the ‘luxury’ group of finds from the Tell Abraq tomb are exotic and imported (ivory, ostrich egg shell, Kaftari ware and some soft-stone) and not known from other UAN period sites, either settlements or tombs. The gold and silver pendants depicting rams and a sheep from this context are more suggestive of finds from the later Wadi Suq era (al-Tikriti 1989b: Plate 74). A golden hair-band from Tomb X on Umm an-Nar island is unique, yet reminiscent of Mesopotamian finds. Gold sources are known on the Oman peninsula and Potts cites a Sumerian text which notes that the King of Magan sent gold dust to the city of Ur in the year 2069BC (2000: 54). Consequently these items may be of local production, although the forms know no close parallels. A couple of gold beads have been noted as recovered from the settlement of Tell Abraq (Potts 2000: 54), however, I know of no other settlements where precious metal objects have been recorded, other than the group of silver beads from Room 2 of Building VII at Ras al-Jinz (Cleuziou and Tosi 2000: 57).

Was gold and silver of the same value in the third millennium as it is today, or was copper or stone a more valued item? Do these precious metal finds indicate that individuals of high status were buried in the graves? It would certainly seem that in a society in which communal graves and towers were built; pottery, stone and organic material vessels were produced; copper and stone were extracted and traded and agriculture practiced, there would need to be some form of hierarchy even if just to make and administer decisions. The limited recovery of items of a precious nature from tomb contexts, particularly the more intact of these, indicate that these objects were rare. Further the fact that the precious metal objects were all exotic items of personal adornment (hairband, pendants etc.) shows that they had no utilitarian value and may indeed have been the preserve of an élite and hence interred with corpses of high rank. This line of interpretation will be discussed in more detail in the conclusion to this study, after other relevant evidence has been reviewed.
Chapter 6

*Weapons / tools*

Tools have been included in the title of this section because it is not certain how these objects were used in third millennium BC society. For example it is possible that daggers were used as weapons, but it is also likely that they were used as utilitarian items – tools – to cut hides, wood, reeds and for use in specialised production. The same can be said for blade axes which may have been used for tree / plant cutting as well as in warfare. Considering the former category known as blade axes, these objects have also been referred to as celts. When found in settlement contexts at Ra’s al-Jinz this item was interpreted as likely to have been hafted and used as a wood working tool to cut and shave wood into broad planks (Cleuziou and Tosi 2000: 57). Objects described as razors have been recovered at a number of sites in both mortuary and settlement contexts. These objects have wide blades and narrow, flat, long tangs ideal for hafting. Examples recently discovered at Ra’s al-Jinz show heavy wear along the blade and potential evidence for hafting, leading the excavators to interpret these items as woodworking tools for scraping (Cleuziou and Tosi 2000: 57). Hence this category will include such copper items as may have been used for a variety of purposes, but pins/awls will be covered in their own category. Evidence for the everyday use of many of these items is outlined below, but it is also relevant that the tip of a dagger blade was found lodged in a human bone at Tell Abraq (Potts 2000: 94), showing that these objects were at times at least used as weapons in interpersonal combat.

Of the two daggers recovered from Hafit period graves, one is likely to have dated to the later re-use of the tomb (Jabal al-Emaleh IV) while that from Jabal Hafit (C23) has no close parallels and re-use was not mentioned in its publication. It may prove to be the earliest dagger from a tomb in the Oman peninsula. Should this be the case, it then feeds into the notion (supported by much other data) that the burial practices of the UAN period have grown out of those of the Hafit period. The differences in the copper assemblages between the two eras is assessed as indicative of production and availability of certain classes of finished objects than about inherent changes to the choices of what items are appropriate for the grave, just as was determined for the ceramic corpus.

Of this category daggers are the most common type, followed by socketed then tanged spearheads. Although blade axes (celts) are the least frequent, they were still found in five tomb contexts, in contrast to the socketed items which were all from Tell Abraq and Asimah Alignment A. Overall weapons/tools were found in twenty-one tomb contexts and are likely to have been present in more. The recovery of this artefact category at
settlement sites is quite prevalent. Certainly at sites such as Maysar, where copper exploitation in the third millennium is attested, several objects of this category have been found including needles, chisels and axes (Hauptmann et al. 1998: 41). From the settlement on Umm an-Nar Island there is a wide range of weapons/tools – chisels, borers, needles, blade axes, daggers/spearheads, awls, hooks, spatulas, sickles etc – all reflecting the activities obviously undertaken here including secondary copper working, mat weaving, agriculture, fishing etc (Frifelt 1995: 188-197). From the Hili 8 settlement, only a few fragments of copper have been found, including a blade and the tip of a pin/awl (Cleuziou 1979: 37), although copper working is nonetheless suggested (Cleuziou 1989: 70). At Tell Abraq, artefacts from the settlement include blade axes, awls, hooks, spatulas and spearheads. An unusually wide range of metal artefacts from debris contexts at Ra’a’s al-Jinz attest to the prolific use of copper tools at this site, despite the fact that no evidence for smelting, secondary production or export were recovered (Cleuziou and Tosi 2000: 57). As one may expect, fish hooks are only found on sites close to coast, both in settlement and tomb contexts. What is apparent from this limited review is that this artefact class is certainly one of everyday use, not at all reserved for grave, but nonetheless appropriate within the burial programme.

As mentioned above with reference to copper rings, there are not enough undisturbed burial deposits to be able to associate artefacts of this group with any particular age or sex component of the population, let alone relate them to status or population affinity. It is unfortunate that skeletal analyses have not been undertaken on the three individuals from graves A2, A3 and A4 of Alignment A at Asimah, as this provides one of the few contexts in which objects may be related to specific individuals. The fact that each of these three individuals was provided with two socketed spearheads is interesting and may be interpretable. Even more so because of the analyses undertaken on the rivet holes of the socketed spearheads by Kunkel (1994: 204) which indicate that these objects were unlikely to ever have been hafted or used. Hence they were manufactured either specifically for the grave or were brand new when placed in the graves.

What may be more interesting from this interpretative perspective, however, harks back to the hypotheses put forward at the outset of this chapter concerning Hafit vessels and whether they were interpretable as being placed as grave-goods with people who had come across them, i.e. traders. This ushered in the notion of some artefacts potentially representing the livelihood of the deceased, a funerary practice found in many parts of the world. It has certainly been shown that objects of the weapon/tool category were extensively used in daily life and it may indeed be that individuals involved in certain trades were buried with either their favourite tools or a representative kit. With regards
to the remains from Asimah Alignment A once more, the potential that these items may have accompanied individuals of high standing has also to be considered, particularly as the burial format (individual cist graves in the alignment structure) is very unusual for the third millennium. The further fact of these items having never been used in daily life strengthens the argument against them being a ‘toolkit’ per se.

Not necessarily excluding the above hypothesis, there is also limited evidence (from Al Sufouh and Umm an-Nar Island) of daggers being bent, perhaps deliberately, a factor that has been viewed from the perspective of soft-stone breakage patterns as well. In other parts of the world (e.g. Palestine) this activity has been assessed as being a ritual practice (Tubb 1988: 64) and bent weapons have also been found in other parts of the world, as presented in Chapter 5. Interpretations of the ritual surrounding this practice include ensuring that weapons cannot be used by the dead, or potentially anyone.

**Pins/awls**

The difficulty in ascribing function to these artefacts has already been discussed as has its preponderance Hafit period graves versus comprising only 12% of the funerary copper assemblage in UAN times. Explanations for this divergence have also been presented, centred on the increasing availability of a variety of copper objects. Like artefacts of the weapon/tool category, this group is also frequently found on settlement sites, including Tell Abraq, Umm an-Nar Island, Ghanadha, Ra’s al-Jinz and Maysar. As many as eight pins/awls were recovered Tomb V on Umm an-Nar Island, where Frifelt pondered whether this may “point to a family of artisans” occupying the grave (Frifelt 1995: 99).

**Summary**

Despite the shortcomings of the data, we can make the following statements and hypotheses:

- The changes evident in the types of copper objects included in graves between the Hafit and UAN eras appears to be based on the wider availability of a variety of forms rather than any more intrinsic change to the nature of the belief / social system that governed the burial programme.

- In general metal objects do not appear to be made specifically for the grave. There is considerable evidence that they were used in everyday life and one
hypothesis sees individuals potentially buried with items used for their livelihood.

- The socketed spearheads from Asimah are unusual in this regard, being apparently brand new and never having been hafted. In this case, the objects may have been made specifically for the grave (of high-ranking individuals (?)) or may simply have been brand new items rather than used.

- Personal adornment in the form of rings was also seen in everyday life, although they are far more prolific in the grave, seen on fingers and toes. Potential meaning possibly ascribed to these in the past has been lost but in some cultures they can relate to marital status, or they may simply be purely decorative, indeed fashionable.

- The precious metal finds bring into play the potential that individuals of high status were buried in the graves. As there is a paucity of precious metal finds from settlement sites, it may be that these items were made specifically for the grave, although it may also be that they were reserved for best (like the black on red ceramics?) and used for ceremonial and/or ritual occasions. Thus their inclusion in the grave is interesting as it leads into the notion that rank or status was a feature that was displayed potentially at the time of death and with items of rank sent into the grave with the deceased. This line of interpretation will be discussed in more detail in the conclusion to this study.

**Beads**

As beads are the primary component of composite objects, they are by far the most numerous finds from graves of the third millennium in the Oman peninsula, despite the general lack of attention they received during the early years of excavation and publication. For the purposes of this analysis, beads will be discussed in relation to their two major methods of use, firstly as objects threaded onto strands to create items of personal adornment and secondly as embroidery items sewn onto cloth. As with most other finds, the overall quantity of beads increases dramatically from the Hafit into the UAN periods. Although accompanied by the obvious increase in the number of interments in each grave, the relative abundance of beads is not commensurate, and tombs with the highest population do not necessarily have the greatest bead numbers. Of note in this regard is Tomb A Hili north which reports only 7 beads, while the greatest number (13,641 beads) derives from the tomb and pits of Al Sufouh. Also of note is the
continuity of tradition from earlier identifiable cultures in evidence at Jabal al-Buheis and Ra's al-Hamra where the use of beads in strung items as well as in embroidery is attested.

There is little evidence of beads from most settlement sites, other than a couple of shell beads from the Umm an-Nar island settlement (Frifelt 1995: 225) and a few from UAN contexts at Tell Abraq (Potts 1990b, 1991a). Somewhat different in this regard is Ra's al-Jinz where c. 360 beads had been recovered from EBA deposits including a string of 23 bronze beads (Cleuziou and Tosi 2000: 57). There is certainly no evidence for bead working anywhere on the peninsula, although a local centre of production is considered likely. Whether or not items of beaded jewellery were worn in everyday life is pure speculation, although the recovery of some rings and beads from settlement sites indicates potential for the wearing of items of personal adornment in daily life. In terms of beaded jewellery, if wearing strands in daily life and the thread breaks, it is likely that the beads would be collected and restrung (that’s what I do!). Like copper rings and precious metal items, the overwhelming presence of these items in the grave show that they were appropriate as grave goods accompanying the dead, and it is certain that at least some (the majority?) of beaded items recovered were indeed worn on the body for burial (e.g. necklaces at Jabal al-Emaleh I (Benton and Potts 1994: Fig. 40) and Al Sufouh (Chapter 4; Benton 1996: 40). The possibility that jewellery was also a grave gift and not only worn on the body comes from a comment regarding an UAN tomb at Jabal Buheis where a soft-stone box is said to have contained gold and silver earrings (Jasim 2003: 97). It is possible then that beaded jewellery items may have been accompanying gifts as well.

The use of bead embroidered cloth in tombs is attested to in late Hafit and early UAN times. This evidence provides one of the few windows into the original use of such beads in tombs of the third millennium BC. However, whether the embroidered cloth was part of a decorated shroud or a clothing item also used in life is impossible to determine. The beads themselves are, however, quite delicate as may have been their fixture to the cloth, which once again would make these embroidered items only for occasional use (ceremonial?

Figure 6.8: Beads potentially from embroidered fabric found in situ at Jabal al-Emaleh tomb III (photo J. Benton).
special?) or possibly only for the grave. Embroidered fabric is also attested to in pre-Hafit contexts, at the site of Jabal Buheis, where shells were used to stud loincloths (Kiesewetter et al. 2000: 140).

The topic of the origin of beads found in third millennium tombs is worthy of brief mention, although it’s overall relationship to the burial programme is limited. Foreign connections in the bead assemblages from pre-Hafit sites have not been offered in publications, and all are considered likely to be local in origin. A couple of the more diagnostic bead types from Hafit period graves, however, show close affinity with those recovered from Mesopotamian contexts. The diamond shaped bone beads with double diagonal perforations have parallels in funerary and temple contexts in Mesopotamia and Iran from the Jamdat Nasr to ED era, as presented in Chapter 5. Several types of paste bead forms have similar distributions. By the UAN period, even broader foreign parallels can be cited especially with regards to the etched carnelian beads and those of lapis lazuli. The circular, flat, sheet gold beads with the raised midrib from the Tell Abraq tomb also have parallels far afield, from Troy and Ur, Tell Asmar and Tepe Hissar to Altyn Tepe and Mohenjo Daro. This evidence attests to the broadening international connections with the rest of Western Asia known to have been occurring throughout the third millennium in the Oman peninsula. Interestingly, however, there appears to be no abrupt change to the burial programme as a result of these interconnections, simply the use of a wider range of artefacts than before.

Miscellaneous items

There is a considerable quantity of material that can be ascribed to the miscellaneous category as presented in Chapter 5. Review of each individual category is not warranted here, and more appropriate for this study is to group items according to overall use. Seals with be dealt with separately

Tools / items of daily life

This category includes stone grinding slabs, whetstones, flint artefacts, net sinkers etc. Like the metal finds, these artefacts are found on settlement sites over the peninsula and were obviously used for a range of daily activities. Their inclusion in tombs may be as grave goods for an individual at the time of burial, thereby representing something about their daily life or may be gifts that could represent a range of meanings, i.e. ensuring the deceased has the appropriate equipment to get them by in the ‘afterlife’.
Frifelt’s assertion that these artefacts are not surprising in the grave because “they were not necessarily kitchen utensils but could have been used by craftsmen” (1995: 104) implies a high level of subjectivity that somehow kitchen, or food preparation items are of less intrinsic importance than tools used in other everyday activities. This is not definitively borne out by the broader funerary evidence, although it is interesting to note in this regard that the ceramic repertoire is dominated by black on red group or imported vessels rather than those found in domestic contexts.

Finally, it is appropriate to mention the fig shells - *Ficus subintermedia*. Found in many tomb contexts, beginning as early as Jabal al-Emaleh Tomb I and continuing into the UAN period, these have been interpreted as ‘feeding shells’ for babies. The presence of infants in graves of both the Hafit and UAN eras indicates that babies were not treated any differently in death than the remainder of the population and it is possible that this shell was included with infants at the time of burial. Shells used as cosmetic containers were found in only two definitive contexts and those found at Tell Abraq (4 examples68) contained kohl residues, confirming their function as containers for cosmetic substances.

*Items of personal adornment*

Shell rings are not common, but have been recovered from around six UAN period tombs. Made from mother-of-pearl or sectioned gastropod shells, these rings have been compared to examples from Mesopotamia where they were interpreted as belt fasteners. This evidence, together with the embroidered beads and indeed the remnant fabric from the tomb at Tell Abraq, shows that material of some description (shroud or daily life clothes) were certainly worn by the deceased at the time of burial. Amulets and pendants were probably strung on necklaces. The fact some are likely to have been imported adds weight to the argument that the inclusion of foreign “luxury” goods in graves may indicate the burial of a favourite item or that individuals of high status were interred in the grave.

*Fabric*

Although the presence of embroidered beads *in situ* ensures we know that cloth was worn in the tombs in some fashion, we also have remnants of fabric to further support this. Analyses undertaken on two fragments of cloth found adhered to a spear tip and a toe ring from the tomb at Tell Abraq positively identified the fabric as linen (Reade and

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68 Tell Abraq small finds numbers 1940, 1952, 2036 and 2214.
Discussion: Third millennium BC burial practices

Potts 1994: 101). Discussion as to whether the linen was locally produced or imported from Iran or Mesopotamia remained inconclusive due to a lack of evidence, but a few noteworthy points were made. Firstly, that there is definitive evidence for linen production in Mesopotamia and secondly that during the Ur III period (contemporary with the use of the Tell Abraq tomb), linen was rare and "used almost exclusively by individuals of the highest rank, including kings and city governors. Moreover, linen garments and hangings were also used to drape the statues of various deities and were sometimes worn by priests and other temple functionaries" (Reade and Potts 1994: 104). This is then enlisted as support for their conclusion that by extension, there must have been individuals of high status buried in the tomb at Tell Abraq. It is indeed so, that building evidence from the only relatively uncompromised tomb context of Tell Abraq, with its gold, silver, alabaster, linen and a further host of other exotic imports described below, does begin to illustrate that wealth was interred in Umm an-Nar period tombs, and is likely to have accompanied specific individuals, as there is certainly not enough of everything for all the interred to have been accompanied by such items.

Seals

Not recovered from many contexts, there are, however, a few seals of either cylinder or stamp type from UAN period tombs. Cylinder seals derive from Al Sufouh, Hili and Ajman, all of which appear to be local in origin (cf. Chapter 4 and Benton 1996: 165-166). Stamp seals have also be found, including an ivory Persian Gulf seal from the tomb at Tell Abraq (Potts 2000: 122). This early type of seal from Bahrain is definitely imported attesting to the trade networks flourishing at this time. Again whether the seals were buried with traders who used them in daily life or were significant in some other way is now untraceable.

Other

Items such as the ivory combs and hairpin from Tell Abraq are so unique that their interpretation remains site specific. Ivory is not locally occurring and analyses have shown the ivory to be that from the Indian elephant. Over a dozen ivory combs have been found, one adhering to a cranium, while another is associated with an ivory hairpin. Decoration on two of these combs showed a tulip motif which has been positively related to the Bactrian-Margiana Archaeological Complex (BMAC) of southern Uzbekistan and northern Afghanistan (Potts 2000: 126), and although direct links cannot be evinced, there was definite indirect contact through SE Iran. The find locations of some of these objects in the TA tombs provide definitive proof of their
interpretation as hair fasteners/ornaments (Potts 2000: 100-103, 126-127). What is also interesting, however, is that one comb was found resting in an alabaster bowl. This provides evidence that although items of adornment were worn by the corpse for burial, they were also used as gifts for the deceased. These may be representations of wealth displayed as status symbols, personal belongings of the deceased or were somehow meaningful in terms of the deeper beliefs of spiritual ascension or an ‘afterlife’.

The recovery of numerous ostrich egg-shell fragments from the tomb at Tell Abraq is also worthy of brief discussion. A recent synthesis of the distribution of ostrich egg shell in antiquity has shown its presence first in Oman in the mid Holocene, then reappearing in the late third millennium at sites such as Tell Abraq, Asimah and Hili north (Potts 2001a: 186-187). The great size and strength of ostrich egg shells meant they were well-suited to functioning as containers and were used as such in Mesopotamia, the Levant, the Aegean and north Africa (Potts 2001a: 186). Based on evidence from the Tell Abraq tomb, the shells were cut near the top and a smooth rim formed, creating a fairly closed, globular style vessel, suitable for liquids. The remnants of red pigment on the exterior surface indicate that at least some of them were decorated. Research into whether or not the ostrich was in fact indigenous to the Arabian peninsula in antiquity has concluded that despite the lack of any ostrich bone from the area, other evidence including depictions on pottery, the presence of shells and more recent written documentation confirm that the ostrich was not extinct in antiquity, but was simply a gifted runner, escaping the spear and hence the osteological record of ancient sites (Potts 2001a: 189).

These exotica add support to the already established image of the Tell Abraq inhabitants as having strong foreign connections and the nature of the funerary assemblage at this site as being rich in imported ‘luxury’ goods. What this may mean when comparing this tomb to others of the UAN period is that we may be seeing a rare example of how other tombs may have looked before their contents were pillaged. Potentially the flavour of the objects through the last centuries of the millennium may have changed and become more apparently ‘exotic’ as international connections broadened.

Food offerings

Surprisingly little in the way of evidence for food offerings has been recovered from either Hafit or UAN period tombs, although a lack of preservation may be responsible for this in part. This contrasts dramatically with some tombs predating the Hafit period and with those from areas further afield, where food offerings are often a common grave gift (Potts 1997a: 223-224). At Ra’s al Hamra, faunal remains were recovered from
most graves, primarily molluscs, fish and marine turtle, which have been interpreted as the remains of food offerings or ritual banquets. Sometimes these remains are placed on the body before the pit is covered and sometimes they are above the filling (Tosi 1981: 16-17). Evidence from this site contrasts with that from Jabal al-Buheis, where no evidence of food offerings accompanying the deceased was recovered.

The lack of evidence for food offerings in the Hafit and UAN periods may result from a variety of causes. They may simply not have been part of the burial programme due to relatively scarcity of food and thus a need to keep it for the living, or because the ceramic and soft-stone bowls / jars were representative of food such that the real thing did not need to be placed within them. It seems likely that this aspect of the burial programme may have been reflective of overall beliefs rather than originating in socially determined factors.

**Summary**

Interpreting the meaning behind the choice of what items are deposited in a grave is testing at best, best being a situation where goods are easily related to individuals and when variation in chronology is not likely to cloud analysis. The situation in the Oman peninsula provides us with little precise data concerning contextual relationships which is further obscured by chronological issues (tombs are in use for long periods). Consequently, although we can create and ponder hypotheses about how the funerary corpus as a whole may reflect the broader society of the Oman peninsula, little can be substantiated. The review of the tomb assemblages above has nonetheless generated some hypotheses which will be assessed below, but overall, the data is better suited for elucidating broad patterns rather than reconstructing individual stories.

In general, the explanatory processes by which grave goods arrived in the tombs can be seen to relate to four main mechanisms, which are not mutually exclusive:

1. Objects that were owned by people, or that somehow represent them personally i.e. according to livelihood. This includes items that may relate more broadly to age / sex divisions;

2. Objects that are eventually placed in the grave but are somehow more to do with the living community i.e. displays of wealth / status / power via the type and/or quantity of funerary offerings. In this manner the manipulation of material culture can be seen as both a byproduct of the underlying social organisation but also plays a feed back role in the maintenance and emphasis of these systems;
3. The choice of grave goods may also relate to the passage of the deceased into the afterlife (spiritual journey/place beyond) and the items society deems they may need for that journey. This may represent the eschatological belief/world view system of the prevailing culture;

4. Objects that have somehow been used for ritual aspects of the burial programme may then be included with the offerings for the dead.

The problematic aspect is assessing to which process any particular grave goods’ inclusion may relate. This is particularly difficult as some objects may easily relate to more than one process. For example, an individual’s favourite/best jewellery may be placed on the body for burial (Process 1). This may indicate the sex of the individual (depending on the type of jewellery chosen) and may also be part of a demonstration of wealth/status (Process 2). It is also possible that individuals are to look their best and be in their finest for their journey to whatever may lie beyond (Process 3). When looking at most classes of funerary items the same issues of potential relationships with more than one process exists. Table 6.1 shows the suggested relationships between the broad artefact classes and the above explanatory processes, illustrating that items have potential to be interpreted through a number of mechanisms.

Table 6.1: Relationship between artefact classes and explanatory processes.

<table>
<thead>
<tr>
<th>Artefact categories</th>
<th>Process 1</th>
<th>Process 2</th>
<th>Process 3</th>
<th>Process 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pottery</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Soft-stone</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Tools/Utility</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Personal adornment</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

Firstly, a review through time of the material record as expressed in funerary furniture sees the primary change between the early and late third millennium as being one of scale. Change to composition of graves in terms of the inhumations has also changed and this will be examined in the following section. Hafit period graves contain imported ceramics, pins/awls and items of personal adornment. In the UAN era, these categories continue to be used in graves but are complimented by soft-stone and an increasing array of ceramics and metal items, not to mention a broader range of imported objects. These changes are thought to be superficial and more interpretable in terms of the availability of items rather than any fundamental social or ideological change.
Secondly, a refocusing from individual artefact classes back to the overall funerary assemblage helps to consolidate the interpretative range of these collections, particularly those of the UAN period. Although the tombs in general appear rich in terms of the quantity and variety of artefacts within, they are also repository to as many as several hundred individuals and are in use over long periods, possibly centuries. When the wealth and multitude is divided among the tomb population, the picture is not nearly so materially abundant. In some tomb contexts (Tomb A Hili north, Umm an-Nar island tombs) it is possible that each individual was buried with a ceramic vessel and one or two other items. In other contexts, however, (Tell Abraq, Al Sufouh, Ajman and the Shimal tombs) there are insufficient ceramics, even considering these are minimums, for every inhumation to have been buried with even one ceramic offering. Other funerary categories, for a variety of reasons discussed above, have incomplete frequencies and overall have even lower proportions than ceramics. Consequently, it does not appear that there is an easily identifiable minimum funerary kit that each individual may have been buried with. It does, however, lead to the hypothesis that some inhumations may have been accompanied by no durable funerary items at all\(^6\) while others were almost certainly buried with grave goods, often of a precious or valuable nature.

Thus the picture beginning to emerge is one of a differential access to resources that is potentially reflected in the burial record. This sits in contrast to the overall practice of interment in communal tombs, an issue to be discussed in greater depth with reference to ethnographic and cross-cultural analogy in the following chapter. The following points all relate to the nature of the Oman peninsula mortuary evidence as a whole, viewed through the lens of the best preserved tomb, Tell Abraq, where necessary.

- Tombs contain a wide variety of material goods, including items of precious metal, copper/bronze, soft-stone, fine and domestic ceramics. Of the material present, there is rarely enough for even one ceramic vessel per individual, and certainly far less in terms of metal and stone or other precious materials;

- As discussed above, the very fact that monumental tombs and defensive towers were constructed, as well as the evidence of craft specialisation (copper extraction, metalworking etc.) indicates a society likely to be organised and thus to have some degree of stratification;

\(^6\) As recorded at Tell Abraq (both in the tomb and in the cist grave), Unar 2 and Tomb A Hili north.
In stratified societies, mortuary rituals are often used as a forum for expressing social roles, because the death of an individual leaves a gap in social fabric requiring renegotiation between the remaining community members. The lack of evidence for differentiated burial contexts or body treatment, places more emphasis on the likelihood that either grave goods or mortuary ritual were used as vehicles for this expression.

If these hypotheses are accepted, then we can postulate that at least some of the rich array of funerary goods was deposited in graves of UAN Oman peninsula as a result of displays of social identity within the mortuary programme. If this is the case, then such objects are likely to have accompanied possibly only a relatively small number of individuals per tomb, possibly a lineage?

**Overall burial programme: Funerary context and interment**

Having already covered interpretation based on material culture, this section aims to review all the remaining aspects of the burial programme – from tomb type and location to interment type and number and any evidence for ritual activity – all of which may reflect aspects of social organisation and / or religious / eschatological beliefs. Before beginning with the Hafit period, a quick review of 4th millennium burial practices helps to provide context for the ensuing third millennium analysis.

**Pre-Hafit period**

Based on the limited review of excavated burial sites dating to the fifth and fourth millennia BC in the Oman peninsula (as presented in Chapter 5), the following salient points were gleaned:

- All are characterised by the use of a formalised cemetery area;
- Both primary and secondary burial is in evidence;
- Single and multiple interments occur, the latter usually containing up to five individuals (Figure 6.9);
- Very beginnings of communal style burial possibly seen in grave 43 at RH5;
- Both sexes and various age categories receive similar treatment in death;
• Cremation was practiced at Ra’s al Hamra and Jabal al-Buhais;

• The recovery of varied quantities of the limited grave goods at Ra’s al Hamra led to postulations concerning the potentially stratified nature of the society, although this hierarchy was described as unstable;

• Analysis of skeletal remains indicates that the populations were pre-agricultural, probably nomadic, predominantly exploiting marine and mangrove resources (for the coastal populations), supplemented by meat from hunted wild animals (Blau 1998: 230), or from domestic herds at Jabal Buheis (Uerpmann 2000: 233).

Potentially a critical factor, the sites that have generated the data presented above are all considerably earlier than the onset of the Hafit period, with Ra’s al-Hamra being the closest in date, in use until only a few hundred years before the end of the 4th millennium. Nonetheless they comprise the only body of data we have for burial practices in existence in the Oman peninsula prior to the Hafit period and thus are our only available body of comparative material.

Hafit Period

Summarising from Chapter 5, we know that Hafit tombs were constructed using locally available rock in a relatively uniform style, across a broad geographical area. Tomb entrances were never oriented to the north, varied across regions, but was often consistent within local areas, alluding to the possibility that orientation may have been in relation to some geographic/landscape feature (i.e. settlement location). This scale of uniformity indicates a degree of cultural cohesion never seen before in the Oman peninsula. Further, the prominent location of the tombs suggests a new tradition in which the tombs are required to be visually obvious and indeed dominant in the landscape. Relevant too is the fact that there are often many tombs close to one another,
indicating that the inhabitants of one settlement probably used a number of tombs. Tomb entrances were often blocked apparently even when the tomb was to be re-used for the burial of the next appropriate individual. The circumstances behind the decision to close a tomb for good remain unclear.

Overall, the degree of energy expenditure that would have been required for the construction of these burial cairns is not inconsiderable and the practice of doing so implies a strong connection with the physical location and potentially a more sedentary outlook with associated ownership implications (Figure 6.10). Did the construction of a cairn and interment of family set more firmly the right of your clan/family group to the locality and its resources?

![Figure 6.10: Hafit tomb 1137 at Bat, Oman (after Yule and Weisgerber 1998).](image)

Moving to the interment process itself, rarely more than five individuals were placed within Hafit period tombs and individuals of both sexes and all age groups are attested. A contracted position was clearly favoured, although there is insufficient evidence to suggest that either side or orientation of the body were important factors. Further, we do not know whether the deceased were placed on mats, in shrouds or simply lain directly on the floor of the tomb. The quantity of bronze pins found in these graves may allude to the use of some type of garment or shroud which required fastening, although no pins have been found \textit{in situ}. No secondary burials have been reported from Hafit period tombs, although the degree of disturbance would make detection of these practices
difficult. The apparent norm was for little time to elapse between death and burial such that all individuals would have originally been articulated at the time of burial, and there is no evidence for any other post-mortem body treatment such as cremation, embalming etc. Considering the small size of the tomb chambers, it is likely that any ceremony and/or ritual activity was held either outside the structure (there is no evidence for this) or at some other location (settlement?). No objects recovered from the tombs have an obvious and overwhelming ritual function, although objects functioning in this way may not necessarily be buried with the dead.

Before moving on, a quick note about the overall description of the interment method is relevant. Although always described as multiple, successive interment, it is interesting to take a new perspective on this. As the individuals did not all die at the same time, the burial rite can possibly be more accurately described as individual interment into a communal context. It seems likely that the each corpse was treated in an individual manner – with some ritual? Adorning the body with jewellery, dressing it in clothes or shrouds? - before placing it into the tomb. In this way, the term ‘multiple, successive’ is a little misleading.

Although the looting of tombs makes elucidation of the evidence difficult, it does seem that during the interment of new individuals earlier burials within the tomb were disturbed, and this practice does not seem to have been problematic in terms of the overall burial programme and concomitant belief system. When first interred, however, it seems likely that objects were placed in some kind of (meaningful?) relationship to the deceased, cf. Tomb I Jabal el-Emaleh.

In terms of the skeletal remains, the relatively low numbers per tomb, only up to c. five individuals per tomb, is suggestive that these remains represented family groups. This obvious division of the community (?) along potentially familial lines is distinct from the preceding practice of interring members of a broader group, i.e. the whole community, together into a formalised cemetery area (e.g. Jabal Buheis, Ra’s al-Hamra). There is, however, a significant gap in time and change to environmental conditions that may explain this disjunction.

In summary, although evidence for ritual activity surrounding the burial of the dead in the Hafit period is scanty, the evidence does, however, indicate that rules of some origin (tradition, beliefs) did govern mortuary behaviour, hence the similarity in burial style across a broad geographic area. When compared back to the burial format of the preceding periods, the change from subterranean, cemetery style inhumation including
secondary burials and cremation to the primary interment of the dead in built structures is indeed a significant one. These changes in the mortuary realm no doubt herald significant alteration to subsistence and hence social organisation and possibly belief systems. What may have triggered these changes is indeed contentious. Some ideas on this subject are discoursed below, preluded by brief discussion of earlier interpretations that have been presented in the relatively wide body of literature surrounding this subject.

The ushering in of this apparently entirely new method for the physical disposal of the dead set many to wondering whether this should be interpreted as representing the influx of a new population or group into the region. Firstly in 1971, both Frifelt (1971: 380) and During-Caspers (1971: 42-43) speculated on these graves in the context of the Jamdat Nasr vessels and beads found within them, suggesting that they may have been the burials of traders, possibly Mesopotamians, involved in the movement of goods between the Oman peninsula and the Mesopotamian world. According to Frifelt “suddenly out of the blue we have a great number of tombs with a burial custom and equipment identical with the Jamdat Nasr of Mesopotamia and the conformity here is I believe of more importance than grave architecture” (1980: 276). The location of the Hafit cairns in clusters on the cross routes through the mountains was cited as further evidence for the rationale behind the Mesopotamian influx, which was to seek raw materials, namely copper. Also suggested was a temporal distinction between the Hafit style cairns and the beehive type tombs, with the latter indicated as a transitional type between the Hafit and Umm an-Nar period tombs (Frifelt 1975b: 69).

In 1994 and 1995, Orchard put forward a hypothesis that the beehive cairns at sites including Bisya, 'Amlah, Bat, Tawi Silaim etc. were the result of an influx of people from Yemen, somewhere east of the Yemen highlands and north of the Hadramawt Arch (1995:149). This proposition also suggests that this tomb type pre-dated those labeled as Hafit tombs, from which the Jamdat Nasr style vessels were recovered. The Hafit tombs were interpreted as being poor imitations of the beehive tomb type, built by Mesopotamians who were “merely temporary residents” (Orchard 1995: 155). Evidence provided for this is that the tombs are said to be situated in isolated areas or in straggling lines away from settlements thereby implying that their builders “were visitors to the al-Hajjar region rather than long-term agricultural settlers......and did not belong to an upper class, but were simple folk such as prospectors, itinerant workers and peripatetic traders” (Orchard 1995: 156).
Discussion: Third millennium BC burial practices

Just in these two propositions alone we see attempts to explain the genesis of the new Hafit tomb types through the influx of people, either from Mesopotamia or Yemen. Neither proposition is, however, substantially supported by the available evidence. Tombs of this type are not known from Mesopotamia in Jamdat Nasr times, so why would Mesopotamians build tombs of this type while in the Oman peninsula? (Potts 1997b: 70). In respect of the cairns from the Yemen area, these are multitudinous, generally undated and provide inappropriate parallels, as detailed by Potts (1997b: 69). Further, considering the chronological relationship between the tomb forms, Hafit cairns are seen as predecessors to those of beehive form according to Orchard, while in Frifelt’s hypothesis, their relationship is chronologically reversed. Other sources of parallels for cairn/beehive tombs have been sought in Fars province, Iran where a series of tombs from Qasr-i Abu Nasr were examined and although superficially similar to those of the Oman peninsula, internal layout is considerably different (Boucharlat 1989: Fig. 3) and the only datable material places these tombs in the 1st millennium BC.

As discussed in Chapter 5, the variations in structural style suggest that both types represent deviations on a single architectural form, which can probably be considered as contemporary (Vogt 1985b: 79). Table 5.1 showed that both types co-occur at individual sites, along with types that don’t easily fit into one or other category. Although potentially interpretable in terms of chronology, the lack of supporting evidence (i.e. firmly datable finds) leaves only site specific variation as a tenable explanation.

Consequently, the above explanations for stone-built tombs as being the result of the influx of a new population component into the region cannot be effectively substantiated, and overall many scholars now concur that the Hafit tombs of southeastern Arabia are “an indigenous burial form created by the local inhabitants but containing imported Mesopotamian vessels of Jamdat Nasr type” (Potts 1997b: 70). Considering these cairns then to be of local genesis, what other explanations can be evinced from the available data to understand this somewhat radical alteration to the pre-existing burial programme. Reviewing evidence from further afield, Potts (1990a: 73-93) notes the increased use of the term ‘Dilmun’ in Mesopotamian texts from late Uruk, Jamdat Nasr and Early Dynastic times. These references generally concern trade items including Dilmun copper, tin and timber. The lack of these resources in Eastern Arabia prompted Dilmun to be seen as a trading entrepôt through which copper from the Omani interior (and possibly other items) reached Mesopotamia and objects of Jamdat Nasr and Early Dynastic date from Mesopotamia reached sites in the Oman peninsula. Thus, there needs to have been no direct contact between these cultures for the transmission of objects to have occurred. Accepting this tenet, there is however, no
doubt that the onset of use of the new burial form coincides with an increased period of contact (pottery, beads), albeit potentially indirect, with the Mesopotamian world. There is also a high likelihood that this contact was for the primary purpose of obtaining raw materials, especially copper from the interior of Oman for the satisfaction of Mesopotamian resource requirements (Potts 1990a: 64).

Presuming, therefore, contact between Eastern Arabia (early Dilmun) and the Oman peninsula in the late 4th millennium BC, it is worth looking to the multitudinous cairn fields of this area for potential origins for / or influence on the Hafit structures. Survey and excavation carried out by Piesinger (1983) at East Arabian sites such as Abqaiq, Umm an-Nussi (Jabrin oasis) and Umm ar-Ramadh (al-Hasa oasis) and Dhahran airport reveal the presence of extensive cairn fields comprising thousands of structures. Sample excavation of structures from each of these sites and survey of many more provides data concerning their construction technique, basic layout and some of the finds from within. Plans of the cairns excavated at Abqaiq show them to be generally rectangular or circular chambers built using dry stone construction and then covered over with stone to form cairns. They may be single or multiple and were poorly preserved with skeletal material in only a couple of contexts (Piesinger 1983: 118-133). Ceramics from these and some of the tombs from Dammam Dome have been assigned to the ED period, falling predominantly between EDI and III. The assignation of early tombs from Abqaiq to the Late Uruk period (Piesinger 1983: 501) may be spurious, being based on very little ceramic evidence. In terms of their relationship to the cairns of the Hafit period in the Oman peninsula, there is firstly very little in the way of structural similarity, and secondly the dating is challenging, with most of the early datable Eastern Arabian cairns being placed in the ED period, later than those of the Oman peninsula. Further, there is a complete lack of the polychrome ceramics that so strongly characterise the cairns of the Hafit era recovered from the East Arabian contexts, suggesting possibly a chronological disparity. This is difficult to explain intuitively, because if Dilmun is to be identified with Eastern Arabia in the late 4th and early third millennium BC, and if contact between the Oman peninsula and Mesopotamia is through Dilmun, then the lack of polychrome in the latter area is challenging to understand. Whatever the peculiarities of these interrelationships, the overriding point relevant to the current discussion is that the cairn fields that characterise Eastern Arabia are unlikely to have provided the stimulus for the tombs of the Hafit era in the Oman peninsula both due to the lack of structural similarities and the chronological disparity.

The lack of associated Hafit settlement sites compounds the issue of understanding the new type of burial structures now in evidence. The only available data, hailing from Hili
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8, suggests that a square tower (Building III, period I), carbon dated to c. 3000-2900 BC, may be seen as roughly contemporary with Hafit cairns (Potts 1990a: 81). A potential explanation for the lack of settlement sites of the Hafit period has been proffered by Potts (1990a: 78) suggesting that if they were located at lower elevations they may now be covered by metres of sediment. The question of settlements is seen as relevant in the process of assessing whether in fact the Hafit population who generated the tombs in question were in fact sedentary, particularly considering the evidence that predates this cultural complex all indicates a nomadic or semi-nomadic lifestyle. The lack of secondary burial and the permanence/visibility of the tomb structures may both be seen as reflective of a more sedentary population.

Attempting to incorporate all the data reviewed above, the following proposition should be seen simply as a working hypothesis against which to assess the advent of the Hafit period funerary complex in light of new discoveries which will undoubtedly be made in the future.

Studies have strongly indicated that climatic conditions during the 4th millennium in the interior of the Oman peninsula were likely to preclude occupation, signaling the end of the stone-age semi-nomadic herding economy of Jabal Buheis and potentially pushing

Figure 6.11: Satellite image of the Oman peninsula showing the overall landscape and environment (source www.adias-uae.com.archaeology).
occupation to the east coast of the peninsula (Uerpmann 2003: 74). The beginning of the third millennium, however, heralded an era of increased precipitation rejuvenating the lacustrine environments of the fifth millennium BC, particularly in eastern Arabia, but no doubt to a lesser extent in the inner Oman peninsula (Potts 1990a: 64-68). This may have coincided with a period of overexploitation and environmental decline on the east coast, where “conditions of scarcity and marginality might have developed since the end of the 4th millennium BC with the retreat of the coastal lagoons and the final over-exploitation of wild terrestrial mammals” (Cleuziou and Tosi 2000: 26). Such coinciding conditions may have prompted and indeed enabled a slow shift back to the interior where evidence from Hili 8 indicates that at least at one site, which may be extrapolated to others not yet found, buildings of a scale not previously encountered began to be constructed. Accompanying this is other evidence of an early sedentary, agricultural economy. Whether these events were occurring as a result of increasingly favourable conditions and growing population pressure, or whether it may have been in response to the increasing movement of foreigners (east Arabians - Dilmunites?) in the area (looking for copper?), bringing in new ideas, or a combination of these and other factors, is conjectural. Accompanying the beginnings of this more sedentary life, which included architecture and agriculture, was the genesis of the new burial form – interment in cairn type tombs. These were located on highly visible landforms, probably overlooking settlements (Hili) or semi-permanent camps and may have been so obvious for the purpose of indicating to any foreigners the presence of a population of some scale and capability, signifying a degree of ownership over the landscape. Was this to somehow protect raw material resources and the routes to them as well as to safeguard and administer locations that provided daily life resources such as water and food?

A slightly deeper examination of the evidence here provides the basis for some other interesting avenues of interpretation. The settlement evidence as noted above is scant, with only major settlement site (Hili) where a tower was built around 3000 BC. This may indicate several things. Firstly, around this oasis area, people were establishing a sedentary way of life, and beginning to operate their lives in a co-ordinated, communal type framework. Obviously construction of a tower like that at Hili would have required a degree of organisation, as would have the establishment of limited farming practices. It appears, however, based on the limited evidence available, that these types of settlements were not beginning to spring up everywhere at this time. It is possible that only parts of the population were living in this manner, and the remainder was still operating as semi-sedentary herding populations, probably integrated to some extent with the more sedentary groups, exchanging the necessities of life. This provides some explanation for the wide distribution of cairns that date to this period and the fact that
they may only contain limited numbers of interments. It may be hypothesised that although a degree of communal living was in existence (particularly at the larger settlements), there is still a strong basis for family/clan groups (semi-sedentary) comprising the deeper underlying division of the community, as evinced by the burial data. The very fact that the more mobile components of the population had no fortification / settlement structures to indicate ownership of the landscape may have provided stimulus for a need to demonstrate their tenure in other ways – i.e. burial cairns.

This shift is described more broadly by Cleuziou and Tosi (2000: 26) in terms of the degree of uniformity of the archaeological record across the peninsula from c. 3000 BC which is assessed as significant and telling of the slow intensification of cultural integration “which was critical to the growth of the Arabian economy and its reorientation from subsistence to exchange in the latter part of the 4th millennium BC”. This transformation is further evidenced by the altered settlement and tomb distribution patterns and “also by the construction of burial cairns to signal the consolidation of a new social order”. This includes potential relationships between tomb clusters and arable / pasture lands or coastal areas where the exploitation of marine resources was of primary economic importance (Cleuziou 2002: 17-31). This is seen as building on the notions tabled above surrounding the need to provide a visual display of tenure, even though it offers a different approach to their interpretation. These aspects of understanding the growth of a new burial regime are seen as complimentary rather than mutually exclusive, particularly as modern analyses of cultural transformations must take into account the complexities of these processes and their undoubtedly multifactorial genesis, not the least of which must also be influences from further afield as evidenced by the material culture found within the new structures.

In closing, there appears to be strong support for a hypothesis concerning the genesis of the Hafit burial structures that pulls into consideration the notion of marking territory, newly developing concepts of social organisation with influence from cultures further afield (to the east?). In this way, the influx of new peoples need not be sought as an explanatory mechanism, especially when the available evidence has never lent itself convincingly to support this hypothesis.
Umm an-Nar period

Structures

Mortuary contexts in the Oman peninsula are constructed in a similar fashion not only within the Hafit and Umm an-Nar eras as discrete phases, but even looking over the third millennium BC as a whole. Circular, above ground, stone constructions that appear to become increasingly formal and well constructed through time (Figure 6.12). By the UAN era the burial structures are best described as architectural monuments that would have required combined communal resources for their construction as well as a high degree of workmanship. Also relevant to this discussion concerning structures is a new form of burial structure seen in the UAN period, which is the rectangular, subterranean, stone lined chamber or, in some cases a simple pit. The incidence of finding these subterranean type graves in association with the traditional circular above ground structures has significantly increased in the last decade, presumably as a result of more comprehensive and detailed archaeological assessments which include the area surrounding tombs.

Looking first to purely structural aspects of the circular tombs, the review in Chapter 5 discerned the following salient points:

- Tombs were constructed primarily of un-worked local stone, often faced with worked (ashlar) stone, sometimes known as ‘sugar-lumps’, to form a single outer ring-wall. Diameters range from 1.5-14.3m;

- Tombs were often built on a plinth or paved internally. It is presumed most would have been roofed, and the division into chambers augmented this;
There are a wide variety of layouts which serve to divide the internal space into anything from one to twelve chambers and sometimes shelves or subterranean/semi-subterranean layers are used to increase internal space;

There is undoubtedly potential that internal divisions and the presence of shelves or levels may also have had a symbolic or ritual function within the burial programme as it relates to beliefs; and

Consideration of various aspects of tomb construction (size, number of chambers, internal layout, intra-site variability, regional distribution, entry orientation etc.) revealed little discernible patterning.

Although as yet unpublished, a study of the Hili funerary monuments from the specialist perspective of stone masonry techniques (Méry & Al-Tikriti et al. 2005) has enabled the tentative sequencing of the graves through construction methodology. This study places the Hili Garden tomb (1059) in the last quarter of the 3rd millennium, but indicates that the basal layers of Tomb N are later. Once available the results of this study may facilitate a more detailed understanding of the development of tomb architecture through time, an issue that has always been only tentatively approached due to the length of time the tombs were used for and the plundering their associated grave goods had suffered.

Continuity

When viewing these structural aspects of UAN tombs from the perspective of the preceding Hafit period, one is struck by several factors. Firstly, the contrast between the Hafit period and earlier burial formats is far greater than that between the Hafit and UAN eras. Overall, the burial format in terms of its structural component has moved from circular stone cairn or beehive forms to more complex and

Figure 6.13: Tomb I Jabal el-Emaleh, possible Hafit – Umm an-Nar transitional structural form (photo M. Ziolkowski).
sophisticated circular, stone monuments. Surely this change is both intuitively and theoretically interpretable in terms of a growing population with increasing access to resources and an obviously developing, sedentary, agricultural economy with widespread international connections through trade and immigration? Despite this, assertions that UAN period tombs did not develop out of Hafit style tombs have been made, intimating that the UAN structural form in general (including settlement architecture) is an intrusive element interjecting into the late third millennium Oman peninsula (Orchard 1994: 63, 72: fn 21). Physical evidence that augments the intuitive notion of continuity throughout the third millennium comes from Jabal al-Emaleh Tomb I (Figure 6.13). This structure appears from the exterior to be quite cairn like and is situated with two other tombs of certain Hafit date. Tomb I, although smaller, has a larger internal area that has been roughly divided into 4 chambers through the construction of two short walls jutting out from the ring wall (Benton and Potts 1994: 27-30, Figs 35-36). The recovery of an in situ Hafit vessel from this tomb ensures its construction in the first half of the third millennium and parallels drawn with tombs from Umm an-Nar island, may indicate a date of c. 2600 BC for this structure (Benton and Potts 1994: 40). Jabal al-Emaleh Tomb I has been heralded as being a transitional form that bridges any previously conceived notion of a gap between the Hafit and UAN periods, a disjunction which Frifelt had previously addressed through analysis of the Bāt cemetery, where the argument for indigenous growth of the UAN from Hafit was evinced through the beehive form and cemetery layout (Frifelt 1975).

Some structural comparison between Jabal al-Emaleh Tomb I and others from Bāt (Tombs 53 and 54, Frifelt 1975: 386-8), Umm an-Nar island (Tombs VII and VIII, Frifelt 1991) and Tawi Silaim (Cairns 2 and 3, de Cardi et al. 1982: 63-67) have been made (Benton and Potts 1994: 30), but none of these have the incipient internal walls of Jabal al-Emaleh Tomb I. What they do show, however, is that simple tomb forms such as Tombs VII and VIII from Umm an-Nar island have none of the usual UAN structural features, but were nonetheless apparently constructed in that era. Tomb VII includes an undoubtedly Mesopotamian pear shaped jar dated to ED III (Frifelt 1991: 96). It is relevant here to note the conclusions drawn by Vogt regarding the relationship between the Hafit/beehive tomb complex and those of the UAN period. These see the earlier forms continuing in use alongside those of the UAN period, at least until just after the middle of the millennium (Vogt 1985 as quoted in Frifelt 1991: 127). This may indeed be borne out by the evidence, but there may also be indications that these more cairn like structures date earlier in individual site sequences than those of the more developed UAN type (Bāt and Umm an-Nar island).
Appearances: Tombs and towers

The appearance of Umm an-Nar period tombs is indeed reminiscent of the towers that also characterise many of the settlements of this period and may indicate that houses of the dead were designed to emulate these protective structures that played such an important role in daily life. The question, however, of which came first is a relevant one. It would appear that cairn tombs of the Hafit era predate the earliest tower known to date, being that of Hili 8 in period 1, dating to c. 3000BC (Cleuziou 1989). This tower was square in shape, with walls 16 m long and is considered to be ancestral to the round mud-brick towers of the later third millennium (Potts 1990a: 80). By Period II and upon the ruins of this structure, a new round tower of c. 22 m diameter had been built, dating to c. 2700BC (Cleuziou 1989a). The situation may therefore be that the increasingly well built, formal, larger tombs of the Oman peninsula with their ashlar exteriors may have developed alongside the development of round mud-brick fortification towers, or only slightly in the wake of them. Due to the problems dating the tomb contents of the UAN era it has always been difficult to determine the date of tomb construction, but it would seem that earliest may be around 2700BC, although a slightly later date isfavoured. The so-called 'tower tombs' of Oman (Yule and Weisgerber 1998) require
brief mention, as they may be seen to draw together the two forms architecture under discussion here. To date, however, none of these structures have been excavated such that they can be firmly dated, and the recovery of some UAN sherds from outside one monument is not considered sufficient dating evidence to draw these structures into the current discussion.

Considering fortification towers appear alongside increasing sedentism and tomb monumentality in the Oman peninsula indicates there was a perceived need for defense, although whether in response to internal threats (inter-village rivalry for control over resources – ports, land, resources) or external (foreigners seeking to gain access to resources – copper, stone) is not clear. Possibly confirming in the least assertions of external threats is the limited body of written evidence from Mesopotamia. This suggests firstly that recognised, separate entities within Magan existed “a force drawn from 32 cities” and secondly, that incursion into Magan from ancient Mesopotamia is recorded as occurring during the reign of Maniştušu in the last quarter of the third millennium BC (Potts 1990a: 136). That this evidence is limited to the last quarter of the third millennium BC, well after tower construction had commenced in the Oman peninsula, provides an indication that internal conflict may have provided at least the initial stimulus for defensive architecture.

_Tomb elaboration: The decorative imperative_

Brief mention of the five tombs exhibiting ashlars with carved relief is warranted here, if only to note a couple of aspects regarding their distribution. Generally there is only one carved tomb per site (Hili, Umm an-Nar island, Shimal, Mleiha). The second tomb on Umm an-Nar Island exhibiting carved relief (Tomb IV) shows this stone to in fact be reused. The relationship at individual sites between tombs with and without carvings is difficult to assess. Of course the chronological range of the tombs is always problematic, so assessing whether more than one tomb was in use at any one time is problematic to detect. If, however, more than one tomb was used at a time, then there is scope to speculate that the carved tombs may have been the preserve of a social / ruling élite. Supportive evidenced for this notion is slim indeed, with only the incomplete grave
assemblage from the Hili Garden tomb (1059), comprised predominantly of luxury style pottery, contrasting to Tomb A Hili north, which was dominated by domestic wares. A second hypothesis may see the carved tombs as being those constructed in the formation period of the settlement, with a lot more time and expenditure put into their external appearance. Once further tombs were constructed, if they were, the same decorative imperative may not have been there. This may find some degree of corroboration with the equally speculative notion that decoration on tomb exteriors may reflect ‘the signature’ of particular groups (Blau 2001: 562).

Motifs used on the tomb exteriors were primarily zoomorphic, including oryx, camels, snakes, a bull, donkey and lions. Human figures were only recorded on Tomb 1059 at Hili, with a figure-like depiction (an idol?) on Tomb II on Umm an-Nar Island. Of human scenes on tomb 1059, one has been interpreted as a pair copulating, a further pair holding hands flanked by oryx in a heraldic format (Cleuziou and Tosi 1997: 71), and a further two figures journeying, one on a donkey with a second walking behind. Interpretation of these scenes to date has been selective, with most attention afforded the hand holding scene, thought to be “a powerful representation of the alliance” (Cleuziou and Tosi 1997: 72). This is in particular due to further handholding scenes depicted on seals from RJ2 and Kalba (Cleuziou 2003: Fig. 6). Alliance and its affirmation are explained as the basis of tribal politics in traditional Arabia, which provides the stimulus for the repetition of these hand-holding scenes (Cleuziou 2003: 145). This scene, together with the communal nature of the tombs, can be interpreted as ideological conveyors of the message that “tribal structures, bonded by elaborate lineage patterns, were the bricks that built up the society behind the Early Arabian Civilization” (Cleuziou and Tosi 1997: 72). The copulation scene may be interpreted as referring to notions of fertility and continuity, often a theme associated with death and the overriding cyclic nature of regeneration, birth and death. The depiction of wild animals of no economic value, primarily the oryx but also the lion, indicates these animals played some kind of ideological role in UAN culture, while representation of camels, donkeys and bulls is likely due to their key roles in trade and subsistence.

Internal space

The useable space inside tombs of the UAN period and its manner of division may be relevant to tomb use or may be structurally requisite. Overall it would appear that there is a correlation between the size of tombs and the number of chambers (Table 8, Chapter 5). The bigger the tomb, the greater number of chambers necessary due to overall structural requirements whereby a large tomb cannot be roofed without interior walls to
act as supports. The factor of dividing space then appears to more practically determined rather than being factor exhibiting a unilinear trend towards increasing (or decreasing) compartmentalisation with time. Although tombs overall appear to increase in size through time, the largest and hence those with the greatest number of chambers (up to 12) all occurring in the last quarter of the third millennium, there is the significant terminal phase UAN tomb at Tell Abraq defying this trend, having only 2 chambers and measuring c. 6m in diameter. In few publications of UAN tombs has any reference to the variable use of the chambers been presented. This is in part because of the lack of well analysed and published skeletal collections, but also due to the relatively poor preservation of skeletal remains. Although tomb Unar2 from Shimal remains unpublished, reference to analysis of the skeletal remains indicates that infants, children, adolescents and adults were present in all chambers, as were males and females, in relatively even proportions (Blau 1998: 118, 123). All age components were also recovered from both chambers of the tomb at Tell Abraq. Overall there is little evidence to support use of the chambers for the separation of gender or age and although it is feasible that they were used to separate kinship groups, a similar lack of evidence leaves this topic unresolved.

As mentioned earlier, it is also plausible that internal divisions and the presence of shelves or levels may also have had a symbolic or ritual function within the burial programme and although specific evidence to support this is scant.

Associated structures

The recovery of limited evidence for structural remains associated with the graves of the UAN period has been found at three sites – Tell Abraq, Tomb A Hili north and possibly Al Sufouh. Remains at the former two sites were quite similar, comprising a partial pavement area and a series of upright slabs, both relatively close to the entrances to the tombs. What these stones are the remains of is uncertain, but there is potential that they are the remnants of some structure, or even a simple paved area that may have played some role in the ritual component of the interment process. The upright slabs at both sites are particularly intriguing in this regard as stones do not fall into this type of arrangement by accident70. Bodies may have been laid here while a burial ceremony took place with mourners looking on. It is certain that any ritual that may have been associated with the interment of the dead would have had to take place outside the tomb, due to a number of functional aspects of these structures, not the least of which is the

70 For a view of the remnant structure outside the tomb at tell Abraq, see Potts 2000: 87.
very small doorways that accessed the chambers. The tombs would have already been partially full, providing little internal space and not too mention, probably quite quite smelly!

Alternative arrangements

Alignment A from Asimah has already been described briefly in Chapter 5. That the cist graves A1-4 associated with this alignment together comprise a unique mortuary context within the overall funerary schema of the UAN period is acknowledged by its excavators (Vogt 1994: 130). Its date within the UAN era is also, however, confirmed by the finds within these graves, which although late in the UAN sequence, appears contemporary with the tomb from Tell Abraq (for the C14 dates from Asimah, confirming the contemporaneity of the Umm an-Nar remains there with the tomb at Tell Abraq, see Görsdorf and Vogt 2001: Table 1). According to Vogt “we can only suggest to consider the alignment and several graves of the Asimah cemetery as atypical or representing a phase unknown so far in the Umm an-Nar cultural sequence” (1994: 131). Reference made here to some of the other unusual graves of the Asimah cemetery is relevant. The tombs of this cemetery have faired poorly and dating these structures has been highly problematic. Often few grave goods remain within the structures and later re-use of the graves further confuses the chronological attribution of their construction phase. It must be noted, however, that many of the graves possibly attributed to the UAN period do not appear as typical structures for this era, many having curtain walls more similar to the beehive graves or appearing cairn-like, or with subterranean cists. That some of these graves may indeed date earlier in the 3rd millennium cannot I think be discounted, despite the lack of dateable finds.

Considering once again Alignment A, however, are reports of other potential alignments. Firstly de Cardi indicated in her original survey that three other alignments were originally present at Asimah (1985). These appear to have been destroyed before the 1990 rescue excavations. Further alignments are also possible at Wadi Ashwani, Qidfa and Kalba, although they remain unexcavated and their date is uncertain (Vogt 1994: 134-135). If indeed all these other monuments were to prove to be similar in form and function to Alignment A, then this addition to the funerary regime of the Oman peninsula in the late UAN era could no longer be considered unique. Consideration of this structure by the excavators indicates that it would have required the highest energy expenditure ever invested in an UAN monument and for the interment of only restricted numbers of individuals. Consequently, it is interpreted as having been “dedicated to a high ranking personality with later additions for his (?) descendents” (Vogt 1994: 131). This explanation is thought enhanced by the niches along the platforms, assessed to have
originally contained pottery or other objects dedicated to the deceased (although they were empty when excavated).

Due to the complete variation between this and the traditional circular, communal funerary monuments, review was undertaken for the purposes of testing the hypothesis that this funerary complex may have reflected foreign influence or in fact be the burials of foreigners. As noted above, other potentially similar monuments are known in the UAE. Focus is then turned to alignments and proto-triliths elsewhere in the Arabian peninsula, where a fairly convincing argument is presented for the presence of related platform/burial structures dating from the Neolithic period onwards (Vogt 1994: 134-137). It must be noted, however, that very few have been excavated and those that have prove that the dating of these structures is problematic. In conclusion, Alignment A is interpreted as a proto-trilith monument, that is part of a long architectural and ritual tradition “possibly started somewhere in central or northwestern Arabia. In the course of very early demographic fluctuations the concept was implanted in southwest Arabia from where it was successively transferred to Oman. Perhaps roughly by 2000BC, is the northern part of the Oman peninsula the final destination of that track” (Vogt 1994: 138).

Considering then that this mortuary/ritual monument is assessed as being part of a south-north movement, the question begs as to why more such monuments have not been positively identified and excavated. There has been a considerable volume of survey and excavation undertaken over the past 40 years such that the lack of comparable structures is striking. As a result, the practices seen here at Alignment A in Asimah must be viewed as variants to the ‘norm’ of communal burial in circular structures that characterises the UAN era of the Oman peninsula. The late date of this monument may also indicate that it is more related to practices that are yet to become established within the Wadi Suq cultural milieu, an era characterised by increasing variability in funerary contexts, which is indeed a feature of the burial programme at Asimah in the late 3rd millennium BC. The association of Alignment A with the ephemeral settlement site of Asimah north that is characterised by a preponderance of Harappan pottery provides an interesting point of possible connection that is, unfortunately difficult to interpret. As a result, although much interpretation is made of the Asimah alignment in terms of its’ “complex architectural variability....(relating to)... a hierarchy of different communal and societal groups” and a “hitherto unrecorded commemorative death cult” (Vogt 1994: 184-186), the lack of comparable excavated sites makes these assertions challenging to take beyond the realm of conjecture.
Discussion: Third millennium BC burial practices

Summary

Overall, the construction of tombs of the UAN period would have required a high degree of skill (specialisation) and energy expenditure. The planning process behind their construction would have necessitated considerable organisation, co-operation and commonality of purpose. These are all hall marks of sedentary, agricultural communities with craft specialisation, where individuals/groups undertake different activities and barter / exchange in some manner such that the living needs of all are met. Such communities usually entail the leadership of an individual or group (élite? council of elders?) who direct activities, are involved in dispute resolution and provide overall governance and decision-making. It is considered that without a framework comprising these types of social organisational elements, construction of tombs (and the towers) of the scale and workmanship known in the UAN period would not have been possible. The communal nature of almost all UAN tombs will be further discussed when reviewing the evidence for people that were buried within them.

Tomb location and distribution

Although in terms of structures Umm an-Nar tombs show continuity with those of the Hafit era, the same is not the case regarding intra-site location patterns and overall regional distribution. Whereas tombs of the Hafit period were numerous and located on highly visible landforms, potentially acting as territorial markers, those of the UAN period were generally situated on lower, less visible landforms and often very close to settlements. Furthermore, the distribution of UAN period sites describes a quite different pattern than those of the Hafit period tombs. UAN sites are found all along the west coast of the Oman peninsula from Abu Dhabi in the south to the northern-most parts of Ras al-Khaimah, throughout the interior and along numerous wadis draining into the Gulf of Oman, and as far south as Ras al-Hadd (Potts 1990a: 94-5, Fig. 11), unlike tombs of the Hafit period which are focused primarily inland, following the arc of the Omani mountains, and potentially along wadis heading to the east and west (Figure 6.15).

What may have instigated this shift in tombs/site location? Again as a working hypothesis, we may contemplate the lack of associated sites of the preceding Hafit period and the theory that the archaeological ‘invisibility’ of these sites may be the result of their location in low-lying wadi beds where flood and siltation regimes have buried their remains under potentially metres of deposit (Potts 1990a: 78). If this is indeed the case, then we may also surmise that the early settlements of the Hafit period,
situated in these zones where run-off is greatest and thus accessing water is easier for the population, may have themselves undergone the fate of flooding and siltation, while still occupied. This may have then stimulated both the movement of settlement sites to more appropriate locations, obviously nearby to access water but unlikely to be inundated) and the development of early water management systems. An alternative hypothesis here (potentially following on from the explanatory process evinced in the discussion on Hafit period tomb distribution) may see that elements of the Hafit population who were not sedentary at the beginning of the third millennium, may well be by the middle of this era, and may represent the sectors of the population that came to occupy locations where UAN settlements begin to appear from c. 2500 BC onwards. This explains the concomitant shift towards the west coast, where sites begin to appear from Umm an-Nar island north to Ra’s al Khaimah. This shift may be seen as part of the broader movement of people from the coast of Oman back into the interior and through to the west following an opening of up of this area due to any combination of the following factors:

- Climate. It has already been hypothesised in the previous chapter that population movements from east to west may have been instigated by improved climatic conditions (increased rainfall and a rise in sea levels (Potts 1990a: 58-60) such that habitation on the gravel plains and the west coast became feasible. This would have been combined with:

- Technology. Evidence indicates the earliest use of metals around the late fourth / early third millennium and there is also evidence of attempts to control water (Hili, Jabal Hafit) and for nascent agriculture (Hili). These factors all develop quite rapidly throughout the millennium. This would have enabled:

- Increasing population. Evident for occupation in areas that were previously unsettled, yet the marginal nature of the land may have instigated a need to:

- Define territory and operate in first loosely cohesive kin group associations, and subsequently in more sedentary communities with broader membership. These processes may have stimulated:

- Rivalry over access to and control of resources stimulating the need for defense, both from internal challenges and from:

- Increasing external relationships. Incipient trade relations with the Iran, Dilmun, Mesopotamia and the Indus, in particular revolving around local resources
Discussion: Third millennium BC burial practices

(copper, stone), are likely to have provided motivation for change as well as a potential need for defense.

Also speculative is whether the evidence can support a generalised movement from south to north. Umm an-Nar island appears to be the earliest of the settlements of this type on the west coast, moving up to Ghanada, Al Sufouh, Ajman and Tell Abraq to Shimal. Such a changing of the guard in terms of seaport ascendancy was alluded to by Frifelt (1991: 128) and may also reflect the changed patterns of trade and exchange that see increasing contact with SE Iran, the Indo-Iranian borderlands and the Harappan world.

An alternative hypothesis that may explain the shift in tomb location within the landscape may relate to security. In the Hafit era tombs dominated ridges and hillsides,

Figure 6.16: Map of the Oman peninsula showing primary Hafit and UAN era sites (after Cleuziou 2003).
were likely to have been situated a considerable distance from settlements and were hence probably difficult to protect. Potentially the increasing scale and complexity of settlements from the middle of the 3rd millennium BC may have escalated inter-site competition hence stimulating a desire to keep the monuments of the dead closer to the living where they could be protected.

Returning, however, to the topic of the burial regime itself, a final point concerning the overall distribution of tombs of the UAN period is in order. Despite the fact that distribution patterns and intra-site relationships have undergone transformations since the Hafit period as discussed above, there is nonetheless a widespread presence of UAN period tombs across a broad geographic area which demonstrates a high degree of socio-cultural uniformity and integration. This homogeneity has been inferred as being at least in part a result of the high level of interdependence between settlements, which were strongly connected through the trade/communication networks that enabled the movement of copper/stone from the mountains to the coast for export, and for that matter, the transport and exchange of a wide range of materials (Phillips 1997: 206).

Considering this cultural homogeneity Blau (2001: 561) has speculated that the architectural similarity of the tombs was somehow a purposeful means of "demonstrating social cohesion, a facet of a consolidated group identity for the people of Magan", a process not dissimilar to the use of monumental buildings as social propaganda in contemporary societies. Prompting the need for the third millennium inhabitants to express social cohesion was the degree of political turmoil in evidence, potentially instigated by a number of processes including a possible incursive population element, increased foreign intervention through trade, a need for defense or inter-tribal feuding (Blau 2001: 561-562). While it is likely that several or all of these disruptive processes may have been at work in the UAN period, i.e. the influx of Iranian potters; definitively widening trade contacts as attested by the material culture; the construction of fortress like towers in the face of a perceived need for defense and local in-fighting, I do not see that it is in response to this that tombs of UAN type have been purposefully devised and constructed all over the Oman peninsula. A far more likely explanation is seen in the growth of this circular stone monument out of those that predate them – the Hafit cairns. This implies a natural development of a cultural milieu from the beginning of the third millennium, rather than the development of new form of structure

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71 Hypotheses that are based perceived directional shifts must always be treated with caution due to the possibility that their foundations are an artefact of archaeological exploration rather than a true picture of ancient site distribution.
specifically for the purpose of creating social cohesion. This scenario also begs a little too much in the way of political exploitation, foresight and control of the powers that were in the third millennium towns of the Oman peninsula. Considering these settlements were in the relatively early phases of establishing sedentary, agricultural, trading economies and were indeed pre-literate, this level of sophisticated thought and further the ability to accomplish purposive cultural homogeneity through overarching political organisation in the form of funerary architecture is thought to be unlikely. As Wilkinson has reflected (1987: 370) "...throughout Oman's evolution economic and cultural integration have developed together. Homogeneity has not stemmed from imposed central government organisation but rather from complementary interests".

A final note on tomb structures revolves around their role in landscape and society as suggested by the current study. That UAN tombs are thought to represent growth from Hafit period structures is argued earlier. The ultimately communal nature in which they were used may be mirroring the increasingly communal nature of the society for which they were constructed. From a distance it is relatively safe to presume that the towers associated with many UAN period sites would have dominated the vision of the settlement, the tomb would, however, have also been a relatively defining feature of the local landscape, comprising the only other monumental structure. In this way UAN tombs are thought to be symbolic of the organisation and beliefs of the society to both the local community and other travelers from the region and beyond. Blau (2001: 562) also notes that the circular construction of the tombs may be in imitation of the towers thereby connecting aspects of the living with the final resting place of the dead, an ostensibly plausible hypothesis that will elaborated on in the following chapter.

Interment methods

Overall, the practice of multiple, successive inhumation in stone built tombs continues to be the dominant interment method of the late third millennium, suggesting I believe, an overarching stability of tradition from the Hafit period through the rest of the third millennium. The same care with terminology as noted earlier is appropriate here too, with the burial programme being better described as 'individual, successive interment in communal tombs', where in fact individuals are interred most often one by one. Despite the overall continuity, there are nonetheless divergences from the specifics of the previous era's practices and several additions, all of which appear to be the result of human requirements in response to the overall societal changes that characterise the UAN period (i.e. increased population, sedentary lifestyle). In order to understand better
how these changes relate to the overall burial programme, they need to be assessed in context, which is what the following paragraphs hope to do.

*MNI*’s and age/sex ratios

The first major deviation from previous practices is the number of individuals interred in any one tomb. Most tombs appear to hold between 20 and 100 people, although some contain up to almost 450. This divergence is not only to do with numbers, but involves the affiliations of the deceased. Previous assessments indicate that the Hafit graves contained family units, potentially nuclear and this is obviously not the case in the late UAN period when one tomb is servicing an entire community (e.g. Tell Abraq, Ajman, Al Sufouh). There appears to be several factors that may be feeding this impetus to change, not the least of which is the increasing population. It also is not necessarily, or likely to have been a rapid change. The site of Umm an-Nar island, considered early in the UAN sequence as previously discussed, has tombs with increasingly large numbers of interments, up to 49 in Tomb V. Analyses of the skeletal remains from these tombs suggest, however, that they were in fact used for interment of family groups, albeit extended through generations (Kunter 1991, Hojgaard 1980). Once tombs the scale of Tomb A Hili north, Tell Abraq, and Shimal Unar1 and 2 are in use, the notion of separating family units, or even extended family units in mortuary contexts is apparently gone, as noted above. It seems, moreover that at some sites, the entire population was buried in the one monument. Of course the issue of undiscovered mortuary evidence may change our understanding of this aspect of burial practice, but for the moment some sites exhibit only the one 3rd millennium tomb (Tell Abraq, Ajman, Al Sufouh) while others have multiple tombs (Umm an-Nar island, Hili, Shimal)72. Were the latter sites in use for longer periods thus requiring the commissioning of a new tomb? Or was the construction of a new tomb nothing to do with the requirement for more burial space? Certainly tomb size does not appear to directly correlate with interment number as pointed out by Blau (2001: 560) and there are potentially other burial practice components that feed into this discussion, namely the use of cremation which will be assessed in detail below. In summary, the increasingly communal nature of tomb composition as an aspect of the overall burial programme may be seen as reflecting the increasingly communal nature of life in the associated settlements, where a now flourishing economy is sustainable through the combined efforts of the population.

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72 It is of course possible that further tombs will be revealed at sites that currently have only one, particularly at sites like Tell Abraq, where the tomb was not visible from the surface due to being covered by later deposits.
Composition of tombs in terms of age and sex underwent little change from the Hafit period through to the end of the third millennium BC and the interred continue to represent all components of the population, with both sexes and all age groups being buried in the same structures. In fact tomb composition, as seen as a burial programme variable, does not overall alter significantly from the 5th millennium BC through until the pre-Islamic period (Blau 1998: 233). In spite of this overarching trend, recent analysis of the Tell Abraq tomb inhabitants indicates a potentially different situation at this site, where between 65% and 85% were assessed as male (Cope et al. 2005: 398), and it is also interesting to note a bias towards males recorded by Kunter on Umm an-Nar Island (Kunter 1991: 166). Does this indicate a preponderance of males living at these sites, or that men had greater rights to burial in the communal tomb? The latter does not seem supported by the available data, which finds no other patterned disposal method for women or children. The former contention is also unable to be substantiated from settlement evidence, and as noted in Chapter 5, determinations of sex from disarticulated skeletal remains should be treated with caution (Blau 2001b: 193) as should the use of these assessments to interpret settlement composition.

Also relevant in this regard is that not only are all aspects of the physical population represented, but there also appears to be no differentiation in the burial programme for those members of the community who may have been of higher status or rank. The likelihood that some form of ruling class, elite or council of elders, as mentioned earlier, was in existence is extrapolated from the increasing complexity of the settlements in terms of specialisation and their involvement in broad exchange networks. Arguing against an increasing level of social organisation or control of wealth/power by an individual/group is still the overall communal nature of mortuary evidence, where apparently no individual or group is singled out for variable treatment in death, which may suggest an absence of social hierarchy (Chapman 1981: 388). In this regard there are several factors to be considered:

1. That the communities are stratified to some extent, as evidenced by the organisation required to construct the monuments and undertake other specialised activities, but that the existent hierarchy is not expressed in the burial context aspect of the mortuary programme. This does not, however, exclude the possibility that the wealth/power of a controlling group/individual is expressed at the mortuary level through ritual and/or displays and possibly grave-goods, rather than through the use of alternative burial contexts;
2. That eschatological belief transcends social stratification at the structural level. It is possible that requirements based on belief systems – notions of an after-life etc., outweigh the expression of status in funerary expressions;

3. That the communities of the Oman peninsula in the third millennium were indeed unstratified in the sense that no group or individual within the community held greater control of resources than any other;

4. Also plausible is that the burial programme or material remnants thereof, was a construct designed to cover up the inequalities of life, thereby misrepresenting or concealing real social relationships (Shanks and Tilley 1982: 129). This is particularly as it is the result of intentional behaviour rather than functional (Härke 1994).

Although not strictly comprising an alternative burial strategy, Cleuziou has suggested that the more monumental graves at Oman peninsula settlements (those larger or with bas relief) may have been the focus of competition for status and prestige among groups (Cleuziou 2003: 141). This is considered difficult to support with existing data. Firstly, not all sites appear to have had more than one tomb to choose from. The sites of Al Sufouh, Mowaihat (Ajman) and Tell Abraq to name a few have only one funerary context dating to the UAN era. Secondly, even at sites that have multiple UAN era tombs, it cannot be certain that all were in use at the one time. As was mentioned earlier, sites with a greater number of UAN tombs appear to date early in the chronological sequence (Hili, Umm an-Nar Island, Bat), while those dating later have fewer (Tell Abraq). Further, sites with numerous UAN tombs show that some predate others, although the chronological issue of dating collective tombs is inhibiting, while plundering has impacted tomb assemblages such that no determination of the relative wealth of one context over another is easily made. Hence the evidence does not inherently support the notion that there was competition between lineal descent groups for the rights to burial in the most monumental tomb, even if it cannot definitively discount it either. Considering this it seems appropriate to dispense with direct linkages relating the size or external appearance of the funerary monument to the importance of the person(s) / lineal group interred within.

Also of relevance here are the alternative disposal methods obvious in Asimah Alignment A. The available evidence (as reviewed earlier) places this context late in the 3rd millennium BC sequence and as a variant to the traditional practices. The individual inhumations in cist graves have not, however, been aged or sexed, so no hypotheses can
be drawn regarding variable treatment at death of particular individuals or their relationships to one another. This site does, however, provide evidence for the first time in the Oman peninsula that certain individuals have received alternative funerary treatment in terms of actual burial context.

**MNI's and population estimates**

A final issue for discussion here is the likelihood that entire communities were interred within the one or two associated tomb structures, and that no other method for the disposal of the dead in the UAN period was in use. The lack of any attempted population estimation for settlements of the UAN era combined with the fact that most skeletal evidence is so fragmentary makes answering this question difficult. However, as the tomb at Tell Abraq is undoubtedly the best preserved, an attempt has been made to make some calculations towards assessing the potential size of the community that contributed to the tomb. The numbers used are not based on full knowledge of the skeletal data from Tell Abraq which is not yet comprehensively published, and should be taken as broadly indicative only. The numbers used in this series of calculations is based on work by Branigan in Crete (1993: 90-93), where he invokes a calculation of between 12 and 20 individuals per nuclear family per century, the range reflecting uncertainty about juvenile burials and whether they were usually placed within the tombs or not, and on varied mortality rates.

Skeletal analyses undertaken to date estimate the tomb at Tell Abraq to have contained c. 300 inhumations of men, women and children, although removal of a portion of the tomb prompts us to adjust up to 350. If the tomb is thought to have been in use for c. 100-200 years (or a little longer) then the following calculations provide some interesting results. A second column of calculation (blue) for each time period has been generated so as to take into account the preliminary possibility that c. 65-85% (using the mean 75%) of the tomb inhabitants were male. Using this figure, and based on a presumed 50:50 male/female ratio, we can predict that the deceased population may have been c. 525.

Using the grey columns from Table 6.2 (based on the 350 tomb population estimate) the data indicates that between 8.75 and 21.9 nuclear families may have inhabited the settlement at Tell Abraq utilising the UAN tomb over a c. 100-200 year period, with fewer should the tomb have been in use longer. Considering these numbers, it is thought likely the tomb was used for a shorter time (100-200 years rather than 200-300 years), as purely intuitive notions of the settlement at Tell Abraq see it as likely to have supported
a population of c. 200. Using the blue columns from Table 6.2 (based on the 525 deceased population estimate), between 13.2 and 32.8 nuclear families may have lived at Tell Abraq, with the majority being buried in the tomb, but a selection of the females being disposed of in another way. Should these figures be closer to reality, then the tomb may have been used over a longer period than using the previous estimates.

Table 6.2: Estimates of the population contributing to the tomb at Tell Abraq.

<table>
<thead>
<tr>
<th>Based on estimated tomb population</th>
<th>Based on estimated population of tomb if 50:50 male female ratio invoked</th>
<th>Based on estimated tomb population</th>
<th>Based on estimated population of tomb if 50:50 male female ratio invoked</th>
<th>Based on estimated tomb population</th>
<th>Based on estimated population of tomb if 50:50 male female ratio invoked</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tomb in use for 100 years</td>
<td>Tomb in use for 100 years</td>
<td>Tomb in use for 200 years</td>
<td>Tomb in use for 200 years</td>
<td>Tomb in use for 300 years</td>
<td>Tomb in use for 300 years</td>
</tr>
<tr>
<td>= 350 inhumations per century</td>
<td>= 525 inhumations per century</td>
<td>= 263 inhumations per century</td>
<td>= 116 inhumations per century</td>
<td>= 175 inhumations per century</td>
<td></td>
</tr>
<tr>
<td>Using 20 deaths per nuclear family per century</td>
<td>17.5 nuclear families contributing</td>
<td>8.75 nuclear families contributing</td>
<td>5.8 nuclear families contributing</td>
<td>8.75 nuclear families contributing</td>
<td></td>
</tr>
<tr>
<td>= 21.9 nuclear families contributing</td>
<td>= 32.8 nuclear families contributing</td>
<td>10.9 nuclear families contributing</td>
<td>7.3 nuclear families contributing</td>
<td>10.9 nuclear families contributing</td>
<td></td>
</tr>
</tbody>
</table>

With respect to these calculations a few points require discussion. The grey columns are based on the tomb population being complete and reflecting the living population with no other major body disposal methods being utilised. This is challenged by the preliminary sex ratios of the assessed skeletal remains which indicate between 65% and 85% of interments are male based on assessment of various skeletal elements. Also relevant is that across the Oman peninsula no other patterned methods for the disposal of the dead for the Hafit or UAN era’s have ever been discovered, and it is not considered likely that there would be no archaeological trace of an alternative mode of disposal somewhere, if indeed one was in use. If this is the case then it may be predicted that either Tell Abraq was dominated by males (unlikely?) or sex assessments based on commingled skeletal elements are challenging due to the inability to assess all (or the majority of) components of an individual skeleton, as discussed earlier in this chapter.

Deposition of the corpse

In terms of the deposition of the deceased at the time of death, the review of evidence in Chapter 5 delineated definitive preference for a flexed position, resting on either side, often with the hands drawn up near the head. Orientation of the head appeared to relate
more to the tomb structure, i.e., heads to the wall, than to any overarching pattern, although evidence is indeed slim. Often the arms appear to be drawn up to the face and at Tell Abraq an individual was found to have a ceramic vessel between the drawn up arms and the face, somewhat comparable to an individual from Jabal al-Emaleh Tomb I, where although the arms were missing it is likely they were drawn up and a ceramic vessel is situated in close proximity. The overall flexed position provides a point of continuity with the preceding Hafit period and indeed with 4th and 5th millennium burial practices.

There is some evidence that bodies may have been wrapped in shrouds (linen, embroidered beads), although this evidence may be from clothes also worn in daily life. Either way, the body was almost certainly prepared after death such that it was either shrouded or appropriately dressed for the journey to the tomb. From the very few areas of tombs with good preservation, items of bodily adornment were noted on corpses, evidenced by rings found on fingers and toes, necklaces around throats and ivory combs in the hair. There may potentially have been some form of ritual that took place either within the settlement or at the entrance of the tomb, for which virtually no evidence remains other than some minimal structural remains outside two UAN period tombs, one at Tell Abraq the other at Hili north. Overall, however, funerary rites of the Hafit and UAN era may be considered as being composed (at least archaeologically) of only the one set of primary activities. The deceased are transferred from the place of death to the tomb where they are inhumed, with or without ritual and associated grave goods, and the process of decomposition begins.

The few burials mentioned in Chapter 5 that do not conform to this pattern are the extramural burials from Umm an-Nar Island and the cist burial from Tell Abraq. Interpretation of these burials is problematic. For those outside Tomb V on Umm an-Nar Island, their association with ceramic sherds of UAN date in the vicinity is inconclusive as these vessels may have derived from inside the tomb. Consequently, they may be of UAN date but they may also be later. The same can be said for the two other tombs with extra-mural burials, Tomb VI with one highly disturbed individual and Tomb VII, which had two disturbed inhumations around it. The dating of none is conclusive, but the burials appear purposive, in that some appear to have been lain on stone slabs or with their heads resting on a stone (Frifelt 1991: 39). In terms of the broad chronological categories ascribed to the tombs from Umm an-Nar Island, the tombs with the extramural burials all fall within the earlier group. Interpretation of the rationale for these burials being located outside the tombs may include that they date to a later era, or if from the UAN period that these individuals did not have tomb membership rights for
some reason (deviant behaviour, ethnic background, social rank etc.). Some data concerning age or sex would undoubtedly aid the interpretation of these unusual burials.

The cist grave built against the external wall of the tower at Tell Abraq was bonded with the foundation course of the tower and hence must date to the same period, c. 2200 BC. It contained the flexed, articulated remains of an 18 year old possible female, showing extensive head trauma, that may have been inflicted during hand to hand fighting (Blau 2001a: 9-11). The setting apart of this individual from the rest of the community in her(?) unique situation, having died young and traumatically. One interpretation of this funerary variance was speculated as the interred having high standing in the community, thus being afforded her own burial context, or due to her age and manner of death being unusual and/or traumatic (Blau 2001a: 12). Evidence to support the former speculation is indeed scant, and although the latter is plausible, Blau cites the articulated individual from the associated tomb, assessed as having poliomyelitis and her inclusion within the tomb as unusual considering the exclusion of the cist individual.

An alternative hypothesis revolves around the early date of the cist grave, apparently relating to the foundation of the tower at the site, which may indicate that the associated UAN tomb had not yet been built. It must be considered feasible and indeed likely that the fortification tower preceded the tomb in the settlement construction schedule, a factor also thought likely considering the stratigraphic relationship of the two structures. Thus with no communal tomb available, the inhumation of this individual in a stone built structure (cist) may have been the closest the community could get to the usual burial in communal stone built graves. The traumatic event may also have related to the construction of the tower, possibly a stone falling from the walls during construction, thus not being the result of combat. Also thought worth consideration is that this individual had behaved in some aberrant way such that she(?) was executed and buried away from the remainder of the population or that she(?) may have been a sacrifice for the good of the community. Overall, however, the one-off nature of this form of burial leads to the conclusion that it was ad hoc and not part of a trend or continuing practice in terms of the mortuary programme.

The other contexts that do not conform are those of Alignment A at Asimah. These individuals were buried as single inhumations in a mortuary monument that has been assessed by the excavator as having ritual purpose, potentially for the veneration of the dead. Interpretation of this unique treatment of the dead revolves around their holding high rank within the community. Without data on the age or sex of the interred, further
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hypotheses are challenging to draw. Also worth brief mention in this regard is a potential parallel between the cist grave at Tell Abraq and the Asimah alignment\(^7\). Both provide evidence of stone built cist graves attached to larger stone monuments, yet here the similarities end. The lack of grave goods from the Tell Abraq cist and the lack of any further cists relating to the tower or any other structure limits the interpretability of this parallel, although the very terminal 3rd millennium date may indicate a relationship. It is hoped that further excavations may reveal evidence that can shed better light on case studies such as these so that their apparently divergent practices can be understood in light of the traditional communal burial regime.

Skeletal analyses

With regards to skeletal analyses and the topic of the population affinity of those interred in UAN period graves, Blau (1998: 270), notes that the population is best summarised as typically Caucasoid with some degree of admixture. Kunter (1991: 178) also notes that crania from across the Oman peninsula show a remarkable degree of morphological similarity, classifying the population type as ‘coarse’ Mediterranean, the type most common throughout Western Asia, the Levant and Pakistan during the Bronze Age. In all, these assessments show that there are no population elements within UAN period tombs that show enough skeletal or cranial morphological variation to insinuate the influx of any distinct population elements.

The evidence for trauma in the UAN skeletal populations shows no distinct patterning in the archaeological record (Blau 2001b: 192) and the evidence for diet and health as reviewed in the preceding chapter can be seen to basically reflect the changed economy and demographics of the late third millennium BC. The greater frequency of compression fractures in the UAN period collections studied by Blau (2001b: 192) is of note, potentially indicating a pattern of wear that may be the result of the hard labour required in the construction of the characteristic UAN towers, platforms and tombs. Also regarding the Tell Abraq skeletal collection, Cope has determined that a significant proportion of the trapeziometacarpal joint facets showed signs of osteoarthritis and that the size of the first and second metacarpals and trapezium bones were enlarged. This may be an indication once again that the individuals at Tell Abraq, particular those of greater robusticity, were engaged in activities that were particularly demanding of the hands (Cope et al. 2005: 398). Could this also be alterations to the skeletal remains as a

\(^7\) Pers. Comm. Dr. Lloyd Weeks
result of the activities of stone work, building and metal working known to have taken place on site?

Before moving onto the most obvious addition to the UAN repertoire of ways to treat the dead (cremation), it is first apposite to reflect for a moment on the overall practice of multiple, successive interment in communal graves. In general terms, looking through time and space, this type of practice can be seen as a relatively uncommon manner of disposal of the dead. Cross-cultural reviews of other societies that practice this form of burial will be presented in the following chapter, but here a brief introduction to what these practices may mean will round out the previous discourse on the manner of inhumation.

Multiple, successive interment is a practice that ultimately results in the total disarticulation of the human form. This goes far beyond the natural processes of decomposition that affect single inhumations after burial in the ground. Once a tomb has been opened up over successive episodes and bearers have negotiated the confinement of the tomb structure to introduce new corpses, there is a concomitant disturbance to previous interments such that grave goods become dissociated and skeletal articulations lost. It is therefore obvious that whatever the world view / belief system of the society, ensuring that the physical remains of the dead were kept intact, or in anatomical order, was not part of it. This is in contrast to the Egyptian burial regime for example, where preservation of the individual was paramount, or to Amazonian practices where belief in reincarnation meant that it was vital to ensure the body was kept in anthropomorphic shape so that it could receive the vanished soul (Bailey 1975: 234). Only brief mention is made of this feature of the burial regime and its relation to the eschatological system at this time, but more will be entered into on this topic in the subsequent cross-cultural review.

Summary

In summary, evidence from the Oman peninsula indicates that the overall mortuary programme was one in which the entire cross-section of the community had membership rights to the communal tomb(s) associated with the coeval settlements. Whether the community of the dead was a true reflection of the community of the living at each site will never be definitively proven based on the nature of the mortuary remains and issues have been discussed concerning tomb sex ratios and the lack of evidence for alternate disposal methods. It is certainly possible that tombs included the dead not only of the major associated settlement, but also of the nearby smaller, more ephemeral settlements.
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(Pader 1982: 64; cf. Phillips 2005: 4-6), and may also have included individuals from further afield, e.g. merchants – either local or from abroad. If individuals from beyond the immediate settlement were accorded membership to tombs, variation in their treatment at death is not captured archeologically, and hence was either not expressed at death or was expressed though ritual rather than practice. The aberrant Asimah Alignment A practices remain unique, but do stand out in their treatment of the individual rather than the collective.

Cremation

Around 2400 BC, the biggest overall change to the burial programme of the Umm an-Nar period occurs, with the appearance of two new practices. Firstly, the clearing out of bone from tomb chambers and its redeposition into nearby subterranean pits and secondly the practice of cremation / fumigation. Many tombs contain considerable quantities of burnt bone, although the practice of inhumation appears to continue side-by-side. Table 5.10 details the tombs in which burnt bone has been reported and the quantities in which it was recovered, showing that certainly not all tombs contained burnt bone and those that did still showed evidence of inhumation as well. From this data, the predominance of cremation vs inhumation is difficult to judge, but there is definitely not enough evidence to suggest that most human cadavers from third millennium sites were cremated as has been suggested (Blau 2001b: 175).

To date there has been no definitive work synthesising all available data concerning cremation and hence formulating convincing explanations of how this practice fits into the overall burial programme of the late third millennium Oman peninsula. The review of cremation practices from the site of A1 Sufouh presented in Chapter 4 provided an extensive discussion on the nature of the cremated remains and some potential hypotheses for the practices that may have generated them. More recently excavated material from other sites including Ra’s al-Jinz Tomb 1, Unar 2 and Hili Tomb N now allows for some limited reinterpretation of the A1 Sufouh evidence while review of the A1 Sufouh volume also inspired reconsideration of the data (Kennet 1998: 191-2). Overall, the assessment of the practice of cremation having been undertaken on multiple corpses over potentially only a couple of episodes is supported by the comparative data. The only point that requires revision is the degree of flesh assigned to the corpses before their cremation. It is now suggested that the corpses were in a varying state of decomposition when burnt, rather than all being fleshed as previously thought. The colour changes noted on some bones (Figures 4.41-43) could still occur with the overlaying of partly decomposed corpses or in fact simply from bone overlying bone.
Secondly, the fusion and transverse cracking patterns (Figures 4.53-56) still indicate that some corpses remained in a state of articulation or that these bones were adjacent to hottest part of the pyre. The fact that these skeletal observations support also the notion that the bone from the pits (Tombs II-III) may have been the cleared out interments of Tomb I, is relevant because in light of the newly available evidence, this is now seen as a more likely scenario to have produced the evidence at Al Sufouh. As noted by Kennet (1998: 191), this explanation sees the deposits of Tombs II and III possibly pre-dating those of Tomb I, particularly if the whole tomb was cleaned out and then reused. One further point of interest lies in the interpretation of the Tomb IV pit. In essence, this was not really a pit in the same sense as the Tombs II and III, being more akin to a scatter and although it is impossible to be definitive, a plausible scenario sees this as the location for at least one of the cremation pyres, where possibly some evidence was overlooked, or had been partly covered up by the basal layers of the pyre.

Taking this reconsideration of the Al Sufouh evidence into account, an important question is whether use of cremation practices in the Oman peninsula should be considered as forming part of new set of secondary funerary rites (i.e. part of the ritual process) or as a practice generated by functional expediency. To enable useful synthesis, a brief review of the evidence introduced in Chapter 5 is in order, involving the grouping of sites with like remains. Evidence from each site is not, however, always mutually exclusive; hence some overlap of tombs between the groups is occasionally necessary.

Categories of evidence

Group 1: These sites exhibit no evidence of cremation or burning and include all tombs on Umm an-Nar island; Hili tomb 1059 and tombs A-H, J & M and the tombs of ‘Amlah. The absence of evidence relating to burning in some of these contexts should not necessarily be taken as evidence of absence. Several tombs, particularly many of the Hili examples were poorly excavated and published, with scant attention provided the skeletal remains. Nonetheless, for the current analysis, these will be assessed as devoid of cremated remains.

Group 2: Tombs in this category suggest limited use of burning in some capacity: Tell Abraq; Ajman; Wadi Munayi. A number of elements from the tombs at Ajman and Munayi showed evidence of burning (Blau 1998: 109, 111), while the tomb context at Tell Abraq contained not insignificant amounts of charcoal scattered throughout the deposit, and bones that were burnt, most often lightly but infrequently to a blackened
state (D. Martin Pers. Comm.). Tomb B from Ajman also bears significant relationship to Tomb N (attributed to Group 3b due to the burnt nature of its bone deposits) as together they comprise the only two subterranean stone lined graves, both situated close to potentially related above ground circular structures. Whether the burnt bone said to be from Ajman B is of a quantity to justify its re-classification into Group 3b is unclear, but its relationship with this structure makes it a bridging form between Group 2 and 3b.

Group 3: Despite Tomb N at Hili being stone lined rather than a simple pit, this tomb has been nonetheless grouped together with the pits from Al Sufouh and RJ-1, comprising the third category which are bone pits showing a considerable degree of cremation. Some need for the division of this group is necessary due to the variant practices, consequently:

- **Group 3a:** comprises Al Sufouh and Ra’s al-Jinz, while
- **Group 3b:** comprises Hili Tomb N and the swinging Ajman B tomb.

The round tombs from Al Sufouh and RJ-1 do not in fact belong to this group. RJ-1 tomb 1 was in such poor condition that whether it originally contained any bones that were burnt will never be known. As for the circular structure at Al Sufouh, it cannot be easily be placed in the category of limited evidence for burnt bone (Group 2), or in Group 4 due to the limited location of the burnt remains not being comparable to the other graves in this group. Consequently the remains of this grave will be assessed in the context of its’ associated bone pits.

Group 4: The potential separation of cremated remains (upper level) from unburnt, inhumed corpses (lower level) is apparent in two contexts - Tomb A Hili north and Unar 2, providing the fourth group. A very similar separation into two levels as displayed at Unar 2 is also seen at Mleiha, and although cremated remains are said to have been present in this tomb (Pers. Comm. to Blau 2001: 559) no information on deposition is available. The skeletal remains recovered from this tomb are said to be scarce and fragmentary and no mention of burning is made in the most recent publication on the Mleiha tomb (Jasim 2003: 93-98). It is consequently not certain whether this tomb should belong to Group 2 or 4. Evidence from Unar 1 indicates a significant proportion of burnt bone (c. 74%), but there is such limited description of context (Sahm 1988) that its place in this group is not certain. That it is more likely to belong here is indicated by the burnt material being primarily derived from the circular structure itself rather from associated pits or ossuaries.
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Not easy to place into any of the above groupings is the evidence from Maysar, which indicates that two male individuals (one old and one young) were cremated at between 300° and 500° C and then placed in grave 1 at Maysar 4 (Kunter 1981: 198; Vogt 1985b: 138).

Reconstructions of the cremation practices

Considering first chronological implications, the lack of any evidence of burning in the Group 1 tombs may be the result of their overall early place in the tomb sequence, and the potential they had gone out of use before cremation began being practiced. This then may provide a *terminus ante quem* for cremation practices of around 2400 BC.

There is in effect little that can be said about evidence for burning in the tombs of Group 2. The only plausible hypothesis for very restricted numbers of burnt skeletal elements or for the remains of charcoal in graves is that some form of ritual was being undertaken that saw limited burning within the burial contexts. Initially notions of fumigation and ritual cleansing appealed, but if this were the case, then the amount of burnt bone would potentially have been greater as would the amount of charcoal. In light, however, of the increasingly large numbers of interments in individual tombs, the impact to prior burials would have been greater and the tombs themselves would have been undeniably malodorous. It is speculated that for either of these reasons, some ritual activity involving a degree of burning (incense?) may have occurred. It is certainly noteworthy that in the collective tombs of third millennium southern Crete, it has been determined that fumigatory fires were lit in the chambers, resulting in the charring of a few bits of bone. It is thought that these events may have preceded cleaning out episodes of the tombs (Branigan 1993: 31).

From Group 3a, the burial pits of Al Sufouh and RJ-1 show a remarkable degree of uniformity and it is unfortunate that the associated circular tomb at RJ-1 was not better preserved so as to provide comparative data. At both sites the bone pits were dug directly into the sand very close to the circular structures. At RJ-1, excavation of the bone pits is as yet incomplete, nevertheless provisional results suggest to the excavators that the circular tomb was intentionally destroyed once its use had come to an end, and the bone and some of the fabric of the tomb were carefully placed in pits (Monchablon *et al.* 2003: 40). Pit 1 showed more complete bones in the basal layers, said to have been carefully placed and not thrown in, with some bundles of bones showing loose associations. More fragmentary bone comprised the upper layer, which also showed the greatest degree of burning at various temperatures over 600° C. Remains of both sexes
and all ages were present and cultural material was also found in Pit 1, although whether it was burnt is unclear, but likely (Monchablon et al. 2003: 39).

The obvious similarity between the evidence here and that at Al Sufouh is undeniable. The pits are very similar in appearance and content, although potentially there was a higher ratio of burnt bone in the Al Sufouh pits. Although originally indicated that the individuals from the pits appeared to be fleshed at the time of cremation (Chapter 4), revision of this analysis (see above) sees only a proportion of these individuals as fleshed, and these may indeed have been only partly fleshed and it is now considered likely that the pits at Al Sufouh may indeed represent cleaning out episodes from the circular tomb. That some cremated individuals were in fact still fleshed to a degree is borne out by the fused nature of some elements, the partial articulation from pit II and the fact that considerable lengths of strung beads remained intact. This is, however, a significantly different practice than that of cremating recently deceased individuals who had potentially all died relatively simultaneously. A further point of interest concerning the Al Sufouh pits is that although the bone in Pit II was burnt all the way through the deposit, indicating thorough cremation and then re-interment, there was also some evidence of an in situ burning episode visible from Layer 2 through to 4 (Figures 4.210-4.214), showing a similar blackened deposit to that in the upper level of Tomb N (Méry et al. 2001: Fig. 4). It is not, however, certain whether this factor is the result of a fire in the pit, as is assessed at Tomb N or whether it was the one of the last scoops of densely burnt material from the pyre, which included a considerable amount of burnt farush.

Further reconsideration of the evidence from Al Sufouh has lead to another potential reconstruction of the published evidence. Pit IV, comprised of a relatively shallow deposit, c. 1 m in extent and c. 15 cm in depth is very different to the other two pits being more a scatter of material than a true excavated pit filled with cremated remains (Chapter 4). It is also characterised by a lot of burnt farush fragments (Figures 4.269-4.273). Could this in fact be the remains of the pyre upon which the remains were cremated? There is burnt bone and stone with a few objects scattered about in a very 'un-pit' like arrangement. Although one way to potentially determine this may be to compare the skeletal collection from pit IV to those of the other two pits to determine whether parts of the same individuals are present in more than the one context, however, this may not be achievable due to the fragmentary nature of the bone and difficulty in associating cranial with post-cranial elements. So despite not being confirmable as a hypothesis, this explanation of the evidence does nonetheless provide food for thought, as these remains may constitute the only available pyre evidence for the entire Oman peninsula.
Attempting to synthesise the practices evidenced in the mortuary contexts at Al Sufouh and Ra’s al-Jinz, the most likely reconstruction sees the need to make further space in the traditional circular tombs for the continued interment of the freshly dead, as had been the norm for centuries. Rather than wasting resources (be they labour or stone) in the construction of a new monument, the existing structure was kept in service by the episodic clearing out of chambers. The role of cremation in this process is more difficult to incorporate, as surely it is just as feasible to inter the remains directly into a previously excavated pit, rather than go to the trouble of building a pyre, obtaining fuel and burning the remains prior to their re-interment. There is also no archaeological evidence of pyres that may have been used in the third millennium recovered to date, although the revised interpretation of pit IV at Al Sufouh may change this fact. Preliminary indications that clearing out and burning processes at Ra’s al-Jinz were undertaken due to the tomb being ‘decommissioned’ does not entirely appear to be borne out by the evidence, and it is noted that successive cremation episodes may have also occurred during the life of the tomb (Monchablon et al. 2003: 41).

A further challenging piece of evidence is from the circular tomb at Al Sufouh, which revealed evidence of burning in one chamber only. This relatively discreet deposit of very fragmented, burnt bone was potentially thrown in over the top of the interred individuals in Chamber 2, and comprised burnt farush and beads as well, again some of which remained strung (Chapter 4 and Benton 1996: 41). This burnt deposit definitively postdated the inhumations in this chamber, but its relationship to the overall sequence of events at Al Sufouh is less easy to discern. The possibilities are seen as:

1. That this deposit of burnt materials (bone, beads and farush) was deposited into the chamber over the inhumations already there. In this case it may have been one of the last scoops of material from one of the cremation episodes. Was the pit outside already covered over so these last remnants were put back into the circular tomb? or,

2. Was a fumigatory fire lit in this chamber? The result of this process would likely see the bone and objects nearby burnt and possibly also some of the farush from the chamber wall.

Looking now to Tomb N at Hili (Group 3b) of which the excavation is to date incomplete, we see evidence of a potentially more complex funerary practice, which nonetheless bears significant relationship to the Group 3a category. Rather than a simple pit, Tomb N is a stone lined oval structure immediately east of Tomb E. It was originally assessed being an ossuary for the clearing out of remains from Tomb E, just as Tomb B
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at Ajman was determined as having the same function for circular Tomb A at Ajman. Although Tomb N may have indeed functioned in this way, and was possibly constructed for this purpose, recent excavations indicate a more complex use later in its depositional history, with a significant ratio of articulated remains\(^7\). Moreover, the burning/cremation data for the tomb suggests that a pyre was constructed \textit{in situ}, within the upper layer of the burial pit, burning a significant area, including parts of semi-articulated individuals (Méry \textit{et al.} 2001). The primary divergence of the Al Sufouh and Ra's al-Jinz burial pits (other than the stone lining) is that these contexts appear to contain remains that were burnt on a pyre then re-interred in pits while Tomb N shows \textit{in situ} burning, the result of which is obviously far less complete. A potential explanation for the better articulation of the individuals in the upper level (4) of Tomb N in contrast to Al Sufouh and Ra's al-Jinz is that they did not undergo pyre cremation, thus two episodes of relocation. Although the number of intact labile joints (hands, feet) in Tomb N argues against it, there is still scope for these and other areas of articulation to be the result of relocated recent interments from the circular tomb. At this still early stage of excavation, the excavators still see this as an alternative explanation (Méry \textit{et al.} 2001: 173).

Analysis of the evidence from the Group 4 two-tiered burial structures of Unar 2 and Tomb A Hili north by Blau (2001: 567-569) determined that the under pavement / lower level was used for the primary interment of the deceased and the upper level for the re-deposition of cremated remains. This reconstruction provided the genesis for an interesting interpretation of the overall burial programme used in these tombs, which sees dual or staged burial rite as possible. Individuals were interred in the basal layer, then after some appropriate length of time were exhumed (one by one?), cremated then the remains placed above the pavement/in the upper level. At Unar 2 there appears to be no evidence for cremation actually taking place inside the structure, although at Tomb A Hili north there is some indication of burning on the stones of the upper storey (Vogt 1985a: 22).

This theory supposes that the cremation requirement is an intrinsic part of a staged burial ritual whereby the dead are not appropriately released, until all stages are complete and the rite of passage has been traversed (Blau 2001: 569). While this is by all means an entirely plausible elucidation of the ritual and practice that may have generated the evidence at Unar 2 and Tomb A Hili north, it is not easy to extrapolate

\(^7\) A recent abstract (Bendezu-Sarmiento 2006: 9), obtained after submission of this thesis, indicates up to 650 were interred in Tomb N and that the majority were primary inhumations.
back to the cremation evidence at other sites. For example what about tombs that do not show the practice of cremation? These both predate and postdate Unar 2, so if this new dual burial rite is an accurate interpretation, then it must have been a very localised occurrence. A review of the collective evidence from all UAN period sites puts this interpretation in a fresh light.

Interpretation of cremation in the Umm an-Nar period

And so the question remains, is the use of cremation at the sites from Groups 3 and 4 linked or are they to be seen as isolated cases where different underlying belief systems/social organisations or other impetus has resulted in their use? Certainly the similarity between the archaeological remains within the groups provides a case for close contact, the transmission of ideas and contiguous underlying conditions such that the use of apparently new methods of ritual /disposal was considered appropriate. This then sees a link between Shimal, Hili and possibly Mleiha, and a like connection between the very geographically disparate sites of Al Sufouh and Ra’s al-Jinz, and Ajman and Hili. So what then about links between these groups? As is known the tombs were in use for extended periods of time, likely over centuries, thus they would have been well known monuments, both locally and further afield considering the well established exchange networks attested to by the material culture. What then of the chronological relationships? Based on the excavator’s assessments, dates for Al Sufouh and Ra’s al-Jinz appear very close, both predating série récente, being placed at c. 2500-2300 BC, somewhat later is Ajman (late 3rd millennium) and Unar 1 (2400-2200 BC) followed by Mleiha (2300-2100 BC) and Tomb N and Unar 2 (2300-2000 BC) appearing to be longer in use than Tomb A Hili north (2200-2100 BC). There is then reasonable overlap in the life of the tombs such that practices being undertaken at one site could be easily transmitted to others. Moreover there may be a chronological linkage, potentially from one type of evidence through to the others (i.e. Group 3a, through 3b into 4). The possibility that these instances of cremation were not linked is considered unlikely, therefore an assessment of how they interrelate is in order.

If we accept that the degree of cultural uniformity across the Oman peninsula easily allows for the apparently new practice of cremation to be known of and potentially in use across a widespread area, then our interpretation of it should be holistic rather than site specific, seeing the variants in expression at the different sites more as a result of regional variation and potential maturation/development of the process rather than as interpretable of different underlying beliefs/traditions. This being the case and based on the review of chronological relationships outlined above, the earliest examples of this
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practice are to be seen at Al Sufouh and Ra’s al-Jinz, where it appears that a practice involving the clearing out of chambers, the burning of remains and their subsequent re-interment into pits was undertaken. This may have occurred several times during the use of the tomb, as attested by the separate pits, although chronological separation of the episodes is essentially impossible, probably because they date so close to one another (decades apart more or less?). That this process may be related to the decommissioning of a tomb is a plausible interpretation although not enough evidence is yet available to definitively confirm or deny this hypothesis. The recovery of primary interments and predominantly uncremated remains in the circular structure at Al Sufouh indicates that if this was the case, the job was not finished here and the last phase of human remains had not been dealt with subsequent to the closure of the tomb.

Before moving on through time to look at later potential variations on this practice, it is relevant to consider the genesis of this practice. Where did the idea for the burning of remains come from? It is hard to extrapolate from the use of cremation attested at Jabal Buheis in the 5th millennium or Ra’s al-Hamra in the 4th millennium to the practice seen now at Al Sufouh and Ra’s al-Jinz, not only due to the chronological gap (around a millennium), but the very different use / format of the practice. The possibility of this being a practice learned from further afield is also feasible. The review of cremation attested in other parts of Western Asia (Chapter 4) certainly indicates that the practice was used in the Harappan world and in Baluchistan in the third millennium BC. Considering the contacts between the coast of Oman and the Harappan world, there may well have been a transmission of ideas that may have inspired the local population. Finally on this topic, it is worth noting interpretations regarding the use of cremation practices from further afield. For example, explanation for the change in burial rite from inhumation to cremation in 13th century BC Europe is presented as a process that does not require “massive influence from without” (Clark and Piggott 1965: 317). Examples of other shifts from inhumation to cremation or vice versa are provided where again the genesis for change is not necessarily external.

Assessment of where the idea of cremation may have come from, however, does not address the need or desire to augment the existing successive inhumation practice in circular structures that had now been the norm for around 500 years. Apparently in the past if the tomb became full (all those having membership rights to the structure had been interred) or went out of use for some inexplicable reason, then a new one was built – hence the multitude of tombs over the Oman peninsula in the first half of the third millennium. This practice is seen as slowly diminishing through time, with the Umm an-Nar island tombs and early Hili tombs being reflective of the earlier multiple tomb era.
which appears to lead slowly into a more communal style of burial in which one structure was appropriate for an entire settlement. This may well mirror what was happening as far as settlements were concerned with smaller, potentially sedentary or semi-sedentary groups coalescing from around the middle of the 3rd millennium to become large, sedentary communities practicing agriculture and other forms of specialisation and being involved in an ever flourishing exchange network both local and international, bringing wealth and ideas from abroad. In this scenario, the tomb use and tomb population is seen as becoming more communal in nature, just as the living world would have been, and in this way treatment in death imitates life.

Following this line of reasoning, the construction of the communal tomb (as with the tower) at the inception of the settlement is likely to have had symbolic meaning for the inhabitants and would have undoubtedly required the combined and co-ordinated efforts of many to achieve the technical skill and sophistication of the final structures (as discussed earlier). The outward decoration on some of the tombs may have also related to this establishment of identity (as alluded to by Blau 2001: 562) and the fact that tomb and tower would have been the most visually dominant aspects of the settlement and its environs. The circular construction of both buildings may be symbolic of a connection between the living and dead (Blau 2001: 562) and may also have given another dimension to the fortified appearance of the settlements from the exterior. Therefore the potential symbolic nature of the communal tombs for their society may have meant that they wished to keep them in use over a long period (as is attested by the chronological span of the material culture held within them). This goes part way towards a theory involving a dynastic style ruling group, which may indicate that at the close of a dynasty and the inception of a new one, a new communal tomb may have been warranted. There is obviously no supportive evidence at this level of interpretation, other than the apparent consecutive use of late third millennium tombs at for example Hili and Shimal. Other limiting factors, such as not being able or wanting to meet the energy expenditure needs involved in the construction of another tomb (e.g. manpower, stone resources etc) may provide another explanation.

Considering then that there may have been some requirement to keep a tomb in service, there is the eventual issue of these structures becoming overly full, which would have instigated a need to develop a method to deal with the human remains such that more space was created in the circular structures. This may have provided the genesis for the inception of a new practice to remove previously interred individuals – some of whom were still partially articulated - and their associated grave goods, cremating them and then reburying them as close to the initial structure as possible. Other cultures using
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collective graves are certainly known to have undertaken episodic clearing out of the chambers to make more space for new burials, including the third millennium BC Cretan population, who will be discussed in more detail in the ensuing chapter. Again some padding of this theory when applied to the Oman peninsula is needed. Why not simply rebury the previously interred directly into pits? Why cremate? The answer to this is far more difficult to surmise yet may surround the need to somehow ritually 'cleanse' the individuals or make the practice of their removal from their initial resting place an acceptable eventuality. More practical may be that if the exhumed corpses were placed directly in the ground (and not too deep) they may have fallen victim to the diggings of animals and attracted rodents.

Overall, in light of the accepted understanding that third millennium culture in Oman peninsula is supremely adaptive and involves a high degree of interdependency between settlements (Phillips 1997: 206) the onset and development of the practice of cremation to enable the continuing function of a circular tomb for an extended period may be seen as part of a longer evolutionary process. Whether or not this factor was inspired by contact with outside cultures, for example Baluchistan or the Harappan world, or was of internal genesis cannot be determined.

Moving from the earliest examples of this newly expressed technique, brings us to Tomb B at Ajman and Tomb N at Hili. The original interpretation of both these structures was as ossuaries for burials from the adjacent circular tombs. The now stone lined nature of these pits may be interpreted as a development from the earlier simple pits in the ground attesting to the more entrenched nature of this practice. Further, at least in Tomb N at Hili, and very likely from Ajman B as well, there is evidence for episodic use of these structures, corresponding with the ongoing need to make space in the circular structures. As discussed above, understanding of the more complex nature of the deposits at Hili N is not as yet possible due to excavations being incomplete. But it is nevertheless noteworthy that the reconstruction described above indicates that although excavators feel that the tomb was also used for primary interments, at least in its latest phase (based on the degree of cohesion of labile joints), it is assessed here that there is still potential for these to represent the most recent group of interments moved from the circular structure. The degree of articulation may also be less comparable to Al Sufouh and Ra’s al-Jinz, as noted above, due to the extra step in the cremation processes here, which saw exhumation, cremation and then re-interment, resulting no doubt in a significantly greater loss of pre-existing skeletal articulations. What is more interesting here is that at neither Ajman B or Tomb N at Hili is there evidence of 'pyre' style cremation before re-interment. This may also be seen as a development out of the
cleaning out technique seen at Al Sufouh and Ra's al-Jinz. At Tomb N, however, we see *in situ* burning of at least one phase of re-interred corpses and considering the earlier publication of the tombs (Haddou 1989) this may have been in evidence in other parts of the tomb as well. At Ajman B, due to the highly disturbed nature of the tomb, it is not ascertainable as to whether any *in situ* burning like Tomb N may have occurred, but we do know that burnt skeletal elements were recovered indicating some use of fire in the grave.

Considering the Tomb A Hili north and Unar 2 of the fourth group and potentially the latest group, we find an alternative use of cremation again, as described above. Can this again be seen as endogamous growth out of the original use of cremation as a disposal method? Unfortunately a fairly leading piece of evidence that is key to interpreting the nature of the cremated remains from the upper levels in these tombs is missing, that concerning whether individuals were cremated one at a time (thus supporting the dual burial rite theory), or whether groups of remains were cremated together (supporting the cleaning out theory). Verification of the latter hypothesis is circumstantial, being the analysis of the chronologically earlier evidence (presented above) as being the result of cleaning out episodes, and thus seeing continuity of tradition as more likely than the introduction of a whole new stage to the burial process, particularly when we can see no continuation of this tradition in later burials e.g. Tell Abraq. Recent studies from Tomb A Hili north, provide potentially greater support and Bondioli (1998: 233) has interpreted the burnt bone from the upper level as being the result of burning already decomposed bodies cleared out from the subterranean compartment. He further interprets the cut marks on some bones as relating to the purposeful disarticulation of bodies, presumably to enable their transit to the upper level for burning. Again as a working hypothesis, the construction of a split level circular structure allows a separation of space such that inhumation of the recently deceased can be undertaken in the traditional method, then clearing out and cremation can occur when necessary, with the remains being subsequently re-interred in a distinct part of the original structure. This eliminates the need for the construction of a separate building and possibly it sits better with community that their dead remain in the circular structure – the traditional place of the dead – rather than being outside it. Was this why the re-interment pits were placed so close to the original tombs at other sites?

Although belonging to Group 2, a final speculation involving Tell Abraq (the latest tomb in the UAN sequence) is warranted. As discussed, no true burnt remains were recovered from this tomb and no associated pits have been located. This indicates that the onset of cremation as a tradition was either only regionally expressed or that the Tell
Abraq tomb was chronologically late in the sequence and the practice had already begun to wane. It is also possible that the inhabitants of Tell Abraq were about to clean out the tomb (it was indeed very full) and were prevented from getting to that process by whatever myriad of events may have occurred at this terminal 3rd millennium BC phase. These are all speculative interpretations, although the lack of cremated remains from the following Wadi Suq era may indicate that cremation was a chronologically discreet adjunct to existing practices lasting from the middle until late in the third millennium BC. The fairly abrupt disjunction to both funerary architecture and the overall cultural sequence at around 2000/1900 BC, however, requires explanation beyond the scope of this study.

If this overall explanation concerning the addition of cremation to the funerary programme in Umm an-Nar times is tenable, then it shows that the practice was expedient rather than telling of a change to the deeper, underlying belief systems that govern traditions such as burial rites, particularly with reference to the treatment of the corpse. Cremation may have been invoked through external influences but it is considered more likely that it was of internal genesis, exemplifying once again the incredibly adaptive nature of the indigenous population. This interpretation refutes notions of the adoption of a dual or multi-staged burial rite in which cremation is a requisite component that completes the separation process or the rite of passage of the deceased. Indeed the discard of this rite almost as quickly as it appeared (in archaeological time at least) provides further support for the notion that it was convenient for the time, but like fashions it went only skin deep, and was thus no trouble to abandon. In summary the factors that see the genesis of this practice as a result of functional expediency are:

- The fairly sudden appearance of these secondary practices (bone pits and cremation) within what otherwise appears as a relatively stable cultural tableaux;

- The appearance of these practices at a time when population density appears to be reaching a point when tombs for the first time are beginning to become full. This may be combined with a lack of as much surplus energy for the construction of new stone tombs due to the labour required for food production. Consequently the development of new practices to deal with the overflow of human remains becomes a practical requirement;

- The fact that these practices are not seen at all sites and when they do occur, they seem to take on different characteristics from site to site;
The short-lived nature of these practices. After c. 2100-2000BC, we no longer see any evidence for any of the secondary manipulations described;

Finally is the issue that for the tombs utilising pits, the deposition of the remains appears to have been undertaken over only a small number of events. It does not appear to have occurred frequently enough or in a repeated fashion to be constituted as a mortuary rite; and

These practices do not appear to have referred to individuals, but to collections of human remains (NB: the evidence from Tomb A Hili north and Unar 2 is less certain in this regard). Consequently it is unlikely to be about rites of passage, as these would relate to specific individuals.

The assertions made here for the genesis of these practices does not, however, preclude some form of ritual or ceremony having developed around the physical process of bone burning or removal from the circular structures although no direct evidence is known to support this. The two storey tombs of Hili north and Unar2 may be interpreted as having been constructed with two storeys for the purpose of having an interment floor and a floor for the deposition of the cremated remains as discussed in the previous chapter, but in essence the evidence for this is ambiguous due to poor preservation in the case of the former, and a lack of full publication for the latter. If this is the case, it provides an interesting adaptation of the traditional mortuary programme to incorporate increasing population densities and alterations made to the burial programme to integrate this. Finally, the model of functional expediency presented can also relate to belief systems and, as noted above, the ritual/ceremony that may be associated with this. Obviously, the adaptation of cremation and post interment manipulations into the burial programme was enabled by the fact that nothing within the existing belief system precluded these actions. That certain tombs were constructed with two storeys to facilitate the new processes does not to my mind mean that belief systems had changed, simply that the ritual and ceremony associated with the dead had become more complex, primarily due to population pressure.

Summary - Cremation

In wrapping up this fairly exhaustive review of evidence relating to the use of cremation during the third millennium over the Oman peninsula, it is apposite to make a couple of qualifying remarks. As is always the case in archaeological situations, there is significant gap between the material remains in the ground and reconstructions of the practices that may have created them (cf. Chapter 1, Figure 1.1). Further again from this
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(Another filter) are our modern interpretations of the reconstructed programme. It is with this in mind that the interpretations of evidence and events concerning tomb structures, inhumation and cremation discussed above have been formulated. They should be considered primarily as working hypotheses, against which to assess new data as it comes to light. To exemplify that the archaeological funerary data – as presented in this study - is interpretable in different ways depending on vantage point, the following scenario has been formulated. This is not really presented as being as convincing or whole proof as the explanatory hypothesis presented above, but it is nonetheless feasible in terms of the evidence and thus a tacit reminder of the dangers of over-interpretation.

Once again we revisit the advent of so-called cremation in the Oman peninsula. As has been postulated UAN period tombs are a physical, visual feature of any local settlement landscape. Consequently they are likely to have been meaningful to the local population as ‘houses of the ancestors’. These tombs would therefore be an appropriate target, should an enemy wish to interrupt the flow of life in the associated settlement. Obviously there would have been concomitant fighting and possibly fleeing, but the desecration of a tomb could do much to weaken and subjugate an opponent even in the aftermath of the battle or event. Enemies may of course come from the region – inter-tribal warfare, or may be from further afield – conquerors trying to ensure raw material supplies (Maništušu, Naram-Sin). Once the settlement had been sacked, tombs were a sitting target, first for looting and second as a means to show further disrespect and subjugation. In the frenzy of looting remains may be dragged out and armfuls of bones flung into piles for burning, or maybe just left as they were. Upon return to their settlement the survivors of the incursion would have been confronted with the desecration of their ancestors. This may have been dealt with ceremoniously burning the defiled remains and then burying them close to the tomb (Al Sufouh, Ra’s al-Jinz) and maybe even the dismantling of the structure (Ra’s al-Jinz), or constructing a stone lined pit in which to inter the remains either burnt or unburnt (Ajman B or Hili N). Those that died in battle may also be placed in these pits, thus remaining intact amongst otherwise disarticulated bone (Ajman B) possibly with a fire lit over them in ceremony (Hili N). Some that died in battle may have been interred in the usual manner – in the basal layer of circular tomb (Tomb A Hili north), but the destruction of this tomb may have nonetheless occurred at a later date, with remains being burnt. Although the Tell Abraq tomb (the latest in the UAN sequence) never shows significant signs of cremation or looting, it is interesting to conjecture as to the purposive location of this tomb so close to the settlement (for its protection?). Further what was the rationale behind the move towards underground tombs in the Wadi Suq period? Was it to ensure that the
desecrations of the late third millennium didn’t continue? These questions are of course open ended, providing food for thought and extolling the dangers of over-interpretation.

Summary

In conclusion it is hoped that this chapter has provided some interesting avenues of interpretation of the reconstructed burial practices of the third millennium BC in the Oman peninsula. It should not, however, be seen as an attempt to definitively describe the events of the past thereby solving once and for all the evolution or function of third millennium tombs and their associated burial practices, but as an elucidation of the evidence available to date so as to construct working hypotheses that may be tested and modified with the excavation of new material, or the more detailed analyses of the old. What remains now is to use tools external to the archaeological situation in the Oman peninsula in order to provide a broader mode of interpretation. This will be achieved through review of non-Arabian archaeological case studies and ethnographic analogies combined with the use of theoretical models where applicable, which together provide the focus of the next chapter.
Chapter 7

Interpretation: Non-Arabian, archaeological and ethnographic analogies

The plethora of theoretical stances regarding determination of mortuary practices and interpretation of mortuary remains was reviewed in Chapter 1. Primary conclusions of this for the current study were that factors involved in mortuary practice determination were complex and multifactorial and likely to include aspects of world-view / belief systems as well as social organisation. It was further delineated that many specific theoretical approaches were ill-suited for application to the current case-study of communal burial contexts. The following chapter will explore issues relating to the interpretation of the mortuary programme of third millennium Oman peninsula through the lens of these theoretical approaches, drawing on ethnographic and archaeological case-studies for their insight through analogy when applicable. Case studies of societies using communal burial in collective tombs will be examined to compare elements of these situations to the evidence known of the burial regime of third millennium BC Oman peninsula. Review of societies that have generated comparable burial evidence and hence used similar practices may shed light on the social structure, organisation and belief systems of this ancient culture.

There is no need in the current era of research to detail the value of using ethnographic analogy or cross-cultural archaeological case studies as interpretive tools. Care is of course always pre-requisite, as evinced by the cautionary tales of the late 1960’s (Ucko 1969) and by the problems encountered by middle range theorists of the 1970’s and post-processual archeological interpretations of the 1980’s (Parker Pearson 2001: 27-36). The most useful manner in which to review relevant information from cross-cultural archaeological case studies is to assess these against the various burial programme elements pertinent to the Oman peninsula case study. These can be grouped under three broad headings: location and structure, interment process and associated grave goods.

Location and structure

The choice of grave location and the type and style of the grave may be reflective of many aspects of a given culture but is deemed to be “a generally conscious and carefully thought out activity” (Parker Pearson 2001: 124) rather than being a matter of functional
expediency. The overall cultural relationship between the dead and the living is to some extent symbolised in the physical placement of the deceased relative to the living society, and the location chosen may also be influenced by spiritual beliefs, such as those relating to an afterlife, or by geographical factors. There may also be intra-cultural variation which may indicate social status of the deceased, gender, the formality (or otherwise) of rites, or the shape and dimensions of the funerary context may echo other contexts, such as houses or storage pits. Chronological change in the physical placement of the dead in relation to the living may also reflect changing relationships of how the dead are conceived by the living and the power the ancestors are perceived to have at any point in time (Parker Pearson 2001: 124).

In terms of Hertz’s premise as outlined in Chapter 1, the relationship between the corpse (as opposed to the soul or notions thereof) and the living community (Figure 1.2), primarily in terms of public disposal, is the relationship most likely to reflect aspects of a society’s organisation. The material correlates of this may include tomb/grave type, location, orientation, scale and energy expenditure (Binford 1971; Brown 1971; Saxe 1970; Tainter 1975, 1978; Goldstein 1981; O’Shea 1981; Chapman et al.1981). Also important to recognise, however, is that although this relationship may be primarily determined by societal factors, aspects of belief/world view may also be captured, as will be seen below.

Tomb location and orientation

Relationships between the living and the dead

As documented throughout this study, the location of tombs relative to the living communities of the third millennium BC in the Oman peninsula changed significantly through time. Hafit tombs are smaller but more numerous than those of the UAN era, and tend to be located, often in groups, on prominent ridges or in elevated positions on hillsides. Their position relative to the living communities that constructed them is unfortunately, however, not definitive due to the paucity of available settlement evidence. It appears plausible, nonetheless, to suggest they were located at least some distance from settlements, which may sometimes have been transient, possibly overlooking them. The UAN era tombs are larger, more monumental and likely to be located closer to their associated settlements on generally low-lying landforms.

A similar change involving the proximity between the dead and the living can be seen during the Danish Iron Age, from c. 500 BC – 400 AD (Parker Pearson 1984b: 2001).
Initially the dead were cremated and placed in urn cemeteries, with virtually no grave goods, and located on high ground, around 200-500m distant from their associated settlements. Almost a third of recorded urn cremations were placed in burial mounds predating the Iron Age. In this way the dead have been interpreted as being separated from the living through spatial positioning and through time by their frequent association with what must have already been ancient monuments. The final resting place of the dead is thereby associated with a mythic past. Settlements of this era are described as showing considerable uniformity in terms of farm and house size.

From c. 150 BC, the settlements begin to show greater variation (interpreted as hierarchical) in terms of farm size, animal numbers etc. and the associated cremation burials begin to be accompanied by an increasing quantity and variety of grave goods. From c. 50 AD onwards cemeteries were situated progressively closer to settlements, often overlooking them. The wealth now apportioned tombs grew to include animals and wheeled vehicles as well as weapons and jewellery and burials were now rarely placed in Bronze Age burial mounds (Parker Pearson 2001: 126). The dead were thus now brought physically closer to the living communities also becoming increasingly well provisioned. Interpretation of this shift suggests that ancestors are taking on a new significance for the living while cemeteries become increasingly village-specific, thus representing descent lineages as now overriding broader ethnic allegiances. This may indicate a dual protection between the dead and living, potentially at a time when widespread unrest between territorial groupings was developing. Worthy of mention is that this interpretation is primarily one based on social fabric, its alteration as a result of demographic change and the concomitant reflection of / confirmation of this in the manner of disposal of the dead. Burial practices appear to both reflect changes to the organisation of society and yet are also deliberate, serving to in some way legitimate that order.

Before leaving the subject of proximity between the living and the dead, review of Sharples’ study of the Orcadian Neolithic is relevant. Tombs of the smaller, earlier Orkney-Cromarty stalled type were numerous and constructed in locations visible from the sea but peripheral to the fertile soils where contemporary settlements were located (Figure 7.1). As competition for resources (land) increased, so did the proliferation of these tombs which acted as “territorial markers”, used to establish and legitimise a kin-group’s ownership of the land surrounding it (Sharples 1985: 70). In contrast, tombs of the later Maes Howe type were constructed in the centres of settlement areas on land which, although fertile, required much labour for it to be so (Sharples 1985: 69). In the earlier era, the ancestors were distant from the living, subsequently, during the Late
Neolithic, being moved into collective monuments located in the centre of the community. Sharples interprets this locational shift as an “appropriation of the community’s ancestors by a restricted kin group who legitimated their power through their direct line of descent to certain dead and through control of ancestral remains” (Parker Pearson 2001: 136). Once again, alteration in the proximity between the dead and the living is seen as a deliberate movement reflecting and recreating social institutions.

Although there are serious problems relating to the chronology of the megalithic tomb types of southern Britain, specifically in the Cotswold-Severn area, a potential relationship has been evinced which sees the lateral chambered tombs as predating the transepted tombs. Although not overwhelming, a shift in the location of the later tombs closer to centres of population coincides with a change in the relationship between the living and the dead, indicating that the ancestors may have come to represent an omnipresent factor in social relations (Thomas 1988: 556).

In Mesaran Crete (3000–2000 BC), burial tholoi were usually located on low ground or low-mid slopes, usually within c. 250m of the associated settlement, but rarely on the same elevation (Branigan 1998: 14, 17). The structures are oriented (according to focus on the entrance) towards the south or east or in between, but are never located west of the settlements. In this way, the dead cannot overlook the living, as tomb entrances always point away from settlement). Branigan interprets this as the living population’s attempt to control access in and out of the tomb, a feature he sees as strengthened by the construction of antechambers in front of tomb entrances and by the small doorways and narrow passages (Branigan 1998: 19). This need for control also reflects in part a deep seated fear of the dead and a requirement to make them “less dangerous to the living” despite their physically close proximity (Parker-Pearson 2001: 130). In this
interpretational framework, beliefs/fears about the dead and their potential impact on the living is considered the primary factor controlling the location and orientation of the tombs and aspects of their structural form (i.e. antechambers).

Several elements of these case studies have relevance to locational aspects of the burial programme of the Oman peninsula in the third millennium BC:

1. Increasing proximity between the dead and the living in these case studies has been interpreted as revealing aspects of the societies' fabric:
   a. ancestors taking on a new significance to the living with greater wealth attributed them and the cemetery/tomb becoming increasingly village specific, possibly at a time when unrest between territorial groups is developing.
   b. descent lineages needing to legitimate their power through control of the ancestors and hence the communal tomb.

2. Control of tomb entrances in relation to the living community representing the need to protect the living from the newly dead, especially where the dead are in close proximity to the living community.

Considering the first point, the dead being shifted closer into the living communities, also brings into play theories concerning centre and periphery - whether tombs are centrally located with regards to the settlement or whether they mark boundaries or borders of lands utilised by the community or group (Parker-Pearson 2001: 135). During Hafit times, tombs were likely to have been peripheral to settlements and possibly marking borders or at minimum indicating use of the landscape by a particular group (Cleuziou 1997 in Phillips 2005: p?). Their location on relatively prominent landscape features – low ridgelines or along mid-slopes meant they were visible from a distance, acting as markers. It is not without relevance here to note that the formal cemetery of Ra's al-Hamra, located on the coast of Oman and dating to the 4th millennium BC, has also been interpreted as providing “a clear sign of direct right to a range of locally available resources” (Salvatori n.d: 47).

In the UAN era the dead are shifted closer into the living communities and become increasingly well-provisioned throughout a period in which these communities became more ‘global’ in terms of population influxes and trade, a factor which no doubt contributed to inter-settlement competition and possibly rivalry. Like the Danish
example, did the increasing sedentism, community scale and rapid economic growth in
the Oman peninsula create territorial rivalry such that the dead required the protection of
the living through proximity? That ancestral remains were somehow appropriated by a
specific lineage group to legitimise control is not, however, borne out by the Oman
peninsula evidence which instead appears to belie increasing communality at the intra­
site level, although possible tension on a territorial plane (inter-site level). This
interpretation, as in the case studies of Neolithic Orkney and the Danish Iron Age,
shows social factors, in this case demographics and competition for resources, as the
most likely determinants of these broad pattern shifts.

Manipulation of tomb position and entry in relation to the living population do not
appear to have governed tomb location during the UAN era as it did in Mesaran Crete.
No patterning has been detected in tomb entrance orientation despite the sometimes very
close proximity between the tombs and settlement (Tell Abraq). That this may indicate
the living had nothing to fear from the dead is feasible, but further evidence concerning
the scale of tomb entrances is relevant to this argument and will be discussed below.
Also of interest is that limited patterning for tomb orientation did exist in the preceding
Hafit period, if only at a local regional level, and despite the fact that tombs are likely to
have been some distance from the living communities. Whatever local features governed
this practice, they were no longer relevant for tomb construction in the second half of
the third millennium BC. This may of course be the result of incomplete data and it is
noteworthy that according to Parker Pearson, the orientation of the dead, taken as graves
or skeletal remains, is unlikely to be random (2001: 6) but may be governed by a
multitude of factors, including relationship to geographical features, settlements or astral
factors (Ucko 1969: 272).

Structures

Monumental tombs anyone?

The decision to create above-ground, stone structures for interment of the dead in third
millennium BC Oman peninsula is in itself an interesting choice, especially considering
that burials of the previous era comprised single or multiple inhumation, including some
secondary burials, in formalised cemeteries. Elsewhere, for example in Europe, the shift
to bury in monumental tombs has also been long examined. Many have tried to trace the
spread of the megalithic tomb types across the landscape, using typological and
chronological relationships in an attempt to derive the ‘source’ of such structures and
hence the diffusion of ideas and influences, if not population groups themselves (Childe
in Daniel 1958; Grinsell 1975). Similar attempts to attribute a source for stone built tombs have been made in the Oman peninsula (Orchard and Stangar 1994, Orchard 1995). In this regard, it may be more effective to eschew the need to attribute a focal source for the use of monumental tombs and accept that the communities choosing to adopt the form did so because it suited their purposes and needs. In the words of Fleming, “those who designed the prototypes of a new tomb series were not borrowing at random, nor were they the passive recipients of currents of ‘influence’ from elsewhere” (1973: 177). According to Goody, the adoption of new burial practices by any particular culture is rarely the result of permanent migration or invasion, but as a result of the temporary contacts between peoples often made during the course of trade (Goody 1959: 136). Clearly, there is “no need to erect a great monument to solve the simple problem of the disposal of the dead” (Renfrew 1976: 208).

In his overarching review of architecture in prehistory, Wilson suggests that first the house and subsequently the tomb, were powerful symbolic features in human evolution. He sees a phase, beginning around 3000 BC, when monumental funerary architecture becomes fashionable, with tombs becoming more substantial than domestic dwellings (Wilson 1989, Childe 1945: 17). It is during this phase, Wilson infers, that the dead and their tombs become a significant focus for the living community, describing them literally as “power houses” (Parker Pearson 2001: 195). Purely in terms of chronology, this view of monumental funerary architecture is supported by evidence from the Oman peninsula, where tombs of significant scale begin to be constructed from around 3000 BC and are considerably more substantial than coeval domestic architecture, although the same cannot be said for the defensive towers of the late third millennium, a topic that will be explored presently.

According to Parker Pearson, “tombs are not just somewhere to put the dead, they are representations of power. Like ritual, funerary architecture legitimizes and extends the hegemonic order” (2001: 196). The overall appearance of some tombs, particularly those of a substantial or even megalithic nature, may be interpreted as delivering a statement to the living and a permanence that in some way overcomes death whilst also serving to alter the landscape of the living, both then and forever. Such monuments can be seen as having been designed with a dual purpose: as a container for the remains of the dead and as structures that appear as impressive as possible to the spectator (Fleming 1973: 178). In his studies concerning the European Neolithic, Bradley has further made the temporal connection between the appearance of megalithic tombs and the earliest domesticated resources (Bradley 1998: 52). The choice to construct such funerary monuments is likely to be the result of a multitude of factors, but a quick review of some
of the cultures that choose to bury their dead in such public and dominating edifices may be useful in understanding why the inhabitants of third millennium BC Oman peninsula chose to do so.

The Tandroy of Madagascar bury their dead beneath stone built monuments. Although not similar in form to those of the Oman peninsula, these structures are nonetheless large and highly visible and are seen as more permanent than the domestic wooden houses, such as those belonging to the deceased, which are burnt after death as part of the funerary rite (Parker Pearson 2001: 144). These stone built tombs, situated prominently within the landscape, come to represent the family lineage, which is shown through the pervasive funerary monument to be permanent and enduring, ensuring rights to the surrounding land.

Also from Madagascar, the Merina bury communally in stone built tombs, of which one or two may service a village (Figure 7.2; Ucko 1969: 268). Like the UAN tombs of the Oman peninsula, these contain a cross-section of the local society. The tombs are serviced and tended by the whole community, who ensure the structure is sound and of good appearance, for to them this structure embodies the stability and unity of their social fabric. Although little is published concerning them, the Qoingdu culture of China also buried, apparently communally, in megalithic tombs built of stone. These structures are situated in the valley of the Anning River, which is a branch of the Yangtze River (Tong 1982: 273).

The third millennium BC Mesaran tholoi of Crete, introduced earlier, also provide an excellent cross-cultural archaeological comparison for the use of substantial structures as tombs. These monuments are circular, primarily built of stone with walls corbelling inwards to a considerable height, prior to them being roofed either with stone (unlikely) or by timbers / reeds etc. Although the stone masonry employed is not particularly accomplished stylistically, there was care taken to utilise larger blocks in the foundation courses and to dig these courses at least partially into the underlying rock (Dickinson 1994: 217-218). There is evidence that some of these tombs may have remained in use
for up to a millennium (Branigan 1993: 82). The derivation of this form of monumental architecture for the burying of the dead has been the subject of significant scholarly debate due to its fairly abrupt appearance on the island combined with an apparent dearth of indigenous ancestral structures. This prompted the search for foreign sources of inspiration, none of which were convincing, stimulating re-assessment of the burial practices of the preceding Neolithic era. Detailed studies concluded an overwhelming impression of continuity in the overall burial programme from the Neolithic period into the Bronze Age, with caves of the earlier era giving way to the new circular tholoi. The advent of these stone tombs was thus seen as a result of the increasing population and social complexity of the EBA which prompted the shift of settlements from the sheltered hills out onto the plain of Mesara which had no caves, thus stimulating a need to recreate a cave-like structure, hence the establishment of the new built tomb tradition (Branigan 1993: 35). In this case study, expedience is interpreted as the genesis for the adoption of tomb building, where an appropriate structure was required to fulfill the needs of the living in terms of the pre-requisites of an established burial programme, within the paradigm of demographic change and the resultant increasing social complexity.

Assessment of settlement patterns in the Early Neolithic period in Jutland, Denmark indicates that resource accessibility was a primary determining force (Madsen 1982,
Chapman 1995). With the beginnings of agriculture c. 3100 BC settlement appears dispersed, with an emphasis on extensive cultivation and pig husbandry with burial undertaken in long, low earthen mounds containing one to five individuals. By 2700-2600 BC the first megalithic tombs appear, being stone built chambers surrounded by stone ‘dolmens’. Methods of construction, overall form and the small numbers of interments in these structures provides cultural continuity with the preceding phase (Chapman 1995: 35). In the ensuing Middle Neolithic era, beginning c. 2600 BC, settlement areas expanded as population density increased, larger areas were brought under permanent cultivation and pigs were replaced by cattle. The construction of megalithic tombs rose considerably in this period (Figure 7.4). Varying types of settlements have been recorded, and an interesting interpretation of the patterns detected for this later period sees that tombs may have been used differentially in association with various size settlements. In association with earlier or smaller settlements, tombs were used divisively as markers of a groups’ rights to land / resources whereas in the large centres of the Middle Neolithic era, the tombs may have had an integrative function (Madsen 1982: 228). The Late Neolithic period bears witness to significant change in Jutland. The centres were abandoned, pottery production de-escalated and what was made was of poor quality and tombs were no longer constructed. Although these factors may be interpretable as cultural disintegration, other archaeological data sees new, large, fully sedentary, rich settlements with a concomitant increase in agricultural production and an escalating reliance on cattle that were managed more intensively. Rather than disintegration, what appears to be occurring is an alteration to land-use patterns in response to demographic pressure. The increased production needed to support the population instigated new systems of social-political regulation and required change to the allocation of labour, hence the construction of megalithic tombs declined, as did the production of fine ceramics (Madsen 1982: 229).

Figure 7.4: Danish megalithic tomb mid 3rd millennium BC (source www.comp-archeology.org).
These case studies show the importance of the monumental burial structures as either: territorial markers in terms of lineage legitimization; visual statements of the health of a community’s social fabric; or as the result of demographic change as a stimulus towards increasing social complexity, a process which apparently also took into account prerequisite conditions for burial that may have been pure tradition, potentially based in world view / belief systems. Although varied aspects of social organisation are reflected in interpretations of the case studies presented to date, it is noteworthy that, as Hertz’s premise suggested, there is a strong sense that tomb type and location are primarily determined via social organisational factors, with some input from factors related to belief and world-view.

The implications of monumentality and communality

As described above, Neolithic Orkney was home to the renowned megalithic tombs of the Orkney-Cromarty and Maes Howe types. Based on Henshall’s chronological and typological assessment, those of the Orkney-Cromarty type are the earliest, most numerous and architecturally more basic than those of the Maes Howe type which are considered later, fewer in number and more monumental in scale (Figure 7.5; Reilly 2003: 133). Excavation of Late Neolithic settlements such as Skara Brae on Orkney, coeval with the Maes Howe tombs, prompted Childe’s interpretation that the society producing these structures was egalitarian in nature. Challenging this stance, Renfrew countered that the mobilisation of labour required to construct such monuments would have been impossible without some form of central authority and further that the Maes Howe type tombs represented “the culmination of an evolutionary sequence which began with the smaller tombs of segmentary acephalous communities” (Renfrew 1979: 219). Both in Orkney and elsewhere throughout northwestern Europe and Spain, Renfrew argues that the stimulus
behind the construction of such monumental structures during the Late Neolithic was related to social stress surrounding the altering demographics which saw farming communities coming into increasing contact with fisher-hunter/gatherer communities.

Subsequent reassessment of the social systems at work in the early Orcadian Neolithic concluded that the determination of these early societies as segmentary and self-sustaining is not borne out by the evidence. The sheer cohesion evident in the homogeneity of tombs across the region indicates the incorporation of these kin-groups into a broader social network, not in the least necessary also for genetic diversity (Sharples 1985: 70). Tombs of this era established boundaries signifying ownership of a specific area, and the structure of the tombs suggests a degree of intra-community equality. The Maes Howe tombs, as noted above, were brought closer into now larger settlements and thus the tombs can no longer be considered territorial markers. "In contrast to the concept of separation manifest in the Stalled tombs, there seems to be an attempt to make tombs function as a mechanism for integrating and organising the kinship groups which form the primary economic units of the society" (Sharples 1985: 70). The new tomb type and its changed relationship to the living therefore created emphasis on a much larger social unit than before. Although the treatment of the corpse will be treated in a forthcoming section, it is pertinent to note here that there is no longer a focus on the individual corpse, and practices of excarnation and bone sorting are interpreted as public acts whereby the individual, originally part of a kinship group, is now more importantly perceived as part of a broader social group which cuts across kinship boundaries. In this scenario, links between adolescent males, for example may be stronger than those linking father and son (Sharples 1985: 71).

The similarities between this case study and the burial programme of third millennium Oman peninsula need not be further explicated. To extrapolate, can we see the increasing monumentality and concomitant sedentary settlement evidence as indicators of altering demographics within the Oman peninsula? There is no doubt that the entire 3rd millennium bears witness to an unprecedented cultural fluorescence but to what extent social stress can be viewed as a spur towards monumentality and communality is hard to determine. As noted in the previous chapter, funerary data of the Hafit period lends itself to an interpretation involving kinship groups as the most likely population category with tomb membership rights and that the location of these tombs in groups may represent broader extended family allegiances, a view also held by Cleuziou (2003: 141). The lack of associated settlement evidence, however, limits our ability to understand more clearly the links between land, resources and the funerary monuments themselves. Information concerning settlements of the ensuing UAN era is more
abundant. A recent synthesis focused specifically on the west coast, although with broader application, sees a potential hierarchy of settlement types in third millennium Oman. The largest are characterised by tombs and substantial architecture (towers), followed by those with tombs and associated hearths, artefact scatters etc. and finally settlements represented archaeologically by very limited evidence such as hearths and artefact scatters. Differing degrees of mobility is offered as an explanation for the site hierarchy evidence, with settlements of the first two types being more sedentary than the latter, which may also have been almost satellite communities to the larger scale settlements (Phillips 2005: 4-6). With these new more sedentary settlements, located in a broader geographical arc than the previous Hafit graves, come monumental tombs containing a much wider cross-section of the community. The organisation required to construct these monuments far outweighs that required for tombs of the previous period, and like the Orcadian Maes Howe tombs, kinship groups were no longer isolated from one another in death, but combined within the one structure.

Returning now to what may be perceived as an antithesis between the level of social organisation required for monumental construction activities and the communality of the burial regime. Construction on the scale of UAN tombs and towers would require a significant degree of organisation, planning, and technological specialisation, which are all features of one of the defined characteristics of ranked or chiefdom societies, as described by Peebles and Kus (1977: 431-433). Review of the twenty defining features of chiefdoms put forward by Service and Sahlins and amplified by Renfrew in relation to Neolithic Wessex, sees many of these characteristics as present within sites of the UAN era of the Oman peninsula (Renfrew 1973: 543). The feature most conspicuously absent from Neolithic Wessex is direct evidence for personal/group ranking (Renfrew 1973: 556). This does not, however, preclude Renfrew from assessing early Neolithic Wessex as segmentary societies moving towards early chiefdoms, which develop into full scale chiefdoms by the time of the henges (1973: 554). Consideration of the same Neolithic Wessex case-study by Earle reiterated the significant need for “central direction” in monumental construction activities and the somewhat unexpected lack of social differentiation in the wealth of burials, which led to the notion of “group-oriented chiefdoms” in which leaders served group rather than individual interests (Earle 1987: 285). Regarding the Danish Neolithic, described above, interpretation of social structure has been variable, with some scholars believing that the organisation required to build the settlements and tombs of the Middle Neolithic would have required at least a partly ranked society (Randsborg & Jensen as quoted in Madsen 1982: 228), whereas others assess it more likely to have been egalitarian (Ebbeson as quoted in Madsen 1982: 228). The potential that these tombs were only used for one or two individuals in the Middle
Neolithic may strengthen the notion of a ranked society, but inhumation evidence from this era is often confused with the collective inhumations placed in these tombs during secondary re-use of the structures in the Late Neolithic (Madsen 1982: 228).

Following this line of reasoning would see the Hafit period as characterised by segmentary societies who somehow coalesce throughout the middle of the third millennium into the chiefdom style communities of the Umm an-Nar era, which are potentially stratified to some extent, or in the least with wealth and power being controlled to a minimum degree. Not wanting to enter debate regarding terminology, the classification of social systems and its inherent dangers, there is nonetheless need to recognise that the systems at work in terms of social organisation are highly likely to be in some way reflected in the realm of burial practices, especially with regards to structure, as described above. In brief, it is important to recognise that social systems are the result of ongoing, dynamic processes that may vary significantly from place to place, and thus use of classified types based on unilinear development are of limited relevance. Whether such social systems develop as a result of constant change or whether change is instigated through stresses building up within an existing system such that it collapses or develops a new decision-making level, cannot be definitively determined (Earle 1987: 280-281). In relation to the current case-study, it is certain that changes throughout the third millennium in the Oman peninsula caused there to be a shift from loosely associated and potentially only semi-sedentary, ‘segmentary’ kinship groups to (almost?) fully sedentary communities whose settlement and burial practices transcend kinship levels of association. Although these changes are definitively reflected in the archaeological record of the time, the interrelation of factors that prompted them remains invisible, although a review of potential causative factors was explored in Chapter 6.

Tomb shape, dimensions and design

Visual comparison between tombs of the UAN era in the Oman peninsula and the coeval fortification towers provides a potentially interesting relationship, with both structures appearing round and monumental, and with the foundations of the towers comprising compartments not dissimilar to many tomb plans. Although not domestic architecture per se, the towers that dominated settlements of the Umm an-Nar era would nonetheless have been symbols of the living and of the strength and unity of the existing community. Is it possible that the monumental, circular nature of the tombs was deliberately chosen to reflect the appearance of the towers that defended the community and around which the activities of daily life were undertaken? If so, this may have been to bolster the
fortified appearance of the settlement to outsiders, or that the tombs were constructed in imitation of the fortification towers such that they may be seen as houses for the dead, in some way replicating a structure vital for living. The desire to somehow re-create a structure focal to the living community, or elements thereof, for use as or within funerary monuments is seen in many cultures.

In Egypt, tombs of the Valley of the Kings replicate the passageways, staircases and ramps of the above-ground palaces and are decorated with paintings of scenes from daily life (Parker Pearson 2001: 195). For the Battamaliba of west Africa (Togon and Benin) the house is designed to be anthropomorphic. Each wall, doorway, every element of the structure is a symbolic representation of the human world. Houses are given human physical qualities as well as those of the soul (Preston Blier 1987). A wall on the west side of the dwelling contains the shrines of the families’ deceased members. In this way the dead are incorporated into the home. As the houses are aligned on an east-west axis, the setting sun strikes the shrines on the wall which creates a scenario for the deity, Kuiye, to communicate with the ancestors about the doings of the living family members. For the nearby Dogon houses have many similarities to the masks they create. Here the house not only houses its owner (and maker), it expresses his or her stage in life, and is closed down at his or her death.

Also interesting to review within this context are tomb entrances. Those providing access to both Hafit and UAN era tombs are small, almost to the degree where it may be considered difficult for the living to access the structure for the purpose of placing the dead inside. This is particularly true of UAN era tombs, which often have very small entrances accessed by the removal of a key stone, located up to a metre above ground level. Small scale entrances into often large tombs is a feature that appears quite commonly around the
globe and through time. Mesaran tholoi, for example, were accessed through small doorways and low, narrow passageways. This feature, combined with the increasing use of coffins, sometimes held down by stones, has been interpreted by Branigan as an attempt to constrain the “polluting and dangerously recent dead” (Parker Pearson 2001: 130). It is further seen that the placement of the dead within such solid structures provides a significant degree of separation between the living and the dead, even when the structure itself may be close to the associated settlement. The solidity of the structure and the small sized doorways are therefore seen as features that help protect the living society from the physical proximity of the newly dead. Entry into the Late Neolithic Maes Howe tombs on Orkney was also through small doorways (Figure 7.6), a feature noted as being in contrast to the earlier stalled tombs, although no particular significance has been attributed to this factor.

The compartmentalisation of space within tomb interiors may also be an interpretable factor. In Los Millares, Spain during the third millennium, Chapman sees internal tomb space becoming increasingly segmented with time, resulting in a growing number of chambers within communal tombs (1981: 398). He interprets this as being representative of a process by which communal burial is being broken down, beginning to yield to individual inhumation which becomes the burial norm in the ensuing Bronze Age. Review of the Oman peninsula evidence reveals that it does not conform so neatly to this pattern. Tombs with a greater number of chambers appear to have them due to structural requirements (a large tomb cannot be roofed without interior walls) rather than exhibiting a unilinear trend towards increasing (or decreasing) compartmentalisation. Although tombs overall appear to increase in size through time, the largest and hence those with the greatest number of chambers (up to 12) all occurring in the last quarter of the third millennium, there is the significant terminal phase UAN tomb at Tell Abraq defying this trend, having only two chambers and measuring c. 6m in diameter. Also looking to burial practices of the ensuing Wadi Suq period, it cannot be said that individual inhumation then becomes the norm. It is not necessarily the case, as Thomas discovered in Southern England, that monuments become increasingly elaborate, more complex and larger through time (1988: 543).

Before leaving the subject of compartmentalisation, reference to the use of compartments in megalithic tombs of the Cotswold-Severn area provides interesting insight. Here there is evidence that in the ‘transepted’ tombs, various chambers or portals were used for the transfer of bones in a complex series of movements that cannot have been simply to make way for new burials. In this scenario emphasis on the division of space within the tomb is interpreted as requisite to enable the rites of passage to be
spatially expressed (Thomas 1988: 548). In other tombs of this group, the various
chambers or portals are seen to emphasise certain divisions in the community,
specifically those which relate to gender and age differences (Kinnes 1981 in Thomas
1988: 552). Distinctions between male and female are seen in many tombs, although it
appears overall that distinctions between old and young were more strongly expressed, a
division often emphasised by variable body treatment (the cremation of the young).
Compartmentalisation in this case study is thought to allow for more complicated
rituals, which may suggest increased social rigidity, a feature that has been associated
with 'traditional authority' (Bloch 1974 in Thomas 1988: 522). It is further suggested, as
will be discussed in greater detail under interment processes, that the physical
distinction between age and gender in death is more likely to reflect an endogamous
rather than exogamous society. Unfortunately evidence from the Oman peninsula, as
discussed in the previous chapter, is rarely detailed enough to suggest variable use of
chambers, although overall they do not appear to have been used to segregate gender or
age, leaving only the only potential division as kin groups.

As noted in the previous chapter there is limited evidence for the presence of associated
stone structures outside tombs at Tell Abraq and Hili north. These may have been
related to the funerary process in terms of providing a location for ritual activity
associated with death and burial, or simply as an area for the mourners to gather before
the dead were placed inside the tomb. Tombs of Minoan Crete certainly made use of
increasingly formalised rooms / antechambers surrounding the entrances to their tombs,
spaces used not only for rites farewelling the dead, but potentially also for seasonal
fertility rites as well (Branigan 1998: 19-23).

Interment processes

The manner in which a corpse is dealt with says much about the attitudes of the
associate society to the human body in general, to the dead overall as well as to specific
deceased individuals. Consequently, it is believed that there is little that is purely
functional about the treatment of the corpse by the living community (Parker Pearson
2001: 45, 49). Harking back to Hertz's premise, the relationship between the living
community and the corpse in terms of ritual and display is likely to represent social
aspects of the associate society, whereas the relationship between the corpse and the
soul, as reflected in the treatment of corpse, is more likely to represent philosophical
religious aspects of the culture. According to Shanks and Tilley "the cultural use of the
body is part of any society's social construction of reality" (1982: 134). In all cases,
there is a need to prepare the corpse in some way for the burial process, and it has been
Chapter 7

noted that some form of purification of the dead is almost universal, at least amongst contemporary cultures (Parker Pearson 2001: 54). Whether rituals of this sort leave archaeological traces depends on the type of activities that may be involved.

As has been determined in previous chapters, corpses of the Oman peninsula were primarily inhumed, individually in communal graves, placed in a flexed position with the head often oriented to the wall of the tomb (either ring wall or internal dividing wall). Burial in the flexed position is very common through time and across cultures. It has at times been described as emulating the natural attitude of sleep or imitating the foetal pose and hence referring to the position in the womb and the notion of rebirth and cyclic continuity etc. (Grinsell 1975: 17). From a practical perspective, less digging is required for the interment of a flexed corpse than for an extended one. The real rationale behind the decision of third millennium societies of the Oman peninsula to bury their dead in this position is not, however, recoverable. The most that can be said is that there appears to have been a distinct preference for this position, often with hands drawn up to the face (foetal or sleeping). Obviously this position was appropriate within the overall mortuary programme of the third millennium and because it is such an intimate part of funerary behaviour, due to its direct relationship to the corpse, is more likely to be conservative and traditional.

As noted by Daniel (1958: 48), individual inhumation in collective contexts is the customary rite seen in most megalithic tombs of Western Europe, in the stone tombs of Mesaran Crete (Branigan 1993) and in the circular tombs of the Merina in Madagascar (Ucko 1969), to name only a few. Overall, the burial evidence from these monuments reveals masses of disarticulated bones with only a few interments, usually the most recent, remaining intact. In many of these funerary contexts, however, there is also often evidence for the secondary treatment or manipulation of human remains. The following pages will deal firstly with the collective nature of the interments; building on the more general discussion concerning collective burial structures introduced above and secondly with the various types of manipulation afforded the human remains after their primary interment and the various interpretations of these processes.

The communal nature of the interred: Membership rights

Those who are in

Tomb composition is a vital analytical component of the burial regime of the Oman peninsula, because it is inescapable that “the number, sex and age of individuals found
in a funerary structure will greatly influence interpretation as to who it was that was selected to be buried in that way" (Ucko 1969: 269). That membership of the stone tombs of the Oman peninsula changed through time has been noted in the few osteological studies available which suggest tombs of the Hafit period contained kinship groups, while those of the later UAN era contained a much wider cross-section of the community. In relation to these statements, a few further points require elucidation. Firstly, the evidence as reviewed through this study shows a steady development throughout the third millennium BC from Hafit style contexts to those that characterise the UAN era, and although many factors can be seen as contributors to change, none can be singled out as providing a definitive source of external influence. Consequently, we interpret this gradual shift as internally stimulated change that is likely to be based on the interplay of the social and environmental factors described above.

The recovery of six individuals or less in tombs of the Hafit period is paralleled by the interment of similar numbers in the Early Neolithic mounds of Denmark described above (Madsen 1982) and in the long barrows of Neolithic Wessex (Renfrew 1973: 544). Although these small groups are often interpreted as being the remains of a family group, there has been little empirical data upon which to base this assumption. Generally, due to the poorly preserved nature of the skeletal remains and an overall inability to attribute sex, or age (other than broadly adult vs sub-adult), it is difficult to determine the true relationships between the individuals.

It is generally accepted that tombs of the latter half of the third millennium contain the entire population of their associated settlements, either in one or several structures. Irrespective of age, sex or gender, all appear to be treated the same way in death. Although considered unlikely, the possibility that only a select part of the population were buried in these structures, with the remainder disposed of in an archaeologically invisible manner requires brief review. It has been postulated that the Neolithic chamber tombs of England (Atkinson in Ucko 1969: 269) contained only a select part of the population, albeit with all ages and both sexes represented, and with the remainder being disposed of in a manner that left no archaeological trace. A similar situation has been postulated for Los Millares in Spain (Chapman 1981). This is based on settlement evidence which suggested that many more individuals existed than were represented in tomb populations. Unfortunately, settlement evidence from the UAN era, although more prolific than for the Hafit period, is nonetheless lacking in terms of its ability to generate population estimates based on excavated domestic contexts, or numbers of hectares under cultivation. In assessing human remains from the Mesaran tholoi, Branigan invokes a calculation of between 12 and 20 individuals per nuclear family per century,
the range reflecting uncertainty about juvenile burials and whether they were usually placed within the tombs or not, and on varied mortality rates. Considering the Oman peninsula evidence where all ages are represented, some calculations were made in Chapter 6 on possible tomb representation at Tell Abraq, which is the only tomb preserved well enough in terms of the human remains to even begin to attempt such a reconstruction. The results of these calculations provided a preliminary indication that the tomb of this site is likely to have been the receptacle for the entire population, although far more work is needed before this statement can be considered definitive. The fact that no other burial contexts dating to the era have ever been found may be telling and if alternative mode of disposal was in use it truly remains archaeologically invisible. In this regard, however, there are a couple of ‘one-off’ burial modes that require brief attention.

**Those who are out**

Despite this overriding move towards communal burial in collective tombs, some individuals were still dealt with outside the prevailing mortuary programme, including the individuals outside Tombs V-VII on Umm an-Nar Island and the cist grave from Tell Abraq. Although it was established in the previous chapter that these practices were indeed aberrant and do not comprise a new form or pattern within the mortuary realm, their interpretation is nonetheless worth considering, especially in the context of why these individuals did not appear to have tomb membership rights. Burials outside the communal funerary complexes of the Merina in Madagascar are not uncommon and according to Bloch these are temporary burials, particularly of either children or the poorest strata of society, who wait in these locations until the tomb is reopened for the burial of another individual with higher membership rights (Ucko 1969: 269). In this situation the deceased buried outside are likely to become part of the communal ancestors eventually, but it can be considered that their youth or social status has denied them in the first instance. In England, from the late fifteenth century onwards, women who died in childbirth were buried outside the consecrated cemetery walls (Parker Pearson 2001: 15). A group of burials set apart from the royal mound burials of seventh century AD Sutton Hoo have been interpreted as execution victims. The skeletal remains from this site display various forms of mutilation and are associated with no grave goods, hence causing their dating to be problematic (Parker Pearson 2001: 15). If they indeed date to the same phase as the royal burials, these individuals may be seen as having been buried in a different manner due to their deviant practices in life. Other mortuary situations where certain dead are treated differently from the norm include
sacrifice burials, which may relate to the death of a high status individual or to some other supernatural need as perceived by the living community.

These examples can be seen as providing further breadth for the interpretation of the aberrant UAN era practices. With regards to the extramural burials on Umm an-Nar Island and the cist burial at Tell Abraq, possible interpretations see these individuals as not accorded membership of the tomb due to: having been involved in aberrant practices; being of low status/wealth or due to being of different ethnic background; having died in unusual circumstances, or in the case of The Tell Abraq example, possibly having no tomb already in existence for the corpse to be interred in. The idea of this individual being a sacrifice for the good of the community cannot be completely discounted either, and it has been noted that often such individuals will not be buried with the remainder of the population (Parker-Pearson 2001: 17). For the purpose of the current study, however, what is most relevant about this burial context is its atypical nature.

Briefly in this regard, a reminder of the Asimah Alignment A evidence is relevant. Although unique within 3rd millennium culture of the UAN era, there is nonetheless some potential for more such funerary / memorial monuments of this type to be excavated in the future. The individual inhumations in this structure and the potentially ritual nature of the associated platforms and niches stand in stark contrast to the majority of the collective UAN funerary evidence, and indeed collective graves dating possibly to the same era as the alignment are also found at Asimah. The energy expenditure for the construction of this monument in relation to the few that were interred within led the excavators to infer social hierarchy, where a select group of the community was afforded access to a “hitherto unrecorded commemorative death cult” (Vogt 1994: 184). Notions of energy expenditure as originally presented by Tainter (1975, 1978) require, however, a greater range of data concerning the interred before conclusions can begin to be drawn about the nature of potential stratification. Parallels for the type of monument that comprises Alignment A are rare in the literature concerning mortuary remains. The closest are no doubt the local Arabian examples of triliths and proto-triliths as reviewed by Vogt (1994: 134-138), but little is known of them, other than that they appear to span an extended time period, some being still in use throughout the last millennium.

Other factors of communality

Following on from the discussions above concerning the communality of monumental tombs from a structural perspective, is the need to elaborate on the issue of communality
from the perspective of the interred individuals. For the UAN era, no distinction appears to have been made in terms of body treatment for individuals of different age, sex, rank or affiliation. This is not to say that statements of differentiation were not made in dress, gifts or ritual, however, these will be treated later. What is clear in the UAN Oman peninsula evidence is that eventually all interred individuals become disarticulated and commingled. Referring once again to the Merina of Madagascar, Bloch states that the symbolism of the tomb as a unifying and eternal force for the entire community (a community in which individuals may not own land, as it is held as a common resource) can only be sustained through downplaying the individuality of the corpses that enter it. In this case study, further manipulation of the remains is undertaken whereby they are separated into skeletal components which are then grouped together (Bloch and Parry 1982: 34). This is not dissimilar to the treatment of human remains during the Orcadian Neolithic (Sharples 1985); in the Neolithic barrows of England and Sweden (Shanks and Tilley 1982; Thomas 1988) and in the megalithic tombs of Neolithic Eastern Denmark (Damm 1991: 46), and in some cases the secondary manipulation of the remains is complex, multi-staged and even involves the movement of bones between tombs. Although there is no evidence for this level of secondary manipulation of skeletal elements in the Oman peninsula, there is still the commonality of communality – the ultimate disaggregation of the body which may be considered as “an ideological imperative by which the individual is denied and the collective asserted” (Parker Pearson 2001: 52). In this way, the fate of the physical body is seen to act as a metaphor for social organisation (Shanks and Tilley 1982: 134). Once inside the tomb, the dead person ceased to be an individual, becoming then part of an anonymous group of ancestors. The greater the number interred, the more significant the symbolism of ancestral power and the tomb tradition which also has the effect of emphasizing the health of the community (Damm 1991: 46).

Referring back to the megalithic structures of the Cotswold-Severn region of Southern Britain introduced earlier, are some observations made of this data in relation to potential group interrelations. In use at the same time as the transepted tombs (which display evidence of chambered segregation of age and to a less extent gender groups), are those with simple terminal chambers, whose skeletal remains are comprised of piles of disarticulated bones all jumbled together, with possible previous excarnation. Some interesting observations were made regarding the contemporary use of these tombs, based on observations by Bloch and Parry (1982: 20) that social systems in which kin is distinguished are more likely to contrast gender at death, while systems that allow no such distinctions may be more concerned with the corpse as a whole. Although Thomas admits that the following extrapolation is “stretching ethnographic analogy”, he suggests
that “transepted and simple terminal chambered tombs constitute the monuments of endogamous and exogamous groups respectively” (Thomas 1988: 553). Stepping back to a degree, a more general conclusion is presented whereby the varied practices are considered to relate to differences in the social organisation of society, emphasizing two different strategies for coping with internal stress and contradiction (Thomas 1988: 553).

Although it is accepted that adoption of the kinds of interpretation presented above to understand the evidence from the Oman peninsula is unwise, review provides some interesting conjectures. Does the lack of physical separation of gender or age at death indicate that the societies of UAN Oman peninsula were exogamous? Obviously we do not have enough data from skeletal collections of the Oman peninsula to answer this question, the only relevant data being from Umm an-Nar island where skeletal collections were analysed by Kunter (1991). Here analyses based on teeth suggested close relationships between individuals within Tombs I, II and IV, although commentary on the published results by Martin (Pers. Comm.1994) indicate this may be preliminary and that some of the dental epigenetic traits may in fact indicate some exogamy. This is definitely an area within Oman peninsula archaeology that requires far more detailed research before we can begin to see how the burial practices may relate to the nature of their associated communities.

A final point regarding communality, in terms of the Oman peninsula burial regime, revolves again around the fact that no component of the living community was treated differently in terms of the final burial context or in the ultimate treatment of the physical remains. This has interesting interpretational potential in terms of the relative ascendancy of various determining factors of the mortuary programme. Of particular interest is the interplay of social organisational determinants versus those based in world view/religious beliefs. Here it can be argued that determination of burial process in terms of context and body treatment may be overriding determined by world view/religious beliefs rather than by social factors. Those who potentially held power within the community still ended up as part of the anonymity of ancestors and having their human remains, once defleshed, dealt with in a perfunctory manner as did the rest of the group. An example of a king being buried as a commoner in Saudi Arabia (Huntington and Metcalf 1979: 122), was undertaken to show the community that all, whether of high or low status or wealth, are equal before the supernatural deities, hence supporting “the ideological legitimation for a class society” (Parker Pearson1984a: 64). It may be taken further as an indication that for the corpse to be appropriately dealt with and thereby for the notion of the soul to be ‘freed’ or separated from the body effectively, all members of the community had to undergo physical burial of the same
process in the same place. This in no way means that social differentiation was not part of the third millennium BC funerary programme in the Oman peninsula, but it implies that if it existed, it was manifest in other aspects of the mortuary realm, such as grave gifts and ritual display.

_Treatment of the corpse and secondary manipulation of the dead_

_Inhumations and their disturbance_

In the isolated aspect of body treatment, it can be concluded that in both Hafit and UAN times burials were placed in tombs as complete corpses, most likely clothed and, sometimes at least, wearing items of personal adornment. For the UAN period, the fact that each body was placed into a context where the burial of subsequent individuals would eventually result in their ultimate disturbance and disarticulation, is worthy of discussion. This type of practice is in marked contrast to other types of communal burial contexts, such as the Viking burial mounds of the 10th-12th centuries AD, where the individuals remain undisturbed. Here, notions of collectivity are apparent in the outward appearance of the funerary context, but treatment of the articulated inhumations ensures that individuals remain as intact corpses (Parker Pearson 2001: 114). The contrast is greater still when compared with Egyptian burial practices, where the dead are buried articulated and individually because of the need for the preservation of the body, a notion that was tied to the perceived needs of the afterlife (Ikram and Dodson 1998: 15).

In this area of the mortuary record, actual body treatment — both at the time of death and subsequently, it appears we are the closest to Hertz’s relationship between the ‘corpse and the soul’, and hence to philosophical/religious determinants and societal perception of a ‘soul’ or ‘spirit’.

The fact that in UAN tombs the bones end up swept into piles along the walls or simply pushed around / crushed through subsequent use of the burial monuments cannot, I believe be interpreted as any form of secondary rite. It may, however, allude to a belief within the living community that once the bones are dry, or are to some degree defleshed (whether this be concomitant with a specific period of time or simply through visual assessment of the degree of decomposition) it is acceptable for them to be shifted about in a manner that could be potentially interpreted as disrespectful. Other examples of similar treatment of human remains can be seen in graves of Mycenae, where the mortuary evidence suggests that while the flesh remained, the corpse was treated respectfully and accorded provisions, but once it had decayed, the bones were dealt with by pushing aside or even throwing them out into the dromos of the tomb. This
symbolised that the spirit had moved into its final abode and could not reappear. This hypothesis was accepted as providing a good explanation for the nature of the skeletal evidence recovered from the megalithic tombs of Western Europe as well (Daniel 1958: 50). The Mesaran tholoi of Crete exhibit skeletal collections with apparently similar post decay disarticulation and treatment (Branigan 1993; Dickinson 1994: 209). With regards to the Neolithic stalled tomb at Midhowe (Orkney) and other late Neolithic tombs of the region, corpses were initially placed on stone benches, but were cleared off and pushed into piles to make way for subsequent interments (Reilly 2003: 137).

A shift in attitude from the care and respect taken over the corpse during primary funerary rites to the lack of concern over the dry bones may be indicative of beliefs that see the spirit/soul as no longer attached or associated with the physical remains. This follows Hertz’s 1907 thesis regarding a mirroring of the spiritual journey of the dead individual’s soul from the land of the living, through limbo into the land of the ancestral dead. Looking to the Dayak society of Borneo, Hertz describes a three stage progression of the soul as reflected in the three liminal phases of burial rites. Changes in the state of the corpse are linked with changes to the progress of the soul which are mirrored in the way the human remains are perceived by the remnant population (Parker Pearson 2001: 143). That this may be a valid tenet through which to interpret the mortuary evidence from the Oman peninsula has significant bearing on how we understand other methods for the secondary treatment of skeletal remains.

Secondary manipulation of human remains

With tombs of the UAN era often now containing up to hundreds of corpses, practices involving the physical remains, from a practical perspective, become increasingly complex. It is was argued in Chapter 6, that this physical imperative provided the genesis for the secondary practices seen after 2400 BC; being the use of smoking/fumigation75; burial pits and cremation. Enhancing this argument is the hypothesis drawn above which sees any notion of ‘soul’ or ‘spirit’ as departed from the bones by the time the flesh has decayed, hence their treatment in being pushed aside, trodden on and handled perfunctorily. Considering this it seems less appropriate to view these practices as true secondary mortuary rituals that comprise part of the overall mortuary programme, either in having some role in facilitating the separation of the soul

75 Fumigation has been included here as a secondary practice, but it may not in fact fall into this category. It is not possible from the available evidence to discern whether it was a common part of the ritual associated with the burial programme or something was undertaken secondary to it.
or in reworking the social fabric of the community. Overall, secondary mortuary rituals are interpreted as activities that are likely to involve a proportion of the living community and be associated with ceremony. "Secondary rituals...involve ceremonies in which the living memorialise the dead as an integral process in repairing the tear in the social fabric of the community....They may be conducted months or years after the death of an individual, often require a greater amount of planning...to ensure the cooperation and participation of a large number of people" (Chesson 1999: 142). It is because of the fairly significant role accorded true secondary mortuary practices, that it is considered important here to determine whether the secondary practices of UAN Oman peninsula are to be interpreted in this manner.

Chesson (1999: 143) states that a defining feature of many cultures that practice secondary mortuary characteristics is an emphasis on ancestors and the past. For the final transformation of the deceased individual into the ancestral collective, the living community need to complete the mortuary rituals in an appropriate fashion, thereby fulfilling their moral obligations and emphasizing the relationship between the living and the ancestors. If we were to see the secondary practices of UAN Oman peninsula as being part of the requirements of mortuary ritual, then we need to see them as involving the community and as being important in reworking the social relationships of that community. Although it cannot be discounted that these practices become part of the mortuary ritual of the mid to late UAN period, the factors described above lead us more towards their interpretation as elements of functional expediency. Further factors supporting this contention were discussed in Chapter 6, and together with the idea presented above concerning the notion of the soul having separated from the corpse by the end of decomposition process, combine to indicate that the secondary practices may have been primarily in response to the need to keep the tomb in service, yet ensure the remains of the ancestors were kept close to the tomb and possibly purified through cremation. Accepting that these secondary practices are to a greater degree functional, we now move on to review cross-cultural parallels as aids to the interpretation of these practices.

**Fumigation**

As detailed in Chapter 6, only a select group of tombs from the UAN period show limited use of burning such that it has been interpreted as being the result of fumigation. Reconstructions made of the ritual associated with the use of Mycenaean shaft tombs state that if a tomb was reopened before the previously interred was dry enough, then some fumigation was undertaken. This is thought to act as an offering for the spirit of
the freshly dead to keep them in the grave during the subsequent interment process (Daniels 1958: 49). It is not mentioned whether this is thought to also have a dual role in covering the no doubt pungent smell of rotting corpses. Although, not all cultures have our modern perception that the smell of a rotting corpse is abhorrent and in some cultures it is recorded that the interpretation of decomposition may be an important element relating to the liminal phases of separation (Parker Pearson 2001: 143), as it is to mourners at funerals in highland Madagascar (Kus 1992: 169-170). Megalithic tombs of the Neolithic from Almeria are recorded as containing human remains that were partly burned, which were interpreted as being the result of fumigation or ritual fires (Grinsell 1975: 27). Some bones from chamber tombs at Tinkinswood and West Kennett (Britain) also provided evidence of charring, a process described as having occurred once the flesh was no longer present. Here excavators note that it is not certain whether the burning was undertaken to ensure the soul had departed the body or whether is was the result of fumigation for smell, the process of which was assessed essential during reuse of the tombs (Grinsell 1975: 28). In Minoan Crete many tombs revealed the presence of charred bone, again interpreted as being the result of fumigatory fires (Branigan 1993: 31, Dickinson 1994: 209).

In reference to the current Oman peninsula case study, the interpretation of the charred bone from this group of tombs as being the result of fumigation fires is supported by a fairly wide range of cross-cultural comparisons. However, the rationale behind these fires remains unclear. It could certainly relate to either of the postulations put forward above, either relating to the disturbance of some interred before they were defleshed, as part of rituals to do with the funerary programme or more perfunctorily to addressing the odours of the dead.

Clearing out? Who’s in the pits.

Several tombs of the UAN era show evidence of associated bone pits either excavated directly into the sand or in the form of stone lined pits, as described in Chapters 5 and 6. Results of this study to date indicate that the bones from these pits are highly likely to have originated from the associated round tombs of the UAN era, and are interpreted as clearing out episodes. In the Bronze Age tombs of Mesaran Crete, there is evidence for the construction of walled trenches at some tomb locations, which were filled with bones cleaned out from the tomb, while in other tombs, they shoved bones into antechambers or up against walls (Branigan 1993: 81). In both these examples it is noteworthy that the bones are kept very close to or within the original burial structure, a factor thought significant to the notions expressed earlier regarding the tomb and its
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representation as a symbol of community and ancestral power. Also of note is that the bones do not appear always to have been simply thrown in, but were placed with some care. Long bones and skulls were potentially arranged, or may simply have been carefully placed (Al Sufouh and Ra’s al Jinz). This treatment implies a degree of care and respect for the remains which is interesting in contrast to the apparent lack of concern for them whilst they were still within the circular tomb context.

With regards to the UAN era examples it is interesting that of the four sites with associated bone pits, all but one (Ajman B) provide evidence of the bone being burnt. This context does, however, contain a limited amount of burnt bone. This leads us to turn then to the practice of cremation and its role in the funerary programme of the Oman peninsula.

Cremation practices

At the outset, a note on terminology. As discussed in Chapter 6, there is little evidence to suggest that cremation was a primary body treatment accorded the dead at the time of burial. In all cases, it appears to have been used within the context of removing the previously interred from their original place of deposition and relocating them – either into pits or onto a second floor of the tomb. There is no doubt that these practices are complex and challenging to reconstruct from the evidence (as shown in Chapter 6) and considering the apparent uniformity of all other aspects of the burial programme across the Oman peninsula, the variety in the way cremation is incorporated into burial programme at various sites is significant. What is also considered important to recognise is that we are not looking here at cremation in the true sense of the term as most frequently used when describing burial practices from other cultures whereby the fresh dead are burnt. The practice of cremation in this case appears overwhelmingly to relate the groups of corpses being burnt together in varying states of disarticulation.

Although considerable time has been spent searching for parallels for this type of practice, to date none have been found. The only data thought worthy of reporting in this regard relates to the far more general use of cremation and its purification properties (Prothero 2002: 6). If indeed removal of bones from the circular tombs of the UAN period became a practical imperative, then the notion of their purification may have been important to the remaining community. Clearing out tombs may have been potentially unsettling to the community at large due to it being at odds with previous, established practices, and although it impossible today to understand why, the use of fire
may have been employed as an instrument with which to purify or sanction the act of bone removal.

**Grave goods, funerals and ritual**

Just as with other elements of the mortuary programme, the choice of what items of material culture\(^76\) to include in the grave is not random. Chapter 6 reviewed in detail the nature of the objects retrieved from tombs of the Oman peninsula, eventually providing a series of hypotheses regarding the potential motivation behind the inclusion of various artefact classes based on contextual review. Focus here is on theoretical stances and the use of analogies for gaining insight into what is being expressed by the living community through their choice of how to manipulate/include the available material culture. The careful selection of grave goods is certain, but ascribing meaning to this selection is tenuous. It is likely that grave goods hold multiple significances to the living community that produced and used them and consequently the mortuary record in regards to material culture is exceedingly complex for the archaeologist to interpret.

The choice of grave goods allows the expression of identity (individual and social), the patterns of which may reflect important structuring frameworks of a particular society. “Both group and individual identities are asserted at funeral rites through displays of emotion and through personal adornment of the living and the dead with material culture” (Chesson 1999: 140). Ethnographic analogy has shown that these expressions are shaped by structuring forces such as gender, kinship affiliation, age or other corporate identity including status, as well as other factors such as the organisational structure of the associated culture. That the use of material culture in funerary contexts is purposive also indicates that its use may not merely reflect these aspects of the living community, but that it may be used as an active participant in the recreation or manipulation of these factors. Hence it may serve to underline and emphasise the existing order or to conceal aspects thereof. “Of particular interest is the ideological aspect of material culture with artefacts embodying ideas and being use to represent or misrepresent social strategies and positions” (Parker Pearson 1984b: 71).

Potentially playing a role in grave good choice may be societal perceptions of an afterlife or some other world-view / religious requirement. Such goods may be artefacts

\(^76\) The term ‘grave goods’ in this section necessarily includes the personal attire of the corpse, as it is only rarely that preservation has allowed us to make the distinction between what items were gifts and what was worn.
of separation or transition, included to help prepare the dead for the ‘other world’ or to accompany them (Parker Pearson 2001: 11). Some objects may be involved in rituals that occur at the time of burial, or may have been owned by the deceased and are now somehow not appropriate to remain in circulation (Grinsell 1975: 53, 60). The myriad of ways in which material culture is manipulated in mortuary ritual makes the drawing of specific ethnographic or cross-cultural analogies of little use. This is particularly so when combined with the challenging nature of the Oman peninsula data set, and so it becomes clear that only broad based, hypothetical statements are feasible.

Changes to the quantity and variety of grave goods throughout the third millennium BC in the Oman peninsula are thought to belie the increasing availability of a wide range of objects rather than as evidence of discontinuous practice in relation to the preceding Hafit period. This is not to say that there isn’t development in the way in which the living community used the material culture available to them to make public statements, but it indicates overall indigenous development of these practices in relation to endogamous change rather than the onset of new practices as a result of external influence. Similar changes through time in the Danish Iron Age described above, saw ancestors become increasingly well provisioned (and brought in closer to settlements) from c. 150 BC onwards. This has been interpreted as a mortuary factor that accompanies altered settlement evidence which shows increasing hierarchical distinctions (Parker Pearson 2001: 126).

Further development of the processes through which grave goods become more plentiful or richer in nature is explored by Parker Pearson in relation to the Danish Iron Age (1984b). Here, a very interesting point is raised regarding the production of a surplus in pre-state societies. Such societies are generally non-accumulative, in that although labour can produce a surplus, “the social relations that permit accumulation and profit-making are absent” (Hindess and Hirst in Parker Pearson 1984b: 70). In these societies, capital or surplus may be accumulated, but only so long as it can be consumed, making it a symbolic rather than an economic entity. One of the prime ways this surplus can be consumed is in displays of wealth, e.g. the putting on of feasts or rituals for the remaining population (who are then indebted by this), or the direction of surplus into luxury goods which may be sacrificed to the gods or directed to win the support of supernatural forces such as deities and ancestors. This latter process allows for the accumulation of debts among the living. Activities of the Kachin tribe of highland Burma show this process in action, whereby competing lineages are able to produce a surplus which is distributed to the community in the form of feasts, thereby being converted into prestige (Friedman in Parker Pearson 1984b). Additional surplus puts
pressure on consumption, which becomes the primary tool for the advancement of prestige and power. Gifts are given to gods and ancestors, marriage partners etc. and those who cannot reciprocate become debtors, pledging their labour such that their creditors are able to produce an even greater surplus and so it goes on in a spiraling fashion, widening the gap between rich and poor. Eventually, according to Friedman, this causes an increasing division between production and consumption, and as consumption increases through growing competition and population, the surplus declines through soil exhaustion, extension into less fertile areas etc. Finally such processes will lead to a collapse of the system, potentially involving rebellion, coups or active conflict thus inspiring the generation of new cycles through social and technological innovation.

Returning to the focus of this review, we may begin to see that the provision of grave goods in the past may have played an important role in creating a spiral of debt. “The sacrifice of grave gifts at burial becomes an important economic institution of central importance as wealth is taken out of circulation and consumed in ritual acts of supplication to the dead” (Parker Pearson 1984b: 71). Application of this notion to the evidence of UAN Oman peninsula, we can certainly see that wealth in the form of luxury goods is undoubtedly being consumed as part of the mortuary programme, whereby goods are accorded individuals at the time of death, becoming then gifts for the ancestors. It will always be difficult to take this further to suggest that this wealth was apportioned for only a segment of the interred, potentially a lineage or two, although the indirect interpretation of certain factors relating to the overall collections of grave goods from various sites, as presented in the following section, does lead us to conclude that not all interred were accorded the same provisions at death.

Objects from collective graves

Discussions in the previous chapter document the specific limitations of the Oman peninsula evidence, which does not allow for associations between individuals and specific grave goods. This lack of associative context restricts much of the interpretation common to mortuary studies.

Figure 7.7: Skeletal remains from grave Al A3 (After Vogt 1994).
particularly those relating to gender, age, kinship or status. Inferences on these issues must be either based on other types of evidence (context, human remains) or on more general hypotheses relating to collections of objects. In Chapter 6, this discussion concluded that at least some of the rich array of funerary goods deposited in graves of UAN Oman peninsula may have been part of the expression of social position, a factor enabled by the production of, and requirement to consume, surplus. Should this be so, then the gift giving and displays are likely to have related to a small number of individuals per tomb, potentially a lineage.

Here the Asimah Alignment A evidence is relevant as it is one of the very few places where individual interments are definitively associated with grave goods (Figure 7.7). The fact that these individuals received different attention in death is remarkable for the period and the overall similarity of finds within each context is also of note. Regrettably no skeletal analyses have been undertaken on these human remains to date and hence there is no opportunity to surmise on the age, sex or kinship affiliation of the deceased in relation the unique bronze objects interred with them.

**Funerals and ritual**

It has been said that the very genesis of ritual action may have been through the need of early man to deal with a corpse, as “death is the most significant of the rites of passage in our progress from womb to tomb”. Funerary rituals commonly involve heightened emotions, may include ceremony and performance or make reference to deities or other supernatural powers (Parker Pearson 2001: 194). Procedures are usually prescribed and formal and often focused on the corpse. Expressions of the social fabric of the community may also be made. “Displays of... identity can reflect important organizational forces within the culture, illustrating structures of harmony where we see strong social, economic and political bonds and relationships. Just as importantly, these same patterns can highlight tensions between these social structures....which may suggest the presence of contested relationships and the continual negotiation of identity, alliances and oppositions” (Chesson 1999: 140).

As charged as rituals associated with burial in the Oman peninsula undoubtedly were, almost nothing remains in the mortuary record that alludes to their nature or content. At best we can postulate that the deceased was dressed (everyday clothes, shroud or funerary finery?). The corpse was brought to the tomb (via a procession? With mourners from the family or the whole community?). If any rituals etc were involved these may have been undertaken outside the tomb (taking an hour, a day, longer?). Then the tomb
was opened (fumigation?) and the body was inserted (often disturbing previous interments) and the grave goods were also put inside. Purely hypothetical is the contention that higher the social status of the deceased the more elaborate the funeral is likely to have been, including a wider cross-section of the community and potentially attracting greater material wealth.
Chapter 8

Conclusion

Introduction

Although archaeology may on the surface appear to be a straightforward process of unearthing evidence of the past and then describing it, it is complicated by the need to interpret what is found. This interpretation draws on theory and analogy which allows us to make some sense of how and why the people of the past acted the way they did (Parker Pearson 2001: 20). In relation to the manner in which the dead are dealt with, it is held that there is little or no part of this process that is not purposive and meaningful and it is this dialogue between the living and the dead that can also be viewed as a relationship between a society and its burial practices.

The overriding aim of this study has been to examine what can be ascertained about the culture of third millennium Oman peninsula through the mortuary data that comprises part of the archaeological record. Extraction of some degree of meaning from these monuments and their interments is made more important by the fact that they dominate the archaeological landscape and comprise the most frequently examined site type. To enable this study, focus was initially set on the subject of theoretical approaches within mortuary archaeology, so as to gain insight into the types of factors likely to have had a determining role in funerary practices. Consideration then shifted to the available mortuary data, involving the collation of all available data and review of its integrity and hence usefulness in terms of the current study. Shortcomings of the dataset were addressed by the design of a new methodological approach to the excavation of mortuary sites, which was then utilised in the excavation of three sites that span the millennium under study. This data was then added to that already collated and subject to a series of multivariate analyses in an attempt to elucidate any patterning. It is through the lens of the three newly excavated sites – Jabal el Emalah, Al Sufouh and Tell Abraq – that the preexisting data was reinterpreted to arrive at a reconstruction of mortuary activities of the third millennium BC. Once the practices themselves are as accurately understood as is feasible it is possible to turn to their interpretation, which involves first discussion of them from an internal Arabian peninsula viewpoint and subsequently using ethnographic and archaeological analogy. Here extrapolation from elements of the burial programme back to the society that generated them allows for the construction of
informed hypotheses about the nature of the societies that lived in the Oman peninsula four to five thousand years ago.

Results

Review of the theoretical literature, with specific reference to applicability in terms of the type of data that comprises the mortuary record of the third millennium Oman peninsula, concluded that the most pertinent approach held that funerary practices were determined by a complex series of factors, both social and based in world-view/belief systems. An attempt to unravel these factors was made through exploration of Hertz’s’ basic construct of the three inter-relationships between the corpse, the soul and the living community. The relationship between the corpse and the soul is that most likely to be expressive of world-view or belief systems. This encompasses primarily the treatment of the body itself, particularly at the time of death and in initial funerary activity (i.e. at the time of interment). The relationship between the living community and the corpse, however, is more likely to provide a platform for the expression of social/individual identity. This may involve the choice of funerary context or grave goods that reflect the personae of the deceased or their social position within the community, factors which may also be reflected in other invisible aspects of the burial programme such as ritual and display and the overall disruption to daily life accorded the dead individual. Lastly is the relationship between the living community and the soul, which is most likely to reflect social/psychological issues revolving around the loss of an individual, the need to sever emotional ties followed by necessary reworking of the social fabric of the remaining community, an aspect which may also have an economic element such as the redistribution of goods or the readjustment of labour requirements and immediate responsibilities. It is primarily through the framework of these relationships that examination of the burial practices of the Hafit and Umm an-Nar periods in the Oman peninsula was affected. It was never, however, overlooked that funerary behaviour constitutes intentional actions that are likely to be conservative by nature and may serve to mask real relationships or situations not simply mirror them.

Also determined to be of significance as a result of this study is the need for explicit acknowledgement of the filters that lie between the archaeological record and reconstructions of past societies. This is considered to be a factor that is consistently lacking in the theoretical literature devoted to the subject of interpreting mortuary remains. Consequently, for the purpose of the current study, a back to basics approach was undertaken that accepted the limitations of the data as a result of the identified filters, and moved to carefully reconstruct the likely mortuary activity from existing and
newly excavated archaeological material. With a reconstruction of the mortuary programme based on accurate data it was more likely that useful and insightful interpretations about the nature of the past society could be generated.

Overall, the current study has determined that burial practices of the third millennium BC in the Oman peninsula are primarily characterised by strong continuity of tradition despite observed variation in certain aspects of funerary behaviour. From the outset of the millennium the dead are buried as individual, successive interments into above-ground, stone monuments, a practice that endures into to the ensuing Wadi Suq period. Variation can be seen, however, in the development of certain elements of the burial programme.

In the first instance, the preferred location of tombs is seen to shift from elevated hillsides or ridgelines somewhat distant from potential associated settlements in the Hafit period to locations of lower elevation, closer in to the living community in the latter half of the third millennium BC. This manipulation of the dead in terms of their physical relationship to the living is seen as a result of this study to be an interpretable factor. It is hypothesised that communities of the Hafit period may have been in the early stages of sedentism and that groups are likely to have been existing in relatively small, loosely associated kin groups. During this phase rights to the use of land or access tracks to resources may have been in part controlled by the establishment of tombs as territorial markers. The legitimation of rights to resources through the physical placement of ancestors to a lineage in visual locations at the edge of territories or at key points in the landscape is a practice observed in both ethnographic and archaeological case studies.

Mirroring this development in the physical relationship between the living and the dead is a significant decrease in the quantity of tombs through time. From groups of cairns in clusters or straggling lines all through the Omani mountains during the Hafit period, we move to anywhere between one and ten tombs per settlement in the UAN era. Also in the UAN period is a definitive alteration in settlement location patterns, with sites now being found throughout the gravel plains of the peninsula and up the west coast. It is hypothesised in this study that sites with more UAN tombs per settlement may date earlier in the sequence, while those with fewer are likely to be later.

Tombs are seen to develop structurally throughout the millennium, from relatively small, often roughly built cairns or beehive tombs in the Hafit period to structures of up to 14 m in diameter, constructed using sophisticated techniques of stone masonry in the
UAN period. Tombs of the latter era show considerable workmanship and would have required a significant degree of organisation to facilitate their construction.

Echoing these developments in tomb structure and location are changes to the composition of the interred. In the Hafit period tombs, the low numbers of interments together with some preliminary skeletal analyses have been interpreted as indications that these tombs were created for kinship groups. Furthermore the loose association between several to many such structures is taken to indicate loose affiliations amongst broader kinship groups. By the UAN period the numbers of interred per tomb begins to rise significantly. Tombs of the early UAN era are seen to have numbers in the realm of 20 – 40, while tombs of the fully developed UAN era may contain up to hundreds (400) of corpses.

Review of the parallel development of these various aspects of the archaeological record indicate that the driving forces behind them are all part of what is broadly interpreted as an internal processes of growth and change, potentially also drawing on influences or ideas gleaned from the widening sphere of external contacts that characterise the second half of the third millennium BC. The interplaying series of factors operating to result in this process of change have been determined to include: climate; altering demographics instigating social change; resource extraction and trade; foreign contacts; development of specialisation and the ability to produce a surplus.

Overall these processes allowed for larger, sedentary settlements that could support a bigger population instigating change in the way individuals and kinship groups lived together. This is mirrored in the developments reviewed above that relate to the mortuary programme. Rather than being separated in death, kin groups are now buried communally in monuments that no longer mark territory or exist on borders but are close to the living community. Results of this study hypothesised on the increasing communality of the mortuary programme throughout the third millennium and the notion that other levels of association between individuals may now transcend kinship ties. That such lack of division in the burial of human remains may reflect the practices of an exogamous society is introduced, although assessed as being purely hypothetical without the support of skeletal analyses. Also elucidated is the potentially antithetical situation between the communality evident in the burial regime as it pertains to burial context, which belies equal treatment for all in death and the level of organisation likely to have been required for the construction of monuments on the scale of UAN tombs and towers, which is assessed as being beyond that of a true egalitarian society.
Conclusion

Exploration of this apparent contradiction lead to review of other aspects of the mortuary remains, primarily that of the grave goods.

Although accepted as heavily imbued with meaning, the motivation behind the choice of what goods are appropriate to include in the grave is an aspect of the past that is very difficult to reconstruct. The multiple significances and symbolism attributed by a living culture to the material world available to them and the multitude of ways this can be manipulated to make statements has been well documented through ethnographic research. This situation is exacerbated within the paradigm of the current Oman peninsula case study by a significant lack of associative context between grave goods and individuals. Consequently, only broad patterns regarding grave goods and their manipulation can be hypothesised. Results indicate that there are rarely sufficient grave goods for even one ceramic vessel to have been included with every burial, and the greater rarity of other items indicates that there may have been no ‘minimum kit’ assessed as being necessary for inclusion with the dead for their subsequent journey. The less frequent occurrence, however, of luxury goods suggests that these were included as grave offerings for only a small component of the population. The differential treatment of a segment of the community in terms of the material goods attributed them in death is suggestive of some form of hierarchical organisation in which wealth / power is concentrated in the hands of a few, possibly a particular lineage. This attribution of material wealth to the ancestors may also be explained in terms of the need to consume surplus, which is a requisite in pre-state societies that have no means of accumulating wealth, which is usually expended in such a way that debts are built up within the community or prestige is accumulated through gifts to gods or ancestors. Hence this wealth, rather than being redistributed is expended and taken out of circulation.

With regard to body treatment, the situation is again one of apparent equality. It has been noted that no evidence exists for patterned use of alternative burial contexts for particular segments of the society and further all the physical remains appear to be accorded the same treatment at death. All are primarily interred into communal structures. The apparent disregard for skeletal elements once a certain time has passed or degree of decomposition has taken place is further interpreted through the results of this study as providing an indication that any notion of soul is likely to have been separated from the physical remains by this time. It is not problematic that bones are shoved around, pushed aside or crushed during the process of making space for the next interment.
Assessment of these aspects of Umm an-Nar funerary behaviour concluded they remain in dialectic opposition to one another. The communality whereby the whole population, irrespective of rank, gender or age, eventually become part of the anonymity of the ancestors, which appears basically egalitarian, versus the attribution of material wealth to a sub-section of the community at death, which belies differential control of resources and potentially, hierarchy. Resolution of this apparent conflict is suggested by this study to lie in the overriding assertion of the collective and the possibility that beliefs regarding the soul and/or the power of the ancestors was of paramount importance, transcending the possibly newly developed desire to display wealth or social position at death. In this way, beliefs/world-view may be seen to dominate over the expression of social identity in the determination of mortuary practices as much as they are reconstructable from archaeological evidence.

The admission of new practices in the late Umm an-Nar period involving the secondary treatment of human remains was a topic also assessed within the parameters of this thesis. That these practices, involving fumigation, the removal of bones from circular tombs into pits and the use of cremation, were instituted primarily within the paradigm of practical requirements is argued, although the potential genesis of the ideas may have included ideas transmitted from outside the Oman peninsula. Factors including increasing population pressures; a desire to keep monuments in service for longer; the variable use of these practices across the peninsula; the likely infrequency of their occurrence at specific sites; the short-lived nature of their overall occurrence and their relationship to groups of corpses not individuals are all evinced in support of this. It is not considered impossible, however, to suggest that some development of these processes may have occurred by the late third millennium (Unar 2 and Tomb A Hili north), however, evidence from these sites is ambiguous and not fully published. Overall interpretation of these practices sees them as intrusive to the overall indigenous developments of the mortuary realm in the third millennium BC, and support notions of the adaptability and flexibility of the Oman peninsula communities when faced with newly developing conditions such as population pressure.

Future Research

The review of the mortuary programme of the Oman peninsula in the third millennium provided in this thesis comprises an extensive synthesis of the burial evidence available to date as reinterpreted through the lens of the three newly excavated sites that span the millennium under study. Many reconstructions and interpretations have been devised and presented in consideration of numerous different aspects of the mortuary realm and
it is hoped that these will serve as working hypotheses against which new data can be viewed and interpreted. It is considered, however, that several of the hypotheses presented may be strengthened or dispelled through the results of future research. Some of the most pertinent of these are presented below.

An obvious but nonetheless valid area of future research entails the excavation and publication of new mortuary sites. As has been seen in this study, mortuary sites dominate the archaeological record of the Oman peninsula, but few are well excavated, appropriately analysed and thoroughly published. In this regard it is important to recognise the efforts of those currently working on mortuary sites that have been preliminarily published, including Tomb N at Hili (Méry et al); Ra's al Jinz (Monchablon et al) and Unar 2 (Carter and Blau et al) and Tell Abraq (Potts, Benton and Martin et al). Excavation of funerary contexts that are minimally disturbed, like that of Tell Abraq, would be a real coup for the field.

More careful and detailed exploration of the environs of excavated tombs of the third millennium BC may shed further light on the presence of associated structures such as those for which glimpses were found at Tell Abraq and Tomb A Hili north. Better understanding of how the environs of tombs may have been used in antiquity would aid in our ability to reconstruct the nature of the rituals that are likely to have occurred as part of primary funerary activity. Such ceremonies are obviously highly expressive moments in the overall burial programme and insight into them would be invaluable.

A considerable number of the hypotheses generated in this thesis may be supported or discounted through the results of focused skeletal analyses. It is acknowledged that the scope of skeletal remains to reveal information about the past populations, like the material remains of the mortuary programme itself, is limited by the very nature of the funerary practices that generated them and the impacts of post-depositional forces. In an ideal world, the analysis of the DNA of individuals interred in the one monument may shed light on questions concerning kinship affiliation, exogamy and endogamy. Further, should such analyses be chamber specific, we may understand more about how the internal space within UAN tombs was used and whether it was a significant variable. It is understood that methods other than DNA analysis may be used to determine the interrelationships between interred individuals; these include dental morphology and the analysis of non-metric cranial or post-cranial traits (Blau 1998: 272-273).

A final area of useful future research is seen as residue analyses. If methods were available to determine, for example, what substance soft-stone vessels were likely to
contain when they were placed into graves it would enable a better understanding of their role in the mortuary programme. Such data should enable a determination of whether these vessels were used within the burial ritual or whether they were included in graves as gifts containing something valued or important for the journey after death. The same can be said of the ceramic jugs that comprise the most frequently recorded grave artefact. Analysis may be able to determine whether domestic versus black on red funerary ceramics were used differentially or whether their role was the same. Were they included in the grave actually holding liquids or is it more likely they were included simply as representations of liquids? Obviously, the answer to these questions would augment our understanding of the potential motivation behind the inclusion of specific types of grave goods and how they may have related to the burial programme as a whole.

Conclusion

It is broadly accepted the manner in which a society deals with death will be expressive of various aspects of the way they live. Because, however, the societies that archaeologists deal with are part of the forgotten past, our ability to observe how mortuary practice reflected life for any particular culture is gone. Hence we have developed theoretical tools and drawn on a broad range of ethnographic observations to establish a framework through which we hope to rebuild these lost linkages and make meaningful observations about the nature of past cultures.

It is hoped that the current study has approached the mortuary data of the third millennium BC in the Oman peninsula in manner that has enabled its expressiveness to be translated into hypotheses that may begin to explain the dynamic and adaptable nature of this ancient culture. With luck, the results of this thesis may inspire others to take up the mantle of archaeological research in the Oman peninsula such that further mortuary analysis or other archaeological avenues of exploration may add to and develop the reconstructions presented here concerning the fascinating cultural florescence that characterises the development of third millennium society.
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Appendix 1

Multivariate analyses: Third millennium burial data

Multivariate statistical analysis (MVA) is a tool frequently used to detect underlying/latent patterns within large data sets, such as the one compiled for this work. As noted by Wright “if it is worth putting together a table of data then it is worth exploring it by multivariate methods” (1992: 8). It is not within the scope of this work to review the literature dedicated to the subject of MVA and more specifically its application to archaeological data. Literature consulted during the analyses carried out for this work includes Baxter 1994, Wright 1992, 1994, Manly 1986, Shennan 1988 and Madsen 1988. Extensive consultation was undertaken with members of the Department of Consulting Statistics at the University of Technology, Sydney (Margaret Mackisack and Edip Odur) and Emeritus Professor R.V.S. Wright. Much assistance was also provided by Dr Lloyd Weeks (University of Sydney).

The following pages present the summarised results of an extensive series of analyses and provide an assessment of the problems encountered and the usefulness of the results.

Brief introduction to MVA in archaeology

MVA is designed to reveal latent structure that may exist within sets of data. Structure reflects the degree of correlation between variables. Using the current data set, the tombs become the ‘objects’ and the categories of finds (e.g. Black on Grey vessels, soft-stone DDC bowls etc.) become the ‘variables’. As a major component of variation between tombs is comprised of differences in the types of objects placed within them, it follows that it is important to assess the degree to which objects/variables co-occur. According to Wright “when there is no structure the variables do not associate together: when there is, they do. It is the strength and pattern of the correlations that produces the structure.” (1992: 9). Multivariate methods, therefore, are designed to portray the degree of structure that exists within a given data set.

Such statistical approaches have been used on archaeological data for decades, and frequently on data such as the occurrences of object types within grave/tomb contexts (Wright 1992: 11; Bard 1989a; Hodson 1977, 1990; McClellan 1979; Peebles 1972; Jorgensen 1992a, 1992b; Palm & Pind 1992). Seriation, for example, is often undertaken to test the relevance of the ‘successive replacement through time’ theory. That is, that the popularity of object types waxes and wanes through time, thus their increasing and
decreasing presence in funerary contexts may reflect chronological change (Wright 1992: 11). Seriation attempts to re-order the tombs by concentrating points (presence of artefact types) down a diagonal line, thereby associating graves that are most similar. If a concentrated pattern down the diagonal is achieved, then strong latent structure exists within the data set, supporting the theory of 'successive replacement' and suggesting an age order for the tombs. If the analysis does not achieve a good concentration down the diagonal, this may indicate that successive replacement of artefact types through time was not occurring and that artefact types are found randomly distributed amongst graves (Wright 1992: 12), or distributed according to other criteria.

Patterns or structure inherent within a data set may also, however, provide information on other theories concerning the burial of certain objects with particular sexes, age groups or classes of people (if such information is available from the archaeological record). Various multivariate methods exist which can help elucidate such patterns, including cluster, principal components and correspondence analyses, to name only those most commonly used.

The choice of what type of analysis is most applicable to a particular data set revolves around the type/format of the data and the sort of structure or clustering that one is attempting to reveal. Most applicable for the current study is correspondence analysis (CA) and principal components analysis (PCA), although several other types of analyses were attempted. Following is a brief description of these types of analyses.

a) **Principal Components Analysis (PCA).**

Principal components analysis (PCA) has traditionally been considered the most effective tool for revealing latent structure within large multivariate data tables (Wright 1992: 34). It is considered as having several advantages over cluster analysis, as outlined by Wright (1992: 34-35, 61-62). In summary, PCA allows scattergram plotting of results that visually displays the interrelationship of objects and variables; it allows objects and variables to be analysed together and it better allows the unraveling of separate factors of variance.

The type of data under study, however, will determine what type of matrix should be used for PCA. The more usual correlation matrix is best suited to data such as the measurements of objects or quantities of trace elements within analysed materials, as it gives equal weight to each variable. For counts of objects within archaeological contexts, a covariance matrix is more suitable, because it does not give equal weight to
variables that are rare (Wright 1992: 41). The option of matrix type is not provided by all statistical packages, but is provided by the MV-Arch package (Wright 1992), which was utilised for the current study.

**b) Correspondence Analysis (CA)**

For tables of data where the rows (objects) are archaeological contexts (such as tombs) and the columns (variables) are counts of artefact types, the technique of correspondence analysis (CA) is often used. This technique is “used to seriate the data by re-ordering the rows [tombs] so that adjacent contexts have similar compositions” (Baxter 1994: 3). This may show whether there is “diachronic clinal change in any of the [artefact] types” and can serve to isolate artefact types that show a random variation throughout time (Wright 1992: 30). The results of this type of analysis can often be interpreted as a chronological seriation or ordering of tombs. Sometimes, however, the results may reveal distinct clustering rather than ordering and here a functional interpretation of the results is more applicable, although chronology may also be indicated (Baxter 1994: 3). Identifiable patterning in the results of correspondence analyses is not always obvious, and prior knowledge of the data-set and possible hypotheses can often be necessary in the interpretation of results where clear clustering or ordering is absent (Baxter 1994: 103).

CA, like PCA is a method of eigenanalysis. It differs from PCA specifically in the type of matrix it operates on and the weighting of the variables. CA is more often applied to tables of data comprised of counts, but still has the same advantages of PCA, in offering the dual analysis of variables in terms of objects and objects in terms of variables (Wright 1984: 30). Unlike PCA, however, CA does not concentrate on the general factor of abundance, which is usually the first component in a PCA. This is because CA has the inherent power to transform the raw data counts into relative frequencies according to both rows (objects) and columns (variables) simultaneously, thereby creating a data matrix that is not swamped by very large or very small counts. This is obviously an important feature for the analysis of a data set comprised of raw counts.

Another feature of CA is its tendency to emphasise rare attributes (variables), particularly where they occur in contexts that are otherwise devoid of variables. This may create scattergrams that focus points close to where the axes meet, with only a couple of outlying points (Wright 1992: 31). If this occurs, it is best to omit the rare variables or the contexts that contain only one or two variables, as these may cause noise in the analysis thereby overriding other more interesting or interpretable patterns.
c) *Seriation*

The technique of seriation (mentioned above) is also applicable to data sets comprising counts of artefacts within archaeological contexts. However, as seriation simply comprises the first axis of a CA, it is generally considered more expedient to only undertake correspondence analyses, thereby obtaining further axes of variance for each analysis. According to (Wright 1992: 13), CA can produce not only seriation, but also an expanded, and possibly more archaeologically informative result than can pure seriation.

d) *Dual Cluster (DA)*

Dual Clustering (DC) is undertaken on the results of a CA. The advantage of this method is that it is able to take into consideration all (or a specified number of) axes of correspondence, thereby representing all the variance captured in the CA. This method was designed by R.V.S. Wright and is thought to be unique and as yet unsupported by published literature. The following description of the technique is from a personal communication (R.V.S. Wright 2001: 5/2/01).

The first step in this method uses a scree slope test (MV Arch) on the results of a standard CA. A scree test is used to examine the pattern of the eigenvalues of the CA by helping to determine which of the smaller components is the first to measure merely random error (noise) (Wright 1992: 54). Components of this size and smaller should be omitted from the DC analysis. The next step involves computing the variable and object scores of the retained axes of the CA and scaling them according to the magnitudes of their respective eigenvalues. This means that successive correspondence analysis axes have decreasing weight in the subsequent cluster analysis. On theoretical grounds this seems to be a desirable property.

Because the variable and object scores are now commensurately scaled they can be thought of as forming a new single matrix where correspondence analysis axes are the new variables and the scores are the new objects - regardless of whether the scores were originally for variables or objects. Once this single matrix has been constructed it can be analysed by cluster analysis - which is ‘dual’ because it is a simultaneous analysis of both original variables and objects. To respect the successively decreasing weights of the correspondence analysis no data standardisation or transformation of the variables in the new matrix should be undertaken.
The new data matrix is then subject to a K-means cluster analysis, followed by a Ward's method dendrogram cluster analysis. Ward's method is an intensely clustering method, which is acceptable for initial exploratory analyses, such as will be desired of the separated Umm an-Nar and Hafit data sets. Interpretation of the resultant dendrograms should not enter into too finer detail of the stems and leaves – more relevant is the membership of the branches, particularly the major branches.

Summary

In summary, the choice of what type of multivariate analyses are best suited to particular data sets, revolves around several factors: the type of raw data; access to statistical packages; the type of archaeological hypotheses being tested and the kind of output that will best display results. Considering the type of data the current study is comprised of (i.e. raw counts), CA has been determined as the most appropriate type of analysis. As DC is based on the results of CA, this type of analysis is also considered very useful.

The results of the analyses undertaken on the current data set will be presented after a brief look at some of the general problems encountered with the data itself during the running of the analyses.

Inherent shortcomings/limitations within the data-set

Shortcomings exist within any archaeologically generated data set. Context disturbance, excavation technique and quality of publication all impact on the caliber of the compiled data. Data inadequacies result in limitations to the usefulness of the data in terms of further analysis. The following list outlines the shortcomings relevant to the current case study.

Classification of artefact types

If latent structure is to be detected within the data set, then accurate classification of the types of objects present within the tomb contexts must initially be made. In the case of the Hafit and UAN tombs of the Oman peninsula, this is not as simple as it may be elsewhere. No overriding classificatory system exists within the three main artefact categories (ceramics, non-ceramics and beads). In well-published contexts, excavators often establish their own typologies, each different to the next, accompanied by some drawings. When poorly published, however, artefacts are often not illustrated at all and at best described poorly. As a result attempting to organise artefacts from third
Appendix 1

millennium BC tomb contexts into a meaningful typology has been a very difficult and at times tenuous process.

In addition, several artefact classes seem inherently difficult to classify. For example, UAN period black on red painted funerary vessels are an item which is present in almost every tomb dating to this period. Shape varies considerably, as does decoration. They do not, however, fall easily into classifiable groups and although an attempt has been made to create a useful typology, there is nonetheless overlap between types while other types seem to be peculiar to one site. Also problematic in the pursuit of classification is the poor preservation of painted decoration. Thus, within the Hafit ceramic categories, the distinction between painted and unpainted vessels may arise as a result of preservation factors rather than new types coming in or out of style.

**Tomb type**

Tombs of both the Hafit and UAN periods were used for multiple interments. At the outset of the 3rd millennium, numbers, when determinable, were low, usually around five individuals or less. By the end of the UAN era the number of interments had reached the hundreds, sometimes as many as 200 individuals per tomb. Bodies were pushed aside to make space for new interments and associations between individuals and grave goods were lost. This results in an inability to undertake analyses that may detect grave good associations with specific sexes or age groups, or even socially differentiated individuals.

**Period of tomb use**

Tombs of the Hafit and UAN period were potentially used over a long period of time. This makes the variation between tombs in terms of their contents less likely to be sensitive to change through time. Tombs that overlap for a period of their use may appear as very similar, despite one coming into use earlier or going out of use later.

**Tomb disturbance**

Many tombs have been disturbed, often by tomb robbers, leaving their contents incomplete. The degree to which each tomb has been disturbed is difficult to ascertain from the evidence. Some have been disturbed many times throughout the millennia, by robbers looking for metals or in later times, looking for stone with which to build.
Data quality

The final problem associated with this data set revolves around the quality of excavation and publication. The majority of tombs within this data set have been poorly excavated (as outlined in Section ##), with no attention to skeletal remains or beads. If published, little or no mention is made of the latter category and when mentioned, little useful detail is provided and illustrations/drawings are rare. Even the commonly held ‘important’ artefact classes such as ceramics or soft-stone vessels are often poorly published. This has led to bias within the data set, with well excavated and well published tombs perhaps appearing more different than they really are due to the large quantities of certain objects or the greater variety of types present. Such data inadequacies also present problems in the classification of artefact types as mentioned above.

Application of MVA techniques to the current data-set

Initially, analysis was undertaken on the entire data set, including tombs from both the Hafit and Umm-an Nar periods, despite the fact that it is simple to separate the data into these two groups (via obvious tomb type variation). This was in part to establish the validity of the methods. If they were unable to distinguish between tombs of these two eras, then perhaps they would be unsuitable for detecting finer chronological, regional or functional clustering within the separated Hafit and Umm an-Nar data sets. PCA, CA and cluster analyses were all undertaken and select results are presented below in the first of three sections. The second section comprises results of analyses undertaken on Hafit data only and the third, analyses on the Umm an-Nar data.

Prior to analysis, the data set had to be manipulated so as to exclude all tombs that contained no artefacts and all artefact classes that were not found in any tombs. This reduced the number of tombs (objects) from 106 to 84. The tombs were all assigned a code comprising the prefix ‘H’ for Hafit tombs and ‘U’ for Umm an-Nar tombs, followed by a number. The code equivalences used in the analyses are always the same and are presented in Table 1.

Initially there were 201 artefact types (variables) from three major artefact classes (37 - ceramics, 57 - non-ceramics and 107 - beads). Due to the large numbers of variables, especially within the bead category, these groups were summarised into 62 variables for the purposes of most of the analyses. Occasionally this number was further reduced, either by further summarising categories, by choosing just one artefact class, or by
Appendix 1

choosing only those artefact types thought to be of chronological significance. Whenever variation has been made to the number of tombs or artefact types in an analysis, this is noted in the discussion. When feasible, the variable names have been plotted on the variable weighting graphs. However, when many variables are included in the analysis and there is too little space for names, numeric codes have been used. Tables providing code equivalences for each analysis which will be included in the discussion.

A more detailed interpretation of the results of these analyses in relation to the data set and third millennium culture history will be presented at the end of this section. The following discussions relate specifically to individual analyses.

Table 1: Tomb code equivalences.

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<th>Site</th>
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<th>Code</th>
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<td>U10</td>
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1. The entire data set: (Hafit and Umm an-Nar tombs combined)

a) **CA – using artefact counts. Variables summarised to (62) types**

Correspondence analysis (MV-Nutshell: Wright 1994) was undertaken on data that had been summarised into 62 artefact types, derived from all three artefact classes. Plots of both variables (Figure 1) and objects have been created using the first two axes of correspondence which, combined, explain 18.7% of variance. Figure 1 shows a horizontal spread of Hafit tombs (‘H’) along the x-axis and a vertical spread of Umm an-Nar tombs (‘U’) along the y-axis. The line of best fit, drawn over the top of this graph, attempts to keep all points as close to the line as possible. Tombs at either end of the curve are those least similar to one another. These are represented by Hafit tombs at one end and Umm an-Nar tombs at the other. In this case, correspondence analysis has separated the tombs of the two eras quite well.

A look at Figure 2 shows the variables that are most responsible for the separation of the tombs. Frit beads, especially segmented varieties; quartz and gold beads; pear shaped jars; and, not surprisingly, painted and unpainted ceramics of the Hafit period are all artefact types that occur only in Hafit tombs, and plot to the far right of the x-axis. Tombs of the Umm an-Nar period are characterised by the presence of domestic pottery of the era; Harappan, black on grey, and black on red funerary pottery, including suspension vessels; soft-stone vessels of all types and circular disc talc beads. These variables all plot at the top of the y-axis.

The overlap of some Hafit tombs (Figure 1) into the area primarily occupied by Umm an-Nar tombs, close to where the axes meet, poses some interesting possibilities. It suggests that the artefact types that plot in this part of may occur in either Hafit or Umm an-Nar tombs. These artefacts include fishbone, talc and paste beads; shell beads and ornaments and generally beads of stone and micro-beads of soft-stone. Bronze weapons, pins/awls and fragments also occur near the junction of the two axes which suggests that they explain little variance between Hafit and Umm an-Nar tombs (i.e. they occur in both tomb types).
Appendix 1

Figure 1: Plot of results of correspondence analysis – Object plot (tombs). [Table 1 presents code equivalences].

Figure 2: Plot of results of correspondence analysis 1a – Variable plot (artefact groups). [Table 2 presents code equivalences].
Table 2: Artefact type numeric equivalences.

<table>
<thead>
<tr>
<th>Code</th>
<th>Artefact type</th>
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<td>B on R miniature vessels</td>
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<td>Soft-stone vessels-SDC</td>
</tr>
<tr>
<td>20</td>
<td>Pear shaped jars</td>
<td>41</td>
<td>Soft-stone microbeads</td>
<td>62</td>
<td>Soft-stone vessels-DDC</td>
</tr>
<tr>
<td>21</td>
<td>Domestic pottery UAN</td>
<td>42</td>
<td>Shell beads</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

b) CA – Using artefact counts: Variables summarised into 25 major types

In an attempt to see whether the summarising of variables would improve the results of the analysis, the next CA was undertaken on data that had been further summarised into 25 artefact types, still representing all three artefact classes. Scattergrams of the first two axes of variation, which comprise 35.3% of variation, plot the objects (Figure 3) and variables (Figure 4). It is noteworthy that the first two axes of this analysis comprise 16.6% more variance than those of Analysis 1a. Both plots show the characteristic curved pattern (also known as the ‘arch’ or the ‘Guttman’ effect’ – Baxter 1994: 119), although the curve seen in the plotted points of this analysis is somewhat steeper than usual. Tombs at either end of the curve have nothing in common.

Summarising the variables seems to have allowed a better separation of Hafit and Umm an-Nar tombs (Figure 3) than was achieved in Analysis 1a. It is noteworthy that when
intermixing of tombs occurs it is Hafit tombs in the area close to Umm an-Nar tombs, rather than the reverse.

Figure 3: Plot of results of correspondence analysis 1b – Object plot (tombs). [Table 1 provides tomb code equivalences].

Figure 4: Plot of results of correspondence analysis 1b – Variable plot (artefact groups)
Looking at the variables that are most responsible for the separation of tombs into distinct groups (Figure 4), it can be seen that pear shaped and Hafit pots together with quartz, paste and miscellaneous stone beads pull the Hafit tombs out along the negative x-axis. At the other end, domestic, imported, suspension and black on red funerary vessels combined with soft-stone vessels pull the Umm an-Nar tombs out along diagonal positive x-axis. These are essentially the same variables that influenced the distribution of tombs in analysis 1a.

c) PCA – Using square roots of percentage frequencies: Variables summarised into 25 major types

As noted in the general discussion on multivariate analyses, CA can have a tendency to emphasise rare attributes or objects described by rare attributes only. An alternative type of analysis was therefore attempted, using PCA on a covariance matrix (rather than a correlation matrix) as is suggested for the analysis of tables of counts transformed into percentage frequencies or chord distances (Wright 1992: 41, 46). The program Votrans (MV-Arch: Wright 1992) allows for the transformation of a data matrix to the square root of the percentage frequencies. This implements the suggestion made by Prentice (1980 in Wright 1992: 46) to overcome the problem of weighting counts by using chord distances. The transformed data matrix is then analysed using the covariance matrix option in BIGPCA (MV-Arch: Wright 1992). This approach to PCA is advocated as the preferred option for data such as tables of counts (Wright 1992: 125), but is not generally seen as preferable to CA.

The following PCA has been undertaken according to the method described above on data that has been summarised into 25 variables. The results of the first two components (comprising 36.9 % of variation) have been plotted in scattergrams of objects (Figure 5) and variables (Figure 6). Hafit and Umm an-Nar tombs plot either side of the y-axis, the Umm an-Nar tombs divide into two main clusters either side of the x-axis. The concentration of the majority of variables around the centrum of the scattergram (Figure 5) suggests that they explain little of the variance encompassed in the analysis. Concomitantly, it is the pull of relatively few variables (talc beads, paste beads, Hafit pottery, soft-stone vessels, UAN domestic and Black on Red pottery and carnelian beads) that separates the tombs in Figure 5. Along both axes, the talc bead category (Figure 6) is providing the major impetus. Considering they are the most numerically frequent artefact by far (30, 236 – the next largest frequency being carnelian beads 2,916), it is not surprising that the results of this analysis focus on it.
Figure 5: Plot of results of principal components analysis 1f – Object plot (tombs). [Table 1 provides tomb code equivalences].

Figure 6: Plot of results of principal components analysis 1f – Variable plot (artefact types).
Summary

The results presented above are derived from the most successful of an extensive series of analyses aimed at separating Hafit and Umm an-Nar tombs via multivariate techniques. As suspected, CA proved to be the most appropriate technique and as a result it was primarily CA that was undertaken on the reduced data sets of the Hafit and UAN periods exclusively.

Although chronologically it would be more apt to present results of the Hafit MVA's first, followed by those of the UAN period, they have been presented in reverse order. This is due to fact that there is better scope for interpreting the MVA results against known and intuitive data for the UAN period, where there is little such data for the Hafit period. This allows another test of validity for the method, as well as a providing a background for the interpretation of the results, which is useful when looking at the results of the Hafit period.

2. Data of the Umm an-Nar period

The reduced UAN data-set originally comprised 48 variables (artefact types) and 37 objects (tombs), however early analyses suggested certain combinations of objects would streamline results. All objects that were described by only one artefact type (i.e. all tombs that possessed only one type of artefact) were omitted from the analyses, as they provide no grounds for comparative presence/absence of artefacts between contexts. The four Al Sufouh tombs, which always plotted together, were combined as one object, as were the two Ajman tombs, for the same reasons. As a result, 48 variables and 31 objects were used for the following analyses.

The tomb code equivalences (U1, U2 etc) are provided in Table 1. Numeric equivalences for artefact types are provided below in Table 3.

As CA analysis had proven to be the most appropriate type of analysis for the combined Hafit-UAN data-set, it was therefore preferentially undertaken on the reduced UAN data-set. Firstly, two correspondence analyses were carried out, and subsequently two dual cluster analyses. One of each type of analysis included the 15 bead categories and the second excluded them. It was considered important to exclude beads from comparative analyses for two reasons. Firstly, because they are the least reliable variables due to their inconsistent treatment during excavation and publication. Secondly, bead categories are numerous and each is of equal weight with categories such as ceramics, bronzes, soft-stone etc. Omitting beads from a second analysis simply
provides for a comparison, allowing us to assess the impact of bead categories in the results.

Table 3: Artefact type numeric equivalences for UAN analyses.

<table>
<thead>
<tr>
<th>Code</th>
<th>Artefact type</th>
<th>Code</th>
<th>Artefact type</th>
<th>Code</th>
<th>Artefact type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bronze pin/awl</td>
<td>17</td>
<td>B on R canisters</td>
<td>33</td>
<td>Soft-stone vessels-DDC</td>
</tr>
<tr>
<td>2</td>
<td>Bronze vessels</td>
<td>18</td>
<td>B on R globular vessels</td>
<td>34</td>
<td>Talc circ. disc beads</td>
</tr>
<tr>
<td>3</td>
<td>Bronze ring/bracelet</td>
<td>19</td>
<td>B on R miniature vessels</td>
<td>35</td>
<td>Talc long tube beads</td>
</tr>
<tr>
<td>4</td>
<td>Bronze fragments</td>
<td>20</td>
<td>B on R other</td>
<td>36</td>
<td>Talc other bead types</td>
</tr>
<tr>
<td>5</td>
<td>Bronze socketed weapons</td>
<td>21</td>
<td>B on R bottles/pear/squat</td>
<td>37</td>
<td>Carnelian /chalced. beads</td>
</tr>
<tr>
<td>6</td>
<td>Bronze weapons</td>
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<td>B on R net pattern</td>
<td>38</td>
<td>White stone beads</td>
</tr>
<tr>
<td>7</td>
<td>Bronze misc. items</td>
<td>23</td>
<td>B on R suspension</td>
<td>39</td>
<td>Lapis beads</td>
</tr>
<tr>
<td>8</td>
<td>Precious metal objects</td>
<td>24</td>
<td>Imported B on G</td>
<td>40</td>
<td>Quartz beads</td>
</tr>
<tr>
<td>9</td>
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<td>25</td>
<td>Harappan ceramics</td>
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<td>Seals</td>
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<td>Dilmun ceramics</td>
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<td>Ostrich egg shell</td>
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<td>Kaftari vessels</td>
<td>43</td>
<td>Silver beads</td>
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<tr>
<td>12</td>
<td>Feeding shells</td>
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<td>Soft-stone vessels-grooved</td>
<td>44</td>
<td>Bronze beads</td>
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<tr>
<td>13</td>
<td>Cosmetic shells</td>
<td>29</td>
<td>Soft-stone vessels-plain</td>
<td>45</td>
<td>Clay beads</td>
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<td>14</td>
<td>Decorational shells</td>
<td>30</td>
<td>Alabaster vessels</td>
<td>46</td>
<td>Fishbone beads</td>
</tr>
<tr>
<td>15</td>
<td>Stone objects</td>
<td>31</td>
<td>Soft-stone vessels-Ser. Anc</td>
<td>47</td>
<td>Frit fluted beads</td>
</tr>
<tr>
<td>16</td>
<td>Domestic ceramics</td>
<td>32</td>
<td>Soft-stone vessels-SDC</td>
<td>48</td>
<td>Frit not fluted beads</td>
</tr>
</tbody>
</table>

2a) CA – Using raw counts: 31 objects and 48 variables (Refer Tables 1 and 3)

Plots of both objects (Figure 7) and variables (Figure 8) have been created using the first two axes of correspondence which, combined, explain 41.6% of variance. Despite this fairly high percentage of variance, Figure 7 shows only a moderate separation of the tombs. Al Sufouh plots to the far left, while a small group including Shimal, Ajman and Umm an-Nar tombs I and II, lie below the y-axis on the right. The majority of tombs plot in the upper right quadrant. It is notable that Tell Abraq (U6) plots amongst these tombs, not separating out on its own as one may expect from a tomb so different from the rest of the corpus. This indicates that important factors of variance are not encapsulated within the first two axes of correspondence.
Figure 7: Plot of results of correspondence analysis 2a – Object plot (tombs), 1st and 2nd axes. [Table 1 provides tomb code equivalences].

Figure 8: Plot of results of correspondence analysis 2a – Variable plot - 1st and 2nd axes, (artefact groups, refer Table 3).
Appendix 1

Figure 9: Plot of results of correspondence analysis 2a – Object plot (tombs), 3rd and 4th axes. [Table 1 provides tomb code equivalences]

Figure 10: Plot of results of correspondence analysis 2a – Variable plot – 3rd and 4th axes, (artefact groups, refer Table 3).
A look at Figure 8 shows that the variables most responsible for plotting Al Sufouh to the far left are various bead types—particularly talc beads of miscellaneous shape. Pulling the small group to the bottom right are talc circular beads and silver beads as well as the presence of miniature black-on-red vessels. Variables pulling the bulk of tombs along the top right trajectory are long talc and miscellaneous stone beads, série ancienne soft-stone, Harappan and domestic pottery as well as suspension vessels. It is interesting to observe that bead categories are responsible for most of the impetus pulling the tombs away from the upper right quadrant. As noted above, however, bead categories can be considered as the least reliable variables. Consequently it was considered important to re-run the CA on the data-set minus the bead variables, hence analysis 2b.

As a considerable amount of variance (34.2%) was also explained by the third and fourth axes of correspondence, plots of these axes have been included (Figures 9 and 10). Tombs in Figure 9 separate out substantially more than in Figure 7, clustering in several groups. Interestingly, the variable plot, Figure 10, shows that ceramic classes are pulling towards the lower right, soft-stone to the mid right, beads to the left with bronze and shell artefacts pulling to the central top. It is possible that these axes focus on the variation in frequency (i.e. relative numbers of artefact types within tombs) between artefact classes, thereby clustering variable categories together.

2b) CA – Using raw counts. 31 objects and 33 variables (Refer Tables 1 and 3)

The second CA undertaken on the UAN data-set excluded all bead categories, resulting in only 33 variables and the same 31 objects. Figure 11 plots the tombs according to the first two axes of correspondence and Figure 12 plots the variables. Comprised within these first two axes is 48.9% of variance, a greater amount than analysis 2a, which included beads.

It is immediately noticeable in Figure 11 that tomb U6 (Tell Abraq), plots far away from the rest of the corpus. The rest of the tombs are clustered in a diagonal leading up to the y-axis. A look at Figure 12 shows that the variables responsible for Tell Abraq’s location include bronze vessels and socketed weapons, Kaftari and Dilmun ceramics, ostrich egg shell and ivory—all items that occur almost exclusively in that tomb. It seems that without beads, the first axes of correspondence focus on the variables that isolate Tell Abraq.
Figure 11: Plot of results of correspondence analysis 2b – Object plot – 1st and 2nd axes, (tomb code equivalences, refer Table 1).

Figure 12: Plot of results of correspondence analysis 2b – Variable plot – 1st and 2nd axes, (artefact groups, refer Table 3).
**CA summary**

Two points can be gleaned from the above analyses. Firstly, comparing the results of analyses 2a and 2b, it can be seen that including or excluding bead categories causes notable variation in the results. Implications of this will be discussed below. Secondly, from examining plots of the first four axes of variance (Analysis 2a: Figures 7-10) it can be seen that the tombs locate quite differently according to axes 1 & 2 versus 3 & 4. This is also true of analysis 2b, although graphs of the 3rd and 4th axes were not included in the discussion. This suggests that different aspects of variation between tombs is encapsulated in each set of plotted axes, i.e. that each axis of correspondence is providing further information on how the tombs compare to each other. What is needed is a method by which *all* the axes of variation can be encapsulated in one visual representation. To this end, a new type of analysis called dual clustering (described above) was undertaken.

**2c) DC – Using raw counts. 31 objects and 48 variables (Refer Tables 1 and 3)**

The primary benefits of this analysis are twofold. Firstly it allows all relevant aspects of variation captured in a CA, to be represented in one visual diagram, namely a dendrogram. Secondly, the method plots both objects and variables on the one dendrogram making it easy to see which artefact types are responsible for the clustering of the tombs.

For the first dual cluster analysis of the UAN data-set bead categories were included. All ten correspondence analysis axes were retained after examining the scree slope; thus all axes of variation were included in the formation of the dendrogram, Figure 13.

Close examination of Figure 13 shows that the tombs can be broadly broken into three groups:

1) This group includes three sub-groups:

   a) Umm an-Nar (UAN) IX, described by *série ancienne* soft-stone vessels and Black on Red ‘other’ category ceramics;

   b) Hili A, B, C, H, and Hili Garden Tomb, ‘Amlah 5a and Wadi Munay’i described by all varieties of soft-stone and alabaster vessels, Imported Grey ceramics and black on red ceramics of the net pattern and globular or canister shapes and Black-on-Red vessels of bottle, pear or squat shape
c) Kalba, UAN IV and VII, 'Amlah 1 & 2a, and Tomb A Hili north (TAHN) described by domestic and Harappan pottery.

2) Tomb U6 (Tell Abraq) separates into its own category accompanied by a number of variables including precious metal objects, Dilmun vessels, shell objects, ivory, bronze rings and vessels, socketed weapons and Kaftari vessels.

3) This group includes two sub-groups:

a) Al Sufouh, UAN 1, II, V and VI, Ajman, Shimal, Maysar 4 and Hili M, - described by frit beads (not fluted in shape), white stone, talc, bronze, clay and shell beads as well as miniature black-on-red vessels and miscellaneous bronze objects.

b) UAN X, XI & XII, Hili A, D & N, Tawi Silaim and Falaj al-Qaba – described by seals; fishbone, lapis, fluted frit, quartz, carnelian / chalcedony and silver beads; decorative shells; alabaster; bronze pins/awl and weapons.

2d) DC – Using raw counts. 31 objects and 33 variables (Refer Table 1 and 4)

For the second dual cluster analysis, all categories of bead finds were omitted. For this DC analysis, 10 axes of correspondence were retained after examining the scree slope, thus all axes of variation have been included in the formation of the dendrogram, Figure 14. In general, the three groups delineated from examination of the first dendrogram (including beads, Figure 13) can be seen again in Figure 14. A few tombs have moved groups and these will be discussed in the ensuing section, devoted to interpreting the analyses of the Umm an-Nar data-set.
Figure 13: Dendrogram of results of DC analysis on UAN data-set (including beads).
Figure 14: Dendrogram of results of DC analysis on UAN data-set (not including beads).
The following comprises the three major groups and their variables when bead categories are not included.

1) Tomb U6 (Tell Abraq) separates into its own category accompanied by a number of variables including precious metal objects, Dilmun vessels, shell objects, ivory, bronze rings and vessels, socketed weapons and Kaftari vessels.

2) This group includes two sub-groups:
   a) Hili B, H, M and Hili Garden Tomb described by black on red globular, net and suspension vessels and imported grey wares.
   b) Kalba, UAN VII, ‘Amlah 1 and 2a and Tomb A Hili North (TAHN), described by Harappan and domestic pottery.

3) This group includes three sub-groups:
   a) Umm an-Nar (UAN) IX, described by série ancienne soft-stone vessels and Black on Red ‘other’ category ceramics;
   b) Hili A, C and N, ‘Amlah 5a, Tawi Silaim, Shimal and Wadi Munay’i, described by soft-stone vessels of all types including alabaster;
   c) Hili D, Falaj al-Qaba, UAN I, II, IV, V, VI, X, XI and XII, Maysar 4/1, Al Sufouh and Ajman A/B, described by stone objects, bronze pins/awls, weapons and miscellaneous items, miniature black on red vessels, black on red canisters and seals.

Archaeological interpretation of UAN analyses

The most challenging aspect of applying MVS analyses to large and complex data-sets, is the archaeological interpretation of the results. In general the types of information sought through these analyses include groupings of objects (tombs) according to chronological, regional or functional factors. Sometimes, these factors may mask one another making results even more difficult to interpret. With regard to the current case, there are particular circumstances which already provide ‘noise’ in interpretation, namely that tomb contexts are used over long periods of time, contain multiple, mixed interments and are found in very different landscape units. Keeping these limitations in
mind, we turn to the results of the MVA presented above, concentrating primarily on the more comprehensive results of the dual cluster analyses.

**Beads vs. no beads**

The first issue requiring comment concerns the variations in results produced by the presence or absence of bead categories within the analyses. As previously mentioned, beads are considered as the least reliable group of variables, which is why the analyses were run both with and without them. Broad observation of the results of the dual cluster analyses shows that the primary groupings are preserved despite the presence or absence of beads. More detailed consideration of the tombs that plot differently shows that tombs such as U31 (Hili M) and U7 (Shimal) both have many beads in several bead categories and thus when beads aren’t included, they plot quite differently. More difficult to interpret are the movements of tombs such as U1 (UAN IV), U32 (Hili N) and U16 (Tawi Silaim C1). These tombs contain few or no beads, but have entries in three or more other categories. The most likely reason for their movement appears to be that the tombs most similar to them have entries in bead categories causing them to locate differently when beads are omitted.

Because of the inherent problems involved with the bead categories, the following interpretations will be made primarily using the results of the analyses that did not include beads.

**Chronological interpretations**

Seeking chronological sequence within the corpus of UAN tombs is an exceedingly difficult task, which has not hitherto been attempted. The relative chronology of tombs is usually only approached on an individual site level and to my knowledge multivariate techniques have not been utilised to this end. As is often the case with these techniques, however, some previously held idea or notion of a sequence is helpful as a comparison against which the multivariate results can be interpreted.

To this end, the first task was to create a relative chronology based on the dates provided for some of the better published tombs by their excavators. Next, the presence or absence of some of the key chronological markers was noted. Firstly, *série récente* soft-stone vessels, which were thought to have been introduced around 2250 B.C. (Cleuziou and Vogt 1985) or a little earlier c. 2300 B.C. (Benton 1996: 164). Also useful are the black on red funerary ceramics and imported grey wares. The results of this intuitive preliminary chronological sequencing are depicted in the following chart (Figure 15)
which suggests a general temporal schema. Not all tombs from the MV analyses have been included in this chart due to a lack of available chronological information.

Figure 15: Intuitive chronological schema for tombs of the UAN period.

Overlaying this chart with the groupings that resulted from the dual clustering analyses shows an interesting result.

Figure 16: Intuitive chronological schema overlain with colour coded groupings from DC analysis.
The tomb from Tell Abraq, as expected, stands alone at the terminal end of the UAN period. The majority of tombs from UAN island and coastal locations fell into group 3 while some of the inland tombs associated together in group 2, and in sub group 3b. One primary differentiating factor between groups 3a and c as contrasted against 3b seems to be the presence or absence of *série récente* soft-stone vessels. It is interesting that this variation is evident at the sub-group level, not the major group level, indicating that although this is a significant variable it is only one of several that may be interpreted as providing chronological distinction.

This overlay, which shows group 3a and c to be early while groups 3b and 2 are later indicates that at least part of the variation between tombs picked up by the MVA may be chronological in origin.

*Regional interpretations*

To check whether the results of the dual cluster analysis also incorporated variation between tombs as a result of their geographical location, a chart was devised (Figure 17) which simply places tombs along a continuum originating on the west coast and terminating in the south-eastern highlands at Maysar. Overlaying the colour-coded dual cluster groups, there once again seems to be broad consensus between the MVA groups and geographic location. Certain anomalies such as the Maysar tomb grouping with those from the west coast can be explained by the fact that this is likely to be an early tomb context, deduced from its lack of soft-stone vessels, which is particularly relevant considering its proximity to soft-stone sources.

*Figure 17: Schematic representation of tomb location from west coast towards the inland*
3. Data of the Hafit period.

The reduced Hafit data-set originally comprised 24 variables (artefact types) and 66 objects (tombs), however early analyses suggested certain combinations of objects would streamline results. All objects that were described by only one artefact type (i.e. all tombs that possessed only one type of artefact) were omitted from the analyses, as they provide no grounds for comparative presence/absence of artefacts between contexts. As a result, 23 variables and 29 objects were used for the following analyses. Bead categories were not omitted from comparative analyses on the Hafit data principally because these tombs contain far fewer objects and object types than tombs of the UAN period, and because beads are often the only finds from these tomb contexts.

The tomb code equivalences (H1, H2 etc) are provided in Table 1. Numeric equivalences for artefact types are provided below in Table 4. As with the Umm an-Nar data, many and various types of MV analyses were executed on the Hafit data-set (including principle components, cluster analyses, Chernoff faces, seriation etc.). Only the results of the correspondence and dual cluster analyses are presented below, as they constitute the most appropriate and successful of the analyses.

Table 4: Artefact type numeric equivalences for Hafit analyses.

<table>
<thead>
<tr>
<th>Code</th>
<th>Artefact type</th>
<th>Code</th>
<th>Artefact type</th>
<th>Code</th>
<th>Artefact type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Painted ceramics</td>
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<td>Whetstones</td>
<td>17</td>
<td>Miscellaneous frit beads</td>
</tr>
<tr>
<td>2</td>
<td>Unpainted ceramics</td>
<td>10</td>
<td>Gold beads</td>
<td>18</td>
<td>Shell beads</td>
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<td>Pear shaped vessels</td>
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<td>Silver beads</td>
<td>19</td>
<td>Carnelian/chalcedony beads</td>
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<td>4</td>
<td>Bronze pins/awls</td>
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<td>Microbeads</td>
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<td>Bone objects</td>
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<td>White stone beads</td>
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<td>Talcose steatite beads</td>
</tr>
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<td>6</td>
<td>Bronze fragments</td>
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<td>Spherical frit beads</td>
<td>22</td>
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<td>8</td>
<td>Feeding shells</td>
<td>16</td>
<td>Frit barrel beads</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3a) CA – Using raw counts. 29 objects and 23 variables (Refer Tables 1 and 4)

Plots of both objects (Figure 18) and variables (Figure 19) have been created using the first two axes of correspondence which, combined, explain 40.5% of variance. Despite this fairly high percentage of variance, shows that the primary separation of tombs occurs along the x-axis (1st correspondence axis), with the second axis (y-axis) showing only a couple of tombs separating out. The variable most responsible for the upward
movement along the y-axis is spherical frit beads, which occur only in H27 (Qarn Bint Sa’ud 21A) and H17 (Jabal Hafit C8). Looking at Figure 18, the tombs seem to cluster in three groupings. To the far left are H34-36, the three Jabal al-Emalah tombs which are described by microbeads, frit barrels, feeding shells, whetstones and silver, bone and talcose beads. The group around the centrum of the graph are characterised by bronze pins/awls, shell and carnelian beads and bronze fragments. At the far right of Figure 18 lies a group of tombs best described by pear shaped vessels, gold, quartz, whitestone and segmented frit beads.

The third and fourth axes of variance from Analysis 3a were also plotted in an attempt to see whether further notable separation of tombs occurs. Figures 20 and 21 show the objects and variable plots respectively. Once again, greater separation of tombs is seen along the x (3rd correspondence) axis than along the y (4th) axis. This third axis of variation clusters the majority of tombs around the centrum, described primarily by many different bead types. At the right end of the axis lies a smaller, more dispersed group characterised by unpainted ceramics, bronzes and one bead category – segmented frit beads. Interestingly it seems to be primarily ceramics that cause separation along the 4th axis, with pear-shaped vessels providing an upward impetus, while unpainted ceramics pull downwards. This results in H2 (Jabal Hafit tomb C2), occurring at the top of Figure 20, while most other tombs locate in the lower areas, described by painted and unpainted pots.

Figure 18: Plot of results of correspondence analysis 3a – Object plot - 1st and 2nd axes, (tomb codes groups, refer Table 1).
Figure 19: Plot of results of correspondence analysis 3a – Variable plot – 1st and 2nd axes, (artefact groups, refer Table 4).

Figure 20: Plot of results of correspondence analysis 3a – Object plot – 3rd and 4th axes, (tomb equivalences, refer Table 1)
3b) **Dual Cluster analysis – Using raw counts.** 29 objects and 23 variables (Refer Tables 1 and 4).

As noted above, the primary benefit of dual clustering is that it allows all relevant aspects of variation captured in a CA, to be represented in one visual diagram, a dendrogram. After examining the scree slope from the dual cluster analysis of the Hafit data-set, it was determined that all ten correspondence analysis axes should be retained, thus all axes of variation were included in the formation of the dendrogram, Figure 22.
Figure 22: Dendrogram of results of DC analysis on Hafit data-set.

The following delineates the three major groups seen in Figure 22 and the variables that best describe them:

1) Tomb H2 (Jabal Hafit C2) separates into its own category accompanied by the variable pear shaped vessels.

2) This group includes two sub-groups:
a) H34-36 (Jabal al-Emalah Tombs I, III and IV) best described by feeding shells, whetstones, miscellaneous bone items and beads of various types including frit barrels, talcose steatite and silver beads as well as steatite microbeads.

b) Jabal Hafit 2, 3, 6; C1, C22 and B37; Mazyad 1320 and 1321, Buraimi 1, Qarn Bint Sa’ud 21B and Tawi Silaim C2 and C4 and Maysar 3/17 and 3/18. These are best described by white stone, gold, quartz, carnelian, shell and miscellaneous frit beads; shell and bronze objects and unpainted ceramic vessels.

3) Jabal Hafit C3, C8, C9, C13, C23 and A36, Tawi Silaim C3; Mazyad 1317 and 1319; Qarn Bint Sa’ud 21A and Bat 1137 described by segmented and spherical frit beads; bronze pins and fragments and painted ceramic vessels.

**Archaeological interpretation of Hafit analyses**

When it comes to interpreting the results of the MV analyses on the Hafit data, the same limitations and complexities that were pin-pointed for the UAN period are relevant here, namely the overlaying of different factors of variation (regional, temporal etc.) and the ‘noise’ inherent within the data-set. With these conditions in mind we may turn to possible interpretations.

The first point of interest is the relationship between the groupings derived from the dual cluster analysis and the ceramic types that characterise the Hafit period. Interestingly, each of the three groups recognised in the dendrogram (Figure 22) is described exclusively by one of the three ceramic types:

- Pear-shaped vessels = Group 1
- Unpainted vessels = Group 2b
- Painted vessels = Group 3

Considering that there are only three ceramic categories within Hafit period material culture, it may indeed be significant that each of these characterises one of the MV generated groups.

Before proceeding, however, a note on the preservation of painted decoration on these vessels is in order. One would expect that if the paint preservation was an obstacle in distinguishing truly painted vessels from unpainted ones, then it is unlikely that they would have divided so easily into separate groups. Further, it may be that the deterioration of painted decoration occurs at a faster rate in one group than in the other,
Multivariate Analyses

thereby providing us with additional support to the theory of their being distinct ceramic groups, not simply a corpus in which some have exfoliated surfaces. It must be kept in mind, however, that the overall corpus of Jamdat Nasr type ceramic vessels from the Hafit tombs is difficult to separate into rationalised categories and the divisions used for the multivariate analyses of painted versus unpainted may have in fact have been a questionable basis upon which to categorise this ceramic corpus.

Nonetheless, interpretation of these groupings, although sometimes tenuous, may offer some interesting hypotheses regarding chronology and regionality, not that these represent the only avenues for interpreting the groups.

Chronological interpretations

Attempting to seek temporal sequence within the corpus of Hafit tombs is even more challenging than for the UAN period. In looking for possible chronological variation within the results of the dual cluster analysis, it is helpful to have an intuitive chronological schema with which to make comparisons. An attempt has been made to create such a diagram (Figure 23) but it must be noted that the result is both general and intuitive. This is basically due to a lack of data relating to dating within the original excavation reports. No C14 dating has been undertaken on bone from these tombs and only very broad relative dating, based essentially on Mesopotamian parallels, is usually provided. Compounding this problem is the complete lack of occupation sites dating to this era, and the resultant absence of stratified sequences to aid in generating a relative chronological framework. Such paucity of chronological information makes meaningful comparisons with MVA results problematic. In spite of this, however, and indeed because of this, it is worth postulating from the results of the MV analyses presented above.

Figure 23: Intuitive chronological schema for tombs of the Hafit period.
When the results of the MV analyses presented above are colour coded and lain over this schema (Figure 24), some interesting interpretations ensue. Initial observation shows that there is no conformity between the groups generated by the dual cluster analysis and the intuitive chronological schema. If there was, we would expect one group (colour) at the left of the chart (early) moving to another at the right (late). This indicates that the schema may be wrong, which is indeed likely considering the scarcity of chronological data it is based on.

This leads to a hypothetical revision of the chronological framework (Figure 25) based on the following tenuous, but plausible interpretation of the MVA generated groups. Groups 1 and 3 may comprise the earliest Hafit tombs, containing imported and/or painted Jamdat Nasr style pottery. No other finds are associated with Group 1 tombs (of which there is only one), however, finds associated with Group 3 include segmented and spherical frit beads together with bronze pins. Group 2b, characterised by unpainted pottery, may be comprised of tombs slightly later in date. These vessels may constitute local copies of the imported vessels predominantly found in the earlier tombs of Groups 1 and 3. A wider variety of finds are associated with Group 2b tombs, including a diversity of bead types as well as shell, bronze and stone objects.

Looking at both Figures 24 and 25, it can be seen that each major site has tombs of either Group 1 or 3, and Group 2b. This lends itself to the interpretation of burial grounds being utilised from early in the Hafit period and continuing in use into the later phase. The tombs of Jabal al-Emaleh associate exclusively with one another in Group 2a. This is doubtless due to the tombs’ treatment during excavation and publication. As mentioned earlier, tombs for which we have detailed information may separate out from other tombs during MV analyses, thereby making comparisons with the rest of the corpus somewhat problematic. In this case there is the added probable variation of regionality, as the Jabal al-Emaleh tombs are geographically discreet from the rest of the Hafit period tombs in the data set.

Other variables, such as structural form, size of tomb and orientation of tomb entrances do not seem to reflect any discernible temporal change. Nor, on the other hand, do they negate it. The first factor, structural form, is difficult to use as a variable because relatively few publications contain plans, and verbal descriptions of structure are subjective and thus vary from excavator to excavator. Size of tomb, as a tabulated variable, seems not to bear relation to either chronology or regionality. This may have been a factor more influenced by the size of the group for which the tomb was intended or their socio-economic situation. Orientation of tomb entrances, on the other hand,
provides us with a variable that is relatively objective, easy to tabulate and simple to interpret.

Figure 24: Intuitive chronological schema overlain with colour coded groupings from DC analysis.

Figure 25: Revised chronological schema overlain with colour coded groupings from DC analysis.
Regional interpretations

Tabulation of available data concerning the orientation of Hafit tomb entrances was compiled and analysed in Chapter 5 (Table 5.2) and demonstrates that some patterning does exist in terms of this variable and that it appears to be more determined by geographical location than chronology.

Conclusions

In general assessment, the broad groupings of tombs suggested by the MVA’s of both the Hafit and UAN period corpuses appear to be the result of variations between tombs based on factors including chronology and regionality. No doubt, however, other factors contribute to this variability, such as length of tomb use, number of interments and degree of disturbance. The consequence is an intertwining of all these aspects of variation, which causes interpretation of the results of the MVA analyses to be a challenging task.

Further, I would suggest that two particular circumstances reduce the MVA’s ability to detect latent structure within the 3rd millennium data sets. Firstly, the incomplete nature of tomb contexts, the result of both formation and post-formation processes, skews the available evidence. This, unfortunately, is a feature of the burial record from this cultural milieu that cannot be altered. Secondly, the inherent difficulty in categorising artefact types so as retain aspects of variation that may be significant, whilst consolidating types across contexts to facilitate inter-site comparison and the undertaking of MVA’s.

In summary, it has to be stated that despite significant efforts to categorise objects appropriately and to run the datasets through a variety of MVA statistical packages, designed both for archaeological use and general application, the data of the 3rd millennium BC in the Oman peninsula is relatively poorly suited to the detection of patterning using statistical methods. This being said, it is also acknowledged that attempts to seek patterning using these methods had to be attempted, and that some of the groupings delineated by the analyses did allow for limited interpretation and the generation of some interesting hypotheses.
References


Palm, M. & Pind, J. (1992) Anglian English women’s graves in the fifth to seventh


Appendix 2

The Hafit and Umm an-Nar tomb database
A guide for using the Hafit and Umm an-Nar FileMaker Pro database

The information collated in this database was collected to enable the comprehensive examination of funerary custom variability throughout the third millennium BC in the Oman peninsula. It includes data on excavated tombs for which there was sufficient information to make them useful as interpretative tools. This data was categorised into a design-made FileMaker Pro database.

The aim of this user's guide is threefold:

1. To discuss the categorisation of the data and the overall database layout;

2. To explain some of the specific terms (field names) used throughout the database and;

3. To provide examples of the database sheets used and basic navigation within FileMaker.

Data categorisation and database layout

Information was separated into individual features of mortuary practice under five main headings: structure; skeletal evidence; ceramic finds; non-ceramic finds and beads\(^1\). Each of these five categories has one A4 page layout dedicated to the display of information on that topic. Consequently the database, which includes a total of 126 tombs, would require over 600 pages should it be printed out in its entirety. As a result it was decided to simply present examples of the data layout for one Umm an-Nar and Hafit tomb, along with a CD containing the entire database (inside back cover). In the same location a CD with a 30 day trial version of the FileMaker Pro software can be found.

Specific terms and abbreviations used

To ensure all fields used are explained, we will review the database according to the five information categories and it may be useful to refer to the layout examples at the end of this guide.

\(^1\) It is acknowledged that beads do in fact fall within the category of 'non-ceramic' objects, but the exceedingly wide variety of types and materials used and the fact that they are parts of composite objects causes them to be more effectively dealt with as their own category.
Appendix 2

Structures

This is the first page for each tomb and hence the site name, tomb number, era and excavation / publication data is provided at the top of this page. The field labeled quality data is an assessment of the adequacy of reporting within the publication as it relates to data concerning the structure. Following is a series of fields relating to tomb construction, most are self-explanatory. A few notes on any potentially confusing fields are provided here:

- **Pres'd Ht**: preserved height of the tomb walls.
- **Int wall orient**: refers to the orientation of the main dividing walls if the tomb has one.
- **Struct preserve.::**: describes the overall preservation of the structure in terms of courses.
- **Area @ T exc'd**: This field refers to whether the excavation report makes clear that the area surrounding the tomb was appropriately excavated and investigated. This came after so many more recently excavated tombs were found to have associated subterranean bone pits.
- **Connection**: concerns whether the two primary halves of Umm an-Nar period tombs are connected to one another or not.
- **Ground surface**: refers to the flooring of the tomb interior.
- **Rel. to rest of site**: refers to whether the location of the tomb is contextualised in the publication.
- **Compilers Notes**: this field was included so as to present data thought relevant to the tomb but not easy to place into the fields above.

Skeletal remains

At the top of the page, the site name and tomb number are presented together with the data quality field, this time relating to the published data concerning skeletal remains. Following is a series of fields relating to the skeletal remains – deposition and analysis. Again most are self-explanatory, however, a couple of notes may be helpful:

- **Bones studied by specialists**: This provides an indication of the degree of analysis the bones have undergone and whether it was in the field or post-excavation.
- **Comments regarding skeletal remains**: this field allowed the presentation of data thought relevant to the skeletal remains but not easy to place into the fields above.
- **Compilers Notes**: The notes here relate to my assessment of the data available or any discrepancies between reports.
Ceramics

Again the site name and tomb number together with the data quality field relating to ceramics is at the top of the page. Following is a series of sub-sections for each broad ceramic class. This classification attempted to separate out enough differentiation in ceramic form yet keep overall like types together. Some notes on the fields are as follows:

- **Ptd car’d pots**: Refers to painted carinated pots, of Jamdat Nasr type.
- **Unptd car’d pots**: Refers to carinated vessels which are either undecorated or the decoration has not preserved.
- **RB coll jars**: These are the red-brown collared jars.
- **St. vessel**: storage jar.
- **Beak/gob/cup**: Beaker, goblet or cup.
- **Ptd pl bowls**: Includes bowls that are either plain or painted.
- **H’made bowl**: Handmade bowls.
- **B on R**: refers to Black on Red painted decoration.
- **B on G**: refers to Black on Grey painted decoration.
- **B on R bottle leaf**: describes vessels of bottle shape with vegetative motifs.
- **B on R other**: contains all other shapes unable to fit easily into the previous categories.
- **B on R ptd sh’ds**: refers to the presence of sherds of these vessels but often with no notion of quantity.
- **Imit grey inc**: vessels described as being imitations of the grey incised wares.
- **B on R net no susp**: comprise vessels with the net pattern usually associated with suspension vessels, but showing no signs of having lugs.
- **Pl fine red**: may include plain pottery or vessels with no preserved decoration.
- **Misc Cer vessel**: This category is reserved for vessels impossible to categorise in other fields.
- **Ceramic Comments**: this field enabled the presentation of data thought relevant to the ceramic corpus but not easy to place into the fields above.
- **Compilers Notes**: The notes here relate to my assessment of the data available or any discrepancies between reports.

Non-ceramic Objects

Site name, tomb number and the data quality field relating to non-ceramics is at the top of this page. Following is a series of sub-sections broadly relating to the material the objects are made from. Some notes on the fields are as follows:
Appendix 2

- **DDC**: Refers to the double dot circle decoration common on soft-stone vessels of the Umm an-Nar era.
- **SDC**: Refers to the single dot circle decoration found on soft-stone vessels.
- **Comp ves.**: Is a compartmented soft-stone vessel.
- **sq. flask**: refers to a square shaped flask.
- **Pl. Beak/cup**: undecorated soft-stone beaker or cup.
- **Green cyl ves**: Includes cylindrical bowls/beakers of plain green stone.
- **Comments on non-ceramic objects**: this field enabled the presentation of data thought relevant to the non-ceramic corpus but not easy to place into the fields above.
- **Compilers Notes**: The notes here relate to my assessment of the data available or any discrepancies between reports.

**Beads**

Again, the site name, tomb number and the data quality field as it relates to beads is at the top of this page. Following is a series of sub-sections broadly relating to the material the beads are made from. Some notes on the fields are as follows:

- **trunc**: truncated.
- **lentic.**: lenticular in section.
- **cyl.**: cylindrical in shape.
- **sec' t**: sectioned.
- **sm**: small.
- **sq**: square.
- **brd**: broad.
- **fac'd**: faceted.
- **reg**: regular.
- **dimp**: dimpled.
- **sect**: cross-section.
- **qtz**: quartz
- **vert**: vertebrae
- **Bead Comments**: this field enabled the presentation of data thought relevant to the non-ceramic corpus but not easy to place into the fields above.
- **Compilers Notes**: The notes here relate to my assessment of the data available or any discrepancies between reports.

**Examples of the database sheets used and basic FileMaker navigation**

The following pages are simply printouts of the data sheets described above. I have chosen one Hafit period tomb and one Umm an-Nar tomb as examples.
Using the FileMaker dataset for viewing information is quite simple. When first opening the field it will default open to Structures. On the left hand side is a tool bar that offers the user ways to use the data. The most important is Layout. Here the drop down menu offers the five different layouts described above. Below is an icon of a book which allows the user to scroll through the tombs. They are currently ordered such that the Hafit are first followed by Umm an-Nar period tombs, and within each the sites are alphabetical with ascending tomb numbers. The sort tool in the browse view allows the user to sort according to different criteria, but it is noteworthy that this sorting is lost once the database is closed.
### Structures

<table>
<thead>
<tr>
<th><strong>Site</strong></th>
<th>Jabal al-Emalah</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tomb no.</strong></td>
<td>IV</td>
</tr>
<tr>
<td><strong>Period</strong></td>
<td>Hafit</td>
</tr>
</tbody>
</table>

#### EXCAVATION/PUBLICATION

<table>
<thead>
<tr>
<th><strong>Excavator:</strong></th>
<th>J. Benton</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Quality data:</strong></td>
<td>3</td>
</tr>
<tr>
<td><strong>Exc. report:</strong></td>
<td>Benton and Potts 1994</td>
</tr>
<tr>
<td><strong>Other refs:</strong></td>
<td></td>
</tr>
</tbody>
</table>

#### CONSTRUCTION

<table>
<thead>
<tr>
<th><strong>Shape:</strong></th>
<th>Circular</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ext. dim:</strong></td>
<td>11.5 m</td>
</tr>
<tr>
<td><strong>Int. dim:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Pres'd Ht:</strong></td>
<td>c. 1.3 m.</td>
</tr>
<tr>
<td><strong>R'wall const'n:</strong></td>
<td>Cairn with partially defined external wall and a corbelled inner chamber</td>
</tr>
<tr>
<td><strong>Interior walls:</strong></td>
<td>none</td>
</tr>
<tr>
<td><strong>Int wall orient:</strong></td>
<td>East/west</td>
</tr>
<tr>
<td><strong>Entry:</strong></td>
<td>Single doorway</td>
</tr>
<tr>
<td><strong>Evid for roofing:</strong></td>
<td>Corbelled with slab roofing (slabs present)</td>
</tr>
<tr>
<td><strong>Struct preserv.:</strong></td>
<td>Structurally well preserved</td>
</tr>
<tr>
<td><strong>Area @ T exc'd:</strong></td>
<td>yes</td>
</tr>
<tr>
<td><strong>No. chambers:</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>Storeys:</strong></td>
<td>Single</td>
</tr>
<tr>
<td><strong>Ground level:</strong></td>
<td>Whole structure above ground</td>
</tr>
<tr>
<td><strong>Block size:</strong></td>
<td>20 x 20 - 60 x 80 cm.</td>
</tr>
<tr>
<td><strong>Material:</strong></td>
<td>Ext &amp; Int: Field stones</td>
</tr>
<tr>
<td><strong>Connection:</strong></td>
<td>Single chamber only</td>
</tr>
<tr>
<td><strong>Ground surface:</strong></td>
<td>Gravel surface</td>
</tr>
<tr>
<td><strong>Door orient:</strong></td>
<td>East</td>
</tr>
<tr>
<td><strong>Carvings on exterior:</strong></td>
<td>Absent</td>
</tr>
<tr>
<td><strong>Disturbance/re-use:</strong></td>
<td>Disturbed</td>
</tr>
<tr>
<td><strong>Rel. to rest of site:</strong></td>
<td>Plan provided</td>
</tr>
</tbody>
</table>

---

After Benton and Potts 1994: Fig. 19

*Appendix 2 - Hafit and UAN tomb database: Structures -Jabal al-Emalah IV*
### Jabal al-Emalah

**Skeletal remains**

#### BONE DATA

<table>
<thead>
<tr>
<th>Bones studied by specialists:</th>
<th>Yes, in the field and post-exc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Condition:</td>
<td>Fragmentary</td>
</tr>
<tr>
<td>Articulation:</td>
<td>Complete Disarticulation</td>
</tr>
<tr>
<td>Minimum no. individuals:</td>
<td>4?</td>
</tr>
</tbody>
</table>

**Age Groups Represented:**

- MNI male
- MNI female
- MNI children
- MNI subadult
- unspec. MNI
- Total MNI

**Burnt Bone:**

**Extramural burials:**

**Pathologies noted:**

**Notes on stature etc.:**

#### TEETH DATA

*General dentition:*

*Caries:*

#### COMMENTS

**Comments regarding skeletal remains:**

Tomb quite disturbed with an obvious initial use in the Hafit period and re-use during the UAN period. Impossible to separate skeletal remains from the two different periods.

**Compilers Comments**
### HAFIT PERIOD

<table>
<thead>
<tr>
<th>Type</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ptd car'd pots</td>
<td></td>
</tr>
<tr>
<td>Unptd car'd pots</td>
<td>1</td>
</tr>
<tr>
<td>Pear shaped jars</td>
<td></td>
</tr>
</tbody>
</table>

### DOMESTIC

<table>
<thead>
<tr>
<th>Type</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plain jars</td>
<td></td>
</tr>
<tr>
<td>Ptd jars</td>
<td></td>
</tr>
<tr>
<td>RB coll jars</td>
<td></td>
</tr>
<tr>
<td>St. vessel</td>
<td></td>
</tr>
<tr>
<td>Beak/gob/cup</td>
<td></td>
</tr>
<tr>
<td>H'made bowl</td>
<td></td>
</tr>
<tr>
<td>Miniature vessels</td>
<td></td>
</tr>
</tbody>
</table>

### UNAN FUNERARY POTS

<table>
<thead>
<tr>
<th>Type</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>B on R vessels</td>
<td></td>
</tr>
<tr>
<td>B on R canisters</td>
<td></td>
</tr>
<tr>
<td>B on R globular</td>
<td>3</td>
</tr>
<tr>
<td>B on R squat</td>
<td></td>
</tr>
<tr>
<td>B on R lge pear shaped</td>
<td></td>
</tr>
<tr>
<td>B on R bottle leaf</td>
<td></td>
</tr>
<tr>
<td>B on R other.</td>
<td></td>
</tr>
<tr>
<td>Mini B on R</td>
<td></td>
</tr>
<tr>
<td>B on R ptd sherds</td>
<td></td>
</tr>
</tbody>
</table>

### IMPORTED / IMITATION IMP'D CERAMICS

<table>
<thead>
<tr>
<th>Type</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>B on G vessels</td>
<td></td>
</tr>
<tr>
<td>B on G canister</td>
<td></td>
</tr>
<tr>
<td>B on G globular</td>
<td></td>
</tr>
<tr>
<td>B on G miniature</td>
<td></td>
</tr>
<tr>
<td>B on G other</td>
<td></td>
</tr>
<tr>
<td>Incised Grey</td>
<td></td>
</tr>
<tr>
<td>Imit Gr inc.</td>
<td></td>
</tr>
<tr>
<td>Grey cordon vessels</td>
<td></td>
</tr>
<tr>
<td>Plain Grey vessels</td>
<td></td>
</tr>
<tr>
<td>Pl Gr ware</td>
<td></td>
</tr>
<tr>
<td>Other imports</td>
<td></td>
</tr>
<tr>
<td>Harappan</td>
<td></td>
</tr>
<tr>
<td>Dilmun</td>
<td></td>
</tr>
<tr>
<td>Kaftari Ware</td>
<td></td>
</tr>
<tr>
<td>Mesopotamian</td>
<td></td>
</tr>
<tr>
<td>R on G ptd</td>
<td></td>
</tr>
</tbody>
</table>

### SUSPENSION VESSELS

<table>
<thead>
<tr>
<th>Type</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plain suspension</td>
<td></td>
</tr>
<tr>
<td>Painted suspension</td>
<td></td>
</tr>
<tr>
<td>B on R net no susp</td>
<td></td>
</tr>
</tbody>
</table>

### OTHER CERAMIC TYPES

<table>
<thead>
<tr>
<th>Type</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pl fine red</td>
<td></td>
</tr>
<tr>
<td>Misc Cer vessel</td>
<td></td>
</tr>
</tbody>
</table>

### COMMENTS

#### Ceramic Comments

At least 2 phases of use according to the ceramic evidence.
The earliest is associated with the unpainted biconical pot of medium hard pinkish-brown sandy/micaceous fabric. H: 16.3cm; Rim D: 12.9cm; Base D.: 5.6 cm
This stratigraphically underlay the surface upon which the scattered UNAN vessels were found.
Two of the UNAN period vessels are an unusual 'bottle' like form with a long, fairly narrow neck.
Many other (c. 40) sherds were also recovered, belonging to the UNAN period.

#### Compilers Comments
### Non-ceramic Objects

#### SOFT STONE VESSEL TYPES

<table>
<thead>
<tr>
<th>Type</th>
<th>Quality pub’d data</th>
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<tbody>
<tr>
<td>DDC bowl</td>
<td></td>
</tr>
<tr>
<td>SDC bowl</td>
<td></td>
</tr>
<tr>
<td>Plain bowl</td>
<td></td>
</tr>
<tr>
<td>Grooved beaker</td>
<td></td>
</tr>
<tr>
<td>DDC beaker</td>
<td></td>
</tr>
<tr>
<td>SDC beaker</td>
<td></td>
</tr>
<tr>
<td>Pl. beak/cup</td>
<td></td>
</tr>
<tr>
<td>Green cyl ves</td>
<td></td>
</tr>
<tr>
<td>DDC rect box</td>
<td></td>
</tr>
<tr>
<td>SDC sq flask</td>
<td></td>
</tr>
<tr>
<td>Plain lid</td>
<td></td>
</tr>
<tr>
<td>Ser Ancienne</td>
<td></td>
</tr>
<tr>
<td>DDC lid</td>
<td></td>
</tr>
<tr>
<td>SDC lid</td>
<td></td>
</tr>
<tr>
<td>Alabaster vess</td>
<td></td>
</tr>
<tr>
<td>DDC Comp ves.</td>
<td></td>
</tr>
</tbody>
</table>

#### BRONZE OBJECTS

<table>
<thead>
<tr>
<th>Type</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pins/awls</td>
<td>2</td>
</tr>
<tr>
<td>Rivet &lt; 2cm</td>
<td>11</td>
</tr>
<tr>
<td>Rivet &gt; 2cm</td>
<td></td>
</tr>
<tr>
<td>Fish hooks</td>
<td></td>
</tr>
<tr>
<td>Chain links</td>
<td></td>
</tr>
<tr>
<td>Vessels</td>
<td></td>
</tr>
<tr>
<td>Sword</td>
<td></td>
</tr>
<tr>
<td>Blade axe</td>
<td></td>
</tr>
<tr>
<td>Rings</td>
<td></td>
</tr>
<tr>
<td>Dagger</td>
<td>1</td>
</tr>
<tr>
<td>Socketed blade axe</td>
<td></td>
</tr>
<tr>
<td>Bracelet</td>
<td></td>
</tr>
<tr>
<td>Spearhead</td>
<td></td>
</tr>
<tr>
<td>Sheet frags</td>
<td></td>
</tr>
<tr>
<td>Razor</td>
<td></td>
</tr>
<tr>
<td>Socketed spearhead</td>
<td></td>
</tr>
<tr>
<td>Spatula</td>
<td></td>
</tr>
<tr>
<td>Unident. Frags</td>
<td>8</td>
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</table>

#### STONE OBJECTS

<table>
<thead>
<tr>
<th>Type</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grind slab</td>
<td></td>
</tr>
<tr>
<td>Hammer stones</td>
<td></td>
</tr>
<tr>
<td>Flint Tool</td>
<td></td>
</tr>
<tr>
<td>Whetstone</td>
<td>1</td>
</tr>
<tr>
<td>Net Sinkers</td>
<td></td>
</tr>
<tr>
<td>Vessel object</td>
<td></td>
</tr>
<tr>
<td>Stone pendants</td>
<td></td>
</tr>
<tr>
<td>Pol’d pebbles</td>
<td></td>
</tr>
<tr>
<td>Ostrich egg shell</td>
<td></td>
</tr>
<tr>
<td>Ring</td>
<td></td>
</tr>
<tr>
<td>Cosmetic shells</td>
<td></td>
</tr>
<tr>
<td>Conch shells/ Feeding shells</td>
<td>1</td>
</tr>
<tr>
<td>Buttons</td>
<td></td>
</tr>
<tr>
<td>Perfd shells</td>
<td></td>
</tr>
<tr>
<td>Fragments</td>
<td>7</td>
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#### SHELL OBJECTS

<table>
<thead>
<tr>
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<tr>
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<td>Bone pendants</td>
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<tr>
<td>Bone pendants</td>
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<td>Bone pendants</td>
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#### MISCELLANEOUS OBJECTS

<table>
<thead>
<tr>
<th>Type</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ivory comb</td>
<td></td>
</tr>
<tr>
<td>Stamp seals</td>
<td></td>
</tr>
<tr>
<td>Silver objects</td>
<td></td>
</tr>
<tr>
<td>Ivory object</td>
<td></td>
</tr>
<tr>
<td>Cylinder seals</td>
<td></td>
</tr>
<tr>
<td>Gold objects</td>
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#### PRECIOUS METAL OBJECTS

<table>
<thead>
<tr>
<th>Type</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post 3M objects</td>
<td>12</td>
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</tbody>
</table>

#### POST 3M, INTRUSIVE OBJECTS

<table>
<thead>
<tr>
<th>Type</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post 3M objects</td>
<td>12</td>
</tr>
</tbody>
</table>

### Comments on non-ceramic objects

Of the intrusive, later objects, 7 were iron fragments and 5 were bronze arrowheads. All were found on the surface.

### Compilers Comments N

Iron fragments are from surface layers and seem to be recent (eg. split pin from Hand grenade). There is two phases of use of the tomb, one in the Hafit period and a later use in the UAN era. It is not certain which objects come from which period.
### Beads

#### PASTE BEADS

<table>
<thead>
<tr>
<th>TALCOSE STEATITE</th>
<th>Fрит/Faience</th>
<th>SHELL BEADS</th>
</tr>
</thead>
<tbody>
<tr>
<td>squat cyl barrel</td>
<td>small discs</td>
<td>fluted sphere</td>
</tr>
<tr>
<td>long tube</td>
<td>long cylinders</td>
<td>fluted col'd bar</td>
</tr>
<tr>
<td>Talc bicones</td>
<td>short cylinders</td>
<td>segmented</td>
</tr>
<tr>
<td>squat barrel/bicone</td>
<td>bicones</td>
<td>spherical</td>
</tr>
<tr>
<td>sm trunc circ disc</td>
<td>short brd oblate</td>
<td>barrels</td>
</tr>
<tr>
<td>med-brd trunc circ disc</td>
<td>cyl. lenticular</td>
<td>sect'd cowries</td>
</tr>
<tr>
<td>Rect lentic. talc beads</td>
<td>shape unclear</td>
<td>sm conus catus</td>
</tr>
<tr>
<td>shape unclear</td>
<td></td>
<td>type unclear</td>
</tr>
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</table>

#### STONE BEADS

CARNELIAN AND CHALCEDONY

<table>
<thead>
<tr>
<th></th>
<th>Carn Chal</th>
<th>Carn Chal</th>
<th>Carn Chal</th>
</tr>
</thead>
<tbody>
<tr>
<td>long barrel</td>
<td>long bicone</td>
<td>sq sect black</td>
<td>7</td>
</tr>
<tr>
<td>long trunc bar</td>
<td>long trunc bic</td>
<td>sq sect red</td>
<td>86</td>
</tr>
<tr>
<td>reg barrel</td>
<td>regular bicone</td>
<td>sq sect brown</td>
<td>17</td>
</tr>
<tr>
<td>reg trunc barrel</td>
<td>reg truncated bic</td>
<td>sq sect grey</td>
<td>1</td>
</tr>
<tr>
<td>squat barrel</td>
<td>squat bicone</td>
<td>sq sect white</td>
<td>18</td>
</tr>
<tr>
<td>squat trunc bar</td>
<td>squt trmp b</td>
<td>circ sect black</td>
<td>93</td>
</tr>
<tr>
<td>squttrmpd bar</td>
<td>squt trmp bic</td>
<td>circ sect red</td>
<td>12</td>
</tr>
<tr>
<td>squttrccc bar</td>
<td>squt trmp bic</td>
<td>circ sect brown</td>
<td>12</td>
</tr>
<tr>
<td>squttrdpd bar</td>
<td>squt trmp bic</td>
<td>circ sect grey</td>
<td>3</td>
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<tr>
<td>squttrccc bar</td>
<td>squt trmp bic</td>
<td>circ sect white</td>
<td>1</td>
</tr>
<tr>
<td>squttrdpd bar</td>
<td>squt trmp bic</td>
<td>m'beads unspec.</td>
<td>1</td>
</tr>
<tr>
<td>long fac'd bic</td>
<td>lozenge hatch't</td>
<td>etched beads</td>
<td>1</td>
</tr>
<tr>
<td>spheroid</td>
<td>shape unclear</td>
<td>shape unclear</td>
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OTHER

<p>| | | |</p>
<table>
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<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>sq sect grey</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>sq sect white</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>circ sect red</td>
<td>93</td>
<td></td>
</tr>
<tr>
<td>circ sect brown</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>circ sect grey</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>m'beads unspec.</td>
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</tbody>
</table>

#### METAL BEADS

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>bicones</td>
<td>squat cylinders</td>
<td>other types</td>
</tr>
<tr>
<td>long cyl bicones</td>
<td>other types</td>
<td></td>
</tr>
<tr>
<td>lozenge lenticular section</td>
<td>Unspec types</td>
<td></td>
</tr>
<tr>
<td>segmented</td>
<td></td>
<td></td>
</tr>
<tr>
<td>type unspec.</td>
<td></td>
<td></td>
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#### MISC. MATERIALS

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>GOLD</td>
<td>BONE</td>
<td>CLAY</td>
</tr>
<tr>
<td>squat cylinders</td>
<td>Bone Beads</td>
<td>Clay Beads</td>
</tr>
<tr>
<td>other types</td>
<td>Square dble diag perf</td>
<td></td>
</tr>
<tr>
<td>BRONZE</td>
<td>fish vert small</td>
<td></td>
</tr>
<tr>
<td>Unspec types</td>
<td>fish vert large</td>
<td></td>
</tr>
</tbody>
</table>

### Bead comments

A total of 988 beads in this tomb.

### Compilers Comments
**Site**: Tell Abraq  
**Tomb no.**: 1  
**Period**: Umm an-Nar

### Structures

<table>
<thead>
<tr>
<th>EXCAVATION/PUBLICATION</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Excavator</strong>:</td>
<td>Australian team (D.T. Potts)</td>
</tr>
<tr>
<td><strong>Exc. report</strong>:</td>
<td>In Prep (2000)</td>
</tr>
</tbody>
</table>

| Quality data: | 3 |
| Other refs: |  |

### CONSTRUCTION

| Shape: | Circular |
| Ext. dim: | 6m |
| Int. dim: | 4.5m |

| Pres'd Ht: | 1.2 m |
| R'wall const'n: | Double ring wall, outer ashlar |

| No. chambers: | 2 |
| Storeys: | Single |

| Ground level: | Whole structure above ground |
| Block size: |  |

| Material: | Ext: Ashlar limestone blocks, Int: Field stones and farush |
| Connection: | Halves connected by end passage |

| Ground surface: | Paved with large flat slabs |
| Door orient: | Absent |

| Evid for roofing: | Probably roofed |
| Struct preserv. | Preserved to height of 5 courses |

| Entry: | No doorways found |
| Int wall orient: | North/south |

| Int wall walls: | Single, not meeting tomb walls |
| Disturbance/re-use | Undisturbed other than a robbed portion on one side |

| Area @ T exc'd: | Yes |
| Rel. to rest of site: | Plan provided |

### Compilers Notes:
Interesting external structure found in association with the entrance.

---

*Appendix 2 - Hafit and UAN tomb database: Structures - Tell Abraq 1*
### Tell Abraq

#### Skeletal remains

<table>
<thead>
<tr>
<th><strong>BONE DATA</strong></th>
<th><strong>Quality pub'd data</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bones studied by specialists:</strong></td>
<td>Yes, in the field and post-exc.</td>
</tr>
<tr>
<td><strong>General Condition:</strong></td>
<td>Good</td>
</tr>
<tr>
<td><strong>Articulation:</strong></td>
<td>Disarticulated, but some bits of bodies /remains articulated</td>
</tr>
<tr>
<td><strong>Minimum no. individuals:</strong></td>
<td>c. 300</td>
</tr>
<tr>
<td><strong>Age Groups Represented:</strong></td>
<td>All age groups represented</td>
</tr>
<tr>
<td><strong>Burnt Bone:</strong></td>
<td>Small proportion of the bone burnt</td>
</tr>
<tr>
<td><strong>Extramural burials:</strong></td>
<td>absent</td>
</tr>
<tr>
<td><strong>Pathologies noted:</strong></td>
<td>Poliomyelitis detected in one individual. Analysis of carpal and metacarpal bones showed that over 53% of trapezio-metacarpal joint facets showed signs of osteoarthritis varying from mild to severe, also much enlargement of all studied specimens.</td>
</tr>
<tr>
<td><strong>Notes on stature etc.:</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>TEETH DATA</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General dentition:</strong></td>
</tr>
<tr>
<td><strong>Caries:</strong></td>
</tr>
</tbody>
</table>

### COMMENTS

**Comments regarding skeletal remains:**

Potentially more males than females. A minimum of 65% males although using some bones it is as high as 85%. There was a strong correlation between osteoarthritis, sex and robusticity. May be interpreted as evidence for biomechancially challenging work with their hands.

**Compilers Comments**

Blau undertook analyses of the skeletal remains subsequent to excavation. Her results have been integrated into the data above.

Sharp nasal aperture morphology in c. 1/2 of preserved examples.

The 85% of males was based on robusticity assessment and hence may be misleading.
Tell Abraq

Ceramics

<table>
<thead>
<tr>
<th>HAFIT PERIOD</th>
<th>DOMESTIC</th>
<th>Quality pub'd data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ptd car'd pots</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Unptd car'd pots</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pear shaped jars</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Plain jars</td>
<td>St. vessel</td>
</tr>
<tr>
<td></td>
<td>Ptd jars</td>
<td>Beak/gob/cup</td>
</tr>
<tr>
<td></td>
<td>RB coll jars</td>
<td></td>
</tr>
<tr>
<td></td>
<td>29</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ptd Pl bowls</td>
</tr>
<tr>
<td></td>
<td></td>
<td>H'made bowl</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Miniature vessels</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>UAN FUNERARY POTS</th>
<th>IMPORTED / Imitation Imp'd Ceramics</th>
</tr>
</thead>
<tbody>
<tr>
<td>B on R vessels</td>
<td>B on G vessels</td>
</tr>
<tr>
<td>B on R canisters</td>
<td>B on G canister</td>
</tr>
<tr>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>B on R globular</td>
<td>B on G globular</td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>B on R squat</td>
<td>B on G miniature</td>
</tr>
<tr>
<td>14</td>
<td>1</td>
</tr>
<tr>
<td>B on R lge pear shaped</td>
<td>B on G other</td>
</tr>
<tr>
<td>6</td>
<td></td>
</tr>
<tr>
<td>B on R bottle leaf</td>
<td>Incised Grey</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>B on R other.</td>
<td>Imit Gr inc.</td>
</tr>
<tr>
<td>Mini B on R</td>
<td>Grey cordon vessels</td>
</tr>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>B on R ptd sherds</td>
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</tr>
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</table>

<table>
<thead>
<tr>
<th>SUSPENSION VESSELS</th>
<th>OTHER CERAMIC TYPES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plain suspension</td>
<td>Pl fine red</td>
</tr>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Painted suspension</td>
<td>Misc Cer vessel</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>B on R net no susp</td>
<td></td>
</tr>
</tbody>
</table>

COMMENTS

Ceramic Comments
Several of the domestic ware jars exhibit worn grooves from string used for their suspension. Painted decoration on most B on R vessels has to be described as a debased form of the common UAN motifs.

Compiler's Comments
Difficult to place the finer wares from this tomb into the categories used for the rest of the database. Six new categories devised so as to enable data entry (B on R squat, B on R pear, Dilmun vessels, Mesopot imports, Kaftari ware and Misc vessels (here a chalice).
### Tell Abraq

#### Non-ceramic Objects

<table>
<thead>
<tr>
<th>SOFT STONE VESSEL TYPES</th>
<th>Quality pub'd data</th>
</tr>
</thead>
<tbody>
<tr>
<td>DDC bowl 6</td>
<td></td>
</tr>
<tr>
<td>SDC bowl 2</td>
<td></td>
</tr>
<tr>
<td>Plain bowl 2</td>
<td></td>
</tr>
<tr>
<td>Grooved beaker 7</td>
<td></td>
</tr>
<tr>
<td>Green cyl ves</td>
<td></td>
</tr>
<tr>
<td>Ser Ancienne</td>
<td></td>
</tr>
<tr>
<td>Alabaster vess 5</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BRONZE OBJECTS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pins/awls 9</td>
<td></td>
</tr>
<tr>
<td>Vessels 2</td>
<td></td>
</tr>
<tr>
<td>Sword</td>
<td></td>
</tr>
<tr>
<td>Blade axe 1</td>
<td></td>
</tr>
<tr>
<td>Vessels 2</td>
<td></td>
</tr>
<tr>
<td>Rings 156</td>
<td></td>
</tr>
<tr>
<td>Daggers 8</td>
<td></td>
</tr>
<tr>
<td>Spearheaded blade axe 1</td>
<td></td>
</tr>
<tr>
<td>Sheet frags 16</td>
<td></td>
</tr>
<tr>
<td>Rings 156</td>
<td></td>
</tr>
<tr>
<td>Bracelet 1</td>
<td></td>
</tr>
<tr>
<td>Spearheading blade 3</td>
<td></td>
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<tr>
<td>Socketed blade 22</td>
<td></td>
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<tr>
<td>Unident. Frags 123</td>
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<table>
<thead>
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<th>STONE OBJECTS</th>
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<tbody>
<tr>
<td>Grinding slab 6</td>
<td></td>
</tr>
<tr>
<td>Vessel object</td>
<td></td>
</tr>
<tr>
<td>Stone pendants</td>
<td></td>
</tr>
<tr>
<td>Conch shells/Feeding shells</td>
<td></td>
</tr>
<tr>
<td>Cosmetic shells 8</td>
<td></td>
</tr>
<tr>
<td>Conch shells 93</td>
<td></td>
</tr>
<tr>
<td>Ring 4</td>
<td></td>
</tr>
<tr>
<td>Buttons 1</td>
<td></td>
</tr>
<tr>
<td>Button shell 4</td>
<td></td>
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<tr>
<td>Bone pendants 1</td>
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<table>
<thead>
<tr>
<th>SHELL OBJECTS</th>
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</tr>
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<tr>
<td>Ostrich egg shell 79</td>
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<td>Cosmetic shells 8</td>
<td></td>
</tr>
<tr>
<td>Conch shells 93</td>
<td></td>
</tr>
<tr>
<td>Perfd shells 3</td>
<td></td>
</tr>
<tr>
<td>Bone pendants 1</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MISCELLANEOUS OBJECTS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ivory comb 9</td>
<td></td>
</tr>
<tr>
<td>Stamp seals 1</td>
<td></td>
</tr>
<tr>
<td>Silver objects 4</td>
<td></td>
</tr>
<tr>
<td>Gold objects 3</td>
<td></td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>POST 3M, INTRUSIVE OBJECTS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Post 3M objects</td>
<td></td>
</tr>
</tbody>
</table>

#### Comments on non-ceramic objects

One copper fragment was tubular, like a straw. Also one bronze figurine.
7 soft stone vessel fragments. At least 5 alabaster vessels, probably more from the sherd quantity.
Bone pendant actually worked animal tooth. Textile present.

#### Compilers Comments N

Gold objects include 2 ram pendants and a ring.
Cosmetic shells have kohl residues in them.
2 of the DDC beakers are miniature in size.
1 soft-stone fenestrated burner.
## Tell Abraq Beads

### PASTE BEADS

<table>
<thead>
<tr>
<th>TALCOSE STEATITE</th>
<th>FRIT/FAIENCE</th>
<th>Soft St. Microbeads</th>
<th>White Stone</th>
</tr>
</thead>
<tbody>
<tr>
<td>squat cyl barrel</td>
<td>small discs</td>
<td>fluted sphere</td>
<td>sm rings</td>
</tr>
<tr>
<td>long tube</td>
<td>long cylinders</td>
<td>fluted col'd bar</td>
<td>dentalium</td>
</tr>
<tr>
<td>Talc bicones</td>
<td>short cylinders</td>
<td>segmented</td>
<td>conus catus</td>
</tr>
<tr>
<td>squat barrel/bicone</td>
<td>bicones</td>
<td>spherical</td>
<td>b&amp;w striped</td>
</tr>
<tr>
<td>sm trunc circ disc</td>
<td>short bd oblate</td>
<td>barrels</td>
<td>m of p pends</td>
</tr>
<tr>
<td>med-brd trunc</td>
<td>cyl lenticular sect</td>
<td></td>
<td>sect'd cowries</td>
</tr>
<tr>
<td>circ disc</td>
<td></td>
<td></td>
<td>sect'd cowries</td>
</tr>
<tr>
<td>Rect lentic. talc</td>
<td>shape unclear</td>
<td></td>
<td>sm conus catus</td>
</tr>
<tr>
<td>beads</td>
<td></td>
<td></td>
<td>type unclear</td>
</tr>
<tr>
<td>shape unclear</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### SHELL BEADS

<table>
<thead>
<tr>
<th>Carn Chal</th>
<th>Carn Chal</th>
<th>Soft St. Microbeads</th>
<th>White Stone</th>
</tr>
</thead>
<tbody>
<tr>
<td>long barrel</td>
<td>15</td>
<td>long bicone</td>
<td>sq sect black</td>
</tr>
<tr>
<td>long trunc bar</td>
<td>14</td>
<td>long trunc bic</td>
<td>sq sect red</td>
</tr>
<tr>
<td>reg barrel</td>
<td>75</td>
<td>regular bicone</td>
<td>sq sect brown</td>
</tr>
<tr>
<td>reg trunc barrel</td>
<td>9</td>
<td>reg truncated bic</td>
<td>sq sect grey</td>
</tr>
<tr>
<td>squat barrel</td>
<td>2</td>
<td>squat bicone</td>
<td>sq sect white</td>
</tr>
<tr>
<td>squat trunc bar</td>
<td>32</td>
<td>squat trunc bic</td>
<td>circ sect black</td>
</tr>
<tr>
<td>squat dimpled bar</td>
<td>27</td>
<td>squat dimp bic</td>
<td>circ sect red</td>
</tr>
<tr>
<td>squat truncated dimpled barrel</td>
<td>4</td>
<td>squat truncat dimp bic</td>
<td>circ sect brown</td>
</tr>
<tr>
<td>long fac'd bic</td>
<td>1</td>
<td>rect lentic sect'n</td>
<td>circ sect grey</td>
</tr>
<tr>
<td>spheroid</td>
<td>2</td>
<td>shape unclear</td>
<td>circ sect white</td>
</tr>
<tr>
<td>lozenge hatch't</td>
<td>19</td>
<td>Etched beads</td>
<td>m'beads unspec.</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td></td>
<td>173</td>
</tr>
<tr>
<td></td>
<td>22</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### STONE BEADS

<table>
<thead>
<tr>
<th>Carn Chal</th>
<th>Carn Chal</th>
<th>Soft St. Microbeads</th>
<th>White Stone</th>
</tr>
</thead>
<tbody>
<tr>
<td>long barrel</td>
<td>15</td>
<td>long bicone</td>
<td>sq sect black</td>
</tr>
<tr>
<td>long trunc bar</td>
<td>14</td>
<td>long trunc bic</td>
<td>sq sect red</td>
</tr>
<tr>
<td>reg barrel</td>
<td>75</td>
<td>regular bicone</td>
<td>sq sect brown</td>
</tr>
<tr>
<td>reg trunc barrel</td>
<td>9</td>
<td>reg truncated bic</td>
<td>sq sect grey</td>
</tr>
<tr>
<td>squat barrel</td>
<td>2</td>
<td>squat bicone</td>
<td>sq sect white</td>
</tr>
<tr>
<td>squat trunc bar</td>
<td>32</td>
<td>squat trunc bic</td>
<td>circ sect black</td>
</tr>
<tr>
<td>squat dimpled bar</td>
<td>27</td>
<td>squat dimp bic</td>
<td>circ sect red</td>
</tr>
<tr>
<td>squat truncated dimpled barrel</td>
<td>4</td>
<td>squat truncat dimp bic</td>
<td>circ sect brown</td>
</tr>
<tr>
<td>long fac'd bic</td>
<td>1</td>
<td>rect lentic sect'n</td>
<td>circ sect grey</td>
</tr>
<tr>
<td>spheroid</td>
<td>2</td>
<td>shape unclear</td>
<td>circ sect white</td>
</tr>
<tr>
<td>lozenge hatch't</td>
<td>19</td>
<td>Etched beads</td>
<td>m'beads unspec.</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td></td>
<td>173</td>
</tr>
<tr>
<td></td>
<td>22</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### METAL BEADS

<table>
<thead>
<tr>
<th>Carn Chal</th>
<th>Carn Chal</th>
<th>Soft St. Microbeads</th>
<th>White Stone</th>
</tr>
</thead>
<tbody>
<tr>
<td>long cyl bicone</td>
<td>3</td>
<td>other types</td>
<td>sq sect black</td>
</tr>
<tr>
<td>type unspec.</td>
<td>39</td>
<td></td>
<td></td>
</tr>
<tr>
<td>lozenge lenticular section</td>
<td></td>
<td></td>
<td>sq sect red</td>
</tr>
<tr>
<td>segmented</td>
<td></td>
<td></td>
<td>sq sect brown</td>
</tr>
<tr>
<td>Bone Beads</td>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### MISC. MATERIALS

<table>
<thead>
<tr>
<th>Carn Chal</th>
<th>Carn Chal</th>
<th>Soft St. Microbeads</th>
<th>White Stone</th>
</tr>
</thead>
<tbody>
<tr>
<td>gold</td>
<td></td>
<td></td>
<td>sq sect black</td>
</tr>
<tr>
<td>squats cylinders</td>
<td></td>
<td></td>
<td>sq sect red</td>
</tr>
<tr>
<td>other types</td>
<td></td>
<td></td>
<td>sq sect brown</td>
</tr>
<tr>
<td>Bone Beads</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Square dble diag perf</td>
<td></td>
<td></td>
<td>sq sect grey</td>
</tr>
<tr>
<td>fish vert small</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>unident dark st. beads</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>other st. beads</td>
<td>2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Bead comments

2 beads = red stone spheroids but not perforated so can't call them beads
silver bead has // with one from Susa = p. 316 Tallon vol 2.

### Compilers Comments

Appendix 1 - Haft and UAN tomb database: Beads - Tell Abraq 1
**Site**  
Tawi Silaim

**Tomb no.**  
C2

**Period**  
Hafit

---

### EXCAVATION/PUBLICATION

**Excavator:** B. de Cardi  
**Exc. report:** de Cardi 1979

**Quality data:** 3

**Other refs:**

---

### CONSTRUCTION

**Shape:** Circular

**Ext. dim.:** 3.8 m  
**Int. dim.:** 2.6 - 2.4 m

**Pres'd Ht:** c. 40 cm - 10 cm

**R'wall const'n:** Single ring wall of field stones/farush, surrounded by a pile of limestone rubble 8-10m d.

**Interior walls:** none

**Int wall orient:** east/west

**Entry:** Single doorway

**Evid for roofing:** Corbelled with slab roofing (slabs present)

**Struct preserv.:** variable preservation

**Area @ T exc'd:** yes

**No. chambers:** 1

**Storeys:** Single

**Ground level:** Whole structure above ground

**Block size:**

**Material:** Ext & Int: Field stones

**Connection:** single chamber only

**Ground surface:** Paved with large flat slabs

**Door orient:** East

**Carvings on exterior:** absent

**Disturbance/ re-use:** Disturbed

**Rel. to rest of site:** Map provided

---

**Compilers:**

Notes: Doorway had been blocked. A secondary grave had been dug through structure after it had gone out of use. Suggested that this represent a transitional structure dated to between the Hafit type graves and the Umm an-Nar period graves. Contents suggest EDI - EDII date. C14 dating attempted, but bone proved unsuitable.

---

After de Cardi 1979 Fig. 3.

---

Appendix 2 - Hafit and UAN tomb database: Structures - Tawi Silaim C2
**Skeletal remains**

**BONE DATA**

<table>
<thead>
<tr>
<th>Quality pub'd data</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bones studied by specialists:</td>
<td>Yes, but only post-exc.</td>
</tr>
<tr>
<td>General Condition:</td>
<td>Poor and minimally informative</td>
</tr>
<tr>
<td>Articulation:</td>
<td>Original articulation unknown due to disturbance</td>
</tr>
<tr>
<td>Minimum no. individuals:</td>
<td>2</td>
</tr>
<tr>
<td>Age Groups Represented:</td>
<td>MNI male 1</td>
</tr>
<tr>
<td></td>
<td>MNI female</td>
</tr>
<tr>
<td></td>
<td>MNI children</td>
</tr>
<tr>
<td></td>
<td>MNI subadult</td>
</tr>
<tr>
<td></td>
<td>unspec. MNI</td>
</tr>
<tr>
<td></td>
<td>Total MNI 1</td>
</tr>
<tr>
<td>Burnt Bone:</td>
<td></td>
</tr>
<tr>
<td>Extramural burials:</td>
<td></td>
</tr>
<tr>
<td>Pathologies noted:</td>
<td></td>
</tr>
<tr>
<td>Notes on stature etc.:</td>
<td></td>
</tr>
</tbody>
</table>

**TEETH DATA**

| General dentition: | Negligible |
| Caries: | Negligible |

**COMMENTS**

Comments regarding skeletal remains:

In the sand layer overlying the floor a considerable amount of primary material was found, especially where it had been sealed by the later burial. Teeth, skull and long bones were present in 2 discrete groups (A near the doorway and B on the opposite side of chamber).

Later, intrusive secondary burial was tightly flexed on R side, no offerings and in very poor condition.
### Tawi Silaim

#### C2

### Ceramics

#### HAFIT PERIOD

<table>
<thead>
<tr>
<th>Type</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ptd car'd pots</td>
<td></td>
</tr>
<tr>
<td>Unptd car'd pots</td>
<td>1</td>
</tr>
<tr>
<td>Pear shaped jars</td>
<td></td>
</tr>
</tbody>
</table>

#### DOMESTIC

<table>
<thead>
<tr>
<th>Type</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plain jars</td>
<td>1</td>
</tr>
<tr>
<td>Ptd jars</td>
<td></td>
</tr>
<tr>
<td>RB coll jars</td>
<td></td>
</tr>
<tr>
<td>St. vessel</td>
<td></td>
</tr>
<tr>
<td>Beak/gob/cup</td>
<td></td>
</tr>
<tr>
<td>Ptd PI bowls</td>
<td>1</td>
</tr>
<tr>
<td>H'made bowl</td>
<td></td>
</tr>
<tr>
<td>Miniature vessels</td>
<td></td>
</tr>
</tbody>
</table>

#### UAN FUNERARY POTS

<table>
<thead>
<tr>
<th>Type</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>B on R vessels</td>
<td></td>
</tr>
<tr>
<td>B on R canisters</td>
<td></td>
</tr>
<tr>
<td>B on R globular</td>
<td></td>
</tr>
<tr>
<td>B on R squat</td>
<td></td>
</tr>
<tr>
<td>B on R lge pear shaped</td>
<td></td>
</tr>
<tr>
<td>B on R bottle leaf</td>
<td></td>
</tr>
<tr>
<td>B on R other</td>
<td></td>
</tr>
<tr>
<td>B on G canister</td>
<td></td>
</tr>
<tr>
<td>B on G globular</td>
<td></td>
</tr>
<tr>
<td>B on G miniature</td>
<td></td>
</tr>
<tr>
<td>B on G other</td>
<td></td>
</tr>
<tr>
<td>B on G other</td>
<td></td>
</tr>
<tr>
<td>Incised Grey</td>
<td></td>
</tr>
<tr>
<td>Imit Gr inc.</td>
<td></td>
</tr>
<tr>
<td>Grey cordon vessels</td>
<td></td>
</tr>
<tr>
<td>Plain Grey vessels</td>
<td></td>
</tr>
<tr>
<td>B on R ptd sherd</td>
<td></td>
</tr>
</tbody>
</table>

#### IMPORTED / IMITATION IMP'D CERAMICS

<table>
<thead>
<tr>
<th>Type</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>B on G vessels</td>
<td></td>
</tr>
<tr>
<td>B on G canister</td>
<td></td>
</tr>
<tr>
<td>B on G globular</td>
<td></td>
</tr>
<tr>
<td>B on G miniature</td>
<td></td>
</tr>
<tr>
<td>B on G other</td>
<td></td>
</tr>
<tr>
<td>Incised Grey</td>
<td></td>
</tr>
<tr>
<td>Imit Gr inc.</td>
<td></td>
</tr>
<tr>
<td>Grey cordon vessels</td>
<td></td>
</tr>
<tr>
<td>Plain Grey vessels</td>
<td></td>
</tr>
<tr>
<td>B on R vessels</td>
<td></td>
</tr>
<tr>
<td>B on R canisters</td>
<td></td>
</tr>
<tr>
<td>B on R globular</td>
<td></td>
</tr>
<tr>
<td>B on R other</td>
<td></td>
</tr>
<tr>
<td>Incised Grey</td>
<td></td>
</tr>
<tr>
<td>Imit Gr inc.</td>
<td></td>
</tr>
<tr>
<td>Grey cordon vessels</td>
<td></td>
</tr>
<tr>
<td>Plain Grey vessels</td>
<td></td>
</tr>
</tbody>
</table>

#### SUSPENSION VESSELS

<table>
<thead>
<tr>
<th>Type</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plain suspension</td>
<td></td>
</tr>
<tr>
<td>Painted suspension</td>
<td></td>
</tr>
<tr>
<td>B on R net no susp</td>
<td></td>
</tr>
</tbody>
</table>

#### OTHER CERAMIC TYPES

<table>
<thead>
<tr>
<th>Type</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pl fine red</td>
<td></td>
</tr>
<tr>
<td>Misc Cer vessel</td>
<td></td>
</tr>
</tbody>
</table>

#### COMMENTS

**Ceramic Comments**

65 sherds representing 6 vessels - 2 wares present: one red, the other coarser, greyish buff.

Marked dissimilarity to the classic wares of either the Hafit of the UAN period.

Only one parallel - that of a rim to proto-ED levels at Susa.

**Compiler's Comments**

---

 Appendix 1 - Haft and UAN tomb database: Ceramics - Tawi Silaim C2
## Beads

### Paste Beads

<table>
<thead>
<tr>
<th>Talcose Steatite</th>
<th>Frit/Faience</th>
<th>Cleaned Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Squat cyl barrel</td>
<td>Small discs</td>
<td>Fluted sphere</td>
</tr>
<tr>
<td>Long tube</td>
<td>Long cylinders</td>
<td>Fluted col'd bar</td>
</tr>
<tr>
<td>Talc bicones</td>
<td>Squat cylinder</td>
<td>Segmented</td>
</tr>
<tr>
<td>Sm trunc/bicone</td>
<td>Bicones</td>
<td>Spherical</td>
</tr>
<tr>
<td>Med-brd trunc</td>
<td>Short brd oblate</td>
<td>Barrels</td>
</tr>
<tr>
<td>Circ disc</td>
<td>Cyl lenticular</td>
<td></td>
</tr>
<tr>
<td>Rect lentic. talc</td>
<td>Shape unclear</td>
<td></td>
</tr>
</tbody>
</table>

### Shell Beads

- Sm rings
- Dentalium
- Conus catus
- B&W striped
- M of p pends
- Sect'd cowries
- Sect'd cones
- Sm conus catus
- Type unclear

### Stone Beads

#### Carnelian and Chalcedony

<table>
<thead>
<tr>
<th>Carn Chal</th>
<th>Carn Chal</th>
<th>Soft St. Microbeads</th>
<th>White Stone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long barrel</td>
<td>Long bicone</td>
<td>Sq sect black</td>
<td>Cyl dimpled disc</td>
</tr>
<tr>
<td>Long trunc bar</td>
<td>Long trunc bic</td>
<td>Sq sect red</td>
<td>Reg barrel</td>
</tr>
<tr>
<td>Reg barrel</td>
<td>Reg bicone</td>
<td>Sq sect brown</td>
<td>Squat trunc barrel</td>
</tr>
<tr>
<td>Reg trunc barrel</td>
<td>Reg truncated bic</td>
<td>Sq sect grey</td>
<td>Squat truncated dimp barrel</td>
</tr>
<tr>
<td>Squat barrel</td>
<td>Squat bicone</td>
<td>Sq sect white</td>
<td>Reg trunc bicone</td>
</tr>
<tr>
<td>Squat trunc bar</td>
<td>Squat dimp bic</td>
<td>Circ sect black</td>
<td>Drop shape</td>
</tr>
<tr>
<td>Squat dimp bar</td>
<td>Squat trunct dimp bic</td>
<td>Circ sect red</td>
<td></td>
</tr>
<tr>
<td>Squat truncated dimp barrel</td>
<td>Rect lentic sect'n</td>
<td>Circ sect brown</td>
<td></td>
</tr>
<tr>
<td>Long fac'd bicone</td>
<td>Etched beads</td>
<td>Circ sect grey</td>
<td></td>
</tr>
<tr>
<td>Spheroid</td>
<td>Shape unclear</td>
<td>Circ sect white</td>
<td>Lapis Beads</td>
</tr>
<tr>
<td>Lozenge hatch't</td>
<td></td>
<td>M'beads unspec.</td>
<td>Jasper beads</td>
</tr>
</tbody>
</table>

### Soft St. Microbeads

- Sq sect black
- Sq sect red
- Sq sect brown
- Sq sect grey
- Sq sect white
- Circ sect black
- Circ sect red
- Circ sect brown
- Circ sect grey
- Circ sect white
- M'beads unspec.

### White Stone

- Cyl dimpled disc
- Regular barrel
- Squat trunc barrel
- Squat truncated dimp barrel
- Rect lentic. sect'n

### Metal Beads

#### Silver

- Bicones
- Long cyl bicones
- Lozenge lenticular section
- Segmented
- Type unspec.

#### Gold

- Squat cylinders
- Other types
- Unspec types

### Misc. Materials

#### Bone

- Bone Beads
- Square dble diag perf
- Fish vert small

#### Bronze

- BRONZE
- Fish vert large

#### Clay

- Clay Beads

### Other

- Other st. beads
- Unident dark st. beads
- Green st. beads
- Jasper Beads
- Lapis Beads

### Bead Comments

89 beads in total.

### Compilers Comments

Excellent descriptions and interpretations provided.
### Non-ceramic Objects

#### BRONZE OBJECTS

<table>
<thead>
<tr>
<th>Pins/awls</th>
<th>Vessels</th>
<th>Sword</th>
<th>Blade axe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rivet &lt; 2cm</td>
<td>Rings</td>
<td>Dagger</td>
<td>Socketed blade axe</td>
</tr>
<tr>
<td>Rivet &gt; 2cm</td>
<td>Bracelet</td>
<td>Spearhead</td>
<td>Sheet frags</td>
</tr>
<tr>
<td>Fish hooks</td>
<td>Razor</td>
<td>Socketed spearhead</td>
<td>Unident. Frags</td>
</tr>
<tr>
<td>Chain links</td>
<td>Spatula</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### STONE OBJECTS

| Grinding slab | Vessel object | Ostrich egg shell | Ring |
| Hammer stones | Stone pendants | Cosmetic shells | Buttons |
| Flint Tool | Pol’d pebbles | Conch shells/Feeding shells | Perf’d shells |
| Whetstone | Bone pendants | | Fragments |

#### SHELL OBJECTS

| Ostrich egg shell | Ring | 3 |
| Cosmetic shells | Buttons | |
| Conch shells/Feeding shells | Perf’d shells | |

#### MISCELLANEOUS OBJECTS

<table>
<thead>
<tr>
<th>Ivory comb</th>
<th>Stamp seals</th>
<th>Silver objects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ivory object</td>
<td>Cylinder seals</td>
<td>Gold objects</td>
</tr>
</tbody>
</table>

#### PRECIOUS METAL OBJECTS

| Silver objects | Gold objects |

#### POST 3M, INTRUSIVE OBJECTS

| Post 3M objects |

### Comments on non-ceramic objects

Shell rings possibly not for use as finger or toe rings (uncomfortable) but may have been decorative (sewn onto fabric) or acted as fasteners.

### Compilers Comments N
## Structures

**Site:** Umm an-Nar  
**Tomb no.:** 1  
**Period:** Umm an-Nar

<table>
<thead>
<tr>
<th><strong>EXCAVATION/PUBLICATION</strong></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Excavator:</strong></td>
<td>Danish Team</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Exc. report:</strong></td>
<td>Frifelt 1991; Önter 1991</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Quality data:</strong></td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>CONSTRUCTION</strong></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Shape:</strong></td>
<td>Circular</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>No. chambers:</strong></td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Ext. dim.:</strong></td>
<td>11m</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Int. dim.:</strong></td>
<td>9.25m</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Pres'd Ht.:</strong></td>
<td>1.5m</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Storeys:</strong></td>
<td>Single with possible double chambers</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>R'wall const'n:</strong></td>
<td>Triple concentric walls</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Ground level:</strong></td>
<td>Whole structure above ground</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Block size:</strong></td>
<td>40-50 x .50-1.0 m</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Material:</strong></td>
<td>Ext: Ashlar limestone blocks, Int: Beach stones</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Connection:</strong></td>
<td>Halves connected by centre passage</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| **Ground surface:** | Walls constructed on a plinth  
Paved with large flat slabs inside |  |  |
| **Door orient:** | North/South |  |  |
| **Evid for roofing:** | Definitely roofed, slightly corbelled |  |  |
| **Disturbance/ re-use:** | Disturbed by robbing in antiquity |  |  |
| **Struct preserv.:** | Preserved to height of 1 course |  |  |
| **Carvings on exterior:** | Absent |  |  |
| **Entry:** | 2 doorways on opposite sides |  |  |
| **Rel. to rest of site:** | Provided |  |  |
| **Area @ T exc'd:** | Yes |  |  |
| **Compilers Notes:** | Both door stones found with handles carved into them, on opposite sides of the tomb (N and S) |  |  |

**After Frifelt 1991: Fig. 258.**

*Appendix 2 - Hafit and UAN tomb database: Structures - Umm an-Nar 1*
## Umm an-Nar I
### Skeletal remains

#### BONE DATA

<table>
<thead>
<tr>
<th>Bones studied by specialists:</th>
<th>yes, in the field and post-exc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Condition:</td>
<td>Disarticulated, but some remains articulated</td>
</tr>
<tr>
<td>Articulation:</td>
<td></td>
</tr>
<tr>
<td>Minimum no. individuals:</td>
<td>18-21</td>
</tr>
<tr>
<td>Age Groups Represented:</td>
<td>all age groups represented</td>
</tr>
<tr>
<td>MNI male</td>
<td>9</td>
</tr>
<tr>
<td>MNI female</td>
<td>5</td>
</tr>
<tr>
<td>MNI children</td>
<td>6</td>
</tr>
<tr>
<td>MNI subadult</td>
<td></td>
</tr>
<tr>
<td>unspec. MNI</td>
<td>1</td>
</tr>
<tr>
<td>Total MNI</td>
<td>21</td>
</tr>
<tr>
<td>Burnt Bone:</td>
<td>not mentioned</td>
</tr>
<tr>
<td>Extramural burials:</td>
<td>absent</td>
</tr>
<tr>
<td>Pathologies noted:</td>
<td>Injuries stemming from fighting or acts of aggression were noted on males. Very little degenerative change.</td>
</tr>
<tr>
<td>Notes on stature etc.:</td>
<td></td>
</tr>
</tbody>
</table>

#### TEETH DATA

| Caries:                      | few carious lesions              |

#### COMMENTS

Comments regarding skeletal remains:

Fairly poor preservation. Articulated skeletons provide evidence for original mortuary practice. Most recent interments still intact, rest disturbed due to re-use. Bones and teeth studied by Kunter and Hojgaard respectively. Slightly differing MNI results. The above information is based on a synthesis provided by Kunter. Semi-articulated individual outside chambers AF and AE - flexed position, skull missing, back against ringwall and legs to the south. Other partial skeletons said to be in this vicinity. Noteworthy that inner chambers said to be quite clear, while passageways kind of full. Interpretation that chambers cleared out for next burials, although interference of evidence from burials originally placed on shelves is likely.

Compilers Comments

Data discrepancy: Al-Tiriti states only 15 individuals in this tomb, all in the western half.
## Ceramic Comments

The two miniature B on G vessels are canister in shape. Of the miniature B on R vessels, 1 is globular in shape and 1 is a canister. Important to note is that the RB coll jars category in Domestic wares, is in fact an imported Mesopotamian domestic form.

## Compilers Comments

Data discrepancy: Al-Tikriti states "23 pots, mostly Black on Red", whereas Frifelt 1991 states 33 vessels although 40 may be a better estimate.
### Umm an-Nar I

#### Non-ceramic Objects

<table>
<thead>
<tr>
<th>Soft Stone Vessel Types</th>
<th>Quality pub'd data</th>
</tr>
</thead>
<tbody>
<tr>
<td>DDC bowl</td>
<td></td>
</tr>
<tr>
<td>SDC bowl</td>
<td></td>
</tr>
<tr>
<td>DDC beaker</td>
<td></td>
</tr>
<tr>
<td>SDC beaker</td>
<td></td>
</tr>
<tr>
<td>DDC rect box</td>
<td></td>
</tr>
<tr>
<td>SDC sq flask</td>
<td></td>
</tr>
<tr>
<td>DDC lid</td>
<td></td>
</tr>
<tr>
<td>SDC lid</td>
<td></td>
</tr>
<tr>
<td>DDC Comp ves.</td>
<td></td>
</tr>
</tbody>
</table>

#### Bronze Objects

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pins/awls</td>
<td>Vessels</td>
</tr>
<tr>
<td>Rivet &lt; 2cm</td>
<td>Rings</td>
</tr>
<tr>
<td>Rivet &gt; 2cm</td>
<td>Bracelet</td>
</tr>
<tr>
<td>Fish hooks</td>
<td>Razor</td>
</tr>
<tr>
<td>Chain links</td>
<td>Spatula</td>
</tr>
</tbody>
</table>

#### Stone Objects

<table>
<thead>
<tr>
<th></th>
<th>Vessel object</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grinding slab</td>
<td>Ostrich egg shell</td>
</tr>
<tr>
<td>Hammer stones</td>
<td>Stone pendants</td>
</tr>
<tr>
<td>Flint Tool</td>
<td>Pol'd pebbles</td>
</tr>
<tr>
<td>Whetstone</td>
<td>Bone pendants</td>
</tr>
</tbody>
</table>

#### Shell Objects

<table>
<thead>
<tr>
<th></th>
<th>Ostrich egg shell</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shell objects</td>
<td>Cosmetic shells</td>
</tr>
<tr>
<td></td>
<td>Conch shells/</td>
</tr>
<tr>
<td></td>
<td>Feeding shells</td>
</tr>
</tbody>
</table>

#### Bone Objects

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Bone pendants</td>
</tr>
</tbody>
</table>

#### Miscellaneous Objects

<table>
<thead>
<tr>
<th></th>
<th>Stamp seals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ivory comb</td>
<td>Silver objects</td>
</tr>
<tr>
<td>Ivory object</td>
<td>Cylinder seals</td>
</tr>
<tr>
<td>Gold objects</td>
<td></td>
</tr>
</tbody>
</table>

#### Precious Metal Objects

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</tbody>
</table>

#### Post 3M, Intrusive Objects

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Post 3M objects</td>
<td></td>
</tr>
</tbody>
</table>

### Comments on non-ceramic objects

Iron nail said to be later intrusion. Bronze chain links were lost; and the grinding slab was recovered from on top of the tomb.

### Compilers Comments N

Data discrepancy: Al-Tikriti states only two bronze objects (1 pin and 1 unident.).

---

Appendix 2- Haft and UAN tomb database: Non-ceramic objects - Umm an-Nar I
### Beads

#### PASTE BEADS

<table>
<thead>
<tr>
<th>TALCOSE STEATITE</th>
<th>FRIT/FAIENCE</th>
<th>SHELL BEADS</th>
</tr>
</thead>
<tbody>
<tr>
<td>squat cyl barrel</td>
<td>small discs</td>
<td>sm rings</td>
</tr>
<tr>
<td>long tube</td>
<td>long cylinders</td>
<td>dentalium</td>
</tr>
<tr>
<td>Talc bicones</td>
<td>short cylinders</td>
<td>conus catus</td>
</tr>
<tr>
<td>squat barrel/bicone</td>
<td>bicones</td>
<td>b&amp;w striped</td>
</tr>
<tr>
<td>sm trunc circ disc</td>
<td>short brd oblate</td>
<td>m of p pends</td>
</tr>
<tr>
<td>med-brd trunc circ disc</td>
<td>cyl. lenticular sect</td>
<td>sect'd cowries</td>
</tr>
<tr>
<td>Rect lentic. talc beads</td>
<td>shape unclear</td>
<td>sect'd cones</td>
</tr>
<tr>
<td>shape unclear</td>
<td></td>
<td>sm conus catus</td>
</tr>
</tbody>
</table>

#### SHELL BEADS

- sm rings
- dentalium
- conus catus
- b&w striped
- m of p pends
- sect'd cowries
- sect'd cones
- sm conus catus
- type unclear

#### STONE BEADS

**CARNELIAN AND CHALCEDONY**

<table>
<thead>
<tr>
<th>Carn Chal</th>
<th>Carn Chal</th>
<th>Carn Chal</th>
</tr>
</thead>
<tbody>
<tr>
<td>long barrel</td>
<td>long bicone</td>
<td>sq sect black</td>
</tr>
<tr>
<td>long trunc bar</td>
<td>long trunc bic</td>
<td>sq sect red</td>
</tr>
<tr>
<td>reg barrel</td>
<td>reg bicone</td>
<td>sq sect brown</td>
</tr>
<tr>
<td>reg trunc barrel</td>
<td>reg truncated bic</td>
<td>sq sect grey</td>
</tr>
<tr>
<td>sq trunc bar</td>
<td>sq trunc bic</td>
<td>sq sect white</td>
</tr>
<tr>
<td>sq trunc dimpled bar</td>
<td>sq dimp bic</td>
<td>circ sect black</td>
</tr>
<tr>
<td>sq trunc dimpled truncated</td>
<td>sq truncat dimp bic</td>
<td>circ sect red</td>
</tr>
<tr>
<td>sq trunc truncated dimpled barrel</td>
<td>rect lentic sect'n</td>
<td>circ sect brown</td>
</tr>
<tr>
<td>long fac'd bic</td>
<td></td>
<td>circ sect grey</td>
</tr>
<tr>
<td>spheroid</td>
<td>Etched beads</td>
<td>circ sect white</td>
</tr>
<tr>
<td>lozenge hatch't</td>
<td>shape unclear</td>
<td>m'beads unspec.</td>
</tr>
</tbody>
</table>

**SOFT ST. MICROBEADS**

- sq sect black
- sq sect red
- sq sect brown
- sq sect grey
- sq sect white
- circ sect black
- circ sect red
- circ sect brown
- circ sect grey
- circ sect white
- m'beads unspec.

**WHITE STONE**

- cyl dimpled disc
- regular barrel
- sq trunc bar
- sq trunc at dmp bar
- reg trunc bicone
- drop shape

**OTHER**

- qtz sq trunc dmp bic
- Lapis Beads
- Jasper beads
- green st beads
- unident dark st. beads
- other st. beads

#### METAL BEADS

- bicones
- sq sect cylinders
- Bone Beads
- Bone

- long cyl bicones
- other types
- Square dble diag perf
- Square dble diag perf

- lozenge lenticular section
- BRONZE
- fish vert small
- fish vert small

- segmented
- Unspec types
- fish vert large
- fish vert large

- type unspec.
- Unspec types
- fish vert large
- fish vert large

**CLAY**

- Clay Beads

**COMPILERS COMMENTS**

**Descriptions of the carnelian beads are not good enough to be sure that all are squat dimpled truncated bicones, some may be barrels, a couple not dimpled - difficult to say because a photograph is the only record.**

**Appendix 1 - Hafit and UAN tomb database: Beads - Umm an-Nar 1**