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Erich F. Schmidt (second from right) and Donald E. McCown (second from left) with the Seymour Family.
Persepolis, East of Harem, 1935

THE ORIGINS OF STATE ORGANIZATIONS IN PREHISTORIC HIGHLAND FARS, SOUTHERN IRAN

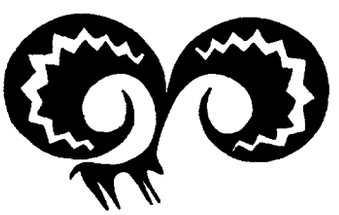
EXCAVATIONS AT TALL-E BAKUN

by

ABBAS ALIZADEH

with contributions by

Masoumeh Kimiaie, Marjan Mashkour, *and* Naomi F. Miller



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Title Page Illustration
Goat/Sheep Motif from Tall-e Bakun A (fig. 47:B)

Spine Illustration
Abstract Human Motif from Tall-e Bakun A (fig. 46:A)

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Dedicated to the Memory of
Donald E. McCown and Erich F. Schmidt

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LIST OF ABBREVIATIONS

BIBLIOGRAPHICAL ABBREVIATIONS

OIP 59 — *Tall-i-Bakun A, Season of 1932*. Alexander Langsdorff and Donald E. McCown. Oriental Institute Publications 59. Chicago: University of Chicago Press, 1942.

OIP 101 — *Chogha Mish,* Volume 1: *The First Five Seasons of Excavations, 1961–1971* (2 volumes, Text and Plates). Pinhas Delougaz and Helene J. Kantor (Abbas Alizadeh, ed.). Oriental Institute Publications 101. Chicago: The Oriental Institute, 1996.

OTHER ABBREVIATIONS

AMS	Accelerator Mass Spectronomy
Bldg.	building
B.P.	before present
ca.	*circa,* approximately
cf.	*confer*, compare
cm	centimeter(s)
cont.	continued
ed(s).	editor(s)
e.g.	*exempli gratia*, for example
et al.	*et alii*, and others
etc.	*et cetera*, and so forth
Ex.	exterior
Exc.	excavation
fig(s).	figure(s)
g	gravity
ha	hectare(s)
ICHTO	Iranian Cultural Heritage and Tourism Organization
i.e.	*id est*, that is
ibid.	*ibidem*, the same
In.	interior
indet.	inderminate
Lab.	Laboratory
kg	kilogram(s)
km	kilometer(s)
m	meter(s)
MASCA	Museum Applied Science Center for Archaeology
misc.	miscellaneous
mm	millimeter(s)
Mt.	mountain
NA	not applicable/not available
N/C	not counted
n.d.	no date
no(s).	number(s)
OIM	Oriental Institute Museum (registration number)
p(p).	page(s)
pers. comm.	personal communication
pl(s).	plate(s)

PPA	Persepolis Prehistoric A (Tall-e Bakun A)
PPB	Persepolis Prehistoric B (Tall-e Bakun B)
R.	river
Ref.	Reference
Rm(s).	Room(s)
sp.	species
Sq.	Square
TBA	Tall-e Bakun A
Tr.	Trench
vol(s).	volume(s)
wt.	weight

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PREFACE

This volume is the third installation of the Oriental Institute Iranian Prehistoric Project Publications. The project was funded in 1993 by a generous bequest from Helene J. Kantor to publish the materials from both Chogha Mish and Chogha Bonut. The first volume in the series (Delougaz and Kantor 1996) was published as Oriental Institute Publications 101. The second (Alizadeh 2003) was submitted in 1998 and published as Oriental Institute Publications 120.

Final publication of the remaining excavation seasons at Chogha Mish (1972–78) naturally would have followed, had it not been for the necessity of further research and analysis in Tehran, where the materials from the 1972–1978 seasons are stored. In the interim, we decided to publish the results of the Oriental Institute 1937 season of excavations at Tall-e Bakun A in a framework that is designed to revolve around the theoretical issues pertaining to the processes of the formation of state organizations in highland Fars. To accomplish this task and to extend the project to cover expenses for publishing all of the Oriental Institute's Iranian archaeological materials from both surveys and excavations, including the results from the excavations at Tall-e Geser (conducted by Donald McCown), the Oriental Institute generously subsidized the bequest.

Tall-e Bakun A was first briefly excavated by Ernst Herzfeld in 1928 for its beautiful pottery (Herzfeld 1929). When Herzfeld began his monumental work at Persepolis in 1932, he appointed Alexander Langsdorff and Donald McCown as co-directors to resume his excavations at the site. Further investigation at the site was postponed until 1937, when Erich Schmidt had already succeeded Herzfeld as the director of the Oriental Institute Persepolis project. In that year, McCown alone resumed excavations at Tall-e Bakun A and extended his work to the nearby site of Tall-e Bakun B, a smaller and earlier site. The report on the 1932 season was published as Oriental Institute Publications 59. The results of the second season remained unpublished because McCown, who was responsible for the final publication, left the field permanently.

Most of the archaeological materials and data presented here come from the 1937 season, but pertinent data and important materials from the 1932 season are also included. The care and exactitude with which these pioneers collected and recorded data from Bakun can be readily seen from their archival materials. Nevertheless, publishing material that is excavated by others involves many questions that only the original excavators could answer. Thus, in 1984, when I learned that McCown was still alive, I traveled with eagerness to a suburb of Washington, D.C., to meet him. McCown and his wife received me with such joy and enthusiasm that I immediately felt at home with them. We talked about the excavations and various related matters, interspaced with his regaling of his fond memories in Fars. A year later, in 1985, McCown died. I wish to express my deepest respect for him as a fine human and for his superb archaeological works in Iran.

As I mentioned above, this volume consists of the materials from two different seasons. Materials from each season can be easily identified by their register numbers. Those from the 1932 excavations have the prefix PPA, Persepolis Prehistoric A (Tall-e Bakun A) and those from the 1937 season are indicated by TBA (Tall-e Bakun A). Those from Tall-e Bakun B are distinguished by PPB, Persepolis Prehistoric B. In dealing with the architecture and stratigraphy of the 1932 season, I have kept the original architectural phases, which are marked by roman numerals from I to IV, Level I being the lowest stratum. To distinguish the architectural levels of the 1937 season from those of the 1932 season, I have chosen arabic numerals 1 to 4 for architectural and cultural phases. But unlike the 1932 season, Level 1 is the topmost and Level 4/4a is the lowest. While the original roman numerals for the various buildings discovered in 1932 are preserved, those from the 1937 season are identified with arabic numerals. All the square numbers are based on the grid applied to the aerial photograph (pl. 1) by Schmidt after the 1932 season. Figure 6 represents the original 1932 grid.

My interest in Fars began in 1985 when I was looking for suitable materials for my doctoral thesis. In that year, Kantor suggested the unpublished materials from the 1937 season at Tall-e Bakun A. At that time, as it was known in the literature, I considered Tall-e Bakun A as a small farming village with beautiful pottery and not much social complexity. My opinion soon changed when I found a large collection of sealings, particularly door sealings that had been found at the site. Even though McCown had published a few examples of the sealings in the original publication (OIP 59, pl. 7:12–19), no one had paid any attention to this significant line of evidence that was incompatible with the then perceived level of socioeconomics of the site. Further analysis showed that a definite pattern of spatial distribution of the various types of sealings was present in the excavated northern part of the mound. Thus, while the present publication is organized to include full representation of the unpublished materials, it is primarily devoted to seeking explanation of the presence of administrative technology at a small site with a population not more than 150 individuals.

In short, the evidence of administrative technology is analyzed on the basis of the function of its various components, i.e., door sealings, jar sealings, and so on, and that how these components are spatially related to the storage and activity areas reported from the site. The facile conclusion drawn from the functional analysis is that Tall-e Bakun A was a small

manufacturing and administrative center in late prehistoric highland Fars. Moreover, the functional analysis of the archaeological materials is used to draw a much more abstract conclusion pertaining to the level of socioeconomic complexity at the site. Using a combined evidence of ethnography, history, and archaeology, the perceived socioeconomic complexity at Bakun A is attributed to the ancient mobile pastoralists of the region on the eve of urban revolution.

For reasons formulated in the following chapters, I adopted the basic assumption that the site represented a prehistoric administrative center dominated by the mobile pastoralist elite of the region. Moreover, by arguing for a pastoral base for Tall-e Bakun's economy, I have tentatively concluded that under certain circumstances, mobile pastoralism can achieve a level of state organization through economic diversity.

One of the primary goals of this study is to publish all the excavated materials from Tall-e Bakun A. The first volume (OIP 59) was published at a time when questions of socioeconomic evolution and social structure of ancient societies were rarely addressed. Thus the first detailed report on the first season of excavations at Bakun A is almost completely descriptive. To fill this gap, I present and analyze the combined materials from the two seasons of excavations in a theoretical framework. In doing so I realized that the existing models of social organization do not fit the available archaeological data that exists on late prehistoric Fars. The main reason seems to be that these models deal primarily with rich agricultural lands and settled farming communities. Thus, drawing heavily from the available historical and ethnographic data on mobile pastoralism, I envision an evolutionary trajectory for the Bakun A socioeconomic complexity that I believe is more commensurate with the archaeological data.

The site, its history of excavations, the chronological framework, and the special problems in interpreting Tall-e Bakun A in a regional context are addressed in *Chapter 1*. *Chapter 2* is entirely devoted to an analysis of the current theories on social complexity and the methodology adopted to interpret the data. The geography, cultural landscape, and modern-day methods of farming and animal husbandry are presented in *Chapter 3*. To place Bakun A in its regional context and to have an understanding of its evolutionary path, *Chapter 4* is devoted to a detailed contextual analysis of excavations and surveys carried out in Fars, as well as to the current chronological problems. The information provided in *Chapter 4* then serves as a background to a detailed analysis of the settlement at the site in *Chapter 5*. *Chapters 6* and *7* present the pottery and other material cultural assemblages reported from the site. The characteristics and structure of the administrative technology documented at Bakun A is presented in *Chapter 8*. The combined archaeological, ethnographic, and historical picture forms the basis for an interpretation of the Bakun A society in *Chapter 9*.

All the absolute dates attributed to the various prehistoric phases in Fars, with the exception of Middle Fars 2 (the Gap phase), are based on nineteen charred seed and bone samples (see *Appendix A*). The absolute date of the Middle Fars 2 phase is based on the preceding and following phases, i.e., Middle Fars 1 (Bakun B2) and Late Fars (Bakun A). Because I did not have samples from the beginning to the end of any one phase, the range that is given in the text is derived logically. For example, all the dates from Tall-e Bakun A represent the date of the lower levels, i.e., Levels 4 and 3. Based on the estimated time that must have taken for the upper levels to accumulate, a range for the entire phase is offered. The absolute date for the Proto-Banesh (Lapui) phase (ca. 4000–3700 B.C.) is based on the Late Fars phase date (4500–4100 B.C.) and the calibrated date of the beginning of the Early Banesh phase from Tall-e Kureh (Sumner 2003: 55–57, table 13).

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While I was working on this publication, William M. Sumner was still the Director of the Oriental Institute (he retired in 1997). During his tenure, I benefited greatly from his insights. I would like to express my deep appreciation to Bill for discussing his archaeological and anthropological insights with me. I also would like to thank Nicholas Kouchoukos for reading an advance draft of the manuscript and making valuable suggestions.

Much of the data on the style of the Tall-e Bakun A painted pottery was collected by Janet Helman who has been a volunteer at the Oriental Institute for many years. Several years ago, when I was looking for help with the analysis of the nuances of the Tall-e Bakun painted pottery, Janet volunteered to work with me on the project. In an attempt to discover the grammar of designs of the Bakun A painted pottery, Janet virtually went over thousands of potsherds and recorded various painted attributes of the pottery, such as the number and thickness of painted bands, possible relation of certain designs with certain number of bands and motif panels, and so on. Once all the potsherds were examined, the data were entered in the computer to generate a number of charts and tables that are presented in this book. I would like to thank Janet Helman for her painstaking work and enthusiasm.

A number of Oriental Institute Members have made financial contributions to the Iranian Prehistoric Project. I would like to thank Peggy Bate, Alan Brodie, Jane Holzinger, Erica Kuiper-Schmidt, Elizabeth and Floyd Miller, Janice Ruppel, Kit and William Sumner, Harriet Turk, and Frank Zapolis for their generous support.

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CHAPTER 1
INTRODUCTION

> *That a number of early sites do not easily fit into schemes of cultural development conceived before their presence was known is one of the risks taken by all who theorize. The intelligent way out of the dilemma is to modify the theory to incorporate the new evidence or information. It is unhelpful to ignore it and pretend it does not exist, regard it as a freak, or treat it as a white elephant* (James Mellaart 1987: 265).
>
> *Many analysts are prisoners of ideal types. In their view, there are "chiefdoms" and there are "states" — and never the twain shall meet: however much variation exists* within *these categories* (Yale H. Ferguson 1991).

In the passage just cited, Mellaart is referring to Çatal Höyük. Mellaart laments that despite some archaeological evidence, Çatal Höyük's historical status as an early urban center has largely been ignored, simply because it has been considered "too early" and thus inconsistent with the prevailing paradigm of the time. Despite its large size, Çatal Höyük lacks administrative technology and other characteristics of an urban center and therefore may not have been one. Whether or not the archaeological evidence supports Mellaart's claim, the point he and Ferguson make is relevant to the present study.

As I was proofreading the formatted manuscript of this volume, Norman Yoffee's recent work (Yoffee 2005) was published. In it, Yoffee rejects the paradigm of pigeon-holing ancient societies into a series of defined steps that ultimately would lead to the evolution of early states. Yoffee's arguments against the prevailing paradigms of early state formation are nevertheless based on agrarian societies with cities as one of their fundamental features. We hope to show that this need not be universal and certainly not the case in highland Iran. The case of the late prehistoric highland Fars that is argued in the present work does not include cities; neither does it show the presence at Tall-e Bakun A of state organizations as we know them from the late fourth and early third millennia B.C. in lowland Susiana and Mesopotamia. Nevertheless Bakun A demonstrates an excellent case of "punctuated," rapid evolution of social and economic changes from a much simpler society on the one hand, and the possible role that ancient pastoralist societies played in this development on the other. In the following chapters I try to demonstrate that the Bakun A culture represents a remarkable break from the apparent simple societies that preceded it. This rapid and sudden development is explained in terms of the interactions between the primarily agrarian societies in lowland Susiana and Mesopotamia and the ability and strategic position of the highlands ancient mobile pastoralist communities in procuration and distribution of the materials items sought by the nascent urban centers of the late fifth millennium B.C.

I use the term "mobile pastoralism" instead of "nomadism" to designate the mobile herders of the Zagros Mountains (primarily the Bakhtiyari and the Qashqaii)[1] because unlike those of the vast steppes and agriculturally marginal zones such as Central Asia, Jazira, Sinai, Negev, and the Sahara, the Bakhtiyari and Qashqaii occupy primary agricultural regions with high population density; they are only highly mobile while migrating; they have high social and economic interactions with the settled farmers; they stay in one place for several months in regions with high population density; they own villages; they routinely practice farming in both winter and summer pastures; and they developed comparatively complex political organizations and hierarchy.

Paradigm shifts usually occur in the hard sciences when contradictory evidence, or "white elephants," accumulate. Unlike the experimental or natural sciences, branches of knowledge such as anthropology and archaeology are, of course, not cumulative, where one discovery often begets another. In archaeology, while one finding does not necessarily lead to others, the accumulation of cases contradictory to the prevailing hypotheses sometimes leads to a paradigm shift. A good example is the discovery of a number of early sites in the Levant, Jordan, Syria, and Anatolia that did not fit the prevailing paradigm of the "hilly flanks" of the Fertile Crescent.[2]

1. For these two tribal confedrations, see Beck 1986; Garthwaite 1983.
2. Briefly, the "hilly flanks" hypothesis proposes that evidence for the initial processes of domestication should be sought in the natural habitat of the early domesticates in the piedmonts of the Zagros Mountains (Braidwood 1967; Braidwood and Howe 1960).

Similar discoveries pertaining to the origins of early state organizations are also accumulating. State organizations seem to have crystallized in the agrarian societies of southwestern Asia in the late fourth millennium B.C. The seeds of such momentous developments in this region can be seen in the archaeological records of the precursors of the early state societies of lowland Susiana and Mesopotamia. A historical understanding of the processes and dynamics that led to early state formation in southwest Asia must, therefore, be based on the precursors of the early states of the late fourth and early third millennia B.C. In the late fifth and early fourth millennia B.C., a number of sites in the Near East grew much larger than their neighbors and exhibited features that are considered manifestations of socioeconomic complexity that eventually led to the formation of early states. These features include protowriting, craft specialization, monumental buildings, and planned architecture designed to segregate residential, administrative, and production quarters.[3] To this list one may add the invention of door sealings, designed to regulate the flow of goods, and to limit access to resources.

Early regional centers (e.g., Susa, Chogha Mish, Uruk, and Nippur) are usually large with populations several degrees of magnitude greater than other settlements in their surrounding regions. Recent explanations marshalled to theorize the development of state organizations that were centered at such prominent sites vary, but a large population is considered a major factor in the development of socioeconomic complexity.[4] Some propositions designed to explain formation of early states are primarily based on models derived from systems analysis and information theory. Briefly, the greater the population, the more information is generated, which in turn forces societies to develop institutions to process such information (Wright and Johnson 1975). Those societies that can respond to such challenges evolve higher social orders. If we accept the need to process information and the attendant emergence of information processing institutions as major factors in the formation of state organizations, then we should consider the possibility of the development of socioeconomic complexity among the ancient highland mobile pastoralist communities, where gathering and processing information — known only from analogy of modern-day and historically known nomadic tribes[5] — may have played a critical role in the development of urban communities of southwestern Iran.

In the following chapters I argue that the settlement at Tall-e Bakun A, the main subject of this study, demonstrates a number of features associated with the level of social complexity that are attested at some later proto-historical urban centers, but the small size of the site and the regional settlement patterns during the Bakun A phase as a whole do not conform to the Central Place Theory or tributary economic models, where higher level of settlements are expected to exhibit larger populations and more functions. One aim of this study is, therefore, to illustrate that this anomaly may occur under certain environmental, economic, and demographic conditions.

In general, Tall-e Bakun A is not unique, however. There are a number of other sites that exhibit most of the characteristics of the larger regional centers but are nevertheless too small to have included a large population as a factor. Prominent among these special sites are Gawra (Tobler 1950),[6] Tell Abada (Jasim 1985), Kheit Qasim (Forest-Foucault 1980; Margueron 1987), and possibly Tell Madhhur (Roaf 1982, 1987). As we see later, it is important to keep in mind that no similar sites have been reported from lowland Susiana and southern Mesopotamia; this does not, of course, mean that small late prehistoric sites with evidence of administrative technology and monumental buildings do not exist in these areas. But if our assumptions about the demographic and economic base of such sites are correct, it should be unlikely to find them in prime agricultural regions of southern Mesopotamia and lowland Susiana.

The special sites just mentioned constitute a category of settlement that does not fit into our current models of early urban development in which large farming populations play a fundamental role in creating socioeconomic and political complexity. In most descriptive and explanatory models, the number of sites determines the size of a regional population and the population of each site is determined by its size. Such estimates, their uncertainties notwithstanding, obviously account for the settled farming and urban population of a given region. For reasons that we explore later, such models, however, do not account for ancient Near Eastern mobile pastoralist communities, though these communities seem to have coexisted for thousands of years with the settled farmers as part of the socioeconomic continuum of local polities.[7] As such, there is no compelling reason to assume that at least in south-

3. See, for examples, Marcus and Feinman 1998; Wright 1984.
4. See, for examples, Carneiro 1967; Earle 1991; Flannery 1972; Friedman and Rowlands 1977; Sanders and Price 1968; Upham 1987. See also Feinman 2000 for a detailed analysis of the role of this factor in social organization.
5. See, for example, Barth 1961; Rowton 1974, 1981.
6. Rothman (1988: 461, 599–625) considers Gawra as an independent specialized site with perhaps a nomadic clientele population.
7. See, for examples, Adams 1974; Bernbeck 1992; Cribb 1991; Geddes 1983; Gilbert 1975, 1983; Kohler-Rollefson 1992; Levy 1983; Oates and Oates 1976; Smith 1983; and Thomson Marucheck 1976.

western and southern Iran mobile pastoralist tribes could not have developed state organizations similar to those in the settled farming communities of lowland Susiana, but with a different evolutionary trajectory.

Some scholars are of the opinion that the military superiority of the historically known nomadic tribes depended to a large degree on horses and camels, such as those documented in Central Asia and northeastern and southern Iran (Irons 1994; Khazanov 1984; Salzman 1994). It can also be argued that social and political complexity among nomads and mobile pastoralists was fostered by contacts with a central state within which nomadic groups operated. While this may be the case with the nomadic tribes who move horizontally and utilize agriculturally marginal zones, I argue that the same need not be the case with the mobile pastoralists who move vertically and spend a substantial amount of time in highly productive agricultural regions with high population density.

The military superiority of the nomads of the vast steppes of Central Asia and regions such as the Sahara where farming is marginal and risky and where the danger of completely dry seasons with fatal consequences to animals and crops always exists, the introduction of horses and camels not only would have given an edge to the nomads, it may have even encouraged systematic raids on villages and towns. In fertile regions with comparatively high population density, such as lowland Susiana and Fars, the sheer superior numbers of settled farmers would certainly be a deterrent to any nomadic intrusion or raid on foot. Nevertheless, in the case of vertical mobile pastoralism in the Zagros Mountains, hiding places were readily available in the nearby mountains, but comparatively inaccessible and hazardous to the settled farmers. As the numerous raids to subdue the Qashqaii and the Bakhtiyari pastoralists by government troops during the reign of Reza Shah in the 1920s and 1930s demonstrated, even a well-organized army with modern technology could not easily overwhelm the mountain tribes. The military advantage of the vertical mobile pastoralist tribes lies is their way of life, the geographic and geological features of their surroundings, their high mobility, and general lack of fixed assets.

Nevertheless, ethnographic and historical records of raiding parties in the major Qashqaii and Bakhtiyari territories pale compared to those in marginal zones with a typical "ecology of raids" as Phillip Salzman (1994) put it. The ecology of raid also seems to have been a major factor in fostering and encouraging periodic raids on the pueblos of the Tewa by the Comanche in the southwestern United States (Ford 1972). In contrast, the political hierarchy of the Qashqaii and Bakhtiyari tribal confederations and their relations with the state, as well as their high degree of interaction with the settled farmers in their regions must also have contributed to the much higher symbiosis of the two societies in southwestern Iran. In fact, in the height of their power, the chiefs of these powerful confederations actually protected the settled farming communities in their territories against the marauding tribes of the Mamasani and Boyr Ahmadi who roamed in the agriculturally marginal regions straddling the Qashqaii and Bakhtiyari territories.

In any case, in the absence of state organizations or in situations where organized military response can not be immediate, fleet-footed mobile tribesmen can bring a settled regional population to submission by sheer harassment. It is easy to imagine the vulnerability of farmers during the harvest time; a small band of mobile pastoralists could easily set fire to the harvest and disappear without a trace into the mountains. Similarly, flocks of sheep and goats sent by the farmers to the nearby hills can easily be stolen by mobile tribesmen, as there exist innumerable reports of such events (whether real or imagined) in the major tribal regions in Iran. This ecologically generated military superiority of mobile pastoralists should be considered another factor in their sociopolitical development.[8] As Candelario Sáenz (1991) argues in the case of the Twaregs of northern Africa, the military advantage of mobile pastoralist communities alone can lead to extortion that in turn may lead to warrior-client interaction and subsequently to stratification and increased social complexity. This resultant social hierarchy and differential political status, however, seems to be limited to the mobile pastoralist communities whose winter or summer pastures overlap with the farmlands in rich agricultural zones, such as Fars and southwestern Iran. Nomads of the marginal zones of Sistan/Baluchestan and Kerman, as well as the Turkmen tribes of northeastern Iran lack the social and political hierarchy typical of the Qashqaii and the Bakhtiyari.[9]

Residential mobility among the contemporary mobile pastoralists tribes in southwestern and south-central Iran is also not high compared to the nomads of the vast steppes of Central Asia, the Sahara, and the Negev, for example. The Qashqaii and the Bakhtiyari tribes were highly mobile only during their annual migrations. Once they reached their designated or traditional summer and, especially, winter pastures, they spent at least several months of the year in relatively fixed areas among the settled farmers, with a high degree of social and economic interaction.

8. See, for examples, Irons 1974, 1994.

9. See, for examples, Bradburd 1990, 1994; Irons 1994; Salzman 1994; Thomson Marucheck 1976.

There seem to be geographic reasons for this high degree of interaction between Iranian mobile pastoralists and settled farmers. Marginal areas unsuitable for grain agriculture, but with excellent pasture grounds and thus with low population density (such as the Negev in Israel, the Jazira in northwestern Iraq, and southeastern Iran [Thomson Marucheck 1976]) are rare in southwestern and south-central Iran. The available winter pastures for the mobile pastoralist tribes of the Zagros Mountains include the fertile intermontane valleys in Fars and the southwestern lowlands, both having a high density of settled farmers and vast tracks of cultivated lands. Thus, regardless of when mobile pastoralism developed in Iran as a specialized way of life, from the beginning the mobile pastoralists must have had a much higher degree of interaction with the settled farmers of their winter haunts than those in agriculturally marginal regions. More importantly, unlike highly mobile nomadic tribes of the vast steppes and the arid zones in the Middle East, some mobile pastoralist tribes of the Zagros Mountains possess semi-permanent villages with solid architecture both in their summer and, especially, in their winter haunts in close proximity to the settled farmers and urban centers (see Alizadeh 1988a, 2003b, 2004).[10] I assume that in general this pattern was obtained in late prehistory, even though distinguishing semi-permanent pastoralism from permanent farming villages in surface surveys is impossible. The assumption of the existence in late prehistoric times of semi-permanent villages in the midst of rich agricultural regions is therefore based on ethnographic and historical data, as well as some archaeological clues. This assumption is theoretically significant because it addresses the problem of the economy of scale, which discourages non-pastoral production, such as pottery, among mobile groups (see *Chapter 2*).[11]

Studies suggest that ancient mobile pastoralists may have had some measure of influence in the development of complex societies in the ancient Near East, particularly in southwestern Iran (e.g., Wright 2000, 1987a: 141–55; Zagarell 1982). Nevertheless, in the study of the formation of state organizations in the Near East, the role of mobile pastoralist communities is either completely ignored or viewed mostly as a contributing factor, never as an entity that developed and reached a level of state organization with a different path than that of lowland farming communities. As I argue in the following chapters, due to the fact of the limited scope for structural variation in mobile pastoralist societies, a level of state organization can not develop internally in such societies. In areas with a high degree of interaction between mobile pastoralist and settled farming communities, what Michael Rowton (1981) calls "enclosed nomadism," chiefly aspiration to a higher level of political and economic control could, under favorable circumstances, be materialized only if that control is extended to include sedentary farming communities. In fact, Rowton (1981: 26–27) has shown that in enclosed nomadism it was common for the nomadic tribes to include fully sedentary tribes of a regional population. The same was remarkably true about the contemporary mobile pastoralist tribes of the Zagros Mountains.[12]

Tall-e Bakun A, in highland Fars, is an excellent example of socioeconomic complexity with a trajectory that seems to have been different from those in lowland Susiana and southern Mesopotamia. With an area of only 2.18 ha and a population of less than 200 individuals, Bakun A has most of the characteristics associated with the late prehistoric large urban centers with administrative technology, craft specialization, segregated residential, administrative, and industrial quarters, as well as the evidence of regulated access to resources. The present study is primarily devoted to examining a prehistoric example with differential control of economic resources, which resulted in social stratification in the later complex urban societies in highland Iran, but nevertheless followed a different evolutionary path.

Tall-e Bakun A is therefore a major source of information on the initial development of the evolutionary path that seems to be fundamentally different than that of the agrarian societies of lowland Susiana and southern Mesopotamia. Long before the appearance of administrative technology and physical segregation of administration, production, storage, and residential units in urban centers of the second half of the fourth millennium B.C., the Bakun A culture stands as one of the precursors to the complex societies of the early urban centers.

Before we address and discuss the methodology employed in this study and the pertinent theoretical considerations, it is necessary to provide the reader with background information on the settlement and on the evolution of material culture in prehistoric Fars.

10. See also Alizadeh, Kouchoukos, et al. 2004.

11. See Eerkens 2003 for a full treatment of this problem and the question of residential mobility.

12. See, for examples, Barth 1961; Beck 1986; Garthwaite 1983.

THE TWIN MOUND OF TALL-E BAKUN

Tall-e Bakun is located in the fertile plain of Marv Dasht, near Persepolis (figs. 1–3). This alluvial plain is about 3,600 square kilometers and rises to about 1,600 meters above sea level. Bakun consists of two mounds, differentiated as Bakun A and Bakun B, the latter being earlier (pls. 1–2). Ernst Herzfeld (1929, 1932) first excavated the site in 1928. These sites were excavated in 1932 as part of the Oriental Institute Persepolis Project by Alexander Langsdorff and Donald McCown (OIP 59), and later in 1937 by Erich Schmidt and McCown. In 1956, a Japanese team carried out a limited excavation at both sites and published the results in 1962 (fig. 7). Both sites were excavated again in 2004 by a joint ICHTO-Oriental Institute expedition (for details, see *Chapter 4*; Alizadeh 2004; Alizadeh, Zeidi, et al. 2004).

TALL-E BAKUN B

This mound (682302 East/3310685 North, UTM 39 North) consists of two distinct cultural deposits, designated as Bakun B1 and B2 (fig. 11; pls. 1–2). The lower deposit, Bakun B1 (5400–5200 B.C.), yielded no architecture but contained layers of ash and debris associated with a coarse pinkish buff ware; the upper deposit, Bakun B2 (5200–4800 B.C.), also with no architectural remains, is distinguished by a mixture of a black-on-buff painted pottery and Bakun B1 coarse ware. If there was any architecture associated with the Bakun B2 levels, it must have been destroyed by the numerous Islamic graves dug to a depth of about 1.5 m (fig. 11). The excavated materials and records from Tall-e Bakun B were apparently lost at sea en route to Chicago. From the scattered evidence available at the Oriental Institute, the brief Japanese report (Egami and Masuda 1962), and our 2004 season (see *Chapter 4* for the results of 2004 excavations), it seems that the range of archaeological materials uncovered at Bakun B was limited. Both painted and coarse ceramics were abundant. Other items consisted of bone and stone tools, plain and painted spindle whorls, some shells and clay scrapers, and large amounts of flint blades. Absent were seals, sealings, semi-precious stones, and metal.

TALL-E BAKUN A

The small mound of Tall-e Bakun A (682034 East/3310805 North, UTM 39 North), about $200 \times 100 \times 4$ m, is a major source of information for the earliest tangible evidence of the later state organizations centered in large urban centers of the late fourth millennium B.C. (fig. 8, pls. 1–2). Previously, the Bakun A culture (4500–4100 B.C.) was primarily characterized by its handsome, elaborately decorated ceramics. But its evidence for metallurgy, interregional trade, craft specialization, planned architecture, segregation of administrative, residential, and industrial quarters, and most importantly, the use of clay sealings, particularly door sealings, to control access to stored commodities, had not been incorporated in the studies of the development of early state organizations in the region. Again, one of the aims of this study is to re-evaluate the archaeological materials from Bakun A in terms of socioeconomic developments in Fars in the late fifth millennium B.C.

At a short distance to the north of Tall-e Bakun are two perennial springs, which supplied freshwater to the district before the depletion of subterranean water reservoirs as a result of the numerous deep wells and the use of mechanized water pumps in the 1970s. The site is also situated near the narrow mouth of a major intermontane valley that perhaps for millennia has been used as a major route by the inhabitants of Fars to communicate with the inner Zagros region and the Central Plateau. Today, the main highway that links Fars to the Iranian capital, Tehran, passes through this valley, with Persepolis and Pasargadae dominating the scene. The same route was also used annually by tens of thousands mobile pastoralists with millions of animals to reach their summer and winter pastures. The relative abundance of freshwater in this area and the strategic importance of this natural highway must have been recognized from earliest times, as suggested by the presence in this region of important Achaemenid and Sasanian centers such as Persepolis, Pasargadae, Naqsh-e Rustam, and Estakhr (figs. 2–3).

As I argue in the following chapters, Tall-e Bakun A seems to have been chosen initially as the locus of manufacture for various goods, including pottery. The basal levels (Levels I–II)[13] lack any architecture that might be considered residential but consist of extensive, thick layers of ash and soot with many kilns and ovens. Somewhat later (Level III), a major building complex was erected on the north part of the mound with a central open space sur-

13. See *Preface* for the differences in the stratigraphic assignment of architectural levels of the 1932 and 1937 seasons.

rounded by one monumental and a number of smaller buildings that served as residential units, administrative quarters, and warehouses (figs. 7–8). Associated with Level III in the central and southern areas of the mound (excavated in 1937), were large open areas covered with ash and soot as well as several scattered buildings. Archaeological evidence from Level III points to the manufacture of pottery, stone vessels and tools, clay and copper objects, as well as production of objects made of semi-precious stones such as lapis, carnelian, and turquoise.

The analysis of functional location of Tall-e Bakun A's different types of architecture and the spatial distribution of artifacts, particularly the concentration of certain types in specific buildings, provides evidence for the reconstruction of intra-site settlement patterns. For example, the contrast at Bakun A between the northern quarter and central and southern quarters indicates that some activities were spatially segregated. The central and southern areas were the loci of craft and industrial production. The northern quarter was administrative and residential. Those buildings in the northern quarter (namely Buildings II–IV, VII, and XIII) that contained door sealings as well as sealings of movable objects, such as jars, bales, and bags, are considered administrative units and warehouses (fig. 8). The door sealings were used to protect rooms and their contents from unauthorized entry. Therefore, the evidence of controlled storage activities is found in the residential rather than in the production sector of the settlement.

For reasons not clear to us, perhaps due to a disturbance in supply sources and social or economic upheavals, the inhabitants of this phase (Level III) peacefully deserted the mound. The period of desertion could not have been very long since not much erosion before the re-occupation of the site (Level IV) is observed. Some of the buildings of the previous phase of occupation were reused and others were built on the ruins of the older buildings. But now the character of the site changed drastically. Most of the central and southern areas were deserted and door sealings or other types of sealings are absent. Compared with the archaeological assemblage of Level III, Level IV has produced little, if any, sign of the burgeoning industry of the previous phase.

Considering the small population of Tall-e Bakun A, it is difficult to imagine that the industrial output of the site was only to meet the domestic needs of the local inhabitants. The number of kilns, ovens, fireplaces, and the large open areas filled with thick layers of ash and other industrial by-products point to a regional manufacture and distribution center, satisfying not only the material needs of the regional settled population, but perhaps the need of the mobile pastoralist tribes who, based on the modern-day analogy, must have spent almost half of the year in the Marv Dasht Plain and the neighboring areas. Modern versions of Bakun A can still be seen in the regional distribution and manufacture centers of Marv Dasht (the town), Nourabad Mamasani (northwest of Shiraz), Deh Bid, Deh Dasht, and Firuzabad (fig. 5). The continuity of such regional manufacturing and distribution centers is curiously reflected in the etymology of the name Bakun.

HYPOTHETICAL ETYMOLOGY OF "BAKUN"

Ancient mounds in Iran are usually named after their nearest village, local owners, or they have some type of descriptive names reflecting the shape or particular physical characteristics of the mound. Tall-e Bakun is one of those rare archaeological sites whose name may reflect its ancient status. Bakun or "Bagun," as the locals properly refer to it, seems to be the plural of "bak" or "bag," an ancient Iranian term for "god"; Baghdad (god given/created) is the most famous example. In the later Pahlavi "bag" becomes "bay" which is most probably reflected in the toponym Baysutun/Behistun/Bistun (Column of God), the site of Darius' famous trilingual monument near Kermanshah. Thus, Tall-e Bakun may be interpreted as "The Mound of Gods." Moreover, according to Harold Bailey (1989), *Baga-* is attested in early and late Iranian with two meanings: "distributor" and "portion." From these, *baga-* seems to have been adopted as a name for "god." Either way "Bakun" suggests the mound's lingering importance by the time Iranian tribes established themselves in Fars. Since Tall-e Bakun A was deserted sometime in the late fifth or early fourth millennium B.C.,[14] its Iranian name might, though highly implausible, reflect its lingering status, and, by the first millennium B.C., its mythological fame in the region.

THE TERMINOLOGY OF THE CHRONOLOGICAL PHASES

Before we discuss the archaeological evidence and theoretical issues, it is necessary to introduce and explain the terminology we have adopted to designate the known prehistoric phases in Fars. The Fars chronological charts, as those of other areas in Iran, are full of esoteric names of local sites used to designate cultural and ceramic phases. In

14. The aerial photographs (pls. 1–2) show a number of unexplored archaeological features in the immediate vicinity of the mound.

some regions, namely the central Zagros, the use of local names is sometimes unavoidable because of the regionalism exhibited by the contemporary cultures. But the chronological terms in the three major cultural provinces in Iran, namely Susiana, Fars, and the Central Plateau, need not be confusing. After the initial Neolithic phase, these three regions became internally integrated and exhibit more or less uniform material cultures. This does not mean that local characteristics within these regions do not exist, but the similarities in the shape and design of the pottery (and in other material assemblages) are so strong that adopting a general and inclusive terminology to distinguish cultural phases is indeed warranted and necessary to avoid confusion.

In this study we adopt a system of designating prehistoric Fars ceramic assemblages that was developed by the Chogha Mish project for the prehistoric Susiana sequence.[15] Based on pottery stylistic grounds and stratigraphic observations, the entire Susiana prehistoric sequence is divided into five major periods, i.e., Formative, Archaic, Early, Middle, and Late, with numeric subdivisions as the case may require. This type of terminology is neutral, simple, and inclusive; more importantly, it also avoids site names as identification of cultural phases and thus reduces further confusion in an array of Iranian chronological charts already filled with esoteric site names. In addition, this terminology can be easily amended to include discoveries of unknown cultural phases without introducing new names.

A cautionary point must be made before I present a general picture of the cultural development in prehistoric Fars. The periodization offered throughout this study is based on stratigraphy and stylistic analysis of the prehistoric ceramics available from the region, as well as radiocarbon datings obtained from the 2004 excavations at the key prehistoric sites in the Marv Dasht region (see *Appendix A*).

AN OVERVIEW OF THE PREHISTORIC CULTURAL SEQUENCE IN FARS

Before I present the available archaeological data obtained from excavations and surveys, and before I discuss in detail the characteristics of the Tall-e Bakun A society in late prehistoric Fars, the reader may find it useful to have an overview of the prehistoric cultural development in highland Fars. This region seems to have been occupied by small groups of hunter-gatherers from the Middle Palaeolithic period (Piperno 1972, 1974; Sumner 1977). A few surface concentrations of flint blades as well as several doubtful aceramic sites may represent a very early Neolithic occupation of the region (Sumner 1977: 293, 1994: 48–49).

"FORMATIVE FARS"? PHASE

This "Fromative Fars" phase, presumably the initial phase of mound occupation in Fars, is entirely based on the presence of a class of pottery that in terms of ware, color, and manufacture seems to be ancestral to the Mushki pottery (pl. 26). Furthermore, this pottery has its closest parallels in the two classes of Susiana early ceramics found at the basal levels of Chogha Bonut, namely, the smear-painted and the maroon-on-red painted wares (Alizadeh 2003: 47–48, fig. 24:A–B, D, UV, pl. 21:K–L). To date, this presumably early Neolithic pottery has been reported from the surface of only two sites in Fars; one (A4-1) is a rock shelter in the Arsanjan area, southeast of the Persepolis plain (Ikeda 1979; Akira Tsuneki pers. comm.), and the other is Kushk-e Hezar, an archaeological mound some 16 km southwest of Tall-e Malyan (Alden et al. 2004: 36, fig. 9:8–9; John Alden pers. comm.), where it is called "swoosh" ware because of its particular style of decoration (pl. 26).

While at A4-1 "swoosh" ware appears by itself, at Kushk-e Hezar it is found together with Jari painted pottery on one sector of the mound's surface. Although the decoration is very different from that of the typical Mushki red burnished painted ware, the manufacturing technique and the fabric are almost the same. The swoosh painted ware is handmade with a mixture of chaff/straw and grit inclusion. It has a gray to black core that abruptly changes to a red, cream, or buff surface (Alden et al. 2004: 36; John Alden pers. comm.; Akira Tsuneki pers. comm.). The majority of the available sherds show swoosh decoration on both surfaces and thus must belong to open forms. These are very simple forms with a rounded lip and no other accessories. At least two examples (Ikeda 1979, fig. 24:1, 4) show carination, a prominent feature of the Mushki vessels; carinated forms disappear in the following Jari phase. Nothing else is known about this elusive early phase of occupation in Fars and further research at Kushk-e Hezar and A4-1 is needed to shed light on this presumably pre-Mushki phase.

15. Alizadeh 1992, 2003a; Delougaz and Kantor 1996; Kantor 1976.

ARCHAIC FARS PHASE

The Archaic Fars phase period of occupation in Fars is characterized by five different, but presumably related, soft, vegetal-tempered decorated and plain wares (see *Chapter 4*). These early Neolithic cultures are known as Mushki (Fukai, Horiuchi, and Matsutani 1973), Jari (Egami 1967; Egami et al. 1977), Kutahi, Bizdan, and Jalyan (de Miroschedji 1972, 1974). On the basis of stylistic analysis and stratigraphic positions of these early wares, I have divided the Archaic Fars period into two phases. The earliest, the Archaic Fars 1 phase (known as the Mushki phase, 6400–6000 B.C.), is known from Tall-e Mushki (688658 East/3304381 North, UTM 39 North) in the Marv Dasht area near Persepolis (fig. 2). This phase is characterized by the typical Mushki red burnished ware, first described by Louis Vanden Berghe (1954), and later by Shinji Fukai, Kiyoharu Horiuchi, and Toshio Matsutani (1973). Three distinct classes of ceramics are found at Tall-e Mushki: (1) a plain coarse ware; (2) a painted burnished as well as unburnished red wash wares; and (3) a painted buff ware. In addition, there are several other minor types of decorated pottery with interior buff slip, exterior red wash, and a combination of buff slip and red wash on the exterior that creates the appearence of bichrome (Fukai, Horiuchi, and Matsutani 1973, pl. 47:2; Alizadeh, Zeidi, et al. 2004, fig. 6). Recent excavations at the prehistoric site of Kushk-e Hezar, southwest of Tall-e Malyan (Alden et al. 2004), also yielded a number of potsherds which seem to be transitional from the Mushki to Jari phase. While the red surface of the standard painted Mushki redware is referred to in the literature as "slip," our own 2004 observations at the site showed that it is actually a thick red wash because of its smeared appearance and varying thickness of the pigment. The coarse plain pottery consists of common and medium wares very similar to those found at Tall-e Jari A.

Based on our 2004 observations (Alizadeh, Zeidi, et al. 2004: 105), the painted red wash ware has a paste that is usually dark gray to light gray with chaff and occasional small grit inclusions. Completely oxidized cores exist, but depending on the thickness, a single sherd can have both gray and buff cores. In cases where the wash is worn off, the surfaces are pitted with air pockets and appear crackled. The surfaces consist of 1–2 mm layer of pale to light orange buff that abruptly changes to gray. This surface layer is usually covered with a burnished red wash that ranges from yellowish red (5YR-5/8), reddish yellow (5YR-7/8), pinkish red (5YR-5/6), to red (2.5YR-4/8), and even purple. The painted designs must have been added after the surface was already burnished because unlike the shining red surface, the dark paint is dull. Unlike the painted redware, examples with a purple wash usually, but not always, have simple decoration unlike the standard Mushki painted redware (Fukai, Horiuchi, and Matsutani 1973, pl. 22, for example). There are some varieties of the red wash/slip inside and buff slip outside. In these cases the painted patterns are most un-Mushki such as zigzags, cross-hatched, and triangles. In some cases, wide vertical areas with red wash separate simple geometric vertical panels painted on buff to light orange buff surfaces (Alizadeh, Zeidi, et al. 2004, fig. 6:C). In yet another variety, both the reserved buff and red wash areas have simple painted decoration (Alizadeh, Zeidi, et al. 2004, fig. 6:F). The painted buff ware is very similar in ware, surface treatment, and decoration to the painted buff ware of Jari B (Alizadeh, Zeidi, et al. 2004, fig. 6:G–H).

Sharply single- or double-carinated vessels with simple or everted lips and flat and concave bases are common. In such cases, the painted panel is applied to the upper part of the vessel. In a few examples, one or two pronounced ridges are molded below the lip. It is reported in the original publication that coiling was used to manufacture Mushki pottery. While this technique is evident on the examples of the coarse ware, we found no evidence of coiling in either the red painted or buff painted varieties at the site. Most probably the red-painted carinated vessels were made in two parts and joined together at the carination.

Based on the number of the Mushki sites in the Kur River Basin, the size of the settled population must have been very small. William Sumner (1977: 293) attributes eight sites to this phase, adding that almost all are located near large springs (Sumner 1994: 48). The recently excavated sites of Rahmatabad, near Pasargadae (Hasan Fazeli, pers. comm.) and Toll-e Bashi, in the Ramjerd area northwest of Persepolis (Abdi et al. 2003) are reported to have Mushki components.

The following Archaic Fars 2 phase (6100–5900 B.C.) is represented by the Jari painted ware, another early ware, also discovered and defined first by Vanden Berghe (1954: 400). Two types of plain wares and one prominent painted buff ware were found at Tall-e Jari B: (1) common coarse ware; (2) medium coarse ware; and (3) painted buff ware. The plain wares are much the same as those discovered at Tall-e Jari A and Tall-e Bakun B1. The painted fragments are very similar in color and surface treatment to the medium ware of Jari A. It is a chaff-tempered pottery with occasional small dark grits. The surface color ranges from light yellowish brown (10YR-6/4) to pink (7.5YR-7/4) and white (10YR-8/2). The paste usually consists of a layer of light gray sandwiched between two thinner layers of light brown or even pinkish buff. Often the thinner, upper walls of vessels have no gray core but change into gray towards the base. The surface layers are often cracked and in the lower levels at Tall-e Jari A and

Tall-e Mushki, the simple paint is very thin and almost fugitive. There is also a variety of painted styles with a thick brown horizontal band, but rarely with the white wash common of the standard painted ware (Alizadeh, Zeidi, et al. 2004, fig. 5:C–E).

The medium coarse pottery is a chaff-tempered, often chaff-face, warm buff ware. The walls are much thinner than those of the common ware; the surfaces are wet smoothed but uneven. Examples of this ware are often covered with a very pale brown or light yellowish brown (10YR-7/3–8/3) slip on both sides. Manufacturing technique is the same as the common ware, though fewer examples show basket impressions. Sometimes the slip is almost cream white. While the common ware primarily has a dark core, the medium ware is almost always completely oxidized. Our own 2004 observations showed that the color of the slip is almost exactly as that of the typical white slip/wash (10YR-8/2) and becomes increasingly more frequent by the end of the sequence. Rare examples of this ware are decorated with a simple solid band or a simple geometric register just below the lip (Alizadeh, Zeidi, et al. 2004, fig. 5:D). The medium plain ware also occurs at Tall-e Jari A and Tall-e Mushki.

Open bowls with carination become extremely rare in this phase, but some closed forms exhibit this feature (Hori and Maeda 1984, figs. 5:2, 6:7). Moreover, there is a class of painted pottery found at Tall-e Jari B that though in terms of manufacturing technique and shapes are similar to the typical Jari painted vessels, its bold motifs are structurally and compositionally very different from the typical Jari painted ceramics (for examples, see Hori and Maeda 1984, fig. 6:2–7). Wide shallow and bell-shaped bowls with flat or slightly concave bases are common, as are tall, cylindrical beakers with straight or slanting walls. Bowls with square, triangular, or even oval bases also occur but are rare. Also extremely rare are bowls with carination, similar to those typical of the Mushki painted redware. Open bowls with straight or slightly everted rims are common. Some examples of the decorated vessels combine painted linear patterns with incised lines, very much similar to the technique used on some Early Susiana vessels from lowland Susiana.[16]

There is a marked increase in the regional population. The Jari painted ware is reported by Sumner (1977) from fifty sites in the Kur River Basin. Unlike the Mushki mounds, Sumner reports that the Jari sites in the Kur River Basin are found in places where spring irrigation was not possible, which Sumner sees as the initial phase of irrigation agriculture (Sumner 1990: 97–99, 1994: 48). Two more sites, Kushk-e Hezar (Alden et al. 2004) and Toll-e Bashi (Abdi et al. 2003), with Jari painted pottery were recently excavated in the Kur River Basin.

The dominant Mushki and Jari wares are presumably contemporary with the Kutahi, Bizdan, and Jalyan wares. These three additional soft wares are represented by mounded sites (Sumner 1977), though none occur in the Marv Dasht area. From the site of Kutahi, near Shiraz, Paul Gotch (1968) reports a soft ware, almost identical to the Jari painted ware and very similar to the painted ceramics from Qaleh Rustam in the Shahr-e Kurd area (southwest of Esfahan; Nissen and Zagarell 1976). The characteristic decorative technique on some Jari open bowls that combined painted and scratched borderlines also occurs on this ware. Sumner (1977: 295) describes the Kutahi ware as follows: "The paste, surface treatment and forms of Kutahi ware are almost identical to those of the Jari ware. The painted patterns are distinctive and rather unusual in the way they are applied. The motifs are geometric and may be composed of black or red linear patterns …."

The Bizdan ware is also a straw-tempered, soft ware found only in central Fars (de Miroschedji 1973). Open bowls with simple lip and sharp carination, as in the Mushki ware, are the common forms. Predominantly maroon bold geometric designs decorate a sometimes slightly burnished buff-slipped exterior surface.

Among the five Neolithic soft wares found in Fars, the Jalyan ware has a finer paste and is less porous. The red-washed and slightly burnished surface of this ware is decorated with dark geometric patterns consisting primarily of zigzags and step patterns, very similar to the painted patterns found on the open bowls at Tall-e Mushki.

While little information is available from the presumably contemporary settlements represented by the Kutahi, Bizdan, and Jalyan wares, we know comparatively more about the internal structure of the two settlements represented by the Mushki and Jari wares. The final report on the excavations at Tall-e Jari A (689017 East/3304410 North, UTM 39 North) and Tall-e Jari B (689162 East/3304262 North, UTM 39 North), however, still awaits publication and the final report on the excavations at Tall-e Mushki is seriously inadequate, particularly in terms of faunal and floral analysis. Nevertheless, based on the available information one can say that the early inhabitants of the Marv Dasht region had a typical early Neolithic settlement. Pottery occurred from the beginning of the settlement, as did flint and obsidian blades. While the presence of obsidian points to some type of connection with points from

16. The earliest examples of this technique date to the Hassuna phase in northern Mesopotamia (Lloyd and Safar 1945, fig. 3).

the northwest, the presence of Persian Gulf shells (dentalium and cowrie) suggests contact with the southern region. The few copper objects and beads made of turquoise found at Tall-e Mushki suggest connection through exchange with points east and northeast. There is evidence of some type of unremarkable architecture from the beginning of the settlement at Mushki. The few thin walls that were excavated were made of both pisé and mudbricks. Frank Hole (1987: 54) suggests that such walls may have been constructed to serve as the base of thatched houses or tents. Hole's interpretation has real analogy among the mobile pastoralists of Luristan, where according to Freya Stark (1934: 31), some tribal members lived in tents year round. These tents were enclosed with low mud walls. Taking together the entire archaeological assemblage, Hole suggests that Mushki might have been a seasonal campsite, a view consistent with the analysis of the 2004 faunal remains from the site (see *Chapter 10*).

The architecture from the Archaic 2 Fars phase from Tall-e Jari A and B appears more solid (Egami, Masuda, and Gotoh 1977; Maeda 1986). The few published samples suggest small rectangular multi-room houses with open courtyards, hearths, and ovens (Maeda 1986). The material culture assemblage from Jari A and B is basically similar to that of Tall-e Mushki. Copper pins, Persian Gulf shells, flint and obsidian blades, spindle whorls, and some grinding stone tools constitute the main artifacts reported from the site.

As mentioned earlier, the Archaic 2 phase is represented by at least fifty-two sites in the Kur River Basin, while those of the earlier Mushki by only eight (Sumner 1994, table 1). This is a huge increase from the previous, but somewhat overlapping phase. If we extrapolate from Hole's suggestion (1987: 54), it is possible that the Archaic Fars 2 phase represented a sedentarization phase, though admittedly there is no evidence for this reconstruction. That the two archaic phases overlapped for some time (100–200 years?) is evident by the occurrence of both Jari and Mushki painted wares in the upper levels at Tall-e Mushki and the total lack of the Mushki ware at Tall-e Jari B. This chronological overlap is also indicated by the recently available radiocarbon dates (see *Appendix A*).

With the available information it is difficult, if not impossible, to establish relative and absolute chronologies for the other three Neolithic soft wares found in Fars. Considering the experimental nature of all these wares, it is perfectly possible, however, that they were contemporary and overlapping and that the Mushki ware is earlier than the rest. That all these early wares predate Middle Fars black-on-buff ceramics can be established, in addition to the available radiocarbon dates, by the evidence that (a) they share common features such as straw tempering, wash/slip, low firing, simple shapes, and painted geometric designs (see also Sumner 1977: 299); (b) none of these wares have been found in association with the Bakun black-on-buff painted pottery at the excavated sites in Fars; and finally (c) at Tall-e Bakun B and Tall-e Jari A, the typical coarse ware of Early Fars is stratigraphically above the Jari painted ware, and at Bakun B below the black-on-buff ware.

EARLY FARS PHASE

The radiocarbon dates (see *Appendix A*), stratigraphic observations, and an abrupt and complete break in the painted pottery tradition indicate a gap of several hundred years between the Archaic Fars 2 and Early Fars phases. This fourth phase of occupation in Fars (5400–5200 B.C.) is documented at Tall-e Bakun B and Tall-e Jari A and some other sites in the region (Vanden Berghe 1954: 395–96). According to the Japanese report, at Jari A some 40 cm of clayish deposit separates Level III with typical Jari painted pottery from Level II with the plain coarse pottery of Bakun B1 (Egami, Masuda, and Gotoh 1977: 2). In the 2004 excavations at Bakun B and Jari A similar deposits were found between the layers containing the plain coarse pottery and those with black-on-buff of the Middle Fars 1 phase. At Bakun B, the basal levels containing the coarse pottery of this phase are also separated by some 50 cm of greenish gray deposit from the following phase with ceramics that are clearly related to the Middle Susiana phase in southwestern Iran.[17] At present we do not know the causes of these two intervening natural deposits, but there is little doubt that we have two major breaks in the settlement history and cultural continuty in the region between Archaic Fars 2 and Early Fars phases on the one hand and between the latter and the Middle Fars 1 phase on the other.

The Bakun B1 ware was first reported from Tall-e Bakun B by Langsdorff (see *Chapter 4*) to be stratigraphically below the typical black-on-buff ware of the Bakun B2 phase. Our own 2004 excavations at the site confirmed this situation. The Early Fars phase is represented by a primitive pottery that is mold-made using collapsible baskets, the impression of which is clearly visible on many pieces discovered at Bakun B and Tall-e Jari A (Alizadeh, Zeidi, et al. 2004, fig. 4). This technique was often, but not always, combined with a layering technique where finer clay

17. For a detailed discussion on the particular shared painted elements, see Alizadeh 1992: 22–26.

layers were applied to both surfaces after the core became solid. The Bakun B1 common ware is soft, porous, and light in weight. It breaks with an uneven edge. Fragments made of this ware are heavily straw-tempered, straw face on both sides, and some show in the break an obvious layering technique in manufacture. The pieces of straw on the surface seem to be from at least five types of vegetation, based on the size and absence/presence of a certain number of stem grooves that are clearly visible on the surface. In a large number of fragments where the inner thin layer is damaged, clear impressions of basket are visible. This indicates that vessels were first shaped using a basket and both the interior and exterior surfaces were then coated by thinner layers, usually 2–3 mm and wet smoothed. Nevertheless, in some cases no attempt was made to cover the basket impression.

The core varies in color from completely oxidized buff, a combination of buff and gray layers, to a layer of gray sandwiched between two layers of buff; sometimes the gray core grades into buff or vice versa. The surfaces are predominantly buff with varying shades, but brick red and pink also occur. On larger sherds, the surface appears mottled either dark or reddish. The surface color ranges from pinkish gray (5YR-7/2–6/2) to very pale brown (10YR-7/3), pale brown (10YR-6/3), and reddish brown (5YR-6/4–5/4). As mentioned above, at Tall-e Bakun B the deposit that yielded this ware consisted primarily of thick layers of ash and a few hearths, but no solid architecture.

As mentioned earlier, at Tall-e Jari A this plain ware is reported to appear abruptly to replace Jari's decorated ware after a temporal gap of perhaps 200 years. Thus the Early Fars phase can not be considered as a transitional phase between the early and late traditions of painted wares in Fars. Nevertheless, even though this plain ware is in contrast to the previous tradition of at least five classes of early painted wares, the settlement pattern of the Archaic 2 phase seems to have continued into this phase as well (Sumner 1994: 49), but the number of sites increased from 53 to 102 (Sumner 1994, table 1). Sumner (1994: 52) argues that irrigation agriculture was established during this phase. But little is known of the internal structure of any one settlement.

MIDDLE FARS PHASE

The following Middle Fars period consists of two phases, Middle Fars 1/Bakun B2 (5200–4800 B.C.) and Middle Fars 2/Gap (ca. 4800–4500 B.C.). This period is characterized by a change in subsistence economy (see *Chapters 10–11*) and completely different classes of pottery, though the plain coarse ware of the preceding Early Fars phase continued in a slightly modified technology. The new pottery closely parallels the fabric, shapes, and painted decorative designs of the Middle Susiana phase in Khuzestan. The close similarities between the two potteries, the fact that Bakun B2 ceramics have no antecedent in the earlier cultural phases in Fars, and an apparent increase from the previous phase in the number of sites suggest that the new pottery appeared in Fars through the migration of new people and/or specialized potters. It must be noted that no other archaeological data support this suggestion, for there is no evidence of depopulation during the Middle Susiana phase in lowland Susiana; on the contrary, there was a steady increase in the population of Susiana up to the end of the prehistoric sequence. One possible explanation for the appearance of the Susiana-related ceramics in Fars may be based on a presumed sedentarization of the Zagros region mobile pastoralist groups.

There is another problem associated with the presumed increase in the settled population of Fars during the Middle Fars phase. The 156 sites assigned by Sumner (1994, table 1) to this phase can be broken down into three distinctive phases representing the settlements at Tall-e Bakun B2, Tall-e Gap, and Tall-e Bakun A. Sumner (1994, table 3) in fact considers his main Bakun phase as representing two stages: Middle Bakun and Late Bakun; the phase represented by the materials from Tall-e Gap (pl. 9:A) is not considered by Sumner as a separate phase. Even though, the breakdown of this long period into two stages shows that despite the increase of the settled population from the previous Early Fars phase, there may have been a decrease in the settled population during the classic Late Fars phase, more or less contemporary with the Late Susiana 2 phase in Susiana.

As mentioned above, the two ceramic phases (Middle Fars 1 and 2 phases) are represented by the black-on-buff potteries from Tall-e Bakun B and Tall-e Gap, respectively. The black-on-buff pottery of Middle Fars 1 has no known antecedent in Fars and most probably was introduced into Fars from lowland Susiana. In accordance with our assumption that the prehistoric development in Fars was influenced by the mobile pastoralist society of the region, Middle Fars may be considered a period of increasing contacts between various alluvial plains and the mountains northwest and west of Fars as the regional population increased. In fact, a comparative analysis of the pottery assemblages of Tall-e Gap and the contemporary Susiana, Behbahan/Ramhormuz, and the central Zagros area reveals a number of shared motifs in these regions that did not exist previously (Alizadeh 1992).

Save for a few general isolated motifs that are shared between the Gap and Bakun B2 ceramics, the bulk of the pottery from Tall-e Gap (687646 East/3302687 North, UTM 39 North) is comparable to that of the initial phase of Tall-e Bakun A settlement and even more closely with the pottery assemblage of Late Susiana 1 (see Alizadeh 1992, 2003a for references). The few painted motifs and shapes that are shared between Gap and Bakun A do not provide strong antecedents for the classic Bakun A pottery, and therefore the possibility of a hiatus between the two phases exists, though it may not be substantial. Nor does any known site of the Middle Fars period anticipate the type of socioeconomic complexity that developed during the following Late Fars phase, though button seals and clay tokens are found at Tall-e Gap.[18]

Middle Fars was a period of increasing interregional contact between lowland Susiana and highland Fars, as indicated by the similarities in ceramic shapes, painted motifs and compositions and the appearance of copper and turquoise in Susiana during the late Middle Susiana phase.[19] The large isolated cemeteries of Hakalān and Parchineh,[20] in the Zagros Mountains, appeared in the beginning of the fifth millennium B.C., contemporary with the Middle Fars period. These cemeteries were not associated with any settlements and are located in areas unsuitable for grain agriculture, suggesting their use by prehistoric mobile pastoralists. Similar cemeteries of later historical periods in this region reinforce this attribution (Vanden Berghe 1973a–b).

LATE FARS PHASE

This period (4500–4100 B.C.), known as Bakun A, is the main subject of this study. The Late Fars period, as known by the archaeological materials from Tall-e Bakun A, is a remarkable jump from the apparent much simpler preceding societies in the Marv Dasht area. There is little in the material culture of the preceding cultural phases that anticipates the remarkable socioeconomic complexity that Bakun A represents.

Slight regional differences notwithstanding, a vast region in southern Iran was culturally unified during this phase. Late Fars was also a period of artistic experimentation and the long tradition of painting pottery reaches its zenith with the appearance of the classic Bakun A ceramics, with stylistic links to the ceramics of Susiana and the southern and central Zagros regions.

Late Fars is represented by the type-site of Tall-e Bakun A. The majority of the settlements dating to this phase were founded on new sites, but the sites' distribution patterns apparently remain unchanged from the previous phase. Moreover, the intermontane valleys northwest of the Marv Dasht Plain, which previously had been devoid of any settlement sites, became sparsely occupied. Almost all these newly founded sites are small and located in the strategic intermontane valleys of the Kur River Basin (for details, see *Chapter 4*).

Tall-e Bakun A contains features that in the following period are associated with state organizations. Whether or not Bakun A was the only seat of the regional elite can not be determined with any degree of certainty. We believe systematic excavations at some of the Late Fars settlements, such as Tall-e Vakilabad and Tall-e Rigi (M. A. Stein 1936), may yield similar evidence of the socioeconomic complexity present at Bakun A.

The late prehistoric period in Fars as represented by the archaeological materials from Tall-e Gap and Tall-e Bakun A is discussed in detail in the following chapters. The primary archaeological material analyzed here comes from the published 1932 (OIP 59) and unpublished 1937 seasons of excavations at Bakun A. Other archaeological materials used in the following chapters include the results of several surface surveys and excavations.[21]

PROTO-BANESH (LAPUI) PHASE (CA. 4000–3700 B.C.)

The end of the Late Fars period is marked by the disappearance of the classic Bakun A ceramics and the dominance of a specific redware known as Lapui, named after the type-site (Sumner 1972). Since this redware may have co-existed with the latest phase at Bakun A, as well as with the following Early Banesh potteries, I see a situation that mirrors the disappearance of the Archaic Fars painted ware and its replacement by the soft, plain coarse redware of Early Fars. Although it is beyond the scope of this study, I would like to propose the term "Proto-Banesh" for the

18. On the basis of stylistic grounds, the Bakun B2 painted pottery is subdivided into two phases: B2a and B2b by Dittmann (1984 and its review, Alizadeh 1987). Although it is possible that Bakun B2 went through two phases, in the absence of stratigraphic data and with so little information and very few actual sherds, such division is unwarranted.

19. For a detailed comparative study, see Alizadeh 1992 and forthcoming.

20. Vanden Berghe 1970, 1973a–b, 1987; Haerinck and Overlaet 1996.

21. Excavations and surveys that were conducted specifically to address periods later than fourth millennium B.C. are excluded from this section.

period when the Lapui redware was the sole pottery during the first half of the fourth-millennium B.C. Fars. Strictly speaking this phase belongs to the early Bronze Age and as such is not emphasized here. Nevertheless, some relevant data are offered in part 1 of *Chapter 4*.

SUBSISTENCE ECONOMY

One of the most important objectives in the 2004 expedition to Fars was to gather data on the type and evolution of subsistence economy in the prehistoric phases. The faunal and floral assemblages from the five sites of Tall-e Mushki, Tall-e Jari A and B, and Tall-e Bakun A and B were by no means large or diverse enough to allow a definitive reconstruction of the types of plants and animals that were exploited by prehistoric inhabitants of the Marv Dasht Plain. Nevertheless, the available materials that were analyzed by Marjan Mashkour and Naomi Miller (see *Chapters 10–11*) fill a crucial gap in the analysis of prehistoric Fars.

In the Archaic Fars 1 phase, there is a conspicuous absence of domestic sheep and very low presence of domestic goats at Tall-e Mushki. In contrast, the majority of the Mushki bone assemblage belongs to wild species of bovine and equids. In the following phases, the number of wild, hunted species decrease; in contrast, the number of domestic sheep and goat rises dramatically in the late prehistoric phase at Tall-e Bakun A. While this admittedly limited assemblage indicates a gradual change from hunting to herding by the time Bakun A is established, much more data are required to draw a more detailed picture of animal exploitation in the region (see *Chapter 10* for detailed analysis).

Unlike southwestern Iran where domestic cereals are attested from the beginning of occupation in lowland Susiana and Deh Luran, even from the aceramic phases, only barley is attested throughout the prehistoric sequence in the Marv Dasht Plain (see *Chapter 11* for details). In the later phases at Tall-e Jari A, Tall-e Bakun B, and Tall-e Bakun A, there is evidence of other cereals such as emmer wheat, einkorn wheat, and bread wheat as well as peas. But wild species of plants are well represented in the collection. Miller (*Chapter 11*) believes that almost all the wild species represent open ground genera and are very suitable as fodder.

The floral analysis indicates that just as today, the Marv Dasht Plain was primarily an open terrain with scattered trees. In addition, the evidence suggests a rather arid condition and suitable for agropastoral economy rather than for farming. While the existing data do not establish the prevailing climatic condition in the prehistoric Marv Dasht Plain, they do provide some additional support for our hypothesis that subsistence economy in the region may have been primarily based on pastoralism rather than farming for most of its history until the Sasanian period.

CHAPTER 2

METHODOLOGY AND THEORETICAL CONSIDERATIONS

INTRODUCTION

Any attempt to study the development of civilization and to address the origins of early states and complex societies has, of course, to be conducted in a socio-cultural evolutionary framework if a deeper understanding of the myriad of processes involved is to be achieved. The study of the socioeconomic and political development of the early states of the late fourth millennium B.C. therefore has to be based on a foundation of knowledge about the economic and political organization of the pre-state societies of the fifth and early fourth millennia B.C. Thus, the analysis of the precursors of the later urban societies in highland Fars and southwestern Iran is of utmost importance. In this respect, I believe the role of ancient mobile pastoralist communities of highland Iran in the processes that led to the formation of early state organizations may be crucial for understanding the development of Tall-e Bakun A and similar sites as regional centers without the large sedentary farming population that was characteristic of lowland regional centers.

Southwestern Iran and highland Fars are regions with a high degree of environmental diversity, not only in natural resources, but also in ethnic and economic senses. As such, a promising model in the study of social complexity in the region may include the adaptationist approach. The adaptationist model proposes that in such environments population increase may lead to specialization in production strategies that would in turn lead to economic interdependence (for examples, see Sanders 1956; Service 1975). This resulting interdependence, then, may lead to regional integration as conflict of interest increases, providing a context in which local leaders would be forced to regulate regional and interregional conflicts.

This model combined with Timothy Earle's (1998) political approach has guided me in the interpretation of the data throughout this study. Earle (1998: 171) argues that "specialists are attached to elite patrons or governing institutions for whom they produce special products or provide special services; attached specialists exist because of gains in *control* that they provide to the ruling segments of society." The myriad of specialists at Tall-e Bakun A included potters, metallurgists, sculptors, clothmakers, builders, stone cutters, "bureaucrats" in charge of the mnemonic system of notation and administrative technology, guards, and possibly traders and messengers. While a combination of two or even more of these activities would have been performed by a single individual (such as guarding and sealing objects or trading/carrying messages), the evidence of specialized activities at the settlement is strong.

CONTEXTUAL ANALYSIS

The methodology adopted in this study is derived from theoretical considerations and is limited by the available archaeological data, particularly from Tall-e Bakun A. The basic methodology that is employed here to reconstruct the society at Bakun A involves a reconstruction of the internal organization of the settlement. The role that the site played in the crucial period that led to the formation of state organizations in Iran is understood by determining and isolating the types of activities performed at the site by its residents. This is primarily done by contextual analysis of the various architectural units in terms of their spatial relationships, their relative size, and the type of activities carried out in these architectural units. The analysis of different contexts at the settlement is then used to isolate different types of activities and to determine the degree to which specialization is differentiated spatially.

The presence of an elite class in control of the production and distribution of goods is primarily determined by the presence of seals and sealings, as well as the spatial distribution of certain classes of painted pottery, copper objects, and semi-precious stones. The reconstruction of the administrative practice evidenced at Tall-e Bakun A (see *Chapter 8*) is based on the analysis of the various types of sealings (door sealings, bag/bale sealings, jar sealings, and so on) and the spatial distribution of certain seal designs and clay tokens.

Moreover, to have an understanding of the evolution, and the fate of the settlement, the architectural units and material culture reported from the four major stratigraphic levels at Tall-e Bakun A (Levels I–IV in 1932 and 1–4a

in 1937) are compared. While the stratigraphy of the northern quarters (designated here as administrative/residential quarters) as reconstructed by Langsdorff and McCown (OIP 59) is clear, it was not always certain how the various levels exposed in the central and southern parts of the mound (designated here as production quarters) relate to one another stratigraphically. There are two main reasons for this uncertainty. First, a large unexcavated area separates the architectural levels of the administrative quarters from the production quarters and thus there is no evidence of physical contiguity. Therefore, the alignment and axis of the preserved walls and absolute levels of the floors were the main guide in linking the architecture of the two areas. The stratigraphic position of different styles of pottery decoration and specific motifs have also been used to link several unconnected building levels.

In the original publication, McCown (OIP 59: 24–53) attributed some forms and painted designs to specific levels. For example, the typical conical bowls with animal or human motifs, and rarely a combination of both, are reported to be almost exclusively limited to Level III, the main architectural phase at Tall-e Bakun A (figs. 26–27). This type of form and design is indeed rare in the preceding and following architectural phases, but it can not be used as an internal chronological indicator because, as I argue in the following chapters, this and a few other forms and painted motifs seem to have had symbolic significance because they are primarily associated with the administrative quarters and, by extension, with the resident elites. The pottery assemblage that was collected from the 1937 season shows that McCown's observations may be a reflection of the function and nature of the various buildings and not necessarily an indication of change in pottery through time.

Nevertheless, the highly elaborate Bakun A painted pottery reaches its zenith in Level III/3. This is the same level that contained a series of warehouses, a single monumental building with painted walls, elements of administrative technology, and copper artifacts and objects made of semi-precious stones. We have used spatial analysis of sealings, counting clay tokens of various shapes, and a certain class of painted pottery to show that these three particular classes of objects have specific distribution in the architectural units of the administrative quarters. This combined evidence, following Henry Wright (1977a, 1984) and Susan Pollock (1983, 1989), may be interpreted it as a reflection of the socioeconomic processes that reinforced asymmetries of status and power in late prehistoric Fars. Pollock (1989) argues that the contemporary Susa A pottery was designed and produced specifically for the elite members of the society. Using the same evidence, Hole (1983) argues that these symbolic messages may not necessarily indicate the degree of centralization proposed by Wright and Pollock. Hole proposes instead that such symbolic messages may represent the importance of religious institutions of late prehistoric Susiana based at Susa. Differences of opinions and interpretations notwithstanding, these authors agree on the socially symbolic significance of the pottery and objects found in the Susa A cemetery.

Most of our inferences concerning socioeconomic complexity at Tall-e Bakun A are primarily based on our interpretation of the door sealings. The door sealings that have been found in the "administrative quarters" are of utmost importance in the characterization of the Bakun A society. While clay sealings of movable objects (bags, bales, boxes, etc.) appeared much earlier during the Halaf period in northern Mesopotamia[22] and even earlier in Syria,[23] door sealings seem to have appeared in the Near East for the first time at Bakun A. While Susa A may have produced door sealings,[24] they became common in lowland Susiana and southern Mesopotamia at the dawn of civilization during the later Uruk period and continued to be a prominent administrative feature in the historical periods (see *Chapter 8* for details).

Simple features of administrative technology (namely stamp seals used on jar sealings, bale sealings, and so on) were common at a number of late prehistoric and proto-historic Near Eastern sites. But an administrative technology that includes door sealings must by far be more complex and structurally different than those without them (see *Chapter 8*). Here, we take the evidence of door sealings at Tall-e Bakun A as representing a transitional stage in which social organizations based on kinship evolves into more permanent, impersonal social forms, laying the foundation for later state organizations. Anthony Wallace (1971) places a great importance in the permanency of administrative forms in state-level societies that distinguish them from simpler ones, where such forms are thought to be transient. In societies with state organizations, specialization in administration is considered a major characteristic (Johnson 1973; Wright 1977b).

22. Mallowan and Rose 1935: 98–99, pl. 9.

23. See Akkermans and Duistermaat 1997, where about 300 sealings (but no door sealings) from Tell Sabi Abyad are attributed to nomadic component of the pre- and early Halafian society.

24. See Amiet 1972, pl. 50:226, 228, for possible examples.

THEORETICAL IMPLICATIONS OF ADMINISTRATIVE TECHNOLOGY

As I argue in *Chapter 8*, door sealings may be taken as the earliest tangible evidence of the evolutionary transition from a tribal to a civilized society in the sense Marshall Sahlins (1968) defines the terms. There is good evidence to believe that at Tall-e Bakun A the residential, production, and administrative sectors were physically separated, a major criterion on the way to the formation of state organizations (Wright 1984: 43–44). According to Sahlins (1968: 5), "The state differentiates civilization from tribal society. The development of state was nothing less than a transformation in quality of the social system." In other words, control of social norms and monopoly of economic and political power is at the core of state formation processes. The evidence of door sealings at Bakun A is but one single discrete step in that direction, a flash of the transitional steps in the direction of control and centralization, a link in the complex chain of social evolution, and a transitional "fossil" in a sea of changes. Sahlins (1968: 15) notes: "For in tribes, production, polity, and piety are not as yet separately organized, and society not as yet a holy alliance of market, state and church … The tribal structure is generalized … It lacks an independent economic sector or a separate religious organization, let alone a social political mechanism."

Exchange in raw materials and humans (through marriage) is common enough in tribal societies. While it is impossible to detect human exchange archaeologically, material exchange is documented in many prehistoric tribal societies in the Near East. To appreciate the importance of the administrative technology, we must have an understanding of exchange in tribal societies. "Exchange in tribal societies," Sahlins (1968: 9) observes, "generally proceeds under certain constraints. Competition and gain are often excluded, either in the attempt to make friendly relations or at least to avoid unfriendly ones." What we see in the evidence of administrative technology, particularly the door sealings, is an attempt to exercise control of production, the flow of goods, and to check malbehavior of those involved in the transaction. In characterizing a tribal society, Sahlins (1967: 96) observes that: "A primary segment is a face-to-face organization of kinsmen; good order here is largely achieved through kinship etiquette with its personal sanctions of ridicule, gossip, and ostracism." The evidence of administrative technology at Tall-e Bakun A that indicates an attempt to regulate and/or limit access to resources is assumed here to represent a transitional phase from the typical face-to-face social and economic behavior characteristic of tribal groups to a more complex form of society. Irene Winter (1991: 91–92) argues that "the shift to complex administrative organization, accompanied by the need for documentation on a large scale, is also generally associated with a corresponding diminution of importance given to 'face-to-face' encounters."

An evolution of social organizations based on kinship into more permanent, impersonal social forms is thought to have occurred with the advent of urban centers and early state organizations (Wallace 1971). Again, here at Tall-e Bakun A we possess some clues for a social evolutionary transition from tribal to more permanent impersonal forms of institution prior to the crystalization of state organizations in south and southwestern Iran. Assuming that we are not reading too much into the evidence of door sealings in the late prehistoric society at Bakun A, any attempt in the direction of control through door sealings would have been meaningless without a type of political power to sanction punishment. Since the invention of door sealings creates the possibility of breach, we therefore assume the presence of a mechanism to discourage this undesirable behavior through social sanction as Morton Fried (1967: 10–14) defines it. This type of sanction need not be related to the political power that states can muster. In the absence of state organizations, tribal chiefs can mete out severe punishment. Numerous ethnographic and historical accounts relate the authorities of tribal chiefs, particularly the landed ones, over their clients even in matters of life and death in the period before the land reform in the late 1950s and early 1960s in Iran.

Thus, we consider the evidence of door sealings as indicative of a change in social structure that we can barely see archaeologically, i.e., a separation of kinship from economic and political considerations. Moreover, the internally specialized nature of the settlement at Tall-e Bakun A and the system of control exercised by some to limit access to certain parts of the community is taken as indicative of the presence of at least two class-endogamous strata, even though the Bakun A society can by no stretch of imagination be considered a state. Nevertheless, considering that societies, unlike the heuristic evolutionary steps (band, tribe, chiefdom, state) took a number of shapes prior to the point of reaching the state-level organization, it is not unwarranted to assume that what we have at Bakun A is the material evidence of a type of society that provided a regional matrix within which state organizations matured some 500–600 years later at the site of Tall-e Malyan (ancient Anshan) some 50 km west of Bakun A.[25]

25. For a comprehensive treatment and criticism of these evolutionary stages and clarification, compare Crumley 1987, 1995, and Mann 1986 with Flannery 1995 and Marcus and Feinman 1998: 4–6.

TALL-E BAKUN A IN ITS REGIONAL CONTEXT

The question of scale, size, and organization of a settlement system is considered to be of great importance in the analysis of complex societies.[26] The issue of the size and centralization of the Tall-e Bakun A society, however, can only be partially examined in this study because the available regional data are inadequate. I am well aware that the study of the settlement at Tall-e Bakun A will have to be extended beyond the single site to the larger landscape within which the members of Bakun A interacted. But only one other Bakun A site (Tall-e Nokhodi, near Pasargadae) has been excavated systematically and reported in two short preliminary articles (Goff 1963, 1964). The data from Tall-e Nokhodi indicate major differences between the two sites, however.

As we see in *Chapters 4–7*, even though there is evidence of a substantial differentiation within the site, in terms of size Tall-e Bakun A does not stand out as a regional center — it is only slightly over 2 ha. Although the site with its small size and low population can hardly be considered a town, even by prehistoric standards, one could not ignore the other characteristics that it shares with the large late fourth-millennium B.C. urban centers of the ancient Near East. Based on the analysis offered in the following chapters, I believe that the settlement at Bakun A was a central place and was controlled by "central individuals" in the sense that Colin Renfrew (1996, 1984: 86–131) describes them as a component of his "early state modules."

The evidence of Tall-e Bakun A is a good example for not adhering in highland Iran[27] too much to the postulate based on information theory, because clearly the two-tiered Bakun A settlement hierarchy does not correspond to the internal organization of the site. The evolutionary development from two- to three- to four-tiered settlement hierarchy is hypothesized to represent increasing centralization from tribal to chiefdom to state societies. This major insight is primarily based on data from lowland Susiana and southern Mesopotamia, two prime agricultural regions (Johnson 1973; Wright and Johnson 1975). In the case of Fars during the Late Fars phase, I argue that the lack of regional hierarchy may possibly be due to the proposed pastoral economy and demography of the region.

Another set of data pertinent to my characterization of the Tall-e Bakun A society comes from a series of surface surveys I conducted in 1995 in the Kur River Basin. In Robert Carneiro's model (1978), the conformity between cultural and economic boundaries and those of the political is expected.[28] Even though we are not dealing with a state society in late prehistoric Fars, we can not ignore the geographic correspondence of the Bakun A pottery to the region mainly occupied by Fars' mobile pastoralist tribes of the Qashqaii in the first half of the twentieth century. The typical Bakun A pottery covers a large area measuring some 500 × 100 km, making it spatially the most extensive late prehistoric material culture in southern and southwestern Iran. Whether the Bakun A pottery attained its wide geographic distribution through cultural emulation by the regional population or through economic factors can not be known without further scientific analysis of a large representative sample of sherds from the surveyed sites. For heuristic purposes, I assume that in late prehistoric Fars, sites with Bakun A pottery were part of a cultural sphere centered in the Marv Dasht region and that the sites with the typical Bakun A pottery represent at least horizontally linked segments of the society. The evidence at the center, however, points to the existence of perhaps vertical decision-making levels, an assumption that is admittedly biased by the richness of materials discovered at Bakun A and a lack of comparative evidence.

The late prehistoric period in western, southwestern, and southern Iran is marked by widespread styles of decorated ceramics of the Central Plateau, lowland Susiana, and highland Fars. The fifth and early fourth millennia B.C. mark an unprecedented period of interregional contact between southwestern, south-central, and the Central Plateau. Drawing on D. Friedman's observations (1977) that agriculturally based societies are much less extensive than those relying on trade, it seems that the vast geographical region in south-central and southwestern Iran that is marked by the presence of the Bakun A style pottery may be attributed to the assumed dominant mobile pastoralist mode of production and, by extension, to the exchange system in the region in both raw materials and pastoral products (Alizadeh 2003c). In the course of the 1995 regional surveys, I noticed that the sites with the typical Bakun A pottery were small (usually 1 ha or less, though somewhat larger 2 ha sites also existed) and with virtually no seals or sealings on the surface. Nevertheless, the presence of a few button seals at some small sites outside the Marv Dasht Plain proper, as well as a few copper objects from Tall-e Nokhodi, may be taken as the existence of a lower level of administration and production during the Late Fars phase.

26. Binford 1977; Feinman 2000; Raab and Goodyear 1984; Willey and Sabloff 1980.

27. Flannery 1972; Johnson 1972; Wright 1977a–b; Wright and Johnson 1975.

28. For an evaluation of this model, see Feinman 2000: 99–101; Blanton and Feinman 1984; Marcus 1983; Yoffee 1991.

It is not difficult to argue that the settlement at Tall-e Bakun A does not represent a state society. Nevertheless, for heuristic purposes, we need to determine the evolutionary stage of the settlement. While the internal structure and archaeological materials of the settlement at Bakun A point to a chiefdom society, the regional settlement pattern and site hierarchy do not. We attribute this incongruity to the assumed dominant mobile pastoralist structure of the society in late prehistoric Fars.

In distinguishing between tribes and chiefdoms, Sahlins (1967: 97) observes that "The latter [chiefdoms], unlike the former [tribes] witness development of permanent political structure and socialization of the economic process over a wide area, embracing different local segments. The several segments of a chiefdom are not separate, equal, and autonomous. Rather, they are ranked relative to each other — and usually also internally ranked — and their leaders, true chiefs, hold offices accordingly in an extensive polity. In the more developed chiefdoms (many Polynesian societies, for example), this political structure becomes coterminous with social and cultural boundaries." As I argue in the following chapter, I have taken the geographic area in southern and southwestern Iran with the distinct Bakun A style of pottery as the cultural boundary of the Bakun A society. This, however, does not mean that I have much understanding of the size of the system or the size of the population involved in it. Moreover, such vast cultural and perhaps economic boundaries do not necessarily correspond with the actual political boundaries of a polity.[29] Further, I am aware that segmentary lineage systems, such as Tiv-Nuer system (Evans-Pritchard 1940; Bohannan and Bohannan 1953) can develop mechanisms to expand their population base. What distinguishes the Bakun A transitional society from any other prehistoric tribal society is the presence of an administration in the former. In fact, Leslie White (1959: 143) defines segmentary tribal society as one in which "one part is like another in structure, or composition, and function." None of the excavated Bakun A sites in Fars are similar to Tall-e Bakun A with its specific production, administrative, and residential quarters. Button seals with geometric designs have been reported from some contemporary sites outside of the Marv Dasht region (M. A. Stein 1936, pl. 30:24–36), but in the absence of clay sealings, they may well have been used as pendants.[30] Nevertheless, we believe that future excavations at these sites may reveal evidence of a hierarchical administrative network and thus as components of a regional network of administration and production.

Another problem associated with the analysis of the Tall-e Bakun A society is the size of its settled population. Until we establish a set of archaeological characteristics in surface surveys that would enable us to distinguish semi-permanent villages — usually with large open spaces between buildings, much as the central and southern parts of Tall-e Bakun A (pl. 8) — from permanent farming villages, a clearly practical impossibility, we may have to consider the usually undetectable regional mobile pastoralist population as an essential variable. A region's mobile pastoralist community, though archaeologically difficult to detect, must have some material manifestations as well as spatial patterns of landscape use that can be inferred archaeologically. Ethnographic and historical accounts make it clear that mobile pastoralism is fluid and highly adaptive, switching temporarily or permanently to a settled way of life, and vice versa, because of political, economic, and environmental variables. This aspect of mobile pastoralism can still be seen in Fars even though this ancient way of life is rapidly disappearing. In addition, in the past most of mobile pastoralist major tribal leaders and paramount chiefs lived in large cities, provincial towns, or in fortified mudbrick castles on a natural hill or on top of ancient mounds.[31] Thus a mounded site, particularly in regions with known pastoral populations, and with suitable geographic and environmental features should not necessarily be considered a farming settlement.

In a much wider perspective, the degree of the cultural unification in prehistoric Fars may have been part of an adaptive response to similar processes in the contemporary Central Plateau and lowland Susiana. The lack of a large central place during the Late Fars phase is thus attributed to the ethnographically known cultural mechanism among the mobile pastoralists designed to prevent (or at least to discourage manifest exhibition of) accumulation of power and wealth in the hands of specific groups or individuals (see *Chapter 3*).[32]

I envisage that the two-tiered settlement hierarchy documented for the Late Fars phase may also be due to the structure of mobile pastoralist communities where most decisions are made locally by both ranking and non-ranked

29. See, for examples, Blanton and Feinman 1984; Feinman 2000: 101.

30. One button seal comes from Tall-e Nokhodi (Goff 1963, fig. 7:5) and one made of stone from Deh Bid (Goff 1963, fig. 7:4). M. A. Stein reports a few others (1936, pl. 30:24–30) from sites in the Darab and Jahrum regions south and southeast of the Marv Dasht Plain.

31. Hole (1987: 41) considers some Susiana late fifth-millennium B.C. mounds crowned by a single large building and platform to be traces of nomadic occupation and analogous to the modern-day tribal chief residences.

32. See Flannery 1999a for major characteristics of tribal chiefs in the Near East.

members of smaller tribal segments; this form of political and economic decision-making is referred to by Gregory Johnson (1983) as "sequential hierarchy." In an analysis of the process of decision-making among pastoral nomads, Johnson (1983; cf. Tapper 1979b) argues for a range of variation in camp size that is primarily constrained by limitations imposed on the ability of tribesmen and small groups to monitor and process information in a decision-making context. Johnson (1983: 196) concludes, among other things, that scalar stress on social organization can lead to: (a) expansion of basal unit size, (b) development/increase of complexity of hierarchical organization, and (c) group fission. The emergence of a hierarchical structure in the late prehistoric communities of the highlands may be attributed to what Johnson calls a system response to stress points in organizational growth. Stress points in late prehistoric western and southwestern Iran may include population increase in both mobile and sedentary segments of the society, loss of pasture to agriculture land, the resulting increase in social and economic interaction, and increase in processing information on the basal level of camp size.

MOBILE PASTORALISM IN LATE PREHISTORY

THE ZAGROS MOUNTAINS

The earliest convincing evidence of the presence of and socioeconomic differentiation among mobile pastoralists in prehistoric Iran is found in the isolated cemeteries of Hakalān and Parchineh in Luristan, the oldest nomadic cemeteries in Iran, and in fact in the entire ancient Near East.[33] Vanden Berghe (1973a–b, 1975)[34] excavated both cemeteries from 1971 to 1973. The cemeteries are located along the Meimeh River in the Pusht-e Kuh region of Luristan in the southwestern piedmont of the Zagros Mountains. The sites are considered nomadic cemeteries because they are not associated with any known settlements; they are similar in location and tomb construction to the later nomadic Bronze and Iron Age tombs in the same region; and finally because the region is unsuitable for grain agriculture and almost devoid of permanent ancient as well as modern-day villages with agriculture as subsistence base.

In both cemeteries, pottery vessels (some 200) were the most abundant funerary objects. Pottery vessels from both cemeteries show strong affinities with the pottery of the Ubaid 3 and 4 phases in Mesopotamia as well as the ceramics of the fifth millennium B.C. in Fars and lowland Susiana. Thus, the various specific regional styles they exhibit, representing Mesopotamia, lowland Susiana, and highland Iran is one of the most interesting characteristics of the cemeteries' artifacts.

Among the most prominent classes of pottery found in these cemeteries are those decorated with the "dot motif," a prominent style dated to the Late Susiana 1 in lowland Susiana, and the Farrukh and Bayat phases in Deh Luran. In Fars this style developed during the Middle Fars 1 (Bakun B2) and continued into the Late Fars (Bakun A) phase. Elsewhere (Alizadeh 1992; see also OIP 101) I have attributed the emergence and the vast geographic distribution of this pottery to the crystallization of the highland mobile pastoralist communities.[35] Based on a general comparison to the ceramics of the Early Middle Chalcolithic in central Zagros region (Henrickson 1985), E. Haerinck and B. Overlaet (1996: 27) date the cemeteries in Area A at Parchineh to 4600–4200 B.C., contemporary with the Late Fars phase.

Below, I discuss the evidence of pottery production by communities with high residential mobility. It suffices to note here that the varying richness of the funerary gifts deposited in the tombs suggests differential status among those who were buried in the cemeteries. At this level of social evolution, and with their inherent military superiority over the settled farming communities by virtue of their mobility, I believe that the fifth-millennium B.C. mobile pastoralist communities were in a position to affect the process of social evolution in southern Iran, as the archaeological evidence suggests.

33. See also Zagarell 1982 where he identifies a number of prehistoric temporary campsites in the Bakhtiyari region of the Zagros Mountains.

34. The final report was superbly published posthumously by Haerinck and Overlaet (1996).

35. See also Alizadeh 2003c.

LOWLAND SUSIANA

In the fall of 2002 we conducted a series of excavations and geoarchaeological surveys in eastern sector of lowland Susiana in a joint ICHTO-Oriental Institute project.[36] We chose KS-1626 (Dar Khazineh), located some 30 kilometers southeast of the provincial town of Shushtar, because it dated to the Late Susiana 1 and 2 phases. In this part of the Susiana plain, both prehistoric and historical sites are buried under some two meters of alluvial deposits, a feature that G. Lees and N. Falcon (1952) had already noticed. Nicholas Kouchoukos, Tony Wilkinson, and Andrew Bauer of the geoarchaeological team concluded that the construction of the huge irrigation canal (now the Gargar River/Canal) during the Parthian/Sasanian period was responsible for this situation in this region. As a result, the archaeological sites in this region are only visible in the exposed sections of the wadis (Alizadeh, Kouchoukos, et al. 2004). Our excavations at KS-1626 revealed that this particular area in lowland Susiana was subject to regular seasonal flooding from at least 4500 B.C.; the downcutting of the terrain started much later, however (Alizadeh, Kouchoukos, et al. 2004).

The wadi at Dar Khazineh had sliced the mound in such a way that an extensive section was exposed on its western part. This provided ready and vast vertical sections to study the stratigraphy of the site and collect archaeological, botanical, and faunal samples without having to excavate it for several seasons. From the exposed sections, we could see that under the 2 m alluvium, the cultural layers continued down to the bed of the wadi. When we eventually cleared the sections to the bed of the wadi we realized that the depth of the mound ranged only from 30 cm to about 180 cm and that in some parts of the site there were no cultural deposits at all.

Excavations in our main trench revealed a peculiar depositional pattern not seen before in the region. Clayish and sandy sediments ranging from 5 to 10 cm thick superimposed thin lenses of cultural deposits. No solid architecture was found except for extremely badly preserved pisé partition walls whose faces were usually burnt; we also found postholes, traces of ash, and fireplaces. In fact, the "floors" on which daily activities took place consisted of alluvial deposits. When factoring out the alluvial levels from the cultural lenses in the main area of excavation, we were left with just over 30 cm of deposit for perhaps the entire duration of the fifth millennium B.C. We did not find any extensive organic horizon that would indicate the presence of animal pens. But this is not surprising because most of the site is destroyed; in any case, our exposures were too small.

Excavations in other areas of the site also revealed similar features, but with even thinner cultural deposits. Judging by our test trenches in other parts of the mound, it seems that the occupants of KS-1626 moved horizontally across the site. This is analogous to the modern-day mobile pastoralist campsites. In fact we were fortunate enough to observe one of these campsites during our excavations at Dar Khazineh.

Eastern Khuzestan is the main area some mobile pastoralist Bakhtiyari tribes use in the months of winter. While working at Dar Khazineh, we noticed that some mobile pastoralist tribes used the area as a temporary campsite. Specifically, we noticed that these tribes used the western bank of the stream in the wadi as an overnight camp. This gave us an excellent opportunity to make some ethnoarchaeological observations. When, after one tribe left the area early in the morning, we examined what they left behind, we found three shallow fire pits some 10 m apart. Locally available twigs and animal droppings were used as fuel. The lumps of clay that had been dug out to make fireplaces were burnt and blackened by the overnight fire. But not much else was left behind. This was very similar to the patterns we excavated in Square 379. We also knew that mobile pastoralists who use a place overnight or for a longer period, create a stone bedding to protect their belongings against moisture and rain, a feature similar to the stone bedding in Square 36.[37] In addition, mobile pastoralists use the highest point of natural hills or artificial mounds to bury their dead, a practice analogous to the graves we found in Square 208.

Based on these observations, as well as on the fauna and flora evidence,[38] we concluded that KS-1626 might have been used seasonally by the prehistoric mobile pastoralists of the region, a pattern that is still evident in eastern Khuzestan. The analyses of the fauna and flora samples from the site also corroborate our characterization of the site as a mobile pastoralist camp. It is also important to bear in mind that the primary occupation at KS-1626 coincides with the Late Susiana 1 phase, a period we consider the crystallization of mobile pastoralist mode of production in Iran.

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36. Alizadeh, Kouchoukos, et al. 2004. The project was supported by a grant from the National Science Foundation (BSC-0120519) with additional support from the ICHTO, the Oriental Institute, and the Department of Anthropology of the University of Chicago.

37. For similar features, see also Thomson Marucheck 1976; Zagarell 1982.

38. Naomi Miller of the Museum Applied Science Center for Archaeology and Marjan Mashkour of the Centre National de la Recherche Scientifique, Paris, analyzed the floral and faunal samples.

KS-1626 was not unique, however. Our inferences about the nature of KS-1626 and in general about the events in the fifth millennium in Susiana are also based on a number of similar sites in the same region. One — we called it "Chogha Kuch" (Mound of Migration) because it was in the middle of a vast stretch of uncultivated land with no village around and no one knew any name for it — was brought to our attention by Ms. Gudarzi of the Shushtar Iranian Cultural Heritage Organization. The site is located some 20 km south of KS-1626. The pottery on the site dates to Late Middle Susiana and Late Susiana 1 phases (ca. 5200–4400 B.C.). It is a shallow mound with several pottery kilns still visible on the surface. Similar sites dating to the Late Susiana 1 and late Uruk phases were also located by the survey team in eastern Khuzestan.[39]

THE CENTRAL PLATEAU

In addition to the clues just cited, another line of evidence is now available from the Central Plateau, a primary source of copper in Iran. This remarkable evidence for contact between Fars, lowland Susiana, and highland Central Plateau, comes from a series of surveys conducted by Mir Abedin Kaboli (2000) of Tehran ICHTO. The survey region is located northeast of the city of Qum, some 100 km south of Tehran. The unmistakable characteristic ceramics of the Late Susiana 1 phase were found on at least six mounds.[40] Other contemporary prehistoric mounds in the region yielded only the typical late Chogha Cheshmeh pottery.

According to Kaboli (2000: 133) mobile pastoralism is still practiced by some families in the region. Sheep and goats are the primary stock, but camels are also raised. In the hot summer months, the pastoralists move to the mountains near the provincial town of Saveh, northwest of Qum, or to the nearby Marreh Mountains. While much research is needed to shed light on the dynamics of the appearance in the Central Plateau of the typical fifth-millennium ceramics of Fars and Susiana, it may be related to the demand for copper in south and southwestern Iran.

The appearance in the Central Plateau of the typical fifth-millennium B.C. southwestern and south-central pottery decorated with the dot motif is not unilateral. While no genuine pottery of the Sialk II type (Chogha Cheshmeh phase) has been reported from southwestern Iran, Sialk III type pottery has been reported from surveys and excavations in the heart of the Bakhtiyari mobile pastoralists tribes of the central Zagros regions of Khaneh Mirza (Zagarell 1975: 146) and from Tappeh Godin period VI and the mound of She Gabi in the Kangavar area, near Kermanshah.[41] This, together with the evidence of the later third-millennium B.C. grayware that is found both in the Zagros region and in the Central Plateau, provides evidence for the continuity of socioeconomic interactions between southwestern and south-central Iran with points north and east that seem to have begun in the beginning of the fifth millennium B.C., and even earlier. This unprecedented interregional contact that is reflected in the ceramics coincided with the appearance of the isolated cemeteries of Hakalān and Parchineh, copper, turquoise, and lapis in southwestern and south-central Iran, as well as increasing specialization in crafts and the appearance of nascent urban centers.

MOBILE PASTORALISM AND CERAMIC PRODUCTION

It is widely and erroneously believed that people with an essentially mobile way of life do not engage in pottery production. Therefore, whether the spatial distribution of the specific style of Late Susiana 1 pottery in Fars, Zagros Mountains, Central Plateau, and lowland Susiana can be attributed at least partially to the ancient mobile pastoralists, or whether items of exchange in regions with a mixture of mobile pastoralist and settled farming populations included pottery is a question that seems to depend on the degree of residential mobility that imposes restriction on pottery production (Close 1995; Rice 1999; Skibo and Blinman 1999).

Dean Arnold (1985), while suggesting that less than 30% of mobile societies make and use pottery, argues that a number of practical, logistical, and economic (economies of scale) problems are involved in the production of pottery by groups with high residential mobility. However, in a series of articles, Jelmer Eerkens (2003) and her colleagues (Eerkens and Bettinger 2001; Eerkens, Neff, and Glascock 2002) discuss a number of strategies through which such obstacles were overcome by the highly mobile tribes of Paiute and Shoshone of the southwest Great Basin in North America. The pottery vessels manufactured by these Native American tribes are basically simple, crude, and limited in shape and accessories (Eerkens, Neff, and Glascock 2002: 203–05). The same is true of the Negbite

39. For a detailed analysis of the survey, see also Alizadeh, Kouchoukos, et al. 2004.

40. See, for examples, Kaboli 2000, pls. 19:1, 29:1–3, 33:15–16, 36:10, 37:1–5, 39:11.

41. See Young 1969, fig. 7:1–17; Young and Levine 1974, fig. 14:1–20; Levine and Young 1987, figs. 10:50.2–5, 12:10, 17:1–12.

pottery of the Negev that has been attributed to the nomadic groups of the region (Haiman and Goren 1992; Rosen 2003), and of the pottery attributed to the nomadic campsites found in Iranian Baluchestan (Thomson Marucheck 1976: 276). These observations suggest that while mobile groups do manufacture pottery, their product, however, seems to be technologically and aesthetically inferior to those produced by sedentary peoples.

In the case of the Zagros region mobile pastoralists, this need not be true First, despite their pastoral economy, the pastoralists in the Zagros region spend only a fraction of the year moving from their summer to winter pastures and vice versa. While in their summer pastures, they occupy regions not suitable for grain agriculture and thus lightly populated; in their winter pastures of Fars and lowland Khuzestan, they spend several months in heavily populated and agriculturally rich areas. Some tribes even own villages with solid architecture or with a combination of tents and mudbrick or stone houses (Alizadeh 1988b, 2003b). If this situation was obtained in the fifth millennium B.C. and thereafter, attributing the manufacture and geographic distribution of the very specific class of the fifth-millennium B.C. pottery in southwestern Iran to some extent to the mobile pastoralist groups, is theoretically not far-fetched. Interregional marriages, an important factor in forging interregional alliances through kinship, could also be considered as a contributing factor in the spread of some classes of pottery.

To recapitulate, the introduction of the specific Late Susiana 1 pottery in the copper-rich Central Plateau may be linked with exchange activities of southwestern mobile pastoralist tribes in procuring copper, turquoise, and lapis, which began to appear regularly in Fars, lowland Susiana, and Mesopotamia[42] in the fifth millennium B.C. Much work in the region, however, is required to shed more light on this inference. The presence of the typical fifth millennium southwestern pottery in the Central Plateau can also be explained in terms of a reciprocal social system involving pottery vessels and/or their contents as gifts to gain access in "foreign" lands (e.g., Earle 1994a; Gregory 1982; Hodder 1980).

Another factor in the socioeconomic development of mobile pastoralism in southwestern Iran may be related to the gradual rise of nascent urban centers with industrial and economic specialization and the rise of regional elite. Specifically, the rising demand for wool may be considered as a contributing factor (Kouchoukos 1998).[43] In an approach that favors ratios of NISP (number of identified specimens present) values among taxa, Richard Redding (1981, 1993) has shown that, with the exception of Hassunan and Halafian sites in northern Mesopotamia and Syria, prior to 5500 B.C. sheep/goat ratios were more or less uniformly low (> 0.5). By 4500 B.C., the ratios changed to 1.5–4.5, indicating that the trend in herding strategy was changing from a subsistence economy to an economy where animal by-products became important.[44] With the available data we can not see similar trends in highland Fars, but the Late Fars phase is marked by an unprecedented emphasis on raising sheep and goats (see *Chapter 10*).

By the late Middle Susiana phase (ca. 5000 B.C.) sheep and goats became dominant in Susiana accounting for about 65% of the remains at Jafarabad, with sheep becoming more dominant in later phases.[45] Similar development occurred at the contemporary Chogha Mish. If we consider this development as an indication of the increasing importance of wool in Susiana, as well as in southern Mesopotamia,[46] then the concomitant appearance of the large cemeteries of Hakalān and Parchineh may not be coincidental. We can envisage a situation where the initial development of highland mobile pastoralism in late prehistory was perhaps related to the importance of wool in the economies of both Susiana and southern Mesopotamia, the rise in regional populations, and the appearence of nascent urban centers.

Taken together, the available evidence suggests that as craft specialization developed and nascent urban centers became more populated, more organized, and differentiated socially and economically in the fifth millennium B.C., the demand for grains, wool, dairy products, animal by-products, timber, and exotic goods (e.g., copper, turquoise, lapis, Persian Gulf shells) increased. Salzman's (1972) "multi-resource nomadism" provides an appropriate model. In a context with increasing demand for commodities not available locally, the region's mobile pastoralist groups, who are in a strategic position to become the intermediaries between the lowlands and highlands, take advantage of the situation. While small farming villages could provide the necessary grains for these newly developed population centers, material items not found in the lowlands could be procured through the mobile tribes of southwestern Iran.

42. The evidence from Mesopotamia is even earlier, Yarim Tepe I, level 9 (Merpert and Munchaev 1987: 15, 17); Arpachiyah, Halaf levels (Mallowan and Rose 1935: 97, pl. ivb); Gawra level XIII (Tobler 1950: 192).

43. See Bradburd 1994 for an analysis of the Komachi pastoralists in Kerman who responded to the rising demand for wool in the seventeenth century.

44. See Kouchoukos 1998: 294–301 for an extensive treatment of this subject.

45. Kouchoukos 1998: 68.

46. For the detailed study of the importance of wool in the southern Mesopotamian economy during the Uruk period, see Kouchoukos 1998.

On the other hand, if as a result of population increase and specialization of crafts, more land was brought under cultivation to feed that portion of the population that was not engaged in producing food, one expects to see a reduction in pasture lands in the same area. This situation could have created a context where the mobile tribes may have taken measure to reclaim the lands they lost to the farmers. Even though no direct evidence is available for intensification of agriculture and the subsequent loss of pasture in fifth-millennium B.C. Khuzestan, the pattern of competition for the available land between the contemporary mobile pastoralist tribes and settled farmers is familiar in Iran.

In fact, as Richard Ford (1972) argues, the desire and need for security can foster exchange among both sedentary farming communities and between them and hunting-gathering or pastoralists tribes, even though the farmers may not necessarily depend on exchange. In such contexts, exchange initially becomes a means to create a relatively amicable atmosphere in which the incentive of economic gains through exchange would outstrip those through raids. Ritual needs and acquisition of ritual paraphernalia can also be considered as important factors that encourage and foster exchange (Ford 1972). While we can assume the existence of these factors in late prehistoric Iran, especially in the fifth and fourth millennia when urban centers were developing, it is perhaps impossible to find material evidence for this assumption. Ford (1972: 45) warns that "simply knowing the distribution of limited raw materials will explain neither how trade is conducted nor why it is maintained. By ignoring demography, social structure, ritual, and the social milieu, the prehistorian can not possibly understand trade … ."

THE ANALOGY OF MOBILE PASTORALISM

Since our methodology involves extensive use of the analogy of the historically and ethnographically known mobile pastoral societies in the Near East, the following discussion is offered to justify our approach. The climate and topographic features of Iran that helped shape its multicultural and multilingual societies have not changed much since the Neolithic period. Although the emergence of civilization and state organizations around 3500 B.C. and the subsequent rise of powerful empires with regulating mechanisms for information flow created a fertile environment for many regions to interact and exchange ideas, it was not until the advent of the modern nation-state in Iran in the early twentieth century that we begin to see the forging of a number of regional cultures into a nation-state with a national identity. Thus to develop a deeper understanding of the complex relations between mobile pastoralists and settled farmers, we have to approach the problem from an evolutionary and historical perspective, including prehistory.

Ancient mobile pastoralist communities in highland Iran have been given a marginal and indirect role in the formation of early state organizations. The question of ancient mobile pastoralism and their contribution to the socioeconomic and political life of the ancient Near East has usually been dealt with in an indirect approach, i.e., the evidence of a decrease in the regional population is taken as an indication of nomadic presence in the region.[47] When the approach is direct, it concentrates on finding flat mounds and surface collection of flint blades (Zagarell 1978). While the first approach is incongruent with the economic structure of mobile pastoralism in which settled, urban markets are vital for economic and political development of mobile herders (see discussions in *Chapter 3*), the second approach neglects the historical and ethnographic fact that mobile pastoralists periodically temporarily or permanently switch to a settled way of life without breaking ties and alliances with the tribe or tribal confederation to which they belong genealogically, culturally, and politically. In my approach to the archaeological materials presented here, I assume that the same situation prevailed in the late fifth–early fourth millennium B.C. in southern and southwestern Iran.

In this respect, Fars, one of the largest and richest regions in natural resources on the Central Plateau, can provide insights into the nature of the processes that resulted in early state formation in highland Iran. Until now, little attention has been paid to the role that late prehistoric cultures of Fars played in the formation of the highland state, which was established during the late fourth-millennium Banesh phase at Tall-e Malyan (ancient Anshan). It seems that the absence in Fars of large sites with Uruk-related materials, which is believed to mark the advent of complex urban societies, has been primarily responsible for this inattention. Whereas the urban and complex society centered at Malyan in the Banesh phase (contemporary with the late Uruk period) has been studied in some detail (Alden 1979; Sumner 1986b), the processes that led to its complexity are considered to have been set in motion and influenced by the Susiana area. Such an approach automatically dismisses the possibility that the later complex societies in Fars were rooted in the less complex local societies that preceded the Banesh period. Also important may be the

47. For examples, see Sumner 1994; Wright 2000: 194–95.

application, either latent (Alden 1979) or apparent (Algaze 1986; Kohl 1987; Rowlands et al. 1987), of Immanuel Wallerstein's (1974) World System Theory to interpret archaeological data.[48] This approach maintains that socioeconomic developments in areas considered as peripheral are influenced by the core and therefore are under strong constraints by their position in the system. The assumption of the outside source of influence on the development of state organizations in highland Fars is perhaps due to the apparent discontinuity in sociopolitical complexity between proto-Elamite Anshan, clearly an urban center, and the societies that preceded it.[49]

Another contributing factor for the evolutionary step from the late prehistoric communities with, as Wright and Pollock (1987: 328) put it, "little social or political differentiation" to the complex societies of the Late Uruk period is perhaps the application of the information and Central Place theories; the latter was developed by geographers to study economic forces but is used by archaeologists to disclose political organizations on the basis of archaeological surface data. Settlement patterns revealed by surface surveys have been widely used to demonstrate the emergence of pristine states and their sociopolitical complexity, where complexity is defined as hierarchically organized institutions and individuals.[50] The works of some geographers that largely stimulated the "man-man" approach in settlement pattern studies in the sixties,[51] were to some extent a reaction to the "man-land" approach.[52] In the "man-man" approach, researchers were concerned to know not just where things are located, but also why they are so located.[53] The major assumption is that differences in site size indicate a hierarchy of sites, with the largest being the residence of the individuals in control of the society. Moreover, site size represents population size and this is proportional to its functional size; thus sites may be ranked in terms of their size and location.[54]

As I mentioned earlier, surveys have shown that during the second half of the fourth millennium B.C., some proto-historic sites in the Near East became larger than their neighboring sites. The tendency has been to assume that such large sites were centers of regional polities with hierarchical sociopolitical and economic organizations. This assumption has been supported by excavation at large sites, while the smaller sites remain largely unexcavated. In particular, studies of complex societies have paid little attention to the many small sites of late prehistoric societies, the precursors of later urban societies, despite the growing number of small prehistoric sites with monumental buildings and tangible evidence of socioeconomic complexity.

I argue in *Chapter 3* that because of the undiversified nature of pastoral economy and its limitations in accumulating wealth, the desire of mobile pastoralists, particularly the tribal elite, to acquire land-based wealth and power is an important variable in the dynamic relationship between the settled and mobile pastoralist communities in the Near East. The ethnographic literature abounds with references to acquisition of land by tribal leaders. In our 1995 survey of the Qashqaii territory in northwestern Fars, we encountered many permanent and semipermanent Qashqaii villages with strong ties with their pastoralist tribesmen (Alizadeh 2003b).[55] In such a bipolar socioeconomic and political context, the entire settled, semi-settled, and mobile populations of a tribal territory have to be taken into consideration. If the same situation existed in antiquity — and there is no good reason to believe it did not — then the ancient highland mobile pastoralist population must have left archaeological evidence behind in their permanent and semipermanent population centers. The problem is to recognize such lines of evidence archaeologically. At present, we do not have any set of reliable characteristics to guide us. But it can be done by a systematic ethnoarchaeological study of the extant villages in Fars and in southwestern Iran. The results of such ethnoarchaeological research can then be used to test the assumption that the ancient mobile pastoralist population of the region indeed founded some of the mounds in northwestern Fars.

Once we assume the existence of pastoral villages in antiquity then it is not as daunting to attribute industrial activities, artistic creation, and the spread of certain regional styles of decorating pottery to the ancient highland mobile tribe. In the present case, the spread of the Bakun A style of pottery from Fars into the Zagros Mountains and northern Susiana may be described as a combined outcome of both segments of the pastoralist society, i.e., the client villages where material goods could be manufactured and the mobile population that could carry, use, or exchange them. The spread of a specific class of pottery could be achieved not only through direct production, as discussed

48. See G. Stein 1999 for a critical review of World System Theory.
49. See, for example, Alden 1979, where he considers the development of the Banesh period as an outside influence.
50. See also Johnson 1973; Wright and Johnson 1975; Rothman 1994: 1–7.
51. See, for example, Berry 1967; Chorley and Haggett 1967; Haggett 1965.
52. For example, Chang 1972; Clarke 1977; Trigger 1967; Willey 1974.
53. Crumley 1976; Marcus 1973, 1976; Wright and Johnson 1975.
54. See Yoffee 1981: 17–22 for a criticism of Central Place Theory.
55. "Strong ties" include endotribal marriages (both with the settled and mobile Qashqaii), settling of non-criminal dispute through the local Qashqaii chiefs, and economic interaction primarily involving hiring of Qashqaii shepherds to tend flocks of sheep and goats.

above, but also through marriage alliances where decorated vessels may be part of the dowry.[56] Since interregional marriage alliances occur among the ruling elite of societies, then the decorated pottery vessels could serve as symbolically significant.

Some physical characteristics of the Bakun A sites in Fars provide additional clues to the nomadic character of the region. Unlike southern Mesopotamia, lowland Susiana, and the Central Plateau, highland Fars seems to lack large and multi-period settlements. The only one I know of is the mound of Tall-e Nourabad west of the Marv Dasht Plain. This characteristic is even more pronounced during the Late Fars phase when most Bakun A sites were established on virgin soil. By the end of the phase more than half were deserted. Most Bakun A sites are small and seem to be shallow, indicating an occupation of short duration, perhaps several generations. In this respect, Bakun A sites resemble one of the characteristics of vertical mobile pastoralist societies that Fredrick Barth (1965) refers to as the "continual process of sedentarization," a mechanism that allows an increase in the nomadic population above the carrying capacity of the environment be absorbed through shifting to settled agricultural mode of production, without necessarily breaking ties with the contributing tribes. If this was also the case in late prehistory, then this mechanism could provide another interpretive tool for the Bakun A sites in Fars and the wide geographic distribution of its material culture.

For heuristic purposes, Tall-e Bakun A with its anticipatory evidence of later state organizations can be viewed as a footprint and material expression of the archaeologically elusive mobile pastoralist population of Fars in the fifth millennium B.C. In considering Bakun's archaeological evidence relevant to our discussions of ancient mobile pastoralism, we recognize that the effect of population on the internal structure of a society can not be context-dependent; and by "context" we mean villages, towns, and cities. In other words, in regions with a mixture of mobile pastoralists and settled farmers, entire populations as a whole can create administrative demands and spur processes that might lead to further social complexities. In fact, it is inconceivable that the impact of a regional pastoral population upon the settled farming community in highland Iran should be dismissed. While the archaeological evidence is not usually directly detectable, the mobile pastoralist groups that wintered in Mesopotamia and lowland Susiana in the late fifth and early fourth millennia B.C. must have created a factor that imposed internal reorganization upon the lowland farming communities.

Based on the available evidence and our inferences, we interpret Tall-e Bakun A as a settlement populated by some ruling families and tribal leaders who controlled the production of goods, their distribution, and the organization of social affairs in the region. This situation may be analogous to that at Gawra (Rothman 1988), where several monumental buildings, evidence of administrative technology, and a high level of craft production are concentrated in a small site. Through secular or religious factors, or most likely a mixture of both, the hinterland populations of these small, but culturally central sites as a whole gave rise to the development of regulating mechanisms that were exercised by the regional elite who dwelled within these networks of population interaction. In such contexts, that is, predominantly mobile pastoralist territories, we should not expect the hierarchy of social order to manifest itself physically in specific locations and in large-size regional elite residences that can be readily seen in archaeological surface surveys.

As I emphasize throughout this study, in areas where mobile pastoralism has flourished for millennia, much can be gained from ethnographic data. The ethnographic present and the history of the Near East attest to the political and economic importance of the region's mobile pastoralist tribes. The Near East has long supported rich and complex societies of mobile pastoralists throughout its history.[57] Although no one denies the existence and importance of ancient Near Eastern vertical mobile pastoralist populations, the difficulty in considering their possible influence on the formation of state organizations in southwestern Asia, particularly in Fars, is indeed discouraging. In fact, any attempt to study ancient mobile pastoralist societies certainly stretches our bounded rationality to its limits, as psychologists put it. Nevertheless, with the help of several lines of evidence and inferences that may amount to what the solid archaeologist may label as archaeopoetry stemming from the black box of Tall-e Bakun A, we have attempted here to marshal all the relevant data attributed to the special status of the late prehistoric site of Bakun A. In so doing, we may have pushed the hypotheses and assumptions beyond what the evidence can support by over-

56. If women were active potters or pot painters in prehistory, and there is no reason not to consider this alternative, interregional marriages in patrilocal societies certainly would lead to the spread of specific pottery styles that in the course of time would become either diluted or would undergo hybridization.

57. See, for examples, Castillo 1981; Cribb 1991; Khazanov 1984; Rowton 1973a–b, 1974, 1981; Tapper 1983.

stating the case. Given the paucity of archaeological data on ancient mobile pastoralism, such overstatements may provide incentives for further specific researches on the problem at hand. The alternative is to abandon research on one of the most important components of ancient Near Eastern societies. As Alison Wylie (1989) argues, adhering to observable data to advance our understanding of the processes involved in social change will take us nowhere, and this is certainly true of the possible role that ancient mobile pastoralist communities played in the formation of state organizations in highland Iran.

CHAPTER 3

GEOGRAPHY, ENVIRONMENTAL RESOURCES, AND LAND USE IN FARS, IRAN

GEOGRAPHY AND ENVIRONMENTAL RESOURCES

The emergence and development of highland mobile pastoralism can be attributed to physical as well as social environment. Accordingly a discussion of the geographic features, environmental resources, and socioeconomic setting in Fars Province is necessary to provide a context within which mobile pastoralism is better understood in a diachronic analysis.

Tall-e Bakun is located in the plain of Marv Dasht in Fars, near Persepolis, with the town of Marv Dasht as its regional administrative center and market place (figs. 1–3). Fars Province lies between the Persian Gulf in the south and the province of Esfahan in the north. It borders the Kerman and Yazd Provinces on the east and northeast and the Boyr Ahmadi-Kohkiluyeh region on the west (fig. 5).

The area of the Marv Dasht Plain is about 3,600 sq km, 120 × 30 km, and 1,600 m above sea level. About 40 km to the north, the elevation reaches to 1,700 m with surrounding mountain peaks over 4,000 m high. The Marv Dasht Plain has an annual rainfall of 334 mm, with a maximum of 501 mm and a minimum of 114.5 mm.[58] Most of the precipitation occurs between the months of October and April, the rest of the year is mostly dry.

The Kur and the Sivand (or Pulvar) are the main rivers of the Marv Dasht Plain. The Kur River originates from Kuh-e Dena northwest of Fars and irrigates the Ramjerd and Korbal districts. The Sivand River drains the northern section through a broad valley system between substantial mountain chains. After joining several small tributaries from the Deh Bid area in the north, the Sivand heads south and passes Pasargadae and Persepolis along the Esfahan-Shiraz highway. It then turns east and after joining the Kur empties into Neiriz (or Lake Bakhtegan), a salt lake southeast of Persepolis (fig. 4). The rivers used to be fringed with willow trees and poplars, the latter were used for timbers. In most places, the Kur and the Sivand cut through the alluvium 5 to 20 m deep, making it extremely difficult to tap the water without modern pumps.[59] Ibn-e Balkhi (1912: 65) describes the Kur River as "a rebellious river stream that will irrigate no land unless a dam has been thrown across it to raise the level and thus enable the waters to be led over the surface of the soil," and the Sivand as "a most blessed river. Most of the district of Marv Dasht is irrigated by its waters."

Traditionally, springs and *qanats* (subterranean aqueducts) have been used to irrigate fields, while the use of engines to pump water from the river and deep wells is a recent development (Wulff 1966: 249–56). Nevertheless, natural springs and *qanats* remained important in the western part of the Kur River Basin (Kortum 1976: 42) until the early 1980s, when water from innumerable deep wells replaced the traditional sources of water (personal observation).

The quality of the soil in the Marv Dasht Plain southeast of the Sivan is clearly reflected in the spatial distribution patterns of both modern-day villages and ancient mounds, especially the prehistoric mounds, as they are all concentrated in the north and southwestern parts of the plain. Outside this area the soil is grayish brown and is encrusted with salt crystals. Towards the southwest of the plain, the number of modern-day villages drops sharply and a few kilometers past Char Taq and Esmailabad, there are almost no villages nor cultivated lands. Also, no pre-fourth-millennium B.C. occupation has been found in the southeastern part of the Marv Dasht Plain.

The land on the right-hand side of the Kur River is less saline than the other side, covering about 40,000 ha or 13% of the whole area (Justin & Courtney et al. 1952: 39). Because of the slight slope in the Marv Dasht Plain, water does not drain easily, and during spring some parts of the plain, such as the district between Ramjerd and Beiza

58. This estimation is based on the rainfall records in Shiraz for a continuous twenty-nine years; see Justin & Courtney, et al. 1952: 6, 18. But since the Marv Dasht Plain and its northern valleys are higher in altitude, one would expect a higher degree of precipitation there.

59. It must be noted that these rivers may not have been running so deep in prehistoric times. As in Khuzestan (Nicholas Kouchoukos and Tony Wilkinson, pers. comm.), the down-cutting processes may have started as recently as the third and second millennia B.C.

to the north, become inundated. Certain lands are covered year-round with water and are used for rice cultivation (Justin & Courtney et al. 1952: 39). Unfortunately these marshes, until recently, were also the main source of malaria. This type of land occupies an area of 13,500 ha or 4.5% of the whole region (Justin & Courtney et al. 1952: 39). In addition to the submerged and saline lands, there are about 11,500 ha of calcareous hills that are useless for cultivation, reducing the arable land to about 245,000 ha. Because of shortage of irrigation water, only 50,000–60,000 ha are under cultivation at any time, though this has been drastically changed with the introduction of mechanized pumps. When the traditional fallow system was still practiced in the region, only half of the above estimation at any given time was under cultivation (Justin & Courtney et al. 1952: 36–40).

These agricultural trends are characteristic of many semiarid and arid regions on the Iranian Plateau. The following table lists statistical figures that indicate various types of lands and their rate of exploitation.[60]

Table 1. Land Utilization in Iran

Type of Land	Area per Million ha	% of Total
Under Cultivation	19	11.5
Permanent Pasture	10	6.1
Forest	19	11.5
Cultivable*	31	18.1
Desert	86	52.1
Total	**165**	**99.3**

* In many parts of Iran this type of land, despite its rich minerals, is useless without irrigation.

TRADITIONAL GEOGRAPHICAL ZONES IN FARS

In addition to the modern formal geographical divisions of Fars and its ancient politico-geographic divisions into various *Kuras* (provinces) known from the Sasanian period, there exists an informal but more popular and (from the mobile pastoralist point of view) more practical division. In this system Fars is divided into three climatically and ecologically different zones: southern (*garmsir*, hot), central (*motadel*, temperate), and northern (*sardsir*/*sarhad*, cold/frontier).[61] This division was probably based on the patterns of the annual movement of the mobile tribes in Fars from south to north and vice versa.

SARDSIR/SARHAD

Sardsir is the summer pasture of the Qashqaii and Khamseh tribes. It lies between the Marv Dasht Plain and Esfahan, at an altitude between 2,000 and 2,500 m. The Kur, the Sivand, the Sheshpar, and the Marbura are its major rivers; the latter empties into the Karun River. The valleys are broad, gentle, and now devoid of trees but fertile if irrigated. The hills and mountains that are not bare have juniper or cranberry. The northwest stretch of the oak belt provides the poor mobile tribes with acorns, which are gathered and, after being soaked about a week in running water to remove the bitterness, pulverized to produce flour for bread. Most of the time this flour is mixed 50/50 with wheat or barley flour.[62] The thorny gum *tragacanth* bush is also exploited by these tribes and provides a source of income for them.[63] For example, the Darrehshuri of the Qashqaii confederacy used to market 30 tons of this gum annually (Garrod 1946a: 37; cf. Stark 1934: 11). *Kangar* (a thorny edible thistle), wild celery, and bulbs such as shallot also grow in this region and constitute part of the diet of the tribes.

There are scattered villages in the *sardsir*, most of which used to belong to tribal khans (chiefs). These villages are usually small and are occupied year-round, mostly by poor members of the various mobile tribes of the Qashqaii

60. For more information, see Badii 1982; Dewan and Famouri 1968; Ehlers 1980.

61. Classical and Arab geographers also observed this division; see Barthold 1984: 148. See also Afsar 1974: 9.

62. The bread that is made of pure acorn flour, though nutritious and edible, is not pleasant and often causes indigestion, especially in children. See De Bode 1843a; Garrod 1946a: 35; Stark 1934: 73.

63. *Tragacanth* (*katira* in Persian and *traganthine* in French), comes in white, yellow, and warm buff and has no taste. It solidifies upon seeping out of the trunk of the tree. *Katira* is used in pharmacology for medicinal purposes and to suspend medical powders. In industry, it may be used in weaving, shoemaking, glue manufacture, and papermaking.

and Khamseh confederacies. Those who stay behind in such villages during the winter months, when most of the tribesmen head to the south, provide underground shelters for their animals (Garrod 1946a: 37).

MOTADEL

Between the *sardsir* and *garmsir* lies the region called *motadel*, or temperate. It includes the area around Shiraz and the Kur River Basin; Shiraz, Neiriz, and the town of Marv Dasht are located in this region (fig. 2).[64] *Motadel* is the most fertile and populous zone, where flora of both the cold and warm lands converge. The once great scrubs of oak separated by steep and lofty ranges of limestone that run northwest–southeast are located to the northwest of the region. Wild species of apple, pear, pomegranate, quince, cherry, fig, almond, pistachio, and occasional olive trees constitute the major flora of this region. The banks of the rivers and streams in the valleys used to be covered with willow and poplar trees. Grapevines also thrive.

The northern part of this region, between Persepolis and Pasargadae, is a bottleneck through which many tribes pass on their way to the *sarhad* or summer pastures. This situation exists in the Marv Dasht Plain because of the natural communication routes and extensive cultivation, through which the mobile tribes with their thousands of animals must carefully pass. By the end of April, the Baseri, Qashqaii, and some Arabic-speaking tribes pass through the Marv Dasht Plain to reach their summer pasture by June. They return at the end of August to graze in the Marv Dasht Plain in September, and also to sell their labor in exchange for cash with which they purchase some of their supplies from the traditional market places.

GARMSIR

This southernmost region lies between the Persian Gulf and Shiraz, with a maximum altitude of 1,300 m. This region is hot and rises up into entangled hills of gypsum and sandstone. The main plant is *kunar*; the mobile tribes eat its fruits, the leaves are used as soap, and its branches for fuel. Goats and camels also feed on its leaves and branches. Other species include willow, myrtle, and tamarisk. Wild animals such as pigs, leopards, ibex, and gazelles were abundant until the introduction of the rifle among the mobile tribes.

Compared with those of the northern region, pastures are poor but extensive in the *garmsir*. After passing Shiraz on their way to the winter pastures, the tribes fan out all over southern Fars to utilize fully the extensive available pastures. This extreme dispersal of the tribes enables them to exploit abounding natural resources (Barth 1961: 25).

The rivers in the *garmsir* include the Zuhreh, the Shahpur, and the Mand (or the Qara Agach). The Zuhreh River originates from the Ardekan area and empties into the Persian Gulf; the Shahpur River rises near Kazerun, emptying into the Persian Gulf about 30 km northwest of Bushehr. The Mand River collects the drainage of the Marreh Mountains southwest of Shiraz and empties into the Persian Gulf about 90 km southeast of Bushehr. The upper Mand Basin, one of the most extensive on the Iranian Plateau, provides good winter pasture for the Qashqaii tribes (Fisher 1968: 29–30).

SEDENTARY AND SEMI-SEDENTARY LIFE

VILLAGES

There are permanent villages in Fars that are occupied by both former mobile tribes and others. These villages are either walled, partially walled, or not walled at all. Prior to the emergence and establishment of a nation-state in the first half of the twentieth century, the great Bakhtiyari and Qashqaii khans had suzerainty over both sedentary and mobile populations in their territories (see, e.g., Garthwaite 1983: 6, 42).

The villages that are occupied by mobile pastoralist groups, either permanently or seasonally, have different types of buildings than those occupied by the traditional settled farming communities of the region. The former consist of either mudbrick houses or of rough stone-built simple dwellings (pl. 8). Portable tents are a third type that exist side by side the other sorts of residences (see also Sumner 1972: 16). In my 1995 survey in the valleys northwest of the Marv Dasht Plain, I visited a number of villages where mobile pastoralists lived in tents next to mudbrick buildings occupied by farmers who were former pastoralists; Bakan, Dashtak, Gol Makan-e Qeshlaq (northwest of

64. For a detailed description of the drainage system in this area, see British Admirality 1944: 74–76.

the Marv Dasht Plain), and Moshkan and Qeshlaq (north of the Marv Dasht Plain and west of Deh Bid) were among the most notable villages with mixed population. Sumner's observation (1972: 16) that "in a few favored places villages are found in crevices high above the plain," also corroborated our findings during the 1995 survey.[65] The location of such villages is determined either by the fact that most of the intermontane valleys are inundated during late winter-early spring, or by the consideration that moving a village to the slope of mountains allows more land to be brought under cultivation, or both.

Like most of the inhabited regions in Iran, except for the Caspian Sea littoral, the number of villages and the village population are determined not by availability of land, but rather by the water available to the village and the amount of annual rainfall for dry farming.[66] The latter factor, however, is not as important because reliance solely on dry farming requires cultivating very extensive fields to yield a sizeable crop. This in turn requires long distance walking and heavy use of oxen or donkeys. A yoke of oxen could plow from 1/4 to 1/2 ha per ten-hour day.[67] The 108 villages mapped in the Kur River Basin had a total population of 34,036; the total area of these villages was 249 ha, with the mean area of 2.3 ha (Sumner 1972: 175). For each rural household 4.2 persons is the figure given by the 1966 Iranian Census reports.[68]

Until the 1960s, the environmental and cultural characteristics of many farming villages had not changed much in Iran, and many villages that are located in semiarid environments throughout the Iranian Plateau demonstrate similar aspects.[69] Thus, in order to illustrate general features of village life in Fars, we have chosen the description of a village (Sheshdangi) in the Marv Dasht Plain that was surveyed and described by a team of ethnographers from the former Pahlavi University in Shiraz (Ajami 1975).[70]

"Sheshdangi" is a pseudonym given to a typical village in the Marv Dasht Plain.[71] The village measures about 216 × 190 m, with an area of just over 4 ha. It has a population of 784 consisting of 140 families in 117 individual houses.[72] The average number of individuals in a family is 5.5. The largest family has 17 members, the smallest 1; six-person families, however, are dominant. The population increase is 3% annually.

The village possesses about 1,500 head of cattle and sheep and 1,370 ha of cultivated land.[73] The soil around the village is silty loam and clay loam, soil types of medium quality. Prior to the 1970s, half of this land was left fallow every year,[74] leaving 685 ha for cultivation; of this, 403 ha were under wheat, 124 ha under barley, 13 ha under sugar beet, and 45 ha under vegetable cultivation.[75] One hectare of irrigated land yields about 1,400 kg of wheat and the same amount of land would yield 1,280 kg of barley.[76] Two-thousand kg of wheat is required for a family of five for a year (Amanollahi-Baharvand 1981: 88). Thus a family needs to have at least 3 ha of irrigated or 6 ha of unirrigated (dry farming) land to subsist,[77] for, as just mentioned, half of the land is traditionally left fallow.[78] The medium

65. This choice of residence is millennia old and seems to have been of strategic importance. Such sites in Dasht-e Arzhan, Behbahan, and the Khaneh Mirza Plain (the summer pasture of the Bakhtiyari) are good examples. See Zagarell 1982.
66. Dry farming is not necessarily practiced only where there is enough precipitation (300 mm). There are many poor, desperate farmers who practice dry farming in regions with merely 200–150 mm of annual rainfall. See Rahmani 1969: 45.
67. See McMorris 1978a: 345; Vadii 1977: 80. Safinezhad (1975: 72) reports, however, that a pair of oxen would plow 1/4 ha in a twelve-hour day.
68. The Government of Iran, Statistical Yearbook 1966, table 12.
69. See Watson 1978 and 1979 for an ethnoarchaeological analysis of two contemporary villages in the Zagros Mountains.
70. All the information on Sheshdangi is from Ajami 1975.
71. This village is in fact atypical in terms of its size and population; most of the villages in Fars are smaller and less populated. It is typical, however, for its agricultural practices, social structure, and life-style.
72. The average village is reported to have fifty houses, but 100–400 houses also exist. See Royal Admirality 1944: 358.
73. It is not reported whether the inhabitants of this village had once been mobile pastoralists who were forced to settle by Reza Shah in the 1930s or not. It is important to know this fact because such villages normally possess more animals than the traditional villages of Fars. See the Organization of People's Guerrillas 1971; cf. Lambton 1969: 26.
74. In areas where the soil is very saline, the fallow system is not fully practiced and vegetables are grown alternatively so that the level of salinity does not rise. In Jahrum, southern Fars, for example, the fallow system is "*se ayesh,*" that is, the land is divided into three parcels and each is cultivated annually; whereas in Firuzabad, to the north, "*do ayesh,*" two-parcel division is practiced. See Rahmani 1969: 71–72, 219. In the Marv Dasht area, however, lands may be left fallow sometimes for 3–7 years (see Justin & Courtney et al. 1952: 40), but no longer.
75. According to the survey conducted by the Doroodzan Dam Project, 75% of the Marv Dasht plain is under wheat and barley cultivation (Justin & Courtney et al. 1952: 45).
76. This estimate depends, of course, on the type of soil, water, and seed. Nevertheless, 1,000 kg of wheat per ha is the average; see Amanallahi-Baharvand 1981: 88; Bowen-Jones 1968: 571. Compare, however, Justin & Courtney et al. 1952: 41, where it is estimated that 150 kg of seeds per ha returns 900–1,000 kg of wheat. This low return can not be contributed to the practice of dry farming because yields of wheat and other grains cultivated in irrigated lands have not been much greater than dry lands during years of adequate rainfall; see also McMorris 1978a: 345.
77. During the Shah's land reform this estimate was the basis of land distribution among the peasants, so each peasant received 4.7 ha of land; see Ajami 1975: 30.
78. Nineteen million hectares of cultivable land exist in the Iranian Plateau, of which 11.4 million ha are usually left fallow, leaving 7.6 million ha under cultivation (Beaumont 1974: 419).

quality of soil, low level of precipitation, archaic irrigation practices, and the fallow system were among important factors that had hindered the growth of villages in size and population, not only in Fars but also in many other parts of the Iranian Plateau. As a rule, lack of sufficient water, poor arable land, and difficulties involved in artificial irrigation render continuous and extensive settlement and cultivation difficult in many rural regions in Iran.

Physical aspects of a typical village in Fars in the late 1960s and early 1970s can be summarized as follows: with few exceptions, houses were made of mudbricks and usually comprised of one or two rooms and a single story. Often several houses are clustered around a common courtyard, where food preparation was done, fowl roamed around, and cattle, sheep, and goats were kept for the night. Roofs were supported by wooden beams covered with *kahgel* (a mixture of straw and mud) and served for repose in the hot nights and for drying fruits and vegetables in the sun. Water generally came from shallow wells or was fetched from a stream, sometimes from *qanats* or springs. Uncovered pit privies used to be the rule. Other refuse was cast into the street and when the rubbish nearly engulfed the village, it would be abandoned and rebuilt on a new site, as one would see in the immediate vicinity of Qasemabad (Bash and Bash-Liechti 1987: 31).[79]

TOWNS

As in many other regions in Iran, there are a number of towns in Fars that serve as a marketplace for the outlying villages but mostly for the pastoralist tribesmen. Jahrum, Fasa, Firuzabad, Deh Dasht, Deh Bid, and Ardekan are the most prominent (figs. 3, 5). While Deh Bid and Firuzabad are primarily visited by the Qashqaii and the Khamseh, Ardekan (northwest of Shiraz) is a nexus of the neighboring villages and mobile tribes of the Mamasani.[80] Until the mid-1940s, this town was administered by a tribal headman who, as part of the central government policy to pacify mobile tribes, was replaced by a government official (M. A. Stein 1940: 10, 96). Jahrum, southeast of Shiraz, serves the Baseri tribes. It is around this town that the Baseri tribes stay in winter to use the area's winter pastures. A very typical market town was Deh Dasht, located north of Behbahan at the gates of the Zagros Mountains.[81] This town had a burgeoning business life until the 1930s, when the mobile tribes of the Boyr Ahmadi, rebelling against the central government, so repeatedly looted it that the merchant class left the area and scattered all over Iran.[82]

THE ETHNOGRAPHIC PRESENT: MOBILE PASTORALISM

Archaeological data pertaining to prehistoric mobile pastoralist communities in the ancient Near East are meagre, indeed. Thus, the study of the extant Near Eastern mobile pastoralist tribes with the aid of data on the ethnographic present is of primary importance for understanding the myriad of socioeconomic and environmental variables involved in the historical development of ancient Near Eastern mobile pastoralism. The following discussion is devoted to outlining a number of important variables that we deem pertinent to and crucial for the interpretation of the archaeological data from prehistoric Fars — the heart of Iran's most powerful and well-organized Qashqaii tribal confederation. The conclusions drawn from the following analysis are somewhat speculative but are offered primarily to show that we are not entirely hopeless in addressing the role of archaeologically elusive ancient mobile pastoralists in the development of early state organizations in highland Iran.

The Significance of Mobile Pastoralism in the Near East. The Near East has long supported rich and complex societies of mobile pastoralists throughout its history.[83] Near Eastern mobile pastoralist communities have had a high degree of economic and social interaction with the settled farming villages and urban centers. This interaction has been attributed to ecological and geographic factors that force mutually dependent, territorially bound, and autonomous entities to share regions that provide the matrix for a web of social, economic, and political interaction. Economic interdependence and territorial coexistence of mobile pastoralists and sedentary agriculturists is suggested

79. Villages are also abandoned when the mice and rat population grows beyond the tolerance of the villagers.
80. For a description of these tribes, see Bavar 1943.
81. It is not surprising to find an important market town in the midst of a region overrun by the mobile pastoralists of the highland. Deh Dasht is situated in a strategic location that served as the last station for those traveling through these mountains to reach summer pastures. The ancient city of Arjan on the Marun River most probably served the same purpose (Alizadeh 1985b).
82. The Deh Dashti Family is prominent among the merchant class of Iran; see M. A. Stein 1940: 10.
83. See, for examples, Bosworth 1973; Bottero 1981; Castillo 1981; Cribb 1991; Digard 1981; Edzard 1981; Herodotus 1972; Khazanov 1984; Lambton 1973; Luke 1965; Malbran-Labat 1981; Melink 1964; Postgate 1981; Roux 1964; Rowton 1981; Strabo 1969.

as an important reason for this high degree of integration (Rowton 1973a–b, 1974, 1981). Moreover, it is argued that uniting both elements (agriculture and animal husbandry) within the same tribal structure would be advantageous to all concerned (Rowton 1973b: 201–15; Adams 1978: 329–35).

The climatic and topographic features of Iran that helped shape its multi-cultural and multilingual societies have not changed much since the late Neolithic period. The emergence of civilization and state organizations around 3400 B.C. and the rise of powerful empires with regulated mechanisms for information flow created a fertile environment for many cultural regions to interact and exchange ideas. However, it was not until the advent of the modern nation-state in Iran in the early twentieth century that we begin to see the forging of several regional cultures into a nation-state with an overarching central authority. Thus to develop a deep understanding of the complex relations between mobile pastoralists and farmers, we have to approach the problem from an evolutionary and historical perspective, which includes prehistory.

The economic aspects of the mobile pastoralist mode of production and the dichotomy in social structure and subsistence economy in regions with mixed mobile and sedentary populations may have some bearing on the socio-economic and ultimately political development of Fars in the late fifth and early fourth millennia B.C. (cf. Adams 1978: 329–35). The interactions between the mobile and sedentary populations of southwestern Iran and the possible impact and influence of the former on the emergence of state organizations there have been studied to some degree.[84] These studies, however, have primarily focused on the ancient societies of the Susiana plain and central Zagros Mountains. Fars, the most important tribal region, has not been given the same attention. Thus, our understanding of the possible role that the mobile communities of this vast region played in the formation of complex societies is limited (Alizadeh 1988a–b).

The mobile pastoralist way of life can be seen as both an environmental and sometimes political adaptation. Given the relatively stable post-Pleistocene climate, one can assume that until recently, this strategy of coping with the environment had not changed drastically. In the case of vertical mobile pastoralism in the Zagros Mountains the spatial and temporal distribution of certain ecological niches and resources imposes particular migration patterns through certain predetermined routes.

Despite numerous programs initiated by the central government to forcefully settle mobile pastoralists tribes during the second half of the last century, southwestern Iran is still relatively teeming with mobile tribes, particularly the Qashqaii. Until recently, such tribes were not only active and free in their movement, but also had significantly influenced the political life of the settled population throughout the recorded history of Iran (Beck 1986; Garthwaite 1983). At this point it is important to outline some aspects of mobile pastoralism in highland Iran, particularly in Fars, as evidence of the complexity of their seemingly simple society.

Complexities of Seasonal Migration. Seasonal migration is of great importance in highland mobile pastoralism. On average, a tribal family would strike and re-pitch a tent many times in the course of the annual migration. For example, each year the Qashqaii have to travel a round trip of about 1,000 km (fig. 5). Traveling this long distance requires a great deal of information in order to conduct the annual migration as efficiently and peacefully as possible (Barth 1965; Cooper 1929; Garthwaite 1983: 22; Spooner 1972b). Vertical mobile pastoralism migration routes are of great importance. Each of the major tribes in Fars follows its own *Il rah*, or tribal route. The tribes have traditional schedules of departure from and occupation of a region. There are a number of factors that determine the departure time of the tribes from winter pastures to summer pastures and back. These factors include: (1) the location of the clans in their seasonal pastures; (2) availability of grass; (3) possession of farming lands or lack of them; (4) tribal disputes; (5) the type and size of agricultural fields in the tribal region; (6) premature hot or cold spells;[85] and (7) a host of unpredictable factors such as death and childbirth.

The complexity involved in dealing with these factors requires careful planning and scheduling, and maximum cooperation to minimize the violent conflicts that might arise if two or more tribes tried simultaneously either to pass an *Il rah* or to occupy the same region while migrating.[86] Scheduling and cooperation require a large amount of information processing and decision-making by both the tribal elite and camp leaders (Amanollahi-Baharvand 1981: 175–81).[87] Barth (1959: 9; 1965) argues that the tightly scheduled migration through the bottlenecks requires

84. See Alizadeh 1992; Hole 1987; Wright 1987b; Zagarell 1982.

85. See Varjavand 1967: 28ff.; for a detailed discussion of these factors, see Barth 1961: 5–7; see also Tapper 1979a: 95–114 and 1979b: 84–118 for the relationship between grazing rights and social organizations among the Shahsavan of northwestern Iran.

86. For the same situation and arrangements among the tribes of the Bakhtiyari confederation, see Garthwaite 1983: 22.

87. For a detailed discussion on the processes involved in and the importance of decision-making in antiquity, see Cribb 1991: 13; Johnson 1978, 1987; Wright 1977a: 338.

strong and effective coordinating authorities.[88] The allocation of pastures and scheduling of the movement are affairs decided collectively by several tribes or confederacies. A lower level of decision-making that involves the location of a camp is equally important in maintaining the structure of smaller segments of the tribes. For more effective cooperation, tribes are divided into smaller segments that usually include wealthy families with large herds and poor families with few or no animals; the poor provide manpower for the wealthy (Barth 1959: 74; and my own observations). The moving of the camps depends on continuous reaffirmation by all tribal members and through making decisions on daily activities. Among the Boyr Ahmadi tribes it is the *rish sefid* (literally, white beard) of the *mal* (a small segment of a tribe) who coordinates the date of departure with the heads of the families. Thereby the tribesmen reach a consensus (Husseini-Kazeroni 1973; Garthwaite 1983: 44) that must be consistent with the general guidelines of the confederation that had already been set forth. This lower level of decision-making among the mobile pastoralists of the region is deemed as an important factor in the social cohesion of these tribes (Barth 1961: 25–26, 1965; see also Johnson 1983).

Strategies for Animal Husbandry.[89] Another complex aspect of mobile pastoralism is the processes involved in animal husbandry. The mobile tribes of Fars predominantly raise sheep, goats, donkeys, horses, mules, camels, chicken, and dogs. Cattle either do not exist or constitute an unimportant part of their herds because of several factors. Cows, like sheep, are grazers and need more succulent pasture than browsers such as camels and goats. In addition, the migration of these tribes is lengthy, taking them through rough, rocky terrains in the mountains that are difficult for cattle to negotiate. Another factor that makes raising cattle uneconomical is the long period of maturation of calves as opposed to that of lambs and kids. Lambs, for example, are able to grow to full size, 30–50 kilograms, in three–five months.[90] Thus, if lambing occurs in early March, by the time the tribes are ready to move to their summer pastures, the lambs are full-grown and can be sold along the way. Sheep are reared primarily for their meat, wool, and milk; goats for their hair and milk. Goats produce 50–70% more milk than sheep, but the growth of lambs is superior to that of kids.

Sheep and goats are herded together,[91] and in fact herding a flock of sheep in the mountains would be extremely difficult, if not impossible, without the fearless leadership goats provide. One ram is basically considered sufficient for every five ewes to ensure maximal fertility in the flock; whereas with goats, the capacity of a single male appears much greater. The fertilization of flocks, however, depends also on the geographical location of the tribe; for example, some tribes (e.g., *Il-e Khas* of the Qashqaii) that winter farther north in the zone of middle altitude, separate the rams from the ewes in the August/September rutting period to prevent early lambing. Lambs and kids are usually herded separately from the adults.

Dairy Production and Agricultural Activities. Milk and its by-products are of vital importance to the mobile tribes. There are many complicated processes through which milk by-products are, of course, obtained. Other products include wool, goat hair, lambskin, felt, *kashk* (dried lumps of sour yogurt), and kilim.[92]

Though farmers supply the bulk of the grains needed by the mobile pastoralists, the practice of agriculture is also widespread among the latter in highland Iran. Members of many mobile pastoralist tribes invariably rely on dry farming and take advantage of arable lands in both summer and winter pastures. In the high altitude of summer pastures, just before leaving the area, some members of the tribe sow crops which are covered by winter snow, sprout in spring, and ready to be harvested by the time the tribe returns. Similarly, tribal families plant small plots of barley and wheat in December, harvesting them in April just before they depart for their summer pastures in the mountains.[93] At times when the winter crop is not ready, some local workers are hired to harvest it for the tribe. In the Bakhtiyari Mountains, the tribe of Bamadi leaves for the mountains in March/April, one month before the crop is ready. The tribesmen either leave some members behind to harvest the crop and hide it under rocks in makeshift

88. See also Lefébure (1979: 115–26) for an examination of the idea that the structure of the authority among the pastoralists in the Zagros region is a direct consequence of environmental constraints. Compare Burnham 1979 and Irons 1979 for the importance of mobility in the formation of political centralization among mobile pastoralists.

89. For a full treatment of this subject, see Stepien 1996.

90. However, successful lambing, lactation, and growth require a high level of nutrition, which is provided by abundant green herbaceous pasture availability. See also Levy 1983: 19.

91. Sheep and goats that belong to mobile tribes, though larger and more productive, are much less resistant to extremes of temperature than those kept by highland and lowland villagers. This lack of tolerance to extreme cold and heat creates additional problems for those mobile pastoralists who are either forced to settle or have a tendency to do so voluntarily. See Barth 1961: 6; Varjavand 1967.

92. For the products and marketing, see Varjavand 1967: 23; Amanolahi-Baharvad 1981: 89ff.

93. See, for example, Amanollahi-Baharvand 1981: 47–48, 86–89; Garrod 1946a: 33.

storage, or they hire some sedentary local farmers to harvest it for them while they are gone.[94] Edward Stack (1882: 68, 100) reports the same practice among the Qashqaii: "They leave some men behind to reap their scattered fields which they have ploughed and sown in their Firuzabad *qeshlaq* or winter haunts. The grain is buried in pits against the return of the tribe next year." Gene Garthwaite (1983: 21, 40) also notes the importance of agriculture among the Bakhtiyari and that when the tribe moves to its summer/winter pastures some men stay behind to harvest and collect the crop.[95] This strategically important practice reduces the risk of total dependence on the farming communities and ensures some security if the crop failed in other areas. In addition, some Bakhtiyari chiefs showed great interest even in large-scale agriculture by investing, building, and maintaining irrigation systems in western Iran (Garthwaite 1983: 30).

External Investment of Tribal Pastoral Economy. Among the factors that force individual mobile pastoralists to invest in agricultural land is their awareness of the importance of agriculture (Barth 1961: 101 ff., 1965; Garthwaite 1983: 21, 40), as an insurance against losing the entire flock to epidemics and prolonged spells of dry weather. This reinvestment, however, does not mean that the mobile pastoralists see any advantage in sedentary life (see, e.g., Salzman 1984: 14; Marx 1980: 111). On a social level, acquiring land provides prestige and membership in the landed elite of the region (Barth 1961: 105). Barth notes that sometimes individuals gradually acquire sufficient parcels of land, so that once their economy is determined by such possession, sedentarization seems to be the natural result.[96] While the interest of the rank and file mobile pastoralists in acquiring farmland may be economic and a response to risk, that of the higher ranking individuals, particularly the chiefs, can be also seen as politically motivated, because without land ownership mobile pastoral economy has a limited capacity for furthering the political ambitions of tribal chiefs.

The processes of sedentarization do not necessarily lead to sedentism, the outcome of sedentarization; moreover, sedentism is by no means irreversible and absolute.[97] This is particularly true in times of economic and political uncertainty when mobile pastoralists keep their options open for shifting from one way of life to another (Marx 1980: 111; see also Adams 1978). In fact, the processes of sedentarization, as argued by Barth, do not constitute a threat to the existence of the mobile pastoralist way of life; these processes rather augment pastoralism by maintaining environmental equilibrium through various mechanisms (Barth 1961: 124).

Though part-time farming relieves the mobile tribes from total dependence on the agriculturists, it does not satisfy their grain requirement, which is procured either through barter or purchase in market towns. Nevertheless, the practice of agriculture by mobile pastoralists and their knowledge of farming have a strategic significance because it allows for a greater flexibility in adapting to various environmental and political calamities (Spooner 1972a: 245–68). Of strategic importance is also mobile pastoralists' superior knowledge of the environmental resources and geographic features of their vast territories. Mobile pastoralists are much more familiar with climatic changes, types of soils, and location of water sources, so that they can easily shift to settled life. The reverse transition is by far more difficult for the sedentary farmers, particularly if they are not genealogically related to the mobile tribes of their area. In a favorable environment with multiple natural resources and ideal pastures, such as the Zagros Mountains and its piedmonts, the shift from mobile pastoralism to sedentary farming and vice versa seems to have been the major adaptive response to either environmental and/or political pressures.[98] The most recent example is the return of part of the Qashqaii tribes to mobile life after the Iranian revolution in 1979 (Hottinger 1987: 126–30; and my own observations).

SUMMARY AND CONCLUSIONS

Wide-range anthropological and historical studies have shown that totally pastoral societies are rare, for nonpastoral production, particularly grain crops, have always been an important part of the mobile pastoralist diet.[99] The interdependence of settled farming and mobile pastoralist communities would create a market in which both societies benefit. This interaction in turn creates a context within which political and economic hegemony is exercised. It

94. See Varjavand 1967: 19. For similar practice among the Sudanese mobile pastoralists, see Teitelbaum 1984: 51–65.

95. See also Stark's lively description (1934), in which she reports the same practice in parts of Luristan.

96. Barth 1961: 104–06; see also Ehmann 1975: 113–15, where he reports the same tendency among the Bakhtiyari tribes.

97. For a different view on the processes of sedentarization, see Galaty 1981a: 198; Salzman 1980.

98. See Adams 1974 for the role of mobile pastoralism in environmental and political adaptation; see also Adams 1978.

99. See Levy 1983: 17; Spooner 1972a: 245–68; Teitelbaum 1984.

is this interdependence and close proximity of the two societies in highland Iran that underlie much of the sociopolitical and economic development in the Near East in general and in Iran in particular.

As noted above, the mobile pastoralist way of life requires organization and planning; it also requires a wide range of information that needs to be processed. This is in sharp contrast with the nomads of the marginal and agriculturally unimportant regions such as Sistan/Baluchestan (the Baluch), Kerman's Komachi, and the Turkmen Yomut on northeastern Iran, where a central office of the paramount chief and its attendant hierarchy never developed despite the fact that they lived within the context of a state.[100]

Mobile pastoralism is an elaborate adaptation to the sociopolitical, economic, and ecological features in highland Iran. Growth in both mobile and settled populations can result in an increase in the amount of farming and pasture lands. This in turn would create closer proximity of the two populations and intensification of social interaction. In the context of state organization or faced with outside encroaching threat, mobile tribes may forge confederations that, albeit ephemeral, come close to state-level of political organization. In such a context, social complexity would develop from the constant requirement of the pastoralists for communication and cooperation to maintain economic and social cohesion, characterized usually by a loosely structured centralized system which would culminate in the single office of chief who would be in a position to weld together the seemingly dispersed tribes (Barth 1961: 71ff.).

Another factor thought to have contributed to this level of centralization is the existence of trade routes in the territories under the tribal control.[101] In fact, before the introduction of modern roads in Iran, only a few natural and narrow passes linked southern and southwestern Iran to the Central Plateau and eastern areas. In this regard such places like the ancient sites of Deh Bid and Do Tulan (in northern Fars), Arjan (north of Behbahan), the modern towns of Ardekan and Jahrum (in central Fars), Deh Dasht (north of Behbahan), and Mal Amir (in the Bakhtiyari region) may be considered as strategically important, controlling the highways leading to points north, west, and east (figs. 1, 3, 5).

Thus it seems reasonable to assume that, though not as complex as in modern-day pastoralist societies, the characteristics of mobile pastoralism, as discussed above, may have begun to develop with its crystallization in highland Iran in the early fifth millennium B.C. Before they were forced to settle by Reza Shah, the number of mobile pastoralists in Iran fluctuated between one and two million.[102] But these numbers, though large in themselves, do not indicate the importance of the highland mobile pastoralists within the framework of Iranian history. Mobile pastoralists were of much greater significance throughout the history of Iran than their mere numbers suggest. They occupy an important place in society because they constitute well-organized economic, social, and political units (Briant 1982; Ehmann 1975; Sunderland 1968) that either within a state or in the absence of state organizations can pose a military threat to farming and urban communities. Aside from the fact that as a moving target mobile pastoralists are difficult to overwhelm militarily, it is the organizational aspects of the mobile pastoralist societies in highland Iran that enabled them to rule supreme in their regions over the settled communities in the absence of a strong centralized state (a rule in the history of Iran rather than the exception). In fact, it took the Pahlavi regime several decades of military campaign, aided with fighter jets, gunship helicopters, and artillery, to subdue the Qashqaii and the Bakhtiyari. One, therefore, can envisage that even in prehistoric times, bands of mobile pastoralists would have been superior to agriculturists in terms of military and organizational aspects, so that in the absence of centralized state organizations, the mobile pastoralists would be in a dominating position vis-à-vis the sedentary agriculturists. It is easy to imagine the vulnerability of farmers during the harvest time when a small band of mobile pastoralists could easily set fire to the harvest and disappear without a trace into the mountains.

Following Earle (1994a), one may postulate that because mobile pastoralist groups operate regionally over vast areas on a regular basis, the hierarchy that arises from within can be in a position to generate overarching levels of social and political organization not present in any one segment of the society. Such levels of organization would then result in the integration of economically and politically segmented groups.[103] The potential military power of the highland mobile pastoralists can, however, be a double-edged sword. As Earle argues (1994a: 956), military power can be an equalizing force, which not only coerces submission, but also creates resistance to domination, which would generate an important variable in the adaptive reorganization of farming societies. In this scenario, the

100. See Bradburd 1990, 1994; Irons 1974, 1994; Salzman 1972, 1994.

101. See Barth 1961: 130, where he discusses the importance to Fars' mobile pastoralists of the trade routes leading to major ports of the Persian Gulf.

102. Barth 1961; Beck 1986; Garthwaite 1983; Safinezhad 1989; Amanollahi-Baharvand 1981.

103. See Earle 1994a for a detailed discussion of various aspects of socioeconomic integration in societal evolution.

military capability of mobile pastoralists could be considered an important factor in the development of state organization in lowland Susiana. Because of these characteristics we envisage the dynamic interactions at the turn of the fifth millennium B.C. between the highland mobile pastoralist communities and those of the agriculturalist lowland as a contributing factor in the rise of urban centers and subsequent development of state organizations in southwestern Iran.

CHAPTER 4

ARCHAEOLOGICAL RESEARCH IN FARS PROVINCE, IRAN

INTRODUCTION

As noted in the *Preface*, this chapter is devoted to providing an evolutionary backdrop against which the settlement at Tall-e Bakun A is interpreted. Unlike Susiana and the Central Plateau, where ample evidence exists for the development and continuity of these regions' early Neolithic cultures into late prehistoric times, the early Neolithic cultures of Fars (Mushki and Jari) not only do not have any known precedent in the region, they provide little, if any, clear antecedents for the Bakun B2 culture with its unprecedented characteristic black-on-buff pottery. Moreover, little is known about the economic and social aspects of these early cultures beyond the pottery and other usual artifacts they produced. To confound the matter even further, the chronological relation between Mushki and Jari is also poorly known. While the Japanese excavators of Tall-e Jari and Tall-e Mushki believe the latter is earlier (Fukai, Horiuchi, and Matsutani 1973: 74–80), Vanden Berghe argued for the opposite (1952). Nevertheless, as discussed below, the two cultures may have overlapped for an unknown period of time before Jari replaced Mushki as the dominant culture in Fars.

No single site in Fars has been found to contain an uninterrupted sequence of prehistoric phases, such as those documented at Chogha Mish in Susiana and at Tappeh Sialk in the Iranian Central Plateau. Therefore, Fars' early Neolithic sequence is inferred by the association of a number of wares found together in different sites, by the technological level of manufacture, and by comparative stylistic analysis of the ceramics. The prehistoric painted ceramics of Fars, as in any other region, were subject to stylistic changes that were caused by internal development and outside influence. Nevertheless, what links all Fars' prehistoric cultural phases to one another is the production and use of what is known as Shamsabad or Bakun B1 pottery, a common, coarse ware that appeared at Tall-e Mushki and continued with little change throughout the prehistoric sequence.

To place Tall-e Bakun A in a wider regional setting and to provide an evolutionary context for the Bakun A society, the following presents the results of various pertinent excavations and regional surveys conducted in Fars. This presentation then serves as the basis for some general remarks on the major characteristics of social evolution in the region.

PART 1: ARCHAEOLOGICAL EXCAVATIONS IN FARS

THE ORIENTAL INSTITUTE EXCAVATIONS AT TALL-E BAKUN A AND B

As part of the Persepolis Project, the Oriental Institute of the University of Chicago first systematically excavated this twin mound in 1932 and 1937. The older mound, Tall-e Bakun B, was excavated for one season. The mound consists of two distinct cultural deposits. The lower deposit, Bakun B1, contained only layers of ash and debris with a coarse ware; the upper one, Bakun B2, also did not contain architecture but yielded painted pottery. At Bakun B, there is about 1.5 m of Bakun B2 deposit, which was heavily disturbed by Islamic graves (fig. 11). The results of the excavations at Bakun B were never published because the excavated material was lost at sea — a German submarine torpedoed the cargo ship. The only available information we have consists of a limited number of drawings of painted sherds (fig. 23)[104] and a short note, now in the Archives of the Oriental Institute, written by Langsdorff as follows:

> An der W Hälfte des Hügels wurde in einem kleinen Flache in die Tiefe gegangen. Es wurden Mauern in Technik der aus Hügel PPA bekannten Häuser angeschnitten. Funde: Sehr rohe, handgemachte, gelbbraune Keramik, Knochenpfriemen, Spinnwirtel aus Stein, sehr viel Feuersteingerät, mit Dreiecksmuster verzierter, schwarzer Glattestein. Darüber

104. In the fall of 2002, when I was in the process of establishing a research center for surveyed archaeological materials at the National Museum in Tehran, we found two trays of Bakun B painted sherds that must have been part of the share of the Iranian Department of Antiquities in the 1930s.

lag eine Keramik jüngeren Charakter als PPA und mohammedanische Gräber. Der Hügel ist besät mit kleinen Steinen und auch die in das Haus und an den Mäuern gefundenen späten Skelette waren völlig mit kleinen Steinen bepackt.

Excavations at Tall-e Bakun B were concentrated in the center of the mound in Squares CE 03, 04, 13, and 14 (fig. 11, pl. 2). Two distinct deposits were defined: Level 1 (Bakun B2) and Level 2 (Bakun B1). In Level 1, the entire area was covered with Islamic burials cut into the occupational debris that contained a black-on-buff pottery. The graves were all oriented in a more or less northwestern–southeastern direction. They had dirt bottoms and sides and were dug in either a single step or double-step manner. In the single-step burials, the lower part of the grave, which was much narrower than the upper part, was along the southwestern side so that the step occurred on the northeast. The lower part was covered with stone slabs, which rested on the dirt step on the northeast and leaned obliquely against the face of the grave on the other. In the double-step burials, the lower part was placed in the center of the grave with a step on either side. In this case the lower part was covered with stone slabs laid in a horizontal position across the opening. The stones were comparatively thin with sharp edges. Often they were laid with the edges overlapping. In a few instances, the graves had been outlined on the surface by stones set vertically or marked by a headstone. There were a few infant burials placed in troughs, with either stone slabs at the surface or with no method of covering at all.

Many of these burials had cut into layers that consisted of dark, beaten ashy surfaces littered with flint tools, bones, shells, simple utilitarian clay objects, and potsherds. No remnants of solid structure were found in these layers. At a lower elevation, in Level 2, part of a fireplace was found in the northeastern corner of Square CE 04 (fig. 11). The floor was slightly burned and covered with ash. The preserved dirt sides were 37 cm high. All four plots were excavated either to or below the ash layer that covered this area at elevation 1.80 m.

Only Square CE 03 was excavated down to virgin soil. Here, a succession of beaten ash floors that covered the entire plot was discovered, but again no evidence of architecture of any kind was found. The lowest floor, just above the virgin soil, was of beaten earth with an extremely hard surface. Above this floor, a very hard greenish gray deposit was found. As at Tall-e Bakun A, two wells, presumably reaching water table, were discovered (fig. 11). The earlier well (Well 2) was dug into the virgin soil and the later one (Well 1) was dug from an ashy floor. No information is available on the contents of these wells.

The range of the archaeological materials discovered at Tall-e Bakun B was limited. While the basal Level 2 contained only coarse ware, Level 1 is marked by a combination of this ware and the black-on-buff pottery of Bakun B2, which as a whole resembles the pottery of the Middle Susiana period of Khuzestan (fig. 23). Both painted and plain coarse ceramics were abundant in Level 1. Other items included bone and stone tools, plain and painted spindle whorls, some shells and clay scrapers. Absent were seals, figurines, and metal.

Langsdorff and McCown also excavated Tall-e Bakun A in 1932. In the 1932 season, only the northern part of the mound (the highest section) was excavated down to virgin soil. Here a complex of houses, alleys, open space, and various installations were discovered. The results of this season were published by Langsdorff and McCown (OIP 59).

Both Langsdorff and McCown had planned to expose as much of Tall-e Bakun A as possible. But work was postponed until 1937. In that year, McCown opened eleven 10 m squares in the central and southern sections of the mound. This strategy helped to reveal large areas of the mound with scattered architectural units and thick layers of ash, soot, and accumulation of industrial by-products in between. After returning to Chicago, McCown left the field of archaeology permanently and the results of the 1937 season remained unpublished.

2004 JOINT ICHTO-ORIENTAL INSTITUTE EXCAVATIONS IN THMARV DASHT REGION

In the spring of 2004, I was offered the opportunity to collect data on all the phases of the Fars prehistoric sequence (Alizadeh, Zeidi, et al. 2004). Our research was primarily designed to collect the much needed stratified faunal, floral, charcoal, and phytolith samples from the five major prehistoric sites in the Marv Dasht Plain, i.e., Tall-e Bakun A, Tall-e Bakun B, Tall-e Jari A, Tall-e Jari B, and Tall-e Mushki. These sites have been the primary basis for prehistoric cultural interpretations of highland Fars but lack crucial data about absolute chronology and subsistence economy.

Tall-e Bakun A

At Tall-e Bakun A we excavated three stratigraphic trenches in the central and west-central parts of the mound. The administrative quarters at Bakun A had already been excavated and exposed by the Oriental Institute in 1932. At that time the walls of the various buildings had been preserved up to 1.5 m with bases about 1 m above virgin soil. When excavations were resumed in 1937, McCown chose the central and southern sectors of the mound, leaving the northern part, the lowest and most extensively excavated part of the site. We discovered quickly that the remains of the administrative quarters had been completely destroyed. After a few days of fieldwork coupled with the information gathered from the local farmers, we came to the conclusion that this part of Bakun A had already been excavated and thus became the lowest part of the mound, allowing it to be easily plowed and farmed during the turbulent revolutionary period of 1978–1981.

In the meantime we were making progress in our stratigraphic trenches at the site. Apart from aiming to recover seeds and bones, we also hoped to be able to document the stratigraphic interface between the Lapui phase and the Bakun A phase. The Lapui phase is characterized by a plain red pottery, while the Bakun A phase contains the famous, beautifully decorated buff pottery, published by McCown and Langsdorff (OIP 59). But we realized that down to about 1.0–1.5 m from the surface of the mound, the entire site had been pierced by late Sasanian–early Islamic graves. Most of these graves were furnished with a column of grayish mudbricks at the feet of the dead. Thus it became apparent to us that here at Tall-e Bakun A we would not be able to address the transitional phase from Bakun A to Lapui.

We excavated all the trenches to the virgin soil that was almost at the level of the present plain. Besides the sophisticated, beautiful Bakun A pottery and a number of lithics and other artifacts, our three stratigraphic trenches yielded large samples of bones, seeds, charcoal, and phytolith. These previously unavailable samples were of utmost importance for the reconstruction of the physical environment, its biota, the subsistence economy, and the absolute dates for the occupation at Tall-e Bakun A (see *Chapters 10–11*, *Appendix A*).

Tall-e Bakun B

Our excavations at Tall-e Bakun B revealed cultural deposits and stratification similar to those of Tall-e Jari A, that is, a shallow Bakun B2 deposit and a much thicker cultural deposit of Bakun B1. In our two trenches here, the Bakun B2 deposits were completely disturbed by late Sasanian–early Islamic graves. Below Bakun B2 levels, we found a 50–60 cm thick layer that consisted of greenish gray deposit almost devoid of material culture; a similar deposit separated Bakun B2/Gap levels from Bakun B1 material at Tall-e Jari A. Below this layer, we came down on layers consisting of ovens, fire pits, ashy layers, fragmentary pisé walls, postholes, and stone pavements mixed with sherds. The only pottery we found in these lower levels was the typical plain, coarse, heavily straw-tempered Bakun B1 pottery.

Tall-e Jari A

We excavated four trenches at this site. We chose the highest point on the mound, but away from the previous trenches and dirt from the excavations by the Japanese expedition and Vanden Berghe. In our main 3×6 m stratigraphic trench, immediately below the surface we reached occupational layers with only the coarse Bakun B1 pottery. The surface of this trench was only 0.5 m lower than that of the central Japanese trenches, where they had reported some 2 m of architectural deposits from the Gap phase. We continued to dig the trench to the virgin soil that was reached at almost the same level of the present plain; the Japanese had reported that the base of Tall-e Jari A was some 2 m below the plain level. Moreover, there was no occupation of any type, let alone architecture, that had Jari painted ware below the Bakun B1 levels, as reported in the very short Japanese reports. In fact, an intensive surface survey of the site also failed to reveal any Jari painted ware. The few potsherds of buff-painted ware we found on the surface and in some disturbed upper levels of the mound belonged to the Bakun B2 phase, though a few of the sherds illustrated by Namio Egami, Seiichi Masuda, and Takeshi Gotoh (1962, pl. 3:1, 5, 20) may belong to the later Gap phase.

The findings in our main trench were difficult to reconcile with the Japanese report. We therefore opened three more trenches. We placed one at the eastern edge of the mound and another on the northwest section of the mound. The third trench was placed in the unexcavated area of the baulks of the Japanese trenches, right in the center and therefore at the highest part of the mound. In two of these trenches, close to the surface of the mound, we found spo-

radic pieces of Bakun B2 painted buff ware, but no architecture. Below this top, disturbed level, as at Tall-e Bakun B, a 50 cm thick layer of a greenish gray deposit was found. Below this apparently sedimentary layer, we found nothing but traces of ovens, burnt surfaces, stone pavements, and the typical coarse pottery of Bakun B1. We did not continue this trench to the virgin soil, but in our third trench on the northeastern slope of the mound, where we reached the virgin soil, the deposit consisted of numerous thin layers with only Bakun B1 pottery, bones, and stone tools. After excavating another 60 cm into the virgin soil, we abandoned the trench.

Our tentative solution to the problem of the absence of Jari painted deposits in our excavated trenchs is that during the Jari painted phase (Archaic Fars 2 phase), Tall-e Jari A had been occupied by a few families whose remains had been excavated by the Japanese expedition. The following Early Fars phase (Bakun B1) grew around and over the earlier phase.

Tall-e Jari B

Our intensive surface survey at Tall-e Jari B revealed only Jari painted and plain wares, with no traces of Early Fars plain coarse ware or black-on-buff ware of the later phases. We excavated three trenches (1.0 × 1.5 m) at this site and continued all of them to the virgin soil and below. The earliest occupational levels are, as at Tall-e Jari A, just below the level of the present plain. Moreover, in our trenches we encountered pisé and straw-tempered mudbrick structures; the material culture, including pottery, was homogeneous from the top to the bottom. Nevertheless, as Egami (1967: 2936) originally suggested, the initial occupation at the basal level of Jari A seems to be earlier than the earliest deposit at Jari B.

In her detailed analysis of the sherds from Tall-e Jari B, Akiyo Maeda (1986) considers her Type D-a (Maeda 1986, fig. 7:1–11) as the earliest class of the Jari painted pottery. This is a type of painted design that resembles one of the most typical Mushki painted designs that consists of an interlocking pattern of diagonal zigzags with bars tipped with a dot. This is the predominant type of painted pottery at the basal levels of Tall-e Jari A (Egami, Masuda, and Gotoh 1977, pl. 5). In our excavations at Tall-e Mushki (Alizadeh, Zeidi, et al. 2004, fig. 5B), it is this type of pottery that first appears along side with that of Mushki in Level 12, halfway through the sequence. Moreover, this class of pottery was also found associated with the earliest phase at Toll-e Bashi in the Ramjerd area of the Kur River Basin, stratified below the sherds decorated with the typical Jari "ladder" motif (Reinhard Bernbeck, pers. comm.).

Tall-e Mushki

We opened a large, 3 × 6 m, stratigraphic trench close to the center of the mound but away from the previous excavation areas. We also opened three smaller, 1.0 × 1.5 m, trenches on the western and southern parts of the mound. While our main 3 × 6 m trench was excavated stratigraphically, others were excavated in arbitrary 20 cm levels. All the excavated areas produced pisé, mudbrick walls, and domestic structures such as ovens, fire pits, and storage bins. In our main trench, the fabric of the painted ware is predominantly buff down to Level 15, where the typical Mushki red burnished ware dominates. But the most interesting finding was the presence of a class of pottery in the lowest levels of our small trenches that combined the Jari and Mushki designs on both red and buff wares; this type of pottery was absent from our main 3 × 6 m stratigraphic trench. The facile interpretation, which is supported by radiocarbon dates (see *Appendix A*), is that the two cultures overlapped for some time and that people who used only Jari painted pottery lived along side those who used Mushki pottery at the same settlement. This observation and the absence of similar overlap at Tall-e Jari B indicate the settlement sequence of the three sites, beginning with Mushki, then short and limited occupation at Jari, A and ending with the occupation of Jari B (Alizadeh, Zeidi, et al. 2004).

THE JAPANESE EXCAVATIONS IN FARS

The Japanese involvement in Fars (and in Iran) began with two small trenches at Tall-e Bakun A and B in 1956 (Egami and Masuda 1962). After this initiation into Iranian prehistory, various Japanese expeditions conducted archaeological excavations at four other prehistoric sites in the Marv Dasht Plain, i.e., Tall-e Mushki, Tall-e Jari A and B, and Tall-e Gap.

Tall-e Mushki

This small circular mound (70 × 75 m) is located in the Marv Dasht Plain, 200 m northwest of Tall-e Jari A and about 12 km southeast of Persepolis (fig. 2). The site was first excavated in 1952 by Vanden Berghe (1952: 214) and in 1965 by a Japanese expedition directed by Fukai (Fukai, Horiuchi, and Matsutani 1973). The Japanese team divided the entire excavated area into five phases, of which Level V is the earliest. Both pisé and straw-tempered mudbricks were used in the architecture. The remaining structures do not show any complete architectural plan. The mudbricks, when articulated and distinguished, measured 25.0 × 12.5 × 10.5 cm (Fukai, Horiuchi, and Matsutani 1973: 18). Pottery existed throughout the sequence. Both red-washed and buff-slipped varieties were found, but the former type was more frequent and more often burnished than the latter variety. Sometimes the interiors of the vessels made of a buff-slipped variety have an exterior red wash (Fukai, Horiuchi, and Matsutani 1973: 24). Curiously, the painted pattern is usually left unburnished, indicating that the burnishing was done before the decoration was applied to the vessel. Sharp carination is a common feature and the painted panel almost always appears above the carination. Overall painted designs appear exclusively on vessels without carination. The artifact assemblage, similar to that of Tall-e Jari B, is simple and consists of stone and bone tools, a few cold-hammered copper points, flint blades, stone bracelets and labrets, shell ornaments, and simple animal figurines.

Tall-e Jari

Located also in the Marv Dasht Plain, Tall-e Jari consists of two mounds about 150 m apart (fig. 2). Final results remain unpublished and the only available report (Egami et al. 1977) is laconic. The earlier mound is designated as Jari A (lowest level/Level III) and the later, Jari B (Egami 1967). Both mounds are about 120 m long and rise to 2.5–2.8 m above the surrounding plain. From the beginning of the settlement, both pisé and mudbricks were used in constructing small, rectangular rooms. Three architectural phases, designated Levels I–III, are documented at Jari A. A soft decorated pottery with simple geometric motifs and a coarse, straw-tempered plain ware are characteristic of the basal Level III. This level was separated from the following Level II by a 40 cm thick clayish soil (Egami et al. 1977: 3), indicating a hiatus between the two phases of occupation. Level I contained some mudbrick architecture accompanied by the typical Bakun B2/Gap black-on-buff painted ware.

From the published report, we know even less about Tall-e Jari B. The typical Jari geometric painted pottery is found in association with small, cubic rooms ranging from 3.5 × 2.5 m to 2.0 × 1.5 m (Egami and Sono 1967: 2936–38). Some of these structures had stone foundations and red paint was used to decorate some walls. Clay animal figurines, flint blades, personal ornaments made of stone and shells, simple bone and stone tools, and a few cold-hammered copper pins were the usual artifacts. Except for a doubtful child burial, no other intramural burials were found.

Tall-e Bakun

The Japanese excavations at Tall-e Bakun B were brief and limited (Egami and Sono 1962). An area of 2 × 6 m was opened and continued down to virgin soil. The results, though not reported in any detail, were almost the same as those of the Oriental Institute excavations. The Japanese expedition also conducted a limited excavation at Tall-e Bakun A, but their report (Egami and Sono 1962) adds little to that of Langsdorff and McCown.[105]

Tall-e Gap

This site is actually a cluster of seven mounds, the largest of which is called Tall-e Gap (the "Big Mound" in local vernacular), or Gap A. The mound is located some 15 km southwest of Persepolis (fig. 2). The main mound (Gap A) rises to about 5 m above the surrounding plain and measures 120 m in diameter. Based on the vertical distribution of individual painted pottery designs, the archaeological materials and architectural phases are divided into two main periods, Gap I and Gap II. In turn, each is divided into sub-phases.[106] Two radiocarbon dates were reported for Gap I (5870 ± 170) and Gap II (5440 ± 120). Both dates are uncalibrated and too old for either phase (see *Appendix A*).

105. The Japanese did not provide a plan of the site, so the location of their area of excavations has been reconstructed according to the description of the area and my own observations at the sites.

106. Egami and Sono 1962: 13–20.

No general architectural plan was revealed. The few fragmentary units were small rectangular rooms whose pisé walls were covered with several thin layers of mud plaster. Three prehistoric intramural burials were found, but no information on their context was provided. This presumably farming community supplemented its diet with hunting wild animals such as gazelle, deer, and wild boar. Although the pottery at Tall-e Gap anticipated the Bakun A pottery, nothing else at the site prepared us for the complexity we see at Tall-e Bakun A, perhaps chronologically separated from Gap by one or two generations.

THE BRITISH EXCAVATIONS IN FARS

Tall-e Nokhodi

This small mound, 120 × 80 × 2 m, is located in Dasht-e Marghab the locus of Pasargadae (fig. 2), north of the Marv Dasht Plain. Ali Sami (1956) of the Iranian Archaeological Center had first briefly excavated the site. In 1961 and 1962, Clare Goff (1963, 1964) conducted a series of excavations there. The top two layers, 1 m thick, revealed red and gray pottery, overlying other deposits with typical painted Bakun A pottery. In Level II, in Trenches A and B, pisé walls on a pebble foundation were found. In the lower layers of Level IV, a similar type of architecture was decorated with red paint. No metal objects or seals were found in Levels III–IV (Goff 1963: 50). Level II, though considered as related to the Lapui redware, produced some painted pottery similar to that of Bakun A (Goff 1963: 46). While some examples of the redware found at Nokhodi may be related to that found at Tall-e Bakun and Lapui, W. Sumner (pers. comm.) thinks that the Nokhodi redware belongs to the much later Kaftari red-slipped ware of the early third and early second millennium B.C.

The limited excavations at Tall-e Nokhodi did not add much to our knowledge about the Tall-e Bakun A culture, except that there is a degree of differentiation between Bakun A and its contemporary sites. Because of the limited exposures at Tall-e Nokhodi, the results of Goff's excavations can not be conclusive, and a larger exposure may yet bring to light confirmatory or contradictory pieces of evidence as to the continuity or discontinuity between the phase represented by Bakun A and that represented by Lapui.

Do Tulan and Deh Bid

In 1934, when Mark Aurel Stein (1937) was conducting his archaeological survey in the Dasht-e Marghab area, many small prehistoric sites attracted his attention. Stein conducted archaeological investigations at two of these mounds, Do Tulan and Deh Bid. The former is situated on a natural conglomerate outcrop on the left bank of the Sivand River, about 1 km south of Pasargadae. Deh Bid, now in the center of the provincial town of Deh Bid, lies about 50 km north of Pasargadae (fig. 3). Both of these sites are located on the ancient and present highway linking Fars and its coastal region to Esfahan and the Central Plateau. Prior to the forced settlement of the mobile pastoralist tribes in the 1950s and 1960s, Deh Bid, like the now deserted town of Deh Dasht, was the last urban center where the migrating tribes could obtain their needed goods before entering the intermontane valleys in the northwest.

Do Tulan (literary "Two Mounds" in the local vernacular) is a twin mound, sitting closely together on two natural hillocks, designated by M. A. Stein as A and B (1937: 218). Mound B contained material from the Islamic period; Mound A yielded black-on-buff and plain ceramics. The excavations of Mound A revealed a mudbrick wall some eight courses high; the bricks measured 45 × 30 × 10 cm (M. A. Stein 1937: 218), close to the size of mudbricks discovered at Tall-e Bakun A. At a lower level, two more walls of similar construction were found. The painted pottery associated with these lower walls was similar to that of Bakun A (M. A. Stein 1937, pl. 28:39, 46–49). In another part of the mound, a mudbrick platform was found. The bricks were of a slightly different size, 50.0 × 30.0 × 12.5 cm, from those used in the walls (M. A. Stein 1937: 220). Later, Goff examined this platform while conducting excavations at Tall-e Nokhodi and reported that the platform was preserved up to 2 m high and had been cut into by Muslim graves. Goff's brief investigation produced pottery datable to the Achaemenid period from under this platform (Goff 1963: 41, fig. 7:18–19). However, Goff (1963: 41, n. 1) soon gave up further investigation, as she found the mound in a much-disturbed state in 1961. It is possible that this mudbrick platform dates to a much later period than that which Stein suggested, but the similarity of the mudbricks used in the platform to those used in the walls built during the Late Fars phase, the associated Bakun A pottery, and the heavy disturbance by the local people keep the question of its date open.

Deh Bid was founded on a sandstone terrace (M. A. Stein 1937: 213). The mound is referred to by the local people as Qasr-e Bahram or Tall-e Bahram (Palace of Bahram or Mound of Bahram) and considered in the popular

tradition as the residence of the Sasanian Bahram. On the summit of the mound are remnants of a mudbrick castle or fortification. Stein opened several trenches and dug them to virgin soil. From the depth of 30 to 120 cm, numerous pieces of Bakun A painted pottery were found (M. A. Stein 1937: 214). The depth of the deposit varied due to the uneven surface of the terrace on which the mound was formed. Other objects reported from the site include three stone stamp seals, three copper needles, copper ore, several fragments of alabaster cups, and two obsidian blades (M. A. Stein 1937: 216–17). Architectural remains included fragmentary mudbrick walls and two wells, of which one was lined with small baked bricks, obviously from later periods (M. A. Stein 1937: 214–16). Resumption of excavations at this northernmost Tall-e Bakun A site would have been promising had it not been for the fact that the mound is almost completely destroyed and is now surrounded by private houses. The modern ethnic and economic character of the town of Deh Bid as a market town populated with former Qashqaii and Khamseh tribesmen, nevertheless, may reflect its ancient importance as the last station for the migratory tribes of the region.

With this brief survey of the results of excavations at some prehistoric mounds in Fars, we may now turn our attention to the problems of chronology, stratigraphy, and stylistic analysis of the various classes of pottery reported from these sites.

THE ANTECEDENT TO THE EARLY NEOLITHIC CULTURES OF FARS

How, when, and from where the first farmers settled in Fars is unknown. In *Chapter 1*, we suggested a formative phase for Fars based entirely on stylistic analysis and rarity of a class of pottery ("Swoosh Ware") that is reported from only two sites in the Kur River Basin. Archaeological excavations, however, so far have failed to discover in Fars any Neolithic culture earlier than Mushki. But it is possible that even earlier, perhaps aceramic, cultures that preceded Archaic Fars 1 phase existed. This possibility can be examined only through intensive walking surveys designed primarily to find early low mounds. Until then, we will have to assume that Mushki represents the earliest occupation in Fars.

In a general sense, the early Neolithic ceramics in Fars may be linked stylistically to the contemporary or earlier cultures of the central Zagros Mountains, a possible origin for the early Neolithic culture in Fars. Among the early Neolithic central Zagros cultures, the Qaleh Rustam I and II potteries show the closest affinities with those of the early Neolithic sites in Fars, namely Tall-e Mushki, Tall-e Jari, and particularly Kutahi.[107] Apart from the specific motif of the joined "Y"s and inverse "Y"s that is common at Mushki (Vanden Berghe 1952, fig. 29; Fukai, Horiuchi, and Matsutani 1973, pl. 47: 6), the pottery found at Qaleh Rustam (Nissen and Zagarell 1976, figs. 3–6; Zagarell 1982; Bernbeck 1989) also shares the specific organization of design that borders the main panel by single solid bands on the top and the bottom. The Qaleh Rustam phase I pottery is the most interesting. It exhibits bold and complex geometric designs and abstract, but recognizable, human faces in a variety of configurations (Nissen and Zagarell 1976, fig. 5: 5–11), as well as a predilection for using reserved areas as integral elements of design (Nissen and Zagarell 1976, figs. 3–5). This style reaches its zenith at Tall-e Bakun A during the Late Fars phase.

No absolute date for Qaleh Rustam I is available, but most probably it is contemporary with the Archaic Susiana and the Mohammad Jafar phase and basal levels of Chogha Sefid of Deh Luran. As such, the Qaleh Rustam I pottery is unlike any contemporary pottery assemblages, and the complexity of its bold, decorative designs is unprecedented among early Neolithic Near Eastern cultures. Taken together all the characteristics of the Qaleh Rustam pottery and its apparent shared elements with those from Fars, it is tempting to look for the origin of Mushki and Jari ceramic traditions in the Shahr-e Kurd and Khaneh Mirza areas in the Zagros Mountains.[108] These regions are not well known archaeologically and further investigations may reveal even stronger, more secure links to Fars.

THE CHRONOLOGICAL PROBLEMS OF TALL-E JARI AND TALL-E MUSHKI

Prior to a series of Japanese excavations at Tall-e Mushki, Tall-e Jari A, and Tall-e Jari B, Vanden Berghe's view that Jari painted pottery was earlier than Mushki was accepted. After the Japanese expeditions, however, the chronological position of Jari painted pottery has been questioned. Even though no reliable radiocarbon dates were available to support the chronological position of these early cultures, two short yet crucial statements by the Japa-

107. Compare Sumner 1977, fig. 4:F–J, with those cited from Qaleh Rustam.

108. See Alizadeh 1992: 24–25 for a discussion and examples of the dot motifs.

nese excavators provided circumstantial evidence that the Mushki phase is somewhat earlier and that for some undetermined period of time the two cultures may have co-existed. In a short article, Egami (1967: 29–39) reported that the lowest level at Jari A contained a number of Mushki potsherds; whether these sherds were associated with the typical Jari pottery is unknown. The reverse situation is observed at Tall-e Mushki where typical Jari painted pottery is found in two trenches (J-11 and L-13; Fukai, Horiuchi, and Matsutani 1973: 33, pl. 24). Again, no further information is provided on the stratigraphic relation between the two potteries. The co-existence of Jari and Mushki potteries at both sites suggests that although Mushki may be somewhat earlier, at some point both cultures developed side by side, and Jari eventually replaced Mushki.

Our 2004 excavations at Tall-e Mushki showed that Jari painted pottery appears in mid-sequence (Level 15) and persists alongside with the typical Mushki pottery until the site is abandoned. Apart from this stratified evidence, our excavations at both sites provided a number of calibrated radiocarbon dates (see *Appendix A*) that clearly show Mushki as the earlier culture and that the two cultures overlapped for one to two hundred years.

Furthermore, stylistic analysis of the ceramics of both cultures indicates that they share some fundamental similarities in the execution and combination of painted geometric motifs. At first glance the ceramics of Jari and Mushki look different, but a closer examination reveals a number of similarities. In both traditions, the use of dots as a prevalent filling and decorative motif is common. In fact, Jari and Mushki are the earliest cultures that made extensive and systematic use of dots as integral part of the overall design. This tendency to use dots continued into the later prehistoric period at Tall-e Bakun B, Tall-e Gap, and Tall-e Bakun A, presumably reaching Susiana and even the central Zagros Mountains during the Late Susiana 1 phase. The most common painted decoration scheme of the Mushki pottery consists of a series of diagonally arranged multiple stepped lines, from the apex of each step rises a dash tipped by a dot (Fukai, Horiuchi, and Matsutani 1973, pls. 47–48). A variant of this motif consists of single diagonal lines (Fukai, Horiuchi, and Matsutani 1973, pl. 23: 1–7) and it is this simpler version that is most closely paralleled at Tall-e Jari (Vanden Berghe 1952, fig. 28).

Bold motifs are rare in both Tall-e Jari and Tall-e Mushki ceramic assemblages. Nevertheless, the few that occur are very similar. A prominent bold motif consists of a series of opposing hatched dovetailed triangles separated by a continuous zigzag that is either solid (Vanden Berghe 1952, fig. 28) or rendered in reserve (Fukai, Horiuchi, and Matsutani 1973, pl. 20:4). This motif has a long history and dates back to the Susiana Archaic 0 (Alizadeh 2003a, fig. 27:K–L) and Archaic 1 phases (OIP 101, pls. 228:F, 229:K) and continued for several millennia (Alizadeh 1992: 25).

THE CHRONOLOGICAL PROBLEMS OF TALL-E GAP

Before the excavation of Tall-e Gap the relation between Bakun B2 and Bakun A was at best unclear. We still do not have any immediate ancestor to the Bakun A ceramics. Nevertheless, even the most recent chronological analyses (Dittmann 1984; Hole 1987; Voigt and Dyson 1992) uncritically accept the division and subdivision of the materials and stratigraphy of Tall-e Gap and consider Gap Phase IIa and Tall-e Bakun A Levels I–II as contemporaneous, representing the "Middle Bakun Period." As we see in the chronological discussion, the entire sequence of Bakun A postdates Tall-e Gap and that the latter is a transitional period from Bakun B2 to Bakun A.

The Tall-e Gap publication is devoted to the details of the ceramic typology with very little discussion of the stratigraphy of the site on which the dating of the pottery types and subdivision of the sequence must be based. Materials from Tall-e Gap are assigned to two major periods; each of the periods is then subdivided into several phases corresponding to certain "levels" (Egami and Sono 1962: 1–3). These levels are not described or analyzed and their relationship to one another is not known, nor is the nature of their deposits. Moreover, the section drawings (Egami and Sono 1962, figs. 5–6) illustrating the position of the levels reveal that in an area of about 40 m long, all layers are supposed to be connected and related to one another, even though many of them are physically either interrupted by various features or are separated by large unexcavated portions of the mound. Thus, the division and subdivision of the material culture are not done by stratigraphic association, but rather by various ceramic types regardless of their stratigraphic contexts. This mechanical method of lumping together unconnected depositional layers that are excavated in different areas and considering them and their contents as one sequential order (which is then used to represent chronological stages at the site) has no doubt affected the ceramic sequence assigned to these levels. Certainly at Tall-e Gap one can observe two distinct but related stages of development as reflected in the pottery and architecture, but unless there is a detailed stratigraphic analysis on which to base the study of the distribution of the types, it is unwarranted to break the stratigraphy into well-defined phases.

To date, Tall-e Gap is the only excavated site in the Marv Dasht Plain that provides a link between Bakun B2 and Bakun A. Gap II has numerous parallels for the later Bakun A.[109] The classic Bakun A shapes (e.g., figs. 26, 28:D–F, 31:A, C) and painted motifs such as stylized lizards (OIP 101, pls. 4:2, 66:7–9), mountain sheep and goats with large, upward sweeping and spiral curved horns (figs. 27:D, 33:A–B, D), and complex geometric designs (figs. 30:A–C, 27:C, 31:A, C) are absent from Gap, suggesting the existence of an as yet undiscovered phase between the terminal Gap II and beginning of the Bakun A period.

Any discussion of the chronological position of Tall-e Bakun A in Fars prehistoric sequence, however, could not ignore the importance of the materials from Tall-e Gap. But the division and subdivision of the Gap sequence must be used with caution because the stratigraphic information provided in the publication is inadequate for a detailed study of the stratigraphy and ceramic chronology and typology. Nevertheless, the assemblage as a whole is extremely important in determining the chronological relation between Bakun B2, Gap, and Bakun A.

THE PROBLEM OF LAPUI REDWARE

As at Tall-e Bakun A, most of Bakun A sites are strewn with a well-baked red pottery known as Lapui ware. Thus a brief review of this distinct ware and its possible relation to the preceding Bakun A ceramic is necessary. In his archaeological survey of the Kur River Basin, Sumner (1972: 41–42) identified this redware and assigned it to a chronological phase that follows Bakun A painted ware. He noticed that many sites with painted Bakun A pottery bear this redware. Though Sumner's identification of this redware, termed Lapui after the type site, provided a good candidate to fill the chronological gap between the terminal Bakun A and the later phases, we are still uncertain as to whether there was any overlap of the two wares and, if so, how long it lasted, or whether the transition was complete and abrupt. While our 1995 surveyed failed to find Lapui redware at Tall-e Gap, William Sumner (pers. comm.) believes there is a Lapui component at the site.

Lapui Fine Ware

Lapui ceramic assemblage consists of two distinct wares: Lapui fine and common wares. Lapui fine ware is a well-fired, hard, and sand-tempered pottery with occasional pieces of straw and chaff mixed in. The fine sand is often invisible to the naked eye, but small to medium calcite particles appear on both surfaces. The pottery has a wide range of color spectrum; the color ranges from yellowish red (5YR-5/6) to red pink (2.5YR-5/8–5/6) and reddish yellow (7.5YR-6/8). Some pieces that are mottled exhibit two to three colors. The surface is usually polished and very smooth. Some pieces have a brownish (7.5-5/4-6/4) or grayish (5YR-5/8) slip on the exterior surface. In open vessels with pedestal or ring base, sometimes both sides have a reddish buff slip (7.5YR-6/4), in which case the core is red. All pieces have a clinky ring to them and break with straight edge.

Irregular interior striations indicate the pottery is handmade or at least turned on a slow wheel. In jars with an overhanging or an everted rim, the rim is separately made and attached to the body, where seams are clearly visible. No intentional burnishing is evident except in cases where scoring was strong. The exterior surface is almost always scored with stripes 3–4 mm wide, applied horizontally or diagonally, but without showing any sheen. In such cases it is impossible to say if the pottery has a slip, though in few cases, there is a slight difference in the tone of the surface and its immediate background. The core is usually the same color as the surface, but some pieces, regardless of the their thickness, have a layer of reddish gray sandwiched between two layers of red. Rarely, some pieces have a dark red slip or even wash. Examples of burnished and painted with simple geometric motifs are rare but also reported from other Lapui sites, though not from Tall-e Bakun A.

Lapui Common Ware

Dark grits are the primary inclusion in this ware, but occasionally calcite particles and chaff are mixed in. Both on the surface and in the core, air pockets are visible. It breaks with an uneven edge; pieces with a cracked surface also occur. The core is usually dark or light gray and changes abruptly to about 2 mm of reddish, brown surfaces. The surface color ranges from brick red (10YR-5/8) to reddish brown (2.5YR-4/4) to light red (2.5YR-6/6) and

109. See, for examples, Egami and Sono 1962, pls. 10:2, 21:1, 4, 29:3, and fig. 17:6–7, 9–11.

even mottled buff. Some pieces have dark color on the interior and red, brown, or even reddish yellow on the exterior. Some thinner pieces do not have a gray core at all. Some have a deep red or pink color as a wash or slip.

Sumner found Lapui ceramics on 101 sites, with thirty-five sites bearing only Lapui redware. In his survey of the Persepolis and Shiraz plains, Gotch found eighteen sites with only Lapui ceramics, but many sites having both black-on-buff painted and red Lapui wares (Gotch 1968: 168–70). One interesting site was Hena A on which Gotch found two distinct sections; on the west only plain redware was found, and on the east only buff painted was present (Gotch 1968: 170). The fact that Lapui ceramic occurs on many sites with Bakun A painted pottery and the fact that the common redware occurs both at Bakun and Lapui sites, indicate a degree of continuity between the two phases, especially that the common redware was mainly used for cooking and thus associated with daily life. Nevertheless, the available archaeological data fail to shed light on the relationship of the two cultures.

Lapui Redware and Bakun A Painted Ware at Tall-e Geser[110]

The presence of the Lapui redware in the tribal region west of Fars (the Behbahan/Ramhormuz area, fig. 3), where Bakun A related pottery is also found, is consistent with the chronological relation and cultural link of these two diagnostic ceramics (M. A. Stein 1940: 79–80, 128; Dittmann 1984). McCown excavated Tall-e Geser in the Ramhormuz area in 1948 and with Caldwell 1949 (McCown 1954: 59; Caldwell 1968). Tall-e Geser is an important site for its almost uninterrupted sequence from the late prehistoric to the Elamite periods. Relevant to the present study, however, is the earliest occupation of the mound and its transition to the Protoliterate period.

Two areas were chosen for excavation: one on top of the mound (Stake Trench) and the other on the side of the mound (Step Trench) where virgin soil was reached. Levels 1–6 in the Step Trench yielded black-on-buff painted, plain buff and a small amount of red slipped ceramics. The few illustrated painted examples (Caldwell 1968, figs. 1–5), as well as the archival materials from the excavations at the site, now at the Oriental Institute, are unquestionably of Bakun A type. The description of the coarse and fine redwares matches the coarse cooking redware, so prominent in all prehistoric sequence of Fars and the Lapui redware. The upper Levels 7–10 provided evidence of transition from prehistory to the Early–Middle Uruk/Susa, Acropole I, Levels 23–19. Levels 11–38 contained materials dateable to the Protoliterate/proto-Elamite periods (Caldwell 1968, figs. 11–34). Unlike the situation in the Marv Dasht Plain, here the black-on-buff pottery did not abruptly disappear but continued alongside the redware and gradually disappeared (Caldwell 1968: 349). Excavations in the Stake Trench did not penetrate below the Protoliterate levels.

The prehistoric trend of continuation of a redware into at least two consecutive phases and displacement of decorated wares from one phase to another is further evident in still later periods. John Alden reports at least eight sites with mixed Banesh and Lapui ceramics in the Kur River Basin (Alden 1980: 2). Moreover, the much later Kaftari and Qaleh ceramics, 2200–1800 B.C., also were contemporary for some time until, apparently, the Kaftari disappeared (Jacobs 1980; Sumner 1972: 45–49). In the following phases, Shogha and Teymuran, 1800–800 B.C., Qaleh pottery lingers for a while, perhaps until 1650 B.C., and then disappears (Jacobs 1980: 1–5). This situation indicates at least a degree of cultural continuity in Fars for several millennia, despite the disappearance of certain classes of painted pottery.

Any conclusive and detailed analysis of the stratigraphy of Tall-e Geser must await its final publication. However, it is clear that the site was occupied at a time approximately contemporary with the end of the Middle Susiana period (in Susiana) and Middle Fars 2 (in Fars) and continued into the proto-Elamite phase. While the archaeological material from Geser shows that the disappearance of the black-on-buff was not abrupt, it demonstrates that sometime during the Proto-Banesh phase the parallel cultural developments in Fars and in the Ramhormuz area were disrupted. The latter area fell into the sphere of Susiana influence, reflecting perhaps the establishment of state organizations in Susiana and Fars and the ensuing struggle for political and economic hegemony in this tribal buffer zone.

The political history of the Ramhormuz and Behbahan area resonates with the archaeological links to Fars. From at least the Sasanian period, the Behbahan area was the boundary between highland Fars and lowland Susiana (Ibn Hawqal 1873: 191). Although the Ramhormuz and Behbahan area is much closer to Khuzestan's centers of population, until recently these areas were under administrative control of Fars Province. The Fars provincial government collected taxes and tributes from this region.[111] Similarly, the mobile pastoralist tribes of Kuh Kiloyeh and Boyr Ah-

110. Ghazir/Qasir is a corrupt version of what the locals pronounce Geser (Ge-Ser).

111. For the history of the tribes in this region, see Amiri 1982; Bavar 1943; Beck 1986; Eghtedari 1980; Garthwaite 1983; Ghaffari 1989; Mirza Mohammad 1983; Varjavand 1967.

madi of this intervening region were usually under the influence of the Fars Qashqaii confederation rather than that of the Khuzestan Bakhtiyari, though shifting alliances were not uncommon.

With this brief survey of the history of archaeological excavations in Fars and the present chronological problems, we may now turn to the results of the major surveys conducted in the region.

PART 2: ARCHAEOLOGICAL SURFACE SURVEYS IN FARS

INTRODUCTION

A number of archaeological surface surveys have been conducted in Fars, but none has been fully published.[112] In a series of campaigns, Stein undertook the first extensive archaeological surveys and excavations in Fars and southwestern Iran (M. A. Stein 1936, 1940). His investigations brought to light many historical monuments and prehistoric mounds. Though the prehistoric Bakun culture of Fars had already been somewhat known through Herzfeld's excavations at Tall-e Bakun A (Herzfeld 1929, 1932), it was Stein who discovered the widespread geographical extension of this culture in Fars and southwestern Iran (M. A. Stein 1936, 1937, 1940). However, the prehistoric cultural sequence of Fars remained sketchy and little known until Vanden Berghe, on the basis of his own surveys and test excavations, proposed a cultural sequence that ranged from the Neolithic through the end of the second millennium B.C. (Vanden Berghe 1966).

Vanden Berghe's Fars chronological sequence was later modified and refined as more excavations and surveys were undertaken in the Kur River Basin (Sumner 1972, 1977, 1986a; Alden 1979, 1980), the Shiraz Plain (Gotch 1968, 1969), the Beiza district at Tall-e Malyan (Alden 1979; Sumner 1986b), in the Pasargadae Plain (Stronach 1978), at Tall-e Nokhodi and Du Tolan (Goff 1963, 1964), in the Fasa and Darab regions (de Miroschedji 1972, 1974), at Tall-e Mushki (Fukai, Horiuchi, and Matsutani 1973), Tall-e Jari (Egami et al. 1977), and at Tall-e Gap (Egami and Sono 1962). The main locus of these investigations, however, was the Kur River Basin and the Shiraz area, and therefore comparatively little attention was paid to other regions in Fars. Consequently our understanding of cultural development in Fars is limited to the Kur River Basin.

Sumner, however, has extensively utilized the data from his survey to reconstruct systematically the history of settlement patterns in the Marv Dasht Plain from early Neolithic times to the end of the Persian Achaemenid period. As summarized in table 29, Sumner has dated eight sites to the Archaic Fars 1 (Mushki phase) and fifty sites to the Archaic Fars 2 (Jari phase). In the following Early Fars (Bakun B1), represented by a coarse ware, the population doubled in size and continued to increase steadily in the following Middle Fars and Late Fars phases (Sumner's Bakun phase) with 156 certain habitation sites. The following Proto-Banesh phase (Lapui phase) witnessed a reduction in both the population and the number of sites.[113] Sumner's survey data clearly show that after a steady increase in the region's population from the early to terminal Neolithic in the early fourth millennium B.C. there was a sharp decrease in the number of sites, a development that is considered by Sumner as an indication of a change from irrigation agriculture to pastoral nomadism with some farming (Sumner 1988, 1994).

As noted earlier, Sumner's Bakun period consists of at least three distinct phases represented by the distinct pottery traditions of Middle Fars 1 (Bakun B2), Middle Fars 2 (Gap), and Late Fars (Bakun A). Sumner (1994) reevaluated the periodization of his "Bakun phase" and divided this long period into two stages; each stage is conceptualized as a group of likely contemporary sites. In our periodization, we rely more on stylistic grounds and assume each phase represents a block of time, though our evidence is not necessarily more secure than that used by Sumner. Thus the 156 sites, dated by Sumner to the time span that precedes the presumed period of nomadism in Fars, represent an inflated figure for the settled population prior to the Proto-Banesh phase. The Tall-e Bakun sites are small and, judging by data from the ethnographic present, not all of them need be year-round occupied villages.

The results of my analysis of the sherds from the thirty-six sites surveyed and reported by Sumner are as follows: ten sites with positive and fifteen sites with possible Late Fars (Bakun A) components, fourteen sites with positive and fourteen sites with possible Middle Fars 2 (Gap) components, and three sites with positive and four sites with possible Middle Fars 1 (Bakun B2) components. The reason for this uncertainty is the lack of clear characteristic sherds in the samples gathered from these thirty-six sites. This uncertainty notwithstanding, the data, as I interpret them, indicate a gradual increase in mounded sites from the Middle Fars 1 to the Late Fars phase and a sharp increase in the number of mounded sites during the Proto-Banesh phase (Sumner's Lapui phase).

112. See M. A. Stein 1936; Vanden Berghe 1952, 1954; Gotch 1968, 1969; Sumner 1972, 1977; de Miroschedji 1972.

113. For a detailed analysis of these phases, see Sumner 1972, 1977, and 1994.

If the evidence of the region's depopulation is taken as a reflection of the putative tension between the mobile pastoralist and settled farming communities by the second half of the fifth millennium B.C., then the following increase in the regional population may reflect the resolution of this conflict and the establishment of the regional elite at Tall-e Malyan.[114] As mentioned before, no Proto-Banesh (Lapui) site has been excavated, so that we could not make any judgement on the change and continuity that took place during post-Bakun times. If the desertion of Tall-e Bakun A sites is taken as a setback in the processes of increasing social complexity, then we may attribute this development and the subsequent rise of the early state centered at Tall-e Malyan (ancient Anshan) a few hundred years later to the cycling process of chiefdom[115] societies (Wright 1984: 42–43).[116]

THE LAPUI PHASE AND LATER CYCLES OF PASTORALISM

The settlement at Tall-e Bakun A enjoyed a brief period of prosperity and was apparently suddenly abandoned around 4100 B.C. The following Proto-Banesh (Lapui) phase is poorly known, except for its settlement patterns and its characteristic redware. Sumner sees this phase as a period of shifting emphasis from field crops to sheep and goat herding. The shift is assumed to be evidenced by the spatial patterns of the Lapui as opposed to the Bakun A settlements. Sumner (1990) reports that by the end of the Bakun A phase, the number of sites drops from 156 to 108, of which fifty-two are new settlements while the remainder, fifty-six, overlie Bakun A sites. He argues that pastoralism "is a response to rapidly decreasing productivity in the Soon district caused by salinization and other adverse consequences of agricultural intensification. The initial success of the herding strategy sets in motion a process that leads to nomadic pastoralism …." Sumner's conclusion is based on the number of settlements assigned to the period dominated by the black-on-buff pottery of the Middle and Late Fars phases, i.e., Bakun B2, Gap, and Bakun A phases (table 29). The 156 sites that Sumner assigned to this period cover a span of perhaps 1,000 years and represent three distinct phases: Middle Fars 1 (Bakun B2), Middle Fars 2 (Gap), and Late Fars (Bakun A). Lumping settlements that date to these distinct phases creates an inflated figure against which the number of Proto-Banesh sites suggests a decrease in population. Whereas once 156 settlements are divided into three phases, the Proto-Banesh phase actually represents an increase in the settled population or at least an increase in mounded sites.

Although salinization, for which there is no direct evidence, and its attendant consequences may have had some influence on the socioeconomic and political developments of the fourth millennium B.C., one must bear in mind that the gradual depopulation, shifting of settlement patterns, and the rise of large urban centers in regions where complex societies developed were universal phenomena in the Near East that can not be satisfactorily explained by single environmental causes.

The outcome of the socioeconomic and political developments of the early fourth-millennium Fars is by no means clear. We know little about the period between the end of Bakun A and the beginning of the Banesh phase, when Tall-e Malyan (ancient Anshan) emerges as the regional center with possible state organizations. Perhaps the socioeconomic and political developments that began in the Middle Fars period did in fact continue after the disappearance of its elaborate painted pottery. Indeed, the Bakun A society may represent a case in which the sociopolitical situation may have become complex and mature enough to develop state organizations. Or perhaps Bakun A represents a pre-state community in which administrative problems were changing into political problems as a result of internal competition among the small cadre of individuals who controlled and redistributed resources (Wright 1977a–b). The emergence of an impressive urban center at Malyan, much larger than the contemporary Susa, and the concomitant development of proto-Elamite civilization dominating both the lowland and the southern highlands may well have had their roots in the earlier Late Fars phase.

Following the decline of the Kaftari phase at Tall-e Malyan (ca. 1600 B.C.),[117] Sumner (1972: 252) considered his later phases VI and VII (Shogha and Teimuran, ca. 1600–800 B.C.) as a period of major nomadization, noting that the radical drop in the number of sites and an unprecedented increase in settlement size are indicative of the appearance of a mobile pastoralist population. Contrary to the idea that equates regional depopulation to the rise of mobile pastoralism, a decrease in the settled population of an area and the proportional increase in the existing mobile population may disturb the equilibrium that exists in a region with such mixed subsistence economies. The

114. The settling in Iran of a number of invading Central Asian nomadic tribes is a good historical analogy for this process.

115. By this term we mean any stage prior to the emergence of the state; see Yoffee 1993 for a critique of the term.

116. See also Wright 1987b; Johnson 1987.

117. Based on calibrated ^{14}C dates from Tall-e Malyan (Sumner 2003, table 12).

ethnographic and historical records show that "pure" mobile pastoralists do not exist and that they depend on farmers for the bulk of the cereal they need. In fact, it has been suggested that in southwestern Iran, during the period of fifth/fourth millennium the growth of population in the lowlands was concomitant with the increase in transhumant activities (Wright 1987b). A parallel development can be suggested for the Bakhtiyari Mountains as well (Zagarell 1982).

In addition, historical and ethnographic data — including my own observations — indicate that the major trading partners of pastoral productions involve not the traditional villages, but urban centers. Farmers living in villages all over Iran rarely consume meat in their daily diet and are self-sufficient in producing their own dairy products. Urban dwellers, on the other hand, have to buy or exchange for meat, dairy products, wool, and skin. Self-sufficient villages with a subsistent economy can not possibly meet the urban demand for such products. If the same situation existed in prehistory, we would expect to see the tandem development of and interaction between the highland mobile pastoralist communities and the emergence of urban centers, particularly in lowland Susiana and southern Mesopotamia.

JOINT ICHTO-ORIENTAL INSTITUTE SURVEY IN 1995[118]

Introduction

We have proposed that mobile pastoralism might have been a crucial variable in socioeconomic and political development of highland Iran, particularly in Fars, as early as the late fifth and early fourth millennium B.C. Direct archaeological evidence for the presence of mobile pastoralists in Fars is limited (cf. Sumner 1986: 200). However, the small size, location, apparent lack of architecture, and midden deposits of ash and debris indicate that at least some Bakun A mounds were occupied seasonally (Alizadeh 1988a–b). More important is the existence of flat sites located by Stein in his survey of southern Fars (M. A. Stein 1936: 161, 163, 175, 180) and my own survey in 1995. Additionally, in the upper Kur River Basin (the Ujan Plain) a number of flint sites were found (pl. 10:A; Sumner 1972: 251). This area is traditionally used as a summer pasture by the mobile tribes of the Qashqaii. It must be noted, however, that although it seems obvious that hunters or sedentary herders may have used these sites, it is equally possible that mobile groups had occupied them.

Thus, known Bakun A sites can be assigned to three categories: (1) permanent villages represented by mound sites with architecture; (2) seasonal villages represented by mound sites with little or no architecture; and (3) campsites represented by flat areas covered with potsherds and flint blades. While there is little doubt about the nature of the sites of the third group,[119] the nature and function of the first two groups can be understood only by a detailed analysis of their components, which should reflect the material needs of their occupants. Historical documents, beginning with Arrian (*Anabasis* III.17.1–5), and early travelers (e.g., Bishop 1891; Stack 1882) make it clear that the practice by some highland mobile pastoralists of abandoning their villages for part of the year is old and widespread. Before the introduction of modern technology, the inhabitants of many villages, in the Zagros valleys, for example, moved to the south in the winter, when some of the intermontane plains become flooded and frozen. In the absence of modern roads and technology, year-round occupation of sites in harsh winter climates is almost impossible; in this respect even mounded sites may not have been year-round settlements. These observations need to be considered in the interpretation of regional and interregional population density.

The Bakun A type ceramics have the widest geographic distribution in late prehistoric Iran. Bakun A is formally a homogeneous culture, with slight regional variations in Fars and is represented by a widespread, painted pottery. Outside of Fars this pottery has been found in the Bakhtiyari Mountains (Zagarell 1979, 1982), the Behbahan and Zuhre regions (Dittmann 1984; M. A. Stein 1940), and the Ramhormuz area (Caldwell 1968: 348–50). There is no doubt that Tall-e Bakun A and some other sites were major centers for manufacturing various goods in Fars; it is, however, unlikely that the vast geographical distribution of the Bakun A painted pottery was the result of long-distance trade. Difficulties involved in transporting the fragile Bakun pottery over long distances and through mountainous regions would have rendered trade of this sort neither feasible nor economical. Secondly, the Bakun

118. All the archaeological materials collected in our survey are in Tehran. A final analysis of the survey data can be done only after the material is studied in detail. The following are general remarks and should be considered tentative until the final publication of the survey data becomes available.

119. William Sumner (pers. comm.) believes that destruction by local farmers, erosion, burial by alluvium, and a short duration of occupation may account for the flat sites.

A painted pottery outside of Fars exhibits a limited repertoire of shapes and designs, a characteristic that can be expected in peripheral regions. Thus, Bakun cultural influence outside of Fars in regions traditionally under the sway of numerous mobile tribes may have been the outcome of common cultural and perhaps ethnic backgrounds, which the settled population in Fars shared with the mobile tribes. (A similar situation has been noted for the distribution of the Neolithic Urfirnis pottery in Greece [Jacobson 1984].)

Archaeological investigations in the Behbahan/Zuhre area (Dittmann 1984), the Dasht-e Susan (Wright 1979: 50), and particularly in the Bakhtiyari Mountains (Zagarell 1979, 1982) have indicated that in the fifth–fourth millennia B.C. mobile communities utilized these regions. The fifth millennium B.C. was a period of major changes in the Bakhtiyari Mountains, when there began an increase in the number of seasonal and cave sites. The combined absence of the Susa A pottery and the presence of the Bakun A and Sialk III related ceramics there indicates the connection between Fars and the Central Plateau, pointing perhaps to a shift in regional alliance. This situation seems more important considering that it was in the late fifth and early fourth millennia B.C. that the amount of luxury items such as copper, lapis lazuli, and turquoise increased sharply in lowland Susiana and Fars. Moreover, archaeological data from the Bakhtiyari Mountains suggest a parallel development that occurred in Fars during the first half of the fourth millennium B.C. and culminated in the abandonment of some sites and the displacement of the Bakun A painted pottery by a plain redware (Zagarell 1982: 44–50). The situation is less clear in the Behbahan and Zuhre plains and in upper Susiana. Nonetheless, the appearance and the disappearance of the Bakun A painted pottery in Fars is paralleled in Susiana, the Behbahan/Zuhre region, and the Bakhtiyari Mountains. These circumstances are indicative of parallel developments that occurred in both the lowlands and highlands and require explanations based on interregional development.

In 1995 we conducted an archaeological survey in northwestern Fars. The 1995 survey was conducted as part of a more comprehensive study of the nature of Tall-e Bakun A in its regional context. The archaeological surveys in northwestern Fars were conducted with three specific problems in mind. First, we wanted to map the distribution of sites in the previously unknown remote and mountainous regions northwest of the Marv Dasht Plain. Second, the northwest–southeast parallel valleys in this region are still used by the Qashqaii tribes as migratory routes, and as such, we were interested in the nature of the archaeological sites and their spatial relations vis-à-vis each other and natural resources. Third, we were interested to discover the geographic extent of the Bakun A ceramics and whether it corresponded with the Qashqaii territories. Thus, the most important part of the survey was the information I gathered on the modern demographic makeup of the Qashqaii territory and on the interaction between the nomadic tribes and farming villages in the valleys northwest of the Marv Dasht Plain.

The survey originally involved a combined study of a mobile pastoralist tribe (the Darrehshuri) of the Qashqaii confederacy and an archaeological survey of the valleys through which the Qashqaii migrate to and from their winter and summer pastures. After spending two weeks in Shiraz and Mahoor-Milati (near Nourabad Mamasani), the winter pasture of the Darrehshuri tribes of the Qashqaii, we realized that due to an unusual cool and wet spell, the tribes had postponed their departure to their summer pasture for a month. Limitation of time and money forced us to abandon the ethnoarchaeological part of the project, hoping that in the near future we would be back in the field to resume our research. Nevertheless, we were able to gather general information on the ethnic makeup of the villages we encountered in our survey, and whether the inhabitants of these villages had any kinship relations with the mobile tribes of their territories.

The Qashqaii tribesmen occupy most of the villages in the valleys northwest of the Marv Dasht Plain. Former Qashqaii tribesmen who practice farming permanently settled in some of these villages. Others are occupied by the Qashqaii tribesmen and are abandoned in the harsh winter months. While there is no fundamental difference between the settled Qashqaii villages and those of the local farmers, the seasonal villages are usually between 1 and 2 ha and do not consist of more than 10–15 buildings with a large open space in between (pls. 8, 10:A). If such villages were left deserted long enough, they may form small low mounds similar to the Bakun A sites we discovered in the region. This assumption can be tested by excavation at such sites through a comparative study of the spatial-functional composition of the architecture with that of the modern nomadic villages and campsites.

Results of the 1995 Survey

In the course of our survey, we discovered seventy-seven sites, ranging in date from the early Neolithic to the Safavid periods. Most of the sites were small, between 0.5 and 2.0–3.0 ha, but both larger sites and smaller ones did exist. After a day of work it became apparent that local farmers, in addition to natural forces, have heavily affected

the measurements and taphonomy of the sites. Most of the sites have been virtually destroyed for fertilizer; the soil of the cultivated lands surrounding the mounds was almost always mixed with potsherds. There were even small fertile valleys occupied by a number of villages but with no visible signs of ancient mounds. But a walk across the cultivated fields with scattered potsherds would reveal the remnants of the mounds that once existed in such valleys. Therefore, the statistics that our survey produced do not represent the original settlement pattern and population density in the region. Nevertheless, the general picture during the period of our interest, i.e., the late prehistory (4500–3600 B.C.), is one of seemingly random distribution of small sites with barely recognizable two-tiered hierarchy.

One of our main objectives in the survey was to discover Bakun A sites in the intermontane Qashqaii territories northwest of the Marv Dasht Plain to determine the geographic extent of the Bakun A ceramics in that region. Initially, we were hoping to find in these valleys a late fifth-millennium B.C. site that resembled Tall-e Bakun A and would be comparatively large enough and, relative to other sites, centrally located to provide answers to some of our questions. We found none.

To ascertain the degree of destruction of archaeological sites since 1979, we also visited all the known sites we could locate in the Marv Dasht Plain. The following is a description of the various cultural phases attested in the course of the survey. The relative dating of the sites discovered in the course of the survey is based on the pottery. Ordinarily sherds representing each attested phase should have been illustrated. But because no archaeological materials (save for bones and carbonized seeds) are allowed out of the country, and because it was not possible for me to prolong my stay in Tehran, the time-consuming task of drawing and inking hundreds of potsherds and their detailed analysis have to wait.

We began the archaeological survey on 1 May 1995. As mentioned above, our project was designed to seek answers to a number of questions concerning the geographical extent and the settlement patterns of the Bakun A culture in Fars during the fifth and early fourth millennia B.C. The area we chose to investigate lies to the northwest of the Marv Dasht Plain, which had already been surveyed some thirty years ago by Sumner (1972). Although the southern parts of the survey area overlapped with the region Sumner covered in his survey, the northern parts had not been surveyed.

The region to the northwest of the Marv Dasht Plain consists of a number of parallel valleys that lead to the inner Zagros Mountains through Semirum, the boundary between the Qashqaii and the Bakhtiyari confederacies (figs. 1, 3–5). These valleys vary from less than 1 km to over 5 km in width. They are also different in the quality, quantity, and distribution of natural resources, including spring water, freshwater rivers, firewood, arable land, and so on. On the whole, narrower valleys have fewer modern villages and ancient sites. In the large intermontane valleys that are subject to flooding, both modern villages and ancient sites tend to be situated on the slopes of the mountains. Dasht-e Bakan (about 120 km to the northwest of the Marv Dasht Plain), which was still inundated by the spring rains, clearly demonstrated the reason for this spatial distribution of both ancient and modern sites.

Periods Attested in the Survey

The following is a summary of the various phases attested during our survey.

Archaic Fars 1 (the Mushki Phase). 6400–6000 B.C. Except for the type-site of Tall-e Mushki in the Marv Dasht Plain we found no site of this phase in our survey, nor did we find any site with comparable early Neolithic pottery.

Archaic Fars 2 (the Jari Phase). 6100–5900 B.C. As with the Archaic 1, the Archaic 2 phase sites are found only in the Marv Dasht Plain, not in the survey area, with the remote possibility at Tall-e Nourabad.[120]

Early Fars (Bakun B1). 5400–5200 B.C. This phase was discovered on only four sites and is represented by a soft, straw-tempered plain pottery. A technically improved version of this type of pottery continues into the Middle Fars phase alongside a distinct Susiana-related black-on-buff pottery, resembling most closely the late Middle Susiana pottery of lowland Susiana (Alizadeh 1992). The sites that have both the straw-tempered coarse ware and the black-on-buff ware create a problem in that without excavation it is almost impossible to know with any degree of certainty whether these sites have one or two phases of occupation.

120. Recent excavations at Tall-e Nourabad by a joint team from the Iranian Cultural Heritage Organization and University of Sydney revealed in the basal layers of this site a mixture of the Mushki and a series of local ceramics with strong affinities to those found at Qaleh Rustam in the Shah-e Kur area (Kourosh Rostaei pers. comm.).

Middle Fars 1–2 Phases (Bakun B2 and Gap). 5200–4500 B.C. This phase is known primarily from Tall-e Bakun B (Bakun B2 phase) and Tall-e Gap. Only seven sites in our survey area date to this phase.

Late Fars (Bakun A). 4500–4100 B.C. This phase was attested on only ten sites in our survey area (pl. 9:B–C). Most of the sites were located in the valleys northwest of the Marv Dasht Plain, scattered all the way to Yasuj, the northernmost part of our survey (fig. 4). Most of the sites belonging to this phase are small. With two exceptions they are located not at the bottom of the valleys, but on hillsides, a characteristic of settlements in predominantly mobile pastoralist territories. Almost all the Late Fars sites also contained sherds of the following Proto-Banesh phase, indicating a degree of continuity in the late prehistoric period.

Proto-Banesh (Lapui Phase). ca. 4000–3700 B.C. Twenty-two sites scattered almost evenly in the valleys represent this last prehistoric phase in Fars.

Banesh Phase (*Proto-Elamite*). ca. 3300–2600 B.C. The two sites dating to this phase indicate a drastic depopulation in the region. Both sites are small and one also had Lapui pottery.

Kaftari Phase. ca. 2000–1600 B.C. Fifteen sites are dated to this phase, clearly marking an increase in the population of these valleys after the decline in the Banesh phase.

Qaleh, Shogha, and Teimuran Phases. ca. 1600–900 B.C. Only one site is dated to the Qaleh phase while the Shogha/Teimuran phase is represented by eight sites.

Iron Age III. ca. 700–550 B.C. The presence of a distinct grayware, similar to the pottery from the corresponding phase in the Zagros region and at Chogha Mish (Delougaz and Kantor 1996: 13–18), on twenty sites is indicative of this period. This type of pottery, which may be associated with the Iranian tribes who migrated into Fars, has not been reported from the Marv Dasht Plain or the nearby Beiza district. If this is not an accident of discovery, then this can be taken as evidence of the gradual penetration of these tribes into Fars. These sites are almost evenly distributed in the valleys that are traditionally traversed by the mobile pastoralist tribes of Fars.

Achaemenid Period. ca. 550–350 B.C. The assignment of thirty-nine sites to this period is based on the similarity of their pottery to that found along the fortification walls at Persepolis. Most of the sites dated to the Achaemenid period were small but high, an indication of fortified outposts rather than settlements.

Parthian Period. No sites could be assigned to this period with any degree of certainty.

Sasanian Period. Nineteen sites are dated to this period. However, some of these could be dated to the early Islamic period since Sasanian pottery outlasted the period by at least several generations.

Islamic Period. Most of the sites (fifty-five) discovered in the survey date to this period. The majority of the sites were large but low, so it is likely that smaller ones were completely missed by our survey. The sites that were larger than 10 ha had a topography with associated materials (kilns, slag, burnt soil, and wasters) that indicate industrial quarters.

Summary

In general, pre-Islamic settlements were sparse and relatively small. As in the Bakhtiyari Mountains (Zagarell 1982), most of the pre-Islamic sites were located on the slopes of the mountains bordering narrow and broad intermontane valleys, as are most of the modern-day villages in the survey area.

At least three factors may account for this spatial pattern: (1) some of these valleys, such as the one in Dasht-e Bakan, northwest of the Marv Dasht Plain, are inundated during the rainy seasons, making residence in the low-lying flat areas impossible; (2) most of these valleys were traditionally part of the pasture of the mobile tribes of the Qashqaii; and (3) in most of the areas we visited, valley beds were the only good arable and fertile land available (considering the available technology). It therefore seems that the choice of location of settlements on the slopes of mountains and on hilltops was dictated by the necessity to avoid flooded valley floors, to maximize land use, and by a desire to reduce conflicts between the settled communities and the mobile pastoralists, a situation that was also observed in the Bakhtiyari Mountains (Zagarell 1975, 1978, 1982). Moreover, we also noticed that because of the

fluid nature of mobile pastoralism, some segments of the tribes settle periodically in small villages and towns in their territories to pursue farming by acquiring farmland. Such centers are usually small and preserve their tribal allegiance to the paramount tribal chief.

CHAPTER 5

SPATIAL AND FUNCTIONAL ANALYSIS OF THE SETTLEMENT AT TALL-E BAKUN A

INTRODUCTION

As mentioned in *Chapter 1*, the primary goal of this monograph is to demonstrate that despite its small size, Tall-e Bakun A was a major production and administration center in the Marv Dasht Plain of Fars during the late prehistoric period. This conclusion squarely depends on a functional re-interpretation of the available archaeological materials discovered during the two seasons of excavations.

THE 1932 SEASON OF EXCAVATIONS

INTRODUCTION

The first season of excavations at Tall-e Bakun began in 1932 on behalf of the Oriental Institute of the University of Chicago. In that season, work was concentrated on the northern part of the mound, where an area of about 1,200 sq. m was opened (fig. 7; pl. 1). Four occupational levels were reported, Level I being the lowest and Level III being the best preserved and most extensively excavated (OIP 59, fig. 4).[121]

Langsdorff considered Tall-e Bakun A Levels I–IV as distinct architectural phases. The evidence for Levels I–II is scanty and ambiguous. The architectural remains in Squares Q 28–29, P 28–29, N 27, M 26–27, and L 26–28 were assigned to Level IV because the floors of some of this level's buildings were relatively higher than those of Level III, the main architectural phase (OIP 59: 5–21, fig. 4). The floors and walls of Level IV were not directly above the remains of Level III, but adjacent to them, and thus can be a contemporary addition to the buildings of Level III, especially since the orientation of the Level IV buildings is the same as those in Level III. In Squares N 29–30 and M 29 there were a few traces of walls that were stratigraphically above the walls of Level III, thus representing a chronologically later stage at Bakun. As for the pottery, though there are some signs of later development, any attempt to divide it into neat compartments representing distinct phases corresponding to the architectural phases at Bakun A would be extremely difficult and misleading as McCown himself indicates (OIP 59: 59–60).

The uppermost layer at Tall-e Bakun A presumably contained only the Lapui redware. This layer in the archaeological literature[122] is referred to as architectural "Level V." As far as the final report is concerned, there is no mention of such an architectural level by the excavators. However, in the top plan and cross section of the mound (OIP 59, fig. 4), Karl Bergner, the architect, has indicated small traces of a wall at the northwest corner of the excavation area as "Level V." McCown clears the confusion (OIP 59: 32, n. 1):

> On the plan (fig. 4) a wall fragment assigned to a "Level V" is shown above a wall of Level III. Dr. Langsdorff does not mention a "Level V," and this wall fragment should not be confused with the makers of red pottery. It is unlikely that on the edge of the mound, where the surface level is under +2.5 m, dwellings of the makers of red pottery should be preserved; this wall fragment probably should be assigned to Level IV.

There is no doubt that the Lapui redware found at Bakun A and a number of other sites eventually replaced the fine painted buff ceramics of Tall-e Bakun A and continued perhaps for a few hundred years. The Lapui ware is absent from Tall-e Gap; its appearance in Fars seems to have coincided with the disappearance of the classic Bakun A pottery. McCown (OIP 59: 32), however, assigned it to "a stage of occupation later than any preserved on this lower slope of the tepe." This is an ambiguous statement and I assume by "this lower slope of the tepe" McCown means the northwest corner of the mound where Bergner indicated a "Level V."

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121. We have retained all the roman numerals used in the original publication (OIP 59) for the architectural and occupational levels at Tall-e Bakun to distinguish them from the levels excavated in 1937; the levels excavated in 1937 are designated with arabic numerals, with the exception of Square AB 88 that was re-excavated in 1937. See also *Preface*.

122. See Gotch 1971; Sumner 1972; Voigt and Dyson 1992, for examples.

The archaeological materials from the 1937 season contained plain red and painted potsherds that were recorded to have been found together from Squares BB 27–28 and 37–38, suggesting partial overlap of the two wares. This evidence would have put the matter to rest were it not for Schmidt's remark in a brief report on the excavations of the 1937 season. He notes, "The dagger TBA 288 … occurred directly below the floor of the upper prehistoric level in a refuse of mixed redware and painted sherds. In this respect we may mention that the entire top stratum of this mound accumulated during a period of plain red pottery, superimposed on a thick deposit of painted ceramic" (Schmidt 1939: 123). This dagger (fig. 70) is assigned to Level III, and because it was found under a floor and thus sealed stratigraphically, we find the interpretation of the evidence of the redware confusing. Nevertheless, as discussed before, the combined evidence from Tall-e Geser and Tall-e Bakun A itself (including our own 2004 observations) favors a possible overlap of the two ceramic styles, though this is by no means certain.

STRATIGRAPHY (1932)

The evidence for Level I (the lowest level) is as follows: in Square H 26 in Trench I, the excavators reached a 15 cm thick ashy layer at a level of +20 cm above virgin soil. Below this ashy layer, on virgin soil, a fireplace surrounded by a hard, burnt surface with two unbaked clay cones, firedogs, and some postholes were discovered. One of these "postholes" was 6 cm deep and 18 cm in diameter. Two kilns in Squares L 28 and R 30 were also assigned to this level.[123] The kiln in Square L 28 seems to have been in use until the end of Level III when Building XIV of Level IV was built over it.

The evidence for Level II comes from traces of wall fragments that appeared on the floors of some rooms in Squares K 29–30 and in Squares N–O 30–31 after a heavy rain. The wall fragments in Squares K 29–30 were never excavated and those in Squares N–O 30–31 were only partially excavated without reaching wall bases and floors; therefore, the material associated with these wall fragments can not be dated with any certainty to Level II and may well have been part of the occupational debris of Level III.[124]

Level III was the best preserved and most extensively excavated. A series of buildings was discovered with some walls preserved to a height of 1.5 m. The entrances to these buildings must have been low, judging by the few completely preserved doorways (pls. 3:A–B, 6:B). Some of these buildings contained backrooms and storage bins with intact large jars and other vessels *in situ*. However, except for the remains of fish in a conical bowl, the rest of the vessels seem to have been empty. The walls were made of both pisé and mudbricks and were plastered. Level III consisted of a complex of rectangular buildings surrounding a spacious central area (figs. 7–8). It also produced most of the artifacts, including many clay sealings. In general, the buildings of Level III suggest a planned architectural layout; they are oriented northeast–southwest with nicely aligned and carefully abuted common walls. Traces of red and yellow paint were found on some walls. The best preserved was found in Room 2 of Building XII and Room 6 of the largest building, Building VIII (fig. 10). In Room 2 of Building XII, a 4 cm wide red band was painted at the base of the wall; above this, a yellow band of the same width was applied. Above the yellow band, a 10 cm band of red paint was preserved.

Building VIII stands out as the largest with eight rooms and was perhaps the first to be erected (fig. 10). The careful buttresses and niches of this building, against which Buildings II, III, IV, and VII were built somewhat later, support this reconstruction. With the exception of Room 8, all others communicate with one another through doorways whose thresholds are slightly above the floor.[125] This building was erected on the highest point of the mound. In this respect it is reminiscent of the single large buildings found on the summit of some fifth millennium B.C. mounds in lowland Susiana, which Hole (1987: 41, 1969) considers analogous to "Khan's house." We thus consider this building the residence of the most important member of the community (see also Flannery 1999a).

Buildings I and II, which do not align with the general plan, may possibly be later additions to the complex, partly filling the open space defined by Buildings III, VIII, IX, XII, and XIII (fig. 8). Langsdorff and McCown (OIP 59: 7–20) assigned Buildings I and II to Level III and Building XIII to the later Level IV. The assignment of Building XIII to the later Level IV rested solely on the fact that the floors of this building, and those of Buildings XIV and XV, were higher than those of Level III. The differences of absolute level, however, are not convincing stratigraphic

123. For a detailed study of these kilns, see OIP 59: 6–7.

124. I must emphasize that any dating of the pottery or any other artifacts to Levels I–II by either the excavators or others remain highly speculative as no objects assigned to these levels are associated with primary contexts.

125. In the original publication (OIP 59, fig. 4), Room 8 is considered an independent structure and thus is designated Building IX. No explanation is provided for this assignment and we see no stratigraphic or formal reason not to consider this room as part of Building VIII.

evidence to consider these buildings later than Level III. Firstly, Building XIII and its adjoining buildings are closer to the center of the mound and thus on a higher level. Secondly, these buildings, like those assigned to Level III, rest on a thick layer of ash, which provides a common stratigraphic foundation for these units and those assigned to the later Level IV. Thirdly, Building XIII is perfectly aligned with the rest of the buildings of Level III. Finally, the finds from Building XIII are similar to those from Level III buildings, including the types of sealings.[126]

Access to the interior of the complex was probably through the alley to the north of the settlement (fig. 8). After passing Buildings IX, XII, and VIII this alley led into the open area surrounded by Buildings III, VIII, IX, and XII. Somewhat later during the occupation of Level III, Buildings I and II occupied part of this open area when a shift in the organization of the settlement may have occurred. This inference of an organizational change is based both on architectural aspects and the spatial relation of these buildings to one another (shown with dark walls in fig. 8), and on the pattern of distribution of the seal impressions found in these buildings (see *Chapter 8*).

ADMINISTRATIVE UNITS AND WAREHOUSES

The five buildings of Level III that contained sealings and clay tokens had formal characteristics in common, which are central to the interpretation of Level III. Except for Building XIII, common walls connect all these buildings (figs. 8–9). Buildings IV and XIII each have three rooms; the others have four. All five buildings have an entry-room that leads to a central hall (fig. 9) connected to which are one or two rooms with low doorways in the rear of the building. The sealings and tokens were mostly found in clusters in these back rooms or in the rooms immediately preceding them. The identification of these buildings as administrative quarters and warehouses is partly based on the assumption that the artifactual by-products of an activity would be deposited near the place where the activity occurred. In addition, in later historical contexts door sealings were associated with warehouses and administration of production and trade (Fiandra 1975, 1981a–b, 1982; Zettler 1984, 1987).

It must be emphasized here that Level III, the main occupation of the Late Fars phase at Tall-e Bakun A, with its sealings and various exotic materials, seems to have lasted for a relatively short time. The walls of the buildings of this architectural phase stand to more than 1 m (pl. 3), and except for some replastering of the walls, no rebuilding activities have been documented there. Moreover, no evidence for a violent end to the settlement, such as fire or earthquake, was found. From this observation it can be inferred that the inhabitants of Bakun A left their residences peacefully but hastily. The latter interpretation is based on the presence of many whole pottery vessels, mostly large jars, *in situ* (pl. 5:A). This situation implies that the archaeological finds include items that the inhabitants of the site left behind at the expense of presumably more valuable and less bulky items, which in turn suggests a more prosperous picture for Bakun A than we are able to draw on the basis of the excavated material.

Few buildings are assigned to Level IV (OIP 59: 19–20). The foundations of these buildings lie directly on the remains of Level III, implying that the interval between the two occupational phases was brief. This conclusion is also supported by the fact that the ceramic and other artifacts remained unchanged in Level IV, with one significant exception: no sealings or exotic materials are associated with this architectural phase.

ARCHAEOLOGICAL FINDS

Artifactual remains from the excavation areas include pottery, baked clay animal and human figurines, numerous spindle whorls, stone and pottery tokens of various shapes and sizes,[127] small decorated pottery pipes, firedogs, pottery wasters, stone mace-heads and pounders, stone and clay sling "missiles," large and miniature vessels made of alabaster and local stones, flint and obsidian blades, scrapers, borers and drills, finished and half-finished stone stamp seals (Schmidt 1939: 126–27, fig. 92:TBA 288), copper objects such as points and needles, chisels, a 25 cm long dagger (fig. 70), a copper stamp seal (pl. 20:E), and copper ores (OIP 59: 61–80).

Whereas numerous whole pottery vessels were discovered *in situ* from various buildings in the northern complex (OIP 59: 22–23), the central and southern areas that were excavated in 1937 produced mostly potsherds. The few whole jars found in these areas (figs. 41:E, 42:E, G, pls. 12:B, 13:C) contained no traceable material and were found in secondary contexts. The wealth and variety of material items at Bakun A and the evidence of large workshop areas point to the existence of a local industry and trade connections with distant regions such as the Persian Gulf, the

126. McCown (OIP 59: 60) observes, "The forms of the vessels from Levels III–IV are too similar to be used for stratigraphic distinctions."

127. A group of these tokens was found in a cluster in Building IV, Room 3, where many door sealings were also found (OIP 59: 69–70, pl. 82).

Central Plateau, Kerman, and northeastern Iran whence goods like shells, copper, steatite, lapis, and turquoise were procured.

THE 1937 SEASON OF EXCAVATIONS (CENTRAL AND SOUTHERN AREAS)

STRATIGRAPHY

More information about the site came with the results of the second season of excavations in 1937 (fig. 7, pl. 2). Unlike the work of the previous season, which was concentrated in one large contiguous area, several 10 m squares were dug in the central, southeast, and southwest parts of the mound. Only the central (Squares BB 27–28 and 37–38) and southern (Squares BB 78 and BB 86) areas contained architecture; other squares yielded kilns of various sizes surrounded by thick layers of debris and ash. The following is a stratigraphic description of the central and southern areas.

Squares BB 27–28 and 37–38 (figs. 7, 12–14, pl. 4:A–B). The uppermost level (Level 1) in all these areas was disturbed and pitted by Islamic graves (fig. 12). Most of the graves had been dug into the remains of the lower-level buildings. In this lower level (Level 2, fig. 12) part of a building was uncovered in BB 27 and there was also a rather large floor area and a wall fragment in BB 37. Otherwise, the plot seems to have been an open space. The walls of the building in Square BB 27 were built of pisé slabs mixed with straw and averaged about 35 cm in thickness. In a few places, a layer of small stones had been used as foundation. The walls were plastered with a coating of mud about 5 mm thick. Traces of a very thin finishing coat of clay were preserved in some places. The floors consisted of beaten earth.

In Level 2, a semi-elliptical fireplace in Room 1 of Square BB 27 was built against its eastern wall (fig. 12). The walls around the fireplace and the apron in front had been given several coats of plaster. In the same area, Room 2 contained an 8 mm layer of black ash above its beaten earth floor. The adjoining Room 3 had a semi-circular recession, 25 cm in diameter, in its eastern wall, possibly to accommodate a wooden post. In Room 4 a mud platform about 10 cm thick had been built to form the bedding of a fireplace. This semi-elliptical kiln with an apron in front was mostly destroyed. Rooms 5 and 6 had no special features but both were paved with a layer of compact ash.

In Square BB 37 a wall fragment projected from the western side of the square (fig. 12, pl. 4:B). This wall was badly preserved and its original faces were completely eroded. Immediately north of the wall there were two layers of sherd paving, one above the other, separated by about 0.5 cm of dirt. In the eastern part of the square there was a large area of ash covering a fragmentary floor with two horseshoe-shaped burnt areas. A fragment of a small fireplace was found between these two burnt patches. Like others, it was semi-elliptical in shape, 46 cm wide at the bottom, and 34 cm at its preserved height of 21 cm. A heavy ash layer covering the entire square separated these remains and the lower buildings.

Below this ashy layer in the southern part of the area, Level 3 consisted of a section of a building complex (fig. 12). In this level, the two northern plots, which must have been an open area (Squares BB 27 and 28), were covered with an ash layer. The walls of the multi-room building in BB 27–28 were built of mudbricks measuring $67 \times 26 \times 10$ cm. The walls were covered with two or three coatings of a fine plaster varying from 3 to 5 mm in thickness over a base coat of *kahgel* 5 mm thick. The floors consisted of a layer of beaten earth over a 20 cm thick fill of mudbrick detritus.

In Square BB 38, the lower part of the doorway in Room 3 had been blocked and plastered presumably as the level of the floor rose. The wall between this room and the box-like Room 4 was partially destroyed. One mudbrick was laid flat and above it two mudbricks were laid on edge to form the faces of the wall; the inside was left hollow. Another flat mudbrick was then placed on top. Only one course had been preserved, but presumably the same construction was used for the entire height of the wall. These bricks measured $64 \times 27 \times 10$ cm. The north end of the room was paved with small slabs of stone. About 15 cm below this paving, an ash layer extended under the eastern wall, suggesting that the partition wall between Rooms 3 and 4 was built sometime after the original building had been constructed. A fireplace was located in the northwestern corner of Room 1 (fig. 12). This installation extended about 60 cm along the north and west walls and was terminated by a small stone embedded in each wall. This portion of the wall slopes slightly into the room from the normal wall face. The sides of the fireplace showed signs of burning to a depth of 6 mm. The walls of Room 2 were not very well preserved, being almost entirely destroyed on

the west. The doorway between this room and Room 3 had been blocked twice; the first time from the base of the wall to an elevation of 1.88 m, and the second time to an elevation of about 2.20 m.[128] The two pieces of wall in the eastern part of the area were also constructed of mudbricks, but it was not possible to articulate individual bricks for measurements.

Immediately below Level 3 a few wall fragments belonging to the earlier occupation of Level 4 were found (fig. 12). Along the southern edge of the area, parts of an apparently large building complex were found. The walls of this complex were not well preserved but still bore traces of plaster in places. The plaster averaged about 2 cm in thickness and consisted of a *kahgel* base coat underlying one or more finishing coats of fine clay. Mudbricks from the south wall of Room 4 and from the thin wall in the southern part of Room 7 measured 60 × 27 × 9 cm (pl. 6:A). The floors consisted of beaten earth overlying a fill that varied from 15 to 25 cm.

In Level 4 of Square BB 37, the walls of Room 2 were partly destroyed and not entirely excavated, thus it is uncertain whether this was a covered or open area. The floor of this structure was covered with heavy black ash, as in the adjoining Room 3. In the southeastern part of the plot, an area of sherd paving was found at an elevation of 1.20 m above virgin soil.

Level 4 in Square BB 38 shows a similar picture. Traces of plaster and red paint were found only on the eastern walls of Rooms 2 and 7. The thin wall in the southern part of Room 7 was made by setting the bricks on edge. It was plastered on both sides with a 1 cm thick coating. The wall immediately to the south was also plastered and traces of red paint remained on the finishing coat.[129] A fireplace in the eastern part of Room 9 was formed by a thin wall of pisé on the north and east sides. In the center of Room 10, a corner of a fire-hardened area covered with dark ash was found, which may have been the original floor of a fire installation.

In the eastern part of Squares BB 28 and 38, several long, unplastered walls were discovered, all running northeast–southwest. They were made of mudbricks measuring 67 × 27 × 10 cm, being somewhat longer than those of the other walls of this level. The floors between these walls consisted of beaten earth and sloped slightly towards the center of the area.

Below the architectural remains of Level 4 and extending down to virgin soil, several installations of Level 4a, the lowest level in this area, were found (figs. 13–14). The fragment of the floor in the northwest corner of Square BB 27 and the two kilns in the central part of the area (Kilns 1–2) were probably contemporaneous, while the two fireplaces (fig. 13:3–4) and the wall fragment east of Kiln 1 in Square BB 37 were somewhat earlier.

Only the lower part of the combustion chamber of Kiln 2 in the southeastern corner of Square BB 27 had been preserved (fig. 13). It had a diameter of 1.10 m. The floor of the combustion chamber was set in the virgin soil, and the lower part of the stoke hole sloped toward the floor that covered this area. A thick mudbrick pilaster opposite the stoke hole supported the original loading floor, which was not preserved.

Another larger, much better preserved kiln was located just to the south in BB 37 (figs. 13–14). Kiln 1 is one of the most elaborate prehistoric kilns of ancient Iran. The long axis of the elliptical oven or upper chamber is 1.70 m and the short axis 1.52 m long (fig. 14, pl. 6:C). The northern side was destroyed almost to floor level; the southern side was preserved to a height of 60 cm. A base coat of mud plaster, 3 cm thick, had first been applied to both the oven and combustion chambers. The floor and sides of the oven were covered with a finishing coat 2 cm thick. In the approximate center of the floor a 50–53 cm pier had been placed to support the grate, which was supplied with thirteen holes, each 8 cm in diameter. The combustion chamber was about 1.32 m in diameter and 0.74 m deep. Two finishing coats were found on the sides of this chamber. Judging by the remnant of the original dome, it was made by placing bricks on edge with 5 cm of air space between each in the manner of a rafter construction. Neither the floor of the combustion chamber nor the stoke hole was plastered.

Two fireplaces in Square BB 27 (fig. 13, nos. 3–4) were found in a level lower than the floor associated with the kilns just described. One (fig. 13, no. 4) was just a portion of a fire-hardened floor with no definite shape, and the other (fig. 13, no. 3) was circular, 65 cm in diameter, with dirt sides preserved to a height of 17 cm. The floors of the fireplaces were sunk very slightly into the virgin soil. At this level the whole area was covered with very heavy ashy debris, 45–55 cm thick, sitting on the sterile soil.

128. The level of the sterile soil at Tall-e Bakun is the basis for all the elevations.

129. Scattered lumps of red, yellow, and white pigment were found in buildings of Levels 3 and 4. No chemical analysis has been done to determine the chemical composition of these pigments. Nevertheless, McCown (OIP 59: 76) notes that the yellow and white substances may be a crystallite of potassium chromite and sulphur because the latter (white pigment) gave off a sulphurous smell when heated.

Square BB 60 (figs. 7, 15). This area is located at the very western edge of the mound and was devoid of any type of architectural remains. The entire area, however, was covered with a layer of ash underlying a thick deposit of wash, probably from higher elevations.

Square BB 62 (figs. 7, 16). Three distinct levels were revealed in this area. The topmost level, Level 1, was a heavily disturbed layer of mudbrick detritus into which a number of Islamic graves had been dug. The dead were buried in dirt troughs with an opening half from the top and half from the side covered with a row of mudbricks set on end. The bricks measured $28 \times 28 \times 6$ cm.

Level 2 contained three fragmentary kilns (fig. 16, nos. 1–3) in the midst of debris and ashy deposits. Kiln 1 in the northwest of the square was approximately 1.10 m in diameter. Its southern side is preserved to the height of 42 cm above the base, but the northern side had been completely destroyed. This kiln was constructed by first digging out the combustion chamber into the lower level. The walls of this pit were then covered with a base coat of mud plaster, 6 cm thick. The supporting pier was then built using mudbricks measuring $60 \times 22 \times 10$ cm and covered by a thick base coat of mud plaster, 4 cm thick, and two subsequent recoating layers, each 1.5 cm thick. All these coats of plaster were heavily burned, even vitrified in places, as might be expected. Like most of the kilns found in the central and southern areas of the mound, only fragments of the grate were found on the floor of the combustion chamber. Kiln 3 (fig. 16) in the southeast of the square was of similar construction and somewhat better preserved. It was about 95 cm in diameter and was preserved to the probable height of the combustion chamber, for at this point, 65 cm, there was a slight curving of the plaster, suggesting the beginning of the oven walls. Only a fragment of a third kiln (fig. 16, no. 2), located just to the north, was preserved and was probably much smaller than the other two. The core of the dividing wall was 11 cm thick and was covered with two coats of plaster, each about 2 cm thick. The sides were 56 cm high and no floor was preserved.

An earlier kiln (fig. 16, no. 1 in Level 3) straddled Squares BB 61 and 62. The combustion chamber was complete and part of the oven above was also preserved. A 4 cm thick base coat of mud plaster was applied to both the upper and lower chambers. The grate of the oven was about 20 cm thick and was provided with circular holes 12 cm in diameter, five of which are preserved, to lead hot air into the oven. A thick layer of ash was found in and around the stoke hole. This kiln and two pieces of mudbrick wall (fig. 16, Walls 1–2) belonged to a lower level, Level 3. One fragmentary wall (Wall 1) in the northeastern corner had a good face on the western side. It was plastered with 2 cm of mud that was covered in places with a coat of red paint. Associated with these features were two pieces of sherd paving, one slightly higher than the other. Both pavements seemed to have been laid on a 10 cm fill. Almost the entire area was covered with a black ash that was lying directly on the virgin soil.

Square BB 64 (figs. 7, 17). As in the previous plot, Level 1 in Square BB 64 contained graves of the Islamic period. Two thick ashy layers constitute Level 2, with the lower one lying on the virgin soil. A patch of pebble paving mixed with some sherds was found in the central part of the area. To the west of this feature was located a circular fireplace 80 cm in diameter. Set in an ashy deposit, this fireplace had a slightly convex surface. The entire area was covered with a 70 cm thick ashy deposit lying directly on virgin soil.

Square BB 78 (figs. 7, 18, pl. 7:A–B). The uppermost layer in Square BB 78 was pierced, as usual, by many Islamic period graves. In Level 2, among and below these graves, several wall fragments were found in a very bad state of preservation. The south face of the small fragment (fig. 18, Wall 2) in the northwest was preserved; it had been covered with mud plaster and a finishing coat of almost pure clay which had been painted red. On top of this, three more finishing coats had been applied, each covered with red paint. A few traces of yellow paint were also found.

In the center of the area, only an L-shaped line of wall plaster had been preserved. We assume that this plaster, which consisted of several coats, would have been applied to the inside of a room rather than to the outside of a building. The plaster curves sharply at the bottom towards the south and east, which could be a logical condition where the wall plaster joined the floor of the room. Assuming that the wall was on the north and west of the plaster, it must have been covered first with a coat of red paint. On top of this, a coating of lime plaster, 3 cm thick, had been added. Then a 1 cm thick coat of mud plaster, painted red, was followed by a yellow paint, of which only traces were found on a 1 cm finishing coat of clay. On top of that, there were two layers of red paint, each on 1 cm thick clay plaster, and finally a coating of lime plaster, 3 cm thick.

The north face of the wall (fig. 18, Wall 3) in the southeast was coated with a 7 mm thick mud plaster which was painted yellow. On top of that, a finishing coat was added and painted red. The elevation of the floor was 1.11

m, somewhat lower than the bases of the other walls. At this same level, a beaten ash surface covered most of the western part of the plot.

Below the ash layer, a building complex was found in the eastern part of the plot, Level 3 (fig. 18). The walls were built of mudbricks, measuring 69 × 26 × 10 cm. Mud plaster had been preserved on some of the walls; the faces of the others were not sufficiently preserved to ascertain whether or not they had been plastered. The plaster varied in thickness from 1.0 to 2.5 cm. The floors consisted of beaten earth on a 20 cm thick fill that contained a great deal of mudbrick detritus. The building complex consisted of a number of rectangular rooms with some unusually thick common walls, which may have supported an upper level. These rooms must have communicated with the surrounding area and with one another, but the absence of doorways makes the pattern of communication unknown. Two badly preserved fireplaces, one in Room 7 and one north of Room 4, are the only installations found in this complex. The building complex of Level 3 was erected over architectural remains of an earlier phase, Level 4, of which only Rooms 10 and 11 were used.

Traces of several mudbrick walls indicating the same northeast axis of orientation constitute the earliest Level 4 (fig. 18). The beaten earth floors associated with these wall fragments were sitting directly on virgin soil. The only feature associated with this early phase was a sherd pavement in Room 10. As in the other loci in the central and southern areas of the mound, the open space northwest of this complex was covered with occupational debris and thick layers of dark ash.

Square BB 86 (figs. 7, 19). In the southeastern part of Square BB 86, not far below the surface, remains of a building were found. The walls were badly preserved and most of the faces had been destroyed. The south side of the north wall, however, had been covered with a mud plaster on which traces of red paint still remained. The elevation of the beaten earth floor associated with these walls was at 1.45 m.

At a lower elevation (Level 2) the entire northern part of the plot was covered with a layer of compact earth. In the northwestern corner was a rectangular fireplace, 85 × 34 cm, set 20 cm below the floor level. The floor sloped slightly toward the southwest to a few wall fragments. In places the plaster still remained on the walls; otherwise, they were in such a poor state of preservation that nothing could be learned of their construction.

Below Level 2, Level 3 had only a small patch of sherd paving west of two wall fragments. The thicker wall was covered on the southwestern side with two coats of mud plaster totaling 2.5 cm in thickness.

Level 4 was the lowest level in this plot; it contained a large building complex with a northeast orientation (fig. 19). The walls were built of mudbricks measuring 66 × 27 × 11 cm. Evidence of plastering was preserved on all walls. The *kahgel* plaster varied in thickness from 1.5 to 2.5 cm. The beaten earth floors associated with these walls rested directly on virgin soil. As in Square BB 78, some of the walls of this building were thick enough to suggest an upper level. Although most of the walls had been preserved up to 40 cm, no doorways were found. In the center of the area, a deep well extending to water level was found. Around the rim of the well, a considerable depression in the virgin soil had apparently been hollowed out of the original surface at the time the well was dug.

Square BC 70 (figs. 7, 20). The upper layer of this area contained, as elsewhere, graves of the Islamic period. Below this, a layer of dark ashes extended over the entire area. In the northeastern part of the plot this layer consisted mostly of pebbles but was badly damaged by the graves. Near the center of the plot a roughly rectangular fireplace (1.05 × 0.70 m) made of *kahgel* extended 4 cm above the general ashy surface of this area. The fireplace was 9 cm thick and rested on a still lower layer of ash. At a later time, this fireplace had been replaced by another, 10 cm thick, built immediately above it.

Square CB 06 (figs. 7, 21). Except for the northeastern corner, Square CB 06 was covered with thin layers of ashes into which Islamic graves had been cut.

Square AB 88 (fig. 22). In the central part of the area excavated in 1932, a 10 m square was dug below the existing floors to check the elevation of the virgin soil under the northern part of the mound in Square AB 88. The walls uncovered during the previous season were still standing although they had greatly disintegrated. However, excavators found the face of the eastern wall of Room 3 in the largest building in the complex, Building VIII; it had been plastered with a coating of fine clay that was painted red. On top there were three successive finishing coats of clay, each painted yellow. Finally, another unpainted coat had been applied. These finishing coats averaged about 2 mm each. Approximately 50 cm below the bases of the walls that stopped at or just below the floors excavated in 1932, a heavy ash layer 10–15 cm thick covered the entire plot. Under this ash layer virgin soil was found.

ANALYSIS OF THE DIFFERENT QUARTERS AT TALL-E BAKUN A

Taken together, the evidence of architecture and the spatial distribution of buildings of different size and function indicates the segregation of residential, administrative, and industrial quarters at Tall-e Bakun A. The detailed description of the various excavation areas can be summarized as follows: the lowest level in the central and southern areas consisted of a thick ashy layer immediately on the virgin soil. The extensive ashy layers that were discovered in 1937 under the buildings in Square AB 88 provide stratigraphic evidence for assuming that the entire mound must have been covered with a huge ashy deposit before Level III. Except for kilns and fireplaces, no other structure is associated with the earliest phase of occupation at Bakun A. It is, however, possible that some architecture existed in this early phase in parts of the mound that remain unexcavated. Even so, the habitation area must have been small and most of the mound's area must have been used for industrial production.

Over this extensive ashy layer various buildings were erected in the following phase of occupation. These buildings were still surrounded by open areas that were covered with ashes as the result of industrial activities associated with numerous kilns and fireplaces. In the following (third) phase of occupation, almost all these buildings were abandoned. Few traces of architecture, some fireplaces, and yet another layer of ash characterize the next architectural phase. The major settlement of the northern quarters must have been established at this time. The uppermost layer over the entire site consists of Islamic graves.

According to the data from two seasons of excavations, we propose the following reconstruction: as noted above, the lowest levels in the central and southern areas consisted of ash layers. In the northern quarters, the lowest levels, Levels I and II, also consisted of ash layers, kilns, and fireplaces.[130] Although the northern, central, and southern areas are not contiguous, the presence of extensive ashy layers in the lowest levels of all excavated areas is a strong indication that the entire area of the mound was covered with ash in the earliest phase of occupation. This situation suggests that Tall-e Bakun A was initially used primarily as a locus for industrial activities with little or no residential or administrative units. If this is indeed the case, the site may initially have been chosen not as a settlement but as a seasonal production center to meet the needs of the regional population for wool/textiles, pottery, copper objects, and other artifacts manufactured at Bakun A. Moreover, the presence of a number of postholes in this early phase is consistent with the assumed nature of the site as a temporary manufacturing campsite. The same situation is also recorded at Tall-e Bakun B, where excavations revealed several meters of ashes and debris but failed to produce any solid architecture. Whatever the strategic advantage of the site, it seems that in the initial phase of Late Fars, Tall-e Bakun A, as well as Tall-e Bakun B, was perhaps seasonally used for the manufacture of pottery and other artifacts. This is suggested by the scant architectural remains interspaced with large open areas. These are analogous to the workshop areas (though on a much smaller scale) of modern-day itinerant vendors and craftsmen (pl. 10:B) who attach themselves to various mobile tribes and provide them with certain material goods (mostly metal and plastic objects) and foodstuffs such as fruits, potatoes, tomatoes, and onions.[131]

The major architectural units of Tall-e Bakun A rest on the basal ashy layers. Again it can not be proved that the major buildings in the central and southern areas are contemporaneous with those in the northern area, but there is little doubt that the Level III buildings in the northern area are contemporary with those in the central and southern areas whose foundations rest on the basal ash layers. As discussed above, Building VIII, the largest and comparatively most elaborate structure, seems to have been the first building erected in Level III, around which other structures were built. The comparatively large size of Building VIII — its central location, its unique buttresses, and its many rooms — suggest that a prominent member of the Bakun A society lived there. To this list one may add the evidence of wall painting in Building VIII as an additional evidence for its importance. Since, however, there are other smaller buildings with painted walls, even in the industrial quarters, this might have been a common practice and not necessarily a symbolic feature for the presence of elite.

There is little evidence for rebuilding of the building complex in Level III; moreover, some walls in this level are preserved to a height of more than a meter. No traces of conflagration were found and the inhabitants must have simply abandoned the site. It could have taken perhaps ten to twenty years before it was sparsely resettled, as indicated by the rarity of architecture dating to the following Level IV.

130. OIP 59: 5–7; see also the description of Square AB 88 above.

131. These itinerant craftsmen in Iran are known as *Koli* (gypsy); they have the protection of the tribe with which they travel (Barth 1961: 91–92). There is another class of itinerant vendors (pl. 10: B) who, unlike the *Kolis,* do not manufacture the goods they sell. They travel from village to village selling or exchanging various commodities for chicken, eggs, dairy products, wheat, etc. These two groups are still part of the rural economic exchange system as well as an important source of information from areas they habitually visit (see also Watson 1979: 28–29).

That the central and southern areas had the same fate as that of the northern area is suggested by the abandonment of major architectural units of Levels 3 and 4 in Squares BB 28, 37, and 38, Level 3 in Square BB 78, and Level 4 in Square BB 86. As in the northern area, these areas were very sparsely reoccupied after perhaps a generation, but to some extent were used as workshops. Shortly after this phase the site was deserted permanently.

As mentioned earlier, the northern complex exhibits a planned architectural layout as can be discerned from the regularity in the spacing of the rooms and uniform thickness of their walls. The architectural units of the central and southern quarters follow the same northeast–southwest orientation; they are not, however, as carefully constructed as the units of the northern complex. For example, the walls of Level 3 and Level 4 in Squares BB 37 and BB 38 (figs. 12–14) do not run parallel to one another, suggesting that various rooms were built in the available space as the need for living or working areas arose. In Square BB 78 (fig. 18) a similar situation exists.

The buildings in the northern quarters are packed together with only one open space (fig. 8). Unlike the open areas in the central and southern quarters of the mound, the open space in the northern quarters was devoid of any ash layers or industrial by-products. Also, in contrast to the northern area, open areas containing kilns of various sizes surround the buildings in the central and southern parts. Whether the deep well in Square BB 86 (fig. 19) was dug to provide easy access to water for industrial purposes or for drinking can not be known, though it is quite possible that it was used for both. While some of the rooms in the central and southern quarters may have been used as residential units, the main residential units seem to have been concentrated in the northern quarter.

There are more architectural phases in the central and southern quarters than there are in the northern quarter. There, the main architectural phase belongs to Level III; Level IV being poorly represented and problematic and Levels I–II contained some kilns and fireplaces with layers of ash spread all over.[132] It is possible that as the debris from such activities accumulated, the inhabitants either had to renovate the buildings or erect new ones in the available space. From the architectural remains, it can be inferred that the residents moved across the space horizontally, rather than leveling and rebuilding old structures. Accordingly, the main architectural phases in the central and southern areas should be contemporaneous with Level III in the north. The rebuilding of architectural units in the southern and central areas and their periodic relocation are perhaps related to the nature of this part of the settlement.

The evidence of extensive ashy deposits, kilns, pottery, and copper slag, as well as numerous spindle whorls, points to manufacturing activities at the settlement. In his survey in the Kur River Basin, Sumner (1972: 40) reports only five sites with pottery wasters, a sure sign of pottery manufacturing. It can be inferred that Tall-e Bakun A was one of the centers where pottery and other goods were manufactured for distribution throughout the region.

With the evidence of pottery manufacture at Tall-e Bakun A, together with our claim that Bakun A was both a manufacturing and distribution center for pottery, one might interpret the back rooms of the five buildings that contained sealings and tokens as warehouses for pottery vessels. The problem with this interpretation is that except for a few pottery jars in the back rooms of these buildings, there is no other evidence to support it. Moreover, pottery vessels are bulky and there is simply not enough room in the small storerooms to keep large numbers of finished pottery vessels. On the other hand, hundreds of small objects, such as beads and copper objects, could have been stored in one single bin. This observation invites the question of what was stored in these bins.

Kouchoukos (1998: 282–90) has demonstrated the importance of textiles as a currency that can be easily stored, transported, and exchanged for other materials and used in lieu of taxes. In his interpretation of the so-called Uruk colonies, Kouchoukos suggests that the need for wool and, by extension, textiles, required raising more sheep than was feasible in lower Mesopotamia. In fact, starting with the late Middle Susiana phase (ca. 5000 B.C.) the ratio of goats to sheep rose substantially from 1.5 to 4.5. This period coincided with the crystallization of mobile pastoralism as represented by the vast cemeteries of Hakalān and Parchineh. Following this in the Uruk period, the majority of the glyptic scenes in fact deal with manufacturing and handling of textiles. One might envisage that as the late prehistoric communities in the Near East were aggregating into larger population centers, they lost their self-sufficiency to produce enough wool for the textiles they needed. This in turn provided an excellent opportunity for the mobile pastoralists to meet this demand. If the economy of the Tall-e Bakun A society was pastorally based, as I would like to suggest, then we can envisage that most of the back rooms of the five administrative buildings were used to store wool or textiles.

132. As noted above, Tall-e Bakun A has horizontal layers of ash. This situation is very different from that in modern villages where ashes are usually found in the outskirts of the village in the shape of a pile. These piles belong to various households, which use them periodically to fertilize their fields. See Kramer 1982: 89.

SPATIAL DISTRIBUTION OF CERTAIN TYPES OF ARTIFACTS

Unfortunately, it is extremely difficult to study the differences and similarities in material culture in the various areas, particularly if the end products that were manufactured in the central and southern areas were stored and distributed in the northern area, as the case may have been. Further evidence to support this reconstruction could be obtained from a detailed list of all of the finds to complement the evidence of industrial activities — namely kilns, fireplaces, various tools, and layers of ash.

Except for the potsherds, only whole objects and those that, though fragmentary, were deemed important by the excavators, were registered. Thus the list provided in *Appendix A,*[133] as well as the one published by Langsdorff and McCown (OIP 59: 15–21), does not contain the entire range of finds, particularly those that are related to industrial activities, such as half-finished items and the debris created in the course of manufacturing various items. When I visited McCown in 1983, he informed me that the central and southern areas had a much higher concentration of unworked and half-finished items than the northern area. McCown's recollection implies that although more industrial activities were concentrated in the central and southern areas, some were also carried out in the north.

Apart from the highly decorative aspects and the artistic quality and expression of the classical Tall-e Bakun A ceramic, the Bakun artist also excelled in plastic art, as the examples shown in figure 59 and plate 23 demonstrate. The elegantly modeled, well-proportioned female statuette (fig. 59:B) is preserved in two fragments. The torso was found in Square BB 62 in the debris of Level 2 (fig. 16) and the lower body in Square BB 78. This statuette is made of fine clay and is well fired. That this object is not an isolated piece is suggested by another fragmentary human statuette, discovered in the 1932 season and published by McCown (OIP 59, pl. 6:21–22). This mid-section of a male statuette (fig. 59:A) is reconstructed on the basis of the female statuette. The style and the size of this fragment suggest that it may have been a male counterpart of the female one, although they were found in different areas. The naturalistic features, the modeling and well-proportioned aspects these statuettes exhibit are extremely rare in prehistoric art.

Also interesting, but not unknown from the 1932 season, was a host of tokens of various shapes and sizes. They are similar to those found in groups in 1932 (OIP 59: 69–70). The Bakun tokens have numerous parallels in prehistoric sites, but the closest both in shape and context come from Susa and Tell Abada where, except for a few scattered examples, they were found exclusively in a large central building dated to the late Ubaid period.[134] The spatial distribution of sealings and tokens is discussed in *Chapter 8*. Here it suffices to say that this collection of material has the most precise spatial distribution in the settlement. They were found in either the back rooms or immediately in front of them. That they were kept as records is also indicated by the fact that almost all of them were baked.

133. *Appendix A: Radiocarbon Dating of the Fars Prehistoric Sequence* lists the various objects according to their provenances.

134. Jasim 1985, figs. 67:a–j, 68:j–l, 69:a–c; Jasim and Oates 1984.

CHAPTER 6

POTTERY

INTRODUCTION

Sometime in the late sixth millennium B.C., there seems to have been an influx of people (or potters) into Fars from Susiana and its immediate surrounding regions. There is absolutely no tangible evidence for this claim except for the appearance of a compeletely new class of pottery in Fars with little antecedent that, if not identical, is very similar to the black-on-buff pottery of the late Middle Susiana phase. Therefore a short description of the Bakun B2 pottery is necessary to understand its development in Fars up to the time of Bakun A.

Included in this chapter is also a detailed analysis of the grammar of designs of the Bakun A painted pottery. The results of this analysis provide one line of evidence for a comparative analysis of the painted sherds found in surveys and excavations in Fars. As we mentioned before, the Bakun A pottery is not homogeneous throughout Fars and some regional variations exist. Therefore, using the charts at the end of this section may help archaeologists determine the particular stylistic variations of the late fifth-millennium B.C. pottery outside of the Marv Dasht Plain. In addition, this type of analysis may shed light on the number of pottery workshops in late prehistoric Fars, without resorting to neutron activation analysis that is, at best, inconclusive.

TALL-E BAKUN B

The Persepolis Project never published the pottery of this site because the material was lost at sea. However, a number of excavated pieces, now in the Research Center of Archaeological Surveys of the Iranian National Museum, were available as drawings. These pieces are redrawn and illustrated in figure 23. The following description is based on my own observations during my visit to the site, the survey of 1995, the available sherds at the National Museum, as well as the information provided by Egami and Sono (1962).

FINE BUFF WARE

A small percentage of the Bakun B2 sherds is made of fine buff ware. Although this small percentage has a fine clay and is almost free of temper, the fine creamy or yellow buff slip of the Bakun A fine vessels can not be observed on these pieces. The use of such a slip also became common in Susiana in the Late Susiana 1 phase after the desertion of Chogha Mish and before the establishment of Susa (see Alizadeh 1992). This parallelism is consistent with the appearance of this slip on the fine potteries of Tall-e Gap and Tall-e Bakun A, respectively contemporary with the Late Susiana 1 and Late Susiana 2 phases of Khuzestan. Another feature that is rare at Bakun B but is common at Gap is the use of small dots as filling elements of design. This particular motif appeared in Susiana at the end of the Middle Susiana period and became common in the following Late Susiana 1 phase; it disappeared in the early stages of the Late Susiana 2/Susa A phase. This development also coincided with the appearance of this particular motif in the central Zagros region (see *Chapter 1*). The dot motif, therefore, appeared prior to the establishment of the isolated, large nomadic cemeteries of Hakalān and Parchineh at the piedmonts north of Susiana (see Alizadeh 1992: 24–26). This particular motif that we believe developed in Fars continued until the end of the Late Fars phase, when the millennia-old tradition of painted pottery deteriorated and almost disappeared.

STANDARD BUFF WARE

Most of the available pieces of Bakun B2 painted pottery are made of this ware. In every major aspect this ware is very similar to the standard buff ware of Bakun A. It has a well-baked, uniform buff core, smoothed surface, and inclusion of small to medium grits, occasionally mixed with chaff. Impressions of vegetal matter are often clearly visible on the surface.

COARSE WARE

This ware (Sumner's Shamsabad ware) started in the basal levels of Tall-e Bakun B1, Tall-e Jari A, Level II, and continued with some improvement along side the painted wares of the later black-on-buff of Bakun B2, Gap, and Bakun A, thus providing a link for all these cultural phases (see the detailed description in *Chapter 1*). Vessels made of this ware at Tall-e Bakun A are almost always hole-mouth and cooking jars (figs. 53:A, C, E, 54:H, pl. 15: A).

STYLISTIC OBSERVATIONS

In general, both in shape and decoration, the Bakun B2 painted pottery is akin to that of the late Middle Susiana in southwestern Iran. Before the emergence of Bakun B2 culture in Fars, little outside influence is found in the region, though this, of course, does not mean lack of contact. The emergence of the Bakun B2 painted pottery coincided with the reorientation of the Susiana outlook from Mesopotamia toward the highlands. Briefly, in lowland Susiana, the painted ceramics of the Archaic 3, Early Susiana, and early Middle Susiana closely resemble those of the contemporary Mesopotamian cultures Ubaid 0 to Ubaid 2/3. By the time of the late Middle Susiana phase (ca. 5000 B.C.) the painted tradition of Susiana rapidly diverges and becomes more similar to those in the highlands.[135]

In the repertoire of the new pottery in fifth-millennium B.C. Fars, the most prominent shared motifs are dot-centered circles (fig. 23:DD) commonly found on the pottery of the late Middle Susiana phase (OIP 101, pl. 171:I, M). The simple double zigzag bands with vertical strokes (fig. 23:W) that closely resemble some of the Susiana examples (OIP 101, pls. 171:A, 175:A–B) also occurred at Tall-e Gap but disappeared at Tall-e Bakun A. Suspended chevrons and loops on the interior of bowls (fig. 23:V, AA) appeared by the end of the late Middle Susiana and continued into the late Middle Susiana phase (OIP 101, pl. 183:C, E) as they did at Tall-e Bakun B and Tall-e Gap, but they disappeared at Tall-e Bakun A — this specific motif was also absent from Susa. Horizontal rows of flying birds (fig. 23:F) and rows of reversing chequered rectangles (fig. 23:M) were less frequent in the Middle Fars period but were popular in Susiana (OIP 101, pls. 169:T, V, 184:S).

Jars with a solid painted band on flaring high neck, typical of the late Middle Susiana phase (OIP 101, pls. 191: C–D, J, V, 192:A, G–H), also occurred at Tall-e Bakun B (Egami and Masoda 1962, fig. 13:1–4). Hemispherical jars with an everted rim (fig. 23:BB), a hallmark of the late Middle Susiana phase (OIP 101, pl. 189), also occurred.

The above examples are all good parallels that link the Middle Fars 1 phase to that of the late Middle Susiana period in southwestern Iran. The pottery of the following Late Susiana 1 period also shares diagnostic shapes and painted motifs with that of Middle Fars 2 and Late Fars. Among prominent features of the Late Susiana 1 motifs are suspended chequered triangles, dot motif (Dollfus 1983, figs. 65:1, 74:1–2, 83:9; Weiss 1976, fig. 29:3–4), and a variety of decorated, simple, or solid opposing trapezoidal panels linked by "V" and inverted "V" strokes (Dollfus 1983, fig. 15:13; Weiss 1976, fig. 18:94). Parallels for these examples came from both the 1932 season and the Japanese excavations in 1959 (fig. 23:T; Egami and Masoda 1962, figs. 14:3, 5–7, 15:13, 17:3–4).

TALL-E BAKUN A

McCown's original pottery classification and excellent description still stand (OIP 59). Therefore, the following is a brief description of the various types of ware discovered in the 1932 and 1937 seasons.

FINE BUFF WARE

Almost all the conical and small hemispherical bowls as well as a number of miniature vessels are made of a fine buff clay with no visible inclusions. Sometimes under a magnifying glass the ware appears to have some fine pale buff sand, but this inclusion seems to be either unintentional or was due to incomplete levigation. The core is always completely oxidized and baked in high temperatures. The surface is carefully smoothed and in some cases a yellowish buff or creamy buff slip can be seen where a presumably lower temperature did not completely fuse the ware and the slip. The surface color is primarily buff, but it ranges from yellowish/creamy buff to pinkish buff and

135. For a detailed discussion, see Alizadeh 1992 and OIP 101.

sometimes even to pale red. The color of the paint also varies. Most vessels are painted in brown, but reddish brown, maroon, and even a pale hue of lavender can occur.

STANDARD BUFF WARE

A number of large open forms and jars are made of a buff clay tempered with fine sand, some small to medium (1–2 mm) grits, and calcite particles. The core is almost always baked to a uniform buff color, but shades of pinkish buff, grayish buff, and greenish buff also occur, perhaps because of overfiring. Sometimes a buff paste abruptly changes to a tan or cream buff at the surface, which may be taken as an indication of a slip, although this is not certain.

While the small vessels made of a fine buff clay were baked in stacks, the absence of vaporized paint on the interior of the vessels made of standard buff ware indicates that they were not fired stacked on top of one another, perhaps because of their volume and weight. The lower part of a number of large vessels, particularly necked jars, usually bears a series of comb-like marks as the result of scraping off extra pieces from the original lump of clay. Larger jars may have been shaped in two separate sections and put together after they were leather-hard. However, except for a band of extra clay smeared on the interior mid-section, no joints are visible.

COARSE BUFF WARE

This ware is used exclusively on some non-standard vessels, pottery tools, and figurines. The clay is usually tan to grayish buff with occasional small grits and some sand and chaff. The ware is usually well baked, but soft and porous examples also occur.

COARSE WARE

This ware usually has a thick dark gray or black paste with light red to grayish dark red surface. Small to medium grits, calcite particles, and straw are used as tempering agents. In most cases, a red wash was applied to both the interior and exterior. Both surfaces are normally uneven, though smooth, pitted, and chaffy. It is normally burnished although unpolished spots can be seen on the surface. The ware is crumbly and not highly fired. Dark spots on the surface can either be from cooking or uneven temperature in the kiln.

FINE AND COARSE REDWARE (LAPUI)[136]

These two types of pottery are assigned to the final stage of occupation at Tall-e Bakun A. Detailed descriptions of these wares are provided in *Chapter 1*.

OPEN FORMS, BUFF WARE

Conical Bowls. The most prominent shapes made of fine buff ware are thin-walled conical bowls. They range in diameter from 14 to 18 cm and are usually from 10 to 14 cm in height. The base of these bowls is either pointed (fig. 25:A, E) or shaved off (fig. 24:F–G, pl. 12:A–C) so these vessels could not have stood by themselves. A number of stands (fig. 29:A–D, pl. 13:A) found in both seasons may have been used to support these vessels. Nevertheless, the fact that relative to the number of bowls, few stands have been recovered indicates that a hole in the ground or wood stands may also have been used.

Except for a few examples (such as fig. 28:G), only conical bowls have overall decoration. The decoration is either on the exterior (figs. 24–27) or on the interior (figs. 27:D, 28:C), but rarely on both (fig. 24:C). Conical bowls with decoration on both interior and exterior are absent from Tall-e Gap and serve as good index fossils for the Late Fars phase. At Gap, similar vessels are always painted on the interior (Egami and Sono 1962, figs. 26–28, 31). Naturalistic and abstract animals and rare human forms are almost always depicted on this type of vessel (figs. 24:B, 25:A, C–E, 26:A–D, 27:A, 45:A–F, pl. 13:B–C). Conversely, typical Bakun motifs such as naturalistic and abstract lizards and birds (figs. 50–51) and highly abstract human forms (fig. 46:F–U) never occur on conical bowls. Conical bowls seem to be limited to Levels III–IV of the 1932 season and Levels 2–3 of the 1937 season.

136. See also Sumner 1972: 40–42.

A number of conical vessels are decorated with loops issuing from the rim and base (fig. 24:F; OIP 59, pls. 1:11, 22:19). Loops pending from the rim are a subsidiary design element typical of the late Middle Susiana phase at Chogha Mish (OIP 101, pl. 181). The closest example was found in Fars (fig. 29:E), where a series of loops issuing from the base is added to the Susiana design. This vessel differs from others with a similar design in its broad opening and wide base.

Funnel-shaped Vessels. This rare type may be considered the precursor of the related conical bowls because they start earlier in the sequence. The long stem of the base can either be solid (OIP 59, pl. 12:1) or hollow (fig. 24: H–I). They are typical of the Late Fars phase.

Deep Bowls. The steep-sided bowls are common forms at Tall-e Bakun and are found throughout the sequence. These bowls have a simple lip and no carination. The base is either flat (fig. 30:E) or, more commonly, has a low ring (figs. 30–33, 35:A–C, E–F). They are never decorated on the inside. On the outside, one-third or half the surface is usually painted, but overall exterior designs also occur (figs. 30:E, 31:D). The decorative patterns usually consist of a variety of geometric designs bordered by an upper and a lower thick band (figs. 31:A–B, 32:D, 33: A–D). Occasionally one or two thin bands are added to the borders (figs. 30–32). A single broad band invariably decorates the base.

Figures 32 and 33:C are examples of one type of overall painted pattern previously unknown not only from Tall-e Bakun A, but also from Fars. The decorative pattern of the main panel consists of a row of large, solid reversing triangles separated by reserved wide dotted bands. Below this zone a series of chevrons decorate the lower part of the vessels. The direction of these chevrons is usually to the right, but left-handed chevrons also occur (cf. fig. 32:A–C). While the pattern of the main zone of decoration may be a variant of a zigzag crossed by oblique Zs in negative (cf. figs. 31:D, 32:A), the lower decorative pattern, as just mentioned, has nothing comparable in either Fars or Susiana. The closest parallels for the lower zone may be found in the contemporary tall beakers from the Central Plateau, though the latter differ from the former in that the chevrons are set closely together and occur on the upper part of vessels.[137]

Reconstructed as a deep bowl, figure 33:A is included in this group, but it may well have been a hemispherical bowl. Although, in the tradition of Bakun A, the main design pattern is framed by two pairs of wide and narrow bands, the execution of the animals and the filling motifs, particularly the saw-shaped horizontal bars issuing from the base of the horns and related motifs, are more typical of the Middle Fars 2 at Tall-e Gap (Egami and Sono 1962, pl. 35:B14, 7, 36:A9). Figure 54:F–G represent plain buff and gray examples of this type.

Tall Beakers. Tall beakers with either conical (figs. 28:F; 32:D; 33:B, D) or cylindrical walls (figs. 38:D, F, 39:A–B) do occur but are rare. The conical type occurs primarily in basal levels, while the cylindrical type is more limited to the upper levels. While the pattern of zigzags crossed by oblique Zs (OIP 59, pl. 54:10) or slanted bars (fig. 31:D) is typical of Bakun A, the diagonal branches crossing the animals' horns in figure 35:B is more typical of Susa. Examples of the cylindrical type either have a rounded base (fig. 39:A), flat base (figs. 39:F, 41:B), or low ring base (fig. 38:D).[138] Examples with true cylindrical profile have overall painted patterns (figs. 38:F, 39:A–B), while only half or one-third of the bodies of those with slanted walls (fig. 38:A–B, D) are decorated.

Barrel-shaped/Straight-sided Bowls. Examples of this type were found only in the 1937 season and are limited to Tall-e Bakun A. Only one example (fig. 37:A) has enough of its base preserved to allow the reconstruction of the complete shape. Specimens included in this category have slightly slanted walls, and judging from figure 37:A, a painted flat bottom base on a ring base. Except for figure 37:A, all the illustrated examples (fig. 37:B–E) are decorated with the specific highly stylized lizards. Figure 54:A is a plain specimen of this type.

Ring-based Broad Conical Bowls. A number of bowls with straight walls and low ring bases of varying sizes constitute this group. The lip is usually simple (fig. 36:A, C), but slightly inverted lips also occur (figs. 35:B, 36: D). In addition to the similarity in profile they are consistently painted both inside and outside, save for figure 36:D. Though always geometric, the exterior designs vary, but the interior design usually consists of a series of wavy and straight lines that radiate from the lip dividing the interior surface into two, three, or four segments (figs. 35:B, D, 36:A–D). Though rare, such bowls occur in all levels.

137. Compare Ghirshman 1938, pls. 13:2, 4, 16:1; Schmidt 1937, pls. 4:H 3467, H 2060, 9:H 4817.

138. The reconstruction is based on complete pieces discovered in the 1932 season.

Deep Wide-mouth Jars. No example of this type was found in the 1932 season. The specimens of this type have a gentle S-curve wall with or without a ring base (figs. 38:B, E, 39:D). Neither the painted patterns nor the shape are typical of the Bakun A ceramic repertoire, but similar shapes and painted designs do occur at the earlier Tall-e Gap (Egami and Masoda 1962, figs. 20:7, 19:3, 16:7). Figure 53:A is an example of this type made of coarse redware.

CLOSED FORMS

Jars and pots are relatively simple and are usually without accessories such as handles or spouts.[139] While most of the red cooking pots are supplied with small knobs just below the lip (fig. 54:H, pl. 15:A), only one painted buff jar is found with at least six knobs applied to the mid-section of the body (fig. 41:B). Such knobs are also rare at Susa and they differ from those at Tall-e Bakun A in that they are pierced and therefore functional. The Bakun A jars are also less lavishly decorated than the open forms, but except for the cooking pots, they are almost always decorated. The simplest decoration consists of either a broad band on the neck (fig. 53:B) or several broad bands on the neck and the body (fig. 42:G), a decorative pattern that started at Tall-e Gap in the Middle Fars 2 phase (Egami and Sono 1962, fig. 25:1).

Large Jars. Large jars, usually over 35 cm high, are either globular (figs. 39:C, F, 41:B, E–F) or have a carination at the mid-section of the body (fig. 43). The height of most of the jars is almost proportional to the largest diameter. Some are provided with high necks, normally painted solid, with a simple beaded lip (fig. 42:E), everted or ledge rim (figs. 41:C, 42:D). Flat, low rings (though sometimes concave) are the only types of bases associated with these jars. Painted decoration on these jars is usually limited to the upper body and rarely below the carination. One specimen (fig. 41:A) has an overall simple design. This jar, however, is most unusual in its irregular profile. Though a common attribute of the cooking jars (fig. 53:C, E), decorated hole-mouth jars are rare at Bakun A (fig. 42:F). Ordinarily, large jars are painted with simple geometric motifs. Figures 39:F and 40 are exceptions. Rare examples of this type (pl. 15:B) have a pierced ledge rim with typical Late Susiana 1 design.

Cooking Pots. Vessels used in food preparation are made of a coarse redware. They are globular in shape and are almost always hole-mouthed. Some are provided with knobs, but simple ones are also common. The base is either flat (fig. 53:D), concave (fig. 53:A, C, E), or convex (OIP 59, pl. 17:27). This latter type seems to be limited to the two uppermost levels. Figure 54:I with a club rim is an anomaly and thus may belong to a much later period.

SPECIAL FORMS

Tumblers. A number of thick-walled small containers of unknown use were found in Levels 3–4. They are made of fine buff clay and are decorated with broad, simple lines (fig. 56:H, J). They have either a thick ring base or a pointed base (OIP 59, pl. 17:19). Figure 56:I represents a plain version, but is made of red clay.

Miniature Saucers. These small objects come from all levels and are made of both buff and redware, usually with no inclusion, and are plain (fig. 56:B, D). Whether they were used as small containers or as support for larger bowls with pointed bases is not known. A different version has a thick pedestal base. The lip is usually pinched (fig. 56:G) or is corrugated (fig. 56:F). Plain lips also occur, but are not as common (fig. 56:E).

Miniature Jars. A number of very small jars are made of both fine buff and coarse redwares. Such vessels are normally plain (figs. 55:A, C–D, 56:A, C), but one example is decorated with a simple band just below the lip (fig. 55:B).

Miniature Bowls. Examples (figs. 55:E–F) of a number of small, open containers usually made of buff ware have an irregular shape and the undulating lip shown in figure 55:E is unusual and may have had a special use in preparation of industrial items.

Zoomorphic Vessels. Small, open containers usually in the shape of bulls are made of fine clay and are found in all levels (fig. 57:B–C). One type (fig. 57:A) has a flat bedding with a large hole in the middle. This particular object may have been used as support for vessels with pointed bases, though this is by no means certain.

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139. In the 1932 season four jars with simple, tubular spouts were found (OIP 59, pls. 15:6, 18:8–10). Except for the one illustrated in ibid., pl. 15:6, that was found on the floor of Building XI, the rest may belong to the post-Bakun phase.

Miscellaneous Vessels. Figure 54:A, C–E represent three forms not common in the repertoire of the Tall-e Bakun ceramics.

THE GRAMMAR OF DESIGN AND ARTISTIC QUALITIES OF THE BAKUN A PAINTED POTTERY

INTRODUCTION

The analysis of the style of prehistoric painted pottery (and other artifacts) in relation to its informational content has become a valid and fruitful procedure for drawing inferences pertaining to socio-cultural complexities and cultural boundaries between and within social groups.[140] Such analyses, however, require a large collection of pottery from the regions under investigation so that interregional differences and similarities in style and representational motifs can be established. While we have little doubt that the Bakun A pottery in Fars exhibits regional variations, the relative paucity of published surveyed and excavated materials from Marv Dasht's neighboring regions prevents us from conducting a formal analysis to establish material culture boundaries within the province of Fars. Nevertheless, we offer the following analysis as a basis for future studies when sufficient material is available. Therefore we have not attempted to draw conclusions on how the grammar of Bakun A painted designs differs from or is similar to assemblages from other regions in Fars. To do this, we not only need large samples of painted pottery, but also we have to make certain that the comparative material is locally made.

The following observations are based on the study of more than 4,000 potsherds and a number of whole vessels from Tall-e Bakun A. Janet Helman, a volunteer and the former head of the Docent Program at the Oriental Institute, undertook the painstaking task of checking individual pieces, measuring the relevant attributes of design elements, and summarizing the data in charts 2–42 and tables 35–51.

Almost half of the more than 4,000 potsherds were plain; of the remainder, only 417 pieces had enough painted decoration to be measured and analyzed with some certainty. In cases where the information on some specific form of vessel or type of design was too scant to warrant a bar chart, a non-graphic table is provided. Tables 35–51 also provide detailed stratigraphic data as well as museum and field registration numbers for the analyzed pieces.[141] In addition, the spatial distribution of various types of the main elements of design in the buildings of the northern quarters of the site and in each stratigraphic level has been tabulated.

The collection is divided into six types: (1) deep bowls, (2) broad bowls, (3) small bowls, (4) hemispherical bowls, (5) conical bowls, and (6) cups. Potsherds that were too small to reveal a specific type are included in a seventh type, Type 7 (uncertain). The types of vessels correspond to McCown's classification (OIP 59: 26–31); some charts are accompanied by an outline of each specific type so that there would be no ambiguity about the shape of the vessel in question. In addition to the frequency of the occurrence of the six major vessel types, charts 2–6 also contain statistical information on the presence of the specific shapes and motifs in individual levels and architectural units.

TYPES OF DESIGNS

Painted open forms have either an overall design covering the entire body of the vessel (pl. 13:D–E) or a horizontal panel framing the main element of design. Hemispherical and conical bowls (Types 4 and 5) are almost always decorated with an overall design, but examples of other types of bowls with overall designs also occur. While animal motifs, such as mountain sheep and goats, and human forms are almost always found on the conical bowls, other creatures such as lizards and birds never occur on such bowls. Deep and broad bowls (Types 1 and 2) are predominantly decorated with non-linear, geometric designs that are usually confined within a wide horizontal panel, spanning the surface from just below the lip to the carination of the mid-section of the vessel. Human (fig. 45:A–C) and animal (fig. 44:A–C) motifs also are found on these types of bowls, but only rarely. The most common element of design on the small bowls (Type 3) consists of animal and non-linear, geometric motifs. Cups (Type 6) are usually decorated with a variety of simple non-linear geometric designs.

140. For examples, Flannery and Marcus 1996; Hole 1983, 1984; LeBlanc and Watson 1973; Plog 1980; Pollock 1983; Wobst 1977; Yentsch 1996.

141. Numbers with the prefix A (e.g., A39690) are Oriental Institute Museum registration numbers and those under the heading PPA (Persepolis Prehistoric Project) are field registration numbers.

INTERIOR DECORATION

Overall interior decorations are predominantly applied to the broad, small, and hemispherical bowls (Types 2, 3, and 4, respectively). Such decorations include a variety of non-linear geometric motifs but never animal or human forms, unlike the earlier phase when birds, goats, and abstract human forms occasionally decorate the interiors of bowls.[142] While in the earlier Middle Fars 2 period open forms are always decorated either on the exterior or on the interior but never on both, the style of decorating both surfaces appeared only during the Late Fars phase.

BANDING PATTERNS

Charts 37–42 show the number of painted bands on either side of the horizontal painted panels. Such painted panels on the open forms are bordered by a thick (1.5–2.0 cm) band and two thinner (2–3 mm) bands below that are mirrored on the bottom of the panel. The predominance of this banding arrangement is relative and never exclusive. For example, although most of the decorated panels on Types 1 and 2 are bordered with two sets of three bands, other varieties with more or fewer bands do occur. In some cases, the thick topmost band is separated from the thin lower band by a series of subsidiary motifs consisting of triangles or lozenges, a characteristic that is absent from the previous Middle Fars 2 phase. Similarly, subsidiary motifs separating the top thick band from the lower thin bands are absent from the Middle Susiana period but occasionally occur on some open forms during the Late Susiana period. This banding arrangement on the open forms from Fars and Susiana is in sharp contrast with similar forms from the late prehistoric Central Plateau where the main element of design is usually depicted immediately below a thin lip band.

Conical bowls do not exhibit a particular banding pattern, although those with two bands above and two bands below the main element of design are more common; in such cases, the thick lower band usually covers the entire pointed base. The majority of cups exhibit only one thick band on top, but a few examples deviate from this pattern.

While all decorated vessels have a lip band, those that are decorated on the interior have only one thick band just below the interior lip and no band below the main element of design. In such cases when the exterior surface is left undecorated, a thick band covers the entire base.

AESTHETIC ANALYSIS OF BAKUN A PAINTED POTTERY

The art of pottery in Iran reached its zenith in the late fifth/early fourth millennium B.C. Among the three major cultural provinces in prehistoric Iran, that is, Susiana, the Central Plateau, and Fars, it was Fars that arguably exhibited the most aesthetically sophisticated tradition of painted pottery. The zenith of what may be considered the "classical period" in the art of painted pottery was achieved concomitantly in the three regions and coincided with the development of what later became state organizations. At the same time, the art of painted pottery in other regions in the Near East, such as Mesopotamia and Anatolia, deteriorated. This trajectory of symbolic social reproduction in prehistoric Iran at the dawn of state formation may be explored in terms of the "prestige goods exchange" model, developed originally by Friedman and Rowlands (1977), which may result in an increase in both volume and quality of goods and in this case, pottery.

No other Near Eastern prehistoric culture has produced so many local styles and schools with such a wealth of decorative motifs. Its expressive animal forms, abstract shapes and lines, finely balanced designs, and bold elements distinguish the golden age of Iranian prehistoric pottery. Leopards, stags, caprids, birds, insects, and mountain goats/sheep are among the most common elements of design (figs. 46–52). Susiana potters of the late fifth and fourth millennia B.C. also achieved a high level of artistic sophistication, but in a more formal and restrained manner. The Bakun artist seems to have been more playful and adventurous in combining representational and geometric elements of the design and making extensive use of unmatched negative patterns. The aesthetic qualities and characteristics of the classic Bakun A pottery have been dealt with admirably and in great detail by McCown (OIP 59: 24–57). Nevertheless, a summary of the characteristics and artistic aspects of the Bakun pottery is helpful as a basis for our stylistic and chronological observations.

In dealing with the artistic aspects of the Bakun A pottery we are not, of course, analyzing the intangible mental approach of the artist to his or her medium because we only have the finished product. As suggested by a number of

142. See, for examples, Egami and Sono 1962, pls. 28:3b, 34b:1–2, 38; M. A. Stein 1936, pls. 22:51, 59, 23:88, 24:7.

researchers,[143] it is likely that at least some of the painted designs were symbolic and as such were of much greater significance to the artists and to the users of the vessels than for their decorative quality. Any interpretation on the meaning of the designs remains highly speculative. Nevertheless, the restricted spatial distribution of the representational and episodic[144] scenes suggests symbolic significance for those who possessed them.

To begin with, as McCown noted, finding a design that is harmonious with the shape of the vessel to be painted is the first major task of the ancient potter. The ancient potter, just as the modern-day potter, was concerned with the problem of applying a design suitable for the shape of the vessel. The treatment of small hemispherical and conical bowls was perhaps the most difficult problem the Bakun artist faced. In these forms the bottom border has a much smaller circumference than the top if the whole surface is covered. In such cases, the painted zone could be easily confined to the narrow, slightly slanted area just below the rim. But the Bakun potter solved this problem by choosing to divide the area into segments which, when seen from below, form a radial character (figs. 26, 27:C). Regardless of what the artist chose to illustrate, whether individual geometric units, spiral horns, or triangle-rhomboid units (fig. 24:E, G), the resultant radial effect is the same.

Fitting one or a series of design elements in the circular interior of bowls posed a challenging problem for any prehistoric designer. The Late Susiana artist overcame this problem in a superior way by applying a complex yet balanced design that in most cases covered the entire interior surface of open bowls.[145] The Bakun artist solved this problem by using the less complex patterns of the circumference and radii of a circle as a guide. In such cases a centrifugal effect is usually achieved with three sets of straight or wavy radial lines terminating near the center of the interior (OIP 59, pls. 28–29). While a central, unifying element is almost always present in the open bowls from Susa, they are almost always absent from Fars. This approach to decorating the interior of bowls is also shared by the Central Plateau artist. In such bowls, simple zones with any type of design or combination of designs were not used by the Bakun artist, neither was the firm border of design on top and bottom, because the artist may have felt the round space of the interior of bowls was sufficiently self-contained. Unlike the preceding phase of Middle Fars 2,[146] the Bakun A artist of the Late Fars period never used animal or human motifs on the interior of open bowls. As in Susa, when the primary design is on the interior, the exterior is left blank save for a thin band on the rim.

As mentioned before, in decorating a particular vessel, the Bakun artist, as his or her counterpart in Susiana, must have been concerned with how a design would have fit the shape of the vessel and how the end result would have appeared. A number of conical vessels are decorated with horned sheep/goats in such a way that at first glance one sees two great sweeping spirals. But closer examination reveals the spirals as greatly exaggerated and magnified horns attached to simple yet elegant bodies which either show minimal physical attributes of the animal, such as tail and beard, or highly stylized bodies in the form of a triangle. At times the body is completely missing, a notable characteristic of the Bakun A pottery (fig. 25:A, D–E).

The technique of "squaring a circle" dates back to a much earlier time in Susiana[147] when the decoration of some Middle and Early Susiana bowls consists of a central square (a tradition that continues until the end of the prehistoric period in southwestern Iran) from which a triangle sprouts from each corner (OIP 101, pls. 194:C, 198:I, 199: B, I). At Tall-e Bakun A, the bodies of two or four animals (fig. 25:A, E) and the spiral horns spreading from their heads correspond to the central square and triangles of the Early Susiana motifs in Iran, as well as the earlier Samarran culture in northern Mesopotamia.[148] A highly abstract form of this technique is illustrated in figure 27:D, where a central circle is transformed into a square by four pairs of triangles.

Complex designs were avoided on the small vessels whose small diameter could create a sharp foreshortening of the design that would have dramatically reduced the desired effect. Larger vessels with nearly vertical walls offered a great medium for such designs. Certain designs (checkers, connected elements, and undulating rhythmic bands) inherently afford this effect, which is not as easy to achieve with panels or unconnected elements. These connected elements also produced a sense of directionality superior to any other Near Eastern prehistoric styles. This effect of guiding the eye could not be achieved with self-contained motifs such as diamonds, decorated squares, and joined triangles. In cases where individual motifs are used, filling motifs provide connection between elements.

143. See, for examples, Flannery and Marcus 1996; Hole 1983, 1984; Pollock 1983; Shanks 1996; Yentsch 1996.

144. "Episodic" is defined here as a scene that is either the culmination of a series of events (as in the Crucifixion, the parting of the Red Sea, or the scenes on the Ur music box), or a symbolic gesture frozen in time, as in the stele of Tukulti-Ninurta I. See Frankfort 1969, pl. 73:B.

145. See the open bowls from Susa in Pottier 1922, pls. 5–10.

146. See Egami and Masuda 1962, fig. 16:13–14, 16–18; Egami et al. 1972, pl. 3:5.

147. This technique is also prominent in some of the Samarran pottery in northern Mesopotamia.

148. Herzfeld 1930, figs. 23, 25–26, 30, pls. 9:23, 10–11, passim.

Although it is possible that in some cases the Bakun artist may have portrayed his visual impression of nature (as indicated by the motif of what seems to be a donkey or wild ass, figs. 44:C, 48:P) in rendering humans, animals, and plants, the artist primarily seems to have been concerned with the stylistic and decorative elements that populate the Bakun A representational scenes. Occasionally some visual details are either expressed or hinted at, such as goat beard, horn knots, fingers, hair, and curved tails (figs. 46–52). One of the outstanding abstract human forms is depicted on the shoulder of a storage jar (fig. 46:L, pl. 14). The wide shoulder of the jar is divided into three panels, each of which contains two triangles set next to one another. This completely geometric form is given life and movement by a pair of reserved dots as eyes and two straight lines issuing from the apex of the triangles and terminating in five fingers. Less abstract human forms are also rendered, but compared with the animal forms, the human forms are far more abstract (fig. 46).

Birds are shown standing (fig. 50:A, C, E), wading (fig. 50:B, G), flying (fig. 50:U–V), or perching (fig. 50: I–T, W) in frontal view. The Bakun A artist distinguished the flying birds, seen from below, from the perching birds with widespread wings by rendering the former's wings' feathers pointing the opposite direction of the flight. The painting of the birds in a reserve area illustrates one of the outstanding characteristics of Bakun A, namely the importance of negative space in the creation of designs. Such compositions are primarily formal, created by a sophisticated technique in which reserved negative spaces become primary design elements. In the panel example, squares (fig. 46:R) and triangles (fig. 46:S) look like heads, and parts of continuous running borders like arms (fig. 46:K), but exactly the same elements appear in the lower part of the motif so that there is only a slight reminiscence of an organic being.

The question arises as to whether any "naturalism" can be distinguished on the Tall-e Bakun A vessels, as for example on a jar decorated with several carnivores that seem to be hunting dogs, perhaps salukis (figs. 39:F, 49:G). They have the normal Bakun A style body but with a huge spiral tail and large ears. In addition, each animal is supplied with a triangular fringed element that seems to be some sort of bell.[149] Dogs also appear irregularly arranged surrounding ruminants; such scenes sometimes include a human figure (fig. 45:A–B). Unlike the leopard hunting scene from Tappeh Qabrestan in the Central Plateau (Majidzadeh 1980, pl. 1), the figure on the Bakun A example holds what seems to be a bell and as such renders it more akin to a bucolic scene than a hunting scene. The highly naturalistic features of the clay statuette of a female (fig. 59:B) indicate that the tendency of the Bakun artist to depict natural motifs in an abstract fashion and therefore should not be confused with lack of skill.

Despite the strong possibility that most of the painted designs had symbolic meaning for the prehistoric audience for whom the painted vessels were made, any attempt to explain the meaning of these symbolic designs would be highly speculative. Nevertheless, it is intuitive to see why the aesthetic qualities of most of the animal designs would appeal to people, even today. To sum up briefly the main qualities of the design:

(a) Symmetry is a cardinal principle.
(b) The design is applied either in free fields or in zones.
(c) In the painted zones there may be a closely woven pattern of repeated elements, a simple rhythm of repetition, or a more pronounced flow of movement that in its strongest form creates a feeling of torsion.
(d) On the interiors of bowls some properties of the circle are exploited, but centrifugal or swirl effects are favored because, presumably, they created more markedly the desired effect of movement.
(e) Finally, in natural motifs the ornamental predominates over the feeling for physical and natural reality.

149. Such bells also occur in the prehistoric Central Plateau (Majidzadeh 1980, pl. 1) and pre-Dynastic Egypt (Boardman 1984: 87; Petrie 1921, pl. 25:91–93).

CHAPTER 7
SMALL OBJECTS AND CHIPPED STONE INDUSTRY

HUMAN FIGURINES

A variety of baked clay human figurines were found in both the 1932 and 1937 seasons at Tall-e Bakun A. Most of the human figurines from Bakun A come from the upper levels of occupation. The 1932 season figurines mostly came from Levels III and IV, but the majority were found in Level III, Bakun's main occupational phase. They are made usually of fine buff clay with some sand inclusion. Most are fairly well baked and almost all are decorated with black or dark brown paint. The painted pattern on the bodies and faces indicates tattoos and pubic hair (figs. 58:C–D, 59:B, 60, pl. 23:A) and personal ornaments (fig. 60). The points of breakage suggest that in most cases the head and arms were made separately and added to the body. The body is usually cylindrical with a flat base and wing-like projections as arms (fig. 60). Because the head is invariably broken from the body, it is difficult to determine the stylistic range and types; similarly, it is difficult to determine the sex of the severed heads. But judging from the extant torsos and lower bodies, all the heads seem to have belonged to female bodies, with the notable exceptions of a bearded head (fig. 58:E) and a mid-section of the body of a male in figure 59:A.

The majority of Tall-e Bakun A human figurines have elongated heads and coffee bean-shaped eyes typical of the late prehistoric period in southwestern Iran and Mesopotamia. Although such figurines are common in prehistoric Mesopotamia and Susiana, Bakun A is the only site in Fars that so far has yielded such figurines. One specimen (fig. 58:E) is provided with a long beard, a naturalistic feature unique in all the extant examples.

Among the collection of human figurines, two examples stand out as evidence of the remarkable artistic skill of the Tall-e Bakun A artist. These two exquisitely modeled specimens represent a male and a female; the head of the latter is missing and of the former only the mid-body section is preserved (fig. 59:A–B). Both specimens are well proportioned and anatomical details are clearly rendered in a naturalistic manner. Their size, proportion, and the style of rendering warrant them to be called "statuettes" rather than figurines. Although they were found in different areas, the similarity in size, clay, and modeling suggest that they may have originally been meant to go together as a pair.

ANIMAL FIGURINES

The animal figurines are usually made of a buff clay with some sand inclusion. Most are baked at low temperatures, but there are a few examples that are well baked. Most represent dogs, sheep, goats, and cattle (fig. 48:F–P), but birds (OIP 59, pl. 5:4–6), bears (OIP 59, pl. 5:7–8), lions (OIP 59, pl. 5:12), and leopards (OIP 59, pl. 5:9) are also present. The naturalistic tendency of the artist is more evident in these figurines as indicated by the proportions and anatomical details. One example (fig. 58:M) is a naturalistic figurine of a goat with a skillfully modeled face and beard. The entire face, as in the bearded human figurine (fig. 58:E), is painted black with an ear projection, the circumference of which is indicated by a reserved, unpainted line.

SPINDLE WHORLS

Large quantities of baked clay spindle whorls were found at Tall-e Bakun A. The spindle whorls are usually made of fine clay and are well baked. While whorls made of stone are rare, a poor man's version made of painted potsherds is also common (fig. 61:M, O–Q). In sharp contrast to the preceding Middle Fars 2 phase, all the regular whorls are unpainted and simple in form; one notable exception is figure 61:P. The most common form is biconical either with a plain or scalloped edge (fig. 61:A–H, J). Some whorls (fig. 61:A, I) bear several punctuated marks, while one example made of limestone (fig. 61:K) is decorated with four excised circles with raised centers. The whorls shown in figure 61:L–M are different in shape in that they are thin and flat. These two items may well be tokens and as such part of the repertoire of the administrative technology.

A number of pottery disks are also included in this category. These objects are made by chipping potsherds into disks with a smoothed but irregular circumference (fig. 61:M, O, Q). They are pierced either in the center from both sides or have no perforation, presumably left unfinished. The presence of a number of these objects with the beginning of a hole indicates that they, too, were meant to be perforated. Such disks with a central hole are common and are known as spindle whorls. If this is the case, then they may have been the poor man's whorl. This conclusion is based on the general similarity of these objects to the common type of whorls. But since spindle whorls are so easy to manufacture and can even effectively be used unbaked, it is doubtful that these objects were actually whorls. In addition, spindle whorls were provided with tapering central perforations to prevent the slippage of the wooden stick around which the thread was wound. Disks made of potsherds usually have a straight hole that is not suitable for such a purpose. Thus, it is possible that such disks served as some kind of counting device, though admittedly there is no evidence to support this conclusion.

PERSONAL ORNAMENTS

A large number of small objects made of semi-precious stones such as carnelian, lapis lazuli, turquoise, and alabaster, as well as objects made from bone, bitumen, and shell were found at Tall-e Bakun A (figs. 62:A–GG, 64:A–C, H–J). Considering that the settlement seems to have been abandoned peacefully and in the absence of an associated cemetery, the number and variety of personal ornaments left as debris indicates the wealth of this late prehistoric community.

As is the case with other objects, the majority of the objects used as personal ornaments, particularly those made of semi-precious stones, come from the main occupation phase at Tall-e Bakun A. While a drill was used to pierce stone, flat shells, and mussel shells (fig. 62:AA, EE) to allow them to be used as pendants, one had an end rubbed until a hole was formed. Two plaques made of mother-of-pearl and bone (fig. 62:FF–GG) may or may not have been personal ornaments, but they are included here for want of better identification. Similarly, two pierced plaques made of shell and some type of translucent stone (fig. 62:A, C) may have been part of some personal ornaments.

MISCELLANEA

POTTERY TUBES

These enigmatic objects are made of fine pale buff clay with either no visible inclusion or fine sand. They are invariably painted dark brown, maroon, or light brown. The painted decoration is simple; some are decorated with two or three simple horizontal bands (fig. 63:C, J, P) and some are painted all over with two rectangular areas in reserve (fig. 63:D–E). Very rarely the reserved areas are filled with a vertical line crossed by two or three horizontal strokes (fig. 63:I).

The use of these pottery tubes is unknown and since no visible sign of wear exists on these objects, it is impossible to guess how they were used. Nevertheless, the possibility that they, too, may have been some sort of counting device originally strung together should not be discarded. These objects are extremely rare in the ancient Near East. The only close parallels come from Susa, where slender and unpainted plain versions also occur.[150]

POTTERY RINGS

A number of baked clay rings were found in all levels. They are roughly smoothed and are undecorated. The rings were made of clay rods by pressing their two ends together (fig. 63:O). No sign of wear is visible on these objects and, though it is not certain, they may have been used as bracelets. Alternatively, such objects may have been part of the administrative technology at Tall-e Bakun A as they are similar to a type considered by Schmandt-Besserat (1992: 232, Type 16:17) as "miscellaneous ring tokens."

150. de Morgan, Jéquier, and Lamper 1900: 83, fig. 110; Pottier 1912: 9, fig. 19.

POTTERY SCRAPERS

These objects are known as pottery scrapers and, indeed, they may have been.[151] They are made of buff clay with or without sand inclusion. These well-baked objects range in size from 7 to 12 cm in diameter. They are usually in the form of a stirrup (pl. 24:B–E), but ring shapes also occur (pl. 24:A). In the first type, the loop handle is round and the straight cutting/scraping edge is sharp. While these objects may have been used to cut the extra clay off the vessels, particularly the heavy lower part, they must have been used on fine and small vessels because the toothed scrape marks on the large open bowls and jars could not have been made using this type of object.

FIRING TRIPODS

These tools were presumably used by potters to separate individual vessels from sticking to one another in the kiln during the firing. They are made of the usual buff clay with or without sand inclusion. They are always undecorated and show no sign of either over-firing or proximity to fire, as would be expected if they were used repeatedly in baking pottery. If they were indeed used as firing tripods, then the bent tips of the arms were designed to securely accommodate the superimposed vessels (fig. 63:T–U). However, the interior of many decorated bowls show unevaporated imprints of the exterior painted designs of the overlying vessels, an observation that contradicts the use of firing tripods.

FIREDOGS

These over-fired solid conical objects are made of buff clay with much vegetal inclusion. The core is usually dark brown and the surface shows layers of coating of a mixture of mud and straw (fig. 63:Q–R). They most probably were used to support removable grates in pottery kilns.

"SLING SHOT"

These clay oval-shaped objects occur in many archaeological contexts from the Levant to the Iranian Plateau and from the early stages of the Neolithic to at least the end of the Protoliterate period. At Tall-e Bakun A, a number of these objects were found scattered from Level 2 up, but never in clusters. In most places in the Near East they are more or less the same size and shape and are made of fine clay and slightly baked (fig. 63:K–N). They are commonly known as "missiles," presumably ammunition for slings. Their shape, however, is not suitable for a projectile (as my own experiment with some replica examples indicated) because the two pointed ends prevent the object from following a straight trajectory (see also Stout 1977 for similar results). Moreover, it seems to be too coincidental that almost all Near Eastern prehistoric communities that used such objects would adhere for several millennia to the same shape and size, unless they represented some sort of standard object whose function we can only guess.

CLAY HORNS

A number of solid and hollow bent horn-like objects were found in various contexts. While the hollow ones with a broken end (fig. 63:B, F) may have been originally attached to animal figurines, the solid ones with finished ends (fig. 63:A) could not have been part of a figurine. A different type (OIP 59, pl. 5:18) has notches on the horn, very similar to the horns found at contemporary Susa (de Mecquenem 1928: 108, figs. 6–7). Whether such objects were abbreviated representations of horned animals or clay tokens representing horned animals is uncertain.

ROOFING MATERIAL

Although technically not "objects," the example shown in figure 64:F represents what we consider to be chunks of roof collapse. These lumps of unbaked clay are usually flat on one side and on the other show impressions of reeds. Even today such items are used to seal a bedding of reeds supported by wooden beams.

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151. See Alden 1988: 143–50 for a detailed analysis of ring scrapers.

SINGLETONS

A number of individual, and so far unique, objects of obscure purpose were also found at Tall-e Bakun A and are included here. One is a lump of clay with a vertical and horizontal perforation (fig. 63:H and possibly G). Another is a decorated clay loop (fig. 64:K), which closely resembles a decorated double loop with handle found in the 1932 season (OIP 59, pl. 85:8). One object (fig. 64:K) is made of fine buff clay with no visible inclusion. One end is narrowed either to accommodate a handle or another loop or perforated disk, as in the 1932 example; both sides are decorated with a series of carob-like strokes surrounded by a thin painted border.

One end of another singleton (fig. 63:S) is broken and the preserved part has what seems to be unfinished drilling from both sides. However, pottery objects that were meant to have perforations were pierced prior to firing. The pattern of drilling is also so regular and specific that it argues against an unfinished product. The function of one piece (fig. 69:L) is uncertain. Figure 64:L seems to represent a lid or an object of uncertain function. Figure 64:G looks like a lower leg or lower arm, but this is not certain. Another piece of uncertain function is figure 64:E, a miniature "mortar"-like object.

STONE OBJECTS

Mace-heads, grooved polishers, rubbing stones, hammers, and palettes constitute a large number of utilitarian stone objects that were found in both the northern and southern quarters at Tall-e Bakun A. Consistent with the assumed prevailing economy of the site, there is an almost total absence of tools related to processing grains such as querns, pestles, and stone mills.

The majority of the mace-heads from the site are associated with the topmost level that is characterized by the Lapui redware and few Tall-e Bakun A painted sherds. Thus, the complete abandonment of the settlement after this phase may have coincided with an increasingly hostile environment. Conversely, the rarity of this particular object in the earlier phases of occupation may be taken as an indication of peaceful conditions. The mace-heads are made from a variety of stone and both the finished and unfinished specimens show that drilling was done from both ends (fig. 65:K, M–N, R). Their shapes range from tall, squarish globular, to flat (fig. 65).

Stone polishers with or without a longitudinal central groove are found in most phases of the occupation (fig. 65:D–F, I). The shallow groove almost always bears parallel scratch marks, as do the top of the pieces without a groove. Some specimens are polished all over and some are left with the original rough surface. These objects may have served a variety of functions, among which bead making could well have been one.

Rubbing stones are the most common stone tools at Tall-e Bakun A. They are made of a variety of sandstones and are found in all phases of occupation. Usually one face is polished, but specimens with two or three sides showing signs of use also occur. The most common forms are ovoid nodules. We may include in this category stone rods with only one end bearing signs of use (fig. 65:A, H) and what seems to be a rubbing stone with a deep groove (fig. 64:M).

Thin slabs of limestone and sandstone with one or two polished faces were used as palettes. The identification of these pieces rests on the traces of reddish or yellowish pigment that are still visible. Traces of the same pigments on some mussel shells and some small stone pestles (fig. 65:H) indicate that they too were used in grinding and preparation of coloring substances.

Pounders, which may have been used in a large variety of industrial activities, are also common. They come in several shapes and are primarily made from sandstone (fig. 65:A–C, G, J, L, O).

STONE VESSELS

The extant complete (OIP 59, pl. 81:1–13) and fragmentary stone vessels (fig. 66, pl. 25) from Tall-e Bakun exhibit a developed stage of stone carving industry in the late prehistoric period. All the pieces are usually so well polished that no traces of tool marks can be observed. The majority of the vessels are in the form of open bowls with flat (fig. 66:B), ring (fig. 66:D), or dimple bases (fig. 66:C). But more complex forms such as miniature jars (OIP 59, pl. 81:5–6), conical cups (OIP 59, pl. 81:13), and various types of jars (OIP 59, pl. 81:10–12) are also present.

The most widely used stone is a type of translucent, creamy white alabaster that may have been obtained from the neigboring region of Yazd, as it closely resembles the type of alabaster known from this area. While the stone vessels from Levels 1–2 and 4 were made from different types of stone and alabaster, those from Level III (1932

season) seem to have exclusively been made from Yazd alabaster, an observation consistent with the distribution and types of materials found in this main architectural phase at Bakun.

CHIPPED STONE ARTIFACTS

The last stages of the prehistoric period are marked by a decrease in the use and the number of types of flint tools. Nonetheless, the comparatively small number of flint tools and the evident conservatism in their manufacture is noteworthy at Tall-e Bakun A. In a combined area of 3,480 sq. m from two seasons of excavation only some 1,445 flint and obsidian tools and flint cores were found (fig. 67:A–D). Single backed blades are rare. The majority of pieces have double backed ridges without any retouch (fig. 67:V–FF). The second common group comprises pieces with only one edge retouched (fig. 67:E, M–U), and the third includes pieces with both edges retouched (fig. 67: F–L). The retouched edges show signs of both irregular and fine denticulation.

Microchips, arrowheads, and javelin heads are totally absent, consistent with the rarity of other non-perishable weapon types in all levels of occupation at the settlement. Compared to the flint blades from contemporary Susa (de Morgan 1900: 191–95, 1912: 15–22), the Tall-e Bakun A blades are taller, more slender, and exhibit less retouch. Some blades still bear bitumen smear and must have been hefted as sickle blades. Almost all of them have sheen on one or both edges. The most common type of flint used to make the blades is a fine grained matte green chert. In addition, streaky reddish brown, maroon, buff, and dark gray cherts also occur.

Obsidian blades are rare. Only very small blades are made of this material, which is normally translucent dark gray or grayish green. The analyzed samples indicated a gravity value of 2.37 and a refractive index of 1.495, indicating the typical rhyolite obsidian possibly from Lake Van (OIP 59: 80).

COPPER OBJECTS

No copper object was found in the 1932 season at Tall-e Bakun. This is understandable considering that the settlement was deserted peacefully and all the precious objects must have been carried away. In 1937, however, more than forty objects made of copper were found in the southern and central quarters of the mound. All these objects belong to Levels 2–3; none were found in Level 1 or in Level 4. The objects consist of knives, a possible hook, pins, needles, chisels, blades, simple rods, a toggle pin, and a dagger (figs. 68–69). The dagger, 22 cm long and 3 cm wide, is the one of the oldest of its type that survives in a pristine shape (fig. 70, pl. 5:B). It is furnished with a low ridge that runs the length of the dagger. Such an object most probably belonged to an elite member of Bakun society.

BONE OBJECTS

In contrast to Tall-e Bakun A, Tall-e Gap and Tall-e Bakun B produced large amounts of bone tools (Egami and Sono 1962, pl. 46, figs. 34–35). Except for a few doubtful point-like pieces, objects made of bone are almost completely absent from Bakun A. This lack may be attributed to the preponderance of stone and copper tools in a strong economy with a sophisticated metallurgical technology.

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The evidence of sealings is discussed in the following chapter to support further the argument that the architectural and artifactual evidence allows a reconstruction of the Tall-e Bakun A settlement as spatially arranged in accordance with functional needs and socioeconomic organization. We propose that the central and southern sections were designed for industrial activities and perhaps contained some living quarters, whereas the northern section provided residential units and storage facilities for various products, the reception of goods, and their distribution.

CHAPTER 8

ADMINISTRATIVE TECHNOLOGY AT TALL-E BAKUN A

INTRODUCTION

The development of agriculture and animal husbandry in the ancient Near East gave rise to an economic and social matrix in which a personal, if not interpersonal, mnemonic notation system became necessary. The first appearance of simple clay tokens, as noted by Schmandt-Besserat (1992), coincides with the time period considered as the beginning of agriculture in the Near East. Only relatively recently were these objects systematically analyzed and interpreted as tokens for numerical notation. The early Neolithic clay tokens are of simple shapes and have a wide geographic distribution in the Near East. They occur in the Levant (e.g., Beisamoun, Jericho), Jordan (e.g., Beidha, Ain Ghazal), Syria (e.g., Mureybet, Tell Aswad), Anatolia (e.g., Çayönü, Çan Hassan, and Demirçihöyük),[152] Iraq (e.g., Jarmo, Tell Maghzaliyah, M'lefaat), Iran (e.g., Chogha Bonut, Tappeh Ganj Dareh, Tappeh Asiab, Tappeh Ali Kosh, Chogha Mish, and Tappeh Zagheh), and Turkmenistan (e.g., Anau, Jeitun).[153]

We do not know whether these tokens developed in one particular region and then spread throughout the Near East. The system of notation represented by clay tokens, however, need not have developed only once or in one particular locus. The fact that the human brain seeks patterns and organizes them into some sort of manageable form, as well as the shared exigencies of daily life, leads to the development of simple mnemonic methods of recording numerical data with notches on a stick, a collection of pebbles, or with a collection of variously shaped clay objects that were easy to make, store, carry, and count.

CLAY TOKENS

Clay tokens appeared from the beginning of settlement at Tall-e Bakun A and continued throughout the sequence. These tokens were found in almost all levels, but the greatest concentration was found in Level III in association with the sealings. They are made of fine clay with no visible inclusion and are almost always baked. The tokens come in a number of geometric shapes consisting of spheres, pyramids, discs, and cones, and are divided into several types.

TYPE 1. TETRAHEDRON

Figure 71:A represents this type, but smaller and larger examples also occur.

TYPE 1A. PRISM

This type of token is rare in the Near East and figure 71:B is the only example of this type found at the site.

TYPE 2. CONE

Along with the disc-shaped tokens, Type 2 is the most numerous. These tokens come in a variety of sizes (fig. 71:C–H, L, N). Most of the specimens have a flat base but dimple bases also occur (fig. 71:G, N). Cone-shaped tokens made of stone were common in the early Neolithic but became rare in the later part of the period.

TYPE 3. SPHERE

Spherical tokens are rare at Tall-e Bakun A and the two examples illustrated here (fig. 71:M, O) may or may not have been used as tokens.

TYPE 3A. PERFORATED SPHERE

Figure 73:I–K represent the range of this type. Examples of this type look deceptively like spindle whorls, but their crooked and narrow perforations render them useless for spinning. However, it can be argued that they are

152. See Baykal-Seeher and Obladen-Kauder 1996.

153. For a comprehensive bibliography, see Schmandt-Besserat 1992, vols. 1–2.

some type of spindle "wasters," but such wasters would not have been baked and the process of baking would not have narrowed and misaligned the perforations. They are, nevertheless, rare and may have had a similar function as the type of pierced tokens that were presumably attached to clay bullae of the Protoliterate period.[154]

TYPE 4. SOLID DISC

This type is fairly common and comes in a range of sizes (fig. 72:A–G). The discs have flat, concave, or convex surfaces. One example in this type (fig. 72:B) is made of stone.

TYPE 4A. PERFORATED DISC

The example illustrated here (fig. 73:M) has a teardrop profile and is the only specimen of this type.

TYPE 5. CYLINDER

Protoliterate examples of this type are rare and usually bear a number of complex signs and come in a variety of sub-types.[155] The cylinders are also rare at Tall-e Bakun A and occur only in Square BB 62, Level 1 (fig. 73:A–B).

TYPE 6. BENT CONE

This type is fairly common and comes in different sizes (fig. 73:C–G).

TYPE 7. TRIANGLE

Only two pieces represent this type. One (fig. 73:J) is plain and tapers towards the apex; the other (fig. 73:H) is slightly bent on top and has a deep punctuated mark on one side.

TYPE 8. PAINTED TOKEN

Examples in this type perhaps represent precursors of similar Protoliterate tokens with a variety of incised markings. Based on their shapes, the tokens are divided into several sub-types.

TYPE 8A. PAINTED DISCOID

A number of discoids are painted with simple geometric designs (fig. 72:H–J, L–N).[156] The three examples illustrated here vary in both painted pattern and shape. Two discoids are concave (fig. 72:J, N) and their perimeters are left blank; one (fig. 72:M) has one concave side and one convex side and its circumference is painted solid. Another (fig. 72:H) with two painted parallel thick bands looks very much like Schmandt-Besserat's Type 3:28 (1992: 209), a discoid marked by two incised parallel lines. No exact parallel exists for one example (fig. 72:L), but a number of Protoliterate pieces are similar (Schmandt-Besserat 1992: 210).

TYPE 8B. PAINTED CONE

The sole example of this type was found in Square BB 64, Level 3 (fig. 71:I). The top of the cone is painted solid with four narrow bands below. Some cones from the Protoliterate period bear excised markings but are similar (Schmandt-Besserat 1992: 204).

TYPE 8C. HEART SHAPED

This type is unique to Tall-e Bakun A (fig. 73:N–Q). All examples are painted and perforated longitudinally except figure 73:Q. In general, they resemble the Protoliterate "paraboloids" Type (Schmandt-Besserat 1992: 80).

TYPE 8D. PEG SHAPED

Figure 71:K is the only example of this type. The paint has flaked off in several places and the original pattern can not be discerned.

TYPE 8E. PAINTED RECTANGLE

The illustrated example (fig. 72:K) is also a singleton. The convex side is painted with several large dots; the flat side is plain.

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154. The three spherical clay tokens illustrated by Schmandt-Besserat come from Uruk and Habuba Kabira; see Schmandt-Besserat 1992, vol. 1: 108–09, fig. 53 (Type 2: 10); and vol. 2: xxii (Types 2:6A and 2:15).

155. See Schmandt-Besserat 1992: 212 (Type 4:4).

156. At present, discoids painted with crosses are only known from from Susa; see Schmandt-Besserat 1992: 24–25, fig. 19 (Type 3:80).

TYPE 8F. WEDGE SHAPED

The only representative (fig. 73:L) of this type has a thick end perforated from both sides; the overall paint is reddish brown. Schmandt-Besserat's Type 10:12 (1992: 223) closely resembles this example.

CLAY SEALINGS

DESCRIPTION

Clay sealings are among the most important finds at Tall-e Bakun A. One type of these sealings is described by McCown (OIP 59: 66) "[the sealings] … were rarely found scattered but more usually were in groups in various rooms …. The labels, made of fairly fine clean brown clay, are usually conical, perforated vertically, with simple rough flattish bases …. The sides, which ordinarily slope at about 45°, were smoothed to receive the seal impressions." When McCown wrote this description of the sealings found at Bakun A he did not recognize their function as door sealings and thus their great significance, nor did the next generation of archaeologists, who in fact only quite recently began to appreciate their meaning as documents for reconstructing ancient economy (Heath 1958; Fiandra 1975).

Though sufficiently described and illustrated (OIP 59: 66, pl. 7:13, 18–19), these sealings remain unnoticed, perhaps because Tall-e Bakun A has been so well entrenched in the archaeological literature as a simple prehistoric farming village.[157] Similarly, the chronological position of Bakun A (4500–4100 B.C.) as a late prehistoric site also may have "frozen" its status in the band-to-state evolutionary paradigm as a simple village without sociopolitical complexity. As presented in this study, the re-examination of the materials demands a re-evaluation of the socioeconomic complexities of the site.

To date, Tall-e Bakun A provides the earliest evidence of door sealings.[158] Until now, door sealings were thought to have originated in the Protoliterate/Late Uruk period (ca. 3500–3100 B.C.) when urban centers with complex societies arose. In such centers door sealings were an important component of their administrative technology (Wright and Johnson 1975: 270–72). Thus the presence of door sealings at the late prehistoric settlement of Bakun A implies that it is an example of a complex society antedating the emergence of urban centers and organized states. Accordingly, the evidence of the sealings is discussed in some detail here.[159]

The evidence of trade is strong at Tall-e Bakun A, as the presence of various exotic goods as well as pottery manufacture and metallurgy indicates. The exchange of various material goods to meet economic and social needs was common among the ancient societies in the Near East. What makes Bakun A special and sets it apart in a network of exchange/trade, therefore, is not only the presence of various types of commodities from distant places and the evidence for workshops and various crafts, but it is primarily the evidence of door sealings that is crucial to our characterization of the settlement at Bakun A.

The differential spatial pattern of Tall-e Bakun A's internal settlement organization is also clearly demonstrated by the location and spatial distribution of many sealings there.[160] The 140 sealings,[161] along with many lumps of clay bearing mat or cloth impressions, were found only in five loci, Buildings II, III, IV, VII, and XIII (figs. 8–9, pls. 17–18).[162] Similar spatial distribution of sealings (but no door sealings) from pre- and early Halafian levels at

157. Though he never dealt with the Bakun A period in any detail, Sumner was aware that "The unity and vigor of the ceramic style, the presence of stamp seals and trade goods, all point to a social and economic system of far greater complexity than that required by the local isolated communities of earlier times" (Sumner 1977: 303).

158. See, however, Amiet 1986: 44, where he considers two of the sealings in Delaporte (1920, pls. 38:6 [S.26], 45:7 [S.447]) as door sealings from Susa A. The backs of these objects are not shown and, unless Amiet has examined the pieces, it is not certain from the illustrations whether they are indeed door sealings.

159. Tall-e Bakun seems to be the earliest site with door sealings. If, as I suspect, some of the sealings reported from late Chalcolithic levels at various Anatolian sites are door sealings, then this technology must have been more widely used than the present archaeological evidence suggests. See, for examples, Edgü 1983: 80–81, nos. A147–A151; Esin 1983: 182, pl. 36:4–7; Amiet 1986.

160. Sealings that were too fragmentary to be assigned to any specific group are excluded.

161. This number represents the actual sealings in the Archives of the Oriental Institute. It seems to me that the discrepancy between the number of these sealings and that of those reported by McCown may be due to the fact that the missing pieces were part of the Iran Bastan Museum's share.

162. At Tall-e Bakun, as at any other site in Iran with sealings, such as Susa (Le Brun 1978; Le Brun and Vallat 1978), Malyan (Stolper 1984, 1985), Tappeh Godin (Weiss and Young 1975), Tappeh Yahya (Lamberg-Karlovsky 1971), or Shahr-e Sokhteh (Ferioli and Fiandra 1979a–b), the sealings occur only in secular buildings, suggesting a different economic and political development in Iran than in Mesopotamia, where sealings and tablets occur in great numbers in temple areas. But whether such evidence can be interpreted in terms of "temple economy," or "religio-economic" aspects of Mesopotamian society is questionable.

Sabi Abyad, Syria, was also documented (Akkermans and Duistermaat 1996). But the significance of this evidence can be inferred from the practice of door sealings in historical periods, when door sealings occurred in temples and monumental buildings with storerooms, where the flow of goods was regulated.[163] The evidence of door sealings is discussed in due course; at this point we analyze the other types of sealings discovered in the administrative quarters. The sealings from Tall-e Bakun A can be divided into four types: (1) bag and bale sealings,[164] (2) "tablets," (3) miscellaneous, and (4) door sealings.

Type 1. Bag and Bale Sealing

This type is represented by twenty-one pieces (tables 31–33, fig. 74, pls. 16–19), which can be subdivided into two groups according to their shape and the patterns of cord impression they bear on the back. The first group consists of sealings used on bags/sacks that were made of some kind of rough fabric (e.g., fig. 74:F). The lump of clay must have been placed where the bag was closed tight with a cord. After the lump of clay was placed on the knot of the cord, it was pushed down to cover the knot, hence the faceted shape of the sealings of this group. This type of sealing may have also been used to secure wooden boxes. Several such sealed boxes have been found in Egypt. Plate 19 illustrates a wooden box dating to the New Kingdom from the tomb of Ramose and Hatnofer at Sheikh Abd el-Qurna.[165] As it appears in the photograph, a cord was wound around two knobs, set close to one another on the lid and the side of the box. Then a lump of clay was applied to the cord where a knot was tied and sealed. The pattern of impressions on the back of the pieces attributed to this category suggests a similar way in which the Tall-e Bakun examples were used.

The second group has a rather smooth and elliptical shape; the back always bears impressions of matting and one line of cord (e.g., fig. 74:G, pl. 18:A–D). Sealings of this group must have been used on wickerwork baskets and closed tight with a single cord as it appears on the back of the sealings.

Type 2. "Tablet"

Only two pieces constitute the second type (fig. 74:A, C); we think they might be "tablets" of some type because of their flattish shape, smoothed surface, and seal impressions. The larger and better-preserved example (fig. 74:A) bears impressions of two different seals, one on each side. Its shape and the fact that it has seal impressions on both sides make plain that it had not been intended to seal any container; rather it probably served as a tag or receipt for some type of transaction. The second specimen (fig. 74:C) is smaller and bears only one seal impression; the other side is damaged, making it uncertain whether it also bore a seal impression. The rounded edges and the similarity in shape to the first example suggest that this piece was also a "tablet."

Type 3. Miscellaneous

The third type consists of a few jar sealings and pieces too fragmentary to be assigned to any of the first two groups. Because jars with narrow necks do not exist at Tall-e Bakun A, the existence of jar sealings is problematic; hence the possible examples are included in the miscellaneous type. Figure 74:B and plate 16:A are examples of this type. The former has a seal impression on its flat top and its rectangular profile could have fit the area between the rim and the shoulder of a large jar. Similar jar sealings from other sites have impressions of cloth and cord where the clay was pressed against the neck of the jar,[166] but our example is damaged and it is not certain whether it originally bore a cord impression.

Jar stoppers (pl. 16:A) are included in this type; McCown, who called them jar sealings, reported two examples (OIP 59: 67, pls. 7:15, 83:8–9). They have a concave top and clear impressions of a jar rim on the back. The rim diameter of the jars, which were covered by these sealings, ranges from 7 to 8 cm. Pottery vessels with such rim diameter are in fact rare at Tall-e Bakun A, but some do exist (OIP 59, pls. 13:7–8, 11, 14:8).

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163. See Fiandra 1975, 1981a–b; Heath 1958, 1969; Zettler 1984.

164. This category may include sealings of baskets, sacks, bags, boxes, and other similar containers, but they are all treated under this rubric for convenience.

165. I would like to thank Peter Dorman for allowing to me use the photograph reproduced in plate 19. This photograph will be published, along with similar examples, in *Excavations of Sheikh Abd El Gurna*, forthcoming publication, Metropolitan Museum of Art.

166. See, for examples, Fiandra 1975, figs. 71, 74; 1981, pls. 9:a–b; 19; Zettler 1987, fig. 11.

Analysis of Types 1 and 3

Types 1 and 3 served a common function: sealing movable objects. As such, they differ fundamentally from the sealings that were used on doors. Sealing of a movable container such as a bag or a jar presumably was meant to safeguard its contents in the warehouse or in shipping. In shipping goods, it would be practical to entrust the delivery of merchandise to specific individuals, thus making the deliverer directly responsible for the safekeeping of the items shipped. In this fashion sealing of movable objects implies at least some level of socioeconomic institutionalization to ensure the safekeeping of merchandise so that the breaking of the sealing would result in sanctioned punishment, or at least the refusal to receive the tampered goods.

The practice of sealing of movable containers could be an indication of a simple level of socioeconomic development if it could be shown that these containers were received from elsewhere or were sealed to be sent away and not just to protect their contents against local tampering. Sealing of buildings creates a type of restriction that goes beyond the prohibitive cultural norms of a pre-state society and requires a level of political power as deterrent. Thus, the practice of sealing of certain buildings at Tall-e Bakun A implies a kind of "social contract" which would be respected by the members of the community and whose breach may bring punishment to the offender. Otherwise, in the absence of this mutual understanding, sealing, especially door sealing, would be a meaningless practice.

Type 4. Door Sealing

The importance of Buildings II–IV, VII, and XIII at Tall-e Bakun does not rest only on the presence of the sealings of movable containers. These buildings (figs. 8–9) assume special significance because, along with the other sealings, 104 door sealings were found in them (tables 31–33). Door sealings are cone-shaped lumps of clay with a flattish base. They were used to protect rooms and their contents from unauthorized entry. The practice of door sealing from Level IV of the temple of Inana at Nippur is reconstructed as follows: "A cord or a hook affixed to the door was wound around or thrown over a peg set into the doorjamb. To strengthen the jamb and keep the peg firmly in place, a plaque with a hole through its center was often (apparently) set into the jamb and the peg inserted through it" (Zettler 1984: 210; see also Fiandra 1982).

Sealings that bear doorknob impressions, as in later historical contexts (Fiandra 1975, passim; Zettler 1984), have not been discovered at Tall-e Bakun A. We may therefore assume that at Bakun the cord was first passed through a hole in the door and then its ends were wound on a stick set in the wall next to the door. Finally a lump of clay was placed over the cord and the lower part of the stick and then sealed.

As mentioned above, most of these sealings were discovered in clusters either in back rooms or in the rooms immediately preceding them. Rooms thus protected must have contained stores that had to be secured against opening by unauthorized individuals. Moreover, almost all the sealings were baked.[167] That they were not accidentally baked in fire is proved by the fact that they were found on floors and not in pits, and that neither the site nor individual buildings had been burned down. The fact that these sealings were found in clusters and were baked suggests that they were kept and preserved as part of a record keeping or accounting system.[168]

A few words should be mentioned here concerning the reconstruction of individual seal designs. The sealings usually have multiple impressions. In many cases, especially on the door sealings that are larger and better preserved, the the design of the seal that made the impression can easily be reconstructed. There are some examples, however, in which overlapping impressions make the reconstruction of specific designs uncertain (e.g., pl. 16:E). But the simplicity of their linear geometric designs makes it possible to reconstruct most individual seal designs with a degree of certainty. Based on the reconstructed seal designs, two categories of seals can be established: (1) those that occur on more than one sealing; and (2) those that occur on only one sealing, albeit with multiple impressions. The first category is represented by Seals 1–5 and the second by Miscellaneous Seals in tables 31–33.

The frequency of the occurrence of individual seal designs on the sealings may be related to the degree of authorization of the individuals who controlled the movement of goods. Since seal impressions, of course, were made by seals that belonged to individuals or offices, their spatial distribution may be directly connected to those in control

167. McCown (OIP 59: 66) reports that all these sealings were baked, but close examination of the sealings revealed that some were not baked but were made of well-levigated clay, which perhaps provided some durability.

168. A similar situation is reported from Arslan Tappeh where a small room inside the gate of the Early Bronze Age town produced hundreds of baked pieces of sealings, suggesting a connection between the movement of goods to and from the town and these sealings. See Frangipane and Palmieri 1987: 299; Palmieri 1981a: 73–76, 1981b: 104. See also Heath 1958: 81, where sealings are reported to have been found in clusters.

of the buildings in which the sealings were found. An analysis of the pattern of the spatial distribution of different types of seal designs is therefore in order. The seals, as represented by their impressed designs, are reconstructed and divided into six groups (table 31, fig. 76, pls. 20–22). Groups 1–5 represent designs that occur on more than one sealing, and Group 6 represents various designs that are attested only once.

From among the designs attested more than once on the sealings, Design 1, reconstructed in table 31 as Seal 1, has the highest frequency (27.8%, table 32). This design is attested on sealings found only in Buildings III and IV; it is used mainly on door sealings. I have included two examples of this design in the miscellaneous category, but it is likely that these two fragments which have destroyed backs were door sealings as well (table 31).

Design 2, Seal 2 in table 31, occurred on 9.2% of all the sealings; this design primarily occurrs on door sealings, but once on the sealing of a movable container. The remaining examples are door sealings found in Buildings III and VII.

Design 3, Seal 3 in table 31, is attested only in Building IV and was found exclusively on door sealings and bag/bale sealings; this design occurs on 14.2% sealings.

Design 4, Seal 4 in table 31, is the least attested, only 5%. It was found exclusively on door sealings and only in Building III.

Design 5, Seal 5 in table 31, also occurred on door sealings and was found only in Building IV. With the exception of three examples of Design 2 that are attested in Building VII, Designs 1–5 were almost exclusively found in Buildings III and IV, whereas the designs found in Buildings II, VII, and XIII belong to the Miscellaneous group (tables 38–40).

INTERPRETATION

The interpretation of the foregoing statements is not so certain. In this section we approach administrative technology in its broader sense, thus leaving solid ground. Admittedly one can not reconstruct with confidence the actual mechanism that underlies the system, but I offer some propositions based on the available evidence.

I would like to propose, with due caution, two different but not necessarily mutually exclusive interpretations: (1) the community at Tall-e Bakun A could have been dominated by a few families who were engaged in manufacturing of various goods and intra-/interregional trade; the head of this extended family resided in Building VIII; and (2) Bakun A was dominated by a cadre of individuals with ranking status who made decisions and controlled the flow of goods; the head of this group resided in Building VIII.

As noted above, Designs 1, 3, and 5 were found on door sealings in Building IV;[169] this suggests to me that the owners or bearers of seals with these designs had the authority to deposit or withdraw goods from this warehouse. Design 1 is the most frequent, with thirty-six examples, indicating that the owner of this seal frequently entered and sealed the room, and that its bearer may have had more authority than the bearers of the other seals. Since Tall-e Bakun A was a prehistoric society in which kinship ties may still have been strong enough to be a major factor in the workings of the socioeconomic organization, it can be postulated that Building IV belonged to a father, who carried Seal 1, and his two children, who carried Seals 3 and 5.

The occurrence of Seal 1 (Design 1) in Building III (table 31) suggests that the owner of Seal 1 also exercised some authority in Building III. As for the miscellaneous designs from Building IV, it must be remembered that they all belonged to movable containers and as such they could either have been sent to the site from elsewhere or the sealings belonged to a number of vessels that were deposited in this building for safe-keeping.

Seals 2 and 4 occurred on door sealings in Building III, and the former also on door sealings in Building VII. The bearers of these seals may have been a father and his child or simply two partners, siblings, or cousins, who controlled Building III. The occurrence of Seal 2 and Miscellaneous Seals on door sealings in Building VII may be explained as follows: Building VII belonged to some individuals and was later "rented" or "bought" by the bearer of Seal 2, or, alternatively, the latter "leased" or "sold" this building to several individuals. This reconstruction, however, does not explain why, for example, the bearer of Seal 2 should have kept broken sealings of the previous owners and vice versa. This contradiction arises only when we consider these buildings owned by individuals. But, as the evidence suggests, if we consider that an administrative body presided over the activities in these buildings, the spatial distribution of different types of sealings would not pose a problem.

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169. For a similar pattern at Susa in the Protoliterate period, see Charvát 1988: 57–63.

It seems obvious that those who had access to Buildings III, IV, and VII had no authority in Buildings II and XIII, and that individuals other than the bearers of Seals 1–5 controlled these buildings. It is, however, possible that Buildings II and XIII also belonged to any of the five individuals who controlled Buildings III, IV, and VII, and that these buildings were "rented" out to various other individuals. This interpretation again fails to account for the question that if different individuals secured the use of these buildings, why should they have kept sealings of the previous occupant? The following alternative interpretation may explain some of the foregoing questions.

The above observations suggest a hierarchical order in the degree of authorization of individuals in control of the movement of goods in specific buildings where the bearer of Seal 1 may have possessed a greater authority than the bearer of Seal 4 (tables 31–33).[170] In such a system the ownership of a seal did not necessarily mean ownership of the building or the commodities stored there. Rather, individuals may have had differential authority in withdrawing goods from storage areas and that the sealings were kept as evidence of either the deposit or withdrawal of goods or both.

Further, a shift in the economic organization of the site may have occurred when not only Seals 1–5 ceased to be used (table 31), but also Buildings III and IV seem to have gone out of use as loci for the reception and distribution of goods. We maintain that the northern complex may have been an administrative center with warehouses in which craft production and economic activities were controlled and organized. We reconstruct the northern part of the settlement at Tall-e Bakun A as its administrative quarters. If these inferences are correct, then, following examples of later historical administrative centers with storerooms (Fiandra 1981b: 29–43), one expects to see that the general architectural plan should exhibit features of security as well as easy communication and an open area to accommodate transport animals and the movement of goods. An administrative center combined with warehouses would be the locus of activities such as preparation, storage, delivery, and dispatch of goods. Such a nucleus would require an open space to accommodate these activities (Fiandra 1981b: 30). The architectural design of the northern complex at Bakun A seems to have provided such accommodation.

Though deductions about administrative aspects of the Tall-e Bakun A socioeconomic system can not be corroborated with textual evidence, the results of the study of later historical documents provide some analogies that may help shed light on some of the organizational aspects at Bakun A.[171] For the time being, we assume that these door sealings had a function similar to those of the later periods discovered in the ancient Near East (Fiandra 1975; 1981a–b, 1982; Zettler 1984: 150–90, 1987). A study of the administrative texts in connection with the door sealings from the Third Dynasty of Ur has demonstrated that the withdrawal of goods from the warehouses was done by the owner who sealed the warehouse after the transaction was completed. Further, the person in charge of the warehouse would routinely draw up a text that recorded the transaction. In this system the seal on the clay sealing would represent the official who withdrew goods from the warehouse (Fiandra 1981b).

Detailed studies of the Middle Assyrian tablets from Assur demonstrate that the owners of warehouses would routinely give written instructions for transactions that were to be carried out. The transaction would then be monitored by the presiding owner's agents. The warehouses had a staff who had their own seals and were in charge of opening and closing doors (i.e., breaking the sealing and putting on a new one) and delivering the items requested (Ferioli and Fiandra 1979b: 21). Ur, Nippur, and Assur were large urban centers with numerous functionaries and complex economic systems. At the small late prehistoric site of Tall-e Bakun A, we can not expect to find close parallels with a complex system of record-keeping and management of warehouses operating in the large urban centers of the later historical periods. Neither do we intend to equate the bureaucratic complexity of these periods with the system of economic management at Bakun A. Nonetheless, the situation at Bakun A, as far as door sealings are concerned, shows similarities with later historical administrations in which the practice of door sealing was fully operative (Ferioli and Fiandra 1979b).

Moreover, since at Tall-e Bakun A the sealings have been found in secular rather than temple areas, just as in Protoliterate Susa, Chogha Mish, Tappeh Godin, Tappeh Yahya, and other fourth–third millennium B.C. Iranian sites with sealings, we may postulate an economic and political power based on secular rather than religious foun-

170. It is possible that a person or office had more than one seal, in which case there may have been attached even greater authority to their bearers. For a reconstruction of the hierarchy in the administration of the temple of Inana at Nippur based on such sealings, see Zettler 1987: 238–39.

171. Until recently, in some modern-day Iranian villages door sealing was still practiced; it, however, only resembles the ancient practice of door sealings. In villages where the landlord has warehouses, when all the grain has been divided, the landlord's share is stored in large cloth bags in the storehouse under the protection of the village head. The door of the storehouse would then be plastered and sealed with a large, rectangular wooden seal, with the word "Allah-Mohammad-Allah." The grain remained there until it was withdrawn or sold by the landlord; see Watson 1979: 84.

dation for mobilizing the work force for the production and distribution of goods at Bakun.[172] As we noted before, unlike Mesopotamia, solid-architecture temples do not seem to have existed in prehistoric Iran.[173] Obviously the prehistoric inhabitants of Iran must have had religious beliefs. But if the veneration of whomever and whatever they worshipped was held in open space (much as the Persian Achaemenids), then it is tantalizing to imagine a nomadic underpinning for the absence of solid architecture temples.

As mentioned earlier, the practice of sealing containers and particularly doors would be meaningless without some type of social sanction to punish unauthorized breakage of sealing or unauthorized entry of warehouses. This much is intuitive enough; we envisage (fig. 75) that each of the rooms leading to the storage areas in the back was guarded by an individual who was responsible for making sure unauthorized persons would not enter the room and for keeping records of who entered, what was deposited or withdrawn, and possibly how much or how many by preserving the broken sealings and the appropriate tokens that most probably indicated the amount and type of goods in particular transactions.

172. For example, the estimated 18,000,000 man-hours expended to erect the British Neolithic monument of Salisbury Hill certainly did not have political force, but religious considerations on the part of the laborers (Renfrew 1982: 3).

173. Egami and Sono (1962: 3, pls. 2–4) report of a temple at Tall-e Gap, but there is no reason to consider this simple structure as temple.

CHAPTER 9
DISCUSSION AND CONCLUSIONS

In the preceding chapters, I discussed the internal structure of the Tall-e Bakun A community and reconstructed it as a specialized manufacturing and administrative center. Further, I proposed the presence of differential status at Bakun A, where a few families or ranking individuals controlled the manufacture and flow of goods. I also have shown that Bakun A as a pre-state community already exhibited some characteristics known only from the later more complex urban societies. Since I hope that this study may contribute to the understanding of the role ancient mobile pastoralists played in the development of state organizations in highland Iran, it is necessary to describe various aspects of the settlement at Bakun A and its society. This chapter is thus devoted to placing Bakun A in perspective and to investigating its socioeconomic and political position in the late fifth/early fourth millennium B.C. in south and southwestern Iran.

CHIEFDOM SOCIETIES

Archaeologists and anthropologists are of the opinion that the period preceding the formation of pristine states and urbanization in the Near East was characterized by chiefdom societies.[174] This characterization is based on evolutionary models based on the ethnographic data from African and Polynesian societies. This evolutionary stage, chiefdom, is discussed in detail by Elman Service (1962: 144), who refines the definition as "redistributional societies with a permanent central agency of coordination." Since Service's model of pre-state organized societies would include many societies of various degrees of complexity that would not necessarily evolve into state organizations (see Wright 1984), and since archaeological and ethnographical studies do not support his emphasis on the redistributional aspect of chiefdom societies, some anthropologists have sought to make distinctions between those chiefdom societies that were capable of developing state organizations and those that were not.[175]

According to a formulated definition derived from information and systems theories, a chiefdom society is characterized as "a sociopolitical entity in which overall social control activities are vested in a subsystem which is externally specialized vis-à-vis other activities, but not internally specialized in terms of different aspects of the control process, e.g., observing, deciding, coercing" (Wright 1984: 42). Moreover, control in complex chiefdoms is assumed to be "exercised by figures drawn from a class being defined as a ranked group whose members compete with each other for access to controlling positions and stand together in opposition to other people" (Wright 1984: 42). It is argued that such societies can be identified archaeologically when they exhibit: (1) settlement hierarchy, (2) residential segregation, and (3) mortuary segregation (Wright 1984: 43–44). Using Vincas Steponaitis's (1978; 1981) tributary model, which maintains that the seats of paramount chiefs would be comparatively larger than the sites from which resources are extracted and distributed,[176] Wright arrived at the first criterion when working with materials from Farrukhabad, a site in the Deh Luran area, northwest of Susiana. The central position of a chiefly seat is thought to be the most distinctive feature of chiefdoms (Renfrew 1977: 100) and that chieftaincy depends on redistribution of, presumably, foodstuffs (Sahlins 1972: 190), implying that the seat of such institution must be centrally located and must show evidence for polling and redistributing of goods.

Unlike the Susiana and Deh Luran Plains where major centers such as Chogha Mish, Tappeh Abu Fanduweh, Susa, and Musian differ from minor sites in both archaeological finds and their large size, major sites in Fars during the Late Fars phase such as Tall-e Bakun A, Tall-e Rigi, and Tall-e Vakilabad are not considerably larger than their neighbors and thus their internal complexity can not be identified in surface surveys.[177] The known Bakun A sites

174. See, for examples, Flannery 1999b; Johnson 1973; Service 1962; G. Stein and Rothman 1994; Wright 1984.

175. See Earle 1977, 1978; Renfrew 1982; Wright 1977b, 1984.

176. See Flannery 1972: 403 for similar emphasis on this characteristic of chiefdoms.

177. If we accept that certain painted pottery motifs are related to regional centers with a ranked society, then it is possible, in the absence of direct evidence, to identify major centers by studying surface collections; see Hole 1984; Pollock 1983; Le Blanc and Watson 1973.

in Fars range in size from less than 1 ha to rarely more than 3 ha.[178] They are usually located in fertile valleys in clusters comparable to the modern-day towns and villages (M. A. Stein 1936; Vanden Berghe 1966; Sumner 1972; de Miroschedji 1972). Today both the sedentary and mobile pastoralist populations share these valleys extensively. Most of the Bakun A sites are located near springs,[179] away from the rivers, and there is no convincing evidence that their inhabitants employed a river irrigation system until the Banesh period (Sumner 1986b).

The pattern of the spatial distribution of the known Bakun A sites does not show the type of settlement hierarchy expected in the case of "complex chiefdoms" or proto-state societies as observed in Mesopotamia, Susiana, and Deh Luran. Similarly, Tall-e Bakun A with its important characteristics, and perhaps similar sites such as Tall-e Rigi and Tall-e Vakilabad,[180] does not exhibit any specific location that may be considered central vis-à-vis the surrounding communities, nor is it considerably larger than some of the contemporary sites in its vicinity. This situation does not conform to the model that perceives the prestate societies with a redistributive economy through which tribute was extracted from smaller centers by larger one(s) that were the seats of a chiefly class (Brumfiel 1976; Steponaitis 1978, 1981; Wright 1984).

As for the second characteristic, residential segregation, Tall-e Bakun A itself demonstrates an internally segregated settlement. This segregation, however, could have been functional because, except for the architecture, the sealings, and the concentration of workshops in the central and southern quarters, we have no direct evidence that shows much difference in the material remains among the various sections that would indicate economic differentiation within the site. Individual residential units do not show significant differences in either size, style, or building material. For example, although the largest architectural unit, Building VIII, could be assumed to have been a chiefly residence (fig. 10), it shows no difference in material culture from other structures at the site. We should keep in mind, however, that the site was deserted; thus, we can not expect to have a representative sample of the material items that belonged to the individuals. Nevertheless, this absence of evidence for differential economic status at the various residential buildings at Bakun A may be taken as analogous to the simple residences of the modern-day regional tribal leaders. Handsome kilims, carpets, and wardrobes that distinguish such residences, of course, rarely survive in archaeological records.

Thus, the fact that there are no apparent differences in material culture among the residential units should not be regarded as evidence for a socially and economically undifferentiated community. This approach, with the underlying assumption that differentiation in status and wealth is reflected in the material remains and their distribution, ignores the fact that there are forms of wealth and status that are not necessarily so reflected. In her study of some Iranian villages, Carol Kramer notes that an outsider at first can not rank the villagers in terms of wealth and status, as they wear the same clothes and live in similar houses built of similar materials, with similar decoration, and similar size.[181] Closer observations reveal that prestigious role, skill, esoteric knowledge, size of land and herds, and number of wives are among signs of wealth and status not readily detected from the visible material items. This is also true of Near Eastern mobile pastoralist societies. Kent Flannery (1999a) argues that "the Near East has always been an area where highly-ranked persons were characterized by great adherence to principles of ritual purity, great piety and religious knowledge, and great skills at face-to-face alliance building — traits which are harder to detect archaeologically than the flamboyant use of sumptuary goods."[182]

178. Sumner (1972) records three large sites (8H8, 8I7, and 9H21), with an area from 6 to 8 ha and a height of 2 to 4 m, in his survey of the Kur River Basin. He notes that "none of these seems to be central in terms of access: two are located in a narrow neck of land between Kuh-i-Ayub and the River Kur …, and the third is on the edge of a vacant marshy area on the periphery of the central population concentration." No more information is given about these sites. I have intentionally excluded them from the analyses of the Bakun A sites in this study because of the chronological problems they present. Two sites (William Sumner, pers. comm.) have Achaemenid, Lapui, Bakun black-on-buff, and Jari components; the third has only Bakun black-on-buff and Jari components. While the latter might be considered a relatively large Middle Fars phase occupation, the actual size of each occupation in the sites with multiple components must be determined by excavation.

179. In the absence of convincing evidence for river canal irrigation, many of the Bakun sites that are located in the middle of the Persepolis plain may simply have practiced dry farming, which, though risky, is possible in the region. Sumner (1972: 240) also points out that during his phases II, III, and IV (i.e., Bakun B1–Lapui) marshy areas seem to have been preferred. "The use of marsh land," Sumner adds, "suggests that moisture may have been provided to crops by the high water table with only a very simple and minimal irrigation system based to a large extent on spring flow rather than the rivers." For a more recent detailed analysis of this problem, see Sumner 1994.

180. Certain painted pottery motifs such as goat/sheep, humans, and lizards as well as stamp seals were reported from both Tall-e Vakilabad and Tall-e Rigi (M. A. Stein 1936). If we accept these elements as symbols related to a ranking class of a society as argued by Arnold (1983), Hole (1983), and Pollock (1983), then these sites may also be considered to resemble Tall-e Bakun A in socioeconomic aspects.

181. See Kramer 1982: 52–57; for similar observations, see Irons 1994: 175–76, 178; Lapidus 1967: 81; Peters 1970; Sterling 1965: 226.

182. See also Flannery 1999a for the difficulties in detecting complex chiefdoms in the Near East.

The absence of burials from the Tall-e Bakun A culture does not allow speculation on the third characteristic, the hierarchical socioeconomic order among individuals. Although Bakun A with its special features may have ranked high in the region, it is not possible, in the absence of a cemetery, to rank individuals within the type-site.

The absence of intramural burials at Tall-e Bakun A is consistent with evidence from other prehistoric sites in the Marv Dasht region, where there is a conspicuous absence of such burials.[183] The practice of burying the dead under the living floors that began in the upper Palaeolithic period[184] continued until the Late Susiana period in lowland Khuzestan and even much later in the Central Plateau. But none of the prehistoric sites in Fars has produced any evidence of such practice. Again, it is tempting to attribute the absence of burials in prehistoric Fars to the possible nomadic custom of burying the dead in open spaces, a speculation consistent with our interpretation of the Bakun A society.

A different problem in characterizing Tall-e Bakun A as a "complex chiefdom" involves the size of the society. If the organizational characteristics of a society are functionally related to its size (Sanders 1984: 16–27), then in order to characterize the Bakun A society as a chiefdom, we need to establish a close estimate of the size of the society. This can only be achieved by a series of extensive surface surveys in the entire province of Fars. Nevertheless, the available data do not indicate a large settled population during the Late Fars phase. Further, if in the context of a pre-state society the development of special institutions of a higher level to deal/control/organize consumer goods is related to the size of the consumer potentialities, as suggested by Nissen (1983: 336), it is possible that a mobile pastoral population, being mobile and economically more flexible and more adaptive than the agriculturists, would affect this relationship. Additionally, they would add to the potential of the consumers regardless of the size of the observable settlement system. This observation may explain why settlement patterns of Bakun sites in Fars differ from those in Susiana and Deh Luran where there is a marked settlement hierarchy with large centers such as Chogha Mish, Abu Fandowa, Musian, and Susa dominating smaller sites.

Furthermore, in the absence of coercive state organizations, wealthy communities may suffer raids from their neighbors. It is suggested that in a circumscribed environment this development may lead to the formation of states as a socio-cultural adaptation (Carneiro 1970). Or, in the case of Fars, the society may temporarily devolve into a lower level of integration until it could come up with a "backup" operation to save the system and evolve into a state (e.g., during the Banesh/proto-Elamite phases).[185] Thus, in order to maintain itself and not to revert to a simpler society, the Tall-e Bakun A society must have had to evolve more powerful institutions of political control than what the archaeological data indicate (Fried 1967: 225–26). Whether or not an internal factor prevented Bakun A sites from assuming a hierarchical spatial distribution we can only guess. Also the question of whether or not the mobile pastoralist elements of the Bakun A society provided formidable obstacles to prevent it from evolving institutions of political control can not be supported with relevant archaeological data at this point.[186]

As we have seen, Tall-e Bakun A does not fit the models designed to describe pre-state chiefdom societies. Chiefdom societies are supposed to have large centers with redistributive institutions that squarely depend on agricultural surplus allowing chiefs to maintain their entourage, craft specialists, and procurement of luxury goods. The archaeological evidence from Bakun A together with settlement pattern data raise the question as to whether pre-state chiefdom societies were solely based on agrarian economy. Bakun A was a flourishing late prehistoric settlement which procured raw materials, manufactured material items, and distributed them perhaps both intra- and inter-regionally. Given the small size of the Bakun A sites, their distance from rivers, and perhaps their simple, spring-fed irrigation, it is unlikely that the farming communities of the late fifth millennium B.C. in Fars had the technological capabilities to produce an agricultural surplus that could be used as the economic basis for the production and trade of material goods. Nor are any of the Bakun A sites that produced stamp seals and the classic Bakun A pottery especially large and central to be considered as the seat of a paramount chief and thus a redistributive center.

183. As at both Tall-e Bakun A and B, all the burials reported from Tall-e Gap and Tall-e Mushki date to Sasanian/Islamic times and most certainly belong to the mobile tribes of the region who habitually buried their dead on ancient mounds.

184. See Flannery 1972 for a detailed analysis of the implications of this practice.

185. Slobodkin (1968) suggests that when variables exceed their goal range, they subject systems to stress that can lead either to breakdown or to evolutionary change. See also Wright 1984.

186. See Khazanov 1984: ix–xxv, 228–95, for a detailed discussion of the sociopolitical obstacles inherent in nomadic societies hindering autochthonous complex political institutions.

MOBILE PASTORALISM AND BAKUN A SOCIOECONOMIC STRUCTURE

ARCHAEOLOGICAL EVIDENCE

In the absence of state organizations and large-scale irrigation, an obvious and thorny question involves the nature of Tall-e Bakun A's economic structure that would allow a portion of the population to be engaged in full-time activities other than agriculture.

We have proposed mobile pastoralism as a crucial variable in socioeconomic and political development of highland Fars as early as the late fifth/early fourth millennium B.C. Up to now, little or no attention was paid to the presence of mobile pastoralism in prehistoric Fars. Apart from the fifth-millennium B.C. isolated cemeteries of Hakalān and Parchineh in the Zagros Mountains, direct archaeological evidence for the presence of mobile pastoralists in the highlands is limited.[187] As we have seen, the size, location, lack of architecture, and midden deposits of ash and debris indicate that at least some Tall-e Bakun A mounds were occupied seasonally; this is analogous to the modern-day seasonal villages in Fars. More important is the existence of flat sites located by M. A. Stein in his survey of southern Fars (M. A. Stein 1936: 161, 163, 175, 180) and my own survey in 1995. Strewn with Bakun A painted pottery and flint blades, these sites point to two possibilities: (1) the existence of mobile pastoral campsites in the late fifth millennium B.C. in Fars; and (2) that these campsites belonged to the Bakun A cultural and perhaps economic sphere. In addition, a number of flint sites were found in the upper Kur River Valley (Sumner 1972: 251). This area is traditionally used as summer pasture by the mobile tribes of the Qashqaii. Though it seems obvious that hunters or sedentary pastoralists may have used these sites, it is equally possible that mobile communities used them.

I discussed in *Chapter 3* that the known Bakun A sites can be assigned to three categories: (1) permanent villages represented by mound sites with architecture;[188] (2) seasonal villages represented by mound sites without architecture; and (3) campsites represented by flat areas covered with potsherds and flint blades. While there is little doubt about the nature of the sites of the third group, the nature and function of the first two groups can be understood only by a detailed analysis of their components, which should reflect the material needs of their occupants. At this point, however, I assume my categorization of Bakun A sites to be generally correct for heuristic purposes.

The attribution of the second and third class of Tall-e Bakun A sites in Fars to mobile pastoralists can be supported by archaeological data from regions where the mobile pastoralists traditionally camped for extended periods of time. Outside of Fars Province the Bakun A-related pottery has been found in the Bakhtiyari Mountains,[189] the Behbahan and Zuhre regions,[190] and the Ramhormuz area, all well within the territories of the mobile pastoralist Qashqaii and Bakhtiyari tribes (Caldwell 1968: 348–50, figs. 1–4). No doubt Bakun A and some other sites were major centers for manufacturing various goods in Fars; however, it is unlikely that the vast geographical distribution of Bakun A painted pottery was the result of long-distance trade. A major problem in attributing the great geographical distribution of the Bakun A pottery to trade involves the difficulty in transporting this fragile product over long distances and through mountainous regions, rendering trade of this sort neither feasible nor economical. Secondly, the Bakun A painted pottery outside Fars exhibits a limited repertoire of shapes and designs, a characteristic that can be expected from peripheral regions. Thus, Bakun cultural influence outside Fars in regions traditionally under the sway of numerous mobile tribes may have been the outcome of common cultural and perhaps ethnic backgrounds that the settled population in Fars shared with the mobile tribes who dispersed Bakun A culture over vast areas.[191]

In *Chapter 4* we noted that archaeological investigations in the Behbahan/Zuhre area (Dittmann 1984), the Dasht-e Susan (Wright 1979: 50), and particularly in the Bakhtiyari Mountains (Zagarell 1979, 1982) have indicated that in the fifth/fourth millennium B.C. mobile communities utilized these regions. The areas just cited have been traditionally exploited until recently by the mobile pastoralists of the Zagros region as summer and winter pastures (fig. 5). The tribes of the Bakhtiyari confederacy roamed in the region stretching from west of Esfahan down to southeastern Khuzestan; the Mamasani and Boyr Ahmadi tribes occupied the areas between north and southeastern

187. See, however, Sumner 1986b: 200.

188. Some mobile pastoralists live in small villages in their summer/winter pastures that they abandon during part of the year, but since this practice is not very common among the mobile tribes, it is safe to assume that tells containing architecture and ceramics exhibiting a large repertoire of painted designs and shapes should fall in the first group (see Arrian, *Anabasis* III.17.518, where he refers to nomadic people living in villages; also see Stack 1882 [part 2]: 28; Bishop 1891: 376).

189. Zagarell 1978, pls. 4:1, 5:2, 24:9; idem 1982, figs. 19:1–2, 20:1–4, 13, 21:7, 14, 22:10.

190. Dittmann 1984, figs. 24:4a, 6, 8–9, 11–12, 14–15, 26:9–10, 27:1–5; 29:7, 9; 38:2, 5–6; 45:7, 9; 46:7; see also M. A. Stein 1940, pls. 1–2.

191. A similar situation has been suggested for the distribution of the Neolithic Urfirnis pottery in Greece; see Jacobson 1984: 27–44.

Khuzestan and northwestern Fars. The tribes of the Qashqaii confederacy swung from the area southwest of Esfahan well into southern Fars, near the Persian Gulf, covering a distance of more than 700–1,000 km in their annual migration. Other mobile tribes of the Khamseh confederacy and Arabic-speaking tribes also exploited Fars, sharing it with numerous other mobile tribes and the sedentary farming population (Barth 1959, 1961; Beck 1986; Garthwaite 1983).

Fars thus seems to have been favored by many mobile tribes for its vast multitude of natural resources. The locations of the summer and winter pastures of the tribes of the Qashqaii, Bakhtiyari, Khamseh, Mamasani, and Boyr Ahmadi confederacies correspond to the pattern of geographical distribution of the Bakun painted pottery (fig. 5). We are well aware that the political configurations and the ethnic makeup of these mobile tribes are the outcome of later historical and political developments (Beck 1986: 41–95; Garthwaite 1983: 4–16). However, since the geographical and ecological features of this region impose certain migration patterns between summer and winter pastures, particularly in the case of vertical mobile pastoralism, it is reasonable to assume that they have remained more or less the same from the beginning of mobile pastoral life in highland Iran.

THE MOBILE PASTORALIST MODE OF PRODUCTION AND AGRICULTURE

The known Bakun A sites of the Late Fars phase are small with 100 to 200 inhabitants who presumably practiced subsistence agriculture, an assumption that only floral analysis can support. Even if floral analysis indicates that the inhabitants of Bakun A sites were engaged in subsistence agriculture, the low population density as well as the absence of any evidence for canal irrigation agriculture argues against any large-scale agricultural activity that could produce surplus to sustain industrial activities. Nevertheless, it is unlikely that most Bakun A sites were engaged in manufacturing and distribution of the various commodities as were the inhabitants of Tall-e Bakun A. Thus, we may envisage a source other than agriculture to support the administrative and manufacturing community at Bakun A.

The available archaeological data discussed in the previous chapters are the basis for our inference that nonagricultural production at Tall-e Bakun A was supported by not only animal by-products (namely meat, wool, skin, and various milk products), but also externally through the investment of the surplus generated by the mobile pastoralist communities as a result of the economic demands of the tribal hierarchy. It can be hypothesized that the surplus by which the Bakun A craftsmen and traders could maintain their economy was basically related to a pastoral mode of production (Boonzajer Flaes 1982). The creation of surplus in traditional agricultural societies depends on many variables including manpower, irrigation technology, storage facilities, market availability, and incentive.[192] Of these, market availability and incentive are most crucial in the absence of a state-regulated economy. To produce a surplus, farmers need a market to absorb their excess product in exchange for material goods such as pottery, tools, cloth, etc. that they may not be able to produce on their own for technological or economic reasons, or both.[193] The existence of such markets would thus provide an incentive that would produce the surplus necessary for exchange and in turn would accelerate the specialization of crafts. I envisage that the marked increase in regional populations during the fifth millennium B.C. in southwestern Iran, particularly in lowland Susiana, provided this economic incentive.

In contrast, a mobile pastoralist would need no incentive to produce a surplus. Animals, of course, reproduce themselves without the difficulties involved in the production of agricultural surplus; in fact in the course of several years of favorable environmental conditions, a mobile pastoralist may have more animals than a subsistence economy would require (Balikçi 1981; Barth 1965; Boonzajer Flaes 1982: 87–95; Swift 1979). However, there are cultural (Galaty 1981b: 72–80) and economic-environmental[194] limitations to the production of surplus among mobile pastoralists. The most important issue is the problem of investing the pastoral surplus internally (i.e., increasing the

192. For a full discussion of these issues, see Boserup 1965, 1981.

193. Other mechanisms for mobilizing surplus in a pre-state economy may include kin obligations, marriage payments/contracts, ritual/religious duties, and chiefly tributes. These mechanisms, though perhaps having economic incentives as well, are not likely to lead to the formation of a market economy and craft specialization as suggested for the Bakun A society.

194. See also Clark 1984: 67–74 and Caro 1994: 26 for the dangers of having large flocks in a time of drought; and see Khazanov 1980: 8–13 for a discussion of several factors influencing the size of herds.

size of the herd) in a basically undiversified pastoral economy. There is always the danger of overgrazing, a potential shortage of manpower (Gilles and Jantgaard 1982: 1–10), and certain socio-cultural inhibitions.[195]

However, animal surplus can be invested externally without damaging the production possibilities of the remaining herds (Bourgeot 1981; Boonzajer Flaes 1982). The externalization of surplus among modern Iranian mobile pastoralists has been done through the purchase of luxury goods such as jewelry, carpets, a second wife from a wealthy family, and acquisition of agricultural land, with some individuals becoming landlords as well as herdowners.[196] In the case of Bakun A society, the conversion of mobile pastoralist surplus into convertible items that would have provided the economic power to maintain a body of full-time craft specialists would have been accomplished through mutual demands for wool, meat, various tools, pottery, and perhaps even cloth that both settled and mobile populations of the highlands created for one another as a result of their interdependence and population increase. But given the low population and sparse farming communities in prehistoric Fars, acquisition of farmland could not have involved any barter or transaction. In fact, except for a few regions such as high-altitude valleys in the Zagros and the Caspian Sea littoral where dry farming is not risky, the value of agricultural lands in Iran depends on the availability of water. Therefore, even though land may have been readily available, water sources may not.

Mobile pastoralists are more interested in trade (either exchanging their own products or serving as intermediaries in long-distance trade) than sedentary people because of their specialized and one-sided economy. But self-sufficient farming villages by definition are not viable markets for the tribesmen, and mobile herders can not trade among themselves because of their undiversified economic mode of production. So, we know historically, and expect prehistorically, an association between the crystallization of the highland mobile pastoralist communities and the rise of large population centers with diversified economy and a large population not necessarily engaged in subsistence agriculture.

Once the necessary demographic, economic, and political conditions were present for a pastoral society to engage in the production and distribution of surplus animal products and material goods, a fixed locus combining production, administration, and residential quarters would have to be chosen. Tall-e Bakun A may have been the residence of some of the wealthier and higher-ranking individuals whose economic strength and social status allowed them to engage in sedentary trade economy. A common ethnic background and perhaps kinship ties between the settled and mobile communities in Fars and the Zagros Mountains may have facilitated processes of economic and sociopolitical development and integration in Fars. The small cadre of individuals at Bakun A who controlled the resources and production of crafts may have easily procured raw materials from far-away regions and traded the finished products through their mobile pastoralist kinsmen (Hjort 1981: 50–67). In this fashion they not only enjoyed the support and protection of the mobile pastoralists, but also a steady flow of valuable information needed to conduct their intra-/interregional trade in material goods such as wool, pottery, stone vessels, stone tools, ornaments, and possibly milk by-products.

POST-BAKUN A DEVELOPMENT IN HIGHLAND FARS

The outcome of the socioeconomic and political development of the early fourth millennium B.C. in Fars is by no means clear. Sumner sees the proto-Banesh phase as a period of shifting emphasis from field crops to sheep and goat herding. The shift is assumed to be evidenced by spatial patterns of the Lapui as opposed to the Bakun A settlements. The number of sites drops from 156 to 108, of which fifty-two are new settlements while the remainder, fifty-six, rest on Bakun A sites. So it is argued that pastoralism "is a response to rapidly decreasing productivity in the Soon district caused by salinization and other adverse consequences of agricultural intensification. The initial success of the herding strategy sets in motion a process that leads to nomadic pastoralism …" (for a detailed analysis, see Sumner 1985: 17–18, 1994). While, as Sumner argues, environmental causes may have played a significant role in the cultural development of late prehistoric Fars, one should bear in mind that the gradual depopulation, shifting of settlement patterns, and the rise of large urban centers in regions where complex societies developed were universal phenomena in the Near East and as such can not be satisfactorily explained by single environmental causes.

195. One solution to this problem (invented by the Baseri tribe in Fars) is that the wealthier individuals may sublet part of their herds to less fortunate members of other camps, ignoring the like individuals of their own camp. This practice helps spread the economic risks in time of natural calamities and minimize the loss of the individuals; see Barth 1961: 13–14, 28.

196. Balikçi 1981: 154; Barth 1961: 110, 1965. For a different approach to this aspect of the pastoral mode of economic adaptation, see Botte 1979.

We know little about the period between the end of Tall-e Bakun A and the beginning of the Banesh period (3300 B.C.) when Tall-e Malyan (ancient Anshan) emerges as the regional center presumably with state organizations. Some of the Bakun A sites were deserted by the end of the fifth millennium B.C. The following proto-Banesh period is poorly known except for its settlement patterns and its characteristic redware. Perhaps, the socioeconomic and political developments that began in the Middle Fars period did in fact continue after the disappearance of its elaborate painted pottery. Indeed, the Bakun A society represents a case in which the sociopolitical situation may have become complex and mature enough to develop state organizations. Or perhaps Bakun A represents a pre-state community in which administrative problems were changing into political problems as a result of internal competition among the small cadre of individuals who controlled and redistributed resources (Wright 1977b). The emergence of an impressive urban center at Malyan, much larger than the contemporary Susa, and the concomitant development of proto-Elamite civilization dominating both the lowlands and the southern highlands may well have had their roots in the earlier Late Fars period.

DISCUSSION AND CONCLUSIONS

On the basis of the archaeological data for the late fifth and early fourth millennia B.C. from Fars and the neighboring regions that were discussed above, the following proposals can be suggested.

By the end of the early Middle Susiana phase, there seems to have been a re-orientation of Susiana's interregional contact. The pottery of the following late Middle Susiana period is almost completely devoid of any similarities to that of Mesopotamia, but closely resembles the early fifth-millennium ceramics of the highlands, including Fars. The Bakun B2 painted ceramic in Fars has no antecedent in the region and may have been introduced from Susiana as a result of migration or increasing contact among specialized potters. Using various statistical and analytical techniques, Kouchoukos (1998: 20–27) suggests a rapid population growth during the Middle Susiana period. Concomitant with this development, Susiana-related black-on-buff pottery appeared in Fars. At this point it is a matter of conjecture whether some of the inhabitants of Susiana immigrated to Fars as farmers or adopted a mobile pastoralist way of life, or both, and whether this situation in Susiana was due to new socioeconomic and political developments that eventually resulted in the formation of state societies there in the late fourth millennium B.C.

Whatever factors contributed to demographic developments in Fars by the late fifth and early fourth millennia B.C., it seems that the population increase in both mobile pastoralists and farming communities created new demands for material goods and incentive for the wealthy and ranking mobile pastoralists to invest their wealth externally by engaging in manufacture of goods and trade. Sites like Tall-e Bakun A, where a cadre of well-to-do and privileged individuals had organized intra- and interregional networks of exchange of various commodities such as copper, turquoise, sea shells, pottery, wool, and possibly milk by-products, may have taken advantage of such demands. Such centers were by no means mere manufacturing loci. Judging by the evidence for administrative technology at Bakun A and perhaps at other sites, such as Tall-e Vakilabad and Tall-e Rigi as implied by the presence of stamp seals and tokens, the settlement was a manufacturing, administrative, and residential center. The spatial distribution of the warehouses and sealings as well as certain symbolic painted motifs, such as humans, lizards, and large-horned animals in Bakun A administrative quarters (figs. 46–52),[197] indicates internal socioeconomic segregation in a pre-state community. This observation in turn suggests that the elite segment of the Bakun A society resided at and had control over these centers.[198]

Whether spurred by the growing socioeconomic and political complexity in Mesopotamia or the central Zagros region, southwestern and southern Iran entered a new era by the end of the fourth millennium B.C. when proto-Elamite civilization, quite different in material culture from its Susian and Mesopotamian neighbors, developed in highland Iran, most probably in Fars, centered at Tall-e Malyan rather than at Susa. After the disappearance of the Susa A painted pottery, two major centers in Susiana — Susa and Chogha Mish — become virtually Mesopotamian in material culture, though there are a number of features that set the two regions apart (Alizadeh forthcoming). In Fars there is an increase in the number of sites and, though surface surveys have revealed evidence of the existence of some forms of Late Uruk ceramics there, the local proto-Banesh culture with its distinct red pottery continued.

197. Sumner (1972: 40) reports, for example, that out of 3,000 sherds only twenty had naturalistic motifs such as dancing men, animals, snakes, and birds.

198. Pollock 1983: 354–90. The possibility that the existence at some sites of such items and motifs was a result of exchange of intermarriage gifts restricted to some prominent families does not contradict such conclusions.

The following Banesh period (proto-Elamite), most likely of highlands origin, dominated both the lowlands and highlands.[199] Later on, this proto-Elamite culture faded in the lowlands under Mesopotamian influence but continued to flourish in the highlands (Henrickson 1984). The foregoing pattern of cultural development in both lowlands and highlands repeats itself for millennia. A glance at the historical development in these regions and the "tug-of-war" between Mesopotamia and Iran, with Susiana as the bone of contention and theater of war, reveals how archaeological and historical developments in southwestern Iran go hand-in-hand.[200]

As I have been suggesting all along in this study, and as the historical and archaeological evidence would suggest, political developments in Iran were to a considerable degree shaped by the mobile population of the highlands. Moreover, it seems that it was this segment of the highlands and lowlands population that provided a durable political base and continuity for various dynasties not only in ancient times, but also until the end of the eighteenth century, when the Qajars replaced the Luri Zand dynasty. Rowton's "dimorphic chiefdom" and "dimorphic state" describe a political system where an urban-based nomadic chiefdom or royal family controls regions with mixed populations of farmers (as its economic base) and pastoralists (as its military base). These notions nicely resonate with most of the known political history of Iran.[201]

Various statistics concerning settlement patterns from the early fourth to the first millennia B.C. would be misleading if studied in isolation. Alden's study of the settlement patterns in Iran during the third millennium B.C. is most revealing (Alden 1987: 150–70). Table 34 is a comparative list of the total areas of occupation of the Ur/Eridu, Uruk, and Nippur regions vis-à-vis the total areas of occupation of the Susiana Plain and Kur River Basin.

The total lower Mesopotamian area of survey is, of course, larger than that of Susiana and the Kur River Basin. But we should point out that Susiana and Fars are among the most agriculturally productive regions in lowland and highland Iran and for several millennia were centers of power. Viewed in this way, one would wonder how these regions could play such an important role in Mesopotamian affairs, so much so that "as early as this (the Early Dynastic period) the historian can recognize the leitmotif of relations between Elam and Mesopotamia, one of hereditary enmity, mitigated at the same time by equally persistent economic and cultural exchanges" (Hinz 1971). In fact, the estimated farming population of about 31,000 people (Sumner 1986a) during the Achaemenid period in Fars, the heart of the Achaemenid homeland, seems to be woefully too small. In our 1995 survey in the valleys northwest of the Marv Dasht region, we could identify only thirty-nine sites with a total of about 50 ha (see *Chapter 4*; figs. 3–4). The remaining core population seems to have left no detectable archaeological records.

It has been suggested that "once armed conflict is the factor that local groups must deal with, the size of the fighting force a group can organize to defend itself is a variable of great importance. From an individual's point of view, being a member of a large group has an advantage over being a member of a small group" (Irons and Dyson-Hudson 1972: 368). I can only conjecture whether or not this factor was decisive in the coalition of various highlands groups to face the Mesopotamian challenge and ultimately contributed to the formation of Awan and Shimashkian dynasties and to the development of the peculiar Elamite triumvirate political system.[202]

Walter Hinz argues that the federation system of Elam was based on the consanguinity of the ruler and his principal chiefs. It was this consanguinity which bound various disparate elements of the empire together: "As far back as the historian's gaze can penetrate, the constitution of Elam appears to have been federal. Only as a federation was it possible for an empire to hold together which was made up of utterly different components, namely the plains of Susiana on the one hand, and the mountain ranges and high valleys of Anshan on the other" (Hinz 1973).

I have argued that long before the appearance of the Protoliterate culture in the lowlands, socioeconomic developments such as local exchange, long distance trade, limited access to resources, and differential status had already begun in highland Iran. Furthermore, the archaeological and historical developments that took place from the end of the fourth millennium to the late first millennium B.C. suggest that the backbone of the political power of various states in Iran lay in the highlands rather than in the lowlands. The decline in the settled population of Susiana, the increase in the mobile pastoral population, and the subsequent rise of the highland polities were among processes that may have been set in motion by the increasing political pressure from Mesopotamia, and perhaps from Susiana

199. Vallat (1980) argues that when Elamite districts were united into one realm, its capital was Anshan (Tall-e Malyan) with Susa as a dependency.

200. See Carter and Stolper 1984; Henrickson 1984: 98–122; Stolper 1982; Steinkeller 1982.

201. Similarly, Lambton (1953: 283) argues that "The power of the *khans* derives from two sources: on the one hand, from the tribe of which they are the leaders, and, on the other hand, from the land which they own. In their capacity as landowners they collect their share of the produce of the land or their rents and dues as other landowners, while in their capacity as tribal leaders they collect certain levies from their followers."

202. See Stolper 1982; Carter and Stolper 1984; Henrickson 1984.

itself, where the new large urban centers with large demands for materials that could be obtained from the highlands vied for control of trade routes and major centers in Susiana.

Coercive measures taken by the budding state organizations in lowland Susiana could have contributed to the fleeing of a portion of the settled population to join the already existing mobile pastoralists of the highland in the fourth millennium B.C. This, in turn, could have created major demands from the mobile groups for grain. These demands may have been met by the Mesopotamian as well as Susiana centers in exchange for highland resources, including pastoral commodities. In the meantime the highland polities took every opportunity to control the Susiana Plain. Also interesting is the concomitant "emergence" of various Elamite confederacies with the rise of new powers in Mesopotamia, such as Akkadian/Awan, Ur III/Shimashki, Old Babylonian/Sukkalmah, and Kassite/Middle Elamite.

Consistent with my characterization of pre-Islamic Iranian society, the dearth of literary and historical documents in Iran prior to the rise of the Sasanians, an urban-based dynasty, is not surprising. Compared with Mesopotamia and Egypt, a century of archaeological research in southwestern Iran, particularly in lowland Susiana, has yielded precious few written documents of historical and literary value. If the rarity of such documents in pre-Islamic Iran is not an accident of discovery, a point difficult to maintain given the volume of archaeological research in southwestern Iran, then we may attribute this paucity to the strong oral tradition of mobile pastoralist societies.

No doubt, more questions have been raised in this study than have been answered. This is mainly due to the paucity of both textual and archaeological materials, particularly from Fars and the Zagros Mountains. In addition, the existing archaeological evidence has been analyzed with different problems, questions, and approaches than those in this study, which seeks to understand the role of an invisible population in the archaeological record. I believe that such a non-Susa/Susiana-centered approach is helpful in shedding more light on the important role the ancient mobile pastoralist communities played in the development of state organizations in southwestern Iran. The present study admittedly remains for the most part heuristic in nature, in the hope of encouraging similar studies and specifically designed research projects that may offer new insights with which to analyze aspects of socioeconomic organization in pre-state societies in highland Iran. The data analyzed here provide an empirical base to test anthropological theories dealing with the processes of the formation of stratified societies and pristine states which remain, nevertheless, archaeological questions.[203]

203. See Haas (1982: 50–53) for a full discussion on this problem; see also Wright 1977b: 215–30, 1984: 41–78.

CHAPTER 10

TOWARDS A SPECIALIZED SUBSISTENCE ECONOMY IN THE MARV DASHT PLAIN: PRELIMINARY ZOOARCHAEOLOGICAL ANALYSIS OF TALL-E MUSHKI, TALL-E JARI A AND B, AND TALL-E BAKUN A AND B

MARJANE MASHKOUR
WITH AZADEH MOHASEB AND KARINE DEBUE[204]

The faunal remains studied here were collected in the course of a series of excavations at the five prehistoric sites of Tall-e Mushki, Tall-e Jari B, Tall-e Jari A, Tall-e Bakun A, and Tall-e Bakun B by the joint ICHTO-Oriental Institute Expedition in the spring of 2004 (Alizadeh, Zeidi, et al. 2004). This collection is not the first faunal assemblage collected in these prehistoric sites, however. Following Vanden Berghe's survey in the region (Vanden Berghe 1952), the University of Tokyo excavated these sites in the late 1960s; the most extensive excavations were carried out at Mushki and Jari B (Fukai, Horiuchi, and Matsutani 1973; Egami et al. 1977; Maeda 1986; Hori and Maeda 1984; Nishiaki 2003).

A considerable amount of faunal remains from Tall-e Mushki, Tall-e Jari A, and Tall-e Jari B are stored in the University Museum of Tokyo University, but those from Tall-e Bakun A and B are very poorly represented in the Japanese collection. The equid remains from Mushki (primarily tooth remains) were initially studied by Sebastian Payne (1991).[205] The rest of the material from this site was left unstudied, but a list of the present species was provided by Payne (1991) and discussed also by Melinda Zeder (1991: 60–61). All the other assemblages were left unstudied until January 2003, when I was invited by Yoshihiro Nishiaki to study the collections.[206] The analysis of the Mushki assemblage in Tokyo is now completed and a detailed report is being prepared. As mentioned above, the Japanese faunal collection from Tall-e Bakun A and B is too small and thus could not be considered in the study project; this is compensated by the materials collected by Alizadeh in 2004 (Alizadeh, Zeidi, et al. 2004). Even in the 2004 collection the materials from Bakun B are still poorly represented and therefore are not included in the present study. In addition to Alizadeh's 2004 collection, another American team that excavated the sixth- through fifth-millennium B.C. site of Toll-e Bashi, in the neighboring plain of Ramjerd (Abdi et al. 2003; Pollock et al. forthcoming), enhanced the region's faunal evidence, which has been analyzed by Mashkour (Mashkour forthcoming).

These new investigations in Fars province made available a new set of archaeozoological data that is extremely important for a deeper understanding of the region's subsistence dynamics from the Neolithic to the Early Bronze Age. A new and reliable set of calibrated radiocarbon dates, however, was imperative to understand Fars' prehistoric settlement patterns, cultural development, and subsistence strategies. Therefore numerous ^{14}C samples from these excavations were sent for analysis (*Appendix A,* tables 9–11; Mashkour forthcoming; Pollock et al. forthcoming). The available calibrated radiocarbon dates for Tall-e Mushki and Tall-e Jari B indicate a chronological sequence where Mushki is the earliest settlement in Fars followed by Jari and Tall-e Bakun B.

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204. UMR 5197 Muséum national d'histoire naturelle/Centre National de la Recherche Scientifique, "Archéozoologie, Histoire des Sociétés Humaines et des Peuplements Animaux," Département d'Ecologie et Gestion de la Biodiversité, Bâtiment d'Anatomie comparée, -Case 56- 55, rue Buffon, F-75005 Paris, France, corresponding author: mashkour@mnhn.fr.

205. I would like to thank Dr. Sebastian Payne for permitting me to restudy this material.

206. The project was financed by the Japan Society for Promotion of Science. The study of the Tall-e Mushki material was partly conducted with the collaboration of Dr. Jean Denis Vigne of the Centre national de la recherche scientifique. A second stay in Japan in December 2005, supported by the French-Japan cooperation project "PAI Sakura," made it possible to study the large Tall-e Jari B assemblage.

THE FAUNAL REMAINS

The present study is a preliminary report of a currently ongoing, detailed study on the faunal assemblages recovered by Alizadeh in 2004. Some 70 kg of bones were delivered to Mashkour in Tehran for analysis. The initial part of the study that included separating diagnostics and well-preserved pieces was conducted in Mashkour's private laboratory in Tehran with the help of Azadeh Mohaseb. These were then shipped to Paris for further analysis at the Archaeozoological Laboratory of the Centre National de la Recherche Scientifique.

From the initial 70 kg bones, only 18 kg were considered useful for analysis. The state of preservation of the bones was generally not very satisfying, particularly those from Tall-e Mushki. The Mushki material was almost completely covered with concretion, i.e., a type of hardened mud, which was difficult to remove even after washing. The Mushki bones have a general ochre/burnished patina, which is exactly similar to those in the Tokyo Museum assemblage. This differential state of preservation of bones at different sites in different periods might be related to the sedimentological history of the region, a question that can only be addressed with geomorphological surveys in the Marv Dasht Plain.

The best-preserved assemblage, however, comes from Tall-e Bakun A, with a high potential for taxonomic identification, kill-off patterns, and biometric studies.

The present report resulting from the initial steps of the study is based on the analysis of the species frequency in the three sites. The study of Tall-e Jari B and Tall-e Bakun A assemblages is finished and the final faunal spectra would not change, whereas that of Tall-e Mushki, Tall-e Jari A, and Tall-e Bakun B have yet to be completed. With all the necessary precautions needed not to over exploit the present data, this preliminary study allows one to expose some general trends of animal exploitation in these settlements (tables 2–3, chart 1).

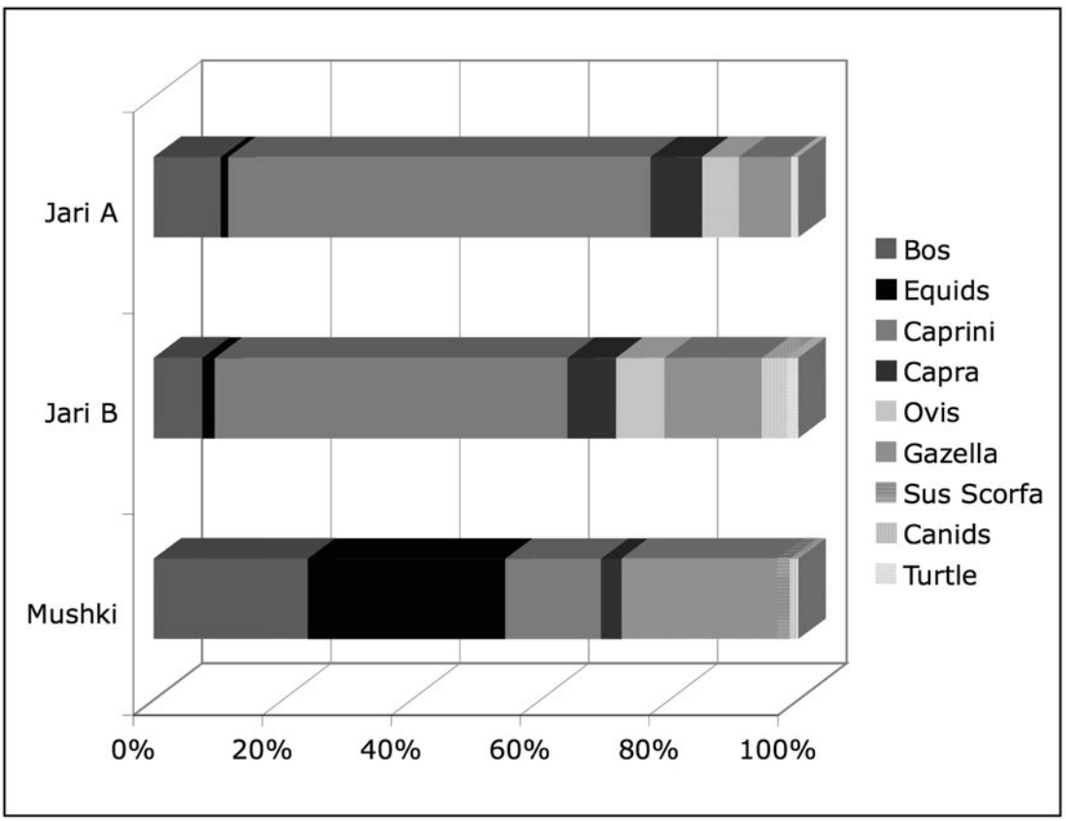
Table 2. Preliminary Faunal Spectrum for the Marv Dasht Plain Prehistoric Sites

Taxa	Tall-e Mushki	Tall-e Jari B	Tall-e Jari A	Tall-e Bakun A
Bos	56	4	9	12
Bos primigenius	18	—	—	—
Equid	95	1	1	—
Caprini	44	29	57	298
Capra aegagrus	2	—	—	—
Ovis aries	—	4	5	23
Capra hircus	8	4	7	41
Gazella sp.	75	8	7	
Small Ruminant	45	—	1	38
Sus scorfa	6	—	—	—
Canis sp.	—	1	—	—
Vulpes	2	1	—	—
Canid	1	—	—	—
Large Mammal	25	4	8	2
Small Mammal	10	41	72	27
Testudo	1	1	1	—
Rodentia, *cf. Tatera/Nesokia*	1	—	—	—
Total	**389**	**98**	**168**	**441**
Homo Sapiens (Islamic)	7	—	—	1

Table 3. Relative Proportions of Exploited Animals in the Marv Dasht Plain

Taxa/% NISP	Tall-e Mushki	Tall-e Jari B	Tall-e Jari A	Tall-e Bakun A
Bos	23.9	7.5	10.3	3.2
Equids	30.6	1.9	1.1	0.0
Caprini	14.8	54.7	65.5	79.7
Ovis aries	3.2	7.5	8.0	11.0
Capra hircus	0.0	7.5	5.7	6.1
Gazellas sp.	24.2	15.1	8.0	0.0
Sus scorfa	1.9	0.0	0.0	0.0
Canids	1.0	3.8	0.0	0.0
Turtle	0.3	1.9	1.1	0.0
Total	**99.9**	**99.9**	**99.7**	**100**

Chart 1. Trends in the Evolution of Animal Exploitation in Three Prehistoric Sites in the Marv Dasht Area



BOS

Bovine remains could de identified in all the sites. The Tall-e Mushki assemblage contains a very large form that is allocated to aurochs (*Bos primigenius*). Few pieces seemed smaller but could not be safely sorted between the wild and domesticate species. Compared with Mushki, bovine remains decrease dramatically in Tall-e Jari B and A and in Tall-e Bakun A. It seems that a slight increase happens between Jari B and A, which could be an artifact of their sample size.

EQUIDS

The 2004 Tall-e Mushki assemblage is very close to the Japanese assemblage where the equids are highly represented. The morphological identification previously done by Payne points to the hemiones. However, the presence

of a smaller form posed the question of the presence of *Equus hydruntinus*. Payne (1991) refutes this hypothesis and shows that differential tooth wares can produce this impression. Nevertheless, the possibility of having two forms of Equids was confirmed by my own observation of the 2004 materials. However, some of the teeth are extremely small with very short protocones. This problem will be re-examined when I begin my study of the Japanese assemblage in the near future. As for the 2004 Mushki assemblage, diagnostic bones were missing and the question is still under study. In any case, the bulk of the remains belongs to Persian onager (*Equus hemionus onager*), which comprises almost 25% of the remains. Again a drastic decrease is observed in the following periods where equids are represented by less than 1%.

CAPRINI (OVIS-CAPRA)

Domestic sheep and goats are generally an indicator of herding; this does not necessarily exclude agriculture. The case is extremely interesting in the Marv Dasht assemblages. In Tall-e Mushki very large post cranial bones, an indicator of wild forms or domestic males, are found along with smaller forms. The presence of horn cores morphologically belonging to wild forms, however, pointed to the presence of *Capra aegagrus*. Noteworthy also in Mushki is the absence of diagnostic bones for sheep. Also interesting is the low representation of the Caprid bones in Mushki compared to Tall-e Jari B and A and especially to Tall-e Bakun A, where they tend to increase progressively with time. Sheep seem to appear first in Jari B. The sheep/goat ratios seem to be equal in Jari B and A, whereas in Bakun A this ratio is 1:3. This evolution should be watched with attention. This shift can be the expression of an economic change or an environmental one; goats are generally more adapted to dryer conditions. However, the data are not sufficient enough to warrant a firm conclusion about the nature of this evolution.

GAZELLES

In southwest Asian faunal assemblages, the gazelle is generally paired with the wild equid (*hemiones*). The same tendencies observed above for the equid are valid for the gazelle; a drastic decrease is observed after Tall-e Mushki, progressively reducing in Tall-e Jari B to Tall-e Jari A until it disappeared in Tall-e Bakun A.

SUIDS

The suid is generally very little represented in Tall-e Mushki and practically absent in Tall-e Jari B and Tall-e Jari A. It is totally absent in Tall-e Bakun A.

CARNIVORES

Only the canid (the size of wolf to jackal) and fox were identified in the remains of the three sites and are represented for less than 2%. The presence of metapodials suggests a possible use of the skin, although no cut marks were present on the specimens. Nevertheless, the presence of carnivores and their destructive action is further indicated by the presence of gnawing marks on the bones.

RODENTS

No sieving was performed for the recovery of the micro-vertebrates and the only identifiable remains belong to the Indian gerbil (*Tatera indica*) or short-tailed bandicoot (*Nesokia indica*). Rat-size skeletal parts that were large enough to be seen by naked eyes were also present. It is not determined yet if these are intrusive or not. The rodent activity is also seen on the bones, which were certainly exposed a while before being buried.

TURTLE

The evidence of this species was present only among the Tall-e Jari B fauna. The most frequently encountered species in terrestrial sites in the Central Plateau is the *Testudo graeca*. The presence of the turtle bone in archaeological sites is difficult to interpret due the low frequencies generally reported in the prehistoric sites. The possibility of turtle consumption can not be excluded as a source of supplementary food.

PRELIMINARY CONCLUSIONS

Despite the small amount of available data here, this preliminary study of the 2004 faunal assemblages from the four prehistoric sites in the Marv Dasht plain demonstrates a clear trend from a hunting (and gathering?) economy to a pastoral one with the modification of the faunal spectra; this is expressed in the sharp decrease of hunted animals and their replacement by domesticates or proto-domesticates (Cattle, Caprid [sheep and goat]). Also very interesting is the absence of sheep bones in the Tall-e Mushki assemblage, at least at this stage of the work. This is a new indication for the better understanding of the story of the principal domesticates in the southern Zagros Mountains and more generally in the Iranian Plateau.

A fundamental question that can now be asked is what were the cultural, economic, and environmental conditions that spurred a dramatic change in subsistence economy from the Mushki phase to the following Jari and Bakun phases. The exciting question posed here by the Marv Dasht Plain faunal remains is how this dramatic change in the economy happened without leaving practically any lasting cultural and economic tradition. Moreover, can we envision the arrival of new immigrants to the Marv Dasht Plain after the Mushki phase, or if the changes in the subsistence economy had internal factors?

The progressive changes in the pastoral economy in Tall-e Jari B, Tall-e Jari A, and Tall-e Bakun A are also a noteworthy point. In Jari B and A, although the main source of meat is sheep and goat, the cattle also contributes to the diet. Also, hunting gazelles seems still to be an economic activity, even if it decreases progressively after the Mushki phase. What seems more important in the preliminary faunal spectra of the Marv Dasht Plain is the Bakun A profile; sheep and goats are the main source of meat. Cattle are present, but in such a small quantity that it can be assumed that either the animal was practically absent from the local economy or was present but for purposes other than a source of meat, namely, as a beast of burden and source of dairy products. This specialization of the pastoral economy revolving around the caprid group is similar to what was documented in the following Banesh and Kaftari periods at Tall-e Malyan (Zeder 1991: 81, 136). This extremely specialized economic subsistence should be considered in the general context of the Tall-e Bakun sites. Is the pattern revealed here an expression of a special function site as suggested by Sumner (1972)? These are the type of questions that could be answered through the addition of supplementary well-documented data from the surrounding region. In fact, despite the abundant archaeological data for the Bakun A phase, the subsistence economy is very poorly known.

Tall-e Bakun A and Tall-e Gap faunal remains had been studied by F. Takai in 1962. His conclusions pose some problems of taxonomic identification and thus general validation of his study, where he observed a high frequency of wild animals (70%), a low percentage of cattle (16%), and especially, a very low frequency of caprids. Takai's unconvincing conclusions as well as the fact that the faunal remains from these sites were unfortunately dispersed in different institutions[207] could hardly allow for a renewed study. The assemblage collected by Alizadeh in 2004 can therefore be considered as the first well-documented faunal assemblage from Bakun A, which provides reliable insight on the livestock exploitation during the second half of the fifth millennium B.C. The present diachronic study, although preliminary, reveals insight directly into the trends of the subsistence economy from the sixth to the late fifth millennia B.C. in the southern Zagros region.

207. Thanks to Hitomi Hongo of the Primate Research Institute of the Kyoto University, the remains are now at the University Museum of the Tokyo University.

CHAPTER 11

SOME PLANT REMAINS FROM THE 2004 EXCAVATIONS OF TALL-E MUSHKI, TALL-E JARI A AND B, AND TALL-E BAKUN A AND B

NAOMI F. MILLER[208] AND MASOUMEH KIMIAIE[209]

Sixteen flotation samples from the sites of Tall-e Mushki, Tall-e Jari, Tall-e Bakun A, and Tall-e Bakun B in the Kur River Basin were submitted for analysis by Abbas Alizadeh of the Oriental Institute at the University of Chicago. Four of the samples were not further examined because they were so small.

INTRODUCTION

Archaeological surveys in the region found Paleolithic and Epipaleolithic occupations, and regional survey by Sumner and others trace occupation into the modern era (see, among others, Rosenberg 2003; Sumner 1972; Vanden Berghe 1952). The samples reported here represent the earliest ones recovered so far in the Kur River Basin. They date to the Mushki, Jari, and Bakun phases. The only other archaeobotanical work in the region concerns later phases (Banesh, Kaftari, and Qaleh) at Tall-e Malyan (Miller 1982); those results are brought into the discussion to put the present remains in context. Although the evidence reported here is meager, it provides a baseline for future research.

The first agricultural settlements in the Kur River Basin date to the Mushki phase. The type site is Tall-e Mushki, which dates to the end of seventh millennium B.C. Tall-e Jari (Jari phase) dates to the sixth millennium B.C.; Tall-e Bakun B (Shamsabad phase) and Tall-e Bakun A (Bakun phase) date to the mid-fifth to early fourth millennia B.C. Over this time span, occupied settlement, and presumably population as well, increased (see Miroschedji 2003: 21; Sumner 1972).

Today, the "natural" vegetation of the Kur River Basin would be oak steppe-forest on the slopes at the northwest end, with a shift to pistachio-almond steppe-forest on the valley floor and slopes to the southeast (Miller 1982; Zohary 1973). As early as the Banesh phase, human influence on the vegetation can be traced in the archaeobotanical assemblage of Tall-e Malyan (Miller forthcoming). Undoubtedly the initial farming activities and presumed year-round settlement of the Mushki and later occupations also had some effect on the plant cover.

One of the questions addressed by Alizadeh's project concerns the initial appearance of pastoral nomadism in the region (see, e.g., Alizadeh 2003). Recent re-analysis of the Tall-e Malyan charcoal assemblage suggested that pastoral nomads occupied the Kur River Basin in the mid-third millennium B.C. (Miller forthcoming). Initial results of the research reported here suggest that the pastoral component of the economy was relatively important (compared to, e.g., during the more urbanized Banesh and Kaftari periods). For the sites reported here, we do not yet know how we would distinguish a generalized agropastoral economy from one which has specialized (full-time) farmers and herders.

Another unanswered question for the Kur River Basin concerns the post-Pleistocene expansion of the Zagros forests. In particular, during the last Glacial, the cold dry steppe characterized by *Artemisia* and Chenopodiaceous shrubs dominated the vegetation of Zagros region (van Zeist and Bottema 1977). It is not clear how long after Holocene climate amelioration the woodland expanded to its current boundaries from refugia.

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METHODS

An Ankara flotation device was used for extracting the charred materials (A. Alizadeh pers. comm.). The heavy fraction was caught in a 1-mm mesh screen. The floating material was caught in two screens of mesh size 1 mm and 0.5 mm. When dry, the samples were transferred to film canisters. It was not clear from the labeling whether the multi-container samples were to be combined for purposes of analysis. There was time to do only one of each, so the proportion of sample analyzed is approximate (as is density information calculated for those samples).

Identifications were made with the help of comparative material housed in MASCA (some of which was collected by Miller while on the Tall-e Malyan project in the Kur River Basin), illustrations from other archaeobotanical site reports, and various published seed manuals. Miller checked the samples analyzed by Kimiaie (table 8).

Without going through all the arguments here (see Miller 1982, 1984b), it is likely that most of the charred seeds come from animal dung burned as fuel. For that reason, uncharred seeds are listed separately and are not included in calculations of the charred seed assemblage.

THE SAMPLES

A variety of deposits were sampled (table 4); they were mostly trashy or ashy deposits and pyrotechnic installations. Despite conscientious sampling by the excavators, the density of charred material is generally relatively low. This is partly a function of the way density is measured — as a ratio of the weight of charred material larger than 2 mm to sediment volume in liters. The overall average density for the three sites is 0.05 g/liter, with a range of 0–0.32 g/liter; this may be visualized as equivalent to about 4 or 5 cereal grains/liter of soil (table 8). This measure tends to under-represent wild and weedy seeds, as they are quite small. Calculation of the wild and weedy count per liter of sediment yields an overall average of about 19, range 0 to 86. Densities of wild seeds and charred material are not correlated.

It is important to bear in mind that any generalizations about trends in these samples are unstable (i.e., they could be easily overturned with analysis of as little as one additional sample). Similarly, absence of any taxon may be the result of the small sample sizes.

Charcoal has not been examined for this report. Few pieces encountered are large enough to attempt identification.

NOTEWORTHY DEPOSITS AND ITEMS

TALL-E MUSHKI (FEATURE 4)

This sample from an oven has the highest density of charred material and is the only one with a lot of wood charcoal. It also has very few seeds. These characteristics suggest that it is the remains of a wood-fueled fire.

TALL-E JARI A (FEATURE 13)

This oven is unusual in that there is virtually no charcoal or cereal, but quite a large number of wild seeds. It suggests the remains of a dung-fueled fire.

TALL-E BAKUN A (LEVEL 4 IN SQUARES BB 27 AND BB 38)

These samples from a large trash deposit are relatively rich in charred remains, both seed and charcoal. Square BB 27 also had silicified awns of grasses, and some amorphous charred material (0.71 g > 2 mm and 0.21 g between 1 and 2 mm) that looks like digested masses of cereals; this could change the figures in table 8 for this sample. It would certainly change the wild:cereal ratio in favor of cereals. Both samples have some dung in them.

TALL-E BAKUN A (LEVEL 3 IN SQUARE BB 27)

Like Feature 13 at Tall-e Jari A, there is virtually no charcoal or cereal, but many wild seeds and some silicified awns. This sample presumably includes the redeposited remnants of a dung-fueled fire.

THE TAXA — CULTIGENS AND OTHER FOOD PLANTS

Cereals (large-seeded, cultivated grasses: six-row barley, einkorn, emmer, and bread or hard wheat), possible pulses (large-seeded legumes), almond, and possible pistachio are attested in these samples. Also in this section a tentatively identified seed of *Hippophae* is discussed.

CEREALS (POACEAE)

Hordeum vulgare var. *hexastichum* (six-row barley). In six-row barley, some of the seeds are twisted; charring could also cause twisting. In those samples with grains, twisting occurs. Tall-e Jari A and Tall-e Bakun A samples also show the more definitive evidence of internodes of six-row barley. It is also possible (even likely) that two-row barley was grown. (In principle, six-row barley has two twisted grains for each straight one.) In these samples, only about half the recognizable barley grains are twisted (table 5). One glume base was identified as wild barley (characterized by smooth dehiscence — the internodes separate cleanly). Barley occurs throughout the sequence as both grain and rachis fragments.

Triticum aestivum/durum (bread wheat/hard wheat). The grains of hard wheat can not be distinguished from those of bread wheat. A few such grains occur in Tall-e Bakun A. At Tall-e Jari, some of the shield-shaped internodes characteristic of bread wheat were seen.

Triticum dicoccum (emmer wheat). Emmer occurs both as grain and spikelet forks. Evidence of emmer occurs at the three sites.

Triticum monococcum (einkorn wheat). Both grain and spikelet forks recognizable as einkorn occur in the samples. Many einkorn spikelet forks were identified in Tall-e Bakun A samples (table 8).

Triticum monococcum/dicoccum (einkorn or emmer wheat). There are a few grains that can not be identified more precisely than einkorn or emmer. Similarly, many spikelet forks occur throughout the sequence that can not be further distinguished. Many half-spikelet forks were seen, and even whole spikelet forks frequently can not be determined because the distinguishing characteristics are quantitative (angle of fork and ratio of rachis scar to spikelet fork width).

Triticum sp. (wheat, not further distinguished). A few grains of wheat were identified. A few wheat internodes were found from a sample of Tall-e Jari A; they would probably be from *Triticum aestivum* or *T. durum*.

Cereal. A number of fragments of large-seeded cultivated grasses can not be further specified. With regard to wheat and barley in general, however, note that barley tends to be more drought-tolerant than wheat because it has a shorter growing season. Also, it is more likely than wheat to be fed to animals (threshing does not remove the indigestible glumes); this is particularly true of the straw, since wheat straw is less digestible than barley straw. Where both two- and six-row barley are grown, six-row is more likely to be irrigated. Also, because it has proportionally more protein, six-row barley is more likely to be fed to the animals, and two-row barley is more likely to be made into beer.

PULSES (FABACEAE)

In addition to some unidentified fragments, a one sample had a seed tentatively identified as *Pisum* (pea, although the large round-seeded *Vicia*/vetch can not be excluded). Archaeologically, pea is not very common and even wild vetches may have fairly large seeds.

FRUITS, NUTS, TREE PRODUCTS

Pistacia/Rhus (pistachio or sumac, Anacardiaceae). A big fruit of *Pistacia* or *Rhus* was identified from Tall-e Bakun A. *Pistacia vera* L., *P. khinjuk* Stocks, and *P. eurycarpa* Yaltirik have been collected in the area. *Rhus coriaria* is a plant of Iran, but was not seen growing in the area by Miller. The seed seems a bit small for *P. khinjuk* or *P. eurycarpa*, which is why we propose sumac as a possibility.

Prunus sp. (almond, Rosaceae). The genus *Prunus* includes the stone fruits (e.g., plum, apricot, and peach) as well as almond. Many *Prunus* species are wild. A few nutshell fragments identified as almond are from a wild type. In the Kur River Basin, *Prunus kotschyi* (Boiss. and Hohen.) Meikle and *P. scoparia* Schneider are part of the natural vegetation.

Nutshell. In addition to almond, there were some small nutshell fragments. In the Kur River Basin, Miller (1982) noted that fresh specimens of smooth-shelled wild almond and wild pistachio could be distinguished by texture of the cross-section (almond is rougher-grained than pistachio) and thickness (almond is generally a bit thicker than pistachio); there has not been time to attempt this for this report.

Hippophae (seabuckthorn, Elaeagnaceae). A single seed that compares with *Hippophae rhamnoides* L. was seen. Miller collected a specimen from this shrub in the Kur River Basin. If the identification is correct, the presence of the seed would probably be incidental to use of the wood for fuel.

THE TAXA — WILD AND WEEDY PLANTS

The seeds or plant parts of wild and weedy plants comprise at least twenty families and include at least thirty-five genera. Most of the taxa occur rarely or in small numbers. With determinations only to family or genus, detailed discussions of habitat are not warranted. One Tall-e Jari A and three Tall-e Bakun A samples have more than 500 wild or weed seeds each (table 8). Virtually all the genera (and families) are plants of open ground, and most would be acceptable as fodder plants. Plant families that are common in the modern flora of the region include members of the Asteraceae, Brassicaceae, Fabaceae, and Poaceae.

Asteraceae (daisy family). Twelve seeds identified as Asteraceae family in the samples but one seed was determined as *Artemisia* (wormwood). *Artemisia* is a dominant plant in steppe zones of the Near East.

Boraginaceae (borage family). In addition to four charred *Heliotropium* (heliotrope) seeds, a few mineralized *Arnebia* were encountered. At archaeological sites in the Near East, members of this family are commonly found uncharred.

Brassicaceae (mustard family). Seeds in this category occur throughout the sequence in small numbers. All eleven *Alyssum* seeds come from a single Tall-e Bakun A sample. The distinctive siliques of *Euclidium* occur in Tall-e Jari and Tall-e Bakun A samples.

Caryophyllaceae (pink family). Two genera are positively identified, *Silene* and *Vaccaria*. *Vaccaria pyramidata*, a field weed, grows in the area.

Chenopodiaceae (goosefoot family). Many of the members of this family are salt-tolerant plants like *Suaeda*. Some *Suaeda* seeds were seen in the samples.

Cyperaceae (sedge family). These plants are common in moist ground, especially along the rivers, streams, and ditches in low-lying areas. Three genera were recognized in the samples, *Carex*, cf. *Eleocharis*, and *Scirpus*/*Cyperus*. *Cyperaceae* make a substantial contribution to the assemblage, but seeds of this family are difficult to identify, especially because modern comparative material was insufficient to warrant further work.

Fabaceae (pea, clover family). Several of the taxa grow in relatively moist areas, whether irrigated fields or along streams and ditches (e.g., medick/*Medicago*, clover/*Trifolium*, melilot/*Melilotus*). Others are typical of healthy steppe vegetation (e.g., many trigonel/*Trigonella*). *Astragalus*, which is likely to have "more than 1,000 species in Iran alone" (Lock and Simpson 1991: 43), occurs in a wide variety of habitats. At a count of 2,366, *Astragalus* is also the most numerous seed in the assemblage, especially in the Tall-e Bakun A samples. Many members of the pea family have nitrogen-fixing bacteria on their roots, though there is no evidence for intentional crop rotation until much later than these samples. More importantly, many of the small-seeded legumes are useful fodder plants (e.g., *Medicago*, *Trigonella*, *Trifolium*, *Melilotus*, and some *Astragalus*). In fact, along the Euphrates River (Miller 1997, 2002) and in Central Anatolia (Gordion; Miller laboratory notes), a decline in the seeds of these plants is an indicator of pasture decline, as the small-seeded legumes are preferentially eaten by the herds. In the Kur River Basin samples, it is numerous at Tall-e Jari and Tall-e Bakun A, but absent in the fourth–second millennium B.C. samples from Tall-e Malyan. In contrast, camelthorn (*Alhagi*) is avoided by most grazers other than camels, due to its spines.

It is frequently an indicator either of a deep water table or of agricultural disturbance, because it has a very long taproot. (The *Trigonella astroites*-type has a tuberculate surface.)

Lamiaceae (mint family). An only tentatively identified member of the family present in the samples is *Ziziphora*, an inconspicuous genus.

Liliaceae (lily family). *Bellevalia* and *Polygonatum*, both tentatively identified, are spring-flowering plants.

Papaveraceae (poppy family). A few *Papaver* (poppy) seeds were seen; there is a possible confusion with the genus *Roemeria*. Poppies are much more common plants, however.

Poaceae (grass family). Grasses comprise a relatively important part of the assemblage. The most numerous grass taxon occurs in all three sites, the tentatively identified *Brachiaria* (1,126 seeds). The tiny seed is distinctive and compares reasonably well with *B. eruciformis* collected near Tall-e Malyan. Although some members of the genus are "useful forage grasses, [*B. eruciformis*] is apparently not of any account as a fodder" (Bor 1968: 472). The single *Hordeum* has a relatively large seed, like that of *H. spontaneum*, the annual barley that is the wild ancestor of *H. vulgare*. The only large-seeded *Hordeum* noticed by Miller in the Kur River Basin is *H. bulbosum*, a perennial type.

Polygonaceae (knotweed family). *Polygonum* (knotweed) and *Rumex* (dock) usually grow in moist areas. Only one of each was encountered.

Primulaceae (primrose family). A single tentatively identifed *Androsace* seed was seen. *Androsace* is an inconspicuous plant of steppe vegetation in Turkey; it was not seen during fieldwork at Tall-e Malyan.

Ranunculaceae (buttercup family). *Ceratocephalus* is another inconspicuous plant (i.e., it is about 5–10 cm high); a total of two were seen in two Tall-e Bakun A samples.

Rubiaceae (bedstraw family). *Galium* (bedstraw), relatively common at the later site of Tall-e Malyan, is a varied genus that includes annuals and perennials, plants of fields and uncultivated ground.

Scrophulariaceae (mullein family). Two Tall-e Bakun A samples have concentrations of *Veronica*. It is a small herbaceous plant.

Solanaceae (nightshade family). The only member of this family encountered was *Hyoscyamus*, with two seeds from a Tall-e Bakun A sample.

Sparganiaceae (bur-reed family). *Sparganium*, only tentatively identified in two Tall-e Bakun A samples, is a plant of moist ground. In that regard, and in being a monocot, it is similar to the sedges.

Verbenaceae (verbena family). A single *Verbena* seed was tentatively identified.

Zygophyllaceae (caltrop family). A single tentatively identified *Peganum* seed was seen. Nowadays, *Peganum harmala* grows on vast areas of overgrazed pasture throughout the Near East. In the Kur River Basin, it is particularly common on occupation mounds, notably Tall-e Malyan. It tends to become more common in Near Eastern archaeobotanical assemblages dating to the third millennium B.C. and later, probably because it is an indicator of pasture decline (Miller 1991).

ANALYSIS

Although no definitive results are possible with the small number of samples analyzed, a few observations based on various characteristics of the assemblages may be made: ratios (density, seed:charcoal, wild:charcoal), proportions of major taxa and groups, and presence or absence of select taxa.

DENSITY

Density was mentioned in the section on samples, above. The main conclusion is that although the density of charred material is not great, it is not negligible, either. That is, further work will be rewarded. Ordinarily, wood charcoal would be expected to be the primary source of charred material, especially in a region presumed to have

been covered with steppe-forest vegetation. The average density per liter of charred material larger than 2 mm, 0.05, is not directly comparable to Tall-e Malyan, where charred material was sorted to a much smaller mesh size — 0.84 mm. All things being equal, one would expect the raw density measures to be higher at Malyan, as indeed they are (with ashy/trashy deposits typically averaging over 4 g/liter, Miller 1982: 212). The difference is so much greater, however, it is fair to say the assemblage under discussion here has less material. On the other hand, it has many more seeds: Where Malyan totaled about 189 seeds from over 1,200 liters of soil in 99 samples (Banesh) and 2,473 seeds from over 1,200 liters of soil in 90 samples (Kaftari), here we have 6,811 from approximately 225 liters of soil in 12 samples.

SEED:CHARCOAL, WILD:CHARCOAL RATIOS

The seed to charcoal ratio can be calculated in different ways, but it can only be calculated for samples with measurable charcoal in the denominator. If one counts seed and charcoal weights of material larger than 2 mm, the ratio effectively measures cereal:wood charcoal. One can also calculate the number of wild and weedy seeds to the weight of wood charcoal. If it is reasonable to think that most of the seeds come from dung burned as fuel, then both these measures provide a means of monitoring dung fuel use relative to wood fuel. Here again, comparisons to Tall-e Malyan are instructive.

To avoid the problem of samples with no charcoal, the calculation for Tall-e Malyan was done as a seed/(seed + charcoal) ratio, with a range of 0 to 0.66; there was about a ten-fold increase between Banesh and Kaftari times. The Malyan wild:charcoal ratios are about 0.17 (Banesh) and 2.28 (Kaftari) (Miller laboratory notes). The differences between the Banesh and Kaftari samples are taken to indicate an increased use of dung fuel relative to wood caused by deforestation (Miller 1982), as both large seeds and wild seeds showed the same trend relative to charcoal.

The seed/(seed+charcoal) ratios of the Tall-e Mushki, Tall-e Jari, and Tall-e Bakun samples (table 8) generally fall within the range characteristic of Tall-e Malyan, which might suggest similar habits of fuel use in those earlier periods. There does seem to be some change over time, however: the seed to charcoal ratios of Bakun tend to be higher than those of the earlier sites, especially if small samples are given less weight (table 6). The wild seed:charcoal ratios in the Mushki, Jari, and Bakun samples generally are substantially higher compared to Malyan, which might suggest a much less forested environment than during the Malyan occupation. To clarify this issue, the wild:cereal ratio is useful.

WILD:CEREAL RATIO

At Tall-e Malyan, the proportion of wild:seed > 2 mm, which is a rough approximation of wild:cereal, is never more than 250 and is usually quite a bit less. In the eleven samples for which this measure can be calculated, the comparable figures are almost all over 300 (and the wild:seed > 2 mm ratio is even higher). This suggests that sending animals out to graze was more important in earlier times than at Malyan.

BARLEY:WHEAT RATIO

At Tall-e Malyan, the proportion of barley to wheat was about 13 to 1 (Miller 1984a). In the samples reported here, it is substantially less (overall about 0.93). Combined with the wild:cereal ratios, this suggests that foddering of animals was less important in earlier times than at Malyan (see Miller 1997 for discussion).

TAXA OF NOTE

Given the small number of samples and the fact that some taxa occur in small numbers and/or only a few samples, presence/absence is not meaningful for most types. Some families and genera stand out as being particularly numerous, however.

The most important wild plant families in the assemblage are the grasses, legumes, and sedges. More than half of the wild seeds come from a single sample — Tall-e Bakun A, Level 4, Square BB 27. Even if this sample is removed from consideration, these three families dominate. It is not possible to say what proportion of the landscape was covered with plants of these families, but it is likely that the grasses and legumes grew mostly on open dry ground and the sedges grew in moist swales or along watercourses. The proportions of seeds more likely reflect

a combination of such factors as animal diet preferences (hence the large amount of legumes), seed production (sedges are quite prolific seed producers and live in places animals congregate, and so might have disproportionately strong representation), and of course, presence in the landscape (grasses may have been the dominant form in the lightly wooded and open areas).

With or without the richest Tall-e Bakun A sample, the small-seeded legumes, *Astragalus*, *Trigonella*, and *T. astroites*-type, and the very small-seeded grass, cf. *Brachiaria*, are the most numerous genera (and species). The legumes are all good fodder plants; if the grass seed is *Brachiaria eruciformis*, its presence in large numbers is hard to explain.

There are a few taxa that almost certainly are associated with agricultural disturbance: 1 *Vaccaria*, 14 *Alhagi*, 1 *Avena*, and 77 *Lolium*. All these occur only in Tall-e Bakun A samples (as does the single cf. *Peganum*, an indicator of overgrazing; table 7). Given that the population levels of the Bakun phase in the Kur River Basin were not surpassed until the late third-millennium Kaftari phase, perhaps evidence for the importance of agricultural production will be supported by further research.

DISCUSSION

Several key features of the assemblages reported here give a glimpse of the landscape and vegetation in the Kur River Basin between the seventh and fourth millennia B.C. In particular, we suggest the following interpretation which should be tested after additional evidence can be brought to bear:

- Relatively open terrain (at most scattered trees): low charcoal densities are not a result of preservation problems, because wild seeds are numerous.
- Relatively arid conditions (trees limited by climate and pre-existing cover, not deforestation; grazing more important than cultivation of fodder).

These two observations and interpretations support the view that the post-Pleistocene expansion of the Zagros woodland was not yet complete, which would suggest:

- Agropastoral economy emphasizing grazing over farming, at least compared to later periods. As the samples come from settlements, the material does not speak directly to the question of nomadic pastoralism.

The picture is not so simple, because in a very arid climate one might not expect to see six-row barley as a prominent crop without irrigation. On the other hand, if low labor- and land-intense animal husbandry was so important, would irrigation also be part of that system? The total number of cultigens, including barley, is low, so the interpretations are very much still open.

Of necessity, we have had to treat the samples as a single temporal unit. Future research will help determine if the Tall-e Bakun A occupation saw increased disturbance of the vegetation when settled population was higher than it had ever been by examining taxa indicative of agriculture and increased use of dung fuel.

The samples reported here extend our evidence for agriculture and environment in the Kur River Basin to periods preceding the Banesh and Kaftari phase settlement at Tall-e Malyan. The most potentially significant finding is that the arboreal vegetation in earlier times seems to have been less than during the third millennium, despite the fact that population densities were lower and people had not had as much time to adversely affect the vegetation through their farming and fuel-cutting practices. To reconstruct vegetation cover, we would have to be able to distinguish the influences of environmental factors (e.g., climate and pre-existing vegetation) from economic ones (e.g., land clearance, fuel-cutting). It is premature to reach conclusions about the timing of post-Pleistocene expansion of the woody vegetation and the degree of human interference with the natural vegetation. Additional sampling will not unequivocally answer these questions, but would nevertheless enhance our understanding of the ancient landscape.

Table 4. List of Samples and Comments of the 2004 Seed Collections

Site, Square (Sq.) or Trench (Tr.)	Total Number Film Canisters	Stratigraphic Information	Deposit Type
Tall-e Bakun A, Sq. BB 27	6 (1 done)	Level 3	Large Garbage Dump
Tall-e Bakun A, Sq. BB 27	4 (1 done)	Level 4 (basal)	Large Garbage Dump
Tall-e Bakun A, Sq. BB 38	5 (1 done)	Level 3	Large Garbage Dump
Tall-e Bakun B, Stratigraphic Tr.	1	Level 2 (basal)	Ashy Layer
Tall-e Jari B, Tr. 1	1	40 cm above Sterile	Ashy Layer
Tall-e Jari A, Stratigraphic Tr.	1 (not done)	Feature 7	Fire Pit
Tall-e Jari A, Stratigraphic Tr.	1	Feature 9	Oven/Kiln
Tall-e Jari A, Stratigraphic Tr.	1 (not done)	Feature 9	Ashy Layer
Tall-e Jari A, Stratigraphic Tr.	1	Feature 9	Oven
Tall-e Mushki, Stratigraphic Tr.	1 (not done)	Level 6	Ashy Deposit
Tall-e Mushki, Stratigraphic Tr.	1	Level 16	Extensive Ashy Layer
Tall-e Mushki, Stratigraphic Tr.	1	Level 17	Extensive Ashy Layer
Tall-e Mushki, Stratigraphic Tr.	1	Feature 4	Oven
Tall-e Mushki, Stratigraphic Tr.	1	Feature 7	Burnt Patch with Ash
Tall-e Mushki, Stratigraphic Tr.	1	Feature 12	Large Oven
Tall-e Mushki, Stratigraphic Tr.	1 (not done)	Feature 14	Ashy Lens

Table 5. Twistedness of Barley Grains

Sample	Twisted	Straight	Indeterminate
Tall-e Mushki, Feature 4	0	0	1
Tall-e Mushki, Feature 7	0	0	1
Tall-e Jari A, Feature 9	1	1	5
Tall-e Bakun A, Sq. BB 27, Level 4	8	5	3
Tall-e Bakun A, Sq. BB 38, Level 4	3	8	20
Total	**12**	**14**	**30**

Table 6. Average Seed/(Seed+Charcoal) > 2 mm

Tall-e Mushki, n=5	0.01
Tall-e Jari, n=3	0.26
Tall-e Bakun, n=3*	0.43

* One Tall-e Bakun sample has no seed or charcoal > 2 mm

Table 7. Comparison of Wild and Weedy Taxa Attested for Tall-e Mushki, Tall-e Jari, and Tall-e Bakun with Those also Found at Tall-e Malyan and Seen Growing in 1974–1978 (Miller 1982, field observations)

Taxa*	Tall-e Mushki	Tall-e Jari	Tall-e Bakun	Tall-e Malyan	Kur River Basin, 1974–1978 Fieldwork
Artemisia			x		[Not Seen]; Steppe
Heliotropium			x		*H*. cf. *rotundifolium*; Irrigated Fields
cf. *Alyssum*			x		*A. linifolium*; Dry Fields
Euclidium		x	x	x	*Euclidium* ("crucif A")
Silene	x			x	*S. conoidea, S. spergulifolia*; Weed
Vaccaria			x	x	*V. pyramidata*; Weed
Suaeda	x	x	x		[Not Seen]; Frequently Steppe, Saline
Carex	x			x	*C. divisa*; Irrigation Ditches, High Water Table
cf. *Eleocharis*			x		[Not Seen]; Moist Areas
Scirpus/Cyperus	x	x	x	x	*S. holoschoenus, C. longus*; Along Streams and Ditches
cf. *Alhagi*			x		*A. camelorum*; Dry Fields (and steppe)
Astragalus	x	x	x	x	*A. hamosus, A. kotschyanus, A. campylorrhynchus*, et al.; General
Medicago			x	x	Irrigated Fields, Moist Areas
Trifolium		x	x	x	*T. fragiferum*; Irrigated Fields, Moist Areas
Melilotus		x	x	x	*M. indica*; Irrigated Fields
Trigonella	x	x	x		*T. foenum-graecum, T. monantha*; Irrigated Fields, Moist Areas
cf. *Ziziphora*		x	x		[Not Seen]; Steppe
cf. *Bellevalia*			x		[Not Seen]; Early Spring Bulb
cf. *Polygonatum*			x		[Not Seen]
Papaver		x	x		*P. macrostomum*; Irrigated Fields
Aegilops			x	x	*A. crassa*; Dry Fields, Other Areas
Avena			x	x	*A.* cf. *byzantina*; Weed
cf. *Brachiaria*	x	x	x		*B. eruciformis*
Eremopyrum	x	x		x	*E. bonapartis*; Wild, Irrigated Fields
Hordeum (large)			x	x	*H. bulbosum*; Perennial
Lolium			x	x	*L. perenne*; Moist Areas (fields, other)
Setaria		x		x	*S. verticillata*; Irrigated Fields, Streams, and Ditches
Polygonum		x		x	*P. aviculare, P. equisetiforme, P. lapathifolium*; Ditches, Irrigated Garden, Grove
Rumex			x	x	*R. crispus, R. dentatus, R. conglomeratus*; Irrigated Alfalfa, Grove
cf. *Androsace*			x		[Not Seen]; Steppe
Ceratocephalus			x	x	*C. falcata*; General
Galium			x	x	*G. ceratopodum, G. humifusum, G. tricornutum*; Weed
cf. *Veronica*		x	x		*V. anagallis-aquatica, V. campylopoda, V. persica*; Irrigated Fields, Moist Areas
Hyoscyamus			x	x	*H. pusillus, H. reticulatus*; Uncultivated, Ditches
Sparganium			x		*S. erectum*; Streamside
cf. *Verbena*		x			*V. officinalis*; Streamside
cf. *Peganum*			x		*P. harmala*; Uncultivated, Overgrazed Steppe

* Note that different species of a genus can have very different ecological requirements, so the specific information listed here is for general reference only.

Table 8. Plant Remains from Tall-e Mushki, Tall-e Jari A and B, and Tall-e Bakun A and B

SITE	Tall-e Mushki	Tall-e Mushki	Tall-e Mushki	Tall-e Mushki	Tall-e Mushki	Tall-e Jari A	Tall-e Jari A	Tall-e Jari B	Tall-e Bakun B	Tall-e Bakun A	Tall-e Bakun A	Tall-e Bakun A
PROVENANCE	Layer 16	Layer 17	Feature 12	Feature 7	Feature 4	Feature 9	Feature 13	-160 cm	Level 2	Level 4, Sq. BB 27	Level 4, Sq. 38	Level 3
Type of Deposit	Ashy	Ashy	Oven	Ash Patch	Oven	Oven	Oven	Ashy	Ash	—	1 of 5	1 of 6
Soil Volume (liters)	21	14	25	7	11	35	28	10	31	46	28	20.17
Seed > 2 mm	0.04	0.02	0.01	+	+	0.03	0.02	0	0	0.62	1.02	0
Charcoal > 2 mm	0.27	0.36	0.23	0.38	3.57	0.02	0	0.12	0.02	1.15	0.98	0
Misc. > 2mm	0	0	0	0	0	0	0	0	0.02	+	0.08	0
Wild and Weedy	240	15	3	20	12	271	1641	0	18	3974	608	773
Density, > 2 mm/liter	0.01	0.03	0.01	0.05	0.32	0.00	+	0.01	+	0.04	0.07	0.00
Seed:Charcoal	0.15	0.06	0.04	+	+	1.50	N/C	0	0	0.54	1.04	N/C
Wild:Charcoal	889	42	13	53	3	13550	N/C	0	900	3456	620	N/C
Wild:Cereal	4800	214	150	1000	N/C	2085	N/C	N/C	N/C	3613	313	N/C
Seed/(Seed+Charcoal) g/g	0.13	0.05	0.04	+	+	0.60	1.00	0.00	0.00	0.35	0.49	N/C
Density, Wild/liter	11	1	0	3	1	8	59	0	1	86	22	38
CULTIVATED, ETC. (WEIGHT/GRAMS)												
Hordeum vulgare	+	+		+	+	0.07				0.28	0.37	
Triticum aestivum/durum										0.01	0.03	
Triticum dicoccum	+	0.01		+						0.05	0.21	
Triticum monococcum	+	+		+	+					0.02	0.15	
T. monococcum/ dicoccum			0.02									
Triticum sp.	+	0.02				+	+				0.25	
Cereal, indet.	0.05	0.04		0.02	+	0.06	+		+	0.74	0.93	
cf. *Pisum*										0.03		
Pulse, indet.						+	+			0.03		
Pistacia/Rhus, no. (grams)											1 (0.04)	
Prunus (almond)			+							0.02		
Nutshell		0.02	+			+			+	+		
cf. *Hippophae* (no.)				1								
WILD & WEEDY (COUNT)												
cf. *Artemisia*												1
Kur Asteraceae-1										1		
Asteraceae, indet.	6			2	1					2		
Heliotropium										4		
cf. *Alyssum*										11		
Brassicaceae, indet.					2	5	5			17	2	8
Silene	1											
Silene/Gypsophila				1								
Vaccaria										1		
Caryophyllaceae, indet.							1				1	
Suaeda			1			3	4			38		31
Chenopodiaceae, indet.						2						
Carex		1					2					

Table 8. Plant Remains from Tall-e Mushki, Tall-e Jari A and B, and Tall-e Bakun A and B (*cont.*)

SITE	**Tall-e Mushki**	**Tall-e Mushki**	**Tall-e Mushki**	**Tall-e Mushki**	**Tall-e Mushki**	**Tall-e Jari A**	**Tall-e Jari A**	**Tall-e Jari B**	**Tall-e Bakun B**	**Tall-e Bakun A**	**Tall-e Bakun A**	**Tall-e Bakun A**
PROVENANCE	Layer 16	Layer 17	Feature 12	Feature 7	Feature 4	Feature 9	Feature 13	-160 cm	Level 2	Level 4, Sq. BB 27	Level 4, Sq. 38	Level 3
WILD & WEEDY (COUNT) (*cont.*)												
Kur Cyperaceae-1										22		
Kur Cyperaceae-2										19		
Kur Cyperaceae-3										1		
Cyperaceae, indet.	55	7		1		2	11		1	112	13	174
cf. *Eleocharis*										1		
Scirpus/Cyperus			1							24		
cf. *Alhagi*											14	
Astragalus					1	9	100		12	1885	331	40
Medicago radiata											2	
Medicago										4		
Trifolium/Melilotus							2			6	1	
Trigonella astroites-type		3			3	9	540					41
Trigonella	9					19	360		1	358	38	97
Fabaceae, indet.	1						80		2	280	117	67
Kur Lamiaceae-1										3		
cf. *Ziziphora*						3				1		
cf. *Bellevalia*										8		
cf. *Polygonatum*										2		
cf. *Papaver*						8				14		3
Aegilops											15	
Avena											1	
cf. *Brachiaria*	167			7	5	165	352			364	6	60
Eremopyrum		3				1						
Hordeum (large)										1		
Lolium cf. *remotum*										41		
Lolium										3	25	8
Setaria						2						
Kur Poaceae-1										60		12
Kur Poaceae-2							142			349		104
Kur Poaceae-3										1		
Kur Poaceae-4												5
Poaceae, indet.	1	1		1		17	11			47	31	
Polygonum							1					
Rumex										1		
cf. *Androsace*										1		
Ceratocephalus										1		1
Galium										3	8	
cf. *Veronica*							7			151		84
Hyoscyamus										2		
Kur unknown-1, cf. *Sparganium*										14		19

Table 8. Plant Remains from Tall-e Mushki, Tall-e Jari A and B, and Tall-e Bakun A and B (*cont.*)

SITE	Tall-e Mushki	Tall-e Mushki	Tall-e Mushki	Tall-e Mushki	Tall-e Mushki	Tall-e Jari A	Tall-e Jari A	Tall-e Jari B	Tall-e Bakun B	Tall-e Bakun A	Tall-e Bakun A	Tall-e Bakun A
PROVENANCE	Layer 16	Layer 17	Feature 12	Feature 7	Feature 4	Feature 9	Feature 13	-160 cm	Level 2	Level 4, Sq. BB 27	Level 4, Sq. 38	Level 3
WILD & WEEDY (COUNT) (*cont.*)												
cf. *Verbena*						1						
cf. *Peganum*										1		
Kur unknown-2										1		
Kur unknown-3										1		
Unknown			1	8		25	23		2	118	3	18
PLANT PARTS												
Euclidium Silique						2				1		
Aegilops glume Base						2				1	9	
Hordeum vulgare var. *hexastichum* Internode						1				2		
Hordeum vulgare Internode/Glume Base Fragments			1			2				4		
Hordeum (wild) Glume Base										1		
Triticum aestivum Internode						7						
T. aestivum/durum Internode						3						
T. dicoccum Spikelet Fork						1					6	
T. monococcum Spikelet Fork										9	96	
T. monococcum/ dicoccum Spikelet Fork	40	15	47		1	2				129	447	15
Straw Culm Node						3						
Straw Spike Base											1	
Silicified Awns										+		+
Fruit Skin-*Prunus* (almond?)						+						
UNCHARRED SEEDS												
Arnebia cf. *decumbens*										5		
Arnebia (other)				1						1		
Suaeda (modern)					12							
Cyperaceae (silicified)						2						
Ficus						2						
Androsace		2										
Solanum (tan)										8		
OTHER												
Uncharred cf. Dung > 2 mm (grams)										0.03		
Charred Dung > 2 mm, g											0.01	
Charred Rodent Dropping (no.)											2	

APPENDIX A

RADIOCARBON DATING OF THE FARS PREHISTORIC SEQUENCE

One of the major goals of the Joint ICHTO-Oriental Institute 2004 archaeological expedition to Fars was to collect ^{14}C samples from the major prehistoric sites of Tall-e Mushki, Tall-e Jari B and A and Tall-e Bakun B and A (tables 9–10). Thirteen samples of bone and charred seeds were sent to Beta Analytic and the University of Arizona AMS laboratories. In addition, Mashkour provided six more dates she obtained from Arizona and kindly permitted me to include them in this volume (table 11). Mashkour's dates were derived from six bone samples that were part of the Japanese collection from Tall-e Mushki and Tall-e Jari B.

The nineteen calibrated dates provided here cover all the prehistoric phases except for Middle Fars 2, or Gap phase, and the Proto-Banesh or Lapui phase. The absolute date of the Middle Fars 2 phase is extrapolated from the phases that precede and follow it, i.e., Middle Fars 1 (Bakun B2) and Late Fars (Bakun A). The absolute date for the proto-Banesh phase (ca. 4000–3700 B.C.) is based on the dates from Tall-e Bakun A and those obtained from the Early Banesh phase at Tall-e Kureh (Sumner 2003: 55–57, table 13). Based on the dates we have for the end of Tall-e Bakun A, the other two other radiocarbon dates from Tall-e Kureh (4000–2400 and 4500–3000 B.C.) were rejected as too high and too low.

Because we did not have samples from the beginning to the end of any one phase, the range that is given in the text is arrived at logically. For example, all the dates from Tall-e Bakun A represent the date of the lower levels, i.e., Levels 4 and 3. Based on the estimated time that must have taken for the upper levels to accumulate, a range for the entire phase is offered. The same is true for other phases as well.

These dates clearly show that there is major gap in the sequence, i.e., between the end of Archaic Fars 2 (Jari A, Level III, and Jari B) and beginning of Early Fars (Bakun B1). A possible temporal gap is also indicated between the end of Early Fars and the beginning of Middle Fars 1. These temporal gaps were suspected previously by the sudden replacement of the Jari painted pottery by a plain coarse pottery on the one hand and the sudden appearance of the Middle Susiana related black-on-buff pottery in Fars on the other. Our 2004 excavations at Tall-e Bakun B and the Japanese expeditions of 1961 and 1971 at Tall-e Jari A observed stratigraphic evidence for these temporal gaps as well. At Jari A, Egami, Masuda, and Gotoh (1977: 2) reported some 40 cm of clayish soil separating Level II (with plain coarse ware) from Level III (with Jari A/B painted ware). At Bakun B and Jari A we also found similar deposits separating the levels with plain coarse ware and those with black-on-buff of the following Middle Fars 1 phase.

As with any archaeological discoveries, these absolute dates and stratified evidence posed more, and fundamental, questions of the dynamics of cultural continuity in prehistoric Fars and a serious need to reconsider the observed settlement patterns of the various prehistoric phases. We hope that these data will prove useful in future research in the region.

Table 9. Radiocarbon Dates for Prehistoric Fars*
(Beta Analytic AMS Laboratory)**

Site	Provenance	Context	Material	Lab. Ref. No.	Uncalibrated	Calibrated
Tall-e Mushki	Level 17	Burnt Surface	Charred Seeds	Beta-207563	7220±40 B.P.	6180–6000 B.C.
Tall-e Mushki	Level 12	Occupational Debris	Charred Seeds	Beta-210984	7250±40 B.P.	6210–6020 B.C.
Tall-e Jari B	-1.65 m below Surface	Oven?	Charred Seeds	Beta-207565	7140±40 B.P.	6060–5970 & 5950–5920 B.C.
Tall-e Jari A***	Feature 13	Oven	Charred Seeds	Beta-207564	6170±40 B.P.	5260–4990 B.C.
Tall-e Jari A***	Feature 9	Oven	Charred Seeds	Beta-210982	6010±40 B.P.	4990–4700 B.C.
Tall-e Bakun B	Stratigraphic Trench, 1.90 m above Virgin Soil (Bakun B2)	Occupational Debris	Charred Seeds	Beta-210985	6160±40 B.P.	5240–4960 B.C.
Tall-e Bakun A	Sq. BB 27 Level 3	Trash Heap near Oven	Charred Seeds	Beta-207562	5560±40 B.P.	4460–4340 B.C.
Tall-e Bakun A	Sq. BB 27 Level 4 (basal)	Trash Deposit	Charred Seeds	Beta-210983	5570±40 B.P.	4450–4350 B.C.

* All samples are from 2004 Joint ICHTO-Oriental Institute Excavations.

** All dates are Two Sigma calibrated with 95% probability.

*** All the analyzed samples from Tall-e Jari A came from an Early Fars (Bakun B1) context.

Table 10. Radiocarbon Dates for Prehistoric Fars (Arizona AMS Laboratory)

Site	Provenance	Context	Material	Lab. Ref. No.	Uncalibrated	Calibrated
Tall-e Mushki	Level 22 (above Virgin Soil)	Occupational Debris	Bone	AA63493	7707±76 B.P.	6235–6063 B.C.
Tall-e Jari B	+50 cm above Virgin Soil	Occupational Debris	Charred Seeds	AA65264	7297±45 B.P.	6235–6063 B.C.
Tall-e Jari A**	+20 cm above Virgin Soil	Occupational Debris	Bone	AA63492	6280±69 B.P.	5360–5100 B.C.
Tall-e Bakun B	Stratigraphic Trench +140 cm above Virgin Soil (Bakun B1)	Occupational Debris	Bone	AA63489	6234±72 B.P.	5300–5100 B.C.
Tall-e Bakun A	Sq. BB 27 Level III (2004 season)	Trash Heap near Oven/Kiln	Bone	AA63491	5612±63 B.P.	4500–4234 B.C.

* All the analyzed samples from Tall-e Jari A came from Early Fars (Bakun B1) context.

Table 11. Additional Radiocarbon Dates for Tall-e Mushki (MS) and Tall-e Jari B (JB) Provided by M. Mashkour*

Lab Number	Sample Identification	Context	Analysis Date	C^{13}	Uncalibrated	Calibrated
AA56409	MS2	Level 3a	29-04-2004	-18	7347±71 B.P.	6464–5981 B.C.
AA56411	JB2	Area A III, Level 5, Rm. 7, Fill	30-04-2004	-13.7	7259±74 B.P.	6428–5873 B.C.
AA56410	JB1	Area WT Level 6, Rm. 5a	26-04-2004	-17.2	7173±71 B.P.	6270–5750 B.C.
AA56415	JB6	Area WT, Level 2, Rm. 1, Fill	29-04-2004	-15.5	7127±69 B.P.	6254–5722 B.C.
AA56412	JB3	Area C, Level 2	30-04-2004	-17.6	6939±72 B.P.	6075–5610 B.C.
AA56413	JB4	Area A III, Levels 1–2	28-04-2005	-19.4	6867±50 B.P.	5931–5618 B.C.

* I would like to thank Professor Yoshihiro Nishiaki for allowing me to obtain bone samples from Tall-e Mushki and Tall-e Jari B assemblages at the University of Tokyo. The radiocarbon dating was funded by the UMR 5197 of the Centre national de la recherche scientifique, France. Calibrations performed with the CALIB RADIOCARBON CALIBRATION PROGRAM Copyright 1986–2005 M. Stuiver and P. J. Reimer. Dates are reported with Two Sigma Ranges and highest probabilities of calibration relative area.

APPENDIX B

LIST OF THE 1937 SEASON ARCHAEOLOGICAL OBJECTS BY MATERIAL AND PROVENANCE

Table 12. List of Objects from Square AB 88, 1937 Season

Object	Material	Findspot	Field No.	Object	Material	Findspot	Field No.
Pawn	Clay	Room 12	TBA 112a	Blade	Flint	Room 4	TBA 36f
Shaft	Clay	Room 8	TBA 88	Blade	Flint	Room 8	TBA 87
Horn	Clay	Room 5	TBA 33	Knife	Flint	Room 10	TBA 153
Animal Figurine	Clay	—	TBA 51	Stamp Seal	Stone	Room 10	TBA 14
Spindle Whorl	Clay	Room 4	TBA 34	Pallet	Limestone	Room 10	TBA 549a
Spindle Whorl	Clay	—	TBA 37	Workstone	Stone	Room 10	TBA 130
Spindle Whorl	Clay	Sieve	TBA 60	Missile	Stone	Room 4	TBA 11
Spindle Whorl	Clay	Room 9	TBA 110	Polisher	Stone	Room 4	TBA 9
Spindle Whorl	Clay	Room 9	TBA 111	Polisher	Stone	Room 2	TBA 10
Spindle Whorl	Clay	Sieve	TBA 172	Plate Rim Fragment	Alabaster	Sieve	TBA 13
Pin	Copper	Room 10	TBA 152	Bowl Fragment	Alabaster	Sieve	TBA 15
Needle	Copper	Room 4	TBA 35	Bead	Turquoise	Sieve	TBA 2
Blade	Flint	Sieve	TBA 4	Bead	Turquoise	Sieve	TBA 5
Blade	Flint	Room 4	TBA 36a	Bead	Carnelian	Sieve	TBA 109
Blade	Flint	Room 4	TBA 36b	Workstone	Serpentine	Room 8	TBA 90
Blade	Flint	Room 4	TBA 36c	Knife	Shell	Sieve	TBA 3
Blade	Flint	Room 4	TBA 36d	Knife	Shell	Room 4	TBA 7
Blade	Flint	Room 4	TBA 36e				

Table 13. List of Objects from Square BB 27, 1937 Season

Object	Material	Findspot	Field No.	Object	Material	Findspot	Field No.
Token	Clay	—	TBA 553a	Animal Figurine	Clay	Sieve	TBA 551g
Token	Clay	—	TBA 553b	Stamp Seal	Clay	Sieve	TBA 263
Token	Clay	—	TBA 553c	Point	Copper	—	TBA 404
Token	Clay	—	TBA 554a	Pin	Copper	—	TBA 63
Token	Clay	—	TBA 554b	Pin	Copper	Sieve	TBA 333
Token	Clay	—	TBA 554c	Pin	Copper	Sieve	TBA 405
Disk	Clay	—	TBA 555a	Pin	Copper	Sieve	TBA 434
Disk	Clay	—	TBA 555b	Pin	Copper	—	TBA 455
Disk	Clay	—	TBA 456	Blade	Copper	Sieve	TBA 132
Ball	Clay	Southeast Kiln	TBA 531	Blade	Copper	Room 5	TBA 289
Point	Clay	Sieve	TBA 484	Dagger	Copper	Room 5	TBA 288
Point	Clay	Sieve	TBA 488	Ore	Copper	Room 5	TBA 266
Cuplet	Clay	—	TBA 454	Chisel	Copper	Room 5	TBA 378
Cuplet	Clay	Sieve	TBA 482	Rod	Copper	Sieve	TBA 391
Cone	Clay	—	TBA 438	Ornament	Shell	Sieve	TBA 486
Cone	Clay	Sieve	TBA 452	Bead	Shell	Sieve	TBA 435
Bead	Clay	Sieve	TBA 62	Ornament	Shell	—	TBA 290
Reed Impression	Clay	Sieve	TBA 407	Pendant	Lapis Lazuli	—	TBA 334
Spindle Whorl	Clay	Sieve	TBA 550a	Blade	Obsidian	Sieve	TBA 236
Spindle Whorl	Clay	—	TBA 483	Blade	Flint	—	TBA 487
Spindle Whorl	Clay	Sieve	TBA 377	Pendant	Stone	Sieve	TBA 38
Animal Figurine	Clay	Sieve	TBA 485	Bead	Stone	Sieve	TBA 408
Animal Figurine	Clay	—	TBA 209	Bead	Stone	Sieve	TBA 509
Animal Figurine	Clay	—	TBA 291	Pounder	Stone	Sieve	TBA 439
Animal Figurine	Clay	—	TBA 355	Ax	Stone	—	TBA 409
Animal Figurine	Clay	Sieve	TBA 436	Disk	Stone	Sieve	TBA 113
Animal Figurine	Clay	Sieve	TBA 437	Disk	Stone	Sieve	TBA 114
Animal Figurine	Clay	Sieve	TBA 480	Cup	Stone	—	TBA 154
Animal Figurine	Clay	—	TBA 131	Workstone	Stone	—	TBA 549b
Animal Figurine	Clay	Sieve	TBA 551a	Workstone	Stone	—	TBA 549c
Animal Figurine	Clay	Sieve	TBA 551b	Workstone	Stone	—	TBA 549d
Animal Figurine	Clay	Sieve	TBA 551c	Stamp Seal	Stone	Sieve	TBA 61
Animal Figurine	Clay	Sieve	TBA 551d	Stamp Seal	Stone	Open Area	TBA 210
Animal Figurine	Clay	Sieve	TBA 551e	Stamp Seal	Stone	Sieve	TBA 211
Animal Figurine	Clay	Sieve	TBA 551f				

Table 14. List of Objects from Square BB 28, 1937 Season

Object	Material	Findspot	Field No.	Object	Material	Findspot	Field No.
Token	Clay	Sieve	TBA 459	Animal Figurine	Clay	Open Area	TBA 337
Token	Clay	Sieve	TBA 461	Animal Figurine	Clay	Sieve	TBA 379
Token	Clay	Sieve	TBA 553d	Animal Figurine	Clay	Sieve	TBA 499
Token	Clay	Sieve	TBA 553e	Animal Figurine	Clay	Sieve	TBA 551h
Token	Clay	Sieve	TBA 553f	Animal Figurine	Clay	Sieve	TBA 551i
Token	Clay	Sieve	TBA 553g	Horn	Clay	Sieve	TBA 440
Token	Clay	Sieve	TBA 553h	Horn	Clay	—	TBA 441
Token	Clay	Sieve	TBA 554d	Horn	Clay	Sieve	TBA 551j
Token	Clay	Sieve	TBA 554e	Stamp Seal	Clay	Sieve	TBA 492
Token	Clay	Sieve	TBA 554f	Point	Copper	Sieve	TBA 457
Token	Clay	Sieve	TBA 554g	Rod	Copper	Sieve	TBA 463
Token	Clay	Sieve	TBA 554h	Rod	Copper	—	TBA 358
Reed Impression	Clay	Open Area	TBA 513	Pin	Copper	Sieve	TBA 495
Missile	Clay	Open Area	TBA 566a	Pin	Copper	—	TBA 336
Missile	Clay	Open Area	TBA 566b	Stamp Seal	Stone	Sieve	TBA 412
Missile	Clay	Open Area	TBA 566c	Stamp Seal	Stone	Sieve	TBA 493
Missile	Clay	Open Area	TBA 566d	Stamp Seal	Stone	Sieve	TBA 501
Missile	Clay	Open Area	TBA 566e	Blade	Obsidian	Wagon	TBA 155
Missile	Clay	Open Area	TBA 566f	Blade	Flint	—	TBA 410
Shaft	Clay	Open Area	TBA 458	Blade	Flint	Sieve	TBA 442a
Point	Clay	Open Area	TBA 462	Blade	Flint	Sieve	TBA 442b
Cone	Clay	Open Area	TBA 533	Blade	Flint	Sieve	TBA 442c
Disk	Clay	Open Area	TBA 489	Core	Flint	Sieve	TBA 534
Disk	Clay	Open Area	TBA 490	Rubbing Slab	Stone	—	TBA 511
Cuplet	Clay	Sieve	TBA 510	Workstone	Stone	Sieve	TBA 549e
Spindle Whorl	Clay	—	TBA 237	Spindle Whorl	Stone	—	TBA 500a
Spindle Whorl	Clay	Sieve	TBA 497	Pounder	Stone	—	TBA 308
Spindle Whorl	Clay	Sieve	TBA 550b	Mace-head	Stone	—	TBA 116
Spindle Whorl	Clay	Sieve	TBA 550c	Rim Fragment	Stone	—	TBA 64
Spindle Whorl	Clay	Sieve	TBA 550d	Bead	Stone	Sieve	TBA 323
Spindle Whorl	Clay	Sieve	TBA 550e	Pendant	Stone	Sieve	TBA 498
Spindle Whorl	Clay	Sieve	TBA 550f	Ornament	Shell	Sieve	TBA 491

Table 15. List of Objects from Square BB 37, 1937 Season

Object	Material	Findspot	Field No.	Object	Material	Findspot	Field No.
Pawn	Clay	Sieve	TBA 39a	Animal Figurine	Clay	Sieve	TBA 380
Token	Clay	—	TBA 393	Animal Figurine	Clay	Sieve	TBA 443
Token	Clay	Sieve	TBA 553i	Animal Figurine	Clay	—	TBA 444
Token	Clay	Sieve	TBA 553j	Animal Figurine	Clay	Sieve	TBA 471
Token	Clay	Sieve	TBA 553k	Animal Figurine	Clay	—	TBA 472
Token	Clay	Sieve	TBA 553l	Animal Figurine	Clay	Sieve	TBA 551n
Token	Clay	Sieve	TBA 554i	Animal Figurine	Clay	Sieve	TBA 551o
Token	Clay	Sieve	TBA 554j	Human Figurine	Clay	Sieve	TBA 241
Token	Clay	Sieve	TBA 554k	Human Figurine	Clay	—	TBA 268
Token	Clay	Sieve	TBA 555c	Stamp Seal	Clay	Sieve	TBA 518
Token	Clay	Sieve	TBA 555d	Wire	Copper	Room 8	TBA 177
Point	Clay	Sieve	TBA 39b	Point	Copper	Room 1	TBA 467
Scraper	Clay	—	TBA 67	Knife	Copper	Open Area	TBA 214
Ball	Clay	Sieve	TBA 520	Pin	Copper	Open Area	TBA 310
Disk	Clay	—	TBA 415	Pin	Copper	Room 1	TBA 356
Cylinder	Clay	Room 1	TBA 178	Pin	Copper	Sieve	TBA 446
Cylinder	Clay	—	TBA 182	Pin	Copper	—	TBA 502
Cylinder	Clay	—	TBA 239	Chisel	Copper	Room 1	TBA 468
Cylinder	Clay	—	TBA 338	Chisel	Copper	Room 1	TBA 467
Pot tripod	Clay	—	TBA 67	Blade	Obsidian	Room 1	TBA 181
Rubbing Slate	Clay	Room 1	TBA 218	Blade	Flint	Sieve	TBA 216a
Lid	Clay	Room 7	TBA 339	Blade	Flint	Sieve	TBA 216b
Strainer	Clay	Sieve	TBA 445	Blade	Flint	Sieve	TBA 216c
Weight	Clay	Sieve	TBA 514	Blade	Flint	—	TBA 395a
Pendant	Clay	Sieve	TBA 503	Blade	Flint	—	TBA 395b
Pendant	Clay	Sieve	TBA 516	Bowl Rim	Stone	—	TBA 133
Spindle Whorl	Clay	Sieve	TBA 414	Workstone	Granite(?)	Sieve	TBA 549f
Spindle Whorl	Clay	Sieve	TBA 464	Workstone	Granite(?)	Sieve	TBA 549g
Spindle Whorl	Clay	Sieve	TBA 515	Workstone	Granite(?)	Sieve	TBA 549h
Spindle Whorl	Clay	Sieve	TBA 521	Pounder	Stone	—	TBA 213
Spindle Whorl	Clay	Sieve	TBA 550h	Pounder	Stone	Sieve	TBA 470
Spindle Whorl	Clay	Sieve	TBA 550i	Mace-head	Stone	Sieve	TBA 134
Spindle Whorl	Clay	Sieve	TBA 550j	Mace-head	Stone	—	TBA 212
Spindle Whorl	Clay	Sieve	TBA 555f	Disk	Stone	Sieve	TBA 392
Spindle Whorl	Clay	Sieve	TBA 555g	Bead	Stone	Sieve	TBA 469
Spindle Whorl	Clay	Sieve	TBA 555h	Stamp Seal	Stone	—	TBA 238
Horn	Clay	Sieve	TBA 551k	Stamp Seal	Stone	Sieve	TBA 243
Horn	Clay	Sieve	TBA 551l	Stamp Seal	Stone	Sieve	TBA 267
Horn	Clay	Sieve	TBA 551m	Stamp Seal	Stone	Sieve	TBA 396
Animal Figurine	Clay	Sieve	TBA 66	Stamp Seal	Stone	Sieve	TBA 397
Animal Figurine	Clay	Sieve	TBA 219	Stamp Seal	Stone	Sieve	TBA 522
Animal Figurine	Clay	Sieve	TBA 357	Ornament	Shell	—	TBA 244

Table 16. List of Objects from Square BB 38, 1937 Season

Object	Material	Findspot	Field No.	Object	Material	Findspot	Field No.
Pawn	Clay	—	TBA 541	Wire	Copper	Room 1	TBA 359
Pawn	Clay	—	TBA 553m	Wire	Copper	Sieve	TBA 523
Token	Clay	—	TBA 554k	Pin	Copper	Hall 1	TBA 398
Token	Clay	—	TBA 554l	Pin	Copper	Room 3, Floor	TBA 447
Token	Clay	—	TBA 554m	Rod	Copper	—	TBA 542
Token	Clay	—	TBA 555i	Stamp Seal	Copper	Room 10	TBA 361
Disk	Clay	Sieve	TBA 381a	Blade	Flint	Sieve	TBA 540
Disk	Clay	—	TBA 381b	Cup	Stone	Sieve	TBA 183
Pendant	Clay	Sieve	TBA 525	Disk	Stone	Sieve	TBA 292
Pendant	Clay	Room 6	TBA 526	Bead	Unknown	—	TBA 416
Pendant	Clay	Sieve	TBA 527	Pendant	Unknown	Sieve	TBA 505
Pot Tripod	Clay	—	TBA 399	Stamp Seal	Stone	Sieve	TBA 184
Pot Tripod	Clay	Room 8	TBA 536	Stamp Seal	Stone	Sieve	TBA 397
Crucible	Clay	Open Area	TBA 524	Stamp Seal	Stone	Sieve	TBA 474
Spindle Whorl	Clay	—	TBA 538	Stamp Seal	Stone	Sieve	TBA 539
Spindle Whorl	Clay	—	TBA 55a	Stamp Seal	Stone	—	TBA 543
Horn	Clay	Room 10	TBA 506	Pendant	Bone	Room 6	TBA 245

Table 17. List of Objects from Square BB 64, 1937 Season

Object	Material	Findspot	Field No.	Object	Material	Findspot	Field No.
Token	Clay	—	TBA 294	Spindle Whorl	Clay	Sieve	TBA 550v
Token	Clay	Sieve	TBA 316	Spindle Whorl	Clay	Sieve	TBA 550w
Cylinder	Clay	—	TBA 192	Spindle Whorl	Clay	Sieve	TBA 550x
Disk	Clay	Sieve	TBA 555j	Spindle Whorl	Clay	Sieve	TBA 550y
Disk	Clay	Sieve	TBA 555k	Animal Figurine	Clay	—	TBA 25
Plate Stand	Clay	—	TBA 418	Animal Figurine	Clay	—	TBA 48
Spindle Whorl	Clay	—	TBA 226	Animal Figurine	Clay	Sieve	TBA 98
Spindle Whorl	Clay	—	TBA 251	Animal Figurine	Clay	Sieve	TBA 191
Spindle Whorl	Clay	—	TBA 318	Animal Figurine	Clay	Sieve	TBA 227
Spindle Whorl	Clay	—	TBA 342	Animal Figurine	Clay	—	TBA 273
Spindle Whorl	Clay	—	TBA 366	Animal Figurine	Clay	Sieve	TBA 276
Spindle Whorl	Clay	—	TBA 550k	Animal Figurine	Clay	Sieve	TBA 317
Spindle Whorl	Clay	Sieve	TBA 550l	Animal Figurine	Clay	—	TBA 344
Spindle Whorl	Clay	—	TBA 550m	Animal Figurine	Clay	—	TBA 365
Spindle Whorl	Clay	—	TBA 550n	Human Figurine	Clay	—	TBA 159
Spindle Whorl	Clay	Sieve	TBA 550o	Pestle	Stone	—	TBA 364
Spindle Whorl	Clay	Sieve	TBA 550p	Blade	Flint	—	TBA 275
Spindle Whorl	Clay	Sieve	TBA 550q	Core	Flint	—	TBA 367a
Spindle Whorl	Clay	Sieve	TBA 550r	Core	Flint	—	TBA 367b
Spindle Whorl	Clay	Sieve	TBA 550s	Pounder	Stone	—	TBA 253
Spindle Whorl	Clay	Sieve	TBA 550t	Workstone	Stone	Sieve	TBA 549h
Spindle Whorl	Clay	Sieve	TBA 550u	Workstone	Stone	Sieve	TBA 549i

Table 18. List of Objects from Square BB 78, 1937 Season

Object	Material	Findspot	Field No.	Object	Material	Findspot	Field No.
Token	Clay	SW	TBA 384	Spindle Whorl	Clay	—	TBA 528a
Token	Clay	—	TBA 553n	Spindle Whorl	Clay	—	TBA 528b
Token	Clay	—	TBA 553o	Spindle Whorl	Clay	—	TBA 555l
Disk	Clay	—	TBA 555l	Rod	Copper	Sieve	TBA 368
Disk	Clay	—	TBA 555m	Pin	Copper	Room 11	TBA 420
Hearth Cone	Clay	Room 7	TBA 548	Blade	Flint	Center	TBA 54
Cylinder	Clay	Center	TBA 51	Bead	Turquoise	Sieve	TBA 278
Animal Figurine	Clay	Sieve	TBA 53	Bead	Unknown	Sieve	TBA 369
Animal Figurine	Clay	—	TBA 124	Workstone	Stone	—	TBA 549k
Animal Figurine	Clay	Center	TBA 224	Stamp Seal	Stone	Sieve	TBA 52
Animal Figurine	Clay	Sieve	TBA 423	Stamp Seal	Stone	Sieve	TBA 348
Human Arm Fragment	Clay	Sieve	TBA 319	Stamp Seal	Stone	Wagon	TBA 421
Spindle Whorl	Clay	—	TBA 50	Bead	Shell	Sieve	TBA 255
Spindle Whorl	Clay	—	TBA 327	Bead	Shell	—	TBA 277
Spindle Whorl	Clay	Sieve	TBA 328	Bead	Shell	Sieve	TBA 421
Spindle Whorl	Clay	Sieve	TBA 422	Ornament	Shell	Center	TBA 229
Spindle Whorl	Clay	Sieve	TBA 488				

Table 19. List of Objects from Square BB 86, 1937 Season

Object	Material	Findspot	Field No.	Object	Material	Findspot	Field No.
Point	Clay	—	TBA 575	Bead	Carnelian	East	TBA 162
Animal Figurine	Clay	Center	TBA 56	Bead	Carnelian	Sieve	TBA 401
Animal Figurine	Clay	Sieve	TBA 426	Pounder	Stone	Sieve	TBA 26
Spindle Whorl	Clay	Center	TBA 128	Mace-head	Stone	Center	TBA 55b
Spindle Whorl	Clay	Center	TBA 160	Polisher	Stone	North	TBA 80
Spindle Whorl	Clay	Sieve	TBA 571	Pivot	Stone	Above Ash Floor	TBA 279
Spindle Whorl	Clay	Sieve	TBA 574	Bead	Stone	Sieve	TBA 165
Spindle Whorl	Clay	Sieve	TBA 550z	Bead	Stone	Center	TBA 425
Spindle Whorl	Clay	Sieve	TBA 550aa	Pendant	Stone	Sieve	TBA 529
Spindle Whorl	Clay	Sieve	TBA 550bb	Stamp Seal	Stone	Sieve	TBA 127
Sealing	Clay	Sieve	TBA 164	Stamp Seal	Stone	Sieve	TBA 387
Point	Copper	—	TBA 576	Stamp Seal	Stone	Sieve	TBA 424
Bead	Steatite	Sieve	TBA 140	Bead	Shell	West	TBA 161
Bead	Carnelian	Sieve	TBA 141				

Table 20. List of Clay Objects from Various Areas, 1937 Season

Object	Square	Findspot	Field No.	Object	Square	Findspot	Field No.
Pawn	AB 88	Room 12	TBA 112	Strainer	BB 37	Sieve	TBA 445
Shaft	AB 88	Room 8	TBA 88	Weight(?)	BB 37	Sieve	TBA 514
Horn	AB 88	Room 5	TBA 33	Pendant	BB 37	Sieve	TBA 503
Animal Figurine	AB 88	—	TBA 51	Pendant	BB 37	Sieve	TBA 516
Spindle Whorl	AB 88	Room 4	TBA 34	Spindle Whorl	BB 37	Sieve	TBA 414
Spindle Whorl	AB 88	—	TBA 37	Spindle Whorl	BB 37	Sieve	TBA 464
Spindle Whorl	AB 88	Sieve	TBA 60	Spindle Whorl	BB 37	Sieve	TBA 515
Spindle Whorl	AB 88	Room 9	TBA 110	Spindle Whorl	BB 37	Sieve	TBA 521
Spindle Whorl	AB 88	Room 9	TBA 111	Spindle Whorl	BB 37	Sieve	TBA 550g
Spindle Whorl	AB 88	Sieve	TBA 172	Spindle Whorl	BB 37	Sieve	TBA 550h
Token	BB 27	—	TBA 553a	Spindle Whorl	BB 37	Sieve	TBA 550i
Token	BB 27	—	TBA 553b	Spindle Whorl	BB 37	Sieve	TBA 555c
Token	BB 27	—	TBA 553c	Spindle Whorl	BB 37	Sieve	TBA 555d
Token	BB 27	—	TBA 554a	Spindle Whorl	BB 37	Sieve	TBA 555e
Token	BB 27	—	TBA 554b	Horn	BB 37	Sieve	TBA 551l
Token	BB 27	—	TBA 554c	Horn	BB 37	Sieve	TBA 551m
Disk	BB 27	—	TBA 555a	Horn	BB 37	Sieve	TBA 551n
Disk	BB 27	—	TBA 555b	Animal Figurine	BB 37	Sieve	TBA 66
Disk	BB 27	—	TBA 456	Animal Figurine	BB 37	Sieve	TBA 219
Ball	BB 27	Kiln 2	TBA 531	Animal Figurine	BB 37	Sieve	TBA 357
Point	BB 27	Sieve	TBA 484	Animal Figurine	BB 37	Sieve	TBA 380
Point	BB 27	Sieve	TBA 488	Animal Figurine	BB 37	Sieve	TBA 443
Cuplet	BB 27	North	TBA 454	Animal Figurine	BB 37	North	TBA 444
Cuplet	BB 27	Sieve	TBA 482	Animal Figurine	BB 37	Sieve	TBA 471
Cone	BB 27	North	TBA 438	Animal Figurine	BB 37	Center	TBA 472
Cone	BB 27	Sieve	TBA 452	Animal Figurine	BB 37	Sieve	TBA 551o
Bead	BB 27	Sieve	TBA 62	Animal Figurine	BB 37	Sieve	TBA 551p
Reed Impression	BB 27	Sieve	TBA 407	Human Figurine	BB 37	Sieve	TBA 241
Spindle Whorl	BB 27	—	TBA 550a	Human Figurine	BB 37	North	TBA 268
Spindle Whorl	BB 27	South	TBA 483	Token	BB 38	—	TBA 541
Spindle Whorl	BB 27	—	TBA 377	Token	BB 38	West	TBA 553p
Animal Figurine	BB 27	Sieve	TBA 485	Token	BB 38	—	TBA 554h
Animal Figurine	BB 27	—	TBA 209	Token	BB 38	—	TBA 554i
Animal Figurine	BB 27	—	TBA 291	Token	BB 38	—	TBA 554j
Animal Figurine	BB 27	—	TBA 355	Token	BB 38	—	TBA 555f
Animal Figurine	BB 27	Sieve	TBA 436	Disk	BB 38	Sieve	TBA 381a
Animal Figurine	BB 27	Sieve	TBA 437	Disk	BB 38	—	TBA 381b
Animal Figurine	BB 27	Sieve	TBA 480	Pendant	BB 38	Sieve	TBA 525
Animal Figurine	BB 27	—	TBA 131	Pendant	BB 38	Room 6	TBA 526
Animal Figurine	BB 27	Sieve	TBA 551a	Pendant	BB 38	Sieve	TBA 527
Animal Figurine	BB 27	Sieve	TBA 551b	Pot Tripod	BB 38	—	TBA 399
Animal Figurine	BB 27	Sieve	TBA 551c	Pot Tripod	BB 38	Room 8	TBA 536
Animal Figurine	BB 27	Sieve	TBA 551d	Crucible	BB 38	Open Area	TBA 524
Animal Figurine	BB 27	Sieve	TBA 551e	Spindle Whorl	BB 38	North	TBA 538
Animal Figurine	BB 27	Sieve	TBA 551f	Spindle Whorl	BB 38	—	TBA 555g

Table 20. List of Clay Objects from Various Areas, 1937 Season (*cont.*)

Token	BB 28	Sieve	TBA 459	Horn	BB 38	Room 10	TBA 506
Token	BB 28	Sieve	TBA 461	Token	BB 64	Center	TBA 294
Token	BB 28	Sieve	TBA 553d	Token	BB 64	Sieve	TBA 316
Token	BB 28	Sieve	TBA 553e	Cylinder	BB 64	West	TBA 192
Token	BB 28	Sieve	TBA 553f	Disk	BB 64	Sieve	TBA 555h
Token	BB 28	Sieve	TBA 553g	Disk	BB 64	Sieve	TBA 555i
Token	BB 28	Sieve	TBA 553h	Plate Stand	BB 64	Center	TBA 418
Token	BB 28	Sieve	TBA 553i	Spindle Whorl	BB 64	—	TBA 226
Token	BB 28	Sieve	TBA 554d	Spindle Whorl	BB 64	—	TBA 251
Token	BB 28	Sieve	TBA 554e	Spindle Whorl	BB 64	—	TBA 318
Token	BB 28	Sieve	TBA 554f	Spindle Whorl	BB 64	North	TBA 342
Token	BB 28	Sieve	TBA 554g	Spindle Whorl	BB 64	North	TBA 366
Reed Impression	BB 28	Open Area	TBA 513	Spindle Whorl	BB 64	—	TBA 550j
Missile	BB 28	Open Area	TBA 566a	Spindle Whorl	BB 64	Sieve	TBA 550k
Missile	BB 28	Open Area	TBA 566b	Spindle Whorl	BB 64	Sieve	TBA 550l
Missile	BB 28	Open Area	TBA 566c	Spindle Whorl	BB 64	—	TBA 550m
Missile	BB 28	Open Area	TBA 566d	Spindle Whorl	BB 64	Sieve	TBA 550n
Missile	BB 28	Open Area	TBA 566e	Spindle Whorl	BB 64	Sieve	TBA 550o
Missile	BB 28	Open Area	TBA 566f	Spindle Whorl	BB 64	Sieve	TBA 550p
Shaft	BB 28	Open Area	TBA 566g	Spindle Whorl	BB 64	Sieve	TBA 550q
Shaft	BB 28	Open Area	TBA 458	Spindle Whorl	BB 64	Sieve	TBA 550r
Point	BB 28	Open Area	TBA 462	Spindle Whorl	BB 64	Sieve	TBA 550s
Cone	BB 28	Open Area	TBA 533	Spindle Whorl	BB 64	Sieve	TBA 555j
Disk	BB 28	Open Area	TBA 489	Spindle Whorl	BB 64	Sieve	TBA 555k
Disk	BB 28	Open Area	TBA 490	Spindle Whorl	BB 64	Sieve	TBA 555l
Cuplet	BB 28	Sieve	TBA 510	Spindle Whorl	BB 64	Sieve	TBA 555m
Spindle Whorl	BB 28	North	TBA 237	Animal Figurine	BB 64	—	TBA 25
Spindle Whorl	BB 28	Sieve	TBA 497	Animal Figurine	BB 64	—	TBA 48
Spindle Whorl	BB 28	Sieve	TBA 550b	Animal Figurine	BB 64	Sieve	TBA 98
Spindle Whorl	BB 28	Sieve	TBA 550c	Animal Figurine	BB 64	Sieve	TBA 191
Spindle Whorl	BB 28	Sieve	TBA 550d	Animal Figurine	BB 64	Sieve	TBA 227
Spindle Whorl	BB 28	Sieve	TBA 550e	Animal Figurine	BB 64	—	TBA 273
Spindle Whorl	BB 28	Sieve	TBA 550f	Animal Figurine	BB 64	Sieve	TBA 276
Animal Figurine	BB 28	Open Area	TBA 337	Animal Figurine	BB 64	Sieve	TBA 317
Animal Figurine	BB 28	Sieve	TBA 379	Animal Figurine	BB 64	—	TBA 344
Animal Figurine	BB 28	Sieve	TBA 499	Animal Figurine	BB 64	—	TBA 365
Animal Figurine	BB 28	Sieve	TBA 551g	Human Figurine	BB 64	South	TBA 159
Animal Figurine	BB 28	Sieve	TBA 551h	Pestle	BB 64	East	TBA 364
Horn	BB 28	Sieve	TBA 440	Token	BB 78	West	TBA 384
Horn	BB 28	North	TBA 441	Token	BB 78	—	TBA 553q
Horn	BB 28	Sieve	TBA 551i	Token	BB 78	—	TBA 553r
Pawn	BB 37	Sieve	TBA 39a	Disk	BB 78	—	TBA 555n
Token	BB 37	South	TBA 393	Disk	BB 78	—	TBA 555o
Token	BB 37	Sieve	TBA 553j	Hearth Cone	BB 78	Room 7	TBA 548
Token	BB 37	Sieve	TBA 553k	Cylinder	BB 78	Center	TBA 51
Horn	BB 28	Sieve	TBA 551j	Animal Figurine	BB 78	Sieve	TBA 53

Table 20. List of Clay Objects from Various Areas, 1937 Season (*cont.*)

Pawn	BB 37	Sieve	TBA 39b	Animal Figurine	BB 78	North	TBA 124
Token	BB 37	West	TBA 393	Animal Figurine	BB 78	Center	TBA 224
Token	BB 37	Sieve	TBA 553l	Human Arm Fragment	BB 78	Sieve	TBA 319
Token	BB 37	Sieve	TBA 553m	Animal Figurine	BB 78	Sieve	TBA 423
Horn	BB 28	Sieve	TBA 551k	Spindle Whorl	BB 78	South	TBA 50
Pawn	BB 37	Sieve	TBA 39c	Spindle Whorl	BB 78	Center	TBA 327
Token	BB 37	West	TBA 393	Spindle Whorl	BB 78	Sieve	TBA 328
Token	BB 37	Sieve	TBA 553n	Spindle Whorl	BB 78	Sieve	TBA 422
Token	BB 37	Sieve	TBA 553o	Spindle Whorl	BB 78	Sieve	TBA 488
Point	BB 37	Sieve	TBA 39d	Spindle Whorl	BB 78	South	TBA 528a
Scraper	BB 37	South	TBA 67	Spindle Whorl	BB 78	South	TBA 528b
Ball	BB 37	Sieve	TBA 520	Spindle Whorl	BB 78	—	TBA 555p
Disk	BB 37	North	TBA 415	Point	BB 86	—	TBA 575
Cylinder	BB 37	Room 1	TBA 178	Spindle Whorl	BB 86	North	TBA 128
Cylinder	BB 37	Center	TBA 182	Spindle Whorl	BB 86	Center	TBA 160
Cylinder	BB 37	South	TBA 239	Spindle Whorl	BB 86	Sieve	TBA 571
Cylinder	BB 37	North	TBA 338	Spindle Whorl	BB 86	Sieve	TBA 574
Pot Tripod	BB 37	South	TBA 67	Spindle Whorl	BB 86	—	TBA 550t
Rubbing Slate	BB 37	Room 1, above Floor	TBA 218	Spindle Whorl	BB 86	—	TBA 550u
Lid	BB 37	Room 7	TBA 339	Spindle Whorl	BB 86	—	TBA 550v

Table 21. List of Copper Objects from Various Areas, 1937 Season

Object	Square	Findspot	Field No.	Object	Square	Findspot	Field No.
Pin	AB 88	Room 10	TBA 152	Wire	BB 37	Room 8	TBA 177
Needle	AB 88	Room 4	TBA 35	Point	BB 37	Room 1	TBA 467a
Point	BB 27	—	TBA 404	Knife	BB 37	Open Area	TBA 214
Pin	BB 27	Wagon	TBA 63	Pin	BB 37	Open Area	TBA 310
Pin	BB 27	Sieve	TBA 333	Pin	BB 37	Room 1	TBA 356
Pin	BB 27	Sieve	TBA 405	Pin	BB 37	Sieve	TBA 446
Pin	BB 27	Sieve	TBA 434	Pin	BB 37	—	TBA 502
Pin	BB 27	North	TBA 455	Chisel	BB 37	Room 1	TBA 468
Blade	BB 27	Sieve	TBA 132	Chisel	BB 37	Room 1	TBA 467b
Blade	BB 27	Room 5	TBA 289	Wire	BB 38	Room 1	TBA 359
Dagger	BB 27	Room 5	TBA 288	Wire	BB 38	Sieve	TBA 523
Ore	BB 27	Room 5	TBA 266	Pin	BB 38	Hall 1	TBA 398
Chisel	BB 27	Room 5	TBA 378	Pin	BB 38	Room 3, under Floor	TBA 447
Rod	BB 27	Sieve	TBA 391	Rod	BB 38	—	TBA 542
Point	BB 28	Sieve	TBA 457	Stamp Seal	BB 38	Room 10	TBA 361
Rod	BB 28	Sieve	TBA 463	Rod	BB 78	Sieve	TBA 368
Rod	BB 28	—	TBA 358	Pin	BB 78	Room 11	TBA 420
Pin	BB 28	Sieve	TBA 495	Point	BB 86	—	TBA 576
Pin	BB 28	—	TBA 336				

Table 22. List of Stone Objects from Various Areas, 1937 Season

Object	Square	Findspot	Field No.	Object	Square	Findspot	Field No.
Blade	AB 88	Sieve	TBA 4a	Pounder	BB 28	—	TBA 308
Blade	AB 88	Sieve	TBA 4b	Mace-head	BB 28	West	TBA 116
Blade	AB 88	Sieve	TBA 4c	Rim Fragment	BB 28	Center	TBA 64
Blade	AB 88	Rooms 4–5	TBA 36a	Bead	BB 28	Sieve	TBA 323
Blade	AB 88	Rooms 4–5	TBA 36b	Pendant	BB 28	Sieve	TBA 498
Blade	AB 88	Rooms 4–5	TBA 36c	Bowl Rim	BB 37	Center	TBA 133
Blade	AB 88	Rooms 4–5	TBA 36d	Workstone	BB 37	Sieve	TBA 549e
Blade	AB 88	Rooms 4–5	TBA 36e	Workstone	BB 37	Sieve	TBA 549f
Blade	AB 88	Rooms 4–5	TBA 36f	Workstone	BB 37	Sieve	TBA 549g
Blade	AB 88	Rooms 4–5	TBA 36g	Pounder	BB 37	East	TBA 213
Blade	AB 88	Room 8	TBA 87	Pounder	BB 37	Sieve	TBA 470
Knife	AB 88	Room 10	TBA 153	Mace-head	BB 37	Sieve	TBA 134
Pendant	BB 27	Sieve	TBA 38	Mace-head	BB 37	Center	TBA 212
Bead	BB 27	Sieve	TBA 408	Disk	BB 37	Sieve	TBA 392
Bead	BB 27	Sieve	TBA 509	Bead	BB 37	Sieve	TBA 469
Ball	BB 27	Sieve	TBA 439	Cup	BB 38	Sieve	TBA 183
Ax	BB 27	—	TBA 409	Disk	BB 38	Sieve	TBA 292
Disk	BB 27	Sieve	TBA 113	Pounder	BB 64	—	TBA 253
Disk	BB 27	Sieve	TBA 114	Workstone	BB 64	Sieve	TBA 549h
Cup	BB 27	Center	TBA 154	Workstone	BB 64	Sieve	TBA 549i
Workstone	BB 27	—	TBA 549a	Workstone	BB 64	Sieve	TBA 549j
Workstone	BB 27	—	TBA 549b	Workstone	BB 78	—	TBA 549k
Workstone	BB 27	—	TBA 549c	Pounder	BB 86	Sieve	TBA 26
Stamp Seal	BB 27	Sieve	TBA 61	Mace-head	BB 86	Center	TBA 55
Stamp Seal	BB 27	Open Area	TBA 210	Polisher	BB 86	North	TBA 80
Stamp Seal	BB 27	Sieve	TBA 211a	Pivot	BB 86	Above Ash Floor	TBA 279
Rubbing Slab	BB 28	East	TBA 511b	Animal Figurine	BB 86	Center	TBA 56
Workstone	BB 28	Sieve	TBA 549d	Animal Figurine	BB 86	Sieve	TBA 426

Table 23. List of Stamp Seals from Various Areas, 1937 Season

Square	Findspot	Field No.	Square	Findspot	Field No.
AB 88	Sieve	TBA 14	BB 37	Sieve	TBA 522
BB 27	Sieve	TBA 61	BB 38	Sieve	TBA 184
BB 27	Open Area	TBA 210	BB 38	Sieve	TBA 397
BB 27	Sieve	TBA 211	BB 38	Sieve	TBA 474
BB 27	Sieve	TBA 263	BB 38	Sieve	TBA 539
BB 28	Sieve	TBA 412	BB 38	North-center	TBA 543
BB 28	Sieve	TBA 492	BB 38	Room 10	TBA 361
BB 28	Sieve	TBA 493	BB 64	Sieve	TBA 24
BB 28	Sieve	TBA 501	BB 64	Sieve	TBA 274
BB 37	Sieve	TBA 518	BB 78	Sieve	TBA 52
BB 37	Northwest	TBA 238	BB 78	Sieve	TBA 348
BB 37	Sieve	TBA 243	BB 78	Wagon	TBA 421
BB 37	Sieve	TBA 267	BB 86	Wagon	TBA 127
BB 37	Sieve	TBA 396	BB 86	Wagon	TBA 387
BB 37	Sieve	TBA 397	BB 86	Wagon	TBA 424

Table 24. List of Shell Objects from Various Areas, 1937 Season

Object	Square	Findspot	Field No.	Object	Square	Findspot	Field No.
Knife	AB 88	Sieve	TBA 3	Ornament	BB 37	South	TBA 244
Blade	AB 88	Room 4	TBA 7	Bead	BB 78	Sieve	TBA 255
Ornament	BB 27	Sieve	TBA 486	Bead	BB 78	North	TBA 277
Bead	BB 27	Sieve	TBA 435	Bead	BB 78	Sieve	TBA 421
Ornament	BB 27	West	TBA 290	Ornament	BB 78	Center	TBA 229
Ornament	BB 28	Sieve	TBA 491	Bead	BB 86	Center	TBA 161

Table 25. List of Precious and Semi-Precious Stone Objects from Various Areas, 1937 Season

Object	Material	Square	Field No.	Object	Material	Square	Field No.
Plate Rim Fragment	Alabaster	AB 88	TBA 13	Pendant	Lapis	BB 27	TBA 334
Bowl Fragment	Alabaster	AB 88	TBA 15	Bead	Turquoise	BB 78	TBA 278
Bead	Turquoise	AB 88	TBA 2	Bead	Steatite	BB 86	TBA 140
Bead	Turquoise	AB 88	TBA 5	Bead	Carnelian	BB 86	TBA 141
Bead	Carnelian	AB 88	TBA 109	Bead	Carnelian	BB 86	TBA 162
Bead	Serpentine	AB 88	TBA 90	Bead	Carnelian	BB 86	TBA 401

Table 26. List of Flint and Chert Objects from Various Areas, 1937 Season

Object	Square	Findspot	Field No.	Object	Square	Findspot	Field No.
Blade	AB 88	Sieve	TBA 4a	Blade	BB 28	Sieve	TBA 442a
Blade	AB 88	Sieve	TBA 4b	Blade	BB 28	Sieve	TBA 442b
Blade	AB 88	Sieve	TBA 4c	Blade	BB 28	Sieve	TBA 442c
Blade	AB 88	Rooms 4–5	TBA 36h	Core	BB 28	Sieve	TBA 534
Blade	AB 88	Rooms 4–5	TBA 36i	Blade	BB 37	Sieve	TBA 216a
Blade	AB 88	Rooms 4–5	TBA 36j	Blade	BB 37	Sieve	TBA 216b
Blade	AB 88	Rooms 4–5	TBA 36k	Blade	BB 37	Sieve	TBA 216c
Blade	AB 88	Rooms 4–5	TBA 36l	Blade	BB 37	South	TBA 395a
Blade	AB 88	Rooms 4–5	TBA 36m	Blade	BB 37	South	TBA 395b
Blade	AB 88	Rooms 4–5	TBA 36n	Blade	BB 38	Sieve	TBA 540
Blade	AB 88	Room 8	TBA 87	Blade	BB 64	North	TBA 275
Knife	AB 88	Room 10	TBA 153	Core	BB 64	South	TBA 367a
Blade	BB 27	South	TBA 487	Core	BB 64	South	TBA 367b
Blade	BB 28	Center	TBA 410	Blade	BB 78	Center	TBA 54

Table 27. List of Obsidian Objects from Various Areas, 1937 Season

Object	Square	Findspot	Field No.
Blade	BB 27	Sieve	TBA 236
Blade	BB 28	Wagon	TBA 155
Blade	BB 37	Room 1	TBA 181

CHARTS 2–42

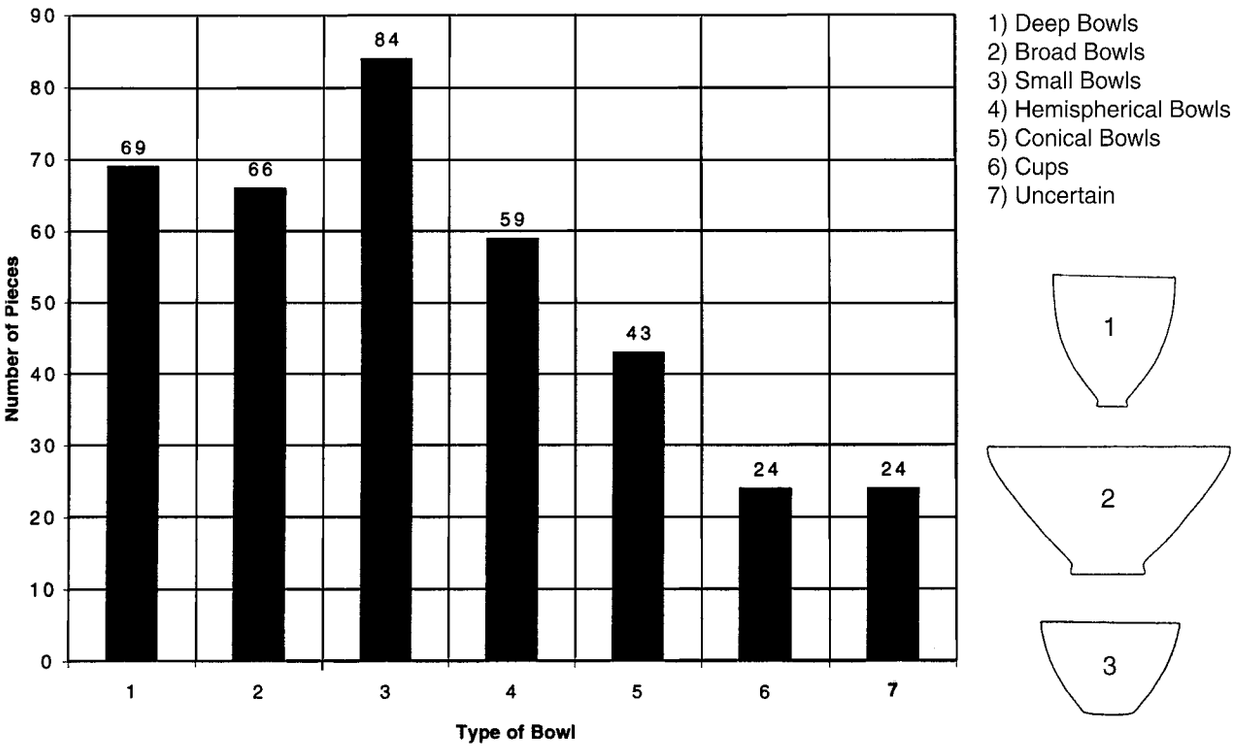


Chart 2. Frequency of Various Types of Bowls

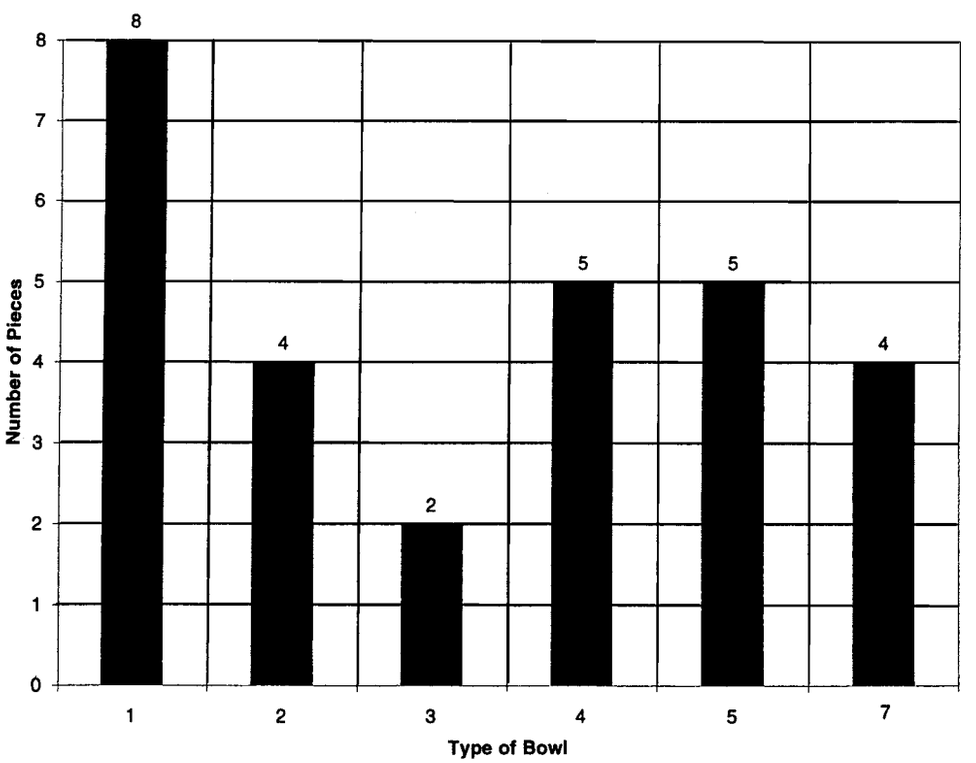


Chart 3. Frequency of the Occurrence of Various Types of Bowls in Level I

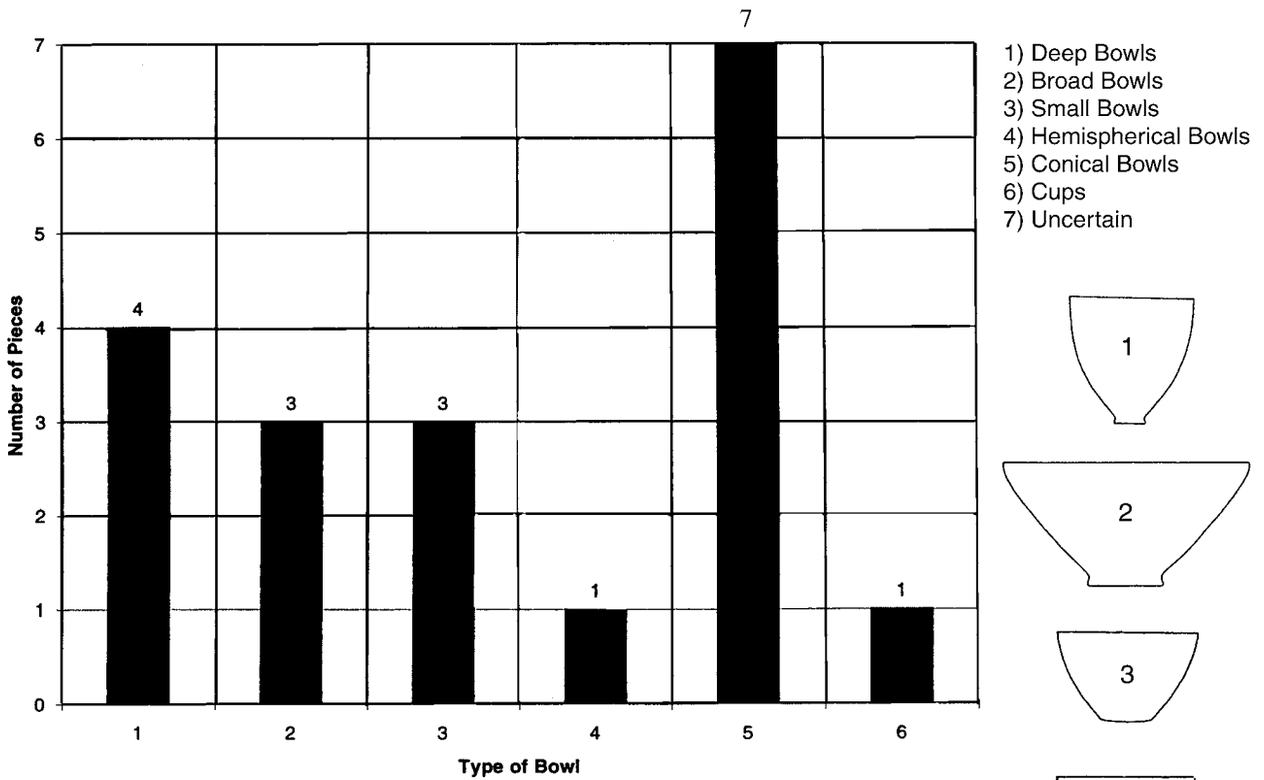


Chart 4. Frequency of the Occurrence of Various Types of Bowls in Level II

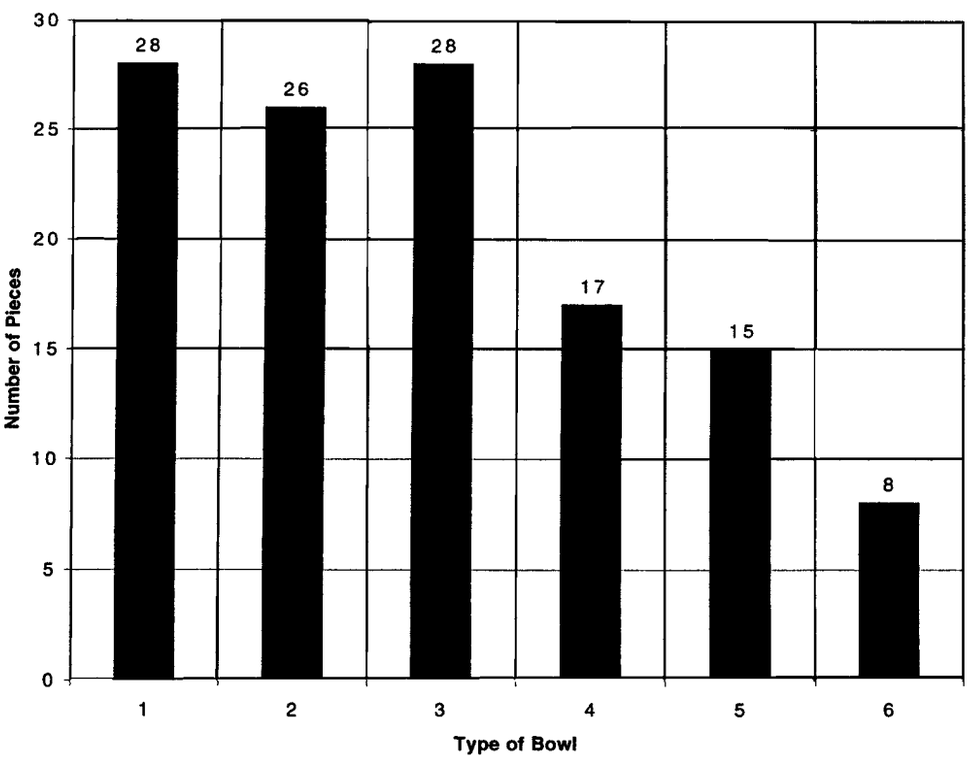


Chart 5. Frequency of the Occurrence of Various Types of Bowls in Level III

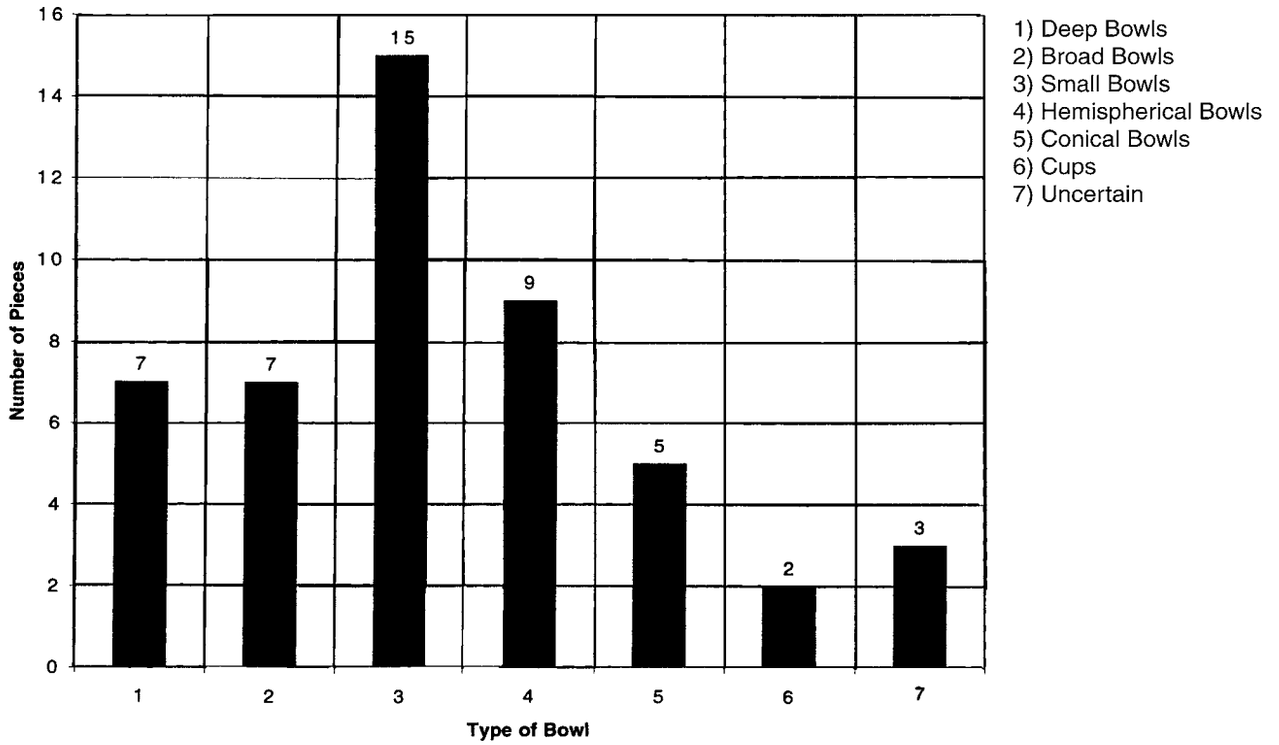


Chart 6. Frequency of the Occurrence of Various Types of Bowls in Level IV

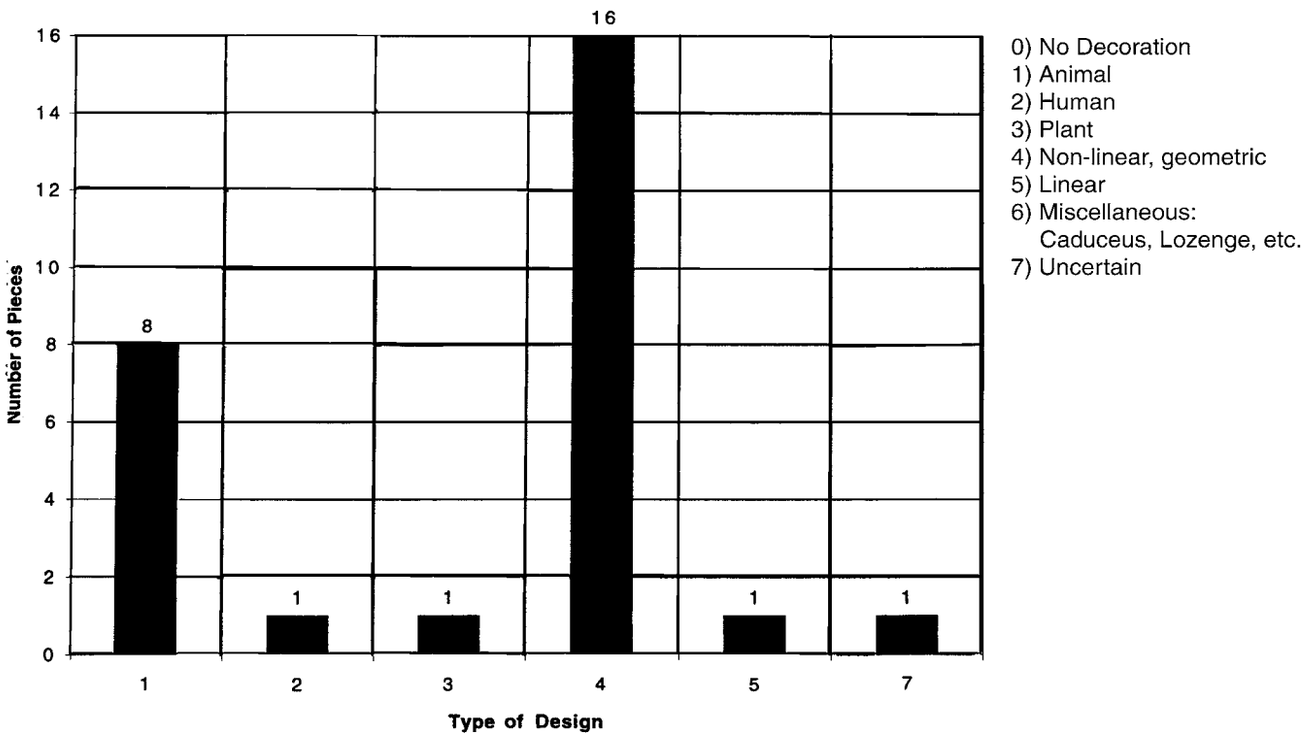


Chart 7. Frequency of the Occurrence of Various Types of Panel Design in Level I

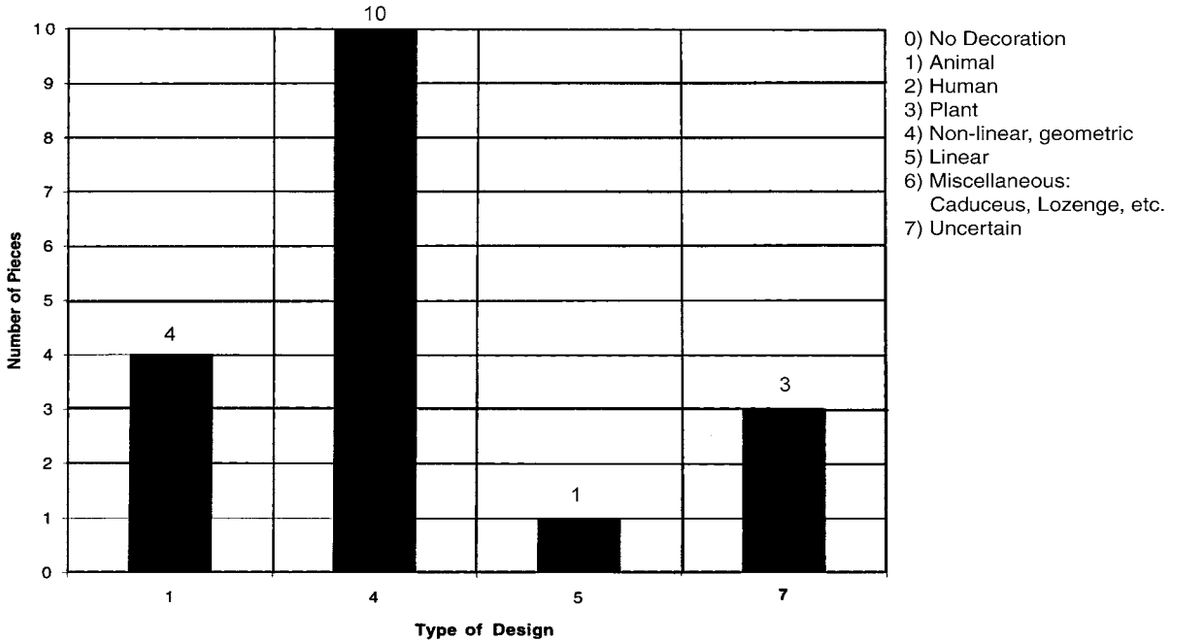


Chart 8. Frequency of the Occurrence of Various Types of Panel Design in Level II

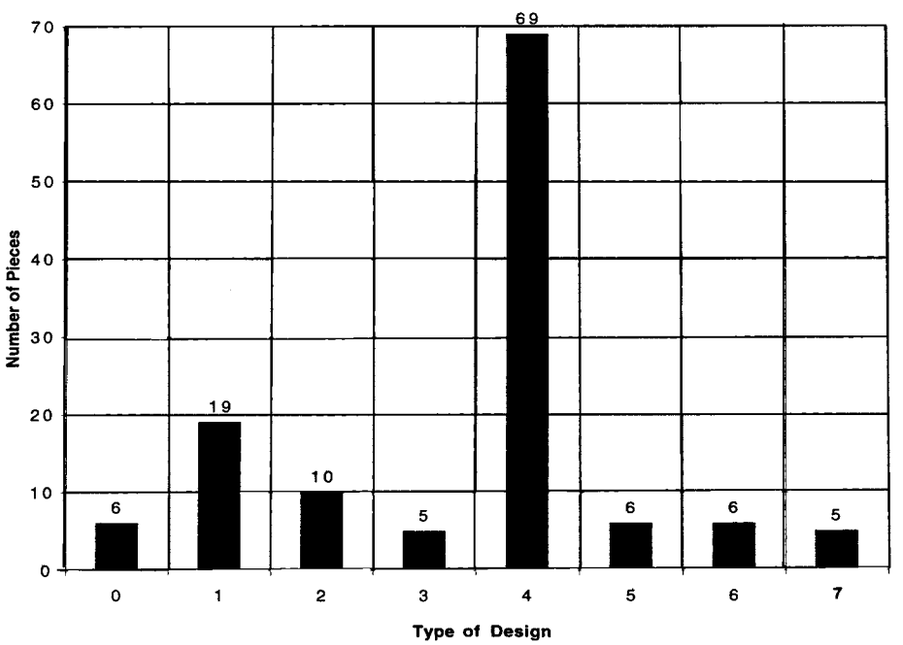


Chart 9. Frequency of the Occurrence of Various Types of Panel Design in Level III

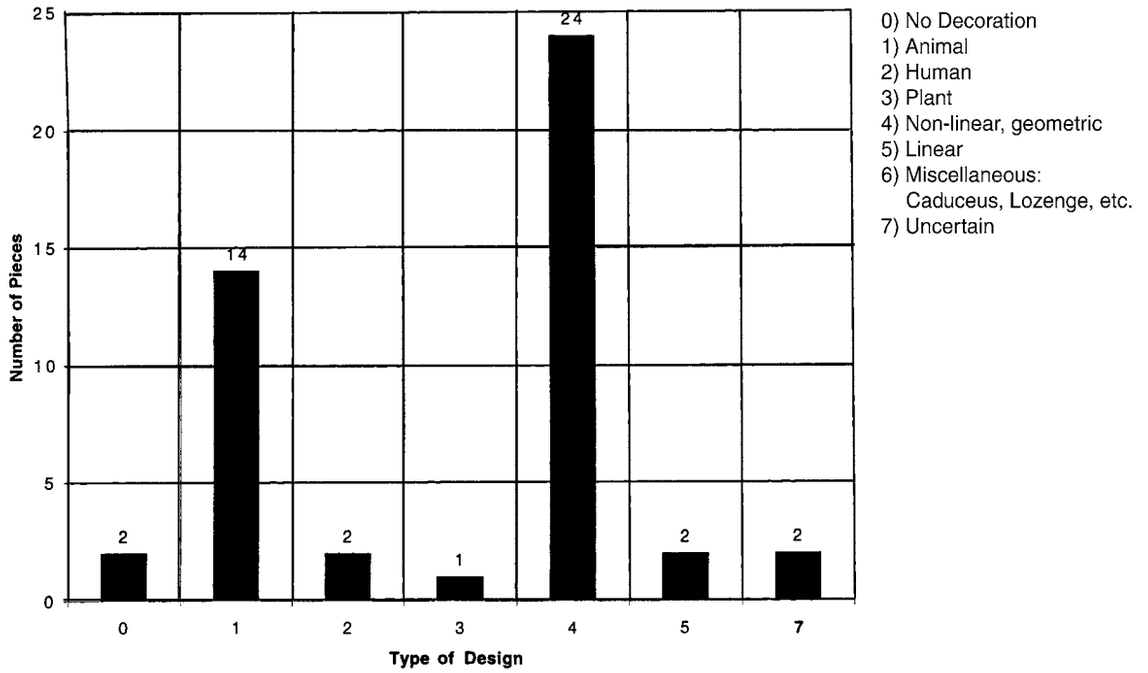


Chart 10. Frequency of the Occurrence of Various Types of Panel Design in Level IV

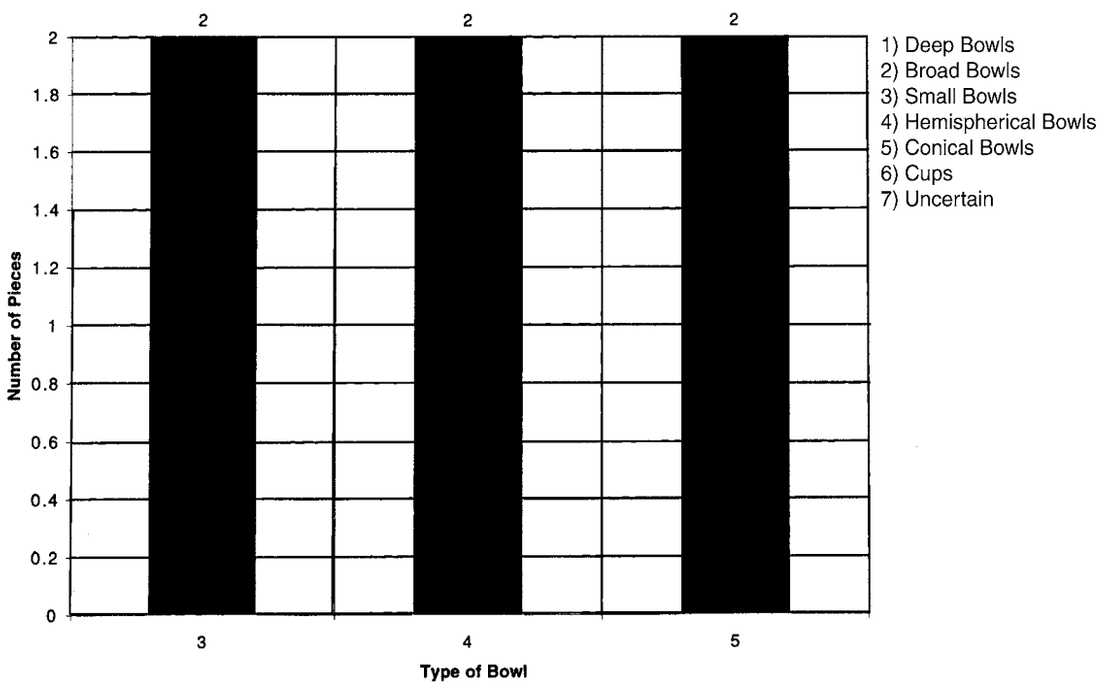


Chart 11. Frequency of the Occurrence of Various Types of Bowls in Building I

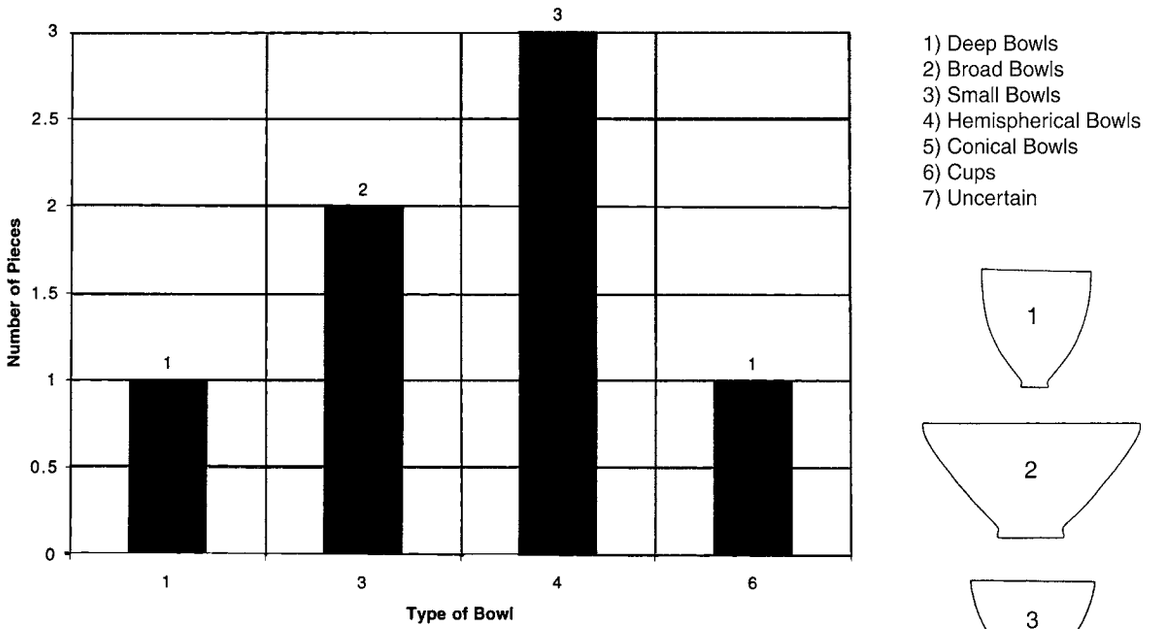


Chart 12. Frequency of the Occurrence of Various Types of Bowls in Building II

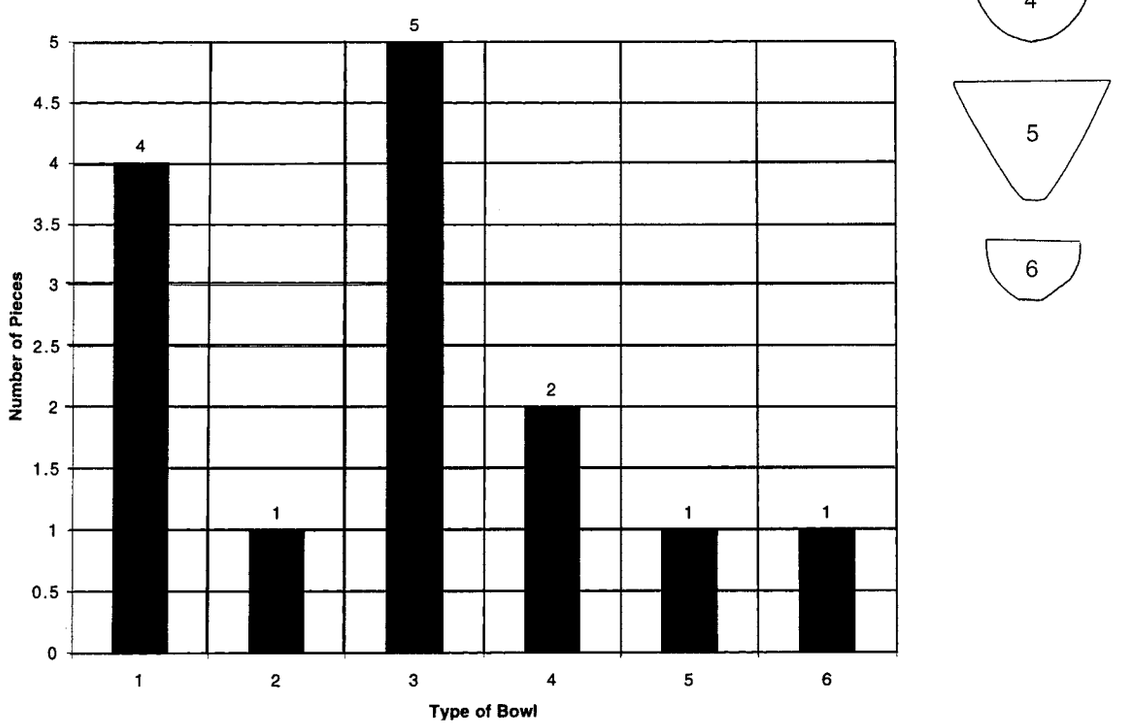


Chart 13. Frequency of the Occurrence of Various Types of Bowls in Building III

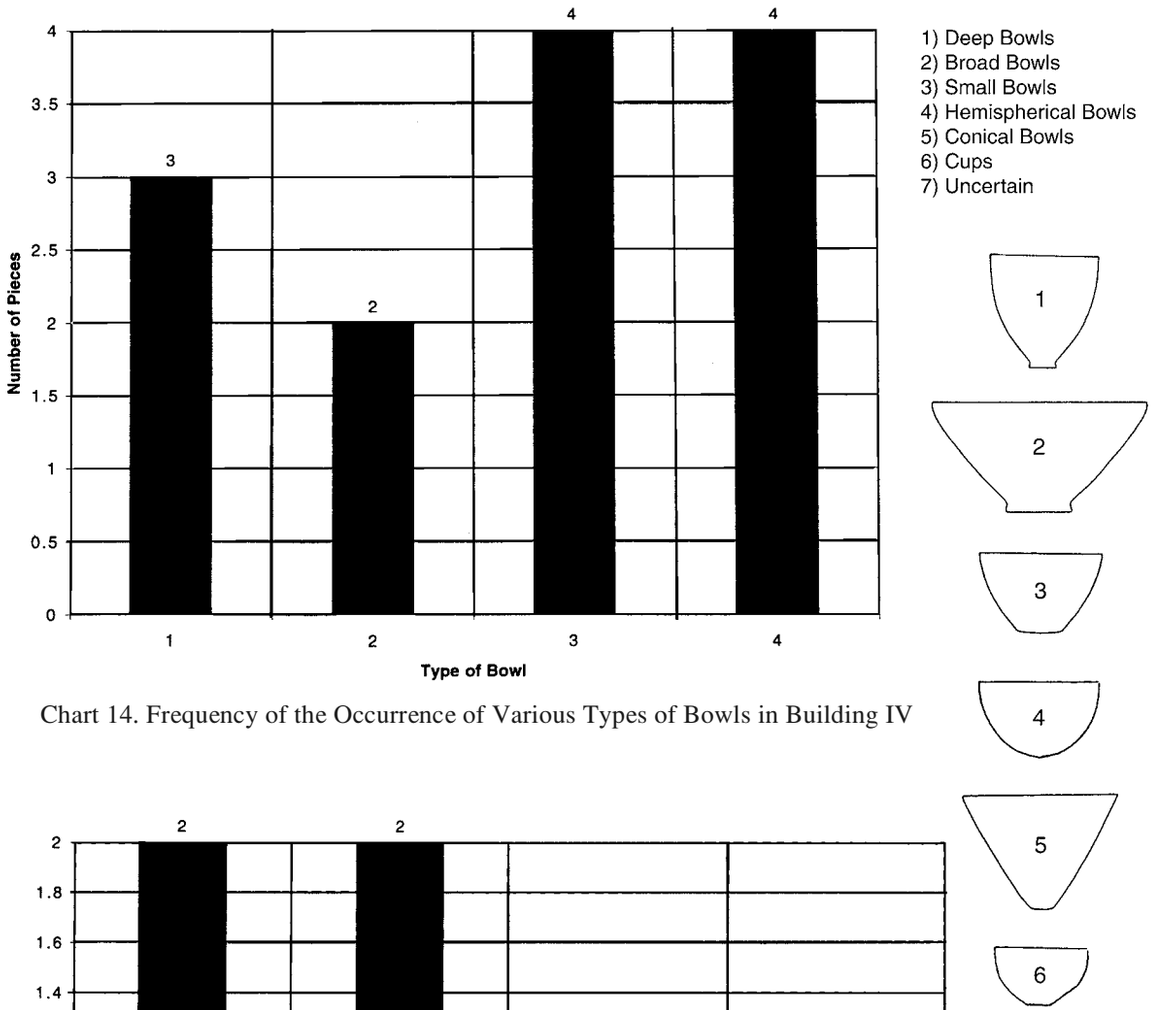


Chart 14. Frequency of the Occurrence of Various Types of Bowls in Building IV

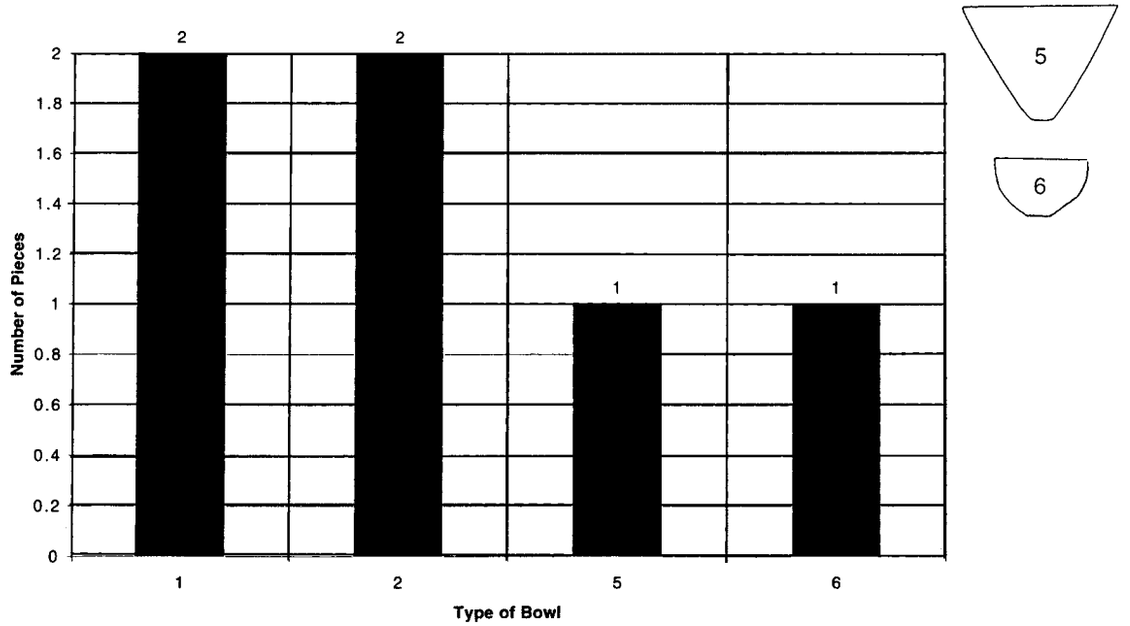


Chart 15. Frequency of the Occurrence of Various Types of Bowls in Building V

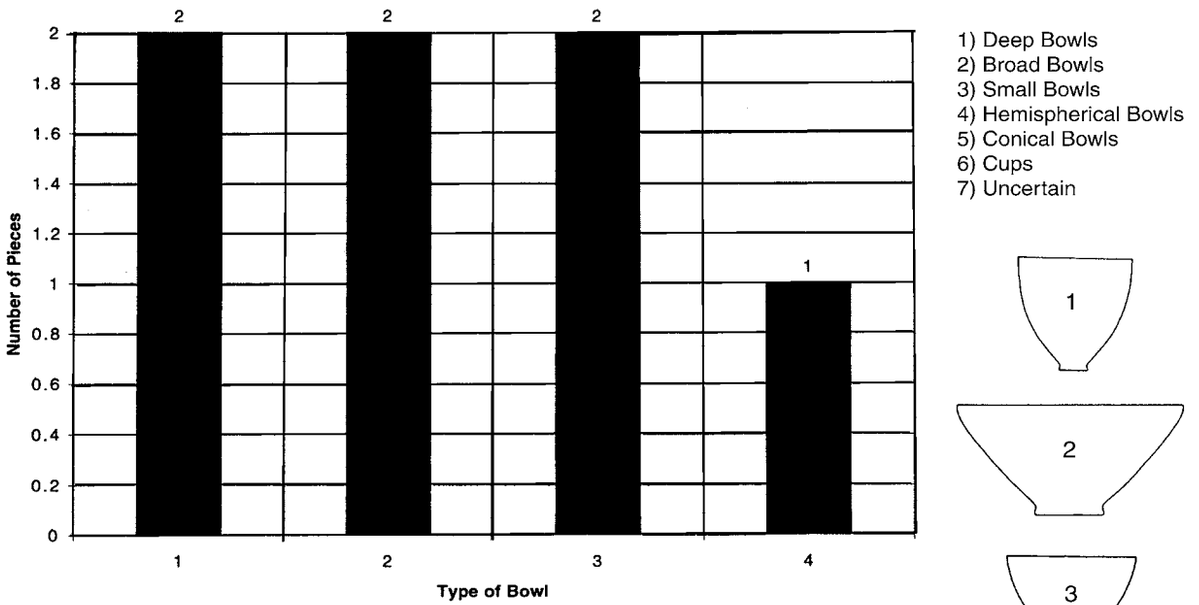


Chart 16. Frequency of the Occurrence of Various Types of Bowls in Building VI

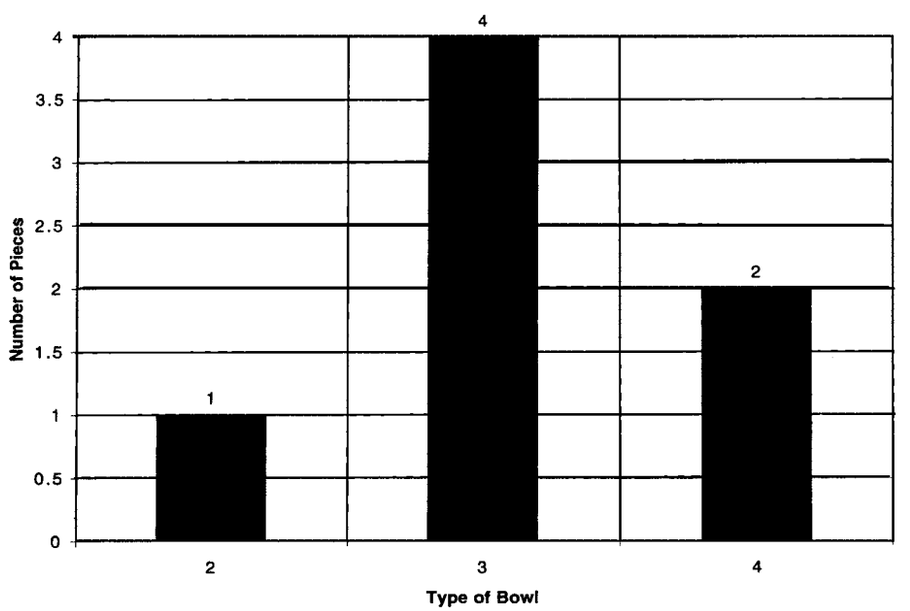


Chart 17. Frequency of the Occurrence of Various Types of Bowls in Building VII

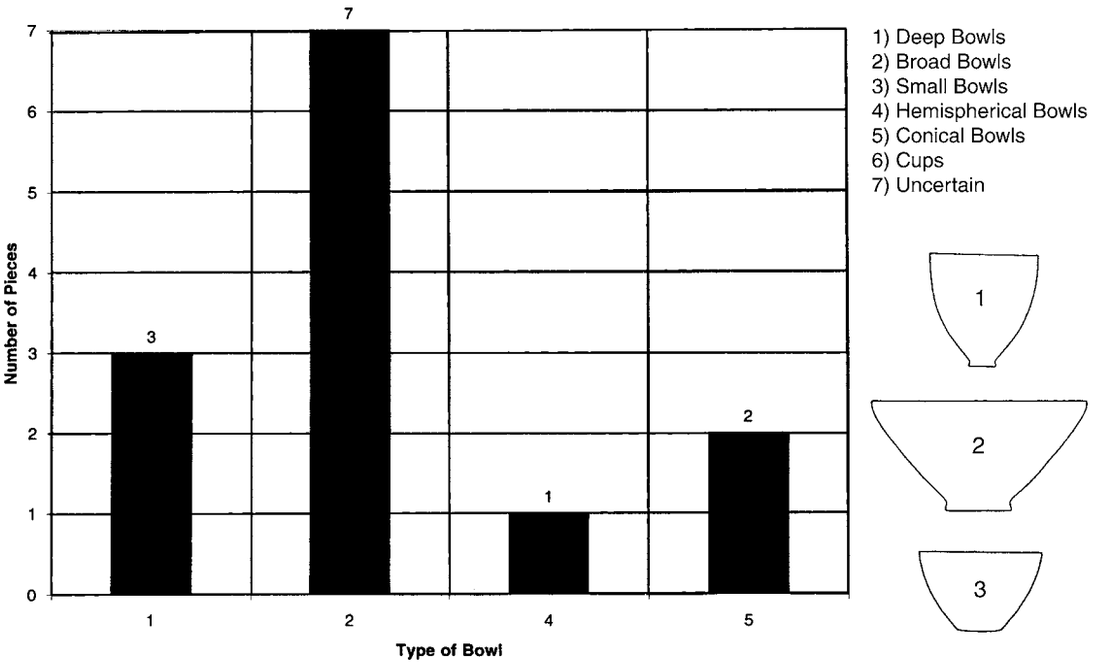


Chart 18. Frequency of the Occurrence of Various Types of Bowls in Building XI

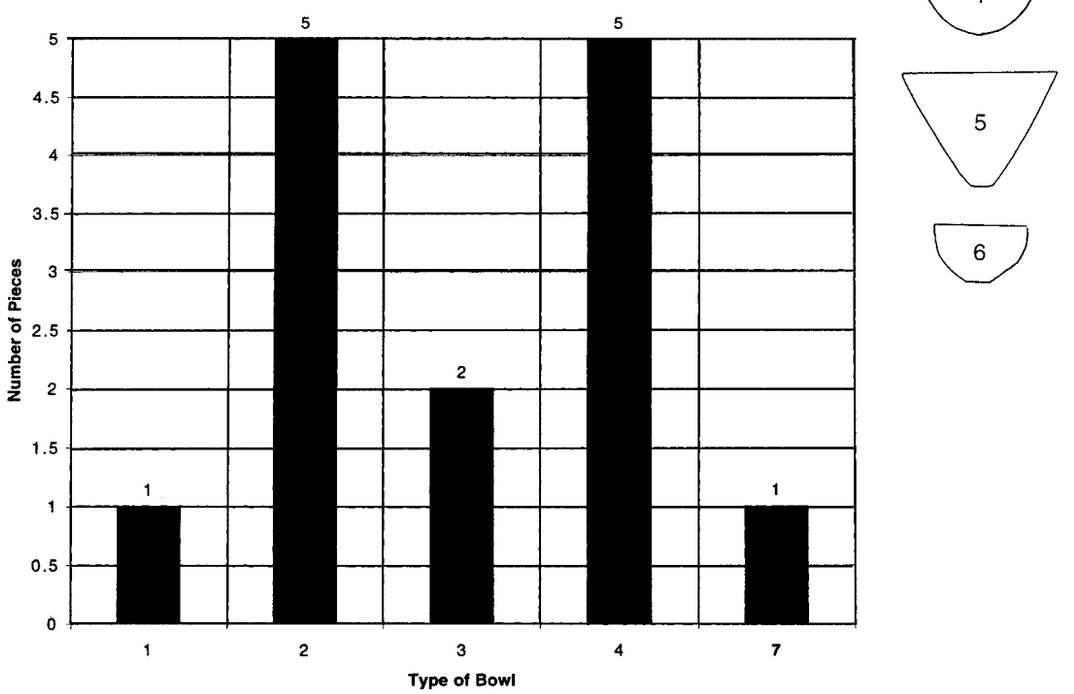


Chart 19. Frequency of the Occurrence of Various Types of Bowls in Building XIII

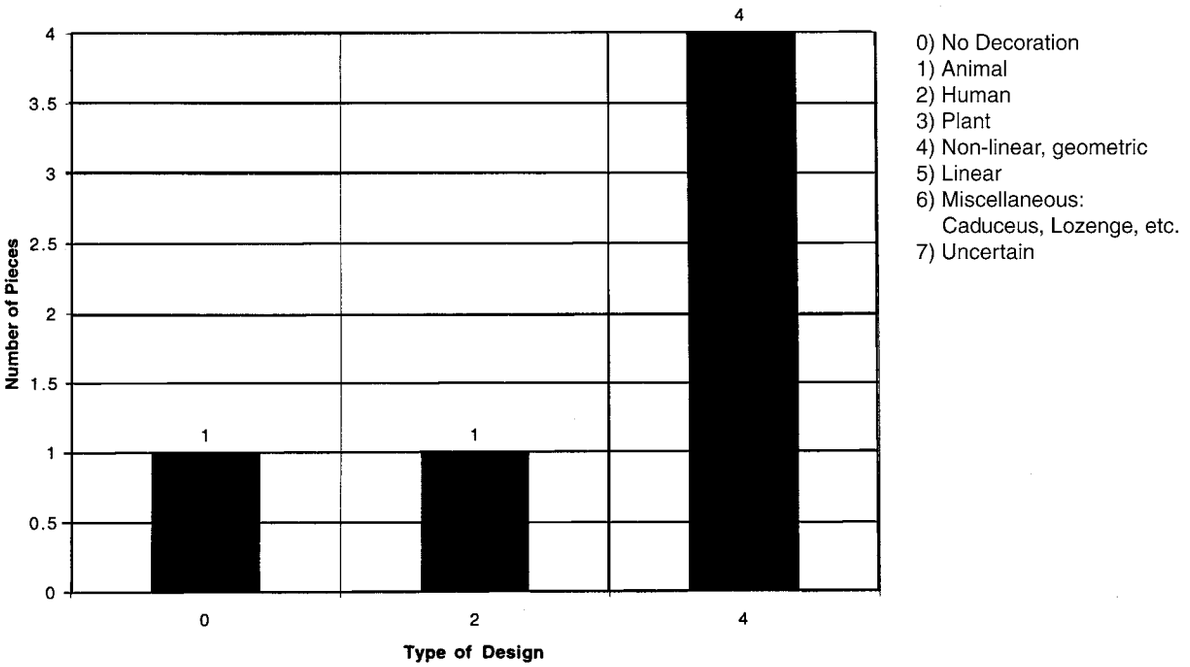


Chart 20. Frequency of the Occurrence of Various Types of Designs in Building I

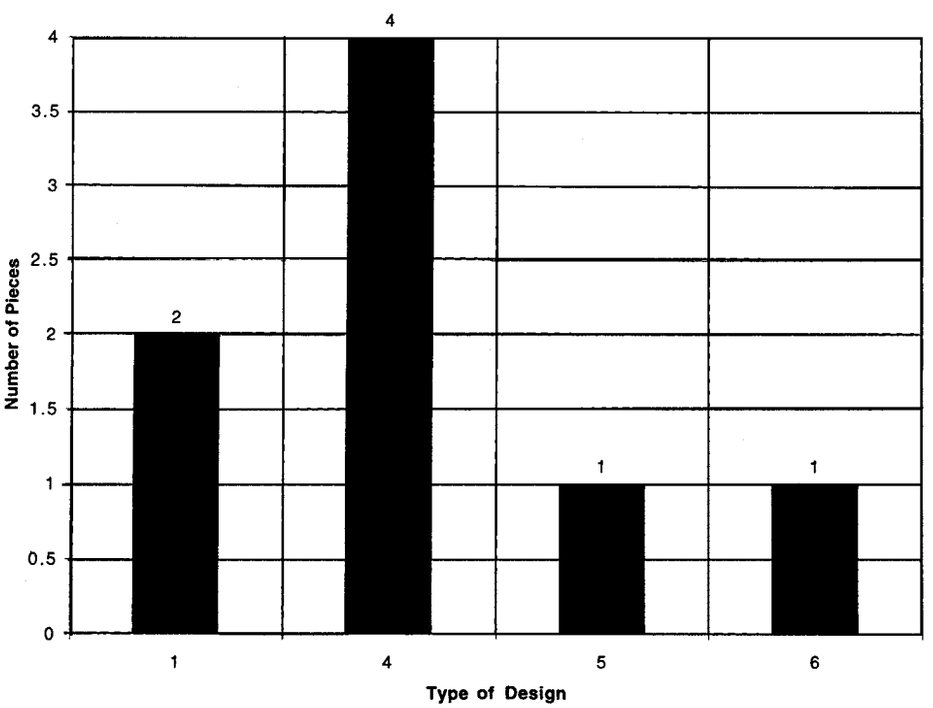


Chart 21. Frequency of the Occurrence of Various Types of Designs in Building II

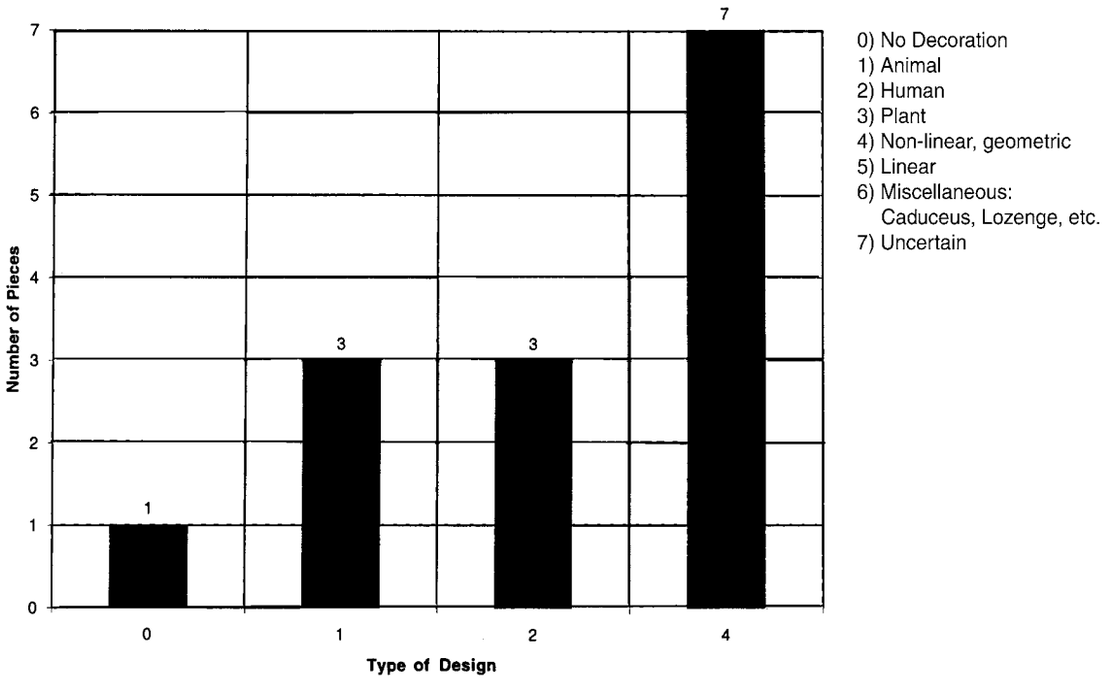


Chart 22. Frequency of the Occurrence of Various Types of Designs in Building III

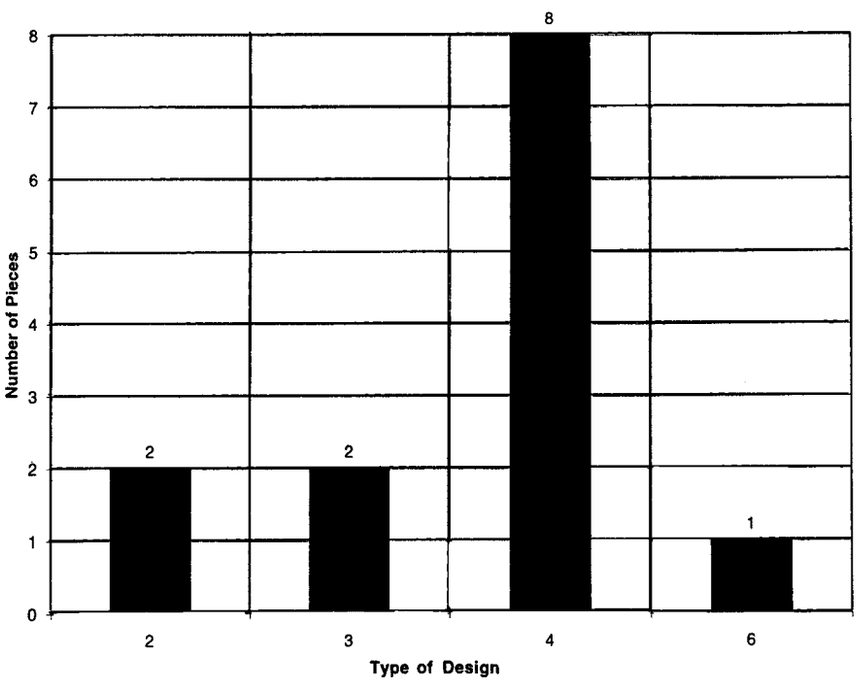


Chart 23. Frequency of the Occurrence of Various Types of Designs in Building IV

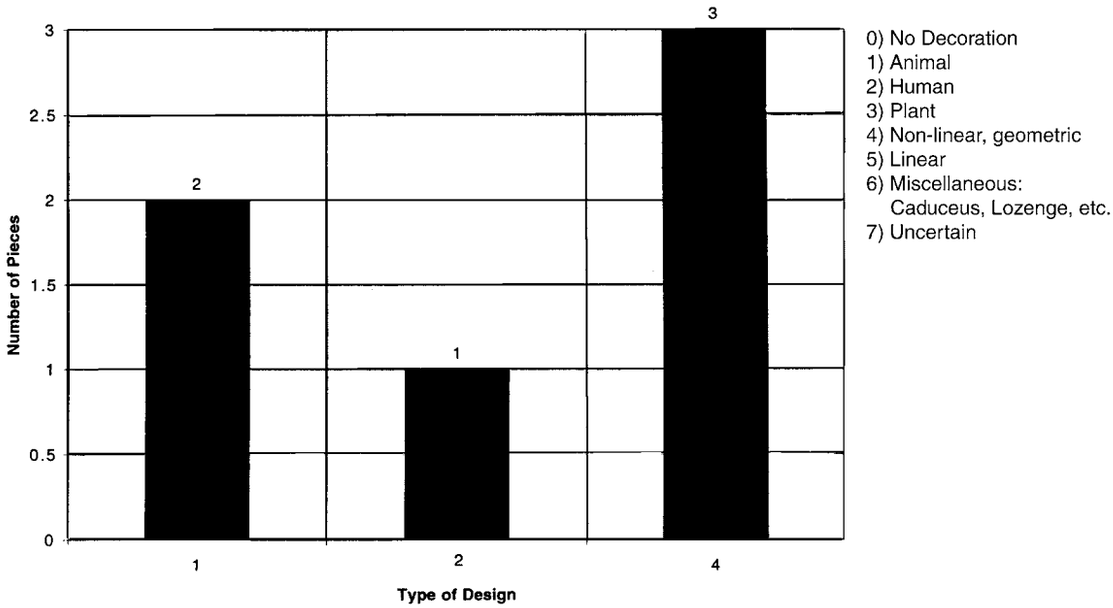


Chart 24. Frequency of the Occurrence of Various Types of Designs in Building V

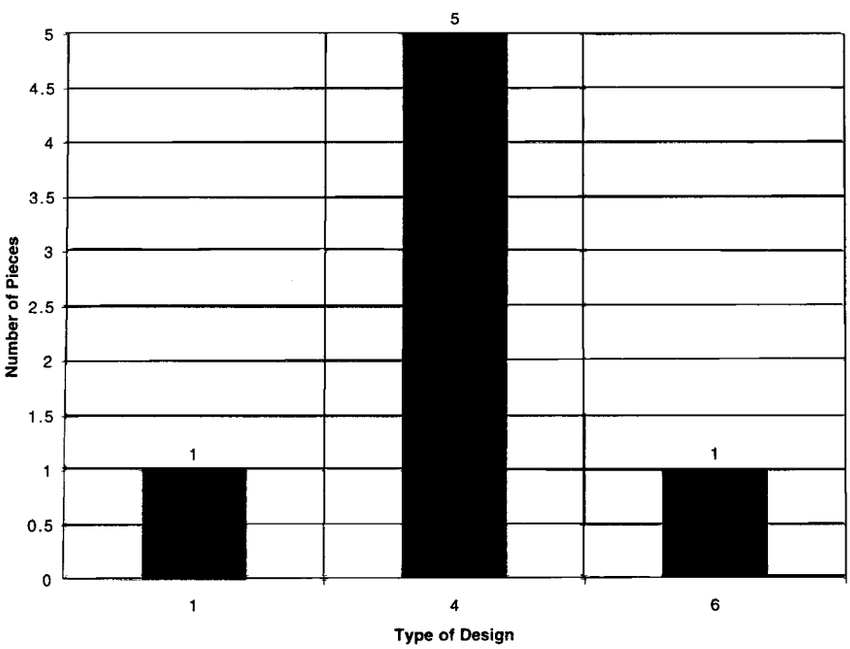


Chart 25. Frequency of the Occurrence of Various Types of Designs in Building VI

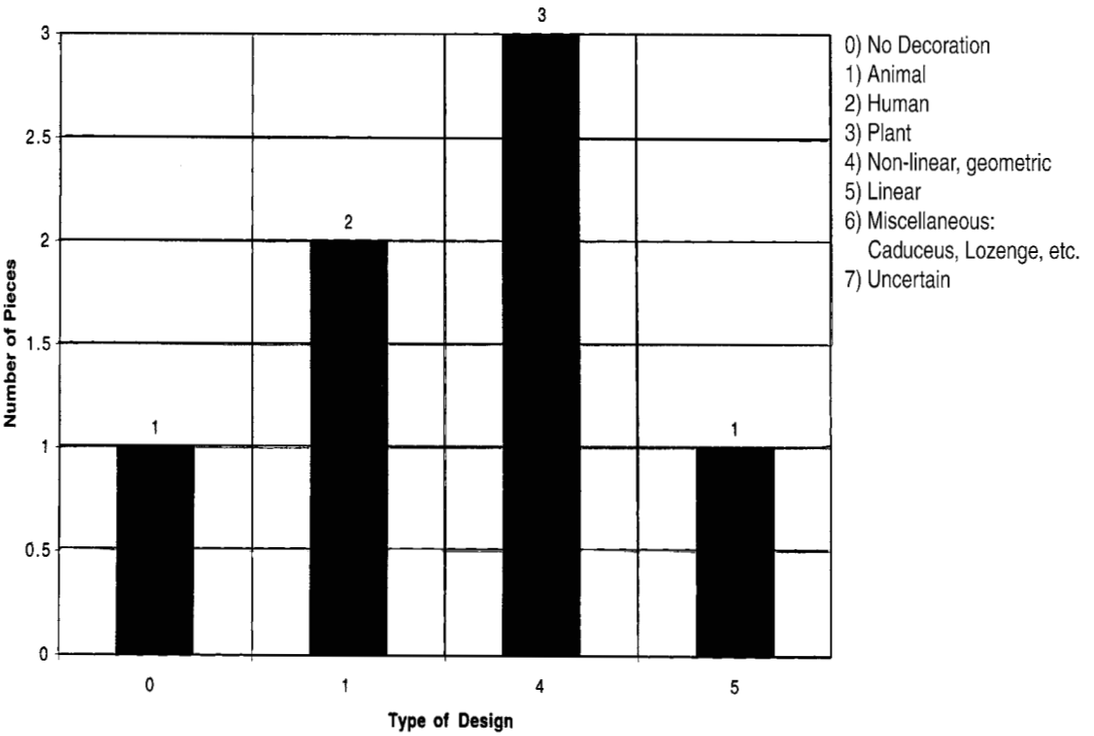


Chart 26. Frequency of the Occurrence of Various Types of Designs in Building VII

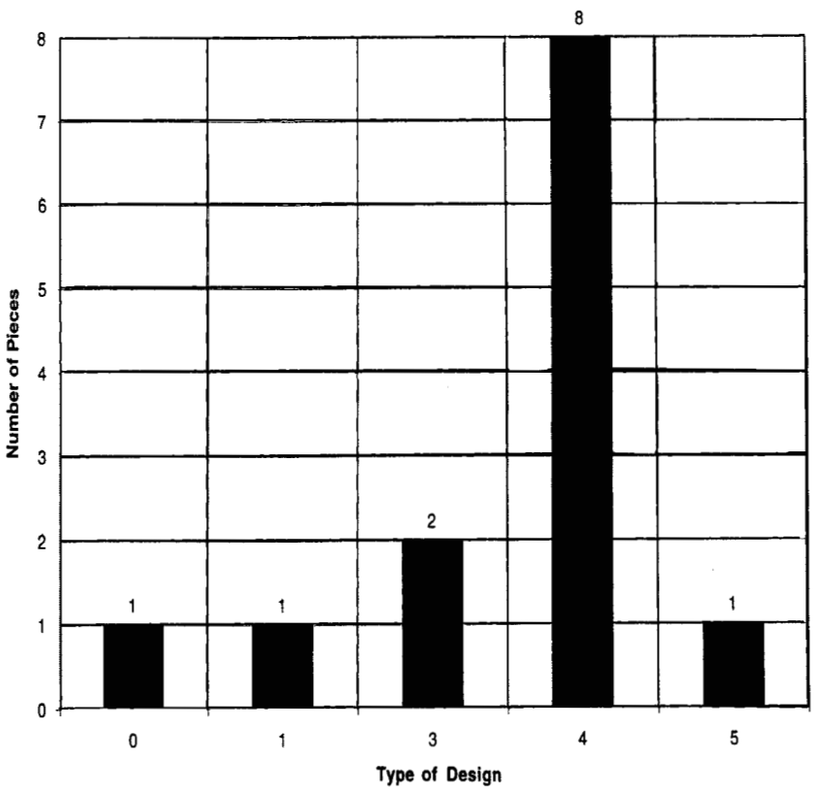


Chart 27. Frequency of the Occurrence of Various Types of Designs in Building XI

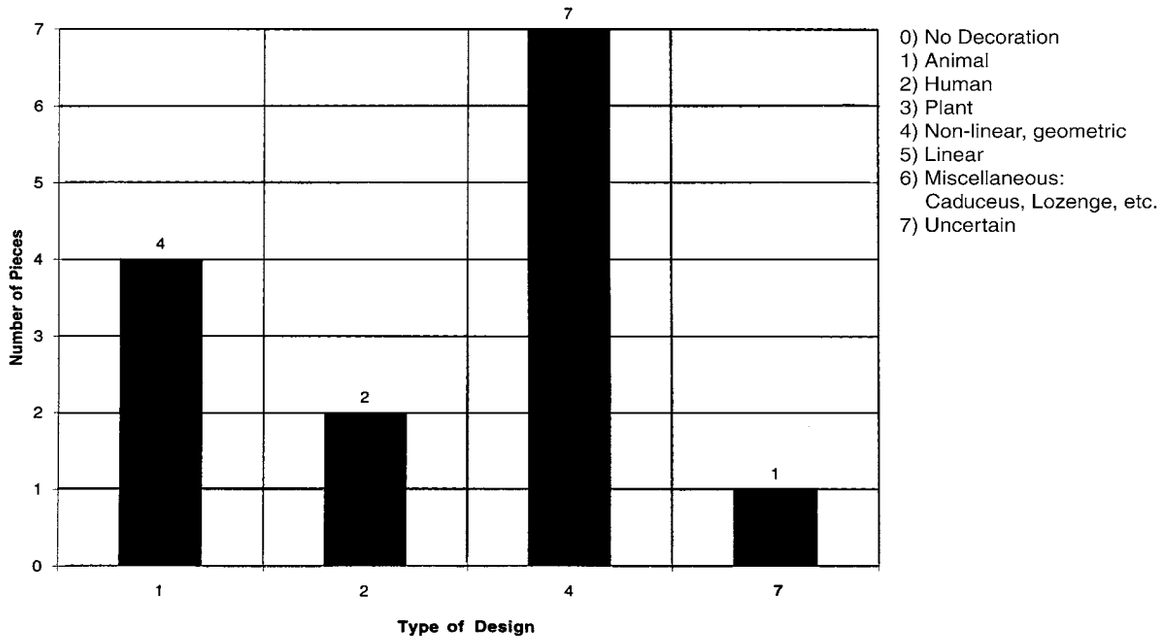


Chart 28. Frequency of the Occurrence of Various Types of Designs in Building XIII

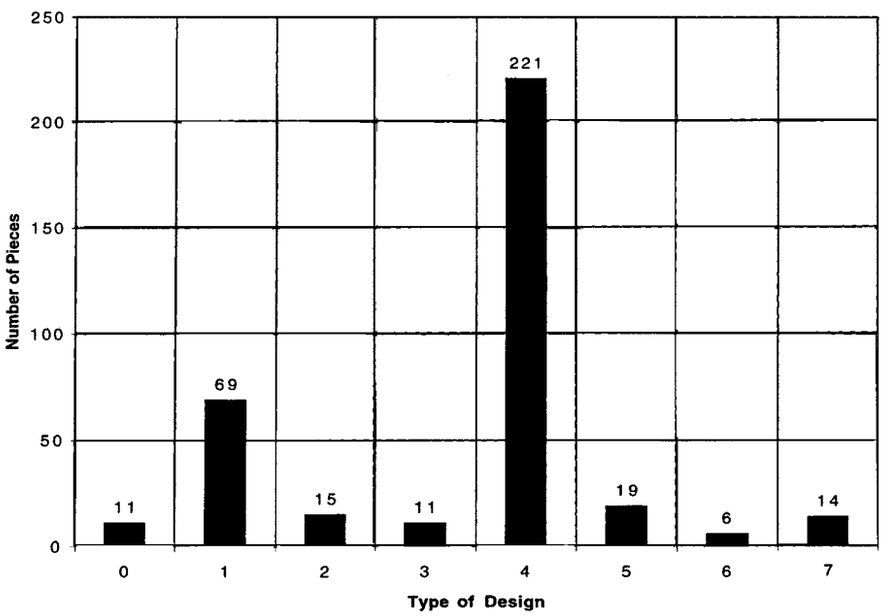


Chart 29. Types of Main Element of Design on Open Forms

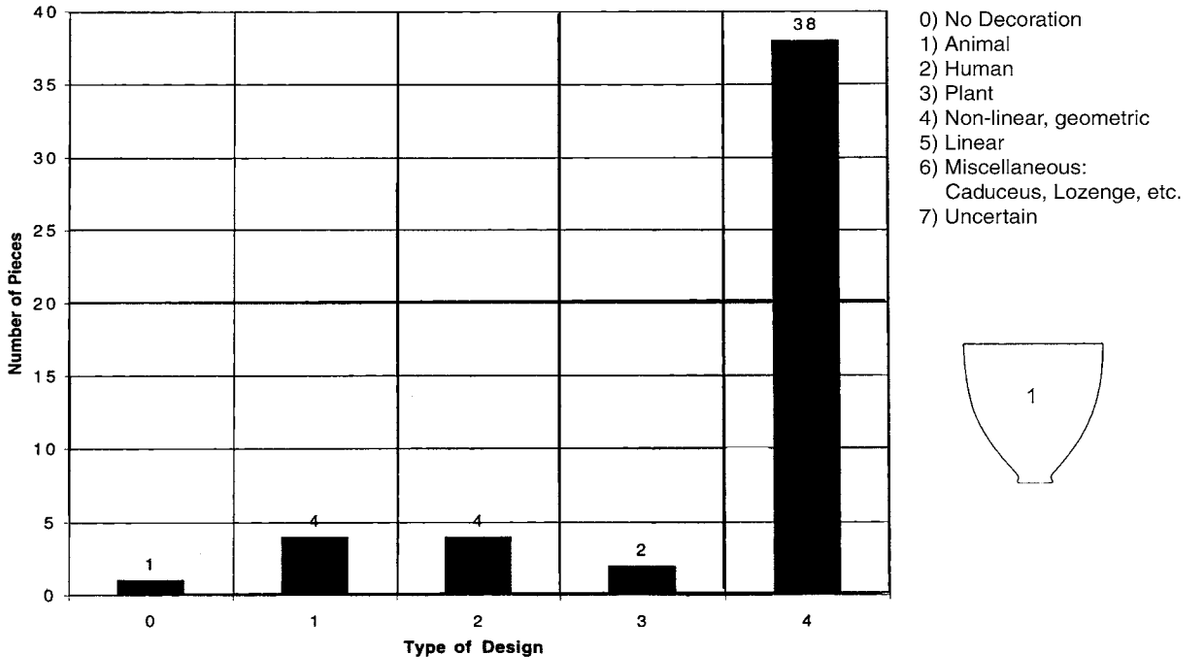


Chart 30. Types of Main Element of Design on Type 1 (Deep Bowls)

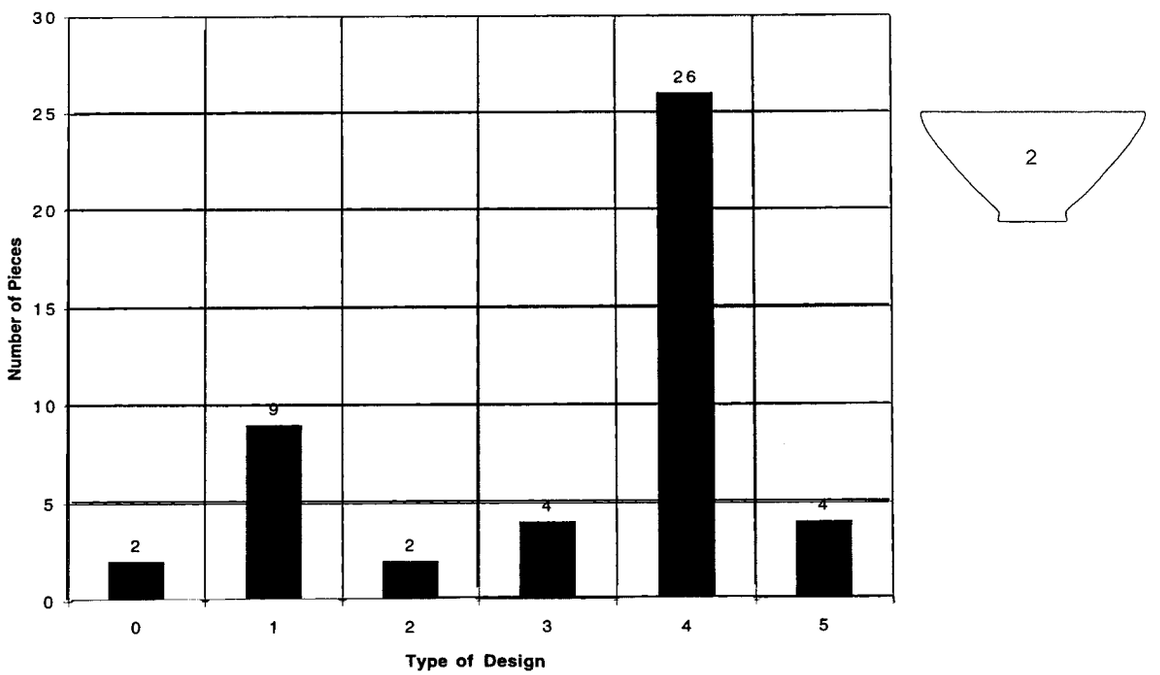


Chart 31. Types of Main Element of Design on Type 2 (Broad Bowls)

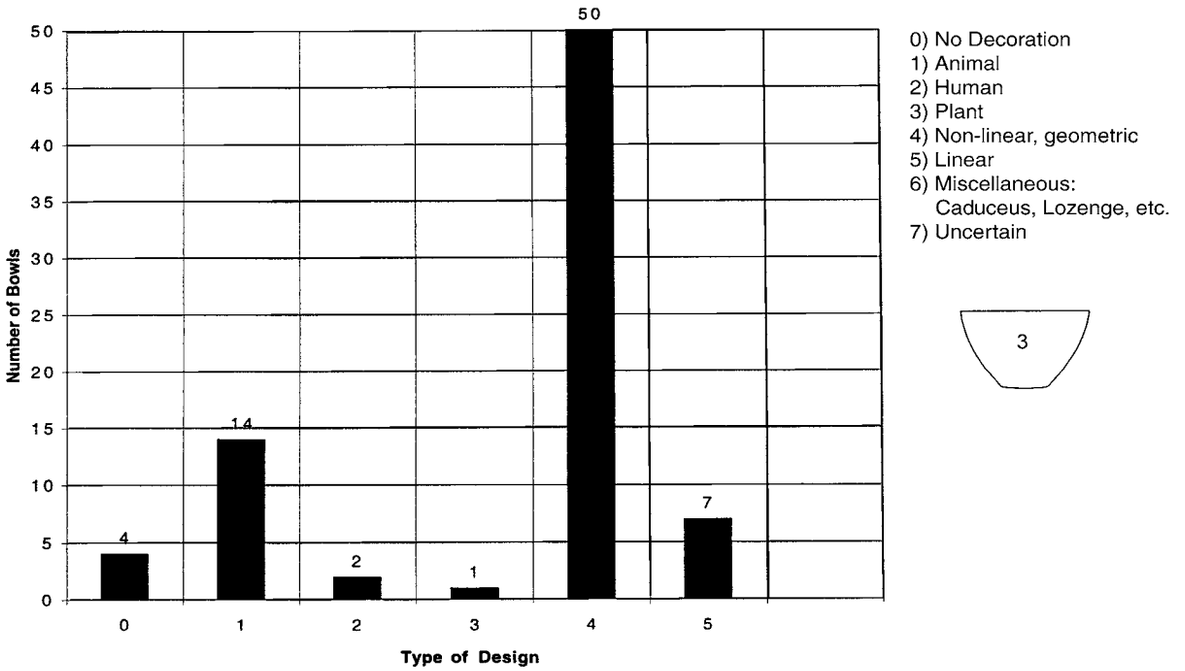


Chart 32. Types of Main Element of Design on Type 3 (Small Bowls)

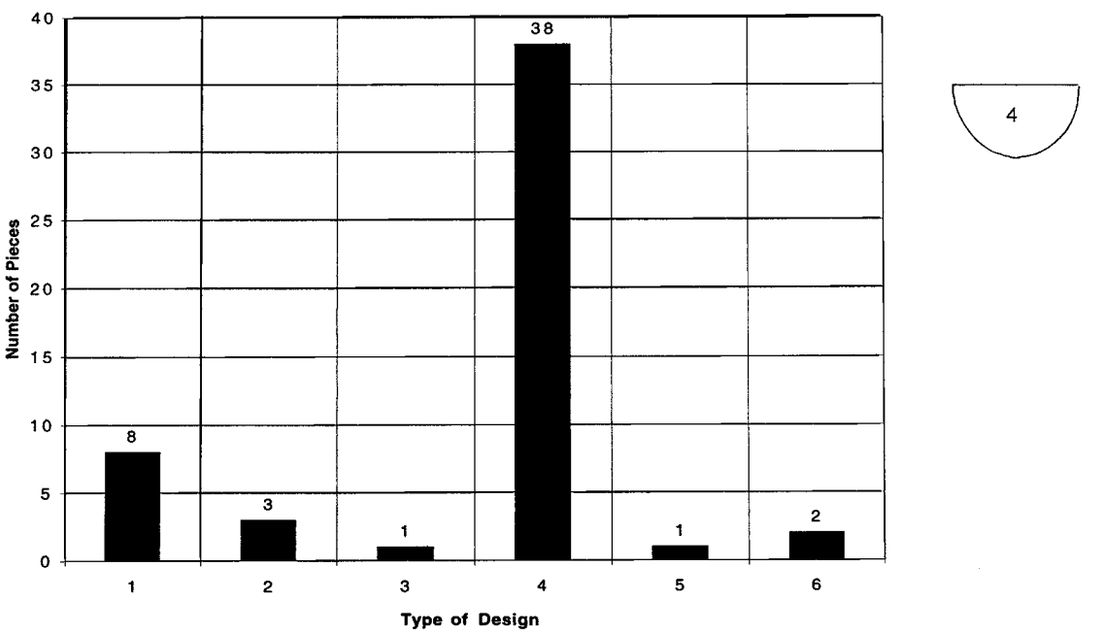


Chart 33. Types of Main Element of Design on Type 4 (Hemispherical Bowls)

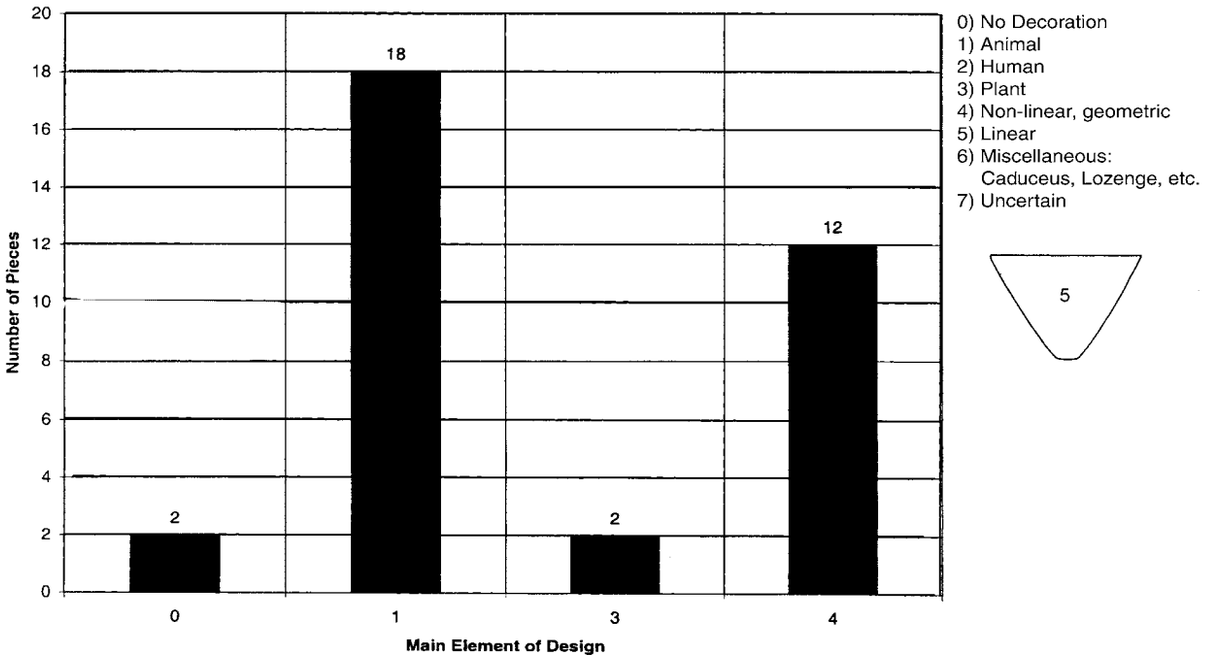


Chart 34. Types of Main Element of Design on Type 5 (Conical Bowls)

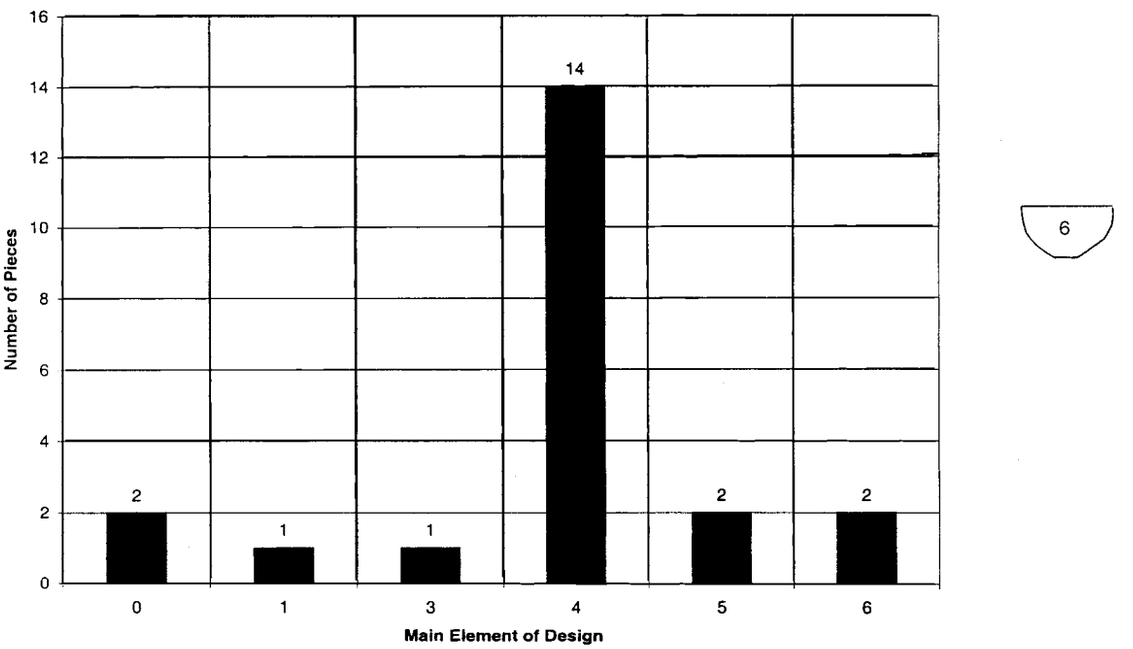


Chart 35. Types of Main Element of Design on Type 6 (Cups)

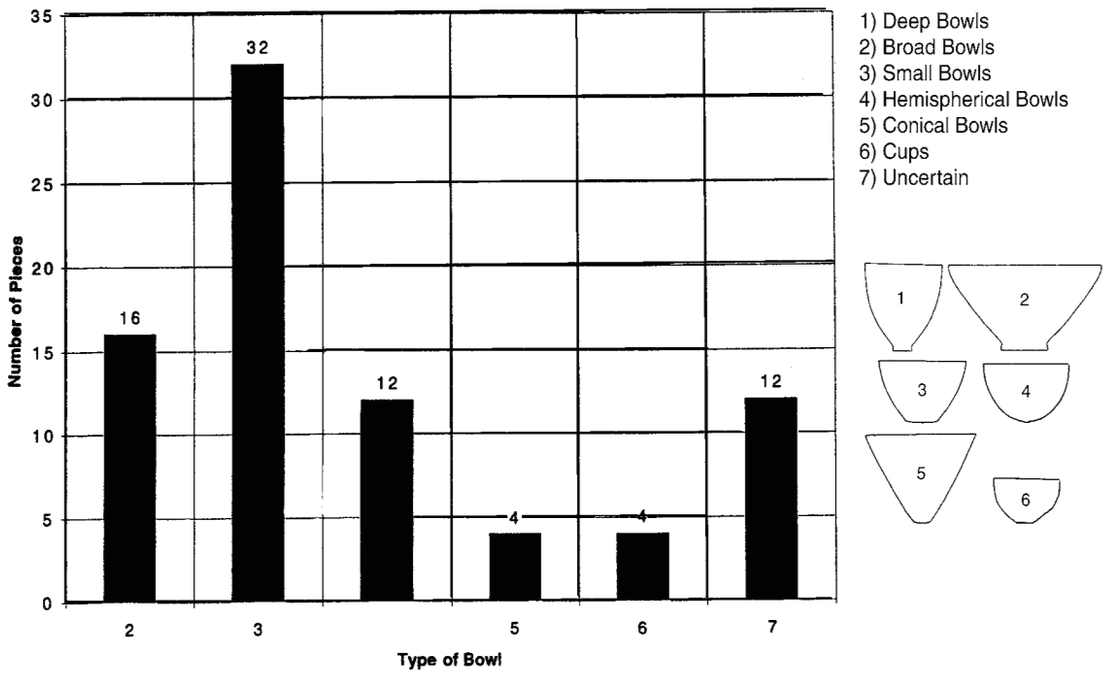


Chart 36. Frequency of the Appearance of Open Forms with Interior Design

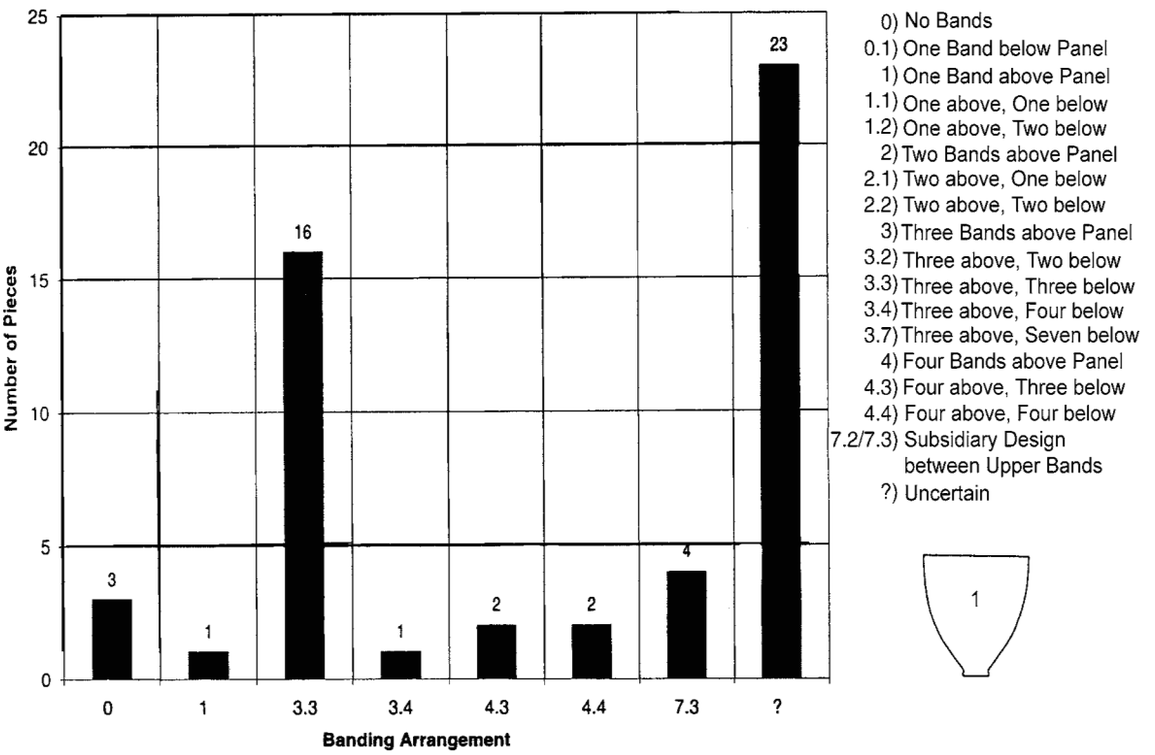


Chart 37. Number of Bands on the Exterior of Type 1 (Deep Bowls)

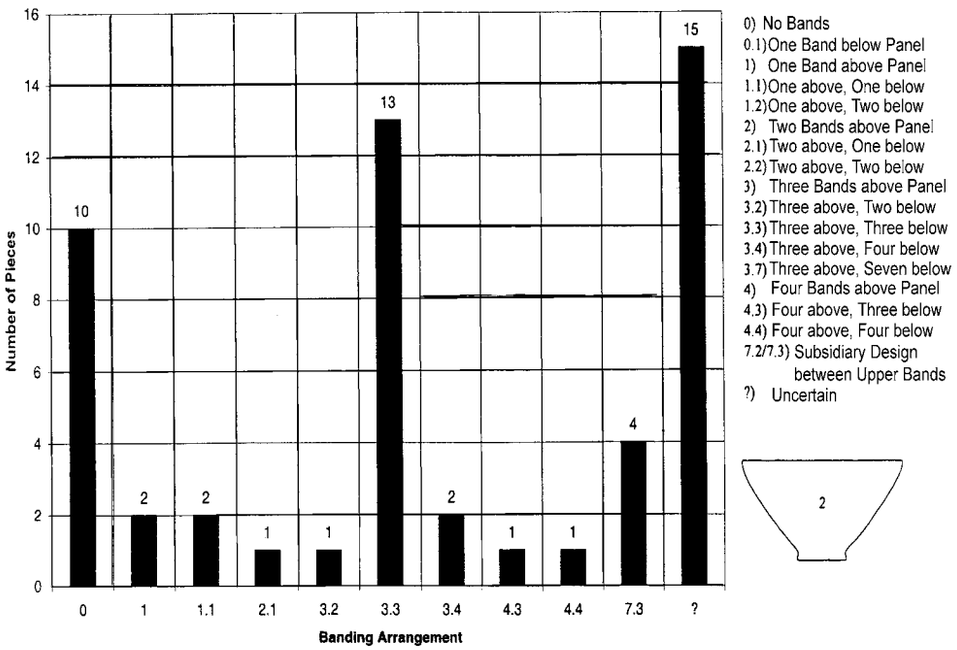


Chart 38. Number of Bands on the Exterior of Type 2 (Broad Bowls)

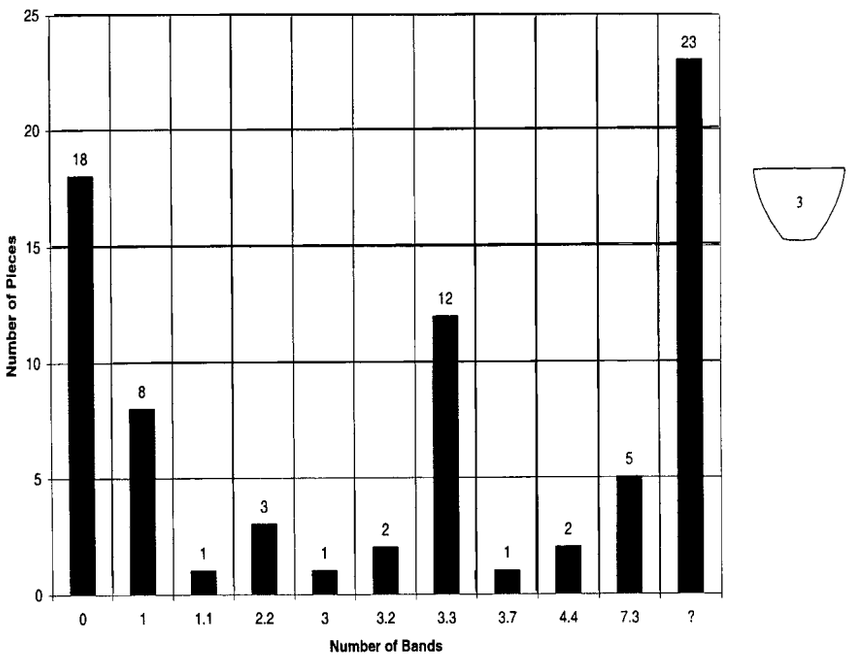


Chart 39. Number of Bands on the Exterior of Type 3 (Small Bowls)

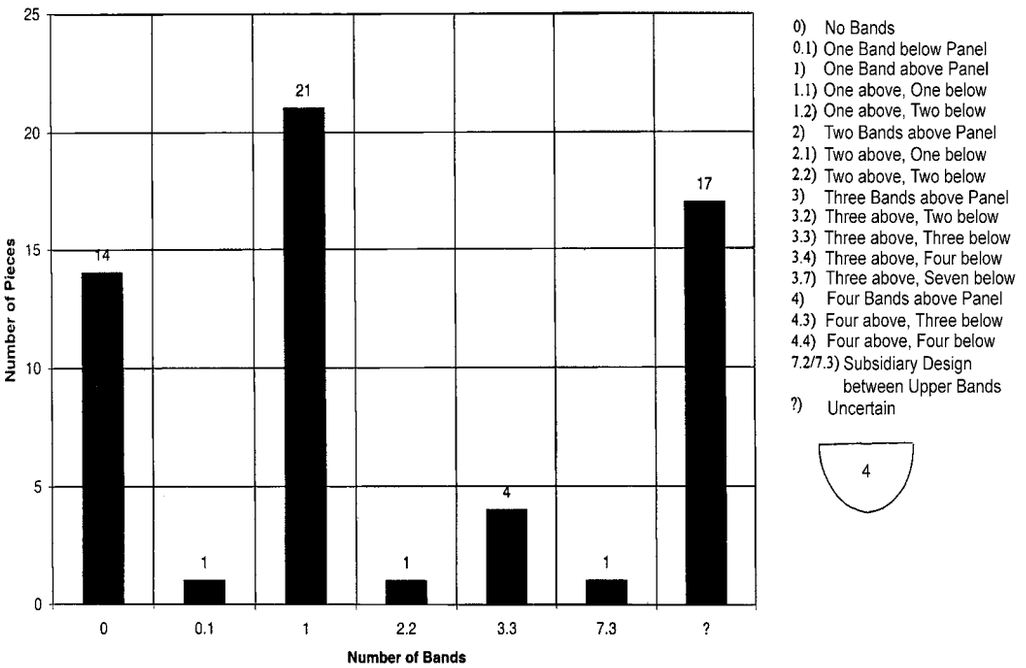


Chart 40. Number of Bands on the Exterior of Type 4 (Hemispherical Bowls)

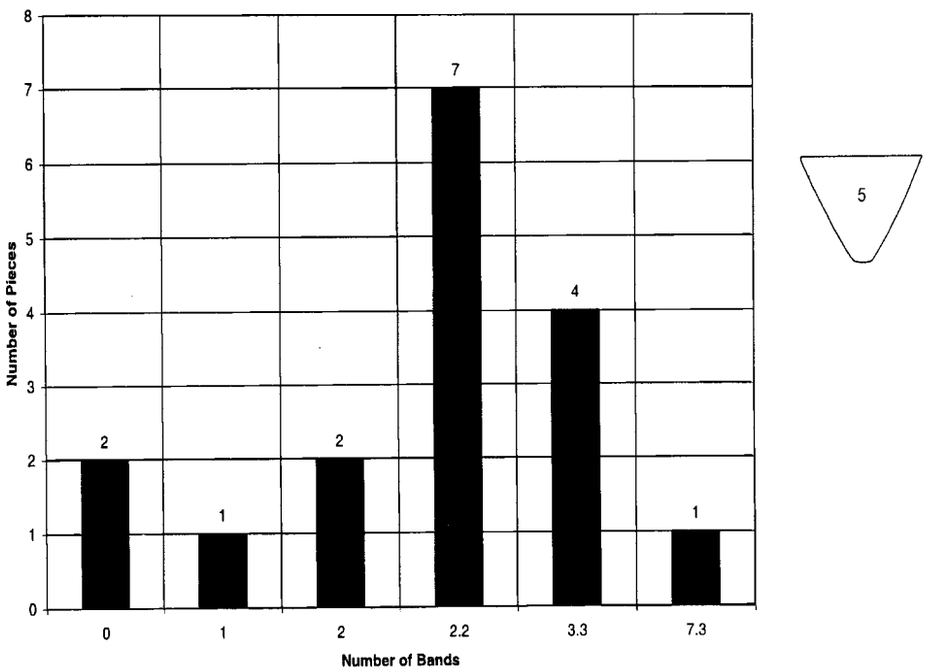


Chart 41. Number of Bands on the Exterior of Type 5 (Conical Bowls)

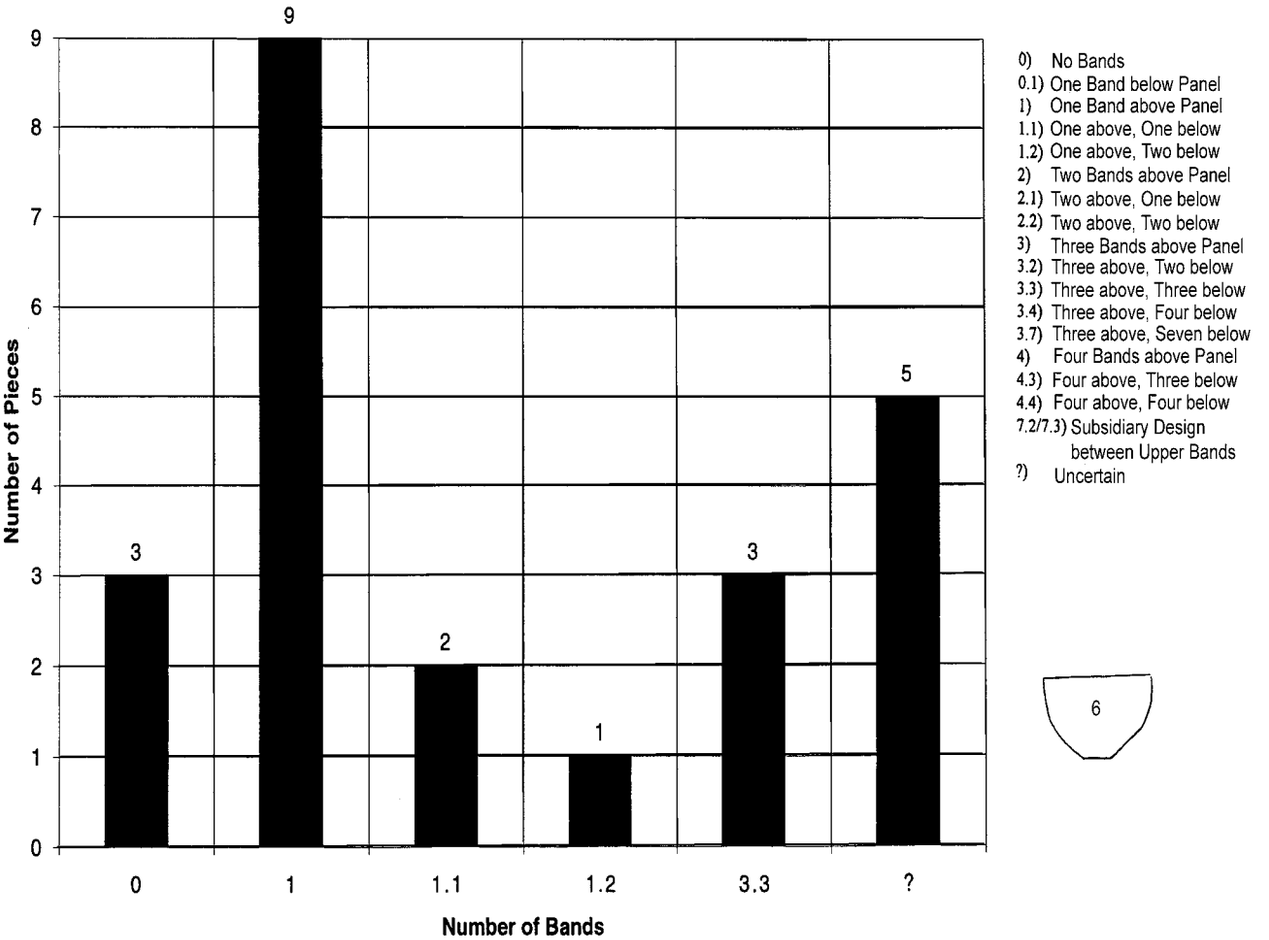


Chart 42. Number of Bands on the Exterior of Type 6 (Cups)

FIGURES

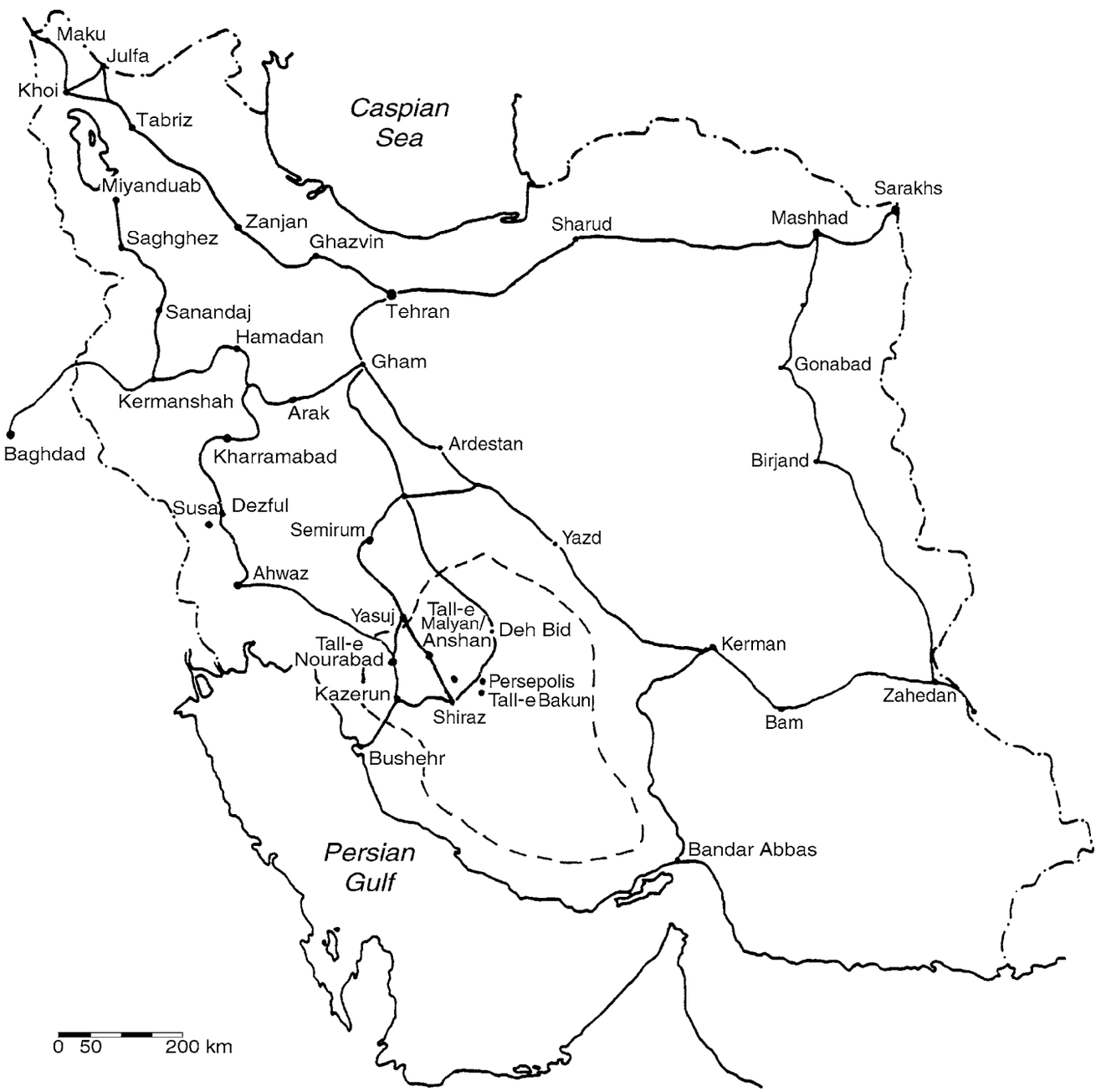


Figure 1. Map Showing Major Highways and Cities. Province of Fars Indicated with Broken Lines

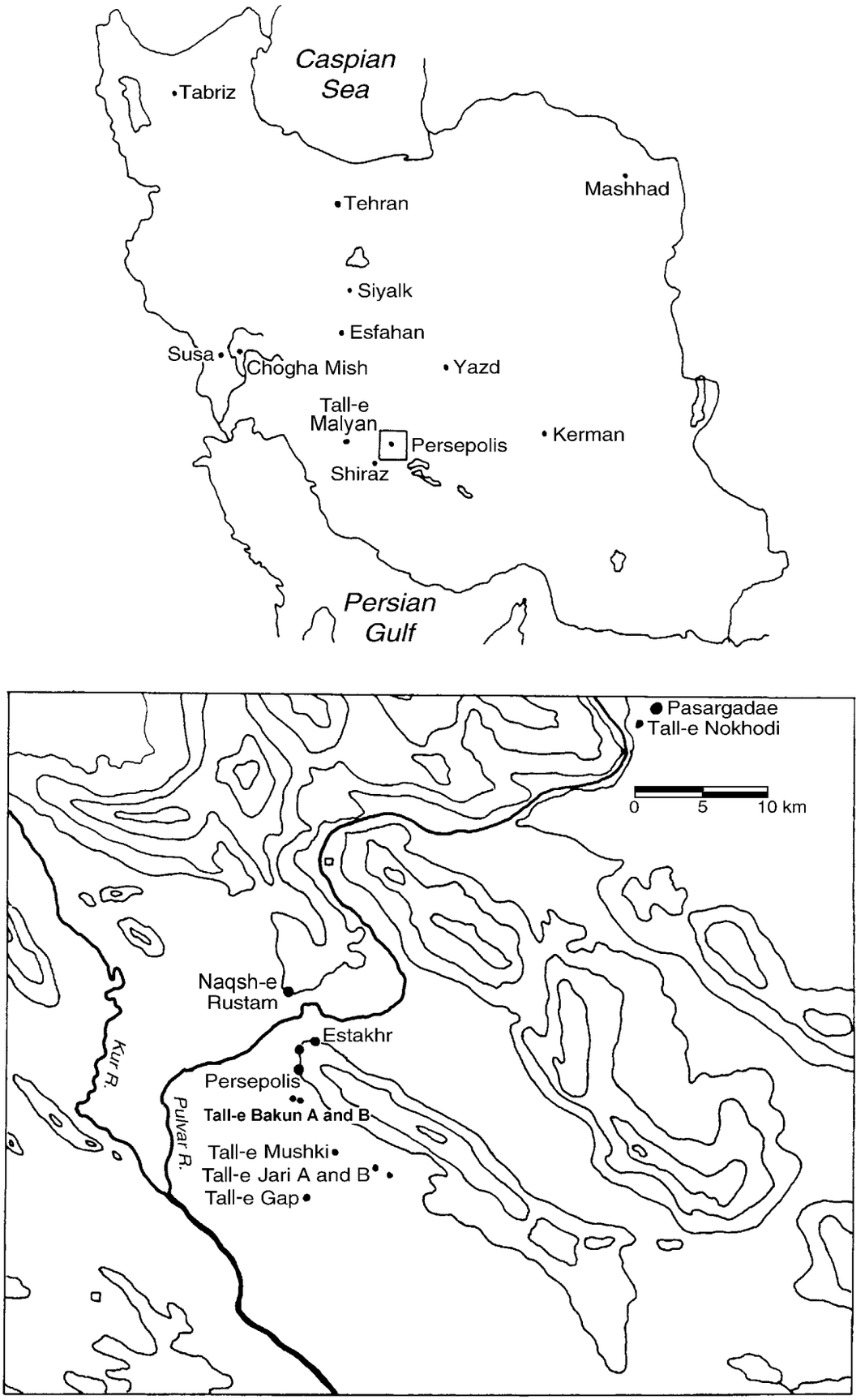


Figure 2. Map Showing Location of Tall-e Bakun A and B in the Marv Dasht Area

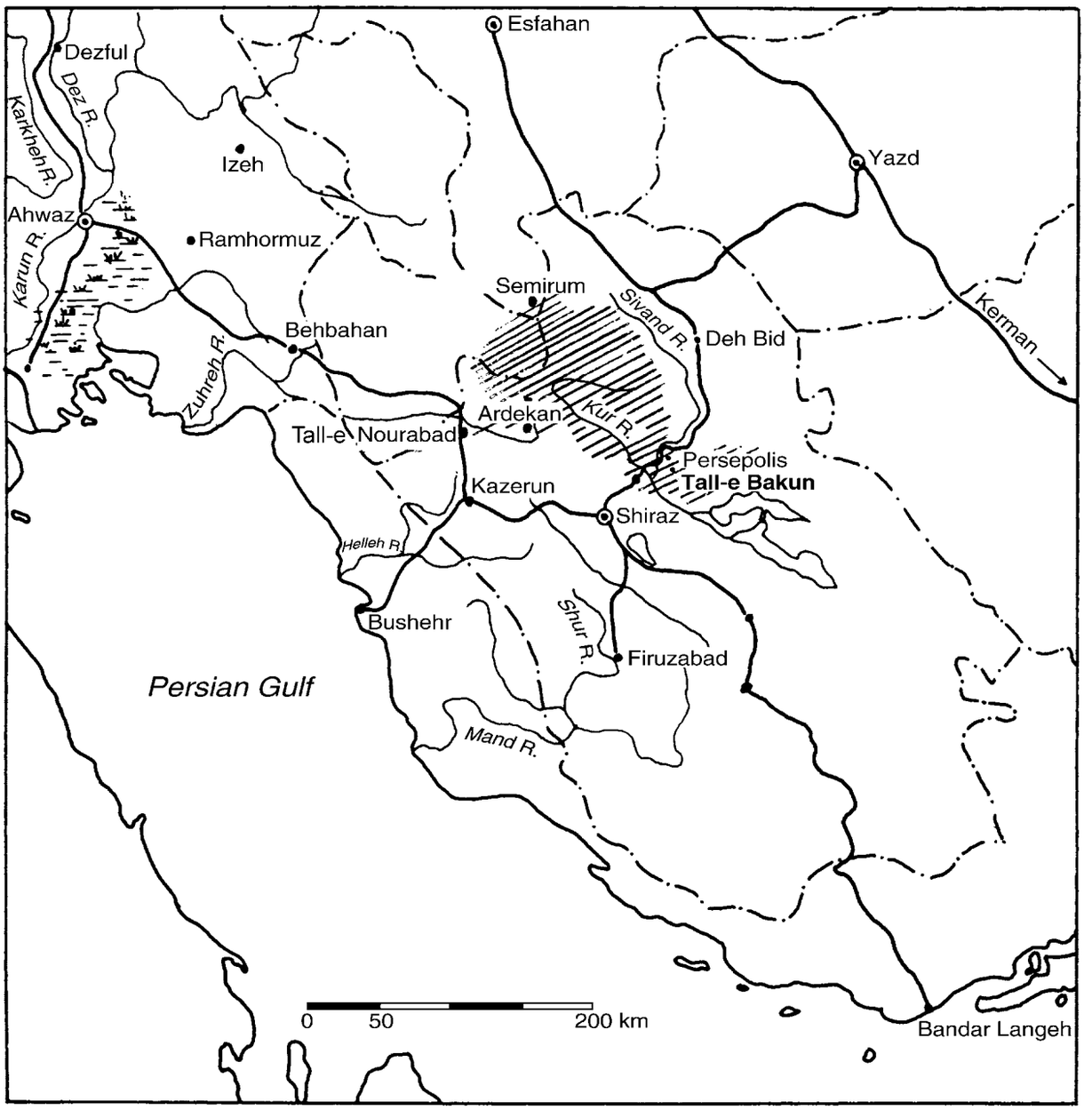


Figure 3. Map Showing the Geographic Limits (shaded) of the Oriental Institute 1995 Survey

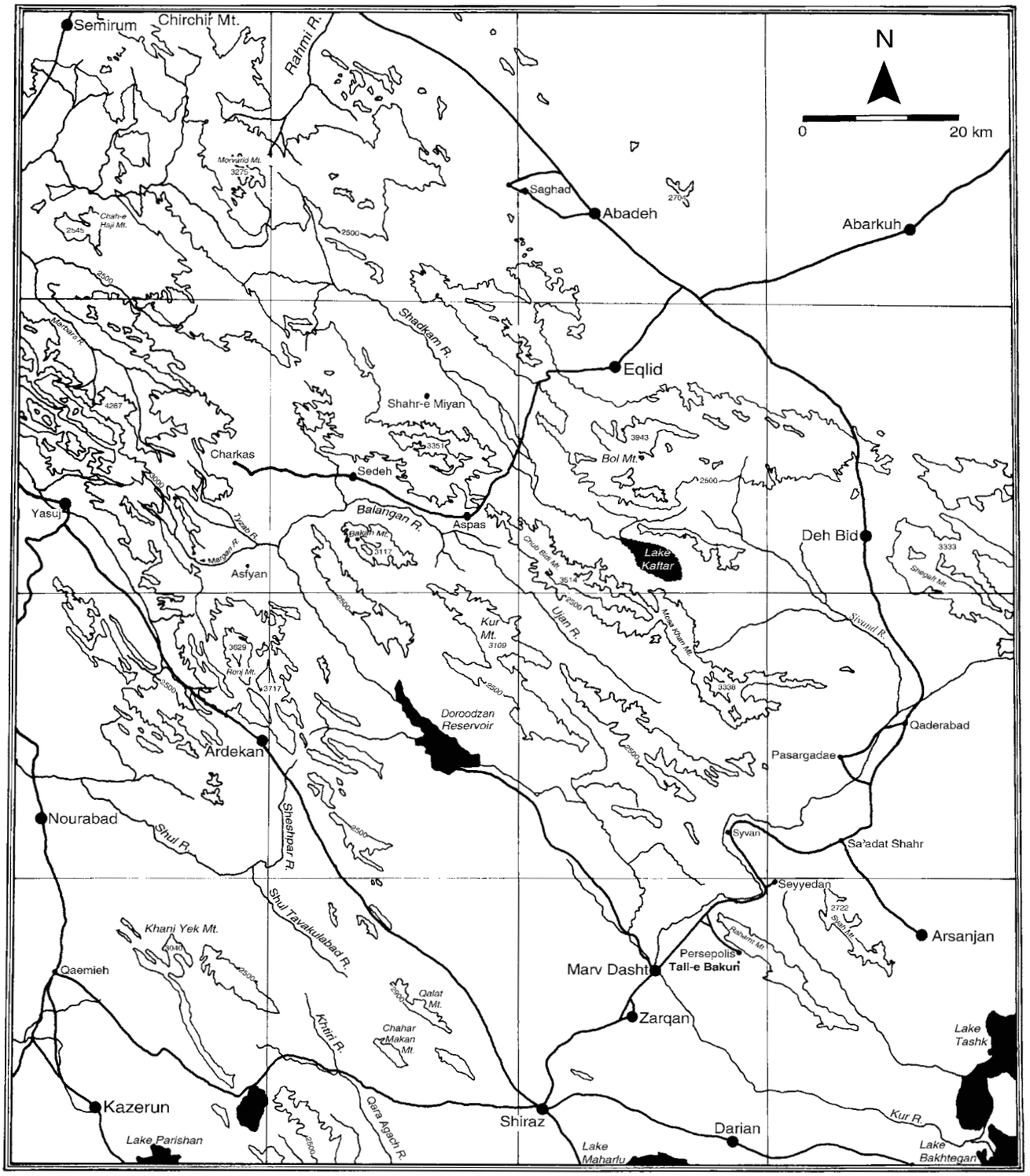
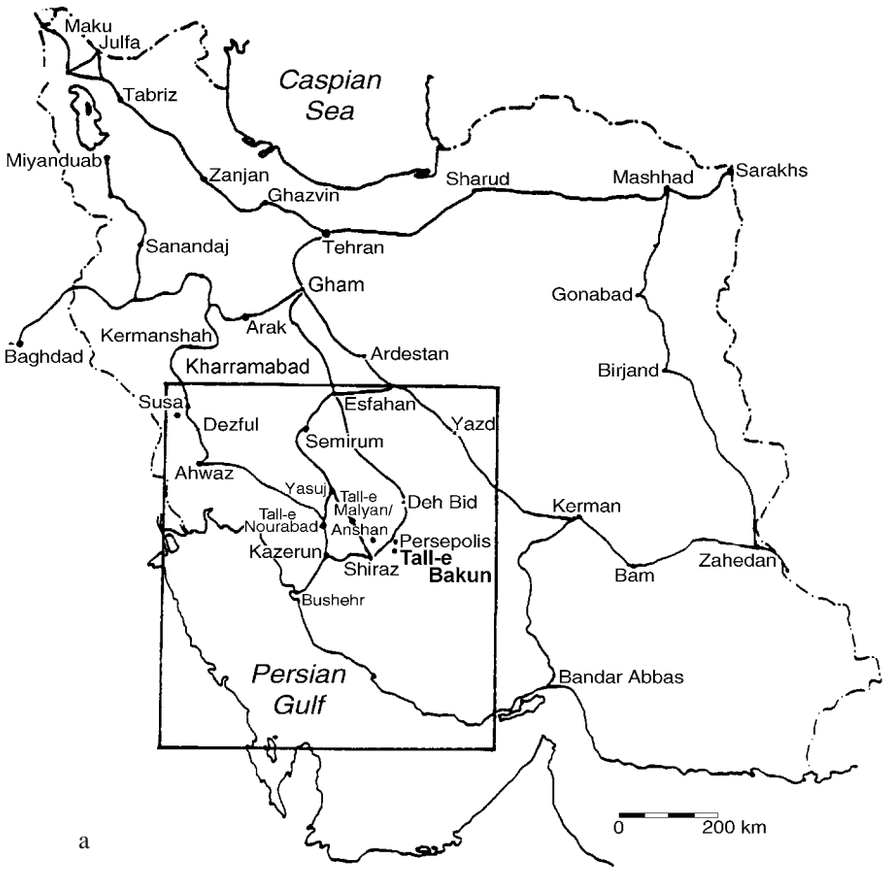
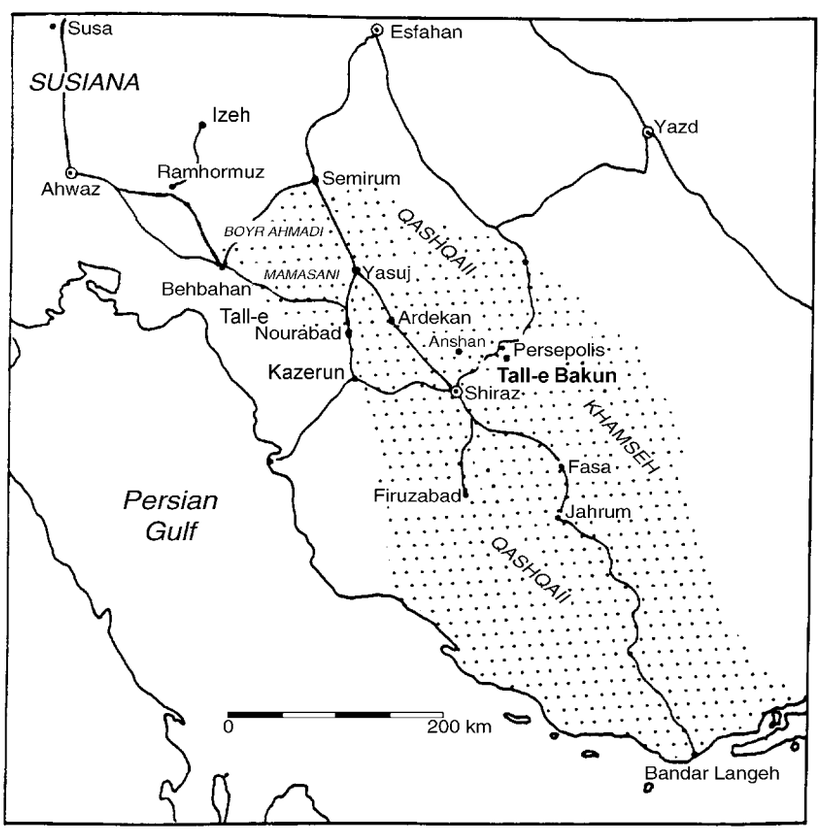


Figure 4. Map Showing the Intermontane Valleys in Northwestern Fars and the Topography of the Oriental Institute 1995 Survey Area



a



b

Figure 5. (*a*) Map of Southwestern Iran Indicating the Geographic Extent of the Mobile Pastoralist Tribes of Fars and (*b*) Geographic Distribution of Bakun A Pottery

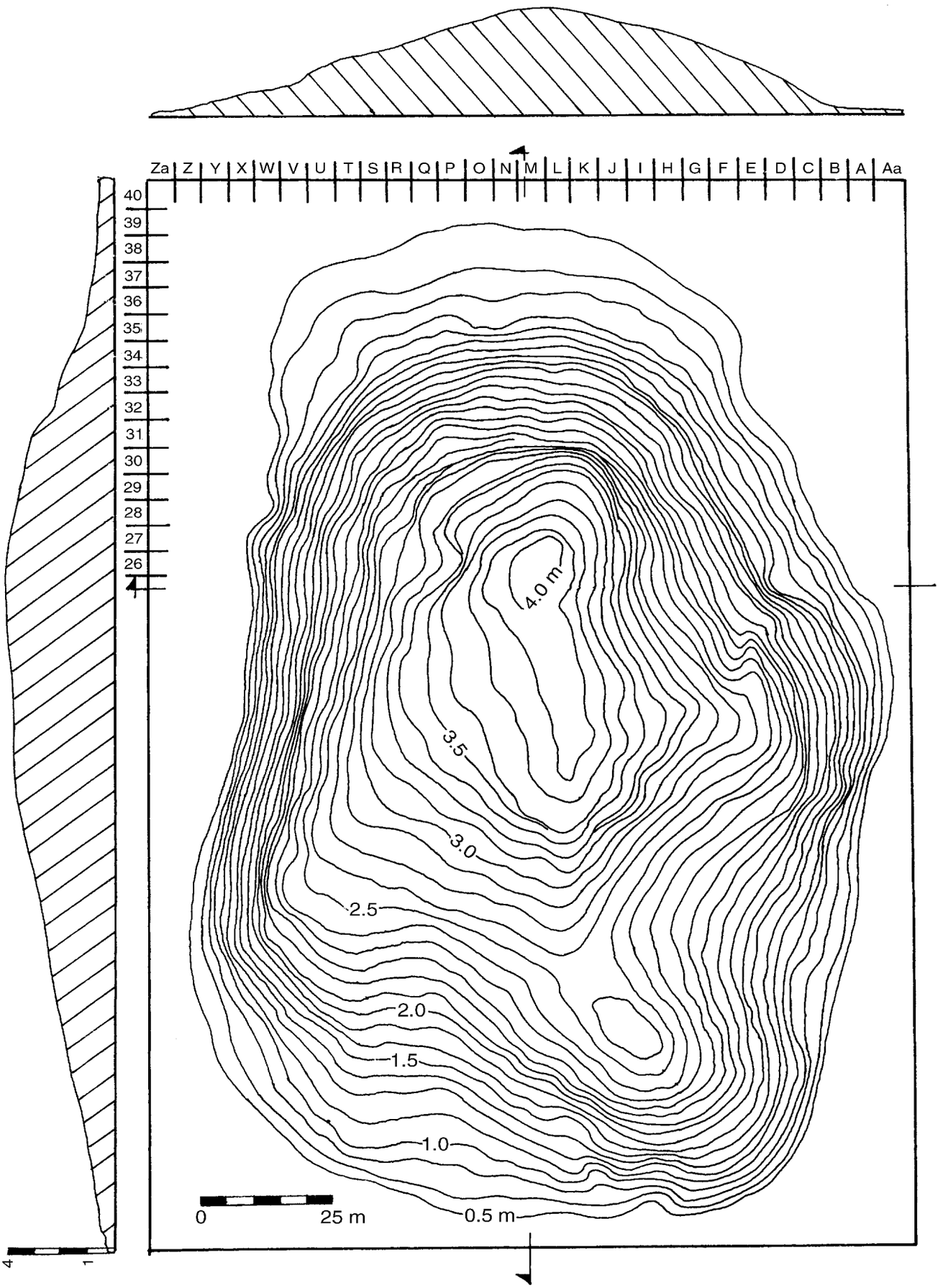


Figure 6. Tall-e Bakun A: Contour Map and Cross Sections

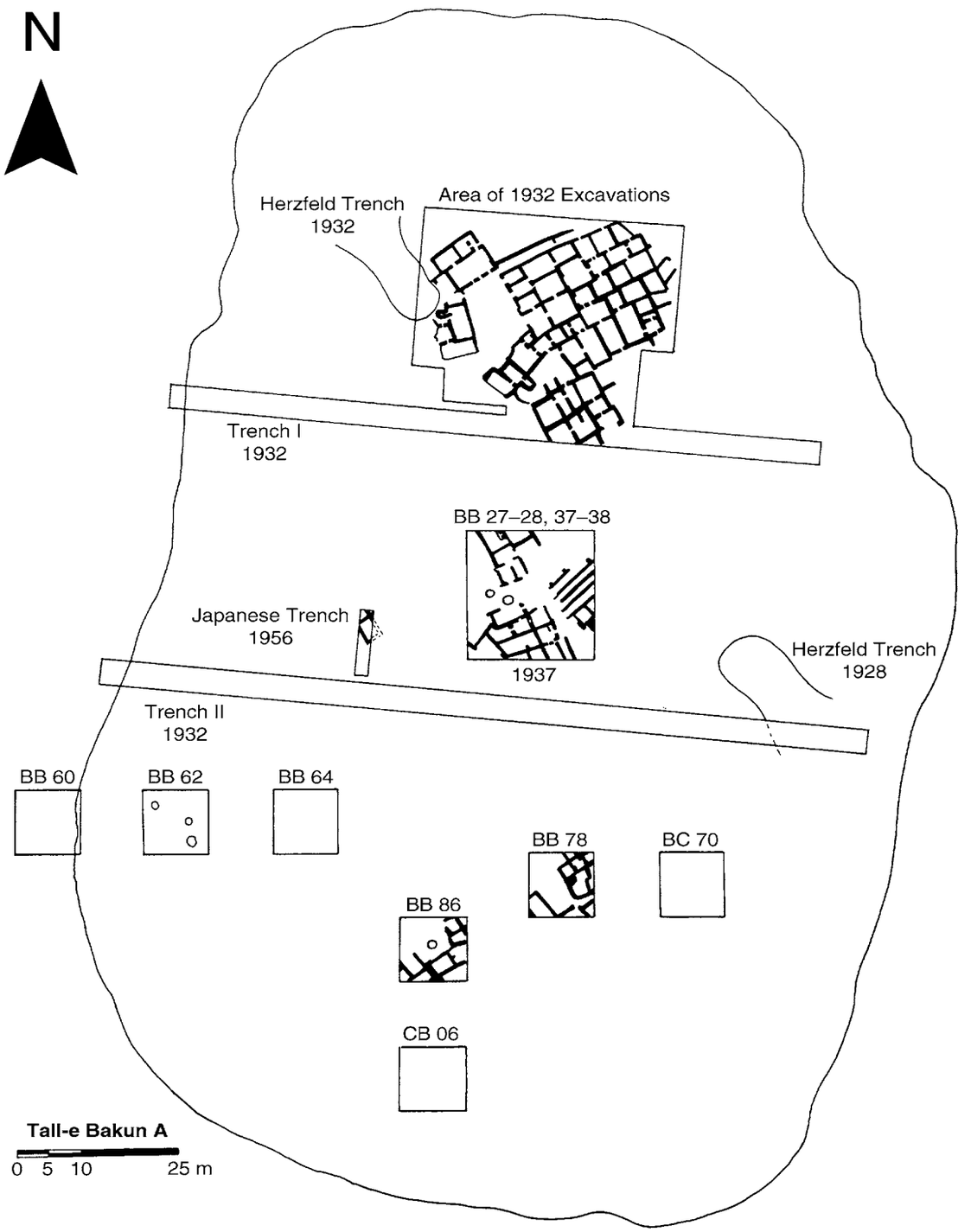


Figure 7. Plan of Tall-e Bakun A Showing Various Excavation Areas

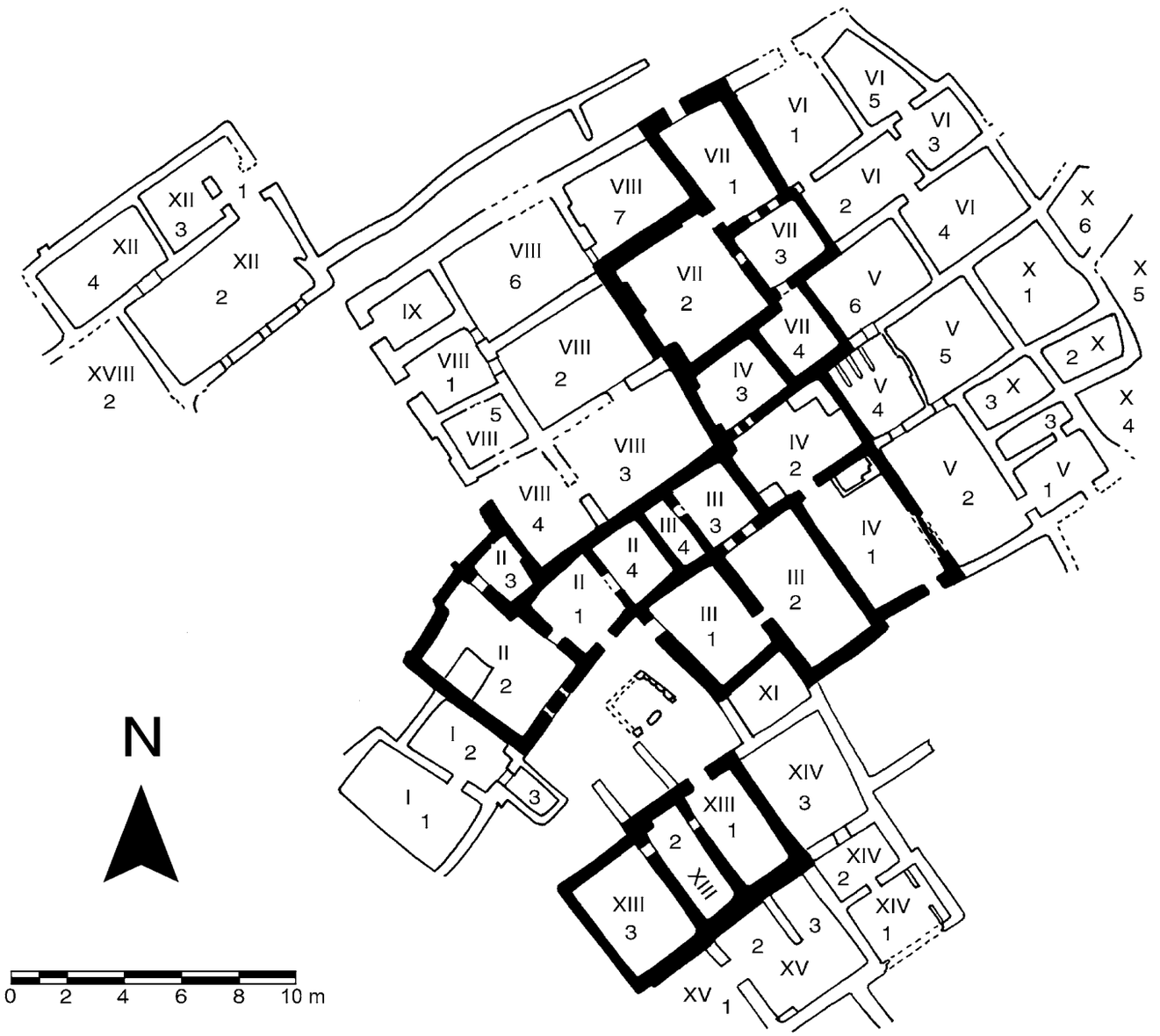


Figure 8. Plan Showing the Location of Warehouses in the Administration Quarters

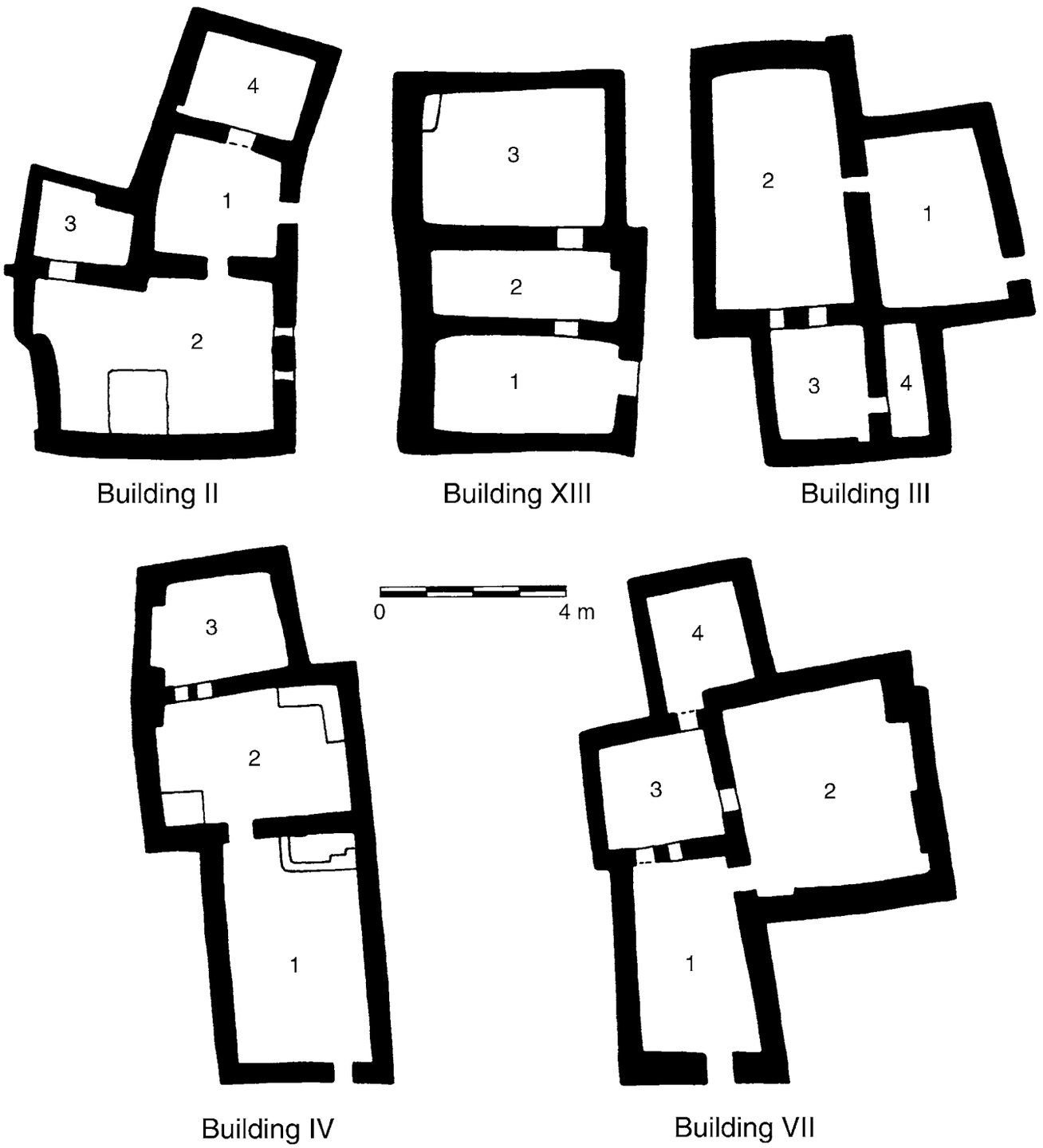


Figure 9. Plans of Five Warehouses in the Administrative Quarters

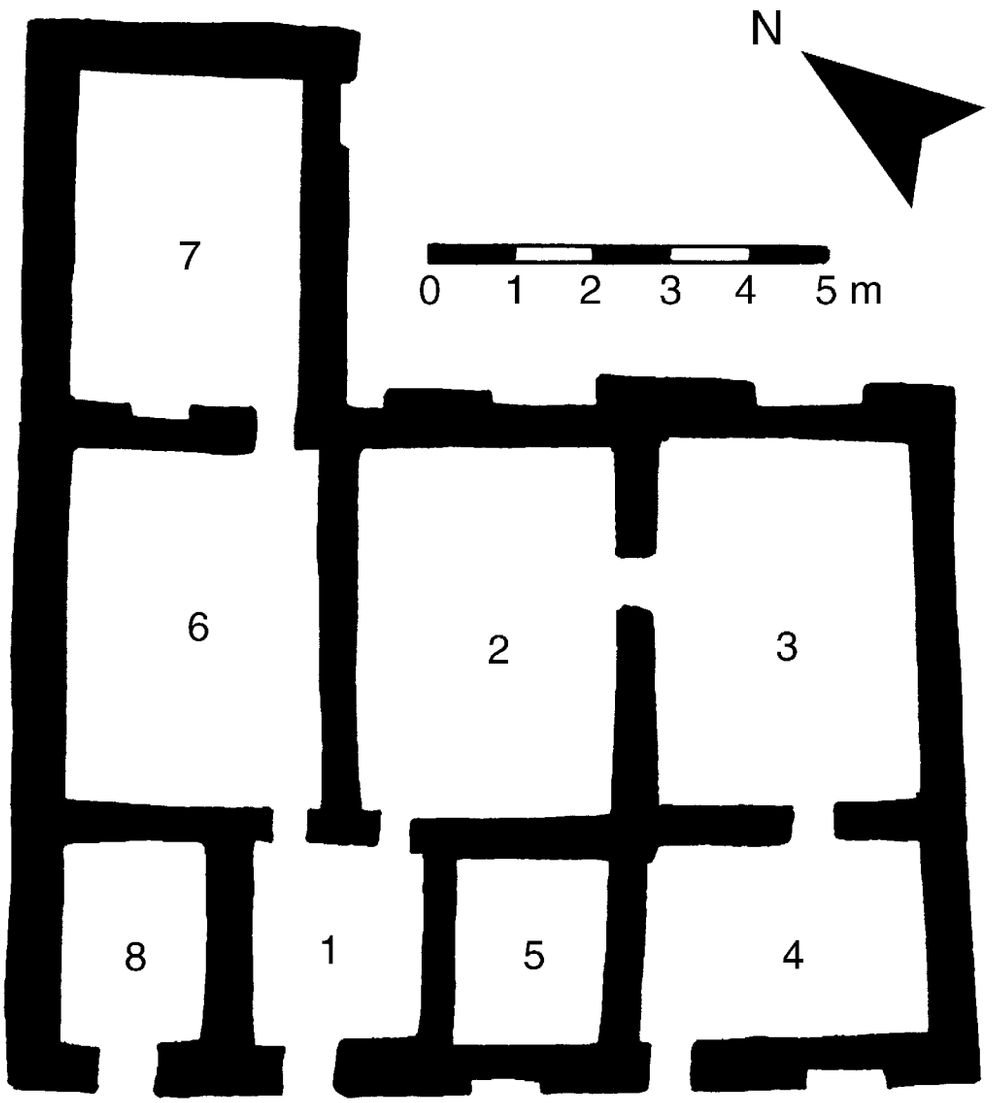


Figure 10. Plan of Building VIII, Chief Residence in the Administrative Quarters

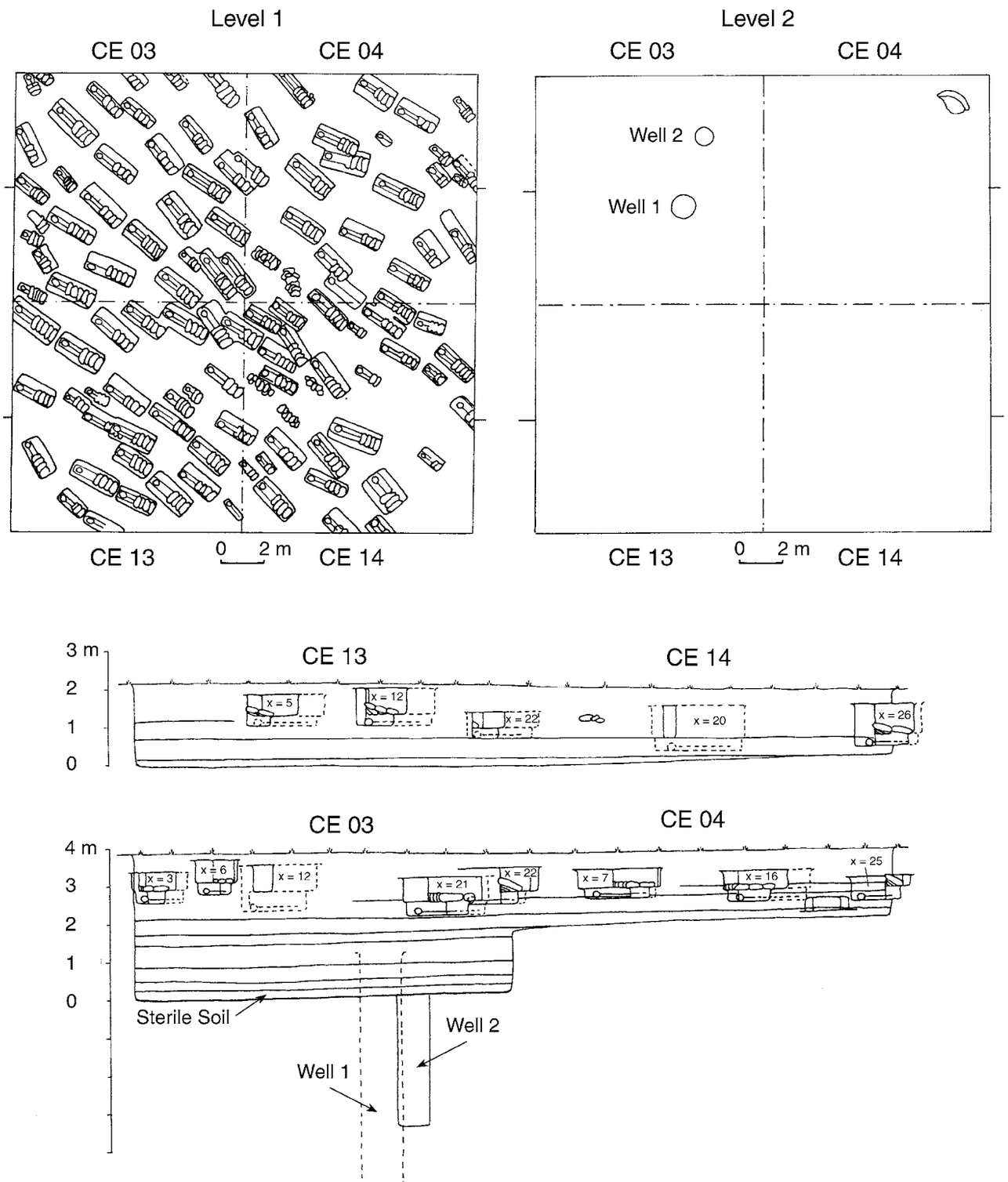


Figure 11. Top Plans and Section Drawings of Squares CE 03, CE 04, CE 13, and CE 14 (Tall-e Bakun B)

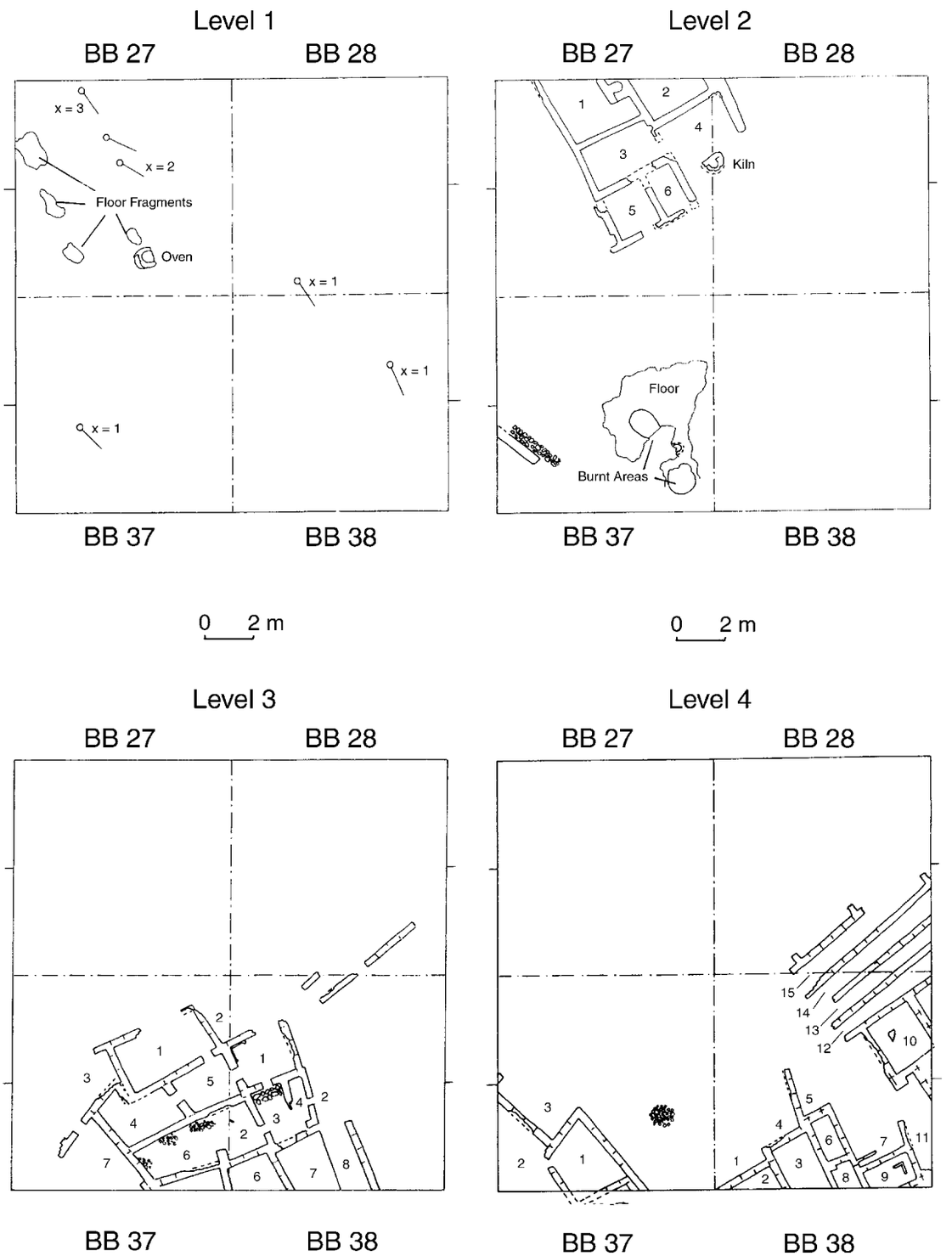


Figure 12. Top Plans of Squares BB 27, BB 28, BB 37, and BB 38

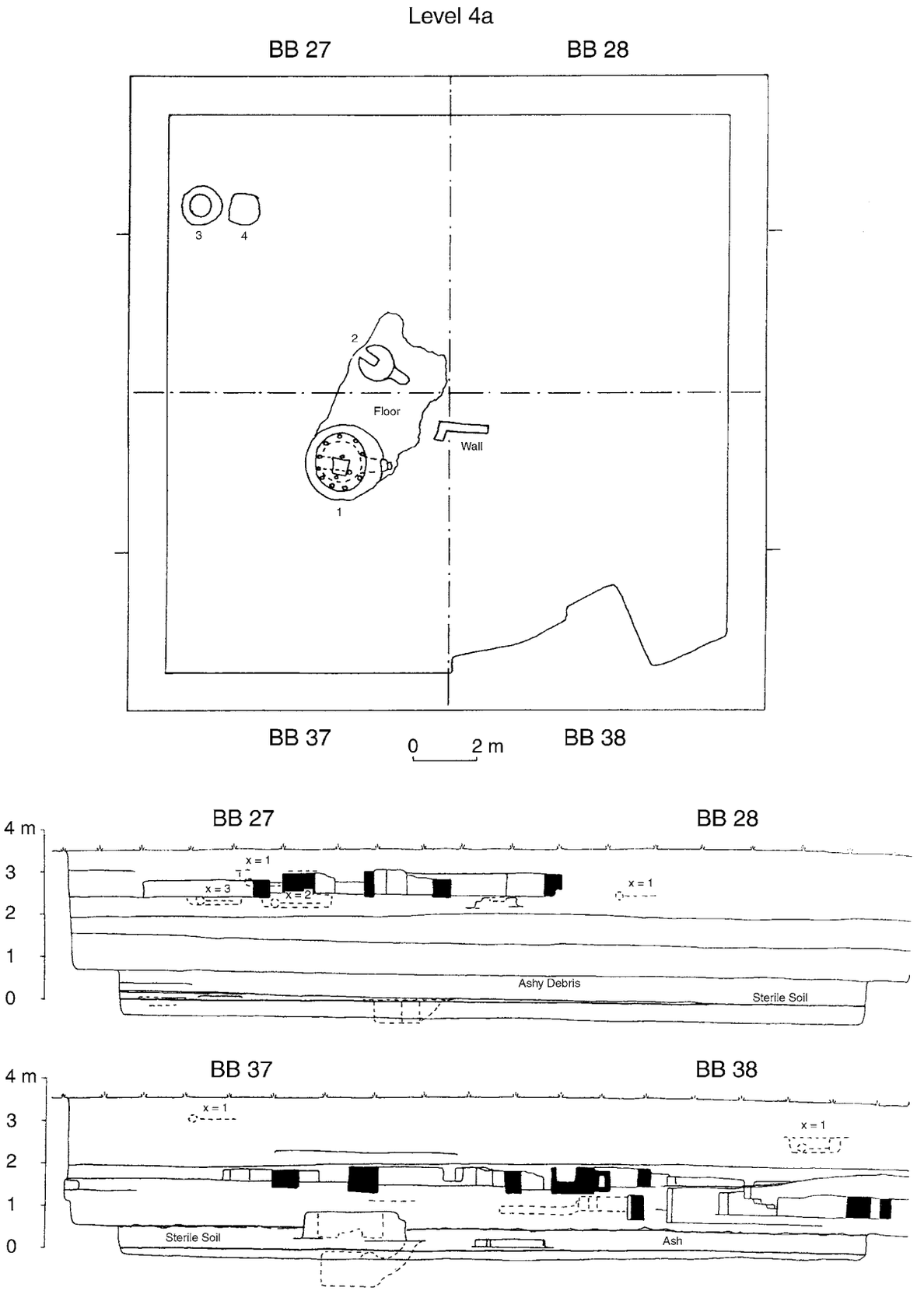


Figure 13. Top Plan and Section Drawings of Basal Level in Squares BB 27, BB 28, BB 37, and BB 38

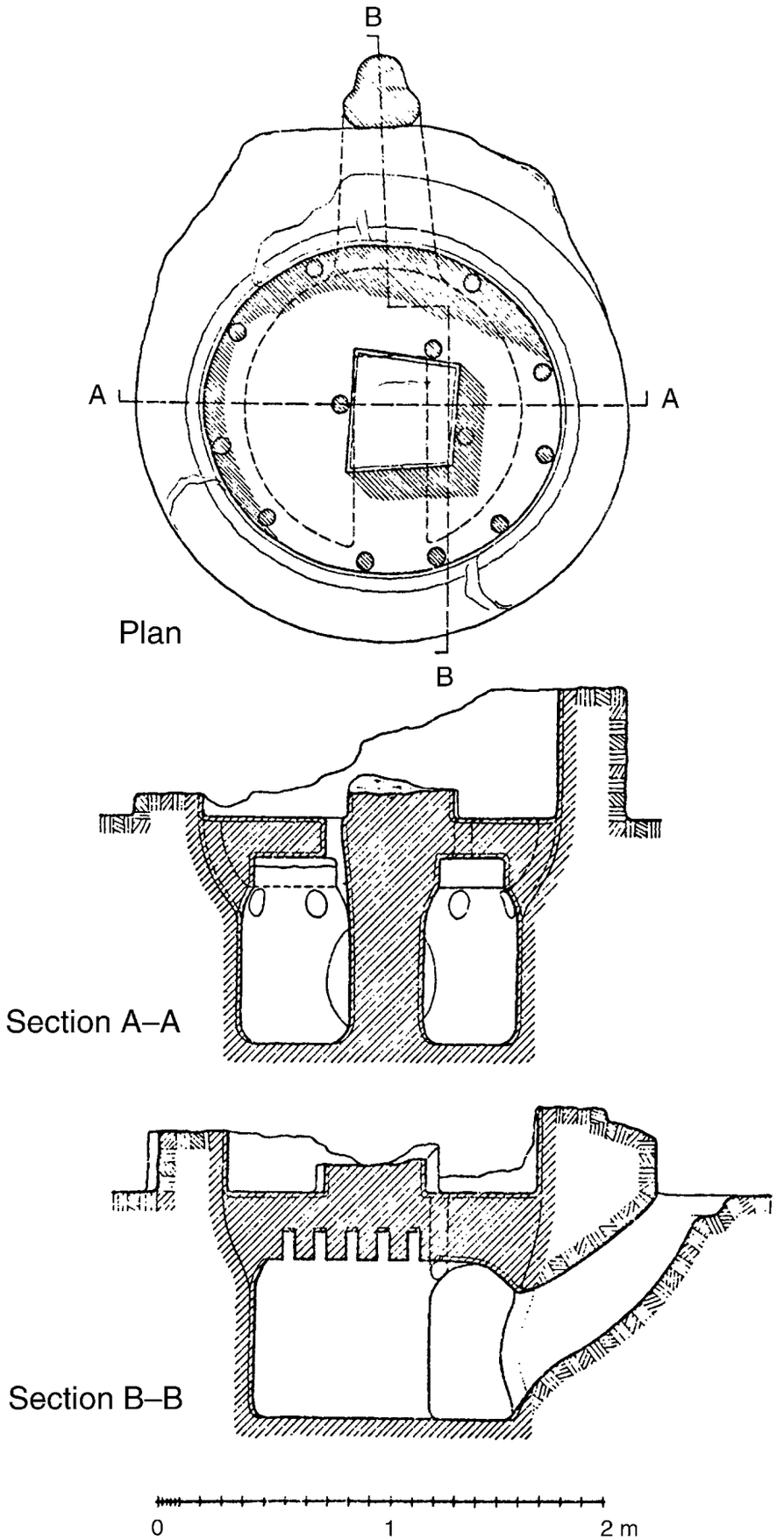


Figure 14. Top Plan and Section Drawings of the Earliest Pottery Kiln in Square BB 37

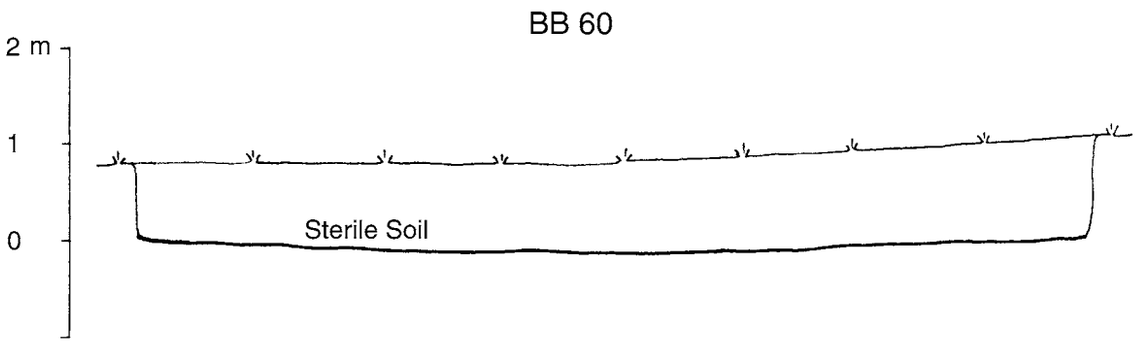


Figure 15. Section Drawing of Square BB 60

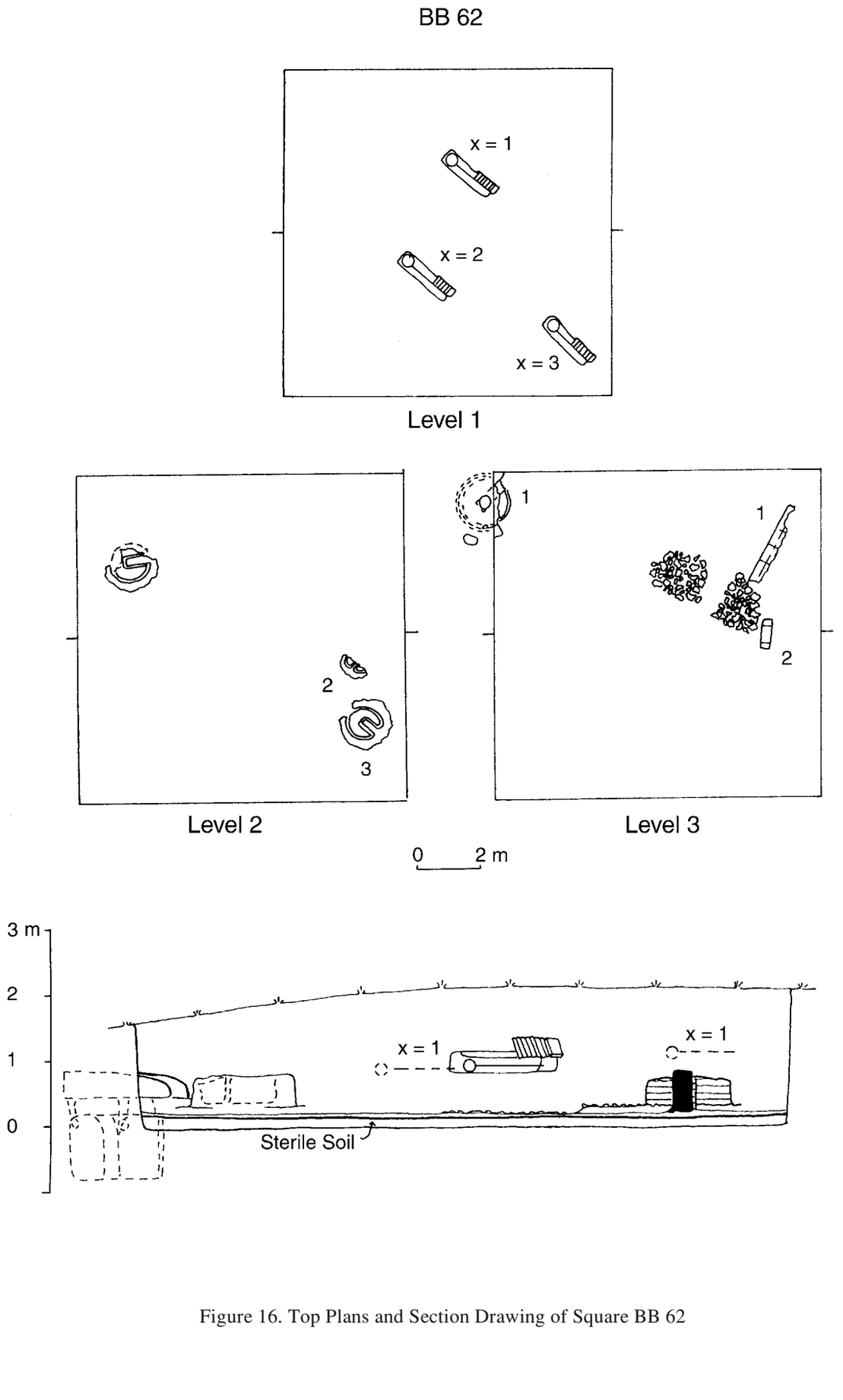


Figure 16. Top Plans and Section Drawing of Square BB 62

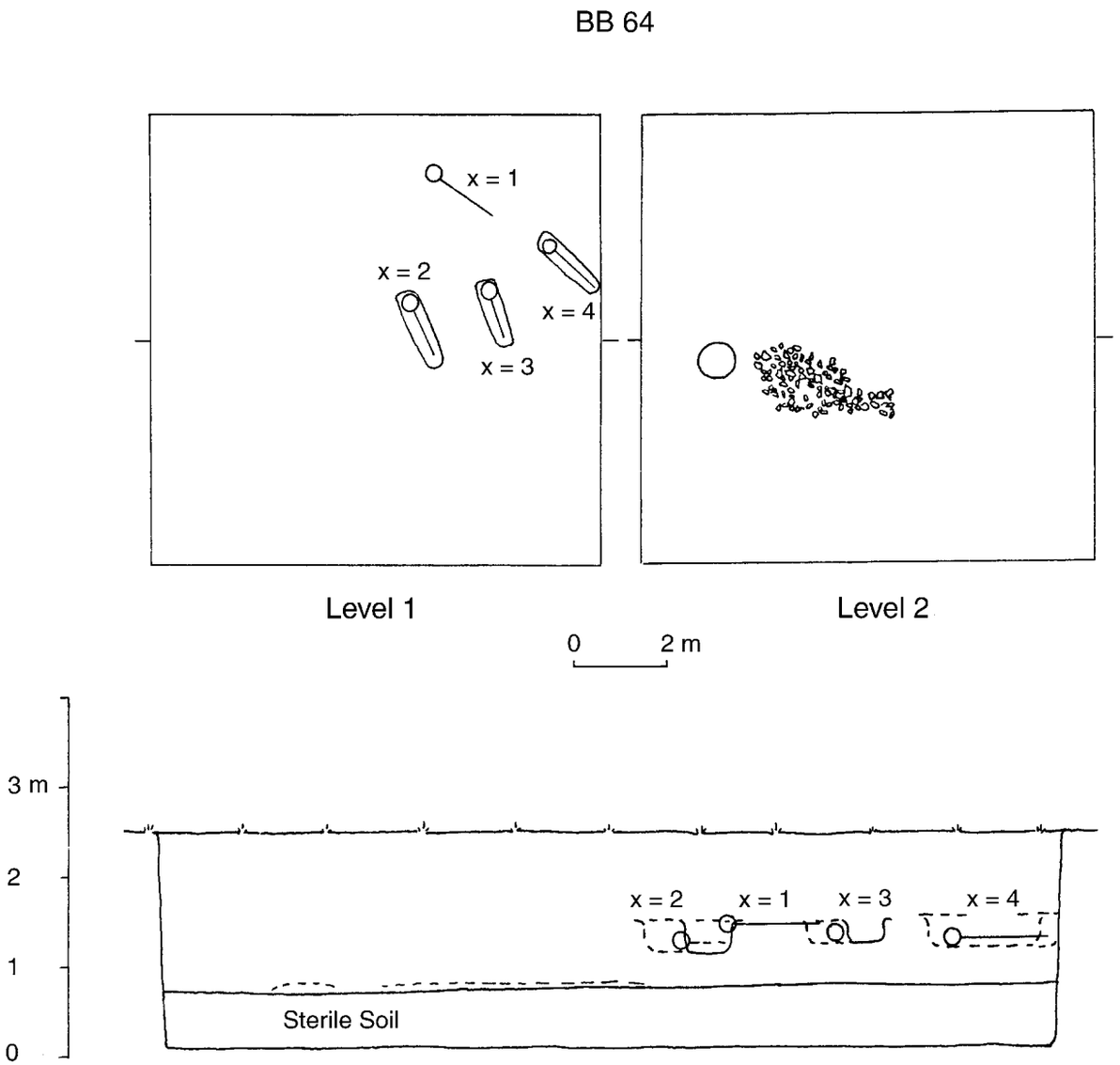


Figure 17. Top Plans and Section Drawing of Square BB 64

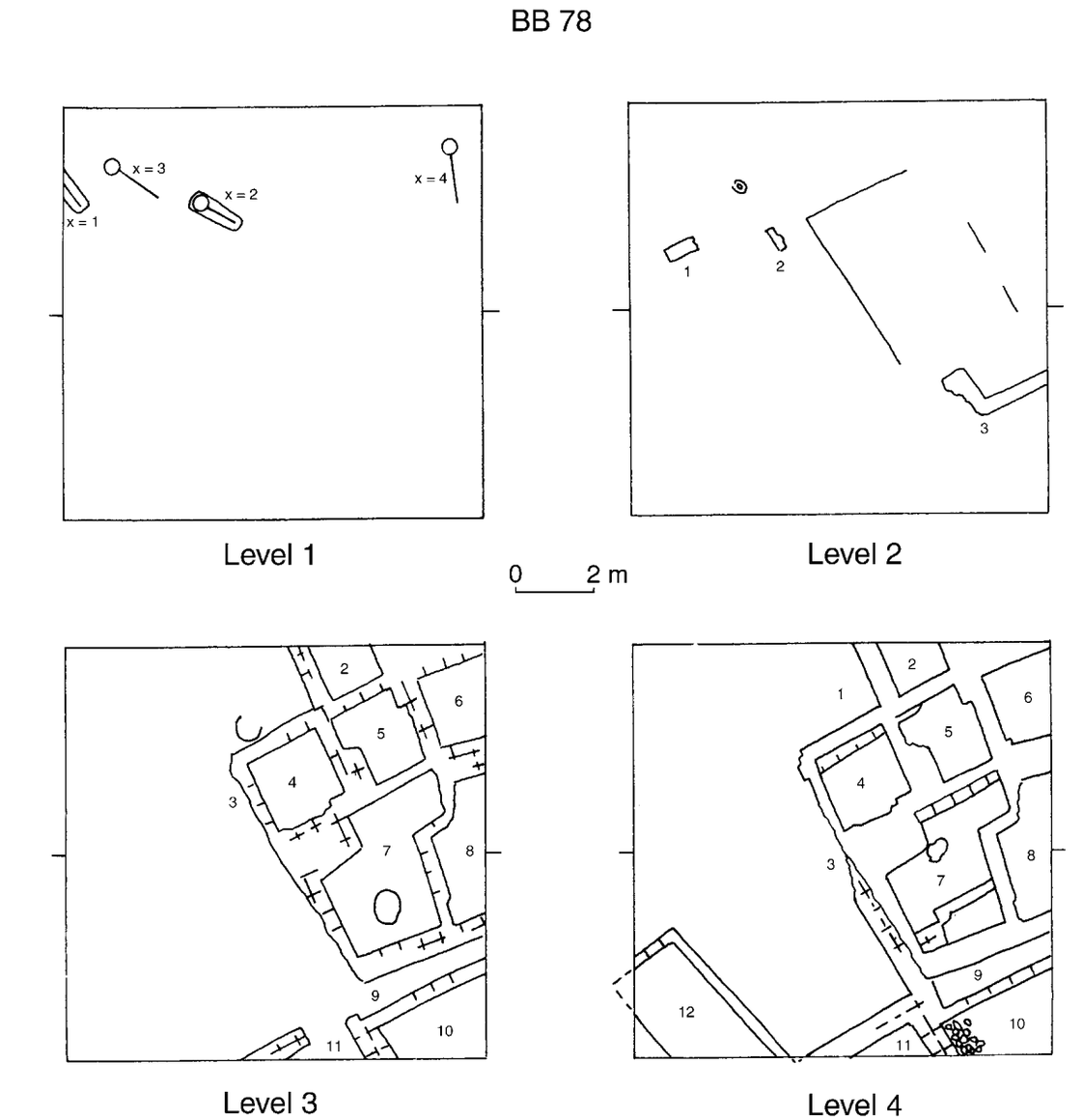


Figure 18. Top Plans and Section Drawing of Square BB 78

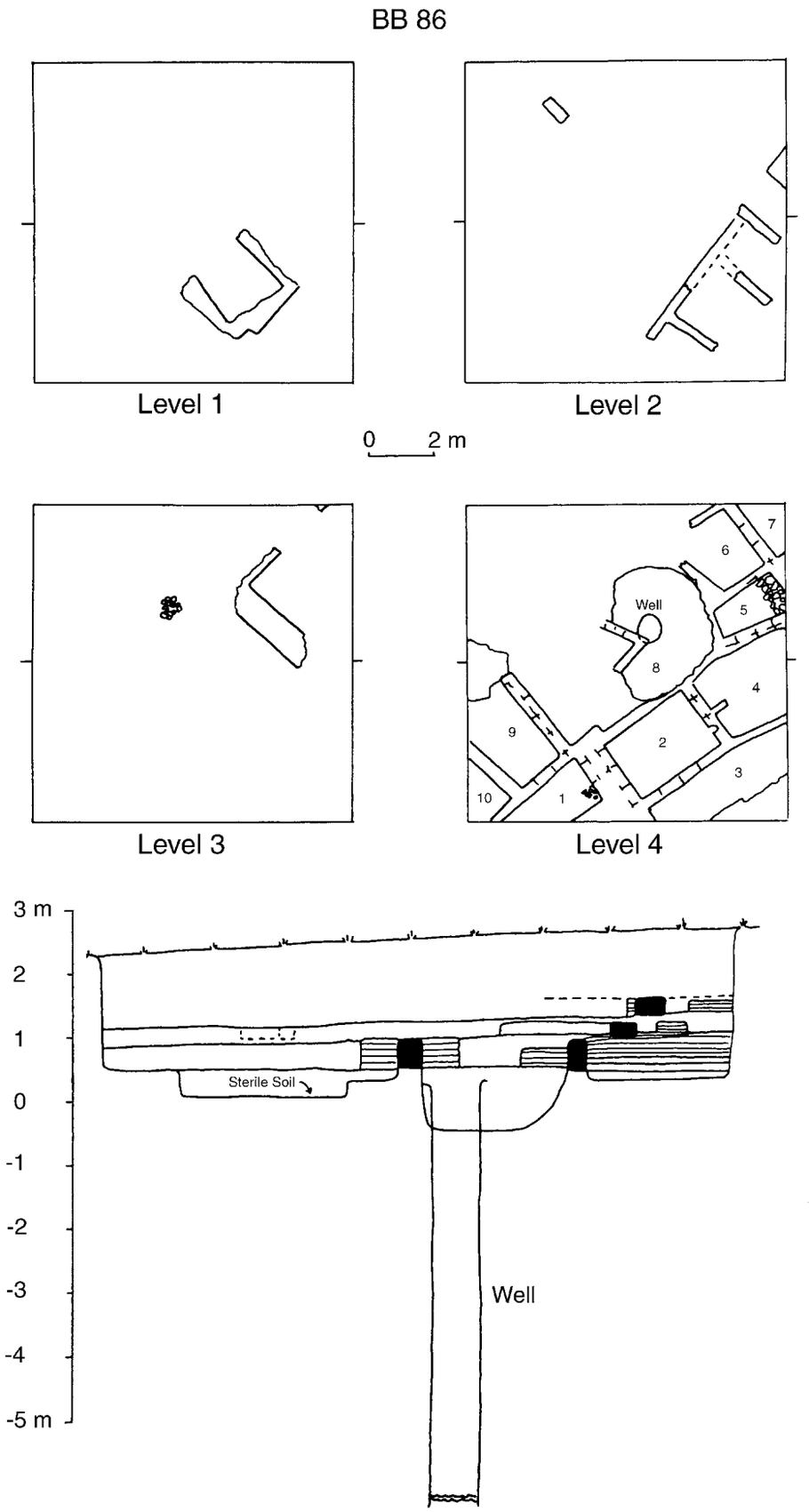
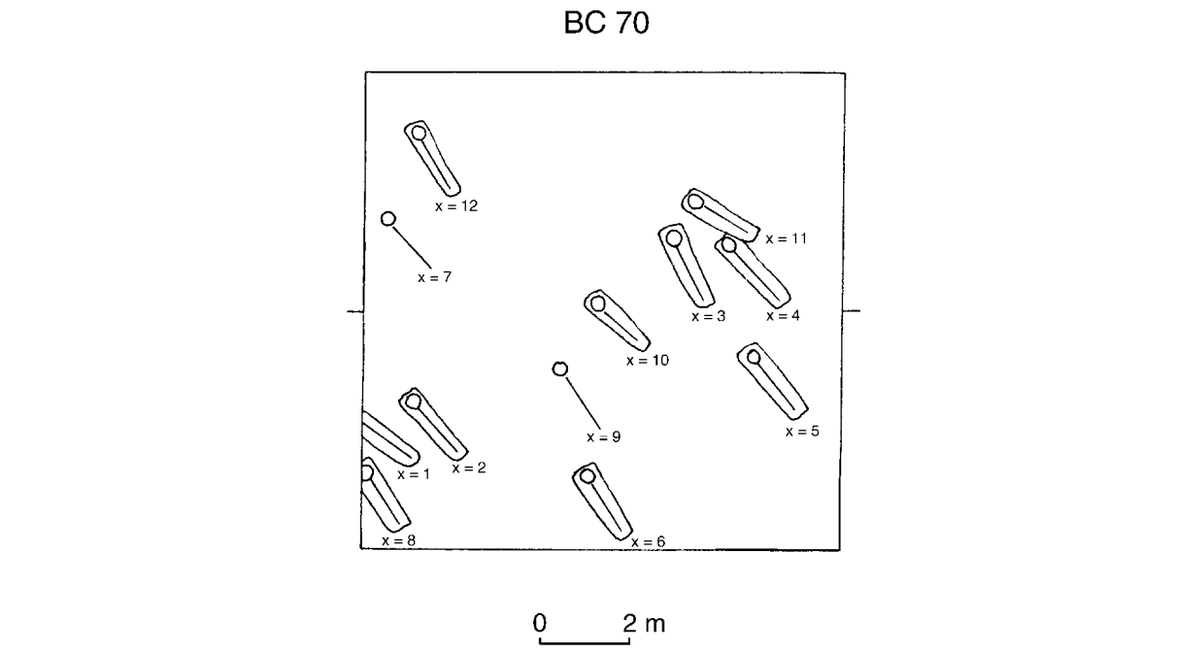


Figure 19. Top Plans and Section Drawing of Square BB 86



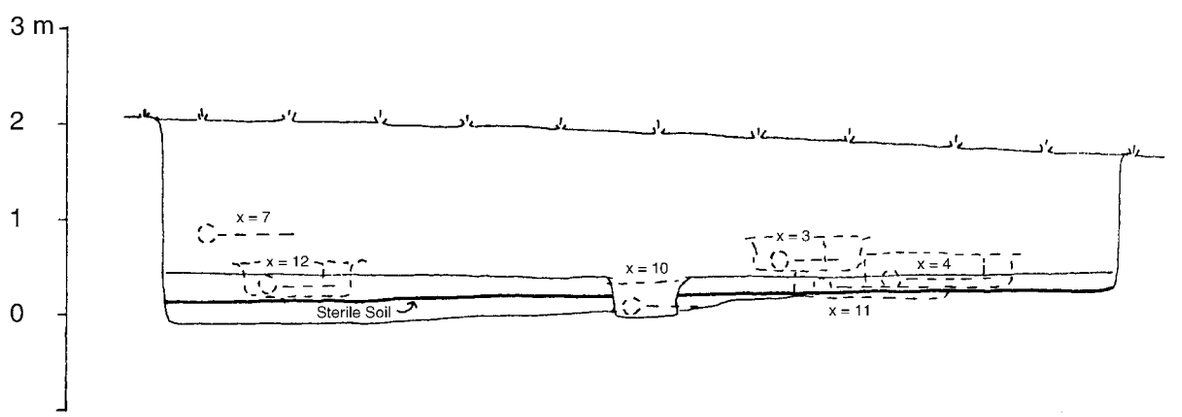


Figure 20. Top Plan and Section Drawing of Square BC 70

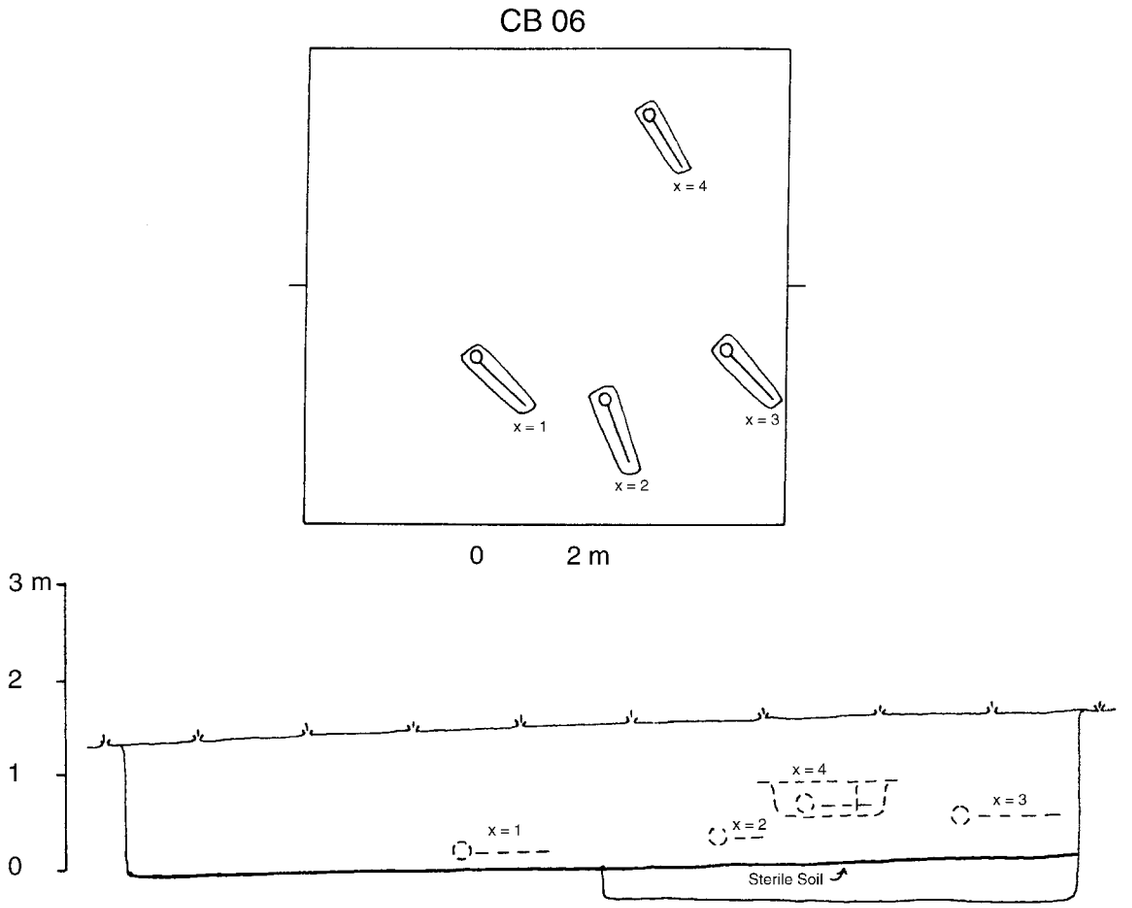


Figure 21. Top Plan and Section Drawing of Square CB 06

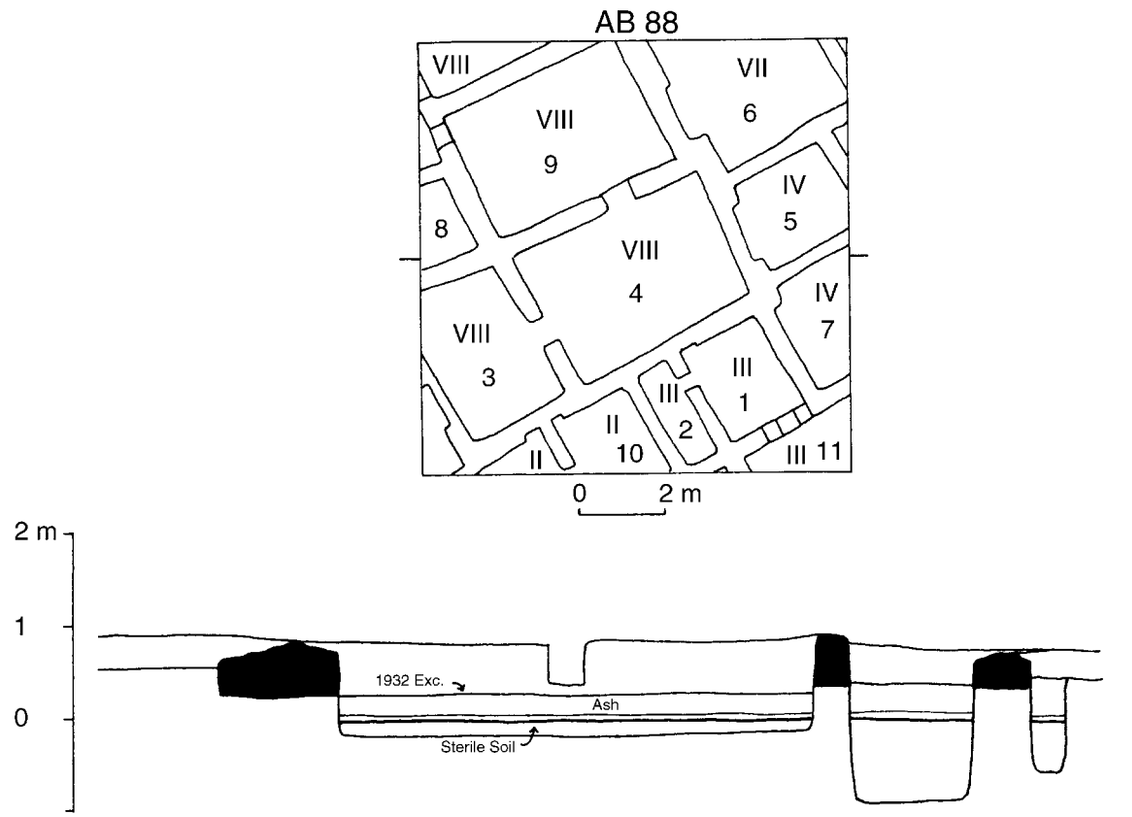


Figure 22. Top Plan and Section Drawing of Square AB 88

Figure 23. Samples of Pottery from Tall-e Bakun B (in National Museum, Tehran)

Register No.	*Description*
A PPB 35	Light buff body fragment. Fine sand inclusion, well baked, dark paint. Length 6 cm; width 4 cm
B PPB 24	Buff lip fragment. Sand inclusion, well baked, black paint. Length 4.8 cm; width 5.2 cm
C PPB 26	Tan buff body fragment. Sand inclusion, well baked, dark paint. Length 3.3 cm; width 3.6 cm
D PPB 28	Greenish buff body fragment. Sand inclusion, well baked, dark green-brown paint. Length 3.6 cm; width 5.7 cm
E PPB 31	Buff lip fragment. Sand inclusion, well baked, dark brown paint. Length 5 cm; diameter 14 cm
F PPB 77	Buff lip and body fragment. Painted on interior and exterior. Sand inclusion, well baked, dark brown paint. Length 6 cm; diameter 15 cm
G PPB 69	Greenish buff body fragment. Sand inclusion, well baked, greenish brown paint. Length 5.0 cm; width 4.8 cm
H PPB 20	Buff lip and body fragment. Sand inclusion, well baked, black paint. Length 5.6 cm; diameter ca. 14.0 cm
I PPB 29	Greenish buff body fragment, painted interior. Sand inclusion, well baked, greenish black paint. Length 5 cm; width 3 cm
J PPB 49	Tannish buff body fragment. Sand inclusion, well baked, black paint. Length 4 cm; width 3 cm
K PPB 45	Greenish buff lip fragment. Sand inclusion, well baked, greenish brown paint. Length 5.6 cm; width 7.6 cm
L PPB 3	Tannish buff fragment. Sand inclusion, well baked, black paint. Length 6.4 cm; diameter ca. 14 cm
M PPB 65	Light buff lip and body fragment. Sand inclusion, well baked, black paint. Length 4.5; width 3.0 cm
N PPB 47	Buff body fragment. Sand inclusion, well baked, reddish brown paint. Length 5.1 cm; diameter 16.0 cm
O PPB 61	Light buff lip and body fragment. Sand inclusion, well baked, reddish brown paint. Length 6.8 cm; width 5.0 cm
P PPB 16	Greenish buff body fragment. Sand inclusion, well baked, green brown paint. Length 6.3 cm; width 3.7 cm
Q PPB 68	Greenish buff body and base fragment. Sand inclusion, well baked, green brown paint. Length 8.5 cm; width 4.7 cm
R PPB 32	Buff body fragment. Sand inclusion, well baked, black paint. Length 3.0 cm; width 2.8 cm
S PPB 53	Greenish buff body fragment. Sand inclusion, well baked, greenish brown paint. Length 4.8 cm; width 2.4 cm
T PPB 71	Light buff body fragment. Sand inclusion, well baked, dark brown paint. Length 3.6 cm; width 4.8 cm
U PPB 40	Greenish buff body fragment. Sand inclusion, well baked, greenish brown paint. Length 4.8 cm; width 3.2 cm
V PPB 60	Light buff lip and body fragment. Sand inclusion, well baked, reddish brown paint. Length 8.5 cm; width 8.2 cm
W PPB 33	Greenish buff bowl fragment. Sand inclusion, well baked, greenish brown paint. Length 7 cm; diameter ca. 15 cm
X PPB 63	Greenish buff body fragment. Sand inclusion, well baked, greenish brown paint. Length 9.8 cm; diameter ca. 14.0 cm
Y PPB 42	Light buff ring base fragment. Sand inclusion, well baked, dark brown paint. Length 5.2 cm; width 5.4 cm
Z PPB 43	Greenish buff ring base fragment. Sand inclusion, well baked, greenish brown paint. Length 4.6 cm; width 3.8 cm
AA PPB 41	Green buff ring base fragment. Sand inclusion, well baked, greenish brown paint. Length 4.5 cm; base diameter ca. 8.0 cm
BB PPB 74	Green buff jar rim fragment. Sand inclusion, well baked, greenish brown paint. Length 6 cm; diameter 14 cm
CC PPB 4	Light buff jar rim fragment. Sand inclusion, well baked, black paint. Length 3.5 cm; width 3.6 cm
DD PPB 17	Light buff jar rim fragment. Sand inclusion, well baked, black paint. Length 3.8 cm; width 4.2 cm
EE PPB 76	Buff jar body fragment. Sand inclusion, well baked, black paint. Length 5.5; diameter 20 cm

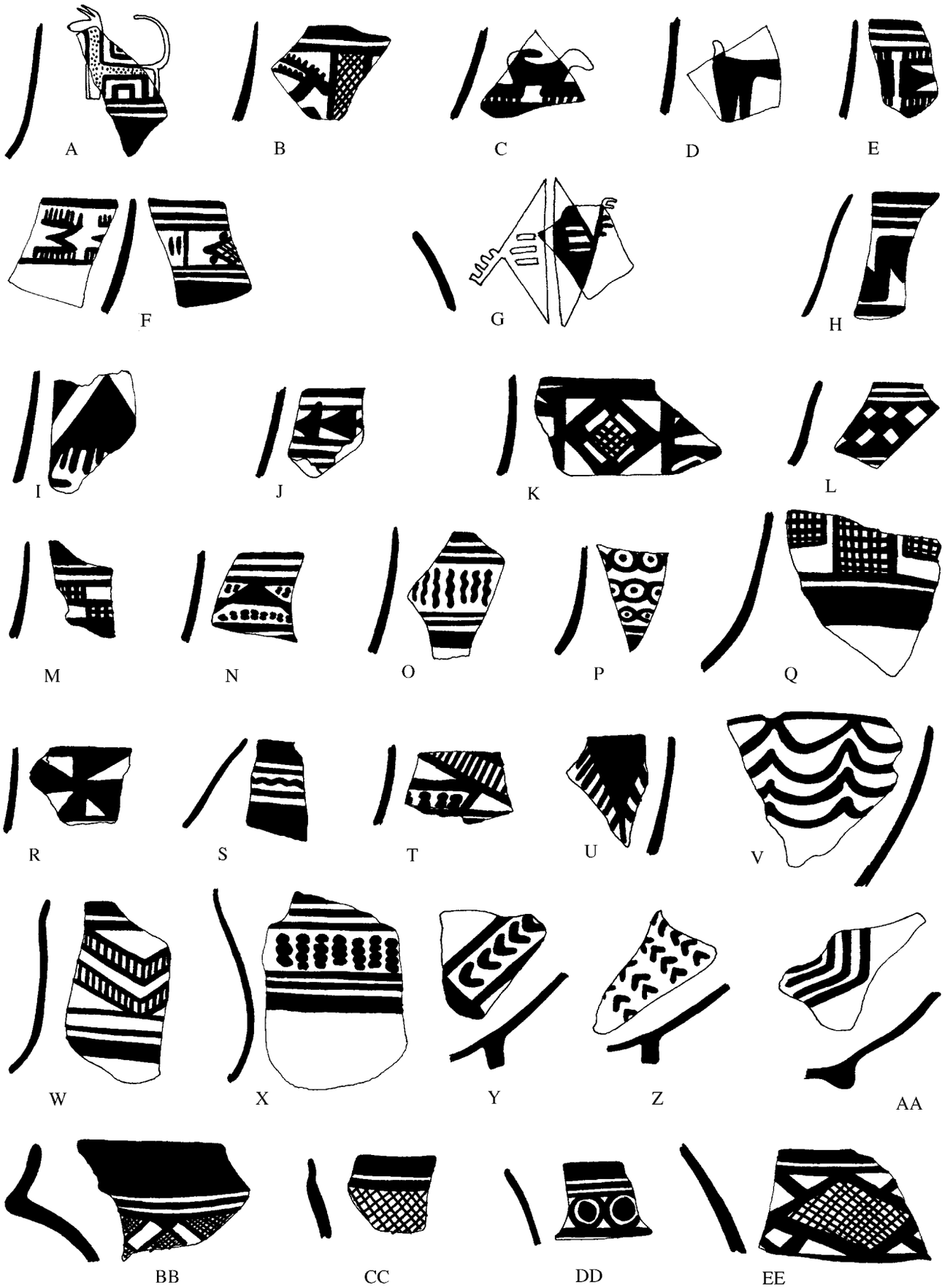


Figure 23. Samples of Pottery from Tall-e Bakun B (in National Museum, Tehran). Not to Scale

Figure 24. Conical and Cone-shaped Vessels from Tall-e Bakun A

	Register No.	*Provenance*	*Elevation*	*Description*
A	—	Sq. BB 28	—	Fine buff ware, no visible inclusion, well baked, cream slip, brown paint
B	TBA 569	Sq. BB 78	Level 4	Fine buff ware, no visible inclusion, well baked, cream slip, brown paint
C	TBA 777	Sq. AB 88, Bldg. II	Level III	Fine buff ware, buff core, cream slip, no visible inclusion, brown paint
D	TBA 712	Sq. BB 27	—	Fine buff ware, no visible inclusion, well baked, cream slip, brown paint
E	TBA 638	Sq. BB 27	—	Fine buff ware, no visible inclusion, well baked, cream slip, brown paint
F	TBA 699	Sq. BB 38	Level 4	Fine buff ware, no visible inclusion, well baked, cream slip, maroon paint
G	TBA 567	Sq. BB 38	Level 4	Fine buff ware, no visible inclusion, well baked, yellowish cream slip, light brown paint
H	TBA 17	Sq. BB 62	Surface	Fine buff ware, no visible inclusion, well baked, cream slip, maroon paint
I	TBA 775	Sq. AB 88, Bldg. II	Level III	Fine buff ware, no visible inclusion, well baked, yellowish cream slip, dark brown paint

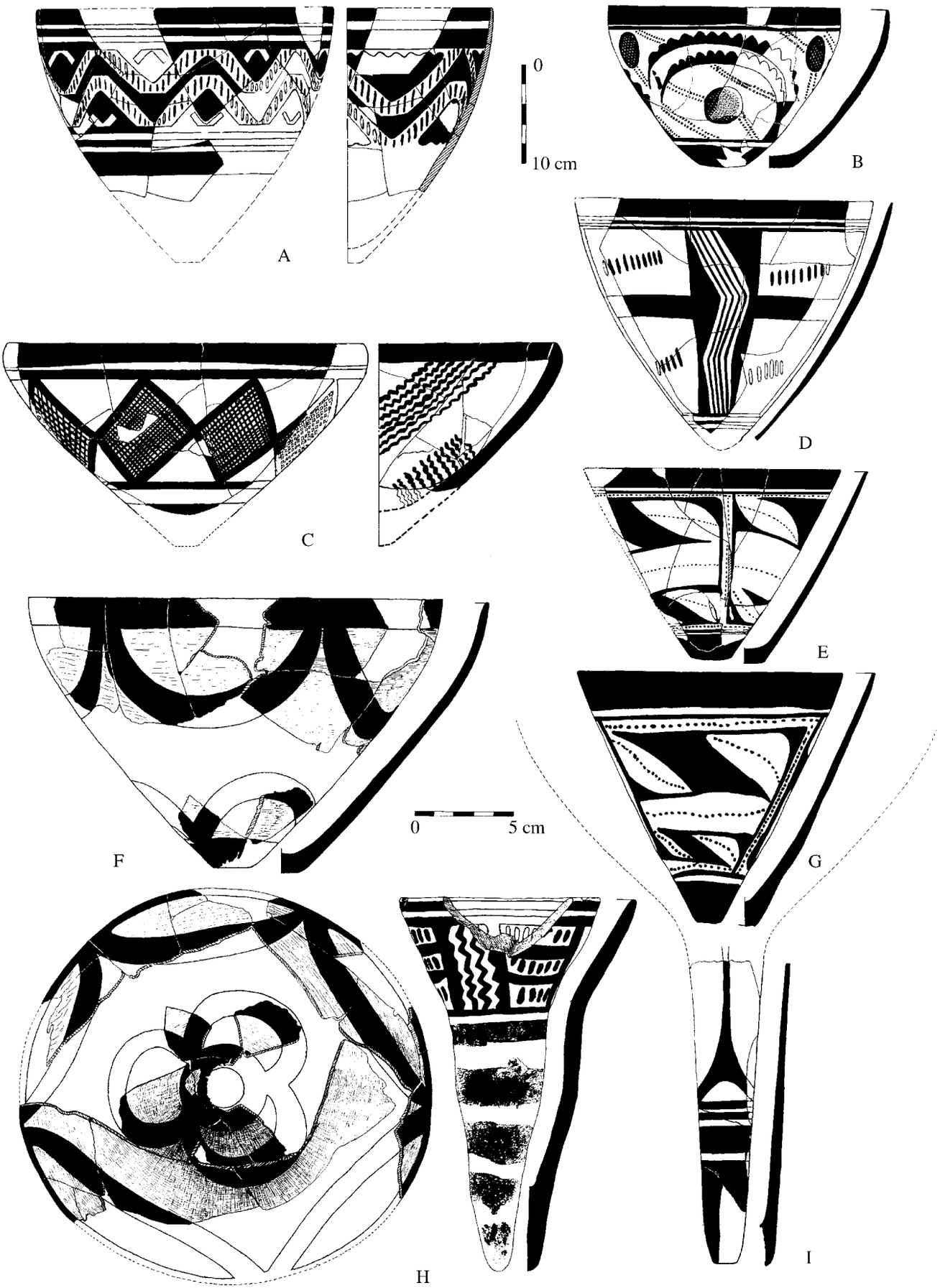


Figure 24. Conical and Funnel-shaped Vessels from Tall-e Bakun A. Scale 2:5 (*A*, *C–I*) and 1:5 (*B*)

Figure 25. Conical Vessels from Tall-e Bakun A

	Register No.	*Provenance*	*Elevation*	*Description*
A	TBA 734	Sq. BB 38	—	Fine buff ware, no visible inclusion, well baked, yellowish cream slip, black paint
B	TBA 732	Sq. BB 38	Level 3	Fine buff ware, no visible inclusion, well baked, yellowish cream slip, black paint
C	TBA 700	Sq. BB 38	Level 4	Fine buff ware, no visible inclusion, well baked, yellowish cream slip, black paint
D	TBA 694a	Sq. BB 37	Level 3	Fine buff ware, no visible inclusion, well baked, yellowish cream slip, maroon paint
E	TBA 697	Sq. BB 38	Level 3	Fine buff ware, yellowish green surface, highly pitted greenish brown paint

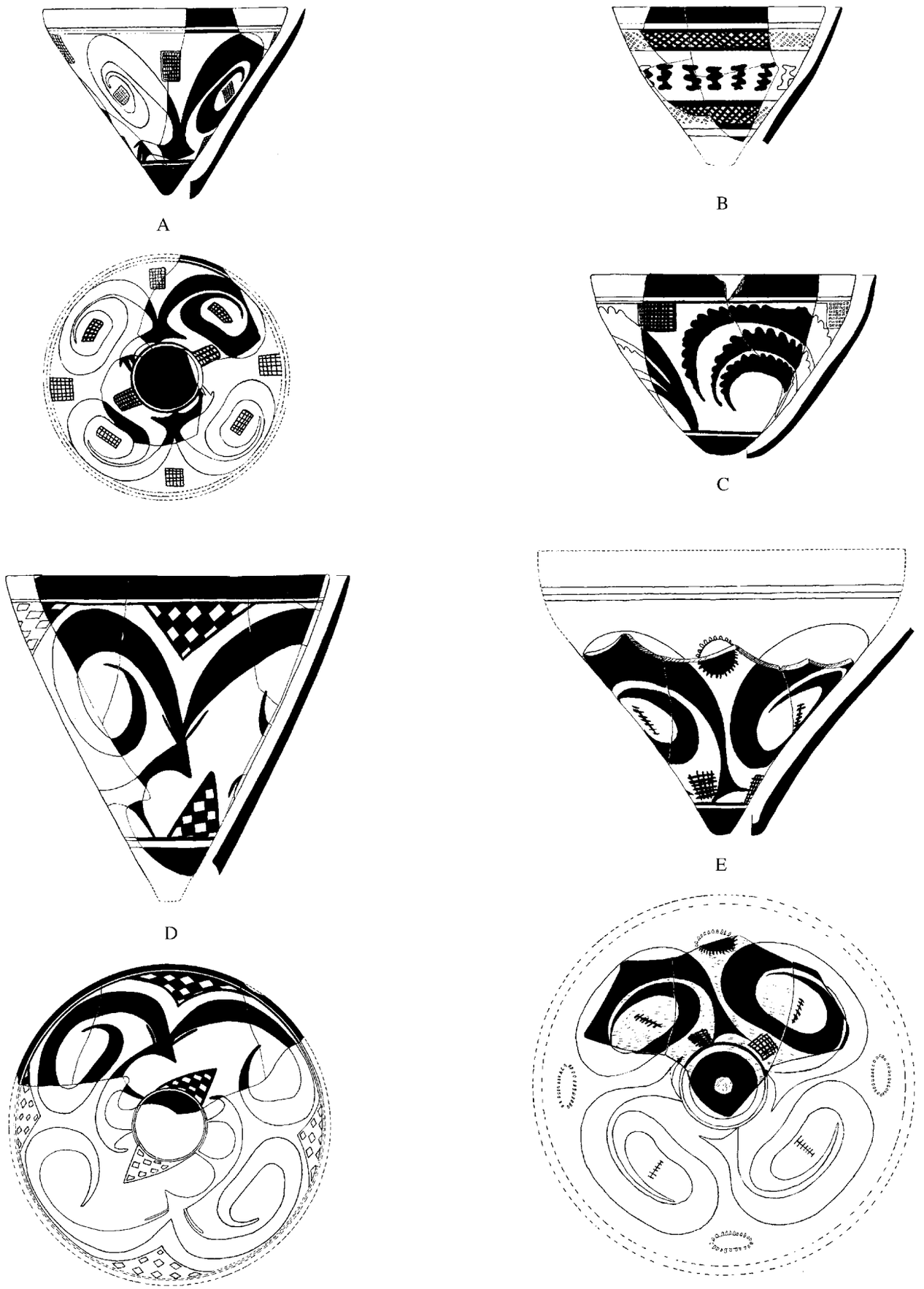


Figure 25. Conical Vessels from Tall-e Bakun A. Scale 1:3

Figure 26. Conical Vessels from Tall-e Bakun A. Scale 1:4

	Register No.	*Provenance*	*Elevation*	*Description*
A	TBA 656	Sq. BB 26	Level 4	Fine buff ware, no visible inclusion, well baked, cream slip, brown paint
B	TBA 646	Sq. BB 27	—	Fine buff ware, greenish buff surface, no visible inclusion, greenish brown paint
C	TBA 651	Sq. BB 27	Level 4	Fine buff ware, no visible inclusion, well baked, yellowish cream slip, black paint
D	TBA 737	Sq. BB 38	—	Fine buff ware, no visible inclusion, well baked, cream slip, black paint

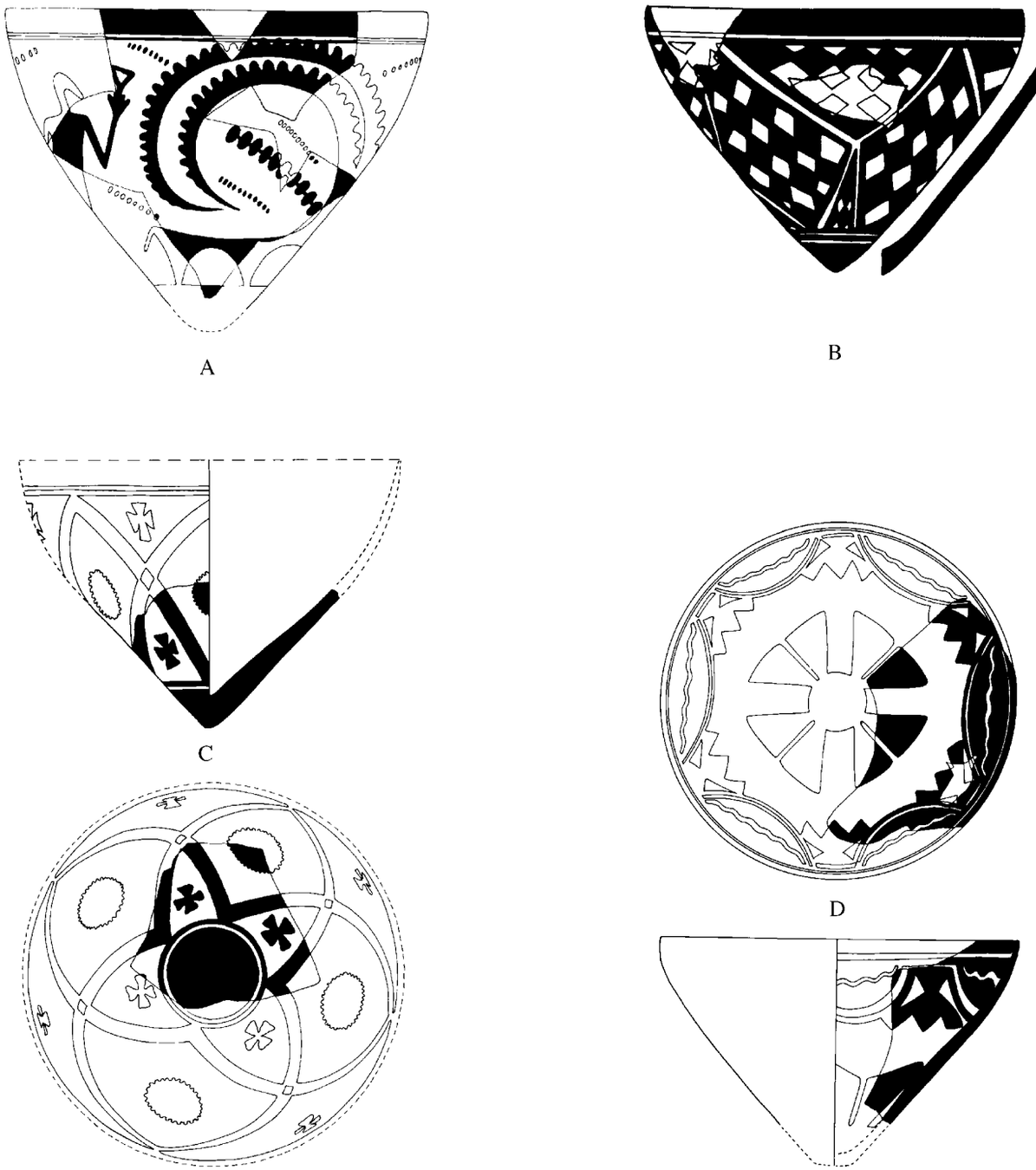


Figure 27. Conical Vessels from Tall-e Bakun A. Scale 1:3

	Register No.	*Provenance*	*Elevation*	*Description*
A	TBA 649a	Sq. BB 27	Level 4	Fine buff ware, no visible inclusion, well baked, yellowish cream slip, black paint. Diameter 20 cm
B	TBA 757	Sq. BB 62	—	Fine buff ware, no visible inclusion, well baked, yellowish cream slip, dark brown paint. Diameter 17.5 cm
C	TBA 736	Sq. BB 38	—	Fine buff ware, no visible inclusion, well baked, yellowish cream slip, reddish maroon paint. Diameter 18 cm
D	TBA 716	Sq. BB 37	—	Fine buff ware, no visible inclusion, well baked, yellowish cream slip, brown paint. Diameter 17 cm

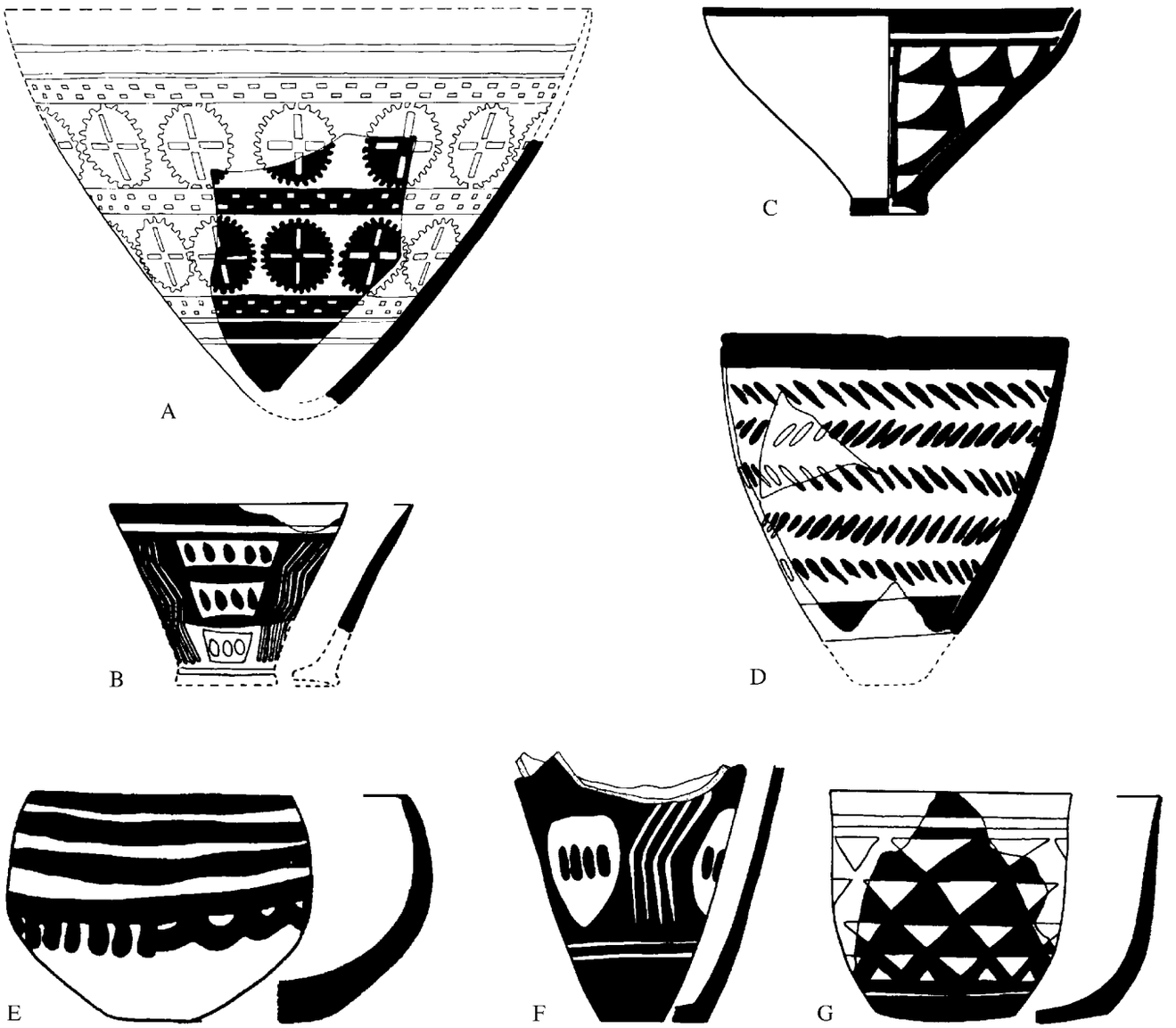


Figure 28. Various Types of Painted Ceramics from Tall-e Bakun A. Scale 1:3

	Register No.	*Provenance*	*Elevation*	*Description*
A	TBA 719	Sq. BB 37	—	Buff ware, no visible inclusion, yellowish brown slip, brown paint. Diameter ca. 27 cm
B	TBA 783	Sq. BB 64	—	Buff ware, no visible inclusion, yellowish brown slip, brown paint. Diameter 11 cm
C	TBA 653	Sq. BB 27	Level 4	Buff ware, no visible inclusion, yellowish brown slip, brown paint. Diameter 17.5 cm
D	TBA —	—	—	Buff ware, no visible inclusion, cream buff slip, brownish red paint. Diameter 16 cm
E	TBA 256	Sq. BB 78	Level 2	Buff ware, no visible inclusion, yellowish cream slip, brown paint. Diameter 12 cm
F	TBA 89	Sq. AB 88, Bldg. VIII, Floor	Level III	Buff ware, no visible inclusion, cream buff slip, black paint. Height 12.5 cm
G	TBA 741	Sq. BB 38	—	Buff ware, no visible inclusion, cream buff slip, black paint. Diameter 11 cm

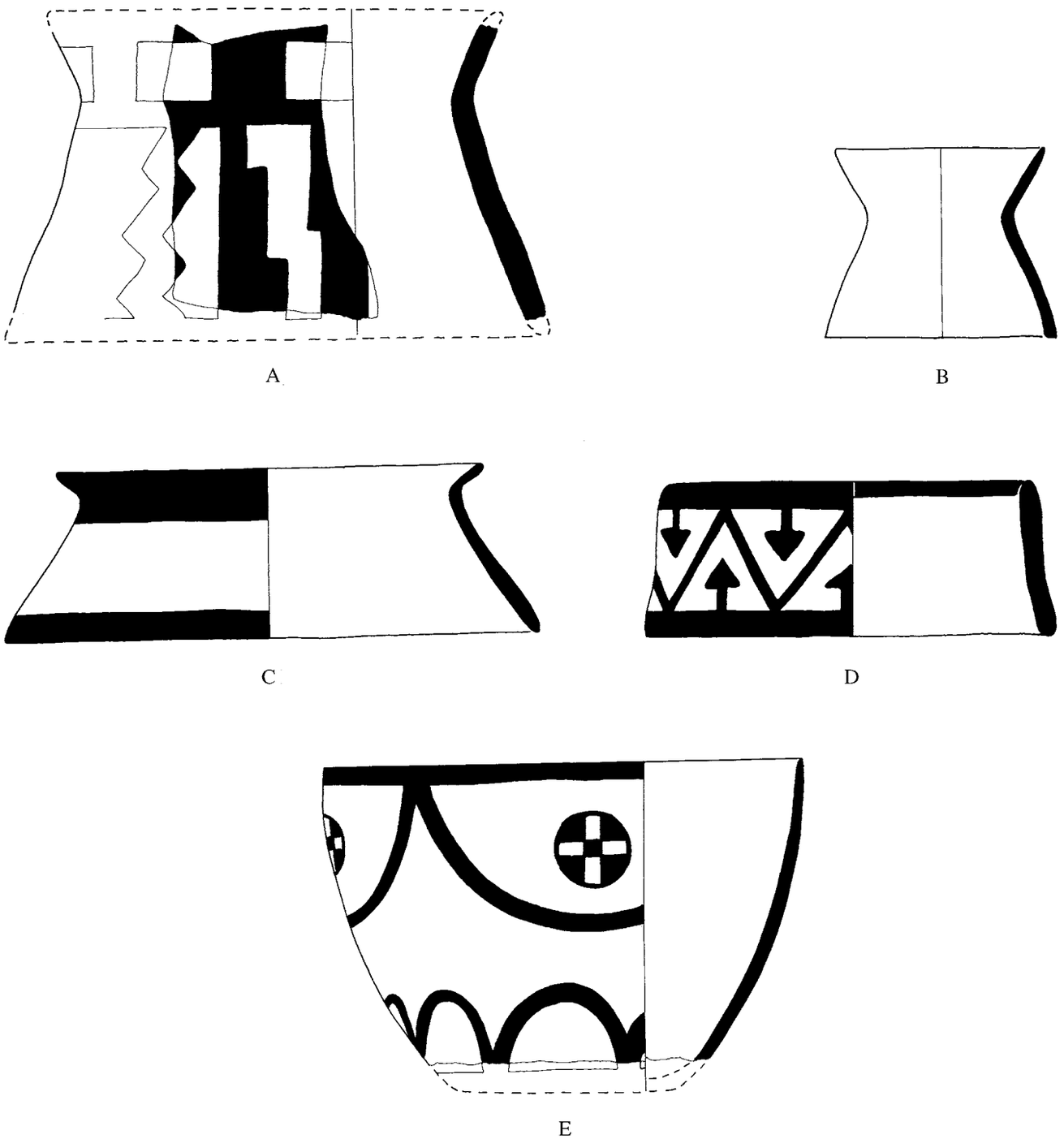


Figure 29. Pottery Stands and a Late Middle Susiana Type Vessel from Tall-e Bakun A. Scale 1:2

	Register No.	*Provenance*	*Elevation*	*Description*
A	PPA 2765	Sq. N 28	Level II, +2.70 cm	Buff ware, cream tan slip, no visible inclusion, dark brown paint
B	PPA 2764	NA	—	Buff ware, yellowish buff slip
C	PPA 2763	Sq. Q 30	—	Buff ware, cream tan slip, reddish maroon paint
D	PPA 2762	Sq. N 31	Level II, +2.27 cm	Buff ware, cream tan slip, reddish maroon paint
E	PPA 4127	Sq. P 31	—	Buff ware, cream buff slip, black paint

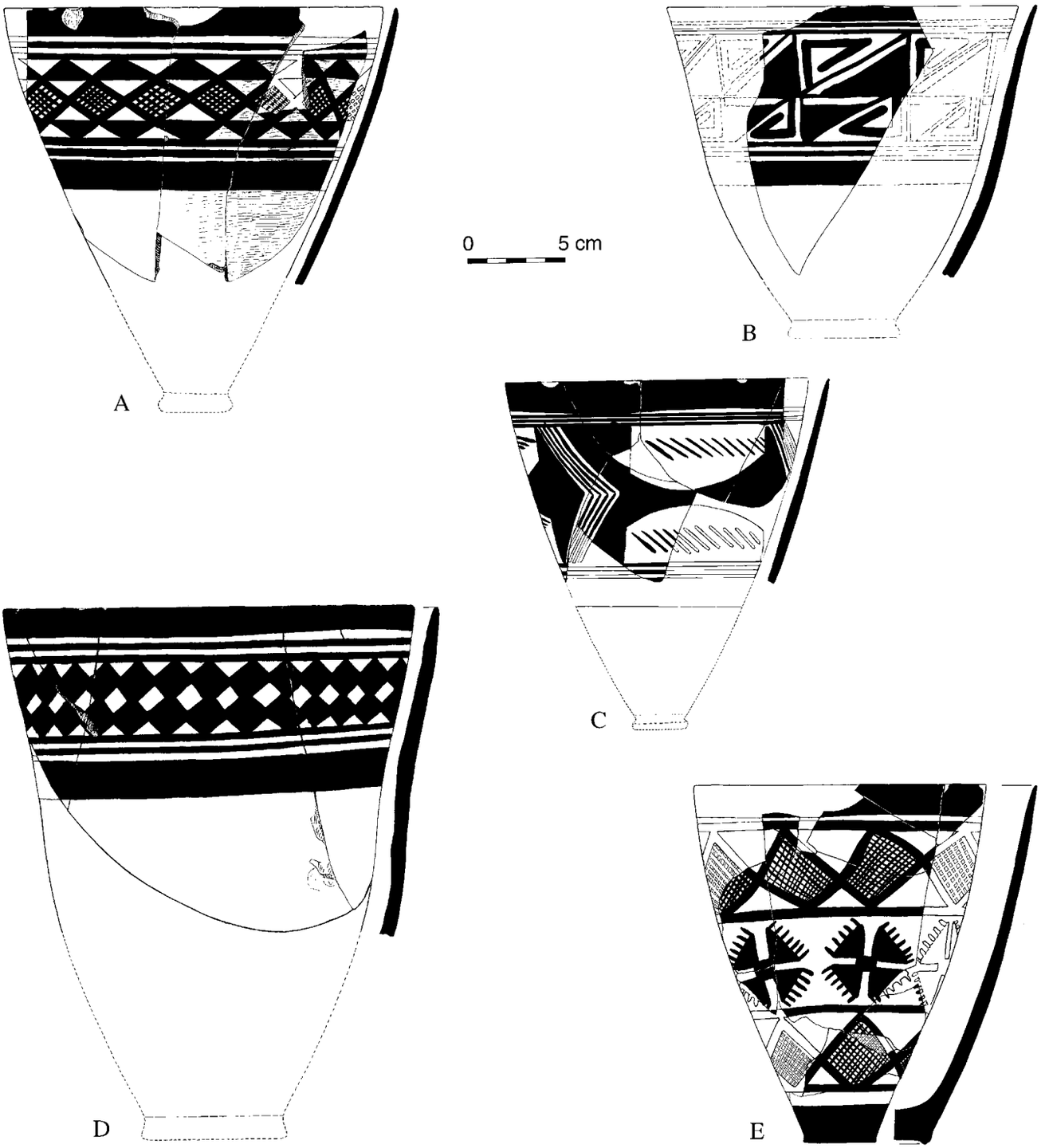


Figure 30. Tall Beakers from Tall-e Bakun A. Scale 1:3

	Register No.	*Provenance*	*Elevation*	*Description*
A	TBA 667	Sq. BB 37	Level 3	Buff ware, tannish buff slip, brown paint
B	TBA 725	Sq. BB 37	—	Buff ware, creamy buff slip, brown paint
C	TBA 668	Sq. BB 37	Level 3	Buff ware, creamy buff slip, purple-brown paint
D	TBA 698	Sq. BB 38	Level 3	Buff ware, grayish brown paint
E	TBA 752	Sq. BB 62	—	Buff ware, yellowish buff slip, dark brown paint

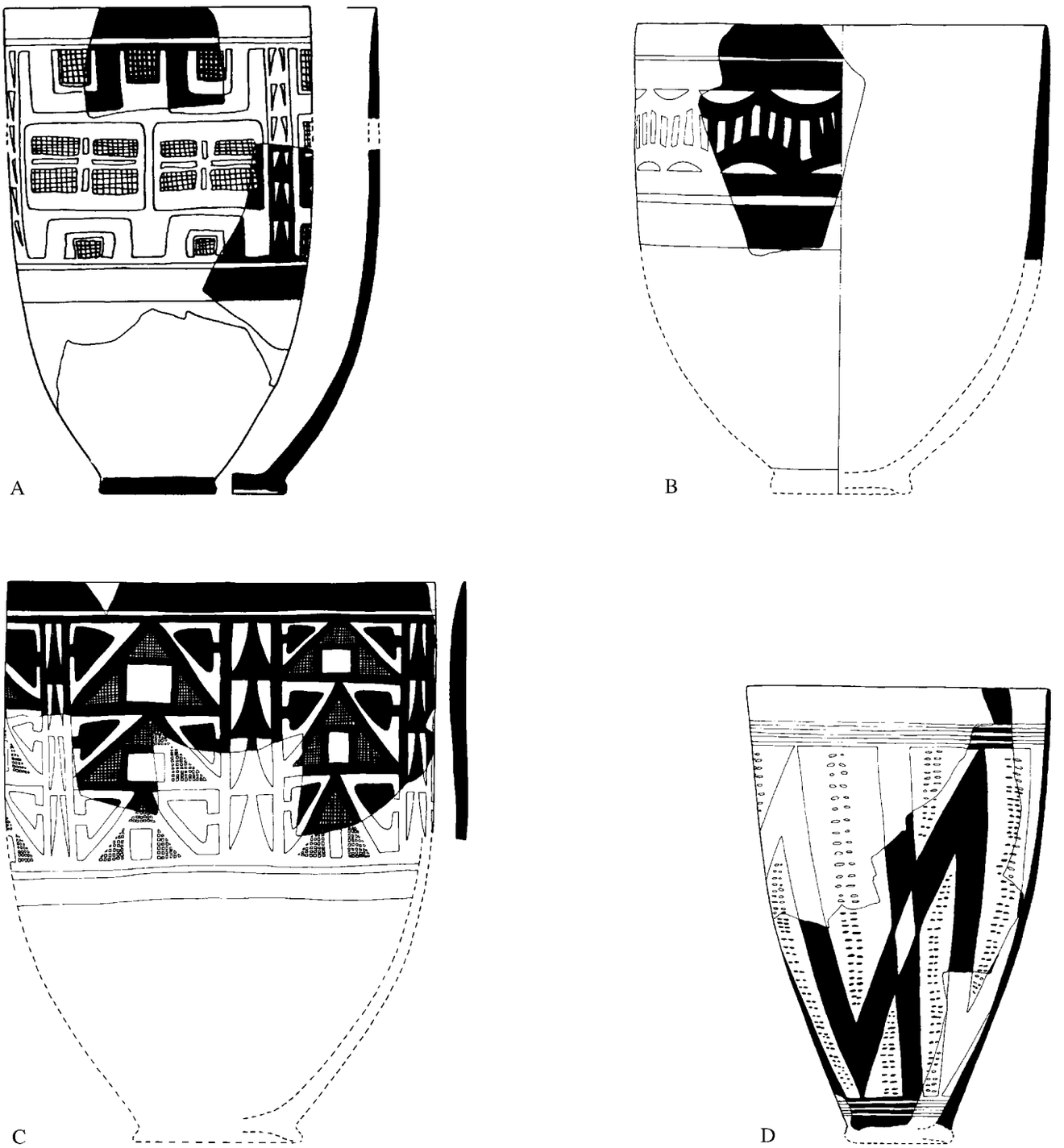


Figure 31. Tall Beakers from Tall-e Bakun A. Scale 1:3

	Register No.	*Provenance*	*Elevation*	*Description*
A	TBA 746	Sq. BB 38	Level 3	Buff ware, probably creamy buff slip, brown paint. Diameter 15.5 cm
B	TBA 729	Sq. BB 38	Level 3	Buff ware, yellowish buff slip, brown paint. Diameter 21 cm
C	TBA 774	Sq. AB 88, Bldg. VIII	Level III	Buff ware, yellowish buff slip, brown paint. Diameter 22 cm
D	TBA 650	Sq. BB 27	Level 4	Buff ware, yellowish buff slip, brown paint. Diameter 15.5 cm

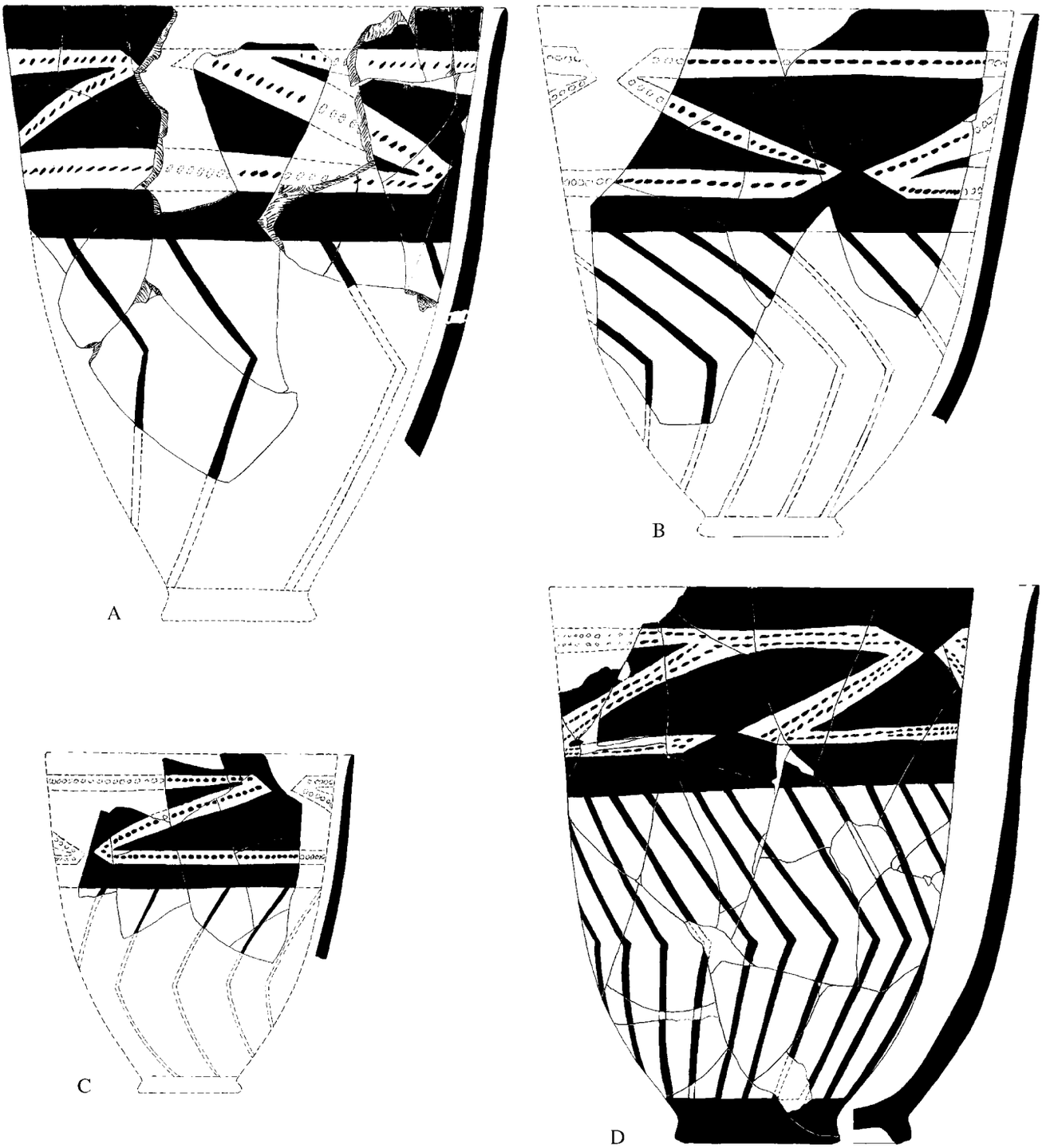


Figure 32. Tall Beakers from Tall-e Bakun A. Scale 2:5

	Register No.	*Provenance*	*Elevation*	*Description*
A	TBA 657	Sq. BB 37	Level 4	Buff ware, yellowish buff slip, occasional sand, brown paint
B	TBA 713	Sq. BB 27	—	Buff ware, yellowish buff slip, occasional sand, brown paint
C	TBA 772	Sq. BB 86	—	Buff ware, yellowish buff slip, occasional sand, brown paint
D	TBA 763	Sq. BB 86, Rm. 2	Level 4	Buff ware, yellowish buff slip, occasional sand, brown paint

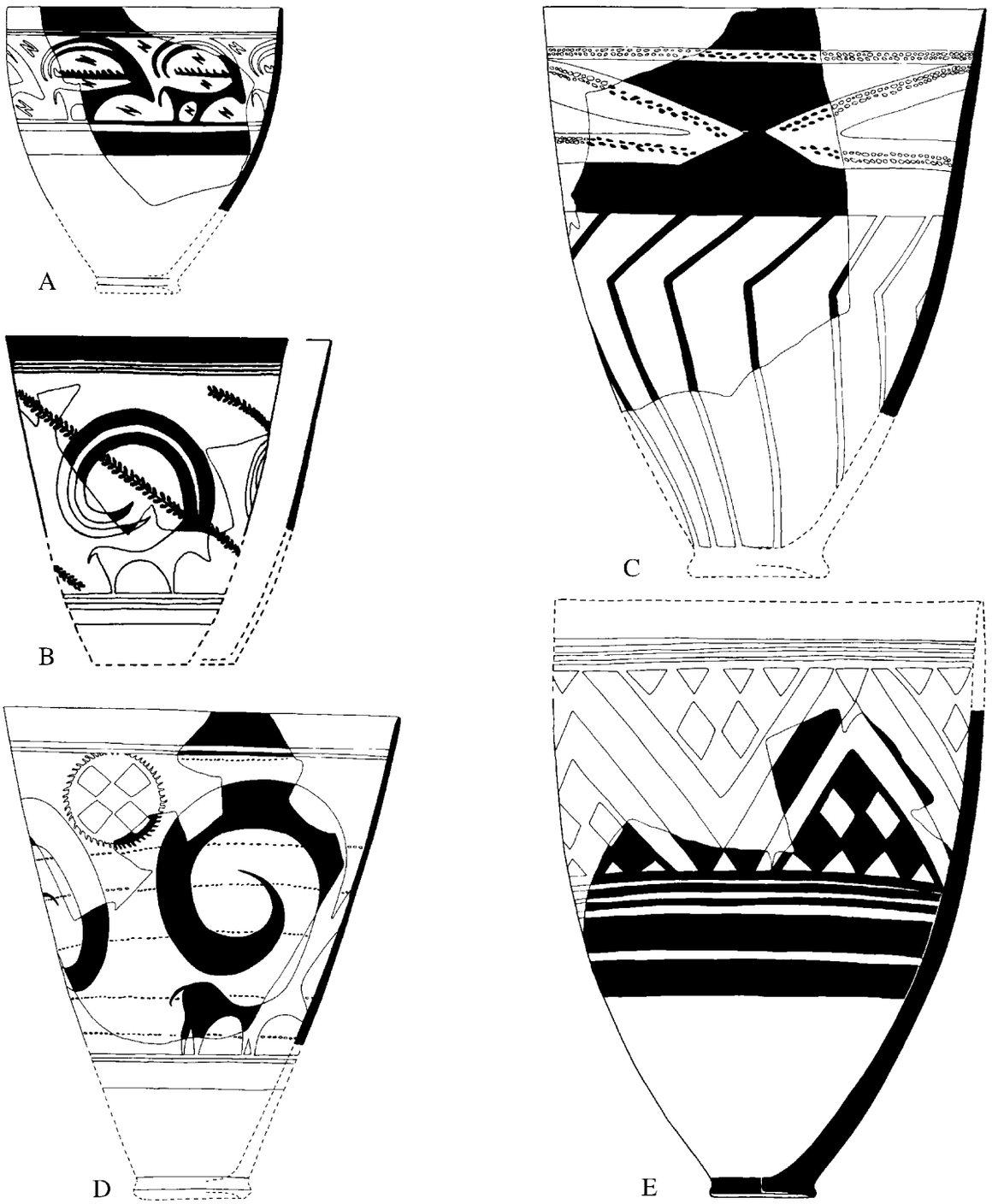


Figure 33. Tall Beakers from Tall-e Bakun A. Scale 1:3

	Register No.	*Provenance*	*Elevation*	*Description*
A	TBA 519	Sq. BB 37	Level 3	Buff ware, yellowish buff slip, occasional sand, brown paint. Diameter 13 cm
B	TBA 652	Sq. BB 27	Level 4	Buff ware, yellowish buff slip, occasional sand, brown paint. Diameter 13.5 cm
C	NA	NA	—	Buff ware, yellowish buff slip, occasional sand, brown paint. Diameter 20.5
D	TBA 645	Sq. BB 27	Level 2	Buff ware, creamy buff slip, occasional sand, brown paint. Diameter 19 cm
E	TBA 687	Sq. BB 38, Rm. 14	Level 4	Buff ware, yellowish buff slip, occasional sand, brown paint. Diameter 20 cm

Figure 34. Tall Beakers and Carinated Open Bowls from Tall-e Bakun A

	Register No.	*Provenance*	*Elevation*	*Description*
A	TBA 715	Sq. BB 28	Level 2	Fine buff ware, creamy buff slip, no visible inclusion, brown paint
B	TBA 786	Sq. BC 70	—	Fine buff ware, yellowish buff slip, no visible inclusion, pale brown paint
C	TBA 665	Sq. BB 37, Rm. 7	Level 4	Fine buff ware, creamy buff slip, no visible inclusion, brown paint
D	TBA 773	Sq. AB 88, Bldg. II	Level III	Fine buff ware, yellowish cream slip, no visible inclusion, greenish brown paint
E	TBA 636	Sq. BB 27	Level 2	Fine buff ware, creamy buff slip, no visible inclusion, brown paint
F	TBA 747	Sq. BB 38, Rm. 7	Level 4	Fine buff ware, creamy buff slip, no visible inclusion, reddish brown paint

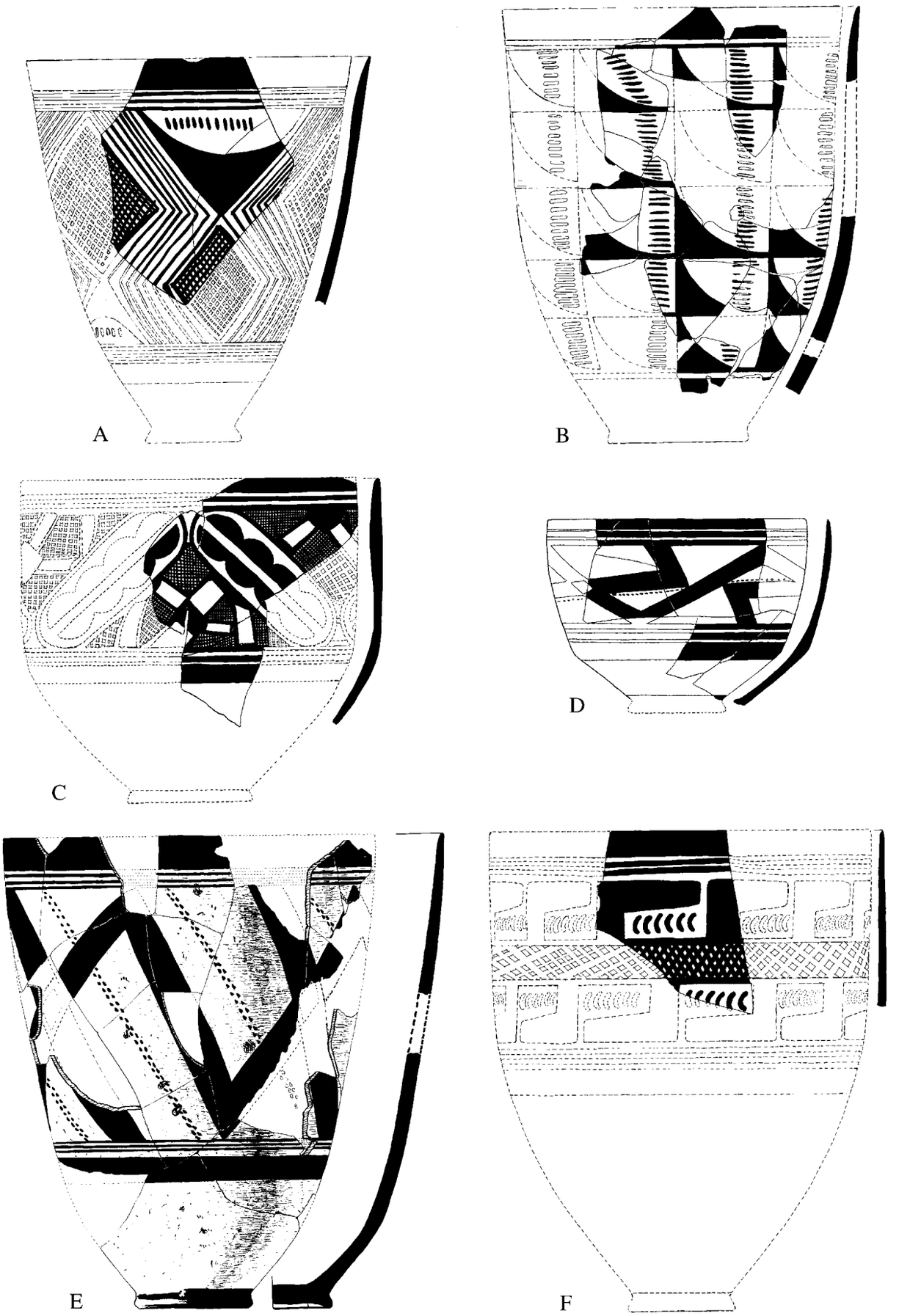


Figure 34. Tall Beakers and Carinated Open Bowls from Tall-e Bakun A. Scales 1:3 (*A–C*, *E–F*) and 1:6 (*D*)

Figure 35. Tall Beakers and Open Bowls with Overall Designs from Tall-e Bakun A

	Register No.	*Provenance*	*Elevation*	*Description*
A	TBA 654	Sq. BB 28	Level 4	Buff ware, creamy buff slip, occasional sand inclusion, purple-brown paint. Diameter 36 cm
B	TBA 787	NA	—	Buff ware, creamy buff slip, no visible inclusion, brown paint
C	TBA 759	Sq. BB 64	—	Buff ware, creamy buff slip, no visible inclusion, brown paint
D	TBA 677	Sq. BB 37, Rm. 3	Level 4	Buff ware, creamy buff slip, no visible inclusion, brown paint
E	TBA 756	Sq. BB 62	—	Buff ware, yellowish cream slip, no visible inclusion, brown paint
F	NA	Sq. BB 38, Rm. 4	Level 3	Buff ware, yellowish buff slip, no visible inclusion, brown paint

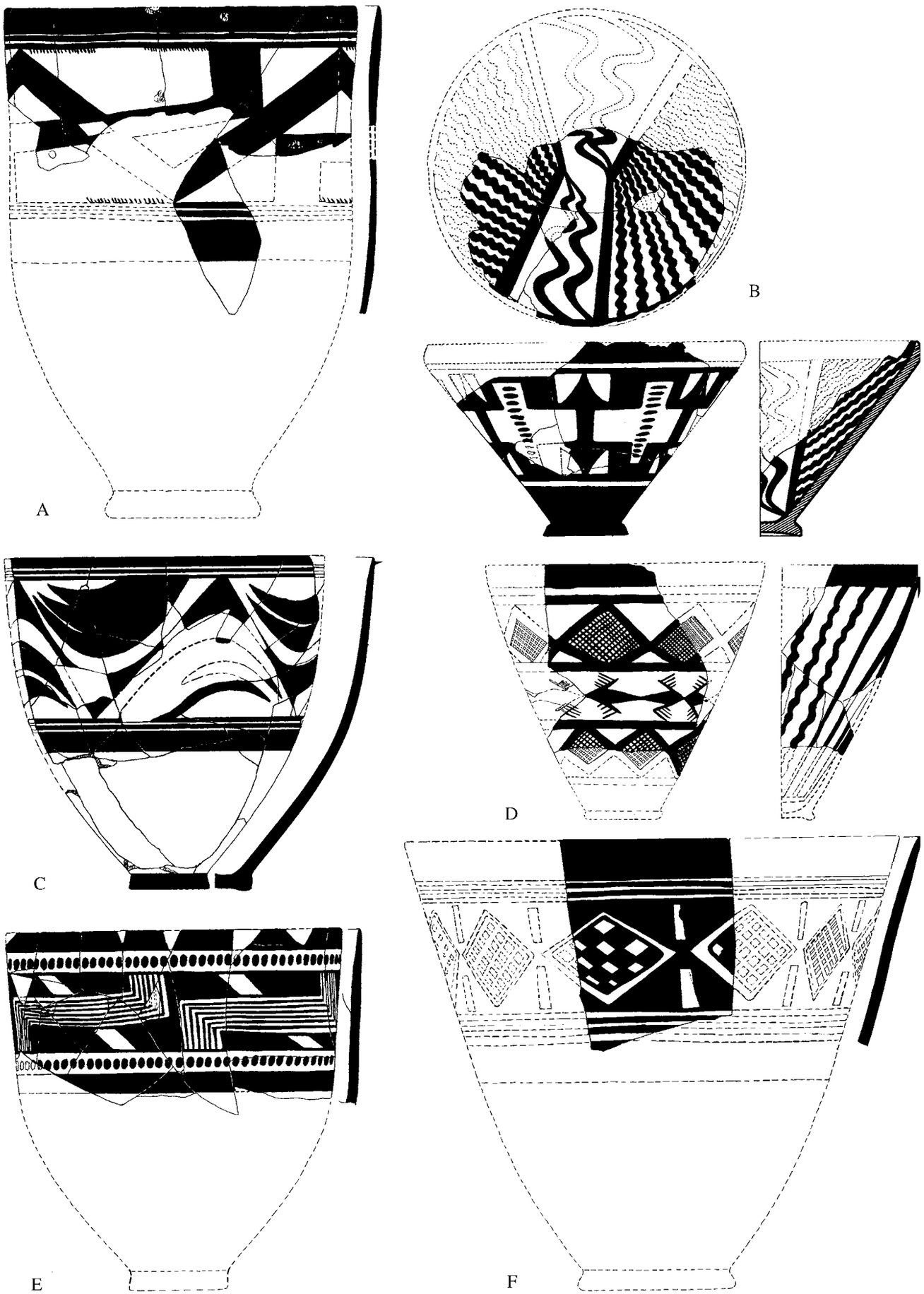


Figure 35. Tall Beakers and Open Bowls with Overall Designs from Tall-e Bakun A. Scales 1:5 (*A*) and 1:4 (*B–F*)

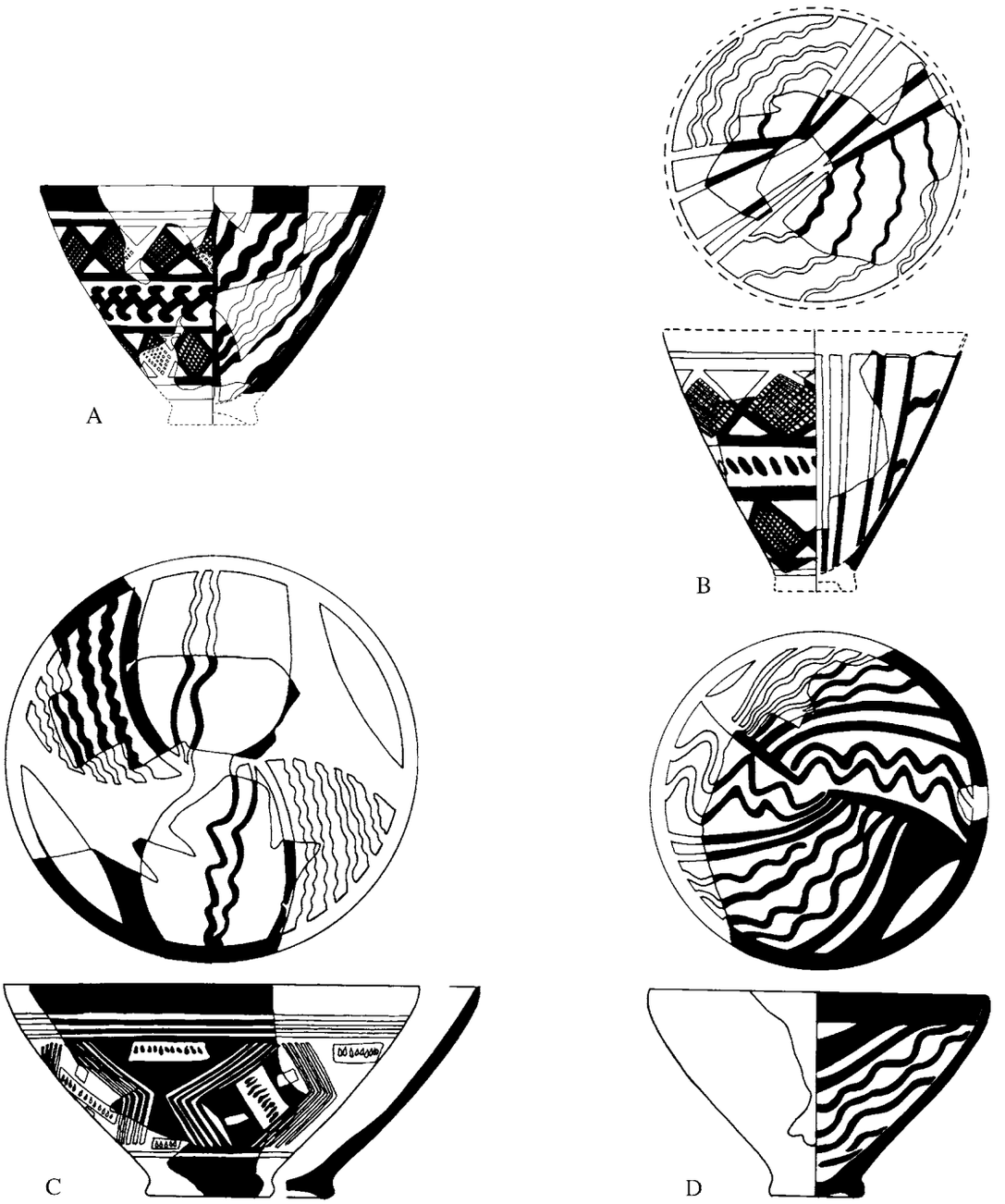


Figure 36. Open Bowls with Overall Decoration (except *D*) from Tall-e Bakun A. Scale 1:4

	Register No.	*Provenance*	*Elevation*	*Description*
A	TBA 751	Sq. BB 62	—	Fine buff ware, creamy buff slip, no visible inclusion, brown paint. Diameter 20.5 cm
B	TBA 744	Sq. BB 38, Rm. 8	Level 4	Fine buff ware, creamy buff slip, no visible inclusion, brown paint. Diameter 18 cm
C	TBA 765	Sq. BB 86	—	Fine buff ware, creamy buff slip, no visible inclusion, reddish brown paint. Diameter 24.5 cm
D	TBA 225	Sq. BB 62	Level 3	Fine buff ware, yellowish cream slip, no visible inclusion, red-brown paint. Diameter 20 cm

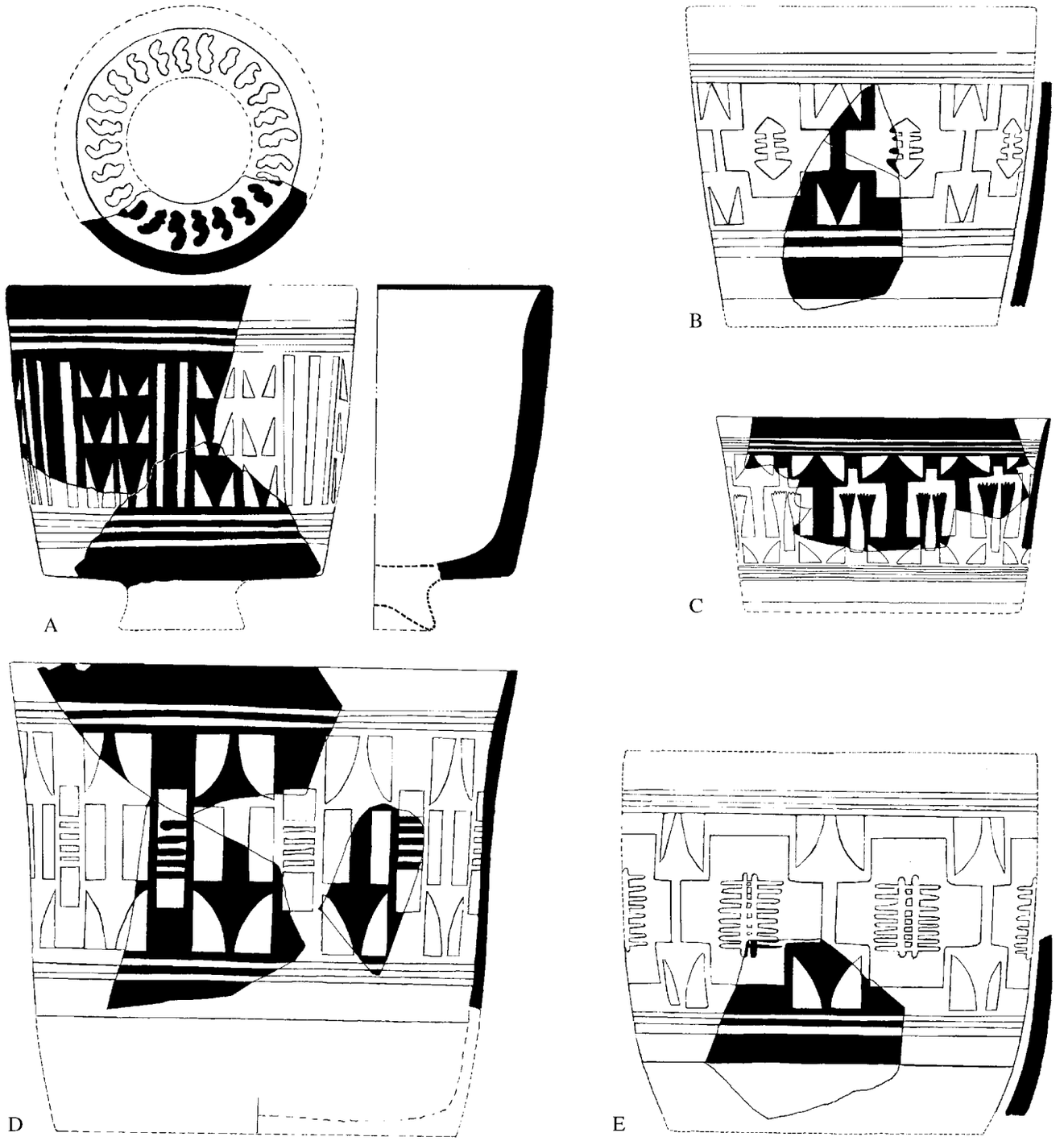


Figure 37. Barrel-shaped Vessels from Tall-e Bakun A. Scales 2:5 (*A–B, D–E*) and 1:5 (*C*)

	Register No.	*Provenance*	*Elevation*	*Description*
A	TBA 678	Sq. BB 37	Level 4	Fine buff ware, yellowish cream slip, no visible inclusion, dark brown paint sunk in
B	TBA 742	Sq. BB 38	—	Fine buff ware, yellowish tan slip, no visible inclusion, black paint
C	TBA 784	Sq. BB 78	—	Fine buff ware, yellowish cream slip, no visible inclusion, brown paint
D	TBA 738	Sq. BB 38	—	Fine buff ware, yellowish buff slip, no visible inclusion, brown paint
E	TBA 739	Sq. BB 38, Rm. 14	Level 4	Fine buff ware, yellowish cream slip, no visible inclusion, dark brown paint

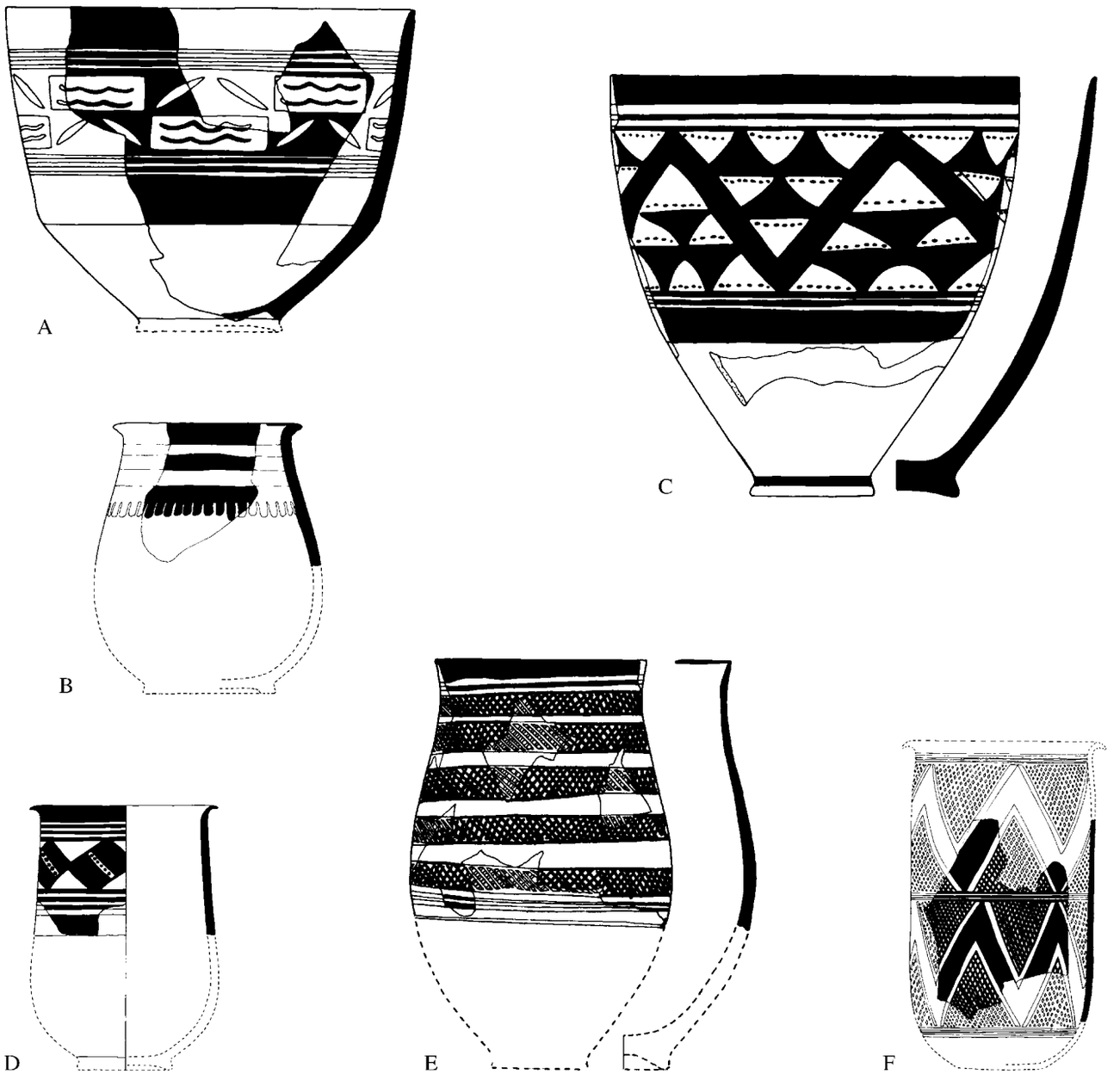


Figure 38. Ring Base Bowls and Cylindrical and Sinuous-walled Beakers from Tall-e Bakun A. Scale 1:4

	Register No.	*Provenance*	*Elevation*	*Description*
A	TBA 764	Sq. BB 86	—	Fine buff ware, creamy buff slip, occasional sand, well baked, purple-brown paint. Diameter 26 cm
B	TBA 707	Sq. BB 27	—	Buff ware, light buff slip, occasional sand, well baked, brown paint. Diameter 12 cm
C	TBA 692	Sq. BB 37–38	Level 3	Fine buff ware, creamy buff slip, well baked, no visible inclusion, brown paint. Diameter 26 cm
D	TBA 731	Sq. BB 38	Level 3	Fine buff ware, creamy buff slip, occasional sand, well baked, brown paint. Diameter 12 cm
E	TBA 683	Sq. BB 37	Level 4	Fine buff ware, yellowish cream slip, occasional sand, well baked, brown paint. Diameter 13.5 cm
F	TBA 727	Sq. BB 38	Level 4	Fine buff ware, creamy buff slip, no visible inclusion, well baked, purple-brown paint. Diameter 13 cm

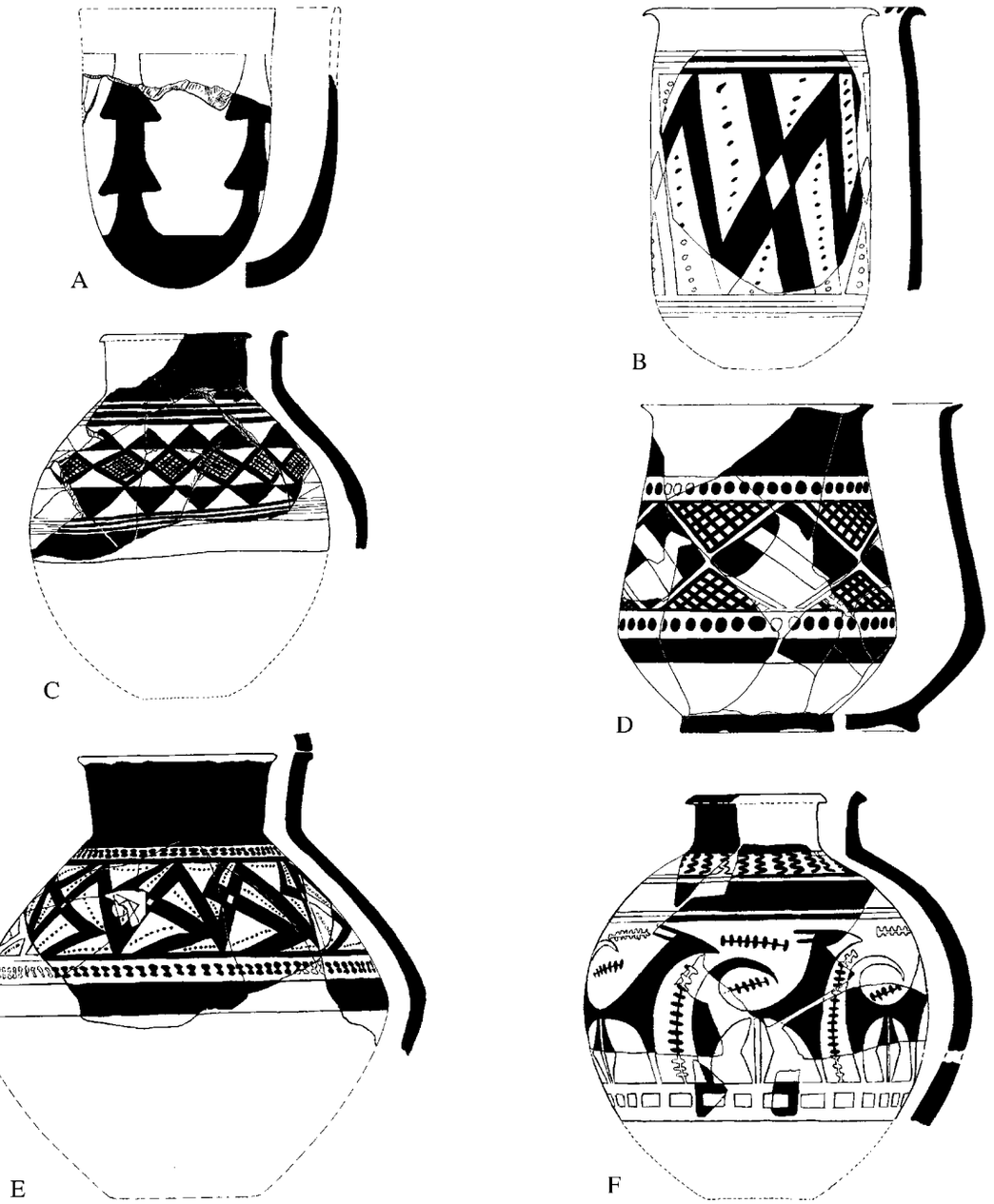


Figure 39. Cylindrical Vessels and High Neck Jars from Tall-e Bakun A. Scale 1:5

	Register No.	*Provenance*	*Elevation*	*Description*
A	TBA 658	Sq. BB 37, Rm. 5	Level 2	Fine buff ware, yellowish cream slip, no visible inclusion, reddish brown paint
B	TBA 711	Sq. BB 27	—	Fine buff ware, greenish buff surface, no visible inclusion, greenish brown paint
C	TBA 676	Sq. BB 37	Level 3	Buff ware, grayish green core, perhaps slipped, brown paint, occasional sand and medium size dark grits
D	TBA 754	Sq. BB 62	—	Buff ware, yellowish buff slip, occasional sand, brown paint
E	NA	Sq. BB 62	Level 3	Buff ware, tan slip, reddish brown paint, occasional sand and medium size dark grits
F	TBA 691	Sq. BB 38	Level 3	Buff ware, tan slip, reddish brown paint, occasional sand and medium size dark and reddish grits

Figure 40. Painted Hole-Mouth Jar from Tall-e Bakun A

Register No.	*Provenance*	*Elevation*	*Description*
TBA 769	Sq. BB 86	—	Buff ware, tan buff slip, occasional sand and small size grits, red-maroon paint

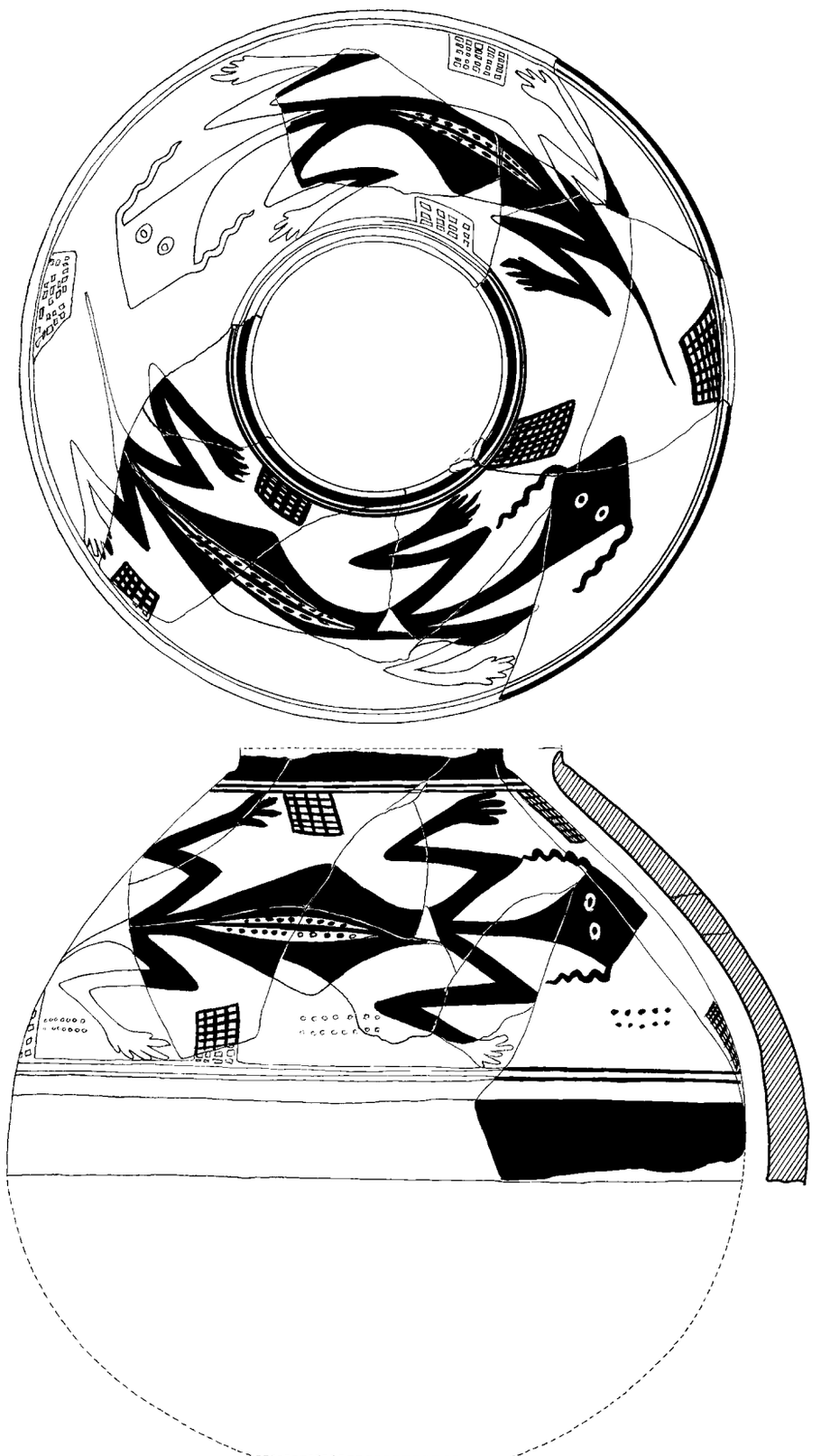


Figure 40. Painted Hole-Mouth Jar from Tall-e Bakun A. Scale 1:2

Figure 41. High and Low Neck Jars from Tall-e Bakun A

	Register No.	*Provenance*	*Elevation*	*Description*
A	TBA 761	Sq. BB 64	Level 2	Buff ware, occasional dark and reddish grits and sand, probably buff slipped, brown paint. Diameter 18 cm
B	TBA 685	Sq. BB 37	—	Buff ware, occasional sand and small grits, tannish buff slipped, reddish brown paint, pierced knobs. Maximum diameter 26 cm
C	TBA 705	Sq. BB 38, Rm. 5	Level 3	Buff ware, occasional dark grits and sand, pale buff slipped, light brown paint. Diameter 11 cm; height 37 cm
D	TBA 659	Sq. BB 37, Rm. 1	Level 3	Buff ware, some sand and medium size grits, buff slip, brown paint. Diameter 16 cm; height 38 cm
E	TBA 684	Sq. BB 37	Level 3	Buff ware, occasional grits and sand, tannish buff slipped, reddish brown paint. Maximum diameter 27 cm
F	NA	NA	NA	—

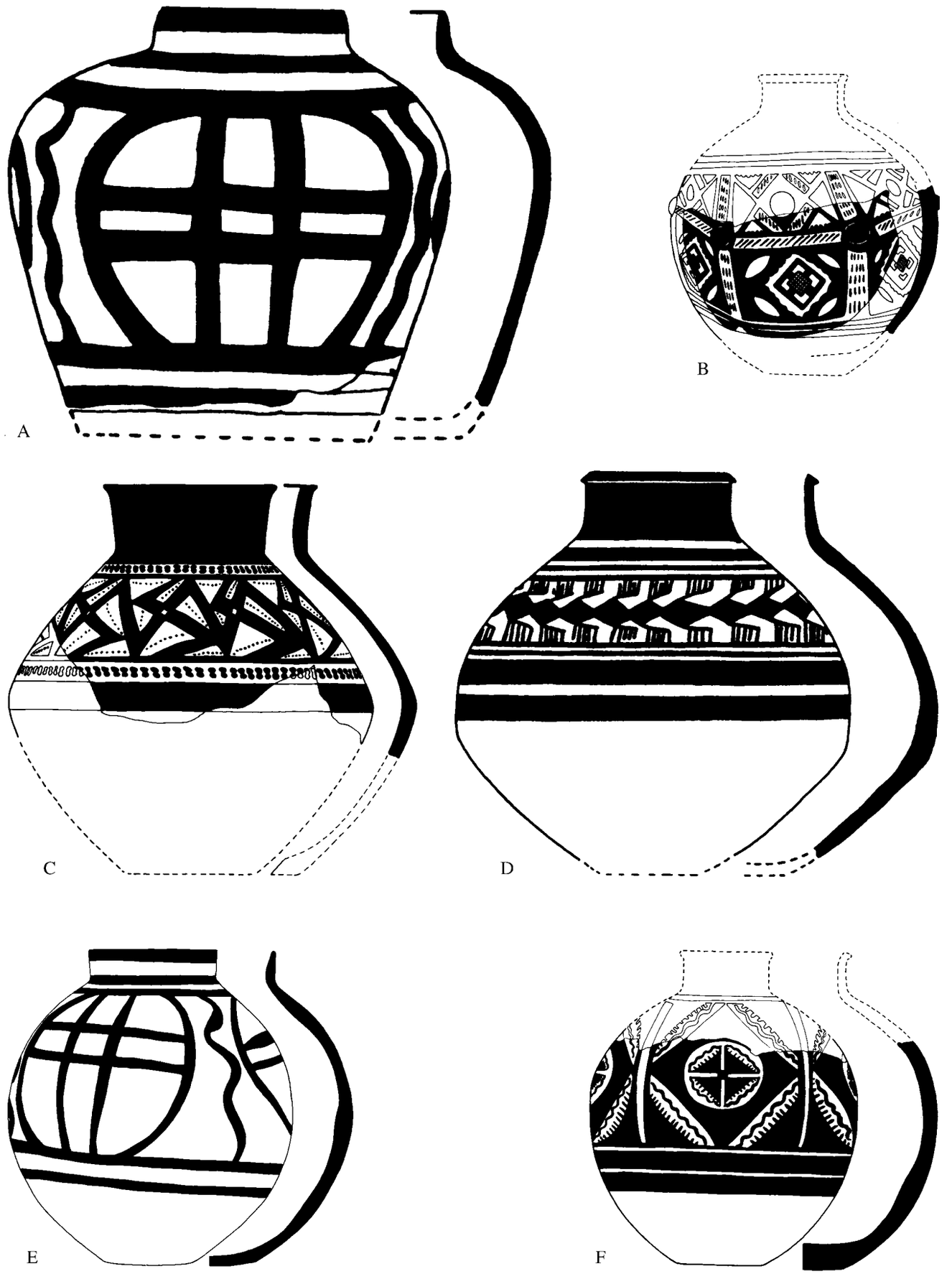


Figure 41. High and Low Neck Jars from Tall-e Bakun A. Scale 1:5 (*A–E*) and Scale Unknown (*F*)

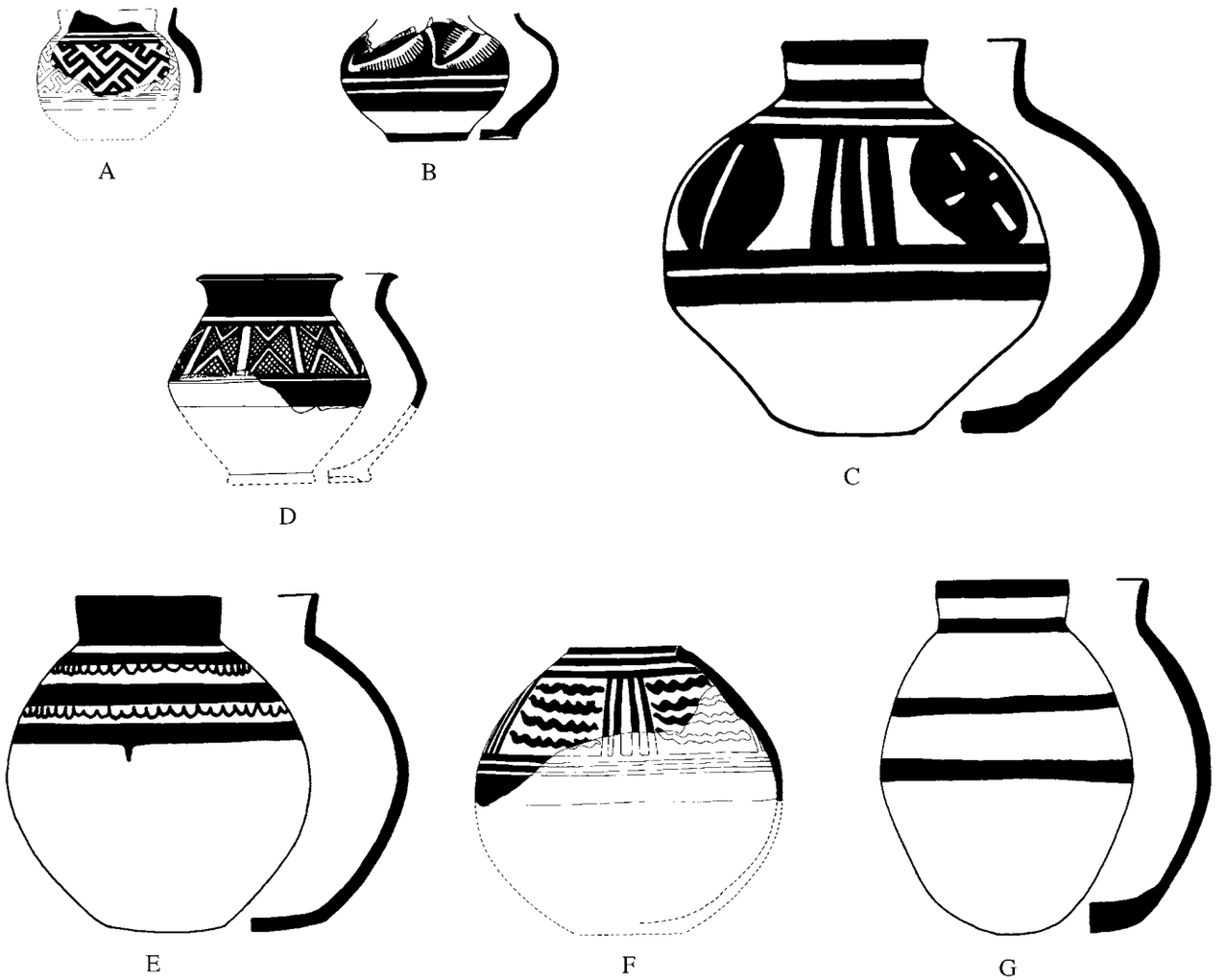


Figure 42. Low Neck and Hole-Mouth Jars from Tall-e Bakun A. Various Scales

	Register No.	*Provenance*	*Elevation*	*Description*
A	TBA 726	Sq. BB 38	—	Buff ware, no visible inclusion, well baked, buff slip, reddish brown paint. Diameter 7 cm
B	TBA 20	Sq. BB 62	Surface	Buff ware, creamy buff slip, some sand inclusion, well baked, dark brown paint. Maximum diameter 12 cm
C	TBA 6	Sq. AB 88, Bldg. VIII, Rm. 4	Level II	Buff ware, yellowish cream slip outside, well baked, dark brown paint. Diameter 14 cm; height 42 cm
D	TBA 785	Sq. BB 78	—	Buff ware, tan buff slip, occasional sand and grits, well baked, dark brown paint. Diameter 10.5 cm
E	TBA 704	Sq. BB 38, Rm. 9	Level 4	Buff ware, creamy buff slip, well baked, occasional sand and medium size dark and red grits, lower part scraped with a comb-like tool, dark brown paint. Diameter 14 cm; height 36 cm
F	TBA 666	Sq. BB 37, Rm. 3	Level 3	Buff ware, reddish tan buff exterior, well baked, some sand and occasional medium red grits, dark brown paint. Diameter 8 cm
G	TBA 663	Sq. BB 37, Rm. 5	Level 3	Buff ware, tan buff slip, well baked, occasional grits, brown paint, lower part scored. Diameter 15 cm; height 38 cm

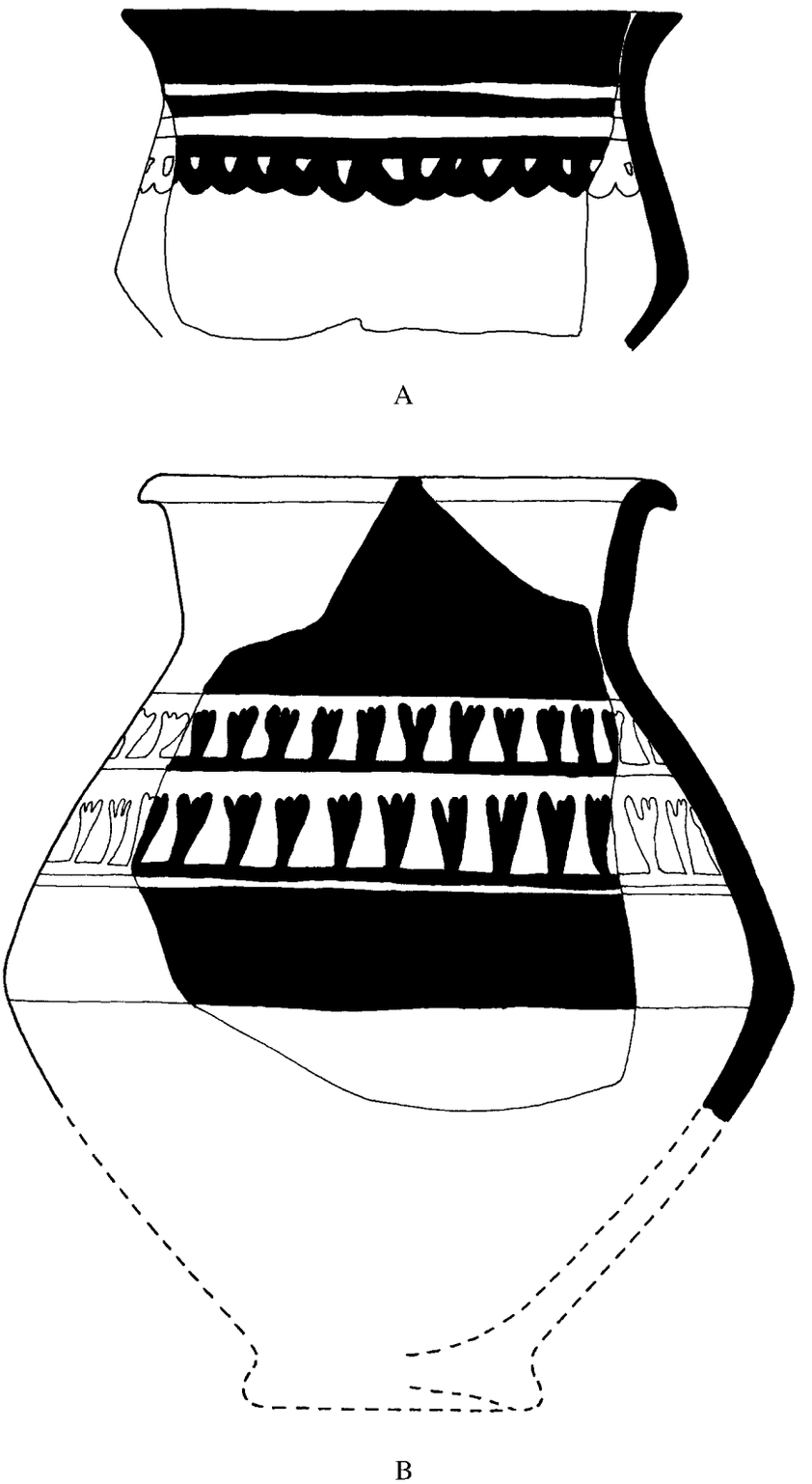


Figure 43. Carinated Jars with Everted Rims from Tall-e Bakun A. Scale 4:5

	Register No.	*Provenance*	*Elevation*	*Description*
A	TBA 706	Sq. BB 37	—	Buff ware, possibly slipped, occasional sand inclusion, well baked, brown paint
B	TBA 709	Sq. BB 27	—	Buff ware, possibly slipped, occasional sand inclusion, well baked, brown paint

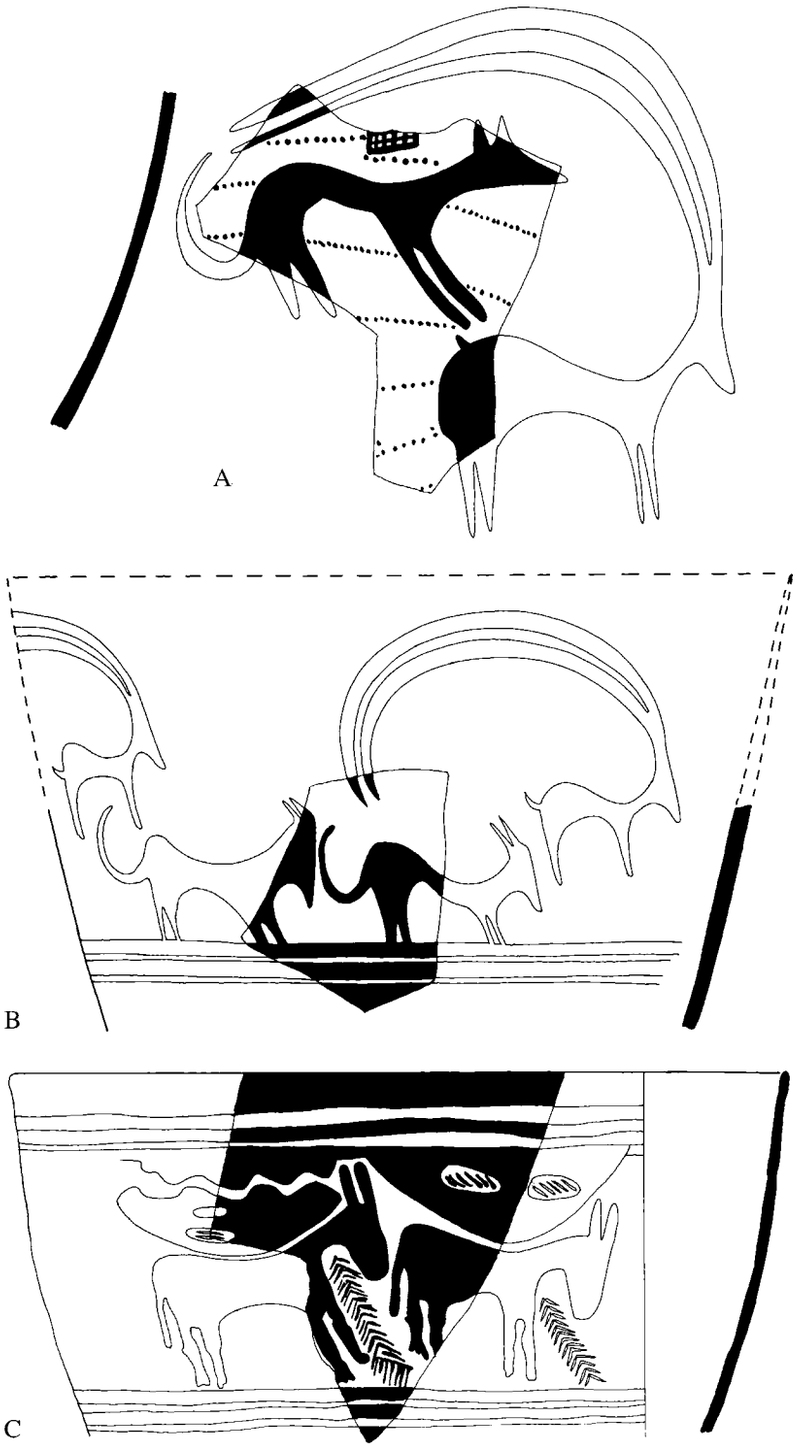


Figure 44. Fine Buff Ware Beaker Fragments from Tall-e Bakun A. Scale 2:5

	Register No.	*Provenance*	*Elevation*	*Description*
A	TBA 681	Sq. BB 37	Level 4	Fine buff ware, yellowish buff slip, no visible inclusion, well baked, brown paint
B	TBA 635	Sq. BB 27	Level 2	Fine buff ware, tannish buff slip, no visible inclusion, well baked, purple-brown paint
C	TBA 117	Sq. BB 37	Level 3	Fine buff ware, tannish buff slip, no visible inclusion, well baked, purple-brown paint

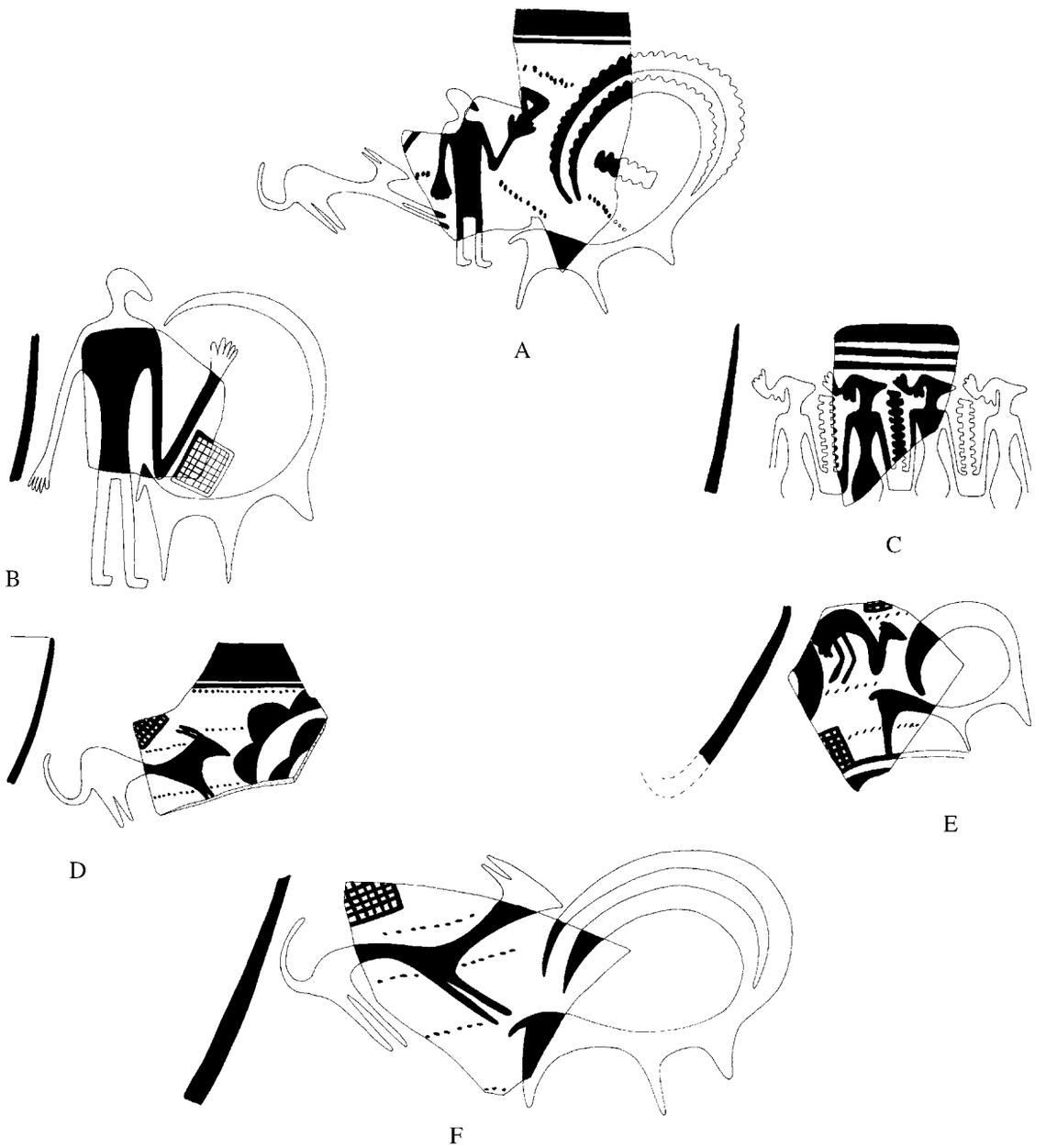


Figure 45. Fine Buff Ware Beaker Fragments from Tall-e Bakun A. Scale 2:3

	Register No.	*Provenance*	*Elevation*	*Description*
A	TBA 649b	Sq. BB 28	Level 4	Fine buff ware, creamy buff slip, no visible inclusion, well baked, brown paint
B	PPA 2186	Bldg. X	Level III	Fine buff ware, creamy buff slip, no visible inclusion, well baked, brown paint
C	PPA 2726	NA	—	Fine buff ware, creamy buff slip, no visible inclusion, well baked, brown paint
D	TBA 460	Sq. BB 28	—	Fine buff ware, yellowish buff slip, no visible inclusion, well baked, reddish maroon paint
E	TBA 696	Sq. BB 38	Level 3	Fine buff ware, yellowish buff slip, no visible inclusion, well baked, brown paint
F	TBA 545	Sq. BB 38	Level 3	Fine buff ware, creamy buff slip, no visible inclusion, well baked, brown paint

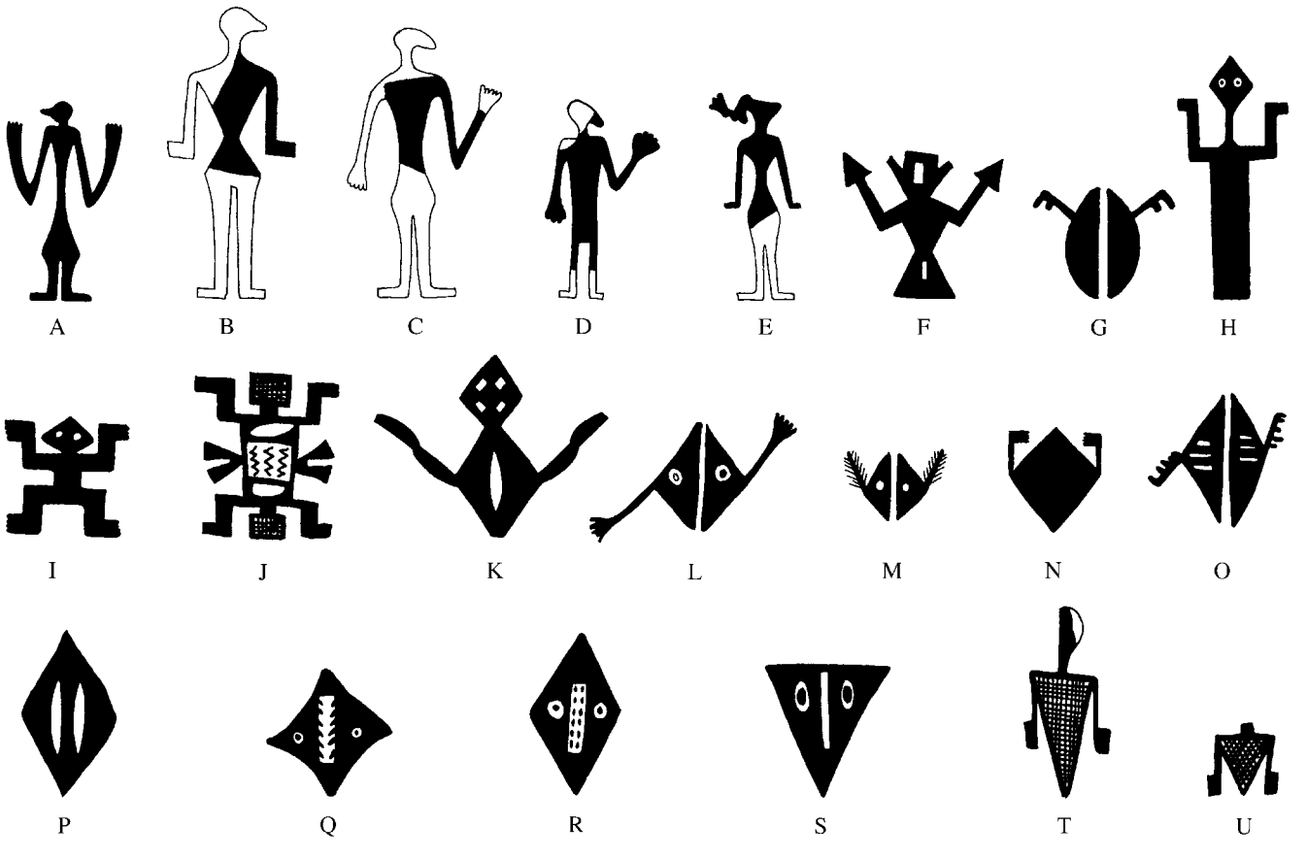


Figure 46. Various Naturalistic and Abstract Human Motifs from Tall-e Bakun A

	Register No.	*Provenance*	*Elevation*	*Reference*
A	—	Tall-e Bakun A	—	Herzfeld 1932
B	PPA 2185	Sq. N 29	Level 4	OIP 59, pl. 59:5
C	PPA 2186	Bldg. XI	Level III	OIP 59, pl. 69:4
D	TBA 649a–b	Sq. BB 28	Level 4	—
E	PPA 2726	NA	—	—
F	PPA 2177	Bldg. XIII, Rm. 1	Level IV	OIP 59, pl. 28:2
G	PPA 5327	Sq. M 29	—	—
H	PPA 3833	Sq. P 33	Surface	OIP 59, pl. 66:8
I	PPA 5124	Sq. M 30	Surface	OIP 59, pl. 69:3
J	PPA 2178	NA	—	OIP 59, pl. 4:3
K	PPA 4216	Tr. 1	Level III	OIP 59, pl. 56:13
L	PPA 2212	Bldg. III, Rm. 4	Level III	OIP 59, pl. 3:9
M	PPA 2912	Sq. N 31	Level II	OIP 59, pl. 42:8
N	PPA 4053	Sq. Q 28	Level IV	OIP 59, pl. 45:6
O	PPB 69	Tall-e Bakun B	Level I	—
P	PPA 4380	Sq. N 29	Level IV	OIP 59, pl. 33:14
Q	PPA 4380	Sq. N 29	Level IV	OIP 59, pl. 33:16
R	PPA 5129	NA	—	OIP 59, pl. 34:1
S	PPA 3993	Sq. P 27	Surface	OIP 59, pl. 69:11
T	PPA 3872	Sq. K 29	Level III	OIP 59, pl. 47:11
U	PPA 2206	Tr. 1	Level III	OIP 59, pl. 50:12

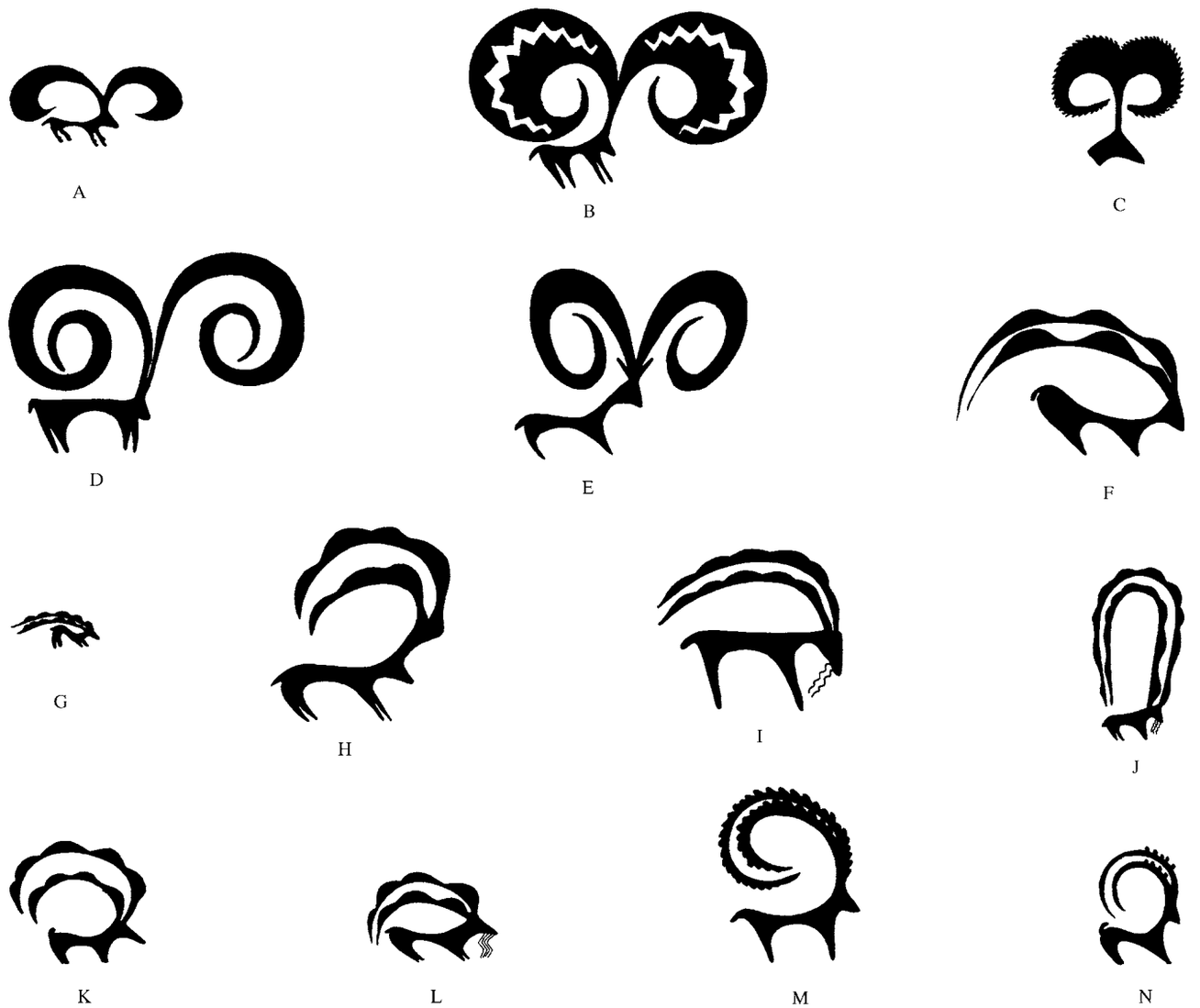


Figure 47. Various Naturalistic and Abstract Goat/Sheep Motifs from Tall-e Bakun A

	Register No.	*Provenance*	*Elevation*	*Reference*
A	PPA 516	Sq. M 30, +2.97 cm	Surface	OIP 59, pl. 71:4
B	PPA 4783	Sq. Q 28	Level IV	OIP 59, pl. 72:14
C	PPA 5242	Tr. 1	Level III	OIP 59, pl. 71:2
D	PPA 2345a	Bldg. XII	Level III	OIP 59, pl. 71:3
E	TBA 694a	Sq. BB 37	—	See figure 27:D
F	PPA 2160	Bldg. XV, Rm. 1	Level IV	OIP 59, pl. 69:16–18
G	PPA 2123	NA	—	OIP 59, pl. 30:7
H	TBA 737	Sq. BB 38	—	See figure 28:D
I	PPA 2911	NA	—	OIP 59, pl. 70:7
J	PPA 2122	NA	—	OIP 59, pl. 70:5
K	PPA 2390a	Bldg. XIV, Rm. 3	Level II(?)	OIP 59, pl. 70:14
L	PPA 3298	Bldg. VII, Rm. 4	Level III	OIP 59, pl 4:4 (OIM A20217)
M	PPA 5266	Tr. 1, +.02 cm	Level I	OIP 59, pl. 73:1
N	PPA 3325	NA	—	OIP 59, pl. 70:6

Figure 48. Various Naturalistic and Abstract Goat/Sheep and Quadruped Motifs from Tall-e Bakun A

	Register No.	*Provenance*	*Elevation*	*Reference*
A	PPA 3324	Sq. Q 23	Surface	OIP 59, pl. 70:12
B	PPA 2147, PPA 3366	Bldg. XIII, Rm. 1, Bldg. X, Rm. 3	Level III	OIP 59, pl. 70:8–9
C	PPA 2194	NA	—	OIP 59, pl. 70:13
D	PPA 5367	Bldg. VII, Rm. 7	Level III	OIP 59, pl. 73:9
E	PPA 5202	Sq. J 31	—	OIP 59, pl. 71:8
F	NA	Tall-e Bakun A	—	Herzfeld 1932, pl. 16:4
G	TBA 652	Sq. BB 27	Level 4	See figure 36:B
H	TBA 519	Sq. BB 37	Level 3	See figure 36:A
I	PPA 3291	Bldg. III, Rm. 1	Level III	OIP 59, pl. 70:2
J	PPA 2134	Bldg. II, Rm. 2	Level III	OIP 59, pl. 71:15
K	PPA 2149	Bldg. V, Rm. 2	Level III	OIP 59, pl. 73:11
L	PPA 2138	Bldg. VII, Rm. 2	Level III	OIP 59, pl. 59:10
M	PPA 3328	NA	—	OIP 59, pl. 69:8
N	PPA 2348a	Sq. N 29	—	OIP 59, pl. 74:11
O	PPA 2167	Sq. M 28	—	OIP 59, pl. 73:12
P	PPA 5167	Sq. L 30	—	See figure 44:C; OIP 59, pl. 75:12

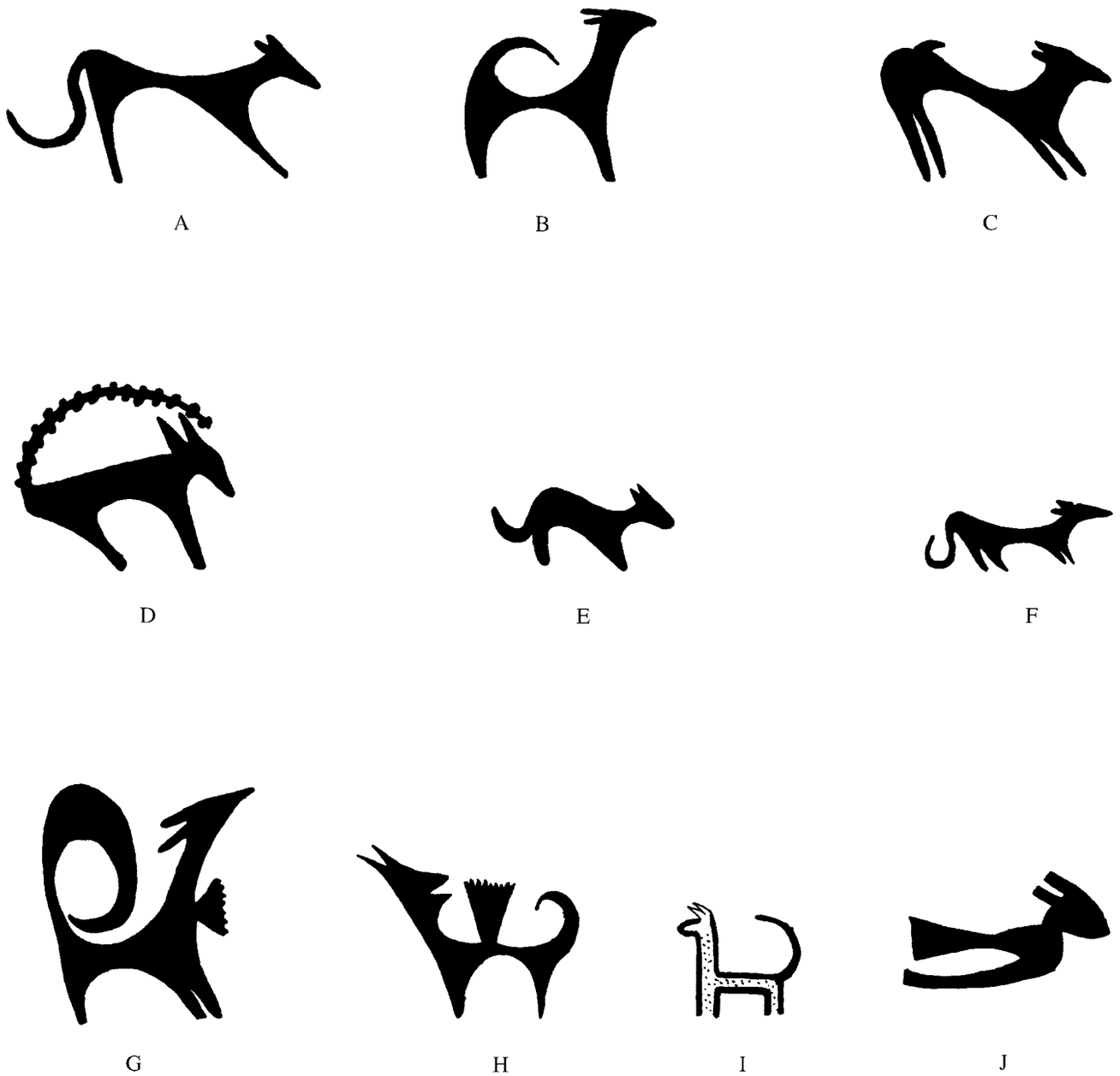


Figure 49. Various Naturalistic and Abstract Canine Motifs from Tall-e Bakun A

	Register No.	*Provenance*	*Elevation*	*Reference*
A	PPA 2894	Bldg. IV, Rm. 1	Level III	OIP 59, pl. 73:16
B	PPA 2073	Bldg. VII, Rm. 1, Floor	Level III	OIP 59, pl. 4:7
C	PPA 2363a	Bldg. II, Rm. 2	Level III	OIP 59, pl. 73:14
D	PPA 2114	Bldg. XIII, Rm. 3	Level IV	OIP 59, pl. 74:3 (OIM A20125)
E	PPA 3318	Sq. O 33	—	OIP 59, pl. 74:4
F	PPA 3305	Bldg. IV, Rm. 2	Level III	OIP 59, pl. 74:1
G	PPA 2136	Bldg. XIII, Rm. 3	Level IV	OIP 59, pl. 73:17
H	PPA 5557	Sq. M 28	Level IV	OIP 59, pl. 77:17
I	PPB 35	Tall-e Bakun B	—	—
J	PPA 2399	Bldg. XIII, Rm. 1	Level IV	OIP 59, pl. 36:12

Figure 50. Various Naturalistic and Abstract Bird Motifs from Tall-e Bakun A

	Register No.	*Provenance*	*Elevation*	*Reference*
A	PPA 2340a	Bldg. I, Rm. 1	Level III	OIP 59, pl. 75:12
B	PPA 2180a	Sq. L 30	Level IV	OIP 59, pl. 76:3 (OIM A38215, A38456)
C	PPA 2467	Bldg. XVII, Rm. 3	Level IV	OIP 59, pl. 75:15
D	PPA 2382a	Sq. N 29	Level IV	OIP 59, pl. 76:1
E	PPA 5180	Sq. Q 29	Level IV	OIP 59, pl. 75:16
F	TBA 696	Sq. BB 38	Level 3	See figure 48:E
G	PPA 5607	NA	—	OIP 59, pl. 76:6
H	PPA 5676	Sq. O 32, Bldg. XII, Rm. 2	Surface	OIP 59, pl. 78:31
I	PPA 5176	Tr. 1	Level I	OIP 59, pl. 70:10
J	PPA 5156	Tr. 1	Surface	OIP 59, pl. 75:9
K	PPA 2434	NA	—	OIP 59, pl. 75:10
L	PPA 3454	Bldg. V, Rm. 1	Level III	OIP 59, pl. 5:1
M	PPA 5183	Sq. M 30	Surface	OIP 59, pl. 75:7
N	PPA 4262	Bldg. VIII, Rm. 2	Level III	OIP 59, pl. 75:14
O	PPA 4378	Tr. 1	Level IV	OIP 59, pl. 75:13
P	PPA 2450	NA	—	OIP 59, pl. 22:14
Q	PPA 2173	Bldg. II, Rm. 3	Level III	OIP 59, pl. 75:6
R	PPA 5695	Tr. 1	Level III	OIP 59, pl. 75:8
S	PPA 5616	NA	—	OIP 59, pl. 75:11
T	PPA 3558, PPA 3680	Bldg. XIII, Rm. 2, Bldg. XVI	Level IV	OIP 59, pl. 51:12; 64:1. See also PPA 5695, Tr. 1, Level III in OIP 59, pl. 75:8
U	PPA 4006, PPA 4009	Bldg. XIII, Rm. 3, Sq. J 29	Level III	OIP 59, pl. 76:10–11
V	PPA 5182	Bldg. XIII, Rm. 3	Level III	OIP 59, pl. 76:13
W	PPA 3879	Tr. 1	Level I	OIP 59, pl. 76:9

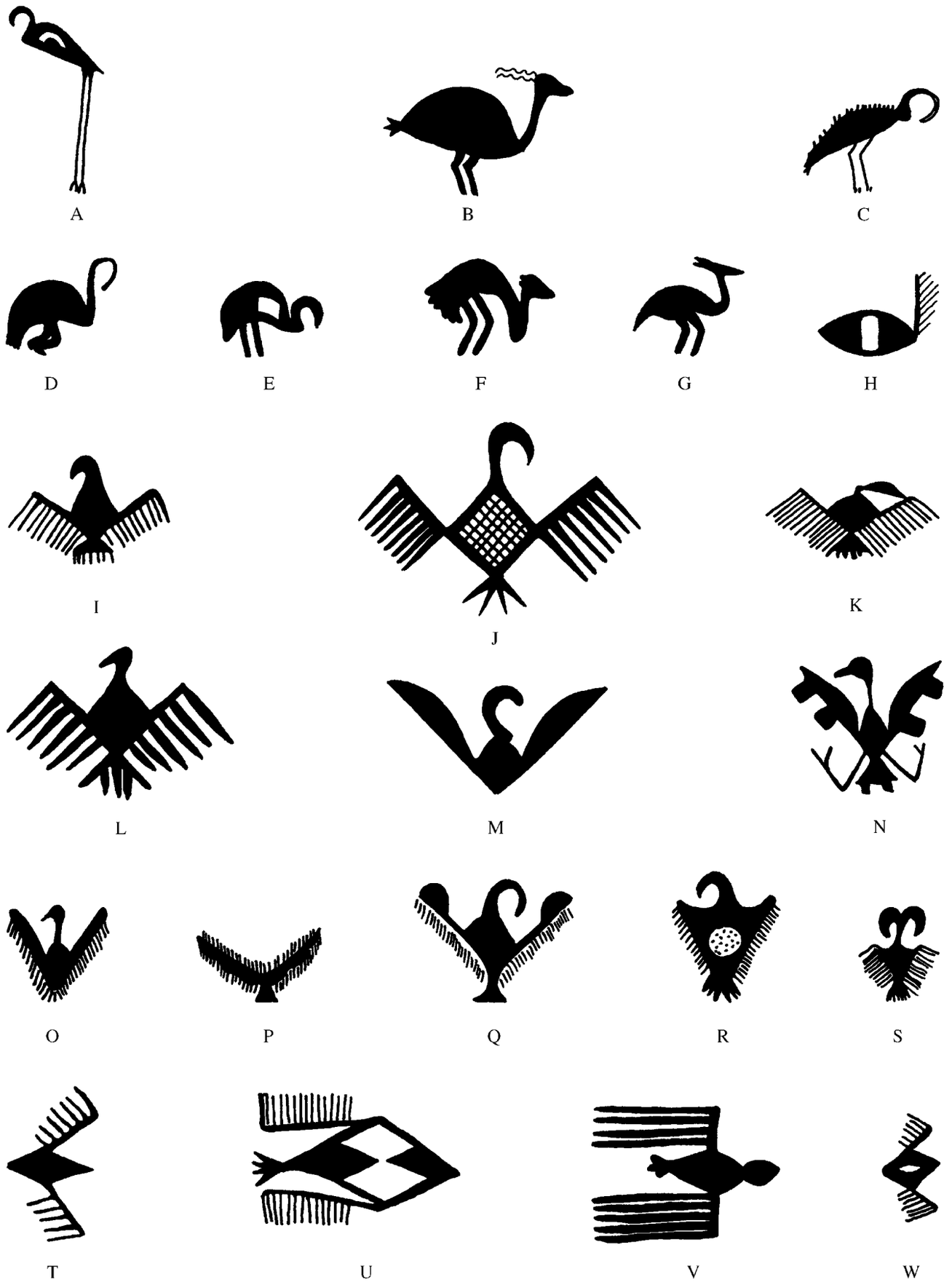


Figure 50. Various Naturalistic and Abstract Bird Motifs from Tall-e Bakun A

Figure 51. Various Naturalistic and Abstract Reptilian and Lizard Motifs from Tall-e Bakun A

	Register No.	*Provenance*	*Elevation*	*Reference*
A	TBA 769	Sq. BB 86	—	See figure 43
B	PPA 5146	Sq. J 29	Level IV	OIP 59, pl. 68:3, 6
C	PPA 2169	Bldg. XIV, Rm. 3	Level IV	OIP 59, pl. 69:2
D	PPA 3867a	Bldg. XII, Rm. 2	Level III	OIP 59, pl. 66:7–8
E	PPA 3304	Bldg. III, Rm. 4	Level IV	OIP 59, pl. 4:2
F	PPA 5108	Sq. N 29	Level IV	OIP 59, pl. 68:10
G	PPA 5106	Sq. M 31	Level I	OIP 59, pls. 68:1, 69:1
H	PPA 5128	Bldg. XVII, Rm. 3	Level III	OIP 59, pl. 67:11 (OIM A39301)
I	PPA 5154, 5155, 5131	Sq. L 31, Sq. O 31	Level III	OIP 59, pl. 67:8, 9, 12
J	PPA 5105	Bldg. III, Rm. 3, Bldg. IV, Rm. 1, Bldg. V, Rm. 2, Bldg. IX, and Sq. Q 29	Level III–IV	OIP 59, pl. 68:11
K	PPA 5123	Bldg. III, Rm. 3	Level III	OIP 59, pl. 67:13 (OIM A38067)
L	PPA 3863	Bldg. XIV, Rm. 3	Level IV	OIP 59, pl. 66:5–6
M	PPA 5694	Bldg. V, Rm. 6	Level III	OIP 59, pl. 25:4
N	PPA 2145	Sq. N 29	Level IV	OIP 59, pl. 61:11
O	PPA 4852	Bldg. X, Rms. 1, 3	Level III	OIP 59, pl. 77:7
P	PPA 4797	Bldg. III, Rm. 2	Level III	OIP 59, pl. 77:6, 8–9 (OIM A39463)

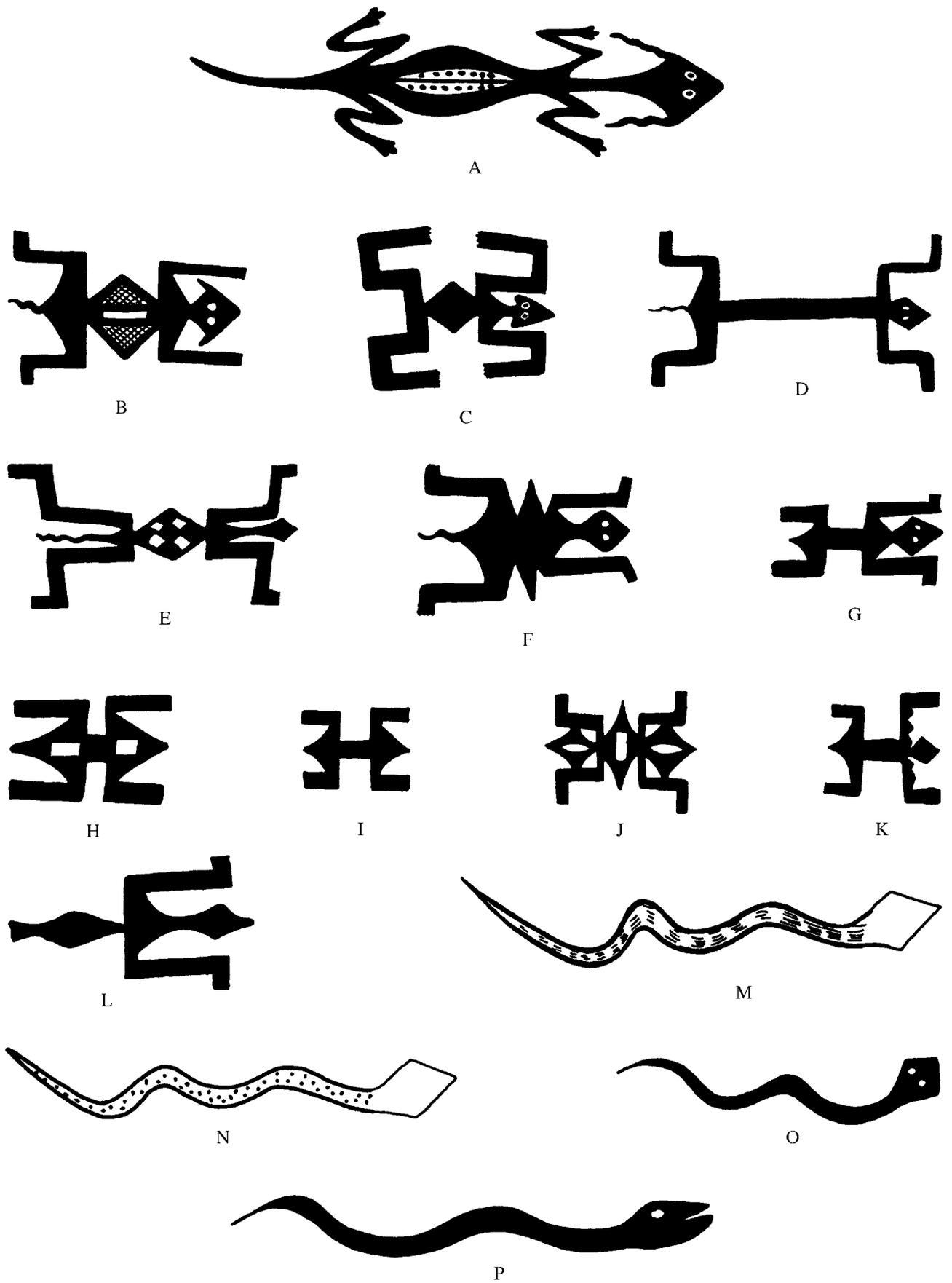


Figure 51. Various Naturalistic and Abstract Reptilian and Lizard Motifs from Tall-e Bakun A

Figure 52. Various Naturalistic and Abstract Quadruped, Fish, Scorpion, and Insect Motifs from Tall-e Bakun A

	Register No.	*Provenance*	*Elevation*	*Reference*
A	PPA 2133	Bldg. XV, Rms. 2–3	Level IV	OIP 59, pls. 74:8, 77:16
B	PPA 2142	Bldg. XIV, Rm. 3	Level IV	OIP 59, pl. 74:7
C	PPA 2154	Sq. Q 29	Level IV	OIP 59, pl. 74:6
D	PPA 5169	NA	—	OIP 59, pl. 77:14
E	PPA 5602	Bldg. XIV, Rm. 2	Level IV	OIP 59, pl. 76:18
F	PPA 4012	Sq. M 31	Level I	OIP 59, pl. 76:15
G	PPA 5189	Bldg. XVI	Level IV	OIP 59, pl. 76:3
H	PPB 26	Tall-e Bakun B	—	—
I	PPA 3323	Sq. L 28	Level IV	OIP 59, pl. 69:6
J	PPA 2358a	Bldg. XIII, Rm. 3	Level III	—
K	PPA 3127	Sq. P 30	—	OIP 59, pl. 50:13
L	PPA 2099	Bldg. XIII, Rm. 1	Level IV	OIP 59, pl. 77:2
M	PPA 5471	Bldg. VIII, Rm. 3	Level III	OIP 59, pl. 77:1
N	PPA 2140	NA	—	OIP 59, pl. 77:4
O	PPA 4570	Bldg. I, Rms. 1–2	Level III	OIP 59, pl. 41:6
P	PPA 2110	Sq. M 30	Level IV	OIP 59, pl. 76:19
Q	PPA 4195	Tr. 2	Surface	OIP 59, pl. 76:17
R	PPA 2170	Tr. 1	Level I	OIP 59, pl. 76:16
S	PPA 3837	Sq. M 28	Level III	OIP 59, pls. 51:7, 78:11
T	PPA 2164	Bldg. XIV, Rm. 1	Level IV	OIP 59, pl. 43:1 (OIM A39436)

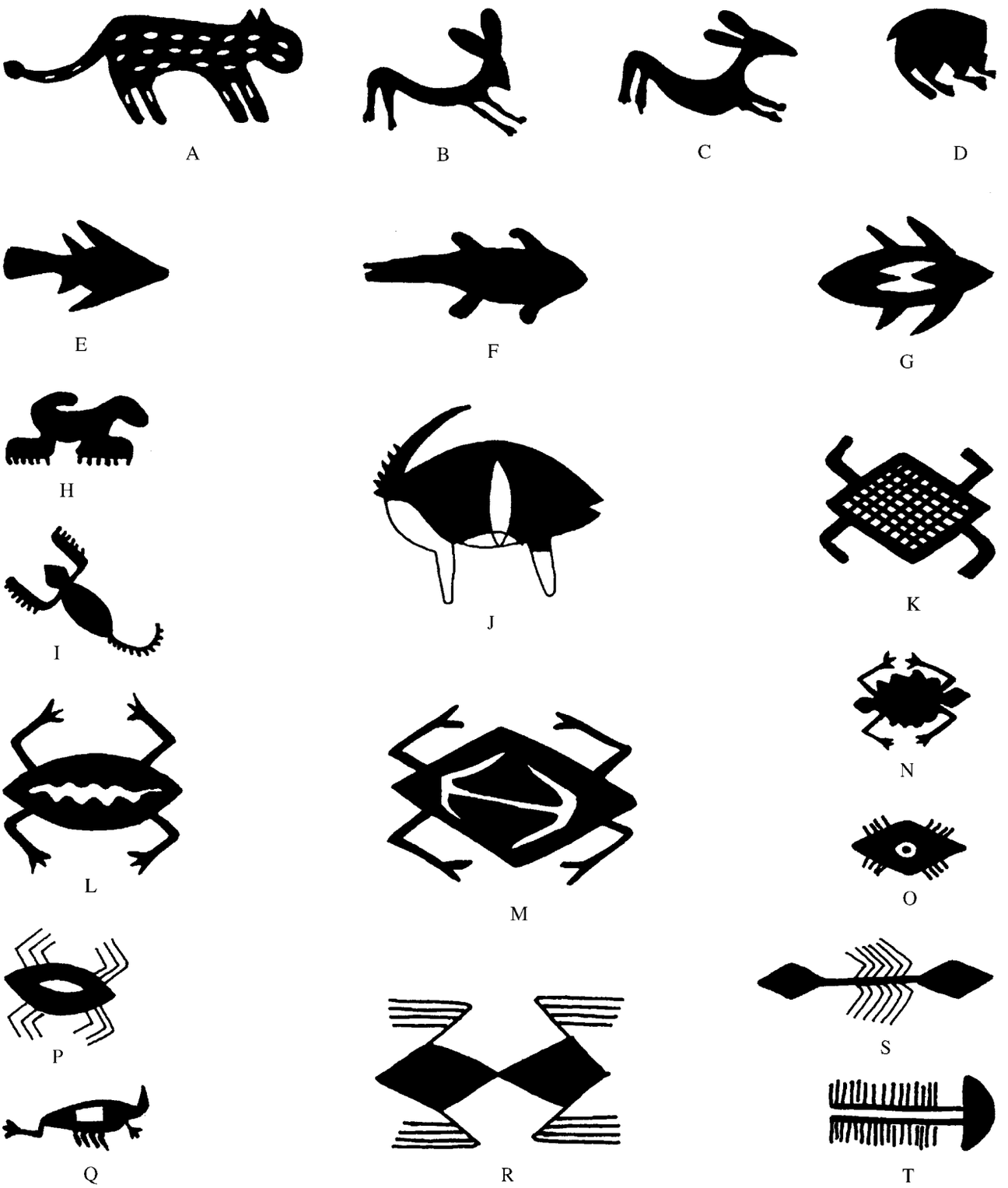


Figure 52. Various Naturalistic and Abstract Quadruped, Fish, Scorpion, and Insect Motifs from Tall-e Bakun A

Figure 53. Redware Cooking Vessels and Plain Vessels from Tall-e Bakun A

	Register No.	*Provenance*	*Elevation*	*Description*
A	TBA 631	Sq. BB 27, Rm. 6	Level 2	Coarse redware, black core, dark red surface with black smudges, medium baked, dark and red grits and some chaff
B	TBA 782	Sq. AB 88, Bldg. II, Rm. 10	Level II	Buff ware, self slipped, sand and small to medium grits included, well baked, brown paint
C	TBA 632	Sq. BB 27, Rm. 6	Level 2	Coarse redware, black core, dark red exterior with signs of polishing, orange spots on exterior
D	TBA 766	Sq. BB 86, Northeast	—	Buff ware, dark grayish buff core, purple red wash exterior, some sand inclusion
E	TBA 630	Sq. BB 27, Rm. 5	Level 2	Coarse redware, dark core, orange red exterior, horizontal burnishing strokes, small to medium size grits included
F	TBA 762	Sq. BB 78, Rm. 7	Level 3	Coarse redware, grayish core, sand inclusion, reddish orange exterior

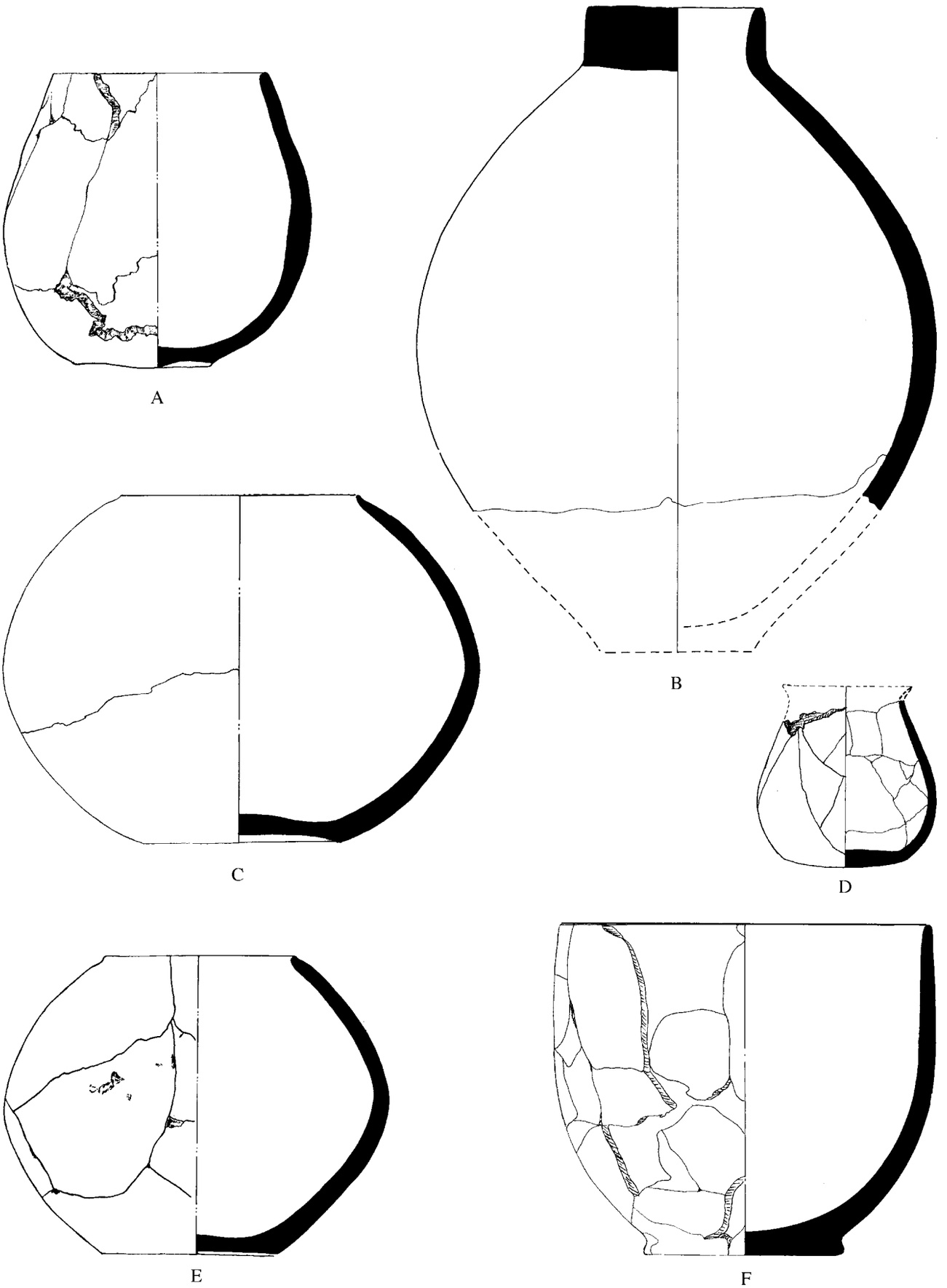


Figure 53. Redware Cooking Vessels and Plain Vessels from Tall-e Bakun A. Scale 1:2

Figure 54. Plain Red, Buff, and Grayware Vessels from Tall-e Bakun A

	Register No.	*Provenance*	*Elevation*	*Description*
A	PPA 2631	Surface	—	Grayware, black core, probably gray black slip on the exterior, gritty
B	PPA 2766	Sq. M 30	—	Buff ware, probably creamy tan slip exterior, occasional sand
C	PPA 2628	Sq. P 28	Level III	Buff ware, light buff core, well oxidized, medium bake, grits and straw inclusion, somewhat straw face
D	PPA 2627	Sq. L 29	Level IV	Coarse redware, coarse red with dark core, gritty, occasional straw
E	PPA 2828	Bldg. IV, Rm. 3	Level III	Buff ware, creamy tan exterior, gritty ware
F	PPA 2858	NA	Surface	Grayware, tannish buff polished exterior, gritty with occasional straw
G	PPA 2816	Bldg. II, Rm. 2	Level III	Buff ware, creamy tan exterior, occasional sand. Bottom pierced
H	PPA 2654	—	Base of mound	Coarse redware, dark red polished exterior, grits and straw inclusion
I	PPA 2641	Sq. P 28	—	Coarse redware, exterior red and mottled black, reddish and dark grits and straw inclusion, some signs of polishing on the exterior

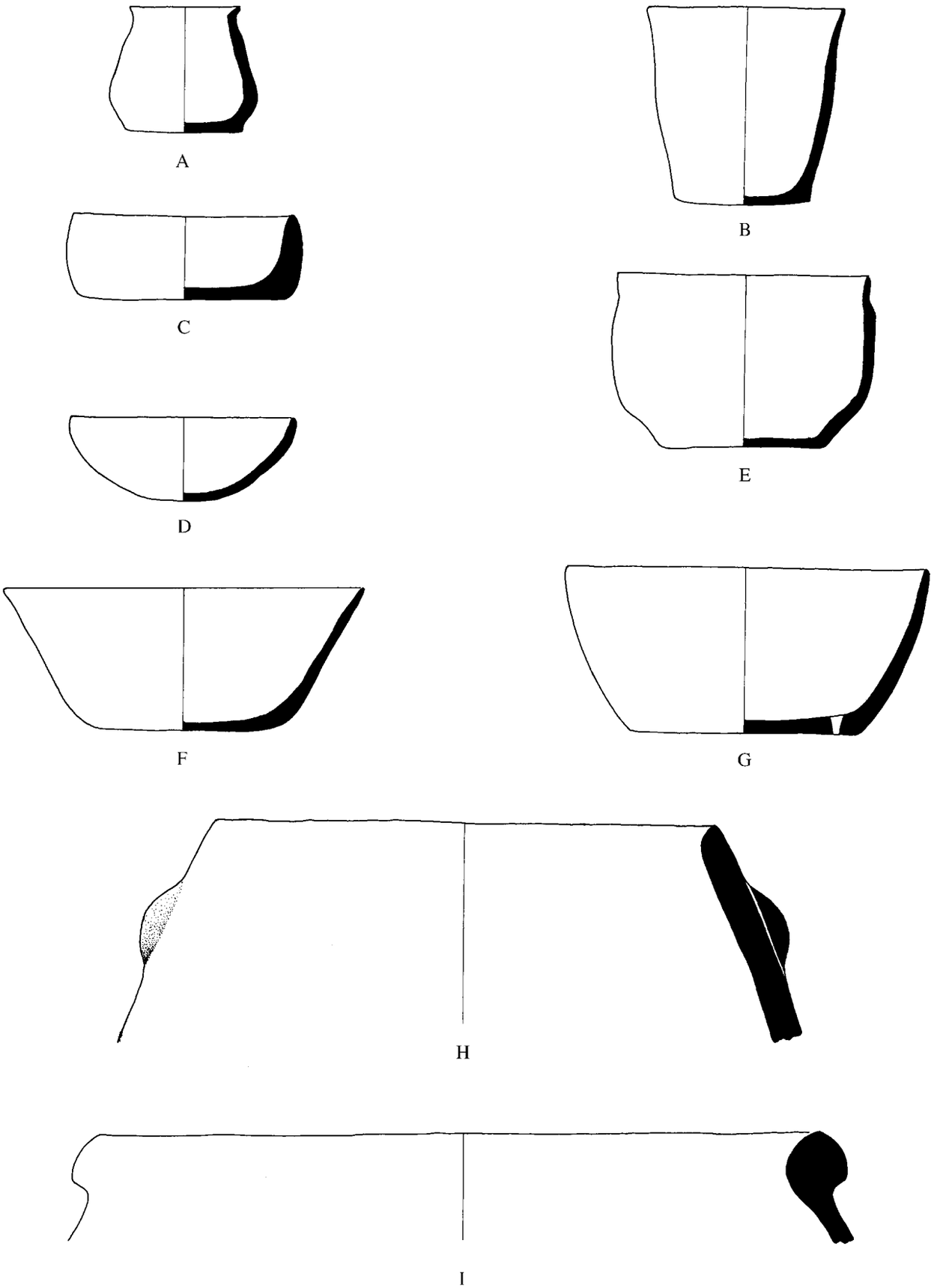


Figure 54. Coarse Red, Buff, and Grayware Vessels from Tall-e Bakun A. Scale 1:2

Figure 55. Special Forms from Tall-e Bakun A

	Register No.	*Provenance*	*Elevation*	*Description*
A	TBA 383	Sq. BB 38, Northwest	Level 2	Coarse redware, dark core, reddish brown exterior, occasional grits and chaff
B	TBA 241	NA	NA	Buff ware, medium bake, occasional sand and chaff, smoothed exterior, dark brown paint
C	TBA 176	Sq. BB 37	Level 1	Coarse redware, core somewhat dark, occasional grits, exterior scraped and smoothed
D	TBA 16	Sq. BB 37, Southwest	Surface	Buff ware, tannish brown exterior, gritty, medium bake
E	TBA 179	Sq. BB 37	Level 2	Buff ware, yellowish brown exterior, no visible inclusion, traces of reddish maroon paint
F	TBA 320	Sq. CB 06	—	Buff ware, yellowish brown exterior, no visible inclusion, brown paint. Most probably late (Sasanian/Islamic?)

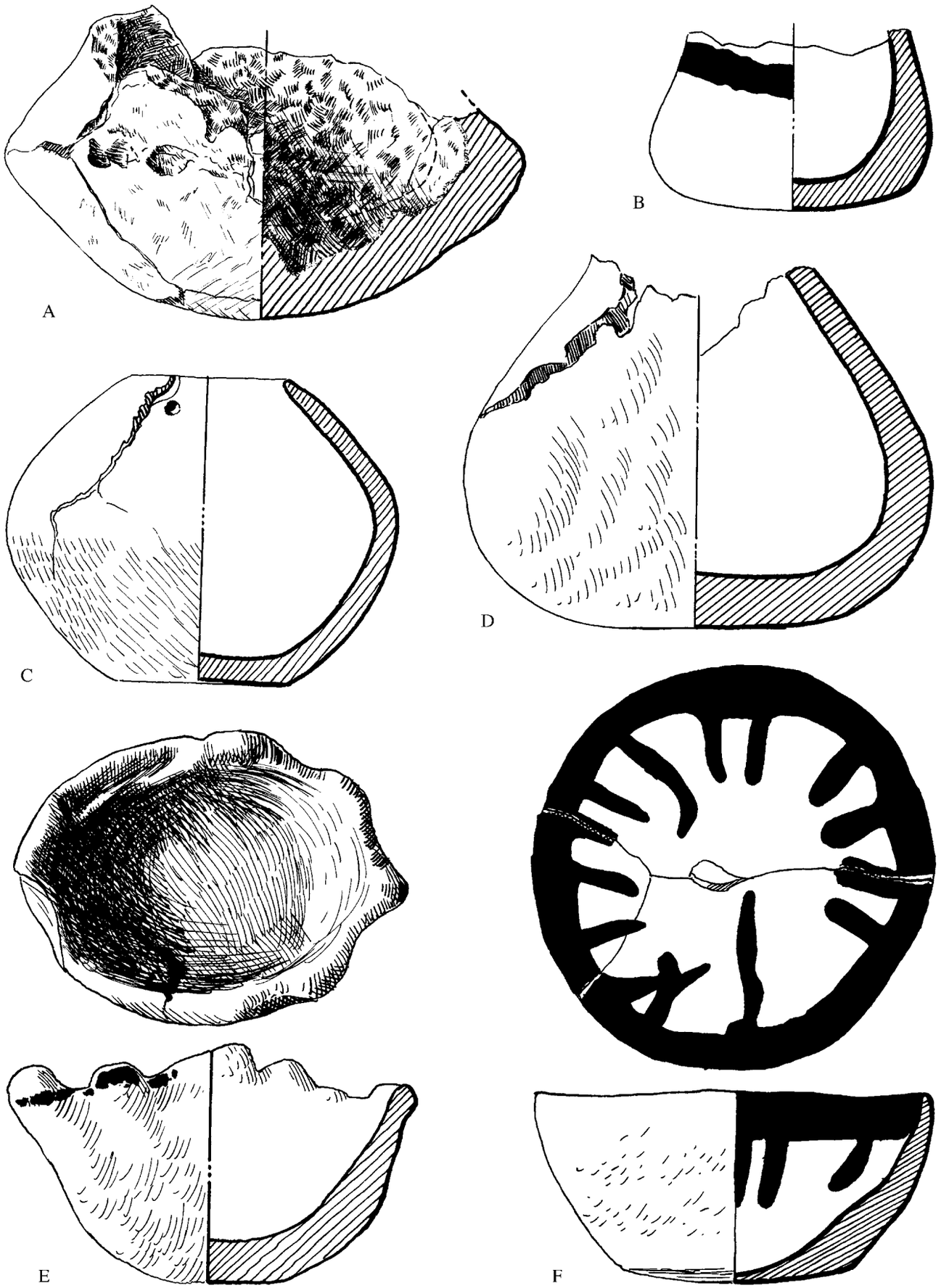


Figure 55. Special Forms from Tall-e Bakun A. Scale 1:1

Figure 56. Special Vessels from Tall-e Bakun A

	Register No.	*Provenance*	*Elevation*	*Description*
A	TBA 252	Sq. BB 64	Level 2	Buff ware, buff core, exterior covered with red paint, no visible inclusion
B	TBA 510	Sq. BB 28, Sieve	Level 3	Buff ware, grayish buff paste, no visible inclusion
C	TBA 573	Sq. BB 86	Level 2	Buff ware, tannish brown on the exterior, no visible inclusion
D	TBA 482	Sq. BB 27, Dump	Level 3	Buff ware, grayish brown on the exterior, probably slipped, no visible inclusion
E	TBA 299	Sq. CB 06	Level 1(?)	Buff ware, dark gray core, occasional chaff
F	TBA 167	Sq. CB 06	Level 1	Buff ware, grayish black core, no visible inclusion
G	TBA 454	Sq. BB 27	Level 3	Buff ware, brownish buff exterior, no visible inclusion, well baked
H	TBA 250	Sq. BB 62	Level 1(?)	Buff ware, yellowish buff exterior, no visible inclusion, brown paint
I	TBA 40	Sq. BB 38	Level 1	Redware, wet smoothed, no visible inclusion
J	TBA 295	Sq. BB 64	Level 3	Buff ware, yellowish buff exterior, no visible inclusion, reddish purple paint

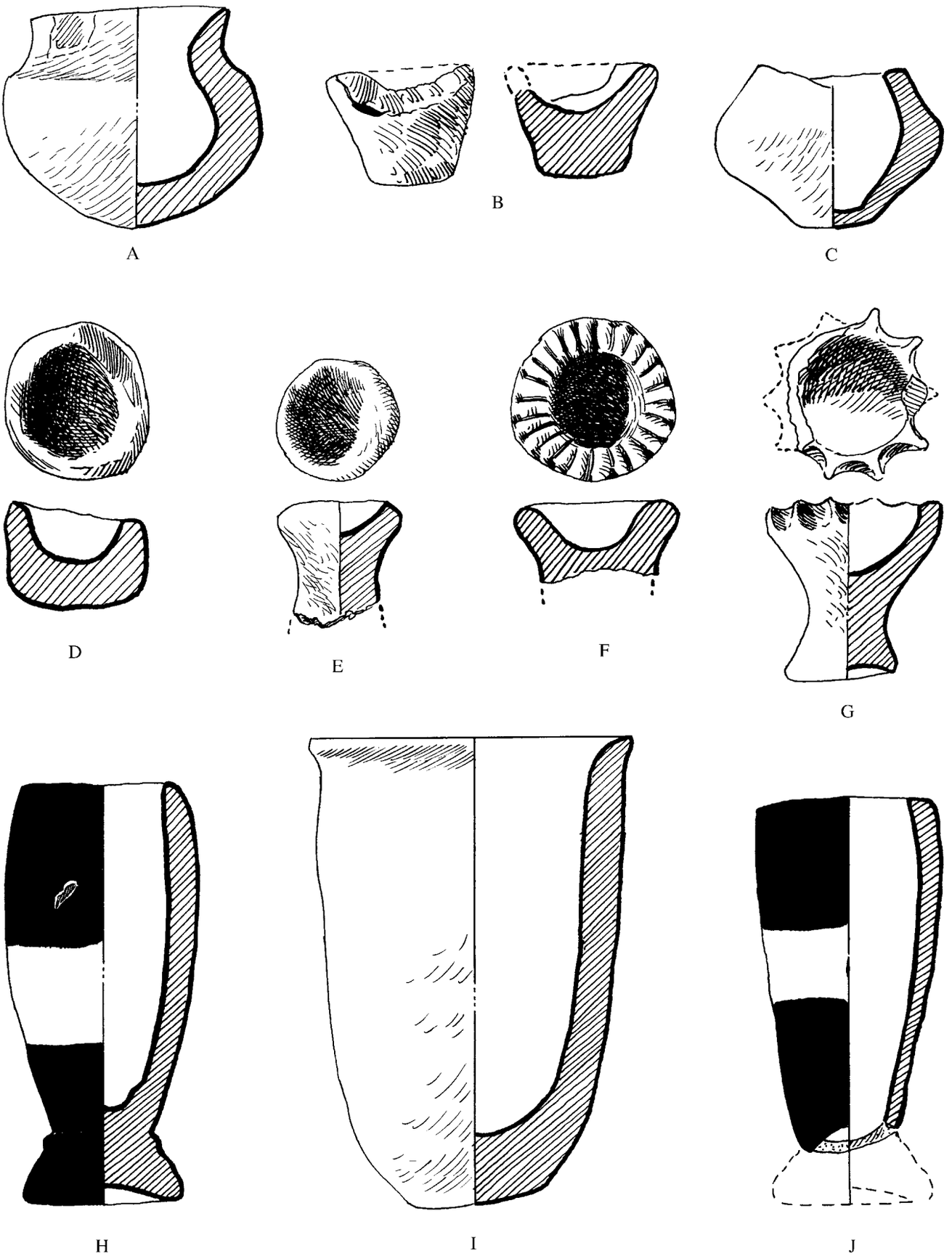


Figure 56. Special Vessels from Tall-e Bakun A. Scale 1:1

Figure 57. Zoomorphic and Special Vessels from Tall-e Bakun A

	Register No.	*Provenance*	*Elevation*	*Description*
A	TBA 418	Sq. BB 64	Level 2	Buff ware, yellowish brown exterior, no visible inclusion, red paint on upper left rim
B	TBA 188	Sq. BB 62	Level 1(?)	Buff ware, no visible inclusion, horns applied separately, dark brown paint
C	TBA 362	Sq. BB 38, Rm. 10	Level 4	Buff ware, no visible inclusion, reddish brown paint

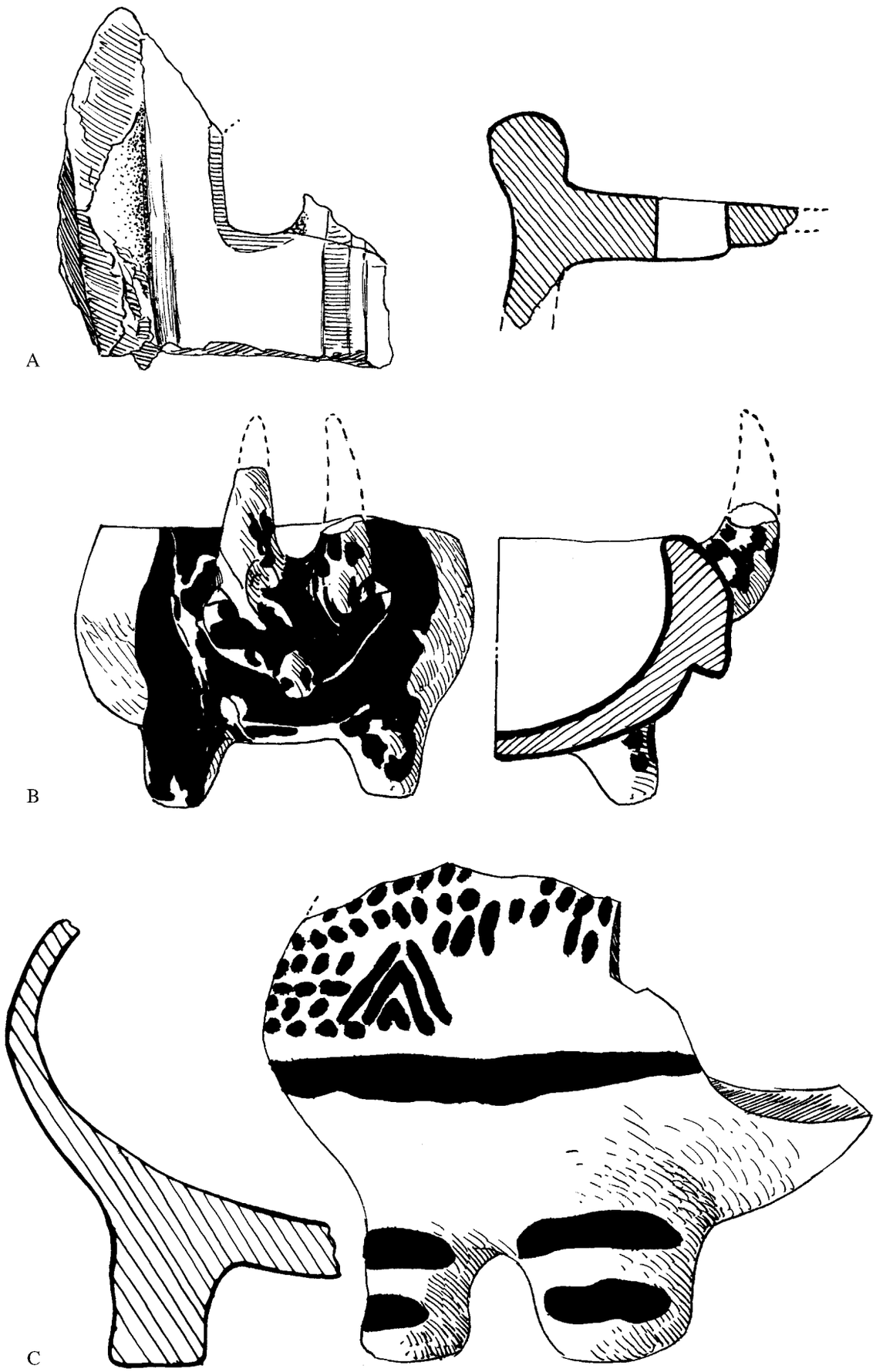


Figure 57. Zoomorphic and Special Vessels from Tall-e Bakun A. Scale 1:1

Figure 58. Baked Clay Human and Animal Figurines from Tall-e Bakun A

	Register No.	*Provenance*	*Elevation*	*Description*
A	TBA 337	Sq. BB 28	Level 2	Baked clay, buff, no visible inclusion, brown paint
B	TBA 241	Sq. BB 37	Level 1(?)	Baked clay, buff, no visible inclusion, reddish purple paint
C	TBA 268	Sq. BB 37	—	Baked clay, buff, no visible inclusion, brown paint
D	TBA 68	Sq. BB 37	Level 1	Baked clay, buff, no visible inclusion, brown paint
E	PPA 2351	Bldg. XII	Level III	Baked clay, buff, no visible inclusion, brown paint covers entire face
F	TBA 360	Sq. BB 38	Level 3	Baked clay, yellowish buff, no visible inclusion
G	TBA 473	Sq. BB 38	Level 3	Baked clay, dark grayish buff, no visible inclusion
H	TBA 291	Sq. BB 27	Level 2	Baked clay, buff, no visible inclusion, traces of brown paint
I	TBA 417	Sq. BB 38	Level 3	Baked clay, yellowish buff, no visible inclusion
J	TBA 471	Sq. BB 37	Level 3	Baked clay, yellowish buff, no visible inclusion, brown paint
K	TBA 248	Sq. BB 38	Level 2	Baked clay, buff, no visible inclusion, light brown paint
L	TBA 355	Sq. BB 27	Level 2	Baked clay, buff, no visible inclusion, brown paint
M	TBA 472	Sq. BB 37	Level 3	Baked clay, buff, no visible inclusion, black paint
N	TBA 209	Sq. BB 27	Level 1(?)	Baked clay, buff, no visible inclusion, reddish brown paint
O	TBA 276	Sq. BB 64	Level 1	Baked clay, buff, no visible inclusion, maroon paint
P	TBA 444	Sq. BB 37	Level 3	Baked clay, buff, no visible inclusion, maroon paint

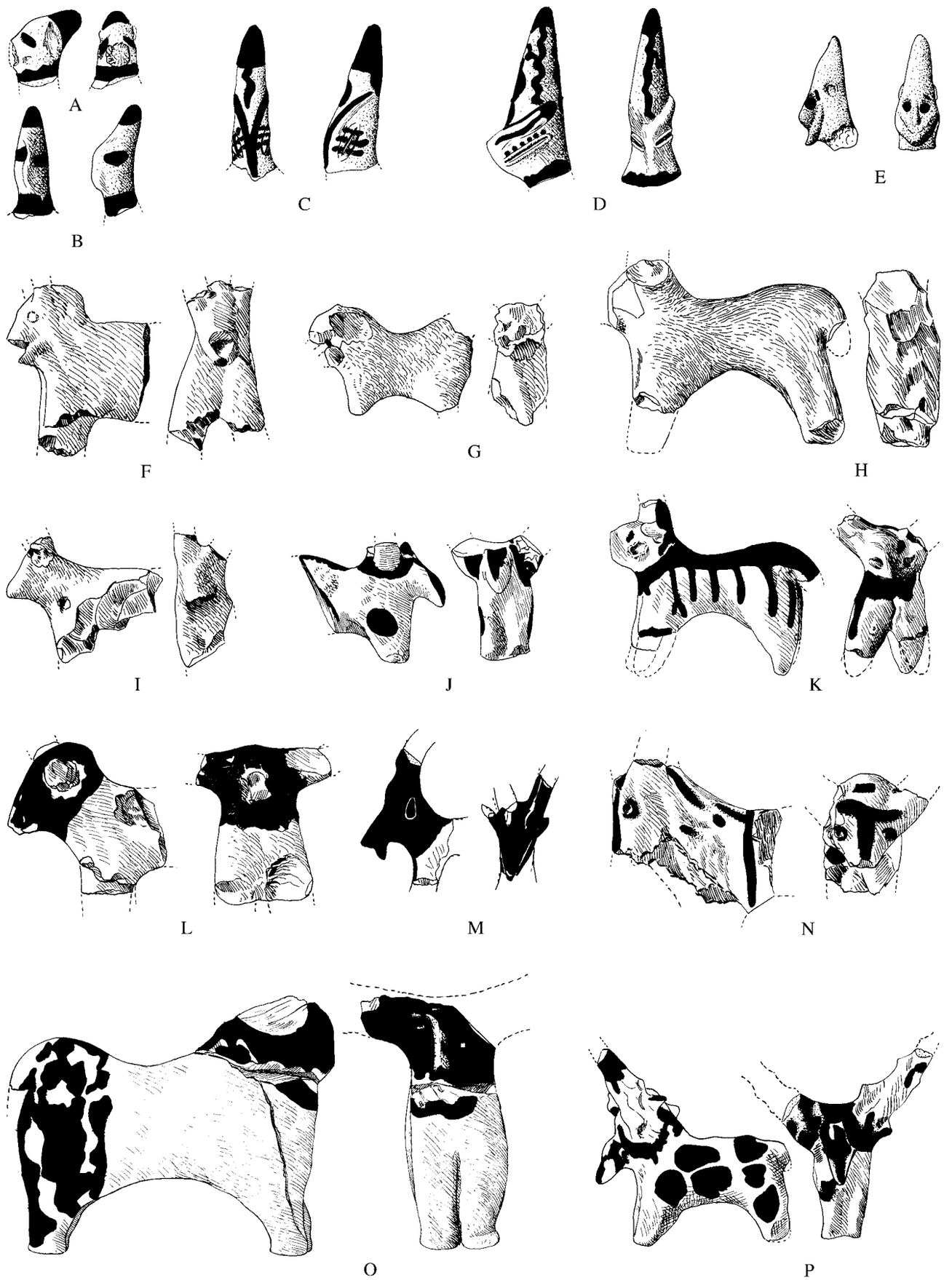
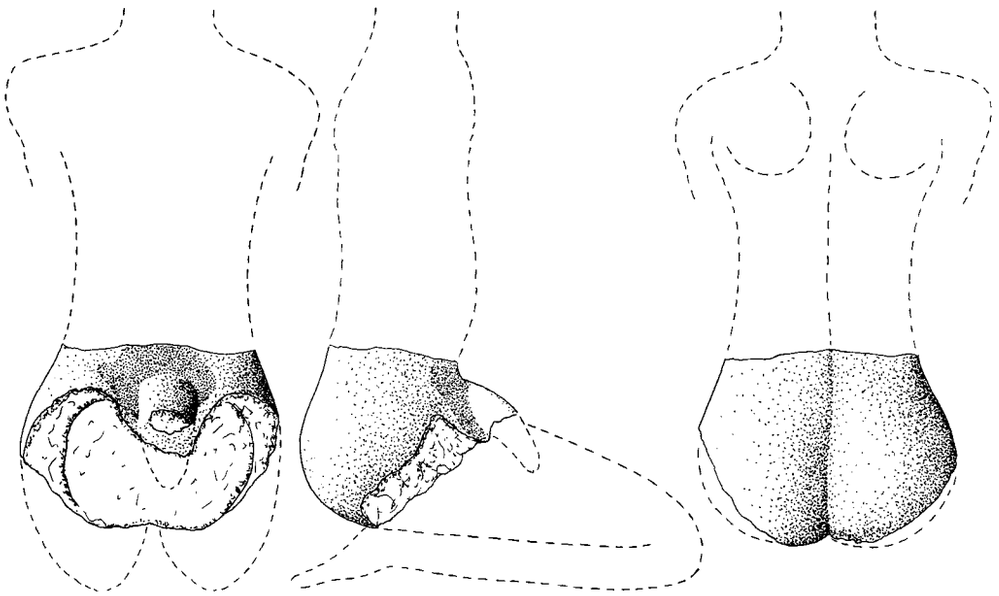


Figure 58. Baked Clay Human and Animal Figurines from Tall-e Bakun A. Scale 1:1



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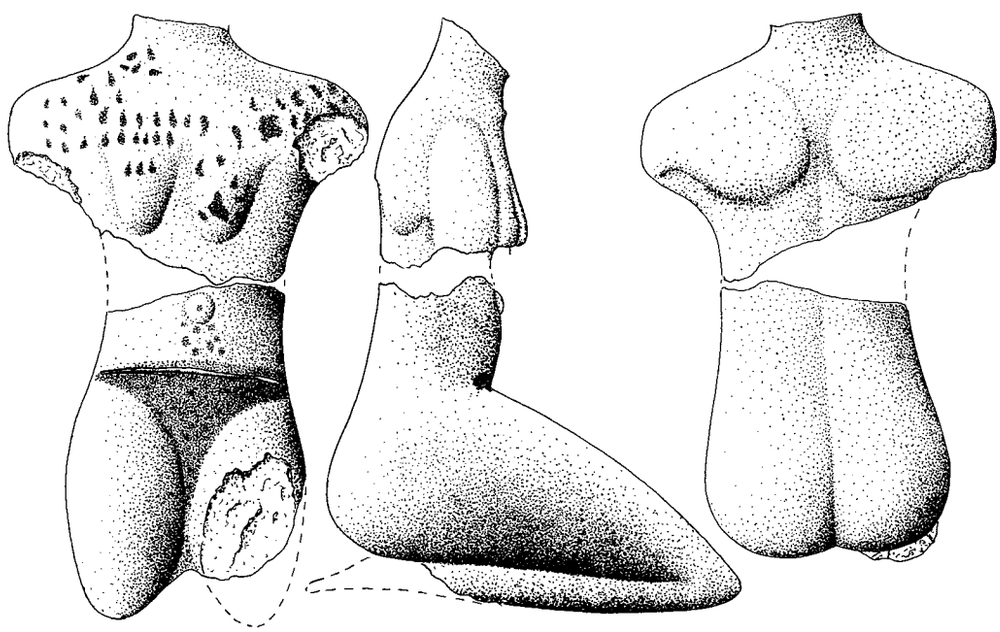


B

Figure 59. Baked Clay Male and Female Human Statuettes from Tall-e Bakun A. Scale 4:5

	Register No.	*Provenance*	*Elevation*	*Description*
A	PPA 385	Sq. M 27	—	Three views of the mid-section of a male statuette made of well-baked clay, no visible inclusion
B	TBA 159 (upper part)	Sq. BB 62	Level 3	Torso of a decorated female statuette made of well-baked clay with no inclusion, brown paint
B	TBA 224 (lower part)	Sq. BB 62	Level 3	Lower body of a decorated female statuette made of well-baked clay with no inclusion, brown paint

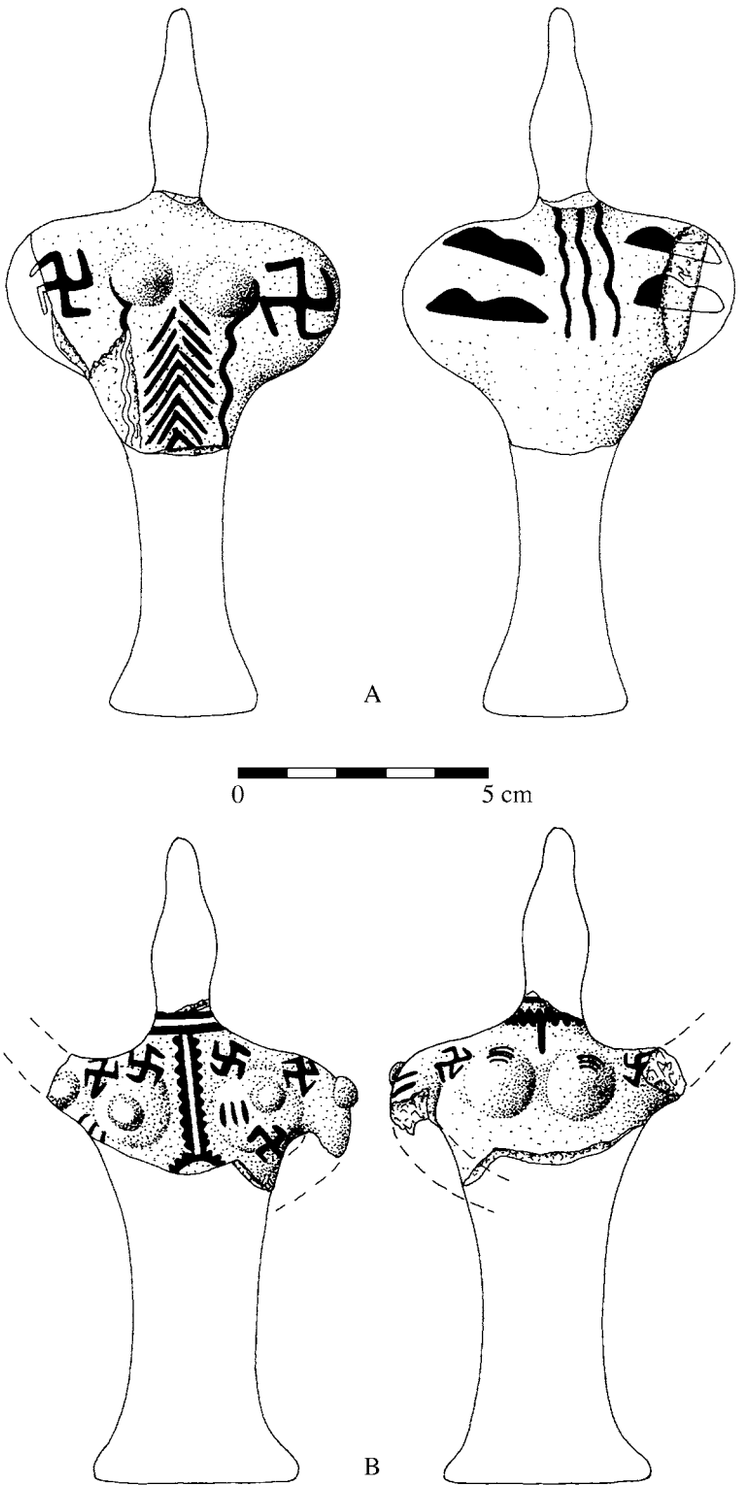


Figure 60. Baked Clay Female Human Figurines from Tall-e Bakun A. Scale 2:3

	Register No.	*Provenance*	*Elevation*	*Description*
A	PPA 371	Bldg. VIII, Rm. 7	Level III	Front and back views of a well-baked clay female figurine, no visible inclusion, brown paint
B	PPA 372	Bldg. V, Rm. 1	Level III	Front and back views of a well-baked clay female figurine, no visible inclusion, brown paint

Figure 61. Various Types of Spindle Whorls from Tall-e Bakun A

	Register No.	*Provenance*	*Elevation*	*Description*
A	TBA 226	Sq. BB 64	Level 1(?)	Baked clay, yellowish tan, no visible inclusion
B	TBA 96	Sq. BB 62	Level 2	Baked clay, grayish brown, no visible inclusion
C	TBA 120	Sq. BB 62	—	Baked clay, warm buff, no visible inclusion
D	TBA 44	Sq. BB 62	Level 1	Red stone
E	TBA 293	Sq. BB 62	Level 2	Baked clay, buff, no visible inclusion
F	TBA 538	Sq. BB 38	Level 3	Baked clay, grayish brown, no visible inclusion
G	TBA 45	Sq. BB 62	Level 1	Baked clay, light buff, no visible inclusion
H	TBA 93	Sq. BB 62	Level 1	Baked clay, grayish brown, no visible inclusion
I	TBA 377	Sq. BB 27	Level 2	Baked clay, yellowish brown, no visible inclusion
J	TBA 464	Sq. BB 37	Level 3	Baked clay, light buff, no visible inclusion
K	TBA 500	Sq. BB 28	Level 3	Grayish limestone
L	TBA 46	Sq. BB 62	Level 1	Baked clay, creamy buff, no visible inclusion
M	TBA 555a	NA	—	Body fragment shaped into spindle whorl, buff, dark brown paint
N	TBA 272	Sq. BB 62	Level 1	Baked clay, buff, no visible inclusion
O	TBA 555b	NA	—	Body fragment shaped into spindle whorl, buff, dark brown paint
P	TBA 18	Sq. BB 62	Level 1	Buff ware, no visible inclusion, dark paint
Q	TBA 555c	NA	—	Body fragment shaped into spindle whorl, buff, dark brown paint

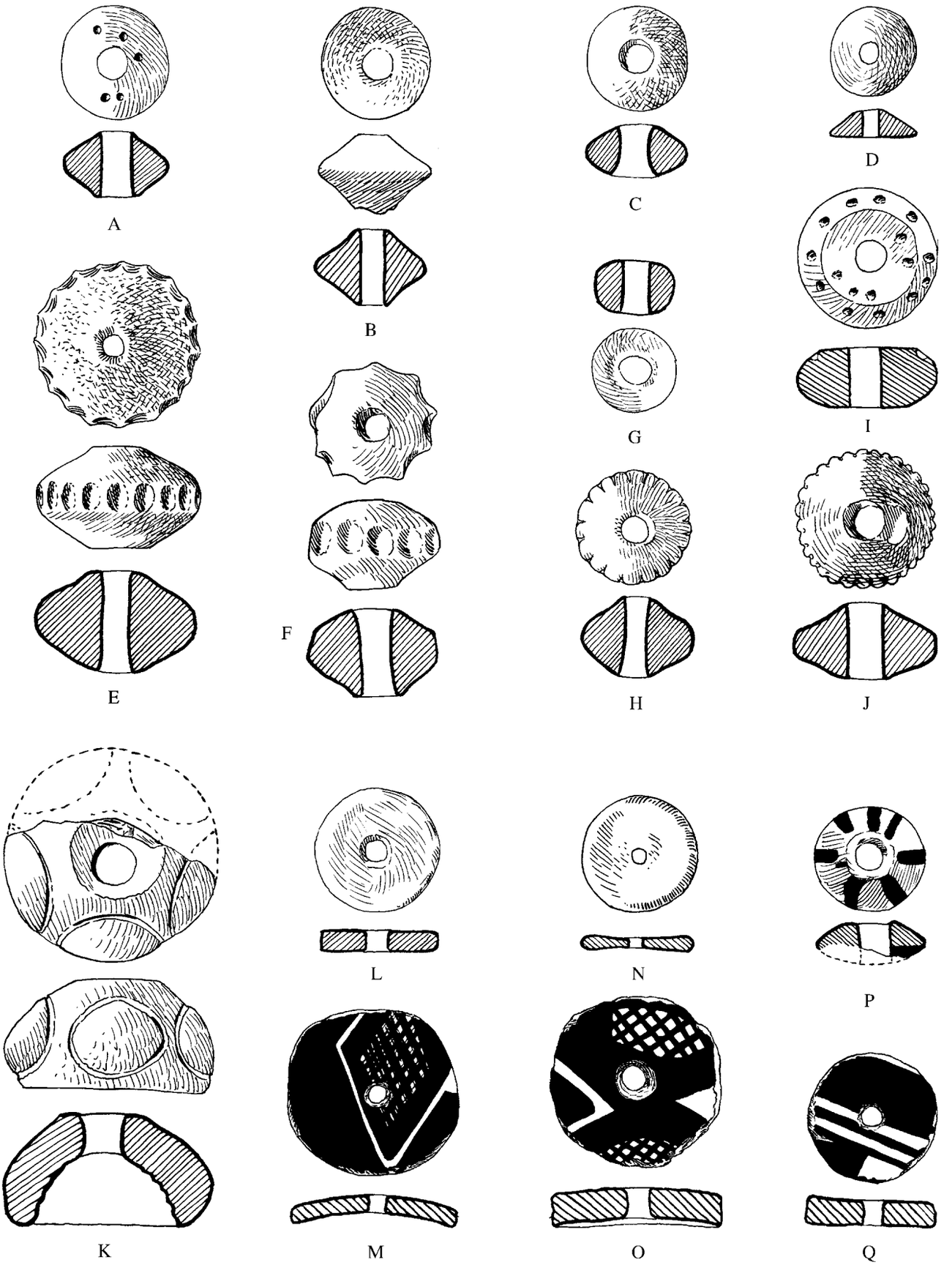


Figure 61. Various Types of Spindle Whorls from Tall-e Bakun A. Scale 4:5

Figure 62. Various Types of Small Clay, Stone, and Shell Objects from Tall-e Bakun A

	Register No.	*Provenance*	*Elevation*	*Description*
A	TBA 141	Sq. BB 86	Level 1(?)	Carnelian bead
B	TBA 509	Sq. BB 27	Level 3	Translucent alabaster bead
C	TBA 3	Sq. AB 88	Level III	White shell bead
D	TBA 334	Sq. BB 27	Level 2	Lapis lazuli pendant
E	TBA 190	Sq. BB 62	Level 2	Carnelian bead/pendant
F	TBA 401	Sq. BB 86	Level 2	Carnelian bead
G	TBA 5	Sq. AB 88	Level III	Carnelian bead
H	TBA 517	Sq. BB 37	Level 3	Carnelian bead
I	TBA 125	Sq. BC 70	—	Shell bead
J	TBA 7	Sq. AB 88, Bldg. VIII, Rm. 4	Level III	Shell bead
K	TBA 435	Sq. BB 27	Level 3	Shell bead
L	TBA 297	Sq. CB 06	Level 1(?)	Lapis lazuli bead
M	TBA 162	Sq. BB 86	Level 1	Carnelian bead
N	TBA 278	Sq. BB 78	Level 1	Turquoise bead
O	TBA 505	Sq. BB 38	Level 3	Turquoise bead
P	TBA 109	Sq. AB 88	Level III	Turquoise bead
Q	TBA 494	Sq. BB 28	Level 3	Lapis lazuli bead
R	TBA 331	Sq. CB 06	Level 1	Turquoise bead
S	TBA 161	Sq. BB 86	Level 1(?)	Shell bead
T	TBA 277	Sq. BB 78	Level 1	Shell bead
U	TBA 312a	Sq. Bb 62	Level 2	Shell bead
V	TBA 416	Sq. BB 38	Level 3	Green jasper bead
W	TBA 311	Sq. BB 62	Level 2	Carnelian bead
X	TBA 38	Sq. BB 27	Level 1	Alabaster pendant
Y	TBA 411	Sq. BB 28	Level 3	Turquoise disc
Z	TBA 229	Sq. BB 78	Level 1(?)	Mother-of-pearl, iridescent
AA	TBA 421	Sq. BB 78	Level 2	Shell ornament
BB	TBA 140	Sq. BB 86	Level 1(?)	Serpentine bead
CC	TBA 2	Sq. AB 88	Level I(?)	Turquoise bead
DD	TBA 244	Sq. BB 37	Level 2(?)	Shell ornament
EE	TBA 491	Sq. BB 28	Level 3	Shell ornament
FF	TBA 245	Sq. BB 38	Level 2(?)	Bone pendant
GG	TBA 290	Sq. BB 27	Level 2	Mother-of-pearl ornament, iridescent

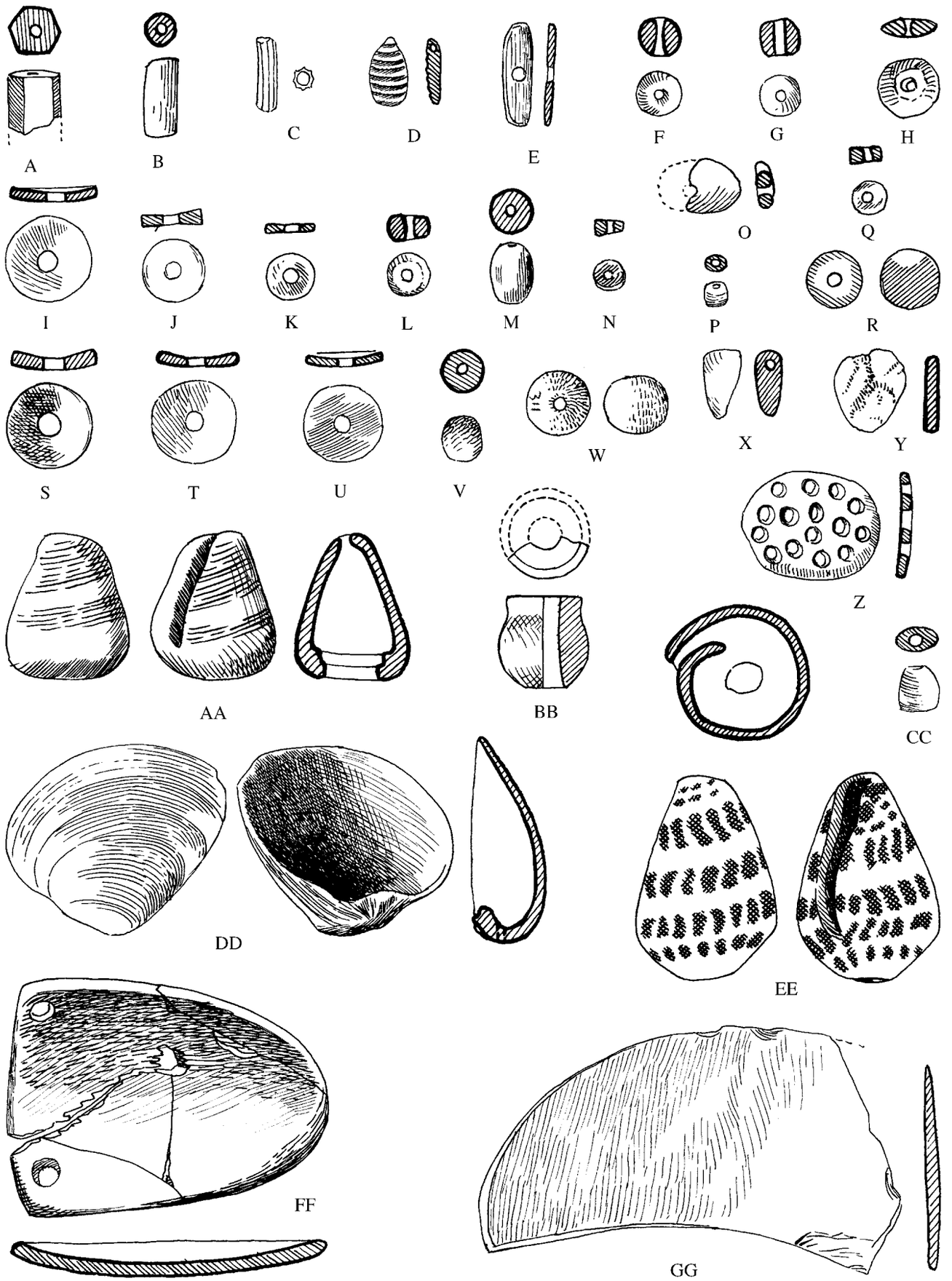


Figure 62. Various Types of Small Clay, Stone, and Shell Objects from Tall-e Bakun A. Scale 1:1

Figure 63. Various Clay Objects from Tall-e Bakun A

	Register No.	*Provenance*	*Elevation*	*Description*
A	TBA 33	Sq. AB 88, Bldg. IV, Rm. 5	Level III	Baked clay, creamy yellow, no visible inclusion, reddish maroon paint
B	TBA 506	Sq. BB 38, Rm. 8	Level 4	Baked clay, creamy yellow, no visible inclusion, reddish brown paint
C	TBA 269	Sq. BB 62	Level 3	Baked clay, tannish brown, no visible inclusion, brown paint
D	TBA 338	Sq. BB 37	Level 3	Baked clay, no visible inclusion, reddish maroon paint
E	TBA 182	Sq. BB 37	Level 3	Baked clay, buff, no visible inclusion, reddish maroon paint
F	TBA 227	Sq. BB 64	Level 1(?)	Baked clay, buff, no visible inclusion, purple-maroon paint
G	TBA 218	Sq. BB 37	Level 1	Baked clay, yellowish buff, no visible inclusion
H	TBA 514	NA	Level 3	Baked clay, grayish buff, no visible inclusion
I	TBA 91	Sq. BB 62	Level 3	Baked clay, tan buff, no visible inclusion, purple-maroon paint
J	TBA 178	Sq. BB 37, Rm. 1	Level 3	Baked clay, yellowish buff, no visible inclusion, purple-maroon paint
K	TBA 566a	Sq. BB 28	Level 2	Baked clay, buff, no visible inclusion
L	TBA 566b	Sq. BB 28	Level 1	Baked clay, buff, no visible inclusion
M	TBA 566c	Sq. BB 28	Level 2	Baked clay, buff, no visible inclusion
N	TBA 566d	Sq. BB 28	Level 3	Baked clay, buff, no visible inclusion
O	TBA 223	Sq. BB 62	Level 1	Highly baked clay, grayish buff, no visible inclusion
P	TBA 192	Sq. BB 64	Level 4	Baked clay, yellowish buff, no visible inclusion, brown paint
Q	TBA 548	Sq. BB 78, Rm. 7	Level 3	Baked clay, dark grayish buff, occasional small to medium size red and dark grits
R	TBA 524	Sq. BB 38, Rm. 3	Level 4	Baked clay, dark buff, grits and straw inclusion
T	TBA 399	Sq. BB 38	Level 1	Baked clay, dark grayish buff, no visible inclusion
U	TBA 271	Sq. BB 62	Level 1	Baked clay, dark grayish buff, no visible inclusion

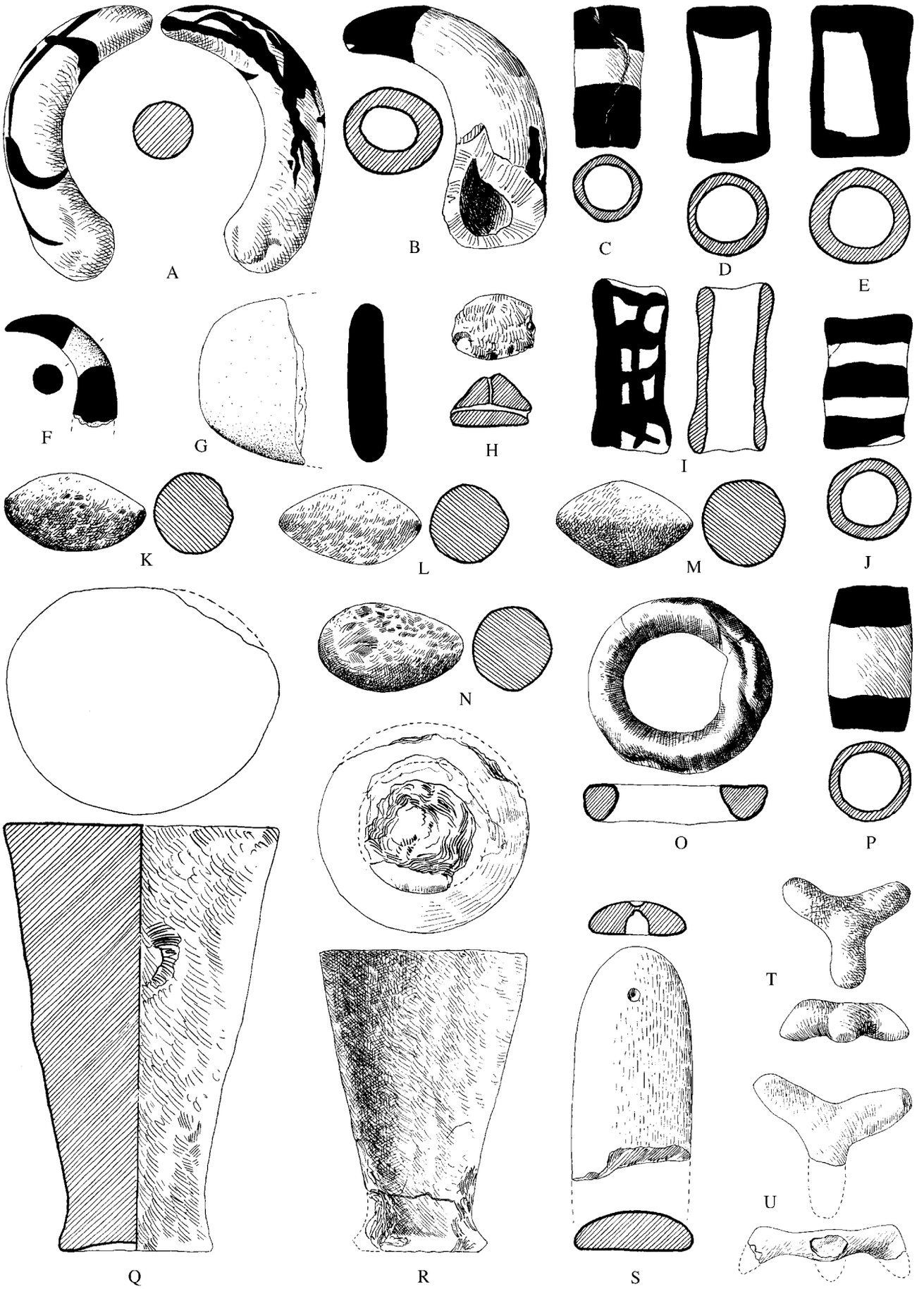


Figure 63. Various Clay Objects from Tall-e Bakun A. Scale 1:2

Figure 64. Various Types of Clay, Stone, and Shell Objects from Tall-e Bakun A

	Register No.	*Provenance*	*Elevation*	*Description*
A	TBA 486	Sq. BB 27	Level 3	Shell pendant(?)
B	TBA 498	Sq. BB 28	Level 3	Reddish purple stone
C	TBA 529	Sq. BB 86	Level 2	White translucent stone
D	TBA 520	Sq. BB 37	Level 3	Dark baked clay
E	TBA 496	Sq. BB 28	Level 3	Baked grayish buff clay with a central hole surrounded by eight finger-made depressions
F	TBA 407	Sq. BB 27	Level 2	Unbaked clay with reed impression
G	TBA 319	Sq. BB 78	Level 1	Baked clay, buff, no visible inclusion, possibly an arm of a figurine(?)
H	TBA 484	Sq. BB 27	Level 3	Pottery fragment shaped into a teardrop scraper(?), buff, no visible inclusion, brown paint
I	TBA 39	Sq. BB 37	Level 1	Pottery fragment shaped into a teardrop scraper(?), buff, no visible inclusion
J	TBA 445	Sq. BB 37	Level 3	Baked clay, buff, no visible inclusion, dark paint
K	TBA 415	Sq. BB 37	Level 3	Baked clay, buff, no visible inclusion, purple brown paint
L	TBA 339	Sq. BB 37	Level 2	Possibly a lid, unbaked clay, gray buff, occasional sand
M	TBA 123	Sq. BB 62	—	White calcite

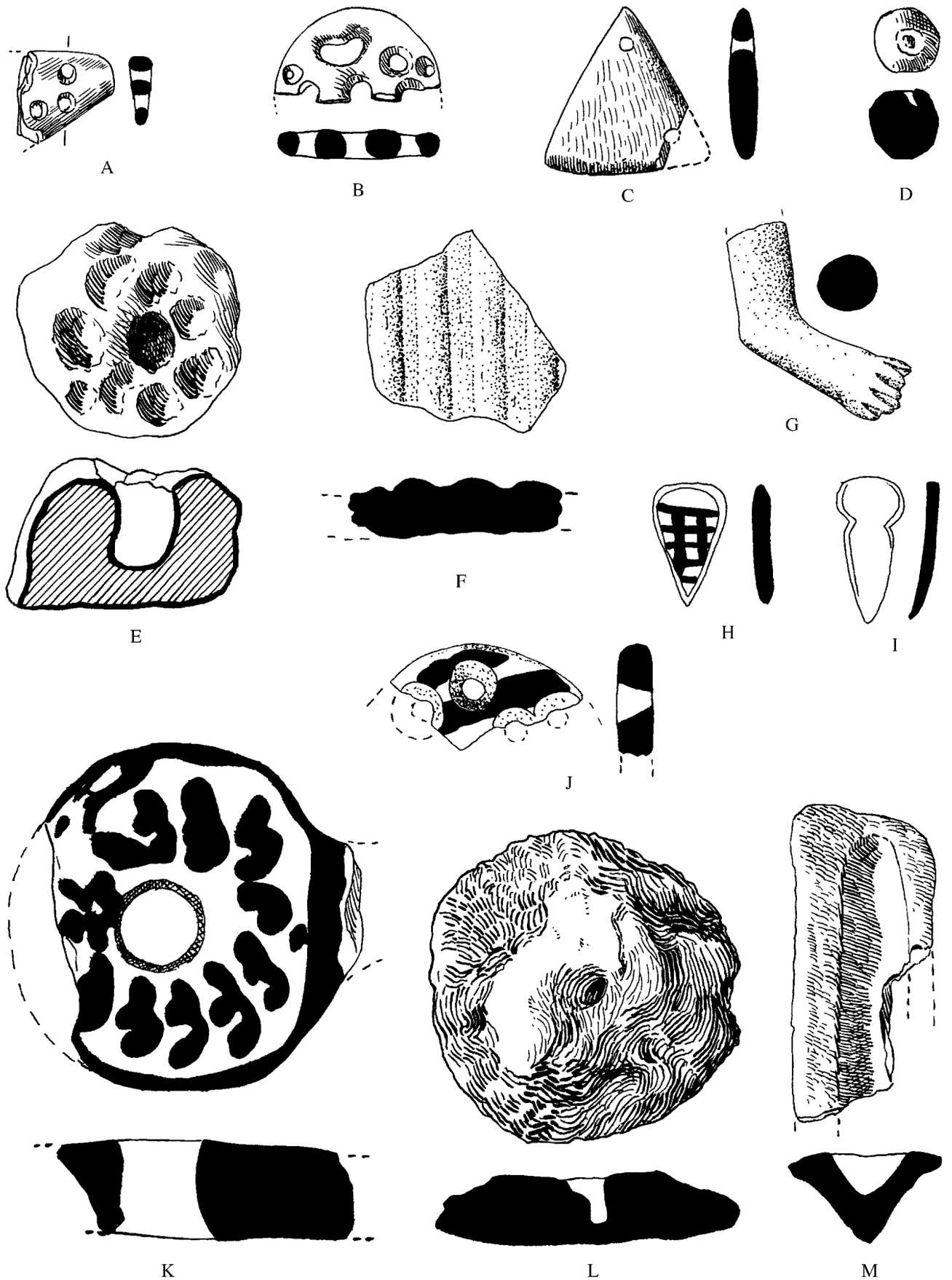


Figure 64. Various Types of Clay, Stone, and Shell Objects from Tall-e Bakun A. Scale 1:1

Figure 65. Various Types of Stone Tools and Weapons from Tall-e Bakun A

	Register No.	*Provenance*	*Elevation*	*Description*
A	TBA 10	Sq. AB 88, Bldg. II, Rm. 10	Level III	Grayish brown stone
B	TBA 364	Sq. BB 64	Level 2	Marble with dark spots
C	TBA 370	Sq. BC 70	Level 2	Gray black stone
D	TBA 549d	NA	Level 2	Grayish brown limestone
E	TBA 9	Sq. AB 88, Bldg. IV, Rm. 5	Level III	Gray limestone
F	TBA 80	Sq. BB 86	Level 1	Steatite
G	TBA 253	Sq. BB 64	Level 2	Yellowish brown stone
H	TBA 363	Sq. BB 62	Level 2	Black stone with white veins, traces of pink pigment on tips
I	TBA 549c	NA	Level 2	Limestone
J	TBA 549b	NA	Level 2	Gray limestone
K	TBA 186	Sq. BB 62	Level 1(?)	Gray limestone
L	TBA 549a	NA	Level 2	Gray limestone
M	TBA 213	Sq. BB 37	Level 1(?)	Polished gray limestone
N	TBA 134	Sq. BB 37	Level 4	Gray limestone
O	TBA 11	Sq. AB 88, Bldg. IV, Rm. 5	Level III	Polished reddish brown stone, one end smeared with red pigment
P	TBA 212	Sq. BB 37	Level 3	Limestone
Q	TBA 55	Sq. BB 86	Level 1	Polished limestone mace-head decorated with horizontal parallel wavy lines
R	TBA 130	Sq. AB 88, Bldg. II, Rm. 10	Level III	Grayish green stone

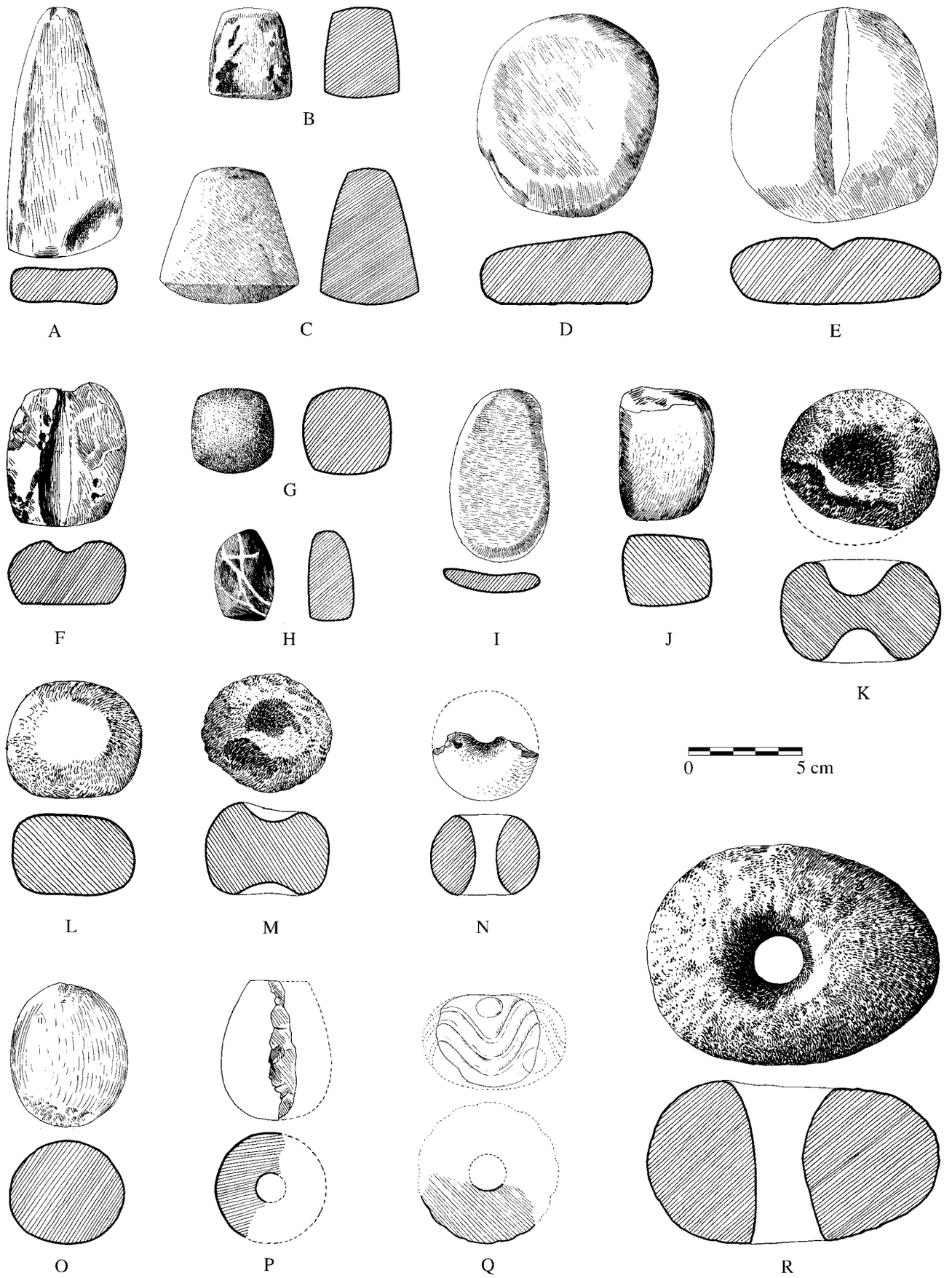


Figure 65. Various Types of Stone Tools and Weapons from Tall-e Bakun A. Scale 2:5

Figure 66. Examples of Alabaster Stone Vessels from Tall-e Bakun A

	Register No.	*Provenance*	*Elevation*	*Description*
A	TBA 133	Sq. BB 37	Level 3	Yazd translucent alabaster
B	TBA 154	Sq. BB 27	Level 1	Yazd creamy translucent alabaster, red-smeared interior
C	TBA 15	Sq. AB 88	Level III	Light buff alabaster
D	TBA 183	Sq. BB 38	Level 3	Yazd translucent alabaster

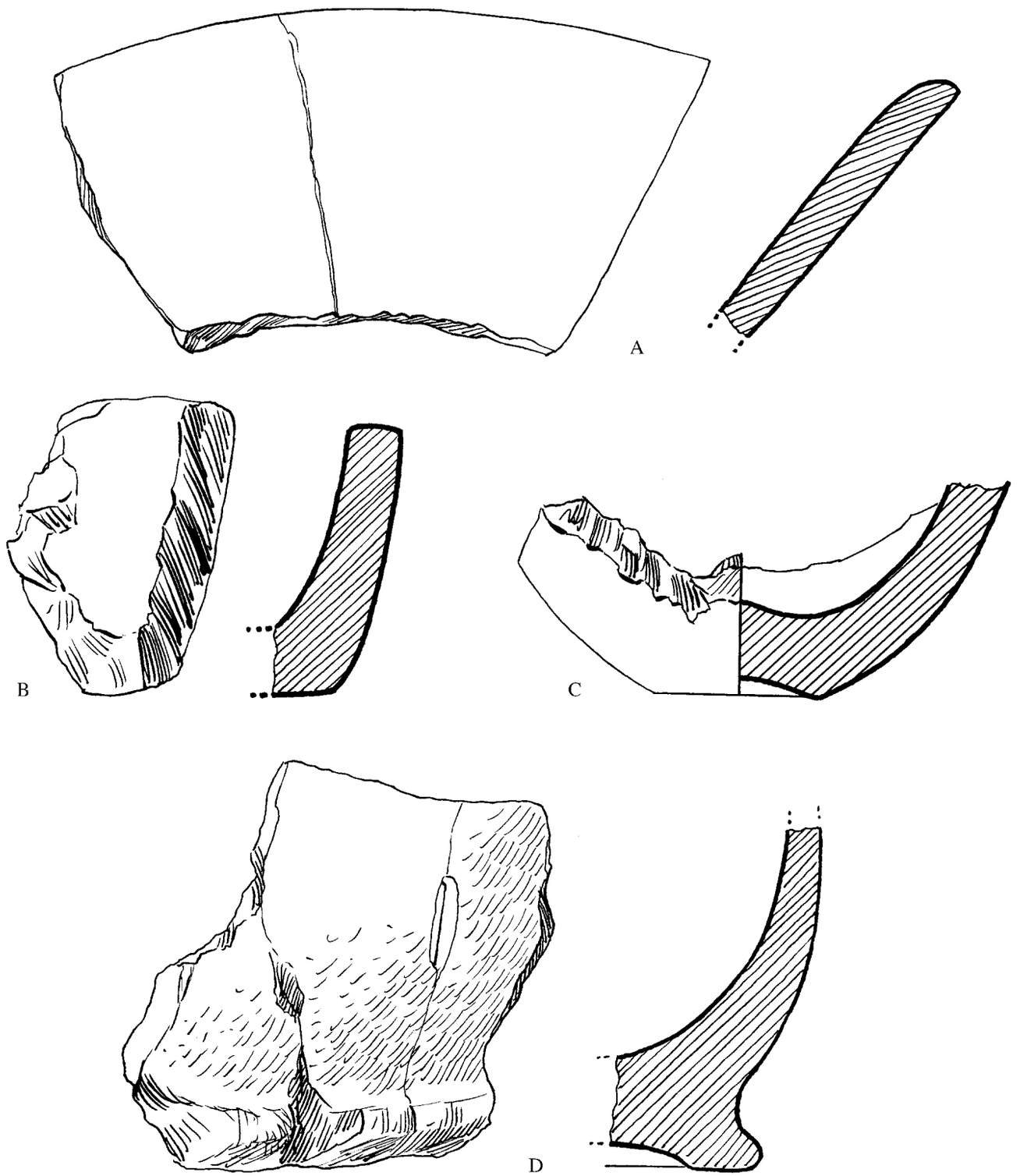


Figure 66. Examples of Alabaster Stone Vessels from Tall-e Bakun A. Scale 1:1

Figure 67. Flint and Obsidian Blades and Cores from Tall-e Bakun A

	Register No.	*Provenance*	*Elevation*	*Description*
A	TBA 367a	Sq. BB 64	Level 2	Gray flint bullet-shaped core
B	TBA 534	Sq. BB 28	Level 3	Purple flint bullet-shaped core
C	TBA 346	Sq. BC 70	Level 2	Purple flint bullet-shaped core
D	TBA 367b	Sq. BB 64	Level 2	Gray flint bullet-shaped core
E	TBA 153	Sq. AB 88	Level III	Grayish red flint, double backed blade with one edge retouched. Sheen on the edge
F	TBA 36a	Sq. AB 88	Level II	Reddish brown flint, double backed with both edges retouched. Sheen on both edges
G	TBA 345	Sq. BC 70	Level 2	Translucent light brown flint, double backed, both edges retouched. Sheen on edges
H	TBA 540	Sq. BB 38	Level 3	Translucent light brown flint, double backed, both edges retouched. Sheen on edges
I	TBA 359a	Sq. BB 37	Level 3	Greenish gray flint, double backed, both edges retouched. Sheen on edges
J	TBA 487	Sq. BB 27	Level 3	Olive green translucent flint, double backed, both edges retouched. Sheen on edges
K	TBA 36b	Sq. AB 88	Level II	Reddish brown flint, double backed with both edges retouched. Sheen on both edge
L	TBA 36c	Sq. AB 88	Level II	Reddish brown flint, double backed with both edges retouched. Sheen on both edge
M	TBA 216a	Sq. BB 37	Level 1(?)	Grayish brown flint, double backed with one edge retouched. Sheen on one edge
N	TBA 410	Sq. BB 28	Level 3	Grayish green flint, double backed with one edge retouched. Sheen on one edge
O	TBA 275	Sq. BB 64	Level 1	Dark brown flint, double backed with one edge retouched. Sheen on one edge
P	TBA 216b	Sq. BB 37	Level 1(?)	Grayish brown flint, double backed with one edge retouched. Sheen on one edge
Q	TBA 36d	Sq. AB 88	Level II	Reddish brown flint, double backed with one edge retouched. Sheen on edge
R	TBA 122	Sq. BB 62	—	Green flint, double backed with one edge retouched. Sheen on edge
S	TBA 216c	Sq. BB 37	Level 1(?)	Greyish brown flint, double backed with one edge retouched. Sheen on one edge
T	TBA 236	Sq. BB 27	Level 1(?)	Translucent green obsidian, single backed blade with one edge retouched. Sheen on one edge
U	TBA 359b	Sq. BB 37	Level 3	Greenish gray flint, double backed with one edge retouched. Sheen on one edge
V	TBA 4a	Sq. AB 88	Level III	Grayish brown flint blade, double backed
W	TBA 76	Sq. BB 62	Level 1	Translucent white flint blade, double backed
X	TBA 442a	Sq. BB 28	Level 3	Translucent gray flint blade, double backed
Y	TBA 4b	Sq. AB 88	Level III	Grayish brown flint blade, double backed
Z	TBA 71	Sq. BB 62	Level 1	Translucent brown flint blade, double backed
AA	TBA 4c	Sq. AB 88	Level III	Grayish brown flint blade, double backed
BB	TBA 442b	Sq. BB 28	Level 3	Translucent gray flint blade, double backed
CC	TBA 87	Sq. AB 88, Bldg. VIII, Rm. 9	Level III	Yellowish green flint blade, double backed
DD	TBA 442c	Sq. BB 28	Level 3	Translucent gray flint blade, double backed
EE	TBA 36e	Sq. AB 88	Level II	Reddish brown flint, double backed
FF	TBA 36f	Sq. AB 88	Level II	Reddish brown flint, single backed

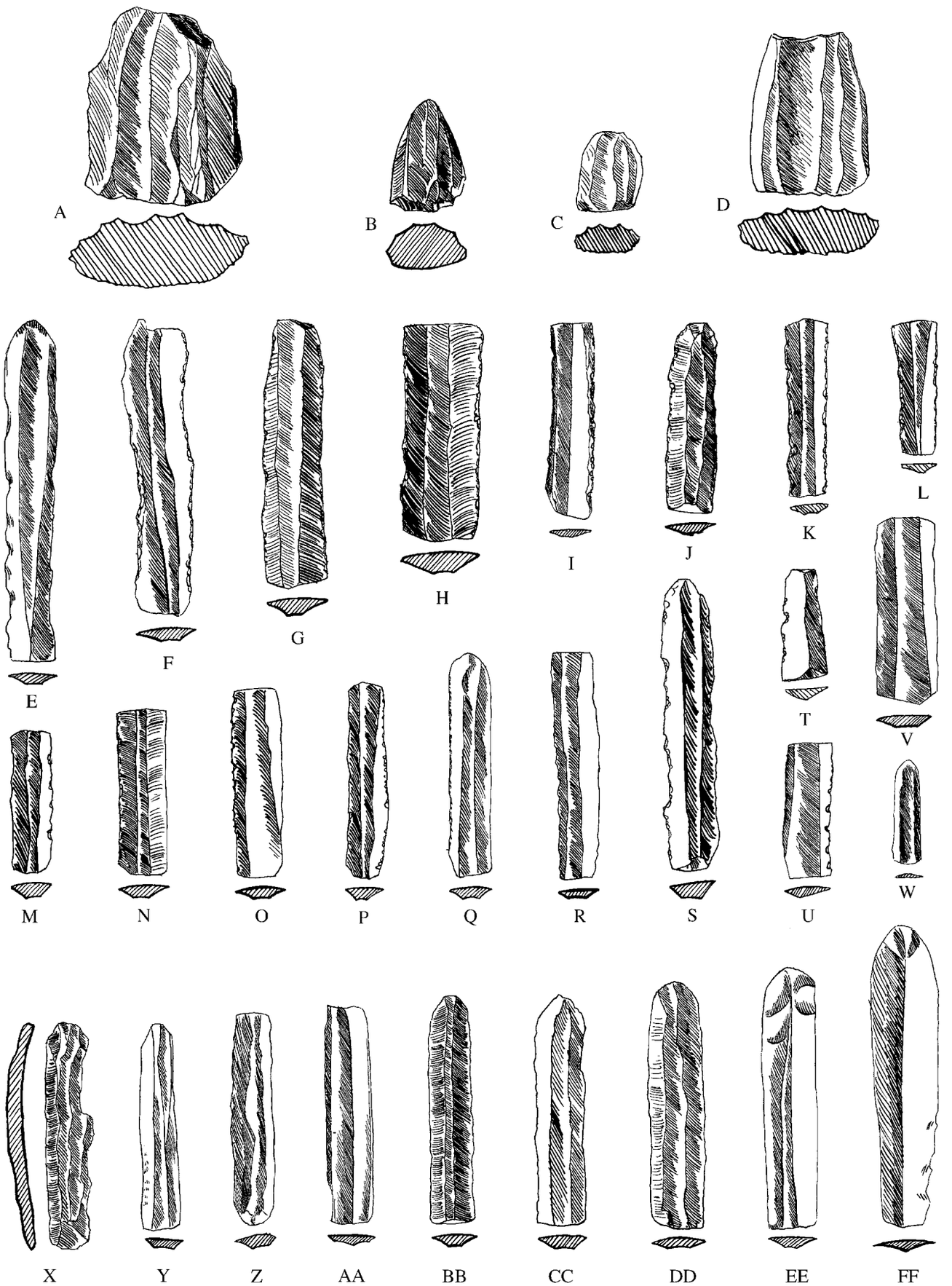


Figure 67. Flint and Obsidian Blades and Cores from Tall-e Bakun A. Scale 2:3

Figure 68. Various Types of Copper Tools from Tall-e Bakun A

	Register No.	*Provenance*	*Elevation*	*Description*
A	TBB 283	Sq. CE 13	—	Copper knife(?)
B	TBA 385	Sq. BC 70	Level 3	Copper hook(?)
C	TBA 266	Sq. BB 27, Rm. 5	Level 2	Copper ball(?)
D	TBA 576a	Sq. BB 86	Level 2	Copper blade(?)
E	TBA 576b	Sq. BB 86	Level 2	Copper blade(?)
F	TBA 398	Sq. BB 38	Level 3	Copper pin
G	TBA 446	Sq. BB 37	Level 3	Copper wire
H	TBA 359	Sq. BB 38	Level 3	Copper wire(?)
I	TBA 368	Sq. BB 78	Level 2	Copper wire
J	TBA 463	Sq. BB 28	Level 3	Copper wire
K	TBA 310	Sq. BB 37, Rm. 1	Level 3	Copper pin
L	TBA 177	Sq. BB 37, Rm. 8	Level 3	Copper wire
M	TBA 455	Sq. BB 27	Level 3	Copper rod/pin(?)
N	TBA 457	Sq. BB 28	Level 3	Copper point
O	TBA 405	Sq. BB 27	Level 2	Copper pin
P	TBA 434	Sq. BB 27	Level 2	Copper pin
Q	TBA 358	Sq. BB 28	Level 2	Copper rod
R	TBA 391	Sq. BB 27	Level 2	Copper rod
S	TBA 132	Sq. BB 27	Level 1	Copper blade(?)
T	TBA 386	Sq. BC 70	Level 3	Copper rod
U	TBA 289	Sq. BB 27	Level 2	Copper blade tip
V	TBA 214	Sq. BB 37, Rm. 1	Level 3	Copper knife(?)

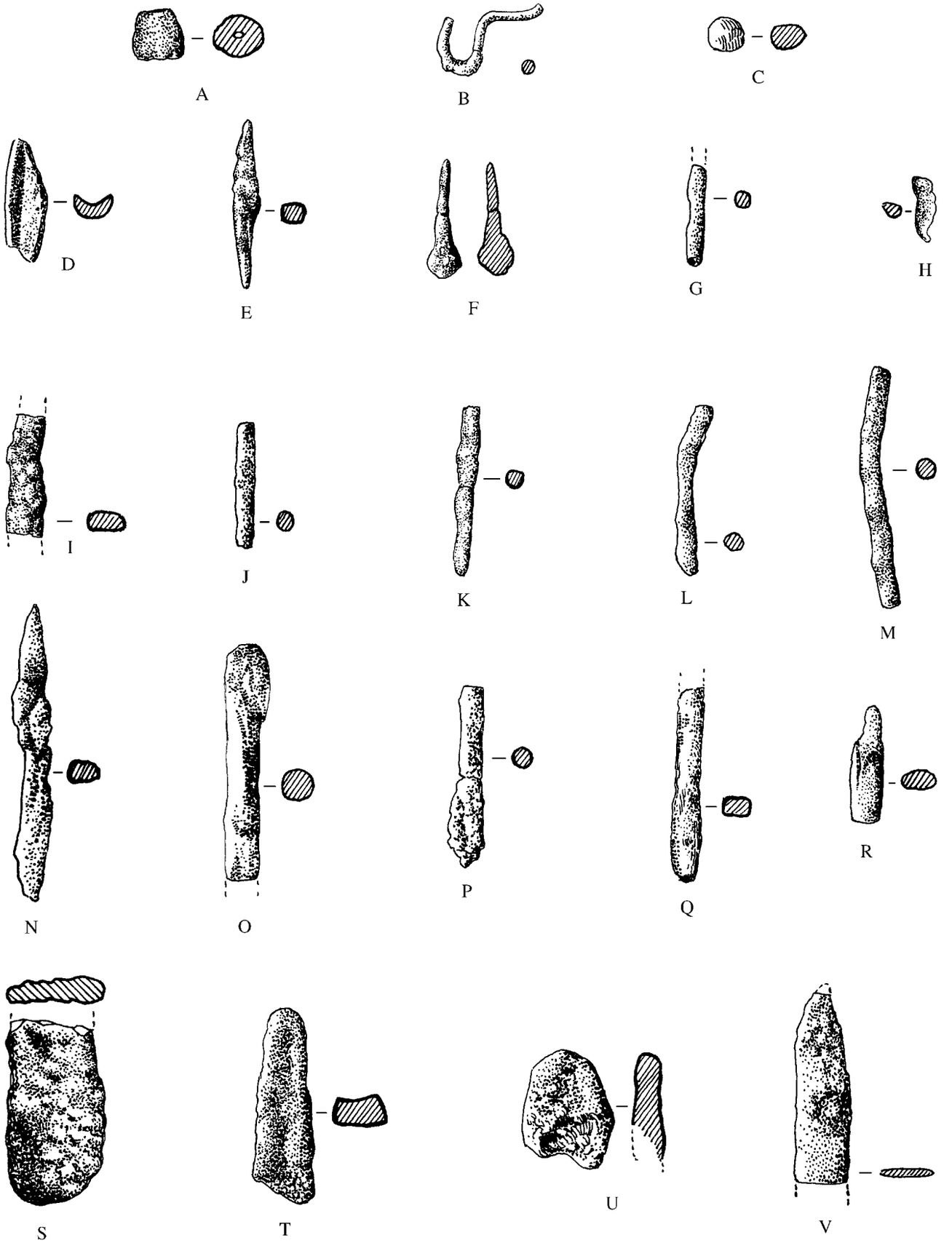


Figure 68. Various Types of Copper Tools from Tall-e Bakun A. Scale 1:1

Figure 69. Various Types of Copper Tools from Tall-e Bakun A

	Register No.	*Provenance*	*Elevation*	*Description*
A	TBA 420	Sq. BB 78, Rm. 11	Level 3	Copper pin
B	TBA 447	Sq. BB 38, Rm. 3	Level 4, under Floor	Copper pin
C	TBA 63	Sq. BB 27	Level 1	Copper toggle pin
D	TBA 152	Sq. AB 88, Bldg. II, Rm. 10	Level III	Copper pin
E	TBA 404	Sq. BB 27	Level 2	Copper needle
F	TBA 35	Sq. AB 88, Bldg. VIII, Rm. 4	Level III	copper needle
G	TBA 356	Sq. BB 37, Rm. 1	Level 3	Copper needle
H	TBA 495	Sq. BB 28	Level 3	Copper needle
I	TBA 333	Sq. BB 27	Level 2	Copper toggle pin
J	TBA 523	Sq. BB 38	Level 3	Copper pin
K	TBA 336	Sq. BB 28, Rm. 1	Level 4	Copper toggle pin
L	TBA 468	Sq. BB 37, Rm. 1	Level 3	Copper chisel(?)
M	TBA 542	Sq. BB 38	Level 3	Copper point
N	TBA 502	Sq. BB 37	Level 3	Copper point
O	TBA 466	Sq. BB 37, Rm. 1	Level 3	Copper blade?
P	TBA 467	Sq. BB 37	Level 3	Copper blade
Q	TBA 378	Sq. BB 27	Level 2	Copper chisel

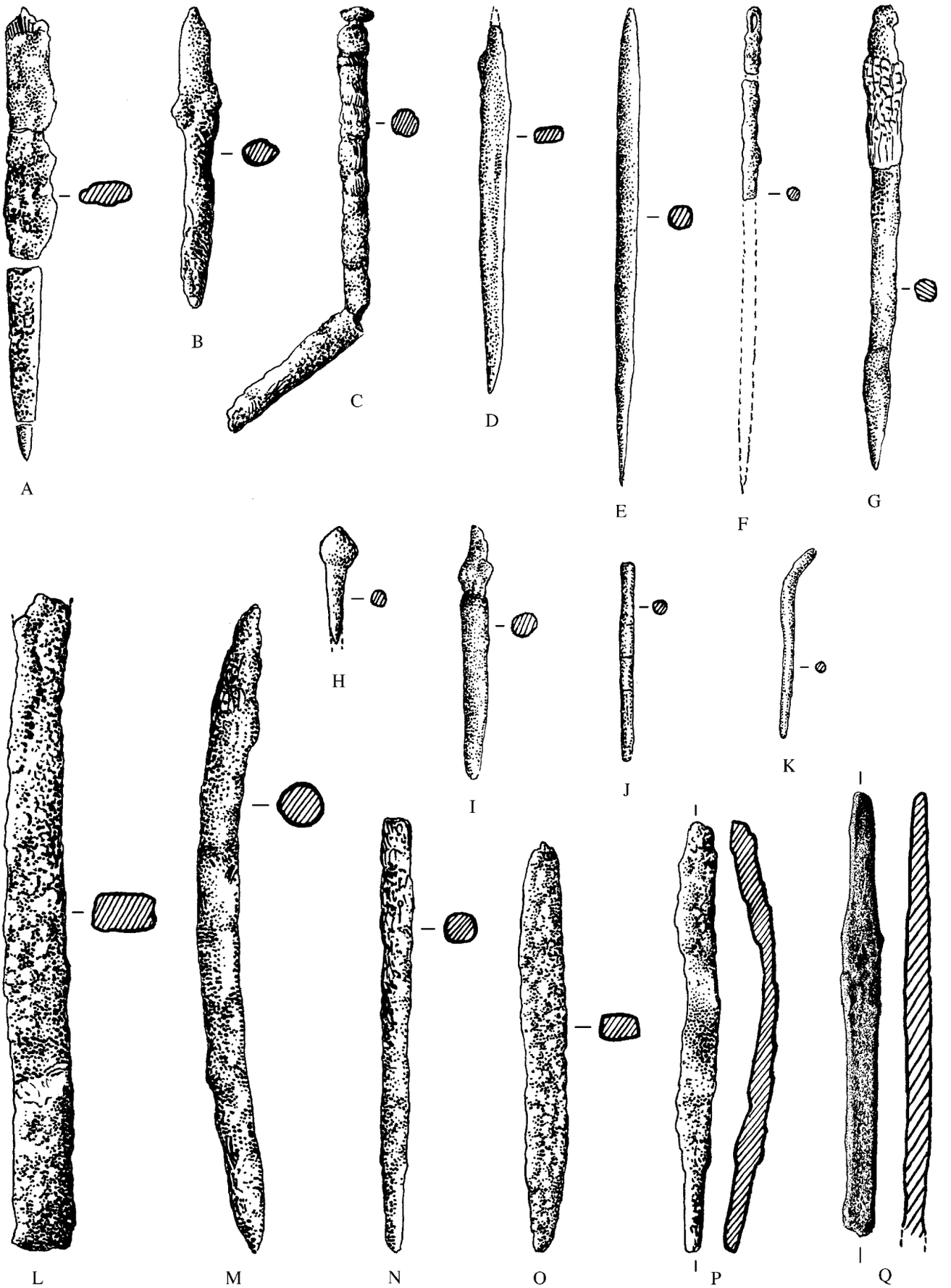


Figure 69. Various Types of Copper Tools from Tall-e Bakun A. Scale 1:1

Figure 70. Copper Dagger from Tall-e Bakun A

Register No.	*Provenance*	*Elevation*	*Description*
TBA 288	Sq. BB 27, Rm. 5	Level 2	Intact copper dagger

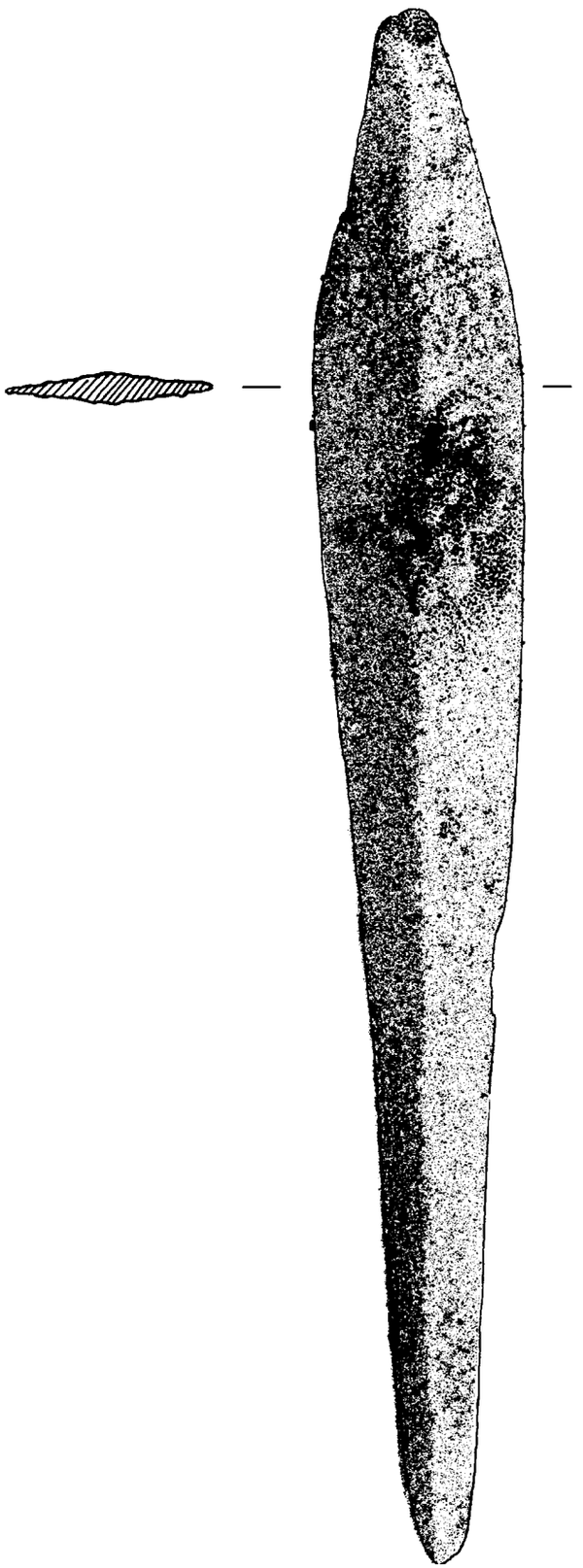


Figure 70. Copper Dagger from Tall-e Bakun A. Scale 1:1

Figure 71. Clay and Stone Tokens from Tall-e Bakun A

	Register No.	*Provenance*	*Elevation*	*Description*
A	TBA 461	Sq. BB 28	Level 3	Baked clay, buff, no visible inclusion
B	TBA 193	Sq. BC 70	Level 1(?)	Reddish brown stone, polished
C	PPA 622	NA	Level III	Baked clay, buff, no visible inclusion
D	TBA 459	Sq. BB 28	Level 3	Unbaked clay, grayish buff, no visible inclusion
E	PPA 6	NA	Level III	Baked clay, grayish buff, no visible inclusion
F	TBA 316	Sq. BB 64	Level 2	Baked clay, buff, no visible inclusion
G	TBA 393	Sq. BB 37	Level 2	Baked clay, buff, no visible inclusion
H	PPA 59	Sq. N 30	Level III	Baked clay, buff, no visible inclusion
I	TBA 343	Sq. BB 64	Level 2	Baked clay, buff, no visible inclusion, dark brown paint
J	TBA 112	Sq. AB 88	Level III	Baked clay, buff, no visible inclusion
K	TBA 199	Sq. CB 06	Level 1(?)	Baked clay, buff, no visible inclusion, flaky brown paint
L	TBA 438	Sq. BB 27	Level 3	Unbaked clay, buff, no visible inclusion
M	TBA 83	Sq. CB 06	Level 1	Grayish green stone
N	TBA 452	Sq. BB 27	Level 3	Baked clay, buff, no visible inclusion
O	TBA 531	Sq. BB 27, Kiln	Level 3	Unbaked clay, buff, no visible inclusion

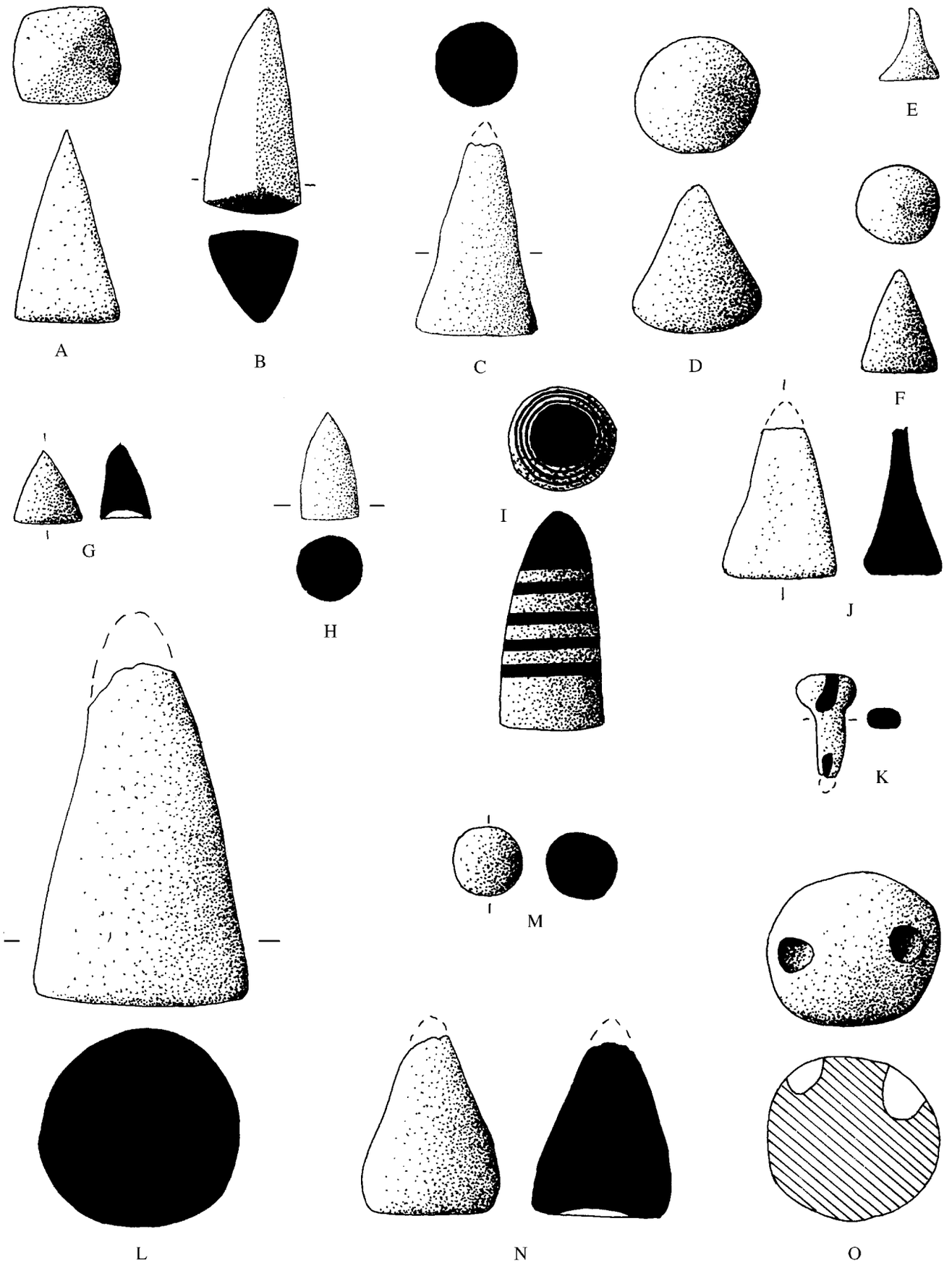


Figure 71. Clay and Stone Tokens from Tall-e Bakun A. Scale 1:1

Figure 72. Clay and Stone Tokens from Tall-e Bakun A

	Register No.	*Provenance*	*Elevation*	*Description*
A	TBA 554a	Sq. BB 28	Level 3	Baked clay, no visible inclusion
B	TBA 392	Sq. BB 37	Level 3	Reddish purple stone
C	TBA 554b	Sq. BB 28	Level 3	Baked clay, no visible inclusion
D	TBA 292	Sq. BB 38	Level 2	Gray limestone
E	TBA 113	Sq. BB 27	Level 1	Alabaster
F	TBA 114	Sq. BB 27	Level 1	Grayish brown limestone
G	TBA 384	Sq. BB 78	Level 3	Baked clay
H	TBA 381	Sq. BB 38	Level 3	Baked clay, light brown paint
I	TBA 294	Sq. BB 64	Level 2	Baked clay, brown paint
J	PPA 485	Sq. M 30	Level IV	Baked clay, reddish maroon paint
K	TBA 121	Sq. BB 62	Level 3(?)	Baked clay, brown paint
L	PPA 524	Sq. Q 23	Level I(?)	Baked clay, brown paint
M	TBA 541	Sq. BB 38	Level 3	Baked clay, red-maroon paint
N	TBA 544	Sq. BB 38	Level 3	Baked clay, light brown paint

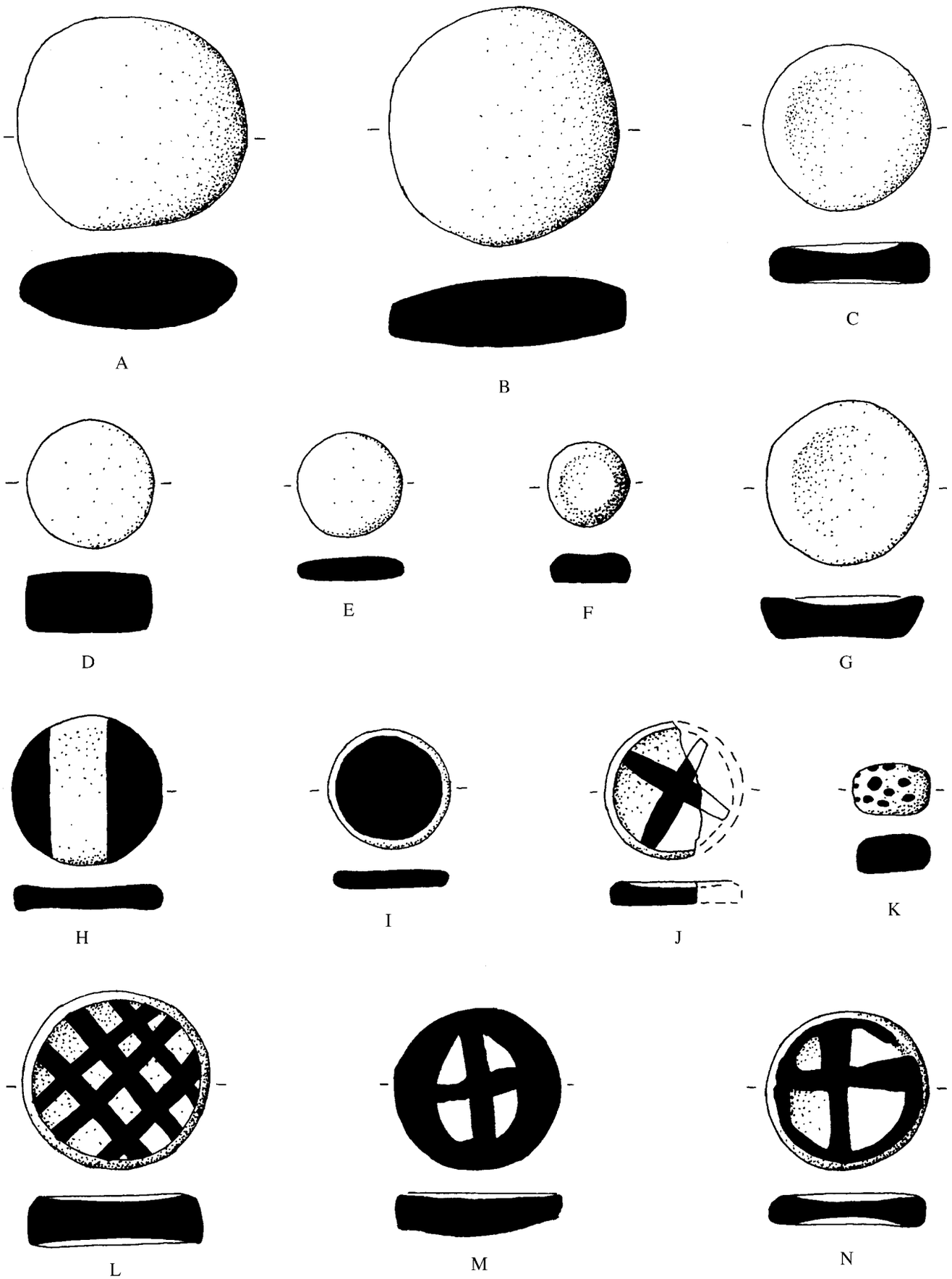


Figure 72. Clay and Stone Tokens from Tall-e Bakun A. Scale 1:1

Figure 73. Various Types of Clay Tokens from Tall-e Bakun A

	Register No.	*Provenance*	*Elevation*	*Description*
A	TBA 72	Sq. BB 62	Level 1	Baked clay
B	TBA 73	Sq. BB 62	Level 1	Baked clay, no visible inclusion
C	TBA 95	Sq. BB 62	Level 1(?)	Baked clay
D	TBA 551a	Sq. AB 88	Level III	Baked clay
E	TBA 168	Sq. CB 06	Level 1	Baked clay
F	TBA 551b	Sq. AB 88	Level III	Baked clay
G	TBA 440	Sq. BB 28	Level 3	Baked clay
H	TBA 189	Sq. BB 62	Level 1(?)	Unbaked clay, one side, finger impressed
I	TBA 550a	NA	—	Baked clay
J	TBA 172	Sq. AB 88	Level III	Baked clay
K	TBA 550b	NA	—	Baked clay
L	TBA 527	Sq. BB 78	Level 3	Baked clay, brown paint
M	TBA 490	Sq. BB 28	Level 3	Baked clay, pierced on one side
N	TBA 503	Sq. BB 37	Level 3	Baked clay, brown paint
O	TBA 525	Sq. BB 38, Rm. 6	Level 3	Baked clay, brown paint
P	TBA 526	Sq. BB 38, Rm. 6	Level 3	Baked clay, brown paint
Q	TBA 516	Sq. BB 37	Level 3	Baked clay, reddish brown paint

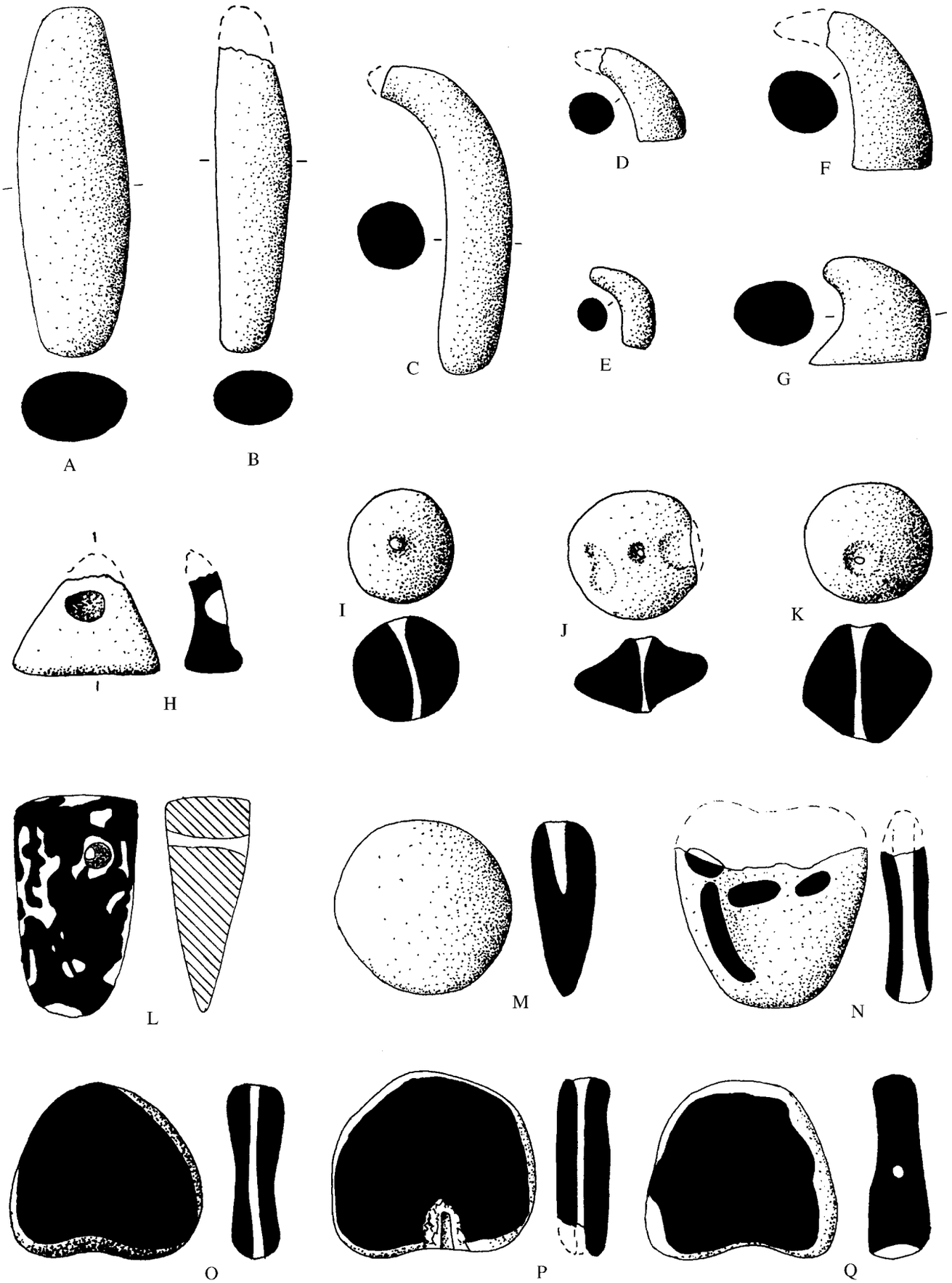


Figure 73. Various Types of Clay Tokens from Tall-e Bakun A. Scale 1:1

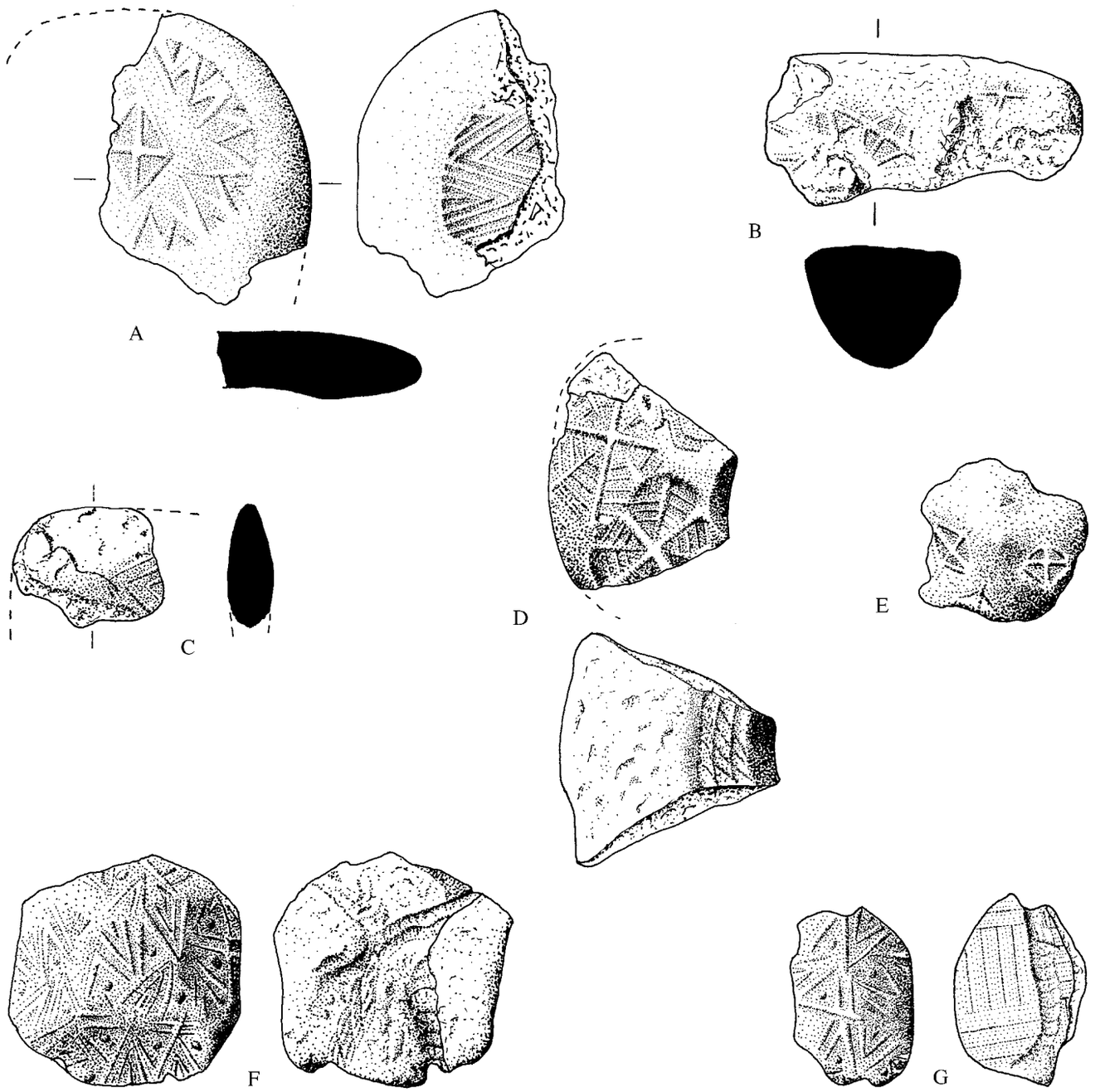


Figure 74. Various Types of Baked Clay Sealings from Tall-e Bakun A. Scale 1:1

	Register No.	*Provenance*	*Elevation*	*Description*
A	PPA 347	Bldg. IV, Rm. 3	Level III	"Tablet" with two different seal impressions
B	PPA 646	Bldg. IV, Rm. 2	Level III	—
C	PPA 6	Bldg. XIII, Rm. 1	Level III	—
D	PPA 261	Bldg. III, Rm. 4	Level III	The only door sealing with two different impressions
E	PPA 345	Bldg. III, Rm. 3	Level III	—
F	PPA 274	Bldg. IV, Rm. 3	Level III	Bag sealing
G	PPA 321	Bldg. IV, Rm. 2	Level III	Bale/box sealing

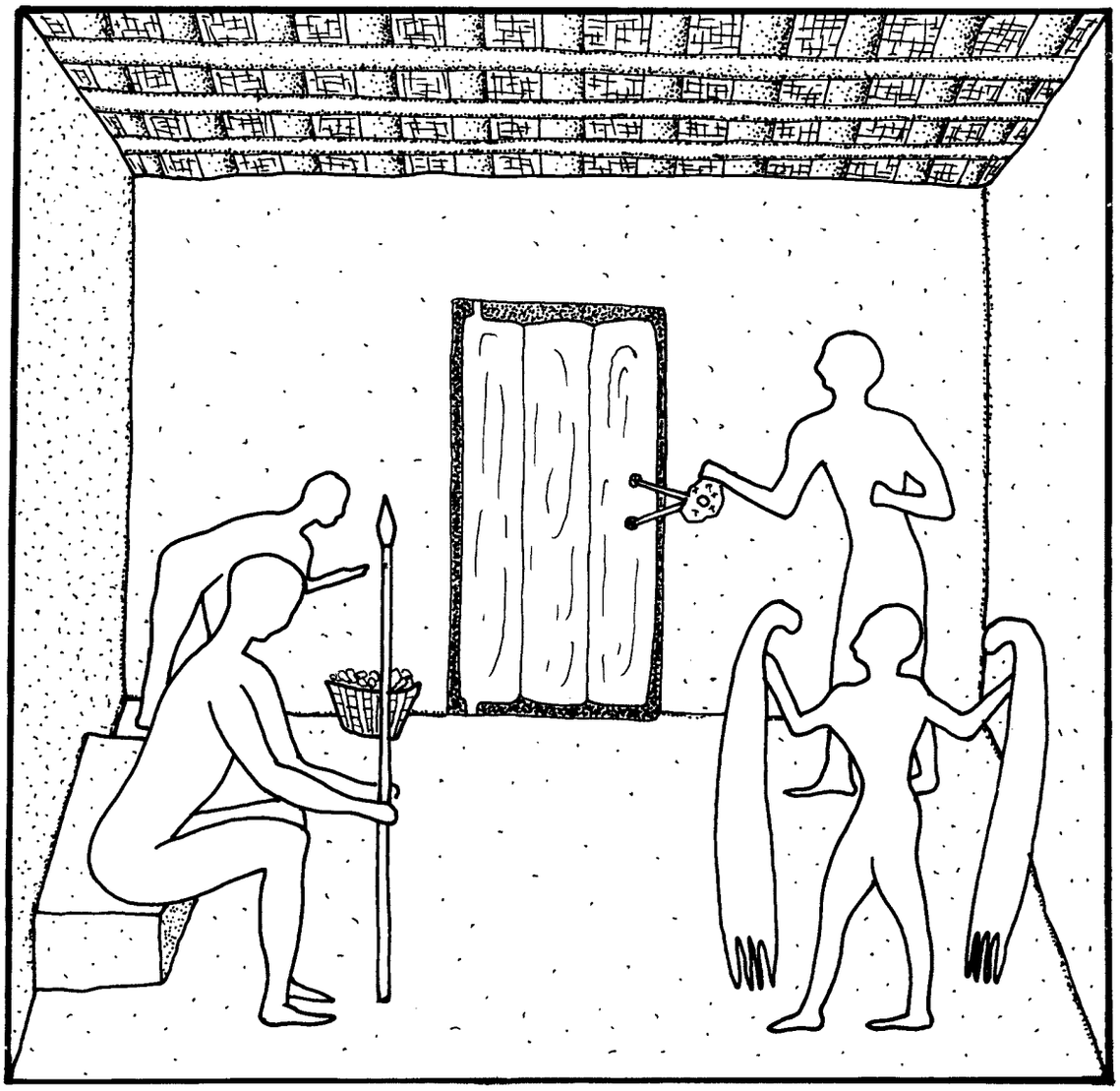


Figure 75. Hypothetical Reconstruction of the Warehouse in Building IV

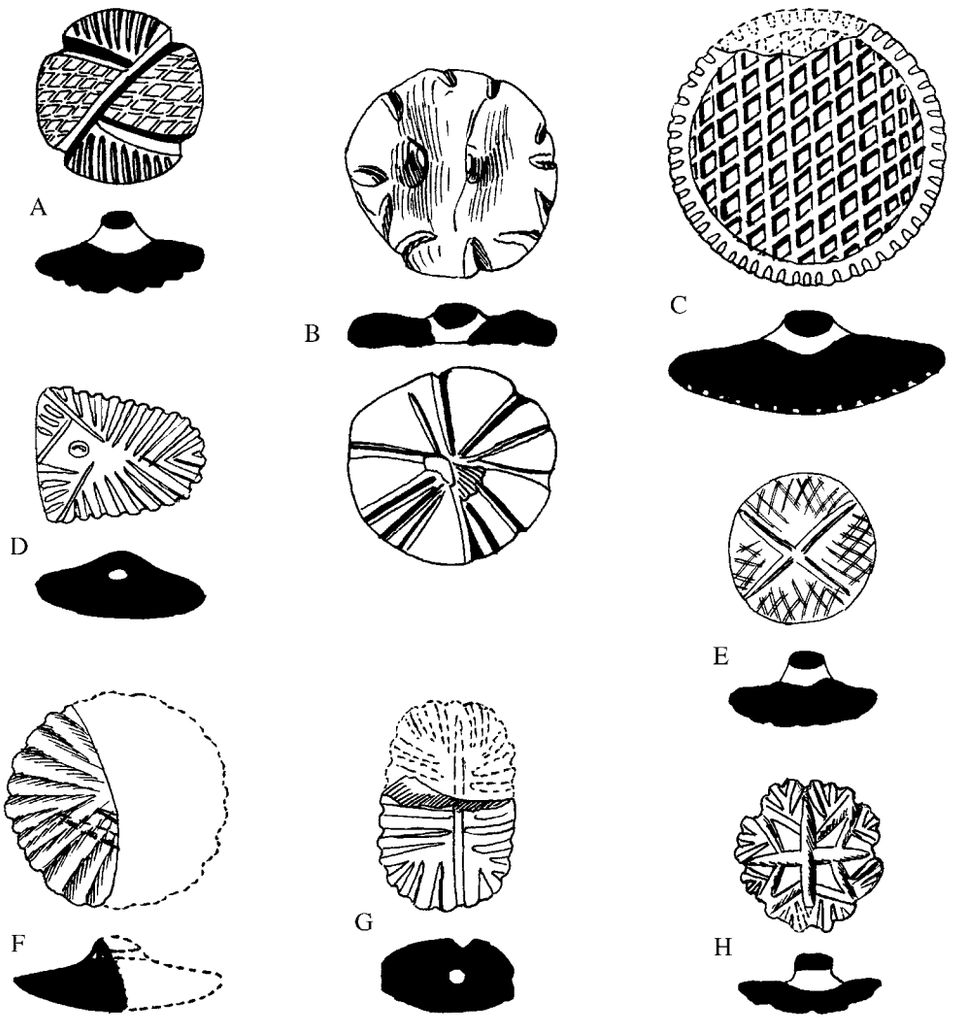


Figure 76. Stamp Seals from Tall-e Bakun A. Scale 1:1

	Register No.	*Provenance*	*Elevation*	*Description*
A	TBA 419	Sq. BB 78	Level 2	Polished black stone, plano-convex, areas filled with alternating hatching and oblique lines
B	TBA 543	Sq. BB 38	Level 3	Polished light gray stone
C	TBA 348	Sq. BB 78	Level 2	Polished gray limestone, crosshatched circle with border of perpendicular lines
D	TBA 14	Sq. AB 88	Level I	Polished black stone, plano-convex, oblique lines frame edges, small depression at base
E	TBA 274	Sq. BB 64	Level 1	Reddish purple stone, plano-convex with hatched quarters
F	TBA 136	Sq. BB 62	Level 1	Green stone, plano-convex with multi-petal rosette
G	TBA 24	Sq. BB 64	Level 1	Steatite, cross with filled quarters
H	TBA 52	Sq. BB 78	Level 1	Polished black stone, crossed two-headed arrows with filling

TABLES 28–51

Table 28. Synopsis of the Chronological Periods in Fars, Susiana, and Mesopotamia

Period	Fars Type Site	Susiana	Mesopotamia
Late Banesh	Tall-e Malyan	Susa III (Acropole Levels 15–13)	Jemdet Nasr
Middle Banesh	Tall-e Malyan	Susa II–III (Acropole Levels 18–16)*	Late Uruk/Jemdet Nasr
Early Banesh	Survey	Susa II (Acropole Levels 19–21)*	Middle Uruk
Proto-Banesh	Lapui	Terminal Susa (Acropole Level 24)	Terminal Ubaid
Late Fars	Tall-e Bakun A	Late Susiana 2 (Susa I Acropole Levels 27–25)	Ubaid 4
Middle Fars 2	Tall-e Gap	Late Susiana 1	Ubaid 3–4
Middle Fars 1	Tall-e Bakun B2	Late Middle Susiana	Ubaid 3
Early Fars	Tall-e Bakun B1	Early Susiana(?)*	Ubaid 1(?)*
Archaic Fars 2	Tall-e Jari A/B	Archaic Susiana 3(?)*	Ubaid 0(?)*
Archaic Fars 1	Tall-e Mushki	Archaic Susiana 2(?)*	Hassuna(?)*
“Formative Fars”(?)	Kushk-e Hezar, A 4-1 Shelter (Arsanjan)	Formative Susiana(?)	—

*The correspondence of these phases to those from Fars is not certain.

Table 29. Number of Archaeological Sites Attributed to Individual Phases (after Sumner 1994)

Date B.C.	Ceramic Phase	Habitation	Special	Doubtful	Total
3400*	Banesh	42	3	18	63
4000	Lapui	108	18	13	139
5200	Bakun (black-on-buff)	156	10	9	175
5400	Shamsabad	102	1	5	108
6100	Jari A/B	50	—	—	50
6400	Mushki	8	—	—	8

* Absolute dates are based on the 2004 radiocarbon samples. See *Appendix A*.

** “Shamsabad” is the the name of a now abandoned village near Tall-e Bakun, which W. Sumner used to describe the cultural phase already known as Bakun B1, our Early Fars phase.

Table 30. Relative Chronology of Prehistoric Sites in Iran and Mesopotamia*

Date B.C.	Susiana		Deh Luran	Zagros Mountains	Fars		Central Plateau		Mesopotamia		
	Period	Site			Period	Site	Period	Site	Period	Site North	Site South
3800	↑ Protoliterate	Chogha Mish (Terrace)					Late Plateau	Ghabrestan III	Early Uruk	Tepe Gawra XII	Eridu V–IV
		Susa Acropole 21–19		Godin VI							
4000	Terminal Susa		Zargarab		Proto-Banesh	Lapui			Terminal Ubaid	Tepe Gawra XIV–XIV	
		Jafarabad 1–3 Susa Acropole 25–26									Eridu VII–VI
4200		Bandebal II (Level 10)						Ghabrestan I (Levels 13–11) Hessar I–A	Ubaid 4		
				Godin VII							
4400	Late Susiana 2	Susa Acropole 27?				Tall-e Bakun A		Ghabrestan I (Levels 19–17)			
		Bandebal II (Levels 11–17)	Farrukhabad A23–31, B32–47		Late Fars						
4600	Late Susiana 1	Qabr-e Sheikheyn			Middle Fars 2	Tall-e Gap	Middle Plateau		Ubaid 3		al–Ubaid
				Godin VIII							
4800	Late Middile Susiana	Jafarabad 3m–n	Bayat Phase								
		Chogha Mish	Mehmeh Phase								
5000		Jawi I								Arpachiyah H3–H4	
		Bandebal II			Middle Fars 1	Tall-e Bakun B					
5200	Early Middile Susiana	Chogha Mish	Khazineh Phase	Godin IX				Tappeh Zagheh			Haji Mohammad
								Cheshmeh Ali Upper	Ubaid 2		
5400					Early Fars	Tall-e Bakun B /Jari A	Early Plateau				
	Early Susiana	Jafarabad 6–4								Arpachiyah H1	
5600		Chogha Mish	Sabz Phase								
				Godin X					Ubaid 1		Eridu XIX
5800											
					Archaic Fars 2	Jari B		Cheshmeh Ali Lower/Sialk I			
5900	Archaic Susiana 3	Chogha Mish	CMT						Ubaid 0	Samarra es-Sawwan I	Tell el-'Oueile 11–19
6100	Archaic Susiana 2	Chogha Mish	Surkh Phase	Haji Firuz			Archaic Plateau				
6300					Archaic Fars 1	Mushki			Hassuna	Hassuna 1a	
	Archaic Susiana 1	Chogha Mish	Sefid Phase								
6500					Formative Fars?	Arsanjan Site		Tappeh Deh Kheir Tappeh Sang-e Chakhmaq		Um Dabaghieh IV	?
	Archaic Susiana 0	Chogha Bonut (Zone F) Tuleii	Mohammad Jafar Phase	Abdul Husein/ Guron							
6700									Jarmo		
	Formative Susiana	Chogha Bonut (Zone B-E)	Ali Kosh Phase					?		Late Jarmo	
6900					Aceramic Fars?		Aceramic Plateau				
			Buz Murdeh Phase							Early Jarmo	
7200	Aceramic Susiana	Chogha Bonut (Zone A)								Maghzalieh	
				Asiab							
				Ganj Dareh E							

* Solid horizontal lines in the "Fars Period/Site" column indicate break in sequence; broken line indicates possible break in sequence; and diagonal line indicates overlapping.

Table 31. Spatial Distribution of Various Seal Designs

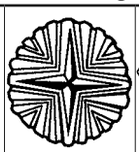
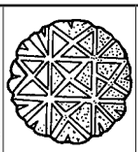
Provenance	Type of Sealing	 Seal 1	 Seal 2	 Seal 3	 Seal 4	 Seal 5	Miscella-neous Seals	Total
Building II	Door Sealing						12	15
	Bag Sealing						2	
	Miscellaneous						1	
	Tablet							
Building III	Door Sealing	1	9		7			25
	Bag Sealing		1					
	Miscellaneous						7	
	Tablet							
Building IV	Door Sealing	36		12		15		80
	Bag Sealing			8			6	
	Miscellaneous	2						
	Tablet						1	
Building VII	Door Sealing		3				5	12
	Bag Sealing						4	
	Miscellaneous							
	Tablet							
Building XIII	Door Sealing						4	8
	Bag Sealing							
	Miscellaneous						3	
	Tablet						1	
Total		39	13	20	7	15	46	140

Table 32. Quantitative Analysis of Various Seal Designs in Five Buildings

Provenance	Seals						Total (%)
	Seal 1 (%)	Seal 2 (%)	Seal 3 (%)	Seal 4 (%)	Seal 5 (%)	Misc. (%)	
Building II	—	—	—	—	—	100	10.7
Building III	4	40	—	28	—	28	17.9
Building IV	47.5	—	25	—	18.8	8.7	57.1
Building VII	—	25	—	—	—	75	8.6
Building XIII	—	—	—	—	—	100	5.7
Total (%)	27.9	9.3	14.3	5	10.7	32.8	100

Table 33. Quantitative Analysis of Various Seal Designs on Different Types of Sealings

Type of Sealing	Total	Seals					
		Seal 1 (%)	Seal 2 (%)	Seal 3 (%)	Seal 4 (%)	Seal 5 (%)	Misc. (%)
Door Sealing	104	35.6	11.5	11.5	6.7	14.4	20.2
Bag Sealing	21	—	4.7	38.1	—	—	57.1
Miscellaneous	13	15.4	—	—	—	—	84.6
Tablet	2	—	—	—	—	—	100

Table 34. Total Areas of Occupation in Mesopotamia and Iran from 3400 to 2600 B.C. in Hectares

Periods	Mesopotamia	Iran
Early Dynastic	894	72
Jemdet Nasr/Proto-Elamite	523	79
Late Uruk	484	88
Early Uruk	478	127

Table 35. Spatial Distribution of Various Open Forms and Designs in Building I

Registration No.	PPA	Findspot	Exterior Band	Interior Band	Panel Pattern	Form
A39690	3757	Level III, Bldg. I, Rm.1	3.3	0	4	3
A39062	3855	Level II, Bldg. I, Rms. 1, 2	3.3	0	4	3
A39310	3351	Level III, Bldg. I, Rm. 2	3.?	0	2	4
A38289	4698	Level III, Bldg. I, Rm. 1	5	0	4	4
A38317	3222	Level III, Bldg. I, Rm.1	0	1	0	5
A20286	3570	Level III, Bldg. I, Rm.1	3.3	0	4	5

Table 36. Spatial Distribution of Various Open Forms and Designs in Building II

Registration No.	PPA	Findspot	Exterior Band	Interior Band	Panel Pattern	Form
A20202	2796	Level III, Bldg. II, Rm. 1	3.3	0	4	?
A38223	2838	Level III, Bldg. II, Rm. 2	1	0	6	6
A39437	3266	Level III, Bldg. II, Rm. 4	5	0	4	4
A39451	4015	Level III, Bldg. II, Rm. 4	5	0	4	4
A39656	4236	Level III, Bldg. II, Rm. 2	2.2	0	1	3
A39694	4201	Sq. M 29 1.5 m above Bldg. II, Rm. 4	3.?	0	4	4
A39715	5087	Level III, Bldg. II, Rm. 2	0	2	5	3
A39940	2139	Level III, Bldg. II, Rm. 3	3.3	0	1	1

Table 37. Spatial Distribution of Various Open Forms and Designs in Building III

Registration No.	PPA	Findspot	Exterior Band	Interior Band	Panel Pattern	Form
A20114	2095	Level III, Bldg. III, Rm. 2	3.3	0	4	1
A20224	3390	Level III, Bldg. III, Rm. 3	6	0	4	1
A38067	5123	Level III, Bldg. III, Rm. 3	3.?	0	2	3
A38215, A38456	2180	Level III, Bldg. III:2, Bldg. V, Rm. 1	1	0	1	1
A38244	2817	Level III, Bldg. III, Rm. 6	1	0	0	6
A38310	5385	Level III, Bldg. III, Rm. 1	0	1	4	3
A38320	2509	Level III, Bldg. III, Rm. 3	2.2	0	1	5
A39027	3275	Level III, Bldg. III, Rm. 2	3.3	0	4	4
A39034	3574	Level III, Bldg. III, Rm. 2	1.?	0	4	3
A39334	2779	Level III, Bldg. III, Rm. 3	3.3	0	4	3
A39440	5636	Level III, Bldg. III, Rm. 2	5	0	2	4
A39463	4797	Level III, Bldg. III, Rm. 2	3.3	0	1	2
A39658	3441	Level III, Bldg. III, Rm. 3	3	0	2	3
A39684	2097	Level III, Bldg. III, Rm. 3	2.2	0	4	1

Table 38. Spatial Distribution of Various Open Forms and Designs in Building IV

Registration No.	PPA	Findspot	Exterior Band	Interior Band	Panel Pattern	Form
A20115	2097	Level III, Bldg. IV, Rm. 2	2.2	0	3	3
A20213	3257	Level III, Bldg. IV, Rm. 3	1.1	0	4	4
A20216	3295	Level III, Bldg. IV, Rm. 3	3.3	0	4	3
A20225	3399	Level III, Bldg. IV, Rm. 3	3.3	0	4	3
A37993	3706	Level III, Bldg. IV, Rm. 3	3.3	0	4	1
A38033	3422	Level III, Bldg. IV, Rm. 4	6	0	4	2
A38068	3255	Level III, Bldg. IV, Rm. 1	1 or 5	0	3	4
A38095	3205	Level III, Bldg. IV, Rm. 3	0	6	6	2
A38263	3690	Level III, Bldg. IV, Rm. 3	3.3	0	4	4
A39301	5128	Level III, Bldg. IV, Rm. 3	3.3	0	2	1
A39456	2158	Level III, Bldg. IV, Rm. 2	5	0	2	4
A39655	5193	Level III, Bldg. IV, Rm. 3	2.?	0	4	3
A49896	3405	Level III, Bldg. IV, Rm. 3	3.?	0	4	1

Table 39. Spatial Distribution of Various Open Forms and Designs in Building V

Registration No.	PPA	Findspot	Exterior Band	Interior Band	Panel Pattern	Form
A38215, A38456	2180	Level III, Bldg. V:1; Bldg. III:2	1	0	1	1
A38373	5332	Level III, Bldg. V:4	0	1	1	2
A39301	5128	Level III, Bldg. V:6; Bldg. IV:3	3.3	0	2	1
A39662	5088	Level III, Bldg. V:6	1.1	Rim Band	4	6
A39693	3687	Level III, Bldg. V:3; Bldg. X:4	3.3	0	4	5
A39698	4050	Level III, Bldg. V:1, 2	3.3	0	4	2

Table 40. Spatial Distribution of Various Open Forms and Designs in Building VI

Registration No.	PPA	Findspot	Exterior Band	Interior Band	Panel Pattern	Form
A38108	5017	Level III, Bldg. VI, Rm. 3	3.3	0	4	1
A38277	3326	Level III, Bldg. VI, Rm. 5	6	0	6	4
A39024	3670	Level III, Bldg. VI, Rm. 1	3.?	0	4	3
A39683	3827	Level III, Bldg. VI, Rm. 4	3.3	0	1	2
A39692	2159	Level III, Bldg. VI, Rm. 4	1.?	0	4	1
A39698	4050	Level III, Bldg. VI, Rm. 2; Bldg. XI	3.3	0	4	2
A39707	5432	Level III, Bldg. VI, Rm. 3	0	1	4	3

Table 41. Spatial Distribution of Various Open Forms and Designs in Building VII

Registration No.	PPA	Findspot	Exterior Band	Interior Band	Panel Pattern	Form
A20214	3271	Level III, Bldg. VII, Rm. 1	6	1	0	3
A20217	3298	Level III, Bldg. VII, Rm. 4	3.3	0	1	2
A38399	5404	Level III, Bldg. VII, Rm. 3	0	1	5	3
A38899	3293	Level III, Bldg. VII, Rm. 3	3.3	0	4	3
A39283	3358	Level IV, Bldg. VII, Rm. 3	3.3	0	4	4
A39527	5409	Level III, Bldg. VII, Rm. 2	0	5	4	4(?)
A39722	5435	Level III, Bldg. VII, Rm. 2	0	1	1	3

Table 42. Spatial Distribution of Various Open Forms and Designs in Building VIII

Registration No.	PPA	Findspot	Exterior Band	Interior Band	Panel Pattern	Form
A38912	5440	Level III, Bldg. VIII, Rm. 6	0	6	4	3
A38370	5705	Level III, Bldg. VIII, Rm. 4	0	1	5	2
A39657	5090	Level III, Bldg. VIII, Rm. 3	1	0	5	3
A39452	3277	Level III, Bldg. VIII, Rm. 6	6	0	6	4

Table 43. Spatial Distribution of Various Open Forms and Designs in Building IX

Registration No.	PPA	Findspot	Exterior Band	Interior Band	Panel Pattern	Form
A39718	5320	Level III, Bldg. IX	0	2	1	3
A39537	5375	Sq. O 31 below Floor Level of Bldg. IX	5	4	?	4(?)

Table 44. Spatial Distribution of Various Open Forms and Designs in Building X

Registration No.	PPA	Findspot	Exterior Band	Interior Band	Panel Pattern	Form
A39592	4023	Level III, Bldg. X, Rm. 3; Bldg. XI, Rm. 1	3.3	0	4	1
A39276	3866	Level III, Bldg. X, Rm. 3	3.3	0	4	1
A20222	3359	Level III, Bldg. X, Rm. 1	2.1	0	4	2
A39693	3687	Level III, Bldg. X, Rm. 4; Bldg. V, Rm. 3	3.3	0	4	5

Table 45. Spatial Distribution of Various Open Forms and Designs in Building XI

Registration No.	PPA	Findspot	Exterior Band	Interior Band	Panel Pattern	Form
A20087	2039	Level III, Bldg. XI	3.3	0	3	1
A20089	2046	Level III, Bldg. XI	2.2	0	1	5
A38248	2396	Level III, Bldg. XI	0	1	5	4
A38315	3581	Level III, Bldg. XI	0	1	0	5
A38853	3653	Level III, Bldg. XI	3.3	0	3	2
A38869	3752	Level III, Bldg. XI	3.3	0	4	2
A39078	3424	Level III, Bldg. XI	3.3	0	4	2
A39592	4023	Level III, Bldg. XI; Bldg. X, Rm. 3	3.3	0	4	1
A39687	4022	Sq. L 28 Upper Filling of Bldg. XI	3.?	0	4	1
A39695	3789	Level III, Bldg. XI	3.?	0	4	2
A39695	3789	Level III, Bldg. XI	3.?	0	4	1 or 2
A39698	4050	Level III, Bldg. XI; Bldg. V, Rm. 1	3.3	0	4	2
A39698	4050	Level III, Bldg. XI; Bldg. VI, Rm. 2	3.3	0	4	2

Table 46. Spatial Distribution of Various Open Forms and Designs in Building XII

Registration No.	PPA	Findspot	Exterior Band	Interior Band	Panel Pattern	Form
A39685	3905	Level III, outside Bldg. XII, Rm. 4	4.3	0	4	1
A38910	2770	Level III, Bldg. XII, Rm. 2	5	0	4	6
A38245	2793	Level III, Bldg. XII, Rm. 4	3.3	0	4	7
A39676	4792	Level III, Bldg. XII, Rms. 1–3	4.?	0	4	1 or 2

Table 47. Spatial Distribution of Various Open Forms and Designs in Building XIII

Registration No.	PPA	Findspot	Exterior Band	Interior Band	Panel Pattern	Form
A20125	2114	Level IV, Bldg. XIII, Rm. 3	1.1	0	1	2
A20228	3444	Level IV, Bldg. XIII, Rm. 1	3.3	0	2	2
A37996	3887	Level IV, Bldg. XIII, Rm. 3	7.3	1	4	4
A38028	2187	Level IV, Bldg. XIII, Rm. 3	5	0	0	4
A38340	2187	Level IV, Bldg. XIII, Rm. 3	5	0	1	4
A38372	2942	Level IV, Bldg. XIII, Rm. 1	0	1	1	2
A38475	4271	Level IV, Bldg. XIII, Rm. 3	5	0	1	1
A38894	2417	Level IV, Bldg. XIII, Rm. 3	3.3	0	4	3
A38895	2417	Level IV, Bldg. XIII, Rm. 3	5	1	4	4
A39316	2371A	Level IV, Bldg. XIII, Rm. 3	4	0	2	?
A39368	3432	Level IV, Bldg. XIII, Rm. 1	3.3	0	4	3
A39436	2164	Level IV, Bldg. XIII, Rm. 3	3.4	1	4	2
A39530	4313	Level IV, Bldg. XIII, Rm. 2	5	0	4	4
A39677	4277	Level IV, Bldg. XIII, Rm. 2	2.?	3.?	4	2

Table 48. Spatial Distribution of Various Open Forms and Designs in Building XIV

Registration No.	PPA	Findspot	Exterior Band	Interior Band	Panel Pattern	Form
A38029	5606	Level IV, Bldg. XIV, Rm. 2	0	1.?	1	3
A38419	5428	Level IV, Bldg. XIV, Rm. 3	0	1	5	3
A38863	4123	Level IV, Bldg. XIV, Rm. 3	5	0	4	4
A39653	4454	Level IV, Bldg. XIV, Rm. 3	6	0	4	4(?)
A49849B	3349	Level IV, Bldg. XIV, Rm. 3	3.?	0	2	1

Table 49. Spatial Distribution of Various Open Forms and Designs in Building XVI

Registration No.	PPA	Findspot	Exterior Band	Interior Band	Panel Pattern	Form
A39709	5448	Level IV, Bldg. XVI, Rm. 2	0	0	1	3
A38849	3733	Level IV, Bldg. XVI	3.3	0	4	2

Table 50. Spatial Distribution of Various Open Forms and Designs in Building XVII

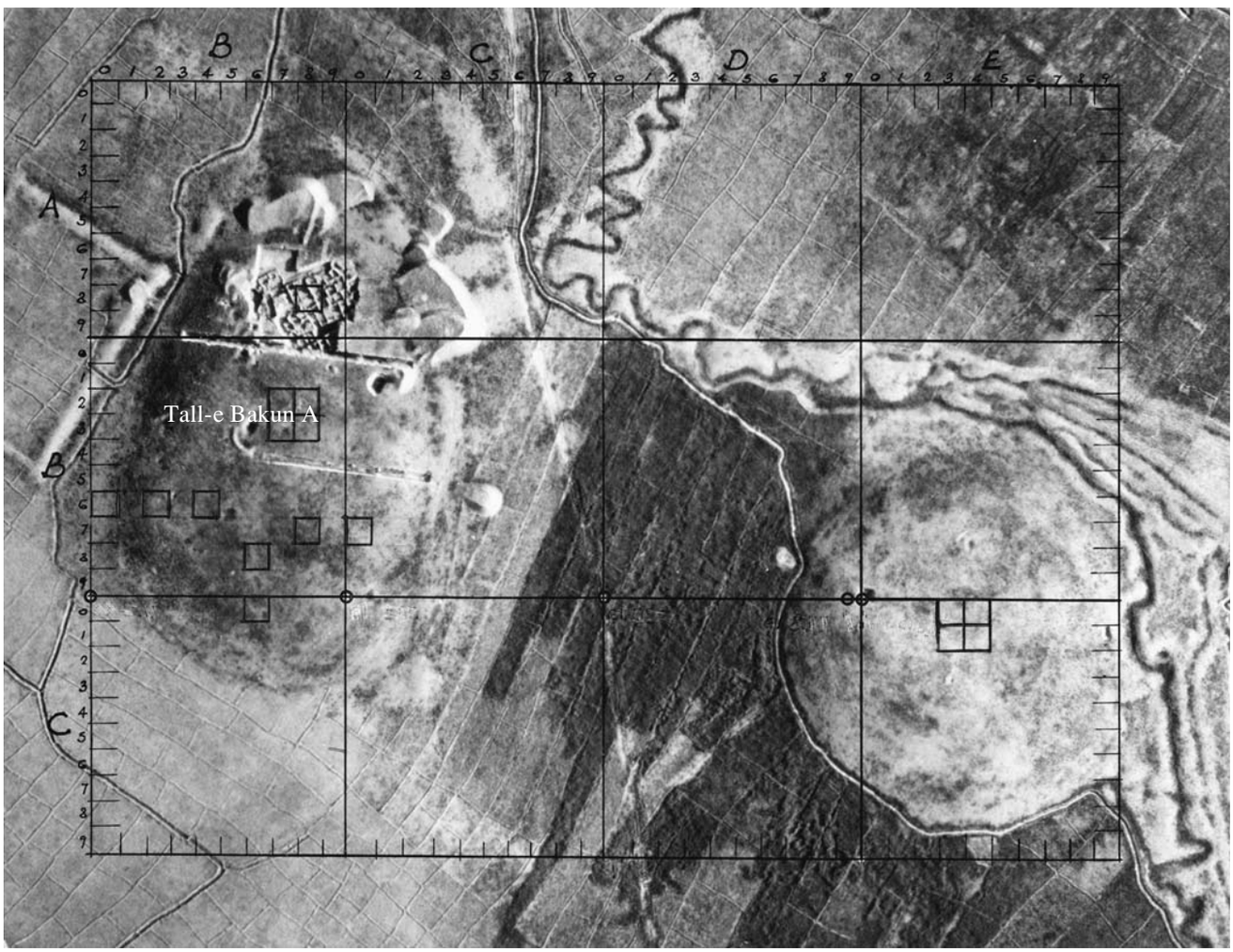
Registration No.	PPA	Findspot	Exterior Band	Interior Band	Panel Pattern	Form
A39667	5153	Level IV, Bldg. XVII, Rm. 3	2.?	0	1	3 or 4
A38251	4791	Level IV, Bldg. XVII, Rm. 2	7.2	1	4	3
A38247	4898	Level IV, Bldg. XVII, Rm. 2	5	1	4	4
A39450	4182	Level IV, Bldg. XVII, Rm. 2	7.3	1	4	4
A38049	5461	Level IV, Bldg. XVII, Rm. 2	0	3.?	4	3 or 4
A39043	5009	Level IV, Bldg. XVII, Rm. 3	5	0	4	4 or 5

Table 51. Spatial Distribution of Various Open Forms and Designs in Building XVIII

Registration No.	PPA	Findspot	Exterior Band	Interior Band	Panel Pattern	Form
A39716	5323	Level IV, Bldg. XVIII, Rms. 1–2	0	1	1	3
A39667	5153	Level IV, Bldg. XVIII, Rm. 3	2.?	0	1	3 or 4
A20097	2965	Level IV, Bldg. XVIII, Rm. 2	3.2	0	4	3
A38247	4898	Level IV, Bldg. XVIII, Rm. 2	5	1	4	4
A38251	4791	Level IV, Bldg. XVIII, Rm. 2	7.2	1	4	3
A39043	5009	Level IV, Bldg. XVIII, Rm. 3	5	0	4	4 or 5
A39450	4182	Level IV, Bldg. XVIII, Rm. 2	7.3	1	4	4
A37994	4623	Level IV, Bldg. XVIII, Rm. 1	7.3	1	4	1
A38049	5461	Level IV, Bldg. XVIII, Rm. 2	0	3.?	4	3 or 4

INDEX OF PLACE NAMES

PLATES



Aerial View of Tall-e Bakun A and B, Showing Excavation Areas in 1932

Plate 2

Aerial View of Tall-e Bakun A and B, Showing Excavation Areas in 1937

A

B

(*A*) Buildings I and II (foreground), View from the South, and (*B*) Buildings III, IV, and V

Plate 4

A

B

(*A*) Excavation in Progress in Squares BB 27 and BB 28 in 1937, View from the West, and (*B*) View from Square BB 37, Level 3, View from the West

A

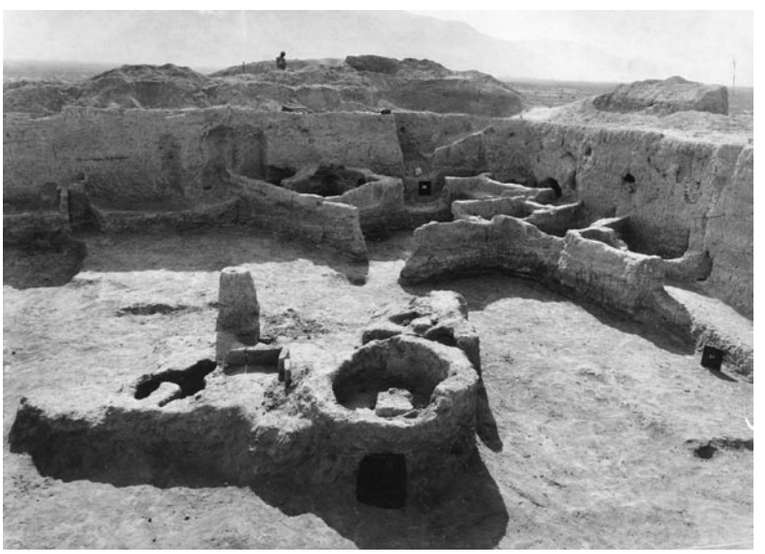
B

(*A*) Pottery Jars *in Situ* in Building XI and (*B*) Copper Dagger *in Situ* in Square BB 27

Plate 6

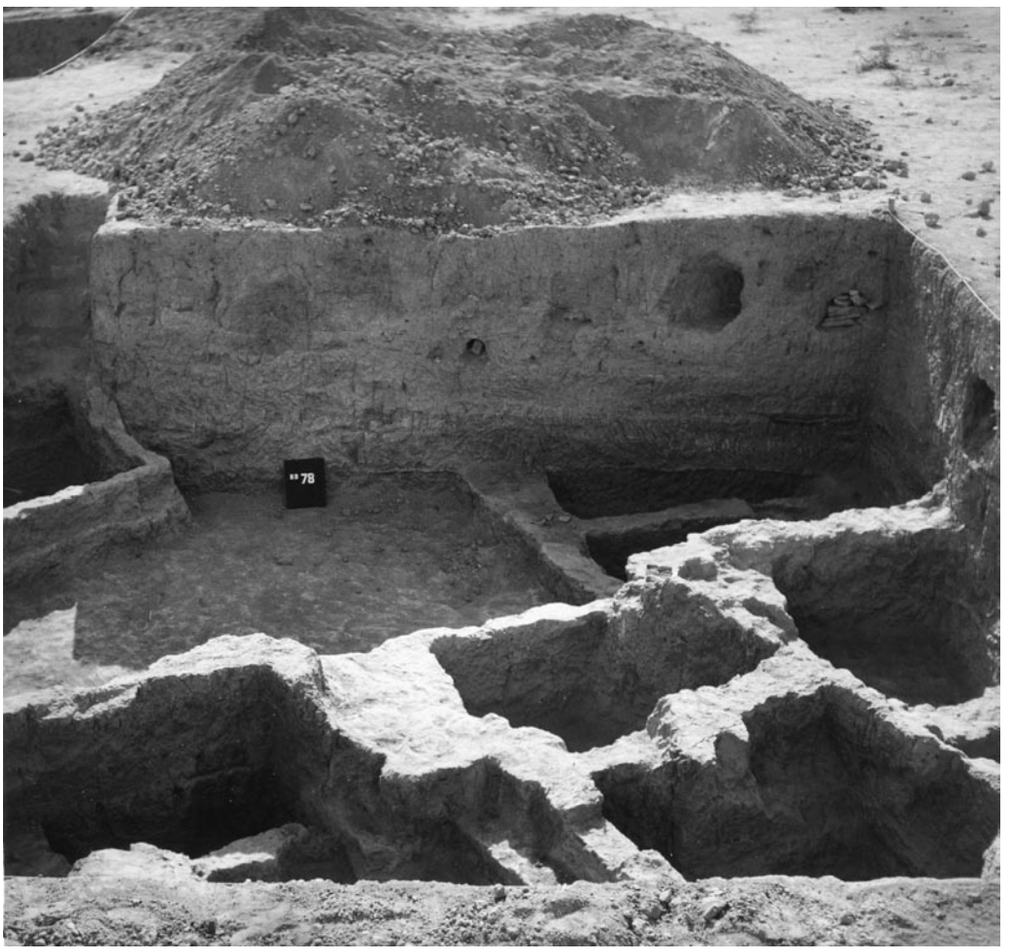
A

B

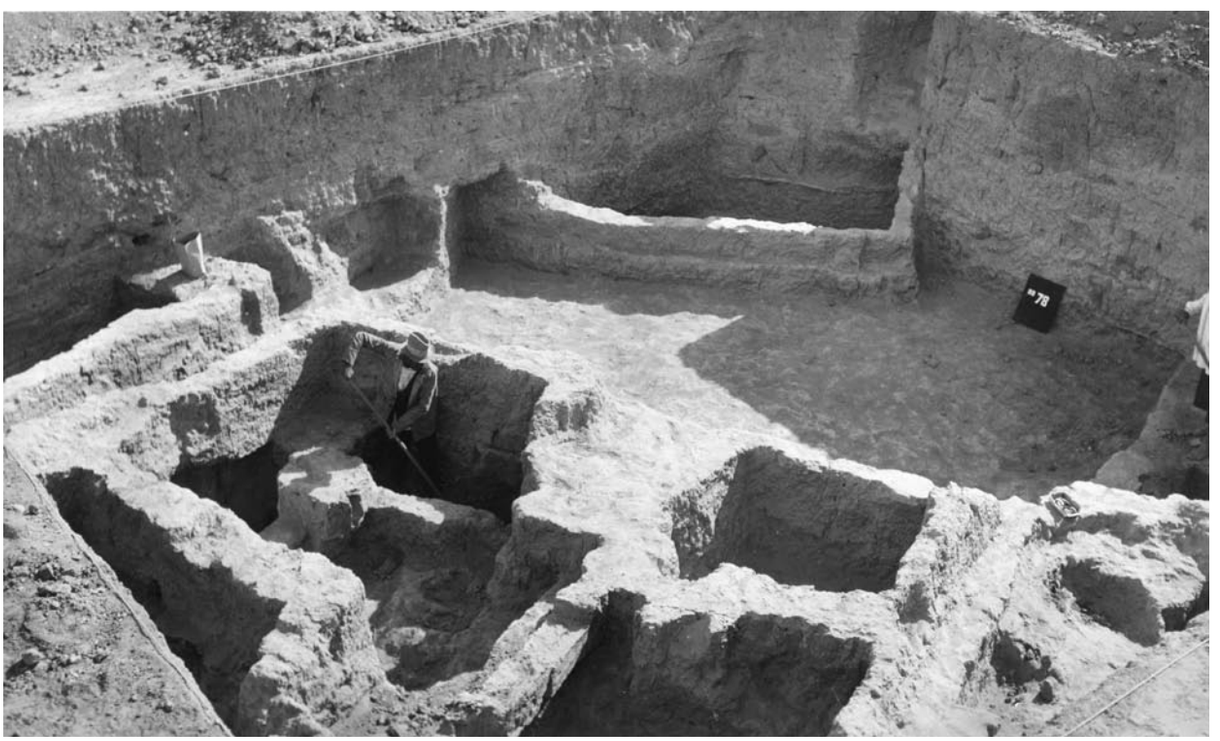


C

(*A*) Exposed Mudbricks in Square BB 38, Level 3; (*B*) Pottery Kiln in Square L 28, Level IV, Buildings III and IV in Front, View North; and (*C*) Pottery Kiln in Basal Level 4 in Square BB 37, View from the West



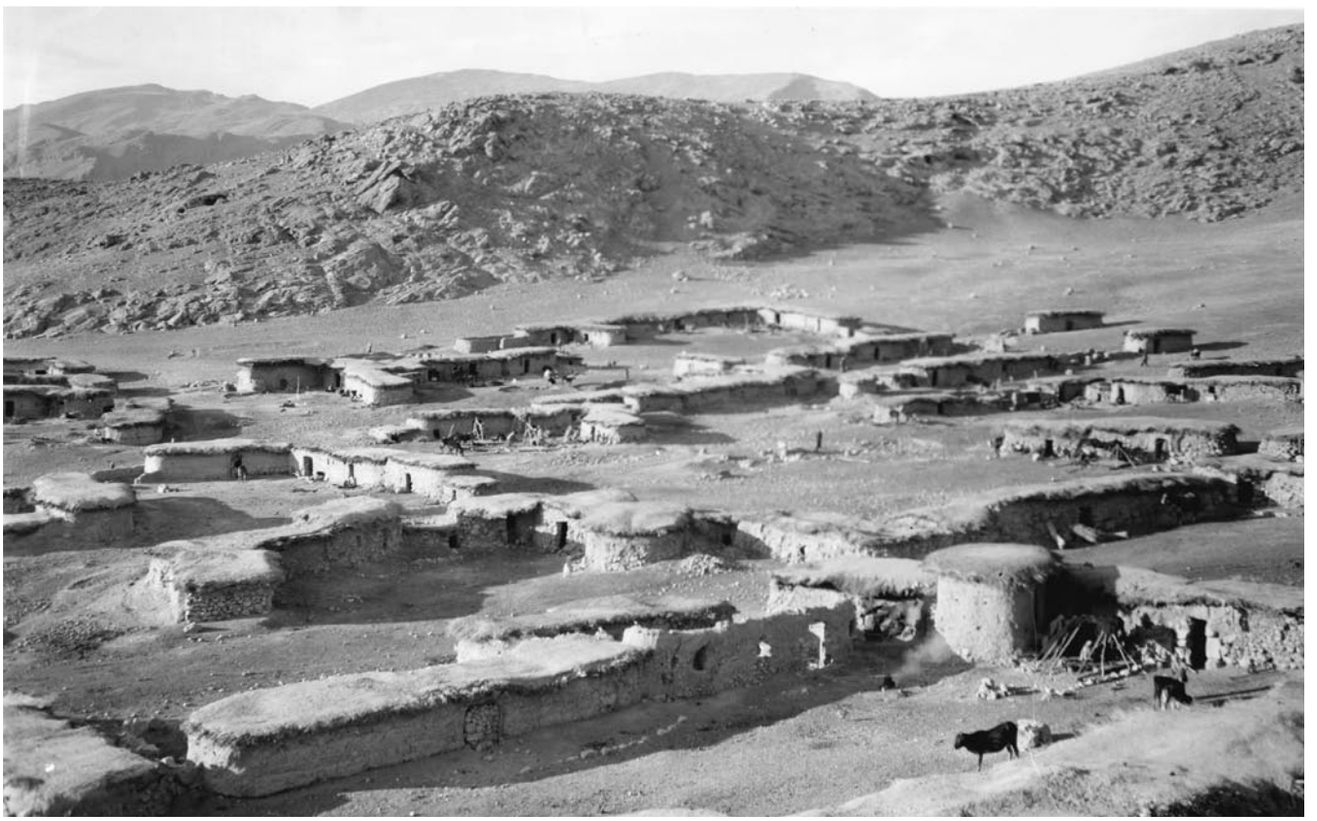
A



B

(*A*) Architectural Remains of Level 3 in Square BB 78, View from the East, and (*B*) Square BB 78, View from the North

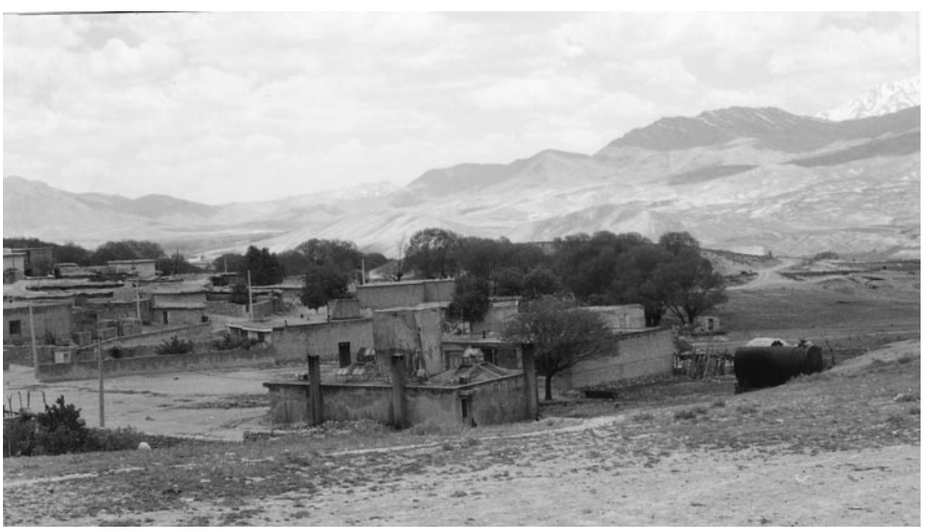
Plate 8



Mobile Pastoralist Village of Shul-e Saroii Northeast of Naqsh-e Rustam (Photograph by Erich Schmidt), View from the Southwest

A

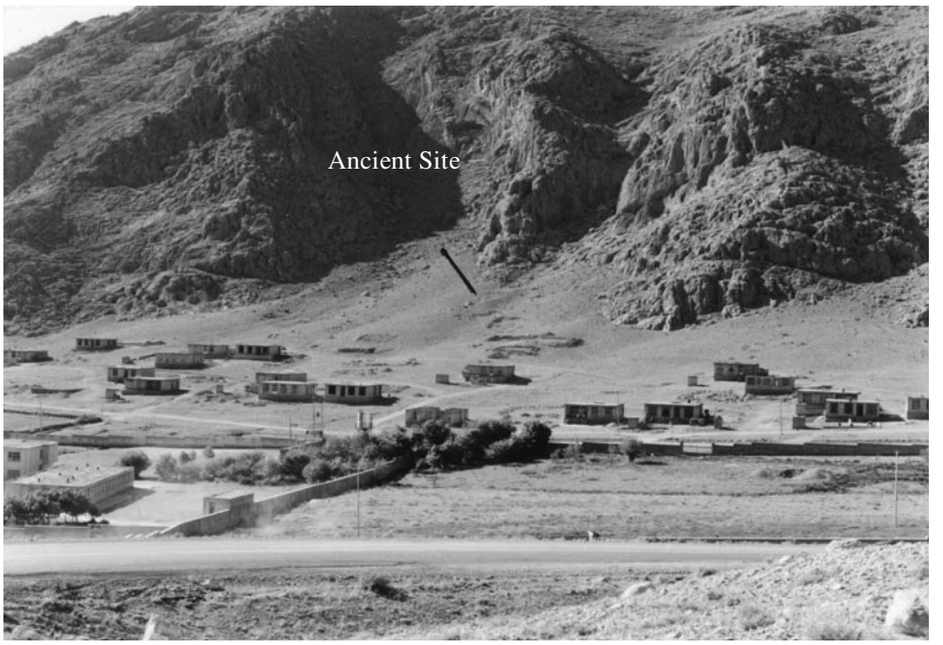
B



C

(*A*) Tall-e Gap as Seen in the 1995 Oriental Institute Survey, View from the West; (*B*) Tall-e Bakun A Site of Tall-e Kharestan Sofla and the Qashqaii Village Built on its Slope; and (*C*) Tall-e Bakun A Site of Tall-e Deh Sokheh and the Qashqaii Village Next to It

Plate 10



A

B

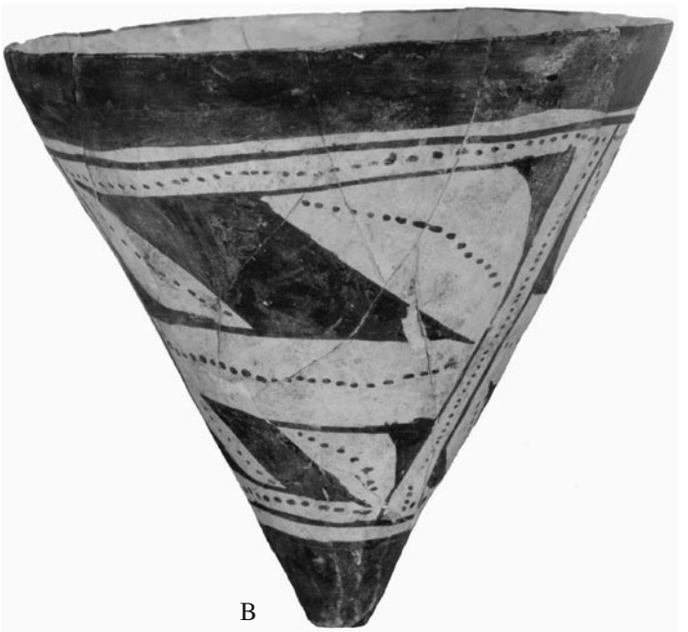
(*A*) Tall-e Bakun A Camp Site Near the Village of Aspas (background) and a Newly Established Settlement (foreground) of Settled Qashqaii Tribesmen and (*B*) Qashqaii Itinerant Vender in Dasht-e Bakan, Northwest of Marv Dasht

Tall-e Nourabad in Nourabad Mamasani, West of Marv Dasht, Visited During the Oriental Institute 1995 Survey

Plate 12. Decorated Conical Vessels from Tall-e Bakun A

	Register No.	*Provenance*	*Elevation*	*Description*
A	PPA 2065	Sq. P 29	Level III	Fine buff ware, yellowish cream slip, no visible inclusion, brown paint
B	TBA 735	Sq. BB 38	Level 3	Fine buff ware, yellowish cream slip, no visible inclusion, reddish brown paint
C	PPA 2068	Bldg. VIII, Rm. 3	Level III	Fine buff ware, yellowish cream slip, no visible inclusion, dark brown paint

A



B

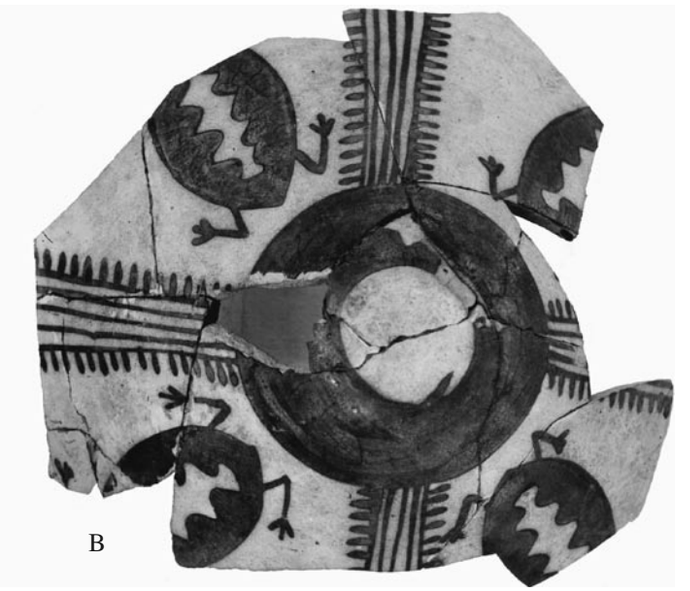
C

Decorated Conical Vessels from Tall-e Bakun A. Scale 1:2

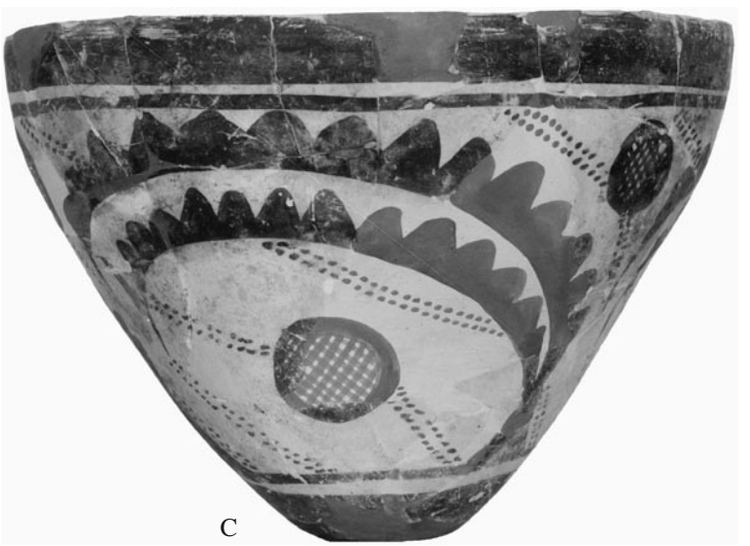
Plate 13. Decorated Conical and Hemispherical Vessels from Tall-e Bakun A

	Register No.	*Provenance*	*Elevation*	*Description*
A	PPA 2090	Sq. P 33	Level III	Fine buff ware, creamy buff slip, no visible inclusion, dark brown paint
A (Stand)	PPA 2082	Sq. M 27	Level III	Fine buff ware, creamy buff slip, no visible inclusion, dark brown paint
B	PPA 2099	Bldg. XIII, Rm. 1	Level IV	Fine buff ware, creamy buff slip, no visible inclusion, maroon paint. See OIP 59, pl. 77:2
C	TBA 569	Sq. BB 78, Rm. 2	Level 3	Fine buff ware, creamy buff slip, no visible inclusion, brown paint
D	PPA 2182	NA	—	Fine buff ware, creamy buff slip, no visible inclusion, dark brown paint
E	PPA 2113	NA	—	Fine buff ware, creamy buff slip, no visible inclusion, dark brown paint

A

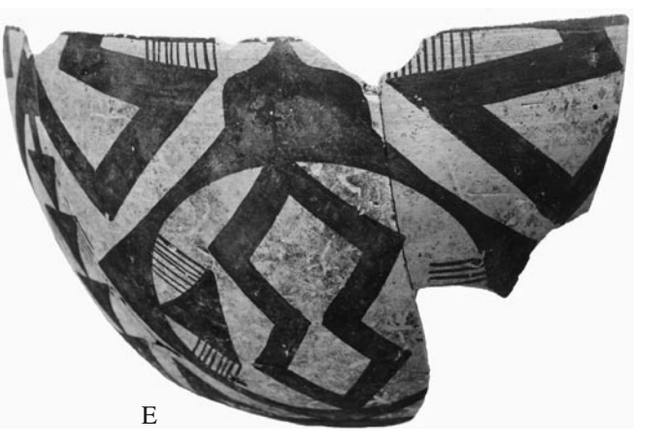


B



C

D



E

Decorated Conical and Hemispherical Vessels from Tall-e Bakun A. Scale 1:2

Plate 14

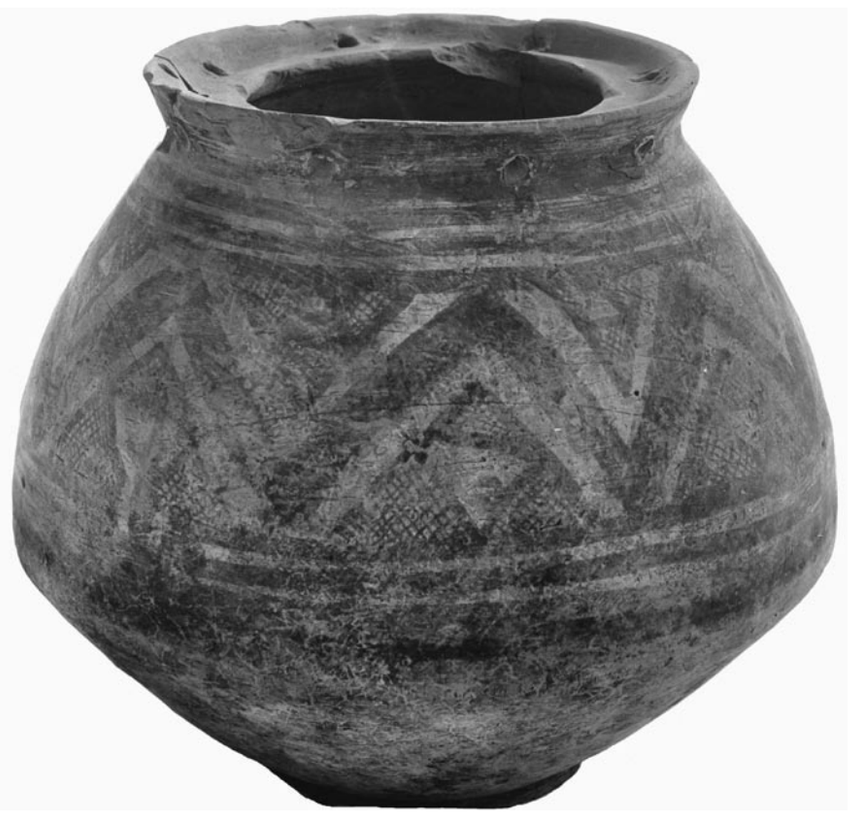
A

B

Decorated High Neck Jar from Tall-e Bakun A. Scale 1:2

	Register No.	*Provenance*	*Elevation*	*Description*
A	PPA 2212	Bldg. III, Rm. 4	Level III	Buff ware, thoroughly oxidized core, occasional small to medium grits, lower part scraped, dark brown paint. See also OIP 59, pl. 3:9. Height = 45.5 cm. Maximum diameter = 43.2 cm
B	PPA 2212	Bldg. III, Rm. 4	Level III	Close-up of A

A



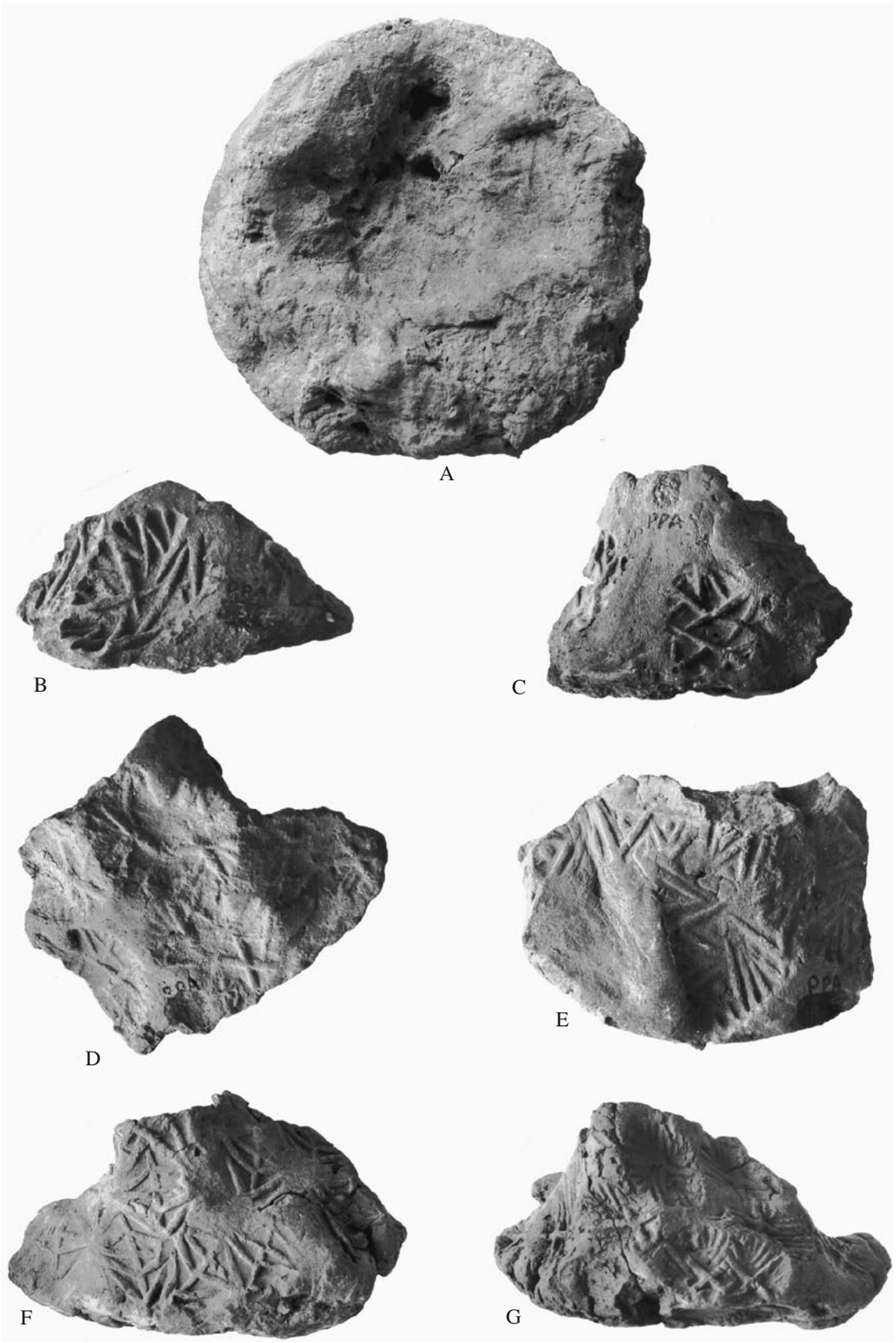
B

Redware Cooking Pot and Decorated Jar from Tall-e Bakun A. Scale 1:2

	Register No.	*Provenance*	*Elevation*	*Description*
A	PPA 2050	Bldg. XI	Level III	Coarse redware, dark core, grits and straw inclusion, red slip/wash, traces of burnishing inside
B	PPA 2038	Bldg. XI	Level III	Buff ware, light buff slip, occasional sand inclusion, dark brown paint

Plate 16. Jar Stopper and Baked Clay Door Sealings from Tall-e Bakun A

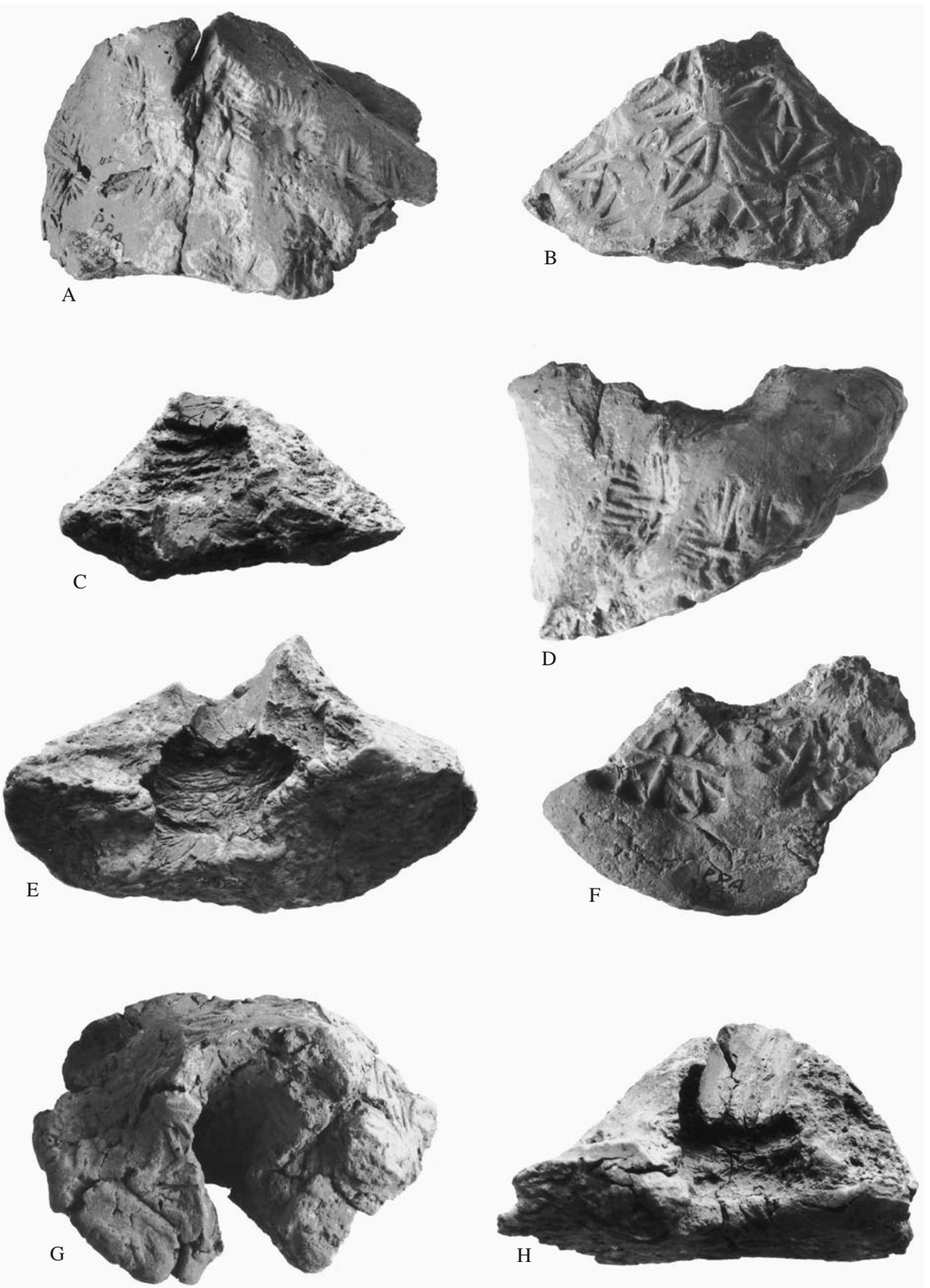
	Register No.	*Provenance*	*Elevation*	*Description*
A	PPA 2	Bldg. XIII, Rm. 1	Level III	Unbaked dark buff with occasional reddish grits
B	PPA 317	Bldg. IV, Rm. 2	Level III	Baked dark buff clay door sealing, medium baked, no visible inclusion
C	PPA 15	Bldg. II, Rm. 1	Level III	Baked dark buff clay door sealing, medium baked, no visible inclusion
D	PPA 268	Bldg. IV, Rm. 3	Level III	Baked dark buff clay door sealing, medium baked, no visible inclusion
E	PPA 11	Bldg. II, Rm. 4	Level III	Baked dark buff clay door sealing, medium baked, no visible inclusion
F	PPA 640	Bldg. IV, Rm. 2	Level III	Baked dark buff clay door sealing, medium baked, no visible inclusion
G	PPA 640	Bldg. IV, Rm. 2	Level III	Another view of F



Jar Stopper and Baked Clay Door Sealings from Tall-e Bakun A. Scale 1:1

Plate 17. Baked Clay Door Sealings from Tall-e Bakun A

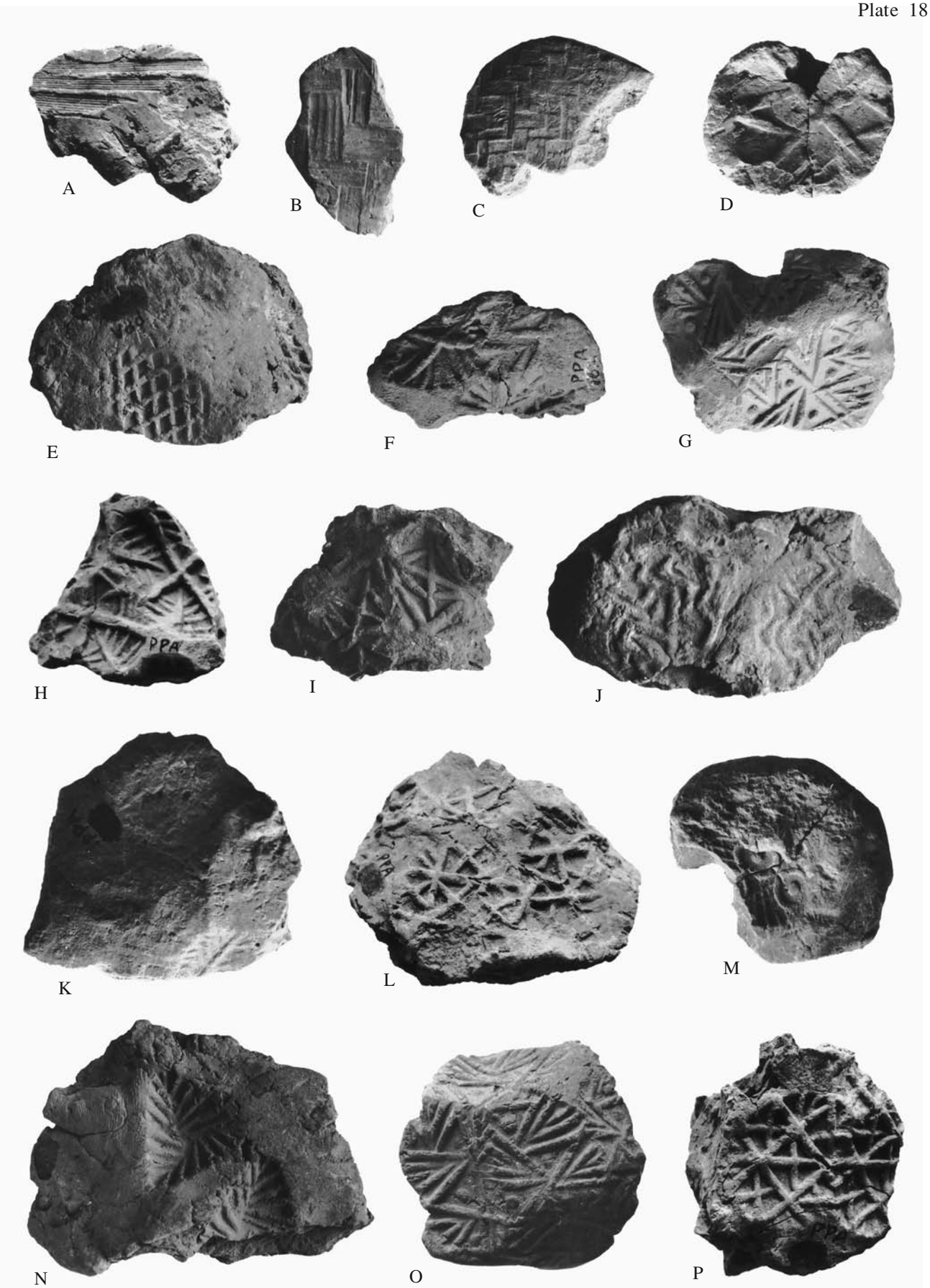
	Register No.	*Provenance*	*Elevation*	*Description*
A	PPA 348	Bldg. VII, Rm. 4	Level III	Baked clay door sealing, grayish buff, no visible inclusion
B	PPA 336	Bldg. III, Rm. 3	Level III	Baked clay door sealing, grayish buff, no visible inclusion
C	PPA 11	Bldg. III, Rm. 3	Level III	Baked clay door sealing, grayish buff, no visible inclusion
D	PPA 290	Bldg. IV, Rm. 24	Level III	Baked clay door sealing, grayish buff, no visible inclusion
E	PPA 8	Bldg. XIII, Rm. 1	Level III	Baked clay door sealing grayish buff, no visible inclusion
F	PPA 23	Bldg. II, Rm. 1	Level III	Baked clay door sealing grayish buff, no visible inclusion
G	PPA 339	Bldg. III, Rm. 3	Level III	Baked clay door sealing grayish buff, no visible inclusion
H	PPA 10	Bldg. XIII, Rm. 1	Level III	Baked clay door sealing grayish buff, no visible inclusion



Baked Clay Door Sealings from Tall-e Bakun A. Scale 1:1

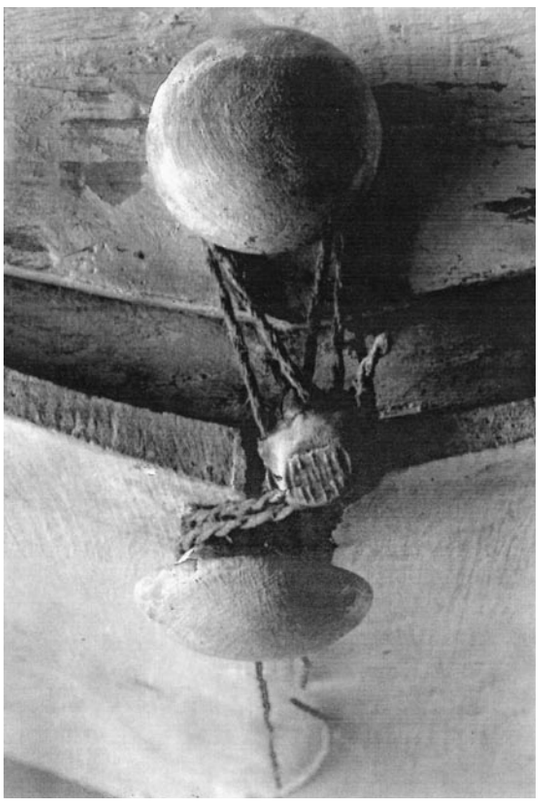
Plate 18. Various Types of Baked Clay Sealings from Tall-e Bakun A

	Register No.	*Provenance*	*Elevation*	*Description*
A	PPA 4	Bldg. XIII, Rm. 1	Level III	Bale/basket sealing, dark buff, no visible inclusion. Back view
B	PPA 287	Bldg. IV, Rm. 3	Level III	Bale/basket sealing, dark buff, no visible inclusion. Back view
C	PPA 3	Bldg. XIII, Rm. 1	Level III	Bale/basket sealing, dark buff, no visible inclusion. Back view. See also OIP 59, pl. 7:16
D	PPA 5	Bldg. XIII, Rm. 1	Level III	Bale/basket sealing, dark buff, no visible inclusion
E	PPA 9	Bldg. XIII, Rm. 1	Level III	Bale/basket sealing, dark buff, no visible inclusion
F	PPA 16	Bldg. II, Rm. 1	Level III	Bale/basket sealing, dark buff, no visible inclusion
G	PPA 2458	Bldg. II, Rm. 1	Level III	Bale/basket sealing, dark buff, no visible inclusion
H	PPA 261	Bldg. III, Rm. 4	Level III	Bale/basket sealing, dark buff, no visible inclusion. Two different seal impressions; see J for second impression
I	PPA 342	Bldg. III, Rm. 3	Level III	Bale/basket sealing, dark buff, no visible inclusion
J	PPA 259	Bldg. III, Rm. 3	Level III	Bale/basket sealing, dark buff, no visible inclusion
K	PPA 10	Bldg. XIII, Rm. 1	Level III	Door sealing, dark buff, no visible inclusion
L	PPA 2	Bldg. XIII, Rm. 1	Level III	Door sealing, dark buff, no visible inclusion
M	PPA 1	Bldg. XIII, Rm. 1	Level III	Bale/basket sealing, dark buff, no visible inclusion
N	PPA 3457	NA	Level III	Door sealing, dark buff, no visible inclusion
O	PPA 272	Bldg. IV, Rm. 3	Level III	Bale/basket sealing, dark buff, no visible inclusion
P	PPA 27	Bldg. III, Rm. 4	Level III	Bale/basket sealing, dark buff, no visible inclusion



Various Types of Baked Clay Sealings from Tall-e Bakun A . Scale 1:1

Plate 19



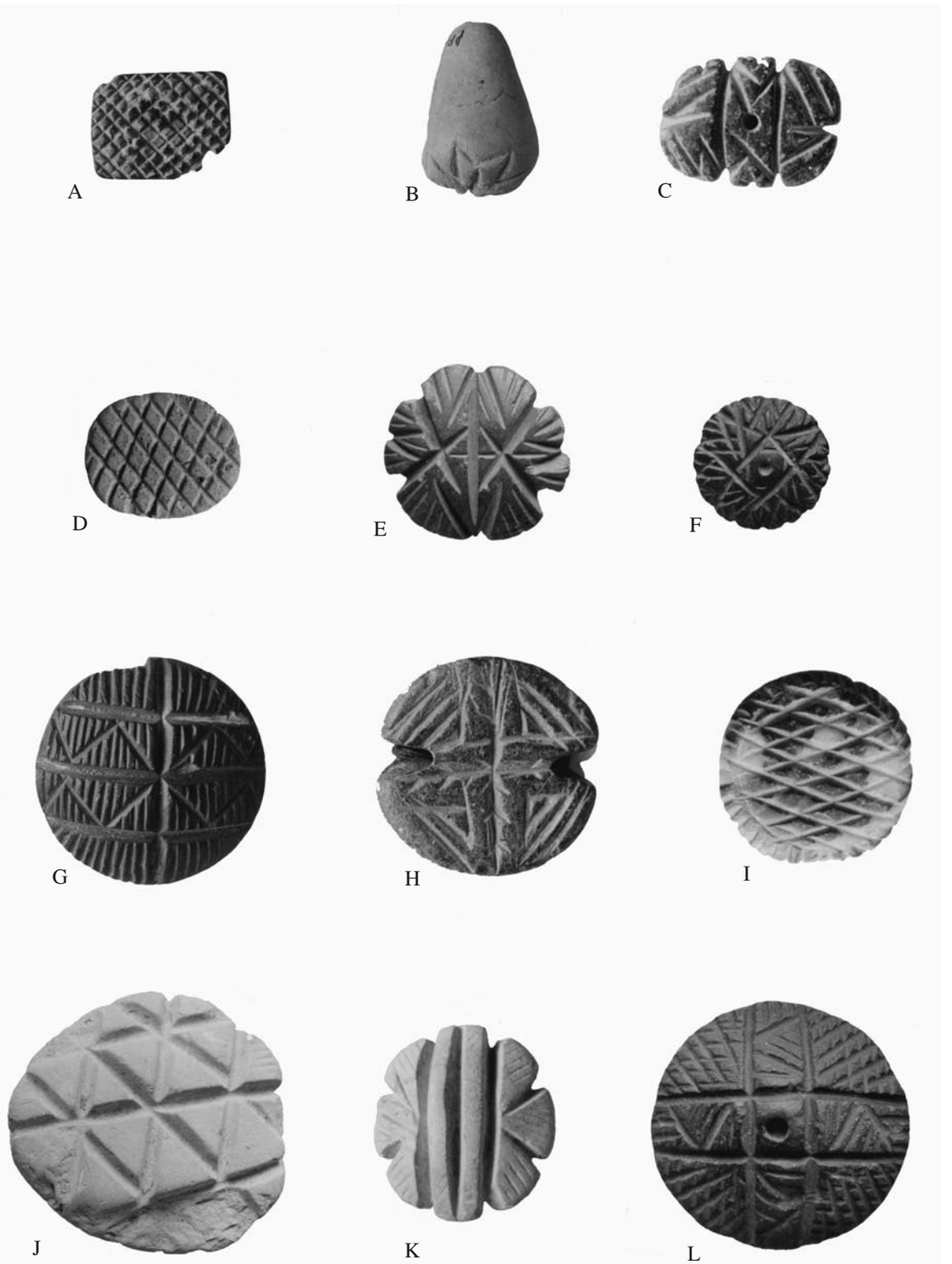
Box Sealing from Sheikh Abd el-Qurna, Egypt

Various Types of Stamp Seals from Tall-e Bakun A. Scale 1:1

	Register No.	*Provenance*	*Elevation*	*Description*
A	TBA 14	Sq. AB 88, Bldg. III, Rm. 1	Level III	Black stone stamp seal, plano-convex
B	TBA 243	Sq. BB 37	Level III(?)	Red stone stamp seal, plano-convex, central hole
C	TBA 210	Sq. BB 27	Level II	Blue-green serpentine stamp seal
D	TBA 61	Sq. BB 27	Level I	Orange buff stone stamp seal, loop handle
E	TBA 361	Sq. BB 38	Level IV	Copper stamp seal, loop handle
F	TBA 254	Sq. BB 78	Islamic	Copper/bronze ring seal
G	TBA 508	Sq. CE 14	Ilkhanid	Baked clay stamp seal of fourteenth-century A.D. Ilkhanid period in Naskh style

Plate 21. Various Types of Stamp Seals from Tall-e Bakun A

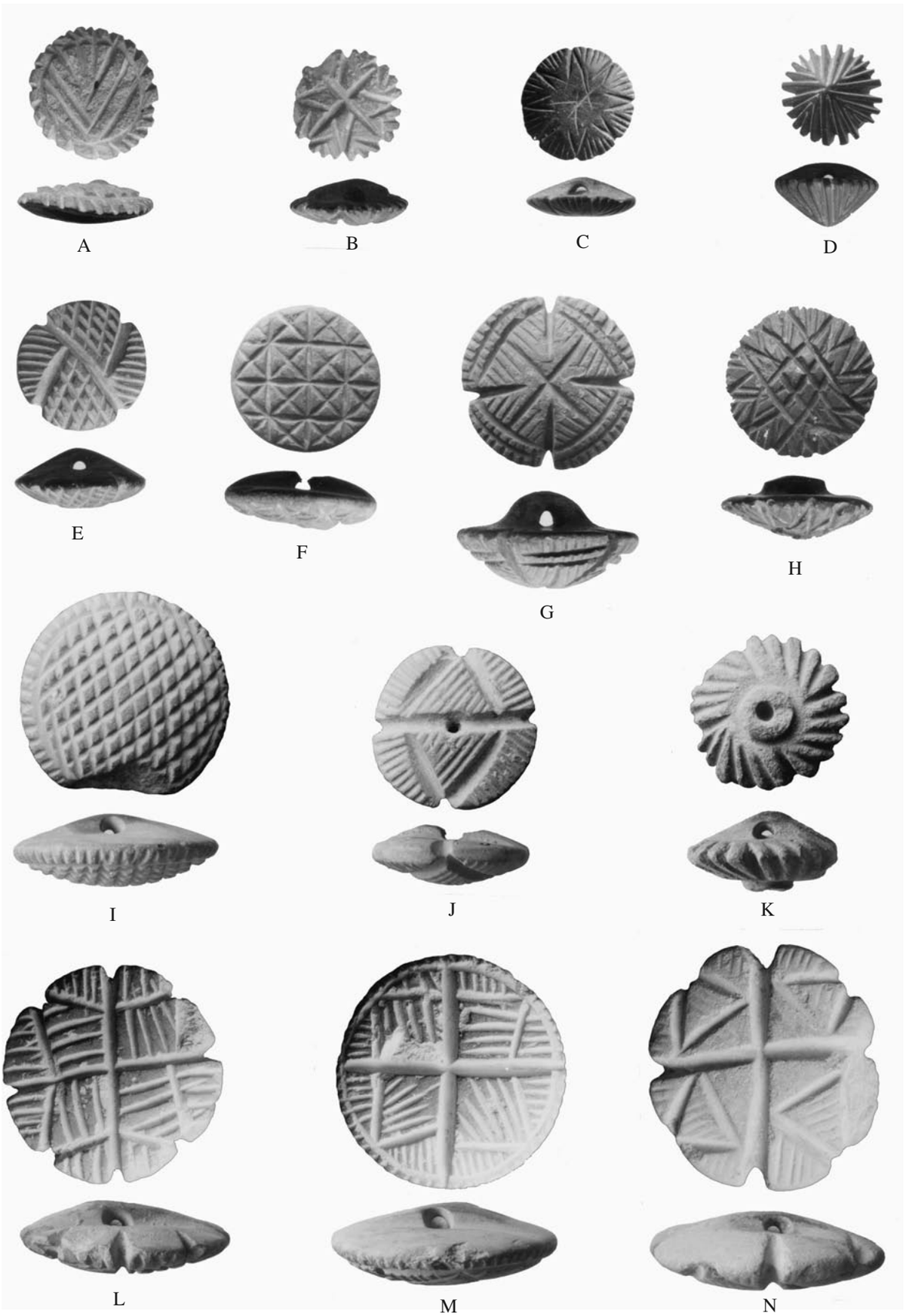
	Register No.	*Provenance*	*Elevation*	*Description*
A	PPA 42	Bldg. IV, Rm. 2	Level III	Polished black stone rectangular stamp seal. See also OIP 59, pl. 8: 9
B	PPA 566	Sq. Q 29	Level III	Baked clay stamp seal, buff, no visible inclusion. See also ibid., pl. 8:11
C	PPA 557	Sq. Q 31	Level III	Polished grayish green stone stamp seal. See also ibid., pl. 8: 8
D	PPA 36	Sq. Q 31	Level III	Baked clay stamp seal, creamy buff clay, no visible inclusion. See also ibid., pl. 8: 8. For impression see PPA 9
E	PPA 558	Tr. 1	Level III	Polished reddish brown stone stamp seal. See also ibid., pl. 8: 7
F	PPA 561	Sq. K 30	Level III	Polished reddish brown stone stamp seal. See also ibid., pl. 8: 10
G	PPA 38	Bldg. XIII, Rm. 3	Level III	Polished white stone stamp seal. See also ibid., pl. 8: 2
H	PPA 565	Sq. O 28	Level III(?)	Polished black stone stamp seal. See also ibid., pl. 8: 5
I	PPA 32	Tr. 1	—	Polished black stone stamp seal. See also ibid., pl. 8: 3
J	PPA 559	Sq. P 29	Level I	Polished light green stone stamp seal. See also ibid., pl. 8: 6
K	PPA 560	Bldg. XII, Rm. 1	Level III	Polished grayish green stone stamp seal. See also ibid., pl. 8: 6
L	PPA 35	Sq. L 27	Level IV	Polished black stone stamp seal. See also ibid., pl. 8: 1



Various Types of Stamp Seals from Tall-e Bakun A. Scale 1:1

Plate 22. Various Types of Stamp Seals from Tall-e Bakun A

	Register No.	*Provenance*	*Elevation*	*Description*
A	TBA 300	Sq. CB 06	—	Black stone
B	TBA 52	Sq. BB 78	—	Black stone
C	TBA 184	Sq. BB 38	—	Red stone
D	TBA 325	Sq. BB 62	—	Black stone
E	TBA 419	Sq. BB 78	—	Black stone
F	TBA 412	Sq. BB 28	—	Brown stone
G	TBA 391	Sq. BB 38	—	Grayish brown stone
H	TBA 267	Sq. BB 37	—	Brown stone
I	TBA 348	Sq. BB 78	Level II	Dark green stone
J	TBA 493	Sq. BB 28	—	Light green stone
K	TBA 249	Sq. BB 62	Level II	Brown stone
L	TBA 522	Sq. BB 38	Level III	Light green stone
M	TBA 474	Sq. BB 38	—	Light green stone
N	TBA 539	Sq. BB 38	Level III	Light green stone

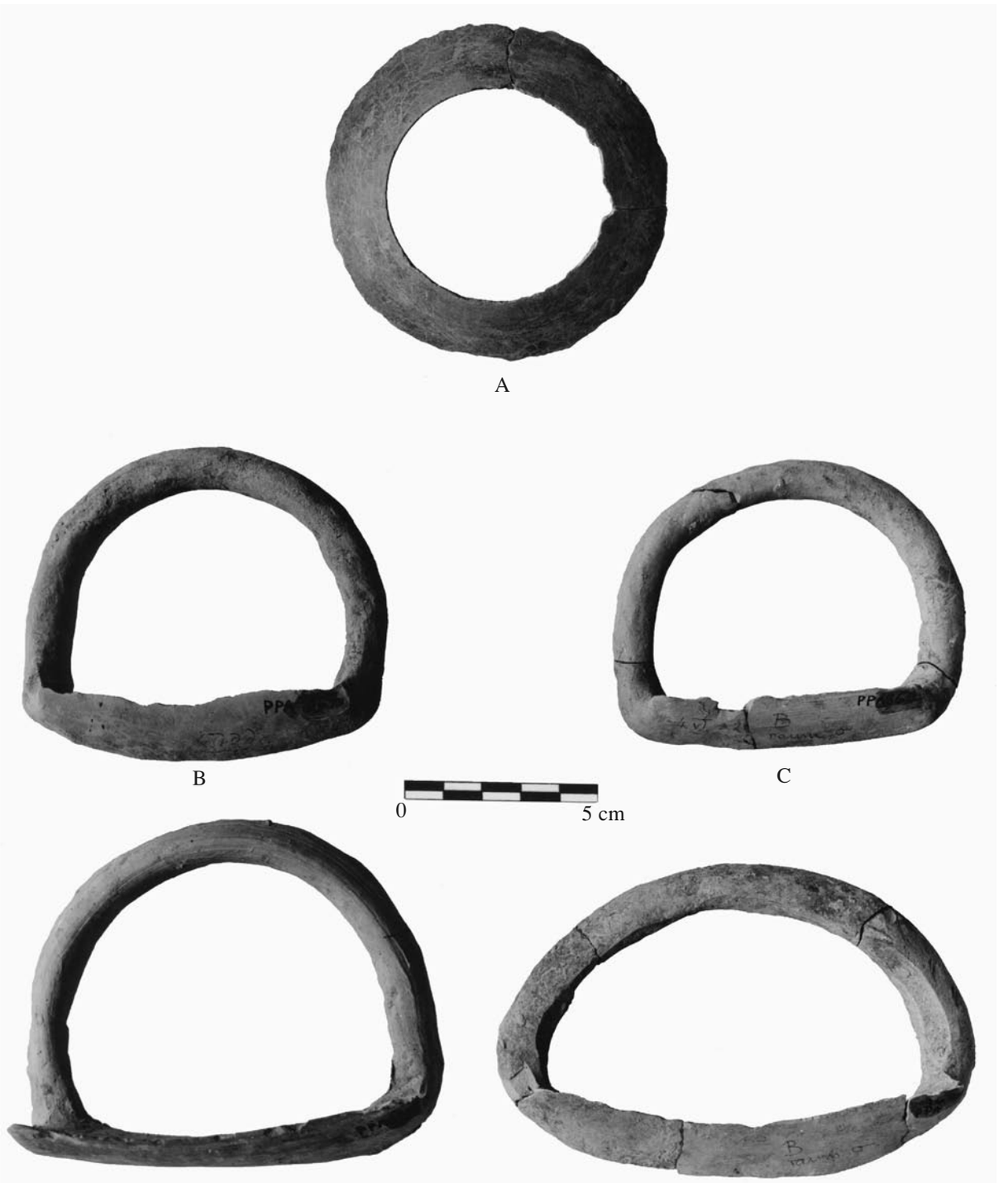


Various Types of Stamp Seals from Tall-e Bakun A. Scale 1:1

Plate 23

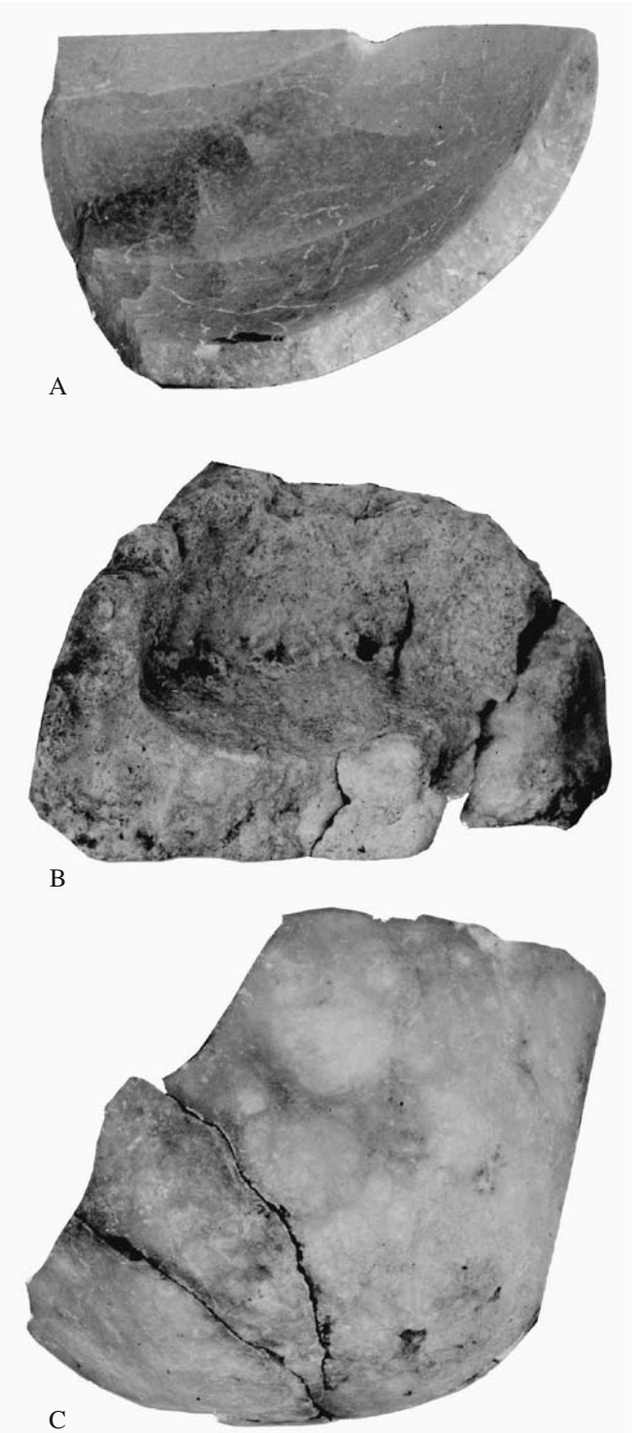
Baked Clay Female Statuettes from Tall-e Bakun A. Scale 1:1

	Register No.	*Provenance*	*Elevation*	*Description*
A–B	Upper Part TBA 159	Sq. BB 62	Level III	Torso of a decorated female statuette made of well baked clay with no visible inclusion, brown paint
C–D	Lower Part TBA 224	Sq. BB 62	Level III	Lower body of a decorated female statuette made of well baked clay with no visible inclusion, brown paint



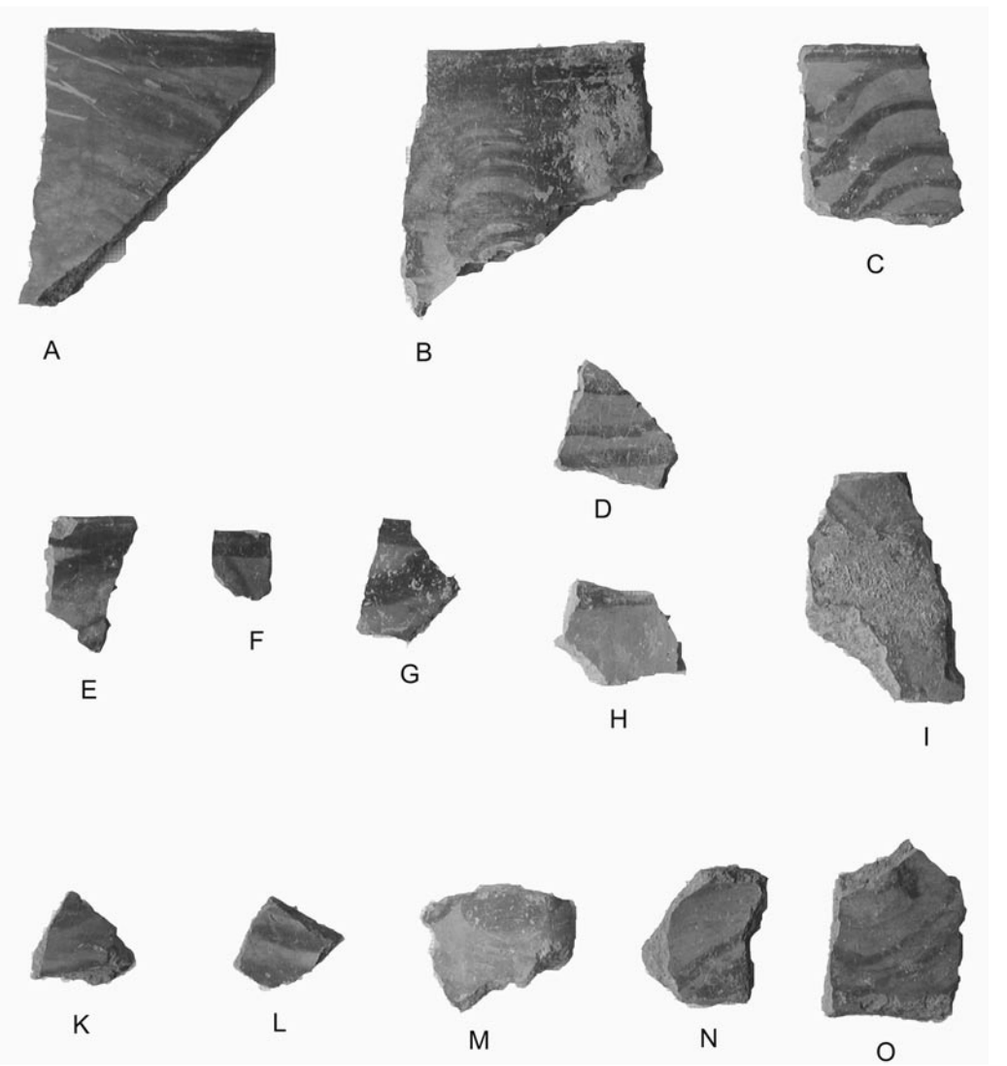
Baked Clay Pottery Scrapers from Tall-e Bakun A. Scale 3:5

	Register No.	*Provenance*	*Elevation*	*Description*
A	PPA 366	Bldg. IV, Rm. 3	Level III	Greenish buff ware, no visible inclusion
B	PPA 367	Bldg. III, Rm. 3	Level III	Greenish buff ware, no visible inclusion
C	PPA 369	Bldg. III, Rm. 3	Level III	Greenish buff ware, no visible inclusion
D	PPA 370	Bldg. IV, Rm. 2	Level III	Greenish buff ware, no visible inclusion
E	PPA 368	Bldg. IV, Rm. 2	Level III	Greenish buff ware, no visible inclusion



Alabaster Vessel Fragments from Tall-e Bakun A. Scale 1:1

	Register No.	*Provenance*	*Elevation*	*Description*
A	PPA 596	Sq. O 28	Level III	Yazd alabaster hemispherical bowl fragment
B	PPA 597	Bldg. VI, Rm. 4	Level III	Yazd alabaster flat base shallow bowl fragment
C	PPA 595	Bldg. XV, Rm. 1	Level III	Yazd alabaster conical bowl fragment



Examples of “Swoosh” Ware from Kushk-e Hezar in the Marv Dasht Area (courtesy of John Alden; for description of “Swoosh” Ware, see p. 7)