

FROM SHERDS TO LANDSCAPES

FROM SHERDS TO LANDSCAPES:
STUDIES ON THE ANCIENT NEAR EAST IN
HONOR OF MCGUIRE GIBSON

edited by

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LIST OF ABBREVIATIONS

GENERAL

c.	century
ca.	circa
cf.	<i>confer</i> , compare
ch.	chapter
cm	centimeter(s)
col(s).	column(s)
et al.	<i>et alii</i> , and others
e.g.	<i>exempli gratia</i> , for example
esp.	especially
etc.	<i>et cetera</i> , and so forth
fig(s).	figure(s)
i.e.	<i>id est</i> , that is
m	meter(s)
n(n).	note(s)
n.p.	no publisher
no(s).	number(s)
obv.	obverse
op. cit.	<i>opere citato</i> , in the work cited
p(p).	page(s)
par.	paragraph
pers. comm.	personal communication
pl(s).	plate(s)
rev.	reverse
vol(s).	volume(s)

EDITORS' NOTE

This volume had its genesis in 2013 when several of McGuire Gibson's former students met briefly on the side lines of a conference at the MacDonald Institute in Cambridge to launch the effort. We are grateful that many former students and colleagues submitted chapters after being invited to contribute. Most chapters were submitted in 2014, and we would like to acknowledge that the delay in publication may be reflected in some contributions that may not reference relevant publications that appeared in the last few years. More significantly, we note with sadness that three of the authors have passed away since submitting their chapters. Tony J. Wilkinson, who co-authored a chapter with Jaafar Jotheri (University of al-Qadisiyah), passed away in December 2014. Tony was Mac's colleague at the Oriental Institute for many years and worked with him in Yemen and Syria. Miguel Civil, long-time Professor of Sumerian at the Oriental Institute and field epigrapher in Mac's initial excavations at Nippur, died in January 2019. Jill (Carlotta) Maher, a docent at the Oriental Institute, who worked with Mac at Nippur, Umm al-Hafriyat and Üç Tepe and became a close personal friend, passed away in December 2020. We mourn these losses, but we are grateful for the contributions from our departed friends and colleagues.





McGuire Gibson, Üçtepe, 1978. (Drawing by Peggy Sanders)

INTRODUCTION

Richard L. Zettler, Robert D. Biggs, Mark Altaweel, Carrie Hritz,
Augusta McMahan, and James A. Armstrong

This volume celebrates McGuire Gibson's more than fifty years in archaeology by bringing together articles written by those whom he has taught and inspired over the decades—articles that focus largely on the countries in which he has worked, or topics and approaches to the ancient past of the Middle East in which he has evidenced a particular interest. It is an admittedly small return for all of the time he has spent with us as an affable, if demanding, mentor, but one that the editors and contributors present to him with great thanks (and a real measure of affection).

McGuire Gibson's biography is, at its core, a story of overcoming odds, but an account of his early years, prior to his appointment as Assistant Professor in the University of Chicago's Department of Near Eastern Languages and Civilizations (NELC) in 1972–73, is not easy to write. What we know is based largely on anecdotes he has told in the field and as such is at least partly fictional, though we have tried to sort fact from the tales he so often told. The details of the last four or so decades of his career, of course, are more fully documented in Oriental Institute Annual Reports and supplemented by our collective observations and some of our admittedly fading memories.

Mac Gibson was born in early November 1938 in Bushwood in St. Mary's County, Maryland, on the western side of the Chesapeake Bay. European settlement in the area dates back to the early seventeenth century, and the Gibsons, an English Roman Catholic family, had been in St. Mary's County for at least five generations. Thomas Laurie Gibson and his wife Essie Mae Owens had a large family. Mac was apparently the eighth of nine children; his oldest siblings were fifteen–sixteen years his senior. St. Mary's County was rural in the 1940s, and the Gibsons were tenant farmers. Mac routinely reminded his students how hard and dirty farming really was, in particular growing tobacco, one of St. Mary's County's staple crops.

Mac contracted infantile paralysis (polio) as a young child. He said he wasn't a good patient with his leg in a brace. But he endured, though the polio took its toll in the limp that is a distinctive feature of his persona today. He attended Sacred Heart's parish grade school in Bushwood and later on St. Mary's Academy Boarding School for Girls in nearby Leonardtown, both founded and staffed by the Sisters of Charity of Nazareth. St. Mary's Academy started as a girls-only school, but during WWII, the boys' Catholic high school closed down and the nuns took in local boys who would arrive by bus, along with the local girls. The boarders were all girls from outside the area.

Mac left St. Mary's County in 1955, at just sixteen years of age, to enroll in Fordham University, a Jesuit institution in the Bronx, New York. His choice of Fordham was likely due to the influence of the Jesuits who served as pastors of Sacred Heart Church. Anyone who knows Mac will doubtless find his Jesuit training amusing, though maybe not so surprising. He earned his BA in 1959.

Mac loved New York, but his Fordham years are largely a blank to us, though he once told a story about a (priest) theology instructor who began all his classes with the phrase "God is good," and tossed Mac out of the class when he replied "Good for God!"

With his BA in hand, Mac moved on to the University of Chicago and enrolled in the Department of Anthropology, later switching to the Department of Oriental Languages and Civilizations (as it was then known) because of his interest in Mesopotamian archaeology. In his first year he took classes with Robert McC. Adams, Clark Howell and his co-teacher Francois Bordes. In that year and subsequently, he took socio/cultural courses with Fred Eggan and Eric Wolf, whom he found extremely stimulating. His second year, he took classes with Lewis Binford.

He initially worked under the supervision of P. P. Delougaz, and in his second year, Thorkild Jacobsen, completing an MA on weapons in 1964. His thesis, entitled *The Mace, the Axe and the Dagger in Ancient Mesopotamia*, sought to synthesize archaeological and philological data, an integrative approach he always espoused and instilled in his students. With Jacobsen's going to Harvard, Mac then switched to I. J. Gelb because of his keen interest in social/economic history and its relationship with archaeology.

Mac was certainly influenced by the intellectual ferment and excitement of the time. He often talked about Sally Shanfield, who married Binford, and William Longacre, one of Binford's early students. Connie (Constance) Cronin, a cultural anthropologist, who wrote her PhD dissertation on Sicilian peasant communities in Sicily and Australia, but was also involved in the study of design elements on archaeological ceramics, was a close friend.

INTRODUCTION

Mac got his first glimpse of Nippur in 1964–65, when he joined Director James E. Knudstad, who had previously served as Nippur’s surveyor under Richard C. Haines, in the ninth season of excavations. Mac described the excavations, focused on the Parthian fortress constructed over and around the ziggurat in the second century AD, in an Archaeological Newsletter dated Easter 1965, and provided a retrospective account of his initial stint at the site, when he was in Iraq from September 1964 to July 1965, in the Oriental Institute’s Annual Report for 2009–10. Supervising ninety workmen in digging the Parthian fortress, keeping the catalog of finds, and doing the photography, etc., presumably kept him very busy.

Knudstad was preoccupied with building a dig house on the mound in the ninth season (the excavators had previously rented houses in the nearby village of Afak). He described Mac—in an Archaeological Newsletter to the Oriental Institute’s members and friends, dated March 5, 1965—following behind a road grader “tracing walls and doorways and counting shallow graves” as it leveled the top of the highest of a chain of low mounds at the southwestern periphery of the site to create a level surface for the house. Mac always contended that Knudstad put the house on top of a temple.

In addition to working at Nippur, Mac also contributed to the Tell Abu Salabikh excavations, once traveling from Nippur to Abu Salabikh by camel. Donald Hansen, who had worked at Nippur in the late 1950s and early 1960s, piggy-backed his second season of excavations at Abu Salabikh on the ninth season. Hansen had found about a hundred Early Dynastic tablets in his first excavations at the site in 1963 and uncovered a hoard of them in 1965. Mac described Robert D. Biggs, field epigrapher, working on the tablets in his Easter Archaeological Newsletter, and he himself endured July in Baghdad photographing the tablets.

Tariq al-Janabi was the Representative of Iraq’s Directorate-General of Antiquities in 1964–65, but when he was called up for military service Selma al-Radi, whom Knudstad described in his Archaeological Newsletter as the “Institute’s first lady representative from the Department of Antiquities,” took his place. Selma was from a prominent Iraqi (Baghdadi) family—her father had been Iraq’s Ambassador to Iran and India under the Monarchy—and Mac subsequently became close friends with Selma, her sister Nuha, an accomplished ceramicist-artist and author of *Baghdad Diaries*, and the al-Radi family more generally. Selma certainly had a marked impact on the later trajectory of his work as an archaeologist, initially drawing him to Yemen, for example.

On the way to and from Iraq, Mac visited the Ashmolean Museum, the Louvre, and Istanbul to begin preliminary PhD dissertation research. As he relates in the Preface to his dissertation, Mac had originally wanted to produce a synthesis of the Sargonic (Akkadian) period, using (not surprisingly) both archaeological and philological sources for his PhD dissertation, but after some preliminary research he turned to Kish, despite P. R. S. Moorey’s earlier work on it. He spent several months in late 1965 collecting records on Kish in the Field Museum in Chicago, and in 1966 received funding to collect additional records, as well as to conduct a surface survey of Kish and sites within 15–25 km of it. He was in Iraq from November 1966 to March 1967. When he finished the survey, he made a brief sounding, at I. J. Gelb’s urging, at Umm al-Jir, a small site 27 km northeast of Uhairer, from which Sargonic tablets in the Ashmolean had supposedly come. He had the full cooperation of Iraq’s Directorate-General in both projects. Ghanim Wahida served as his Co-Director in carrying out the survey. Subhi Anwar Rashid was Co-Director of the excavations at Umm al-Jir.

Mac completed and defended his PhD dissertation entitled *The City and Area of Kish* (Miss Rose Diamond, an anonymous friend of Mac’s, had apparently suggested Kish and Tell as the title), in time for Chicago’s December 1968 convocation. I. J. Gelb chaired his Committee; Robert McC. Adams, whom he credited with providing theoretical and methodological models for survey and making suggestions that led to “new approaches to seemingly solved problems,” and Helene J. Kantor served as secondary readers.

Mac’s first appointment was in the Department of Anthropology at the University of Illinois, Chicago Circle Campus, as it was then known. He was there from 1968 to 1971, though he served as the last Annual Professor of the Baghdad School of the American Schools of Oriental Research in 1969–70. Despite the political climate in Iraq, Mac managed to get to Baghdad in October 1969, using only his affiliation with the University of Illinois, but the authorities would not give him permission to work in the Iraq Museum. Mac took the opportunity to travel around Iran and Afghanistan, and he told harrowing tales of trying to make it across mountain passes in Afghanistan ahead of the first snows of winter in old broken-down Land Rovers.

In 1971–72, Mac was appointed Assistant Professor in the Department of Anthropology at the University of Arizona in Tucson, where he rejoined old friends from his days in graduate school, e.g., William Longacre and Connie Cronin, and formed interesting new and intellectually stimulating friendships with colleagues like William J. Rathje, a Mayanist with a Harvard PhD, who started the Garbage Project. A symposium that he and Theodore E. Downing organized at the Southwestern Anthropological Association held in Long Beach, CA, April 1, 1972 resulted in the co-edited *Irrigation’s Impact on Society*, published in 1974.

Mac left Tucson the following academic year to return to the University of Chicago as Assistant Professor in the Oriental Institute and the renamed Department of Near Eastern Languages and Civilizations. He was hired specifically to resume the excavations at Nippur as a long-term project, with annual field seasons. He quickly jumped into digging, with the eleventh field season commencing in late December 1972 and lasting through March 1973. Mac said from the beginning that he wanted to broaden the scope of work and hoped the renewed excavations would “yield information not only about the sacred areas of the site, but also about the city as a whole, its growth and decline, changing patterns of occupancy, and the relationship of the various parts of the city to each other.” And, already in his first season, when Peter H. Mehringer, an environmental scientist, joined the excavations, Mac expressed an interest in integrating landscape and ecological studies into his fieldwork, a real departure from earlier years when natural scientists seldom set foot on the site.

Though the Iraq-Iran War triggered irregularities in the timing of later field seasons, Mac continued to direct excavations at Nippur until just before the First Gulf War, with the 19th season of excavations taking place in the winter of 1990.

Among Mac’s very notable characteristics as Field Director was his hands-on approach to digging—he loved to work with mudbrick—and his generosity in handing parts of the excavations (both at Nippur, as well as other sites) over to students for PhD dissertations and publications. At Nippur, for example, Judith A. Franke focused on the Old Babylonian houses in Area WB for her dissertation; James A. Armstrong on Kassite and Post-Kassite remains in Area WC-2 and Area TC; Steven W. Cole on a hoard of tablets, dating to the late eighth century BC, that had been used as packing around a jar burial in Area WB; and Augusta McMahon on Early Dynastic and Akkadian remains in Area WF.

Not the least of Mac’s talents in the field was his unique talent as a conversationalist, storyteller and provocateur, particularly at the Nippur breakfast table. As his students generally sat mute, waiting for the caffeine from the fresh-brewed coffee that was always on the table to kick in, he would feed them an astonishing concatenation of fact and fiction, including the folklore that deep inside the ziggurat, which locals call *bint al-amir* (daughter of the prince), is a magnificent golden boat. Or, sometimes he’d put out challenges like naming the dumbest parable in the New Testament.

As hinted at above, in his nearly two decades as Nippur’s Director, Mac not only worked at Nippur, but also at several other sites in Iraq. In 1977, for example, he focused on Umm al-Hafriyat, a large group of low mounds some 30 km to the southeast of Nippur with an Akkadian occupation that was being badly damaged by illicit digging. Mac could never resist the opportunity to work at an Akkadian period site, and he readily moved the small Nippur team to a tent encampment seemingly in the middle of nowhere. Umm al-Hafriyat was productive from an archaeological standpoint, helping to refine the ceramic chronology for the late Akkadian, Ur III and early Old Babylonian periods, but Mac doubtless remembers the field season more fondly than his team members who, while losing lots of weight, barely survived a blinding sand storm (during which Mac himself was deathly ill), a plague of field mice, seemingly incessant rain (on one occasion with frogs falling from the sky), and an early cold snap.

Mac always harbored hopes of returning to Umm al-Hafriyat, and in the eighteenth (1989) season at Nippur he went back to map the many pottery kilns that dotted the surface as a preliminary to a future season at the site aimed at elucidating pottery-making technology. Unfortunately, looting in the 1990s and industrial-scale looting in the years following the Second Gulf War has largely destroyed Umm al-Hafriyat (Oriental Institute Annual Report 2005–06:86–87).

In 1978–79 Mac joined forces with Mogens Troelle Larsen and the University of Copenhagen to lead two seasons of excavations at several sites near the village of Üc Tepe, in the Hamrin dam salvage area, along the Diyala River, northeast of Baghdad. At one of these sites, Tell Razuk, he exposed a round building, dating to Early Dynastic I, with the roof still partially preserved; at Tepe Atiqeh he found early Akkadian occupation levels. He handed the Tepe Atiqeh excavations to Perry L. Ginvecki, a student Mac had first encountered at Chicago Circle Campus, for a PhD dissertation. At the same time he was working in the Hamrin, Mac conducted a preliminary survey of archaeological resources in the impound area behind a dam to be built at Haditha for Abbad al-Radi, younger brother of Selma and Nuha, for his engineering firm Planar. And, from October 28 to November 1, 1979, during a break in the Hamrin excavations, he went back to Kish (Inghara) to clean and draw an exposed section in the Y-trench, with the help of James A. Armstrong and Dennis Collins.

With the appointment of Abdullah Hassan Masry, who earned his PhD in Chicago’s Department of Anthropology in 1973, as Saudi Arabia’s first Director-General of Antiquities and Museums, Mac was drawn into archaeology in the Arabian Peninsula. He attended a conference in Riyadh on the beginning of an archaeological program in the Kingdom in November 1974, and he returned a little more than a year later to take part in a survey of the Eastern Province in February, March, and April 1976. Robert McC. Adams, Mac Gibson, and Curtis Larsen worked alongside three Saudi colleagues in the Eastern Province, while a second team, headed by Peter Parr, that included Juris Zarins and Saudi archaeologists, conducted a survey in the northern part of the Kingdom.

Mac spent March 1977 in Riyadh working on materials collected in the survey, and then flew to Yemen no doubt primarily to visit Selma al-Radi, who had just been appointed special advisor to the National Museum of Yemen in Sana'a. Mac's visit opened new opportunities, convincing him of Yemen's archaeological potential, and in short order he initiated the formation of the American Institute for Yemeni Studies (AIYS), a non-profit consortium of American universities, museums, etc., to promote research and scholarly and cultural exchange between the United States and Yemen. Mac served as its first President, and has continued to play an active role in AIYS until the present day.

In addition to promoting AIYS, Mac also initiated a research project in Yemen, a survey of the Yarim-Dhamar region, ca. 60 km south of Sana'a. Mac served as Project Director, securing funding from the National Geographical Society. Raymond D. Tindel, a Chicago graduate student, was Field Director, and Stephen J. Lintner served as geomorphologist. Tindel's PhD dissertation on the Himyarite capital of Zafar, completed in 1989, grew out of the survey.

Mac's involvement in AIYS led him to be instrumental in the establishment of the Council of American Overseas Research Centers (CAORC) in the early 1980s, and he is prominent at the head of the table in a photograph captioned "CAORC Founding Meeting" on CAORC's website (CAORC 2015). CAORC is a private non-profit alliance of independent overseas research centers formed to facilitate and expand research abroad, housed in the Smithsonian Institution. Mac served as CAORC's Chair (1984–88) and later its Treasurer (1988–91), and he continued on CAORC's Board until recently.

At the same time he served as CAORC's Chair, Mac began promoting the formation of a research center in Iraq, with facilities in Baghdad to house American researchers, which had never existed previously. He devoted a good deal of his time in 1989–90 to the resulting American Association for Research in Baghdad (AARB), a consortium of twenty-five universities and museums. He served as AARB's first President and gained the agreement of Iraqi authorities for the establishment of a permanent research facility on the ground in Baghdad, but his efforts were stymied by Saddam Hussein's invasion of Kuwait in August 1990 and the ensuing First Gulf War. Mac continued as AARB's President throughout the 1990s and into the early 2000s, though the organization was effectively dormant.

Mac served as an important consultant to the media during the First Gulf War and harbored hope that he would be able to return to Iraq. And, with Augusta McMahon's help and support from AARB, he published *Lost Heritage: Antiquities Stolen from Iraq's Regional Museums*, which aimed to aid in the recovery of antiquities stolen from smaller museums around the country in the chaos that followed Operation Desert Storm.

Mac visited Iraq in the 1990s, but with the embargo on Iraq preventing the return of archaeologists for the foreseeable future, he also began to initiate new archaeological research projects. In Chicago, following Helene J. Kantor's death in January 1993, Mac took over responsibility for publishing the more than 15,000 or so miscellaneous small finds from the Oriental Institute's excavations at sites in the lower Diyala River basin in the late 1920s and 1930s. The project was, in a way, a natural extension of research Mac had begun on the periodization and chronology of Diyala sites more than a decade earlier with a seminal article in the *American Journal of Archaeology*. He secured funding to begin the project from the National Endowment for the Humanities in 1995. But, over the next decade Miscellaneous Objects from the Diyala Region morphed into a comprehensive "virtual archive," making the full documentation from the Diyala excavations in the Oriental Institute, e.g., field notes, plans, and photographs, accessible to researchers via the internet—a tremendous resource for archaeologists.

Mac was instrumental in hiring Tony Wilkinson in 1992. This helped to establish the Center for Ancient Middle Eastern Landscapes, which established satellite imagery, particularly CORONA and multispectral data (e.g., ASTER), as standard use in landscape archaeology. This also led Mac's students, Mark Altaweel (University College London), Katharyn Hanson (Museum Conservation Institute, Smithsonian Institution), Carrie Hritz (National Science Foundation), and Jason Ur (Harvard), to develop their use of satellite imagery in their research and establish their own careers.

Venturing away from Chicago, Mac went to Yemen in January 1992 to assess the possibilities of fieldwork, and in 1994 he returned—with collaborator Tony J. Wilkinson—to Dhamar, where he had worked in the late 1970s, to begin a project investigating landscape and, in particular, the systems of ancient terraced fields on the mountain slopes of highland Yemen. The research would later go on to show how Bronze and Iron Age communities developed in highland regions of Yemen.

Though Wilkinson eventually assumed responsibility for work in Yemen, Mac remained actively involved through the late 1990s, when he began joint excavations with the Syrian Directorate-General of Antiquities and Museums at Hamoukar, a large mound in the northeastern corner of Syria, from which he could at least see Iraq. He directed the excavations at Hamoukar, with good results and publicity, in 1999, 2000 and 2001, but turned Hamoukar over to Clemens Reichel, another Mac student now at University of Toronto, in 2004.

In 2002, anticipating major changes in Iraq, AARB's Board, no doubt on Mac's initiative, decided to revive the organization, renaming it The American Academic Research Institute in Iraq (TAARII) and expanding its remit. Mac continued to serve as TAARII's President until July 1, 2014. In 2002, Mac was also one of the PIs in a large NSF grant

(about \$1.5 million), which at the time was perhaps the largest grant obtained by NELC. This grant applied innovative methods to studying the ancient landscapes and human interactions in Syria and Iraq.

In the months leading up to the invasion of Iraq, Mac Gibson took the lead in reminding the American public that Iraq was Mesopotamia, the cradle of civilization, and warning civilian and military authorities of the potential for damage to archaeological sites and unique cultural assets, e.g., the Iraq Museum and the National Archive and Library in Baghdad. Despite urgent pleas that these buildings ought to be secured, the Iraq Museum was looted and the National Archive looted and set on fire in mid-April 2003. Mac and other archaeologists were on the ground in Iraq quickly—by May 2003—to see what had happened in Baghdad and assess the scale of looting of important archaeological sites, including Nippur and Umm al-Hafriyat, firsthand. Some years later, Mac was guest curator of a traveling exhibit entitled *Catastrophe! The Looting and Destruction of Iraq's Past* that opened at the Oriental Institute in April 2008. He also authored (or co-authored) chapters in the catalog that accompanied the exhibition.

In the years since the US invasion and the looting of the Iraq Museum, Mac has redoubled his efforts to publish excavations at Nippur, securing funding from the National Endowment for the Humanities to publish backlogged reports on Nippur. Critically, he had the Nippur field records digitized; so, while not publicly accessible, they could be utilized by researchers not in Chicago, but working on Nippur publications. And, Mac leaned (persistently, but adroitly) on Robert D. Biggs, Jean Evans, Karen Wilson, and Richard L. Zettler to complete publication of the important Inanna temple excavations, carried out in the 1950s and early 1960s. He was happy to report that the completed manuscript of what will be Nippur VI was sitting on the drafting table in his office. Who knew there was empty space on the drafting table in his office or that anyone still had a drafting table!

But, Mac also used his position as TAARII's President to build bridges with Iraq and Iraqi scholars in various fields, whether humanities or social and hard sciences, in ways both big and small. But, as always, he devoted his most enthusiastic efforts to Iraq's ancient past. In 2006, with support from the National Endowment for the Humanities (and later the US Department of State) he began collaborating with his former student, Mark Altaweel, to aid Iraqi archaeologists, including Hussein Ali Hamza, who had been the Iraqi representative on the 1977 excavations at Umm al-Hafriyat, to publish reports on the archaeological sites they had been excavating in isolation during the 1990s and early 2000s, including some manuscripts lost in the looting of the Iraq Museum in 2003, in widely circulated (and peer-reviewed) publications in both English and Arabic. To date, reports on the excavations at Tell al-Wilaya, Tell Abu Shijar, the North Jazira region, Eshnunna, Muqtadiya, Nimrud, and Tell Abu Sheeja (Bashime/Pashime) have appeared in *Iraq*, the Belgian periodical *Akkadica*, book chapters, and as whole books. Among these is an English translation and new analysis of Mosul archaeologist Muzahim Mahmoud Hussein's report on excavations of the tombs of the Neo-Assyrian queens found below the floors of the Northwest Palace. This was, perhaps, the most well-known discovery to come out of Iraq in the last twenty-five years.

All throughout these wonderful contributions Mac has made, he has also been a great supporter for his students. Many of his students have gone on to obtain jobs at well-known academic and research institutions. While we are not keeping tabs, Mac just might be among the most successful ancient Near East scholars in recent memory in getting his students research employment after their PhDs.

Perhaps the best way to conclude this brief précis of Mac Gibson's life and career in archaeology is by noting that in May 2012 he went back to Nippur for the first time since he was there in 2003 in the aftermath of the invasion. He made a thorough and careful inspection of the site before sitting down to a meal prepared by the family of Nippur's guard, Abbas Gharmoul, that included masghoof, fish baked on spits over an open fire. His account of his visit in the Oriental Institute's Annual Report for 2011-12 conveys his palpable excitement at being at Nippur once again. Mac's closing description of Iraqis as being amazingly resilient and looking to the future even in desperate circumstance in some way characterizes Mac himself. He seems to be going strong in his "golden years," and it would not surprise any of us if he returned yet again to Nippur. There is a lot more digging to do and, certainly, plenty of time to find the golden boat in *bint al-amir*.

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AS I SEEM TO REMEMBER...

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The Oriental Institute

Coming out of my hieroglyphs class on the second floor of the Oriental Institute, I ran into Mac Gibson. “You ought to come to Baghdad with us,” said he. I did, and stepped through the looking glass into a world of Mesopotamian excitement.

Mac took me from the airport first to the al-Radi House where I watched servants beat the rugs by the Tigris River. Then it was on to the comfortable Nippur House where the workmen greeted me with smiles and titters that went on for days. I feared an indiscretion of dress or behavior, but it seems that Mac had told them repeatedly that the khatun arriving soon was extremely old, extraordinarily wrinkled and huge, “as big as a barrel.” The other issue, the fact that I was there alone without a male relative, was quickly resolved by calling me “Mr. Carlotta.”

My first act upon arrival was to enquire of junior staff what were the rules, specifically if showing up for breakfast would be required. The answer was, “there are no rules ... however, it is hoped that you will choose to come to breakfast.” From the first day, it was great fun. There was always laughter, set off by Mac’s stories. There was even singing, especially a memorable rendition of the Linda Ronstadt song “You’re No Good,” translated into Arabic.

Mac does not micromanage. When the Abu Salabikh crew arrived, caked with sand, to use our shower, Mac shouted to me to get towels for them. There was nobody around to ask, so I simply went into staff rooms, seized their towels, and returned them later, wet and gritty. In the desert climate, things dry quickly, and no one ever knew (until now). Mac would send me out to observe women making pottery. Being female was enough. The Iraqi ladies were pleased to let me take pictures and watch them work.

One day there was a surprise visit from the Inspector General of Antiquities. Everybody scrambled. The site was toured, and a festive meal prepared. Suddenly, with archaeological talk exhausted, conversation at the table died. I was puzzled that our men folk, normally voluble, had fallen totally silent. I jumped in and asked the Inspector about his wife, his children, how his wife prepared Iraqi dishes, how the ladies were always on diet regimes and general chat. I babbled on merrily, and he seemed to have a good time. After we shook hands and said goodbye, I was pleased when Mac said, “Well, that went well.” It was my first realization that men could not ask about another man’s women and children without causing serious offense, but I could.

At Hafriyat, in spite of its desolate appearance, there was an abundance of wild life. Much of it was dead. Our geomorphologist exhumed an enormous decomposing lizard, and, excited by the find, ordered the cook to boil the flesh off the bones. The stench wafted into our little tents. Appetites that day were not improved by bits of rotting lizard stuck to our dining table. Mice crawled into the ancient jars kept under beds and expired there, creating a new odor problem. Screams in the night told us that some friskier mice had found the warmth of the photographer’s bed while she was in it.

Motor problems were endless—many of my pictures feature men staring into engines, lying under cars, or pushing them. The run-up to my trips to Iraq meant multiple trips to Hill Motors in Chicago for replacement parts. In the Hamrin, one staff member drove me expertly over a slippery narrow track, without barriers on either side, far above a little river ... without brakes. Another staff member, not as expert, drove us straight into an ancient canal at a pretty good speed. My roommate lost a few teeth, and I broke a rib or two. Those in the car tried to hide this incident from Mac, but it was impossible. Once the truth was out, Mac announced to all that he thought my stifled groans were simply Lust.

Mac could not only be an auto mechanic, but an artist. In the Hamrin, he reinvented stained glass. He made holes in the mud bricks of our dwelling and inserted colored bottles to create lovely windows. On trips to Baghdad, we had found garbage trucks that appeared to be distributing, rather than picking up, garbage. We could then gather a rich harvest of blue, green, and brown bottles. We rejoiced to find some red brake lights for Mac’s Rose Window.

During the two seasons in the Hamrin, we were joined by a crew from University of Copenhagen to do salvage. Our Danish colleagues were so much quieter and more solemn than the loud, laughing Americans that our Iraqi representative asked me, “Are they sick?” Mac encouraged my program of “Love-a-Dane.” Each day, the Dane of choice would be taken coffee on the mound and any treats we might have been saving for a rainy day (there were lots of rainy days).

Back in Chicago, Mac not only teaches advanced students but is extremely generous with the non-academic community. He has lectured to the Institute’s docents every year for forty years and is a popular speaker outside the University. He was the first to establish a support group for archaeological projects, and Friends of Nippur flourished for

many years. He may be tough with his students, but he is very kindly with his lay listeners. His comforting words to one questioner stay with me: "We are all students here."

It was before dawn on a bitterly cold morning at Hafriyat, and the workmen had been pushing the car with Mac at the wheel for a very long time. The car was stuck in the slippery wet mud of an Iraqi winter, and I was losing hope of getting to Baghdad in time for my flight home. Suddenly, the wheels caught, gained traction and, we were off. A great cry went up from the pushers and those standing around giving advice. All of us now heartily join in the sentiments of the group that day, as we shouted: "Long live the Mudir."





Clearing the surface, Üçtepe, 1978. (Drawing by Peggy Sanders)

CHAPTER 1

THE IMPACT OF THE RISE OF THE STATE IN SOUTHWESTERN IRAN ON THE REGION'S PERIPHERY AND BUFFER ZONES

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ABSTRACT

Beginning in the late sixth and early fifth millennium BC, archaeological evidence suggests a change in the millennia-old sphere of interaction between southern Mesopotamia and lowland Susiana. The Ubaid (Ubaid 3) material culture penetrated into the north and northwest regions, while the contemporary Susiana (Late Middle Susiana, ca. 5200–4900 BC) culture advanced into the Zagros Mountains and highland Fars. As a result of the latter cultural expansion, large tracts of land in the marginal plains of Ram Hormuz, Behbahan, and Nurabad (fig. 1.2) that previously were almost completely unoccupied by permanent farming villages, were settled in the fifth and fourth millennium BC.

This pattern changed dramatically in the early third millennium BC. Lowland Susiana became the theater of confrontation between the forces of the nascent Early Dynastic states and those based in lowland Susiana, the surrounding highland valleys, and Fars (Anshan). Susiana was finally subdued by the powerful Akkadian and Ur III dynasties, resulting, it seems, in the desettlement¹ of the Ram Hormuz, Behbahan and Nurabad plains for about a thousand years (2900–1900 BC), until the last ruler of the Ur III dynasty was defeated by highland Shimashki forces. But it was not until the coming of the Sukkalmahs that these marginal plains became fully resettled and integrated.

The fourth buffer zone in the region, the Deh Luran plain, had a different evolution. While Deh Luran, unlike the other marginal plains, was never completely desettled, it was not part of the proto-Elamite sphere of interaction and does not seem to have returned to Susiana-based states until the second millennium BC. This paper examines the archaeological and textual records pertaining to this problem.

The precipitous decline evidenced in the Terminal Ubaid [Terminal Susa I, ca. 4000–3900 BC] settlement [in Southwest Iran] is at present completely unexplained” (Wright et al. 1975, p. 137). Thus lamented Wright and his colleagues in analyzing fourth-millennium archaeological data from southwestern Iran. In a recent article, however, Wright (2013, p. 60) briefly addresses this question as follows: “While we have little evidence of the social or political organization of Deh Luran communities at this time (fourth

* I remember my first class on Mesopotamian archaeology with Mac Gibson. My paper assignment was a reconstruction of the spatial and temporal distribution of the cuneiform tablets found at the Palace of the Rulers of Eshnunna. For a first year graduate student, this subject was a tall order. But I managed to write something with the hope that I might pass the class. A week after the submission of the paper, Mac asked me to go to his office, where he went over the paper with me; he corrected my English, showed me how to organize my topics, and proceed in an orderly fashion, all with a smile and a sense of humor. This restored my eroded self-confidence and I am very grateful to Mac for paving the way for me to overcome the grind of graduating from NELC. Thank you, Mac.

¹ This neologism is necessary to make a major distinction between seasonal movement of a region’s population and its abandonment because of war, epidemic diseases, or natural calamities. The proto-Elamite period in Susiana is the best example of desettlement (see Alden 1987; Alizadeh 2010; Alizadeh et al. 2014 OIP 140), where the core of the polity is characterized by a very sparse settlement system.

millennium), we can infer a small local settlement group in an uneasy existence between much larger neighbors to the southwest and southeast.” In this paper we intend to expand this idea by exploring the archaeological record of southwestern Iran in the fourth and third millennia BC. The resulting archaeological landscape will then be evaluated against the Sumerian and Akkadian texts that deal with Elam and Anshan to validate or to question the large and relatively vague picture of political change and tensions in the region.

This crucial phase of ancient Near Eastern political development, however, cannot be understood in and of itself without including the two millennia that bookend this phase. Lowland Susiana is the locus of the earliest civilization and the main theater where sociopolitical organizations developed in a vast region of what later became known as Iran. Lowland Susiana was also the bread basket and seat of power of the Elamites, and the Achaemenid, Parthian, and Sasanian empires that succeeded them, all of which originated from the highlands.

Susiana is a fertile region with the three largest rivers in Iran (figs. 1.1–1.2). The region is surrounded with less fertile, comparatively marginal alluvial lands (Deh Luran and Ram Hormuz) and a number of nearby intermontane plains to the north and northeast, including Dasht-e Susan, Izeh, and Dasht-e Gol (Wright ed. 1979; Wright 2010). The close proximity of lowland Susiana to these highland intermontane valleys provides easy access to rich resources of stone, wood, and excellent pasture (fig. 1.2). Archaeological surveys and excavations have shown that these regions were in close contact with Susiana from prehistoric times.² All these periphery regions were culturally integrated parts of the Susiana sphere of interaction until the emergence of the early states in the region.

The processes of early state formation in both southern Mesopotamia and southwestern Iran that most probably began in earnest in the fifth millennium BC, seem to have run their course by the end of the fourth millennium BC.³ These early sociopolitical developments seem to have had a profound impact on the plain of Deh Luran in the fourth millennium BC. Prior to this time, Deh Luran was squarely in Susiana’s sphere of interaction and in lockstep with Susiana’s cultural development. Beginning around 4000 BC, the production of the typical Susa painted pottery ceased and a class of pottery vessels similar or identical to the preceding Late Susiana 2 phase (Susa I) in shape and manufacturing, with primarily no visible inclusion, appeared (Johnson 1973; Wright 2013). This archaeological phase (table 1.1) is termed by Johnson (1973, pp. 87–88) “Terminal Susa A” phase in Susiana on the basis of the ceramics from Acropolis Level 24 (fig. 1.3).⁴ Henry Wright (2013, p. 52) does not believe that the ceramics of the Terminal Susa A phase (fig. 1.6) occurred in Deh Luran. But a comparison with the vessels found at the piedmont site of Sargarab in northeastern Deh Luran (Wright et al. 1975, fig. 7) and those from KS-59 (fig. 1.6) and KS-269 in Susiana (Wright 2013, fig. 4.2; here figs. 1.3–1.5) shows a number of similarities in some forms and decorations, although the “Sargarab Ware” is tempered with chaff and includes crushed calcite (Wright ed. 1981, p. 91). The closest parallels for the “Sargarab Ware,” and perhaps its origins, are found in the Zagros intermontane valleys, such as Khuramabad, Rumishgan, Kuh-e Dasht, and Tarhan.⁵ The most common decoration is applique finger impressed strips that with time evolved from round to oval finger impressions. Simple painted bands also occur on some close forms, but infrequently.⁶ The Sargarab pottery tradition is similar to those in the Zagros and the Jezira and Iraqi Kurdistan regions; it continues even into the second half of the fourth millennium, although with attenuated repertoire (Neely and Wright 1994, p. 26). In contrast, the contemporary Susiana ceramic assemblage is almost indistinguishable from that of the Late Uruk phase in southern Mesopotamia.

The prelude to the major changes in the Deh Luran plain began at the end of the Late Susiana 1 (Farukh Phase, ca. 4900–4400 BC) and the beginning of the Late Susiana 2 (Susa I/A) phase, around 4400 BC, when the size of the settlement dropped from 16.5 ha to 7.11 ha in the region. During the Late Susiana 2 phase (ca. 4400–4000 BC) only three sites remained occupied on the plain: Musiyan, Moradabad, and DH-247, with ca. 5.00, 1.44, and 0.67 ha in area, respectively (Neely and Wright 1994, pp. 170–2). A similar reduction in the

² Alizadeh et al. 2014; Alizadeh 2010; Potts et al. 2009; Wright 2010; Wright ed. 1979; Wright and Carter 2003; Zagarell 1982.

³ Alizadeh 2010; Alizadeh et al. 2014; Johnson 1973; Wright and Johnson 1975; Wright 1977, 2013.

⁴ I would like to thank Henry Wright for giving me permission to publish some of his illustrations from his 2013 article.

⁵ Neely and Wright 1994, pp. 22–26; Wright ed. 1981, pp. 91, 168–89; Wright et al. 1975; Goff 1971; Young 1969, pp. 4–6, figs. 7–8.

⁶ Wright et al. 1975, pp. 131–33, fig. 6; Neely and Wright 1994, pp. 22–28.



FIGURE 1.1. Map of Iran showing major ancient sites.

size of the settlement and settled population during this phase was also documented in the other marginal zones such as the Ram Hormuz plain,⁷ the valleys northeast of Susiana (Wright ed. 1979), and the Nurabad plain (Potts et al. 2009). This dramatic change in the settlement system was by no means local and limited to southwestern Iran. Surface surveys in the Zagros Mountains also have shown the extreme rarity of the pottery typical of the Late Susiana 2 phase.⁸ The development may have been the consequence of the events in lowland Susiana that resulted in the burning of Susa's high

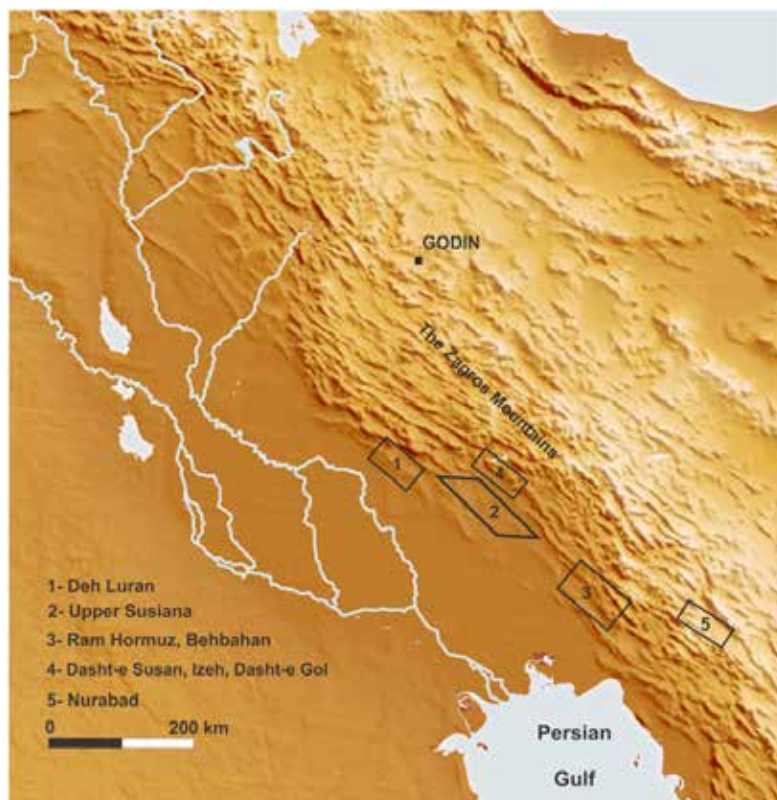


FIGURE 1.2. Map of western and southwestern Iran.

⁷ Wright and Carter 2003; Alizadeh et al. 2014.

⁸ See Goff 1971; Khosrowzadeh 2010; Esmaili Jelodar, Zolghadr 2014; Stein 1940; Wright 2010, 2013; Wright ed. 1979; Zagarell 1982.

Table 1.1. Relative Chronology of Iran and Mesopotamia

Date BC	Susiana	Deh Luran	Fars	Central Plateau	Mesopotamia
651–900 AD	Post-Sasanian	Post-Sasanian	Post-Sasanian	Post-Sasanian	Abbasid Umayyad
224–651 AD	Sasanian	Sasanian	Sasanian	Sasanian	Sasanian
250 BC–224 AD	Parthian	Parthian	Parthian	Parthian	Parthian
550–331	Achaemenid	Achaemenid	Achaemenid	Achaemenid	Achaemenid
1000–550	Neo-Elamite	Neo-Elamite	Shogha/ Teimuran	Iron Age	Neo-Babylonian/ Neo-Assyrian
1400–1000	Middle Elamite	Middle Elamite			Kassite/ Middle Assyrian
1600–1400	Transitional				
1900–1600	Sukalmah	Sukalmah	Qaleh	Late Bronze	Old Babylonian
2100–1900	Shimashki	Ur III	Kaftari	Middle Bronze	Isin-Larsa Ur III
2350–2150	Awan	Akkad			Akkadian
2800–2350	Early Dynastic	Early Dynastic			Early Dynastic
3100–2800	Proto-Elamite	Jemdet Nasr	Late Banesh	Early Bronze	Jemdet Nasr
3900–3100	Late Susa II Early Susa II	Late Uruk Sargarab Phase	Middle Banesh Early Banesh		Uruk
4000–3900	Terminal Susa		Lapuii	Late Plateau	Terminal Ubaid
4400–4000	Late Susiana 2 (Susa I)	Late Susiana 2 (Susa I)	Bakun A		Ubaid 4
4900–4400	Late Susiana 1	Farukh Phase	Gap (Tall)	Middle Plateau (Cheshme Ali)	
5200–4900	Late Middle Susiana	Bayat Phase	Bakun B2	Early Plateau	Ubaid 3
5700–5200	Early Middle Susiana	Mehmeh Phase Khazineh Phase	Bakun B1		Ubaid 2
6000–5700	Early Susiana	Sabz Phase	Jari B	Archaic Plateau	Ubaid 1
6200–6000	Archaic Susiana 3	Chogha Mami Transitional Phase	Mushki		Ubaid 0/Samarra
6300–6200	Archaic Susiana 2		Arsanjan Cave Site		Hassuna
6500–6300	Archaic Susiana 1	Mohammad Jafar Phase			Jarmo

platform and its reduction, leading to the interruption of the millennium-old sphere of interaction between the lowlands and highlands.

The upheaval in the core region seems to have affected only the southwestern and central Zagros valleys, as well as the Deh Luran, Ram Hormuz, and Nurabad plains. Fars continues with the Bakun A tradition and develops into the fourth-millennium Lapui phase, with a red pottery unrelated to the buff coarse and medium ceramics of the Early and Late Susa II phases (Early and Late Uruk) that succeeded the painted pottery of the Late Susiana 2 phase (Wright 2013). Kerman (Lamberg-Karlovsky 1970; Mutin 2013), too, continues with its local tradition of painted pottery that in the late fifth millennium BC was rapidly diverging from the lowland black-on-buff tradition that was its original inspiration (Alizadeh 1992, 2010).

Farther afield, lowland Susiana first made contact with the settlements in the Central Plateau in the mid-fifth millennium BC during the Late Susiana 1 phase. But unlike Fars, Kerman, and the valleys of the Zagros, the southwestern tradition of black-on-buff pottery did not replace the local black-on-red ceramics (Kaboli 2000)⁹ but coexisted with it. No ceramics of the following Late Susiana 2 are found in this region. This, too, may be attributed to the late fifth-millennium upheaval in Susiana. Contact with the Central Plateau sites was renewed later in the fourth millennium BC.

The fifth-millennium Susiana contact with the Central Plateau was not arbitrary or by chance. The late Chalcolithic period in the Central Plateau is marked by increasing metallurgical activities.¹⁰ No doubt the development of socioeconomic complexity in southern Mesopotamia and southwestern Iran must have created a larger demand for copper, lapis and other semi-precious stones not available in the lowlands, but much desired for the rising elites in the late fifth and fourth millennium BC. It is in this context that the locus and material at Tappeh Godin (figs. 1.1–1.2) may be explained as an administrative node linking the production and consumption centers along the east–west highway through the Kangavar valley. So, before we continue our survey of the Deh Luran region, it is important to say a few words on the nature and function of Godin Tappeh as the most important evidence of the active role the Central Plateau played in the fourth-millennium BC political and economic landscape.

It is around 4000 BC, after a short period when the site of Godin (Godin VI:3, old phase VII)¹¹ was first occupied on the strategic confluence of east–west/north–south highways in the Kangavar valley of western Iran (fig. 1.1), that some inhabitants of the Central Plateau occupied the site during the Sialk III5–6 phase, ca. 3700 BC (Fazeli Nashli, Valipour, and Kharaghani 2013). This earliest phase of settlement is known at Godin as Godin VI:3, with a pottery similar to the chaff-tempered medium to coarse buff ware that followed the demise of Susa in southwestern Iran (Young 1969, pp. 3–4, fig. 6). Godin is not the only site in the central Zagros region with Sialk III ceramics, but certainly the most prominent. The Central Plateau influence extended far into the central Zagros valleys as both Stein (1940) and Zagarell (1982) found surface sherds of the Sialk III phase in their surveys on several mounds. Except for Godin, however, none of the Zagros sites with Sialk III pottery have been excavated.¹² More importantly, by the late fourth millennium BC, at Godin and several other sites pottery typical of the Sialk III6–7 phase is found together with typical proto-Elamite ceramics, which many erroneously attribute to “Uruk,” even though the tablets, glyptic style, and much of the pottery are typical of Late Susa II and Early Susa III phases, i.e., Susa Acropolis Levels 17 A and 16.

Excavations at Godin have provided the best stratigraphic evidence for the association of the ceramics of Sialk III6–7 and those of Susa Acropolis Levels 17 A and 16, i.e., the proto-Elamite levels. According to the revised chronological and stratigraphic assignment (Gopnik and Rothman 2011), the earliest evidence of occupation at the site of Godin belongs to Godin VI:3, with a handmade, chaff tempered pottery assemblage

⁹ A number of sites were reported from the Central Plateau in the Qum region (Kaboli 2000) with both typical late Cheshme Ali black-on-red and Late Susiana 1 (Farukh) phase black-on-buff ceramics with typical dot motifs. None of these sites are excavated and therefore we have no clues about the dynamics of this cultural interaction, but the proximity of these highland sites to the copper mines near Qum and Kashan suggests procurement of copper as an incentive.

¹⁰ Vatandoust, Parzinger, and Helwing eds. 2011; Helwing 2012, 2013; Majidzadeh 1979; Matthews and Fazeli 2004.

¹¹ See Gopnik and Rothman 2011 for the revision of the excavated levels at Godin.

¹² Tappeh Giyan also yielded ceramics of Late Susiana 1 and Godin VI:3–1 (Contenau and Ghirshman 1935, pls. 48–49 for example). Both Giyan and Baba Jan (Goff 1976) have similar fourth millennium material, but the former was not properly excavated and the latter had little to report.

that included plain buff, buff slipped, and red slipped wares (Young 1969, pp. 3–4, fig. 6). This assemblage is similar to the Sargarab Ware and is found in several central and northwestern Zagros valleys. Shortly after this initial phase, Godin VI:2 is marked by the appearance of the typical Sialk III painted ceramics, unrelated to any pottery tradition in that region. The ceramics of the Godin VI:2 are clearly of Sialk III7 tradition, while the ceramics of the Godin VI:1 are typical of late Susa II and early Susa III (proto-Elamite) types of Acropole I, Levels 17–16.¹³ In this connection, the square numerical tablets, typical of Susa Acropole I, Level 17 A, and the glyptic style, are clearly comparable to those of Susa Acropolis I levels 17 A–16 (Le Brun 1971, 1978; Pittman 2013).

Furthermore, the demise of Godin VI:1 and the contemporary sites in the central Zagros region and in the western part of the Central Plateau ca. 3000 BC coincides with the penetration/invasion of what Cuyler Young referred to as the “Barbarians of Godin IV,” i.e., the Kuro-Araxes people (Young 2004). In fact, the oval enclosure wall around the settlement of VI:1 phase may reflect the fear caused by the intrusion of the Caucasian hordes, not a colonial enclave within the local settlement (Algaze 1993, p. 53). As in all Central Plateau settlements with proto-Elamite material culture, Godin, thus, may represent a peaceful case of cooperation in procuring raw materials (semi-precious stones and copper) and administering the exchange system between Susiana and Central Plateau administrators and entrepreneurs. The demise of Godin, as well as a number of Central Plateau settlements with connection to southwestern Iran, interrupted the flow of goods and artisans that had benefited lowland Susiana and its allies in the central Zagros region, and must have destabilized the nascent proto-Elamite polity in lowland Susiana in the early third millennium BC. Subsequent to this development, the seat of proto-Elamite power must have shifted to highland Fars at Anshan.

With this digression, let us return to the Deh Luran plain. As mentioned above, the upheaval in Susiana in the late fifth millennium BC also affected the settlement system in the Deh Luran plain. Evidence of Late Susiana 2 phase ceramics are found on only three widely scattered sites with the total area of occupation of ca. 7 ha, a pattern attributed to possible violence in the region (Neely and Wright 1994, p. 172). In the beginning of the fourth millennium BC, the settlement system underwent even more dramatic changes. Only two small, piedmont sites of Sargarab (DL-169) and Chakali (DL-19) show evidence of occupation during the early fourth millennium BC (Wright et al. 1975, pp. 131–36, fig. 6). The proximity to the mountains and the fact that the flat portion of the plain became devoid of settlement may suggest the beginning of insecurity in the region.

With the appearance of some Early Susa II (Early Uruk) ceramic forms in the Sargarab assemblage, the area of occupation doubled and a settlement size hierarchy developed (Neely and Wright 1994, p. 173). The well-defended settlement of Sargarab was abandoned, as well as the small farming village of Chakali. Farukhabad began to grow on the plain, next to the Mehme River, with five small villages scattered across the plain. Musiyan—the largest settlement on the plain, occupying a strategic place on the access route to Susiana—however, remained unoccupied until the end of the fourth millennium BC. This suggests that the smaller sites on the plain, with the exception of Farukhabad, may have been seasonally occupied.

A sharp drop in the size of population and settlement number occurred in the following “Middle Uruk” phase, presumably corresponding roughly to Susa Acropolis Levels 21–19 (Johnson 1973, table 7). This phase is recorded on seven sites with about 7.5 ha of occupation (Neely and Wright 1994, p. 175). This phase in Deh Luran is characterized by an increase in the number of grit temper ceramics typical of southern Mesopotamia and Susiana.

The number of occupied sites remained the same in the following Late Susa II (Late Uruk) phase, but the area of occupation was almost reduced to half with about 4.8 ha (Neely and Wright 1994, p. 176). At Farukhabad, the bulk of the local ceramics that appeared on the plain at the beginning of the millennium decreased and the typical lowland Susiana/southern Mesopotamia forms increased, although the size of the repertoire is limited, probably due to the peripheral nature of the site and the region as well as the limited economic function and production requirements at Farukhabad. There is no evidence whether the latter forms were imported or made locally; there is also no evidence of any imported goods in the region. With the sole exception of a badly preserved clay ball (Wright ed. 1981, pl. 16e), a bale sealing (Wright ed.

¹³ Gopnik and Rothman 2011, p. 96, passim, fig. 4.10–13; see also Rothman 2013, p. 79; Matthews 2013.

1981, pl. 16a) and one stamp seal (Wright ed. 1981, fig. 751), all from Farukhabad, the largest settlement in this phase, there is no evidence that Deh Luran was part of the administrative network of either Susiana or southern Mesopotamia.¹⁴

The third millennium BC ushered in new changes in the material culture and settlement system in Deh Luran. The number of settlement sites increased to ten and the area of occupation almost quadrupled to ca. 32 ha (Neely and Wright 1994, p. 178).¹⁵ In addition, four sites that were unoccupied were used as cemeteries. Excavated tombs at Aliabad, one of the cemetery sites, revealed mud brick-lined rectangular chambers with monochrome and polychrome vessels. Both the tombs and the ceramics have their closest parallels in the Diyala region¹⁶ (Wright ed. 1981, pp. 111–24). These tombs may have influenced the architecture of the Early Bronze Age isolated cemeteries discovered by Vanden Berghe in the western valleys of the Zagros (1968, 1970, 1973, 1979). It is very important to bear in mind that such tombs and their associated ceramics are primarily limited to Pusht-e Kuh in the western Zagros region and as such outside the proto-Elamite sphere of interaction.

The unprecedented increase in the settled population in Deh Luran during the ED I–II phase has been attributed to immigration (Neely and Wright 1994, 178). Considering the pottery, typical of Jemdet Nasr and Early Dynastic Mesopotamia, this immigration must have been from Mesopotamia, most probably from the Diyala region, although settlement by the nearby nomadic groups cannot be ruled out. The increase in the settled population and settlement gave rise to another phase of settlement hierarchy with Musiyan (ca. 15 ha), the gateway to lowland Susiana, at its apex.¹⁷

While during the fourth millennium Deh Luran shared some common features in material culture, primarily pottery, with lowland Susiana, this picture changed in the timespan between ca. 3100 and 2800 BC, the zenith of the proto-Elamite phase. While most of the Jemdet/ED I and proto-Elamite ceramic forms were inspired by the previous phase repertoire, they are readily distinguishable in decoration and surface treatment (Alizadeh et al. 2014). There is no trace of Susiana proto-Elamite pottery (figs. 1.7–1.9) in the Deh Luran plain. The same is true of the settlements and Early Bronze Age nomadic cemeteries in the Pusht-e Kuh region of the western valleys and slopes of the Zagros chain. More importantly, there is no trace of proto-Elamite administrative technology in those regions. From this evidence, it is clear that Deh Luran is squarely out of the interaction sphere of the proto-Elamite world and under southern Mesopotamian/Diyala influence.

In the Ram Hormuz region the proto-Elamite pottery is wheel made and invariably tempered with fine and very fine chaff (animal dung?). The assemblage consists of coarse, standard and fine ware, as in the previous phase. All the coarse and the majority of the standard vessels groups have a thin or thick dark core; finer vessels may or may not have a dark core. Some fine cups do not show any inclusions at all, and some coarse and cooking wares are tempered with straw. Prominent forms consist of four-lugged jars, usually with a sharp carination and one or two ridges on the shoulder; spouted vessels; cylindrical and bottle forms with or without nose lugs; low and high pedestal goblets; beaded rim bowls; standard and tall, slender BRBs; and shallow trays. The most characteristic feature of the pottery of this phase is its surface treatment, which is more colorful than that of the Late Susa II. Proto Elamite potters in the Ram Hormuz region, as at Abu Fanduweh (KS-59) in Susiana, commonly applied at least two different colors of wash to the exterior of the vessel (figs. 1.7–1.9); open forms received wash on both surfaces. The wash ranges in color from bright red to maroon to light brown, dark brown and sometimes even gray-brown. The wash is applied unevenly and it is easy to see streaks of wash on the surface. The firing process must have been complicated, as the layers of wash and paint are all baked, suggesting several phases of firing. Apart from the colorful washes applied to the surface of the pottery, vessels with both open and closed mouths are often decorated with white, brown, maroon, or red bands, or a combination of such bands with painted geometric shapes—no human, animal, or floral designs occur.

¹⁴ Wright (2013, p. 13) suggests that during this phase Deh Luran may have been more independent, but still had economic linkage with Susa.

¹⁵ Neely and Wright (1994, p. 178) believe that the majority of these ten sites date not to the Jemdet Nasr, but to the Early Dynastic I–II.

¹⁶ For the Diyala examples see Delougaz 1952, pp. 35–37, pls. 7–15, 52–62; Delougaz et al. 1967, table 1; Forest 1977, pp. 497–99.

¹⁷ Neely and Wright (1994, p. 178) consider Musiyan in this phase as “the center of a small state integrating the villages on the plain, and perhaps the nomadic peoples of the foothills.”

Apart from Susa with ca. 11 ha (Alden 1987, table 28) and Abu Fanduweh with 2 ha (Alizadeh n.d.), the few other sites dated to this phase in Susiana are quite small; the total area of the mounded sites in Susiana in this phase is ca. 17–19 ha (Alden 1987). None of these proto-Elamite sites yielded ceramics other than those typical of the proto-Elamite phase, with the sole exception of Susa, where examples of painted vessels similar to the Diyala, central Zagros, and perhaps Fars have been found.¹⁸ More importantly, this seemingly empty landscape in early third millennium Susiana was the heart of the proto-Elamite administration with contact with Fars, Kerman, the Central Plateau, and the central Zagros valleys.

This vast sphere of interaction came to an end around 2800 BC. The reasons are certainly complex, but one can imagine that the Caucasian interruption of trade with the central Zagros regions and the Central Plateau coupled with the domination of Early Dynastic Mesopotamia in Susiana were major factors. During the Sumerian-Akkadian hegemony in Susiana, the settled population increased relative to the previous phase. By ca. 2400 BC, Susa grew to about 45 ha with 32 scattered sites ranging from 0.2 to 0.7 ha (Schacht 1987). The material culture and written records in Susiana after ca. 2800 BC are primarily Sumerian and Akkadian; nevertheless, unlike late fourth and early third millennia BC southern Mesopotamia, where large numbers of independent towns (Ur, Uruk, Nippur, Lagash, Kish, etc.) pepper the landscape, the regional organization of the contemporary Susiana society is obviously non-Sumerian, with only one very large urban center and very small rural population centers scattered across the plain.

The third millennium BC seems to have been a time of major conflicts between Sumer and Elam. While we need not take at face value the bombastic and propagandist Sumerian and Akkadian claims of major campaigns into the highlands, including Fars, occasional hostilities must have rendered settled life in the Ram Hormuz, as well as in the fertile Behbahan and Nurabad plains, very difficult. To appreciate this situation we need to remember that all these rather marginal plains constitute a natural buffer zone between the lowlands and the highlands and provide the easiest access routes to the intermontane valleys to central Zagros and Fars, the strongholds of Elamite forces. Given the strategic location of the Ram Hormuz plain and its abundant resources, it is feasible that in periods of calm, mobile agro-pastoralist groups did still use the region as their winter grounds and, being mobile, could rapidly withdraw into the mountains when facing an advancing army. In contrast, the Deh Luran plain continued to be occupied throughout the third millennium BC and the archaeological materials excavated in the region clearly place it in the sphere of Mesopotamian influence. Deh Luran is also the only area in southwestern Iran where proto-Elamite pottery and administrative technology is completely absent. Also absent from Deh Luran are examples of ceramics from Godin III, which are found at Susa and some other sites in the eastern sectors of Susiana (Moghaddam and Miri 2007, fig. 11).

Godin III ceramics are found in a number of central Zagros valleys, but are absent from the Pusht-e Kuh region where the ceramics are primarily in the Jemdet Nasr/ED tradition (Henrickson 1987). In highland Fars, the Kaftari ceramics with vague resemblance to Godin III pottery are dominant. The specific spatial distribution of these different ceramics suggests that contact with Susiana must have been through the central Zagros valley, as it was from the beginning of the expansion of Susiana black-on-buff into these regions two millennia earlier.

Shortly after 2800 BC, the entire Ram Hormuz plain became desettled until the beginning of the second millennium BC. In Susiana a period of resurgence of Mesopotamian influence was followed with Early Dynastic and Akkadian political (Carter and Stolper 1984, pp. 11–16) and material domination. There is no apparent reason why Ram Hormuz should have been left unsettled during the domination of upper Susiana by Mesopotamian forces, unless this region was a volatile buffer zone and the theater of the purported numerous military campaigns and confrontations between the Mesopotamian and highland forces, including the early Shimashkians. The major fortification wall around Anshan (Malyan) was erected around this time, most probably in response to the Mesopotamian threat from the southwest through Susiana.

Similar lack of evidence for the centuries after 2800 BC is noted in the Nurabad region, though some evidence of Late Banesh occupation is observed at Tol-e Nurabad phase A6. Nurabad phases A5–A3 and Tol-e Espid phases 17–15 are said to have “clear parallels with Kaftari phase ceramics material from the Kur River

¹⁸ John Alden (1987, p. 16; see also 1982) speculates that “during this phase Susa adopted a new role as a port of trade, a more or less neutral location where exchange between traders from the two neighboring polities could take place.”

Basin” (Potts et al. 2009, p. 178). An examination of the sample pottery illustrated in the Mamasani report reveals, however, that despite some very general resemblance with the Qaleh ceramics (ca. 1600 BC), almost all the illustrated painted pottery have their closest parallels with what is known in lowland Susiana and the Ram Hormuz plain as Sukkalmah transitional painted pottery, and as such hardly have any affinities with the known Kaftari ceramics from Fars, which around 1600 BC was developing into the Qaleh ceramics. This Sukkalmah transitional pottery is also found in the valleys around the Shahr-e Kurd, in the northeast of Ram Hormuz, and ca. 80 km directly north of Nurabad (Rezvani et al. 2007, and figs. 47–51, pls. 3, 15).

SUMMARY

In the absence of written records on the eve of state formation in southwest Asia, changing settlement systems, demographic fluctuation, and the geographic distribution patterns of various classes of ceramics and artifacts are the only tools we have to speculate on the impact of violence, inter-regional and inter-tribal alliances, and competition of the inhabitants of this vast region. It is ideal and necessary to excavate a number of fifth- to third-millennium central Zagros sites to perhaps be able to contextualize some the hypotheses offered here. But this type of undertaking is not possible in Iran at present.

Here and now we can envisage that episodes of organized violence must have led to the development of some buffer zones, which, in our opinion, at various phases of history included the Deh Luran, the Ram Hormuz, and the Nurabad regions. It is only after the defeat of the Ur III dynasty and the appearance of the powerful Shimashki and Sukkalmah dynasties on the political scene that the latter two regions were settled again. Notwithstanding the numerous and contradictory analyses of Elam’s political geography, archaeological consideration suggests the homeland for both these Elamite dynasties was in highland Fars and the central Zagros region where the coalition of numerous tribes finally forged the “federal” Elamite state.

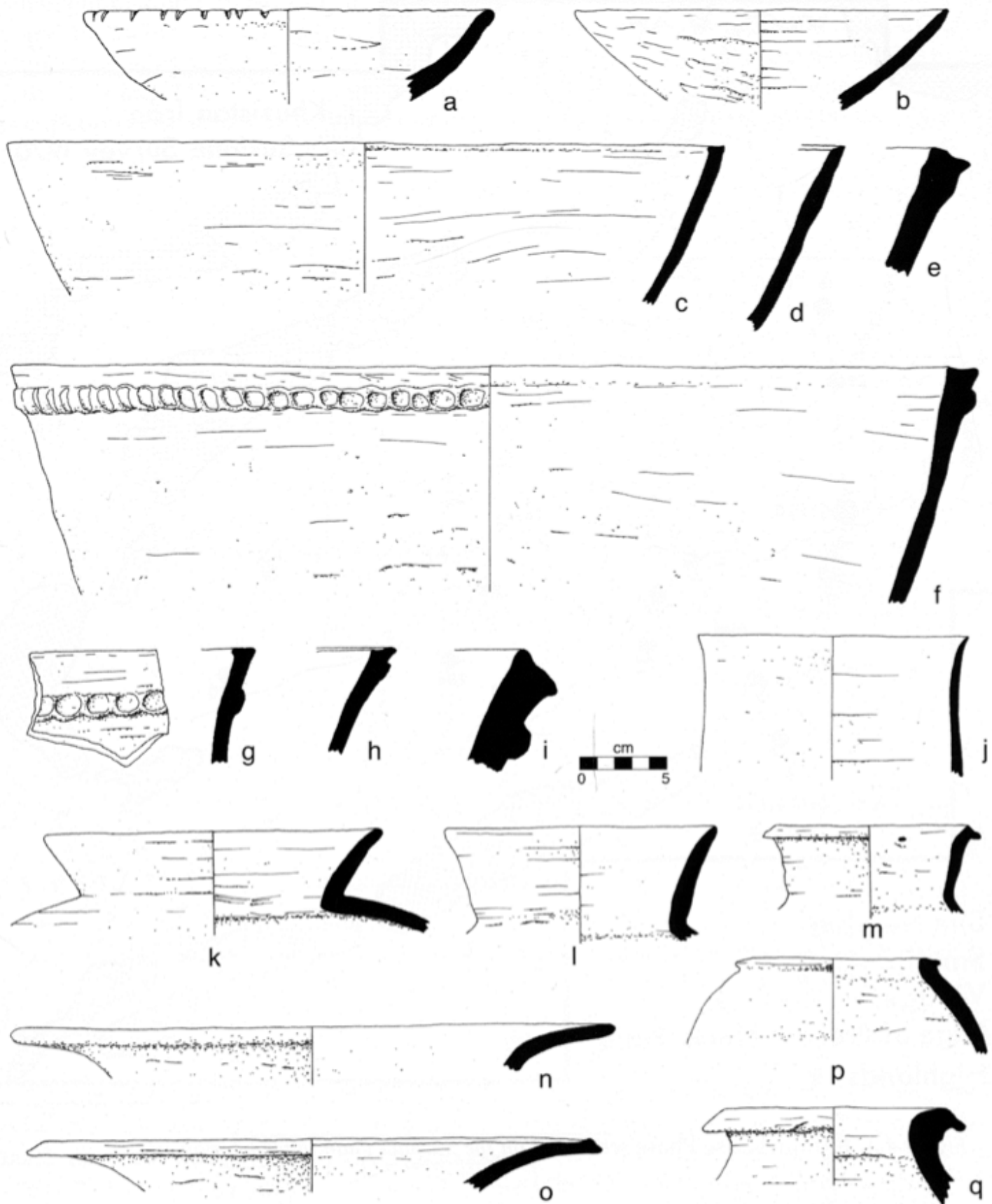


FIGURE 1.3. Terminal Susa phase ceramics from KS-269, Susiana. (After Wright 2013)

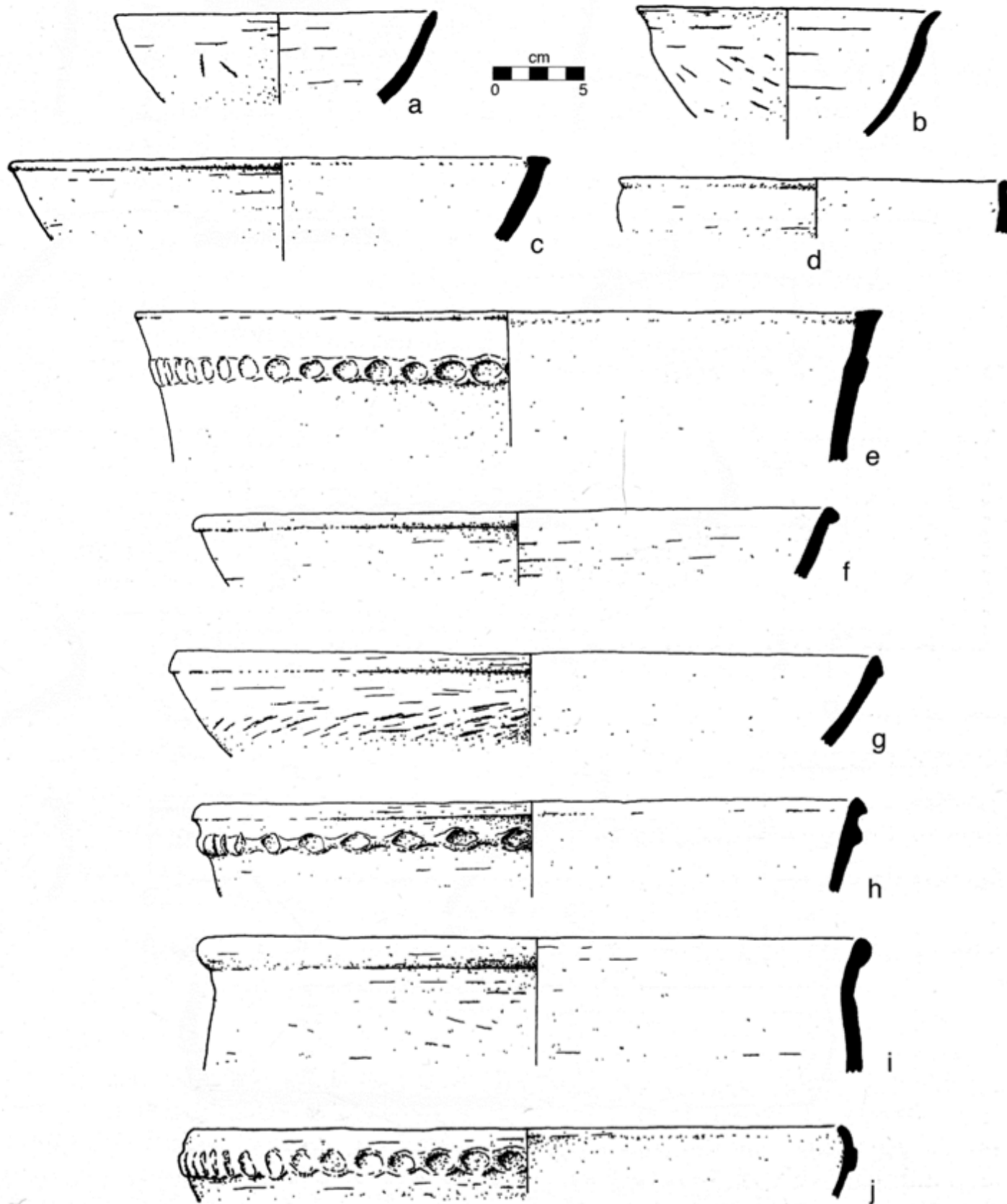


FIGURE 1.4. Sargarab phase ceramics from DL-169, Deh Luran. (After Wright 2013)

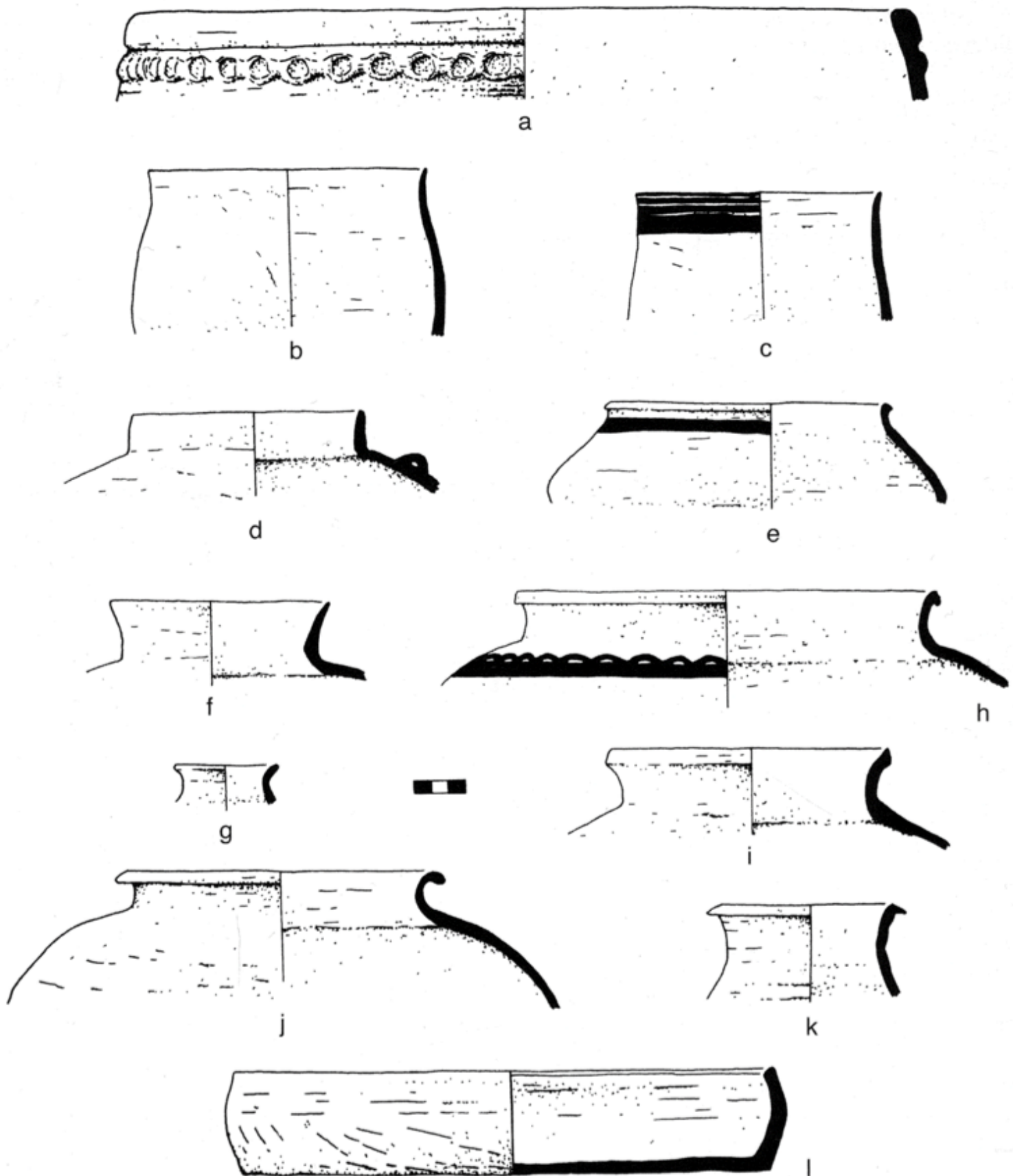


FIGURE 1.5. Sargarab Phase Ceramics from DL-169, Deh Luran. (After Wright 2013)

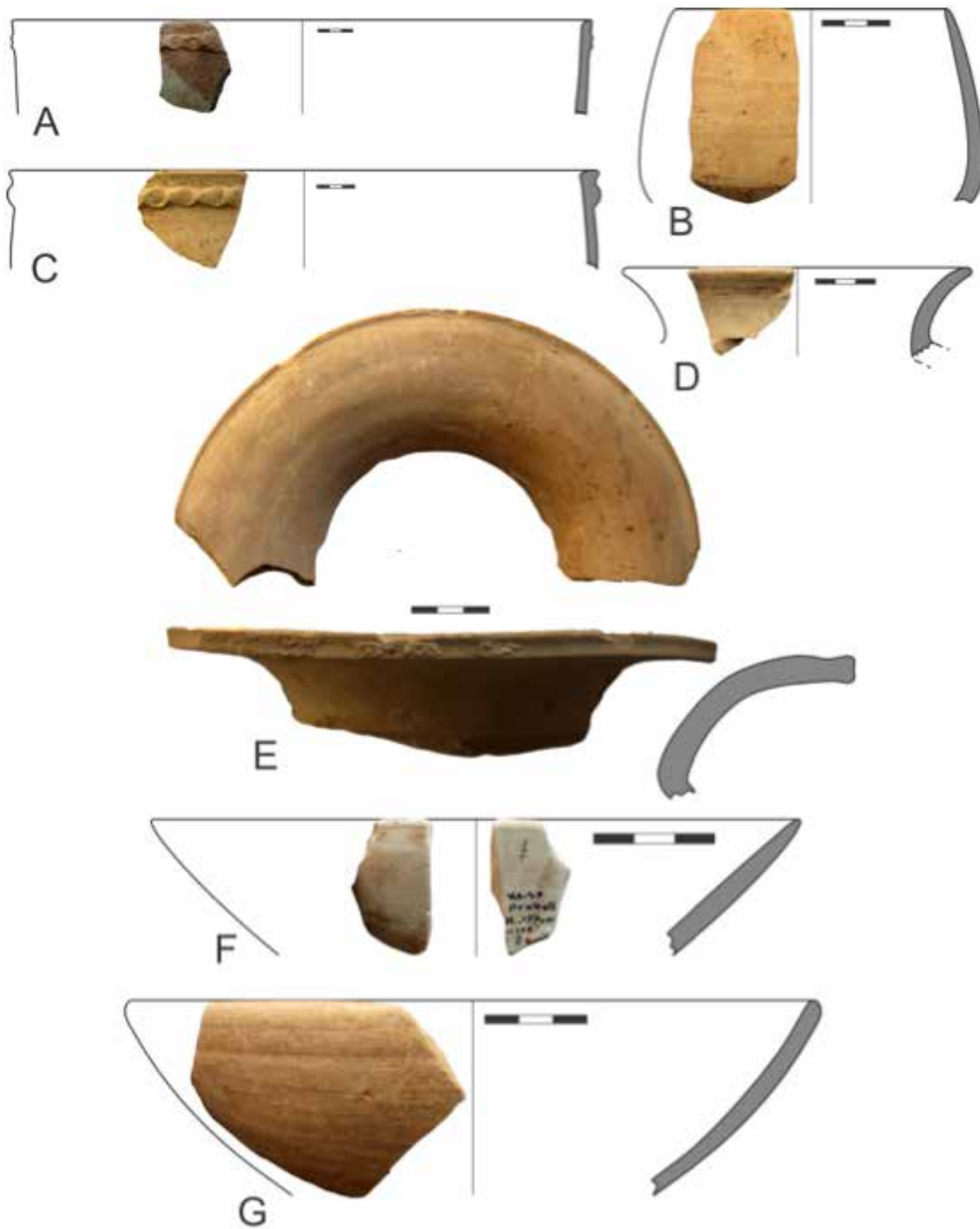


FIGURE 1.6. Terminal Susa phase ceramics from Abu Fanduweh (KS-59), Susiana.



FIGURE 1.7. Proto-Elamite Phase Ceramics from Tall-e Geser, Ram Hormuz.



FIGURE 1.8. Proto-Elamite Ceramics from Tall-e Geser, Ram Hormuz.

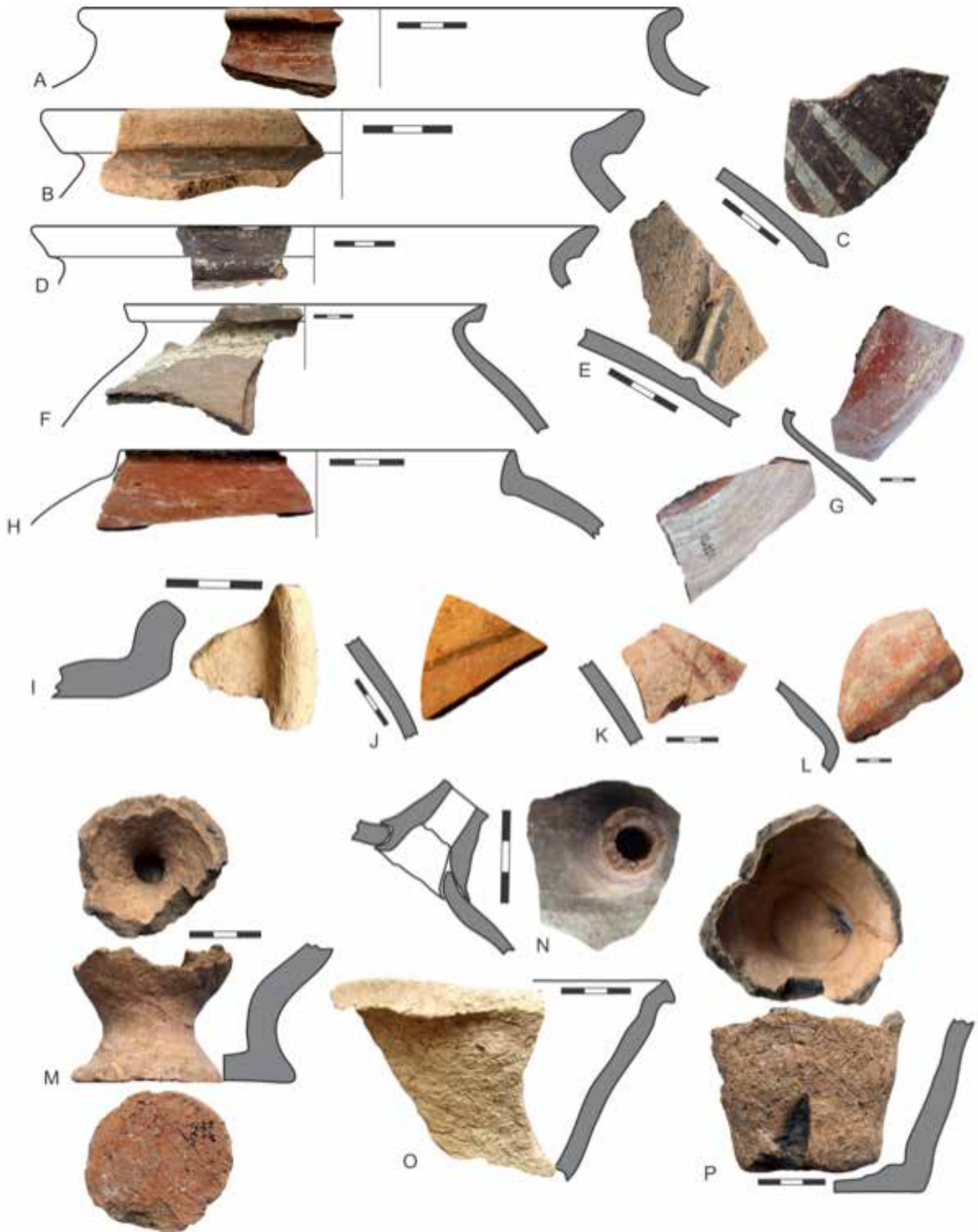


FIGURE 1.9. Proto-Elamite Phase Ceramics from Abu Fanduweh (KS-59), Susiana.

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Style, Üçtepe, 1978. (Drawing by Peggy Sanders)

CHAPTER 2

SPATIAL INTERACTION MODELING AND NIPPUR'S URBAN SIGNIFICANCE IN THE EARLY DYNASTIC PERIOD

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ABSTRACT

This paper applies a spatial interaction entropy maximization (SEIM) model to assess settlement systems and structure in the southern Mesopotamian plain during the Early Dynastic (ED) period, using settlement patterns from the ED I period when Nippur had possibly asserted itself as the dominant religious center in southern Mesopotamia. While Nippur was never the most politically dominant city, it was considered a crucial city that bestowed legitimacy to those wishing to unite Akkad and Sumer. Its population was never the largest, but it did have a substantial number of people living in the city with the site reaching perhaps up to 50–100 ha in the ED. To understand what could have provided some initial advantages to Nippur, including why it may have become significant as a religious center, a model that assesses how political, religious, or other social circumstances affect settlement size patterns and hierarchies, including geography and transport, is introduced. Results demonstrate how a settlement pattern similar to what is known about the ED I emerges in the southern Mesopotamian plain and how Nippur's population and social significance may have developed in such circumstances. Model outputs show how conflict and lack of political integration are likely reflected in the larger settlement pattern, although some ease of movement or transport in the region is needed for Nippur to increase its size and importance.

INTRODUCTION

By the early third millennium BC, the southern Mesopotamian plain had witnessed massive urban growth in a number of centers. While cities such as Uruk continued their growth trajectory from the Late Uruk period, other towns clearly became major urban centers by this period, even though they likely did not reach sizes witnessed at Uruk (Adams 1981) or Lagash (Carter 1989/90). One large and prominent town to consider is Nippur. While the settlement is never known to have been an important political capital of any of the early city-states, the city became an important religious center for the chief god Enlil (Gibson 1993). Certainly this process could have begun even in prehistoric periods, but the site probably achieved its unique religious status in southern Mesopotamia sometime between the Early Dynastic (ED) I and ED III periods (2900–2350 BC). The goal of this paper is to present a methodology that addresses how one could study Nippur's rise as an important urban center using settlement patterns from the ED I (fig. 2.1), when major centers were emerging in southern Mesopotamia, and investigate how Nippur could have developed a relatively high population in relation to neighboring sites' development and interactions.

Methodologies such as spatial interaction and structural dynamic models that apply entropy-based and Lotka-Volterra methods (Wilson 1970; Harris and Wilson 1978; Wilson 2012) have the potential to provide explanations that address why settlements become important or have greater populations within a given

¹ Supplementary data are available at: <http://discovery.ucl.ac.uk/1400959/> (accessed 3/23/18).

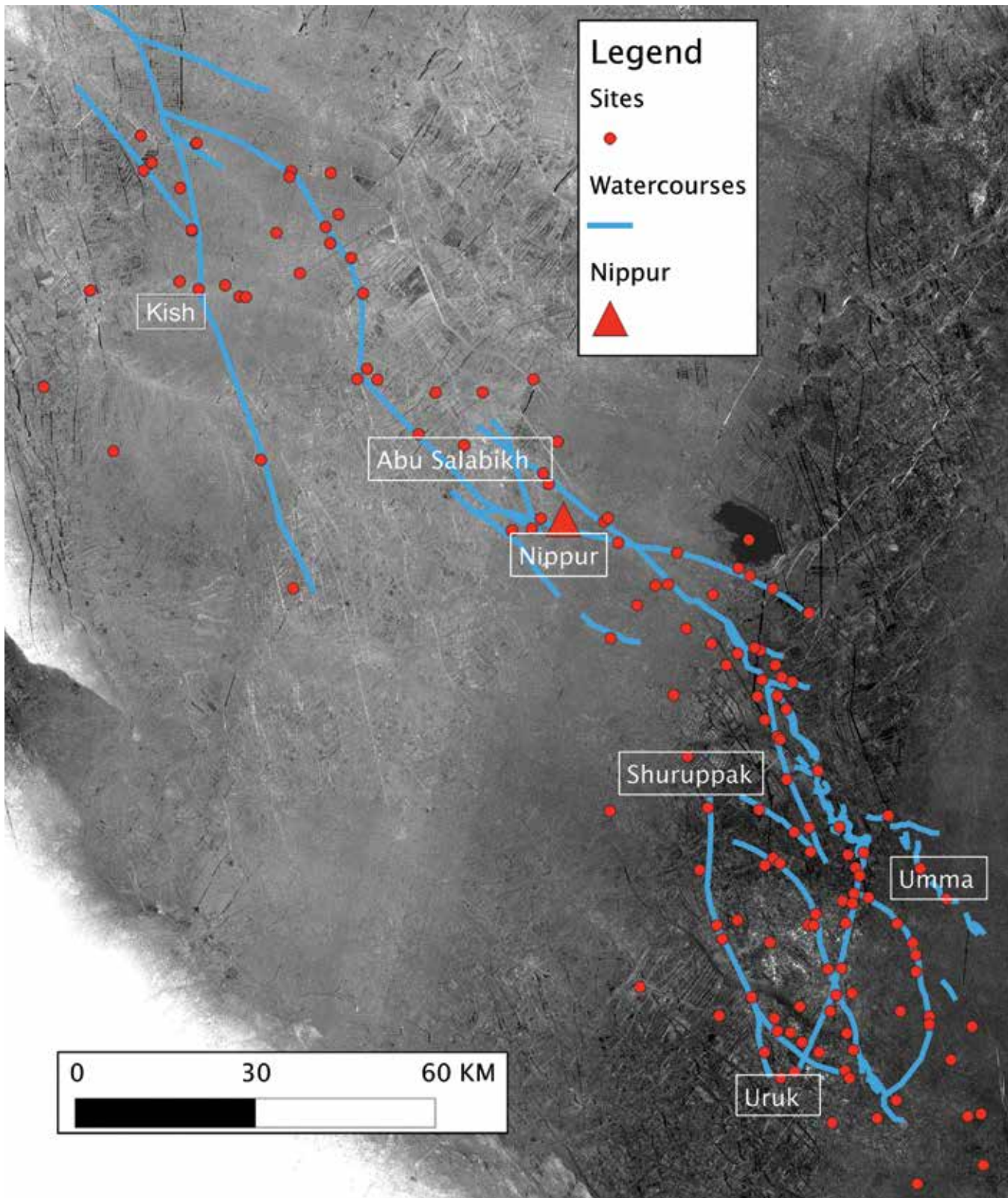


FIGURE 2.1. Southern Mesopotamian sites from the ED I with ASTER (2014) DEM stretched data used as background. (Settlement and watercourse data kindly provided by Dr. Carrie Hritz)

region. Such methods are useful for modern and ancient urban settings and have the potential to address the goal presented for this work. This methodology is particularly attractive in this case because one can investigate a wide range of causal factors, such as ideology or environmental change, in order to understand how settlements transform, even in cases where there is high uncertainty regarding many circumstances that may have led to a city's rise. Furthermore, such models are powerful in providing clear quantitative

explanations of settlement hierarchies, helping to describe urban structure and process. Rather than try to present a method that explores causal factors for every site modeled, the discussion presented here will focus on Nippur and what may have caused it to become a large, although not dominant, center in relation to other sites. Several exploratory scenarios are presented that attempt to address this issue. First, some background data useful for the research approach are given. Then the modeling methodology applied is discussed. Outputs from scenarios that investigate the ED I period are presented, assessing relevant causal factors that lead to settlement structure development and Nippur's population growth. The significance of the model in understanding Nippur's urban development is then discussed, with a conclusion focused on how Professor Gibson's efforts have enabled such new avenues of research to be undertaken.

BACKGROUND

To understand Nippur's importance one only has to look at its religious role, which may explain how the settlement eventually became a large urban center of about 50–100 ha by the mid-third millennium BC. While it is not clear if Nippur's religious significance led to its direct rise, or if its rise led to its religious importance, what is clear is that the worship of Enlil and Inanna at the city enabled it to sustain its religious relevance until at least the first half of the first millennium AD, with the site even becoming the seat of a bishop after the region had begun its conversion to monotheistic faiths (Gibson 1993). In particular, the Ekur sacred precinct (McCown and Haines 1967) was central to the site's religious role, where earth and heaven were seen to be united. This significance had been bestowed on the site by the mid-third millennium BC, but could have begun even earlier (Kramer 1988). It is known that the god Enlil was seen as a god who granted legitimacy to kings and whose temple in Nippur was the most important temple in southern Mesopotamia from at least the third to second millennium BC (Wang 2011).

Additionally, inscriptions from the Inanna temple and the city also indicate this temple's high importance and the city's unique cultural status that lasted for millennia.² Although relatively little is known about the early third-millennium ED I settlement, excavations by the University of Chicago (Hansen 1965), and Gibson and his students after he became director, have demonstrated the increasing relevance of the city in the third millennium. The West Mound, as described by Gibson, is seen as a key area for understanding Nippur's third-millennium rise and earlier phases (Gibson 1975), while McMahon's (2006) work has highlighted the area's utility in demonstrating transitions from the ED to the Akkadian period (2350–2150 BC).

Nippur, of course, did not exist in isolation. To better understand important ED settlements and how they developed around and in relation to Nippur, the surveys conducted in southern Iraq prior to the various conflicts that have shaped that country still make up a critical part of our data for understanding how early cities and towns developed in this region. Sites surveyed in the Akkad (AS; Adams 1972), Kish (KS; Gibson 1972), and Heartland of Cities (HOC; Adams 1981) survey areas provide a unique understanding of how many and the types of settlements in southern Iraq that developed in the ED. For this study, the ED I period's settlements are used, even if Nippur became religiously significant slightly later, as by the beginning of the third millennium BC many sites had become well established and were on their way to playing important roles in later periods. These surveys clearly reveal that the ED was a period of several large settlements for this region, particularly in the region south of Nippur and to the east. Major sites, that may have been 50–100 ha or more, include Uruk, Umma/Umm al-Aqarib, Kish (modern Tell al-Uhaymir), Nippur, and Adab (modern Bismaya), while Lagash rivaled Uruk in size at some point in the ED, and both these sites may have been nearly 400 ha (Carter 1989/90; Finkbeiner 1991). In general, site size is uncertain and often based on very rough approximations; however, these examples do indicate relatively high population at this time in several large urban areas within the southern half of the alluvial plain.

² Hansen and Dales 1962; Buccellati and Biggs 1969; Goetz 1970.

URBAN THEORY

While it is clear that Nippur had been an important and populous religious center for a long period, what is not clear is how this process can begin to be explained in relation to settlement patterns evident by the ED I period. In other words, are there approaches that are suitable to matching theoretical perspectives of urban growth and change, that can help address Nippur's location and possible development by the early third millennium BC, particularly in relation to other sites' growth and change during this period? To this effect, concepts of spatial entropy provide a potential way to address this. Discussions on economic, geographic, and ecological factors that contribute to urban growth are well articulated in the field of urban geography. Huff (1963) applied concepts such as trade, geography, and social incentives that cause urban systems to become more socially significant. More formal methodology was later developed that investigates relationships between population, markets, and the significance of centers in attracting populations from neighboring areas (Wilson 1970). This methodology has been called spatial interaction entropy maximization (SIEM) modeling (Altaweel, Palmisano, and Hritz 2015), where entropy signifies an attempt to explain the structure and distribution of systems based on probability and laws of thermodynamics.

Types of SIEM models (Wilson 1970) have been used to describe a wide range of phenomena, from population distributions in large regions to the location of markets and stores in an urban setting. These models have traditionally taken a form derived from Lotka-Volterra equations (Wilson 2008), which have been used for such things as predator-prey relationships. For this purpose, SIEM modeling is used to estimate likely areas of population growth or decline in geographic locations under conditions of uncertainty, helping to describe urban size distributions and structure in examined regions. Here, we can assess factors of distance, economic or social relevance, such as the importance of the Enlil temple to Nippur, and ability to move across a landscape, to see how these could have affected urban population size distributions. These variables are general, in that they capture a wide range of possibilities for their underlying causal factors—even if the underlying reasons that cause urban distributions to occur is uncertain—while at the same time allowing one to incorporate known qualities such as the significance of Nippur to kingship and legitimacy. This type of modeling allows feedback in population growth between settlements in order to see how urban structures and towns around Nippur, as well as their interactions, could affect the city. In archaeology, publications that have applied similar approaches include recent work by Wilson (2012), Bevan and Wilson (2013), and Davies et al. (2014). In addition to these Lotka-Volterra methods, Altaweel (2015) has applied a bottom-up version (i.e., agent-based model) of the methodology. Overall, an SIEM model could be an effective tool for explaining a given urban location and surrounding towns' relationships to that setting.

METHODS

Methods applying an SIEM model are used here to represent interactions between settlements, with interactions representing both migration and flow of people. The aim of our model is to produce simulations that explain why or how Nippur could have gained prominence, including why it became a relatively large site, and give a picture of the general settlement size structure and hierarchies in the region while Nippur underwent expansion. The key variables in our approach include: α (return of attractiveness of a settlement that increases or decreases a site's relative attractiveness), β (ability to move in the landscape), l (external influences that reduce or enhance a site's attractiveness), X (population, used as a proxy and relative measure for site size, while also being the main output used in scenarios), Z (the attractiveness of a site, which allows sites to have given advantages), and d (distance measured by cost of travel). As sites grow or decline, that growth or decline can have a feedback effect, leading to the site becoming even smaller or larger. The examination of simulation parameters, through evaluation of various parameter settings, are intended to provide insight into the relative importance of individual factors that contributed to settlement growth and change for Nippur and other sites. While natural population growth could certainly affect how cities such as Nippur changed, here we focus on migration to Nippur as a driver of population growth.

In the method applied, α and β have a crucial relationship. One can think of α as benefits or rewards for migrating to an attractive settlement, while β either facilitates or restricts the ability to migrate. High α may

represent a greater reason to settle in settlements that are favorable or attractive, but that desire could be constrained by circumstances such as war, geography, political events, or other factors that limit movement and migration to favorable sites (i.e., higher β represents circumstances that constrain movement). This means that the balance and interplay between these two variables may not be inherently obvious without measuring the settlement distribution and their locations in a given region. Distance, including the cost of moving in a landscape, begins to matter as restrictions to movement become greater, even as benefits of living in an attractive place are high. Furthermore, while this paper focuses on population, this type of approach is also useful to understanding how sites are sustained, as goods that sustain larger and smaller sites could be studied using flow models such as that presented. In other words, rather than people, one can use the variables applied here to study the flow of goods to sites (Davies et al. 2014).³

Sites used for this study were kindly given by Dr. Carrie Hritz, who had located many of the sites using CORONA imagery and has provided estimates of their sizes. The total number of sites used here is 144, which derives from the surveys cited earlier and allow us to look at the immediate context of settlements around Nippur as this settlement transformed. For the work presented here, site data include cost surface matrices for travel between each pair of sites, referenced as d in the model below. This value was calculated using a cost surface method, which accounts for distance and topography, as applied by Fontanari et al. (2005) and through the utilization of ASTER (2014) satellite DEM data. The model takes a similar form to other SIEM models used previously in other contexts.⁴ Below are the variables and model notation used to further describe how the model functions. The Supplementary Data link at the beginning of the article allows one to access the code and data utilized.

KEY VARIABLES

The model has several variables that allow settlement population, which is used as a proxy and representative of relative size in this paper, to evolve during simulation time. The key variables applied in our approach include:

α_j	Return of attractiveness of a settlement that leads to greater or lesser benefits a settlement provides to people, which increases migration to or from a settlement.
β	Ability to move in the landscape, with higher β signifying greater restrictions to movement while lower β indicates relatively easy movement.
l_j	External influences that reduce or enhance a site's attractiveness. This value also helps address edge effects.
X_i	Population, used as a proxy measure of site size and for comparison, at a given site i .
Z_j	The attractiveness or advantages of site j ; this is used to regulate flow.
d_{ij}	The distance (i.e., cost of travel) between any two sites i and j .

In the model, impedance, and therefore restrictions in moving to sites, is represented by β , which incorporates various factors that cause movement to be difficult (e.g., political restrictions, physical barriers, etc.). On the other hand, α 's effect can vary for sites, as its impact could differ based on such factors as distance and location of other sites, local advantages of a site, exogenous factors, and transport limitations. For scenarios, Z (attractiveness) can be a variety of factors, including political, economic, religious (e.g., the temple of Enlil making a site relatively important), or other social and environmental reasons that make a settlement attractive for migration or commerce.

³ Davies et al. (2014) discusses further the applicability and details of SIEM modeling for studying the flow of goods and people.

⁴ E.g., Bevan and Wilson 2013; Davies et al. 2014; Altaweel, Palmisano, and Hritz 015.

The flow (S_{ij}), which is a value used for population growth in this case, between each pair of sites i and j is calculated using the following method, where k is all other sites:

$$S_{ij} = X_i \frac{Z_j l_j^\alpha e^{-\beta d_{ij}}}{\sum_k Z_k l_k^\alpha e^{-\beta d_{ik}}} \quad (1)$$

These flows are summed to give the total incoming flow D_j to each site j :

$$D_j = \sum_i S_{ij} \quad (2)$$

This incoming flow is used to calculate Z_j at the next time step (i.e., $Z_j^{t+\delta t}$), with ε used to control the speed of change and k , a constant, that can be used to scale Z_j :

$$Z_{jt+dt} = Z_{jt} + \varepsilon(D_j - kZ_{jt}) \quad (3)$$

Next, $X_i^{(t+\delta)}$ (i.e., for the following time step) is determined by taking the corresponding $Z_i^{(t+\delta)}$ value, normalized for the total of $Z_i^{(t+\delta)}$ for all sites, and rescaling (n) for sites so that the sum of all $X_i^{(t+\delta)}$ values continue to have the same mean as the simulation start and population is adjusted for the next simulation time for each site (i):

$$X_{it+dt} = n \frac{Z_{it+dt}}{\sum_k Z_{kt+dt}} \quad (4)$$

Then the model goes back to (1) for the next time step and continues until the end of the simulation. In this paper, simulations are run for 100 time ticks; this allows simulations to reach a steady state (i.e., results are stable and do not change very much if the simulation continues).

Modeling scenarios are applied to sites in the survey data referenced. Table 2.1 lists default parameter settings used for the first scenario; other scenarios vary parameters given in this table and variations on these parameters will be discussed. All sites modeled are dated to the ED I period.

RESULTS

Data applied to modeling scenarios, along with the model used, are in the supplementary data link provided. In the following scenario, scenario 1, the values from table 2.1 are applied initially and then modified subsequently. This scenario's results show what the spatial layout and sizes of the southern Mesopotamian alluvial sites appear to be without any factors that give specific sites any advantages. This largely tests the effects of how variations of α , β , and sites' geographic locations affect site growth, without inputs that cause one or more sites to have greater advantages in site growth. Essentially, this tests the advantages of local geography for sites. Scenario 2 modifies values to see how differential attractiveness and exogenous site advantages affect population growth for individual sites. In scenario 3, the test is to see how strong differential treatment and advantages focused on Nippur affect this site and surrounding settlements. For all scenarios, α and β should be interpreted as anything that increases a site's attractiveness or advantages, and hinder or facilitate transport, respectively. As an example, Nippur's religious significance could result in Z being more important for this site with α regulating growth based on this attractiveness, while a high β could indicate difficulty in moving across a landscape due to political conflict or socio-economic pressures that prevent people from easily moving between sites. For exogenous effects (l), this could be any value not accounted for in modeling that has an impact on urban growth, including sites and circumstances outside the model region (e.g., Lagash is a large town that could influence scenarios and is excluded from simulations).

Table 2.1. Initial values used in Scenario 1*

Population (x)	Attractiveness (Z)	Return of Attractiveness (α)	Travel (β)	ϵ	Size Constant (k)	External Influence (l)
1000	1	0.2–20	0.2–20	10^{-5}	1	1

* Data and model applied can be found in the supplementary data link provided.

SCENARIO 1

The first scenario tests α and β and their effects on settlement development in relation to the location of sites. The intent here is to find how important it was to settle in given places using α and the effect of movement in the landscape (β) in influencing overall settlement distribution and sizes that are comparable to the ED I. In other words, what values of α and β may closely match observed results from the surveys cited. To accomplish this, a parameter sweep (North and Macal 2007) is conducted, whereby α and β values (0.2 to 20) were tested at 0.2 increments (see table 2.1 for value ranges).

Based on this, figure 2.2 shows some of the results for different α and β values. In this case, the inputs from table 2.1 are used with α and β for all sites modified by 0.2 until reaching 20. Figure 2.2a (scenario 1a) shows a scenario of low α and β , that is settlement incentive for settling on specific sites is relatively less important and there are few restrictions on movement or migration of people. There could be a variety of reasons that make site settlement less important and enable easy movement across a landscape. Figures 2.2b–c (scenarios 1b–c) show what occurs in simulations when these values are increased. In other words, importance of settlement is made to increase, while increased β leads to greater impedance to movement.

In scenario 1a, what is clear is that the population distribution is relatively even for many sites and much of the population is concentrated in the southern parts of the alluvial plain. This is due to the greater number of sites in this area and higher possibility of interaction, which lead to greater population concentration in the region. In scenario 1b, sites across the alluvium begin to differentiate more in population with still mostly small populations for most settlements. Jemdet Gumrah and site 48 in the Kish survey area are the largest sites, indicating some population concentrations in the northern parts of the alluvium as movement is now more restricted for more northern sites, making it more difficult for interactions between the northern and southern part of the plain and leading to local dominant sites in the northern alluvium. In the central and southern part of the region, sites including and around 189 and 1430 (HOC survey numbers) do have higher population concentrations. In essence, the scenario shows what happens when movement is more restricted and overall settlement becomes more important, with populations now aggregating in fewer areas rather than being more evenly spread across a region. Finally, in scenario 1c, α is high and movement is more greatly restricted as β is increased. This leads to a situation where the most geographically advantageous position benefits the most as movement is restricted but great importance is added to settlement. Site 128, positioned near many sites in the southern part of the plain, is able to take advantage of this and becomes a much larger site than all others. Furthermore, we see a few high volume and strong interactions happening, as restrictions in movement take effect, where movement mostly benefits site 128 or the larger centers. What is clear is that as β increases, fewer overall interactions happen and we begin to see fewer centers emerging. For scenario 1b, sites such as 48 and 1450 become relatively large compared to their neighbors, as their geographic positioning, more restricted movement, and greater importance placed on settlement leads to these sites gaining in population. In the southern part of the plain, with a greater concentration of sites, these factors have an even more dramatic effect on site 128 in scenario 1c, where it captures the surrounding flow (i.e., population movement) and the limited high flow values across the region. Overall, the three scenarios show progressively diminishing flow between sites and more differentiation of site sizes as movement becomes more restricted.

While the results indicate that applying a scenario such as this did not lead Nippur or any other sites that are known to be large in the ED I to become large, they also indicate areas of likely population growth based on location and interaction of nearby settlements. What is notable in scenarios 1b–c is that areas that are near major sites in the ED I did become large in simulations. For instance in scenario 1b, Jemdet Gumrah

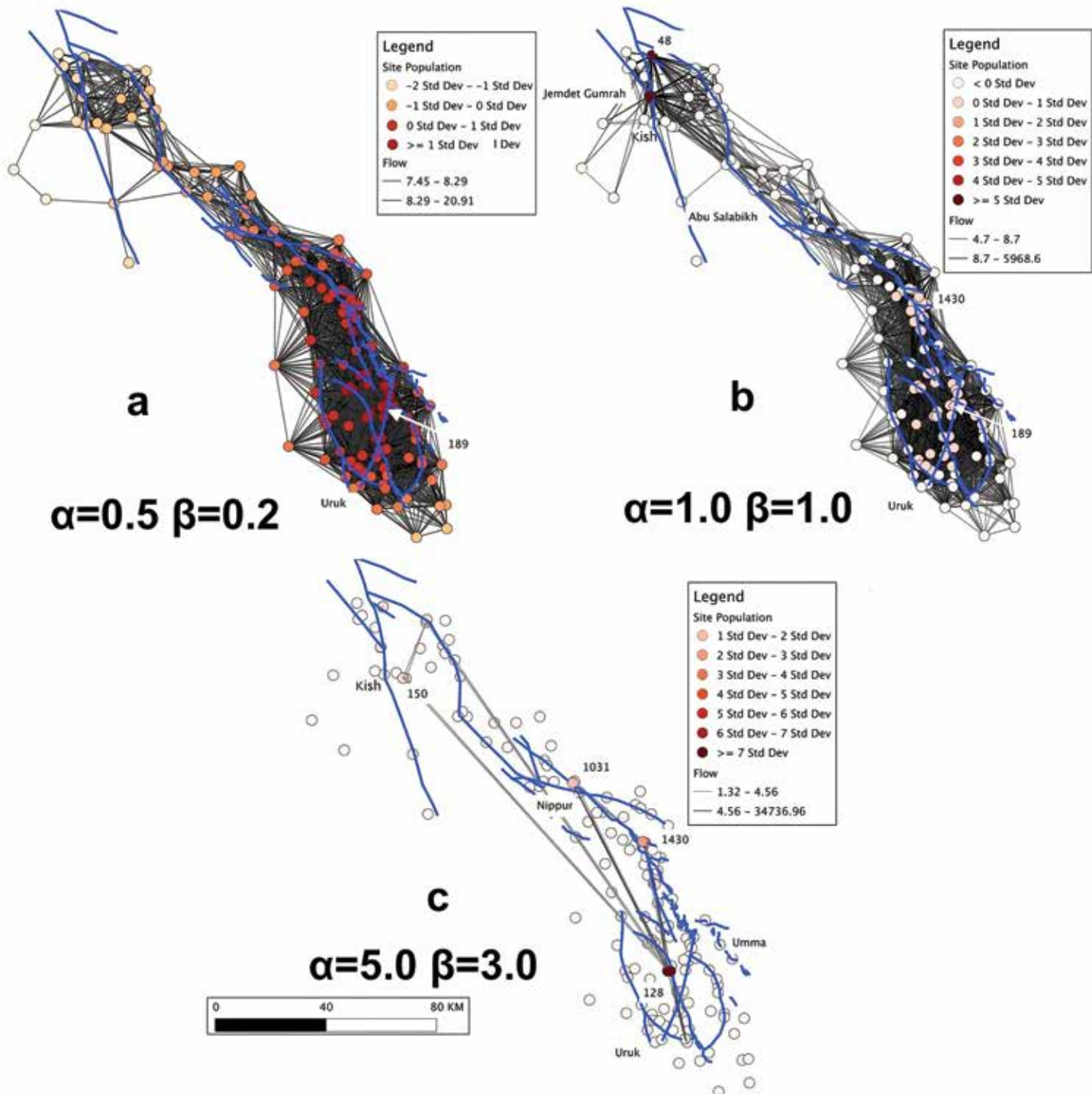


FIGURE 2.2. Results showing a Nystuen and Dacey (1961) modified graph for sites and α and β settings in scenario 1; standard deviation of population is indicated to reflect relative site sizes.

is relatively near Kish, while 189 is somewhat near Umma/Umm al-Aqarib. This suggests that the regions around those sites do have a spatial advantage in local interactions, benefiting from the regional flow of interactions (i.e., a higher portion of interactions). In scenario 1c, site 1031, a relatively large site, is near Nippur. Scenarios 1b-c, therefore, show situations that are more comparable to what is seen or known for the ED I. These two scenarios show that higher attractiveness of settlement at given sites and some restrictions of movement may lead to situations similar to the ED I, with several larger sites across the southern alluvial plain. Importance or advantages of settlement in given places and restrictions of movement are emphasized by flow between sites (S) and simulated population, shown in figure 2.2, which demonstrates how movement becomes restricted and concentrated to fewer areas as α and β increase. Given that these two sub-scenarios

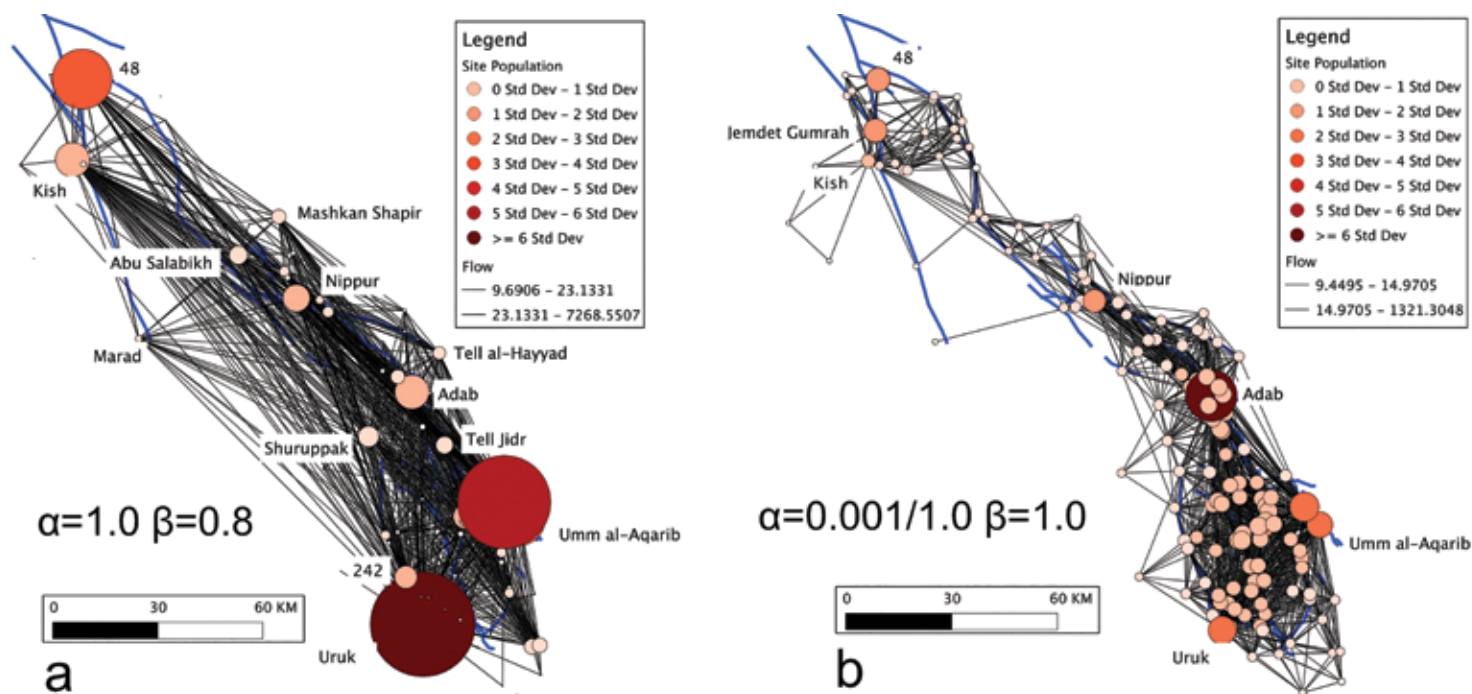


FIGURE 2.3. Southern Mesopotamian ED I sites simulated in scenarios 2a and 2b respectively (a and b). Lines indicate a Nystuen and Dacey (1961) graph. The α values for scenario 2b indicate the default values (0.001) for most sites and values (1.0) used for larger sites, including Uruk, Umma, Umm al-Aqarib, Adab, Nippur, and Kish. Both sub-scenarios delineate relative size of sites using standard deviation and site circle size.

(b and c) show situations more similar to the ED I, the next scenario then explores this further while also determining what variable settings could lead to known, empirically large sites gaining greater populations.

SCENARIO 2

This scenario tests to see at what settings do site attractiveness (Z) and exogenous effects (l) need to be set in order to affect the results so that simulation population, a proxy for empirical site size, replicates something comparable to what is known in the ED I for known large sites. The intent here is to see how factors that differentiate site population, through increased site attractiveness in places, might affect not only larger settlements (i.e., those that are more attractive to settle) but also the surrounding regions' settlements. For example, Nippur gaining religious significance through the Enlil temple and the worship of this god could reflect that site's greater religious importance, potentially leading to greater site population in contrast to other sites. Overall, the values of Z , α , and l for specific sites are varied from the inputs in table 2.1, allowing sites to receive the internal or external benefits given to them that also control for sites and inputs from outside the simulated area. In addition, for this scenario, β is once again varied and all sites apply the same value for a simulation run.

For scenario 2a, site size estimates, as measured from imagery and field survey, are used as input for Z , allowing us to see which sites may have had greater initial advantages or benefits relative to others. Still to be determined are the levels of α and β necessary in order for settlement sizes and distributions to be comparable to the ED I. After testing different parameter settings, in scenario 2a (fig. 2.3a), we see that many of the known larger sites in southern Mesopotamia are now evident when α and β become 1.0 and 0.8 respectively. The population size distribution, based on the log of settlement populations, begins to match more closely what is believed to have existed during the ED I period (fig. 2.4a), assuming population scales, at least somewhat, to empirical site size estimates from surveys.

In scenario 2b (fig. 2.3b), the results do not match as closely as scenario 2a; however, we do see a number of the empirically large sites appearing relatively larger. This time α and β are both 1.0 for the known major sites (Adab, Kish, Nippur, Uruk, Umm al-Aqarib), while α is set to 0.001 for all other sites. The Z factor is equal for all sites. While scenario 2a emphasizes the role of Z , that is, site advantages or attractiveness,

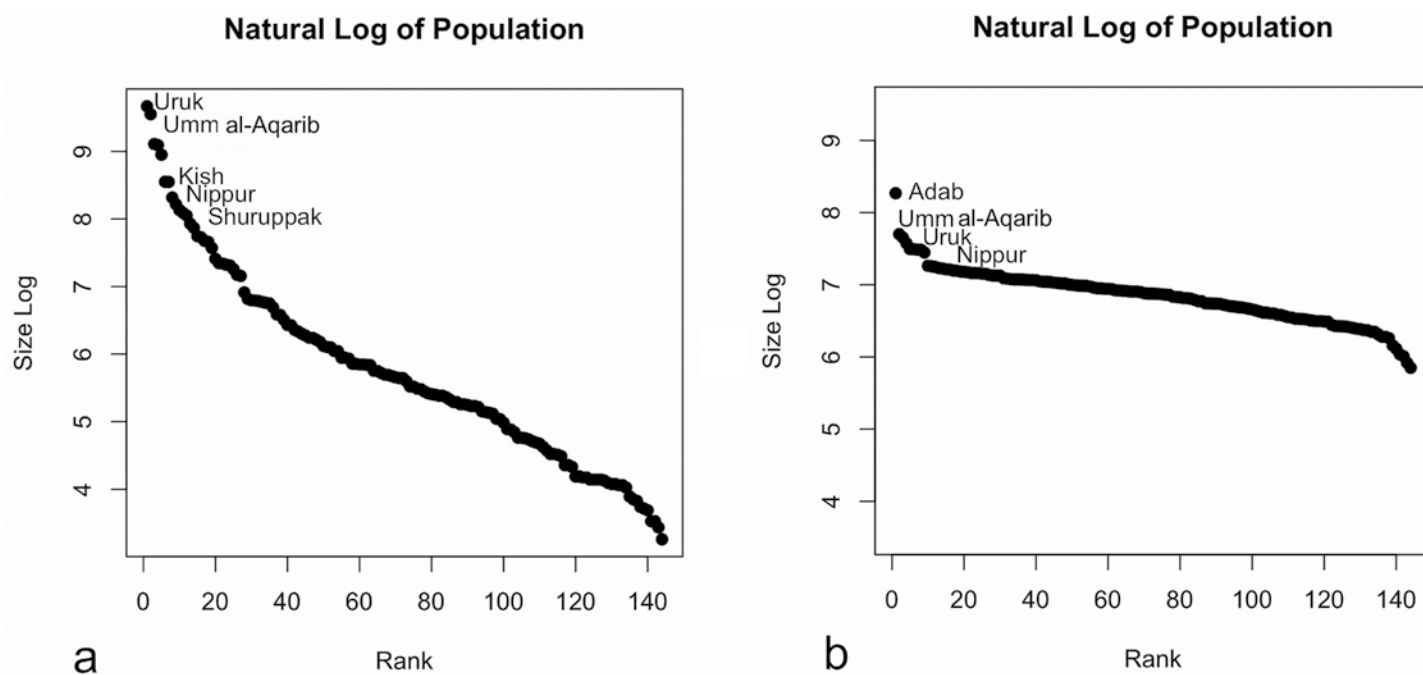


FIGURE 2.4. The natural log of population size and rank of sites from scenarios 2a and 2b (a & b). In scenario 2a, population rank for major sites, including Uruk (1), Umm al-Aqarib (2), Kish (6), Nippur (8), and Shuruppak (12), are displayed, while scenario 2b shows the ranks of Adab (1), Umma al-Aqarib (2), Uruk (3), and Nippur (9).

scenario 2b demonstrates that even if no site had any initial advantages in attractiveness, differential returns to accumulated attractiveness (i.e., different growth rates affecting attractiveness benefits over time) do lead to some of the well-known larger ED I sites becoming relatively larger. While scenario 2b did not reach the same large sizes seen in scenario 2a, it is clear that the scenario did differentiate site populations, with the effect that some sites did gain population—a proxy for size—more than others. Figure 2.4a (scenario 2a) demonstrates that site population differed more between sites than in figure 2.4b (scenario 2b). In scenario 2b, what is relevant is that sites such as Kish, even though they had advantages useful in becoming large, were not able to maintain any size advantages over other sites. However, as noted in figure 2.2b, site 48 in the Kish region seems to always be relatively large, even if it does not have any significant advantages. In general, the southern alluvial plain sites show more interactions, as indicated by flow, which leads to larger sites in this region in all cases. Flow is more restricted in scenario 2b, and in this case population does not increase at high levels, while site attractiveness has a greater influence in scenario 2a's results. Therefore, while not all sites became large in the simulation that were empirically large in the ED I, the results do show that many of the larger sites do in fact become relatively large in scenario 2. Applying l , that is, exogenous reasons for sites becoming more prominent, also lead to similar results observed in scenario 2b (fig. 2.3b). This scenario shows, like scenario 1, that α and β ranges near 1.0, or slightly less (0.8–1.0) for β , lead to results that are comparable to layouts in the ED I, with Nippur and other sites, including Uruk, Umm al-Aqarib, Adab, and Shuruppak becoming larger. However, this means the known empirically large sites may need to have specific advantages in order to enable them to reach population or size levels comparable to the ED I and perhaps beyond.

SCENARIO 3

To test what would happen if Nippur received greater importance relative to other sites, and what this might do to the surrounding region, a scenario that gives Nippur a high relative α value in contrast to other surrounding settlements is applied. This scenario also tests how Nippur's significance might have been balanced or limited by circumstances in order to gain further insight into the settlement structure affecting the site during the ED I. Figures 2.5 and 2.6 show the key results of these scenarios.

Scenario 3a (fig. 2.5a) shows outputs when β remains low (0.2), which allows relatively easy movement to Nippur, while α is also kept relatively low for all sites (set to 1) with the exception of Nippur, set to 5.

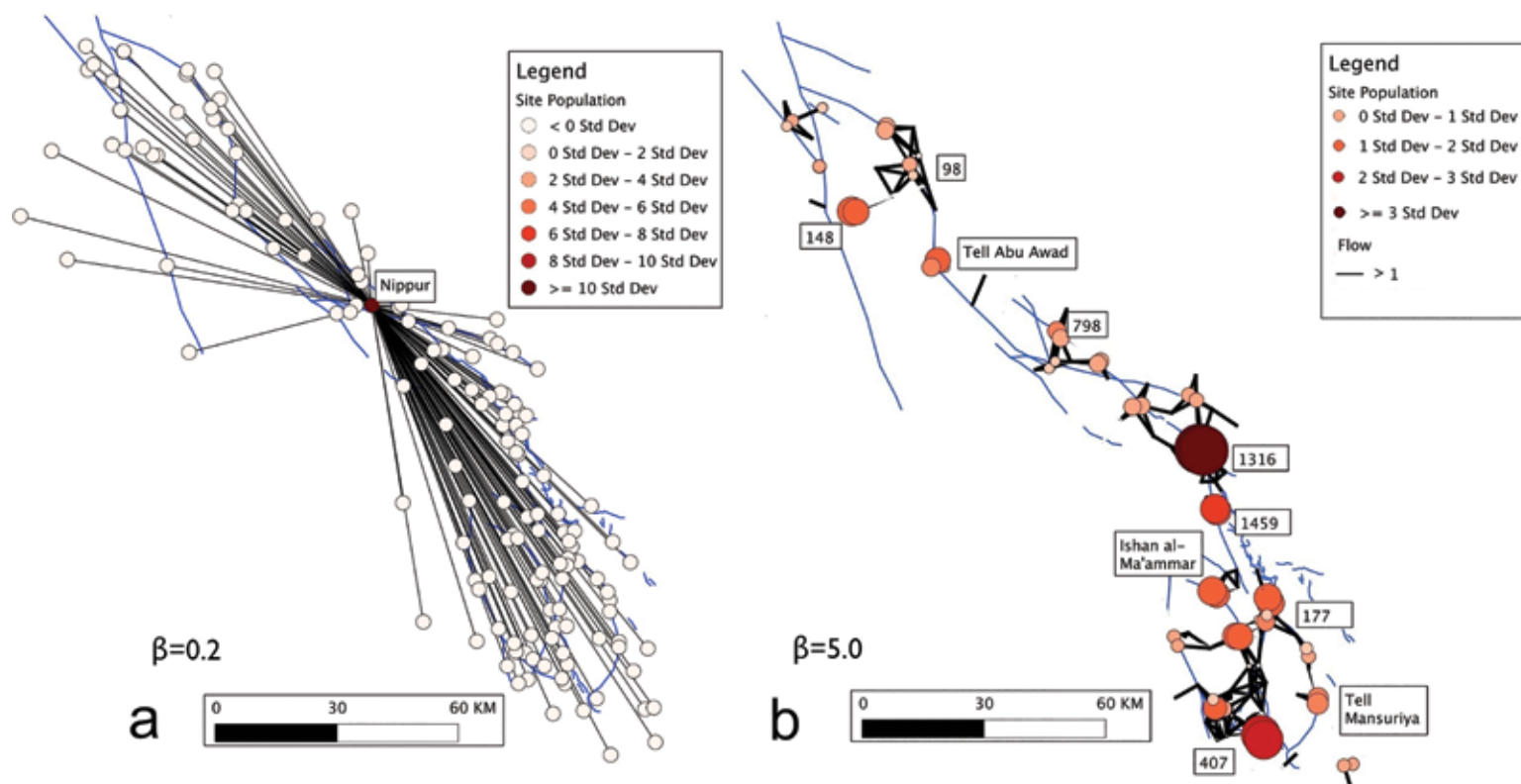


FIGURE 2.5. Site populations at tick 100 when $\beta=0.2$ (a) and 5.0 (b) respectively and $\alpha=5.0$ for Nippur and $\alpha=1.0$ for all other sites. While (a) shows settlement population via standard deviation only, (b) indicates population using standard deviation and relative size of site circles. Flow (S) is given using a Nystuen and Dacey (1961) graph.

This gives Nippur a major advantage regarding its importance, as greater positive attractiveness feedback accumulates to the site. The result is that Nippur becomes much larger than its neighbors, due to its α advantages, while low β facilitates easy movement across the region. With movement made easier and Nippur by far more advantageous for populations to settle in, Nippur becomes much larger, with nearly 55% of the total population of the simulation residing in this settlement and becoming 73 times larger than the next largest site. The interactions, as reflected by flow, are all focused toward Nippur, showing that facility of movement and Nippur's importance drastically diminish other populations and flow.

On the other hand, what figure 2.5b (scenario 3b) shows is that in some cases, particularly when β is high (i.e., at 5), return on attractiveness is not necessarily enough to offset major advantages that sites such as Nippur may have enjoyed in order to enable them to become much larger sites. Although in scenario 3a Nippur's population is vastly larger than the second most populated site, in scenario 3b Nippur only has 63 people out of a starting population of 1000. This is because Nippur is fairly distant from other sites in southern Mesopotamia, which puts it at a disadvantage when transport is more limited. Other sites in this scenario seem to gain much more importance and size due to restrictions of movement, and in some cases they are near known large sites (e.g., site 407 being near Uruk). Based on this, the results suggest that transport needs to be somewhat unconstrained or less restrictive across the region for Nippur to prosper or achieve larger sizes. Figure 2.6 shows the population of Nippur as β is varied. What is clear is that at values greater than 1.6 for β , Nippur's population begins to flatten and decline. When β is 2.4 or greater, Nippur's population begins to approach 0, reflecting a trajectory of abandonment or major depopulation despite it having a high initial importance or attractiveness factor. This demonstrates that importance given to sites via increased attractiveness and some ease of movement are both needed for Nippur to have a relatively high population.

DISCUSSION

In scenario 1, the results show that as α (return of site attractiveness) and β (restriction of movement) increase, specific sites begin to become more differentiated in population and reach levels more comparable to

Nippur Population

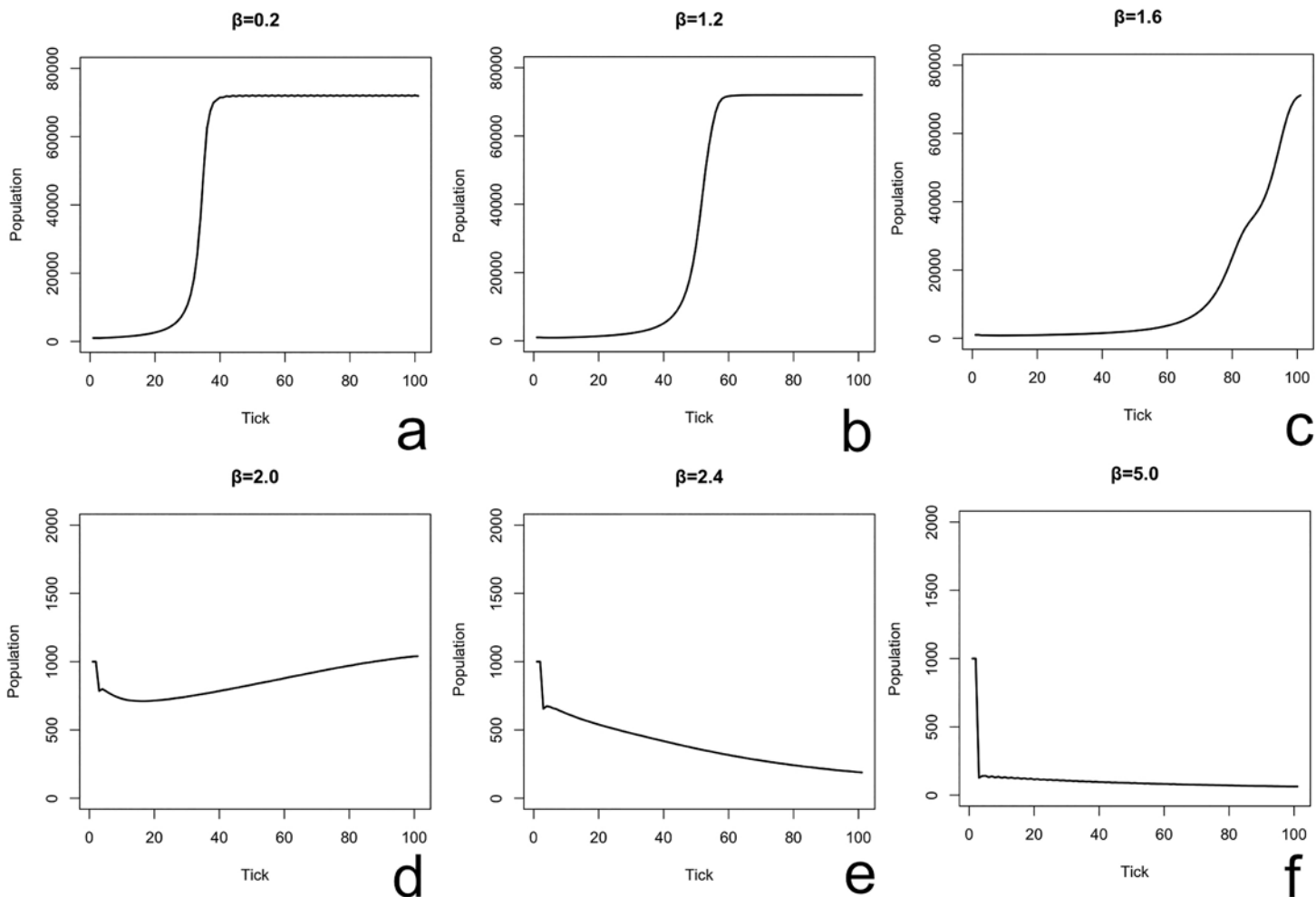


FIGURE 2.6. Population of Nippur when $\beta=0.2, 1.2, 1.6, 2.0, 2.4,$ and 5 respectively (a-f) and $\alpha=5.0$ for Nippur. All other sites are set to $\alpha=1.0$.

the ED period. Initially, low values for α and β result in a much more dispersed population, with no settlement emerging as much larger than others and populations being largely similar. Once α and β are sufficiently large, several population centers emerge that are scattered in the northern, central, and southern part of the alluvial plain. While these sites are not known to be historically very large in the ED I–III, the emerging large settlements were near sites that are known historically to have been politically important or have large populations. For this scenario, the key result is that ranges near or greater than 1.0 for α and β tend to lead to distributions and site populations more comparable to what we know for the ED I. In other words, some importance of settlement is needed with increasing attractiveness, and some restriction of movement allows greater aggregation of population into fewer centers and causes more differences in site population size across the plain.

In scenario 2, manipulating the attractiveness factor (Z), return on attractiveness (α), and exogenous effects (l) for specific sites allows us to find what inputs enable the known large settlements to approach the types of scales and distributions assumed for the ED period. Two types of results were achieved (fig. 2.3). The attractiveness factor (scenario 2a), as regulated through Z , allows sites such as Uruk, Umma al-Aqarib, Kish, and Adab to gain considerable population relative to most sites, if they have higher Z . However, this is only the case when α and β are 1.0 and 0.8 respectively, or values very near that. What is also very critical is that β needs to be at a level where enough movement is allowed or facilitated in the region that multiple sites can be relatively large; much higher β leads sites with advantages to lose their importance due to restrictions in movement, which could be caused by factors such as conflict or other circumstances. However,

some restriction on movement is apparent, which is why population is not more evenly dispersed among simulated sites. Not using Z , and manipulating α or l to differentiate sites (scenario 2b), leads some expected sites to be large (e.g., Adab and Uruk); however, there was less overall differentiation in population than in scenario 2a. This indicates that the attractiveness factor may have a more substantial influence on population size differentiation, via specific settlements becoming important (i.e., the known larger sites), and allows closer agreement between the overall settlement size rank and distribution and the empirical survey data. In both cases, however, Nippur's settlement size rank is close to what is expected. In other words, it is among the larger sites but never the largest. This could suggest that Nippur needs to have greater attractiveness, perhaps due to its religious influence, or increased α , and thus an increase in scaling of attractiveness and return on its benefits (i.e., a positive feedback flow), for the settlement to reach a site size comparable to what is known in the archaeological record.

Scenario 3 is then presented to demonstrate what could happen if Nippur received much more significant importance (e.g., due to its religious/political significance) relative to all other sites and how this affects surrounding sites particularly as the ease of movement (β) is changed. In cases where β is low, such as figure 2.5a, a very large percentage (roughly 55%) of the total population eventually migrates to Nippur. This leaves many of the surrounding settlements small or even abandoned in some cases. On the other hand, once movement is heavily restricted, even the importance of Nippur does not translate into a relatively high population for the settlement. In fact, other settlements in the modeling region, both to the north and south, emerge as larger sites. This reflects the fact that while these other sites might not be as important culturally, movement restrictions prevent Nippur from increasing in population and achieving a high population even if it has all the needed advantages or attractiveness for settlement. Other settlements, therefore, are in a better geographic position to benefit in such cases, indicating that Nippur may have not had a highly favorable geographic position. Figure 2.6 indicates what levels of β , and thus restrictions of movement, allow Nippur's population to increase before it then decreases. The results largely support those in scenario 2, where return on attractiveness or high attractiveness (i.e., increased Z or α) for a site such as Nippur enables it to become large, while scenario 3 emphasizes that it is also critical that movement across the region is not overly hindered in order to allow greater site population at culturally significant sites such as Nippur. In essence, values of Z , α , or l need to be greater for larger sites to achieve greater size, but greater β could offset advantages at sites such as Nippur. Greater β values limit site interactions, with flow (S) constrained, and sites that are more distant from other sites, such as Nippur, begin to lose population.

To translate these results into likely sociopolitical circumstances in the ED I and the ED in general, these outputs could imply that the known settlement distribution and hierarchy in southern Mesopotamia reflect likely political conflict among small states occurring during this time (Yoffee 2005). In essence, the settlement distribution of sites and their site size hierarchy probably reflect a lack of political integration in the region, as suggested by Adams (1981). Conflict could restrict movement to some degree, leading to a greater aggregation of population into several major centers, similar to the simulated and empirical results. This could be reflected by β values around 0.8–1.0 or greater and scenarios such as scenarios 1b and 2a. However, movement between sites is still somewhat facilitated and not overly hindered since we see Nippur reaching population levels that could have been difficult to reach without some ease of movement. In other words, despite the conflict and uncertainty associated with the ED period, Nippur could have been exempt in its regional access, or conflict was not so severe as to restrain movement to this center. What does seem evident is that Nippur's geographic position is not completely ideal, but its social significance could have provided additional benefits. Greater importance put on Nippur, either by outside powers or factors from within the city, and a fair degree of access to the site, could enable it to reach a larger size. This attractiveness could take the form of religious or political responses that made the site relatively important, but enabling a larger population, perhaps in support of major temples at the site, would have required fewer restrictions on movement, to allow migrations from more distant areas to contribute to Nippur's population and economy. Despite potential political unrest in the ED period, or early and mid-third millennium BC, movement and access to Nippur may have been somewhat unfettered, enabling the site to attain its religious prominence. Conflict and lack of political integration may be reflected in the larger settlement pattern, as seen in the results, but

some ease of movement is needed in the ED period for Nippur to increase its size and social importance. This could reflect Nippur's special status that enabled people to access the site even in times of conflict.

CONCLUSION

The model outputs demonstrate the role of regional geography and how social factors can be studied to understand Nippur's development in the third millennium BC, using the ED I period as a likely starting point for the site's rise. While clearly the modeling approach can only be valid relative to the types of input incorporated, what the results begin to demonstrate is how Nippur could have evolved into an important religious center and had a relatively high population given the settlement's surroundings and geography, and the cultural influence ascribed to it, where results can be interpreted in light of known events occurring during the third millennium. The model presented here is intended to offer a useful technique for explaining a fairly complex process without knowing the full range of empirical evidence or information that accounts for Nippur's population change. With few variables employed, a generalizing approach can be used to test the implications of a site becoming, for example, more attractive for settlement due to social qualities. The method employed here enables scholars to account for missing empirical data, and to explore and generalize socio-environmental effects on settlement dynamics; it is also possible to assess outputs to see how well they match archaeological data.

Professor McGuire Gibson ("Mac") has obviously contributed greatly to our understanding of Nippur. Mac's earlier contributions focusing on Nippur's western side have enabled knowledge about third-millennium Nippur that would have been largely unknown to us. The results from this study have supported Mac's earlier suggestions on the importance of migrations and movements of people to Nippur in light of its religious and cultural significance (Gibson 1993). This is exemplified by Dr. McMahon's (2006) published thesis. His survey of the Kish region has also added sites to the approach applied here that would have otherwise left a major void. The survey conducted in that region is all the more impressive given the difficulties working in southern Iraq; compared to today's archaeological surveys it was impossible during the time of the Kish survey to utilize high resolution satellite data. Continuing Mac's work and further elucidating our knowledge of southern Mesopotamian in the early third millennium BC will, therefore, potentially significantly improve not just our knowledge of Nippur but also other sites' development and population change during this important period of cultural transition. Furthermore, a landscape and regional approach to settlement provides perspective that Mac has utilized in seeing the place and significance of Nippur. The methods applied here reflect this type of regional understanding in trying to contextualize Nippur's setting.

More recently, Mac was a PI on a major National Science Foundation grant that enabled modern modeling and simulation approaches to be applied to southern Mesopotamia. It was under this grant that I first learned about the methodologies that eventually led to this work. Mac's impact can be measured from the data which he has directly collected, to the work he has inspired in his students through grant success and enumerable discussions. His encouragement in applying methodologies that enlighten our understanding of the early social complexity that arose in southern Mesopotamia is all the more significant in an age when many sites in southern Iraq have been heavily damaged or destroyed. Mac's influence on his students, through his success in training a large number of accomplished scholars, and his studies have facilitated a new generation of scholarship that has greatly enhanced not just our understanding of southern Mesopotamia but other regions throughout the ancient Near East.

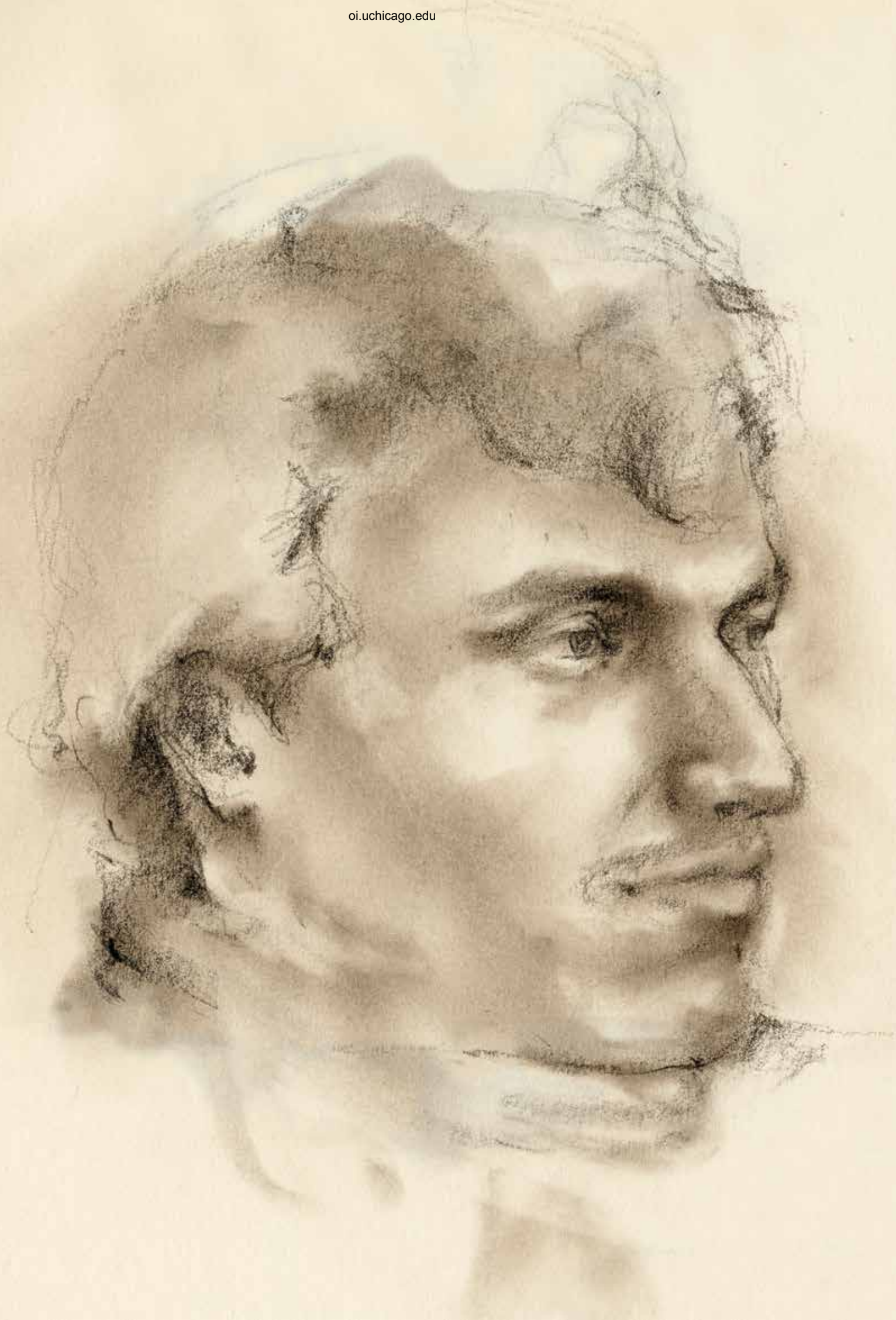
ACKNOWLEDGMENTS

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Jesper Eidem, Üçtepe, 1978. (Drawing by Peggy Sanders)

CHAPTER 3

ASSYRIANS IN NIPPUR

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Independent Scholar

ABSTRACT

The Babylonian city of Nippur served as an important outpost of Assyrian power in the seventh century BC, and the city was controlled closely by the Assyrian monarch, particularly during the reign of the last powerful Assyrian ruler, Ashurbanipal. From the surviving texts it seems clear that Assyrians were living in the city, especially during the latter half of the seventh century. In this paper the archaeological traces relating to both the presence of Assyrians in Nippur and the larger Assyrian impact on the city are examined. Several types of evidence are considered, including architectural remains, burial practices, pottery, and bronze fibulae. These materials make it clear that Assyrians were present in the city and that Assyrian goods were accepted, used, and imitated by the local population, as well.

INTRODUCTION

By the middle of the eighth century BC, Nippur was coming back to life, after having lain dormant for more than four centuries. Toward the end of the thirteenth century the Euphrates had apparently abandoned the central alluvium, including the region around Nippur.¹ That loss of water, exacerbated by a long-term regional drought in the eleventh and tenth centuries (Neumann and Parpola 1987), had laid the city low. The settlement had almost disappeared during this dark period, though some people had apparently still clustered around the Ekur (Gibson 1992, pp. 46–48, fig. 8). By the eighth century, though, the water had returned, and the city was beginning to grow again.

A vivid picture of life in this eighth-century city is provided to us by the Early Neo-Babylonian governor's archive from Nippur. This archive consists of 128 inscribed tablets that had been used as packing around a burial jar in Area WB. They were excavated in 1973.² No fewer than 113 of the texts are letters. They reveal that in the middle of the eighth century Nippur was on the Babylonian frontier, surrounded by Aramaean and Chaldaean tribes. It was at once an enclave of Babylonian culture and an important tribal center (Cole 1996a, pp. 17–21). Concerning the return of river water to the Nippur region, a letter in the archive speaks of having a boat bring sacrificial animals to Nippur, apparently from Babylon (Cole 1996a, p. 16, n. 63, pp. 89–90, no. 17:37b–41); another refers to as many as 300 men digging new canals or dredging existing ones (Cole 1996a, p. 16, n. 63). Nippur prospered in this setting, serving as an important market center for the wool and textile trade (Cole 1996a, pp. 20–21).

* This paper is dedicated to McGuire Gibson, who introduced me to Iraq and to the archaeology of Mesopotamia. As my mentor he has shaped my approach to handling archaeological data by insisting that I keep my eye on the big picture while never neglecting the details. I offer this contribution as a token of my gratitude and appreciation for the interest he has shown in my career, and the guidance and support he has offered at every stage.

¹ Armstrong 1989, pp. 210–18; Cole 1996a, pp. 13–16; Brinkman 1984b, p. 175.

² Gibson et al. 1978, pp. 72–73 and figs. 49, 52.1a–1c, 53.1–2; Cole 1996a; Cole 1996b.

Archaeological finds show that around the middle of the eighth century the city grew beyond the environs of the Ekur for the first time in over 400 years, as Tablet Hill, to the southeast of the temple area (Areas TA and TC; see fig. 3.1) was again occupied (Armstrong 1989, pp. 165–67).

In the second half of the eighth century, Assyria was also growing again and was beginning to reach into southern Mesopotamia. The newly revived Nippur, along with the rest of Babylonia, was drawn more deeply into the affairs of the Assyrian Empire. As Steven Cole has made clear, Nippur, filled with a mixed population of Babylonians, Chaldeans, Aramaeans, and Arabs, was a highly attractive prize to the Assyrians in the late eighth and seventh centuries (Cole 1996a, pp. 22–44, 75–78). The city was a major trading center and therefore economically important. Because it was a frontier outpost on the border between urban Babylonia and the normally anti-Assyrian Chaldeans (Brinkman 1984a, p. 80), Nippur was politically and militarily significant as well. The Assyrians therefore tried, though not always successfully, to keep the city under their control (Cole 1996a, pp. 75–78).

The two kings most involved in internal affairs at Nippur were the seventh-century monarchs Esarhaddon (680–669 BC) and Ashurbanipal (668–627 BC). Esarhaddon repeatedly removed and replaced the governors of Nippur and sent officials from Assyria to watch over them and to try to keep them loyal (Brinkman 1984a, p. 80, n. 390; Cole 1996a, p. 75).

In spite of Nippur's rebellious character, or perhaps to win over its citizens to their side, the Assyrians invested significantly in the city's major religious institutions. Esarhaddon undertook to repair the Ekur, though the extent of his operations is unknown, and none of his work has been identified in the excavations. There are inscribed Ekur bricks out of context³ and a barrel cylinder inscription recording the work that was carried out (Civil 1974).

Esarhaddon completely rebuilt the Inanna Temple, which was the first renovation of that temple since the thirteenth century. His rebuilding is almost certainly Level I of the Inanna Temple excavation. Only a small portion of the northwest wall of Esarhaddon's temple has survived, because the builders of the Parthian version of the temple removed almost all of the seventh-century remains (Zettler 1992, pp. 49–50).⁴

Like his father Esarhaddon, Ashurbanipal also faced the problem of disloyal governors at Nippur. In about 664 BC, the governor Nabu-šuma-ereš allied himself with the Aramaean Gambulu and the Elamites against the Assyrians. After the rebellion was put down by Ashurbanipal, the governor avoided the king's wrath only to die of natural causes. In an act of ritual retribution, Ashurbanipal had the governor's sons crush their father's bones in Nineveh eleven years after the revolt.⁵ Nippur rebelled for the last time in 652 BC, when it sided with Šamaš-šuma-ukin against Ashurbanipal in the Great Rebellion, but it did not maintain its independence from the Assyrians for long. The city was already back in Assyrian hands by the eleventh month of 651 BC (Brinkman 1984a, p. 97).

From that time until sometime after the sixth year of Sin-šar-iškun (Brinkman and Kennedy 1983, p. 57, nos. O.40, O.41), Nippur remained under the direct control of the Assyrian crown. This was in contrast with the other cities of Babylonia, which were made subject to Kandalanu, the king of Babylon. All transactions written in Nippur were dated according to the regnal years of the Assyrian monarch Ashurbanipal (Frame 1992, pp. 192–93; Cole 1996a, pp. 78–80). Assyrians were deeply involved in the institutional life of the city (see below for Ashurbanipal's reconstruction of the Ekur). Additionally, there is a reference to the temples of the Assyrian king at Nippur (Waterman 1930–36, pt. 2, p. 246, no. 1074: obv. 5). Officials in the service of the Assyrian king would take loyalty oaths in front of the images of the king's gods in the city (Waterman 1930–36, pt. 1, p. 136, no. 202: rev. 5). An Assyrian garrison may have been installed in Nippur (Frame 1992, pp. 193, 200; Cole 1996a, p. 79). Even if there was no permanent garrison, the city clearly served as an important Assyrian stronghold in southern Babylonia, and we can assume that a number of Assyrians were living in the city in the latter half of the seventh century.

It may have been during the post-rebellion period, when Nippur was tightly under his control, that Ashurbanipal refurbished the Ekur, though, in fact, we do not know when this renovation took place, and it could

³ Zettler 1992, p. 50, n. 42; Peters 1897, Vol. 2, pp. 375–76 and pl. 1 (facing p. 374).

⁴ See Goetze 1963 for Esarhaddon's description of his work at the Inanna Temple.

⁵ Luckenbill 1926–27, Vol. 2, pp. 328–29, par. 855, p. 335, par. 866; Brinkman 1984a, pp. 87, 92.

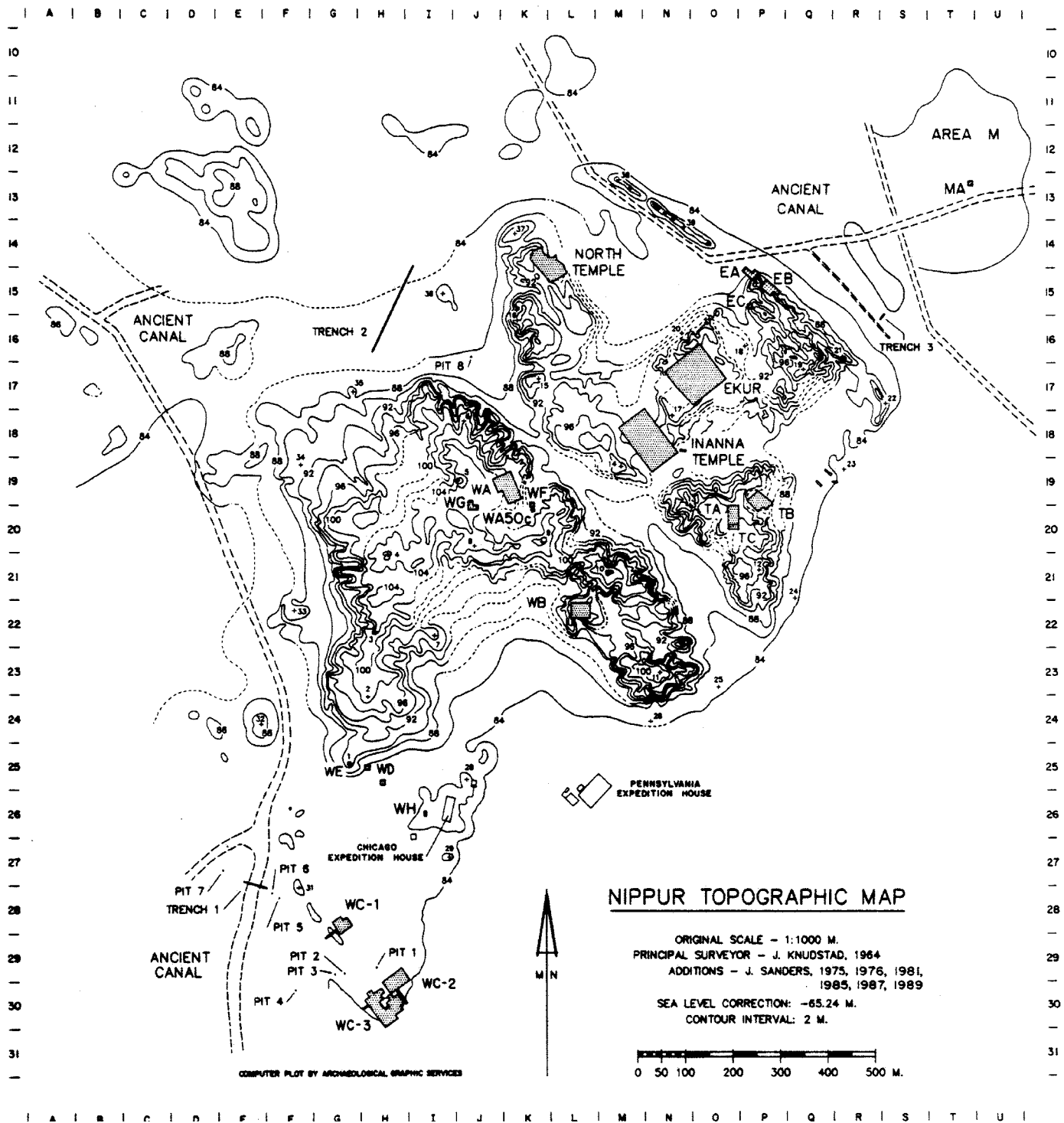


FIGURE 3.1. Nippur topographic map.

have occurred earlier in his reign. He encased the ziggurat in baked brick, based on the stamped bricks still in situ there, and rebuilt the Egigunû, the temple at the top of the ziggurat (Gerardi 1989). The baked-brick walls of this shrine may have been faced in green glaze.⁶ If this was indeed the case, then we can perhaps understand how it was that Ashurbanipal made the Egigunû “shine like the day” (Gerardi 1989, p. 210, line 18).

⁶ Nothing of the Egigunû has survived, but green-glazed bricks were found among piles of baked bricks heaped around the base of the ziggurat, many of which bore inscriptions of Ashurbanipal. The bricks were thrown down from the ziggurat probably by the Parthians, who refashioned the ziggurat into a cruciform platform for a fire temple and converted the area of the Ekur into a fortress (Peters 1897, Vol. 2, pp. 151-52, 157).

Ashurbanipal also rebuilt the so-called Enlil Temple alongside the ziggurat. Numerous bricks bearing his stamped inscription were found in Floor 2 of Level II of the temple (McCown and Haines 1967, pp. 18, 27).

Under Ashurbanipal, Nippur continued to prosper. It was during this period that the city grew to its largest extent in the first millennium, almost as large as it had been in Ur III times (Gibson 1992, pp. 48–49, fig. 9). Remains of a short-lived occupation at the southern corner of the city have been excavated in Area WC-2, where several buildings have been uncovered (fig. 3.1; Armstrong 1989, pp. 23–47). The lower of the two excavated levels in Area WC-2, Level II (fig. 3.2), must date to sometime during or after the middle decades of the seventh century, based on the presence of a fragmentary tablet bearing the damaged date Šamaš-šuma-ukin ʿyear 14(+)' (Brinkman and Kennedy 1983, p. 36, no. K.152) and a fragmentary brick bearing Ashurbanipal's Ekur inscription in Locus 162 of Building B (Armstrong 1989, pp. 31–32). A second Ashurbanipal Ekur brick was found lining the well or vertical drain in the courtyard of Building C (Locus 191), also in Level II (Armstrong 1989, p. 42). Level I, which follows, extends into the early part of the sixth century, based on its pottery (fig. 3.3; Armstrong 1989, p. 305, fig. 60).

EXCAVATION AREAS AT NIPPUR

In the following sections I shall be concentrating on material from several excavation areas at Nippur, Areas TA and WC-2, and the North Temple/Sounding E. These can be located on the topographic map of the site (fig. 3.1).

Area WC-2 was introduced above. In Area TA on Tablet Hill southeast of the ziggurat, early first-millennium levels were uncovered (McCown and Haines 1967, pp. 69–70). However, when the adjacent Area TC was excavated, it became clear that there were problems with the published stratigraphy of Area TA (Gibson 1984; Armstrong 1989, pp. 47–53). I addressed these concerns in my dissertation and proposed changes to Area TA's published stratigraphy (Armstrong 1989, pp. 100–74). I have used the revised stratigraphy of Area TA in this study and show the plan of Area TA III* Early (fig. 3.4; also see note 24 below), which is to be dated to the late seventh century. Above this level, Level TA III* Late can be dated to the sixth century (*ibid.*, p. 305, fig. 60).

Sounding E is the designation given to the upper levels of the North Temple excavation (McCown, Haines, and Biggs 1978). Of interest here is a burial in Level III, to be discussed below. Level III can be dated, at least in part, to the sixth century, based on the pottery and a tablet from the reign of Nebuchadnezzar II (4NT 23; McCown, Haines, and Biggs 1978, p. 48).

Objects from the seventh- and sixth-century levels of these areas are the primary focus of this study.

ASSYRIAN SHAPES IN NIPPUR: VESSELS, BATHTUB COFFINS, AND FIBULAE

Two vessels stand out from the surrounding pots on the plates of McCown and Haines 1967: a bowl (pl. 100:17; field no. 2N 880) and a beaker (pl. 102:15; 2N 1020). They were found in early first-millennium burials in Area TA at Nippur and are illustrated here as figure 3.5, nos. 1–2.⁷

The bowl has a thickened, grooved rim (sometimes called a ribbed rim), a profile that turns sharply upward, vertical sides, and thin walls. It also has a low ring base, which is virtually unknown at Nippur among the small bowls of this period. The diameter of its rim is 19.4 cm. The beaker, 18.5 cm high, is exceptionally elegant in the context of early first-millennium ceramics at Nippur. It has an everted rim, a tall neck, an inverted piriform body, and a small button or nipple base. Its walls are thin, between 2–2.5 mm thick. Both

⁷ As I begin my discussion of pottery and bronze vessels from Nippur, making comparisons with examples from Assyria and elsewhere, I need to be clear that the Nippur examples introduced here have not undergone high tech analyses (e.g., microprobe or XRF analysis) to determine their composition. Such analyses might make it possible to posit an Assyrian or, at least, a non-local origin for the vessels in question. Here I will be dealing only with the traditional characteristics of shape, and, for the pottery, ware and color, as determined by visual examination.

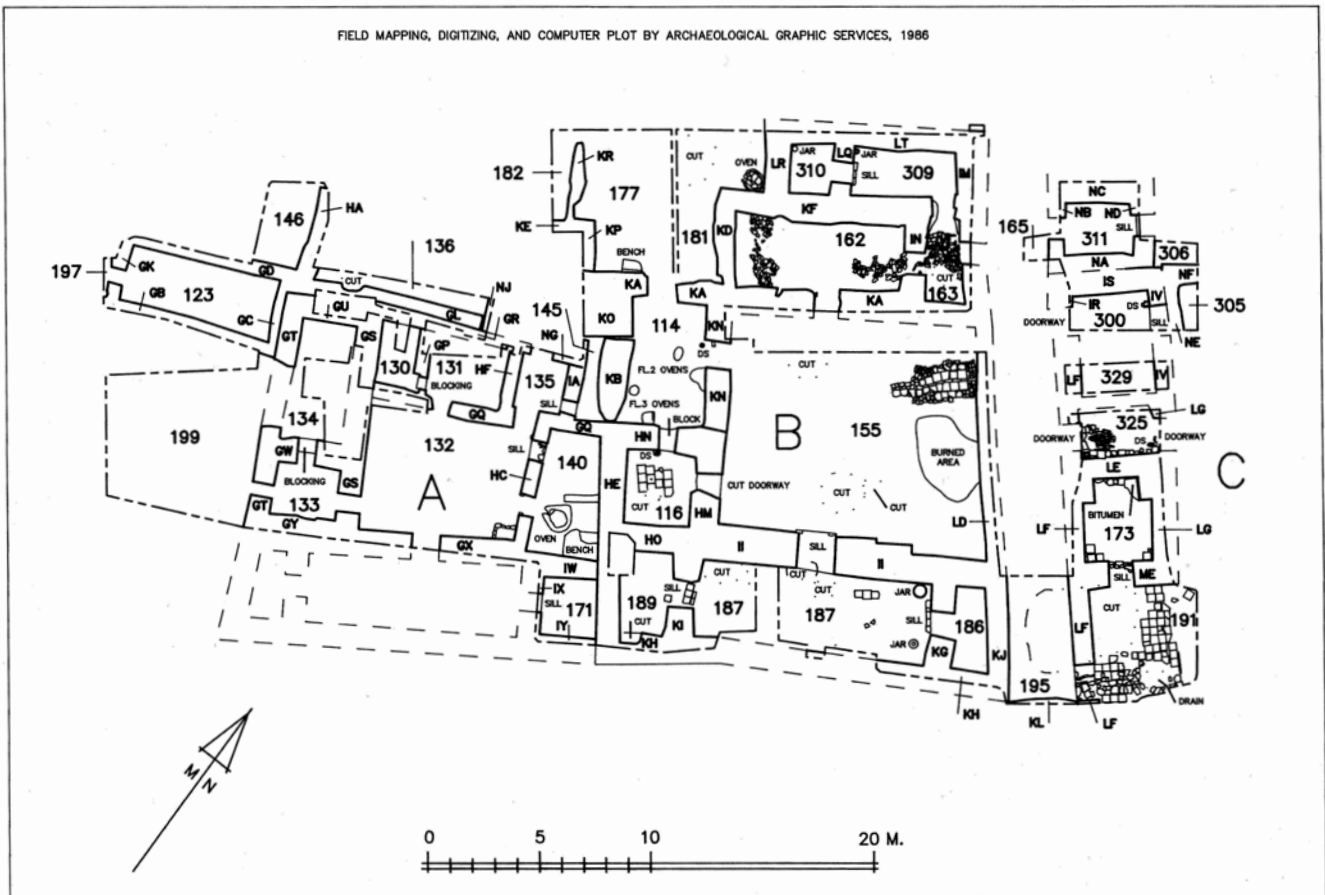


FIGURE 3.2. Area WC-2 Level II.

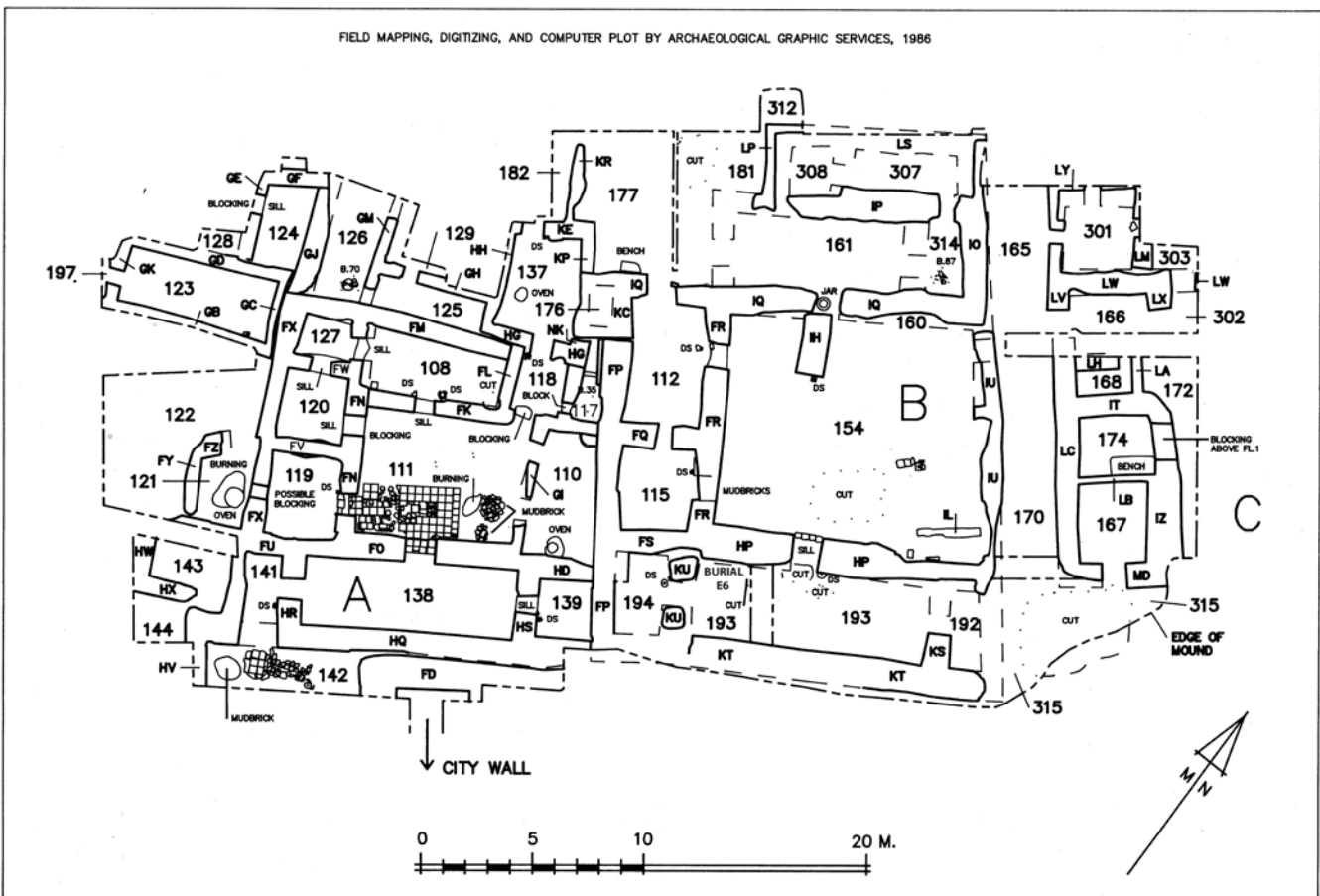


FIGURE 3.3. Area WC-2 Level I.

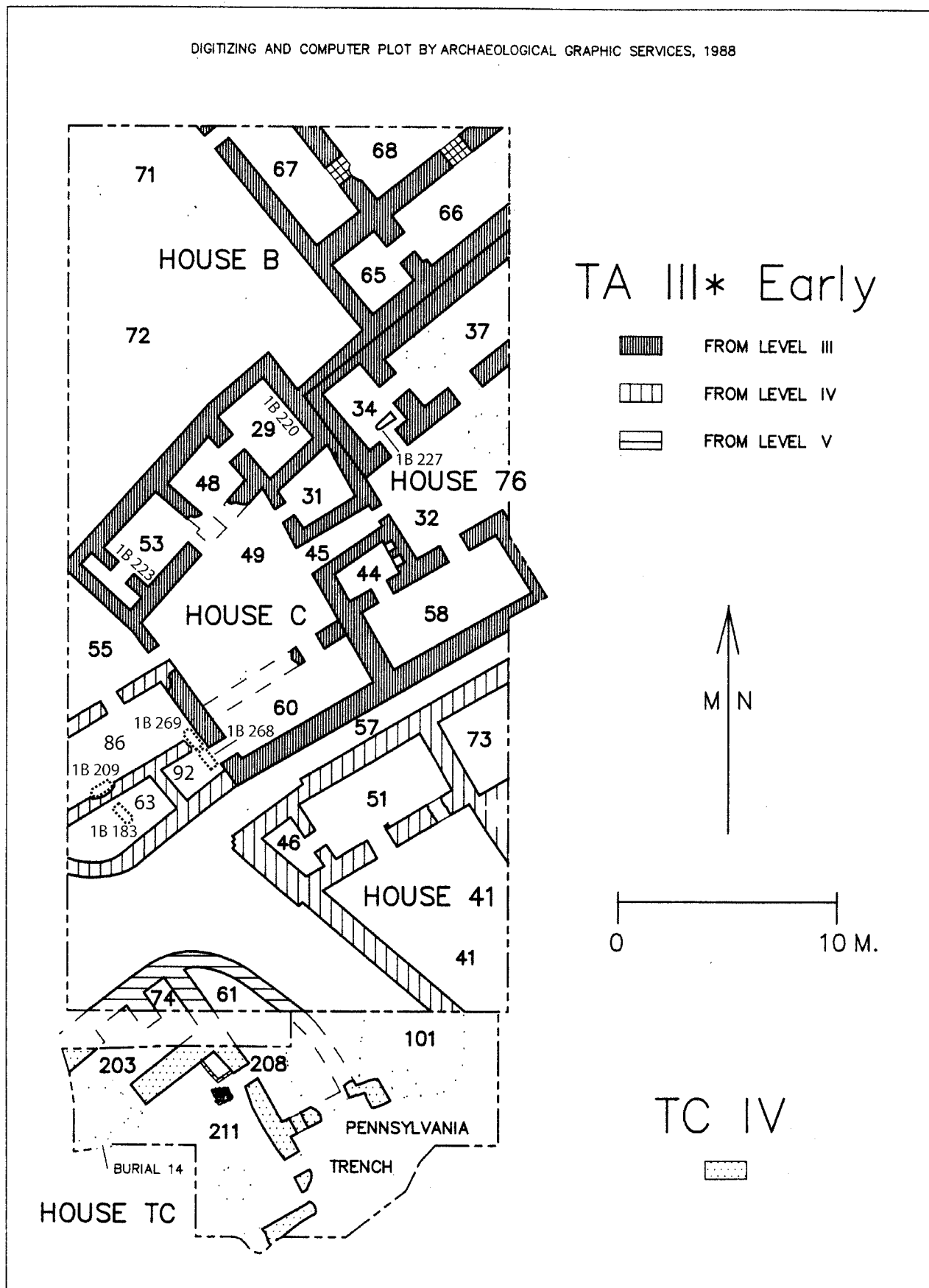


FIGURE 3.4. Area TA Level III* Early and Area TC Level IV.

the bowl and beaker were crafted of fine ware.⁸ A second fine-ware beaker (2N 1019), with a slightly wider and shorter body than the first, was also found in a first-millennium burial in Area TA (fig. 3.5, no. 3). It is 18.4 cm high. Its walls are somewhat thicker than those of the first beaker, between 3–4 mm thick. This vessel was not published in McCown and Haines 1967.

The bowl can be compared with late seventh-century fine-ware bowls from Nimrud. The profile and size of the Nippur example are close to that of the bowl shown in Oates 1959, pl. 35:12, while the rim most nearly resembles that of illustration 14 on the same plate.⁹ The Nippur bowl therefore seems to be an Assyrian vessel.

The beakers of Assyria can be divided into two broad groups, stout¹⁰ vs. slender. The two Nippur beakers can be compared with those of the slender group. They are closely paralleled by an example from Nineveh, said to date approximately to the seventh century.¹¹ The walls of this vessel as drawn in Thompson and Mallowan 1933 are thick, 7–8 mm across. They are too thick for this to be a palace ware beaker. Based on having personally viewed the vessel on exhibit, however, I have seen that the walls are substantially thinner and that it is indeed an example of palace ware. See the photo in Curtis and Reade 1995, p. 154, no. 130, and the characterization there of its fabric as “fine palace ware.” This judgment has been confirmed by the drawing of the vessel with very thin walls in Hausleiter (2010).

These three beakers have similar everted rims and tall necks. The necks are set off from the shoulders, by a ridge on the Nippur examples and by a groove on the vessel from Nineveh.¹² All have inverted piriform bodies. None of the three has finger impressions or dimples around the body, which are common on otherwise similar beakers from Assyria.¹³ All three have pointed bases with small nipples or buttons. The Nineveh beaker is about 4 cm taller than the ones from Nippur.

A second beaker from Nineveh (Thompson and Mallowan 1933, pl. 74:16), which has a dimpled piriform body, is about as tall as the Nippur examples, at 17.9 cm high, and its profile is close to that of figure 3.5, no. 3 (2N 1019). However, like the walls of Thompson and Mallowan 1933, pl. 74:17, the walls of this vessel also appear to be drawn too thick.¹⁴

A beaker from Assur can also be mentioned (Haller 1954, pl. 5:aa = Hausleiter 2010, pl. 85:BT 9.10). It shares the same general profile as the others and lacks dimples on the body. It does not have a nipple/button base, and it is several centimeters shorter than the Nippur examples.

Are these two beakers, 2N 1019 and 2N 1020 (fig. 3.5, nos. 2–3), Assyrian imports? Their walls are somewhat thicker than the walls of the very finest palace ware examples from Nimrud (which are less than 1 mm thick), but they are still thin enough to be considered palace ware, especially figure 3.5, no. 2 (Oates 1959, p. 136), and they are certainly very fine. Only a very few other vessels from Nippur at this time are equally thin or equally fine. Several of these will be considered below when I discuss the fine ware from Area WC-2.

⁸ With the permission and assistance of Raymond Tindel, then Registrar of the Oriental Institute Museum, I was able to examine these shapes. They bear the museum numbers A29078 (bowl 2N 880) and A29115 (beaker 2N 1020). The two vessels are made of finely levigated clay with no obvious vegetal temper or other inclusions, and have been fired to an off-white or cream color. The fineness of the fabric and the lack of vegetal temper are unusual in Babylonian pottery. The bowl, for all its fineness, is somewhat warped, which does not show in the drawing.

⁹ The same rim and profile with vertical sides are present on several tripod bowls from Late Assyrian contexts at Nimrud (Lines 1954, pl. 38:1; Oates 1959, pl. 35:15–16). Bowls with the same vertical-sided profile but somewhat different rims come from Qasrij Cliff (Curtis 1989, fig. 9.18) and Khirbet Qasrij (Curtis 1989, fig. 24.21). These latter two sites have been dated Late Assyrian and immediately post-Assyrian, respectively, by their excavator.

¹⁰ E.g., Oates 1959, pl. 37:60–63.

¹¹ Thompson and Mallowan 1933, pl. 74:17 = Hausleiter 2010, pl. 85:BT 9.11 = Curtis and Reade 1995, p. 154, no. 130 (photo).

¹² Hausleiter 2010, pl. 85:BT 9.11 = Curtis and Reade 1995, p. 154, no. 130.

¹³ These examples lack the dimples that are found on many somewhat shorter Neo-Assyrian beakers with similar profiles (Lines 1954, pl. 38:2; Oates 1959, pl. 37:65–67).

¹⁴ Donald Hansen was the first to compare the Nippur beakers with these examples from Nineveh (McCown and Haines 1967, pl. 102:15, under Remarks).

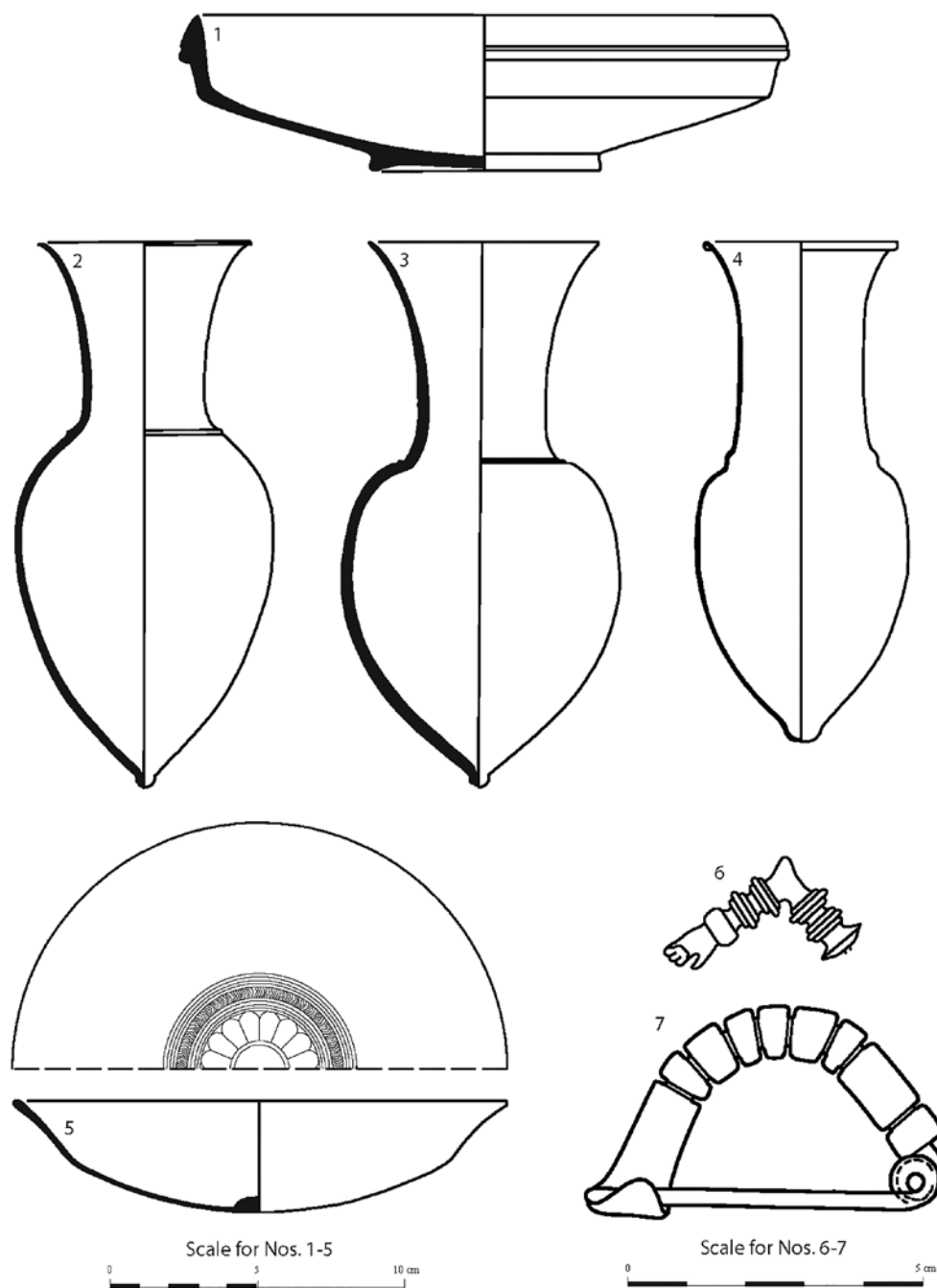


FIGURE 3.5. Vessels and fibulae with Assyrian shapes from Area TA.

	<i>Identification Number</i>	<i>Level</i>	<i>Context</i>	<i>Remarks</i>
1.	2N 880	III* Early	1B 220	Fine ware. \emptyset rim: 19.4 cm. McCown and Haines 1967, pl. 100:17
2.	2N 1020	III* Early or III* Late	1B 227	Fine ware. \emptyset rim: 7.3 cm. McCown and Haines 1967, pl. 102:15
3.	2N 1019	III* Early or III* Late	1B 183	Fine ware. \emptyset rim: 7.9 cm.
4.	2N 371	III* Late	1B 209	Bronze. \emptyset rim: 6.7 cm. McCown and Haines 1967, pl. 108:16
5.	2N 376	III* Early or III* Late	1B 227	Bronze. \emptyset rim: 16.8 cm. There is a raised knob at the center of the rosette. McCown and Haines 1967, pl. 108:10
6.	2N 189	III* Early	Loc. 44, Fl. 2	Bronze. Length: 3.3 cm. McCown and Haines 1967, pl. 151:19
7.	2N 430	III* Early	1B 223	Bronze. Length: 6.2 cm. McCown and Haines 1967, pl. 151:20

The beakers have buttons or nipples on their otherwise pointed bases. In northern Mesopotamia nipple/button bases are well attested on beakers, both in the Assyrian heartland and in the periphery,¹⁵ though they are rare at Nimrud in general and completely absent in the seventh century (Oates 1959, p. 134).

Therefore, particularly on the strength of the parallels from Nineveh¹⁶ and Assur,¹⁷ I believe that the Nippur beakers did indeed come from Assyria.

The Nippur ceramic beakers have an additional parallel closer to home. Figure 3.5, no. 4, shows a beaker in bronze, 16.9 cm high, which also comes from a first-millennium burial in Area TA (2N 371; McCown and Haines 1967, pl. 108:16). It has a profile similar to that of figures 3.5, no. 2, and 3.3 (2N 1020 and 2N 1019), but with a taller neck. Like the pottery examples it also has a ridge at the junction of neck and shoulder and a button base. I have not been able to identify a close parallel from Assyria for this form in metal, though the silver beaker from Nimrud comes to mind.¹⁸ However, based on its shape, which is identical to that of the Assyrian ceramic beakers discussed above, the bronze beaker from Nippur should also be considered Assyrian.¹⁹

Ceramic beaker 2N 1020 (fig. 3.5, no. 2) was found in the same burial as a bronze bowl with everted, flaring sides and a shallow convex base, 2N 376 (McCown and Haines 1967, pl. 108:10). Its rim diameter is 16.8 cm (fig. 3.5, no. 5). It is decorated with a rosette and a pattern of concentric circles and chevrons surrounding a solid knob in the center of the interior. Such rosettes and knobs are found on bowls in Assyria.²⁰

E. A. Braun-Holzinger called the shape of the Nippur bowl “unusual” (Braun-Holzinger 1988, p. 121), and in the context of southern Mesopotamian metal ware it is otherwise unattested. The shape is not found among the pottery of Babylonia. Neither is it present among the known Assyrian bronze bowls from Assur and Nimrud (Curtis 2013, pls. 37–39). Nevertheless, the profile of this bowl is very similar to the profiles of a well-attested group of shallow Assyrian pottery bowls (or plates) with everted sides and simple rims. Joan Oates (1959, p. 132) has described this group as “one of the most common and distinctive” at Nimrud. Several of these bowls have distinctly flaring sides like the Nippur bronze bowl.²¹ While most examples have ring bases,²² a few, made of palace ware, have shallow convex bases exactly like the Nippur bronze bowl.²³ On the basis of these comparisons with ceramic forms I believe that bronze bowl 2N 376 is Assyrian.

I have identified five vessels from Area TA as Assyrian, that is, vessels that were brought to Nippur as imports. Am I being too positive in asserting that these artifacts are Assyrian in origin and are not merely locally made imitations? In the case of the three ceramic vessels (fig. 3.5, nos. 1–3), at least, it took a “rare level of craftsmanship” and sophisticated skills to produce the thin-walled vessels of Assyria (Rawson 1954, p. 168). Were the potters of Nippur able to imitate—almost perfectly—not only the shape, but also virtually every other aspect of the production of such very fine Assyrian vessels? I think not because, as will be seen below, among the fine ware found in Area WC-2, we have a modest collection of local copies of Assyrian shapes. These cannot be mistaken for Assyrian originals.

Of course, modern materials analysis could shed additional light on the question of origins, but, as I hope will be understood, the more important point in the present context is simply that, wherever each of these specific examples was produced, they attest to the fact that objects with Assyrian shapes were definitely present at Nippur. In what follows, I will examine the contexts and chronology of these examples and will attempt to identify additional instances of Assyrian or Assyrian-inspired forms at the site.

¹⁵ Haller 1954, pl. 5:c, d, f, l, r, u; Hausleiter 2010, pl. 85:BT9.11; McEwan et al. 1958, pls. 38:53, 63; Kreppner 2006, pls. 11:5, 10–11, 97:1–9.

¹⁶ Thompson and Mallowan 1933, pl. 74:17 = Hausleiter 2010, pl. 85:BT9.11.

¹⁷ Haller 1954, pl. 5:aa = Hausleiter 2010, pl. 85:BT9.10.

¹⁸ The famous silver beaker is from Room C6 in Fort Shalmaneser at Nimrud (Oates 1959, Pl. 34b = Curtis and Reade 1995, 143, no. 107). However, the Nimrud beaker is shorter and wider than the Nippur beaker and itself most closely resembles the numerous stout, wide-mouthed pottery beakers from Assyria (e.g., Oates 1959, Pl. 34a; Curtis and Reade 1995, 154, no. 129).

¹⁹ I know of no other example from Babylonia with which this bronze beaker can be compared. See also Braun-Holzinger 1988, p. 126, who does not associate this vessel with Assyria, but recognizes its uniqueness and sees it as a local “specialty” of Nippur.

²⁰ Curtis 2013, pls. 37:513 (Ass 12325k), 514 (Ass 12325g), 38:500, 507.

²¹ Lines 1954, pl. 37:3; Curtis 1989, fig. 30.107, 110; Kreppner 2006, pl. 96:2.

²² Lines 1954, pl. 37:3; Oates 1959, pl. 36:31; Curtis 1989, fig. 30.110; Hausleiter 1999, p. 139, fig. 8.8, p. 140, fig. 9.2.

²³ Oates 1959, pl. 36:27–28; Kreppner 2006, pl. 96:1–2.

Of the five Nippur vessels introduced thus far only one was not found in a “bathtub burial.” This term refers to a burial where the remains are placed in a high-sided pottery coffin that is rounded at one end and squared off at the other, like a modern bathtub (fig. 3.6, no. 1).

The exception, bowl 2N 880 (fig. 3.5, no. 1), comes from a jar burial, 1B 220, that was dug down alongside the northeast wall of Locus 29 in House C of Area TA. The burial was likely dug from House C in Level III* Early, which can be dated to the latter part of the seventh century (fig. 3.4).²⁴

Beaker 2N 1019 (fig. 3.5, no. 3) comes from a bathtub burial, 1B 183, which was cut down into in Locus 63 of House C. Burial 1B 183 is therefore later than Level III* Early and belongs in Level III* Late. This context dates to the sixth century. The burial is shown with a dashed line in figure 3.4 because it is intrusive in Level III* Early.

Beaker 2N 1020 (fig. 3.5, no. 2) and bronze bowl 2N 376 (fig. 3.5, no. 5) also come from a bathtub burial, 1B 227, dug down from Locus 34 of House 76 (fig. 3.4). Locus 34 exists in both Level III* Early and Level III* Late, and the burial could belong in either level and could be dated to either the late seventh or sixth century. This burial’s bathtub coffin is shown as figure 3.6, no. 1.

Bronze beaker 2N 371 (fig. 3.5, no. 4) was found in Burial 1B 209, a bathtub burial that cut into the south-east wall of Locus 86 in House C. This burial very likely postdates House C in Level III* Early and belongs in Level III* Late. Two nearby bathtub burials can also be mentioned, Burials 1B 268 and 1B 269, which apparently were dug at the same time, based on their similar depths, the fact that they are adjacent to one another, and their identical alignment. These burials, like Burial 1B 209, almost certainly postdate House C in Level III* Early. Their exact stratigraphic position is impossible to determine, but they are most likely to be associated with Level III* Late. The coffins of Burials 1B 209, 1B 268, and 1B 269 are shown in figure 3.4 with dashed lines because they are probably intrusive in Level III* Early.

Taken together, the five above-mentioned bathtub burials, 1B 183, 1B 227, 1B 209, 1B 268, and 1B 269, represent the earliest such burials in Area TA. At this time, in the late seventh or early sixth century, the typical adult burial involved a single large vessel as a container for the body or two large vessels (double jar burial), so the use of bathtub coffins represented an innovation in local burial practice.

Several of these burials are also among the richest burials of the seventh–sixth centuries in Area TA. For example, Burial 1B 209 contained a glazed bottle, the bronze beaker described above (fig. 3.5, no. 4), a bronze bowl, a bronze ring, bronze balance pans, a bronze “nail” and sleeve, and an iron object in fragments (McCown and Haines 1967, p. 133). Besides the vessels shown in figures 3.5, no. 2, and 3.5, no. 5, Burial 1B 227 included a bronze beaker, a bronze bracelet and a bronze fibula (McCown and Haines 1967, p. 134). Burial 1B 269 was similarly rich and included four bronze fibulae (McCown and Haines 1967., p. 137).²⁵ Most contemporary burials contained no grave goods at all.

The remaining bathtub coffins in Area TA, which are all higher in the stratigraphy, have later-dated grave goods, including examples of Achaemenid pottery. At this later period bathtub coffins occur frequently in Area TA.

Along with the vessels found in them, the early bathtub coffins themselves are evidence of contact with Assyria and Assyrians. These coffins first appear at Assur in Middle Assyrian times, and occur frequently there during the period of the Neo-Assyrian empire (Haller 1954, pp. 54–57). They are first attested in Babylon in the eighth century and continue to be used there down through Achaemenid times (Strommenger 1964, p. 158, fig. 1). At Ur, two bronze bathtub coffins have been dated to the early seventh century (Curtis 1983, pp. 92–93).

²⁴ The designation Level III* Early and the plan in figure 3.4 require some explanation. In my dissertation I showed that there was a slope from north to south in the levels of Area TA that the excavators had not recognized (Armstrong 1989, pp. 100–59). Taking that slope into account, I reconstituted the levels so that the materials found in each level are contemporary. This involved piecing together parts of different plans as published in McCown and Haines 1967 to create the new levels (Armstrong 1989, pp. 160–74). In figure 3.4, for example, the plan of Level III* Early contains parts of Levels V, IV, and III as originally published (McCown and Haines 1967, pls. 74–75). My revised plans retain the same numbering system as was used in McCown and Haines 1967, but with the addition of an asterisk, hence TA III*. The designation Early was added because Level III* needed to be divided into two sublevels for clarity’s sake: House C was abandoned at the end of TA III* Early and was in ruins in TA III* Late.

The burials in Area TA were not excavated stratigraphically, so one can only estimate when they were dug in relation to the walls and floors of the surrounding loci. In the case of burials dug from Level III* of House C, we are aided by the fact House C was abandoned at the end of Level III* Early, which means that burials dug from rooms of this house are likely to belong to Level III* Early.

²⁵ The fibulae from Burials 1B 227 and 1B 269 are not illustrated in McCown and Haines 1967.

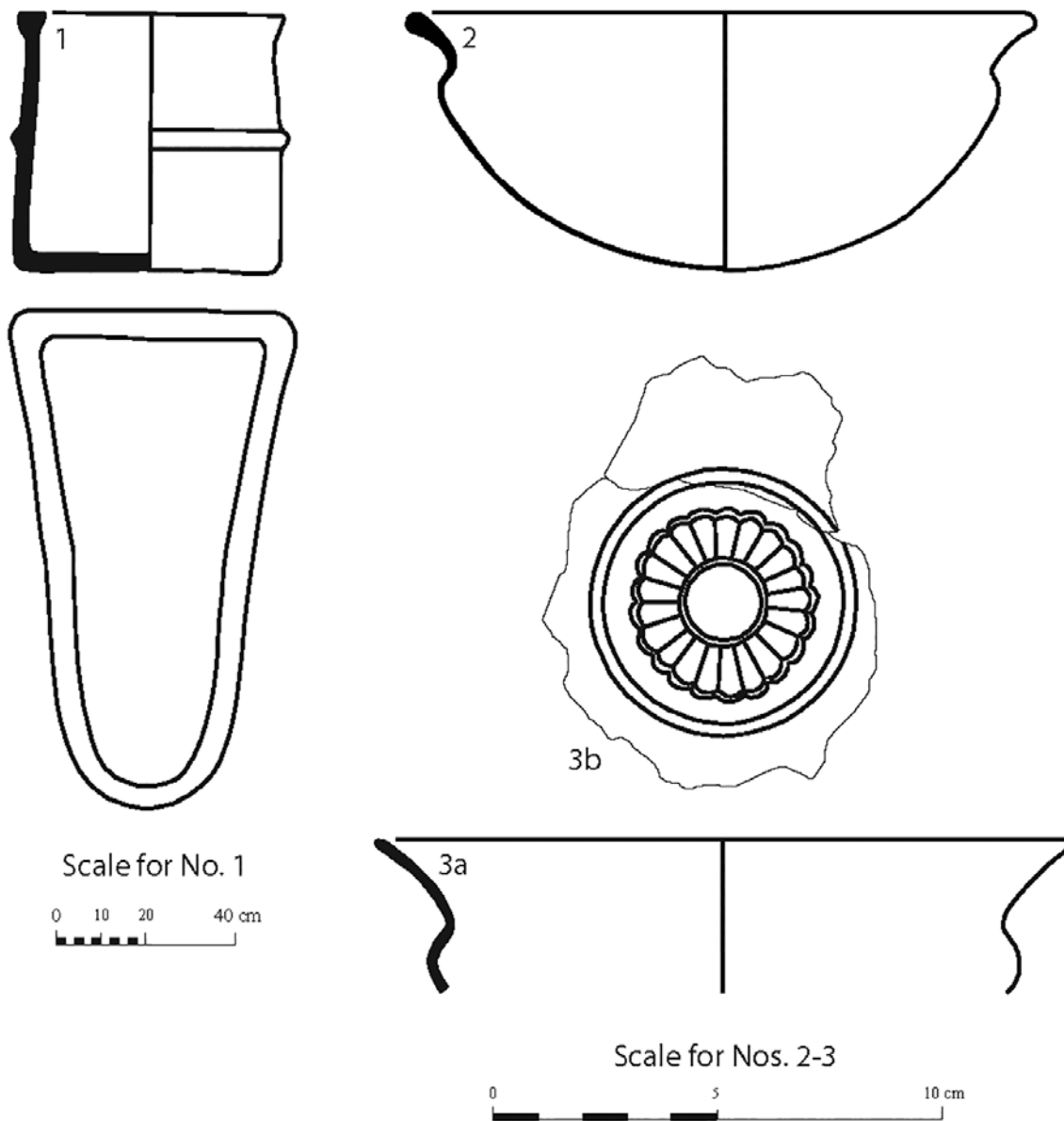


FIGURE 3.6. Bathtub coffin and bronze bowls.

	<i>Identification Number</i>	<i>Excavation Area</i>	<i>Level</i>	<i>Burial Number</i>	<i>Remarks</i>
1.	—	TA	III* Early or III* Late	1B 227	Pottery. Length: 112.0 cm. McCown and Haines 1967, pl. 157:13
2.	15 N 185	WC-2	I	E6	Bronze. \varnothing rim: 14.1 cm.
3.	4N 115	SE	III	4B 119	Bronze. \varnothing rim: 15.6 cm. There is a raised knob at the center of the rosette. McCown, Haines and Biggs 1978, pl. 56:5

The early bathtub burials in Area TA are associated with Levels III* Early and III* Late. At the earliest, these coffins were in use during the latter half of the seventh century, and, based on the limited stratigraphic evidence available, many of them are from the sixth century. The Assyrian or Assyrian-influenced vessels placed in these burials must be dated similarly.²⁶ Therefore, the first appearance of the bathtub coffins and associated vessels in Area TA coincides with the period after the Great Rebellion, when Nippur was brought under tight Assyrian control and a number of Assyrians lived in the city.

During this same period of time, fibulae with northern affinities first make their appearance in Area TA. These fibulae were found in Level III of Area TA and were published as McCown and Haines 1967, 2N 189 (pl. 151:19) and 2N 430 (pl. 151:20).

Fibula 2N 189 (fig. 3.5, no. 6) was from floor 2 of Locus 44, belonging to House 76 in Level III (expressed as “TA III 44 2” in the original publication). This means that it was found at a low elevation in the central part of the excavation area of Level III and is therefore likely to be from my reconstructed TA Level III* Early. Fibula 2N 430 (fig. 3.5, no. 7) was part of Burial 2B 223, a jar burial that was sunk from the southern corner of Locus 53 of House C in Level III. This burial also likely belongs to Level III* Early.

Both of these artifacts have good parallels from Assyria. E. A. Braun-Holzinger has shown that 2N 189 is very close in shape to examples from Nimrud that were common in the late seventh century, while fibulae like 2N 430 date to the seventh and sixth centuries in Assyria and North Syria (Braun-Holzinger 1988, pp. 121–22).

Even more than the vessels thus far described, these Assyrian fibulae, which were worn on a person’s body, served as symbols of identity or affiliation. Those who wore them, at least during the early years of the Assyrian occupation of Nippur in the late seventh century, were almost certainly Assyrians themselves or members of the local elite who wished to be recognized as pro-Assyrian.

As can be seen from the discussion above, Assyrian or Assyrianizing objects—vessels, fibulae, and early bathtub burials—are associated with only two houses in Level III* Early: the adjacent Houses C and 76 (see fig. 3.4). These two houses were connected to one another by a doorway in that level, so that they seem to have formed one large establishment before the abandonment of House C (which marks the onset of Level III* Late). Based on the evidence of the artifacts presented here, it is possible that Assyrians or, more likely, pro-Assyrian locals, lived here.

Early bathtub coffins have been found in several other places at Nippur. They have been recorded in Area WC-2 (see below), Area WC-3, Area WB (Gibson et al. 1978, pp. 70–71, figs. 51.4, 74.1–2), Area WF (McMahon 2006, pp. 55–56, pl. 170) and North Temple/Sounding E (McCown, Haines, and Biggs 1978, pp. 53–54). The ratio of height to length for those that have been measured is fairly large, around 0.5, which is consistent with a relatively early date for them. The sides of bathtub coffins became lower over time (Strommenger 1964; Baker 1995). As we have seen, the Area TA examples are to be situated in the latter part of the seventh century and the beginning of the sixth. There is nothing that compels a radically different date for the other examples from Nippur, though an earlier date for the bathtub coffin from Area WB is possible.²⁷

Bathtub burials from Area WC-2 and Sounding E yielded carinated bronze bowls among their grave goods.

Found in Area WC-2 at the south end of the city, Burial E6 with its bathtub coffin was excavated just below the modern surface of the mound. It was dug from the west corner of Locus 193 in Level I (fig. 3.3). The occupation in Level I probably straddles the year 600 BC and was fairly short lived, so this burial is either

²⁶ One argument against limiting the beakers (fig. 3.5, nos. 2–3), in particular, to the late seventh/early sixth centuries in Area TA is the fact that under the heading “Range and Frequency of Type” on the page facing McCown and Haines 1967, pl. 102, it says that vessels of Type 62, the type to which the beakers belong, were found in Levels V, IV and III. This seems to represent an earlier and longer period of time than just the late seventh and early sixth centuries. In response, I reiterate that the levels in Area TA were not dug stratigraphically. The earliest of the three levels containing Type 62, Level V, is now spread across four levels (Armstrong 1989, pp. 297–300, figs. 52–55). Part of Level V is included in my Level III* Early. The situation is the same for Levels IV and III as well. Moreover, Type 62 includes vessels that are not Assyrian beakers. The Type 62 vessel found in Level IV is illustrated as McCown and Haines 1967, pl. 102:16, and it is definitely not a beaker. Since Type 62 includes more than just Assyrian beakers, we cannot necessarily say what the unpublished vessels referred to under the heading “Range and Frequency of Type” looked like. Nor can we identify their true position in the stratigraphy of Area TA and thereby determine what relevance they might have for the time range of the Assyrian beakers at Nippur.

²⁷ In my dissertation I proposed an eighth-century date for Area WB Level IC, the stratigraphic context of the bathtub burial from Area WB, (Armstrong 1989, p. 82, table 6, p. 181), but the pottery from Area WB Level IC does not exclude a late seventh-century date for the level and the burial.

from the very end of the seventh century or the early part of the sixth. From it came a carinated bronze bowl (15 N 185) with a rim diameter of 14.1 cm (fig. 3.6, no. 2). The profile of this bowl is very similar to those of the Nimrud bowls, though it has a thicker rim than any of the Assyrian examples and lacks the incised lines around the outside of the rim common to those bowls (Curtis 2013, pls. 38–39).

Burial 4B 119 belongs to Sounding E (or SE) Level III. As was mentioned earlier, SE Level III can be situated in the sixth century. Two small glazed jars from the burial were not illustrated in the publication, but from their description (McCown, Haines, and Biggs 1978, p. 66, no. 4B 119) they should date to sometime between the eighth and sixth centuries. From this burial a fragmentary bronze bowl was recovered (McCown, Haines, and Biggs 1978, pl. 56:5 [4N 115]). With its carinated profile (fig. 3.6, no. 3a), the bowl can be compared with the carinated bowls from Nimrud (Curtis 2013, pls. 38–39, especially pl. 39:502). It has a rim diameter of 15.7 cm. In the center of the vessel's interior is a raised knob surrounded by a rosette and concentric circles.²⁸ Figure 3.5, no. 5, from Area TA, is similarly decorated. The rosette with concentric circles is also found on bowls from Nimrud,²⁹ and an example from Assur with a somewhat different profile has a central knob surrounded by a rosette and circles.³⁰ Here we have another bowl that would not be out of place in Assyria.³¹

Both these bowls share the convex bases, sharply incurved shoulders, and flaring rims characteristic of the bowls at Nimrud that “can confidently be regarded as being of Assyrian manufacture” (Curtis 2013, p. 69). I therefore propose to add them to the group of Assyrian vessels from Nippur that I am assembling here.

FINE-WARE POTTERY FROM AREA WC-2

One of the limitations of dealing with the pottery from Area TA is that, as a rule, sherds were not collected. However, sherds were collected and recorded in Area WC-2. These provide more evidence of the Assyrian effect on the pottery of Nippur. The number of sherds and whole vessel profiles that may be considered as Assyrian or Assyrian influenced is low ($n = 58$) when compared with the total number of diagnostic sherds collected in Area WC-2 ($n = 2347$).³² These fifty-eight fragments represent four different shapes. The Assyrian presence as reflected in this pottery is thus relatively small, but it is still visible.

The most frequently attested shape of interest ($n = 34$) is that of a carinated bowl with a flaring rim and a flat base, usually in fine ware (pl. 7:1–4). The upper part of the body approximates the shape of the bronze carinated bowls found in Assyria. Similar carinated bowls were also made of pottery in Assyria.³³ These Assyrian bowls have convex bases, never flat bases. On the other hand, in Area WC-2 all examples with bases have flat bases, so they were certainly made locally. Flat bases are almost universal on small bowls at Nippur and elsewhere in early first-millennium Babylonia. Such bases are usually string cut, though the bases on these fine-ware carinated bowls have been well finished and are not merely string cut. The sherd in figure 3.7, no. 2, may have belonged to a bowl with a shallow convex base, based on the angle of the sherd's lower end. Since these bowls are otherwise unattested at Nippur, I suggest that they represent a local effort at reproducing an Assyrian shape, using typical Babylonian pottery techniques.

A second bowl occurs much less frequently than the preceding. This is a fine-ware, cream-colored bowl with a so-called ribbed rim (fig. 3.7, nos. 5–6). The Assyrian bowl from Area TA described above (2N 880; fig. 3.5, no. 1) is also said to have a ribbed rim. In that case, the rim is thickened and shaped flush against the body. Here the rim is extended both inwardly and outwardly and then shaped. We only have a few rim fragments of this bowl in fine ware at Nippur ($n = 5$). However, similar rims are commonly attested at Assyrian

²⁸ Fig. 3.6, no. 3b; see McCown, Haines, and Biggs 1978, pl. 56:5, Remarks.

²⁹ Curtis 2013, pl. 38:500, 507; no. 500 seems to have a small, low knob as well.

³⁰ Curtis 2013, pl. 37:513 (Ass 12325k).

³¹ Like 15 N 185 (fig. 3.6, no. 2), and in contrast with the Nimrud bowls, figure 3.6, no. 3, is not decorated on the exterior with a group of incised lines below the rim (Curtis 2013, p. 69).

³² No pottery with Assyrian affinities was found in the much smaller excavation of Area TC, adjacent to Area TA.

³³ Lines 1954, pl. 37:7–8 (palace ware); Oates 1959, pl. 37:59; Curtis 1989, fig. 31.139–40; Schmidt 1999, p. 85, fig. 5a.28; Kreppner 2006, pl. 96:3–4.

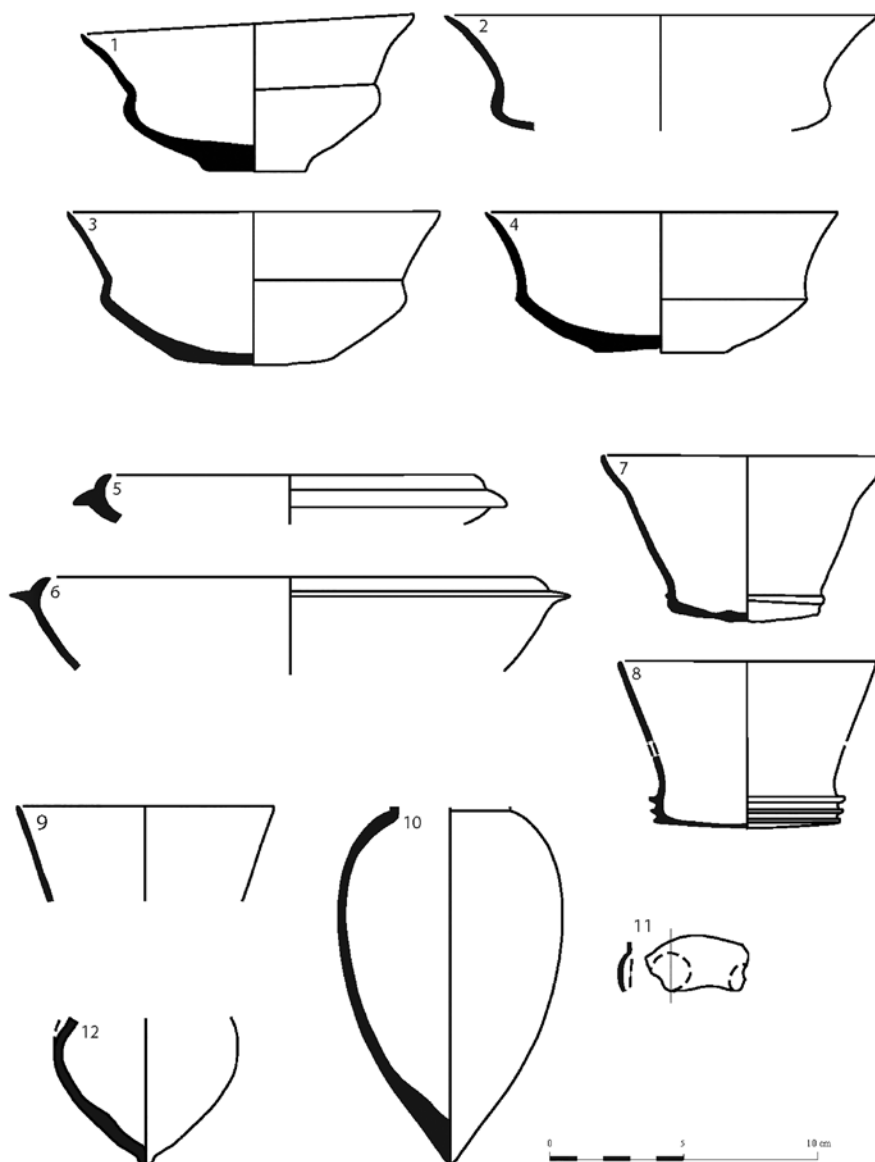


FIGURE 3.7. Fine-ware pottery from Area WC-2.

	<i>Identification Number</i>	<i>Level</i>	<i>Remarks</i>
1.	E254.3	I	Fine ware. \emptyset rim: 12.5 cm.
2.	E222.11	I	Fine ware. \emptyset rim: 16.4 cm.
3.	D593.1	I	Fine ware. \emptyset rim: 14.0 cm.
4.	D593.9	I	Fine ware. \emptyset rim: 13.2 cm.
5.	E474.1	I	Fine ware. \emptyset rim: 13.5 cm.
6.	E463.3	I	Fine ware. \emptyset rim: 18.2 cm.
7.	15 N 29	I	Fine ware. \emptyset rim: 10.5 cm.
8.	E538.2	II	Fine ware. \emptyset rim: 9.8 cm. Reconstructed
9.	E518.1	I	Fine ware. \emptyset rim: 9.7 cm.
10.	E542.1	II	Fine ware. \emptyset rim: -.
11.	E61.25	I	Fine ware. \emptyset rim: -.
12.	E155.10	II	Fine ware. \emptyset rim: -. Nipple/button base

sites in plain ware.³⁴ They are the standard rims on tripod bowls.³⁵ They are also found on finer, thinner-walled vessels, similar to the ones from Nippur (Oates 1959, pl. 35:12; Curtis 1989, fig. 27.67). Despite its popularity in Assyria, this rim shape is otherwise unattested in Babylonia. At Nippur these rims seem to represent imported Assyrian pottery.

The next vessel of interest from Area WC-2 is an elegant cup made of very fine ware (fig. 3.7, nos. 7–8). This cup has one or more ridges around a slightly convex base and flaring sides ($n = 7$). It is usually fired hard to a mottled color ranging between white and light gray. This ware is both striking and unusual among the contemporary ceramics of Nippur.

Cups with convex and ridged bases are present in Assyria,³⁶ but are unknown in Babylonia. In Assyria, these appear to be a fine-ware variant of the small cups known as *istikans* (Oates 1959, pl. 36:37–49). Generally only the ridged bases have survived in Area WC-2, but the sides of two examples are preserved (fig. 3.7, nos. 7–8). The sides flare outward more than on most comparable Assyrian examples, resulting in a somewhat more open profile, though Curtis 1989, figure 10.37, from Qasrij Cliff, shares this more open profile. At Nippur I believe these cups represent a variation of the well-attested Assyrian shape.

The final form from Area WC-2 is the fine-ware beaker already discussed in some detail above (fig. 3.7, nos. 9–12). No whole profiles were found, but a number of fragments were recovered ($n = 12$). They are usually cream colored. Dimpled ware is present (fig. 3.7, nos. 11–12). Figure 3.7, no. 12, has a nipple/button base like the ones on figure 3.5, nos. 2–3. The strongly tapering body and solid base of figure 3.7, no. 10, is not typical of Assyrian-made beakers, and this is likely to be a locally produced example. In other words, figure 3.7, no. 10, may represent an Assyrian-style beaker made by less-skilled Babylonian hands.

At this point it may be asked why I have not dealt the glazed pottery from Nippur (see McCown and Haines 1967, pl. 101). To be sure, the ultimate origin of the glazed pottery in Babylonia is almost certainly northern Mesopotamia.³⁷ However, vessels glazed in the geometric patterns of early first-millennium Babylonia are already present at Nippur in Area TC Level VI (Armstrong 1989, p. 64, table 2), which is stratigraphically earlier than TA III* Early and is best dated to the eighth century (Armstrong 1989, pp. 165–67). Glazed pottery, therefore, was already being produced in Nippur in the eighth century, at a time when Assyrians were not directly involved in the affairs of the city (Cole 1996a). Glazed vessels did not first come to Nippur in the hands of Ashurbanipal's officials; they preceded the Assyrians by as much as a hundred years.

CONCLUSION

To summarize, Assyrian-made ceramic and bronze vessels, and bronze fibulae first appeared in Area TA in the latter part of the seventh century. These artifacts were frequently associated with Assyrian-style bathtub coffins, which also made their first appearance in Area TA at the same time. In the latter half of the seventh century the southern corner of Nippur was also reoccupied, so the city was apparently prospering and growing under direct Assyrian rule. Fragments of Assyrian or Assyrian-influenced vessels were found there in remains dated to the late seventh and early sixth centuries. These sherds represent about fifty out-of-the-ordinary vessels that were used in several houses over a period that probably lasted less than seventy-five years.

In the late seventh century, newly introduced bathtub coffins were being used by wealthier members of the community. In these bathtub burials were found glazed vessels, Assyrian or Assyrianizing vessels in pottery and bronze, other bronze vessels, jewelry, and fibulae.

Assyrians were closely involved in the affairs of Nippur in the late seventh century for the only time in its history. They held power in the city, backed by the Assyrian king and his military, and they surely formed a new elite at the top of the city's social hierarchy. One can imagine that some of the Babylonian citizens of

³⁴ Curtis 1989, fig. 27.68–73; Schmidt 1999, p. 85, figs. 5a.9–10, 26, p. 87, fig. 6a.19–20; Green 1999, p. 126, fig. 8.5; Hausleiter 1999, p. 139, fig. 8.3, 5; Kreppner 2006, pls. 4:8, 5:2–5, 46:14–15.

³⁵ E.g., Oates 1959, pl. 35:15–16; Curtis 1989, fig. 30.112–15, pl. 10:c.

³⁶ Oates 1959, pl. 37:68 (palace ware); Curtis 1989, fig. 10.34–37 (fine ware).

³⁷ For example, glazed vessels are present at Nuzi in the fourteenth century (Starr 1937–39, vol. 2, pl. 75:X–Y), well before comparable examples have been found in Babylonia.

Nippur would have had an interest in imitating the new Assyrian elite where possible. Assyrian objects and even ways of doing things would have become desirable among the upper echelons of the city, the ones who dealt with the Assyrians on an ongoing basis. Those able to afford them acquired and displayed the fine-ware and metal bowls, beakers, and cups I have presented here. If genuine specimens were not available or were too expensive, locally made imitations were available for purchase as well. The wealthier of Nippur's inhabitants, those closest to the Assyrians, may have even accepted a new way of fastening their clothes, replacing their old straight pins with northern fibulae. They wore their affiliation on their chests for all to see. Some adopted Assyrian burial paraphernalia, replacing burial jars, which had endured in Babylonia for the better part of two millennia, with bathtub coffins.

With the collapse of the Assyrian Empire and the withdrawal of the Assyrians from Babylonia, Assyrian luxury goods, not surprisingly, disappeared from Nippur. The local potters also stopped making their versions of the elegant Assyrian vessels. The shapes were never adopted into the long-term local ceramic tradition.³⁸ Over the course of the early sixth century, the last of the old, out-of-fashion pottery either broke or was buried. The metal vessels were likewise buried. On the other hand, the bathtub coffins endured. After the Assyrians had faded from the scene, the acceptance of these coffins became widespread, and they continued to be used for several centuries more.³⁹

³⁸ Achaemenid eggshell ware does not develop out of Assyrian palace ware. The shapes and the manufacturing techniques are different. Almost all of the Assyrian vessels—mostly beakers, though there were also some bowls and other shapes—were thrown to the desired thinness on a fast wheel (Rawson 1954, pp. 168–69), though the occasional bowl or small jar was subsequently pared down (Oates 1959, p. 136). The Achaemenid eggshell-ware bowls were always pared down after first being thrown on the wheel. (Fleming 1989, p. 168).

³⁹ I would like to thank John Sanders, who drew figures 3.1–3.4, and Peggy Sanders, who drew figures 3.6, no. 2, and 3.7, no. 7, for their continuing assistance in my work on Nippur.

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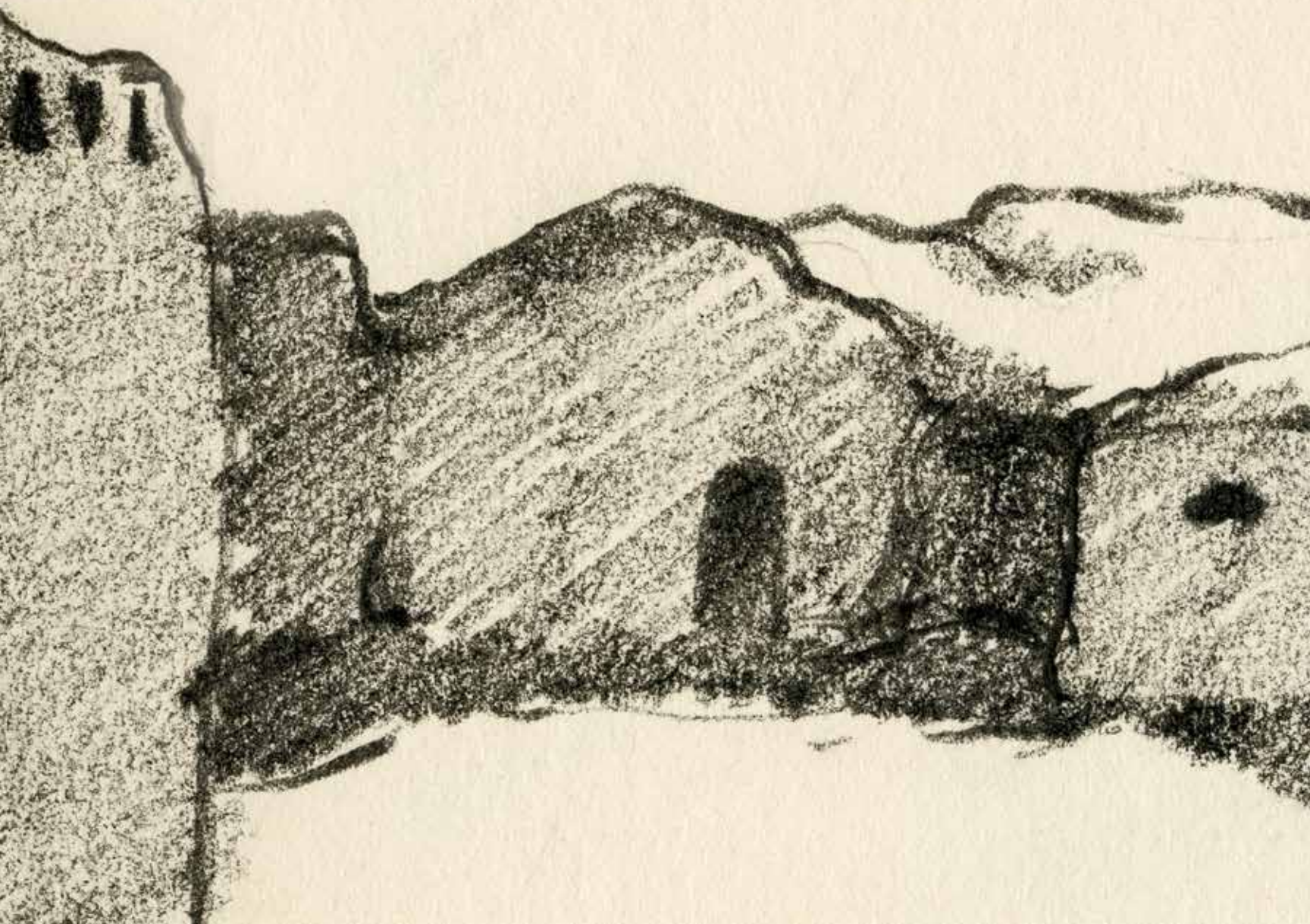
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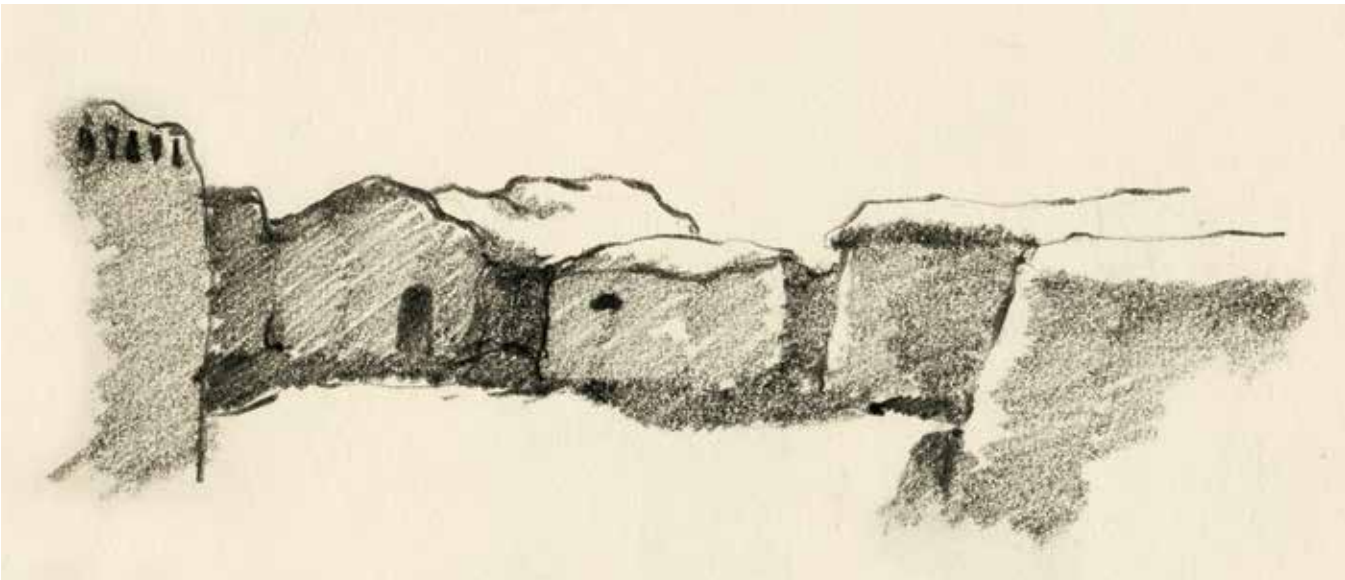
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University of Chicago compound at Üçtepe, 1978-79. (Drawing by Peggy Sanders)

CHAPTER 4

THE JOHN MIX CUNEIFORM TABLET AND A RELATED SA₂-DU₁₁ KU₅-RA₂ DOSSIER FROM PUZRIŠ-DAGAN

Robert D. Biggs

The Oriental Institute

The cuneiform tablet published here is from ancient Puzriš-Dagan (modern Drehem) and was given to its present owner, David A. Copland of Chicago and Dresden, Germany, in the 1970s by his great-uncle, John Sheldon Mix, a Connecticut tool and die maker, hence the name given to it here. There was initially some uncertainty about how and when John Mix acquired the tablet. Because of the Connecticut connection, I conjectured that the tablet may have been purchased from Albert T. Clay (1866–1925), a professor of Assyriology at Yale. See Foster (2013, p. 138) for information on Clay’s selling of tablets: “Clay resold portions of his acquisitions to raise money for more.” I am sure that what he sold would have included Ur III tablets, then plentiful on the antiquities market and considered of relatively little interest (in contrast to royal inscriptions, literary texts, and other less common genres). Foster states, “The going price for cheaper tablets was \$3–5, for better ones \$5–10” (2013, p. 128). In a recent email message (November 19, 2016), David Copland provided additional information based on a 1996 letter from his great-aunt, Gertrude Mix (wife of John Mix). She wrote that John Mix had obtained the tablet from his father’s cousin, Clarence Williams (1870–1949), a Congregational minister who had a distinguished academic career, including a PhD from Yale in 1912. The Yale connection would provide a possible link to Professor Clay. According to Gertrude Mix, Williams wrote to Yale in 1914 asking for some cuneiform tablets to show people at his public lectures, asking in particular for a “double tablet” (that is, a duplicate). Note that a parallel text (Sigrist 2000b, no. 1268) in the Yale Babylonian Collection (see below) is virtually identical word for word except for the quantities of barley and the date. I suspect that Clay would have considered our tablet a quasi-duplicate and thus unneeded for the Yale collection.

David Copland tells me that John Mix mounted the tablet in the balsa display case in which it is now held. At some point, the tablet fell and partly shattered, but could be mended with minimal loss of the inscription.

I thank David Copland for permission to publish this tablet and for providing me a perfect space at his law firm’s offices in Chicago in July 2013 and again in April 2014 to study the tablet. He first contacted me in 1997, referred to me by one of my former students, Timothy Kendall, then at the Museum of Fine Arts, Boston.

Our tablet, dated to Šu-Suen year 1, records regular deliveries of barley in Ur for oxen and sheep for the full year. I have identified four closely related texts, two dated to the previous year, Amar-Suen year 9, and two dated to the following year, Šu-Suen year 2. All cover the entire year and, like our text, involve all four of the same individuals, all well known in Drehem texts. All five texts have the phrase *kišib-kurušda-e-ne* “document of the animal fatteners.” Below I will call attention to several others texts that appear to belong to the same or a similar ancient dossier. Our tablet is not sealed.

Following a common practice, I use a slash “/” to indicate that an entry continues on a second line (normally indented and separated from the next entry by a horizontal line across the column), though when citing texts published only in transliteration that do not follow this practice, I can only cite the texts as published.

THE JOHN MIX TABLET

Obverse

- | | |
|--|--|
| 1. 286.2.2 1 ½ / sila ₃ še gur | 286 gur, 2 barig, 2 ban 1 ½ sila of barley |
| 2. ki Na-lu ₅ | from Nalu; |
| 3. 85.1.1 2 sila ₃ še gur | 85 gur, 1 barig, 1 ban, 2 sila of barley |
| 4. ki Ur-šu-ga-lam-ma | from Ur-šugalamma, |
| 5. sa ₂ -d[u ₁₁] ʾku ₅ ʾ-ra ₂ gu ₄ udu / zi-ga | left over regular deliveries for oxen (and) sheep, withdrawn/
distributed |
| 6. ʾša ₃ ʾUri ₅ ^{ki} -ma | in Ur; |

Reverse

- | | |
|--|--|
| 7. kišib-kurušda-e-ne | document of the fatteners; |
| 8. ki N[a]-wi-ir-dingir-ta | from Nawir-ilum |
| 9. Ba-ba-ti šu ba-ti | Babati received. |
| 10. iti maš-da ₃ -gu ₇ -ta | From the Month of Eating Gazelle (I) |
| 11. iti diri še-KIN-ku ₅ -še ₃ | to Intercalary Month of Cutting Barley |
| 12. iti 13-kam | there are 13 months. |
| 13. mu ^d šu- ^d Suen / lugal | Year Šu-Suen became king. |

The other four closely related texts are:

Sigrist 2005, no. 45 (Amar-Suen 9)

Hallo 1963, no. 43 (Amar-Suen 9)

Rochberg-Halton and Zimansky 1979, p. 135, no. 4 (Šu-Suen 2); tablet and envelope, sealed

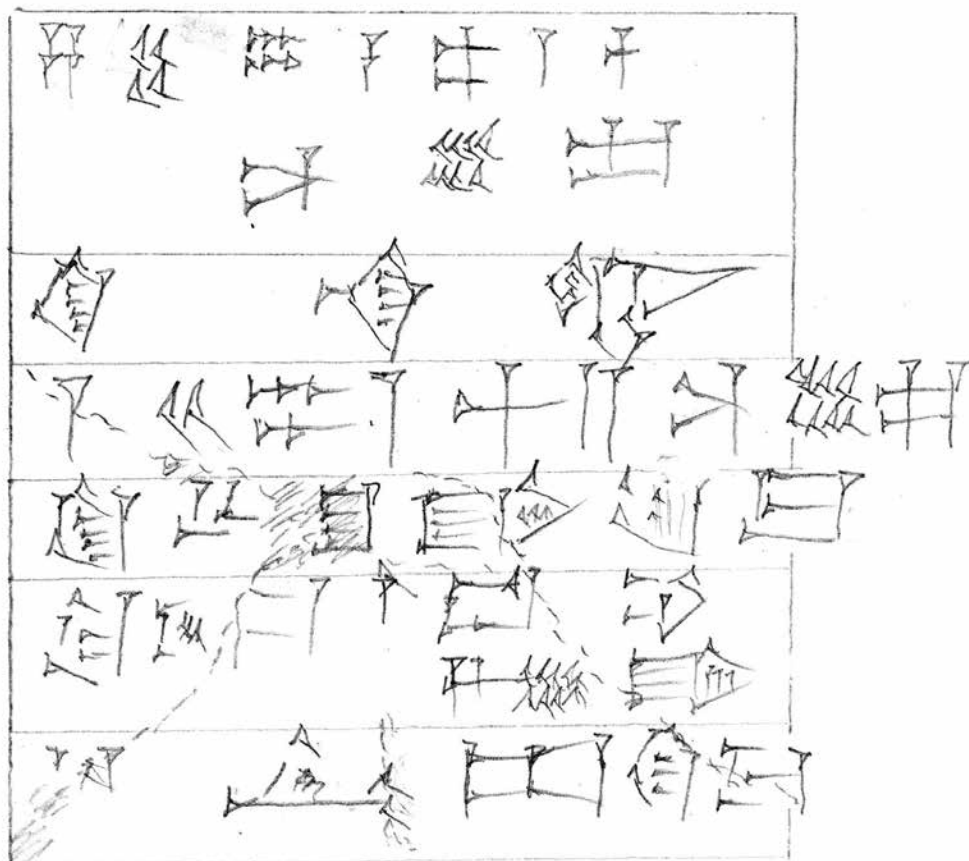
Sigrist 2000b, no. 1268 (Šu-Suen 2); tablet and envelope, sealed

It appears that, at least in the year Amar-Suen 9 and the following two years, Šu-Suen 1 and 2, there were two separate calculations. In Amar-Suen 9 there is one document involving sa₂-du₁₁ ku₅-ra₂, “regular delivery,” and another document dealing with ša₃-gal, “fodder,” for the animals. These parallel texts are preserved for Amar-Suen 9 and Šu-Suen 2. Our text in Šu-Suen 1 deals only with the sa₂-du₁₁ ku₅-ra₂, so presumably the parallel text for that year concerning fodder is either not preserved or is not yet known.

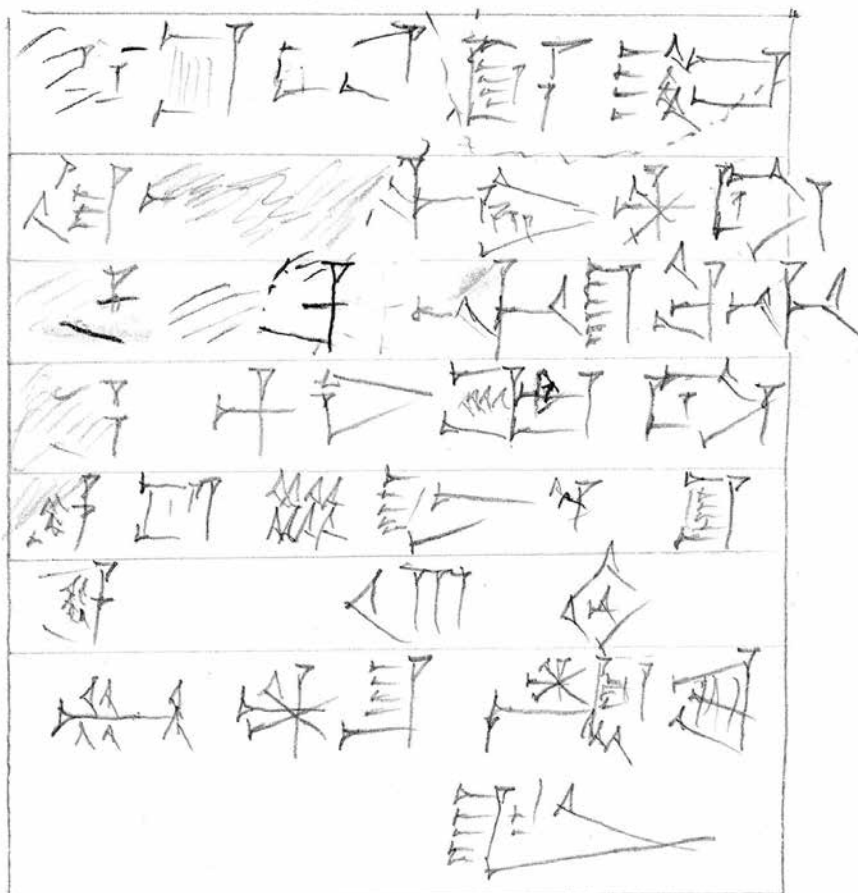
While it may be a coincidence that we have such documents from only a three-year period (Amar-Suen 9 and Šu-Suen 1 and 2), it may also reflect bureaucratic changes instituted by Šu-Suen in his year 3, which included changes in the calendar. Sallaberger (1999, p. 170) points out that some of the administrative terminology also changed. Note especially his comment, “Die gesamte Administration von Vieh in Puzriš-Dagān scheint nach ŠS 3 wesentlich anders strukturiert zu sein,” which may be a possible explanation for our not having comparable documents later than Šu-Suen 2. He also observes that in ŠS 3 and later far fewer delivery documents are preserved. The king may well have acted to restrain the burgeoning bureaucracy and to make its record keeping more efficient. Thanks to the limited success of his efforts, we still have a vast amount of surviving material, but quantitatively less than in the preceding few years.¹

Sigrist 2005, no. 45 and Rochberg-Halton and Zimansky 1979, p. 135, no. 4 are identical in structure and names and differ only in the numbers. Therefore in Sigrist 2005, no. 45 line 5 we must read e₂-a šid(!)-[da], “calculated on the premises,” instead of the personal name E₂-a-ra-[bi₂] (the signs RA and ŠID are fairly similar in Ur III cuneiform script). In lines 6–7 we should apparently read iti-bi 2-am₃ u₄ 2-ta / ba-ni-ib₂-[la₂], and in line 8 read 1-ta ba-ni-[ib₂-la₂], though I am not able to document the expression in other Ur III texts. Christopher Woods points out to me two Gudea passages, however, which confirm the legitimacy of the grammatical form: me^dNin-gir₂-su-ka ba-ni-ib₂-la₂-a, “he has made a reduction in the me of Ningirsu”

¹ See Civil (1991, p. 41, fig. 3) for an illustration of the drop in number of published documents from Drehem in Šu-Suen year 3 and for several subsequent years.



Obverse



Reverse

(Gudea Statue B i 16; see Edzard 1997, p. 31) and $sa_2-du_{11}-bi\ ba-ni-ib_2-la_2-a$, “he has made a reduction in the regular offerings” (Gudea Statue K iii 10; see Edzard 1997, p. 54).

COMMENTARY TO THE JOHN MIX TABLET

Lines 2 and 4. Both Nalu and Ur-šugalamma are well known in Drehem texts.² Sigrist identifies Nalu as a “fattener,” presumably a fattener primarily of sheep. He notes that Ur-šugalamma was active at Drehem from Amar-Suen year 3 to Šu-Suen year 9 and that he was responsible at Ur for oxen. Note that neither name is followed by *-ta*, “from,” a feature shared by Rochberg-Halton and Zimansky 1979, p. 135, no. 4 and Hallo 1963, no. 43. Tsouparopoulou (2013, p. 3), makes the point that the formulation *ki PN-ta* indicates the originating official in a transaction. She also points out that Nalu appears to have been the supervisor of the Nippur/Ur branch of the *nakabtum* organization, and that he appears in Puzriš-Dagan records from Šulgi year 28 to Šu-Suen 5 (Tsouparopoulou 2013, p. 9).

Line 4. Limet (1968, p. 207) explains the name Ur-šugalamma as “servant of the šugalam,” where šugalam refers to a part of the Eninnu, the temple of the god Ningirsu in Girsu. Tsouparopoulou (2013, p. 10) describes him as a “shepherd ‘bureaucrat’.”

Line 5. Sallaberger (1993, pp. 12–13) understands the term $sa_2-du_{11}\ ku_5-ra_2$ as the unused portion of a regular delivery. He says, “Bei Durchsicht der ... Belege für $sá-dug_4\ ku_5-rá$, ‘nicht verbrauchte(r) Teil einer regelmässigen) Lieferung,’ womit diejenigen Restbestände bezeichnet werden, die innerhalb der Organisation von Drehem verbleiben, fiel auf, dass diese immer auf den 29. oder 30., also—naheliegenderweise—den letzten Tag eines Monats datieren.” This fits perfectly the situation in our tablet and the other four cited here, all drawn up at the end of the last month of the year, indicating the amount of grain allocated that remained on the books (as it were) at year’s end (see also Maeda 1989, pp. 105–06, n. 11). Maeda states, “I assume that in the account system ... the barley which was denoted ku_5-du [now read ku_5-ra_2] was dealt with not as remainders on the treasurer’s balance sheet. Rather the amount of unused barley was kept by the responsible official to be used on another occasion as fodder or rations” (1989, p. 106).

See Steinkeller (1991, p. 25, n. 43) for comment on “oxen” and “sheep” in such texts. He points out that the term “oxen” includes what he calls “large cattle,” meaning oxen and cows, while “small cattle” includes sheep, goats, and gazelles. The terms “large cattle” and “small cattle” are not normal terms in English, though often used by Assyriologists, and are probably calques on German “Grossvieh” and “Kleinvieh” or French “grand bétail” and “petit bétail” or “menu bétail.”

Line 8. Hilgert (2002, p. 311, n. 103) interprets the writing *Na-PI-ir-DINGIR* as *Nawir-ilum*, as other scholars have in the past, though he leaves open the possibility that some apparent alternative writings may have a different interpretation. He understands *Na-wi-ir* as a stative form, thus the name means “the god is shining.” Two of our texts, Sigrist (2000b, no. 1268) and Sigrist (2005, no. 45) are cited by Wu (2008, pp. 27, 29) who appears to assume that all occurrences of *Na-wi-ir-DINGIR* (and various other spellings) refer to the same individual, even though some of the occupational identifications vary (*a-zu*, “physician,” i_3-du_8 , “doorkeeper,” etc.). I am inclined to agree with Hilgert when he writes, “Dieser Personennamen [Na-wi-ir-DINGIR] bezeichnet in Ur III-zeitlichen Verwaltungsurkunden verschiedene Personen” (2002, pp. 310–11, n. 101).

Line 9. Babati was a brother of Abi-Simti, wife of Amar-Suen, and thus maternal uncle of Šu-Suen (this assumes that the Sumerian King List is correct and that he was a son of Amar-Suen and not a brother or half-brother.³ Tsouparopoulou (2013, p. 2) calls him one of the directors of the business of Puzriš-Dagan, and says, “already in the reign of Amar-Suen, Babati had been given the right to control the closing of accounts of some Puzriš-Dagan officials.”

² See Sigrist 1992, pp. 305–06, 335–36 and, for Nalu, also Hilgert 1998, pp. 15–16.

³ See Michalowski 2013 for discussion of the possible familial relationships and also the discussion in Dahl 2004.

Line 12. Because of the use of a lunar calendar in the Ur III period, there is a discrepancy in length between a lunar year and a solar year, necessitating the addition of intercalary months. In fact, the calendar used in the Ur III period varied over time and space, but the overall details need not concern us here except as they are relevant for our texts (see in general Whiting 1979). On p. 23, Whiting (1979) states, “One of the main reasons for intercalation was presumably to make the month Šegurku [‘the month of cutting barley’] correspond to the actual harvest of the winter crop on which the rest of the cycle as well as the subsequent festivals were doubtless based.” Note that this month is the only intercalary month attested in Šu-Suen years 1 and 2 and is by far the most common in Amar-Suen year 9 (see Whiting 1979, p. 18). Note also that Šegurku is a common transcription of the month name written še-KIN-ku₅, where the syllabic reading of the sign KIN (which has several syllabic readings) is not definitively established (see also Hunger 2009). Civil (1994, p. 90) remarks, “the reading gur₁₀ for (ŠE). KIN = ešēdu ‘to reap’ seems well-established.” On p. 170 he discusses the variant še-sag-ku₅ (only in Umma texts), saying, “In view of the Ur III Umma variant one should probably conclude that KIN is to be read sag₁₁/sig₁₈ and the term is not exactly synonymous with gur₁₀ = ešēdu.” Note, however, that Sallaberger (1999, p. 235, n. 322) is unconvinced, and recommends retaining KIN in transliterations. It may be worth noting that later in the Diyala area, Alalakh, and in other “peripheral” areas, the month name is written logographically ŠE.KIN.KU₅ or syllabically as *Niggallu*, “sickle” (see CAD s.v. *niggallu*).

THE SA₂-DU₁₁ AND THE ŠA₃-GAL TEXTS IN AMAR-SUEN 9

Although the sa₂-du₁₁ text in Amar-Suen year 9 is identified in BDTNS as coming from Girsu, it is surely Puzriš-Dagan. The transliteration of the sa₂-du₁₁ text is taken, unmodified except harmonizing the writing of month names with ones used in this article and continuing the line numbers on the reverse, from BDTNS.

THE AMAR-SUEN YEAR 9 SA₂-DU₁₁ TEXT (HALLO 1963, NO. 43)

Obverse

1. 292.2.0 4 ½ sila₃ / še gur
2. ki Na-^llu₅
3. 216.1.0 4 ^lsila₃ <še> gur
4. ki Ur-šu-ga-lam-ma
5. sa₂-du₁₁ ku₅-ra₂
6. gu₄ udu zi-ga
7. ša₃ Uri₅^{ki}-ma
8. kišib kurušda-e-ne

Reverse

9. ki Na-wi-ir-DINGIR-ta
10. Ba-ba-ti
11. šu ba-ti
-
12. iti maš-da₃-gu₇-ta
13. iti diri še-KIN-ku₅-še₃
14. iti 13-kam
15. mu en ^dNanna / Kar-zi-da ba-hun

THE AMAR-SUEN YEAR 9 ŠA₃-GAL TEXT (SIGRIST 2005, NO. 45)

In accordance with comments above, the transliterations of lines 5, 7, and 8 have been revised from those given in BDTNS.

Obverse

1. 62.2.3 1 sila₃ še gur
2. ki Na-lu₅-[ta]
3. 9.1.4 8 sila₃ še gur
4. ki Ur-šu-ga-lam-ma-ta
5. ša₃-gal gu₄ udu e₂-a šid(!)-[da] u₄ 7-kam
6. iti-bi 2-am₃ u₄ 2-ta
7. ba-ni-ib₂-[la₂]

Reverse

8. iti-bi 3-am₃ u₄ 1-ta ba-ni-[ib₂-la₂]
9. ša₃ Uri₅^{ki}-ma
10. kišib kurušda-e-ne
11. ki Na-wi-ir-DINGIR-ta
12. Ba-ba-ti šu ba-ti
13. iti maš-da₅-gu₇-ta
14. iti diri še-KIN-ku₅-še₃
15. iti 13-kam
16. mu en ^dNanna Kar-zi-da ba-hun

I understand lines 6–8 to mean “in each of 2 months 2 days have been deducted, (and) in each of 3 months 1 day has been deducted.”

THE ŠU-SUEN YEAR 2 SA₂-DU₁₁ TEXT (SIGRIST 2000B, NO. 1268)

Obverse

1. 124.4.3 še gur lugal
2. ki Na-lu₅-ta
3. 82.4.0 še gur
4. ki Ur-šu-ga-lam-ma-ta
5. sa₂-du₁₁ ku₅-ra₂ gu₄ udu zi-ga
6. ša₃ Uri₅^{ki}-ma
7. kišib kurušda-e-ne

Reverse

8. ki Na-wi-ir-DINGIR-ta
9. Ba-ba-ti šu ba-ti
10. iti maš-da₃-gu₇-ta
11. iti še-KIN-ku₅-še₃
12. iti 12-kam
13. mu ^dŠu-^dr Suen¹
14. ma₂ dara₃-abzu [ba-ab-du₈]

Seal

1. ^dŠu-^dSuen
2. lugal-kala-ga
3. lugal Uri₅^{ki}-ma
4. lugal an-ub-da limmu₂-ba
5. Lugal-iti-da
8. dub-sar
7. dumu šeš-kal-la
8. arad₂-zu

See Tsouparopoulou (2015, p. 223, no. 202) for a drawing of the seal.

THE ŠU-SUEN YEAR 2 ŠA₃-GAL TEXT (ROCHBERG-HALTON AND ZIMANSKY 1979, P. 135, NO. 4); SEALED WITH A SEAL SHOWING A PRESENTATION SCENE AND A BIT OF THE INSCRIPTION

Obverse

1. 49.0.1 7 sila₃ še gur
2. ki Na-lu₅
3. 5.0.2 2 sila₃ še gur
4. ki Ur-šu-ga-lam-ma
5. ša₃-<gal> gu₄ udu e₂-a šid-da u₄ 5-kam
6. iti-bi 5-am₃ u₄ 1-ta / ba-ni-ib₂-la₂
7. [ša₃] Uri₅^{ki}-ma
8. [kišib] kurušda-e-ne

Reverse

9. ki Na-wi-ir-DINGIR-ta
10. [Ba]¹-ba-ti šu ba-ti
11. iti maš-da₃-gu₇-ta
12. iti še-KIN-ku₅-še₃
13. iti 12-kam
14. mu ^dŠu-^dSuen lugal / Uri₅^{ki}-ma-ke₄
15. ma₂ dara₃-abzu ^dEn-ki- / ka bi₂-in-du₈

Envelope

- 1'. iti [...]
- 2'. iti [...]
- 3'. iti [...]
- 4'. mu [ᵀ]¹ [...] /
- 5'. Uri₅^{ki}-[ma-ke₄] /
- 6'. ma₂ dara₃-[abzu]¹ [^dEn-ki]- / ka bi₂-[in-du₈]

I understand line 6 to mean, “in each of 5 months 1 day has been deducted.”

There are five additional published texts that appear to belong to the dossier of the five texts identified above or a related dossier because of distinctive shared vocabulary and subject matter. All deal with deliveries of barley and all have the expression sa₂-du₁₁ ku₅-ra₂ gu₄ udu zi-ga, “deliveries for oxen (and) sheep, withdrawn (or distributed).” All are certainly Drehem texts, although one (Sigrist 2000a, no. 789) is identified in BDTNS as coming from Umma. I use here the line numbers as in BDTNS to avoid conflicts in citing line numbers.

Because of the close similarity of all five of these texts, I provided a translation of only one as an illustration.

NO. 1. SIGRIST 2000A, NO. 789 (AMAR-SUEN YEAR 4)

1. [x] + 37.3.5 4 ½ sila₃ še gur lugal
2. sa₂-du₁₁ ku₅-ra₂ gu₄ udu zi-ga a DU-a
3. ša₃ na-kab-tum-ma
4. giri₃ A-hu-We-er
5. ki ^dŠara₂-kam-ta
6. Za-li₂-a šu ba-ti
7. iti maš-da₃-gu₇-ta
8. iti še-KIN-ku₅-še₃
9. iti 13-kam
10. ša₃(!)-ba iti diri 1-am₃ i₃-gal₂
11. mu en-mah-gal-an-na en ^dNanna ba-hun

Ahu-Wer is well-known in Drehem texts as an official in the *nakabtum* organization (see Kerekes 2014). In line 10 where the published transliteration has *iti-ba*, we must surely read *ša₃-ba* in this relatively common phrase, “included in (these) months is an intercalary (month).” In the example of this phrase in YOS 4 313:13, probably read *ša₃-ba itī diri i₃-<gal₂>*.

NO. 2. KEISER 1971, NO. 324 (AMAR-SUEN YEAR 4)

- 1-2. 370.[x.x] / 6 5/6 sila₃ [še gur]
- 3-4. sa₂-du₁₁ ku₅-[ra₂ gu₄] udu / zi-ga ʾa¹ [DU]-a
5. ša₃ na-kab-tum-ma
6. giri₃ dšul-gi-a-a-mu
7. ki dšara₂-kam-ta
8. Za-li₂-a šu ba-ti
9. itī maš-da₃-gu₇-ta
10. itī še-KIN-ku₅-še₃
11. itī 13-kam
- 12-13. ša₃-ba itī diri 1-am₃ / i₃-gal₂
14. mu en-mah-gal-an-na / en dNanna ba-hun

Note that Keiser’s copy omitted *gal* in the year name; see the correction on pl. 90.

NO. 3. ÇIĞ, KIZILYAY, AND SALONEN 1954, NO. 386 (AMAR-SUEN YEAR 5)

1. 373.1.5 7 ½ sila₃ še gur
2. giri₃ A-hu-We-er
3. 441.0.5 ½ sila₃ še gur
4. giri₃ dšul-gi-a-a-mu
5. sa₂-du₁₁ ku₅-ra₂ gu₄ udu zi-ga a DU-a

Reverse

2. ki dšara₂-kam-ta
3. Za-li₂-a šu ba-ti
4. itī maš-da₃-gu₇-ta
5. itī še-KIN-ku₅-še₃
6. itī 12-kam
7. mu en-unu₆-gal dInanna Unug^{ki} ba-hun
8. kišib Ba-ba-ti dub-sar ba-an-bala

The envelope is sealed with the arad-zu seal of Babati (see collations in Gomi 1988, p. 114).

NO. 4. KEISER 1971, NO. 205 (AMAR-SUEN YEAR 9)

- | | |
|---|---|
| 1. 18.0.2 še gur | 18 gur 2 ban barley |
| 2. sa ₂ -du ₁₁ ku ₅ -ra ₂ | left over regular delivery |
| 3-4. gu ₄ udu zi-ga u ₃ / ba-ug ₇ a DU-a | for oxen (and) sheep taken out, including ones that died or drowned (literally “carried away by water”) |
| 5. ki Ta ₂ -hi-iš-a-tal | from Tahiš-atal. |
| 6. itī maš-da ₃ -gu ₇ -ta | From the month of eating gazelle |
| 7. itī ezem-dNin-a-zu-še ₃ | to the month of the festival of Nin-azu |
| 8. itī 5-kam | there are five months |
| 9. [m]u en dNanna ʾKar ¹ -ʾzi ¹ -da ba-hun | The year the en of Nanna of Karzida was chosen. |

NO. 5. SIGRIST 2000A, NO. 1168 (AMAR-SUEN YEAR 9)

1. 107.3.[x] [x] sila₃ še gur
2. sa₂-du₁₁ ku₅-ra₂
3. gu₄ udu zi-ga
4. u₃ ba-ug₇ a DU-a
5. ki Igi-^dEn-lil₂-še₃
6. iti maš-da₃-gu₇-ta
7. iti ezem-^dNin-a-zu-še₃
8. iti 5-kam
9. mu en ^dNanna Kar-zi-da ba-hun

Of these texts, numbers 1, 2, and 3 have a DU-a ša₃ na-kab-tum-ma following gu₄ udu zi-ga. (In no. 2 restore line 1 as 370 + [...] / 6 5/6 sila₃ [še gur] and line 2 as sa₂-du₁₁ ku₅-[ra₂ gu₄] udu / zi-ga [a¹[DU]-a.) Number 3 differs only in lacking -ma after na-kab-tum. The two texts from Amar-Suen year 9 (nos. 4 and 5) do not mention the na-kab-tum, but add the phrase u₃ ba-ug₇ a DU-a following zi-ga, “withdrawn/distributed.” Numbers 1 and 3 both have giri₃ A-hu-We-er, No. 2 has giri₃ ^dŠul-gi-a-a-mu, and all three have ki ^dŠara₂-kam-ta Za-li₂-a šu ba-ti. Numbers 1, 2, and 3 cover the entire year. Numbers 4 and 5 cover the first five months of Amar-Suen year 9.

The phrase a-DU-a or a DU-a was a puzzle to me. Miguel Civil points out to me the phrase a-ša₃ a-e DU-a, “a field carried away by the water,” that he discusses in Civil (2011, p. 267). The term is discussed in detail in Wilcke (1999). It is also reflected in the Babylonian omen corpus, where, especially in extispicy and astrological texts, omens have protases dealing with agricultural matters. Compare A.ŠA₃ be-el im-mi-ri mu-u₂ u₂-ba-lu, “water will carry off the field of the owner of the sheep (used in the extispicy)” (George 2013, p. 170, rev. 5’). Similar passages occur with *biblu*, “flood.” I am grateful to Miguel Civil for discussing with me the meaning of a DU-a and proposing the interpretation followed here.

Our passages are:

- No. 1 sa₂-du₁₁ ku₅-ra₂ gu₄ udu zi-ga a DU-a / ša₃ na-kab-tum-ma
 No. 2 sa₂-du₁₁ ku₅-[ra₂ gu₄] udu / zi-ga [a¹ [DU]-a / ša₃ na-kab-tum-ma
 No. 3 sa₂-du₁₁ ku₅-ra₂ / gu₄ udu zi-ga / a DU-a / ša₃ na-kab-tum
 No. 4 sa₂-du₁₁ ku₅-ra₂ gu₄ udu zi-ga / u₃ ba-ug₇ a DU-a
 No. 5 sa₂-du₁₁ ku₅-ra₂ / gu₄ udu zi-ga / u₃ ba-ug₇ a DU-a

Another Puzriš-Dagan text, Keiser (1919, no. 302:26; dated Ibbi-Suen year 1), an account of barley and fresh reeds for sheep, has a similar expression: sa₂-du₁₁ ku₅-ra₂ udu ba-ug₇ a / DU-a.

I wish to acknowledge the very substantial help I have received from BDTNS (Base de Datos de Textos Neo-Suméricos, <http://bdtns.filol.csic.es/index.php?p=home&acceso=s>) in identifying many of the texts mentioned in this article and for providing readily accessible transliterations of so many Ur III texts.

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Muhammad, Umm al-Hafriyat, 1977. (Drawing by Peggy Sanders)

CHAPTER 5

ON SOME UR III SCRIBAL EXERCISES

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ABSTRACT

This short piece looks at Ur III Sumerian scribal exercises, a genre of text poorly understood.

One of the great mysteries in the history of cuneiform schools and of Sumerian lexicography is where and how the many hundreds of scribes of the Ur III period were trained. Practically nothing has been preserved of school exercises from that time,¹ compared with the thousands of tablets with exercises recovered from the Old Babylonian period and afterwards. The dating of the few exercises that supposedly stem from the end of the third millennium is mostly based on unreliable paleographic criteria.² This note presents a small group of texts that can be considered with confidence Ur III scribal exercises. Eight of the tablets were published by Chiera as far back as 1919 (PBS 11/3, pp. 51–58); there is one in Foster 1979, p. 241; and four more were edited by Alster 2007, pp. 21–28; MS 1941/1–4, as possible “proverbs.” It is a homogeneous group of type II/1 school exercises, with the right side cut off in antiquity, as is the case with most tablets of this type. The scribal hand(s) are typical Ur III. The reverse sides are all blank, except for PBS 11/3 51 (1), that has a copy of an Ur III administrative document from Umma. This provides the date and the origin of the pieces,³ confirmed by an annotation of Hilprecht in the tablet ledger of the Philadelphia University Museum.⁴ The contents are of difficult interpretation, and no entries appear to come from a known ED word list. There is an obvious pronunciation exercise of a personal name (text 3). Šulgi’s name appears in text 13:1. Many entries are obviously personal names (text 7:2), including some legendary ones: en-pirig-DU-gin₇-an-na and en-NI-lu-an-na, to be compared to en-“darà”-an-na and en-GÌR-DU-an-na, and Enmenluanna, respectively (text 8:1–2); igi-kár is repeated four times in text 7:8–11. There are some finite verbal forms and a couple of complete short sentences, but no obvious connection between adjacent lines. The tablets appear to be calligraphic exercises rather than excerpts from a word list, but the little that

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¹ Zettler 1996, p. 93 dates stratigraphically to Ur III some lenticular tablets that superficially do not look Ur III, but then many of the dozens of Nippur business tablets in NRVN, and similar, do not look “typical” Ur III either. CDLI leaves the “period” entry blank.

² Or on the “irregular” nature of the (administrative) contents; see Englund 2004, p. 39, n. 22. A survey of Ur III “exercise” tablets can be found now in RLA 12/3–4, 2009, pp. 298–99, “Schule,” §10, where the PBS 11/3 tablets are properly identified. See, e.g., the last line of the incantation Um 712 and the comments in Waetzoldt and Yıldız 1987. Granting that these documents can be considered “exercises,” they are not typical school exercises with lexical material (or quasi-lexical material, like Cohen 1993b); some of them seem to be occasional annotations and auxiliary material, like the month list NBC 7439 in Cohen 1993a, p.70. A tablet that could be classified as school exercise is A 32026 (HLC 3 HLB 371 pl. 140, P110241), collated in ASJ 2 1980, p. 222, but in need of further collation. It is questionable that the tiny lexical fragments from the sixth Nippur expedition, from Ur III or slightly older and with a text derived from traditional ED word lists, should be classified as typical “school exercises.” In any case, the matter deserves further study.

³ As duly noted already in HKL 1 p. 27, from the quite complete information given by Chiera in PBS 11/1.

⁴ The note, that ends in a poisonous barb against Peters, reads thus: “purchased by Haynes in 1890 for the B[abylonian] E[xpedition] F[und] for 2 Turkish Liras (i.e., \$80 in Baghdad 1890). They are reported to him as found by Said Ahmed in July + Aug. 1890 at Jokha where he evidently excavated secretly a little after the maner [sic] of Dr. Peters.”

can be recovered, with some imagination, as connected text points rather to improvisations, perhaps inside jokes or private comments circulating in the school. A striking feature of all the texts, with the exception of numbers 1–3 and 13, is the presence of the phrase *lú GN^{ki}*, not PNs but gentilics. This is not the place to investigate the geographic horizon of these texts, but a listing of the place names is given here alphabetically with indication of the publication number.

AB×U ^{ki} (5)	BĀD.AN ^{ki} (7)	hu-bu-ra ^{ki} (11)	pu-uš ^{ki} (11)
a-l[a-x] ^{ki} (5)	DU ^{ki} (4)	i-la-an-DU ^{ki} (10)	URU×DU ^{ki} (11)
ašté ^{ki} = LAGBA×A (6)	ere-líl-la ^{ki} (10)	IM ^{ki} (11)	

One can add:

ki-^{ḡi}mar^{ki} (a)
^{ḡi}ma-re-el-la^{ki} (?) (b)

1. CBS 9044 (PBS 11/3 51; P427606)

Cut tablet, 79 × 42 mm, 6 lines; reverse Ur III document, 14 lines.

Obverse

1 [A]N IGI.D[U]
 gada NI gada
 lú AMA.^dINANNA
 IGI.ŠĒ-a-mu
 5 ^dnin-ta?-an-dùl
 umbisaḡ

Reverse

1' ʾlúʾ gu-la
 UR.UR
 nu-bandà lú ʾxʾ
 81 3/4 gán hul-tag
 5' 81 3/4 gán ur-niḡn-ḡar
 KA-^dšará
 a-tu
 saḡ-hul nu-DU
 lú-saḡ_o-ga
 10' 33.2.3 še gur-lugal-ta
 22.3.3 5 sila še ʾgurʾ [(...)]
 ur-niḡn-ḡar dub-sar
 lú-^{ḡi}kiri₆
 a-šà lal-mah

Cited and classified as “OB model account, PN list” in Robson 1999, pp. 13, 312.

Line obv. 5. an-dùl is a very frequent component of PNs in Ur III.

Rev. PNs (e.g., KA-^dšará) and the field name a-šà lal-mah confirm Umma as the place of origin.

2. CBS 1119 (PBS 11/3 52; P227660)

Cut tablet, 67 × 43 mm, 5 lines; reverse blank.

1 gaz-bu-DU
 še-li-bi na-zu
 i-sar-kur-ba-aš
 gaz-gaz-ma
 5 ^{ḡi}al NI-LUM

Reading ì-guz in the last line, the text could be a word play gaz/guz; the mention of the hoe suggests *guz* = *hurruru* Aa 5/1:37 from *harāru* A “to dig (with a hoe).”

Line 2. še-li-bi, five times in BDTNS (e.g., TCL 5 6042 i 15) is not a PN but “pine nuts” as ingredient of aromatics + possessive -bi, without antecedent in the present text as is.

Line 3. The (Elamite?) PN i/i-sar-kur-ba-aš is attested twice in Ur III (SAT 3 1471; AAICAB 1/1 Ashm. 1910–761).

3. CBS 9039 (PBS 11/3 53; P264470)

Cut tablet, 80 × 46 mm, 5 lines; reverse blank.

- 1 [s]ig₄-te-lá-NI
 sig-te-lá-[⌈]NI[⌋]
 sig-te-lá-NI
 te-il
 5 [⌈]ba[⌋]-ab

Variations on the writing of a PN, some already noted in MAD 3 290 s.v. ŠTL? Besides the well-attested spellings in BDTNS: Sig₄-te-lá-NI, Sig₄-dè-li, and Sig₄-te-lí, M. Molina (pers. comm.) points out to me the additional Sig₄-de-li,⁵ and, more interestingly, the only instance so far written with SIG instead of sig₄: sig-te-la-e Nisaba 15/2 176, that could suggest a reading -ià for NI.⁶ Note that on the tablet, in lines 2–3, the two SIG signs are slightly different.

Line 4 clarifies the pronunciation of TE.LÁ, possibly to exclude a reading gal₅-lá. The name so far resists analysis; the proposal of MAD 3 of a form from *ŠTL seems unlikely, and the spelling variants would seem to indicate that the ancient scribes were already puzzled by it.

4. CBS 9043 (PBS 11/3 54; P264474)

Cut tablet, 68 × 41 mm, 5 lines; reverse: isolated wedges, erased.

- 1 lú [⌈]NI[⌋] lú? DU[⌋]^{ki}
 a-ba na-DU ì-BAD
 sù-sù-dè hé-du₇
 lú HI-da
 5 ^{kuš}nag

Line 1. Not deciphered properly. DU^{ki} = āliku^{ki} (Diri 2:036)

Lines 2–3. Perhaps literally “AbanamDU has died, that this be suitable to last a long time,” that is, he is dead, let him remain so. The PN AbanamDU is attested three times in Ur III documents: Princeton 1 372 (followed by MU, read -túm-mu?), SA 145, pl. 165 (followed by IN, perhaps in-<BAD>), and UTI 3 1699. Compare the PN a-ba-nam-TAG ì/in-BAD (CT 32 34, BM 103404 ii 18; MVN 2 175 ii 13; SAT 1 415 r. 14; and cf. Nisaba 6 27 iv 30); outlandish, but not impossible, would be an alternation túm : šum, comparable to šúm : tum = nadānu, but a lexeme nam-šum, or for that matter nam-túm, is otherwise unknown. The BAD could perhaps be read til, “to annihilate,” compare the PN nin-nam-tag-du₈ (ASJ 18 157 2 ii 25; MVN 6 320 i 9; TUT 158 iv 7', 159 vi 15, UNT 34 iii 10).

⁵ *Orient* 16 078 113: r. iv'.203; BM 110999 r.12 (unpubl.), Nisaba 6 30 i and Nisaba 24 23 i.21. In need of collation: Nisaba 8 386:6 (Sig₄-dè-lí), BPOA 7 2683 (Sig₄-ta-li-ni), and MVN 15 146 r.i 22 (Sig₄-te-[l]i-ni).

⁶ Note that the OB pronunciation of sig₄ is še-eg (šeg₁₂) according to Proto-Izi 1:259 and MSL 14 115:62, the form si-ig (sig₄) is late, from Aa5/2:098; sig has initial š in Old Akkadian še and ši. Were it not for the insistence of the scribe on the reading /tela/, one could in desperation suspect a cryptographic form for šà-gal-la-ni “his hunger,” or “his food.”

Line 4. The term *lú HI-da* is attested only five times⁷ in Umma documents between Šulgi 39 and Šu-suen 5, listing recipients of *dabin*-flour as food (ša-gal). The texts are otherwise uninformative, except for UTI 6 3718 (Amar-Suen 8, P141715), a four column tablet with a total of 5+ gur of *dabin*, and 1+ gur of *du₈-gen* distributed to *lú-HI-da* who are designated by name alone (with only a couple of exceptions: *sipa*, *sipa-gud*). The tablet gives the time these individuals receive the flour, a couple of months before harvest. Perhaps the enigmatic passage in Farmer Instructions 85–85a refers to this distribution of *dabin*. The matter needs investigation.

Line 5. *kušⁿnag* is rare in Ur III, but frequent in PS Girsu (DP 492 2:2, 3:7, etc. DP 493 1:8, 2:5, 7:6, 9:1; DP 498 1:2; DP 499 2:3, 3:2; VAS 14 67 3:8, 4:5; 162 2:6; etc.) always as a leather strap, part of the plow (explicitly in DP 502), so that the graphic etymology that gives “ein lederner Tränkeimer” (Deimel) or “Wasserschlauch” (Salonen) misses the mark; see AWL p. 267. Later on, *nag* is replaced by *kušⁿnig* = *kalbatu* (Hh 11:258), already in Ur-Namma’s code (CUSAS 17 p. 263).

5. CBS 9042 (PBS 11/3 55; P264473)

Cut tablet, 18 × 46 mm, 8 lines; reverse blank.

lú a-l[a?]^{ki}
 2 AN a-zu
 ì-lí-IGI.ŠIM×[X]
 4 lugal-EZEN×Ú
 lugal GÍN-AB
 6 lú AB×U^{ki}
 na₄ AN.PAR₄
 umbisaḡ

Line 1. Cf. a-la RGTC 2 7?

Line 3. CAD Š/1 359a šamu B reads ì-lí-lì-šim; the CDLI photo of CBS 9042 shows faint but unmistakable traces of a sign starting with several horizontal wedges (SIG₇?). Compare ì-lí-ŠIM[?] BJRL 64 114 78:4', with no inscribed sign in copy; the CDLI photo of this tablet (P106872) shows unclear signs that Molina (pers. comm.) would like to read ì-lí-bi-la-ni.

6. CBS 11120 (PBS 11/3 56; P227661)

Cut tablet, 44 × 45 mm, 5 + [(x)] lines; reverse: two signs, end of col. and div. line next to edge; uninscribed space for a last column. Compared with the other pieces, it has a thinner and more “normal” profile.

AN SU [ŠID?]-dè
 2 ur-^dnin-mug
 lú ašte (LAGAB×A)^{ki}
 4 U [X] URUDA? [...]
 [ki?][?] [...]
 (break)

Line 2. Frequent PN in Ur III.

Line 3. RGTC 1 11–12 sub Ambar. The lexical sources provide three readings; for lexical references, see JCS 65 p. 50.

⁷ One of the texts (UTI 3 2049, Amar-Suen 9) is a pisan dub-ba ša-gal lú hi-da mu 2-kam, so that a relatively large amount of tablets on this matter must have been drawn.

7. CBS 9041 (PBS 11/3 57; P264472)

Cut tablet, 115 × 45 mm, 11 lines; reverse: traces of erased signs.

- 1 ŠITA.GIŠ.TÚG-ni
 e-lu-la
 igi-ni GÍR-GÍR
 nir-ì-da-ḡál
 5 nin-me-lám
 lú ṽBĀD¹-AN^{ki}
 lugal bará
 igi-kár
 igi-kár
 10 igi-kár
 igi-kár

Lines 1–2. If one could assume that e-lu-la = Elulu, line 1 would be “his king.”

Line 3. NI can be the possessive -ni or the prefix ì-; cf. [ta-a]b GÌR = *hamāṭu* B Aa 8/2:226, and, with a different logogram, du GABA = *hamāṭu* ša IGI Aa 8/1:149.

Lines 4–5. PNs frequent in Ur III.

Line 6. RGTC 1:22; 2 22. Not properly a PN, but a gentilic: NATN 48, Ontario 1084, SA 050a (pl. 41).

Line 7. PN found half a dozen times in Ur III.

Lines 8–11. Could the repetition be the expression of a complaint: “inspecting all the time!”?

8. CBS 9040 (PBS 11/3 58; P264471)

Cut tablet, 78 × 44 mm, 6 lines; reverse blank.

- 1 en-pirig-DU-gin₇-an-ṽna¹
 en-NI-lu-an-na
 ur-GAR
 kisal DU.DU-e
 5 ur-^dnin-ṽx¹-KA×SAR
 BÚR
 (end)

Line 1. -ṽna¹ apparently erased.

Line 4. Perhaps better É than KISAL.

Line 5. Erased KA after nin.

9. 1941/1 (CUSAS 2, pp. 21–23; P250606)

Cut tablet, 86 × 70 mm, 5 lines; reverse blank.

- 1 lú i-la-an-DU^{ki}
 lú ere-líl-lá^{ki}
 du-ru-ṽgin₇¹
 lugal é ^{giš}gigir dar-àm
 5 ki máš-anše ^ddumu-zi-da-ke₄ ú gu₇

Alster *Or* 75 (2006, pp. 93–94)

Line 4. “the king decorating(?) the carriage house.”

Line 5. “grazing at the place of Dumuzi’s goats and donkeys.”

10. 1941/2 (CUSAS 2, pp. 24–25; P250607)

Cut tablet, 50 × 49 mm, 5 lines; reverse blank.

 ┌su┐ NE HA
2 ad ┌DU┐ en
 ad ^dAB
4 lú IM^{ki}
 ú KUR

Line 1. HA more likely than PEŠ; read ne-ha “calm”?

Line 4. There are typically three places written IM^{ki}: anigi, karkar, and mūr(u) (with vars.) (Ea 1:166–69, Diri 4:128–30 and parallels); Ea 7:166–69 adds a fourth one (reading broken). See RGTC 2 p. 92 (Karkar), p. 134 (Muru). Well attested in literary texts.

11. 1941/3 (CUSAS 2, pp. 24–25; P 250608)

Cut tablet, 55 × 48 mm, 5 lines; reverse blank.

1 hu-bu-ra^{ki}
 níḡ-mu mu-kal-le
 lú URU×UD^{ki}
 lú pu-uš^{ki}
 DU₈

Line 1. hu-bu-ra could be a variant of ha-bu-ra, and there is no connection between hu-bu-um^{ki} and the common noun hu-bu₇^{bu} (see *AuOr* 7, p. 147), as suggested by Alster in CUSAS 2.

Line 3. RGTC 1 187.

Line 4. RGTC 2 154.

12. 1941/4 (CUSAS 2, pp. 26–27; P250609)

Cut tablet, 53 × 47 mm, 5 + [(x)] lines; reverse blank.

1 ┌su?┐ mu-RU
 kal-kal-e
 ša-ša-e
 su-kal
5 igi HI×U
 end (cut)

13. VASSAR COLLEGE 5 (JCS 31 [1979] 241)

Cut tablet, 75 × 50 mm, 6 lines.

1 [l]ugal ^dšul-gi-ra
 lugal hi-li
 ┌nam┐-ereš-ša
 ereš-mu
5 LÁL.TÚG-mu
 BI-kam
 end (cut)

Formerly part of the Amherst tablets (1942, p. 66), cataloged in Foster 1979. Note his remarks on the “unusual thickness” and “brick-like appearance” of the piece.

Line 5. LÁL.TÚG is a typical Ur III compound sign used in the Umma PN lugal-LÁL.TÚG. Its reading, ending in -r, is assumed to be /ušur/; if so, it would be here a word play, based on metathesis, with the ereš, to be read /uruš/ (ù-ru₁₂-šúm in the Ebla Sign List 30) of the preceding line.

ADDITIONAL TEXTS

Two lenticular tablets with contents similar to the previous numbers, but with a cursive script apparently of a later date, are published in CUSAS 2. Both include the phrase lú GN^{ki}.

A. MS 2069/1 (CUSAS 2, p. 31; P20041215)

Lenticular, Ø = 75 mm, 5 lines; reverse blank. Cursive script with erasures and slanted lines.

- 1 lú ki-^{niš}mar^{ki}
 PI (erasure)-ZUM
 ZUM (one erased sign)
 da ki AN
 5 KA

Line 1. cf. perhaps RGTC 2 99 *sub* Kimari

B. MS 2069/2 (CUSAS 2, pp. 32–33; P20041215)

Lenticular, Ø = 76 mm, 5 lines enclosed in a box with a LÚ sign outside on top, with erasures; two isolated signs on the reverse. Characteristics similar to MS 2069/1.

- 1 é gi-BAD-bi gi-BAD
 lú giš ʾmaʾ[?]-re-el-ʾla^{ki}
 lú uru^{ki}
 lú i-bí-la ʾx[?]-(x)
 5 ^{na}gi-rí-in

Line 5. CAD G 88b *girinnu*; the word may have gone unnoticed if spelled ^{na}LAGAB.

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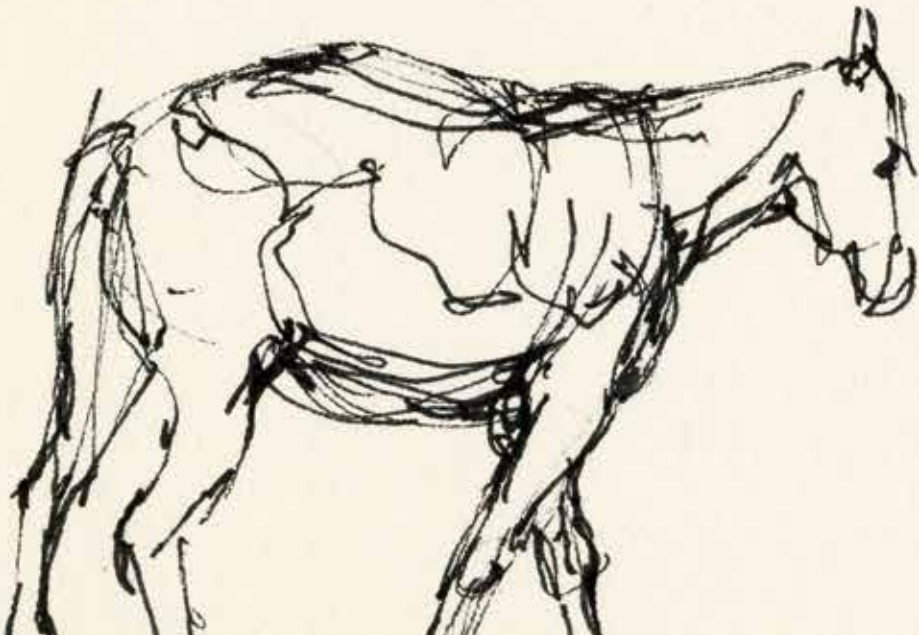
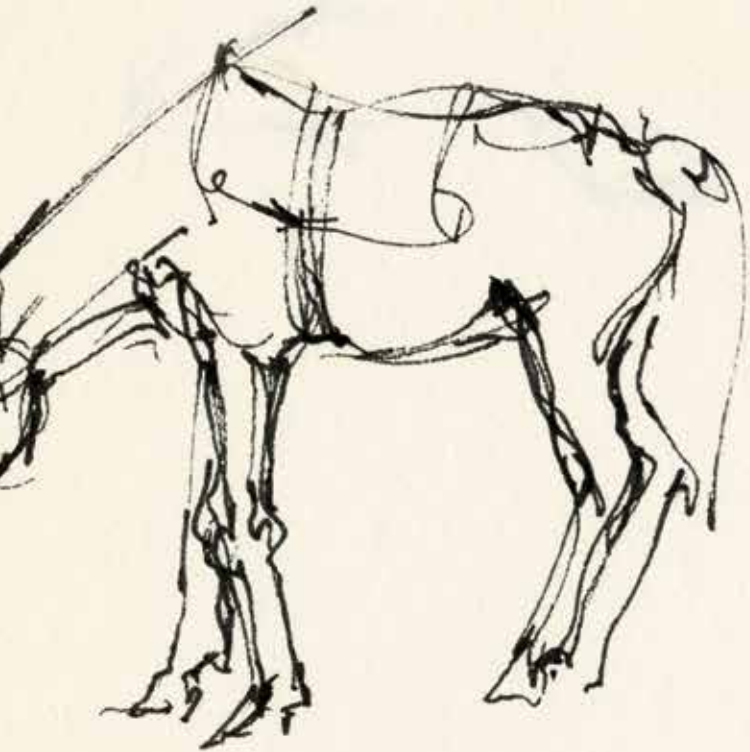
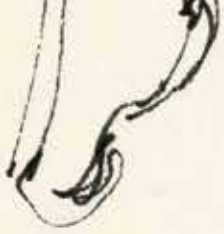
Aa	lexical series, see M. Civil, <i>Materials for the Sumerian Lexicon</i> . Volume 14. Rome: Biblical Institute Press, 1979.	CAD	<i>The Assyrian Dictionary of the Oriental Institute of the University of Chicago</i> . Chicago: Oriental Institute, 1956–2010.
AAICAB 1/1	Grégoire, Jean Pierre. <i>Contribution à l'histoire sociale, économique, politique et culturelle du proche-orient ancien</i> . <i>Archives administratives et inscriptions cunéiformes: Ashmolean Museum, Bodleian Collection, Oxford: Les Sources 1</i> —Paris: Geuthner, 1996.	CDLI	Cuneiform Digital Library Initiative. Accessed October 29, 2018. cdli.ucla.edu .
ASJ	<i>Acta Sumerologica</i> (1979–).	CT 32	King, Leonard W. <i>Cuneiform Texts from Babylonian Tablets in the British Museum</i> . Part 32. London: British Museum Publications, 1912.
ASJ 2	Tohru, Maeda. “Collation of G. A. Barton, <i>Haverford Library Collection of Cuneiform Tablets or Documents</i> .” <i>Acta Sumerologica</i> 2 (1980): 197–224.	CUSAS	Cornell University Studies in Assyriology and Sumerology. Bethesda: CDL Press, 2007–.
ASJ 18	Maekawa, Kazuya. “Confiscation of Private Properties in the Ur III Period: A Study of é-dul-la and ní-g-GA.” <i>Acta Sumerologica</i> 18 (1996): 103–68.	CUSAS 2	see Alster 2007 in bibliography
AuOr 7	Civil, Miguel. “Review of B. Lafont, <i>Documents administratifs sumériens, provenant des fouilles de Tello et conservés au Musée du Louvre</i> (“Mémoire” n. 61). Paris 1985, Édition recherche sur les civilisations. <i>Aula Orientalis</i> 7/1 (1989): 146–47.	CUSAS 17	George, Andrew R., editor. <i>Cuneiform Royal Inscriptions and Related Texts in the Schøyen Collection</i> . Cornell University Studies in Assyriology and Sumerology 17. Bethesda: CDL Press, 2011.
AWL	Bauer, Josef. <i>Altsumerischen Wirtschaftstexte aus Lagasch</i> . Teil 1. <i>Studia Pohl</i> 9. Rome: Biblical Institute Press, 1972.	Diri	lexical series, see Civil, Miguel. <i>Materials for the Sumerian Lexicon</i> . Volume 15. Rome: Biblical Institute Press, 2004.
BDTNS	Database of Neo-Sumerian Texts. Accessed October 29, 2018. bdtms.filol.csic.es .	DP	Allotte de la Fuÿe, François Maurice. <i>Documents présargoniques</i> . Fasc. 2. Paris: Leroux, 1913.
BJRL 64	Gomi, Tohru. “Ur III Texts in the John Rylands University Library of Manchester.” <i>Bulletin of the John Rylands Library</i> 64 (1981): 87–116.	Ebla Sign List	Archi, Alfonso. “The ‘Sign-List’ from Ebla.” In <i>Eblaitica: Essays on the Ebla Archives and Eblaite Language</i> , volume 1, edited by Cyrus H. Gordon, pp. 91–113. Winona Lake: Eisenbrauns, 1987.
BM	British Museum, London.	HKL 1	Borger, Rykle. <i>Handbuch der Keilschriftliteratur</i> , Band 1: <i>Repertorium der sumerischen und akkadischen Texte</i> . Berlin: De Gruyter, 1967.
BPOA 7	Sigrist, Marcel, and Tohru Ozaki. <i>Neo-Sumerian Administrative Tablets from the Yale Babylonian Collection: Part Two</i> . <i>Biblioteca del Próximo Oriente Antiguo</i> 7. Madrid: Consejo Superior de Investigaciones Científicas, 2009.	HLC 3	Barton, George A., editor. <i>Haverford Library Collection of Cuneiform Tablets or Documents from the Temple Archives of Telloh</i> . Second edition. New Haven: Yale University Press, 1918.
		JCS	<i>Journal of Cuneiform Studies</i> (1947–)
		JCS 31, 241	see Foster 1979 in bibliography

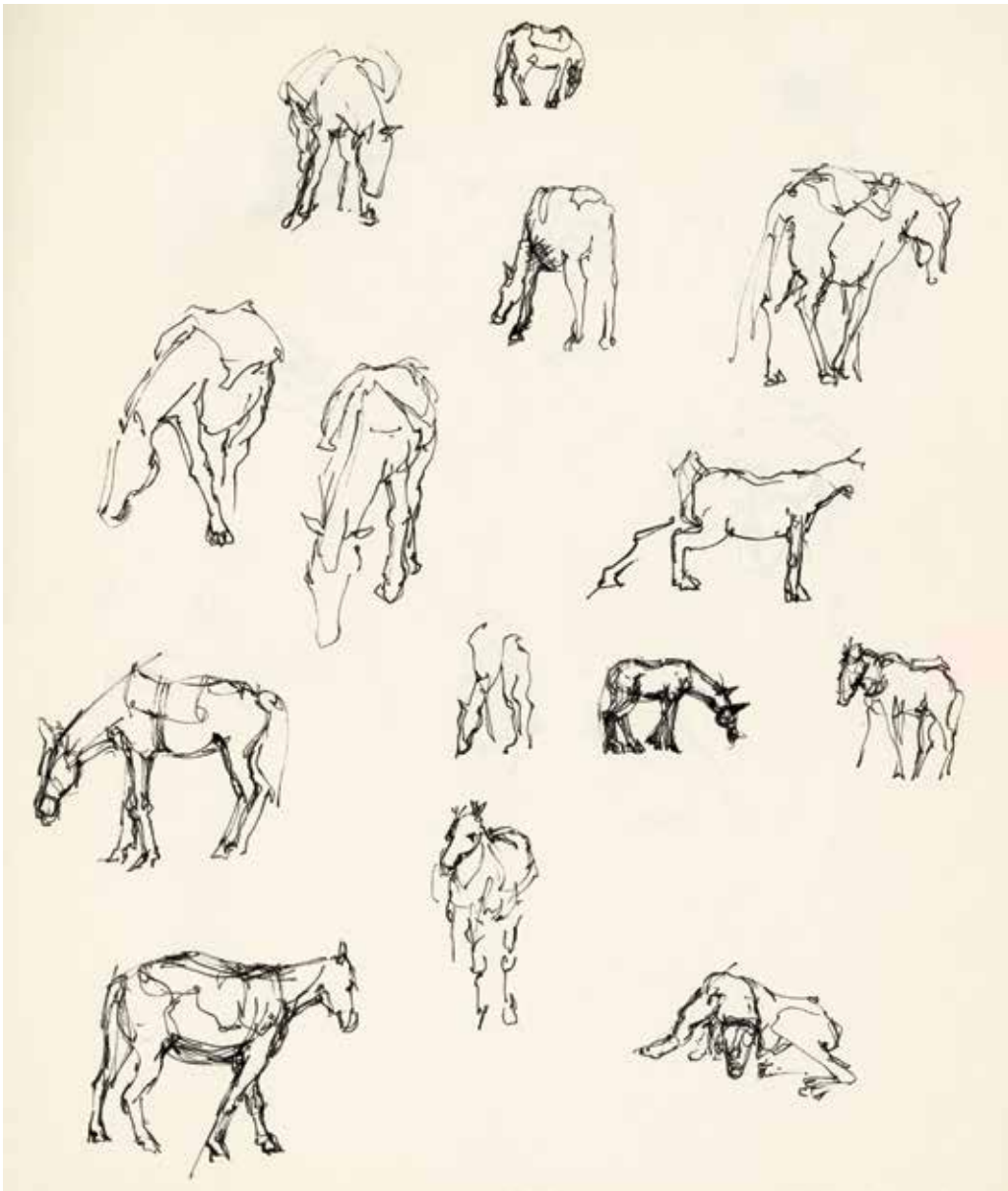
JCS 65, 50	Civil, Miguel. "Remarks on AD-GI ₄ (a.k.a. "Archaic Word List C" or "Tribute")." <i>Journal of Cuneiform Studies</i> 65 (2013): 13–67.	Nisaba 24	<i>Texts</i> . Nisaba 15/2. Bethesda: CDL Press, 2013.
MAD 3	Gelb, Ignace J. <i>Glossary of Old Akkadian</i> . Materials for the Assyrian Dictionary 3. Chicago: University of Chicago Press, 1957.		Ar-Rawi, Farouk, Franco D'Agostino, and Jonathan Taylor. <i>Neo-Sumerian Administrative Texts from Umma Kept in the British Museum, Part Four</i> . Nisaba 24. Messina: Di.Sc.A.M., 2009.
MSL	<i>Materialien zum sumerischen Lexikon (Materials for the Sumerian Lexicon)</i> . Rome: Biblical Institute Press, 1937–2004.	NRVN	Çiğ, Muazzez, and Hatice Kızılyay. <i>Neusumerische Rechts- und Verwaltungsurkunden aus Nippur: Türk Tarih Kurumu Yayınlarından 6; Seri 7</i> . Ankara: Türk tarih kurumu basimevi, 1965.
MVN	Materiali per il vocabolario neosumerico. Rome: Multigrafica Editrice, 1974–.		
MVN 2	Sauren, Herbert. <i>Wirtschaftsurkunden des Musée d'Art et d'Histoire in Genf</i> . Materiali per il vocabolario 2. Rome: Multigrafica Editrice, 1974.	Ontario	Sigrist, Marcel. <i>Neo-Sumerian Texts from the Royal Ontario Museum</i> . Volumes 1 and 2. Bethesda: CDL Press, 1995–2004.
MVN 6	Pettinato, Giovanni. <i>Testi Economici di Lagaš del Museo di Istanbul, Part 1: La 7001–7600</i> . Materiali per il vocabolario 6. Rome: Multigrafica Editrice, 1977.	Or 75 Orient 16	see Alster 2007 in bibliography Gomi, Tohru. "Administrative Texts of the Third Dynasty of Ur in the Merseyside County Museums, Liverpool." <i>Orient</i> 16 (1980): 1–110.
MVN 15	Owen, David I. <i>Neo-Sumerian Texts from American Collections</i> . Materiali per il vocabolario 15. Rome: Multigrafica Editrice, 1991.	P+number PBS	refers to text photos in CDLI Publications of the Babylonian Section. Philadelphia: University Museum, 1911–.
NATN	Owen, David I. <i>Neo-Sumerian Archival Texts Primarily from Nippur in the University Museum, the Oriental Institute and the Iraq Museum</i> . Winona Lake: Eisenbrauns, 1982.	PBS 11/1	Chiera, Edward. <i>List of Personal Names from the Temple School of Nippur</i> , Volume 1: <i>A Syllabary of Personal Names</i> . Publications of the Babylonian Section 11/1. Philadelphia: University Museum, 1916.
Nisaba	Studi Assiriologici Messinesi. Messina: Di.Sc.A.M., 2002–.	PBS 11/3	Chiera, Edward. <i>List of Personal Names from the Temple School of Nippur</i> , Volume 3: <i>List of Sumerian Personal Names</i> . Philadelphia: University Museum, 1919.
Nisaba 6	Ar-Rawi, Farouk, and Franco D'Agostino. <i>Neo-Sumerian Administrative Texts from Umma Kept in the British Museum: Part One</i> . Nisaba 6. Messina: Di.Sc.A.M., 2005.	Princeton 1	Sigrist, Marcel. <i>Tablettes du Princeton Theological Seminary: époque d'Ur III</i> . Occasional Publications of the Samuel Noah Kramer Fund 10. Philadelphia: University Museum, 1990.
Nisaba 8	Politi, Janet, and Lorenzo Verderame. <i>The Drehem Texts in the British Museum</i> . Nisaba 8. Messina: Di.Sc.A.M., 2005.		
Nisaba 15/2	Owen, David I. <i>Cuneiform Texts Primarily from Iri-Sağrig/Āl-Šarrākī and the History of the Ur III Period</i> , Volume 2: <i>Catalogue and</i>	Proto-Izi	lexical series, see Civil, Miguel. <i>Materials for the Sumerian Lexicon</i> , Volume 13. Rome: Biblical Institute Press, 1971.

RGTC	<i>Répertoire Géographique des Textes Cunéiformes</i> . Wiesbaden: Reichert, 1974-.		and 2. Sumerian Archival Texts 2-3. Bethesda: CDL Press, 2000.
RGTC 1	Edzard, Dietz Otto, Gertrud Farber, and Edmond Sollberger. <i>Die Orts- und Gewässernamen der prä-sargonischen und sargonischen Zeit</i> . Beihefte zum Tübinger Atlas des Vorderen Orients. Reihe B, Geisteswissenschaften 7/1. Wiesbaden: Reichert, 1977.	TCL 5	Genouillac, Henri de. <i>Textes économiques d'Oumma de l'époque d'our</i> . Textes cunéiformes 5; Musée du Louvre, Département des Antiquités Orientales. Paris: Geuthner, 1922.
RGTC 2	Edzard, Dietz Otto, and Gertrud Farber. <i>Die Orts- und Gewässernamen der Zeit der 3. Dynastie von Ur</i> . Beihefte zum Tübinger Atlas des Vorderen Orients. Reihe B, Geisteswissenschaften 7/2. Wiesbaden: Reichert, 1974.	TUT	Reisner, George. <i>Tempelurkunden aus Telloh</i> . Mittheilungen aus den orientalischen Sammlungen Königliche Museen zu Berlin; Heft 16. Berlin: Spemann, 1901.
RLA	<i>Reallexikon der Assyriologie</i> . Berlin: Leipzig; De Gruyter, 1928-.	UNT	Waetzoldt, Hartmut. <i>Untersuchungen zur neusumerischen Textilindustrie</i> . Studi economici e tecnologici 1. Rome: Istituto per l'Oriente, 1972.
RLA 12	Waetzoldt, Hartmut, and Antoine Cavigneaux. "Schule." In <i>Reallexikon der Assyriologie</i> , volume 12, edited by Michael P. Streck, pp. 294-309. Berlin: De Gruyter, 2009.	UTI	Die Umma-Texte aus den Archäologischen Museen zu Istanbul. Bethesda: CDL Press, 1993-.
SA	Jean, Charles-F. <i>Šumer et Akkad: contribution à l'histoire de la civilisation dans la Basse-Mésopotamie</i> . Paris, Geuthner, 1923.	UTI 3	Yıldız, Fatma, and Tohrü Gomi, editors. (Nr. 1601-2300). Die Umma-Texte aus den Archäologischen Museen zu Istanbul 3. Bethesda: CDL Press, 1993.
SAT	Sumerian Archival Texts. Bethesda: CDL Press, 1993-.	UTI 6	Yıldız, Fatma, and Tohrü Gomi, editors. (Nr. 3501-3834). Die Umma-Texte aus den Archäologischen Museen zu Istanbul 6. Bethesda: CDL Press, 2001.
SAT 1	Sigrist, Marcel. <i>Texts from the British Museum</i> . Sumerian Archival Texts 1. Bethesda: CDL Press, 1993.	VAS 14	Förtsch, Wilhelm. <i>Altbabylonische Wirtschaftstexte</i> , Vorderasiatische Schriftdenkmäler der Königlichen Museen zu Berlin 14. Leipzig: Hinrichs'sche Buchhandlung, 1916.
SAT 2-3	Sigrist, Marcel. <i>Texts from the Yale Babylonian Collections</i> . Part 1		

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Horse sketches, Üçtepe, 1978. (Drawing by Peggy Sanders)

CHAPTER 6

A RECONSIDERATION OF THE SO-CALLED SINGLE-SHRINE TEMPLE AT TELL ASMAR

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INTRODUCTION

The Single-Shrine Temple building period of the Abu Temple at Tell Asmar is an appropriate topic for this volume given McGuire Gibson's (1982; 2011) long engagement with a critical examination of the Diyala chronological sequence (fig. 6.1). As a graduate student, Gibson participated in the preparation of the manuscript for *Private Houses and Graves in the Diyala Region* (Delougaz, Hill, and Lloyd 1967). He was particularly struck by the lack of consensus among the Diyala excavators regarding the dating of the Northern Palace (figs. 6.2–6.4). In preliminary reports, the Northern Palace was referred to as an Akkadian building (Frankfort 1933, pp. 33–57; 1934, pp. 23–39). In the final report, the Earlier Northern Palace was instead dated to ED III, and the Main Level of the Northern Palace was dated to the Protoimperial period from Enmetena onwards (Delougaz, Hill, and Lloyd 1967, pp. 186, 196; table III). Seton Lloyd and others, however, continued to refer to the Northern Palace as Akkadian after *Private Houses and Graves* had been published (Gibson 2011, p. 62).

Undertaking an examination of all the evidence, including unpublished field records, Gibson (1982, pp. 533–35, 537; 2011, pp. 83–84) also dated the Northern Palace to the Akkadian period. Because of the stratigraphic correlations maintained by the Diyala excavators, Gibson (1982, pp. 535, 537) raised the possibility that the Single-Shrine Temple should also be dated to the Akkadian period. Later, Gibson (2011, pp. 83–84) left open the question of whether Single-Shrine I—and the Earlier Northern Palace with which the Diyala excavators had correlated it—had been constructed already by the end of ED III. One concern of his was the apparent gap an Akkadian date would leave in the history of the Abu Temple (Gibson 1982, p. 535). Essentially, the question was one of where to locate ED III.

It is this question that led to the examination below of the Abu Temple sequence. The criteria for establishing Early Dynastic chronology, the stratigraphic links maintained between the Single-Shrine Temple and the Northern Palace, and the poorly-recorded levels underneath the Single-Shrine Temple proper are considered. The architectural remains in the Abu Temple sequence from the later Square Temple up to the Single-Shrine Temple could ostensibly accommodate ED III, thus allowing an Akkadian date for the Single-Shrine Temple proper, but the criteria upon which such a dating could be produced remains tenuous. Ultimately, an examination of the transition from the Square Temple to the Single-Shrine Temple raises questions beyond dating. This transition was poorly recorded during excavation and largely ignored in the Diyala publications. But a consideration of these levels would have altered our understanding of the Abu Temple sequence. The portrayal of the Single-Shrine Temple as a cella and annex is also complicated by additional architectural remains that should have been associated with that building period. These architectural remains portray the ED-Akkad transition as a gradual shift, similar to that which Gibson (1982, p. 538; 2011, pp. 83–84) and others have advocated for the ED-Akkad transition in general.

THE ABU TEMPLE SEQUENCE AND EARLY DYNASTIC CHRONOLOGY

The Diyala excavations conducted by the Iraq Expedition of the Oriental Institute in the 1930s uncovered extensive third-millennium BC remains at Tell Asmar, Khafajah, and Tell Agrab. The archaeological levels at these sites fell principally within an ill-defined time that until then had been variously referred to as the prediluvian, Lagash, pre-Sargonid, plano-convex, early Sumerian, or early dynastic (Frankfort 1932, pp. 48–49). The results of the Diyala excavations were used to delineate an Early Dynastic (ED) period of Mesopotamia (Frankfort 1936, p. 35).

The Early Dynastic period was also subdivided into ED I, II, and III on the basis of the Diyala excavations (Frankfort 1935, pp. 86; 1936, pp. 35–59). Although the Sin Temple at Khafajah was important for defining the Early Dynastic subdivisions, it was only after the Abu Temple excavations that a specifically tripartite ED subdivision was established (Frankfort 1935, p. 87, n. 19; 1936, p. vii; Evans 2007, pp. 600–03). Whereas the Sin Temple building periods were numbered I–X and grouped according to formal similarities, the Abu Temple building periods were given names that underscored the distinct plan of each (Frankfort 1935, pp. 7, 79, 86). Since the three main building periods of the Abu Temple were thought to reflect widespread cultural shifts, the Archaic Shrine (ED I), Square Temple (ED II), and Single-Shrine Temple (ED III) justified the tripartite subdivision of the Early Dynastic period (Frankfort 1935, p. 86).

Although the Abu Temple sequence had allowed for a tripartite subdivision of the Early Dynastic period, there was some uncertainty about exactly which levels should be dated ED III. Frankfort (1936, p. 40) conceded it was possible “that the highest floor levels of the Square Temple belong to Early Dynastic IIIa.” The dating ultimately was left open (Delougaz and Lloyd 1942, p. 192; Frankfort 1943, p. 6). The problem was that Square Temple II and III contained very few material remains. No pottery can be assigned to Square Temple III, and a fragmentary glazed steatite cylinder seal and a brocade style cylinder seal are the only glyptic finds cataloged for that level (Frankfort 1955, nos. 472–73). It appears possible to assign stands and painted sherds to Square Temple II on the basis of findspot elevation, but no ceramics were cataloged as Square Temple II (Evans 2007, pp. 616–18, table 4). A Fara crossed-style cylinder seal cataloged as Square Temple II should be dated to ED IIIa. While the Fara glyptic styles traditionally have been associated with the problematic ED II subdivision, the dating of the Fara crossed style is anchored to ED IIIa: all examples from the site of Fara with identifiable findspots are from contexts with also ED IIIa Fara tablets—as is one example from the Inanna Temple at Nippur (Evans 2007, pp. 606–07, 621).

As with the dating of the Square Temple, there was very little with which to date the Single-Shrine Temple. In Diyala publications, Single-Shrine I was dated to ED III, and Single-Shrine IV remained anchored in the Akkadian period by the presence of the Akkadian hydra seal (Frankfort 1955, no. 478).¹ In preliminary reports, Early Dynastic and Akkadian were distinguished in the intervening levels through building material and architecture. Although more recent evidence has refuted the diagnostic value of plano-convex brick, Single-Shrine I and II were built of plano-convex brick and dated to the Early Dynastic period, and Single-Shrine III and IV were built of flat rectangular bricks were dated to the Akkadian period (Frankfort 1934, p. 40; 1935, pp. 7, 79–81; Delougaz and Lloyd 1942, p. 199).²

The Early Dynastic date for Single-Shrine I and II was predicated foremost upon stratigraphic correlations with the Northern Palace. In particular, the copper alloy hoard from the Earlier Northern Palace confirmed an ED III date for Single-Shrine I. The hoard contained an inscribed bowl dedicated to the god Abu (Delougaz and Lloyd 1942, p. 298, no. 12). The excavators suggested the hoard had originated in the Single-Shrine Temple and, on the basis of the inscribed bowl, that the resident deity had been Abu. Certain objects in the hoard were considered identical with examples from the Royal Cemetery (Frankfort 1934, p. 39; 1935, p. 81;

¹ Although there was some fluidity in dating, Single-Shrine II and III were usually dated to the end of ED III or the so-called Protoimperial period (Delougaz and Lloyd 1942, pp. 159, 199; Delougaz 1952, p. 30; Frankfort 1955, p. 9; Delougaz, Hill, and Lloyd 1967, pp. 186). Delougaz and Lloyd (1942, p. 159) additionally suggested that Single-Shrine III is either Protoimperial or Akkadian.

² Gibson (1975, p. 72; 1982, p. 533, n. 22; 2011, pp. 60–62, 68–69) has observed plano-convex bricks in Akkadian levels at Nippur, Umm al-Jir, and Umm al-Hafriyat, and McMahon (2006, p. 9) has observed that plano-convex bricks into Ur III levels in Area WF at Nippur.

1939, p. 17; Delougaz and Lloyd 1942, p. 156).³ The hoard therefore was cited to establish the contemporaneity of the Single-Shrine Temple and the Earlier Northern Palace with the Royal Cemetery at Ur, confirming an ED III date.

The dating of Single-Shrine I and II was also confirmed by associated ceramics. Frankfort (1935, pp. 13–18) described an assemblage that included “a ritual vase with two spouts [sic] some ‘Rillentöpfe,’ such as are well known from Fara and Assur, and an unmistakable fragment of a ‘fruit stand’ decorated with hatched lines.” None of the illustrated pottery accompanying his discussion, however, had been excavated from the Single-Shrine Temple proper.⁴ As discussed below, very little pottery at all was recorded for the Single-Shrine Temple.

Finally, temple sculpture was also cited to confirm an ED III date for Single-Shrine I (Frankfort 1935, pp. 83–85; Delougaz and Lloyd 1942, p. 157). The hoard of twelve well-preserved statues associated with the Square Temple served as the prime example of an earlier “geometric” style, and sculpture associated with the Single-Shrine Temple represented a later, ED III “realistic” style. However, the significance accorded to temple sculpture style obscured its limitations as a chronological marker (Evans 2007). In the first volume for Diyala sculpture, Frankfort (1935, p. 73; 1939, p. 16) established an ED III date for the realistic style on the basis of examples he associated with the Single-Shrine Temple. But many of the sculpture findspots were later corrected in the second volume for Diyala sculpture to contexts both outside the Single-Shrine Temple and below it (Frankfort 1943, p. 23). Taking these corrections into account, the earliest-stratified sculpture cited by Frankfort (1939, no. 66; 1943, p. 23, no. 66) to establish an ED III date for the realistic style is from Square Temple I. While it is preferable to dispense altogether with the binary categories of geometric and realistic, the Abu Temple sculpture demonstrates that a variety of sculpture styles were in circulation during the Early Dynastic period (Evans 2012).

The ED III date of Single-Shrine Temple levels had been established on the basis of stratigraphic correlations with the Northern Palace. As the above discussion makes clear, four factors then seemingly confirmed the ED III date independently. But the first factor was the use of plano-convex brick, no longer considered ED diagnostic. The second factor was the hoard from the Earlier Northern Palace. That this hoard was assigned to Single-Shrine I and then cited to support its dating cannot be evaluated beyond accepting the stratigraphic correlations between that level and the Earlier Northern Palace. Even then, the hoard did not necessarily come from the only contemporary temple excavated at Tell Asmar, and the resident deity of that temple therefore was not necessarily Abu. The third factor was a ceramic assemblage that was not actually retrieved from the Single-Shrine Temple proper. The fourth and final factor was the ED III dating of so-called realistic-style temple sculpture, which first appears in Square Temple I and therefore is not ED III diagnostic.

If the criteria for dating Single-Shrine I to ED III independently of the Earlier Northern Palace is dismissed outright, then there is not much to indicate the date of the early levels of the Single-Shrine Temple. Little pottery and no glyptic were retrieved from Single-Shrine I and II (fig. 6.5, bottom row). In Single-Shrine I, a small wide-mouthed jar with a vertically-perforated lug at the neck and a convex base has parallels in Houses IVa at Tell Asmar and in level XIVa of Area WF at Nippur, both dated to the Akkadian period (Delougaz 1952, A.654.523, B.654.523; McMahon 2006, pl. 127/8). Gibson (1982, p. 537) described vertically-pierced lugs as characteristic of early Akkadian levels. A plain-shouldered jar with a ring base from Single-Shrine II has both Early Dynastic and Akkadian parallels (Delougaz 1952, C.596.440b; see also Gibson 1972, UmJ. 16, figs. 20 and 42f).

As Gibson (1982, pp. 535–37; 2011, p. 83) has noted, the scant material finds do not definitively date the Single-Shrine Temple, and the stratigraphic correlations established between the Single-Shrine Temple and the Northern Palace cannot be evaluated because they were not accompanied by any discussion of the evidence. For example, Delougaz and Lloyd (1942, p. 199) referred to the published section to support these

³ In addition, Frankfort (1935, p. 18) maintained that the Square Temple contained reserved slip ware and solid-footed goblets, which were present at Ur in strata preceding the Royal Cemetery; however, see Evans 2007, p. 614.

⁴ Frankfort 1935, fig. 15. The pottery illustrated is: top row, left to right, As. 33:107/C.084.310 from E 17:11 below Single-Shrine I; As. 33:34/C.365.810d from E 17:9 (?), no recorded elevation; bottom row, left to right, As. 32:1363/B.644.322 from D 17:3, no recorded elevation; As. 33:106/C.555.520 from E 17:11 below Single-Shrine I; As. 33:333/C.303.200 from E 16:11, main level Northern Palace (Delougaz 1952).

correlations, but the section is a composite reconstruction (Frankfort 1935, folding plate at end; Gibson 1982, pp. 535–36, n. 44; 2011, p. 67). That there was some fluidity overall in the interpretation of the stratigraphy between the Abu Temple and the Northern Palace was also acknowledged. Although Single-Shrine III was represented on a preliminary plan of the Main Level of the Northern Palace (fig. 6.4), ultimately Single-Shrine II was correlated with that level (fig. 6.3). More specifically, according to Frankfort (1934, p. 40; 1935, p. 81), the Abu Temple may have been built on an artificial mound, and the Single-Shrine Temple floor levels were about a meter higher than the surrounding houses and the Northern Palace. It is unclear how this difference in elevation was resolved stratigraphically. As discussed below, the discrepancy in floor levels observed by Frankfort is questionable in some instances: there is no discrepancy in elevation between the Single-Shrine Temple proper and the adjacent architectural remains represented by loci E 17:11–12–13. Rather than leading to new stratigraphic links with the Northern Palace, however, these architectural remains raise questions regarding the extent of the Single-Shrine Temple proper.

THE SINGLE-SHRINE TEMPLE: ONLY A CELLA AND ANNEX? THE EVIDENCE FOR LOCI E 17:11–12–13

Although loci E 17:11–12–13 were not included on any of the Diyala final plans, they do appear on a plan published in a preliminary report, and their relationship to the Single-Shrine Temple can be addressed using the meager available data (fig. 6.4).⁵ Loci E 17:11–12–13 abutted other architecture to the east in squares E 16 and E 17, but they did not communicate with it. Like the Single-Shrine Temple, locus E 17:11 was accessible from the D 16:10 courtyard. Locus E 17:11 gave access to E 17:12, which gave access to E 17:13. In Delougaz, Hill, and Lloyd (1967), the solid line representing Single-Shrine I on the Earlier Northern Palace final plan and representing Single-Shrine II on the Main Level of the Northern Palace final plan includes the contours of E 17:11–12–13 (figs. 6.2–6.3).

On the final plan of the Main Level of the Northern Palace, the “rooms immediately adjacent to the Abu Temple”—which include E 17:11–12–13—“represented more than one occupation” (Delougaz, Hill, and Lloyd 1967, p. 195). Other evidence supports that these loci existed through multiple occupation levels. For example, the plans of Single-Shrine II and III include a portion of the east-west wall between loci E 17:12–13 (fig. 6.1). Additional evidence indicates that at least E 17:11 already existed by Single-Shrine I. The pavement of the D 16:10 courtyard was at least partially excavated, for it was observed that “a sunk area level with the pavement inside the building extended some distance outside” of cella D 17:1 of Single-Shrine I (Delougaz and Lloyd 1942, p. 193). This sunken area is observable in a photograph, as is a wall of the E 17:11 locus, “built upon the contemporary pavement (about 34.50 m)” (fig. 6.6) (Delougaz and Lloyd 1942, p. 199). The photograph and the textual description correspond. That is, the “sunk area” of the Single-Shrine I floor at 34.4 m indeed appears some 10 cm below the D 16:10 pavement at 34.5 m on which the E 17:11 wall was built.

The inclusion of E 17:11–12–13 in the contours of the Single-Shrine Temple begs the question of whether these loci were part of the temple proper. Some entries in the Tell Asmar field register have notations describing E 17:11–12–13 as belonging to the Single-Shrine Temple. For example, a fragmentary door plaque found in E 17:12 at 35.0 m is designated Single-Shrine Temple (Iraq Expedition 1932, As. 32:930).⁶ In addition to the fragmentary door plaque, other finds from E 17:11–12–13 also suggest a temple inventory. In his field diary, Lloyd (1932, February 18) described a “rubbish dump” in locus E 17:13 that yielded “among quantities of sherds—the circular base of a stone statue with 2 feet and a hammer-head of polished green stone.” It would be highly unusual to find sculpture outside of a temple, even in a rubbish dump. These E 17:13 finds

⁵ See also Frankfort 1935, fig. 89.

⁶ The E 17:12 stone door plaque fragment was published alongside another fragment found in cella D 17:1 of Single-Shrine I (Iraq Expedition 1932, As 32:1178; Frankfort 1939, no. 199, pl. 112). The fragments do not join one another, although Frankfort (1939, p. 48) was certain that the two fragments had come from the same object (see also Frankfort 1934, p. 46, fig. 40; the findspot of As. 32:1178 has subsequently been misidentified (for example, see Boese 1971, p. 171)). If they do belong together, there must have been an additional fragment between the two fragments in order to accommodate the imagery as well as the central drill hole; otherwise, they are from two different plaques.

otherwise were not recorded and appear to have been discarded, although the statue base appears to have been brought into the Single-Shrine Temple cella and placed on the altar to illustrate the presumed location of the cult statue (Delougaz and Lloyd 1942, p. 194, figs. 157–58). In addition, a mace head was retrieved from locus E 17:11 at 34.5 m (Iraq Expedition 1932, As. 32:1001); other mace heads from E 17:11 have no recorded elevation (Iraq Expedition 1932, As. 33:16, 57, 58a).

An assemblage including sculpture and additional mace heads was also retrieved in the area of locus E 17:11 but below the Single-Shrine Temple levels. The assemblage included an “important collection of statue fragments” as well as “other objects from the temple” (Delougaz and Lloyd 1942, p. 199). The assemblage was published along with the finds from the Single-Shrine Temple proper because finds from below Single-Shrine I were combined with finds from Single-Shrine I under the heading “Single-Shrine Temple I and Foundations (ca. 33.50–35.50 m.)” (Delougaz and Lloyd 1942, pp. 212–13).

As already observed, the transition from Square Temple to Single-Shrine Temple is not articulated in the Diyala publications. The Single-Shrine Temple foundations were described as having been “sunk into the accumulated debris” represented by the 90 cm between the bottom of the Single-Shrine Temple foundations at 33.5 m and the Single-Shrine I floor at 34.4 m (Delougaz and Lloyd 1942, p. 192). However, there are other descriptions in the final report of this “accumulated debris.” Between the Square Temple and the Single-Shrine Temple, according to one passage, it was necessary “in three places to cut into the walls of a poorly built and irregularly planned intermediate building of which the remains were insufficient to merit much attention” (Delougaz and Lloyd 1942, p. 156). Another passage identifies two pavements between the Square Temple and the Single-Shrine Temple that are characterized as “intermediate periods of occupation when no temple existed on the site” (Delougaz and Lloyd 1942, p. 192).

The E 17:11 assemblage was located on the second of the two pavements—a “clearly defined pavement, showing signs of having received a coating of gypsum” (Delougaz and Lloyd 1942, p. 199). This pavement was “more than half a meter beneath” the foundations of the E 17:11 wall contemporary with Single-Shrine I, discussed above and visible in figure 6.4 here (Delougaz and Lloyd 1942, p. 199). The objects from the E 17:11 pavement were cataloged with an elevation of 33.75 m in the Field Register (Iraq Expedition 1933).⁷ Of the assemblage, sculpture (Frankfort 1939, As. 33:75, 77, 109–11, 734–37; 1943, As. 33:84) and ceramics (Delougaz 1952, C.084.310, C.354.010, C.555.522) were published. Additional unpublished objects were cataloged, including thirteen mace heads (Iraq Expedition 1933, As. 33:58b–65, 76, 78, 92, 95, 96), some of which were incised (As. 33:63, 78, 92), and fluted (As. 33:64, 96).⁸

The excavators suggested that the assemblage had originated in Square Temple III and had been discarded before or at the time of the construction of the Single-Shrine Temple (Delougaz and Lloyd 1942, p. 199). Clearly, however, the assemblage was excavated on the gypsum-plastered pavement and therefore was in situ. This is supported both by the description of the findspot and the observation that some of the objects bore traces of the gypsum plaster of the pavement. It is therefore unlikely that the objects from locus E 17:11 at 33.75 m had been discarded. The reference in the final report to a “poorly built and irregularly planned intermediate building” between the Square Temple and the Single-Shrine Temple makes it plausible to suggest that these pavements could have been associated with architecture. The assemblage associated with E 17:11 therefore was ostensibly on the floor of an occupation level represented by the poorly-recorded pavements and architecture between the Square Temple and the Single-Shrine Temple.

The E 17:11 wall constructed on the D 16:10 pavement contemporary with Single-Shrine I indicates that loci E 17:11–12–13 were constructed during the time of Single-Shrine I. The gypsum-plastered pavement in the area of locus E 17:11 but below it suggests architectural remains were present here before

⁷ The findspot of the sculpture varies in the publications. Frankfort (1934, p. 45) made reference to “fragments of perhaps a dozen or more stone statues” retrieved during excavation of the Single-Shrine Temple and the D 16:10 courtyard. Subsequently, Frankfort (1935, p. 7) defined the findspot for much of the sculpture more generally as “buried in the open space to the north in front of the temple.” This description accords with the findspot of E 17:11 at 33.75 m recorded in the field register, which is some 75 cm below the D 16:10 courtyard pavement contemporary with Single-Shrine I (Iraq Expedition 1933).

⁸ Two fragments of worked/sculpted stone (Iraq Expedition 1933, As. 33:121a–b) cataloged as “lumps” and a fragmentary stone cup (?) (Iraq Expedition 1933, As. 33:120) were also retrieved. The worked/sculpted stones are difficult to interpret; all three objects appear to have been discarded.

Single-Shrine I.⁹ Cella D 17:1 no longer had buttresses on the east wall in Single-Shrine II and III. The excavators (Delougaz and Lloyd 1942, p. 200) remarked that it was “possible that a buttress in the center of the east end [of Single-Shrine III] was dispensed with on account of some adjoining building abutting on the temple at this point.” The objects retrieved from E 17:11–12–13 suggest these loci did not belong to an adjoining building. Rather, a plausible suggestion is that E 17:11–12–13 were part of the Abu Temple proper since the statues, mace heads, and door plaque retrieved therein comprise a temple assemblage. If E 17:11–12–13 are considered part of the Abu Temple proper, then the presence of temple objects in these loci—across multiple levels—conforms to the standard Mesopotamian practice of retaining statues, mace heads, and door plaques exclusively within the sacred space of temples.

Regarding the dating of the 90 cm of unrecorded occupation between the Square Temple and the Single-Shrine Temple, the few ceramics from locus E 17:11 at 33.75 m (below Single-Shrine I) could support a transitional or early Akkadian date (fig. 6.5, top row). A bowl with a shallow ring base and slightly projecting beveled rim has both Early Dynastic and Akkadian parallels (Delougaz 1952, C.084.310). Citing the burials at Tell Razuk, Gibson (1982, pp. 537–38) suggested that such bowls seem to be an early Akkadian feature. The comb-incised decoration on the shoulder of a double-spouted jar was associated by the Diyala excavators with ED IIIb (Delougaz 1952, pp. 88, 92, C.555.522). McMahon (2006, p. 78), however, noted that comb-incised decoration does not appear in area WF at Nippur until Akkadian levels and cited other sites where the introduction of comb incision hovers around early Akkadian.

CONCLUSION

The presence of gypsum-plastered pavement in the area of locus E 17:11 but below Single-Shrine I—as well as the reference to a “poorly built and irregularly planned intermediate building” between the Square Temple and the Single-Shrine Temple—indicates that certain occupation levels of the Abu Temple were poorly recorded. I have made similar observations for the transition from the Archaic Shrine to the Square Temple (Evans 2007). Locus E 17:11 was important to the excavators because it defined the findspot for an assemblage that included realistic-style sculpture. Had it not been for the realistic-style sculpture on the gypsum-plastered pavement below E 17:11, which made the locus noteworthy to the excavators, it would be nearly impossible to glean a sense of the Abu Temple between the Square Temple and the Single-Shrine Temple. But these levels below Single-Shrine I are important for a consideration of the Single-Shrine Temple proper.

The narrowly-delineated plan of the Single-Shrine Temple (fig. 6.1) omits the large D 16:10 court onto which it faced and consequently emphasizes its, relatively-speaking, diminutive status. In addition, the above consideration of E 17:11–12–13 to the east of the Single-Shrine Temple argues that these loci should have been considered a part of the Abu Temple. The impression created by the Single-Shrine building period would not have been that of devolution from the Square Temple had both the D 16:10 courtyard and loci E 17:11–12–13 been considered in relation to the Abu Temple, and the impression created by the Square Temple that led to the characterization of an ED II period that represented the peak of Early Dynastic culture might not have appeared so substantive (Evans 2007). In fact, the Single-Shrine Temple with court D 16:10 and loci E 17:11–12–13 is larger than the Square Temple.

Despite the modern methodologies adopted by the Iraq Expedition and their careful recording of artifactual deposition, the Diyala excavators were most interested in large, coherent structural remains that might articulate also cultural changes diagnostic of a greater Mesopotamian chronology. Certainly, the significance of the Abu Temple for the Diyala excavators was the perceived abrupt shift from Archaic Shrine to Square Temple and from Square Temple to Single-Shrine Temple, which formed the justification for a tripartite division of the Early Dynastic period. Had the more subtle mechanisms of this change been taken into account through the careful observation of those moments of architectural re-planning—through observation of the

⁹ The buttressing that appears on the exterior walls of cella D 17:1 is similar to Nintu Temple VI at Khafajah; the walls of cella Q 45:4 were both buttressed and thicker than those of the remainder of the temple, suggesting to the excavators a period when the cella had comprised the entire temple (Delougaz and Lloyd 1942, p. 84). In the Single-Shrine Temple, this would have been a brief period, given the presence of architecture in locus E 17:11.

Archaic Shrine–Square Temple transition and the Square Temple–Single–Shrine transition—these seemingly significant shifts in the sequence might have maintained an organic quality from one level to the next.

Regarding the location of ED III in the Abu Temple sequence, it is worthwhile to keep in mind that the Early Dynastic period is represented in the Abu Temple by Archaic Shrine I, II, III, and IV and by at least Square Temple I and II. The ED–Akkad transition is located somewhere in Square Temple III, the some 90 cm of unrecorded occupation between the Square Temple and the Single–Shrine Temple, and the early levels of the Single–Shrine Temple proper. Finally, while it is another topic entirely, it is appropriate to note here that the Abu Temple sequence has played no small role also in interpretations regarding the shifting operations of Early Dynastic institutions. In particular, the Abu Temple sequence—with its seeming architectural devolution from the Square Temple to the Single–Shrine Temple—should not be cited in support of theories regarding the erosion of temple authority at the end of the Early Dynastic period (for example, Henrickson 1982, p. 23–24). The evidence instead reveals the presence of a temple that was larger and more complex than simply a “single shrine.” Even without this evidence, Gibson (2010, pp. 86–87) has already observed that “the king, through the royal household, was in overall control of a state apparatus that included the temple sector” long before the end of the Early Dynastic period.

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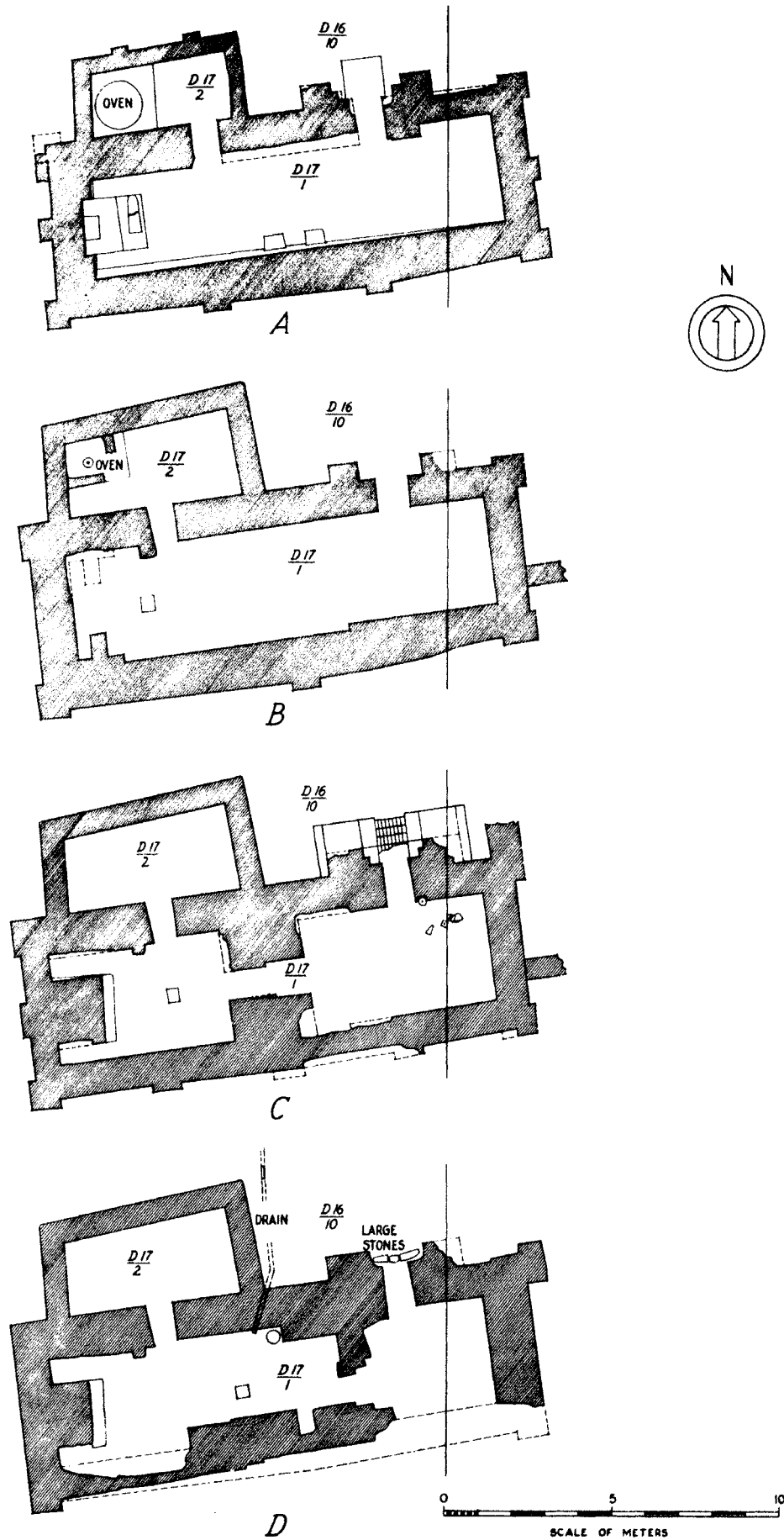


FIGURE 6.1. Plan of Single-Shrine I, II, III, IV. (Delougaz and Lloyd 1942, pl. 23)

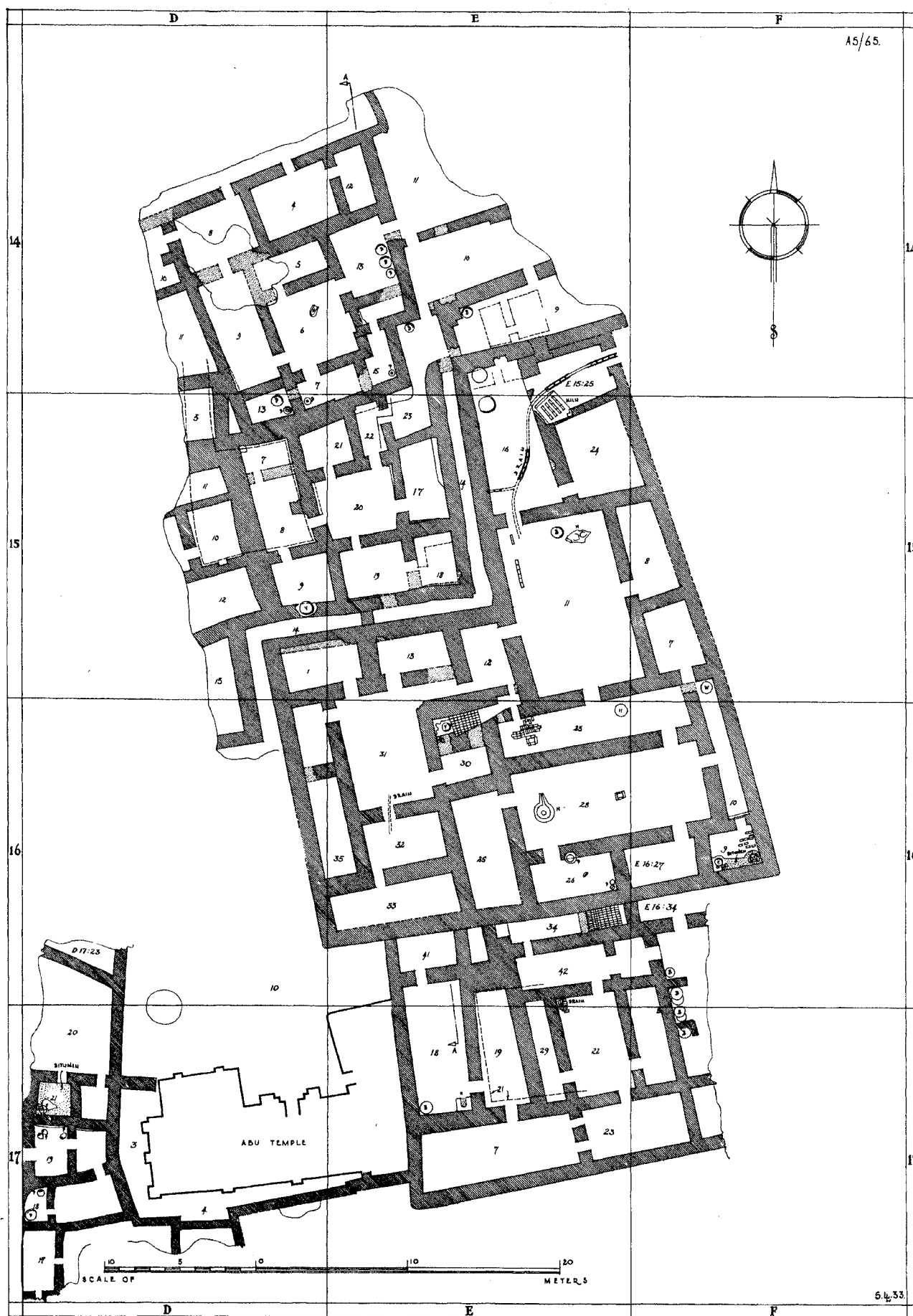


FIGURE 6.2. Plan of Earlier Northern Palace, Single-Shrine I, and contemporary houses. (Delougaz, Hill, and Lloyd 1967, pl. 36)



FIGURE 6.3. Plan of Main Level of the Northern Palace, Single-Shrine II, and contemporary houses. (Delougaz, Hill, and Lloyd 1967, pl. 37)

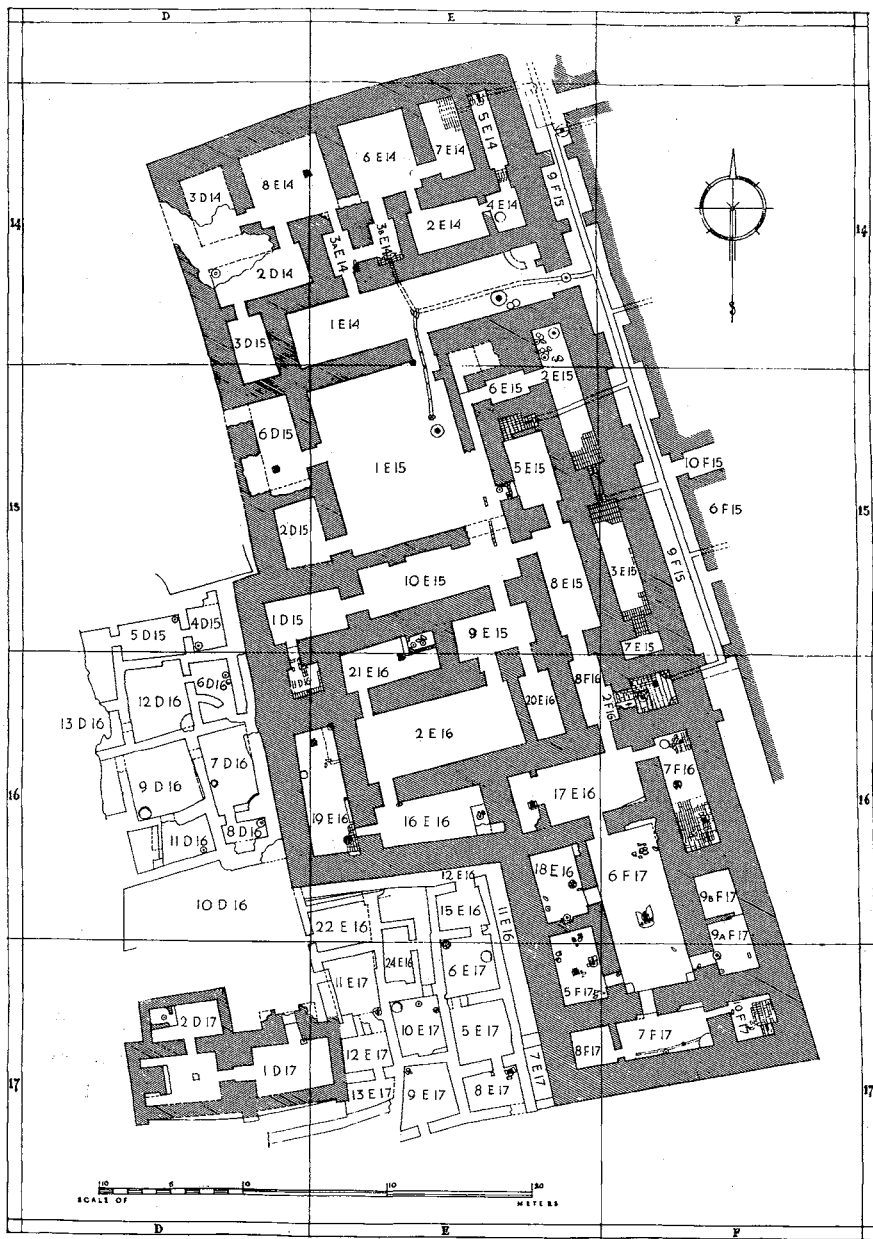
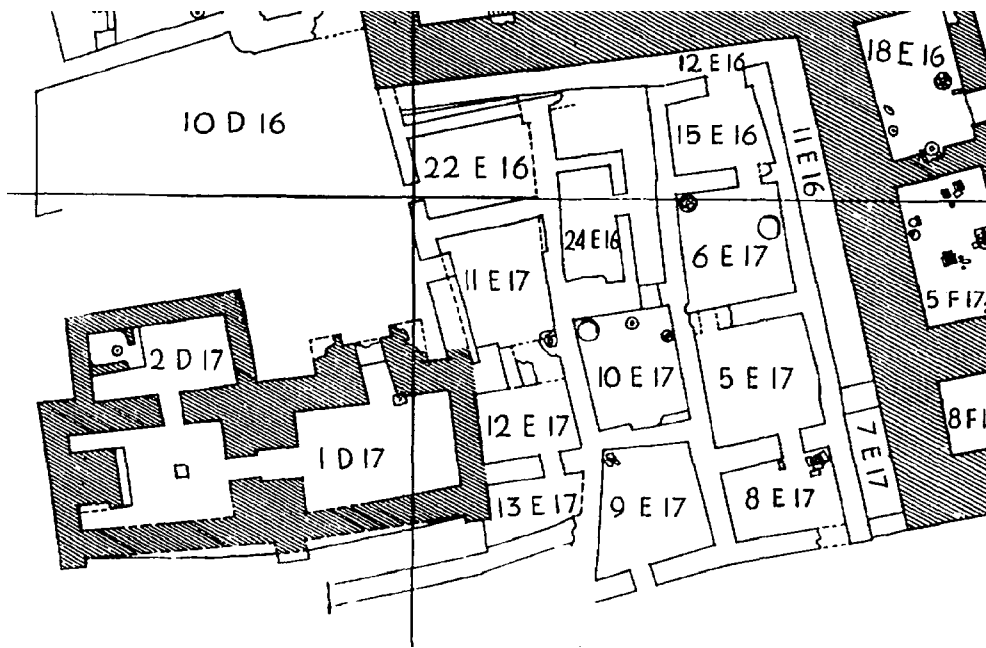


FIGURE 6.4. Preliminary plan of Main Level of the Northern Palace, Single-Shrine III, and contemporary houses. (Frankfort 1934, fig. 20)



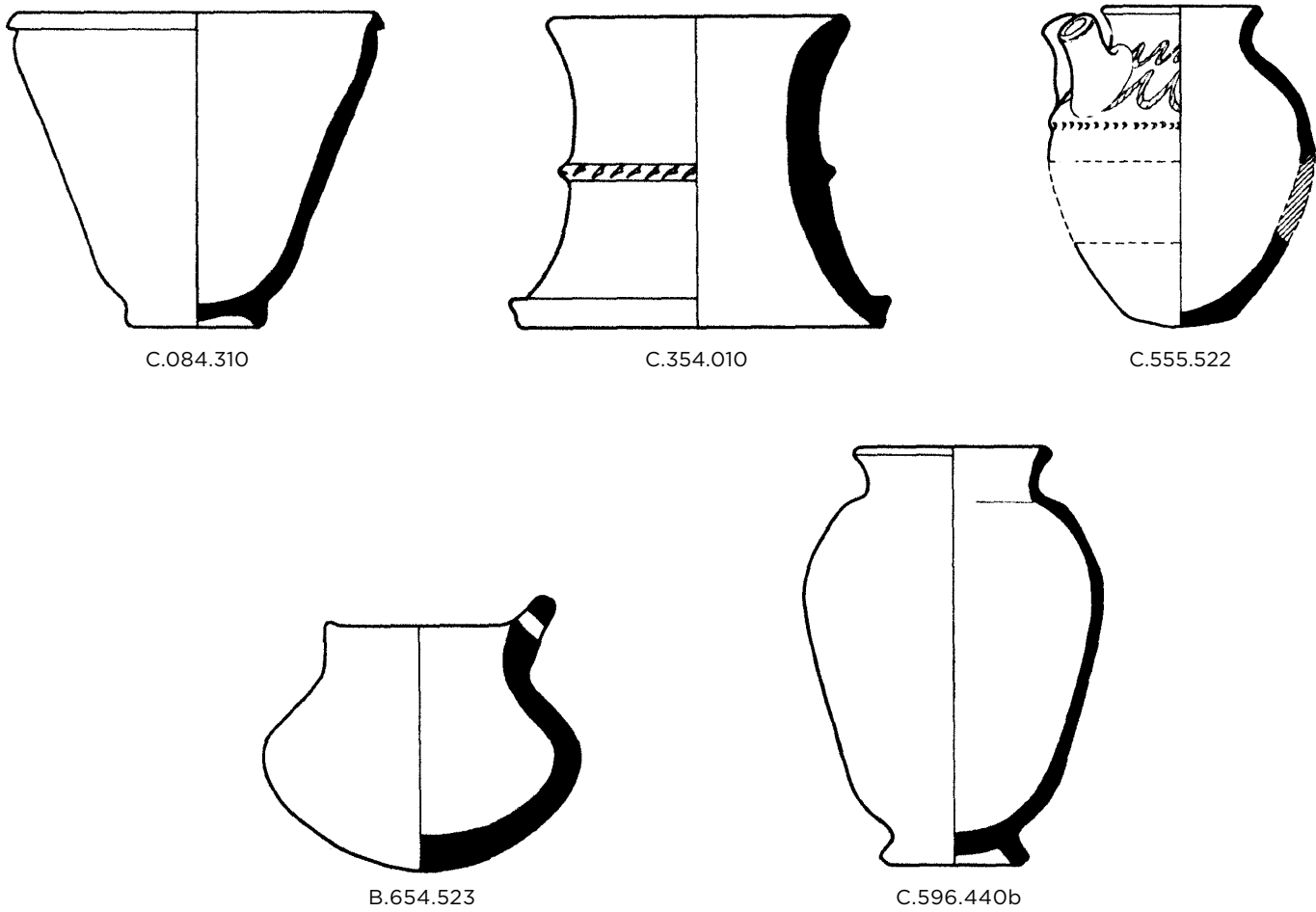


FIGURE 6.5. Pottery from below Single-Shrine I (top row: E 17:11 at 33.75 m) and from Single-Shrine I and II (bottom row); it should be noted that the 654.523 example was classified as "A" but drawn only in the "B" category. (Delougaz 1952, C.084.310, C.354.010, C.555.522, B.654.523, C.596.440b; see also pp. 18-19)



FIGURE 6.6. Photograph of Single-Shrine I from the northeast. According to the caption, “The man in the center stands in the entrance to Single-Shrine Temple I. At the right is the annex containing an oven. The man at the left stands in E 17:11.”

(Delougaz and Lloyd, p. 193, fig. 154)





Studies of workmen, Umm al-Hafriyat, 1977. (Drawing by Peggy Sanders)

CHAPTER 7

THE UMMA-LAGASH BORDER CONFLICT: A VIEW FROM ABOVE

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INTRODUCTION

Archaeologists routinely employ multivariate and multiscalar datasets to reconstruct broad patterns of past cultural behavior. Specifically, they rely on understanding the spatial relationship between a number of diverse artifacts and ecofacts to infer sequences of social, political, and economic change through time. In historic periods, ancient written records have the potential to further correlate with archaeological evidence, refining and testing archaeologically based hypotheses, and make a substantial contribution to holistic reconstructions of ancient history. Yet, despite the potential that integrated datasets can have in the production of robust historical narratives, emphasis on the systematic synthesis of archaeological material and textual records has been a relatively recent methodological advance and, in the past, analyses were restricted by research methods that treated material separately. For example, in the late nineteenth and early twentieth centuries, large-scale excavations in Iraq, or ancient Mesopotamia, routinely treated cuneiform records as separate objects. In this context, information from texts was analyzed by language specialists with limited input or interest from archaeologists, and with little or no reference to findspots or archaeological context, hindering their use by both archaeologists and historians in broad reconstructions of site and regional histories. Recognizing these limits, the Diyala excavations by the Oriental Institute of the University of Chicago in the late 1930s represent one of the first projects to systematically integrate textual and archaeological datasets with the aim of producing a synthetic and spatially informed chronological and functional analysis of site occupation (Reichel 2001; Frankfort, Lloyd, and Jacobsen 1940).

Building on this project and moving beyond the scale of the individual site, subsequent projects in southern Mesopotamia began to explore the potential of integrating variable quality textual and archaeological data from site and intrasite contexts to make important contributions to the long-term socioeconomic history of the region at multiple scales.¹ McGuire Gibson's topographic study of the city and environs of the powerful Early Bronze Age city of Kish stands out from the others in his integration of texts with excavation and survey data, and his effort to spatially broaden this analysis with an emphasis on the city's ancient landscape (Gibson 1972a, 1972b). Methodologically, he merged reanalysis of past excavation records, reconstructing findspots of texts when possible, and the results of targeted surface surveys of the numerous mounds that collectively comprise Kish and the cultural landscape around them. Drawing from these uneven datasets, he demonstrated cycles of functional change at the mounds and shed light on the complex relationship between settlements and channel systems by identifying the shifting courses of the Euphrates river channels and its branches in the area. Still, even Gibson's emphasis on the landscape context of the city, reconstructed from the union of variable-quality datasets, was limited by traditional spatial boundaries imposed by surface survey and restricted by uneven access to aerial photographs.

With burgeoning geospatial technologies and increasingly available multiscalar datasets, the incorporation of heterogeneous data is now possible, enabling ever-more synthetic reconstructions of trajectories of change in ancient societies. These datasets, such as high-resolution satellite imagery and photography, allow

¹ Charpin 1986; Pedersen 1985; Reichel 2001, 1994; Stone 1987; Zettler 1992.

a multiscale landscape analysis that transcends traditional geographic boundaries imposed by the practical limitations and the scale of on-the-ground fieldwork. This chapter applies an integrative landscape approach to the overall geography and hydrology of the Sumerian landscape east of the Shatt al-Gharraf River to reveal new insights into the historic Umma-Lagash border dispute (ca. 2500–2350 BC). While this marsh and deltaic environment area was home to many ancient cities that became powerful centers of Sumerian city-based polities in the early third millennium BC, the hydrology and settlement landscape south of the Shatt al-Gharraf is poorly understood. The Umma-Lagash border dispute, located in this area and one of the earliest documented examples of tension over water rights in the ancient world, has the potential to contextualize the role of political ecology in the emergence of the Sumerian polity. However, a lack of systematic study of this landscape, and difficulties in reconciling textual and archaeological information, have left open important questions about the nature of the conflict and its geography, and its part in shaping the Sumerian geopolitical landscape in terms of the expansion and consolidation of royal power in this period.² Complementary reanalysis of this material and its historical significance is possible by combining increasingly available remote sensing datasets, such as high resolution satellite imagery and digital elevation models, and information digitized from the archaeological *Atlas of Iraq* (1976) with past survey, excavation, and textual interpretations.

Employing geospatial tools and a landscape-oriented framework, it is possible to shed new light on this episode and begin to address broader questions of the role of political ecology in the emergence of Sumerian society. The fluvial landscape east of the Shatt al-Gharraf river was dominated by large leveed branches of the Tigris River, entering the area from the north and west, with a primary in the area preserved and reused by the modern Shatt al-Gharraf River (de Vaumas 1965). As this levee aggraded, it created a physical boundary between Umma and Lagash, and isolated Lagash from polities to the north. North of the site of Girsu, these branches mixed with Euphrates river channels, accounting for the written descriptions of Euphrates channels in the area. The scale of this channel, mapped by Adams (1981) and Pournelle (2003), indicates that it was a joint channel of the Tigris and Euphrates river and may have conducted a large volume of water, accounting for the emphasis on canal maintenance in the written documents recounting the border tensions, and the presence of the unparalleled features for water management at Girsu (Parrot 1948; Barrelet 1965; de Vaumas 1965).

The landscape east of the Shatt al-Gharraf River experienced a distinct fluvial setting, different than the landscape context for Sumerian polities on the plains to the north. These ecological conditions, their instability, and their potential for rich resources are reflected in the border dispute. Cities like Girsu, highlighted in the dispute, lay on the edge between the two areas and in a zone that was well placed to control water and tap into good agricultural land, insulating it from perturbations in the fluvial system and overall climate that might be catastrophic for other Sumerian cities. Taken together, the data suggest that this dispute may represent an extreme case of intercity conflict due to the unique environmental conditions experienced by cities along the edges of the marshes and alluvial plains. While the data shed light on overall political and social history, they also have the potential to shed light on the relationship between emerging state level societies and changing environmental conditions.

HISTORICAL CONTEXT AND PHYSICAL GEOGRAPHY

In southern Mesopotamia, the early third millennium BC or Early Dynastic period³ (2900–2350 BC) is marked by the appearance of a network of semiautonomous, city-based territorial polities, many of which were located at the southern edges of the alluvial plains in an area termed ancient Sumer, for its shared language and cultural identity (Westenholz 2002; Yoffee 2005). The geography of Sumer, covering an area of roughly 51,000 sq km, can be described as bounded by the site of Kish in the north, the foothills of the Zagros Mountains in the east, the western desert in the west, and the shoreline of the gulf in the south (fig. 7.1).⁴ Five thousand

² Foster 1984; Cioffi-Revilla 1999; McMahon, Soltysiak, and Weber 2011.

³ This period has three generally accepted subdivisions: ED I, 2900–2800 BC; ED II, 2800–2600 BC; ED III, 2600–2300 BC.

⁴ The location of the shoreline in this period is unclear.

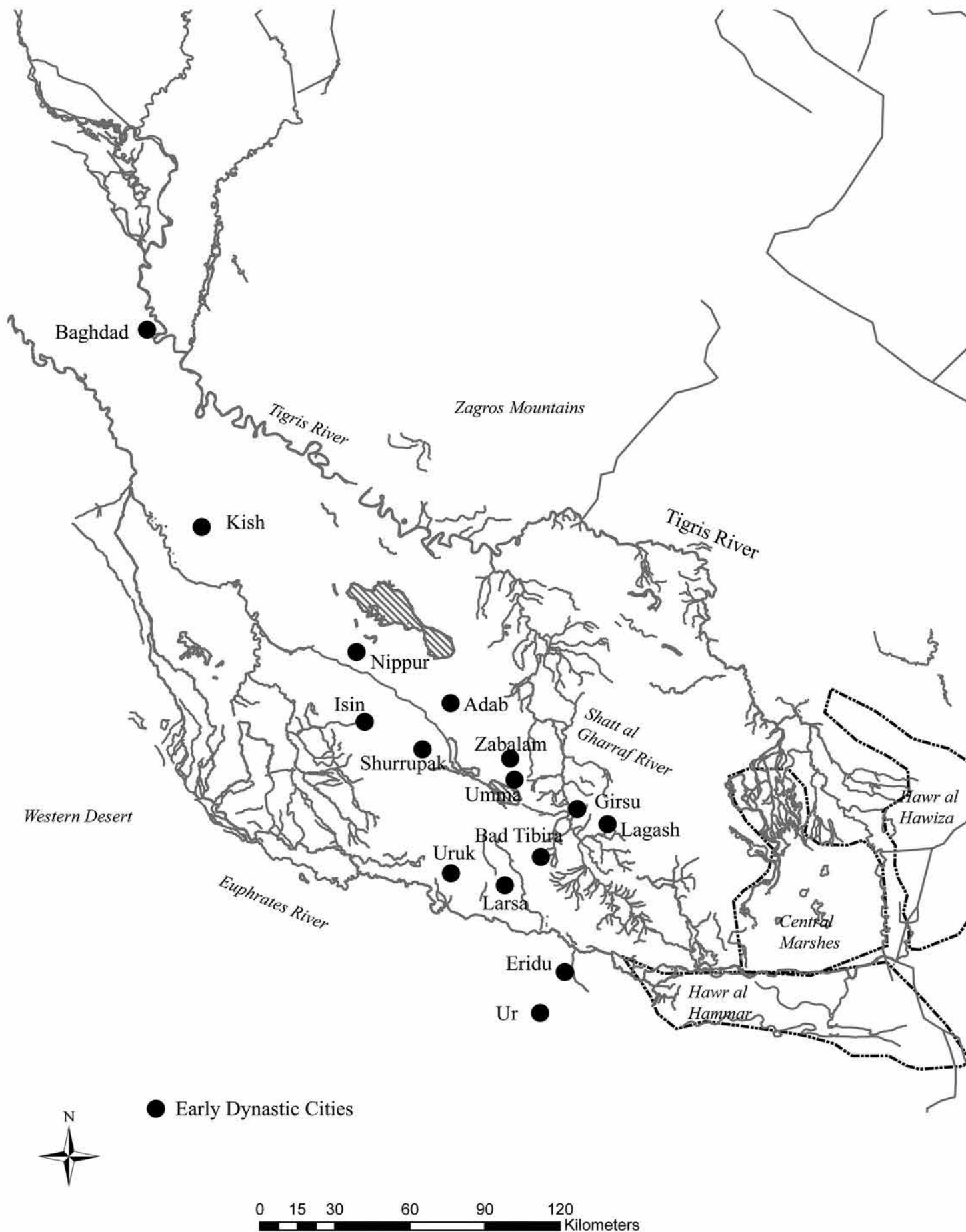


FIGURE 7.1. Area of Sumer; cities and landforms mentioned in text.

years ago, this landscape would have included a number of diverse and interspersed ecological niches,⁵ such as tidal swamps associated with the shoreline and the debouchment of the Tigris and Euphrates rivers and their channels, and coastal mudflats. In this landscape, a broad spectrum of resources would have been locally available, including fish, fowl, cultivation via irrigation from naturally branching channels of the rivers, and marginal grazing land for animals.⁶ The small-scale territorial polities that marked the Bronze Age landscape are traditionally described as Sumerian city-states, borrowing from the classical Greek polis model. Yet, unlike the relatively homogenous Greek city-states, Sumerian polities exhibited variation in composition, expressions of hegemony, and economic organization (Yoffee 1995, pp. 45–52; Westenholz 2002, p. 23). For example, while many of the individual polities had one primary urban center after which the city-state was named, several, such as Lagash and Umma, had multiple urban centers. Some city-states seem to have had a relatively confined local influence with fixed borders while others, such as Kish, exercised hegemony over cities geographically distant (Cooper 1983, pp. 22–25). Despite individualizing differences, these cities were linked by similarities in overarching social, political, and religious institutions, and the organizational structures that developed in this period continued to characterize Mesopotamian society for millennia to come.

There are three primary sources that provide multiscalar information on these emerging polities: archaeological surveys, excavation, and information interpreted from ancient texts. Synthesis of these datasets reveals some general characteristics of Sumerian society. First, the extensive surveys of Iraq in the 1960s–80s demonstrate that in the third millennium BC the center of gravity, in terms of dense urban settlements, shifted from northwest to southeast of the alluvium. This settlement distribution begins to take a pronounced linear form along several key branches of the Euphrates River, which has been described as a pearls-on-a-chain pattern (Adams 1957, 1981). Multiproxy environmental records contextualize these shifts and indicate that the third millennium BC saw the onset of increasingly arid conditions across the Middle East.⁷ For riverine environments, consequences included a decrease in overall flow in the rivers, and for anastomosing and leveed rivers such as the Euphrates River, this could precipitate the consolidation of flow into fewer, but larger, channels, and initiate morphological changes along individual river channels (Brown 1997, pp. 25–30). At the same time, the distinctly linear settlement distribution reflected the necessary movement of settlements following the river channels (Adams 1981). Based on visible relict levees, Adams (1981) and others (Cole and Gasche 1998; Gibson 1972b; Jacobsen 1960) have reconstructed three large channels, and their branches, that dominated the alluvial plains in the third millennium BC and acted as the loci of settlement (fig. 7.2). They are Euphrates channels, with lines through Adab, Shurrupak, and Uruk, and an easternmost channel whose source is less clear and which may be a primary branch of the Tigris River (Hritz 2010). The synthesis of the survey data provides a general geography of channels and settlements on the alluvial plains of central Mesopotamia and outlines the dynamics of the relationship between settlements and channels, but it does not extend to the southeastern portions of Sumer where centers such as Umma and Lagash were located, leaving a lacuna in the overall reconstruction of the Sumerian riverine and settlement landscape.

Second, relatively rare but detailed on-site surface surveys and excavations demonstrate that incipient fourth-millennium BC cities such as Uruk, Ur, Kish, Nippur, and Lagash grew exponentially larger and more spatially differentiated in the Early Dynastic period (3100–2900 BC). From excavated contexts, it is possible to generalize the outcomes of this demographic shift in the internal organization of Sumerian cities. Temples and palaces, as well as other institutional architecture, dominated the urban landscape (Stone 2013; Van De Mierop 1997; Yoffee 1995). Aggregated excavation data reveal that the third-millennium BC city contained a walled core—the mounded area—of administrative buildings, temples, residences, and production areas. Space was divided by canals, and harbors have been identified at several cities (Van De Mierop 1992).

Outside the city walls were, presumably, the suburbs of domestic houses, fields, and orchards (Postgate 1992; Van De Mierop 1997). These growing urban centers came at the expense of settlements in the countryside, which began to decrease in number, reflecting a shift of rural populations into the cities (Adams 1981). From these datasets, it can be inferred that changing resource availability, specifically the shifting hydraulic

⁵ Pournelle 2013; Sanlaville 1989; Verhoeven 1998; Wilkinson 2013.

⁶ Algaze 2008; Hritz, Pournelle, and Smith 2012; Pournelle and Algaze in press.

⁷ Nissen 1988; Wilkinson 2003, pp. 19–22; Roberts 1998, pp. 121–73.



FIGURE 7.2. Primary Early Dynastic period channel lines reconstructed by Adams (1981).

landscape, played a role in these population movements. For example, the regular spacing of urban centers in the early third millennium BC, some 40–50 km apart, along dominant channels of the rivers (after Adams 1981, pp. 159–61), may reflect the process of settlement along primary stable channels, and the progressive loss of the hinterland may be related to the disappearance of small scale channels that fed the rural hinterlands. Yet understanding of the processes by which these large cities gradually became capitals of territorial polities that extended influence and control over the economically and socially adjacent hinterland is unclear because textual and archaeological datasets can present differing pictures. For example, the survey of the area around the site of Umma revealed sixteen contemporary settlements and two to three channels (Adams 1981, pp. 35–36; 2008). However, analysis of the textual sources indicate perhaps as many as 185 hinterland settlements in a varied rural landscape, accompanied by a number of water channels and canals (Steinkeller 2007). The surveyor, R. McC. Adams, attributes this discrepancy to a combination of artificial survey boundaries and low visibility, with smaller sites buried under the alluvium (Adams 1981, 2008).

Finally, specific written and iconographic data provide insight into the development and variation of the Sumerian geopolitical landscape and political history. Several key datasets, contemporary and later, are relevant for contextualizing these new political forms. The general historical outline has been reconstructed from the nineteenth century Sumerian King list (Jacobsen 1939). While some scholars point out that the text is idiosyncratic (Finkelstein 1979, pp 60–63; Michalowski 1983), neglecting some otherwise attested dynasties such as Lagash and Isin (Cooper 1983; Michalowski 1983), it provides a framework for both early chronology and understanding the movements of power and authority among emerging Sumerian polities. When taken with iconography and inscriptions from early third-millennium BC city-seals, the evidence indicates a developing framework of political and economic relationships between cities, rooted in budding competition over resources and attempts at hegemony, if remaining unclear on the nature of interactions and the organization of developing alliances.⁸

After ca. 2700 BC, groups of contemporary texts recovered at several capital cities provide a limited but tantalizing range of information.⁹ While largely regulated to economic and administrative activities (Postgate 1992), the texts paint a picture of increasingly complicated political ecology with shifting alliances between neighboring cities, extensive and upward scaling of networks of artificial irrigation canals, and extending trade routes. These territorial polities had delineated and explicit geographic boundaries, administrative and governing institutions that communicated and formed alliances to deal with the conflicts and tensions of burgeoning populations, and circumscribed resources (Nissen 1988, p. 145; Adams 1981). Internally, the texts indicate that city-states were governed by powerful public and religious administrative institutions whose ideological roots lie in a system of patron gods for each city (Nissen 1988; Postgate 1992). These social institutions harnessed their power and authority to organize military activities and govern aspects of production and consumption. For example, a combination of lexical texts (Postgate 1992, pp. 223–25) and documents that record administrative activities reveal a complex hierarchy of groups and individuals whose professions range from chief temple administrator and temple personnel to specialized craftsmen, farmers, and scribes.

One of the most robust written collections used to reconstruct political history, social order, and inter-city warfare in this period comes primarily from excavated and looted contexts at the site of ancient Girsu (Telloh), and concerns an on-going border conflict between the neighboring polities of Umma and Lagash (fig. 7.3; see also Cooper 1983). Referred to in the scholarly literature as the Umma-Lagash border dispute, the disagreements described in royal inscriptions and displayed in iconographic material pertain to claims over land and a canal along a shared border, providing unique insight into the relationship between water, power, and politics (Cooper 1983; Winter 1985). The sources used to reconstruct the conflict, and its evolution over a period of 150 years, recount the tensions from the perspective of the Lagash polity.

In brief, the earliest inscriptions relate the establishment of the border in a previous period by the King of Kish, Meslim (ca. 2500 BC), accomplished under the direction of the chief god of the Sumerian pantheon, Enlil (Cooper 1983, p. 22). Over time, the texts chronicle increasing tensions over cultivated land along this border called Gu'edena (translated as “edge of plains,” Cooper 1983, p. 23). This was territory claimed by both

⁸ Matthews 1993; Nissen 1988; Postgate 1992, pp. 32–34; Steinkeller 2002; Winter 1985; Wright 1969.

⁹ Alberti and Pomponio 1986; Alster 1991–93; Biggs 1974; Kuhrt 1995; Martin 1988.

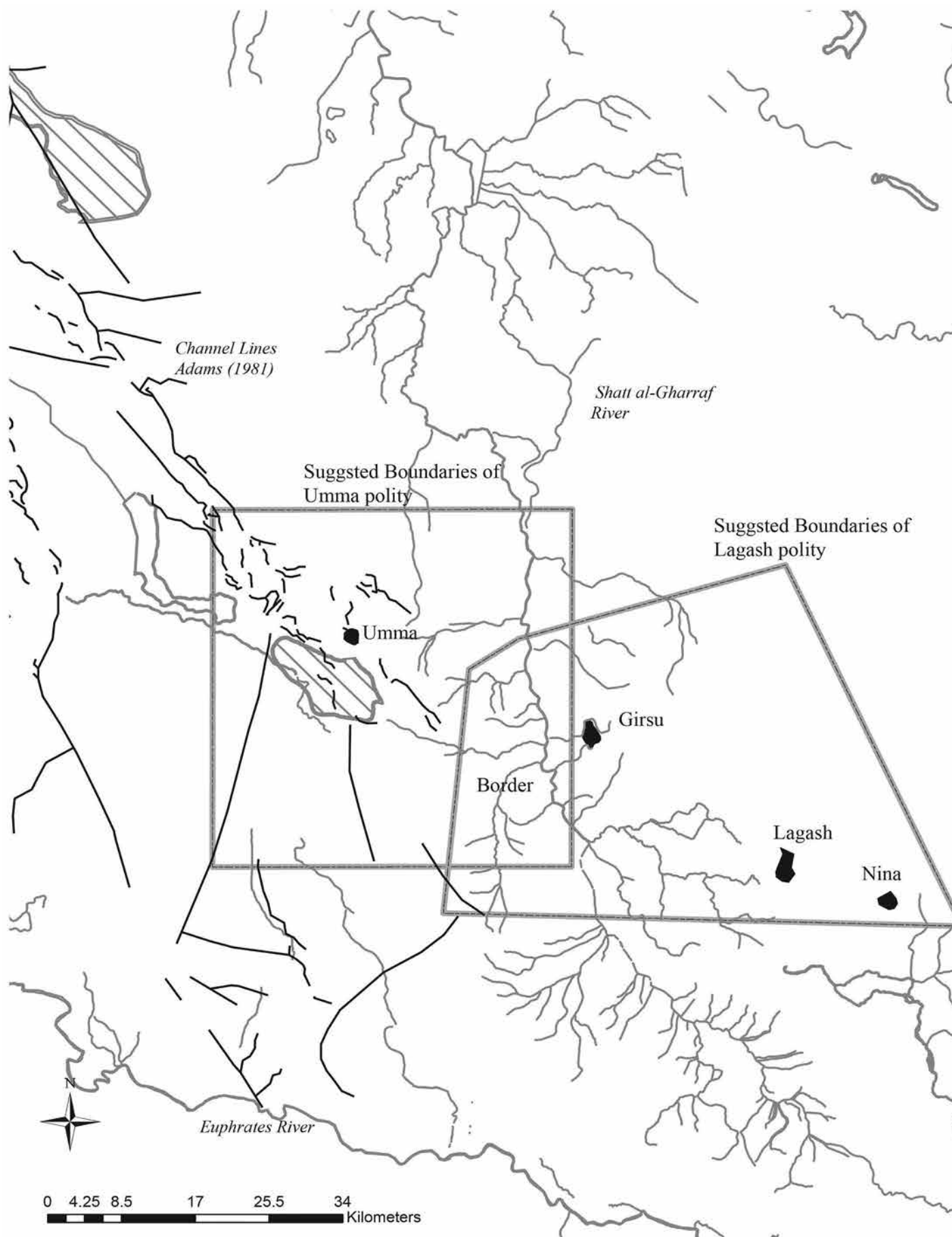


FIGURE 7.3. Boundaries of the Umma and Lagash polities in the third millennium BC. (Compiled from Steinkeller [2007] and Jacobsen)

polities and, according to the inscriptions, cultivation was allowed by both with the following constraint: Umma paid in grain yields to lease fields in this area. By the reign of Enantum I (ca. 2450 BC), it is clear that the heart of the developing dispute lay in three related conditions: (1) Umma's failure to make payments; (2) improper use of the shared irrigation canals, i.e., Umma is charged with theft for attempting to divert water from shared canals into canals that only fed Umma's fields; and (3) Umma's extension of fields across the border canal and into land allotted for Lagash cultivation. In some cases, these transgressions are described as immediately leading to warfare, but in others it seems to take some time for action to occur, and the texts may be relating incidents that merely provoked a warning (Cioffi-Revilla 1999; Rasler and Thompson 2006). Chronologically, the latest inscriptions suggest the conflict was not resolved and recount Girsu playing a more prominent role in the dispute (Cooper 1983, pp. 36–37).

Cooper's (1983) exhaustive analysis of the inscribed material demonstrates that this conflict probably reflected broader struggles for hegemony over southern Babylonia and the development of enduring political alliances, which ultimately left the Lagash polity isolated. Yet he points out the geographical, chronological, and philological limits to understanding the political ecology of this conflict. For example, the written documents refer to numerous place names and canals, but few have been securely identified and located. Jacobsen's (1969) short survey of the area proposed a location for the border canal and several settlements mentioned in the texts, but the survey reported difficulty in reconstructing channel patterns due to low visibility during ground survey and lack of available aerial photographic coverage over the area, rendering conclusions tentative. As it stands, the conflict appears as a spatially "floating" set of events that are difficult to correlate in terms of archaeological material and environmental and geographical setting.

DATA AND METHODS

The primary datasets, archaeological surveys, excavations, and textual records illustrated by the Umma-Lagash case study paint a picture of an evolving urban landscape and the shifting relationships between humans and their environment in the context of newly emerging polities and social hierarchies. For example, climate shift, with the onset of increasingly arid conditions, would have created a greater demand for artificial landscape management to both maintain and expand resources. The depopulation of the countryside and demographic movements into walled cities may in part reflect an initial response to unstable rural conditions. Relationships between communities once regulated on the local level would have required increasingly complex institutions to manage and negotiate new resources and access, such as shared water source rights and land use.

Yet, while informative, each of these datasets is hampered by spatio-temporal limitations. For example, the extensive surface surveys covered primarily the northern and western portions of the Sumerian heartland, because the southern and eastern areas were located in the Central, Hawr al-Hammar, and Hawr al-Hawiza Marshes. In these wet conditions, visibility was low, rendering surface survey impractical, and access was hindered by lack of passable roads (Adams 1981, 1972; Adams and Nissen 1972). While there may be as many as fifty capitals of polities in this period (Westenholz 2002), excavations in the late nineteenth and early twentieth centuries focused on a handful of the most prominent of these sites. Methodologically, the goals of these excavations were heavily weighted toward the collection of museum quality material and the articulation of temples and monumental structures, revealing an incomplete snapshot of material. Finally, the textual corpus is comprised of groups of texts from different centers and is uneven, both chronologically weighted toward the latter end of the third millennium BC (2600–2100 BC) and restricted by the varied scope of topics at different sites (Kuhrt 1995, pp. 28–29).

One promising method for moving beyond these data limitations is to integrate previously excavated textual and archaeological data with remote sensing data in a geospatial framework. Numerous recent studies have demonstrated the utility of remote sensing datasets and GIS tools to act as a bridge for fragmentary archaeological and textual datasets and address long-standing historical questions (for summaries see Hritz 2014; Parcak 2009). With changing ground conditions both permitting new fieldwork and revealing relict features on satellite imagery (Hritz, Pournelle, and Smith 2012), landscape studies in southern Mesopotamia,

in particular, have benefited from an integrative geospatial research design that permits the synthesis of previously collected data with variable collection and recording methods and new available datasets to enhance past historic models.¹⁰

Building on recent integrative geospatial approaches,¹¹ this study employed a combination of multiperiod and multiseasonal historic Corona satellite photography;¹² recent submeter resolution Digital Globe satellite imagery;¹³ 90 m SRTM DEMs;¹⁴ 30 m ASTER DEMs (Altaweel 2005; Harrower 2010); maps from past excavations of the site of Girsu (Huh 2008); four maps from the *Atlas of Iraq* (1976); and information from ancient texts that covered the reconstructed territory of Lagash (based on Jacobsen 1969, fig. 1).

The draining and drying of the marshes over the last twenty to thirty years has made landscapes visible on the surface and on high-resolution satellite imagery (Hritz, Pournelle, and Smith 2012). Studies of looting patterns in southern Iraq have demonstrated the utility of expensive high-resolution datasets such as Quickbird or Geo-eye images (Stone 2008) over small areas. But these datasets can be cost prohibitive when dealing with large areas rather than specific sites. For example, the former Hawr al-Hammar marshes, about 1/3 of the entire area, at its greatest recent extent covered 20,000 sq km. At roughly USD \$14 per sq km, images of the area would cost USD \$280,000. An alternative is to clip images from Google Earth Pro. The program allows the user to clip images and save them at resolutions as high as 4800 dpi. For this area, 162 images were clipped and the preserved ground resolution was ca. 2 m. Digital globe images from 2006 and 2012 were also integrated covering smaller areas around Girsu and Lagash. Recently available DEMs from the SRTM and ASTER satellite missions provide a broad view of the riverine landscape. These terrain models emphasize the more long-lived and enduring landforms such as relict channel levees, and eliminate small and more ephemeral features (Hritz and Wilkinson 2006; Hritz 2010).

Methodologically, each of these datasets was digitized and integrated into a GIS for comparison and spatial analysis. Using survey data from the alluvial plains as a guide, archaeological sites and relict channels within the boundaries of the Lagash city-state and along the presumed border area between the city-states of Umma and Lagash were identified. Channel and canal lines were identified by topographic signature first and, when possible, verified visually on satellite imagery. Archaeological sites were identified by a set of visual criteria (Hritz 2012, 2010; Ur 2003; Wilkinson 2003) including looting holes, and verified on multiple datasets. Integrating these datasets, it was possible to present a preliminary reconstruction of the Sumerian settlement system—channels and archaeological tell sites—and take a detailed look at the geography and ancient landscape of the border.

VIEW FROM ABOVE: THE ANALYSIS (FIG. 7.4)

Despite recent archaeological forays into the marshes and delta of the rivers¹⁵ that demonstrated the visibility of archaeological tell sites during periods of low water, the complexity of channel systems (Wilkinson 2013, fig. 2.3) and difficulty in dating archaeological occupations have prevented systematic reconstruction of the ancient landscape southeast of the modern Shatt al-Gharraf river. Previously, the physical geography of this area, including topography, settlement patterns, and ancient channel systems, had been reconstructed for small areas immediately around archaeological sites. Two principal studies that focused on the area immediately east of the river, considered to be part of the historic Lagash territory, combined information from the written sources and a brief archaeological survey. First, in 1969, as a follow-up to the survey of central Sumer and his reconstructions of the ancient channels of the Euphrates River, Thorkild Jacobsen made a brief survey of the area around the sites of Girsu and Lagash. Given the historical importance of the Lagash territory, his

¹⁰ Hritz, Pournelle, and Smith 2012; Hritz 2010; Hritz and Wilkinson 2006; Pournelle 2003, 2007; Stone 2003, 2008.

¹¹ Hritz 2010, 2012, 2013; Hritz and Wilkinson 2006; Pournelle 2003; Ur 2003.

¹² Casana and Cothren 2008; Hritz 2010, 2012; Ur 2003, 2011.

¹³ Lasaponara and Masini 2006; Parcak 2009; Hritz 2008; Stone 2008.

¹⁴ Menze and Ur 2012; Menze, Ur, and Sherratt 2006; Hritz and Wilkinson 2006; Sherratt 2004.

¹⁵ Hamdani, pers. comm.; Hritz 2014; Roux 1960. Archaeological surveys have been conducted in this area by State Board of Antiquities and Heritage representative Abdul Amir Hamdani and continue.

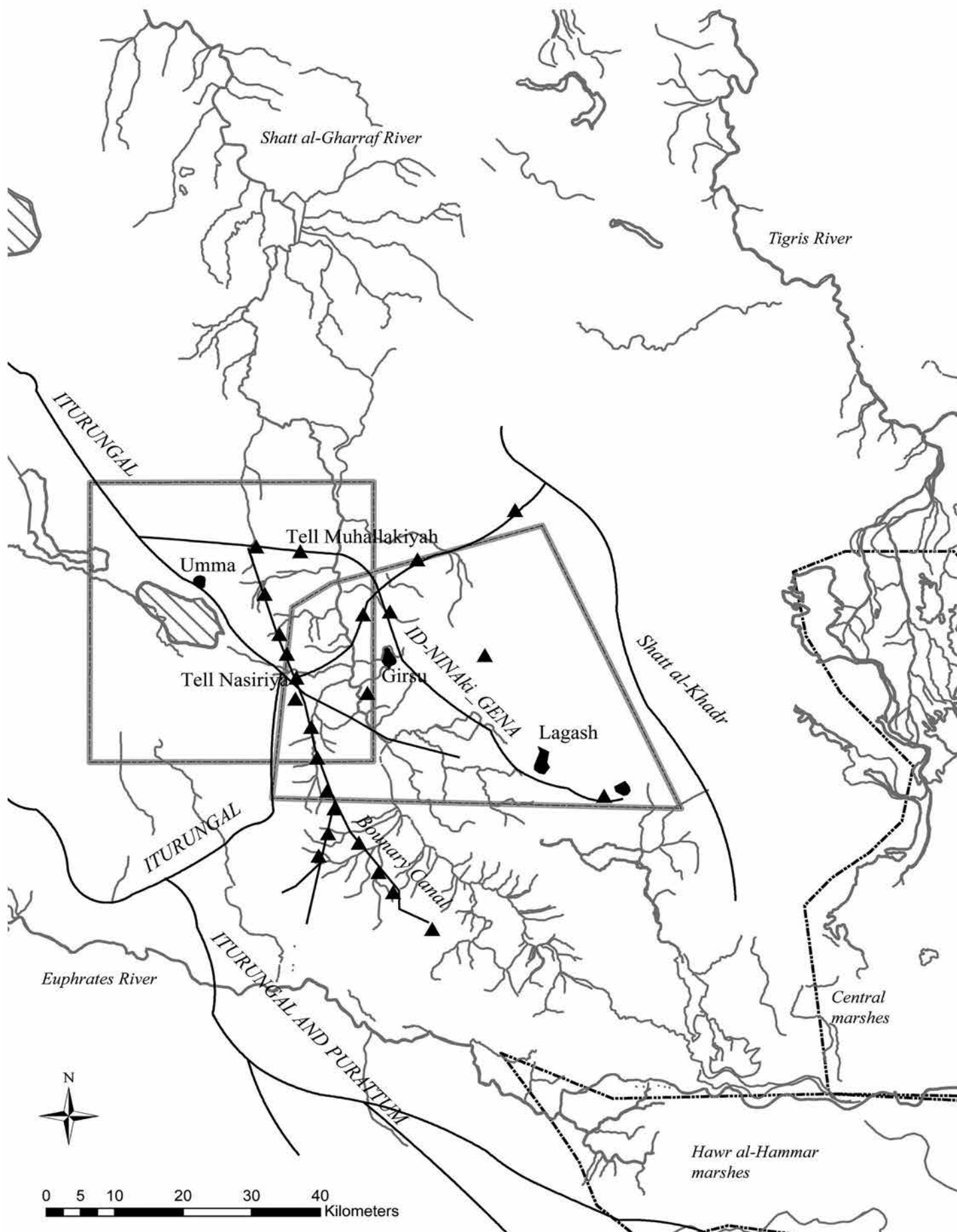


FIGURE 7.4. Jacobsen's reconstructed channel lines and surveyed sites on the modern river channels.

goals were to (1) trace the boundary canal described in the texts that was the primary source of tension between Umma and Lagash, and (2) determine the location of the Tigris River feeder canal, and by proxy the location of the main branch of the Tigris River in this period, as described in the inscriptions of Entemena.

Using methods from the Survey of Central Sumer project (Jacobsen 1960), he conducted surface surveys and dated forty-two tells in the area around the cities of Girsu and Lagash (Adams 1958). Integrating his ground observations with information from ancient texts, he sketched out the boundaries of the Lagash polity (Jacobsen 1960; 1969, fig. 1). He visited sites aligned north-south, and located west of but parallel to the modern Shatt al-Gharraf River. During his survey, he did not observe a relict channel levee, but reasoned that the alignment of sites marked the line of a relict canal. He concluded that this marked the boundary canal, called ID-NINA^{KI}-GENA in the ancient texts. Locating the feeder canal of Entemena, which would have directed water to Lagash's fields, proved more difficult because it relied first on determining the location of the Tigris River in this period.

Based on his interpretation of the Entemena cone inscriptions, and his reconstruction of the location of the boundary canal, he suggested that in the third millennium BC, the Tigris River could have been located in its Islamic period bed, the Shatt al-Khadr, east of the modern Shatt al-Gharraf. From this channel, a feeder canal could have run southwest to Tell Nasiriya, and crossed the ID-NINA^{KI}-GENA that fed Girsu (Jacobsen 1969, pp. 104-05). Such a set of canals would have mixed the water of both rivers. The Euphrates River would have watered the northern reaches of the ID-NINA^{KI}-GENA canal via the Iturungal River while the Tigris would have contributed flow via a channel running southwest from the Shatt al-Khadr emptying into the ID-NINA^{KI}-GENA north of Girsu near Tell Muhallakiyah (Jacobsen 1969, fig. 1). He concluded that this joint channel and secondary canals would have emptied into marshes to the southwest of Lagash and Girsu. Further, he noted that without the large and recent levee of the Shatt al-Gharraf, these marshes could have extended ever further north and east. Jacobsen points out a key constraint for this reconstruction of the Tigris River and the feeder canals: all sites visited along the proposed course date to the Parthian, Sasanian and Islamic period with no visible evidence for earlier occupation, despite previous information from previous surveys of the area (Jacobsen 1960, p. 175).

The second study was conducted by E. de Vaumas (1965) based on the study of topographic maps and analysis of the same texts used by Jacobsen. His reconstruction of the hydrology focused on topography and presents a different reconstruction of the fluvial landscape. Specifically, de Vaumas (1965, pp. 87-90) suggests that the third-millennium BC Tigris River followed the same course as the present Shatt al-Gharraf River, based partly on topography and partly on the large size of the Shatt al-Gharraf river levee, which is indicative of its long use. Further, he deduced that if the bed of the Shatt al-Gharraf river conducted the flow of the main body of the Tigris River in antiquity, then its levee would have presented a topographic barrier, separating the low-lying wetlands from the arable plains to the north (de Vaumas 1965, p. 88). In de Vaumas's reconstruction, Jacobsen's border canal, identified by the line of sites, would have been located at the edge of the topographic basin, and for water to reach Girsu from this canal, it would have to flow upslope. This renders the boundary canal reconstructed by Jacobsen topographically impossible. De Vaumas proposes, rather, that the channels that fed Girsu may be preserved in the more recent easterly channels of the Shatt al-Gharraf River (Wilkinson [2013, p. 41, fig. 2.3] shows this complex set of channels). This reuse makes the identification of individual canals and channels difficult to identify, and he did not suggest the location of the boundary or feeder canal described in inscriptions. Instead, he proposed that this canal must have been located north of Girsu. Until recent imagery became available, this work has been the only systematic archaeological exploration of this channel system.

Overlaying the DEM on the recent and historic high-resolution satellite imagery, it was possible to address the nature and morphology of the Shatt al-Gharraf River, and enhance the hydrologic picture produced by Jacobsen and De Vaumas. Both Jacobsen's and De Vaumas's reconstructions of the physical geography and hydrology were hampered by the narrow geographic view resulting from a short survey and limited scope of available topographic maps. In a fluvial environment, riverine systems act as an integrated whole and changes to a part effect the whole.¹⁶ Therefore, to understand the natural and anthropogenic hydraulic

¹⁶ E.g., Cushing, Cummins, and Minshall 2006; Molner, Burlando, and Ruf 2002.

landscape of the Umma-Lagash border dispute, it is necessary to take a broad spatial perspective. Viewing the modern course of the Shatt al-Gharraf river as a whole, from the Euphrates in the south to the modern Tigris in the north, several relict channel levees that are visible as topography on the DEMs can shed light on the local hydrology of the Girsu/Lagash area (fig. 7.5). For example, a significant point of avulsions occurred near the modern city of al-Hay. In this area, three channels splay out to the southwest and southeast. The westernmost channel (1) represents the current course of the Shatt-Gharraf River. The middle channel (2), represented by its relict topographic levee and faint soil discoloration on the high-resolution satellite imagery, runs parallel and 18 km to the east of the modern Gharraf. It rejoins the main river branch at Qalat Sakur, where the Gharraf splays out into numerous secondary branches running to the southeast. 20 km further to the east, the easternmost channel (3) follows a parallel path until Qalat Sakur, where it also avulses into at least five secondary branches, one of which may be the bed of the Shatt al-Khadr mapped by Jacobsen (1969). In this area just south of Qalat Sukkar, the DEM records a drop in elevation that would encourage the transition from a meandering river, at the northern reaches of the Gharraf, to an anastomosing river system visible in the relict levees of the secondary branches, and set the conditions for channels to avulse. In this area, a number of channels branch and rejoin, revealing the complexity of this channel system.

The relict middle channel levee (2) may shed light on the specific hydrology of the disputed border area, and aid in reconciling the different reconstructions of Jacobsen and de Vaumas. 16 km south of Qalat Sukkar, this levee is intersected by an ancient Euphrates levee, identified as the ID-NINA^{KL}-GENA, coming from Zabalam (Adams 1981; Jacobsen 1969). It is here, just north and east of Girsu, that waters of the two rivers began to intermingle. This Tigris/Euphrates channel splays into several secondary lines toward the southeast, past Girsu and toward the city of Lagash. These secondary channels are finger-like branches that flowed out and, presumably, deposited water from the Gharraf levee downslope to the lower elevation areas of the southeast and the marshes. Three of these channels are preserved in part as modern Shatt al-Gharraf eastern branches and in part as relict topographic ridges on the DEMs, feeding the territory surrounding the cities of Girsu and Lagash. The first channel carrying the water of the Tigris and Euphrates rivers would have come from Zabalam, run northeast of Girsu and Lagash, and fed a number of contemporary small sites noted in the *Atlas of Iraq* (1976). The second channel came from the area of Umma, intersected the Gharraf bed, and ran directly past Girsu and down to Lagash and Nina. Finally, a third canal is visible to the southeast and would have fed some of Jacobsen's north-south aligned sites on the western side of the Shatt al-Gharraf.

From this landscape reconstruction, it is clear that the Tigris River played a prominent role in the hydrology of southern Sumer, particularly in the area of the Lagash polity. For example, the Gharraf itself, like so many other channels in southern Mesopotamia, is reusing older channel lines of the Tigris River, and this may account for the massive levee of the river channel and its similarity to the reused Nahrwan canal in the Diyala region (Hritz 2010). The morphology of the three channel lines visible on the DEMs reveals that the Tigris River may have experienced variable morphology along its course resulting from even slight elevation changes southeast of the alluvial plains. As an anastomosing and leveed river, its multiple branches correlate with de Vaumas's reconstruction of the Tigris line along the Shatt al-Gharraf and Jacobsen's Tigris branch in the Shatt al-Khadr bed. Essentially, the Lagash polity would have been surrounded on all sides by large branches of the Tigris River.

Further, the DEMs reveal that the cities of Umma, Lagash, and Girsu would have been located on channels that were fed by waters from both the Tigris and Euphrates rivers. The presence of both rivers in this area and the modification of their channels by millennia of irrigation agriculture have contributed to the complex hydraulic landscape preserved today, and the burial of ancient features under alluviation. In these conditions, the efforts to pinpoint an individual feeder canal of the rivers may not be possible because the disputed feeder canal could be preserved in part or whole by any of the canals preserved along the eastern edge of the modern Shatt al-Gharraf, the boundary area between the two polities, or totally buried under the aggrading levee of the Gharraf. Further, the remote sensing data demonstrates that mapping of the boundary canal may not be necessary to understand the hydrological context of the water dispute and its broader historical implications.

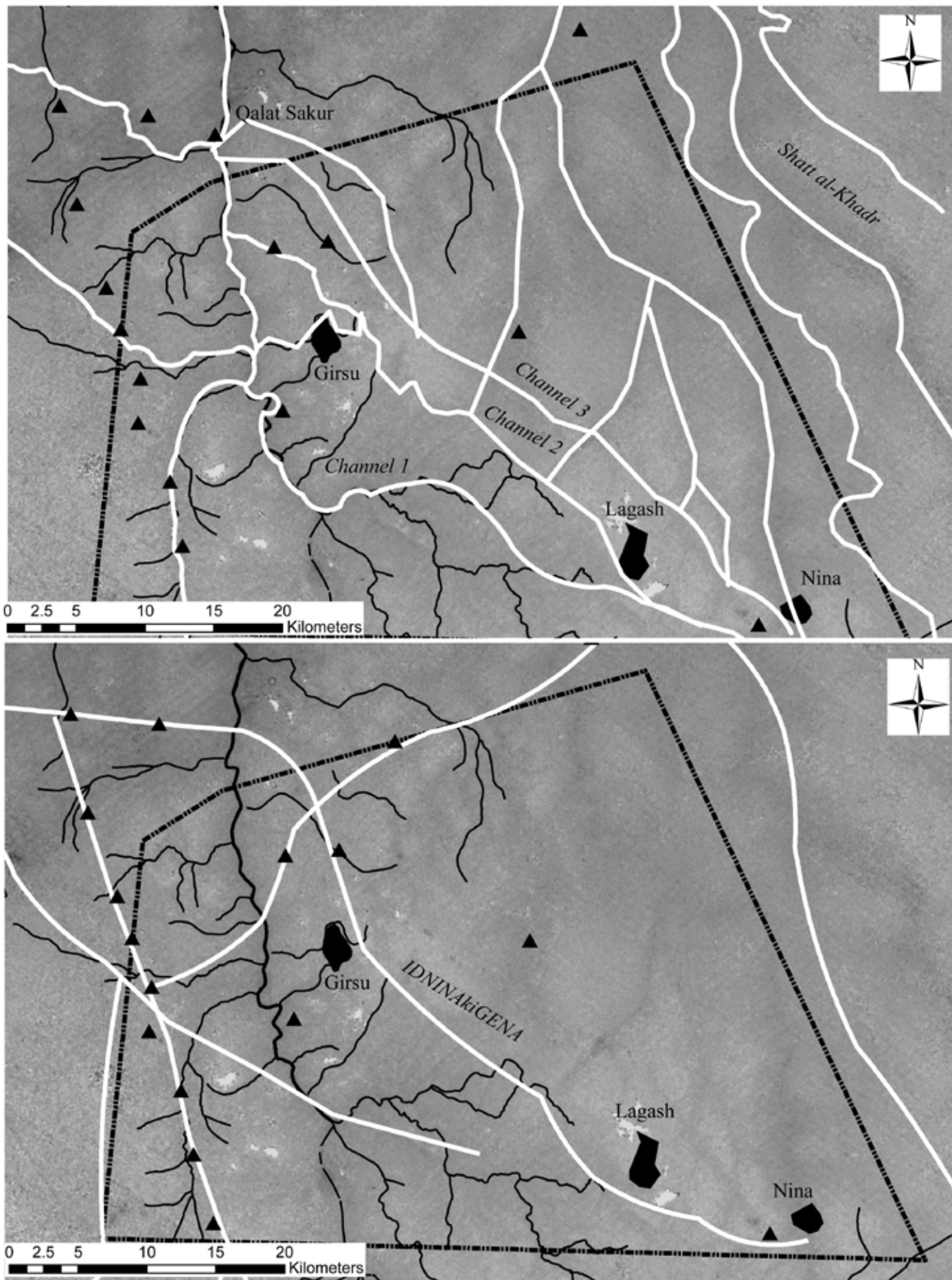


FIGURE 7.5. SRTM as background, channels traced by Jacobsen at bottom, channels digitized from topographic data at top.

CITIES AND THE SETTLEMENT LANDSCAPE (FIG. 7.5)

Remote sensing datasets and maps from the *Atlas of Iraq* (1976) can also facilitate a preliminary outline of site distributions in this area (fig. 7.6). Using the common keys for the signature of an archaeological tell site on a satellite image, such as tonal differences and characteristic shape, 583 sites were visible on the Digital Globe clips throughout the entire area. In general, the sites are dispersed throughout the area east of the Shatt al-Gharraf. Possible sites of all sizes are clustered along relict channels of the Tigris River, and empty spaces off the relict river levees have been heavily modified for on-going agriculture, presumably masking smaller settlements. While dating must await future fieldwork, it is clear that this was a heavily occupied ancient landscape, with some possible sites with mounded areas reaching over 100 ha.

Zooming in on the immediate area east and west along the Shatt al-Gharraf river, the presumed border between Umma and Lagash, and the territory of Lagash (roughly 1,816 sq km), the *Atlas of Iraq* (1976) and Jacobsen's survey provide a base outline of visible settlement distributions (fig. 7.7). Many of the sites Jacobsen mapped are not visible on the recent high-resolution satellite imagery and historic Corona satellite photography. This may be a reflection of progressive loss of the ancient landscape as a result of several combined taphonomic processes such as burial or destruction due to intensive irrigation agricultural and canalization from the Shatt al-Gharraf river on its western side in the period since his mound survey. On the eastern side of the Shatt al-Gharraf and in the landscape between Girsu, Lagash, and the site of Nina, the *Atlas of Iraq* notes sixty-eight archaeological sites. These sites show three distinct clusters, on the levee of the Shatt al-Gharraf (the border with Umma), along two large channels that run from Girsu toward Lagash, and along channels to the northeast of Lagash. While sites in each area range in date, according to the *Atlas*, many of those along the levee of the Shatt al-Gharraf and the two large channels are dated to the early third millennium BC. Integrating high-resolution satellite imagery, there are an additional 108 possible archaeological sites in this area, clustered in the three primary areas and filling in the rural landscape. The majority of sites are small with visible mounded areas ranging between 0 and 5 ha, revealing the overall density of the rural landscape in this area.

While dating must await future ground visitation, a few individual mounds can be described, and references to textual sources suggested (fig. 7.8). The largest site in the Lagash territory, excepting Girsu and Lagash, has 78 ha of visible mounded area and is located at 10 km north of Girsu on the Tigris/Euphrates river channel that comes from Zabalam in the northwest. The site is crisscrossed by modern roads and canals. Looter holes are visible on its southern edges on Quickbird imagery. In this area, distinct tonal differences on the imagery reveal the possible traces of two large square buildings, perhaps measuring 125 × 15 m. While the site has not been surveyed or dated, it may have represented a significant town on the border area between Umma and Lagash. The texts describe an important northern sanctuary of Ningirsu—Antasurra and the palace of Tirash—in the Gu'edin that was affected by the conflict over water between Umma and Lagash. Jacobsen suggested it was located at or near the site of Imrebi'a (Jacobsen 1969, p. 104). Imrebi'a is located further to the east, a smaller settlement and surrounded by small-mounded sites. Reasoning that this is the largest town in the area and located along the contested channel line, it is possible to suggest that this site may have contained the sanctuary or palace rather than Imrebi'a.

The second large site is located 3 km north of Girsu. This 22 ha tell has been dated to the Achaemenid and Parthian periods by the *Atlas* survey. Given its proximity to a series of Early Dynastic sites dated by Jacobsen (1969) and along the same river channel, it may have had an earlier occupation. It is located along the reconstructed Tigris/Euphrates channel that fed Girsu and may have played a role in water management to the site. At the southwestern edge of the Lagash territory, west of the modern Shatt al-Gharraf River, are three large sites covering 24, 53, and 43 ha of mounded area. They are located on the remains of a large levee that has been cut by the third river drain. The *Atlas* (1976) identified them as Tell Madinah-Bad-Tibira, Tulul al-Madyna, and Abu al-Sakhair. Tell Madinah-Bad-Tabira and Abu al-Sakhair date to the Early Dynastic–Ur III periods while Tulul al-Madyna dates to the Sasanian–Islamic periods. It is possible these sites represent a shifting occupation along the levee as the Tigris channels adjusted over time. All are located along major visible channels that lead from Umma territory into Lagash and areas further southeast. The overall pattern which emerges is one of large and evenly spaced cities, most clustered at the edge between the alluvial

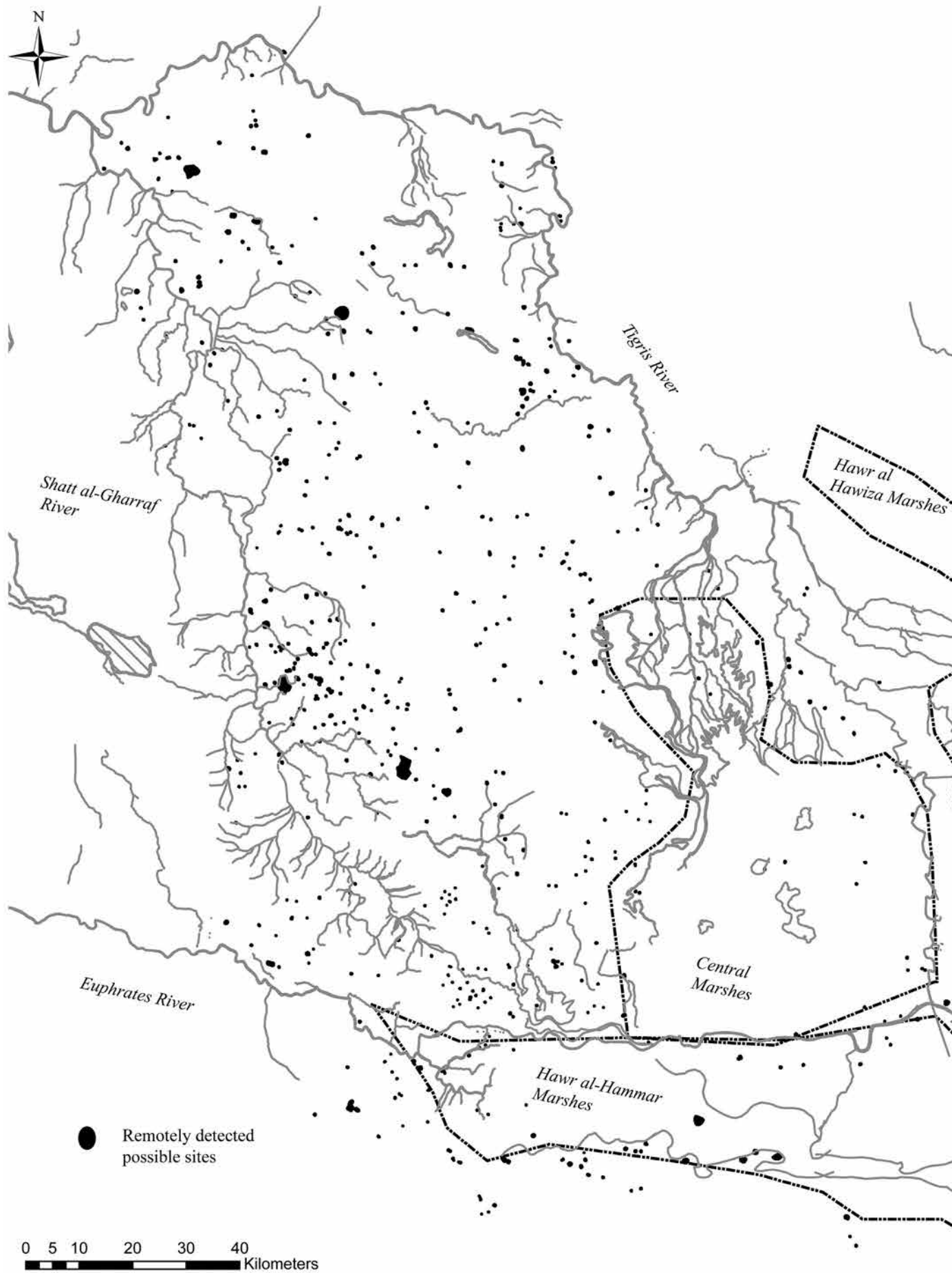


FIGURE 7.6. Remotely detected possible archaeological sites east of the Shatt al-Gharraf River.

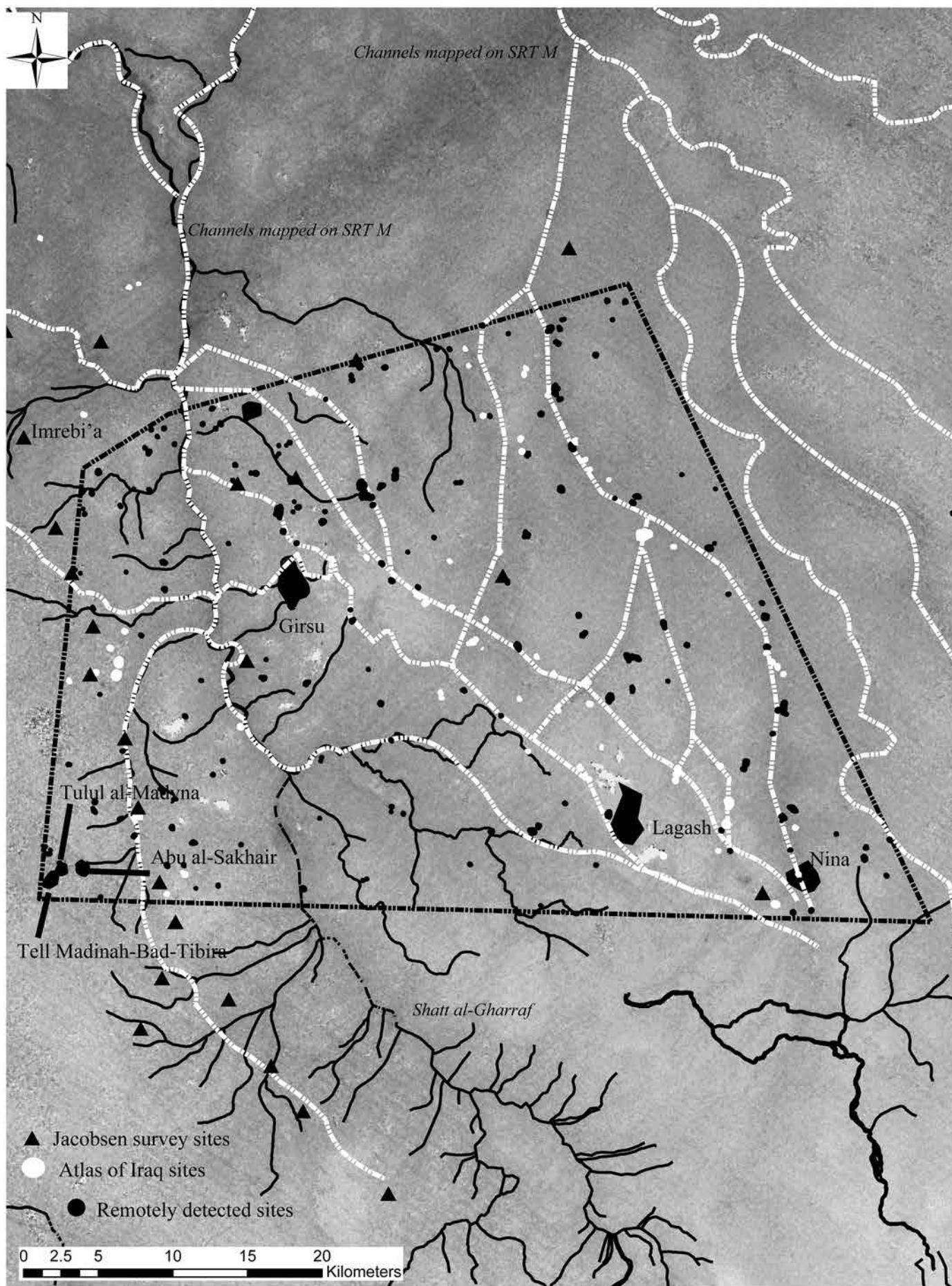


FIGURE 7.7. Sites mapped by Jacobsen (1969), the Atlas of Iraq (1976), and remotely detected in the reconstructed Lagash territory.



FIGURE 7.8. Sites in the border area.

plains and the marshes further south, and along the fertile levees of river channels. These sites could have functioned as gateway sites between the resources of the marshes and the plains with the smaller and rural sites further south in the marshes. Sites in this area would have played a key role in border disputes and should be the focus of future fieldwork in the area.

With the levee of the Shatt al-Gharraf acting as a barrier between plains and marshes, and the ensuing diversity of ecological conditions in this period, it is not surprising that settlement distributions are varied throughout the Lagash territory. In general, the picture which emerges is one of a populated rural landscape around several primary urban centers, with the spatial boundaries between cities and the countryside fluid. Girsu itself was well located to access both rivers and their channels, and the immediate environs around the site would have included a mosaic of ecological conditions, including marshes and irrigable plains interspersed between canals and channels. The ability to tap into a diversity of resources and access primary river channels to move goods over distances may have contributed to its long-term stability and the importance placed on this area. At the same time, channel consolidation occurring in this period may have resulted in increased strain on water and fertile land, setting the stage for the conflict.

CONCLUSIONS

The integration of the remotely sensed datasets and the past surveys, excavations, and textual sources highlights the importance of geography and hydrology in the emergence of Sumerian cities. In the context of prolonged conflict over resources between Umma and Lagash, these landscape conditions, dissimilar to those on the alluvial plains or areas further west, set the stage for an extreme case of intercity conflict and the politicization of resources. Physically, the riverine landscape east of the Shatt al-Gharraf river was one that was marked by an abundance of water in antiquity, and heavy sedimentation and alluviation. Locating a specific “boundary” may not be possible in this landscape, where channels have been used and reused over millennia and sediment and intensive field cultivation have buried features that were visible as recently as forty-five years ago during Jacobsen’s survey. Yet, reconstructing the general natural and cultural landscape can provide historical context and illustrate some conditions, including opposing conditions of resource abundance and scarcity (Le Billion 2001, p. 564), that contributed to the conflict.

The confluence of both rivers in this area, traced on the DEMs and high-resolution imagery, contributed to the development of interspersed marshes and swamps alongside levee-based irrigation agriculture. The dominance of a number of leveed Tigris River branches in this area, particularly an ancient course which has been adopted by the Shatt al-Gharraf river, presented opportunities for expansive agricultural landscapes, reflected in the dispersed settlements along the levees and at the edges of the marshes, and contextualizing the large numbers of fields referenced in inscriptions from throughout the third millennium BC. But these opportunities must have come at the price of resource vulnerability, increasing management of once-natural canals and channels as water from the rivers became unstable from a combination of modifications upstream and a gradually changing climate. The border dispute must have occurred in the context of fluctuating conditions that would require inhabitants to make increasing investments in management and maintenance, perhaps reflecting shifts in the Euphrates channels serving this area. If that was the case, it would have required Umma’s inhabitants to draw more irrigation water from Tigris channels and extend field systems laterally across the large levees, resulting in boundary transgressions.

Beyond the physical geography of the area, these multiple large levees acted to isolate the Lagash polity. Surrounded by large levees and fertile land, Lagash would have been spatially separated from polities to the north such as Umma and to the south and east such as Uruk and Ur. One could envision the Lagash territory as a relatively self-sufficient and diverse ecological mosaic, insulating it from any resource constriction felt elsewhere in the alluvium and also making it an attractive landscape to surrounding polities. This spatial landscape may account for Lagash’s isolation in the alliances that develop in the mid-late third millennium BC and Girsu’s longevity. Image interpretation reveals the presence and preservation of several sites, particularly a 78 ha settlement north of Girsu, whose future exploration could contribute to a broader understanding of the settlement landscape.

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Washing sherds, Üçtepe, 1978-79. (Drawing by Peggy Sanders)

CHAPTER 8

CELEBRATING THE CENTENARY OF INCANTATION BOWLS AT NIPPUR

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ABSTRACT

Rev. Punnett Peters, who directed the 1889–90 seasons of the University of Pennsylvania Babylonian Exploration Fund, wrote much information about the discoveries of incantation bowls at Nippur. His notebooks record significant observations, which have been corroborated by later seasons at Nippur, most notably during the eighteenth season of the excavations of the Oriental Institute, University of Chicago, directed by McGuire Gibson, when the stratigraphic context of incantation bowls was secured for the first time. This paper draws on Peters’ unpublished notebooks now housed in the archives of the University of Pennsylvania Museum to detail his comments regarding provenance, chronology, and also decorative praxis, which pre-empted important perspectives that have emerged over the last century in the study of incantation bowls.

In the sixth and seventh centuries, inscribed plainware bowls, known as “incantation” or “magical” bowls, were widely used in Mesopotamia. The inscriptions, which were written in ink, usually on the interior wall of the bowl, aimed to protect named men and women from hosts of demons and devils. The rich repertoire of texts, which were written either in Aramaic, Syriac, or Mandaic, as well as in pseudo or nonsense script, indicate that these ordinary, household items were used ubiquitously by the Jewish, Mandaic, and pagan communities who lived in Mesopotamia during the Late Sasanid–Early Islamic period. On account of their fabric, hundreds of these pottery bowls have survived, especially at various sites in the region of Babylon, most notably (but not exclusively) at Babylon, Kish, and Nippur. Of all of these sites, Nippur retains the pre-eminent place in the study of incantation bowls, this being due to the century of excavations that spanned 1889–1989, which have released significant data to the scholarly world.

The handwritten notebooks of Rev. John Punnett Peters, the director of the Babylonian Exploration Fund, recorded incantation bowls that were found at Nippur during the first and second campaigns in 1888–1889 and 1889–1890.¹ Although these discoveries were ancillary to the major objective to find Babylonian antiquities, the notebooks provide valuable information about findspots as well as other details regarding chronology and praxis. In doing so they preempted various dimensions in the study of incantation bowls. Subsequent seasons recorded the mostly surface findings of incantation bowls, but excavations in Area WG during the eighteenth season of the Oriental Institute, University of Chicago at Nippur, directed by McGuire Gibson in

* A small tribute to “Mac” with memories of a wonderful week spent at Nippur in 1989.

¹ In November 2013, the author read the following handwritten notebooks by Peters, pertaining to the I Expedition, 1889: (i) “Catalogue of Finds” (red stamp 214 in circle on front cover); (ii) “Journal of Excavations” (red stamp 215 in circle on front cover); and (iii) “Official List of Antiquities, Casts, Photos” officially registered by the Turkish Commissioner (red stamp 216 in circle on front cover). A note on the inside flyleaf states that many objects were not shown by Peters or registered by the Commissioner. Items (i)–(iii), referred to collectively as ‘Peters’s notebooks’ in the paper, are now housed in the Archives, Museum of Archaeology and Anthropology, University of Pennsylvania. The author wishes to thank Alessandro Pezzati for the assistance rendered during her stay.

1989, consolidated many of the incipient patterns that had emerged in Peters' notebooks. Most importantly, they provided, for the first time in a century of scholarship, a stratigraphic context that has anchored the chronology of incantation bowls' production, as well as shedding light onto the linguistic and religious demography of Nippur in the Late Sassanid–Early Islamic transition.

THE FIRST SEASONS OF EXCAVATION AT NIPPUR

The initial seasons of the University of Pennsylvania in 1889–1990 yielded a considerable quantity of incantation bowls.² Some were surface or surprise finds, as was the case on Thursday, March 7 (1889), when Peters wrote: “A Hebrew bowl (418) was found on plain near mound in pulling up a bush for fuel” (*Journal of Excavations*, 1889). His entry III.224 on February 19 (28th day; 1889) recorded a surface find: “Fragment of a Hebrew bowl from loose earth, north of Temple. III.10” (*Official List*, 1889). Many bowls were discovered in the immediate neighborhood of slipper-shaped coffins as well as in the strata above the “Court of Columns” (VII), a Parthian building, amongst the ruins of houses, leading Peters to designate the area as a “Jewish” settlement on the basis of the bowls’ “Hebrew” script (Montgomery 1913, pp. 13–14).³ His notebooks also made abundantly clear that large numbers of bowls were unearthed, either from the top or in the first strata of the mounds in various spots. A typical entry in his *Journal of Excavations*, for Monday, March 11, 1889, when some 142 workmen were engaged, reads

I C. As there (*sic*) digging near the surface between C & the former D several Hebrew bowls were found. These are found everywhere in this part of the mounds, it will be observed, at a depth not exceeding 2 metres. (Peters 1889b, pp. 109–10)

Hermann Hilprecht, recording that a hundred bowls were excavated in his presence, likewise endorsed the large numbers of bowls (1904, p. 337). Regrettably, despite the considerable quantities of bowls that were unearthed, indicating very dense concentrations, no diagrams plotted their loci, nor were any other records created that would throw light onto the configuration of their physical arrangement. Thus very valuable data was lost. However, Hilprecht's photograph—the first ever—of eight incantation bowls in situ provides a partial compensation for these shortcomings (1904, p. 448).⁴

The incantation bowls were uncovered as part of the primary objective of the Babylonian Exploration Fund, which was to excavate beneath the “Court of Columns” (VII) in order to reach the Babylonian strata. Hence Hilprecht would write that Peters

began to remove the Jewish and early Arabic houses representing the latest traces of human settlements everywhere in the precincts of ancient Nippur ... the former characterized by Kûfic coins, Hebrew, Arabic, and Mandaean incantation bowls, and other articles of domestic use which were generally found in low and narrow rooms made of mud-bricks. (Hilprecht 1904, p. 337)⁵

Peters likewise confirmed the domestic context of some of the finds. His entries in the *Official List* on February 19 (28th day; 1889) recorded for I.222 “seven pieces of an inscribed bowl, almost the entire bowl, character Aramaean . . . in room on camp hill. I.2”; I.223: “a number of fragments of bowls inscribed with Jewish characters. From beneath floor of room on camp hill. I.2.” His *Journal of Excavations* entry, for works on Friday, February 22, wherein 106 men were employed, provides greater detail.

I. Diggings were now timed at H to lay bare at least part of a house of unburned brick visible on the surface at the very top of the hill just north of the trench. It was visible in the shape of a dry, crusty line on the surface, could be traced in walls & doors. It was found by Abbas & he accordingly set to excavate it. Not much below the surface he began to find bowls with Hebrew inscriptions (Peters 1889b, 57).

Another long entry again confirms the domestic context.

² Montgomery (1913, p. 14) gives 150 but qualifies this number by saying that it included many fragments. Hilprecht (1904, p. 447) records that he saw 100 bowls excavated in situ.

³ This recorded Peters's entry: “in almost every house we found one or more Jewish incantation bowls,” and n. 4.

⁴ This photograph is also reproduced in Müller-Kessler (2005, pl. 8).

⁵ Hilprecht (1904, p. 337) also wrote regarding the “Court of Columns” that he had “without hesitation assigned [it] to the Seleucido-Parthian period (about 250 BC).”

I. 130. Hebrew bowl ... This was found below level of wall of house about 2 meters below surface. (Peters 1890, February 5 [18th day])

His explicit mention on several occasions that specimens were found below the level of “early Islamic” houses was highly significant in shedding light onto questions of chronology, securing incantation bowls within the transitional period of the late sixth–early seventh centuries. Peters’ entry in the Official List on March 4, 1890 (39th day), makes this clear: I.331 “Bowl with Syriac inscription, di: 16, h. 5.5 cm; in centre a ring crossed by two diameters. Found below level of Kufic houses.” His notes for March 5, 1890 (40th day) regarding items 352–354 specifically state that the “Hebrew” bowls “were found in the strata below the Kufic houses.” Discussing three incantation bowls (361–363) that were found on March 6, 1890 (41st day), Peters wrote in his Official List that he “also found in this long trench (1:2 & 3) fragments of another Hebrew bowl and one large, thin Kufic copper coin. These all about 4 meters below surface about level of foundations of top row of rooms.” On the basis of the “Cufic” coins that were found in the houses, Montgomery opined a dating of the bowls to the seventh century (Montgomery 1913, p. 14).

Peters’ observations indicate that he implicitly recognized some of the conventions that governed the praxis of the bowls, notably the usage of the circles to enclose the text. His entry for Saturday, March 23, 1889, comments

I:J The Hebrew bowls, which have been found in such numbers on this part of the mounds have almost always a circle within and without the inscription, & frequently a demon or some magical symbol within. The circles appear to be magical circles. (Peters 1889b, p. 156)

In the Official List for the 41st day (March 6, 1890), as well as supplying descriptions of three bowls (entries 361–363) that were written in Hebrew characters,⁶ Peters recorded that there were no rings or circles in the centre of the bowls and, in two instances, sketched the characters that had been drawn. On the 62nd day (April 4, 1890) Peters’ Official List recorded entries I. 642–645, classified as Hebrew bowls, and provided their dimensions and fabric color, as well as either the presence or absence of “rings or circles” enclosing the text. Entry 643 noted “Ring outside and ring inside of writing.” Entries 644 and 645 were distinguished by having no circles, the former specimen also having “in centre a rude figure of angular and curved lines combined.”

In a few select cases, Peters sketched the characters or drawings embellishing the interiors of the bowls. His Official List on the 41st day (March 6, 1890) recorded various bowls as entries 361, 362, and 363. He specifically noted that entries 361 and 362 had no rings, but supplied sketches of the characters drawn in the centre of the bowls.⁷ For 363, Peters did not supply a detailed description but only wrote, “a half effaced diagram, resembling a tit-tat,” this being probably due to the drawing’s deteriorated condition. His most detailed description of a figure drawing was recorded in his Official List.

I. 130. Hebrew bowl, almost entire but broken into four pieces, di. 17.5, h. 8 cm. In the centre, not surrounded by a circle, but with the writing running up to it. & under the raised arm, an exaggerated & almost fantastic human figure holding a branch like object in the upraised left hand. Full face, very rude work. (Peters 1890, entry [February 5th, 1890 [18th day]].)

Peters provided a sketch of the figure on the opposite page.⁸ Comparison with Hilprecht’s published photograph shows that some of the figure’s features were omitted; thus the mouth is missing in the sketch (Hilprecht 1904, page opposite 447).⁹

Peters’ entries also intimate the praxis surrounding the interment of the bowls. His entry in the Journal of Excavations for Saturday March 23, 1889, stated, “In VIII sometime since was found a double bowl, two

⁶ “I.361. Bowl inscribed with Hebrew characters of unusually large size and perhaps a type more primitive than the ordinary one, di. 17, h. 7, thick, a little cracked, inscribed both within and without. I 2. 362. Bowl inscribed with Hebrew characters, rather small; bowl 15 cm in diam. & 7 cm h. Same type of characters as preceding. I. 2. 363. Bowl inscribed within with Hebrew characters, considerably effaced. Bowl broken on one side by pick blow. Shape of bowl rather flat & flaring. Di. 16.75, h. 6.5 cm. I.2.”

⁷ Plate 8.1: Characters drawn in the centres of 361 and 362.

⁸ Plate 8.2: Peters’s sketch of figure drawn in the centre.

⁹ Montgomery (1913, pl. 4) published a line-drawing of this figure captioned “FIGURE FOR TEXT 4.” On pp. 133–37 he supplied a transliteration, translation, and commentary on the text.

bowls fastened with bitumen & each full of representations of demons encircled.” Hilprecht would extrapolate on this point.

Sometimes two bowls facing one another had been cemented together with bitumen. In one case an inscribed hen’s egg was concealed under the bowl. This egg, like the inscribed skulls ... is probably to be regarded as a sacrifice to those demons to appease their wrath and check their evil influence.¹⁰ (Hilprecht 1904, p. 448)

Furthermore, he commented on the down-turned position of the hundred bowls which had been excavated in his presence, writing that “it is very evident that they had been placed thus intentionally, in order to prevent the demons adjured by the spiral inscription on the inner face of most of the vases, from doing any harm” (Hilprecht 1904, p. 448). Whilst acknowledging the apotropaic character of the bowls, Hilprecht further wrote that the removal of the upper strata of the “Court of Columns” (VII on the plan of the ruins) afforded “an excellent opportunity to examine into the manner in which the inscribed incantation bowls had been used by the Jewish inhabitants of Calneh in the eighth and ninth centuries of our era” (Hilprecht 1904, p. 447).

However, his dating of incantation bowls to the eighth and ninth centuries is enigmatic and inconsistent with the information supplied by Peters’ notebooks, that suggested a seventh century chronology. Montgomery also upheld this dating, writing in his magisterial monograph, that the bowls should “be placed in a period not later than the sixth or the beginning of the seventh century, that is, as a terminus ad quem, approximately 600 AD.” (Montgomery 1913, p. 14).

DISCOVERIES DURING SUBSEQUENT SEASONS

Subsequent seasons of excavation discovered more incantation bowls, although many were surface finds. The third season at Nippur (1951–52) of the Oriental Institute, Chicago, made various soundings in the Religious Quarter. In Sounding C, five building levels “ranging from the Islamic down to probably the Parthian period” were excavated yielding four “Jewish incantation bowls” in Level III (McCown and Haines 1967, p. 150). Findspots, descriptions, and profile drawings were recorded for 3N130 and 3N132 (McCown and Haines 1967, p. 153). Described as a “Jewish incantation bowl,” the accompanying plate of 3N132 shows it instead to be written in a Mandaic script (McCown and Haines 1967, p. 153; pl. 167 B). No profile drawings were made for 3N133, which consists of rim fragments, nor for 3N134, which has been pieced together from multiple fragments with numerous wall pieces missing. However, dimensions for these two bowls were supplied, accompanied by plates (McCown and Haines 1967, pls. 163–67). Donald McCown surmised that the finds were from “presumably Parthian to Islamic times since ... no exact dating evidence came to light” (McCown and Haines 1967, p. 153). McCown’s dating is very broad, spanning 500 years, but the domestic context of the bowls endorsed the findings of Peters, whilst the configuration of scripts, i.e., Aramaic and Mandaic, confirmed the linguistic patterns that had already emerged in the 1889–1990 seasons. McCown, Haines, and Biggs (1978) included two incomplete “Aramaic incantation bowls,” both of which were surface finds on the SE surface. The entries for 4N17 and 4N72 give their basic dimensions (diameter and height) and are accompanied by plates, revealing that both were written in a pseudo script simulating Jewish Babylonian Aramaic (McCown, Haines, and Biggs 1978, pls. 76 and 77).¹¹ Stephen Kaufman published an Aramaic incantation bowl, a surface find from the tenth season at Nippur (Kaufman 1973, pp. 170–74).

The eleventh season of excavation at Nippur in 1972 returned to the “Court of Columns” area that had yielded many incantation bowls during the University of Pennsylvania campaigns in 1889 and 1890. Designated as WA (West Mound Operation A), it was located at the edge of the Shatt an-Nīl (Gibson 1975, p. 9). Included in the Catalogue of Objects in WA under the subheading “Intrusive in upper levels or from surface debris” are the entries for three sherds of incantation bowls, 11N7, 11N8, and 11N9, identifying the script and supplying descriptions of the fabric, as well as basic dimensions (diameter, height, thickness of rim) and the

¹⁰ Waterman (1931, p. 62) reporting from Tel Umar, noted that two bowls with simulated Aramaic writing were similarly found and formed a receptacle in which was an inscribed eggshell.

¹¹ The catalog entries are on the unpaginated pages opposite to the plates.

findspots (Gibson 1975, p. 43).¹² 11N21, a rim sherd with three lines of Jewish script, was recorded amongst the objects from WA 7, 8 northwest of Wall C in the deep fill near or within the walls, with an entry stating “Pennsylvania cut (?)” (Gibson 1975, p. 44). Surface finds from near Trench WB, which was opened south of “a stratigraphic pit in a gully south of the Court of Columns” yielded two complete incantation bowls, 11N77 and 11N78, as well as a three-line Aramaic fragment, 11N104, that had been brought in by workmen (Gibson 1975, p. 117).¹³ Yet more surface finds emerged from the West Mound and from near the Shatt an-Nil, 100 m north of area WA, during the twelfth season (September–December, 1973) at Nippur (Gibson et al. 1978, pp. 107, 109–10). These included 12N5, a complete bowl written in Syriac and decorated with a flower-like design in its interior centre, and 12N493, a large bowl (928.5 cm diameter) with a long Mandaic text of eighteen lines on the inside, along with one on the rim and four lines on the outside wall (Gibson et al. 1978, p. 110; 80:3). A rim sherd, 12N387, with seven lines of “a ‘Jewish’ script of unusual type” was also recorded (Gibson et al. 1978, p. 110; 80:1a–c, 80:2). The array of scripts found on the bowls once again consolidated Peters’ notebooks, upholding the mixed linguistic demography at Nippur.

THE EIGHTEENTH SEASON, IN 1989

The previous seasons had made important finds, but it was only in 1989 that a stratigraphic context for incantation bowls was secured for the first time at Nippur, a full century after the initial excavations by the University of Pennsylvania. During the eighteenth season of the Oriental Institute’s excavations, directed by McGuire Gibson, six incantation bowls, three written in Aramaic (18N18, 18N20 and 18N98) and three in Mandaic (18N19, 18N21, and 18N97), were unearthed in Area WG together with a fragment (18N71) also written in Mandaic. Two additional incomplete incantation bowls, one in Mandaic (18N99), the other in Aramaic (18N100), as well as an ostrakon with a pseudo script (18N70), were surface finds.¹⁴ The six specimens were excavated in original context under the floors of a large house in Level III of Area WG. This level lacked any numismatic indicator of date, but analysis of the pottery has lent support to a seventh-century assignation. Since the two lower levels, IV and V, are datable to the Sassanian period, Level III may be placed in the early part of the Islamic period, i.e., the Ummayyad Caliphate. Level II, on the basis of a coin minted in Basra in 775 AD, appears to belong to the Abbasid era. The suggested dating of level III is critical for it upholds Peters’ designation of the incantation bowls as being seventh century.

The six incantation bowls were all buried down-turned. Five were located in the courtyard area designated as Loci 30 and 14.¹⁵ 18N18 (Aramaic) and 18N19 (Mandaic) are closely contemporary as both occurred in Locus 14, floor 2. Similarly 18N97 and 18N98, respectively Mandaic and Aramaic bowls, can also be considered to be closely contemporary, occurring in Locus 30, floor 4. 18N20 (Aramaic) appears to be slightly later, perhaps by only a few years, as it was found in Locus 14, 13 cm above floor 2 and 14 cm below Floor 1.¹⁶ By contrast, the relationship of 18N21 (Mandaic) to these five incantation bowls remains enigmatic. It was found beneath a single brick, which might be interpreted as a door sill, 0.21 m from the face of wall N in Locus 54, possibly suggesting a threshold. However, despite being found in the same courtyard as the other bowls, there is no stratigraphic connection to indicate whether it is slightly later or earlier than, or even

¹² The entry for 11N7 reads, “Rim sherd of incantation bowl with two lines of Mandaic script; medium coarse, chaff-tempered, yellowish ware, reddish slip; 4.1 h., 6.5 w., -.54 th. ... WA, sand above Level I.” However, figure 38.1 reveals that it is written in an Aramaic script. The entry for 11N9 reads, “Rim sherd of incantation bowl with four lines of script; medium coarse, chaff-tempered, buff ware, greenish slip; 6.6 h., 19.3 w., 12.4 dm. ... WA, sand above Level 1.” Figure 38.3 shows that the fragment has a pie-crust rim, a relatively rare feature amongst incantation bowls, which are usually distinguished by a simple rim. See Hunter (1996, pp. 220–33) for discussion of a pie-crust bowl. Also from WA, sand above Level 1 was 11N8 potsherd with incantation in Jewish script on both sides. See figure 38.2.

¹³ Recording 11N77: “Whole pottery incantation bowl with 5 or 6 lines of Jewish script and figure of monster; 6.5 h., 16.0 dm. ... found upside down on West Mound, about one hundred meters east of WA 50c: near 11N 78”; 11N78: “Whole pottery incantation bowl with 7 or 8 lines of Jewish script; 5.5 h., 13.3 dm. ... same locus as 11N77.” See figures 89:3, 89:4, respectively. Figure 89:5 for 11N104: “Fragment of incantation bowl with three lines of an Aramaic inscription,” which is actually a pseudo script.

¹⁴ 18N100 only has traces of Aramaic characters.

¹⁵ See figure 1: Nippur 1989 WG Sassanian—Early Islamic level.

¹⁶ Supplied figures indicate the elevation of Floor 2 under the specimen as 106.17 m and Floor 1 above the specimen as 106.44 m.

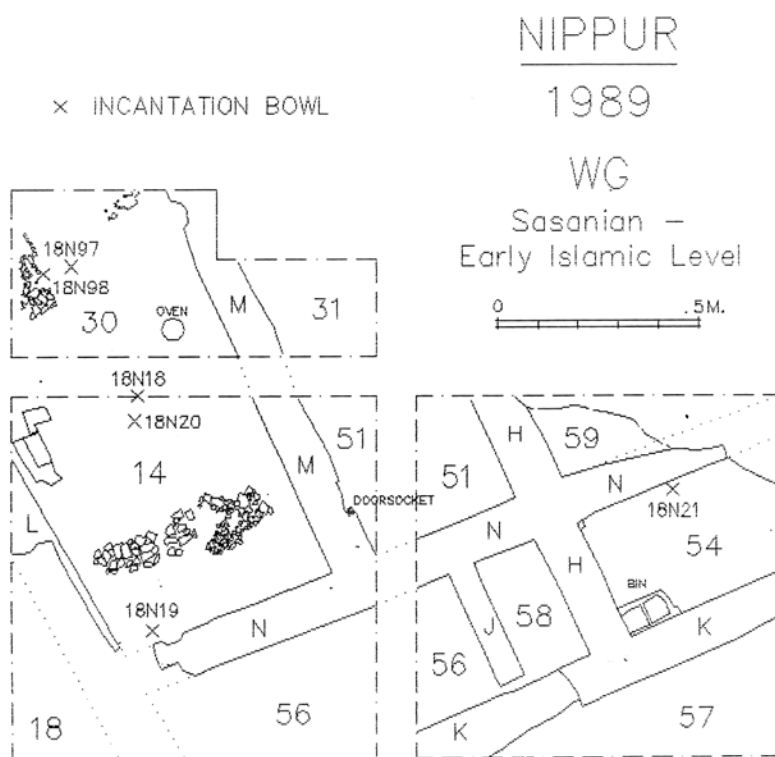


FIGURE 8.1. Nippur 1989 WG Sasanian—Early Islamic level.

contemporary with, them.¹⁷ The findspots of 18N18, 18N19, 18N20, 18N97, and 18N98 show that they were distributed throughout the entire courtyard, spanning the northern, central, and southern parts.

What emerges from this configuration is a pattern of two bowls being buried near each other, but also spanning different language groups and relating to different clients from different religious entities. Two Aramaic bowls (18N18 and 18N20) were found in the centre, not far from an oven. Two bowls, one Mandaic (18N97) and one Aramaic (18N98), were located probably near the northern end of the courtyard (the north wall has not been preserved), whilst another Mandaic bowl (18N19) was in the south corner. The Mandaic bowls (18N19 and 18N97) name brothers whose mother was called MHLPT' (Hunter 1994, pp. 607–8), whilst the two Aramaic incantation bowls cite NYPR' and HWRMYZDWK, respectively the son and

daughter of M'RWY (Hunter 1995, p. 64). 18N98, a bowl that is paralleled by five other specimens, all traced to Nippur, also is distinguished by a figure drawing of a lilith figure in its interior centre.¹⁸ The terminology of the Aramaic and Mandaic incantation bowls that were buried in the courtyard suggests that two families, one Jewish and the other Mandæan, shared adjacent domestic quarters. This confirms a trend that already may be surmised from the reports of the first excavations by the University of Pennsylvania in 1889. Peters did not record the precise findspots of the incantation bowls, but his notes suggest that bowls of different scripts were found in close proximity.¹⁹

The association between incantation bowls and domestic areas that emerged in Area WG at Nippur has confirmed Peters' entries in 1889, but in turn has consolidated the findings that emerged at Tell Baruda (Choche) during the tenth season of excavation by Turino Centro Scavi in 1974. Four incantation bowls were discovered in Area 21, part of the sounding made in the NW part of the tell where "[a] series of paved floors and drainage amphorae made it clear that ... [it] ... had always been an open space" (Venco Ricciardi 1973–74, p. 19). Three bowls, C10–116, 117, and 119 were under the SW threshold, whilst the remaining specimen was placed under a similar door in the NW (Franco 1978–79, p. 233). Another incantation bowl, C 11-3, together with a fragment of a lead Mandaic phylactery, was unearthed from the trial trench of 1975–76 (Venco Ricciardi 1977, p. 13). Regrettably, their precise findspots are not divulged. However, in his publication of the texts, Fulvio Franco noted that C11-3 came from "the same place as the first three bowls, only a little bit lower" (Franco 1978–79, p. 233).

¹⁷ Table 8.1. WG area: distribution of bowls by locus

Locus 14, floor 2	18N18 (Aramaic), 18N19 (Mandaic)
Locus 14, above floor 2	18N20 (Aramaic)
Locus 30, floor 4	18N97 (Mandaic), 18N98 (Aramaic)
Locus 54, floor 3	18N21 (Mandaic)

¹⁸ For a comprehensive discussion of 18N98 and five duplicate texts, now in various institutions or private collections, see Hunter 1995, pp. 61–77.

¹⁹ The close placement of incantation bowls, written in different scripts, also occurs at Tel Dhuihi, near Kish, which was excavated in the 1980's by Ahmad Kamil Mohammed (Department of Antiquities, Republic of Iraq) who has shared his site drawings with the author. These remain, at present, unpublished.

CONCLUDING COMMENTS

Research on incantation bowls was only in its incipient stages in 1889–1890 when Peters wrote entries in his various “notebooks,” but these already anticipated future trends that would emerge in the field. Many scholars, beginning with Montgomery and his student Cyrus Gordon, have upheld his seventh-century dating (Gordon 1934, p. 319). That production did continue thereafter, as cautioned by Ben Segal when assigning the bowls of the British Museum “to dates shortly before or shortly after the emergence of Islam” (Segal 2000, p. 22), is confirmed by a bowl excavated at Ana, which has been dated to the eighth century (Gawlikowski 1990, p. 137).²⁰ However, as Shaul Shaked has recently stated, incantation bowls “constitute a peculiar phenomenon that is limited in place and time. We can be certain that they were produced during the sixth and seventh centuries CE” but stopped shortly thereafter (Shaked, Morgenstern, and Viložny 2013, p. 1).²¹ The dating which Peters originally proposed has been confirmed by the finding of several bowls at Tel Umar in the 1920s (Waterman 1931, pp. 61–62),²² whilst the discoveries at Tell Baruda (Choche), coupled with the stratigraphy of the 1989 excavations in Area WG, place the production of incantation bowls squarely in the seventh century.

The domestic context of incantation bowls which Peters’ “notebooks” highlighted was also endorsed by Montgomery, who stated, “the bowls in Nippur were found in ruined houses, and in no case is a bowl intended for the service of the dead” (Montgomery 1913, p. 40). No records were kept of their in situ positioning, which would have imparted valuable evidence about many aspects of the social demography of Nippur. Nor did Peters mention that the bowls were buried down-turned. However, Hilprecht’s photograph clearly illustrated a practice that was ubiquitous, irrespective of whatever scripts were used to write the texts. This has also been corroborated from other sites. In his pioneering publication on the Mandaic specimens from Khouabir, the French consul at Baghdad, Henri Pognon, commented that they were “en général renversées et ont l’ouverture dirigée en bas” (Pognon 1898, p. 3). Discussing the Aramaic bowls from Tell Baruda (Choche), Franco noted that upside down was “the normal position of these magic objects” (1978–79, p. 234). The 1989 excavations in Area WG likewise confirmed the trend of burying bowls down-turned in domestic contexts.²³

Perhaps the most perspicacious aspect of Peters’ notebooks was the attention that he paid to various decorative conventions, especially the circles—or absence thereof—enclosing the texts. Montgomery saw the round shape of incantation bowls as simulating the zisurru used in Babylonian rituals, but made no comment on the circles, merely documenting their occurrence in his catalogue entries at the conclusion of *Aramaic Incantation Texts from Nippur*. A few scholars, notably Julian Obermann and Kaufman, did make brief references (Obermann 1940, p. 5; Kaufman 1973, p. 172).²⁴ William McCullough noted the regularity with which the circle was drawn at the bottom of the bowl (McCullough 1967, p. 15), expressing it as “seemingly a convention,” but otherwise, with the exception of a study by Erica Hunter, this important feature has been largely overlooked by scholars who have paid more attention to the drawings which some of the bowls feature (Hunter 2000, pp. 176–77). Montgomery recognized their inherent importance, opining that “[t]he rude figures and designs which can hardly be said to adorn the bowls are part of the praxis” (Montgomery 1913, p. 53). Here, Peters’ description and drawing of selected figures showed an implicit understanding of their role and offered a holistic perspective that has rarely been emulated by later scholars.

The one area to which Peters did not make a contribution was that of the texts and the languages in which the bowls were written. He correctly designated those inscribed in Mandaean and Syriac, but his classification of the bowls written in Aramaic as “Hebrew” was incorrect and misleading. Of course, the intense interest in the light that Mesopotamian archaeology could shed on the Bible had prompted the Babylonian

²⁰ Gawlikowski (1990, p. 137): “enfouie sous un sol attribué avec certitude au VIII^e siècle, grâce à d’autres poteries.” Bohak (2008, p. 184) places the bowls’ production “probably from the fifth to the eighth century.”

²¹ It is surprising that Müller-Kessler makes no mention of any dating issues in her monograph on the Nippur bowls in the Hilprecht collection.

²² Waterman (1931, p. 61) recorded that three incantation bowls were found at Tel Umar, two in “the usual Aramaic variety, covered with the simulation of writing ... the third bowl ... was inscribed with Syriac.” These were dated, on the basis of silver coins that were found in the vicinity, as Sassanian.

²³ Plate 8.3: The author excavating a down-turned specimen in the Area WG at Nippur in 1989.

²⁴ Obermann mentioned the inner circle; Kaufman noted that a line—generally assumed to be a “magic circle”—enclosed the Aramaic text.

Expeditions. The automatic assumption that the “Hebrew” bowls were Jewish was undoubtedly fueled by the ancient connection of Judaism with Mesopotamia, as exemplified by the Old Testament books of Daniel and Ezra. Such attitudes are inherent in Hilprecht’s comment that the “Hebrew” bowls shed light onto “the Jewish inhabitants of Calneh,” giving the purported Genesis 10:10 designation of Nippur (Hilprecht 1904, p. 447). In this context, Montgomery already recognized in 1913 the complexities surrounding the identities of the Aramaic bowls’ user groups when he stated

It is difficult to say how many of the bowls are Jewish; the presence of Jewish catchwords is not a sufficient criterion. I would call attention to a few of the Nippur bowls which are definitely pagan. (Montgomery 1913, p. 100)

The overall designation of the Aramaic bowls as “Jewish” has led to misconceptions that are still perpetuated by many scholars in the present day. However, that different linguistic and religious groups coexisted at Nippur during the seventh century was already established in Peters’ notebooks and has been confirmed by subsequent seasons, including those of McCown, but not the least during the excavations of 1989 which were directed by Gibson, when both Aramaic and Mandaic incantation bowls were unearthed in the courtyard of Area WG.

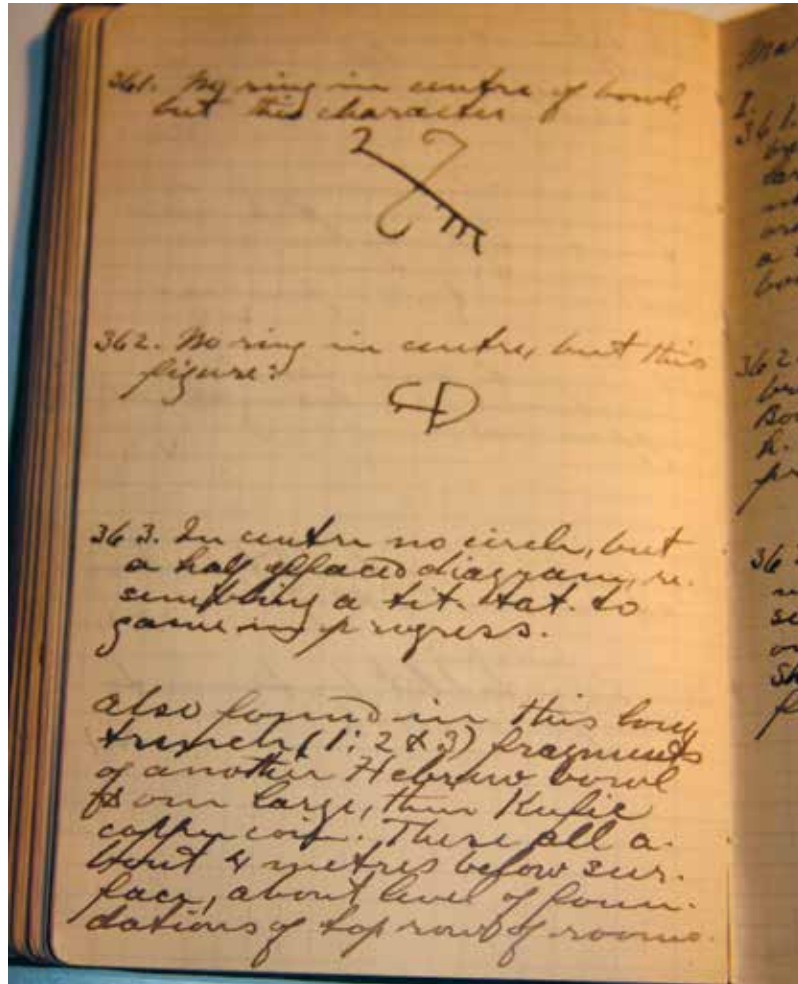


PLATE 8.1. Characters drawn in the centres of 361 and 362.



PLATE 8.2. Peters' sketch of figure drawn in the centre.



PLATE 8.3. The author excavating a down-turned specimen in Area WG at Nippur in 1989.

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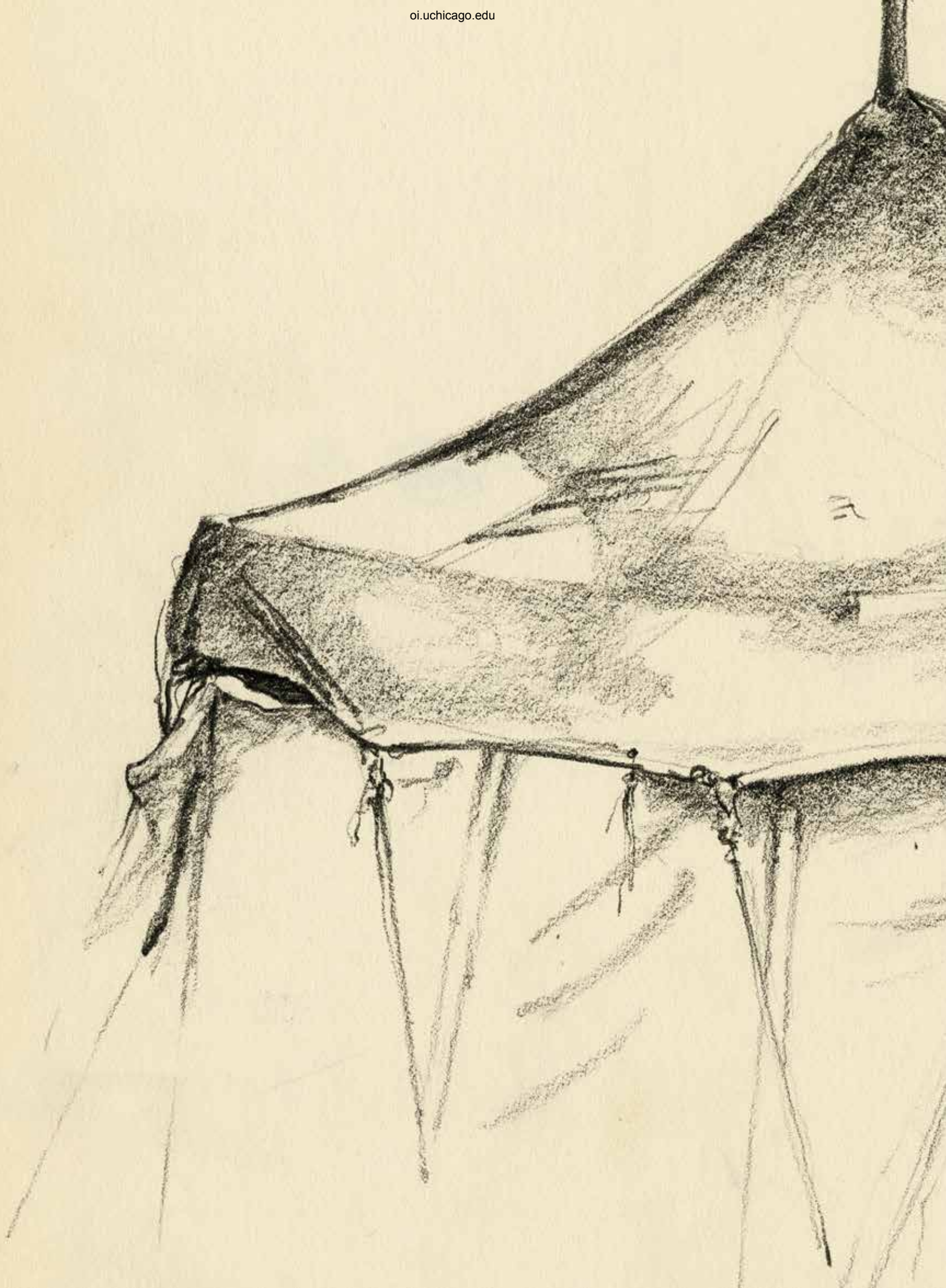
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Tent at Üçtepe, 1978-79. (Drawing by Peggy Sanders)

CHAPTER 9

TRACING PREHISTORY IN HIGHLAND YEMEN: CONTRIBUTIONS OF THE DHAMAR SURVEY PROJECT IN LIGHT OF NEW DISCOVERIES IN ARABIA

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ABSTRACT

Since at least the 1970s, McGuire Gibson recognized the unique potential for archaeological research in highland Yemen to reveal key insights into Arabian prehistory. At that time, southwest Arabia was considered by most to be peripheral to cultural developments in better-known parts of the early ancient Near East. A series of research projects in the region have since shown that Gibson's early assessment was astute. This chapter briefly reviews the current state of research on the prehistory and paleoecology of highland Yemen, with special attention to the contributions of the Dhamar Survey Project, which was cofounded by McGuire Gibson and Tony Wilkinson. We then situate the evidence for prehistoric highland Yemen in the context of contemporary research questions across Arabia and the wider region.

PREFACE

McGuire Gibson first published on the archaeology of Yemen in 1978¹ to report on the results of an exploratory project then funded by the National Geographic Society. This project aimed to establish the larger historical and environmental context of the Yemen highlands, working from the results of the doctoral research of Ray Tindel of the University of Chicago's Oriental Institute, which focused on the Himyarite capital of Zafar. At the time, the prehistory and the paleoenvironment of the highlands of Yemen had been virtually uninvestigated. Gibson's reasoning for choosing the Dhamar and Yarim intermontane basins as a focal point was mainly its past and present agricultural and demographic potential; he stated in an article written with Tindel that "agriculture is possible on a scale unimaginable in most of the rest of Arabia, and the mountains and valleys of Yemen form the most populous areas of the peninsula."² He argued that of equal importance was the region's position as a "nexus of trade routes" to the Red Sea, the Indian Ocean, and the northern highlands of South Arabia.³

While today many of those who work in southwest Arabia hold these truths to be self-evident, McGuire Gibson's choice in focalizing on the highland plains of Yemen as a means of exploring the roots and trajectories of Arabia's food producing societies was visionary from a prehistoric perspective. Instead of treating

¹ Gibson and Tindel 1978.

² Gibson and Tindel 1978, p. 216.

³ Gibson and Tindel 1978, p. 218.

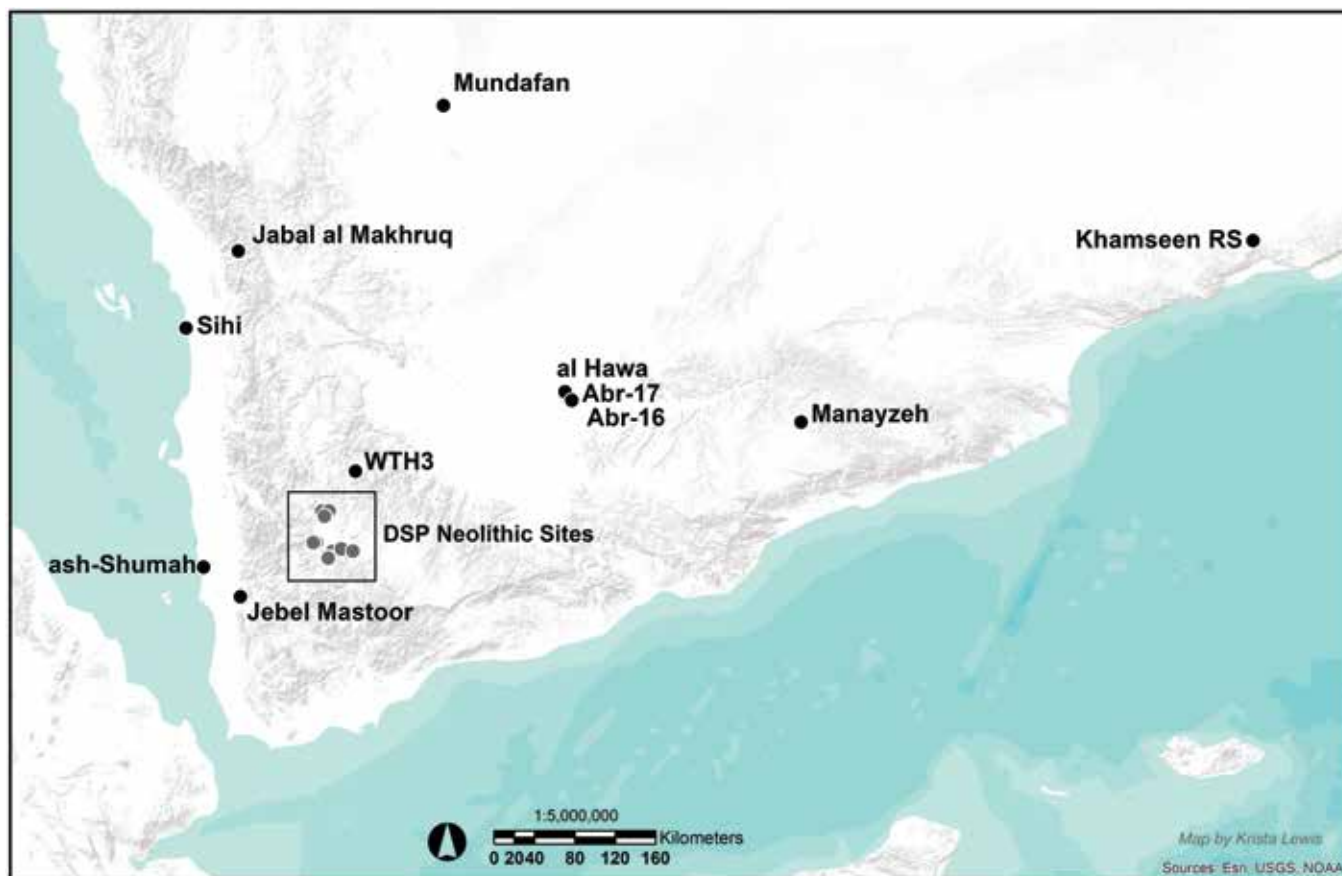


FIGURE 9.1. General map of Neolithic sites in South Arabia with DSP area highlighted.

the rugged highlands of western Arabia as a backwater of innovation due to its geographic isolation amidst massive sand deserts and arid lowlands, he saw it as resilient due to its strategic location and its verdant and diverse highland landscapes which could generously provide for its populations in spite of environmental pressures. Today, the most significant populations in Yemen reside in the highlands, which are blanketed by agricultural terraces, a great number of which have been shown to have prehistoric origins.⁴

Since 1978, the developments in highland Arabian prehistoric archaeology have been numerous. They include the contributions of several projects, including those of the Italian Archaeological Mission (IAM) to the Khawlan eastern highlands, begun by A. de Maigret in 1981, and those of the French archaeological mission to Saada, directed by M. Garcia and M. Rachad from 1989 to 1992.

In 1994, Gibson initiated the Dhamar Survey Project (DSP) in the Yemen highland plains (fig. 9.1), then a project of the University of Chicago's Oriental Institute, enlisting geoarchaeologist Tony J. Wilkinson to co-lead the project. In an article published in 1995 they argued that although the arid margins of Yemen were densely populated in antiquity they "may have been more vulnerable to environmental catastrophes, and therefore would lack the long term continuity of settlement that characterizes the moist upland core."⁵ They added that the current settlement pattern in the highlands, although the densest in Yemen (comprising 90% of its population in 1995), is composed of small, dispersed villages. Gibson and Wilkinson suggested that ancient settlement was likely to have had a similar pattern, which "is in keeping with the small, frequently household-based economic units that have developed a resilient agricultural infrastructure."⁶ Gibson had in-depth paleoenvironmental and geomorphological studies of the highlands in mind when enlisting Wilkinson as project director, and the work that Wilkinson proceeded to carry out in the region was to prove essential for understanding the prehistory and landscape evolution of the Yemen highlands and its adjacent regions, providing future researchers with the tools to tackle the buried or eroded prehistory of highland Arabia.

⁴ Wilkinson 2009, p. 59.

⁵ Gibson and Wilkinson 1995, p. 159.

⁶ Gibson and Wilkinson 1995, p. 161.

In over fifteen years of archaeological fieldwork (from 1994 to 2010), the Dhamar Survey Project has identified 411 archaeological sites (12 of which were excavated), 85 dams and/or cross-valley walls, dozens of inscriptions and examples of rock art, and hundreds of other major landscape features. In addition to the excavation of seven prehistoric period sites, of which Gibson excavated three, a number of geomorphological sections were studied and dated.⁷ Together, they provide invaluable data on some of the most important transformations that occurred in the history of the Arabian Peninsula, especially regarding the climate, landscape evolution, the development of agriculture, and the emergence of the first large hilltop towns.

Along with the Italian Archaeological Mission's work in the eastern highlands, the large corpus of data collected by the DSP in the central highlands provides a portrait of an autochthonous aceramic highland Neolithic, that can be traced back to at least the sixth millennium BC and was based predominantly on cattle pastoralism.

A DSP excavation at the site of Jubabat al-Juruf (DS269) in the central highland plains recovered the earliest known evidence for agriculture and ceramic use in the highlands, dated to the final centuries of the fourth millennium BC,⁸ and one of the earliest confirmed dates for the origins of agriculture in Arabia (see Cleuziou and Costantini 1980; Nisbet 1985). This period was followed by increasing Bronze Age trends towards large fortified hilltop towns like Hammat al-Qa' (DS101) which were dependent on terrace agriculture and pastoralism. Bronze Age sites of the eastern highlands mainly spanned the third millennium BC and were more modest than those of the western highlands that continued to thrive into the second millennium BC.

After more than thirty years of prehistoric research in the region, it has become increasingly clear that the Yemen highlands acted as one birthplace of prehistoric innovation in Arabia, partially as a result of the fact that it also served as a refugium for Arabian populations during periods of aridity and climatic uncertainty, providing populations with the possibility of occupation continuity. Unfortunately, after years of investment in the region, circumstances such as poor site preservation, intensive highland landscape use, and more recent political instability have provided obstacles to a robust prehistoric highland record that fully pays tribute to the prehistoric accomplishments of its populations.

By discussing highlights of major prehistoric discoveries in the Yemen highlands in the context of new cutting-edge scientific evidence for Arabia, we hope to demonstrate the importance that this region holds for future prehistoric studies, just as Gibson predicted in the late 1970s. In so doing, this essay aims to pay tribute to McGuire Gibson's major contribution to Yemeni archaeology through his investment in the DSP project which, though currently stalled due to the unstable political situation, continues after more than twenty-five years to be active under new direction.

ENVIRONMENTAL CONTEXT

The highland mountain chain of Yemen, oriented approximately north to south, runs parallel to the Red Sea coast. These mountains, characterized by semiarid peaks interspersed with intermontane basins, tower above the Red Sea coastal plain from the east and the desert fringe from the west. The volcanic highland plateau is located at elevations between 1500 and 3760 m a.s.l. Tertiary and Quaternary volcanic rocks make up the elevated portions of the central highlands, while the montane plains of the high plateau consist of lava and alluvial plains that host a large number of insular basins with centripetal drainage.⁹ Down-faulted intermontane plains or graben characterize the central plains.

Most of the high plateau is located within the subtropical zone (between 1500 and 2000 m a.s.l.). Higher elevations tend to receive higher rainfall levels, with the Ibb area reaching a maximum average of 1161 mm per annum (Sanlaville 2000, p. 135). More arid areas can receive as little as 200 mm of rainfall annually.¹⁰ Rains are seasonal, in the spring and late summer, and occur as a result of the atmospheric circulation patterns of

⁷ Wilkinson, Edens, and Gibson 1997, pp. 102–3.

⁸ Ekstrom and Edens 2003, p. 26.

⁹ Munro 2001, p. 14.

¹⁰ Wilkinson and Edens 1999, p. 3; Wilkinson 2009, p. 53.

the Indian Ocean monsoon system.¹¹ The topographic variability and monsoonal regime of the moist Yemen highlands have therefore made it an ideal landscape for long-term human occupation.

The most prevalent landscape feature in the Yemen highlands is its terraced fields. Constructed from dry stone walls following steep mountain contours, these terraces wind up most highland slopes. Terracing is an ancient agricultural practice utilized to cultivate steep slopes, maximize cultivable space, control water runoff, and minimize soil erosion. Most villages in Yemen are located atop steep rocky cliffs or mountaintops, while their agricultural activities take place on the slopes below. This appears to have been the case as early as the third millennium BC in the central highlands, with evidence of plateau-top sites and contemporary terracing on the slopes below, such as at the Bronze Age site of Hammat al-Qa (DS101).¹²

Since its beginnings in the mid-1990s, the Dhamar Survey Project has produced a massive amount of data pertaining to ancient highland settlement and the beginnings of terraced agriculture. A series of articles were published on the results of this program, including a significant number led by Wilkinson, which focus on paleoenvironmental data for the Yemen highlands.¹³

While probable Pleistocene paleosols have been identified at the Zeble lake in the highlands, no artifacts of Pleistocene age have yet been recovered in stratified contexts or in association with them.¹⁴ Surface finds are testament, however, to a Paleolithic occupation in the highlands¹⁵ and it is likely that stratified sites will be identified in the future despite the taphonomic processes affecting the visibility of very early prehistoric sites in the highland zone.

Better data have been recovered for the Neolithic. Both the DSP and IAM projects have recovered evidence of Neolithic occupation and have associated this period with a dark-grey humic Holocene paleosol. The paleosol indicates a wetter, more stable climate with more vegetation cover than that of subsequent periods.¹⁶ The Thayyilah paleosol is dated by the IAM to the period between the sixth and fifth millennia BC, while the central highland paleosol has a longer lasting relict category that spans the tenth to third millennia BC and an anthropogenic class with a range from the fifth to third millennia BC, often referred to as the Jahran paleosol.¹⁷ Other local variants of this Holocene soil and the associated moist period have been reported by a number of specialists across a wide area of southwest Arabia.¹⁸

Additional dating of sediments from relict lakes across Arabia, including three in the highlands, put the Holocene moist period in the range between 10,000 and 5,400 cal. BC.¹⁹ Lake formation in South Arabia, and specifically the Yemen highlands, appears to have started earlier and ended later than elsewhere in the region. In addition, a late isolated moist episode appears in the highlands around the second millennium BC (Bronze Age), during which time the rest of Arabia appears to have been drying up.²⁰ However, even in the highlands, the sedimentary record overlying the Holocene paleosol shows a period of soil erosion that has been related to a combination of gradual drying and increased human activity associated with Bronze Age occupation.²¹

While it is argued that the Holocene moist episodes can be correlated with various phases of Neolithic occupation, and the ensuing gradual aridification correlated to the process of sedentary agro-pastoralism that began to occur towards the end of the Neolithic and beginning of the Bronze Age, several issues arise. Very few sites are known from the earliest periods of the moist interval in most of Arabia, including the

¹¹ Wilkinson 2003, p. 17.

¹² Edens, Wilkinson, and Barratt 2000; Wilkinson 2003, p. 191, fig. 9.6.

¹³ Wilkinson 1997, 2003, 2005, 2009.

¹⁴ Parker, Davies, and Wilkinson 2006, p. 247.

¹⁵ Wilkinson, Edens, and Gibson 1997, pp. 107–08; de Maigret 1984.

¹⁶ Fedele 1985, p. 371; Fedele 2008, p. 158; Wilkinson 1997, pp. 7–9; Wilkinson 2005.

¹⁷ Fedele and Zaccara 2005, p. 219; Wilkinson 2009, p. 56.

¹⁸ French 2003; Garcia et al. 1991; Keall 2004, p. 43; Lézine et al. 1998; Lézine et al. 2010; Marcolongo and Palmieri 1986, 1988; McCorrison 2000, p. 133; Overstreet et al. 1988; Overstreet and Grolier 1996; Parker, Davies, and Wilkinson 2006.

¹⁹ Parker, Davies, and Wilkinson 2006, p. 248.

²⁰ Parker, Davies, and Wilkinson 2006.

²¹ Wilkinson 2009, p. 56; Wilkinson 2005.

highlands (Terminal Pleistocene/Early Holocene), and some reverse correlations can be found between the peak of moist periods and the occupation of certain regions in Arabia.²²

To complicate matters, archaeological evidence has shown that by the early Bronze Age, highland populations were large enough to create the highly anthropogenic terraced landscapes we see in southwest Yemen today. Comparison with historical population trends shows occupation densities to have consistently remained higher in the highlands than in other areas of Arabia. Coupled with evidence for early Bronze Age terracing, all of these indications suggest that the highlands were a locus of intensive occupation from at least the late prehistoric period. There is no reason why the highlands—the most verdant and diverse landscape of Arabia—would not have been occupied during the Pleistocene. Unfortunately, continuous occupation in a landscape that has been densely inhabited by agricultural communities for over four millennia implies the systematic destruction and reuse of the earlier archaeological record and explains the dearth and invisibility of Neolithic and pre-Neolithic occupation sequences in the moister areas of the highlands.²³ These very issues are at the heart of some of the most current and pertinent debates on the peopling of prehistoric Arabia, which we will return to after reviewing highlights of Arabia's highland prehistoric record.

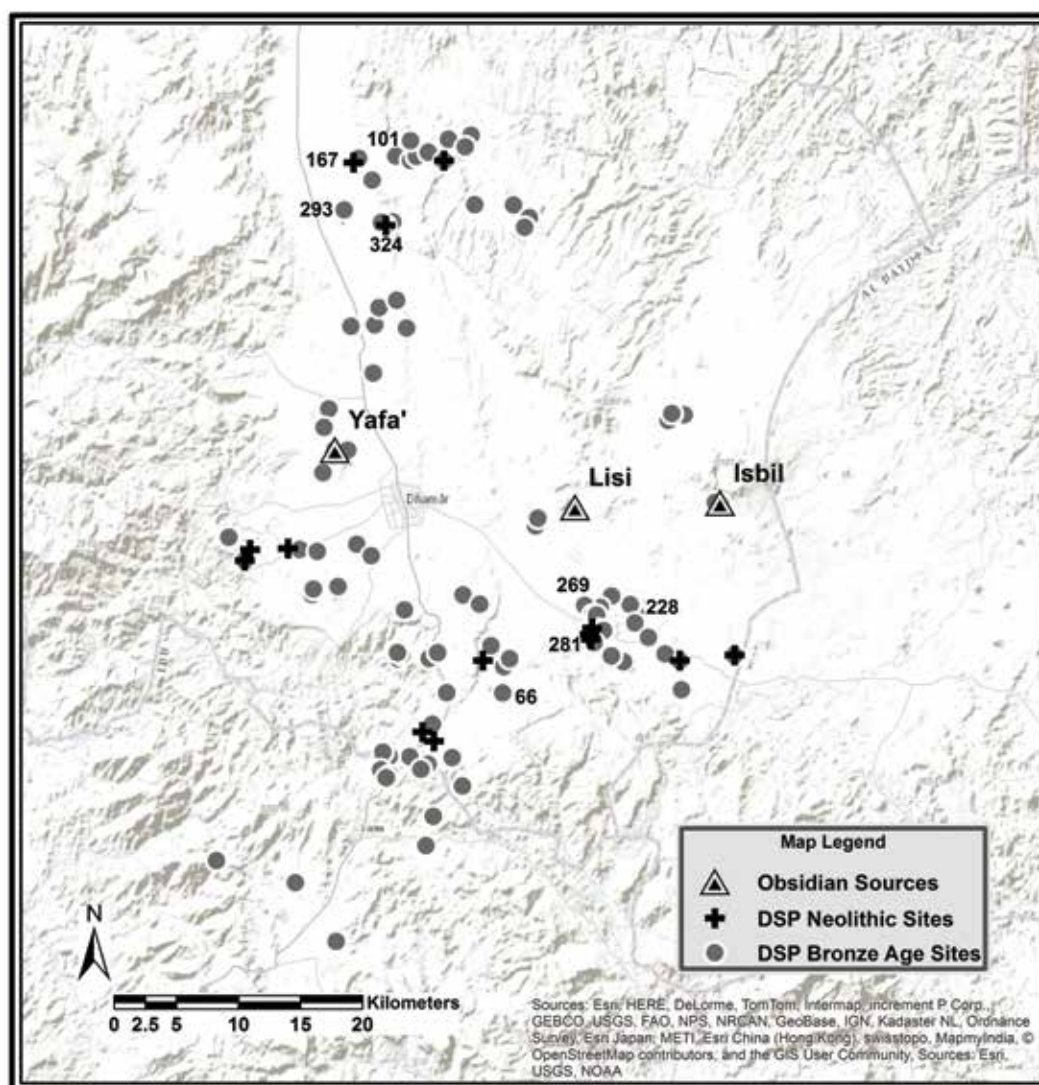


FIGURE 9.2. Map of DSP prehistoric sites (Neolithic and Bronze Age) and obsidian sources mentioned in the text.

²² Hilbert et al. 2014; Parker, Davies, and Wilkinson 2006, pp. 251–52.

²³ Wilkinson 2009, pp. 58–60.

REVIEWING HIGHLIGHTS OF THE YEMEN HIGHLAND PREHISTORIC RECORD

UPLAND NEOLITHIC HIGHLIGHTS (CA. SEVENTH TO FOURTH MILLENNIA BC)

The DSP has identified only sixteen sites with evidence of Neolithic occupation (fig. 9.2). Most of these are lithic scatters with no remaining stratigraphy. However, several sites dating to the Neolithic have been identified in section within the Jahran paleosol horizon. The site of DS167 was identified in the top 10 cm of this paleosol and consisted of lithic and faunal remains.²⁴ Unfortunately no collections were made as it was discovered in only the second DSP survey season (1995) and was never revisited. DS281, a Neolithic scatter located on the cliffs above the relict Zeble lake provided a significant number of mainly obsidian bifacial foliate points²⁵ that may fall within the sixth to fifth millennium cal. BC date range based on comparisons with the dated appearance of points of similar type at the site of Manayzah in eastern Yemen.²⁶ The same date ranges apply in the case of a single notched, tanged, and winged bifacial point recovered from the same site, based on comparisons to similar types from highland and desert fringe sites of WTH3, Wadi Harib, and Wadi Dhahr.²⁷

A dune system with associated lithic scatters, which likely developed during the Last Glacial Maximum (LGM), was also discovered in the western Qa' Jahran. Wilkinson and colleagues (1997, p. 110) suggested that two sites—DS76A and DS86—identified along the paleodune might be of Terminal Pleistocene/Early Holocene date on the basis of the lithic assemblages. Few diagnostics were recovered from these scatters making chronological determination problematic. However, the blade (as opposed to bladelet) production, atypical of early Holocene highland lithic production, and the narrow widths of the blades were part of the basis for the early chronological assignment. The presence of a backed lunate²⁸ and *pièce esquillée* were also used to support that assessment. The results of more recent research, however, complicate this early chronological designation. The association of these two tools is a third-to-second-millennium BC phenomenon on the coastal plain and Afar lowlands of the African Horn,²⁹ on the coastal plain of the Tihamah³⁰ as well as in the Yemen highlands.³¹ The presence of backed geometric microliths, and namely trapezoids, continued into the Iron Age in the highlands and eastern Yemen desert lowlands.³² However, this fact does not discredit a very early date for these two industries and sites, as the technical systems used to make these tools differ drastically between the Terminal Pleistocene/Early Holocene and the Middle Holocene. The complete assemblages from these two sites deserve reanalysis as confirmation of pre-Neolithic occupation promises to be exciting for future research prospects in the region.

The lack of stratified Neolithic deposits, and hence excavations, in the DSP area leaves us with few chronological indicators for the beginning or end of this period. Fortunately, the work of the IAM in the adjacent Khawlan area and of the Saada project further north have provided excavated sequences and dates that have acted as early to mid-Holocene anchors to the DSP project over the years.

An IAM excavation revealed a more complete picture than that so far discovered in the DSP survey area. F. Fedele excavated the site of Wadi at-Thayyilah 3 (WTHiii) in the Khawlan area, which corresponds to the sixth- to fifth-millennium BC highland paleosol. This open-air site contained a dozen structures in an area of 0.3 ha. The structures were made of stone and were elliptical in shape, with a central stone block to support a beam for the roof. The surfaces revealed hearths and ashy sediments. The structures appeared to have been rebuilt and reused, suggesting a community rooted in the area and to the space itself, perhaps over

²⁴ Wilkinson, Edens, and Gibson 1997.

²⁵ Wilkinson and Edens 1999, p. 3.

²⁶ Crassard 2008; Crassard et al. 2006.

²⁷ Fedele and Zaccara 2005, p. 237, fig. 18; Kallweit 1996, p. 189, pl. 1; Di Mario 1989, p. 122, figs. 9–10.

²⁸ Wilkinson, Edens, and Gibson 1997, p. 109, fig. 5.7.

²⁹ Joussaume 1995; Gutherz et al. 1996, pp. 269–73; Khalidi et al. 2018, 2020.

³⁰ Keall 2000, p. 725; Khalidi 2006, 2009.

³¹ Lewis and Khalidi 2008, pp. 222–24.

³² Caton-Thompson 1944; Crassard 2008; de Maigret and Antonini 2005.

many generations. Faunal remains comprised domestic cattle (*Bos taurus*, 73%), domestic caprines (16%), and possibly wild species (11%), which include an equid thought by Fedele to be *Equus africanus*. The bones were found in an area of the site where burning and butchering activities were taking place. Fedele interpreted the faunal evidence as representative of a community that relied heavily on cattle pastoralism.³³

More recently, F. Fedele published several articles on the discovery of a pre-Neolithic cultural horizon that can be found just below the earliest Neolithic occupation sequences at this site. Though there are no dates for this upland pre-Neolithic culture, its position below the Thayyilah paleosol suggests a *terminus ante quem* in the seventh millennium BC.³⁴ For the time being, the highland pre-Neolithic remains enigmatic but such a discovery provides promising evidence of pre-Neolithic occupation and the potential for settlement continuity from the Terminal Pleistocene to the Early Holocene in this region.³⁵

The rock art of the northern highlands near Saada and the east-central highlands near Rada' was the subject of a detailed study by Garcia and Rachad.³⁶ Extensive documentation of the rock art of these two areas, in addition to small soundings in stratified deposits of the same rock shelters, have produced a series of radiocarbon dates pertaining to occupation by seasonal Neolithic hunters. Excavations in the Jabal al-Makhrug rockshelter where hearths were found in association with large mammal remains, lithics, and rock art, produced a date in the sixth to fifth millennia cal. BC.³⁷ This site contained stratified lithic tools dominated by bifacial and trihedral points, most of which were foliates, and few of which were tanged and winged. The assemblage also included hematite plaques and a series of endscrapers and drills. The most interesting results of these soundings, however, are the faunal remains. Wild ibex, and three types of bovid, including wild aurochs, buffalo, and domesticated cattle, are represented at the site.³⁸ The faunal remains and rock art at this site and that of Wadi Rubay' attest to the presence of now-extinct fauna in the highlands (wild ass included), but also to the coexistence of hunting and pastoralist strategies and the presence of Neolithic mobile pastoral groups in the Yemen highlands.

The relationship between all of these sites can be illustrated through the obsidian geochemical analyses that were carried out on Neolithic obsidian products from northern, western, and eastern highland regions. The obsidian in all three areas consistently matches the local highland sources of Yafa' Ridge and the Group 5 outcrop in the area of Jebel Lisi.³⁹ The distribution of obsidian across the highlands and beyond reveals a significant decrease in the quantity of obsidian beyond the highland plateau threshold. All obsidian found on desert lowland sites and at significant distances from highland sources was recovered in the form of obsidian finished products that had traveled as such. Small quantities of finished products suggest the transfer of these tools by mobile groups.⁴⁰ The site of Manayzah in the Hadramawt region, located over 500 km away from the highlands, may be the only exception to date, as it had a significant obsidian assemblage. The Manayzah obsidian remains unanalyzed, but the site is suggested to have had on-site knapping of obsidian,⁴¹ which could add an interesting dimension to understanding the dynamics of Neolithic Arabian contact spheres.

HIGHLIGHTS OF THE HIGHLAND BRONZE AGE (CA. 3000–900 BC)

One of the most exciting highland discoveries also happens to be the most understated in the archaeological literature. The discovery and excavation of the DSP site of Jubabat al-Jeruf (DS269) by C. Edens, which spans the last quarter of the fourth to third millennia BC, has brought to light an established ceramic repertoire (including painted wares), as well as the earliest dated indications of plant domestication in the region. In

³³ de Maigret 2002, p. 125; Fedele 2008, pp. 164–66.

³⁴ Fedele 2008, p. 159.

³⁵ Fedele 2008, 2009.

³⁶ Garcia and Rachad 1997; Garcia et al. 1991; Inizan and Rachad 2007.

³⁷ Inizan 2007, p. 63.

³⁸ Hadjouis 2007, p. 51.

³⁹ Khalidi, Oppenheimer, et al. 2010; Khalidi, Inizan, et al. 2013; Barca, Lucarini, and Fedele 2012.

⁴⁰ Khalidi et al. 2013.

⁴¹ Crassard et al. 2006, pp. 165–69.

addition to having significant architecture, this site produced evidence of carnelian and serpentinite bead production and a stone ring of a type previously recovered exclusively at Neolithic sites in the region.⁴² Along with the early third millennium BC site of Hayt al-Suad (DS324), the 1,500 charred plant remains recovered included domesticates such as barley and wheat, smaller quantities of broomcorn millet, and legumes such as lentils, peas, and chickpeas. Wild plants were numerous and included wild legumes, grasses, figs, and possibly pears and nuts.⁴³

The sites of Jubabat al-Jeruf and Hayt al-Suad are important for their large numbers of plant remains, but also because they provide a window into what is most likely a transitional period from the Neolithic to the Bronze Age. They represent the earliest highland evidence to date for ceramic use and plant domesticates. Few early domesticated plant remains have been recovered in Arabia,⁴⁴ and it is quite telling that the earliest examples should be found in the moist terraced uplands of Yemen. The recovery of this site is just another example of Gibson's forward thinking when he targeted the highlands as an area of key interest for prehistoric occupation and early social complexity in Arabia.

The only other plant identifications made at prehistoric sites in the highlands were those recovered by the IAM from plant impressions on Bronze Age ceramics from the eastern highlands. The sample size from Khawlan was significantly smaller than that from the DSP sites, and many of the domesticated cereals identified were similar, save for oats and sorghum which were identified in the Khawlan samples. Cumin and date palm stones were also found in Khawlan, while legumes were not.⁴⁵

Besides the widespread adoption of ceramics and agriculture, the highland Bronze Age is marked by the emergence of large towns and the erection of monumental buildings and features. The IAM was the first project to make an in-depth study of the Bronze Age period in Yemen. Three of forty Bronze Age sites discovered by the project, namely WYi, RAQi, and MASi, were excavated, yielding architectural plans, botanical and faunal specimens, ceramic and lithic typologies, and radiocarbon dates for this period.⁴⁶ Eastern highland settlements of this period were located near wadi banks, and consisted of small (less than 1000 sq m) and large (greater than 1 ha) sites. Smaller sites were organized around a circular clearing and consisted of interlinked subrectangular to circular structures, while the larger sites were made up of clusters of such domestic complexes and suggested basic settlement planning.⁴⁷

The architecture was made of locally available stone. Each dwelling consisted of two oval rooms that connected to a central courtyard. Two large stone blocks were placed in the center of the rooms to hold up wooden roof beams, and were placed at either side of the doorway as orthostats. The walls were made of large partially shaped stones, while the upper courses were made of smaller stones and mud mortar. Smaller dividing walls were built inside the rooms, and benches were built around the interior periphery of the walls. A cooking pit or hearth lined with slabs of stone was located outside of each house complex. Some buildings appeared to have a different plan with monumental architectural elements suggesting public buildings.⁴⁸

The material culture consisted of a ceramic tradition of coarse round-bottomed hole-mouth pots with small horizontal handles, and platters, in addition to finer small burnished rimmed jars and cups. The lithic assemblage was limited to flint, quartz, and obsidian, and a tool kit that consisted mainly of scrapers and borers.⁴⁹

Unlike the small, mainly third-millennium BC Bronze Age villages of the eastern Khawlan and Hada area, the central and western highland plains produced a longer Bronze Age occupation record that continued well into the second millennium BC, as well as larger nucleated sites, some bearing evidence of fortification. The DSP identified 101 Bronze Age sites in the central and western highland plains (fig. 9.3), and mapped

⁴² Ekstrom and Edens 2003, p. 28.

⁴³ Ekstrom and Edens 2003, pp. 28–29.

⁴⁴ Cleuziou and Costantini 1980; Nisbet 1985.

⁴⁵ Ekstrom and Edens 2003, p. 29; Costantini 1990.

⁴⁶ de Maigret 2002, pp. 135–37.

⁴⁷ de Maigret 2002, pp. 141–44.

⁴⁸ de Maigret 2002, p. 145.

⁴⁹ de Maigret 2002, p. 150.

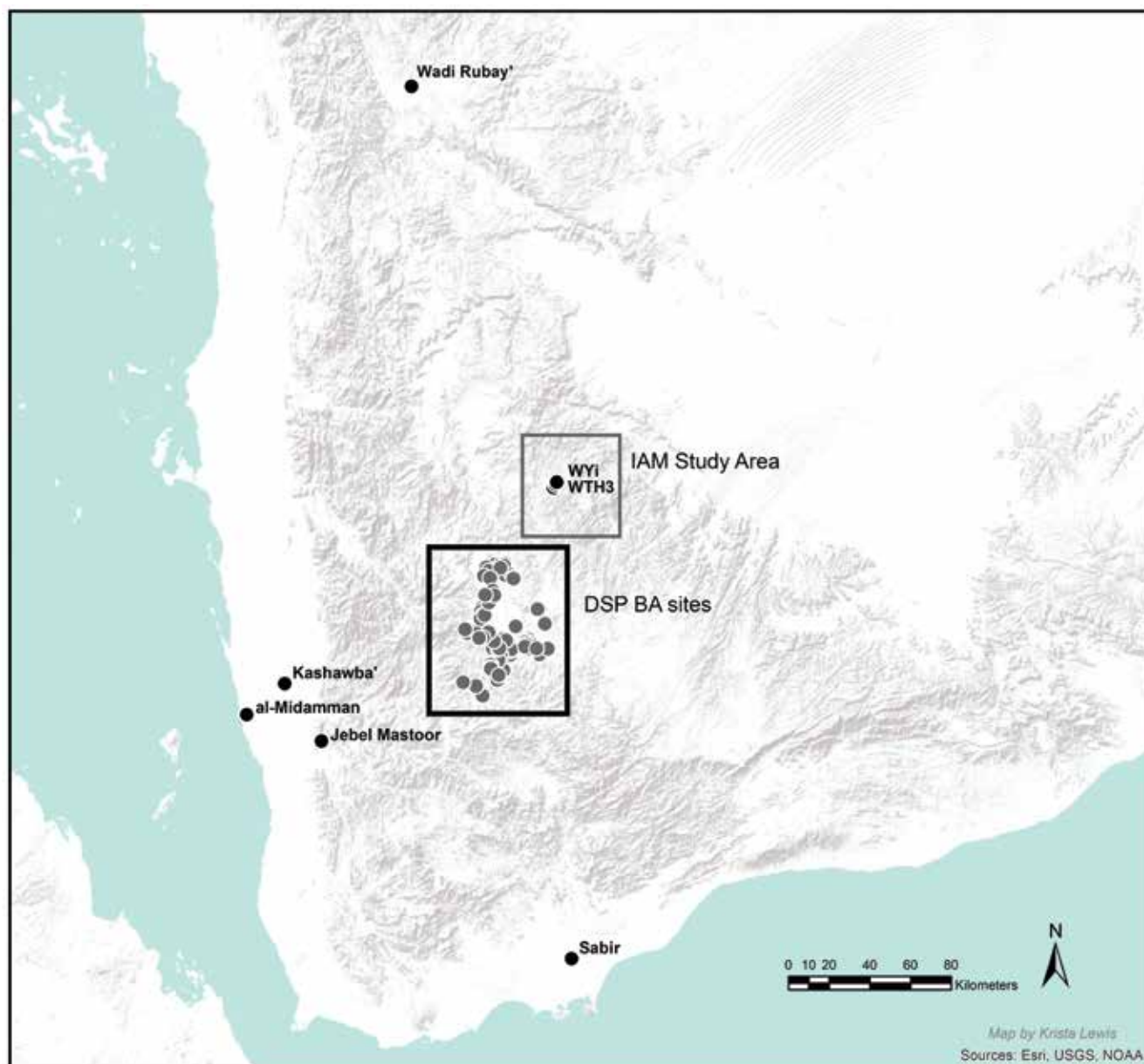


FIGURE 9.3. Map of select Bronze Age sites in southwest Yemen with the DSP and IAM areas highlighted.

their land-use systems. In addition to Jubabat al-Jeruf and Hayt al-Suad, five other Bronze Age sites have been excavated.

The site of Hammat al-Qa' (DS101) consists of a plateau-top site in the Qa' Jahran. Relic terracing and threshing floors are visible along the slopes of the plateau and demonstrate a direct association between a Bronze Age town and its agricultural fields. Given the faunal assemblage, which was made up of 90% sheep/goats and 10% cattle, it is likely that the valley bottom was used as a pastoral reserve.⁵⁰ The 4.9 ha site is surrounded by a gated defensive wall and includes an elaborate settlement plan with domestic and monumental quarters.⁵¹

The architecture belonging to this third-to-second-millennium BC site varies slightly from that found by the Italian mission. Two types of houses were documented, the first being L-shaped, and the second long and subrectangular. In both cases the walls were made of locally available stone, the doorways were framed with orthostats, and vertical divisions separated the rooms.⁵² A similar situation appears at the sites of Sibal

⁵⁰ Edens, Wilkinson, and Barratt 2000, pp. 2–5.

⁵¹ Edens, Wilkinson, and Barratt 2000.

⁵² Edens, Wilkinson, and Barratt 2000, pp. 3–4.

(DS66) and Kharayb (DS228), also dated to the third to second millennia BC.⁵³ Sibal is a 2-ha hilltop settlement with a defensive gated outer wall and long rectilinear architecture, while Kharayb is 3 ha in size and also includes subrectangular houses with vertical divisions.⁵⁴ These houses appear to be narrower than those in the Khawlan area, perhaps evidencing a chronological change in architectural style, or else a regional variation. The ceramics at all of these highland sites are clearly related, though there appears to be a chronological modification of forms and a subtle regional diversification in the overall ceramic assemblages of this period.

The site of Hawagir (DS293) is an exception to the large excavated Bronze Age sites of the Dhamar area because of its location. It is one of the few preserved sites found in the plains rather than on hilltops. Located in the eastern part of the Qa' Jahran plain, this site is approximately 12.5 ha and is damaged by centuries of continuous agricultural activity. Without an identifiable defensive location or wall, this late second-millennium BC site is thought to have been located strategically for the purpose of plain agriculture and trade.⁵⁵ Like many second-millennium BC sites in the highlands, there is a shift in the Bronze Age ceramic and lithic traditions, and more comparisons apparent with contemporary levels at sites in the desert fringe.⁵⁶

These emerging comparisons with the eastern lowlands are probably a function of increased relations with adjacent areas. In addition to the development of site hierarchy and the growth of agriculture in the highlands, the Bronze Age witnessed the intensification of exchange. Exchange is visible in the growth in quantities of obsidian that litter sites of the Bronze Age. Local and long-distance exchange dynamics suggest the development of complex intra- and inter-regional socioeconomic relations. Sources supplying Bronze Age sites continued to be local highland sources, but in addition to the Yafa' and Group 5 source outcrops that were exploited during the Neolithic, the Bronze Age witnessed the addition of the Jebel Lisi outcrop, as well as small amounts of Jebel Isbil obsidian. Most interestingly, the spatial distribution of site to source matches illustrates the positioning of exchange routes and the monopoly of segments of these routes by certain source areas. The spatial mapping of obsidian provides a window into growing territorial demarcation and economic control during this period.⁵⁷

The key transformations that occurred in the highlands during the Bronze Age are testament to the importance of this region in the history of the populations of Arabia. The highland Bronze Age is an amalgamation of many processes (agriculture, exchange spheres, population growth, site growth, site hierarchy, etc.) as they reach their zenith, and which we see beginning locally much earlier. While the highlands did not become a regional political center until the Himyarite period, which lasted from the last centuries BC to the first centuries AD, the prehistoric evidence presents it as a region of relative stability that was a locus of local Arabian innovations. Its resource potential as well as its location at a nexus of exchange spheres was likely exploited much earlier than the archaeological evidence has thus far indicated.

DISCUSSION

Detailed investigation into Middle and Upper Paleolithic lithic assemblages across Arabia have developed our understanding of both the autochthonous and external elements of technologies and tool kits.⁵⁸ In addition, genetic research on Arabian populations has paved the way for new interpretations on modern human dispersals out of Africa, and the expansions and contractions of populations within Arabia over the course of the prehistory of the region as populations were faced with changing environmental conditions.⁵⁹

There is now stratified evidence for Paleolithic occupation dated to 55,000 ka BP (MIS3) in the western foothills of Yemen, at the interface between the Red Sea coastal plain and the western highlands.⁶⁰ Until very

⁵³ Edens and Wilkinson 1998.

⁵⁴ Edens 1999.

⁵⁵ Wilkinson and Edens 1999, pp. 5–6.

⁵⁶ Wilkinson, Edens, and Gibson 1997, pp. 120–22.

⁵⁷ Khalidi, Lewis, and Gratuze 2012, pp. 154–56.

⁵⁸ Armitage et al. 2011; Crassard and Hilbert 2013; Delagnes et al. 2012; Petraglia et al. 2012; Rose et al. 2011.

⁵⁹ Al-Abri et al. 2012; Fernandes et al. 2012; Rose, Černý, and Bayoumi 2013.

⁶⁰ Delagnes et al. 2012.

recently there were no stratified sites in Arabia dated to the periods between this Late Pleistocene date and the earliest Neolithic sites. While occupation continuity can now be traced to the Terminal Pleistocene/Early Holocene, save for the potential offered by the undated Yemen highland pre-Neolithic levels at WTHiii,⁶¹ this is so far restricted to regions east of the highlands. The Omani Dhofar has been especially fruitful in this regard, providing long sequences of occupation along the coast as well as towards the interior where windows of preservation are more common.⁶²

Despite the large regional and chronological occupation gaps that still remain, a growing corpus of data is beginning to illustrate a much more complex picture for Arabia. While dating genetic evidence for the first modern human migrations out of East Africa has been a source of debate with dates ranging from 200 to 60 ka, one recent genetic study points to modern human migration out of East Africa and into Arabia across the southern Bab al Mandab route around 60 ka, from which the authors argue that all ensuing genetic groups have their origin.⁶³ In addition, climatic data has been used to explain the lack of occupation in certain areas at certain periods. Major sea level and climatic oscillations reveal an Arabian landscape that was greener during humid periods, allowing populations to expand, and which contained a series of refugia that hosted retracting populations during hyperarid phases. These refugia included the well-watered highlands of Oman and Yemen/'Asir, and the coastal landscapes of the Red Sea and the Perso-Arabian Gulf, formed by lowered sea levels that instigated the emergence of fresh water systems along coastlines that had previously been submerged.⁶⁴

On the other chronological end of the spectrum, the fact that dated Neolithic sites appeared only to emerge in the eighth millennium BC across Arabia with a package of animal domesticates that included sheep, goat, and cattle, led many researchers to the conclusion that the Neolithic was brought to Arabia from the Fertile Crescent, where domestication developed much earlier.⁶⁵ In Yemen, the earliest dated Neolithic sites are those of Manayzah in the Hadramawt, occupied by the late eighth millennium BC, with evidence of domesticates by the seventh millennium BC,⁶⁶ and ash-Shumah on the Red Sea coastal plain, dated to the early seventh millennium BC.⁶⁷ The earliest known evidence for an Arabian Neolithic therefore occurs several millennia after the earliest Near Eastern Neolithic and entirely lacks an agriculture package until the Bronze Age.

If Neolithic pastoralists came to South Arabia with their sheep and taught South Arabian populations how to domesticate animals, why did they not bring the knowledge of farming with them, and why did it develop in Arabia five millennia later? Where is the material culture evidence for a Near Eastern intrusion in the Neolithic, when cultural traditions are clearly autochthonous? How do we explain cattle and equid domestication in regions where wild progenitors of those same domesticates are likely local?⁶⁸

Unfortunately, the few secure data available for this period in Arabia have made arguments against such ideas challenging. These particular theories on the peopling and neolithization of Arabia do not take into account evidence for continuity of occupation from the Terminal Pleistocene/Early Holocene period, the indigenous lithic assemblages associated with them and found across Arabia, the resilience of the moist highlands of Yemen and Oman and coastal areas, the wild progenitors of equids and cattle which can be found in the faunal assemblages and rock art of South Arabia leading up to their domestication, nor new genetic finds that question such theories. The growing corpus of stratified sites, lithic studies, faunal studies, and genetic data, when viewed together, is providing an entirely different picture that more and more researchers are accepting.

To conclusively accept the refugia concept and contest a Neolithic intrusion from the Near East, sites predating the earliest Neolithic occupations currently known, and others dating to hyperarid periods when population contractions into the Yemen highlands and Red Sea coastal oases would be expected, are needed. Can the overwhelming lack of sites that predate the seventh millennium BC in the Yemen highlands and the

⁶¹ Fedele 2008.

⁶² Cremaschi et al. 2015; Charpentier et al. 2012, p. 35; Hilbert, Rose, and Roberts 2012; Rose and Usik 2009; Rose 2010.

⁶³ Fernandes et al. 2012.

⁶⁴ Parker and Rose 2008; Khalidi et al. 2018.

⁶⁵ Drechsler 2009, 2011; Uerpmann, Potts, and Uerpmann 2009.

⁶⁶ Martin et al. 2009, p. 273.

⁶⁷ Cattani and Bokonyi 2002, p. 34.

⁶⁸ Hadjouis 2007.

Red Sea coastal plain be explained? The expanding datasets available make it considerably clear that areas inhabited along the Red Sea coast or the Gulf Oasis during these periods are currently submerged given the correlation between glacial periods and lowered sea levels.⁶⁹ Furthermore, systematic prehistoric research in the subtropical western foothills is needed given the preservation potential provided by the stratified Late Pleistocene site of Shi'bat Dihyah in the Wadi Surdud,⁷⁰ and programs are needed to systematically investigate the potential offered by the stabilized paleodunes of the Red Sea coastal plain and highlands that were formed during the LGM.⁷¹

The highlands provide a particularly extreme example of a landscape of destruction. The steep western highlands are extremely susceptible to erosional processes, and the central plains have had massive valley infilling, leaving many plateaus stripped to bedrock and plains covered with meters of sediment, then churned and churned by significant agricultural activity. It has been observed that these erosional processes increased significantly during the Bronze Age as a result of increased human activity, and that a lack of upkeep of ancient soil and water management systems has further enabled landscape degradation.⁷² As we have previously noted, intensive and continuous occupation in tandem with the elaborate land-use systems evidenced from the late Neolithic onwards are testament to a landscape that is almost entirely anthropogenic, providing few windows of preservation after five millennia of massive building, water management, agricultural activity, and relatively high population densities.⁷³ The eastern Khawlan highlands are less densely populated than the central and western highlands because they receive less rainfall and are therefore more vulnerable to arid spells. More substantial and more ancient windows of preservation in this area can be explained by a lower intensity of human activity. More intensive work in less populated regions of the highlands is therefore likely to provide the needed answers.

CONCLUSION

Growing scientific interest regarding the peopling episodes of Arabia has motivated numerous approaches that integrate archaeological, environmental, and genetic data to establish the occupation history of the Peninsula. The amalgamation of current data for prehistoric Arabia illustrates a rather interesting picture of the presence of modern human populations in Arabia from as early as the Last Glacial Maximum, when they first migrated out of East Africa. In addition, a growing number of Arabian sites possess an occupation continuum from as early as the Terminal Pleistocene/Early Holocene transition into the late Neolithic, dispelling notions of a simplistic foreign neolithization of Arabia.

Humid and arid episodes are not entirely synchronous across Arabia. The expanding and refined paleoclimatic record of Arabia suggests variable spatial and temporal precipitation incursions in different regions. Environmental proxies attest to consistently more favorable environmental conditions in coastal and highland regions of Arabia than elsewhere, providing a solid basis for refugia scenarios.⁷⁴

Despite arguments for depopulation and recolonization events, such recent paleoclimatic data explains the population and occupation continuum as a consequence of the rich ecological niches present in specific parts of Arabia. These acted as refugia, facilitating human resilience and perseverance in light of major environmental changes that may have incited species dispersal in other more vulnerable landscapes, and to which such populations may have retracted. The concept of human refugia is particularly applicable to the highlands of Arabia, which present dynamic environments that are sustained by the monsoonal systems even in periods of aridity, providing the stage for original and autochthonous developments that are clearly a characteristic of South Arabian assemblages as far back as the Late Paleolithic.⁷⁵

⁶⁹ Parker and Rose 2008; Bailey et al. 2007; Bailey 2009.

⁷⁰ Delagnes et al. 2012; Sitzia et al. 2012.

⁷¹ Munro and Wilkinson 2007; Wilkinson, Edens, and Gibson 1997.

⁷² Wilkinson 2003; Wilkinson 2005.

⁷³ Wilkinson 2009.

⁷⁴ Cremaschi et al. 2015; Crassard and Hilbert 2013; Bailey et al. 2007; Bailey 2009.

⁷⁵ Khalidi and Crassard 2017; Khalidi et al. 2018.

These regions were also likely among the first indigenous domestication loci in Arabia, irrespective of contact with the north, east, or west. Just as it provided the setting for local plant domestication and autochthonous agricultural practices that continue to this day, the Yemen highlands in particular offered an exceptional setting for the unfolding of the numerous local Arabian innovations discussed in this chapter. The highlands acted both as a refugium and a corridor allowing its populations the right balance of stability and interaction needed to develop unique cultural legacies. The archaeological evidence from the last several decades underscores the accuracy of McGuire Gibson's original insight into the importance of Yemen's highlands, and future research in the area promises to unveil an even longer occupation history than is currently established for the region.

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Washing sherds, Üçtepe, 1978-79. (Drawing by Peggy Sanders)

CHAPTER 10

PIECES OF STRING: CORDAGE IN LATE CHALCOLITHIC NORTHERN MESOPOTAMIA

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INTRODUCTION

Textiles were vital to the Mesopotamian economy in the late prehistoric and historic periods. Institution-based cloth production for internal demand and for external trade engaged, at times, thousands of women and children. Economic texts from the third and second millennia BC in particular provide information about temple- and palace-run weaving establishments. Administrative and trade-related texts offer further documentation of textile production, transport, and sales. And studies of spinning and weaving tools and of artworks supplement the often biased or limited information extracted from texts.

But what do we know about the basic material of textiles, yarn? And what do we know about the other important product into which yarn was transformed, string?¹ Various strengths and thicknesses of yarn, string, and rope were used in making clothing, animal traps, fishing nets (Nieuwenhuyse, Berghuijs, and Mühl 2013), boats (Carter 2006) and their rigging, architecture, and furniture, and for tool hafting, container sealing, hunting, and herding, as well as in creating luxury items such as jewelry. String was an everyday, multiuse, and hugely important item, yet it is almost completely overlooked in our reconstructions of Mesopotamian economy, labor, and life. The base materials of string and of woven textiles are the same, and the technologies and skills needed for making string and textiles overlap. But we cannot uncritically assume that cordage production followed the same trajectory as that of textiles.

TEXTILES AND STRING IN MESOPOTAMIA: SOURCES

Yarn, string, and textiles are rarely preserved in Mesopotamia, due to temperature and humidity variations. However, indirect information about these materials can be pieced together from rare preserved examples, impressions in other media, and representations in artworks.

The fragments of textiles recovered in Mesopotamia have been described elsewhere;² they are sporadically known from the Neolithic through Iron Age. Deliberate or accidental impressions of textiles in clay, bitumen, or plaster are more frequent than preserved textiles themselves; the earliest known comes from Neolithic Jarmo (Breniquet 2008; Gleba 2008). As well as textile impressions on the backs of sealings (see further below), impressions of garment hems were occasionally made on tablets by witnesses in lieu of seals.³ Textile pseudomorphs are sometimes visible on metal objects, such as Gudea and Ur III Period foundation nails (Ellis 1968, pp. 62, 68; Garcia-Ventura 2012) and on vessels or weapons in graves.⁴ The earliest example of

¹ This chapter is inspired by Mac's frequent—but never carried out—threat: “You know, [your name here], you can be replaced by a piece of string.”

² E.g., Barber 1991; Crowfoot 1995; Good 2012; Potts 1997, p. 91; Roojakkers 2012.

³ Breniquet 2013; Kelly-Buccellati 1986; Renger 1977; Taylor 2011; Teissier 1998.

⁴ E.g., third-millennium BC Nippur, pers. obs.; Müller-Karpe 1993, pl. 124: 1347.

such a pseudomorph may be the remains of a striped linen cloth used to wrap a copper axe from late fourth-millennium BC Susa (Barber 1991, pp. 132–33, fig. 4.9).

Artworks provide limited proxies for ancient Mesopotamian textiles. For the fourth millennium BC, the importance of the “net skirt” in representing the “priest-king” on reliefs and seals testifies to the crucial information about identity and status supplied by clothing. A similar statement about identity and status is made by the tufted skirts and dresses worn by Early Dynastic votive statues. But representations of these garments are so schematic that there is no consensus on what fiber and weaving methods were used. Third-millennium BC votive statues and second-millennium BC clay plaques and cylinder seals show the structures and features of garments, such as folds and fringe (Foster 2010). Neo-Assyrian reliefs and wall paintings provide detailed representations of fabric surfaces, including probable embroidered decoration (Canby 1971; Dalley 1991), but the individuals in such artworks are overwhelmingly elites or deities, leaving gaps in our knowledge of the range of Mesopotamian textiles. The necessarily schematic representation of cloth in artworks also gives few clues as to the textiles’ weight, weaving technique, and color(s).

There is even less evidence for Mesopotamian cordage. While impressions of string on sealings and—in some periods—on pottery are widely available (see below), preserved examples of cordage are few, and clear indications of yarn, string, or rope in art are rare. However, yoked rows of prisoners on Early Dynastic and Akkadian Period artworks are portrayed as bound with plied cord. For example, the prisoners on the Ur Standard, on shell inlays from Kish Palace A and Ebla Palace G, and on Sargon’s basalt stele in the Louvre have rope-bound elbows, waists, and/or wrists. But a mismatch between the knowledge bases of artists and of rope makers is evident in all these cases, in the representation of both Z- and S-twist cord on each prisoner, a triumph of aesthetics over reality.⁵ More consistently, the animals on the Standard of Ur are led with exclusively Z-twist rope, and ropes shown on prisoners in shell inlay from the ED III Mari Palace and the Akkadian Period Nasiriyah stele are internally consistent in direction: S-twist at Mari and probably Z-twist on the Nasiriyah stele.⁶ Baked clay bed models of the late third–second millennia BC often bear overlapping lines on their upper surfaces, assumed to represent cords or rope, but they are generally undetailed and do not show twist.⁷ Neo-Assyrian reliefs may show rope used in transport of timber (Sargon’s reliefs at Khorsabad) or winged bull statues (Sennacherib’s at Nineveh); Sargon’s ropes are featureless lines, but Sennacherib’s ropes are shown with a sturdy Z-twist that remains consistent across several scenes.⁸

These fragments of archaeological and artistic evidence for textiles and cordage make up a small, patchy sample. However, a robust, although diachronically uneven, proxy assemblage for textiles and string is provided by impressions on the backs of clay container sealings. From at least the early fourth millennium through the first millennium BC, sealing praxis remained remarkably consistent: jars were sealed by covering the opening with a cloth that was then tied to the jar neck with a wrapped length of string; the knot or some portion of the string was then “locked” by a sealed lump of clay. Similar string tying of baskets, bags, or other containers, with or without the textile cover, is widely attested. The sample of sealings with reverse textile and string impressions is potentially enormous. And while imagery on the obverses is still the primary focus in most analyses of sealings, the study of their reverses is well established.⁹ However, thus far, studies of sealing reverses have focused on containers rather than cordage. Recent excavations in fourth-millennium BC Late Chalcolithic 2–3 contexts at Tell Brak, from the main mound in Area TW and the submounds of Majnuna and T2 in the Outer Town, have recovered an assemblage of over 1,000 clay seal impressions (McMahon and Oates 2007; McMahon 2009). While the variety of imagery of the stamp seals is one focus of research on these objects, the reverses

⁵ A Z-twist cord is plied in a clockwise direction (as twisted from the bottom, with the cord held vertically in front of the viewer), or right to left, creating a characteristic upper-right-to-lower-left diagonal line between yarns when the cord is viewed, reminiscent of the center line of a Z. An S-twist cord is plied in the opposite direction, counterclockwise or left to right, creating a cord with an upper-left-to-lower-right diagonal between yarns, as in the letter S. Cord must have one or the other twist direction; the same piece cannot have both.

⁶ Other rope-bound prisoners, such as on Late Uruk sealings from Uruk, are depicted at such a small scale that ply direction on binding cords is not indicated.

⁷ Waetzoldt 2007; Woolley and Mallowan 1976, p. 88, and esp. pp. 215–18.

⁸ Other opportunities to show cord or rope structure on Neo-Assyrian reliefs, in representations of bowstrings, dog leads, hunting nets, horse equipment, and stringed instruments, were not embraced; such items were usually represented by plain lines.

⁹ E.g., Charvát 1988, 2005; Martin and Matthews 1993; Matthews 1991; Zettler 1987.

provide insights into the contemporary textile and string industries. But before exploring the Brak evidence for string, it is useful to summarize what we know of its production in Mesopotamia.

TEXTILE AND STRING PRODUCTION: TOOLS AND TECHNOLOGIES

Production of yarn, string, and textiles involves technologies and actions that are both extractive-reductive—wool gathering or plucking, flax harvesting—and transformative—retting, cleaning, combing, spinning, plying, dyeing, and weaving (Miller 2009). These distinct, sequential activities tend to be summarized and elided into a single “textile production” system by scholars of Mesopotamia, although these activities may have been carried out by different individuals, in different locations, separated by significant periods of time, even in the most institution-based production schemes. Artistic representations, texts, and tools give us only partial windows onto production, and where identifiable, textiles are the focus of representation, rather than cordage. Ambiguity is added by the fact that basic plying, the creation of string from two or more yarns, requires no unique tools but can be done by hand or with a spindle, the same spindle type as is used for creating a single ply of yarn.

The most basic, and messy, steps in production—harvesting, retting, plucking, combing—are not depicted at all. Even artworks depicting the cleaner spinning and weaving steps are rare. Spinning is possibly represented on Late Uruk seals (Amiet 1961, pp. 19, 332; Breniquet 2008, fig. 78) and—from the edges of Mesopotamia—on a Neo-Hittite stele from Maras (Bossert 1942, p. 814) and a Neo-Elamite stele from Susa (Harper, Aruz, and Tallon 1992, pp. 200–01). In all these examples, it is impossible to see whether the spun product was yarn or string. The ground loom, or horizontal loom, is represented on fourth-millennium BC seals from Susa and elsewhere, but the size restrictions of the “canvas” mean that details are limited (Amiet 1961, pp. 16, 19, 275, 319; Ellis 1976).

Mesopotamian texts from the late fourth through first millennia BC are eloquent on the organization of textile production and the indigenous classifications of wool, cloth, and textile workers (Potts 1997, pp. 92–95). Texts of the fourth millennium BC (Englund 1994; Zettler 1996) already hint at the explosion in complexity of this industry in the third millennium BC and thereafter.¹⁰ Texts from third-millennium BC Ebla (Biga 2010; Pettinato 1991) and those recording the Ashur-Anatolia trade of the early second millennium BC (Michel and Veenhof 2010; Veenhof 1972, 1977) reinforce the similarities in production across the subregions of Mesopotamia.¹¹

Notably, Ur III texts record that spinning and weaving were carried out by different groups of women, which implies we should be careful about the facile assumption that these two activities were inextricably linked. Spinners’ yarn might be directed to several different final products. Ur III texts further separated spinning for warp versus weft threads (Firth and Nosch 2012, p. 66; Waetzoldt 2010); these threads often have different thicknesses, weights, and twist tightness, given the different tensions to which they are submitted. Thread or yarn used for string is usually thicker than that woven into textiles, and thus it might be expected that separate string-yarn spinning would also be noted in texts, but this does not appear to have been explicitly recorded.¹² This text gap suggests that string may have been produced outside institutions and was not subject to regulations or standardization.

Textile and string production tools comprise spindle whorls, (possible) loom weights, and bone tools such as needles and “sword battens.” Spindle whorls in particular are common across the Near East and have been explored from late prehistory (Kansa et al. 2009; Keith 1998) through the Bronze Age (Andersson et al. 2010; Peyronel 2007; Sauvage 2013). Spindle whorls are only relevant for yarn and string production, but most studies of such objects are set into discussions of weaving textiles (although see, e.g., the possible string-plying

¹⁰ Jacobsen 1970; Firth and Nosch 2012; Lumb 2013; Maekawa 1980; Pomponio 2010; Waetzoldt 1972; Wright 2013.

¹¹ However, it should be emphasized that the production of textiles in the mature city-states of the south—which overwhelmingly provide the textual evidence on which our economic models are predicated—may not always match that of the variable economies of the north.

¹² Although there are different Akkadian terms for spinning (ṭamûm/ ṭawûm) and twining or plying (ešēpum), the product of the latter still seems to be thread or yarn, not string (Lassen 2010). During the Ur III Period, manufacture of rope for furniture and boats was separated from that of thread for textiles by distinct terms for professions and products (Waetzoldt 2007), but the rope’s uses suggest a much heavier cord than the strings used for container closure.

whorl from Ugarit; Sauvage 2013, p. 204, fig. 11.10).¹³ Among other textile equipment, loom-weights are notoriously difficult to identify, since they may be made of easily damaged materials, such as unbaked clay, or may have ambiguous form (e.g., pierced ovals; Breniquet 2008, pp. 171–74). It is in fact unclear whether the warp-weighted loom was known in Mesopotamia before the first millennium BC, although it was used in Anatolia from the fourth/third millennium BC (Ellis 1976; Lassen 2013; Strand 2010) and there is some evidence for the vertical double-beam loom at late Early–Middle Bronze Age Ebla (Andersson et al. 2010). Bone tools are often recovered, but their precise use is enigmatic. Needles might be used equally in sewing and leatherworking, as well as weaving; flat bone tools might be sword battens but may also be used in leatherworking or basketry.

STRINGING THINGS ALONG: FIBERS, TWIST AND HARDNESS

Mesopotamian spun and woven fibers comprised flax, goat hair, sheep hair, and sheep wool during the majority of periods (Strand 2010), as supported by the few extant textiles and more numerous texts and zoological and botanical data.¹⁴ Linen fragments are known from the seventh/sixth millennia onwards in the Levant and Turkey, and there is contemporary evidence for flax seeds from Anatolia and northern and southern Mesopotamia.¹⁵ Sheep may have been on the cusp of the hair-to-wool transition in the mid-fourth millennium BC (Good 2012; Greenfield 2010), at that point producing a relatively short-staple, straight fiber (Keith 1998) that could nonetheless be spun. The variety of wool qualities and sheep breeds known for the Ur III Period (Jacobsen 1970; Waetzoldt 1972) suggests that the shift to long-staple wool was complete by the later third millennium BC. The ease with which wool takes a dye has been argued as a factor in changes in the pastoral economy (McCorriston 1997); the flexibility of wool in cordage may be an overlooked part of this trajectory.

The twist of cordage comprises two directions: the spin of the individual yarns and the ply or twist of these yarns together into cord. These elements are represented as sZ or zS, the lower case letter identifying the spin of the yarn and the upper case the twist of the cord. Cordage is rarely plied together in the same direction as the individual yarns for structural reasons, so sS or zZ are globally rare. The alternation of spin and twist—which involve the same physical movements but reversed—means that the learning and making processes for string are slightly more complex than those for single-ply yarn destined for textiles (see below; Minar 2001). These different sets of processes, together with the different yarn diameters used in each, reinforce the theory that spinning for textiles (for which only one direction is needed) and spinning for string (which employs both) might be activities performed by different groups of people.

As well as twist direction, cordage is defined by “hardness.” Similar to the fineness of textiles being designated by threads per centimeter, yarn and string are categorized by their diameter and number of twists per centimeter of length. Hardness is calculated using both figures; more twists generally mean harder cord, but a thick diameter cord needs fewer twists to reach the same level of hardness as a thin cord (Hurley 1979). Hardness can also be simply specified by the angle of twist; for instance, “hard” string generally has a twist angle of 30–45+ degrees; “medium” falls between 20 and 30 degrees; and soft is less than 20 degrees (Laughlin, Osborne, and Osborne 1954). Warp threads tend to be harder than weft (Strand and Cybulska 2013); they are also thinner (Chmielewski and Gardyński 2010). Hard thin yarn is more time-consuming and harder to spin than loose thick yarn (Strand and Cybulska 2013), an issue relevant for interpreting different times recorded for spinning warp and weft in the Ur III texts (Firth and Nosch 2012).

¹³ The same leap from a spinning tool directly to weaving cloth, ignoring the creation of yarn and cordage, appears in studies of spindle whorls in other regions, e.g., Classic and Postclassic Mesoamerica (Ardren et al. 2010; Smith and Hirth 1988); but see Nichols, McLaughlin, and Benton 2000 for discussion of maguey spinning for cordage as well as textiles.

¹⁴ Widely available palm fibers and marsh or wadi reeds could have been used to make twine, as well as baskets and mats (Tengberg 2012; Veldmeijer 2009); however, their coarseness and stiff brittleness makes such fibers unsuitable for woven textiles or fine cordage.

¹⁵ Good 2012; McCorriston 1997; Reade and Potts 1993.

STRING AT FOURTH MILLENNIUM BC TELL BRAK

Recent excavations in Late Chalcolithic 2–3 contexts at Tell Brak have recovered a large assemblage of clay sealings.¹⁶ Many of the sealing reverses bear impressions of containers covered by woven textiles, usually plain or “tabby” weave; others were covered by a disorganized fibrous material that may be felt. Impressions of strings were preserved on many sealings, especially those attached to jars or baskets.¹⁷

First, what was the material used for the Brak strings? Where preserved, the impressions of individual fibers within the yarns are straight, rather than the crimped or fluffy structure of sheep wool (see fig. 10.1). The fibers could be from goats (as suggested for Early Dynastic Fara; Matthews 1991, p. 5; also Waetzoldt 2007), from sheep that were still transitioning from dominant hair to dominant wool (Greenfield 2010; McCorrison 1997), or from flax. Experiments in recreating string impressions on European Neolithic Corded Ware indicate that wool string created poor, blurred impressions due to its softness; horse hair, flax, and other plant fibers generated clearer impressions (Grömer and Kern 2010, pp. 3142–43). The clarity of the Brak string impressions suggests flax or pre-wool animal hair. Unfortunately, there was no organic preservation so we cannot be certain; however, the fibers are similar in appearance among most of the sealings,¹⁸ so the assemblage is internally consistent.

The spin of the yarn used in the textile container covers is not identifiable on most of our sealings. These yarns are 0.2–0.6 mm in diameter, and the graininess of the clay does not allow determination of the yarn’s texture at such a small scale. The string impressions, however, offer a happier story, since the yarn used is much thicker, often 1–4 mm or more in diameter. The diameter, ply number and direction, and twist tightness of many strings could be determined with ease.¹⁹ The strings are invariably two ply, the easiest type of string to make and strong enough for a wide range of uses.

Overall, the string used for closing and “locking” containers at Late Chalcolithic Brak was notably variable in diameter, in twist (both S- and Z-twist) and in hardness, suggesting that the possible increased control over textile production seen at Brak was not engaged for string production.²⁰ String production instead appears to have remained an opportunistic and independent “cottage industry,” despite the increased economic demands of an urbanizing population and an increasingly powerful administration.

The Brak string diameters vary from 0.7 to 6 mm; the majority fall in the range of 1.0–3.5 mm. There is some minor diachronic change evident, but this may be the result of variable sample sizes across the different Late Chalcolithic (hereafter LC) subphases. The LC 2 examples, all from

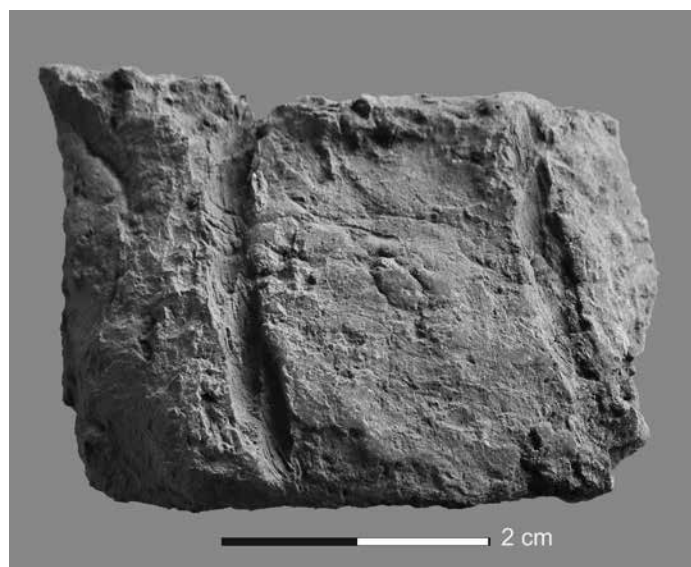


FIGURE 10.1. Sealing reverse from Tell Brak (TW, LC 2) with impressions of two strings showing yarn fibers; both are impressions of original zS-twist strings.

¹⁶ The LC 2 contexts were excavated in Area TW on the main mound, LC 3 contexts at Tells Majnuna, and T2 in the Outer Town. These excavations have also recovered numerous spindle whorls, which may have been used to create yarn for textiles and/or yarn for string.

¹⁷ Other seal reverses show impressions of boxes, baskets, and a few door locks. The number of string impressions preserved to a degree that details of diameter, ply, and/or twist could be determined is over 300.

¹⁸ There is a very small number of distinct cord examples made of thick, stiff fibers that may be from wadi reeds or palms.

¹⁹ There is some margin of error in diameter and twist measurements; diameters as measured on an impression may be smaller than reality due to clay shrinkage, the full diameter may not be represented if a string impression is shallow, and twist may be exaggerated or minimized through stretching or curving of the string when tying.

²⁰ Data analyzed from the 2006–11 excavations at Brak so far indicate an increased standardization of dimensions and weight for spindle whorls from Late Chalcolithic 2 to 3 (McMahon, in prep.). This standardization comes with at least one clustering of spinning tools in an administration-linked workshop in Area TW, as if an institution had commissioned spun wool of particular strength, twist, and density through distribution of specially made whorls.

Table 10.1. Tell Brak Late Chalcolithic 2-3 String Twist Direction

	zS Twist	S Twist (Probably zS)	sZ Twist	Z Twist (Probably sZ)	Twist not Visible
LC 2-V. Early LC 3					
TW Level 22	3	0	2	0	0
TW Level 21	14	1	3	1	2
TW Level 20	7	1	2	4	0
TW Level 19	3	1	0	2	3
Totals	27	3	7	7	5
	LC2 S: 30		LC2 Z: 14		
Early LC 3					
MTW	6	9	14	5	4
EM	43	20	37	17	16
EMS	4	1	2	1	0
T2E	0	1	2	3	1
Totals	53	31	55	26	21
	E LC3 S: 84		E LC3 Z: 81		
Mid-Late LC 3					
EME	16	5	4	4	4
MTE	20*	6	7	4	3
Totals	36	11	11	8	7
	M-L LC 3 S: 47		M-L LC 3 Z: 19		
All LC Totals	116	45	73	41	33
	All S: 161		All Z: 114		

*Includes five examples of string impressions on large pottery vessels.

Area TW, range from 0.9 to 4.5 mm, with most clustered within 1.5–2.5 mm. Early LC 3 strings, from the west edge of Tell Majnuna and Tell T2, are 0.7–5.7 mm, with most falling in a wider band, as compared to the LC 2 sample, of 1.2–3.5 mm. Mid-late LC 3 strings, from eastern Majnuna, are 1.0–6.0 mm in diameter, with most in the 1.2–3.0 mm range.²¹ The slightly greater variation in the early LC 3 fits with the larger sample from those contexts.

The majority of strings in which ply direction could be ascertained²² are S-twist, but not overwhelmingly so (161 S-twist to 114 Z-twist, or 59% S, 41% Z; table 10.1). The spin of each individual yarn could not always be seen due to postdepositional wear or grainy clay not preserving that level of detail. However, 116 of the 161 S-twist could be identified as zS (fig. 10.2) and 73 of the 114 Z-twist were sZ (fig. 10.3).²³ These numbers confirm an overall, but relatively weak, preference for Z-spin in the original yarns, as well as a weak preference for S-twist string. However, separation by LC subphase revealed some surprising developments (see tables 10.1, 10.2). LC 2 contexts have string in approximately a 2:1 ratio in favour of S-twist over Z-twist; this

²¹ The contexts are secondary in each case, although the LC 2 TW examples come from scattered discard in workshops and courtyards, while the LC 3 Majnuna and T2 contexts are concentrated rubbish piles. The sample size is higher for the early LC 3: 186, versus 49 for LC 2 and 73 for late LC 3.

²² The impressions preserve the strings' mirror image; for instance a cord impression that appears as S-twist on a sealing would have been Z-twist in reality.

²³ Given the structural difficulties of sS or zZ string (neither of which were identified in the Brak assemblage), it is likely that all the S-twist strings were zS and all the Z-twists were sZ. It should be noted here that the two-ply yarns used in each case were invariably of the same spin; the full designations would be zzS or ssZ to indicate this.

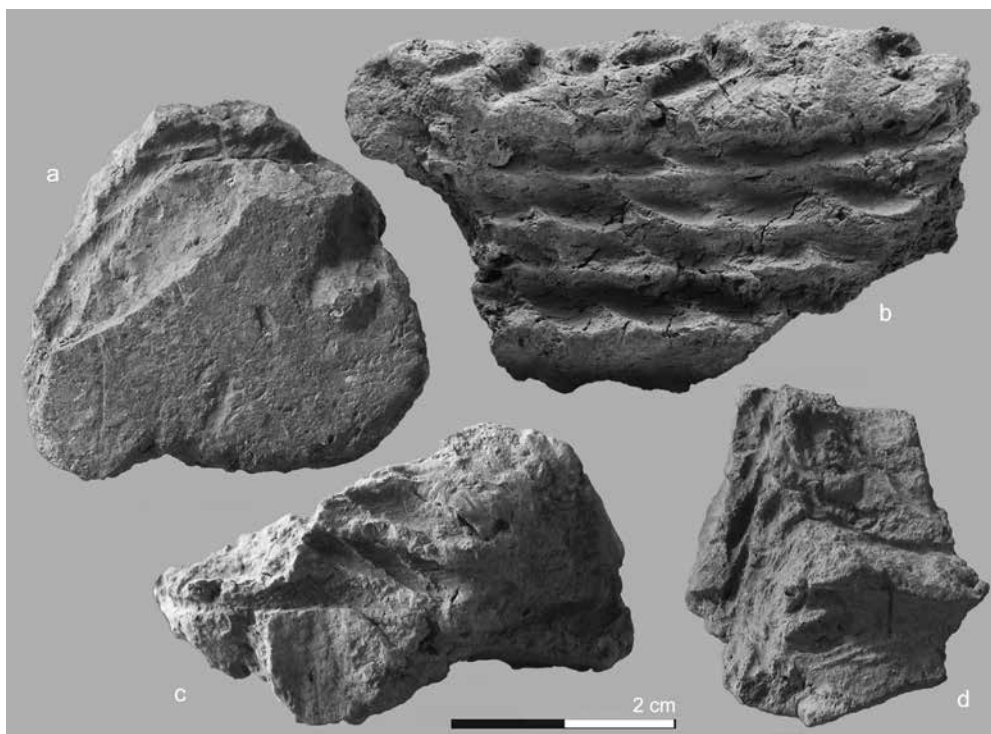


FIGURE 10.2. Sealing reverses with impressions of zS strings: (a) MTE (late LC 3); (b) EM (early LC 3); (c) MTE (late LC 3); (d) MTW (early LC 3).

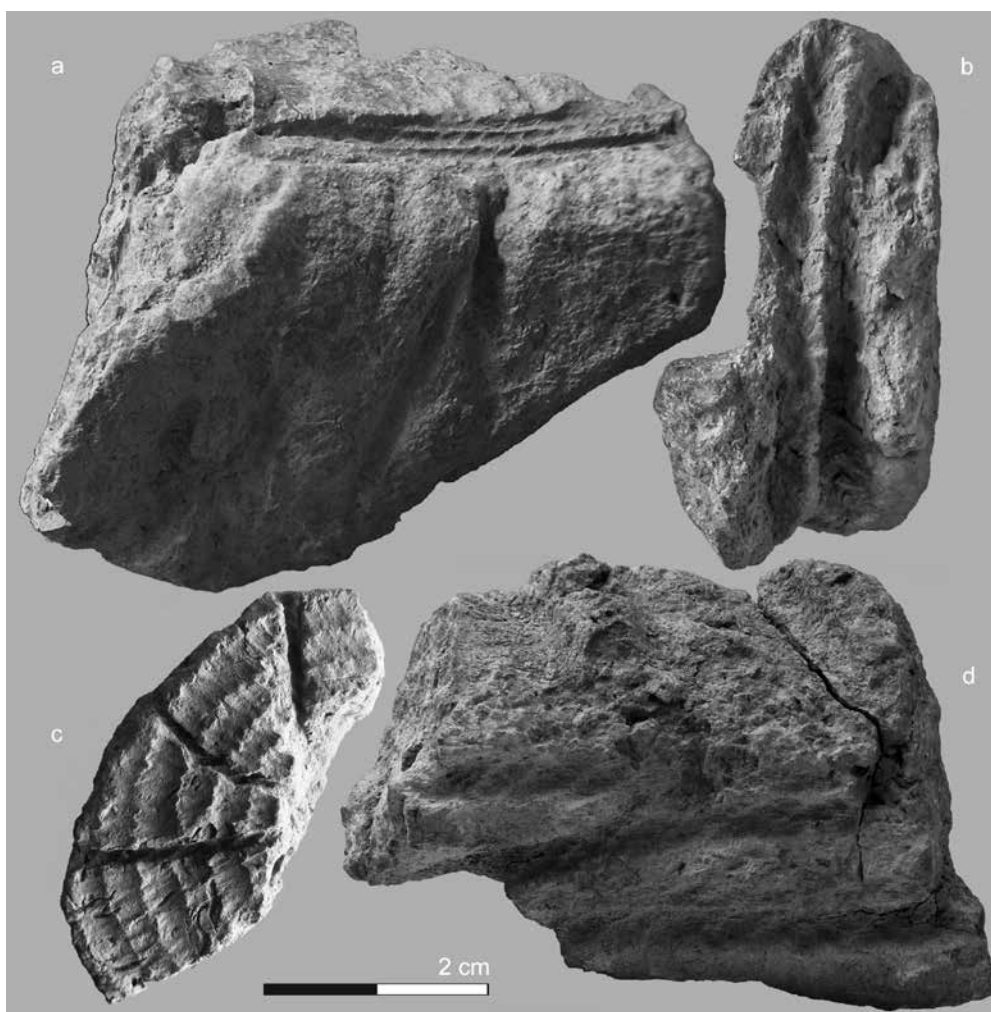


FIGURE 10.3. Sealing reverses with impressions of sZ strings: (a) EMS (early LC 3); (b) MTE (late LC 3); (c) EM (early LC 3); (d) EM (early LC 3).

is followed by almost 1:1 S:Z in early LC 3 contexts, and then a shift back to almost 2.5:1 S:Z in mid-late LC 3. The larger early LC 3 sample size does not seem to be the only explanation.

The tightness angle, or hardness, adds further variation. LC 2 strings showed twists of 15 to 45 degrees; early LC 3 strings 10 to 45 degrees; and mid-late LC 3 strings 15 to 45 degrees. This minor variation in angle range shows the same increase according to larger sample size in early LC 3, but again, the most common twist varies in ways that sample size alone cannot explain (Table 10.2). In LC 2, a great majority have 20–25 degree twist (medium to hard-medium; 61%), with relatively few outside that range. For early LC 3, strings of 20–30 (medium to hard; 57%), and then 40 (hard; 12%), are the most common. For mid-late LC 3, again strings of 20–30 degrees (61%) and then 40–45 degrees (hard to very hard; 24%) were made most frequently. These numbers appear to indicate that production diverged over time into creating two types of string, one softer and one harder.²⁴

Table 10.2. Summary of Late Chalcolithic String at Brak

	Ply Preference	Most Common Diameter, mm	Most Common Twist Angle
LC 2	68% S : 32% Z (2.1:1)	1.5–2.5	20°–25°
Early LC 3	51% S : 49% Z (1:1)	1.2–3.5	20°–30°, 40°
Mid-late LC 3	71% S : 29% Z (2.5:1)	1.2–3.0	20°–30°, 40°–45°

It is not surprising that a variety of string was produced at Late Chalcolithic 2-3 Tell Brak and within its hinterland, but it is notable that this variety of string was used in the very stable and standard praxis of container sealing and within an otherwise tightly administered resource management system.

SPINNING AND PLYING ACROSS SPACE AND TIME

Spinning and plying directions are culturally consistent within many regions of the Old and New Worlds. Unfortunately, fourth-millennium BC comparanda from Mesopotamia are limited. A small sample of Late Chalcolithic sealings with string impressions excavated at Brak during 1994–96 shows comparable variation: four S-twist examples from Area HS 6, LC 1–2 (Matthews 2004, fig. 3.17: 2, 9, 14, 19) and one Z-twist from Area HS 1, LC 3 (Matthews 2004, fig. 4.26: 5). String used for supporting large vessels during drying was occasionally represented in LC 3 contexts and was also variable: two S-twist (Matthews 2004, fig 4.18: 12, fig. 4.26: 5) and one Z-twist (Matthews 2004, Fig. 4.18: 10). Published examples from Late Uruk Period contexts at Uruk are few and also variable: an S-twist example from Uruk IVb (Boehmer 1999, fig. 26: E c) and a Z-twist from IVa (Boehmer 1999, fig. 90: b). A jar sealing from Uruk V appears to have two strings, a thinner S-twist and a thicker Z-twist (Boehmer 1999, pl. 78: 26). At Arslantepe, sealings from the fourth millennium BC again show variation but with a dominance of S-twist (67% S-twist to 33% Z-twist; Laurito 2007).²⁵

Further afield and in other millennia, reed cordage elements that contributed to the inner structure of Neolithic plaster statues from 'Ain Ghazal were 2-ply Z-twist (Grissom 2000). Early Dynastic door sealings from Fara have impressions of strings dominated by Z-twist (Matthews 1991, p. 5). All Ur III examples from

²⁴ Hardness is commonly designated 5°, very soft; 10° soft; 15° soft-medium, 20° medium; 25° hard-medium; 30° hard; 45° very hard (Laughlin, Osborne, and Osborne 1954, p. 1099). Hardness may also be determined by combining yarn diameter and number of twists per centimeter; a hard thin yarn will have more turns per centimeter than a hard thick yarn (Laughlin, Osborne, and Osborne 1954; Hurley 1979). These additional data in the Brak sample have not yet been analyzed and may eventually add further nuances, but the angle alone provides an excellent and accepted proxy for hardness.

²⁵ The Arslantepe strings' diameters range from 1.5 to 9 mm, with most in the range of 3–7 mm (Laurito 2007), thus slightly thicker than the Brak assemblage. Particular individuals at Arslantepe (identified by seal iconography) appear to have used consistent strings—in diameter and twist—when sealing containers. There is so much variation in the individuals represented in the Brak sealing assemblage that this does not seem to have been the case there.

Nippur's Inanna Temple were Z-twist (Zettler 1987, figs. 11–14, 16). The fourth-millennium BC examples thus stand out in the region due to their variability as well as general preference for S-twist.

However, from a wider perspective, the Brak examples are less unusual. Although Z-twist plying dominates cordage globally, European Neolithic Corded Ware string impressions were often created with S-twist cord (Grömer and Kern 2010). Cordage at New World sites varied, e.g., Z-twist at ninth–sixth-millennia BC Guitarrero Cave in Peru (Adovasio and Lynch 1973); mostly Z-twist at Early–Late Holocene Daisy Cave, California (88%; Connolly, Erlandson, and Norris 1995); and mostly S-twist at both the Early Holocene Cave of the Chimneys, California (68%; Vellanoweth et al. 2003) and Archaic Period Pintwater Cave in Nevada (81%; DuBarton and Buck 1998). Regional studies in the eastern and southeastern USA have identified core areas dominated by one direction of cordage twist, surrounded by cultural frontiers exhibiting combined S- and Z-twist in varying ratios (on first millennium BC–mid-second millennium AD cord-impressed ceramics [Custer 2004; Minar 2001]). Unfortunately, we do not yet have the comprehensive regional coverage that might explain where Brak lies within a larger cordage production network.

LEARNING TO SPIN AND PLY

There are only two options for spinning and plying direction, therefore unconnected similarities of spin and ply across space and time are not unexpected. Handedness has been identified as a possible explanation for Z versus S spinning (Grömer and Kern 2010; Martin and Matthews 1993). However, most populations have ca. 85–90% right-handed individuals (more likely to begin the spinning and plying process clockwise, producing z-spin thread, S-twist cord) and ca. 10–15% left-handed individuals (counter-clockwise; s-spin thread, Z-twist cord). The lower percentage of Z-twist cordage at Brak corresponds to the probable lower number of left-handed individuals, but the ratio (29–49% of Z-twist) does not match expectations (see also Minar 2001, pp. 389–90).

Tests on flax, goat hair and sheep wool fibers' susceptibility to particular spin directions are inconclusive.²⁶ There are no technological reasons for twist variation—neither direction conveys an advantage of strength or flexibility. Whorl placement also comes into play with spin direction; a top whorl spun on the leg usually creates an S-spin, while a low whorl spun by hand (by a right-handed individual), creates a Z-spin. The placement of the northern Mesopotamian spindle is unclear, since spindles were usually wood and are not preserved, leaving us with only the ceramic, stone, or bone whorls. Contemporary occupants of Egypt and the Levant used top-whorl spindles, while those in Anatolia used low-whorl spindles (Barber 1991). The southern Mesopotamian spindle whorl is generally assumed to be a top whorl, based on a complete copper spindle and whorl from the A Cemetery at Kish (Barber 1991), but a north-south difference may be possible.

Leaving aside the ambiguous influence of physical variables, the degree to which one direction of twist dominated cordage produced in any region or site may instead reflect the degree of integration of “communities of practice.” Spinning yarn and plying string were motor skills taught and learned through active participation.²⁷ In many types of craft production, individuals learn from others within a family, cross-generationally, through observation and informal integration into tasks. Ideally, all individuals in a crafting family operate within a wider community of practice,²⁸ probably of some time depth and based in integration, interaction, and intermarriage among families in these communities.²⁹

Spinning and plying direction may be examples of “isochrestic style,” form or format resulting from a skill that is rote learned and then enacted without thinking (Klein 2003; Plog 1980; Sackett 1982); this deep-seated

²⁶ Minar 2001; but see Martin and Matthews 1993, Laurito 2007. Yucca, hemp, and cotton fibers may be susceptible to particular spin directions (DuBarton and Buck 1998), but these are not relevant for the fourth-millennium Near East. Whorl weight can be directly linked to specific fibers and their strength and staple length, but spin direction is far more ambiguous.

²⁷ Lave and Wenger 1991; Minar 2001; Thulman 2013.

²⁸ Carr and Maslowki 1995; Maslowski 1996; Johnson and Speedy 1992.

²⁹ An individual's spinning habit does not always remain the same across a lifetime. Any individual may produce differently twisted yarn or cord at different times, depending on his/her then-current motor skills, which may vary with age and experience, the time allowed for the task, or the projected uses of the yarn or cord.

knowledge results in long-term traditions that are resistant to change at the levels of individual and group (Thulman 2013). But the techniques of spinning and string plying have also been identified with the concept of habitus, or everyday, habitual, unconscious actions (Frankel 2000). Indeed, a very proficient spinner can produce remarkably consistent yarn or string without conscious thought, while performing other tasks. However, this notion of spinning as habitus, or even just “habit,” denies the motor skills involved and the need for an active engagement during the learning process, in order to refine that skill until the action becomes unconscious and the product acceptable. A leap straight to habitus ignores this active learning process and the need for “practice to become perfect.”

Cross-generational community teaching means that cordage production is diachronically conservative (Minar 2001; Thulman 2013). Within a settlement or region, intermarriage and interaction would assure locational synchronic conservatism. Thus, variability over time or within a restricted area is unusual, and its origin is a subject of discussion (Custer 2004). Shifts in spin or twist dominance across regions or within sites may correspond to movements of people.³⁰ But at Brak, there is no evidence for an influx of foreign people in the LC 2–3 (the southern Uruk expansion is centuries away). The diachronic changes instead might be explained by changes in the scale of urban economic spheres and the indirect impact of those changes on producer communities and the frequency and mode of interaction.

STRING IN THE LATE CHALCOLITHIC ECONOMY OF TELL BRAK

Bearing in mind communities of praxis, we return to the Late Chalcolithic Period at Brak and the trends observed in cordage twist direction. In all subperiods, we assume the string represented on Brak sealings was produced in some neighborhoods of Brak and in villages around Brak, the sources of goods sent to Brak’s institutions and workshops. The wide variation in string diameters, twist direction and twist angle all suggest that string was produced at the household level, rather than in administered workshops. As the setting for this household production, the LC 2 situation was of gradual growth of the city and of institutional power; at this point, a majority of cordage was made with an S-twist. This was followed by early LC 3 urban expansion, further increase in administrative scale and power, and nearly equal production of S- and Z-twist cordage. In the late LC 3, although the site size was maintained and the economy was unaltered, there was a return to dominant S-twist.

The origins of these string trends may be sought in changes in the community of producers and the activities of teaching/learning in Brak’s neighborhoods and linked villages. The LC 2 domination by S-twist, but with a significant minority of Z-twist, may reflect moderate integration and interaction among families and a strong praxis of intracommunity learning within a degree of village or neighborhood exogamy. Within the early LC 3 urban expansion, the shift to a near-even ratio of S-twist to Z-twist implies that the producing community has changed. As mentioned, there is no evidence for an influx of foreign people. So the change was perhaps towards limits on integration among existing families, through either greater endogamous marriage or an adjustment to the interaction of families within the urban centre and/or between settlements linked to it. The late LC 3 shift back to a majority of S-twist might reflect a reversion to previous status quo and moderate interaction, but it is difficult to see why this should have occurred, given the economic and administrative continuities. Instead, that shift to more S-twist may have come about through institutional meddling in cordage production, increased demand, and a need for greater efficiency, achieved through a measure of standardization. The suggestions of a split into two string types, based on hardness, with implications for time investment and skill required, support a greater (although not exclusive) degree of institutional participation in the production of string.

³⁰ Johnson and Speedy 1992; Frankel 2000; Keith 1998.

CONCLUSION

Easy transport, long shelf life, and complementarity with agriculture all contributed to the enormous importance of textiles in Mesopotamia's trade economies over time. Textiles' role in internal systems of tribute, taxation, and payment for labor is also important. Their midrange use-life (longer than food, shorter than metal implements or other durable goods) would have meant a continuous, but not unmanageable, demand. The storability of the raw materials and the flexibility of skills required mean that textile production was exempt from seasonality and labor limitations.

String is the overlooked, but equally important, cousin to textiles. Its trade may not have driven Mesopotamia's growth, as has been argued for textiles (Algaze 2008), but it is difficult to imagine a world without string: clothing lashed together with leather, jewelry strung on metal wire, fishing nets made of brittle reeds, bags closed by pins. These are plausible options but are invariably second best.

The earliest known string in the Near East is in fact earlier than the earliest known textile: a Z-twist shred from Ohalo II, ca. 19,000 years old (Breniquet 2013; Nadel et al. 1994), that is testament to string's importance.³¹ While Mesopotamian textile weave complexity increased over time through creative innovation (Good 2012), string appears to have begun and continued as a varied, but rather limited, product. We can reconstruct rich biographies of the social value and economic life of Mesopotamian woven textiles; the biographies of string are perhaps less colorful and exciting. But nothing can replace a piece of string.

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³¹ The earliest known string in the world is even earlier, from a 90,000-year-old Neanderthal site in France (Hardy et al. 2013); indirect evidence from beads and tool hafting implies that string was produced even earlier.

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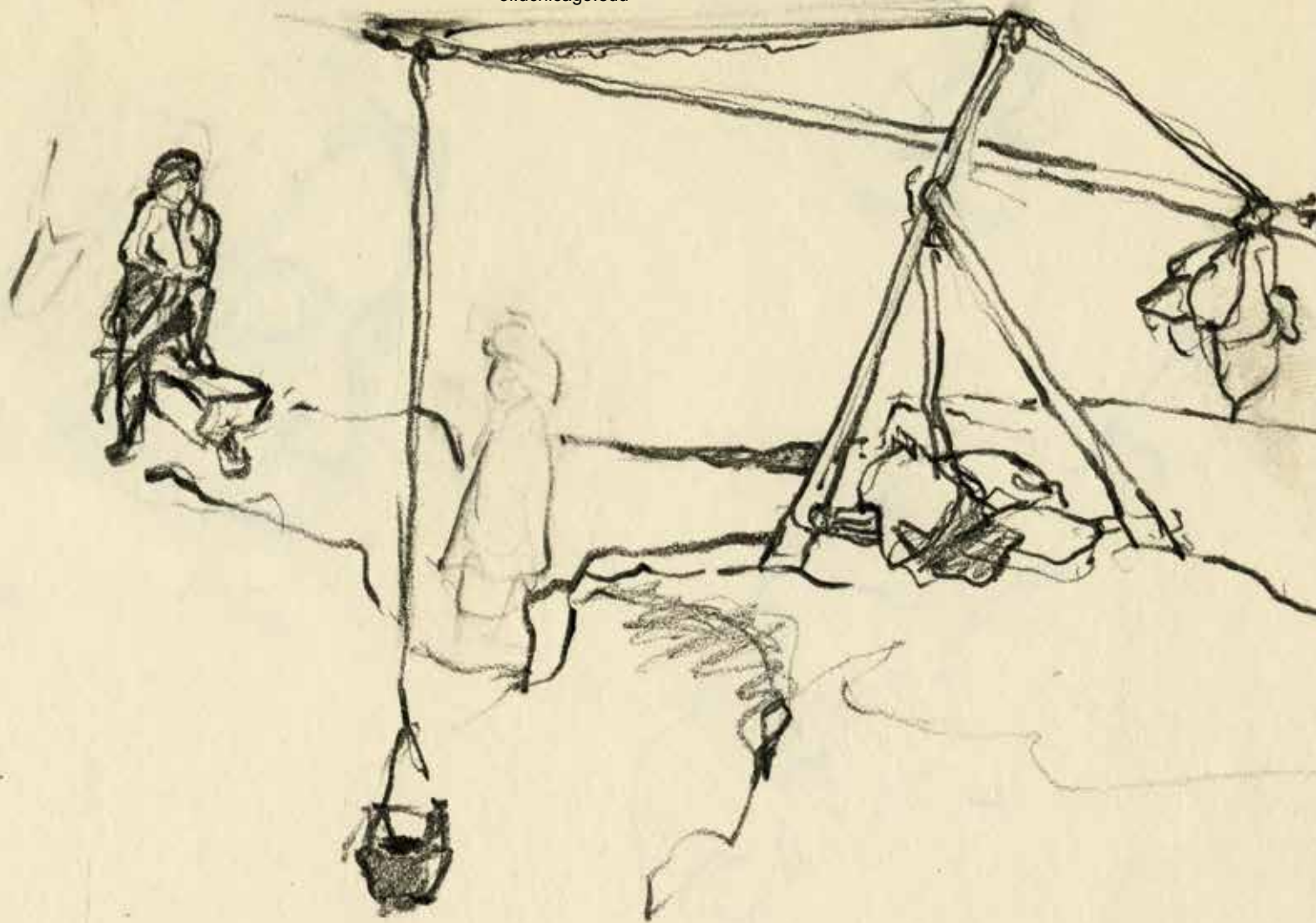
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Studies of workmen, Üçtepe, 1978-79. (Drawing by Peggy Sanders)

CHAPTER 11

A REAPPRAISAL OF BUILDING CIRCULATION WITHIN THE E-ḪURSAG AT UR

John C. Sanders

The Oriental Institute

Although changes in overall building and room functions may or may not correspond with changes in building forms, alterations to building forms quite often correlate with changes in the use of space.¹ Mesopotamian architectural evidence, as presented in this article, suggests that the ancient builders employed the practice of correcting building-form problems as soon as they were recognized, in conjunction with a resistance to changes that did not contribute to such problem resolutions. This practice appears to have been an important mechanism of the building-form tradition by which ancient Mesopotamian room arrangements and door placements were produced, maintained, and modified.

A number of door-placement and room-arrangement variables will be introduced to document briefly the development of two Mesopotamian architectural traditions or building models (see Appendix 1) from the third through the first millennium BC: the Apartment Suite and the Principal Reception Suite (see Turner 1970, pp. 177–213).

Apartment Suite: A suite of interconnecting rooms, situated off a courtyard, where the master of the house presumably resided and/or received guests.

Principal Reception Suite: A suite of interconnecting rooms which served as the formal reception area for guests, and which joined an outer, public courtyard with an inner, private or semipublic courtyard.

* What to say about McGuire Gibson on the occasion of his *Festschrift*, the man who hired me six months out of college to survey and record the Oriental Institute's re-established excavations at Nippur, Iraq, under his directorship, and with whom I have worked at the Institute over the ensuing forty years? I came to the job of surveyor, field architect, and cartographer with a brand new degree in architecture, but no real expertise in either archaeology or ancient Near Eastern studies. I did not know it then but Mac's response to a potential problem for him as director, my lack of archaeological field experience, was dealt with in very typical Mac fashion. He turned to another professional in the field to give me the education and hands-on experience that my schooling had not provided. Mac asked the Nippur Expedition's former architect and excavation director, Carl Haines, to come out of retirement, travel to Nippur one last time, and work alongside me as my private teacher so that I could learn the job from a first-rate expert, while in the field recording my first dig for the Institute's eleventh season at Nippur. With Carl's teaching and Mac's direction the job clicked with me, and that first season turned into eleven more excavation seasons with Mac in Iraq over the next eighteen years. During the past twenty-three years my focus enlarged to the entire Oriental Institute, but my working relationship with Mac has remained the same. I could not have predicted such a long-term relationship back in 1972, but with what I've learned about Mac's insight and perceptive nature in the years since, I believe Mac knew something more when he took a chance on me as his architect. It has been a privilege to work beside you over the years, Mac, and it is an honor to add this contribution to your *Festschrift*. I extend a heartfelt thank you for your friendship, and wish you all the best. I also want to thank Seth Richardson and François Gaudard, both of the University of Chicago, for their encouragement, criticisms, and suggestions while this article was in preparation.

¹ This article is a revision of one chapter of my unpublished master's thesis, *Aspects of Mesopotamian Settlement Geography: An Empirical and Computer-Aided Analysis of Building-Forms, Room Arrangements, and Circulation*, under the supervision of Professor Robert C. Eidt, the University of Wisconsin-Milwaukee, 1981. All Mesopotamian chronological dating and naming conventions have been updated, following Kuhrt 1995. The investigation included Mesopotamian temple, palace, and private house plans. Two building samples were analyzed, based on the number of buildings in each: Large Sample—92 variables for 399 buildings dating from the Ubaid (5000–3750 BC) through the Neo-Babylonian period (626–539 BC); Small Sample—450 variables for 146 buildings dating from the Jamdet Nasr (3100–2900 BC), the Early Dynastic (2900–2296 BC), the Isin-Larsa (2017–1792 BC), and the Neo-Babylonian periods. See Figure 11.1 for all archaeological site locations.

With the Principal Reception Suite building model as our guide, I offer a reappraisal of Sir Leonard Woolley's published interpretation of the E-Ḫursag building plan, suggesting that the presence of a Principal Reception Suite between the building's two primary courtyards infers that Woolley was incorrect in his choice of location for the building's "front door." As a consequence, Woolley mistakenly flipped the public and private areas of the E-Ḫursag. Recognition of a Principal Reception Suite between these two courtyards allows us to reverse his understanding of the public and private areas of the E-Ḫursag, and to further identify in what room of the building to reconstruct the "real" front door.²

A significant portion of the archaeological literature on ancient Mesopotamia concerns analysis of the dwelling unit, be it a temple, palace, or private house.³ A review of this literature reveals, however, that investigations often exhibit a fundamental inadequacy: temple, palace, and to an even greater extent, private house plans, have usually been considered a "single, descriptive" building form⁴ rather than a composite of several building-form attributes. In other words, the frame of reference should not be the building plan as a whole. On the contrary, the focus should be on the building plan as a composite of multiple room arrangements and doorway locations that, collectively, constitute the overall building plan. As a consequence, I suggest that our understanding of ancient Mesopotamian architecture is limited both in its approach and in its interpretation.

Additionally, a review of the Mesopotamian archaeological literature reveals that most building analyses focus on circulation in order to identify traffic patterns within buildings, and to relate those patterns to individual room functions and overall building usage. The variables of building circulation adopted herein, however, do not trace sequences of movement through a building, but rather describe, as distinct spatial units, the location and access criteria of all rooms within a building. In this way building circulation and room arrangements are not interpreted according to prescribed routes determined by room functions. Instead, a collection of several independent building-form attributes defines the circulation characteristics of each room in a building, and of the building as a whole. Admittedly a difficult distinction, it is nonetheless a distinction with a difference, as this article will demonstrate.

Two types of building-form attributes describe room circulation, those pertaining to door placement and those concerned with room location within the overall building plan. The first group of attributes identifies the arrangement of doorways to a room. Similar variables have been employed in previous Mesopotamian building analyses.⁵

As illustrated below, ten door-placement variables are used in my analysis to differentiate (single spatial arrangements) among door-to-wall, door-to-door, and door-to-room relationships. Each square represents a room in the building; each line connecting rooms or room and building-exterior space represents a doorway.

² The room numbers on all building plans are mine, not those used in the original building plan publications; all period dates are approximate, and are included only to illustrate the chronological sequencing of the architectural developments under discussion.

³ A private house is considered a non-institutional residence, typically owned by and organized around a nuclear or extended family kin group.

⁴ The literature contains numerous statements which allude to "house types" and "ideal house plans" as both physical realities in the extant remains and as analytical constructs for the purpose of investigation: "If there was an ideal house plan in the minds of the ancient builders, there was rarely an opportunity to follow it" (McCown and Haines 1967, p. 37); "Generalizations about a basic house type in Eshnunna cannot be made because of the scarcity of excavated houses whose plans were not affected by considerations other than tradition" (Delougaz, Hill, and Lloyd 1967, p. 145); "... the square temple from T. Asmar ... in its essentials is the idealized ordinary house plan" and "its plan conforms to that of the standard private house" (Crawford 1977, pp. 24–25).

⁵ Andrae 1930; Crawford 1977; Delougaz 1942; Loud 1936; Martiny 1928; Müller 1940; Turner 1970.

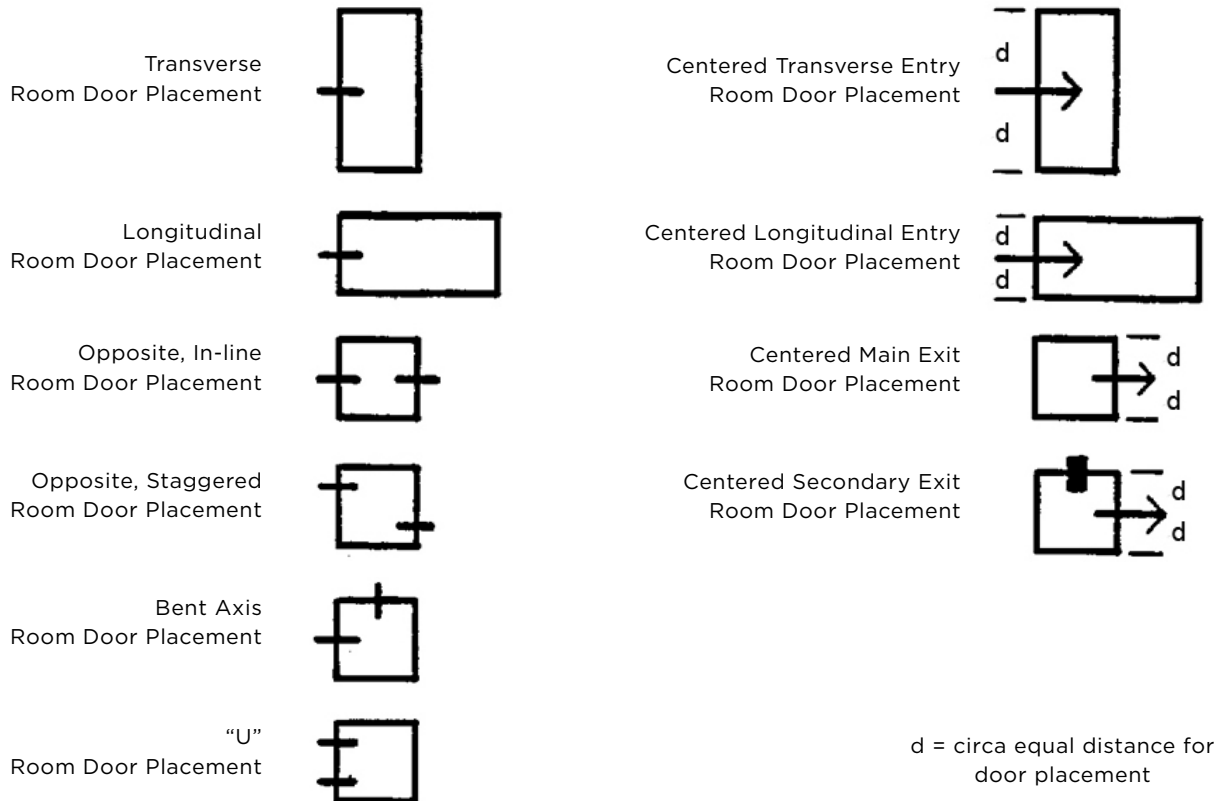


DIAGRAM 11.1. Door-placement variables.

The diagrams below illustrate several examples of these door-placement variables. For the purposes of this article the reader should not be concerned with the specific labels for each room-circulation type in the drawings below, except to note that some rooms maintain the same labels while other rooms change labels in the different plans because of changes in door placements.⁶

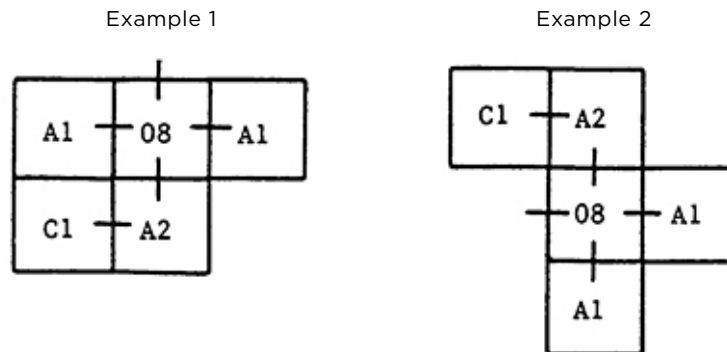


DIAGRAM 11.2. Room arrangement does not alter the circulation variable assigned to each room.

⁶ These individual room labels are some of the additional door-placement and room-circulation variables that were used in the computer-aided analysis that accompanied my unpublished master's thesis. See Appendix 2.

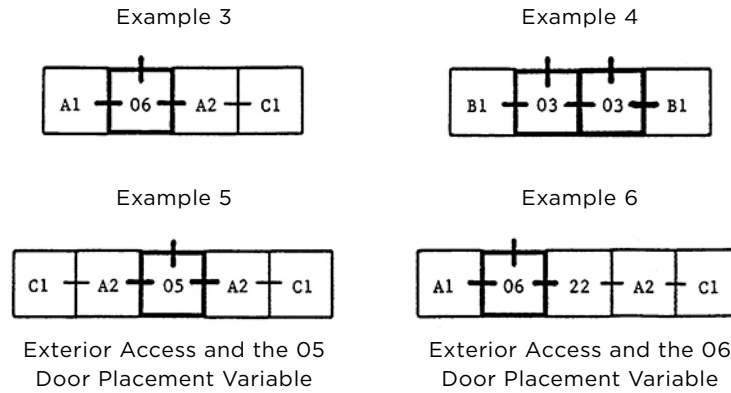


DIAGRAM 11.3. Door placement does alter the circulation variable assigned to each room.

A second group of attributes identifies room-location variances in the building plan, interpreting room-to-room relationships vis-à-vis building circulation. A “subgroup” variable assists in identification of individual room-location and access criteria within an overall building plan.

As illustrated below, a subgroup is a series of interconnecting rooms which are set apart in a building plan by a limited means of access through a single⁷ doorway into one of the subgroup’s rooms.

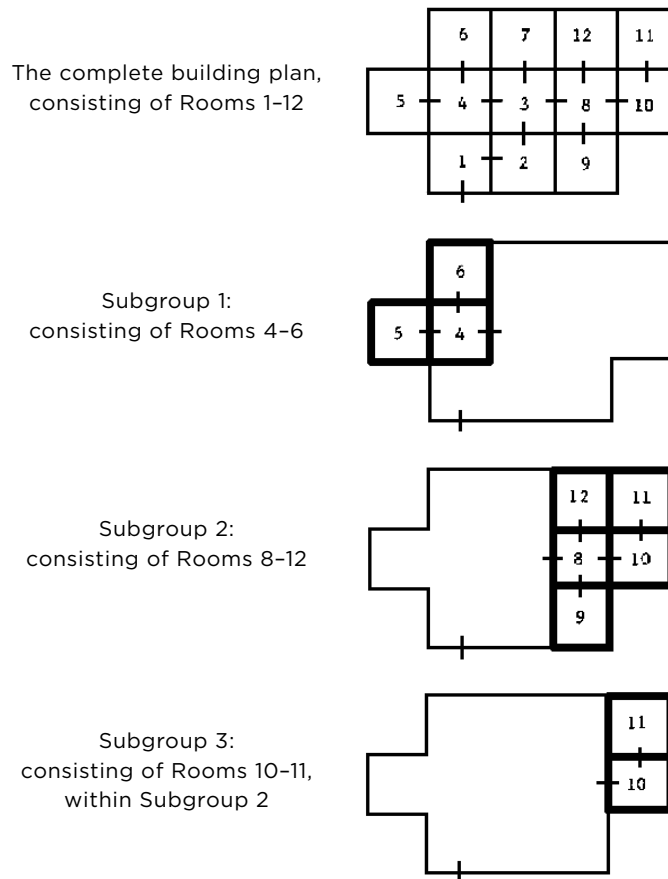
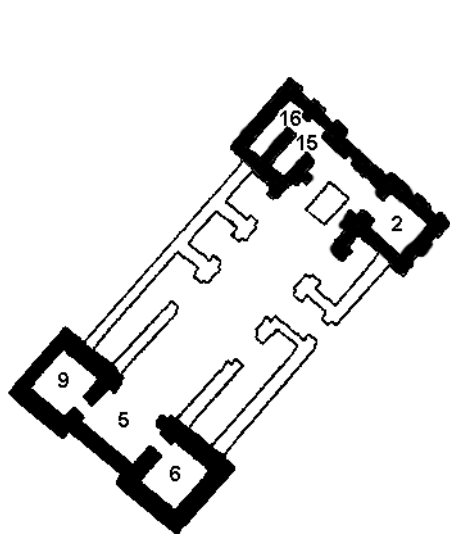


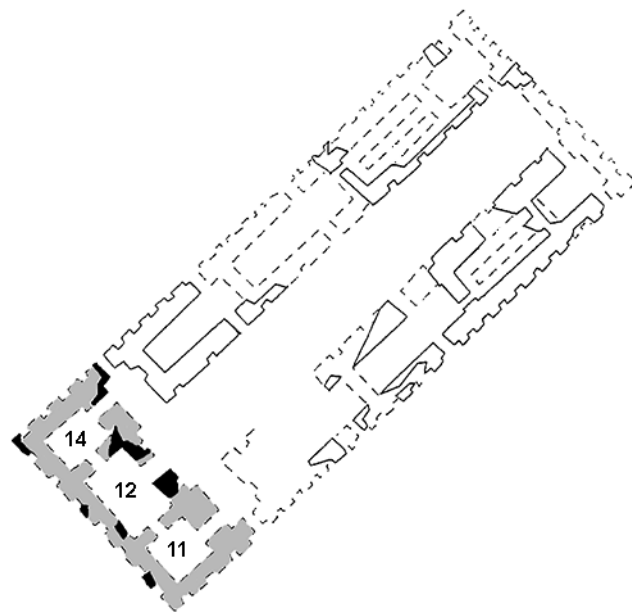
DIAGRAM 11.4. Subgroups within a building plan.

⁷ Exceptions, in which two or more doorways provided access to a room or multiple rooms within the subgroup, do occur, especially in the later periods of Mesopotamian history, but these examples do not alter the subgroup’s identification within the overall building plan.

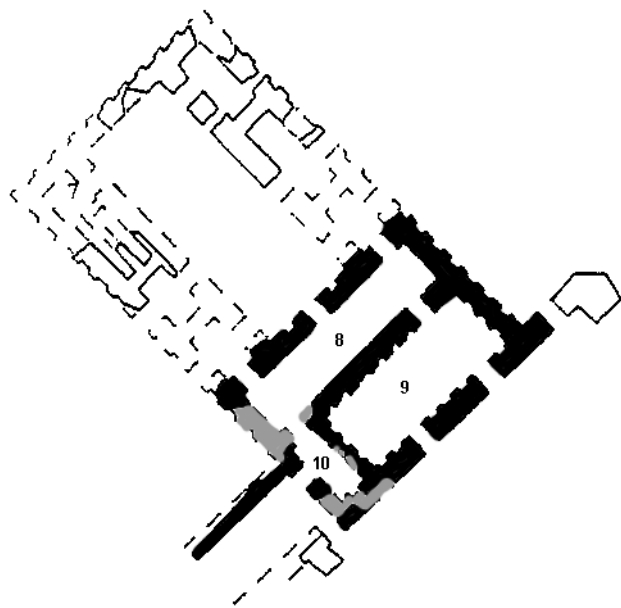
Based on this definition, very early subgroups can be found in the sanctuaries of several Ubaid (5000–3750 BC) and Uruk period (3750–2900 BC) temples, the earliest monumental architecture from southern Mesopotamia.



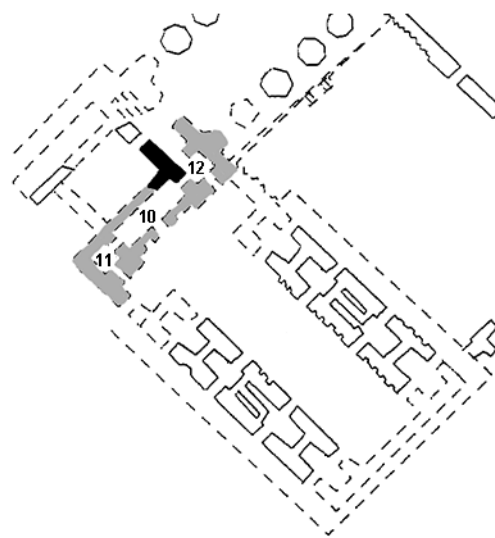
Eridu: Eridu Temple, Level 6, Rooms 5–6, 9 and Rooms 2, 15–16 (after Safar 1947, fig. 3)



Warka: Limestone Temple, Level V or IVB, Rooms 11–12, 14



Warka: Temple F, Level IVB, Rooms 8–10 (after Lenzen 1949, pls. 1 and 2)



Warka: Temple A, Level IVB, Rooms 10–12

Although room sizes, room proportions, room arrangements, and door placements vary within these four early examples of a subgroup, they foreshadow the first fully developed Mesopotamian subgroup of rooms, the Apartment Suite.

Early examples, if not the earliest examples, of a Mesopotamian Apartment Suite date to the Early Dynastic II period (2700–2600 BC). As defined previously, an Apartment Suite is a suite of interconnecting rooms situated off a courtyard. Residence M15/1 is located within the Shara Temple at Tell Agrab. Rooms 4–8 constitute an Apartment Suite situated off Courtyard 1 (after Delougaz and Lloyd 1942, pl. 26).

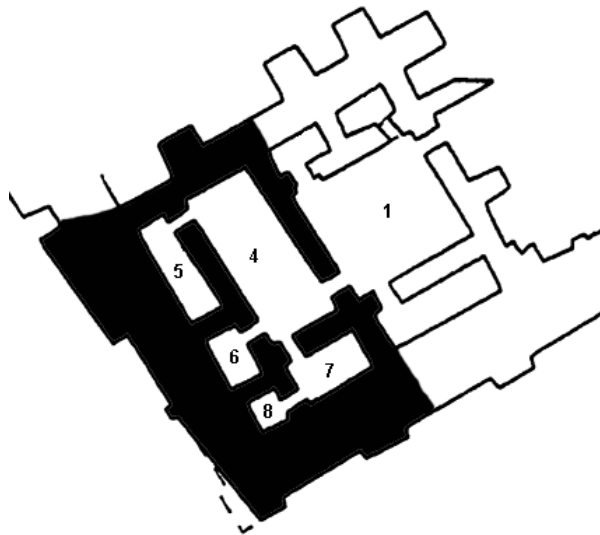


DIAGRAM 11.6. Apartment Suite off Courtyard 1, Residence M15/1 in the Shara Temple at Tell Agrab.

1. Room 4 is the largest room in the suite; it provides access to a majority of rooms in the suite, and it is entered from Courtyard 1 through a transverse wall.
2. Entry to Room 4 is opposite, staggered in relation to the main entry to Courtyard 1.
3. Room 6 is located in the second rank of rooms from Courtyard 1, with an opposite, in-line entry sequence with the courtyard doorway to Room 4.
4. Room 5 is located in the second rank of rooms from Courtyard 1, with an opposite, staggered entry sequence with the courtyard doorway to Room 4.
5. Room 8, also located in the second rank, has a bent axis door placement with Room 4, reached via the larger Room 7; Rooms 7–8 are a single rank Apartment Suite within the larger Apartment Suite Rooms 4–8.

It so happens that rooms such as Room 4 in the Shara Temple, because of their location, size, proportion, and door-placements, have been referred to in the archaeological literature as the Reception Room of an Apartment Suite (see Turner 1970, pp. 177–213).

Reception Room: The primary living room of a private house or palace, presumably where guests were entertained. Quite often the largest room in the building, practically all examples were entered from a Courtyard through their transverse wall.

A second Early Dynastic II period Apartment Suite is located at the nearby site of Khafajah. As with the Shara Temple residence, House D at Khafajah is a residence situated inside a Temple Oval complex, and contains Apartment Suite Rooms 8–10 (after Delougaz 1940, pl. III).

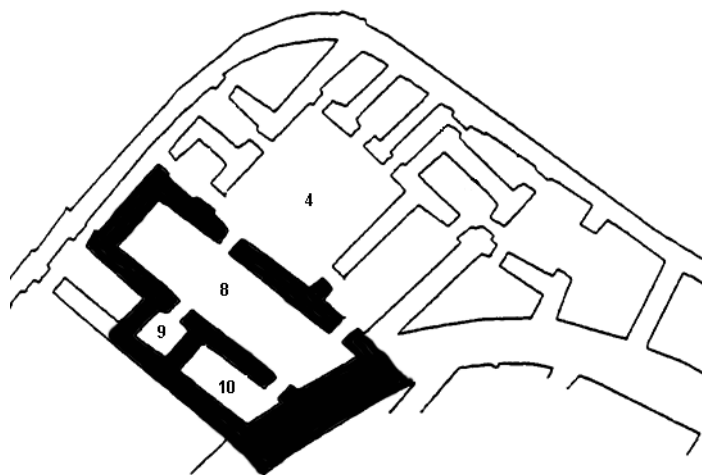


DIAGRAM 11.7. Apartment Suite in House D at Khafajah.

Although slight differences in room arrangements and circulation between the two suites can be recognized, the first, third, and fourth characteristics outlined above for the Shara Temple residence are present in House D: (1) Reception Room 8 is the largest room in the suite, it provides access to all rooms in the suite, and it is entered from Courtyard 4 through a transverse wall; (2) like Room 6 in the Shara Temple residence, Room 9 in House D is located in the second rank of rooms, and contains an opposite, in-line entry sequence with the courtyard doorway to Reception Room 8; and (3) like Room 5 in the Shara Temple residence, Room 10 in House D is located in the second rank of rooms, and contains an opposite, staggered entry sequence with the courtyard doorway to Reception Room 8.

The Earlier Northern Palace at Tell Asmar contained either an Early Dynastic III (2600–2296 BC) or early Akkadian period (2296–2112 BC) Apartment Suite in Rooms 20–21, located off Courtyard 15 (after Delougaz, Hill, and Lloyd 1967, pl. 36).

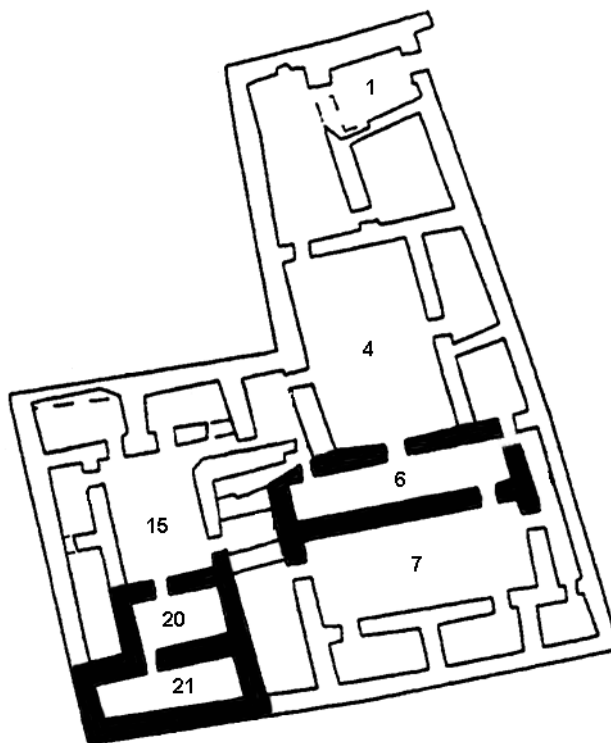


DIAGRAM 11.8. Early Dynastic II (2600–2296 BC) or early Akkadian period (2296–2112 BC) Apartment Suite at the Earlier Northern Palace at Tell Asmar.

Coincidentally, Room 6 of the Earlier Northern Palace is an early example, if not the earliest example, of principal reception in the published literature.⁸ Although the suite consisted of only Room 6, and therefore Room 6 could be labeled a Principal Reception Room, it nonetheless connected Outer Courtyard 4 with Inner Courtyard 7, based on the location of the Earlier Northern Palace's front door into Room 1. Regardless of which naming convention one chooses for this early example, Room 6 has several circulation and room arrangement attributes in common with many later period Principal Reception Suites: (1) it was entered through a door centered in a wall of Courtyard 4; (2) it was a transverse room with its door from Courtyard 4 also centered in the same wall of the room; and (3) it gave access to Courtyard 7 through a staggered doorway located near a corner in the opposing wall of the room.

In the later Akkadian-period rebuilding of the Main Northern Palace, Room 21 continued the room arrangement and circulation access of the Earlier Northern Palace's Room 6. In this Akkadian rebuilding, however, the Principal Reception Suite now illustrates four more of the building-form attributes that would characterize most Principal Reception Suites going forward, culminating in their fullest development in the Neo-Assyrian (934–610 BC) and Neo-Babylonian periods (after Delougaz, Hill, and Lloyd 1967, pl. 37).

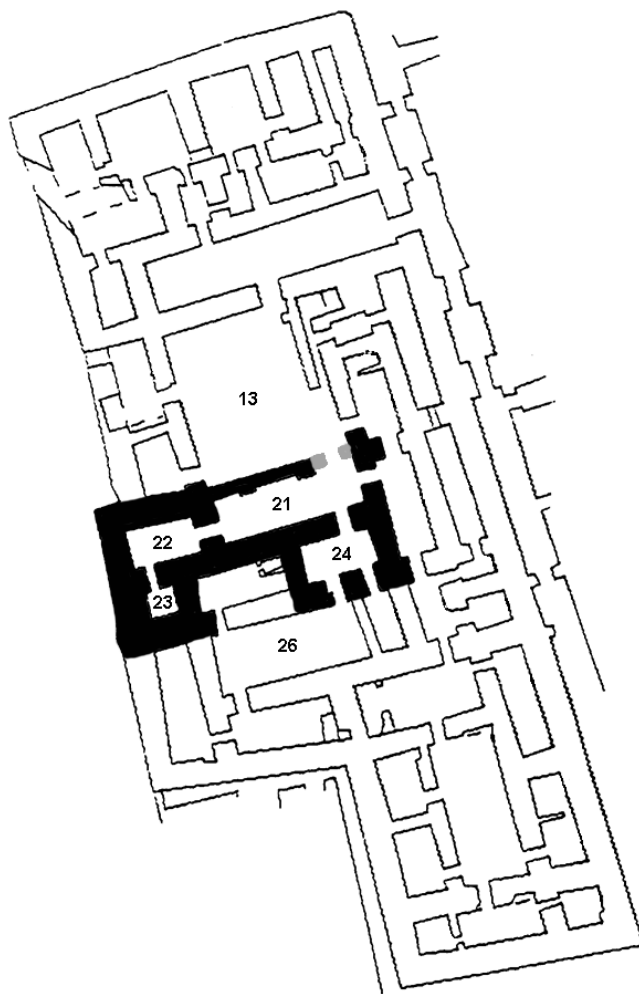


DIAGRAM 11.9. Akkadian-period rebuilding of the Main Northern Palace.

⁸ I am aware that at Warka during the Uruk period in Temple C, Level IVA, Room 14 contained all of the room arrangement and circulation criteria of a Principal Reception room. The author chooses not to consider this very early example as a Principal Reception Suite, however, because two aspects make its function as a Reception Room questionable: (1) its location in the temple proper, and not in a temple residence within the larger temple structure, such as the aforementioned Agrab or Khafajah examples; and (2) it is a single example from a very early date, with no known intervening examples until the Early Dynastic III/Akkadian period.

1. The Principal Reception Suite was formed by two ranks of rooms located between the public, Outer Courtyard 13 and the private, Inner Courtyard 26.
2. The first rank of rooms off Outer Courtyard 13 was Reception Room 21, entered through its transverse, northwest wall.
3. The second rank was a secondary room, Room 24, located with opposite, staggered doorways between Reception Room 21 and Inner Courtyard 26.
4. Based on our definition discussed previously, Rooms 22–23, located in the first and second ranks, respectively, constitute an Apartment Suite within the overall Principal Reception Suite, consisting of two retiring and/or storage rooms; Room 23 had a bent axis door placement via Room 22 to Reception Room 21.

A more formally arranged, Akkadian period Principal Reception Suite can be identified at the site of Assur, 280 km to the northwest of Tell Asmar. In the Akkadian House, the Principal Reception Suite consisted of Principal Reception Room 2, Retiring Room 3, and a secondary room, Room 4, and it was located between the partially excavated Outer Courtyard 1 and Inner Courtyard 5 (after Preusser 1954, pls. 1, 2).

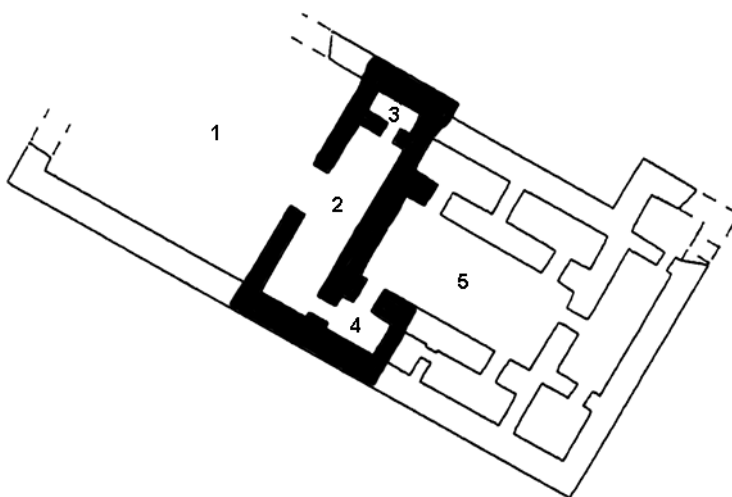


DIAGRAM 11.10. Akkadian-period Principal Reception Suite in the Akkadian House at Assur.

The doorway into Reception Room 2 from Outer Courtyard 1 was rather wide when compared to other house doorways, and was centered in the southeast wall of Outer Courtyard 1. As with the Main Northern Palace discussed above, a secondary room, Room 4, was in the second rank of rooms; its doorway from Room 2 was staggered, constructed in the southeast corner of Reception Room 2; and it had a bent axis door placement with Inner Courtyard 5.

Returning to Tell Asmar, the Outer Courtyard—Principal Reception Suite—Inner Courtyard building-model continued to be used during the Ur III period (2112–2004 BC), as seen in the Palace of the Rulers (after Frankfort, Lloyd, and Jacobsen 1940, pl. 2).

1. Principal Reception Room 15 was located to the northeast of Outer Courtyard 14, with access provided through a 3 m wide doorway with a baked-brick doorsill.
2. As with the previous Akkadian House from Assur, the doorway was centered on the northeast wall of Outer Courtyard 14, but in the Palace of the Rulers the doorway was also centered along the southwest wall of Principal Reception Room 15.
3. The suite included vestibule Room 16 leading from the northwest end of Room 15 to Room 17, which was a stairway to either the roof of the building or a possible second floor Apartment Suite.
4. In the opposite corner of Reception Room 15 a staggered doorway led to secondary room, Room 18, with in-line doorways to Inner Courtyard 19.

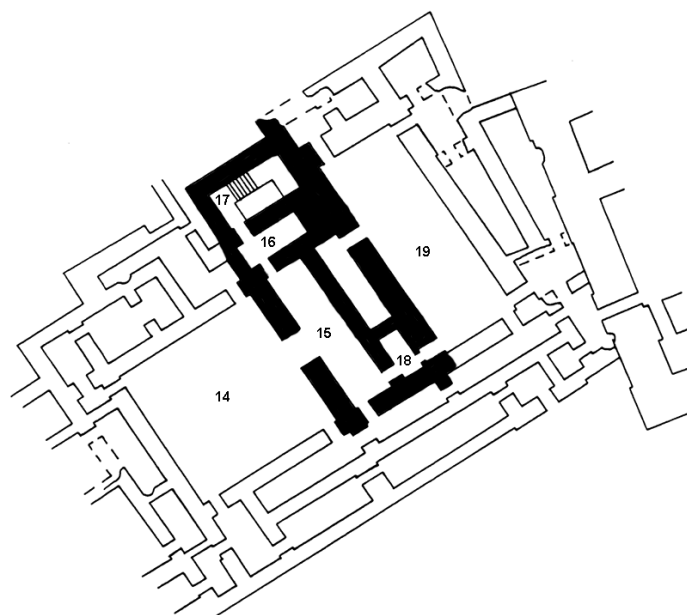


DIAGRAM 11.11. Palace of the Rulers, Tell Asmar.

The Palace of the Rulers' room arrangements parallel our previously defined Principle Reception Suite: a suite of interconnecting rooms which served as the formal reception area for guests, and which joined an outer, public courtyard with an inner, private or semi-public courtyard.

A contemporary parallel to the Palace of the Rulers' Outer Courtyard—Principal Reception Suite—Inner Courtyard room arrangement can be found in my reconstruction of the E-Ḫursag at Ur (after Woolley 1926, pl. 57).

However, this comparison does not agree with the building's originally published interpretation (after Woolley 1926, pl. 57).

Due to destruction by later building levels the original entry into the E-Ḫursag was not preserved. The building was constructed on a platform with a heavily buttressed retaining wall required on its northwest side, eliminating any possible exterior doorway along that façade. No exterior doorway was located in the extant southeast building facade. Sir Leonard Woolley, the principal excavator, therefore, reconstructed the main exterior doorway on the southwest side of the building, into Room 1, on the basis of a fragmentary baked brick pavement and the size of the buttresses on the exterior wall of Room 1.

Assuming the building entry into Room 1, Woolley suggested that the northwest part of the E-Ḫursag, Rooms 1–20, resembled a temple because of its room arrangement. No inscribed doorsockets or foundation deposits were recovered, however. As of the building's publication in 1926, inscribed doorsockets had only been found in temples and, conversely, no temple had been discovered with all its doorsockets uniformly unscribed (see Woolley 1926, pp. 365–401). By Woolley's interpretation Room 18, the largest room in the public portion of the overall building plan, would be the cella of the E-Ḫursag temple. I am not aware of other Mesopotamian temples where this circumstance is duplicated.

Woolley further suggested that the overall plan of the E-Ḫursag was also similar to that of a palace, proposing that:

1. Room 18 was a Throneroom.
2. Courtyards 2 and 13 were where the public came to seek an audience.
3. The northwest part, Rooms 1–20, were the public rooms of the palace, where royal receptions took place.
4. The southeast part was clearly residential, divided into two separate sections, Rooms 21–31 for the ruler and his attendants and Rooms 32–41 either a guest suite or the quarters of a high palace official in residence.

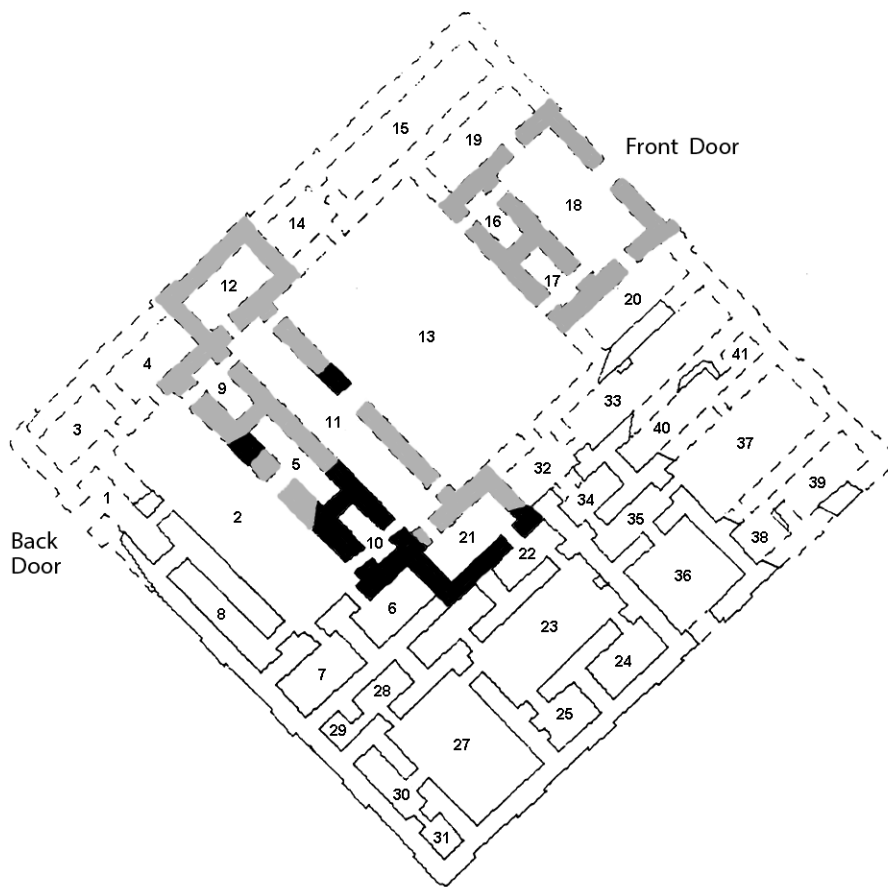


DIAGRAM 11.12. Reconstruction of the E-Hursag, with front door into Room 18.

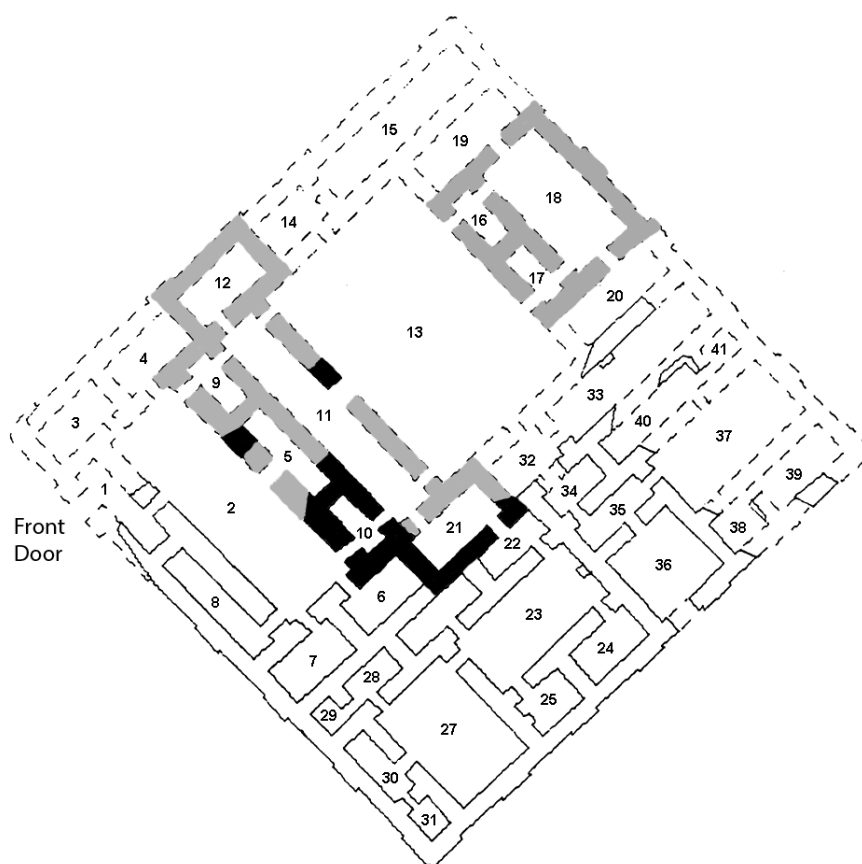


DIAGRAM 11.13. Woolley's publication of the E-Hursag, with front door into Room 1.

I am in agreement, up to a point, with Woolley's third proposition, that the northwest Rooms 1–20 were the “semi-public” and “public” areas, respectively, within the E-Ḫursag, although actual public admittance to the building was probably restricted to Rooms 11–20. I am in complete agreement with Woolley's fourth proposition. Woolley's first and second propositions are incorrect, however, because of his placement of the main building entry into Room 1.

Compare the previously discussed examples of Principal Reception Suites with these later period building plans of equally prominent buildings (see figures below). It is easy to identify many similarities in room arrangements, door placements, and overall building circulation with the E-Ḫursag's building plan:

- Figure 11.2a: Azuzum Building, Rooms 15–19, Tell Asmar, Isin-Larsa period
- Figure 11.2b: Northwest Palace, Rooms 1–4, Nimrud, Neo-Assyrian period
- Figure 11.3: Residence K, Rooms 61–65, Khorsabad, Neo-Assyrian period
- Figure 11.4: Residence J, Rooms 19–25, Khorsabad, Neo-Assyrian period
- Figure 11.5: Residence L, Rooms 27–33, Khorsabad, Neo-Assyrian period
- Figure 11.6: Residence M, Rooms 75–81, Khorsabad, Neo-Assyrian period
- Figure 11.7: Palace of Sennacherib, Rooms 14–23, Nineveh, Neo-Assyrian period

Based on these building plans and the Outer Courtyard—Principal Reception Suite—Inner Courtyard building model, I conclude that the main entry to the E-Ḫursag was on the northeast wall into Room 18.

1. Room 18 is the main entry Vestibule; Rooms 16 and 17 control access to Outer Courtyard 13; Rooms 19 and 20 are “Retiring” Rooms directly off main entry Vestibule Room 18.
2. Courtyard 13 is the public, Outer Courtyard.
3. Rooms 9–12 and 21 are a Principal Reception Suite, located off Courtyard 13.
4. Room 11 is the Principal Reception Room, or Throneroom.
5. Room 12 is a “Retiring” Room located off Principal Reception Room 11.
6. Rooms 9 and 10 are secondary rooms located in the second rank of the Principal Reception Suite.
7. Courtyard 2 was the private or semi-public, Inner Courtyard.
8. Rooms 32–41, located off Outer Courtyard 13, were either a guest suite or the quarters of a high palace official in residence.
9. Rooms 21–31, located off Principal Reception Room 11, were the quarters of the Palace ruler⁹ (Rooms 27–31) and his attendants and/or family (Rooms 21–26).

In support of this interpretation, three features common to both the Palace of the Rulers and my interpretation of the E-Ḫursag plan indicate their overall resemblance, illustrate exact parallels in room arrangements, and document the repetition of the Outer Courtyard—Principal Reception Suite—Inner Courtyard building-model between contemporary buildings situated 320 km apart.

1. The E-Ḫursag's Outer Courtyard 13 provides access to Apartment Suite Rooms 32–41, just as Outer Courtyard 14 provides access to a four room Apartment Suite in the Palace of the Rulers, at Tell Asmar.
2. Rooms 21–31, located off Principal Reception Room 11, are the main Apartment Suite of the E-Ḫursag. This same building-model, an Apartment Suite situated directly off the Principal Reception Room,

⁹ A praise poem of Shulgi (Shulgi B), from Electronic Text Corpus of Sumerian Literature (ETCSL): c2.4.2.02.

“For that house, I am the right man to step over the threshold. I am the man whose name has been chosen by Nanna. I am the steward of Enlil's temple, the domestic slave of An. I am Shulgi, and my house E-Ḫursag is the palace of palaces. My royal residence is above all praise; I made it tower up like a lapis-lazuli mountain.”

A hymn to Nanna (Nanna O), from Electronic Text Corpus of Sumerian Literature (ETCSL): c.4.13.15.

“...to the E-Hursag, the house of the king...”

may also be present in the Palace of the Rulers, at Tell Asmar. In the latter, however, site conditions would seem to have required construction of a second story Apartment Suite, reached in this case via the stairway found in Room 17, off Principal Reception Room 15.

3. The E-Ḫursag's Room 5, located off Inner Courtyard 2, is an exact parallel to Room 20 of the Palace of the Rulers, located off Inner Courtyard 19, both having an 'U' room door placement for entry into their respective courtyards and entry into Rooms 5 and 20.

I have presented numerous architectural examples, based on the presence of an Outer Courtyard—Principal Reception Suite—Inner Courtyard building model, in support of an alternate interpretation to the one published by Woolley in 1926 for the placement of the “front door” of the E-Ḫursag. Why is this worthy of mention, and what is the importance of such a conclusion to the larger field of ancient Near Eastern studies after 80+ years?

At the micro-scale (i.e., focusing solely on the interpretation of the E-Ḫursag's building plan), misinterpreting the location of the building's main entrance, as in this case, completely flips the public and private components of the building, and reverses the functional interpretation of several rooms in the building. This circumstance has consequences when it comes to explaining how the building was used, and, possibly, what function the building served within the larger community. During his reign, the titles of King and God were both conferred on Shulgi. His building at Ur, the E-Ḫursag, was both a temple¹⁰ and a royal residence (see Woolley 1926, pp. 365–401) in the ancient cuneiform texts. This analysis has shown, however, a preference for the Outer Courtyard—Principal Reception Suite—Inner Courtyard building model for the E-Ḫursag's building plan, the traditional palace and large private house building model in the ancient Mesopotamian archaeological record.

At the macro-scale, what is the significance of this investigation's conclusions for ancient Near Eastern studies in general? Ancient Mesopotamian architecture was one component within a broader range of material culture that included pottery, sculpture, and cylinder seals. It is quite apparent from the archaeological literature that tradition and the use of models played a significant role in the development of these latter categories of artifacts. Tradition is directly associated with: (1) pottery forms, surface finish, and decoration;¹¹ (2) artistic rendering and the subject matter of sculpture;¹² and (3) stylistic development and the subject matter of cylinder seal design (see Frankfort 1939a; Frankfort 1955). I believe this analysis has shown that we can add Mesopotamian architectural forms to this list of material culture derived from traditional practices and the use of models!

In the preceding pages I have attempted to assess constancy and change in door placements, room arrangements, and building circulation pertaining to two traditional Mesopotamian building models, the Apartment Suite and the Principal Reception Suite. Elsewhere, I have stated that

By the first millennium BC Mesopotamian architecture had developed a readily identifiable characteristic common to all palaces and large private houses: a suite of interconnecting rooms, the largest of which was directly accessible from a court through its long [transverse] wall. (Sanders 1979)

This investigation has shown that this Mesopotamian building model, one that was “fully developed” by the Neo-Assyrian and Neo-Babylonian periods of the first millennium BC, had its origins in the far distant Early Dynastic period of the third millennium BC, with hints of even earlier roots going back to the Ubaid period of the sixth or fifth millennium BC. The ability to use architectural evidence to identify room arrangements and building circulation models that were culturally relevant, due to their repeated use, within the larger archaeological record, and to do so over a long time frame, is a significant tool for expanding our understanding of ancient Mesopotamian society and its history (see Appendix 3).

Generalizing further, this investigation strongly indicates that Mesopotamian temples, palaces, and private houses were, to a large extent, developed using traditional, vernacular design methods and processes

¹⁰ See George 1993, p. 100, entry 474, on the E-Ḫursag defined as the “temple of the deified Shulgi at Ur.”

¹¹ See Delougaz 1952, pp. 1–33; Perkins 1949; Porada 1954; Hansen 1954.

¹² See Frankfort 1939b, pp. 34–36; Frankfort 1943, p. 2.

(see Appendix 1).¹³ One explanation of the detailed operation of the vernacular design process is outlined in Alexander (1964). Two characteristics of the vernacular design process are important for the interpretation of Mesopotamian building remains: (1) the idea of resistance to change; and (2) the process of correction whereby change is effected. Because tradition is accepted as the major building-form determinant, individuals change existing building forms only when they are inadequate and require correction (Alexander 1964, p. 48). Problems provide an incentive for change, lack of problems do not. As the builder and occupant are usually the same person “there is a special closeness of contact between man and form which leads to constant rearrangement of unsatisfactory details,” such that “anything which needs to be changed is changed at once” (Alexander 1964, p. 49). According to Alexander, traditional resistance to change dictates that only those building-form attributes that need to be changed will be changed, and an immediate response to problems insures their correction as soon as they occur and are recognized.¹⁴

I have tried to show that the ancient Mesopotamian built environment was conceived and constructed largely as “architecture without architects.” Always adapting to building site conditions and other practical considerations, the ancient Mesopotamian built environment was organized around building models that were developed, maintained, passed down, and modified from the fourth through the first millennium BC. I further have tried to show how the vernacular design process can help provide explanations for this constancy and change in Mesopotamian building plans.

¹³ Similar conclusions can be found in Loud 1936; Delougaz and Lloyd 1942, pp. 229–312; Müller 1940.

¹⁴ Argued more fully in Sanders 1979, pp. 61–62.

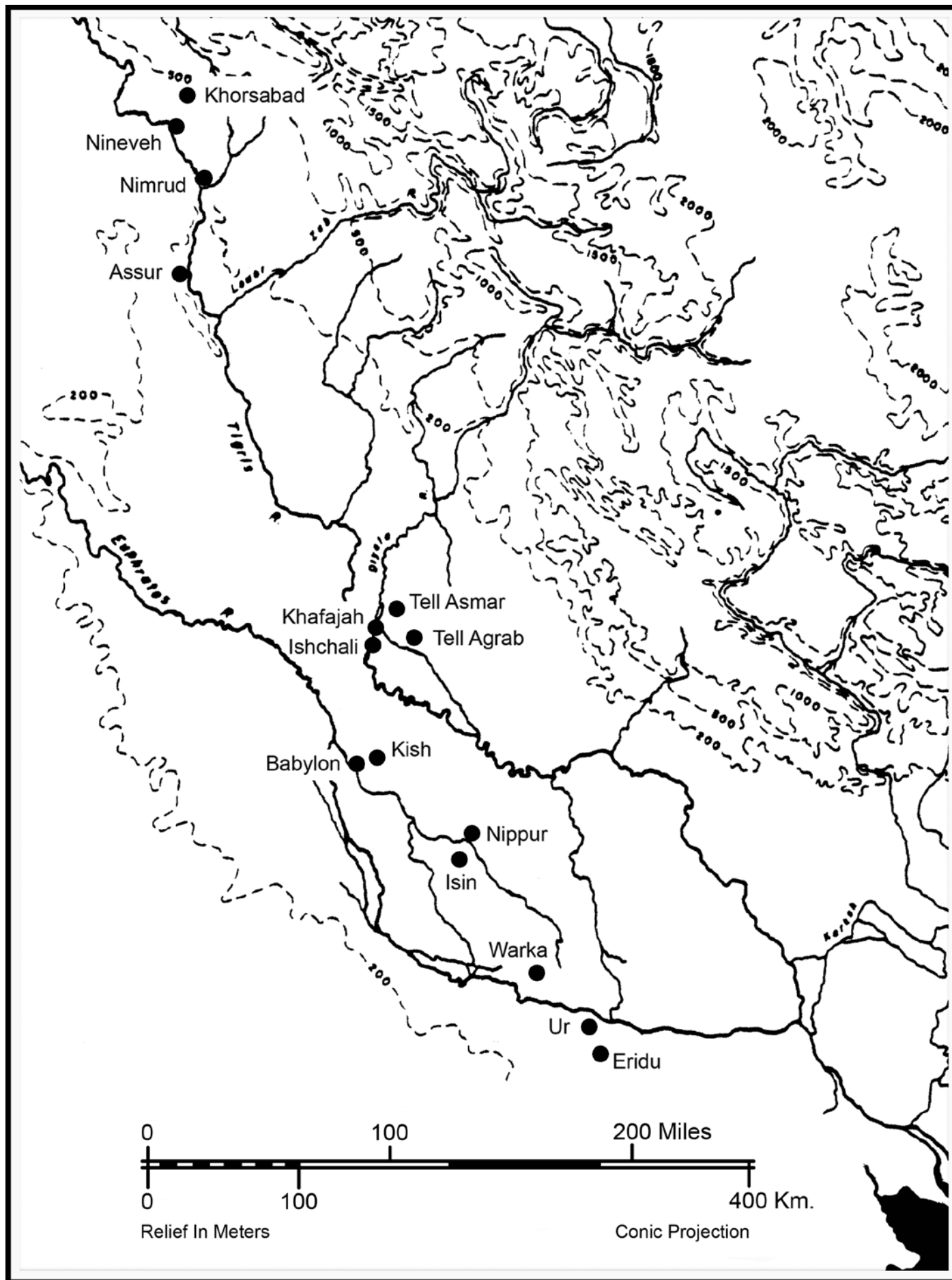


FIGURE 11.1. Map of Mesopotamian archaeological sites.

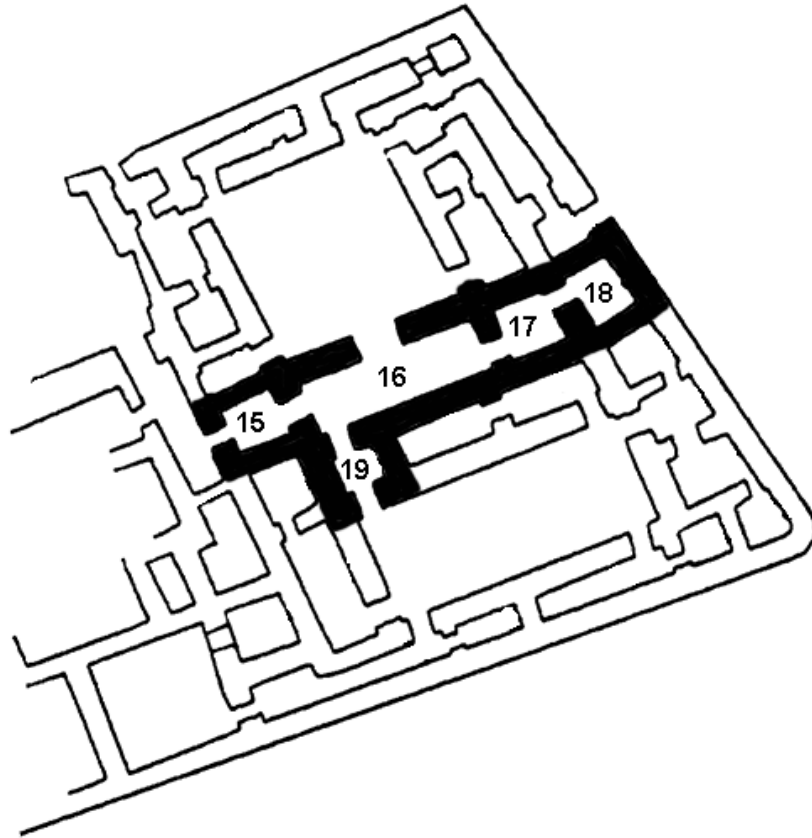


FIGURE 11.2a. Azuzum Building, Rooms 15-19, Tell Asmar, Isin-Larsa period.
(After Delougaz, Hill, and Lloyd 1967, pl. 45)

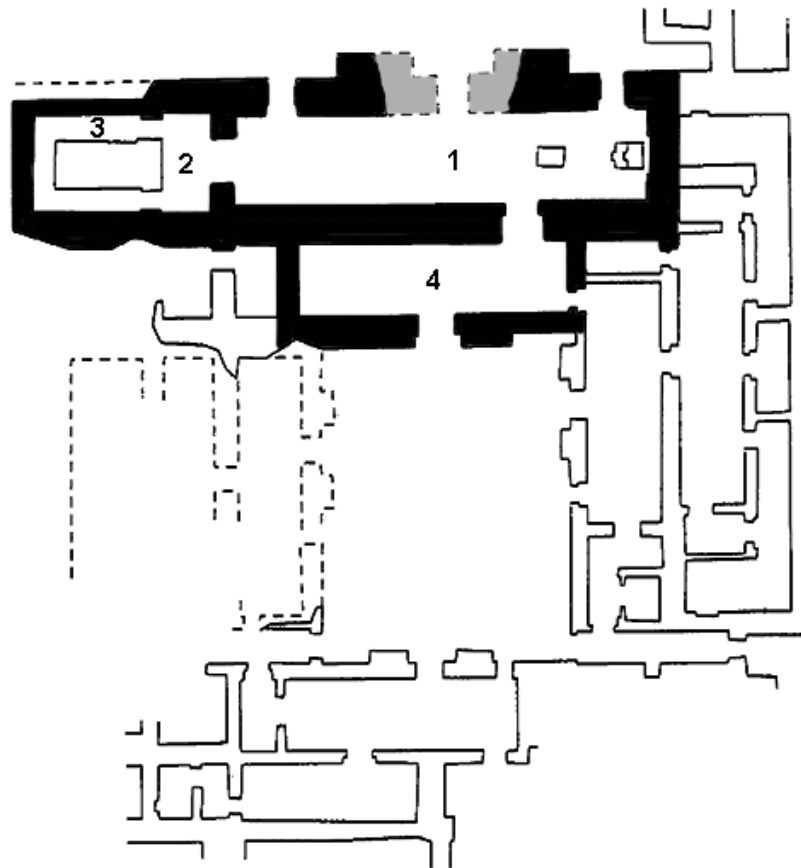


FIGURE 11.2b. Northwest Palace, Rooms 1-4, Nimrud, Neo-Assyrian period.
(After Mallowan 1966, plan number 3)

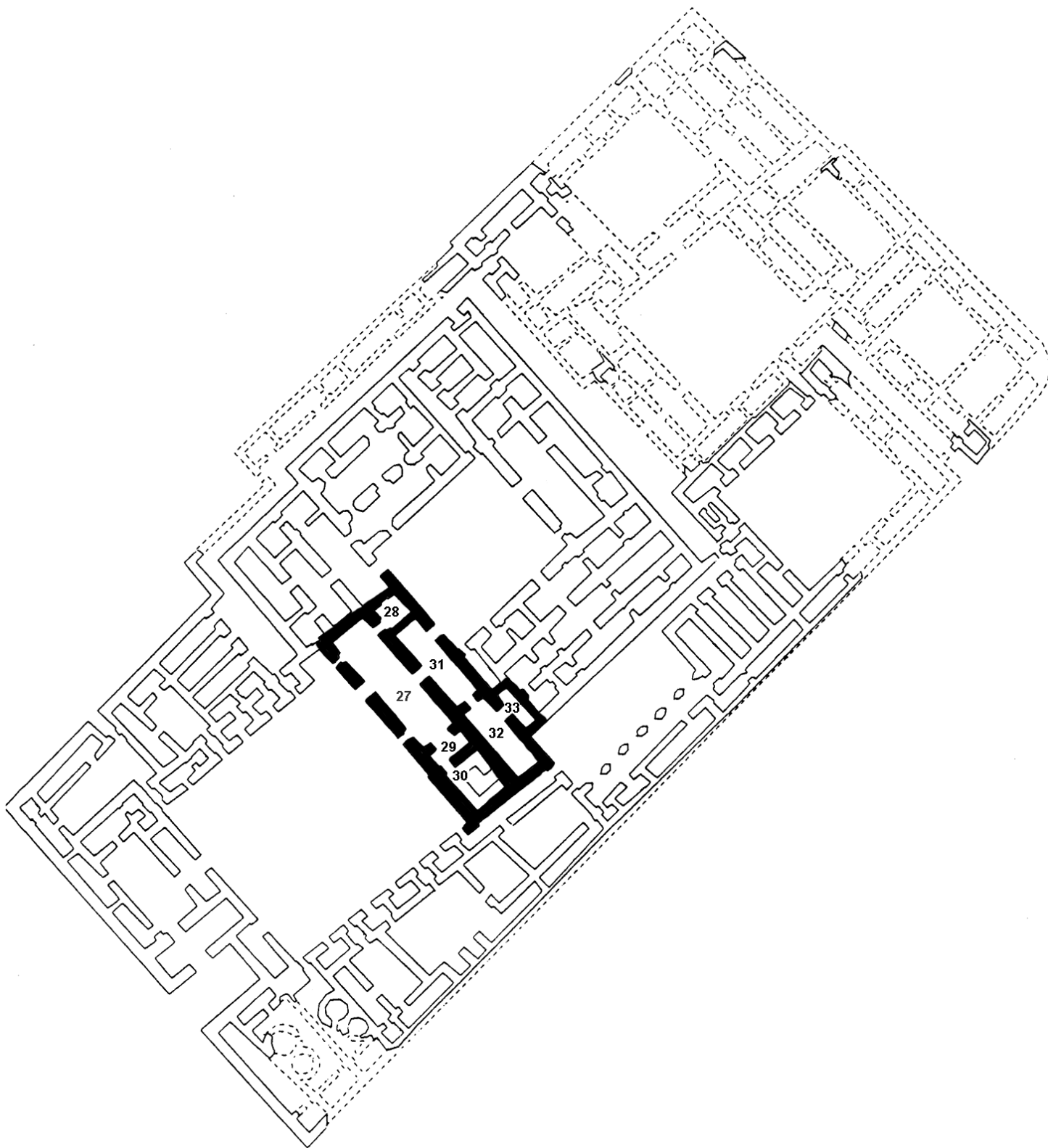


FIGURE 11.3. Residence K, Rooms 61-65, Khorsabad, Neo-Assyrian period.
(After Loud and Altman 1938, pls. 70, 71)

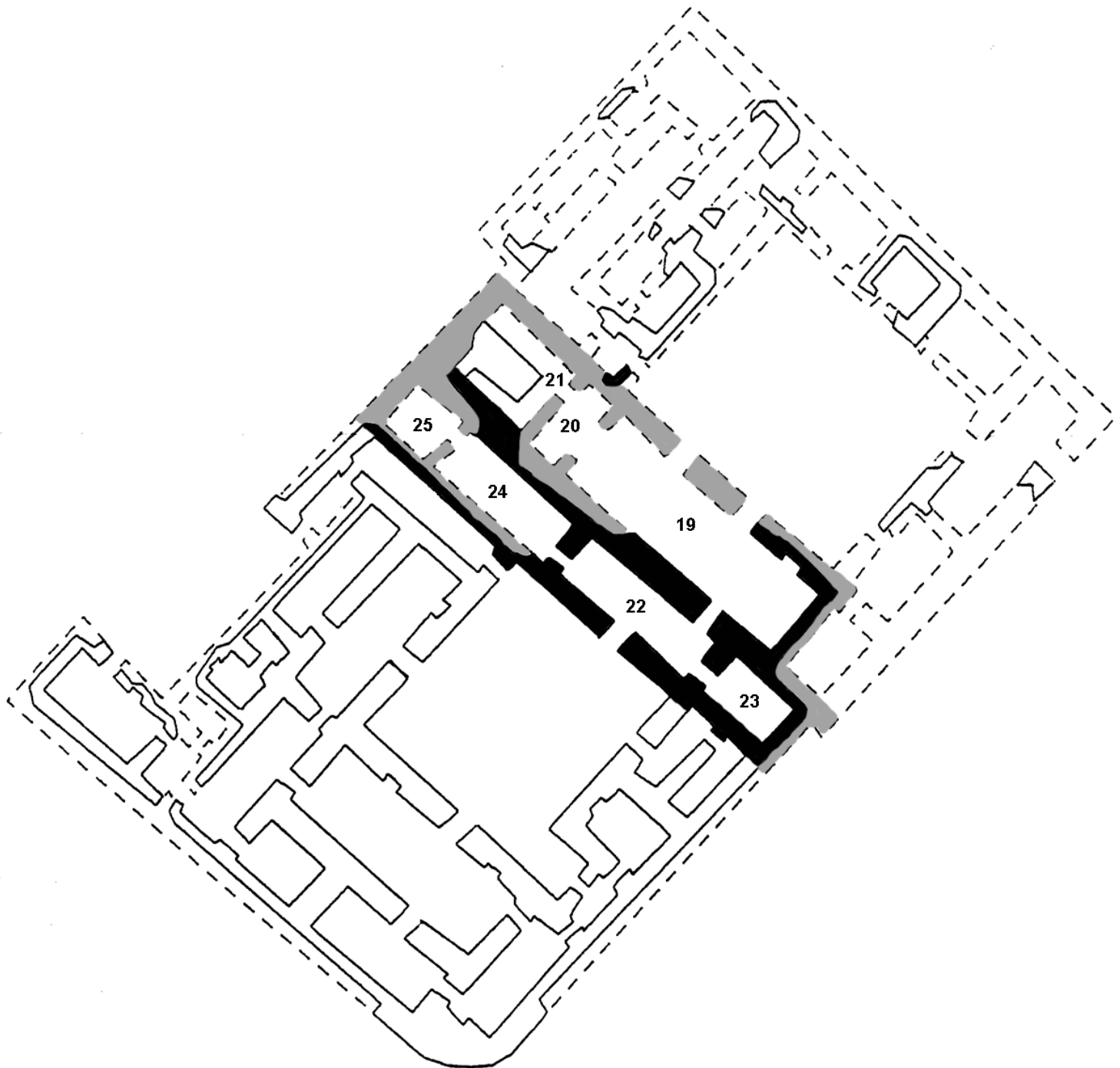


FIGURE 11.4. Residence J, Rooms 19-25, Khorsabad, Neo-Assyrian period.
(After Loud and Altman 1938, pls. 70, 71)

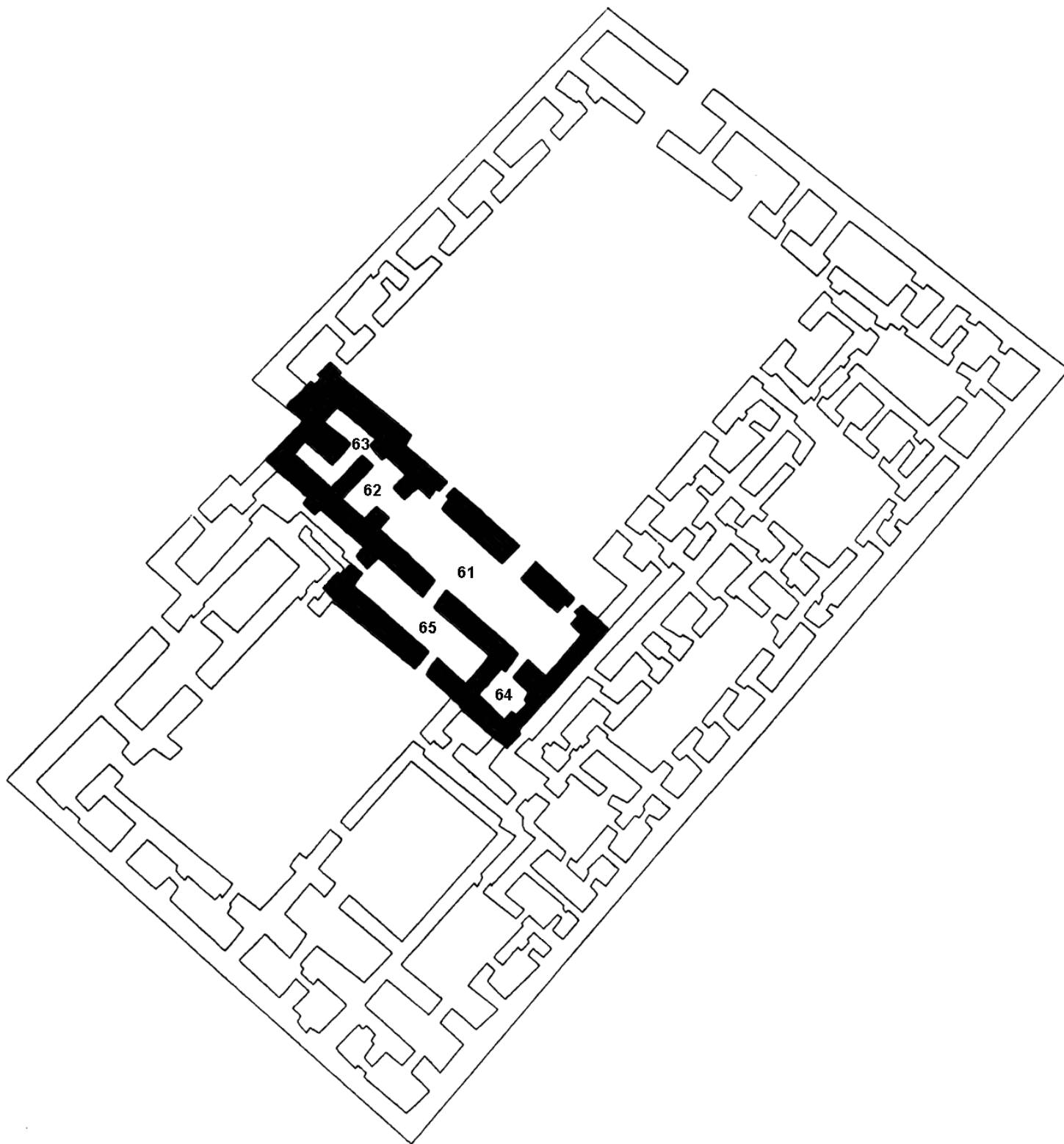


FIGURE 11.5. Residence L, Rooms 27-33, Khorsabad, Neo-Assyrian period.
(After Loud and Altman 1938, pls. 70, 72)

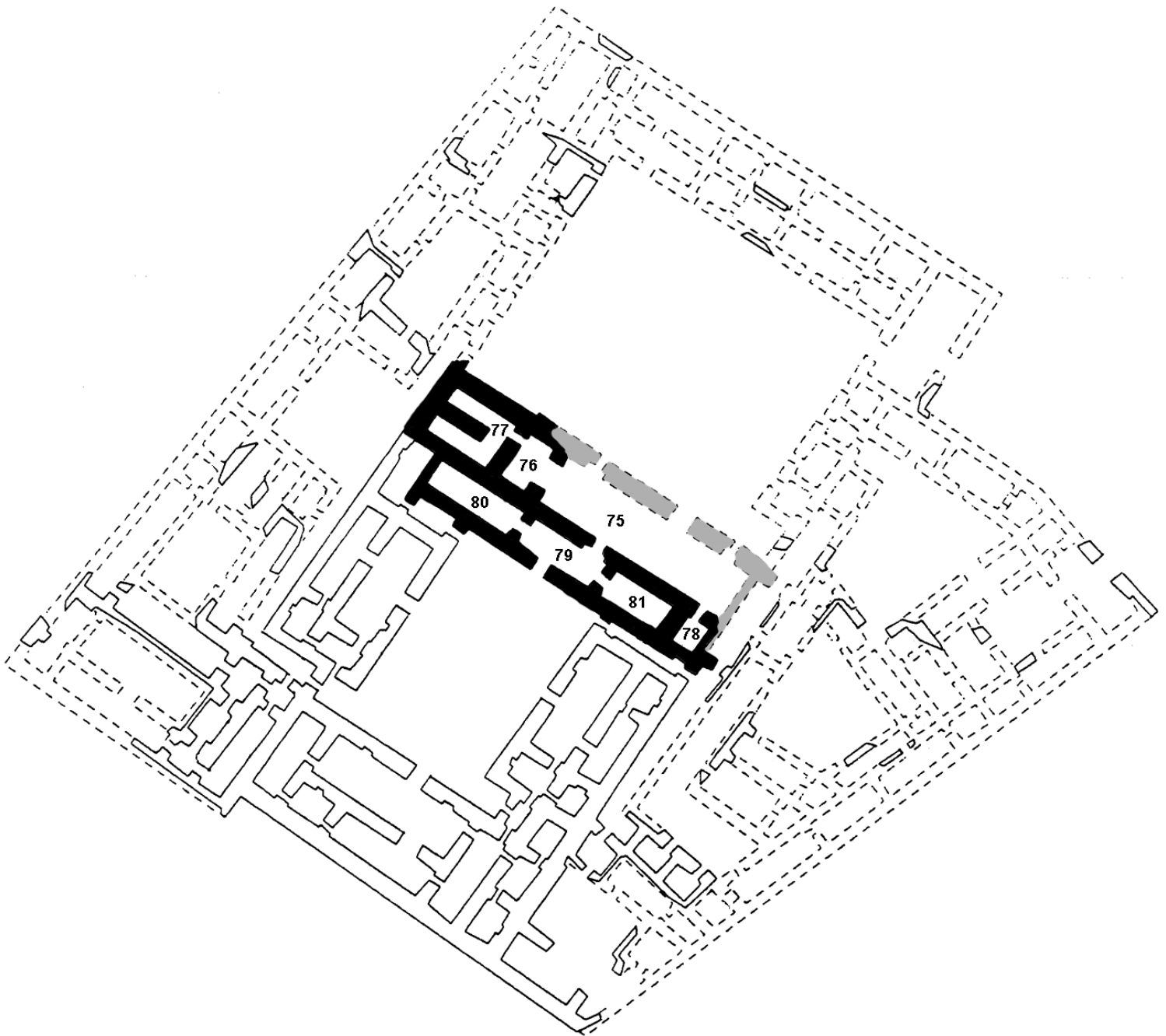


FIGURE 11.6. Residence M, Rooms 75-81, Khorsabad, Neo-Assyrian period.
(After Loud and Altman 1938, pls. 70, 73)

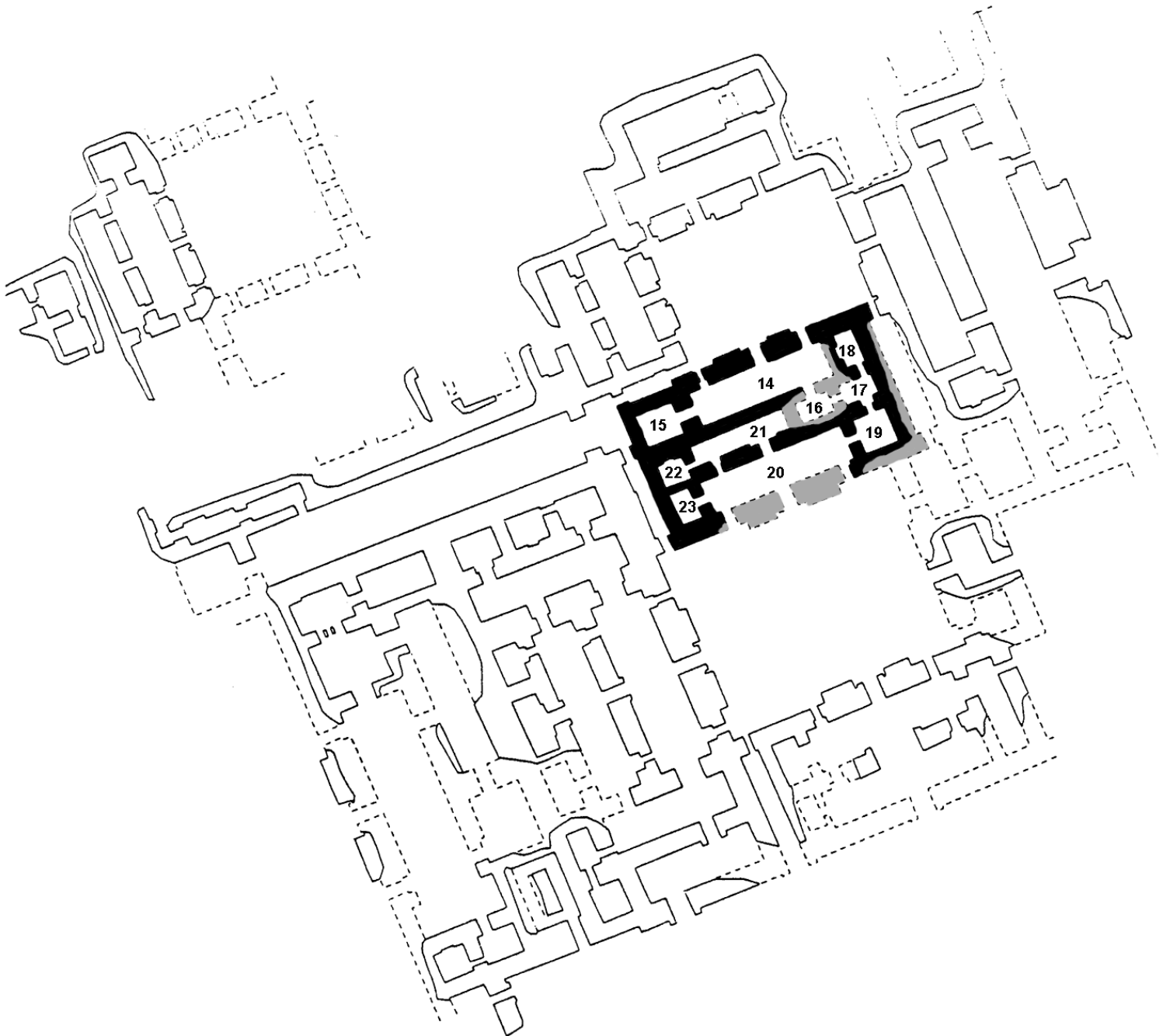


FIGURE 11.7. Palace of Sennacherib, Rooms 14-23, Nineveh, Neo-Assyrian period.
(After Layard 1871, plan number 1)

APPENDIX 1

The architectural decision-making process provides an explanation for the constancy and change of Mesopotamian building plans from the fourth through the first millennium BC. Building construction requires agreement on a series of architectural design decisions regarding such variables as building materials and construction techniques, area and volume, access and circulation, and the arrangement of spaces and building activities. The societal values and mechanisms that collectively influence and facilitate these decisions pass from generation to generation as a decision-making process.

Two distinct methods of decision making are recognized in the architectural literature:¹⁵ (1) traditional or vernacular; and (2) formal design processes.¹⁶ Their salient features can be identified as follows:

1. The vernacular design process involves the use of models that are derived from the collaboration of makers and users of buildings as passed on over many generations. Because knowledge of the models is shared by everyone, and their construction is straightforward, there is little need for drawings, and craftsman play a part only in so far as they have a more detailed knowledge of the models. The aesthetic quality is not specially created for each building, it is traditional and handed down through generations (see Rapoport 1969, p. 6).
2. The formal design process is structured around explicit rules and procedures which are conceived, applied, and evaluated by specialists: the building designer or architect, the interior designer, the landscape architect, the urban planner, the building contractor. Because these rules and procedures are individually applied to each design problem all buildings become original contexts worthy of design merit and attention.

Within the vernacular process the repeated application of specific building models results in the need to learn only several, or at most a limited number of, familiar building forms and designs.¹⁷ The formal design process, on the other hand, requires that building specialists constantly deal with problems and solutions which are either entirely new or are reinterpretations of previous conditions. The mere copying of “traditional” building forms is not viewed as an adequate solution to building design. In order for these specialists to introduce innovations and modifications in accord with their design plans, ideas about how and why specific building forms are used must be introduced. Such a practice results in architectural teaching that is based on explicit general principles of function rather than on unmentioned, specific traditions of building-form design (see Alexander 1964, pp. 35–36). Consequently, certain underlying disparities in building forms are attributable to differences in the design process that produced them.

As early as the fourth millennium BC, the use of both design procedures can be detected in the architecture of ancient Mesopotamia. In general, nontraditional building forms and construction details were rarely applied to individual private houses, whereas the special or unique articulation of Mesopotamian temples and palaces was a common practice from the Ubaid through the Neo-Babylonian period. The use of artisans and distinctive building details are evident in Mesopotamian temple and palace façade treatments and construction techniques. Notable examples are listed in table 11.1.

There is little doubt that distinctive façade treatments and the often formal, monumental character of Mesopotamian public architecture was itself a tradition or model that was passed on through generations. The application of this tradition, though, was selective. Temples and palaces did not always receive the same form of façade articulation, and not all examples of either building type were equally embellished throughout Mesopotamian history. Turning to overall planning, room arrangements, and building circulation, however, the accompanying analysis strongly indicates the common use of traditional building forms and vernacular design methods in the development of Mesopotamian temple, palace, and private house building models.

Previously I referred to statements by Christopher Alexander regarding characteristics of the vernacular design process:

¹⁵ A third category was defined in Rapoport 1969, p. 8. For the purpose of this analysis, however, Rapoport’s first two classifications have been combined into one group.

¹⁶ Such a distinction is an analytical construct. Actual differences in design methodologies are by no means as marked or exclusive as has been suggested here. These definitions have been exaggerated in order to accentuate certain principles that are fundamental to my analysis.

¹⁷ See Rapoport 1969, p. 4; Alexander 1964, p. 3.

(1) The idea of resistance to change; and (2) the process of correction whereby change is effected. Problems provide an incentive for change, lack of problems do not. As the builder and occupant are usually the same person “there is a special closeness of contact between man and form which leads to constant rearrangement of unsatisfactory details,” such that “anything which needs to be changed is changed at once” (Alexander 1964, p. 49).

Four additional Mesopotamian examples widely separated in time and location will serve to illustrate these two practices in the archaeological record.

1. At Khafajah, the Early Dynastic II Sin Temple VIII, Level 6,5 and Sin Temple IX, Level 4,3 are practically identical in plan except for two alterations in room circulation. One of these involved a change in access to storage (?) Room 10 from Room 8, the Cella of the temple. The connecting doorway was shifted from a transverse wall in Level 6,5 to a longitudinal wall in Level 4,3. The latter change made Room 10 smaller, so that an alcove at the northwest end of Room 8 could provide a bent axis approach to Room 10 from behind, and out of sight of, the altar area in Room 8. It appears the need to remove the doorway from view, or require a bent axis sequence to Room 10 from Room 8, or both, were more desirable than the loss of floor space in Room 10 (after Delougaz and Lloyd 1942, pls. 10, 11).

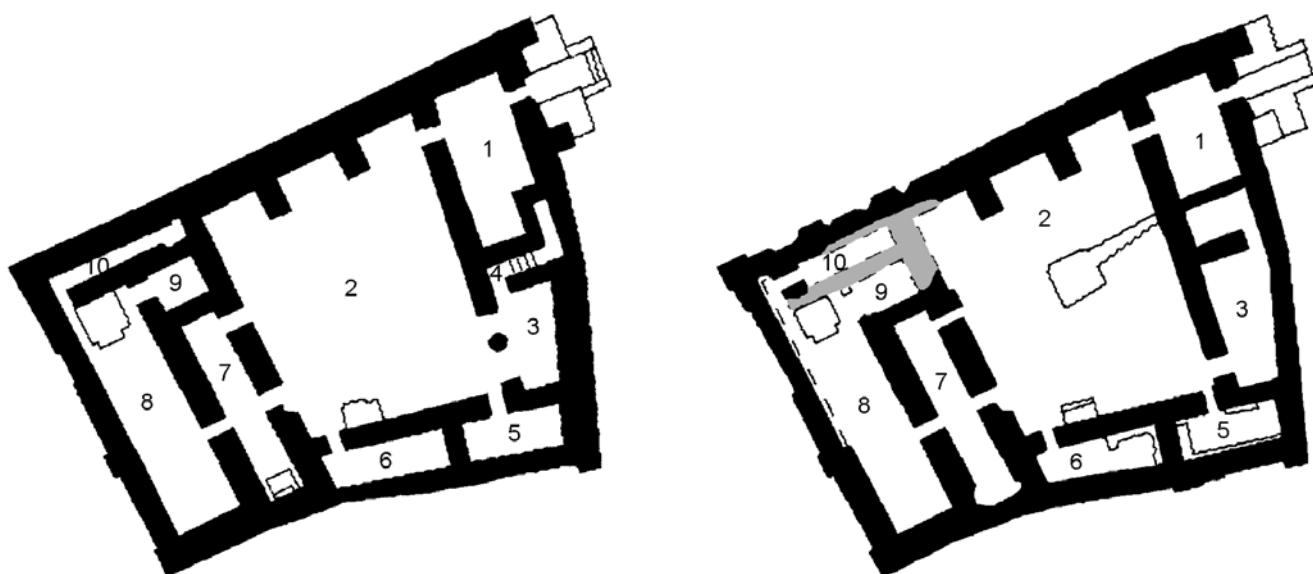


DIAGRAM 11.14. Left: Sin Temple VIII, Level 6,5 (earlier); right: Sin Temple IX, Level 4,3 (later).

2. At Nippur, during the Old Babylonian (1792–1595 BC) period, in area TA, Level X, in House F at Floor 3, no doorway existed connecting Room 6 with Room 3. During the rebuilding of House F at Floor 2, a connecting doorway between Room 6 and Room 3 was opened, providing direct access between these rooms without going through Room 2. Sometime before the next major rebuilding level, at Floor 1, however, the doorway was blocked at what the excavators called post-Floor 2, returning Rooms 6 and 3 to their original door placements from the earlier Floor 3 building plan. Apparently, the auxiliary access between Rooms 6 and 3 was no longer needed shortly after it was constructed, or it was considered an inadequate or inappropriate building circulation change, and the doorway was blocked before the next overall rebuilding phase was undertaken at Floor 1 (after McCown and Haines 1967, pl. 71):

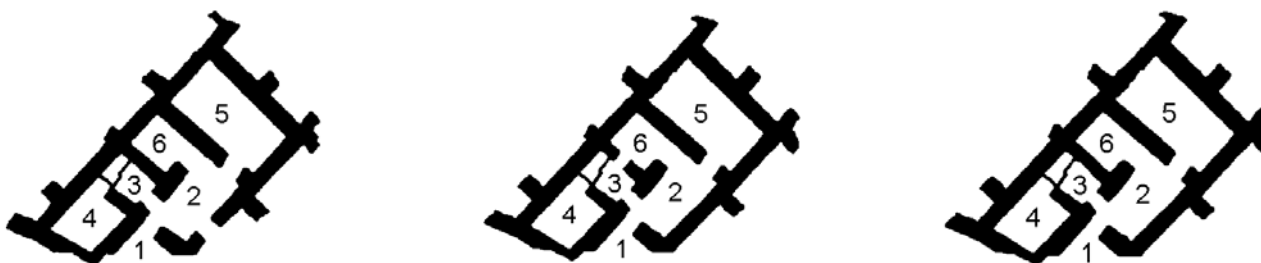


DIAGRAM 11.15. House F at Nippur (left to right): Floor 3; Floor 2; post-Floor 2.



DIAGRAM 11.16. House J at Nippur (left to right): Floors 3, 2; Floor 1; post-Floor 1.

3. An almost identical short term circulation change can be found in a contemporary, neighboring building, House J, in area TA, Level X, at Nippur, during the Old Babylonian period. House J was rebuilt at Floor 1 with few changes made to the earlier house plans of Floors 3 and 2, except for a new doorway that was opened through the northeast wall of Room 1, providing access to new Room 4. The space now occupied by Room 4 was previously exterior building space. As with House F above, this change in building circulation was reversed almost immediately. After little use the doorway connecting Rooms 1 and 4 was blocked on an intermediate stratum prior to the next, later building level of the house (after McCown and Haines 1967, pls. 71, 72):
4. Room 7 in House D, TB II Floor 1, at Nippur during the Old Babylonian period, was a single access room located directly off Courtyard 2. Access to the house and to Courtyard 2 was provided via Room 1, an entry vestibule. During the next building level, TB I, Floor 2, the courtyard access to Room 7 was blocked and a new doorway to Room 7 from entry vestibule Room 1 was opened. After this door placement change, Room 7 became a secondary room off the house's entry vestibule. It should be noted that the use of Room 7 as a secondary room off the entry vestibule was not in the original building plan but was, instead, the result of a later circulation change, indicating its choice was a considered alteration to the building plan only after the building had been occupied for some time.

In the next building phase, TB I, Floor 1, Room 7 was reopened as a room solely accessed directly off Courtyard 2, and Room 1 returned to its original entry vestibule circulation arrangement. It should be mentioned that during the time Room 7 vacillated between courtyard access and entry vestibule access, only three other alterations to the overall house plan are evident: (a) the dividing wall between Rooms 8 and 10 was shifted in the rebuilding at TB I, Floor 1, doubling the size of Room 10 at the expense of Room 8; (b) it is questionable whether the dividing wall between Rooms 8 and 9 was rebuilt during level TB I; and (c) the wall between Rooms 3 and 4 was removed, so that Room 3 disappeared in level TB I, Floor 2, and Room 4 gained square footage and two doorways into it from Courtyard 2 (after McCown and Haines 1967, pls. 63, 64).



DIAGRAM 11.17. House D at Nippur (left to right): TB II, Floor 1; TB I, Floor 2; TB I, Floor 1

Based on these four examples, the vernacular design practice of correcting building-form problems as soon as they are recognized, in conjunction with a resistance to changes that do not contribute to such problem resolutions, appears to have been an important mechanism of the building-form tradition by which ancient Mesopotamian room arrangements and door placements were produced, maintained, and modified.

Table 11.1. Mesopotamian buildings with articulated façade treatments

Ubaid Period	Eridu Temple, Level 8, at Eridu Eridu Temple, Level 7, at Eridu Eridu Temple, Level 6, at Eridu
Uruk Period	Limestone Temple, Level V or IVB, at Warka Temple F, Level IV B, at Warka Painted Temple, at Tell Uqair
Jamdat Nasr Period	White Temple, Level III, at Warka
Early Dynastic Period	Sin Temple VI, Level 10,9, at Khafajah Sin Temple VII Occupation 1, Level 8, at Khafajah Sin Temple IX, Level 4,3, at Khafajah Sin Temple X, Level 2,1, at Khafajah Shara Temple, M14/2, at Tell Agrab Shara Temple, M13/4,6, at Tell Agrab
Ur III Period	Enlil Temple, Level V, at Nippur E-Ḫursag HT Palace, at Ur Ningal Temple, at Gig-Par-Ku, at Ur Gig-Par-Ku, Unit A,B,C Rooms 50-58, at Ur Gimilsin Temple, at Tell Asmar
Isin-Larsa Period	Audience Hall of Naramsin, at Tell Asmar Ningal Temple, at Gig-Par-Ku, at Ur Kititum Temple, at Ishchali Sin-Kashid Palace, at Warka
Kassite Period	Enlil Temple, Level III, at Nippur Gula Temple, at Isin Karaindesh Temple, at Warka
Neo-Assyrian Period	Fort Shalmanesar palace complex, at Nimrud Nabu Temple, at Khorsabad
Neo-Babylonian Period	Temple of Ishtar of Akkad, Merkes District, at Babylon Ninmach Temple, at Babylon Gula Temple, at Babylon Ninurta Temple, at Babylon Marduk Temple (Esagila), at Babylon Large Temple, at Kish Small Temple, at Kish Palace of Bel-Shalti-Nannar, at Ur

APPENDIX 2

42 room-circulation variables arranged into four categories permitted analysis of single and multiple room configurations in the Mesopotamian archaeological record, isolating unique room circulation building models.

1. 01–F1 Variables: Rooms with only one access.
2. 02–F3 Variables: Rooms that provide, at a minimum, direct access to a category (1) room.
3. 04–F9 Variables: Rooms that provide direct access to two or more category (1) rooms, or rooms from both category (1) and category (2).
4. 10–22 Variables: Rooms that provide necessary access between two or more category (3) rooms, or rooms from category (3) and either category (1) and/or category (2) rooms.

DIAGRAM 11.18. 01–F1 Category Variables.

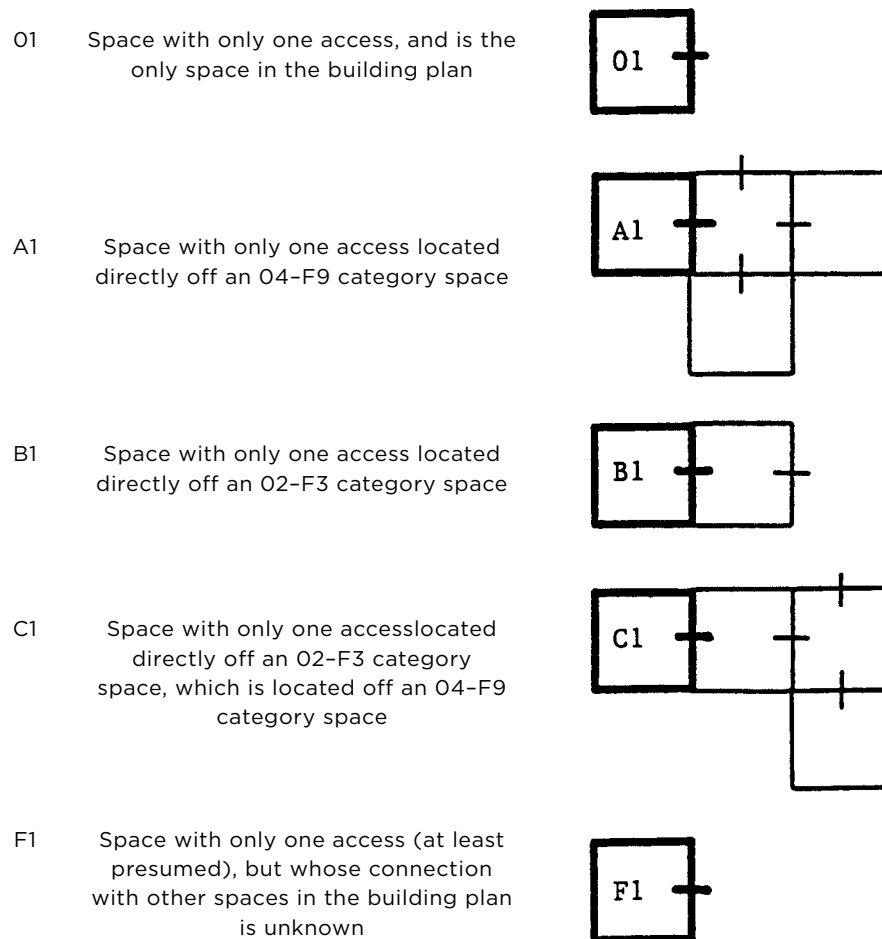


DIAGRAM 11.19. 02-F3 Category Variables.

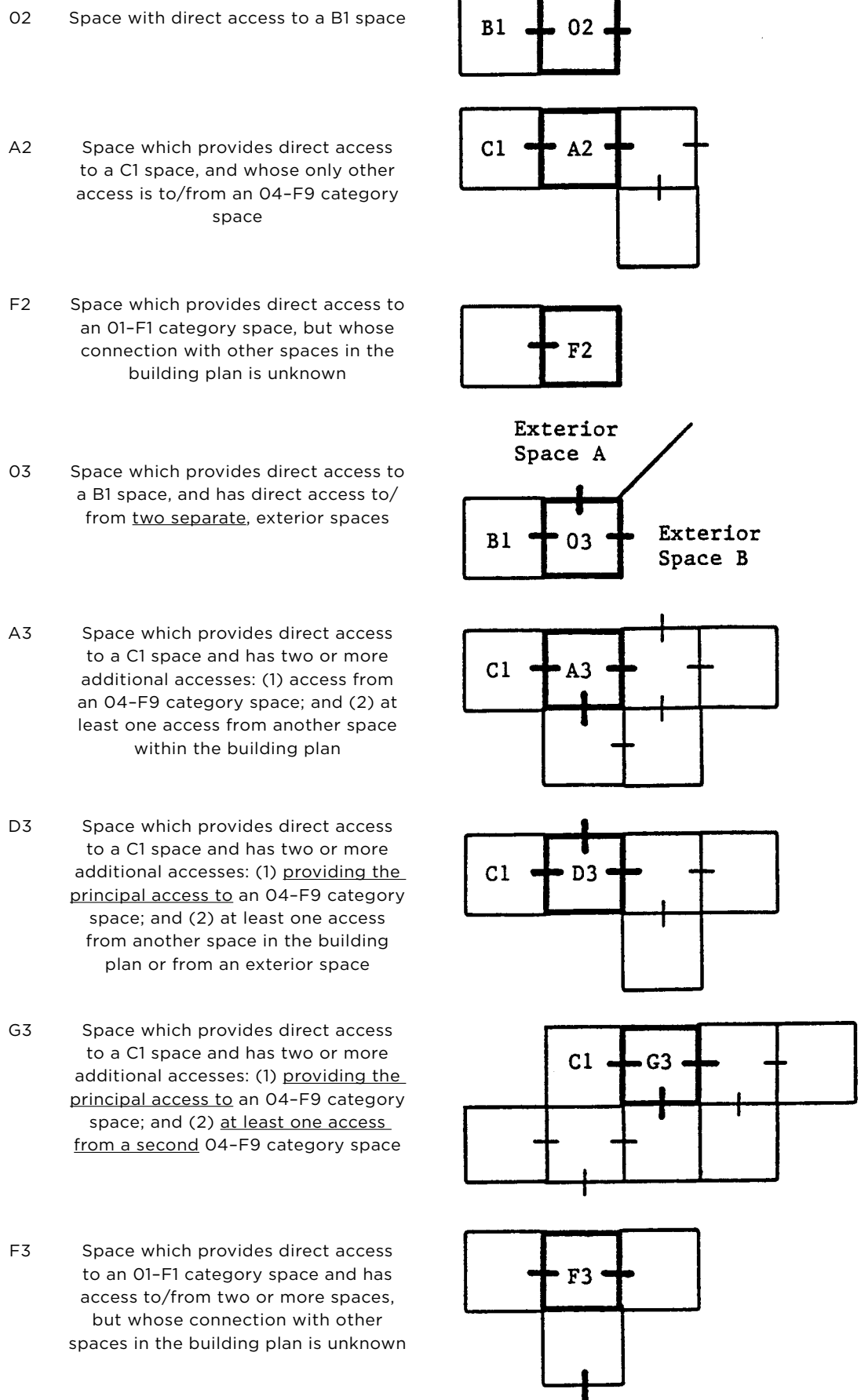
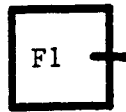
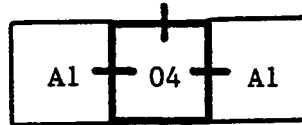


DIAGRAM 11.20. 01-F1 Category Variables.

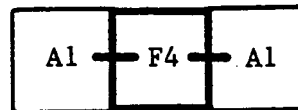
F1 Space with only one access (at least presumed), but whose connection with other spaces in the building plan is unknown



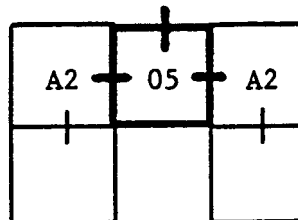
O4 Space which provides direct access to two or more A1 spaces



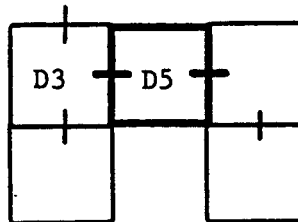
F4 Space which provides direct access to two or more A1 spaces, but whose connection with other spaces in the building plan is unknown



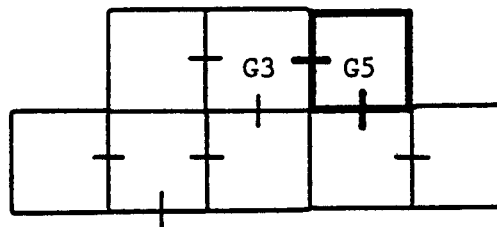
O5 Space which provides direct access to two or more A2 and/or A3 spaces



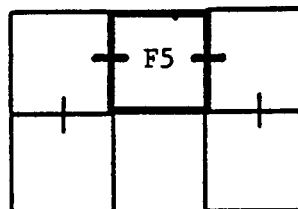
D5 Space which provides direct access to two or more O2-F3 category spaces, one of which must be a D3 space



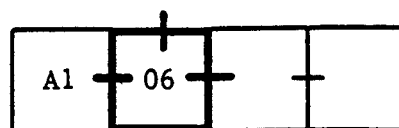
G5 Space which provides direct access to two or more O2-F3 category spaces, one of which must be a G3 space



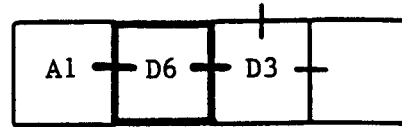
F5 Space which provides direct access to two or more O2-F3 spaces, but whose connection with other spaces in the building plan is unknown



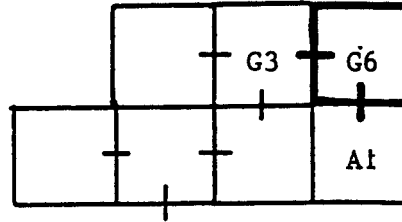
O6 Space which provides direct access to two or A1 space and to one A2 or A3 space



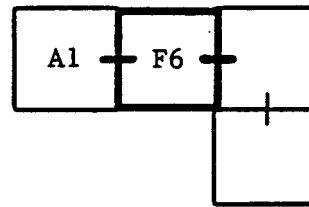
D6 Space which provides direct access to one A1 space and whose principal access is from a single D3 space



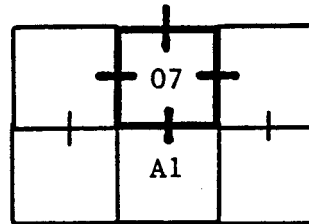
G6 Space which provides direct access to one A1 space and whose principal access is from a single G3 space



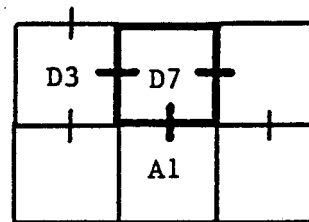
F6 Space which provides direct access to one A1 space and to one O2-F3 category space, but whose connection with other spaces in the building plan is unknown



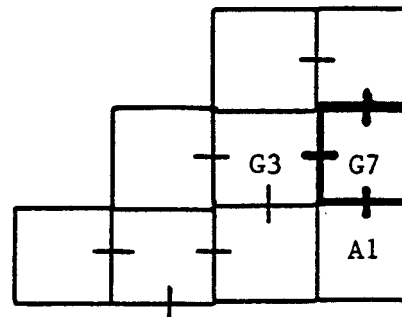
O7 Space which provides direct access to one A1 space and to two or more separate A2 and/or A3 spaces



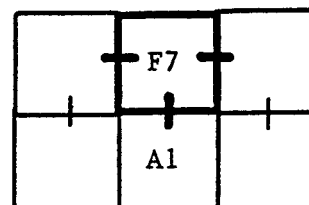
D7 Space which provides direct access to one A1 space and to two or more O2-F3 category spaces, and one of which must be a D3 space



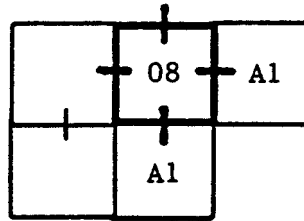
G7 Space which provides direct access to one A1 space and to two or more O2-F3 category spaces, one of which must be a G3 space



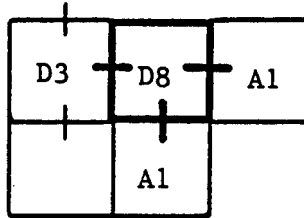
F7 Space which provides direct access to one A1 space and to two or more O2-F3 category spaces, but whose connection with other spaces in the building plan is unknown



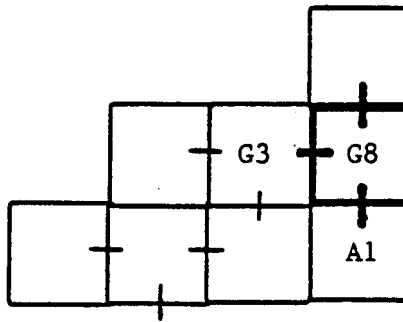
08 Space which provides direct access to two or more A1 spaces and to one A2 or A3 space



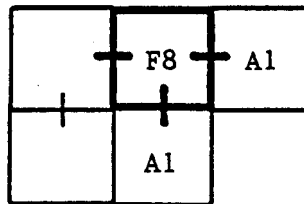
D8 Space which provides direct access to two or more A1 spaces and whose principal access is from a single D3 space



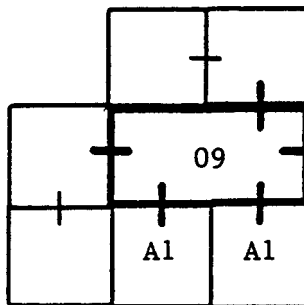
G8 Space which provides direct access to two or more A1 spaces and whose principal access is from a single G3 space



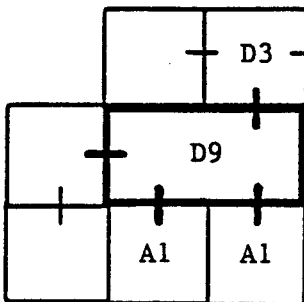
F8 Space which provides direct access to two or more A1 spaces and to one O2-F3 category space, but whose connection with other spaces in the building plan is unknown



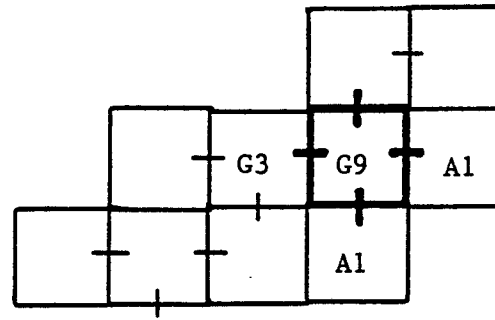
O9 Space which provides direct access to two or more A1 spaces and to two or more A2 and/or A3 spaces



D9 Space which provides direct access to two or more A1 spaces and to two or more O2-F3 category spaces, one of which must be a D3 space



G9 Space which provides direct access to two or more A1 spaces and to two or more O2-F3 category spaces, one of which must be a G3 space



F9 Space which provides direct access to two or more A1 spaces and to two or more O2-F3 category spaces, but whose connection with other spaces in the building plan is unknown

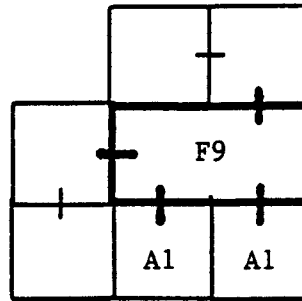
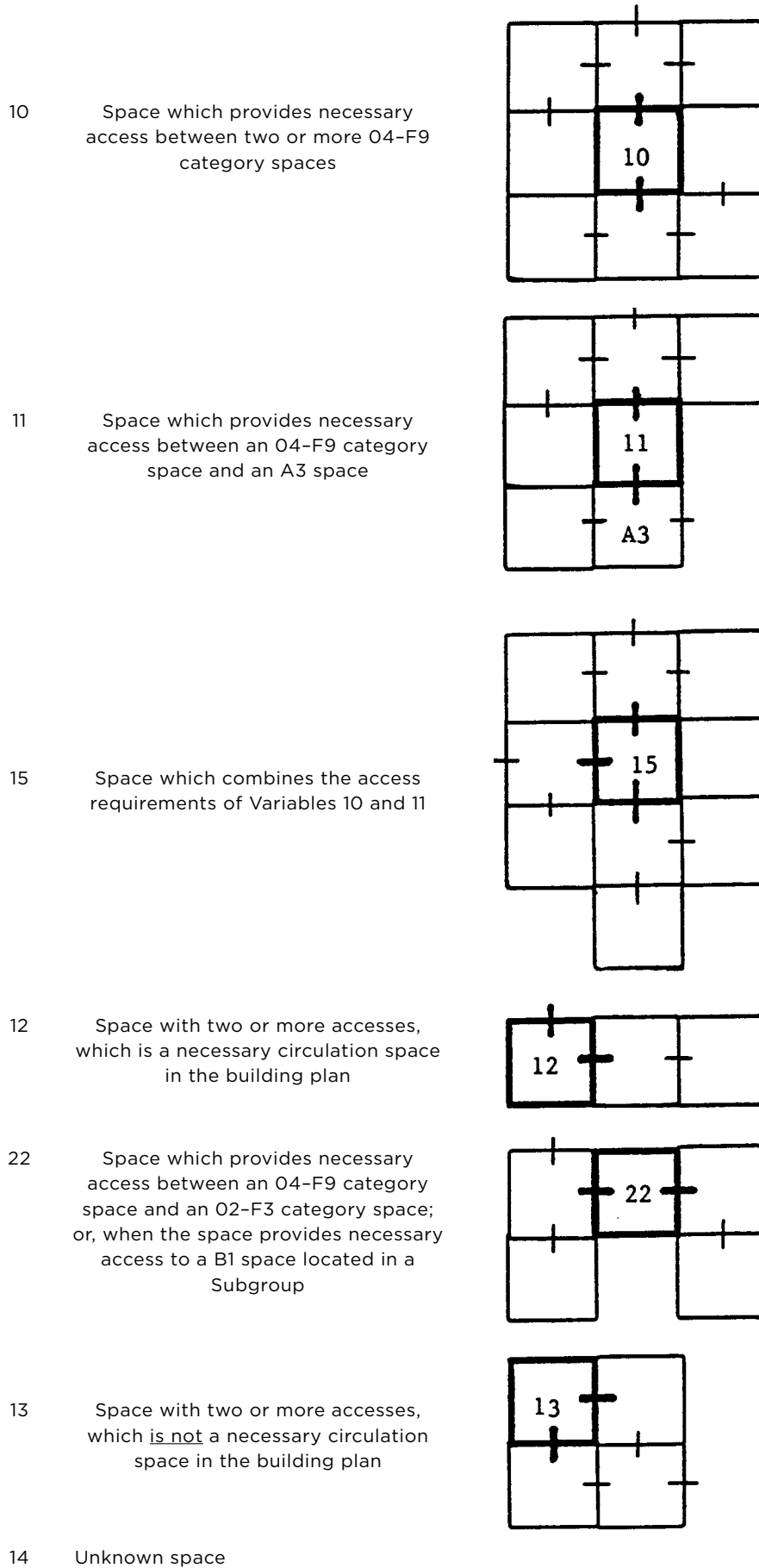


DIAGRAM 11.21. 10-15 Category Variables.



APPENDIX 3

Summarizing results from my unpublished master's thesis concerning the 42 room-circulation variables in the Large Sample—399 buildings dating from the Early Dynastic (2900–2296 BC) through the Neo-Babylonian period (626–539 BC)—a review of the 20-variable factor analysis¹⁸ indicates the following sequence of room-circulation variable constancy and change through time.

- 1a. Not only are the Early Dynastic and Isin-Larsa periods nearly identical in the total percentage of variances accounted for by the first three factors, but the types of variables that received significant first and/or second factor loadings for both periods are also similar. Of particular importance is the single occurrence of a 04–F9 category variable and the negative loading for both the B1 and 02 variables in the first factor.
- 1b. The intervening Akkadian and Ur III¹⁹ period data, as well as that for the later Old Babylonian period, does not vary markedly from the Early Dynastic and Isin-Larsa period results. Although the number and specific type of room circulation variables receiving significant first and/or second factor loadings varies among these five periods, any period to period variance can be interpreted as minimal when compared with later, Kassite period developments.
2. With the onset of the Kassite period a drastic change occurs in the number of variables with significant first and second factor loadings, as well as in the choice of specific room circulation variables.
 - 2a. Prior to the Kassite period two or more 01–F1 category variables had always received a significant first factor loading, whereas during the Kassite period no such variables received a high first factor loading.
 - 2b. Prior to the Kassite period at least one or more 02–F3 category variables had always received a significant first factor loading, whereas during the Kassite period no such variables received a high first factor loading.
 - 2c. Prior to the Kassite period no more than one 04–F9 category variable had received a significant first factor loading, whereas during the Kassite period two such variables (07, 08) received high first factor loadings.
 - 2d. The Akkadian period notwithstanding, prior to the Kassite period no 10–13 category variables had ever received a significant first factor loading, whereas during the Kassite period one such variable (10) received a high first factor loading.

¹⁸ The FACTOR program, from the Statistical Packages for the Social Sciences, was executed on a Univac 1100/81 Series computer at the University of Wisconsin-Milwaukee, in 1980. Factor analysis employs a matrix correlation to analyze data: “given an array of correlation coefficients for a set of variables, factor-analytic techniques enable us to see whether some underlying pattern of relationships exists such that the data may be ‘rearranged’ or ‘reduced’ to a smaller set of FACTORS or COMPONENTS that may be taken as SOURCE VARIABLES accounting for the observed interrelations in the data.” (Nie, et al. 1975, p. 469).

The correlations can be calculated for pairs of cases, or buildings (Q-mode), and for pairs of variables, or room circulation, door-placement, and building-form attributes (R-mode). Data are recorded according to a list of variables that are either present, absent, or unknown. Three specific features of recording data in this manner are: (1) these variables need not be mutually exclusive; (2) all the variables need not be in the same category; and (3) it is not necessary to have information on all the variables for any or all cases being considered. The first two features allow one to examine complex data, whereas the third feature allows one to examine data for which there is a high degree of uncertainty.

The FACTOR program performed two separate R-mode Principal Component analyses on the same building sample: (1) with 42 room-circulation variables, where each room in a building was coded with one of the variables regardless of how many times any one variable occurred in any building; (2) with 20 room-circulation variables, where each variable was counted just once if it occurred one or more times in a building. Computed were the mean; the standard deviation; communality values; the principal component factor loading matrix, without iterations; the varimax rotated factor loading matrix; the transformation matrix; factor-score coefficients; and standardized factor scores. Both sets of factor analysis results were calculated for building samples grouped into two categories: (1) by building type per period; and (2) by period only.

¹⁹ Unfortunately, the Ur III period statistics must be interpreted from the 42-variable factor analysis results because it was impossible to perform a 20-variable factor analysis on the Ur III period data, because the mean and standard deviation of variable A1 was 1.0000 and 0.0000, respectively. As such, the correlation coefficient for variable B1 with respect to variable A1 was 99.000, and the FACTOR program could not accept that high a value in the correlation matrix.

- 2e. Prior to the Kassite period at least one 04–F9 category variable had always received a sufficient loading to place that variable in the positive quadrant of the rotated Factor analysis plot of the first and second factor axes, whereas during the Kassite period no such variable received a positive quadrant position.
3. In the Neo-Assyrian period there is a partial return to pre-Kassite-period distributions of room circulation variables in several categories.
 - 3a. No 01–F1 category variables received a significant first factor loading, continuing a trend introduced during the Kassite period.
 - 3b. Only one 02–F3 category variable (A3) received a significant first factor loading, returning such variables to the level of some pre-Kassite-period distributions.
 - 3c. Two 04–F9 category variables (07, 09) received significant first factor loadings, continuing a trend introduced during the Kassite period.
 - 3d. Three 10–13 category variables (10, 11, and 13) received significant first factor loadings, continuing a trend introduced during the Kassite period.
 - 3e. Four 04–F9 category variables (05, 07, 08, and 09) received sufficient loadings to place them in the positive quadrant of the rotated Factor analysis plot of the first and second factor axes, returning such variables to the level of some pre-Kassite-period distributions.
4. It is in the Neo-Babylonian period that we see a complete return to the former Early Dynastic through Old Babylonian period room circulation variable distributions in all categories.
 - 4a. At least two 01–F1 category variables (A1, C1) received significant first factor loadings, which was always the case prior to the Kassite period.
 - 4b. At least one 02–F3 category variable (A2) received a significant first factor loading, which was always the case prior to the Kassite period.
 - 4c. Only a single 04–F9 category variable (06) received a significant first factor loading, which was always the case prior to the Kassite period.
 - 4d. No 10–13 category variables received a significant first factor loading, which was always the case prior to the Kassite period.
 - 4e. Three 04–F9 category variables (04, 07, and 08) received sufficient loadings to place them in the positive quadrant of the rotated Factor analysis plot of the first and second factor axes, the same number of variables as in the Early Dynastic and Akkadian period results, and only one more than in the Old Babylonian period.

All of these results rely on an analysis of the 42 room-circulation variables used in our study. However, it is possible to trace an identical sequence for the Early Dynastic through Neo-Babylonian periods by considering only two particular room circulation variables, the A3 and D3 variables.



DIAGRAM 11.22. A3 (left): Space which provides direct access to a C1 space and has two or more additional accesses:

(1) access from an 04–F9 category space; and (2) at least one access from another space within the building plan;

D3 (right): Space which provides direct access to a C1 space and has two or more additional accesses: (1) providing the principal access to an 04–F9 category space; and (2) at least one access from another space in the building plan or from an exterior space.

In simplified terms, the table below identifies in which chronological periods the A3 and/or the D3 room-circulation variable accounted for the greater percentage of variance; i.e., which variables received positive quadrant positions in the rotated factor analysis plot of the first and second factor axes for both the 42 and 20 room-circulation variable analyses.

Table 11.2. Percentage of variance by room-circulation variable

Period	42 Variable Analysis		20 Variable Analysis	
	A3	D3	A3	D3
Early Dynastic		X		X
Akkadian		X		X
Ur II ¹	X	X	Impossible	Impossible
Isin-Larsa		X		X
Old Babylonian		X		X
Kassite	X		X	
Neo-Assyrian	X			Impossible
Neo-Babylonian		X		X

It is apparent that (1) the D3 room circulation variable should be associated with the Early Dynastic through Old Babylonian period building-model tradition; (2) the abrupt change that occurred during the Kassite period is evident because the A3, not the D3, room-circulation variable accounts for a greater percentage of variance in Kassite building plans; (3) although A3 to a greater extent, neither the A3 room circulation variable alone, nor the D3 variable alone, account for a significant amount of variance during the Neo-Assyrian period; and (4) the Neo-Babylonian period data shows a return to the D3 room-circulation variable in order to account for the greatest amount of variance among the 02-F3 category of variables in the 399 Mesopotamian building plans in our study.

A single building type is primarily responsible for the A3 and D3 variable building-form developments described above, based on the mean distributions of A3 and D3 room-circulation variables by period (table 11.2).

Table 11.3. Distribution of A3 and D3 room-circulation variables by period

Periods	House		Temples		Palaces	
	A3	D3	A3	D3	A3	D3
JN	—	—	.11	.11	No Data	
ED I	.07	—	—	.18	No Data	
ED II	—	.31	—	—	No Data	
ED III	.14	.31	—	—	No Data	
ED	.10	.25	—	.08	No Data	
AKK	.05	.26	—	—	No Data	
UR III	—	1.00	—	1.00	—/1.00	3.00/2.00
I/L	.04	.14	.17	.42	No Data	
OB	—	.26	—	—	No Data	
KAS	.12	.25	.60/.80	—	No Data	
NA	.09	.21	1.00	.60	.86	1.29
NB	.26	.48	.09	1.27	No Data	

By and large Kassite period temples and, to a lesser extent, Neo-Assyrian period temples account for the shift in prominence from the D3 to the A3 room circulation variable building model. Mesopotamian private houses and palaces, on the other hand, consistently exhibit a preference for the D3 room-circulation variable building model. An analysis of A3 and D3 variable room functions in the archaeological literature can provide a partial explanation for the dichotomy in A3 and D3 room use according to building type.

A review of room functions ascribed to A3 and D3 rooms in our study shows the following.

1. For the Early Dynastic through the Old Babylonian periods, only two of thirty-seven known room functions were shared by both A3 and D3 variable rooms during any one period.
2. There was no duplication of A3 and D3 variable room functions during the Kassite period, but, more importantly, three of the five examples of Kassite period A3 rooms have temple sanctuary functions. Furthermore, two of these three examples are the temple Cella, a function which had never occurred in either A3 or D3 type rooms prior to the Kassite period.
3. During the Neo-Assyrian period, when the ratio of A3 to D3 room usage was at its closest level, A3 and D3 variable rooms shared eight of the eleven known room functions ascribed to either room type.
4. During the Neo-Babylonian period the ratio of shared functions dropped to 3:9, where one of three shared functions was the only use of an A3 Retiring Room, except for a single example during the Kassite period.

These results imply that A3 and D3 rooms exhibit fairly distinct functions, except during the Neo-Assyrian period; that D3 room usage greatly exceeds that of A3 rooms except during the Kassite and Neo-Assyrian periods; and finally, that the majority of Kassite period A3 room circulation examples have strictly temple-related functions.

A similar, but a bit more involved, criterion must be used in order to assess the consistent preference for D3 rooms in these Mesopotamian private houses. The basic distinction between the D3 and A3 room-circulation variables lies in the location and access pattern of each with respect to its associated 05-F9 room and the location of the building's "front door." Whereas a D3 room acts as a building entry vestibule providing access into the 05-F9 room, an A3 room is entered from the 05-F9 room. That the ancient builders made this distinction, and that it is recognizable in the Mesopotamian archaeological record, is discernible in table 11.4.

Table 11.4. Known Functions of D3 and A3 Rooms

Buildings	D3		A3	
	No.	%	No.	%
Total Number with Known Functions	121		43	
Number with Vestibule Function	73	73	5	73
Number with Circulation Corridor Function	15		11	
Number with Other Functions	33	27	27	63

Because the most common function for the 05-F9 room associated with the D3 room in Mesopotamian private houses was either a courtyard or central room of the house, family privacy and controlled access to the house proper appears to be the best explanation for the almost 3:1 ratio of vestibule or circulation corridor functions as opposed to any other D3 room function. Although other room circulation variables also served as entry vestibules in both private houses and public buildings, it is the unique room arrangement and access pattern of the D3 room-circulation variable that made it the best choice to solve the entry vestibule function for the Mesopotamian private house:

Room which provides direct access to a C1 room, and has two or more additional accesses: (1) providing the principal access to a 04-F9 category room; and (2) at least one access from another room in the building plan or from an exterior building space.

It would appear that the C1 room located off these D3 Mesopotamian entry vestibule rooms functioned, at least in part, in much the same manner as the “sala” does in houses of the Spanish or Latin cultures. In other words, guests would be admitted and taken into the C1 room situated off the D3 entry vestibule, where they would either be joined by family members or, if the occasion warranted, they would be permitted into the house proper via the 05–F9 courtyard or central room of the house. It is the efficient and practical circulation arrangement of providing access to both its associated 05–F9 room and to a C1 room that would seem to account for both the prominent entry vestibule function and the consistent preference for the D3 room-circulation building model in private houses during every period of Mesopotamian history.

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Steve Lintner, Umm al-Hafriyat, 1977. (Drawing by Peggy Sanders)

CHAPTER 12

KISH AND THE SPATIAL ORGANIZATION OF CITIES IN THIRD-MILLENNIUM BC SOUTHERN IRAQ

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ABSTRACT

Despite its social, geopolitical, and historiographical significance, the city of Kish has been largely left out of archaeological discussions of early Mesopotamian urbanism. This study will combine the results of McGuire Gibson's 1966–67 surface collection with various geospatial datasets that did not exist or were unavailable to him at the time of his fieldwork (declassified intelligence satellite photographs, digital terrain data, and recent commercial satellite imagery) to reassess Kish's urban development and compare it to contemporary cities elsewhere in Mesopotamia.

INTRODUCTION: EARLY MESOPOTAMIAN URBANISM AND THE CITY OF KISH

At one time in the history of ancient Mesopotamia, the city of Kish was so important that holding the title “King of Kish” was equivalent to controlling the world. In literary compositions, the city was so closely associated with political power that time and again, kingship returned to it—no less than four times in the Sumerian King List. When disputes emerged between city rulers in the far south of Sumer, they based their claims on decisions made by the king of Kish, in some cases many generations earlier. In a civilization replete with great cities, Kish was legendary.

Yet Kish rarely features in archaeological discussions of Mesopotamian cities. This may be in part because of the difficulties of working with the excavated materials, despite the heroic efforts of McGuire Gibson and P. R. S. Moorey (Gibson 1972b, 1980; Moorey 1978). The architecture and stratigraphy remains challenging, but the site's spatial layout and chronological development is accessible. Topographic plans were generated by various excavators, and aerial photography exists as well. Most importantly, the site was subjected to a three-week surface collection by Gibson during his 1966–67 survey of the Kish region (Gibson 1972a, b). Through analysis of chronologically sensitive artifacts found at the various mounds, Gibson described the spatial evolution of settlement on the site from the Uruk period to the Ottoman era.

Despite the importance of cities in Mesopotamian history, intensive surface collections have been relatively rare. The surveys of Adams, Wright, and Gibson emphasized regional settlement patterns over individual site biographies (reviewed in Ur 2013b). There are notable exceptions: Uruk was subjected to an intensive effort focused on shifting occupations (Finkbeiner 1991), and surface collections at Mashkan-shapir underlaid a synchronic study of use of space (Stone and Zimansky 2004). Lagash, Nippur, and Fara were surveyed at lower intensity (Gibson 1992; Martin 1983; Carter 1989–90). An intensive topographic and surface survey was planned for Kish by the Japanese expedition in 2001 but could not be carried out (Matsumoto and Oguchi 2004). The southern Iraqi heartland stands in contrast to northern Mesopotamia, where systematic intensive

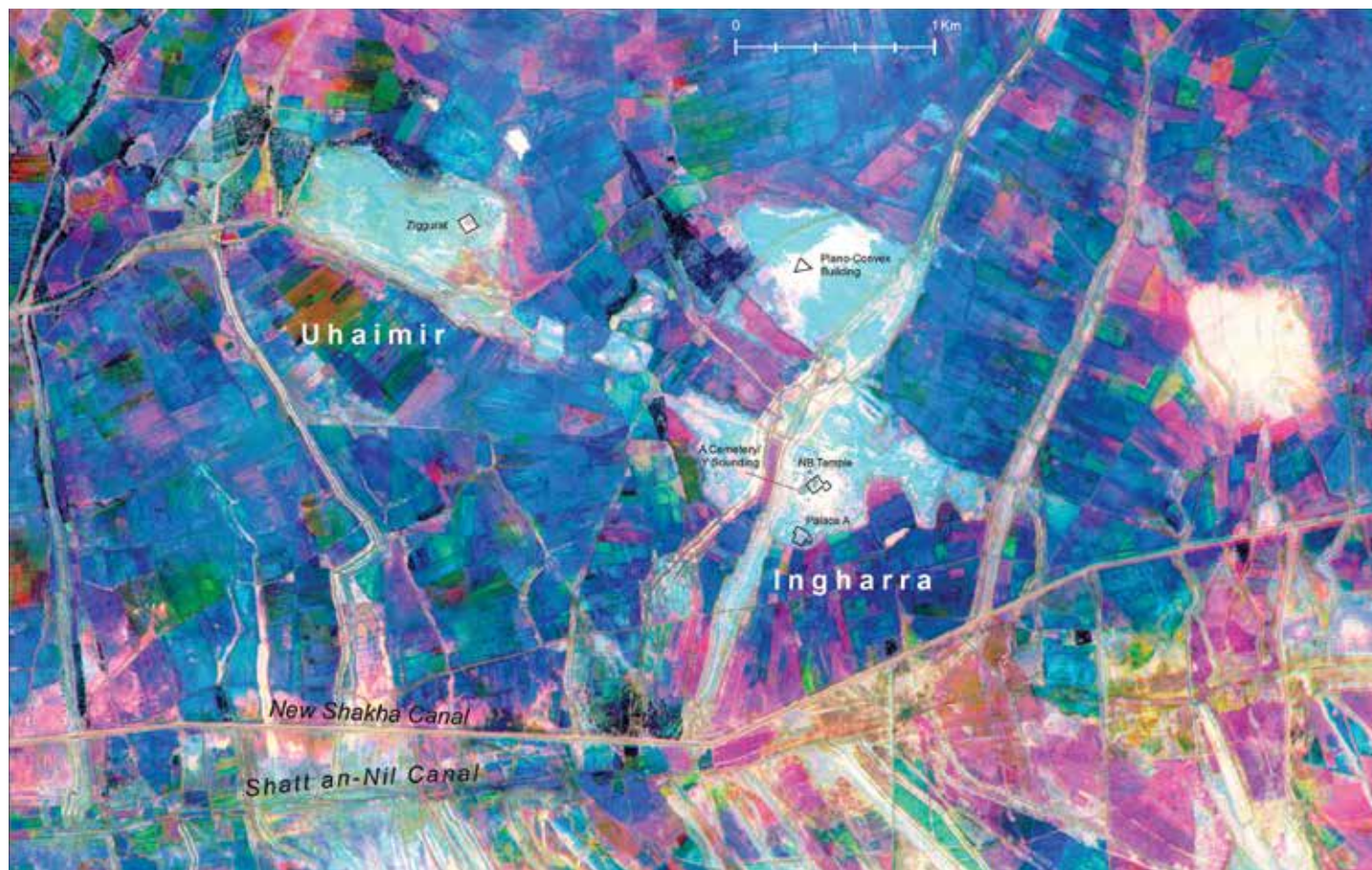


FIGURE 12.1. False-color satellite photograph of Kish based on three CORONA photographs (Ur 2014a): Mission 1039 (February 28, 1967, red); Mission 1103 (May 4, 1968, green); and Mission 1104 (16 August 1968, blue).

collections of urban sites within larger regional surveys have been common (e.g., Ball, Tucker, and Wilkinson 1989; Ur 2010; Ur, Karsgaard, and Oates 2011).

This study presents a reassessment of Gibson's survey results for the city of Kish. At its most basic, it proposes quantified sizes for the city at its various phases of settlement, using geospatial tools not available to Gibson and his colleagues at the time of their fieldwork. It reconsiders the spatial scale of individual mounds, and the site generally, using a range of remote sensing datasets that have become available in the past fifteen years. Finally, it places Kish in comparative perspective, in terms of scale and morphology, with its contemporaries in greater Mesopotamia.

DATASETS

This study relies heavily on Gibson's published results from the surface collection (Gibson 1972b), and also his consideration of the distribution of texts from the excavations (Gibson 1972a), as well as the reassessments of the early excavations (Gibson 1972b; Moorey 1978). For a spatial study, Mackay's site map is especially useful (1929).

The new contributions of the study at hand are remote sensing analyses based on several sources. Some are quite old: an aerial mosaic of Kish taken by the Royal Air Force in 1929 (Moorey 1978), and a pair of images of Uhaimir taken at approximately the same time. Three sources derive from the US CORONA intelligence satellite program, which has been a boon to Near Eastern landscape archaeology (Casana, Cothren, and Kalayci 2012; Ur 2013a, c). These photographs have been stacked to create a multiband false-color image (Ur 2014a) in which dry or unvegetated surfaces are white or light colored, and wet or durably vegetated land appears black or dark (fig. 12.1). Archaeological features that appear light include mounded areas and canal spoil banks.

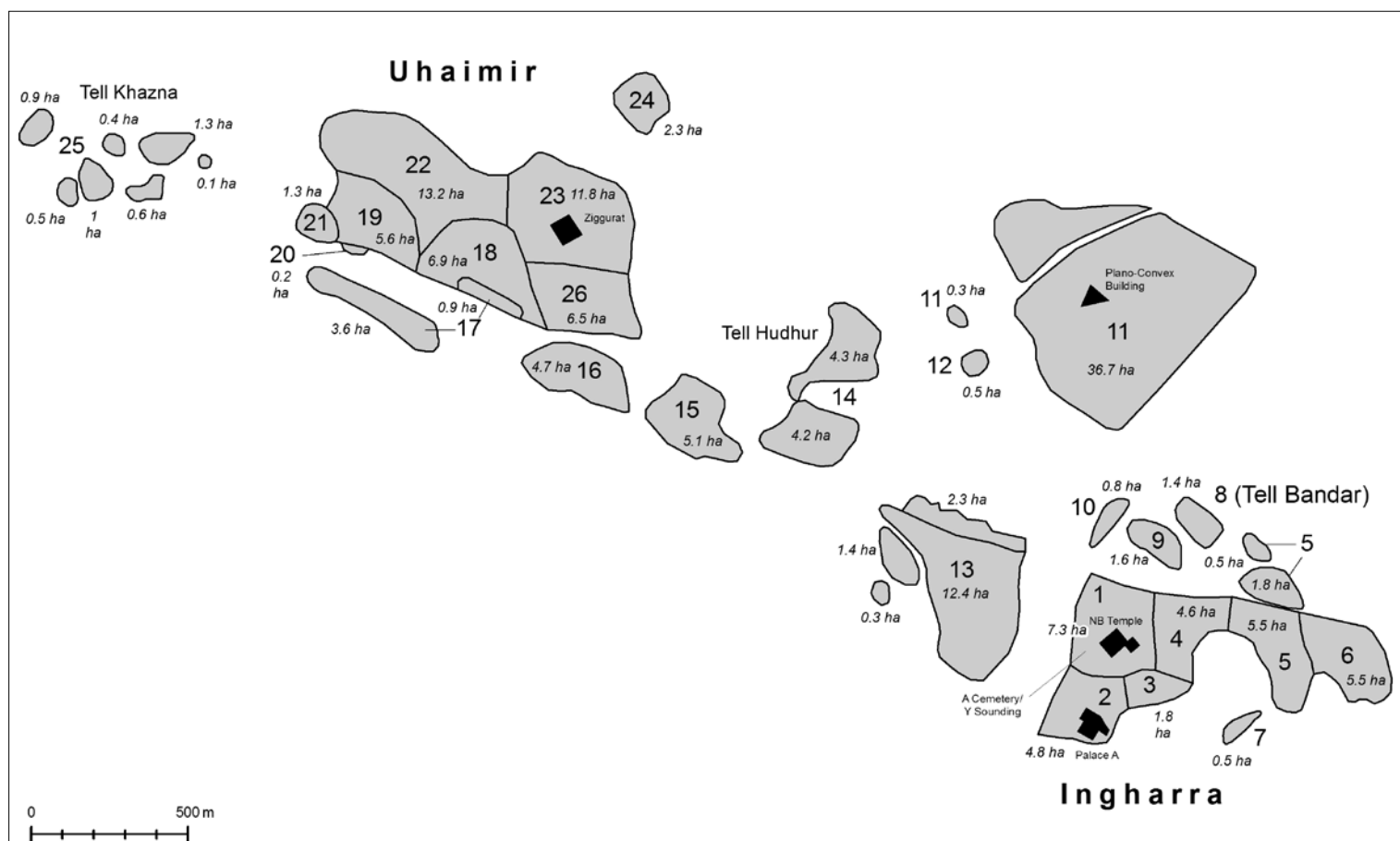


FIGURE 12.2. The mounds of the Kish settlement complex and their spatial extent. Numbering scheme follows Gibson (1972b). For spatial data see Ur (2014a).

Additional remote sensing sources for Kish are more recent. A 2.5 m resolution SPOT mosaic of the site, and most of Iraq, can be viewed on Google Earth; its date is indeterminate but probably postdates the 1990s. The QuickBird satellite imaged Kish on July 7, 2006. Modern commercial satellites have the advantage of high resolution, but their recent date is a decided disadvantage for archaeological landscapes. In the case of the Kish region, the last forty years have seen the arrival of massive new irrigation schemes and an enormous expressway, including a cloverleaf exit in the center of the site complex. CORONA scenes may not be able to resolve the trenches of Mackay or Watelin, but they depict a Kish prior to the arrival of destructive modern transformations.

These datasets were georeferenced, projected into the Universal Transverse Mercator (UTM) zone 38 coordinate system, and brought into a GIS environment, where the position and extent of each mound could be measured precisely. They can be viewed as interactive web maps at <https://arcgis/0Lu9W0> and are downloadable (Ur 2014a).

ANALYSIS

A GIS-based reassessment of its extent is the first step in a comparative study of Kish and its contemporaries. From Tell Khazna in the northwest (Gibson's Area 25) to the Sasanian town at the southeast (Gibson's Areas 5–7), the site extends 4,700 m (fig. 12.2). This linearity is almost certainly a legacy of its latest phases of settlement. At its widest, between Areas 11 and 13, it is 1,600 m across, but elsewhere does not exceed 600–700 m. The entire archaeological complex, including seemingly unoccupied space between the mounds, covers approximately 385 ha, although at no point in Kish's history was this entire area settled simultaneously.

MOUNDS AND COLLECTION AREAS

Kish has been labeled as a “twin city” since serious investigations started in the early twentieth century AD, and probably had a double identity through much of its ancient life as well (Edzard 1975, 1980). The western mound of Uhaimir covers about 47 ha, slightly larger than represented by Gibson (Gibson 1972b, fig. 25). His dashed but unlabeled southeastern extension of Uhaimir has been arbitrarily designated as Area 26. Uhaimir’s outlying mounds to the south (Areas 15–17) are also larger than mapped by Gibson.

The eastern part of the site has the modern name Ingharra. Since Ur III times it was independently termed *Ḫursagkalama*, a term that initially applied only to the Inanna/Ishtar ziggurat complex (Area 1) but later denoted the entire eastern half of the city (Gibson 1975; Edzard 1975). Areas 1–4 are contiguous; separate to the west is Area 13, which is a much larger mound (almost 17 ha) than represented by Gibson. It is separated from Areas 1–4 by a series of massive canals running to the northeast, the largest being connected clearly to the late Shatt an-Nil canal south of the site. Eastern and northern Ingharra comprises a series of low mounds (Areas 5–10), several of which are more contiguous than Gibson’s maps suggest.

Far to the north of Ingharra proper, but probably to be considered a part of it, is Area 11, an extensive area where Mackay excavated the ED III plano-convex building. In CORONA scenes, it is a vast area of almost 40 ha, and indeed probably was much reduced by mid-twentieth century agricultural expansion, if Mackay’s map (1929) is accurate.

Other mounds of the complex fall outside of the Uhaimir–Ingharra dyad. Between them is the double mound Tell Hudhur (Area 14, 8.5 ha total). North of Uhaimir is the small mound 24 (2.3 ha) and west of Uhaimir is Tell Khazna, a scatter of small mounds totaling 4.8 ha.

These area assessments are based primarily on CORONA photographs, which were taken only a few years after Gibson’s fieldwork. One must bear in mind, however, that they reflect visible site areas after millennia of natural and human transformation of the site. The isolated nature of the mounds may be due to the twin process of alluviation and wind deflation (Wilkinson 2003, pp. 80–81). Kish is at the center of the Euphrates flood plain, a part of the plain with high rates of sediment deposition (Buringh 1960). With floods and agriculture, the level of the plain around Kish and other sites would be expected to rise. At the same time, dry winds can deflate sites and river levees, especially if they are devegetated for any period of time (Armstrong and Brandt 1994). The area of Kish has certainly been subjected to heavily wind deflation over the millennia, since all traces of pre-second-millennium BC levees have been completely effaced (see below).

The division between natural and cultural transformations is arbitrary, since they are closely related. Natural floods may have deposited sediments over Kish, but the sediment load from artificial canals may have been just as substantial. Furthermore, their excavators dug around and through Kish’s mounds, obscuring earlier phases. The large canals that bifurcate Ingharra, for example, can be connected to the Shatt an-Nil, which Gibson dates to the early Islamic period (Gibson 1972b, pp. 53, 60). These distributaries, and the offtakes from them, certainly could have irrigated a lot of low-mounded Kish.

HISTORICAL DEVELOPMENT OF KISH

The general outlines of settlement history at Kish were established firmly by Gibson’s surface collection; the reassessment presented here extends it only through GIS- and remote sensing-enabled spatial precision and some interpretations based on other Mesopotamian cities. For many periods, there is little new to add aside from an areal estimate, and the reader is directed to Gibson’s assessment (esp. 1972b, pp. 58–60, figs. 25–33). The estimates provided here are based on the full extent of each of Gibson’s areas; if he indicated it to be settled in a given period, the entire area is included in the calculation. This approach certainly results in higher estimates than Gibson would have made, had he quantified; in his maps for individual periods, he often represents mounds as partially occupied. In the absence of published information on how his areas were further subdivided, this reassessment has simply included the entire area in its calculations; any critical analysis of it should be aware of this methodological decision.

The city’s twin morphology appears to have been established from the earliest observed settlement in the Uruk period, when village and a small town were separated by 2 km (fig. 12.3a). This distance is great

enough that it is probably safe to assume that their residents considered themselves to reside in two separate settlements, although almost certainly with common ancestry and close familial connections.

Urban status came rapidly at the start of the third millennium BC (Early Dynastic I period), when settlement expanded around the southeastern town (Ingharra), and a broad area of settlement appeared to the south of the Uruk village (Uhaimir; see fig. 12.3b). Gibson's collection strategy resulted in two agglomerations of isolated mounds, but he is certainly correct in his assumption that these places were likely to have been fully settled (Gibson 1972b, p. 58). If this assumption is correct, Kish grew from 10.1 ha into almost 140 ha

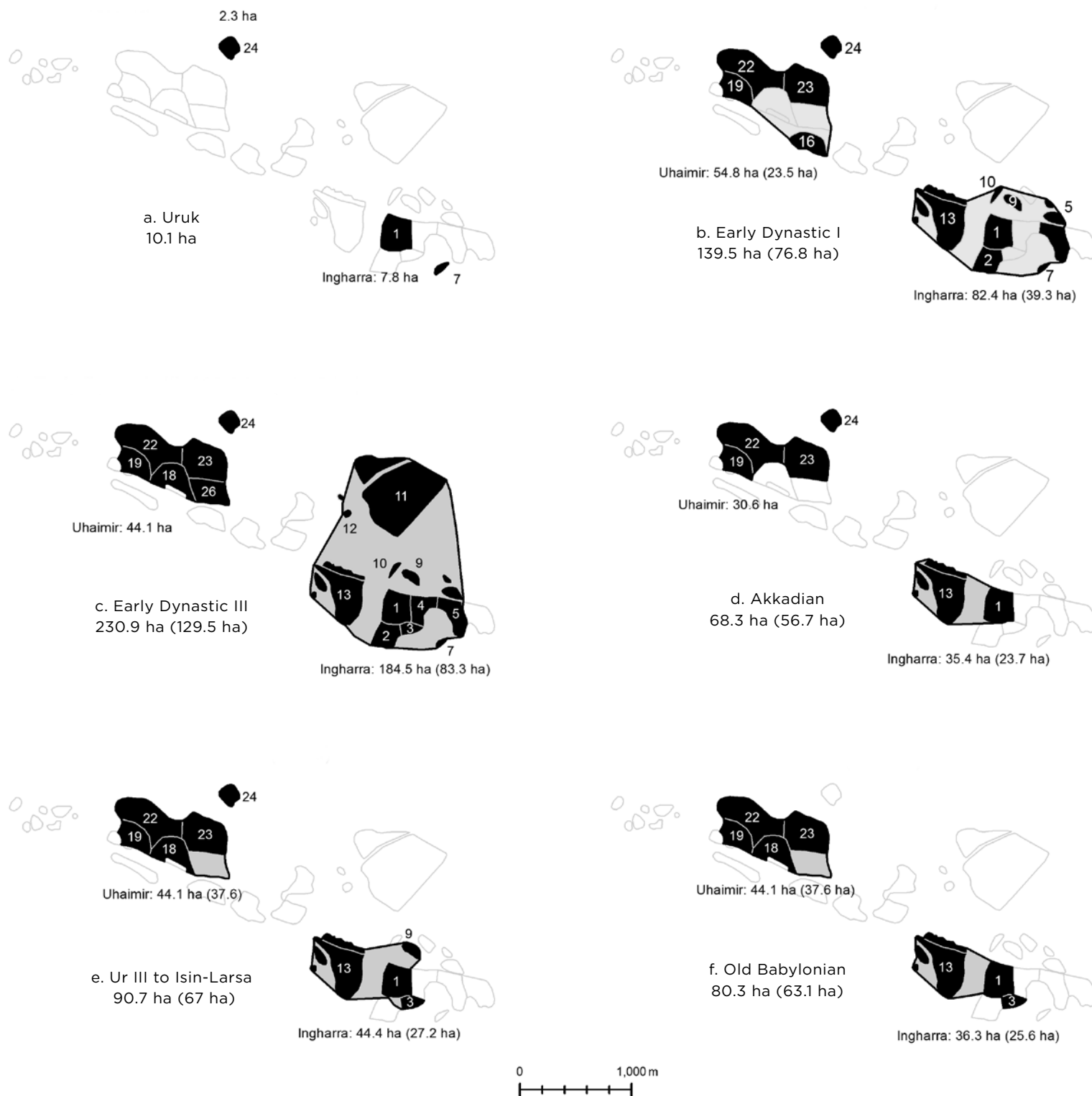


FIGURE 12.3. Settlement evolution at Kish, Uruk to Old Babylonian periods. Hectare measurements are proposed maximum extents (including areas in gray); measurements in parentheses are based solely on mounded areas collected by Gibson (1972a, b). For spatial data see Ur (2014a).

in the span of a few centuries. This fourteen-fold pattern of growth could only have come at the expense of the countryside, a pattern not seen very clearly in Kish's immediate region but much more apparent on the floodplain to the south (Adams 1981; Ur 2013b). Although Ingharra grew larger, it is clear that both mounds participated in this rapid urban expansion.

Kish reached its political and spatial apogee in the Early Dynastic III period, growing an additional 60% to attain an estimated 230.9 ha (fig. 12.3c). All of this growth came from the northward expansion of Ingharra to include the broad Area 11. Here Mackay excavated a large palace made of plano-convex bricks, and both Japanese surface scraping and high resolution satellite imagery have revealed a vast expanse of

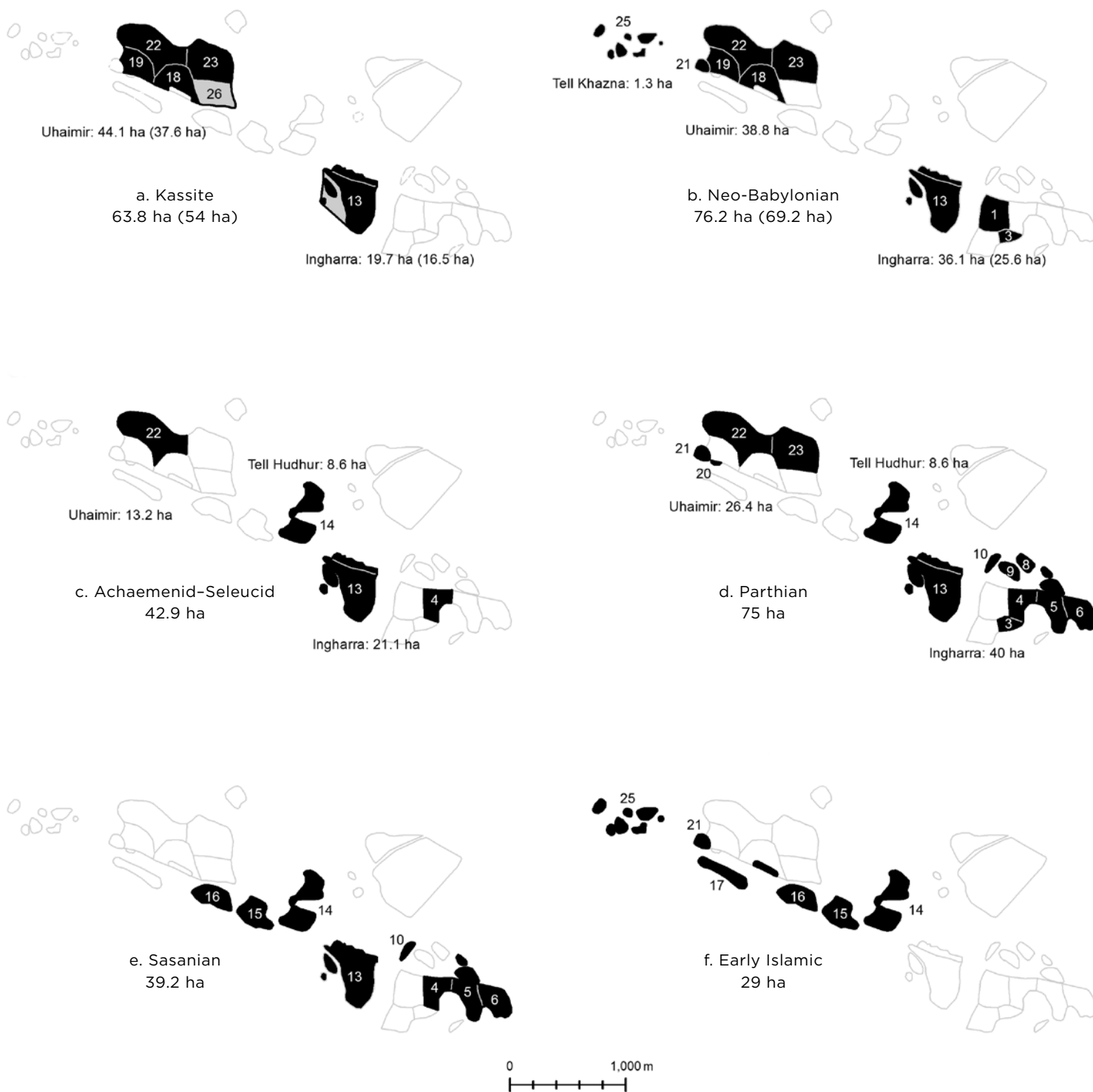


FIGURE 12.4. Settlement evolution at Kish, Kassite to Early Islamic periods. Hectare measurements are proposed maximum extents (including areas in gray); measurements in parentheses are based solely on mounded areas collected by Gibson (1972a, b). For spatial data see Ur (2014a).

dense architecture (Matsumoto and Oguchi 2002; Stone 2013, pp. 164–65). If Area 11 was contiguous with the already-ancient core of Ingharra, it would comprise almost 185 ha. When combined with the continued settlement of Uhaimir, the Kish complex was one of the largest conurbations on the Mesopotamian plain (see below).

Kish lost most of its population at some point prior to Gibson's Akkadian period (likely to be late in the Akkadian sequence), when this northern Area 11 extension was abandoned (fig. 12.3d). Ingharra's core region was reduced as well, with the desertion of the Palace A region, and Uhaimir also contracted. The city maintained this spatial pattern for the next half millennium (figs. 12.3e–f), fluctuating between 70 and 90 ha, most often evenly divided between Uhaimir and Ingharra (now known as Ḫursagkalama). Although much reduced from its Early Dynastic III high point, the twin settlements of Kish still remained urbanized if we used Adams's arbitrary area threshold—probably never less than 10,000 persons, and probably many more, if one subscribes to the highest persons/ha ratio (e.g., Postgate 1994).

A great disruption in Kish's development came sometime after the late Old Babylonian period; under the Kassite kings, the old core of Ingharra/Ḫursagkalama was abandoned entirely for the first time since the fourth millennium BC (fig. 12.4a). Only Mound 13 remained occupied, as was most of Uhaimir. At 76.2 ha, Kassite Kish was still a major urban center, despite falling in the shadow of Babylon to the west.

The Neo-Babylonian kings consciously attempted to resuscitate Kish's ziggurats, and this effort was accompanied by a population expansion (fig. 12.4b). The core of Ingharra/Ḫursagkalama (Area 1) was resettled for the final time. The shape of the city was now unambiguously dictated by a watercourse, stretching 4 km along the "Kish canal" from Babylon.

For the last millennium and a half of its existence as a substantial settlement, Kish was a shifting conglomeration of mounds of variable density, some of which may have been cemeteries rather than residential areas (Gibson 1972b, pp. 59–60). Kish's "twin city" nature was increasingly obscured, as the ancient mounds at Uhaimir and Ingharra lost focus, and new areas in the center (Area 14, Tell Hudhur) and to the far southeast (Areas 4–6) were intensely settled. Kish's Early Islamic town was replaced by villages in the Abbasid and Ottoman periods, which would have been overwhelmed by the bulk of the abandoned ancient city surrounding them.

DISCUSSION

For most sites, and throughout most of Mesopotamian history, the spatial extent of an archaeological site is the only proxy indicator we have for ancient population. This reassessment of Kish, based on Gibson's field survey and GIS-based spatial analysis, places Kish next to its contemporaries.

Kish experienced explosive initial growth in the third millennium, and while its population declined precipitously by the end of the millennium, it retained urban status until well into the Islamic period (fig. 12.5). At present, no known site approaches the massive walled city of Uruk, in terms of spatial extent, which encompassed some 400 ha in the Early Dynastic I period (Finkbeiner 1991). With a possible extent of almost 140 ha, Kish was its closest rival at this time. There is no evidence for a comparable city wall at Kish, but unlike Uruk, it remained in a heavily irrigated zone long after its apogee, and an unmaintained wall might easily have eroded and disappeared under irrigation sediments.

Late Early Dynastic Kish was one of the largest cities in Mesopotamia. It dwarfed its northern Mesopotamian contemporaries at Ebla, Mari, Hamoukar, and Nagar (Ur, Karstgaard, and Oates 2011), which were faced with environmental and logistical limitations that did not apply in southern Mesopotamia (Wilkinson 1994). At a time of overwhelming urbanization on the southern plains (Adams 1981, p. 138), it was one of the largest. At an estimated 230 ha, its only peers were Lagash (ca. 500 ha; Carter 1989–90), Girsu (ca. 430 ha; Hritz, this volume), and Umma (possibly 260 ha; Ur 2014b). Uruk may have been in excess of 300 ha (Finkbeiner 1991, Beilage 25).

The settlement's growth in the Early Dynastic III period extended north from Ingharra, but did not touch the intervening open space between it and Uhaimir. The avoidance of this intermediate space demands an explanation. If that land had merely been agricultural space, the pressure to exploit it for the growing settlement would have been tremendous, if not already during the Early Dynastic I period, then certainly at some

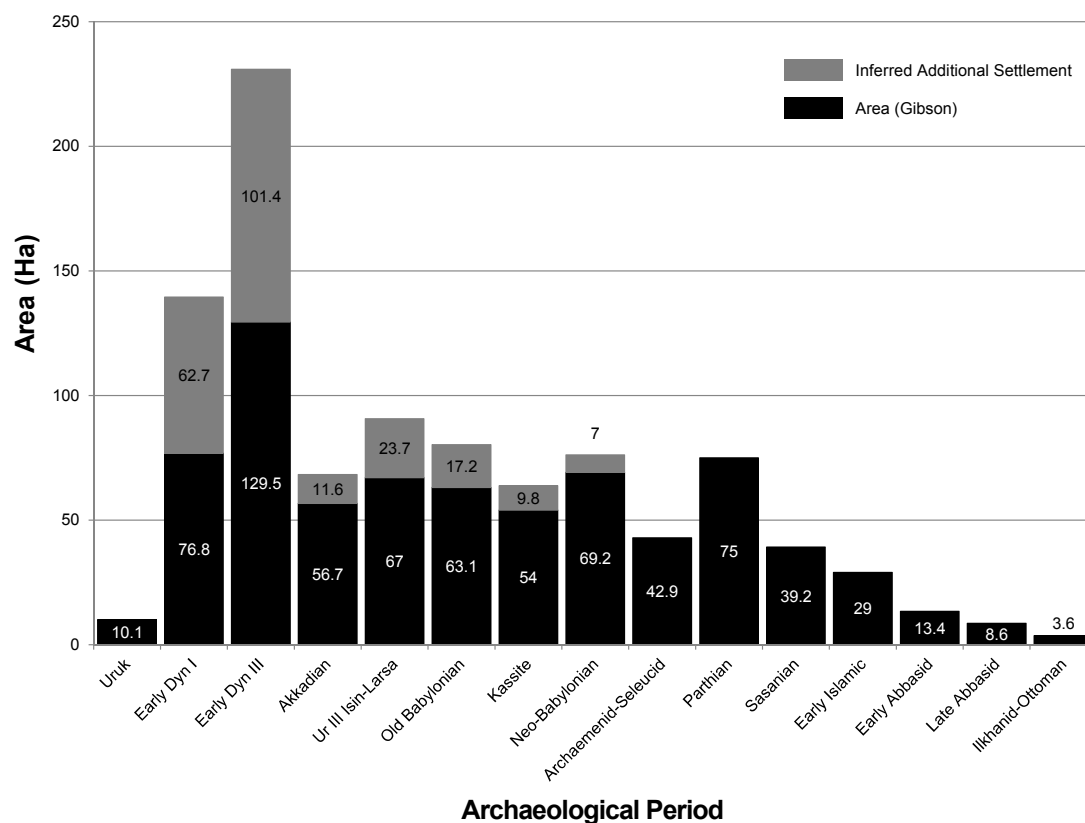


FIGURE 12.5. The evolution of settlement area at Kish. Black bars are settlement areas collected by Gibson and re-measured via satellite remote sensing; gray bars are inferred additional settlement areas (see figs. 12.3–12.4 for locations). All measurements in hectares.

time subsequently. Certainly, this sort of infilling seems to have characterized the growth patterns of Uruk, another hypothesized early twin city. Yet Uhaimir and Ingharra/Ḫursagkalama remained spatially discrete for about two and a half millennia, until the settlement of Tell Hudhur (Area 14) in the Achaemenid/Seleucid period. It is possible that Kish's durable twin morphology is a function of taphonomic processes; deposition of sediments from natural flood alluviation or late irrigation practices could have buried low-lying settlement areas.

On the other hand, avoidance of this space may have been real. Patterns of land tenure are closely related to patterns of settlement expansion, but it is very difficult to imagine a continuous pattern of ownership over this land that lasted for some two thousand years. A more likely reason is that this space was simply uninhabitable, probably because the Euphrates (initially) or a major canal from it (subsequently) ran between Uhaimir and Ingharra. This interpretation is not without difficulties—for example, the major branches of the modern Euphrates are 100–150 m between banks, and the space between Uhaimir and Ingharra is about 1 km. With the present state of knowledge, however, the presence of a major watercourse is the most reasonable explanation for why Kish maintained a dual morphology for such a long time. No trace remains today of this early Euphrates levee (see below).

The evolving shape of the city (or cities) of Kish is also remarkable. Its twin-city morphology may be rare (if not unique) in Mesopotamian history, but early settlement on Uhaimir and Ingharra does appear to conform to known patterns of urbanism on the plain. For one, they are nucleated settlements, based around durable temple households and with densely occupied residential quarters. For Uhaimir and Ingharra proper, we know little of their internal structure beyond monumental architecture. For the Early Dynastic III northern extension of Ingharra into Area 11, however, satellite imagery shows a dense urban fabric, similar to what is known from excavations at Ešnunna and Ur (Stone 2013). Both settlements grew to, and maintained, the ovoid shapes characteristic of other early cities, which suggests that decisions about turning agricultural land into settlement space were not wholly defined by proximity to river or canal.

With time, southern cities were more likely to exhibit linear growth patterns, a tendency borne out at Kish. Linear cities, the growth of which was heavily influenced by canals or rivers, first appear unambiguously

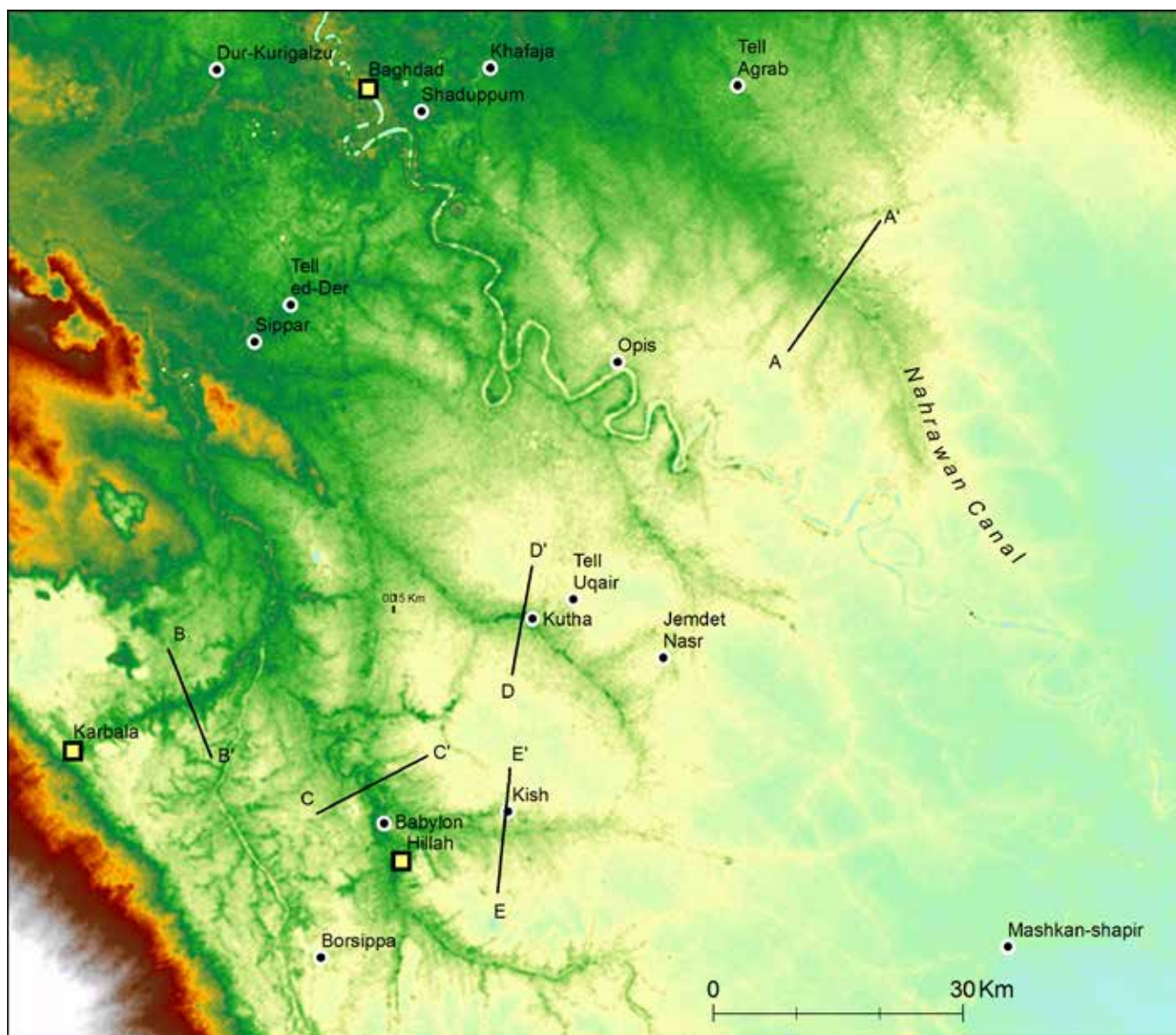


FIGURE 12.6. Topography of the northern Babylonian floodplain, including relict levees, based on the Shuttle Radar Topography Mission (SRTM) dataset. See figure 12.7 for levee profiles.

in the Late Bronze Age, for example at Dur-Kurigalzu (see sketch plan in Gibson 1972b, p. 191) or Kar-Tukulti-Ninurta. Starting with the Neo-Babylonian occupation (fig. 12.4b), Kish began a pattern of elongated growth that culminated in the Early Islamic town (fig. 12.4f), which extended 2.8 km along a hypothesized canal, but rarely exceeded 400 m in width. The reasons for this general spatial evolution are unclear, but almost certainly are related to changing customs of land ownership, field patterning, and water control.

This shift to a linear pattern raises the issue of Kish's watercourse. Gibson, Adams, and others have reconstructed early rivers and channels based on perceived linearities in settlement patterns, since the physical traces of early watercourses are almost always erased by later ones (Gibson 1972b) and the taphonomic processes of aggregation and deflation (Wilkinson 2003). Gibson suggested that the canal from Babylon began only in the early first millennium BC. The topographic data for the plain (fig. 12.6; see also Hritz and Wilkinson 2006) suggests that the Kish canal was substantial, and perhaps therefore of earlier origin. If one considers vertically exaggerated profiles across major levees of northern Babylonia, the Kish levee (fig. 12.7e) is similar in width and height to the Kutha levee just upstream from that site (fig. 12.7d) and not much smaller than the Euphrates levee immediately north of Babylon (fig. 12.7c). On the other hand, it is much broader than the levee of the recent canal branch leading to Kerbala (fig. 12.7b), which is aggrading rapidly on a narrow levee. It is, however, dwarfed by the massive levee of the Nahrawan Canal (fig. 12.7a), which is likely to be the former Tigris, reused as a canal in the Sasanian and Early Islamic periods (Hritz

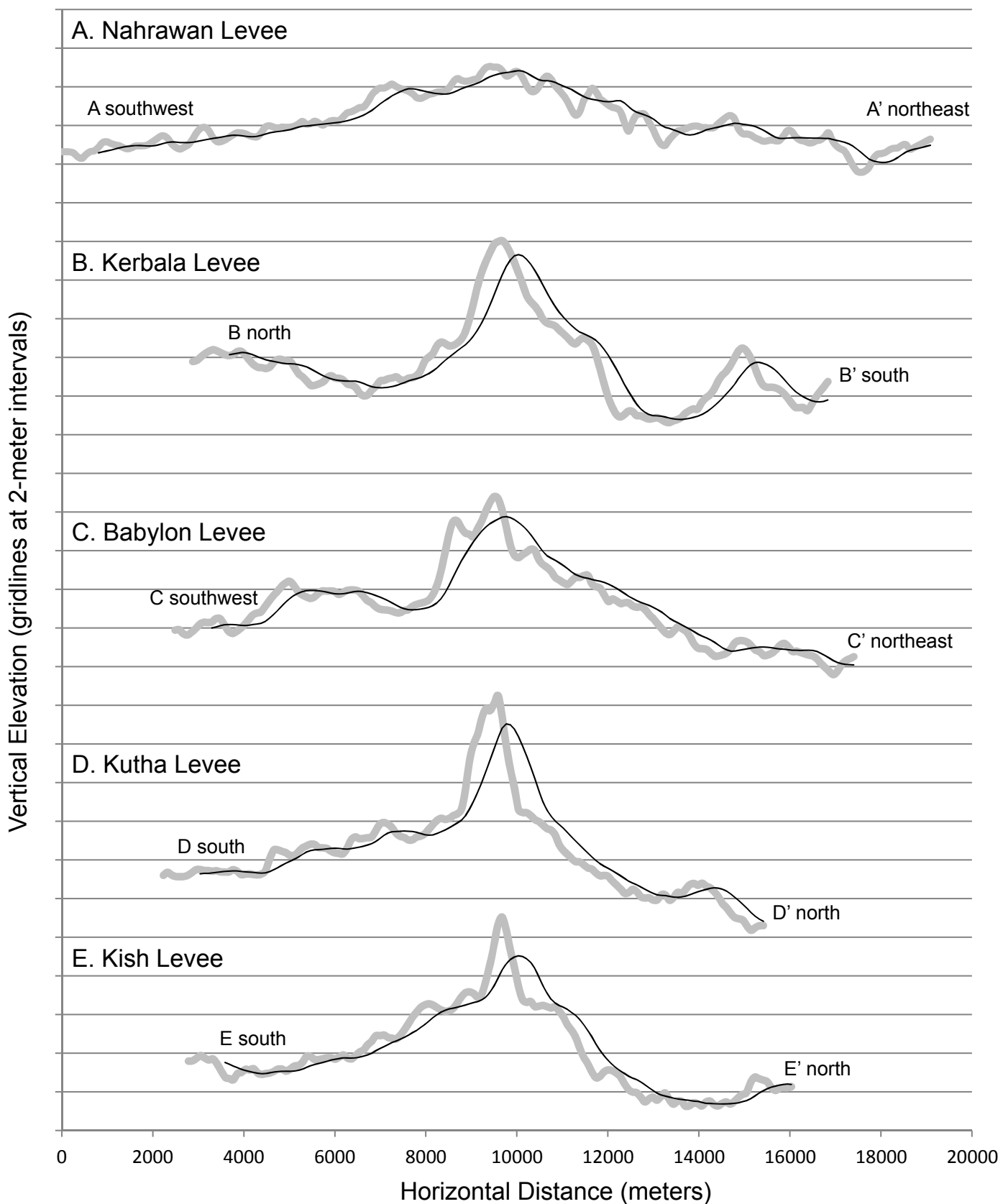


FIGURE 12.7. Vertically exaggerated profiles across major northern Babylonian levees, based on elevation data from the Shuttle Radar Topography Mission (SRTM). Gray lines are uncorrected SRTM elevation data; black lines are ten-point running averages. See figure 12.6 for profile locations.

2010). An earlier date for the Kish branch would contradict the above proposal that Uhaimir and Ingharra were separated by a Euphrates branch. The resolution of this issue must await geomorphological fieldwork (Gasche and Tanret 1998).

CONCLUSIONS

Kish was a remarkably large and durable city that remained urbanized for more than three millennia. During that span, it fluctuated in size, from a top-tier megacity in the third millennium BC, to smaller mid-sized cities in its later phases. It also evolved spatially, from nucleated ovoid forms to its final linear arrangement. For much of its history it maintained a rare and possibly unique “twin-city” morphology, anchored by two temple households. As at other Mesopotamian cities, they appeared to have been the cosmological anchors that kept people settled there, and brought them and their kings back, even when social and environmental conditions might have been discouraging. This overview was already established through the research of McGuire Gibson in the 1960s, and can now be quantified and extended with new geospatial methods.

This reassessment says more about Kish than just that it was large. Problematic though it is (Postgate 1994), site area is the only metric useful for comparison of sites across regions and between periods, and it is the only proxy for population. In the case of Kish, the spatial assessment complements what we know from the early historical record: Kish was not only a major political center in the Early Dynastic period, it was also a major demographic center. These two roles are not always correlated. In northern Mesopotamia, for example, the known political centers at Ebla and Nagar (Tell Brak) both fell in the range of 60–70 ha, but were dwarfed by Hamoukar, Leilan, and Mozan, each of which exceeded 90 ha but never held political sway, as far as we can tell at present (Ur, Karsgaard, and Oates 2011, pp. 9–10). In southern Mesopotamia, the city of Ur at the time of the Third Dynasty was merely 50 ha (Wright 1981, pp. 329–30), despite dominating a large swath of Mesopotamia and western Iran.

The reassessment of Kish’s urban dimensions relies on a model of Mesopotamian urbanism that is supported by the available evidence but desperately requires verification. We assume that early cities were dense and nucleated, without substantial intra-urban open space. We assume that cities grew outward from their densely settled cores, converting the immediately adjacent agricultural land into settlement. There is substantial but potentially nonrepresentative evidence for these assumptions (see recent reviews in Stone 2007, 2013; Ur 2012), but they need dedicated testing. For northern Mesopotamia, an initial “proto-urban” phase was characterized by dispersed low-density settlement (Ur, Karsgaard, and Oates 2007; Al Quntar, Khalidi, and Ur 2011), but whether such a phase also characterized the southern floodplains remains unknown. Resolution of these important questions will require further intensive surface observations, including artificial, topographic, and geophysical surveys combined with horizontal excavations.

ACKNOWLEDGMENTS

I owe a great intellectual debt to McGuire Gibson. Mac’s dissertation fieldwork provided the data for this reassessment; he also supervised my 2004 University of Chicago PhD dissertation, which in hindsight was remarkably similar to *The City and Area of Kish*. I am only one of a generation of graduate students that were inspired by Mac’s enthusiasm for the archaeology of Mesopotamia. This study also benefited from imagery provided by Elizabeth Stone (a QuickBird satellite image) and Paul Collins (an early aerial photograph). CORONA photographs and SRTM data are courtesy of the United States Geological Survey (USGS). CORONA mission 1104 data was derived from scenes available at the CORONA Atlas of the Middle East (<http://corona.cast.uark.edu>). I thank Carrie Hritz for valuable critical commentary on an early draft of this chapter.

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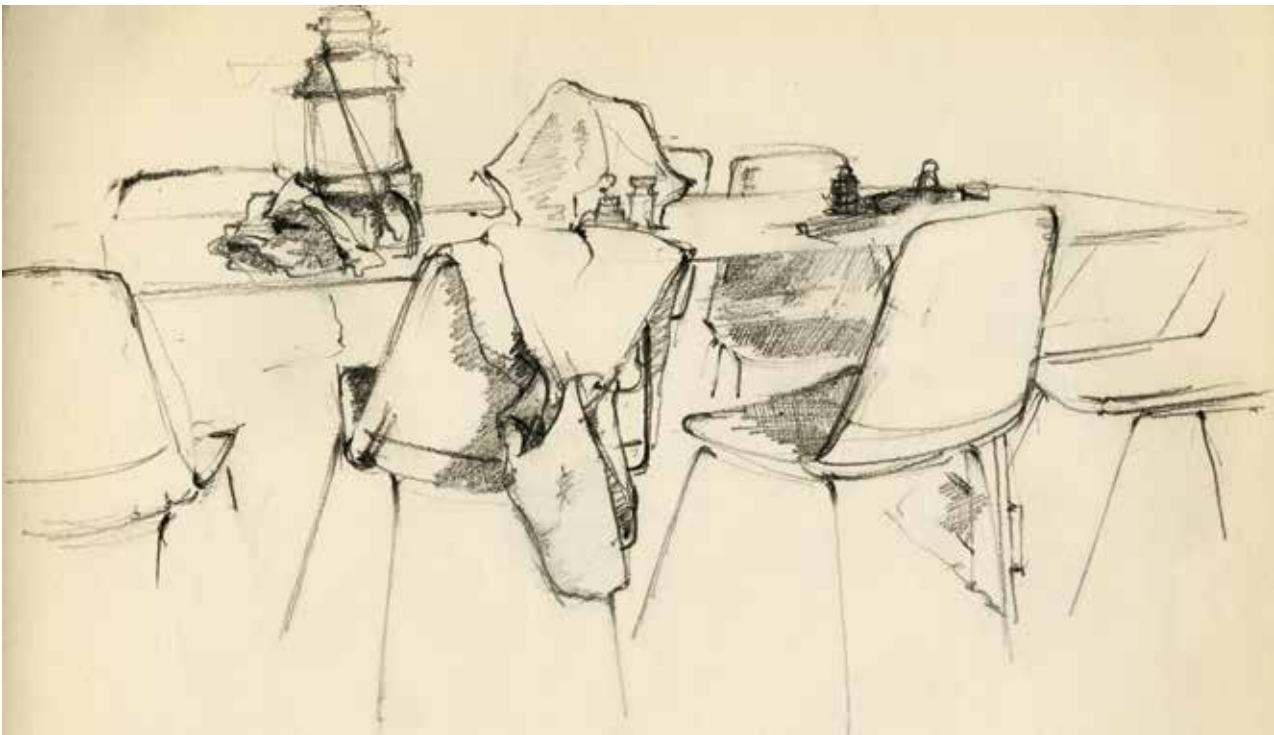


Table and chairs, Umm al-Hafriyat, 1977. (Drawing by Peggy Sanders)

CHAPTER 13

THE ORIGINS OF LEVEE AND LEVEE-BASED IRRIGATION IN THE NIPPUR AREA—SOUTHERN MESOPOTAMIA

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ABSTRACT

This paper aims to understand the geo-archaeological development of one of the major palaeochannel levees to the northeast of Nippur in southern Mesopotamia, and also reveal when these levees began to aggrade so that benefitting from their levee slopes for irrigated agriculture became possible. These levees were reported in several previous works; however, they provide different interpretations, as some authors called them the ancient Tigris while others considered them as one of the ancient branches of the Euphrates.

However, in the present study, two fieldwork trips have been carried out in this area: first in 1990, when Gibson and Wilkinson were able to record a series of sections by means of the exposed section of the Third River Drain project, and secondly in 2013 when Jaafar Jotheri conducted fieldwork as part of his PhD study. Archaeological data and radiocarbon dates have been used and integrated with lithological interpretation of the levees.

As a result, it seems that the levees were initiated probably as herringbone canals in the fourth millennium BC and were sustainable over some 4,000 to 5,000 years. This supports the idea that this type of herringbone canal system is long lasting and easy to maintain, while the massive and extensive canal systems of later periods were difficult to maintain and had a relatively short life.

INTRODUCTION

Mesopotamia consists of one of the most dauntingly complex landscapes in the world because of the way it has been sequentially deposited by alluvial processes, overprinted by 9,000 years of human occupations, and deflated by millennia of aeolian activity. Despite this complexity, some elements of the landscape have been argued to have developed along fairly simple principles. Specifically, Thorkild Jacobsen suggested

A systematic survey of all existing settlements (tells) in a region, dating the settlements by their surface pottery and plotting them on period maps, will therefore show that they are arranged in linear patterns representing the lines of the water courses of the region in Antiquity. (Jacobsen 1960, p. 174)

Such methods were employed in the Diyala survey from 1937, and from this point on, Vaughn Crawford and Robert McCormick Adams have followed these principles. This model has also led Hans Nissen to observe that by the early Dynastic period irrigation oases were “threaded like pearls along the main water courses” (Nissen 1988, p. 141).

Because many ancient water courses were represented on the ground by low alluvial levees, usually some 1–5 m in height, it has been possible to demonstrate that many sites were indeed aligned along ancient water

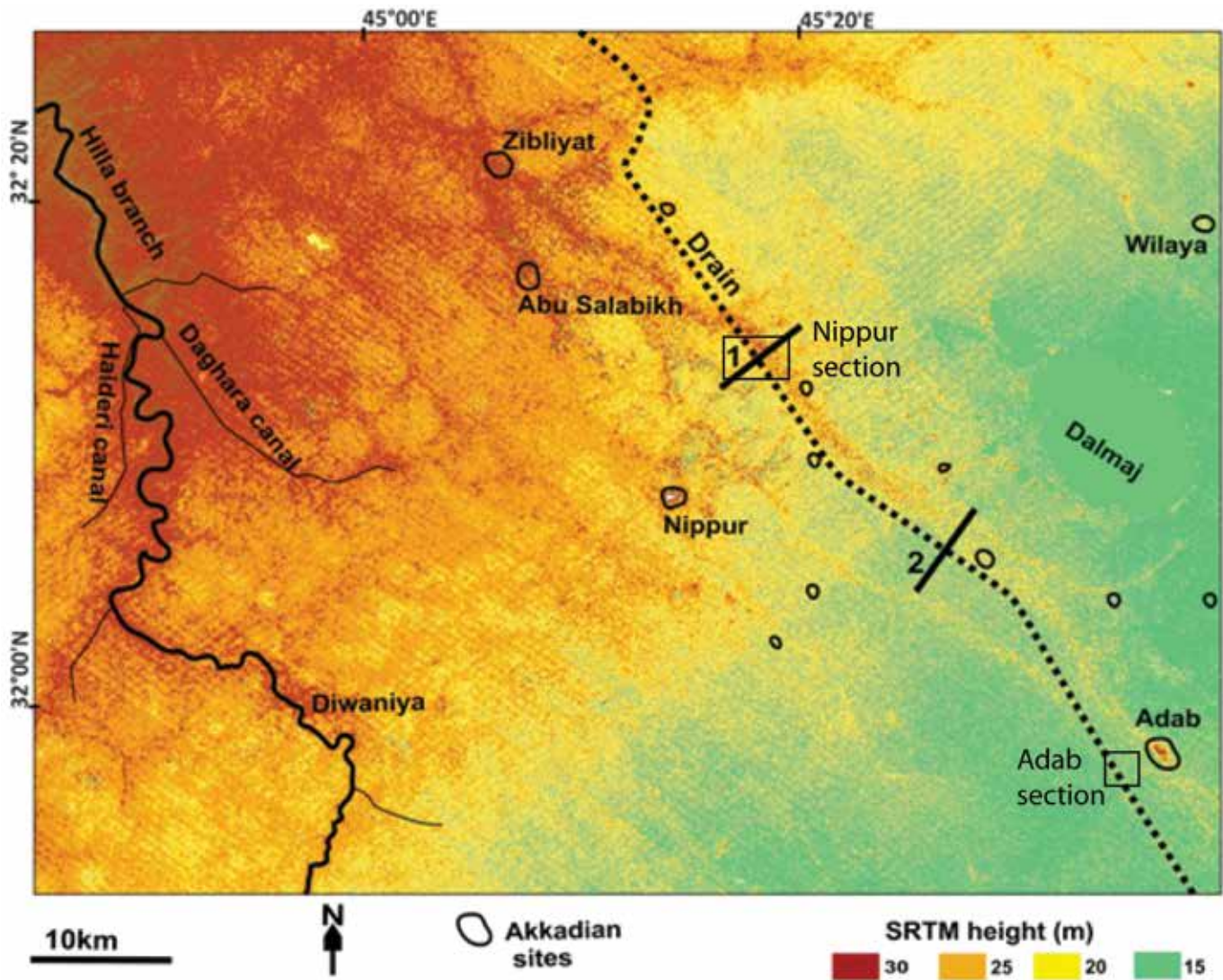


FIGURE 13.1. SRTM topographic map of third River Drain near Nippur and Adab.

courses. The identification of levees of ancient water courses was attempted over large areas by Adams (1981, fig. 6) using LANDSAT images, and was made more effective by the use of large scale topographic maps to identify riverine levees in the area of Sippar (Cole and Gasche 1998; Hritz 2005). However, it was not until the availability of digital terrain models, specifically via the SRTM (Shuttle Radar Topographic Mission), that it was really possible to identify levees relatively easily, and over large areas. Whereas satellite imagery reveals the remarkable complexity of the Mesopotamian landscape, imagery obtained via SRTM, by simply concentrating on three components of the terrain (the x, y, and z axes), results in a remarkably clean and elegant view of the landscape (Hritz and Wilkinson 2006). Consequently, on the seemingly flat plains of the alluvial south, where tell-like features are rather difficult to distinguish on SRTM images, linear features such as levees stand out prominently.

The release of SRTM imagery has enabled Carrie Hritz to not only recognize and map levees, but also to take the distributional data from Robert McCormick Adams's maps to test the relationship between site distributions and the pattern of levees (Hritz 2010). Using GIS, and superimposing the settlement data on the microtopography defined by the SRTM, Hritz was able to demonstrate convincingly that significant numbers of settlement sites were indeed aligned along levees (Hritz 2010, fig. 5). This relationship suggested that sites dating back to at least the fourth millennium BC were oriented along levees (fig. 13.1). On the other hand, in the southern plains around Uruk and further east, it has been argued that the relationship between sites and water courses was less clear, and instead the development of marshes was one of the key factors in settlement and indeed urban development (Pournelle 2007).

Thanks to the research of Carrie Hritz, the relationship between settlement and levees for the central plains (e.g., around Nippur) appeared secure. Nevertheless, such relationships are best confirmed by field evidence as well. It was therefore rather fortuitous that in spring 1990, Gibson and Wilkinson were able to record a series of sections through the Mesopotamian plains that supplied geoarchaeological evidence on the development of one of the major levees to the northeast of Nippur (fig. 13.1).



FIGURE 13.2. Photograph of third river drain looking north. (Photo: TJW)

The central question posed by this paper is, therefore, when did low-sinuosity levees commence to aggrade so that it became possible to benefit from their levee slopes for irrigated agriculture?

The opportunity to investigate the long-term sedimentary history of the plain was presented by the excavation of the Third River Drain, a huge drainage cut planned during the 1950s but not actually dug until the late 1980s and the 1990s (fig. 13.2). This cut was planned and dug from south of Baghdad to eventually debouch into the Gulf near Fao in order to drain areas of central Iraq and diminish the impacts of salinization (Naff 1992; Mirak-Weissbach 1993). Contrary to what is commonly believed, rather than being dug as part of a military strategy to drain the marshes of southern Iraq, the drain was therefore intended as part of a major agricultural strategy initiated by foreign consultants. In fact, according to hydrological modeling, the draining of the southern marshes must, at least in part, be blamed on the large number of dams and hydro-electric schemes initiated in the headwaters of the Tigris and Euphrates Rivers in Turkey, Iraq, and Syria (Jones et al. 2008).

Archaeologically, this huge gash through the landscape, estimated at 90 m wide at the top, 36 m wide at the base, and between 5 and 8 m in depth,¹ provided a marvellous opportunity to obtain a window of observation into the early phases of the plain and its associated archaeology. This is not only because the sections exposed would supply an open section which is easier to read and interpret than boreholes, but also because the depth reached (ca. 6 m), was deeper than the standard depth of augering around, for example, the site of Abu Salabikh to the north (Wilkinson 1990). Although it was only possible to spend a single day on the visit, the results proved to be very instructive.

It has subsequently turned out that the drain approximately followed the line of a substantial levee identified by Adams as a major watercourse which could be followed through the central plain from the east of Kish in the north to Tell Jidr or Adab to the southeast (fig. 13.1; Adams 1981, fig. 27; Hritz 2010, fig. 5). This levee also represented the channel identified by Jacobsen as the Iturungal (1960, pl. 28), the course of the ancient Tigris by Steinkeller (2007, fig. 48), as well as the distinctive alignment mapped by Jason Ur for the Late ED to early second millennium BC (Ur 2013, figs 7.5, 7.6).² In the area of Nippur, this levee complex was first cut by engineers authorized by Saddam Hussein, and a rapid assessment was made by the author and McGuire Gibson in spring 1989 (Wilkinson 2003, pp. 78–79).

Unlike the Abu Salabikh area where much of the landscape has been scoured flat or buried under a thick deposit of silt and clay, the Third River Drain area included some topographic variation and levees. Although we mainly concentrated on a few kilometers of the drain to the northeast of Nippur, additional information has come from sections recorded in 2013 by Jaafar Jotheri, to the south near Adab (ancient Bismaya, fig. 13.1).

¹ Naff (1992) gives 600 ft × 14 ft deep, roughly 200 m wide and 4–5 m deep, whereas Mirak-Weissbach (1993) describes it as 8m deep.

² However the identification of this channel as the course of the Tigris is still not fully agreed upon.

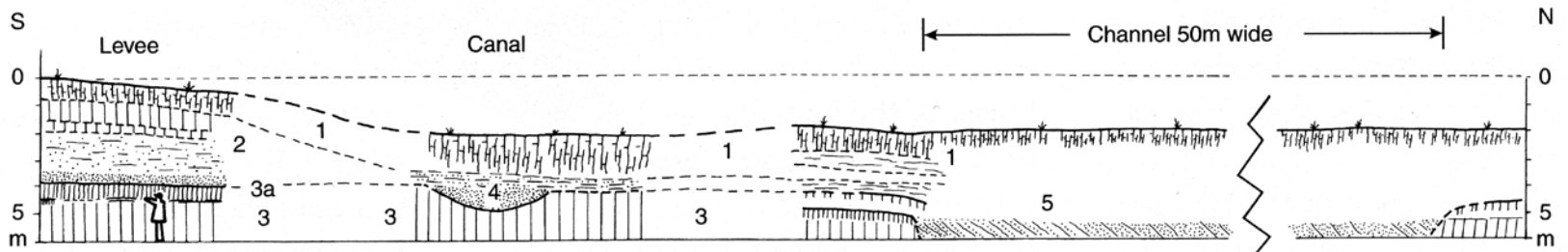


FIGURE 13.3. General long section of Third River Drain to the NE of Nippur. (As in Wilkinson 2003: fig. 5.4)

THIRD RIVER DRAIN NEAR NIPPUR

The evidence from the exposed section of the drain is presented at two scales. First a composite north-south sketch section shows an alluvial channel ca. 50 m wide and cut some 1.6 m into the early Holocene flood plain (fig. 13.3, no. 5). The infill of this channel, characterized by inclined beds of fine sand (fig. 13.3, no. 5), appears to have accumulated as point bar deposits. The contained deposits, together with the considerable width of the channel, suggest that this was a river channel, perhaps that represented by the relict meanders a little to the north and east of the Third River Drain (fig. 13.4). In this case, the deflated beds of the relict meander must have been buried beneath the later deposits of the levee. To the south and cut into the early Holocene flood plain was a small canal, in cross section ca. 2.0 m wide \times 0.8 m in depth, covered by the deposits of the main levee.

The full expression of the sequence was recorded to the south of the channel deposits where a cultural deposit of Ubaid/Uruk date had accumulated upon and within the early Holocene floodplain (fig. 13.3, no. 3, 3a). This main sedimentary section forms a 5.8 m sequence of fine sediments through the early Holocene floodplain and the aggrading levee as follows (figs. 13.5, 13.6):



FIGURE 13.4. Oblique view of meander scrolls to east of third river drain looking north. (Image courtesy of Google Earth)



FIGURE 13.5. Photograph of the Third River Drain section showing main deposits, discussed in text. Mac Gibson as scale. (Photo: TJW)

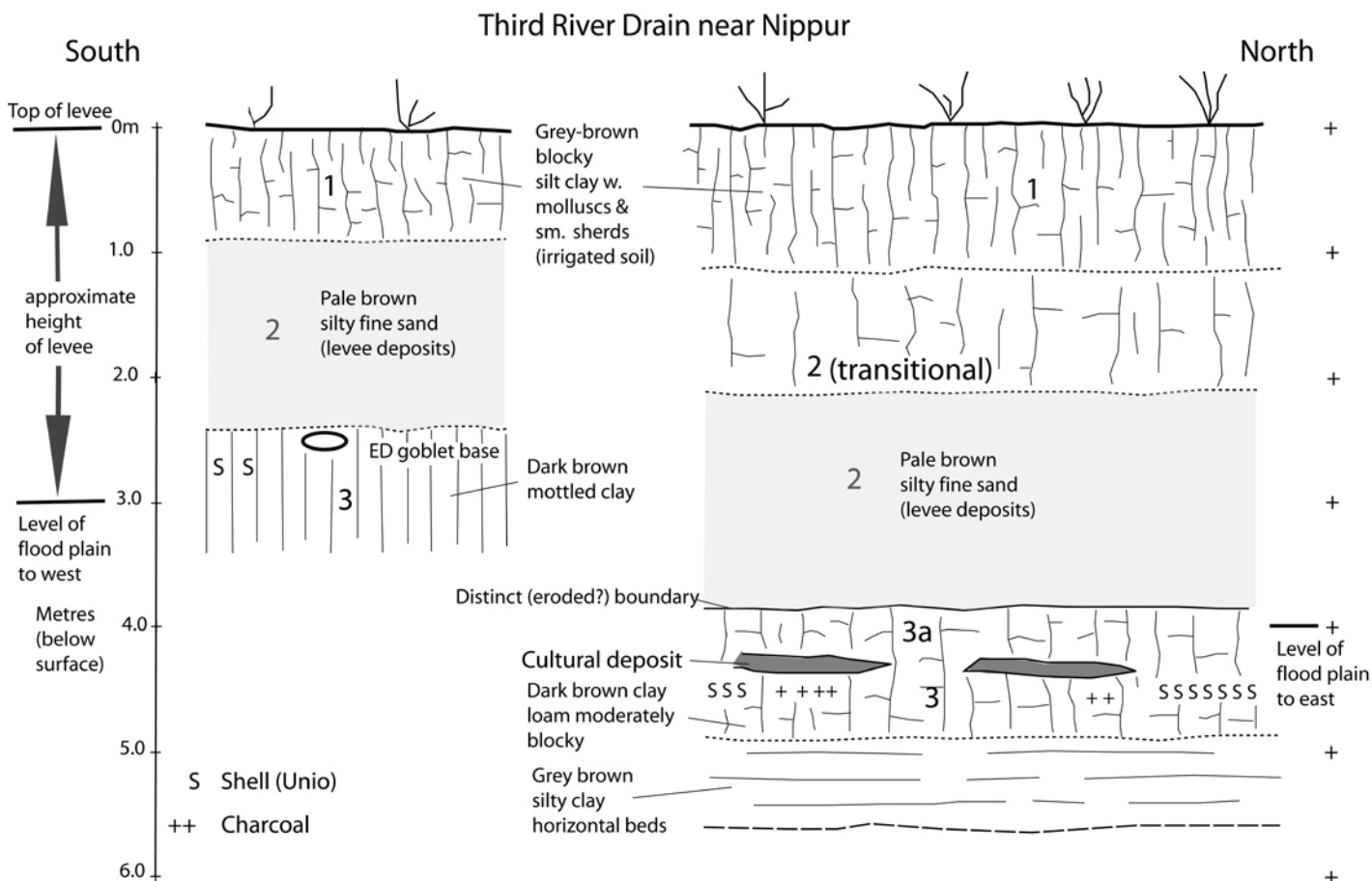


FIGURE 13.6. Two sections through the Third River Drain north east of Nippur. The cultural deposit in the right hand section contained a clay sickle, ca. 4000-3000 BC; the Early Dynastic (ED) goblet base in the left hand figure dates to around 2900-2500 BC. The grey-brown blocky "irrigated soil" at the top of both sections contained occasional calcium carbonate or calcium sulphate veins and very fine sherd fragments, dated nearby sections by occasional Sasanian-Early Islamic sherds; also present were shells of the mollusc *Melanoides tuberculata*.

- At the base, the sedimentary accumulation commenced with a blocky, clayey silt of a relict flood plain soil horizon (figs. 13.3, no. 3 and 13.6, no. 3). This included at ca. 4.2–4.5 m depth a 5 cm thick cultural horizon containing shells of freshwater mussel (*Unio*), charcoal flecks, inclusions of burnt clay as well as occasional soft, reduced potsherds and a baked clay sickle of Ubaid, Uruk, or early ED date (ca. 4500–3000 BC). This accumulation appears to be the early Holocene flood plain which included intermittent relict soil horizons representing occasional periods of stability (corresponds to 3 and 3a on fig. 13.3). To the south, a similar horizon included an Early Dynastic goblet dated in the range 2900–2500 BC (fig. 13.6, south).
- The early Holocene flood plain was overlain by some 1.4–1.75 m of pale olive brown, fine sandy loam and sandy silt levee deposits which became progressively finer upwards (fig. 13.3, no. 2); it had a distinct, eroded boundary at the base. Fine root holes suggest that these deposits were at least occasionally exposed to become colonized by grasses or other plants. This accumulation can be compared with soils of river levees as defined by Buringh (1960, p. 148).
- Finally the top of the sequence (fig. 13.3, no. 1) consisted of about 1 m of grey-brown blocky, silty clay, with fine veins of calcium carbonate or calcium sulphate. Also common were freshwater gastropods (*Melanoides tuberculata* species³) and small fragments of ceramics. From the presence of occasional Sasanian-Islamic sherds in equivalent horizons in the vicinity, this accumulation is interpreted as a Sasanian and Early Islamic irrigated soil horizon. According to Buringh (1960, p. 155), irrigated soils have a rather uniform texture because of the fairly even flow of the canals which deposit most of the fine sand within the first kilometer of the canals, with silt and clay being deposited in the more distal parts of the canal and the irrigated fields. The blocky and locally prismatic or columnar structure may be a result of soil formation processes within an irrigated saline-alkali soil (Buringh 1960, pp. 109–10).

The chronological development of the levee is framed by two cultural horizons: first at the base by the thin band of occupational debris and the clay sickle, as well as an Early Dynastic goblet base to the south; second, in the upper horizons, by occasional Sasanian–Early Islamic sherds. The dates of these provide an estimated sedimentation rate of 0.73 mm per annum for the north section (fig. 13.6, right) and 0.51 mm per annum (fig. 13.6, left), which fits into overall sedimentation rates estimated for the Mesopotamian plains computed from the data of Clemens Reichel, namely: 1.35 mm per annum for the Diyala region, 0.74 for near Nippur, and 0.2 mm for the southern plains (Wilkinson 2003, p. 80).

Overall, it appears that the levee started to accumulate either shortly after the Ubaid/Uruk period (ca. 4500–3200 BC) in one section, or 2900–2500 BC in another section, and that deposits proximate to the main channel (i.e., the fine sandy loams) were deposited initially, to be replaced by progressively finer irrigated soils (with increasingly blocky and clay-/silt-rich soils) towards the top, perhaps as the main channel migrated laterally.

THIRD RIVER DRAIN NEAR ADAB

The above sequence is now supported by two radiocarbon dates from sediments deposited towards the base and top of a sequence recorded downstream along the same levee complex and to the southwest of Adab (fig. 13.1). In this case the levee is some 2 km wide and 2 m high and appears to be the deposit of a second levee of a channel flowing from the northwest near Nippur and meeting the main levee near Adab (figs. 13.1, 13.7).⁴

³ Known as a freshwater species, these are common within irrigation canals in Oman (Costa and Wilkinson 1987) but they also inhabit brackish environments in Iraq (Hritz, Pournelle, and Smith 2012, p. 44).

⁴ This sequence, sampled by Jaafar Jotheri will be presented in the author's PhD thesis and a future publication.

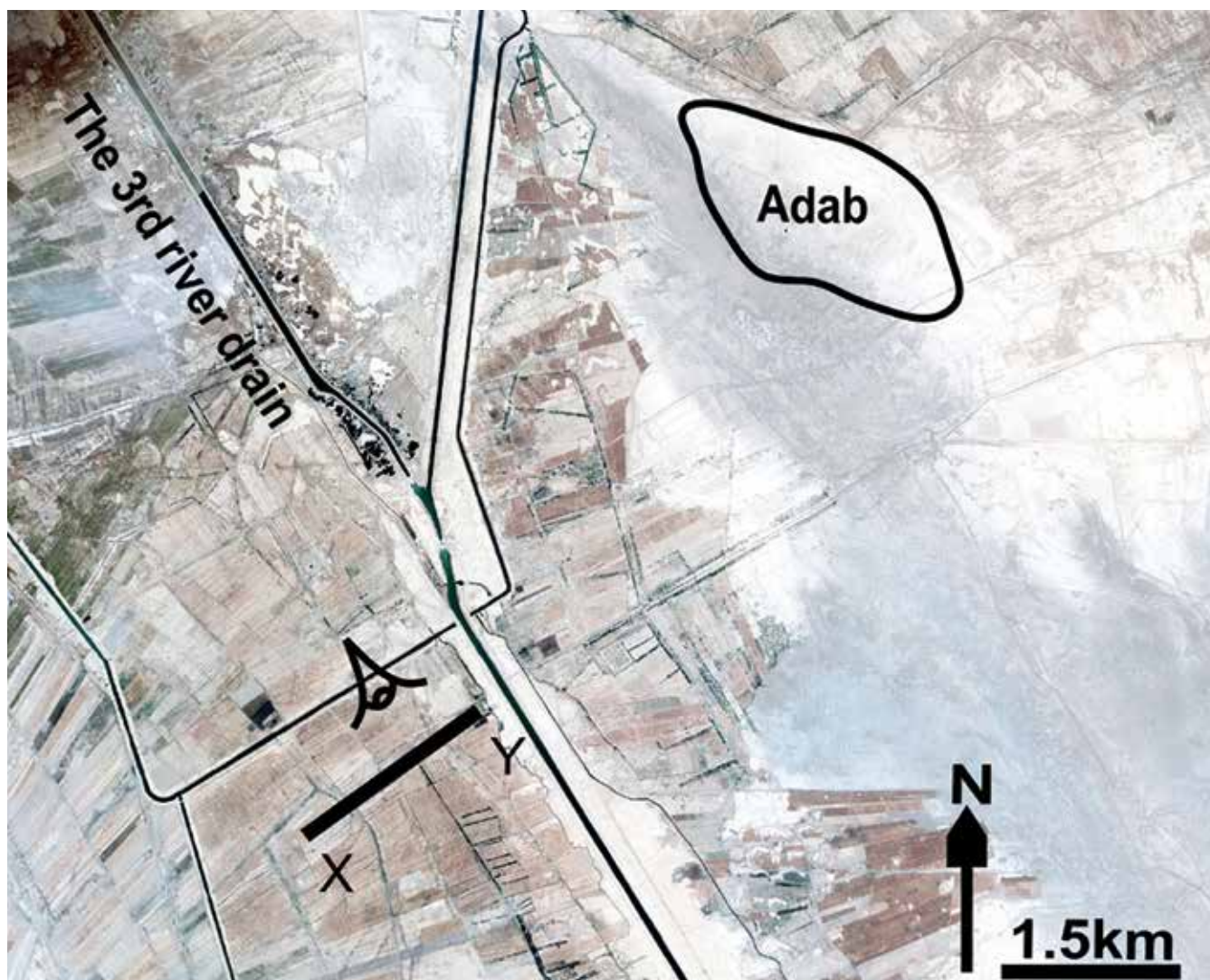


FIGURE 13.7. Satellite image showing the area of the Adab section and the location of the topographic profile (X-Y: fig. 13.9).

ADAB SECTION DEPOSITS (FIGS. 13.8 AND 13.9)

5. The bottom of the 4 m deep section consisted of a bed of compact homogeneous brown clay to silty clay, interpreted as a floodplain deposit.
4. Above this was a bed 0.6 m thick, colored from tan to brown, of very fine sand and coarse to fine silt; the structure was massive to thin bedded. This bed can be interpreted as a channel bedload deposit.
3. Above that a 0.4 m bed, ranging in color from greenish to light black, was of clay to silty clay; this was bioturbated, rooted with vegetation fragments, and contained gastropod shells. This can be interpreted as marsh sediment.
2. There followed a thick bed (2 m) of compact homogeneous brown clay to silty clay. This bed is interpreted as a floodplain deposit, although equally it might represent the finer deposits of a levee slope (Buringh 1960, p. 149).
1. Finally, the uppermost deposit consisted of 0.8 m of greenish-to-light-black clay to silty clay; this was bioturbated, rooted with vegetation fragments, and contained gastropod shells. This can be interpreted as marsh sediments.

The top soil of this section had been removed and leveled by farmers using bulldozers. This top soil had consisted of approximately 0.3 m of grey brown fine sandy silts and aeolian deposits mixed by cultivation.



FIGURE 13.8. Section cleaning of the Adab section showing approximate locations of the radiocarbon samples.

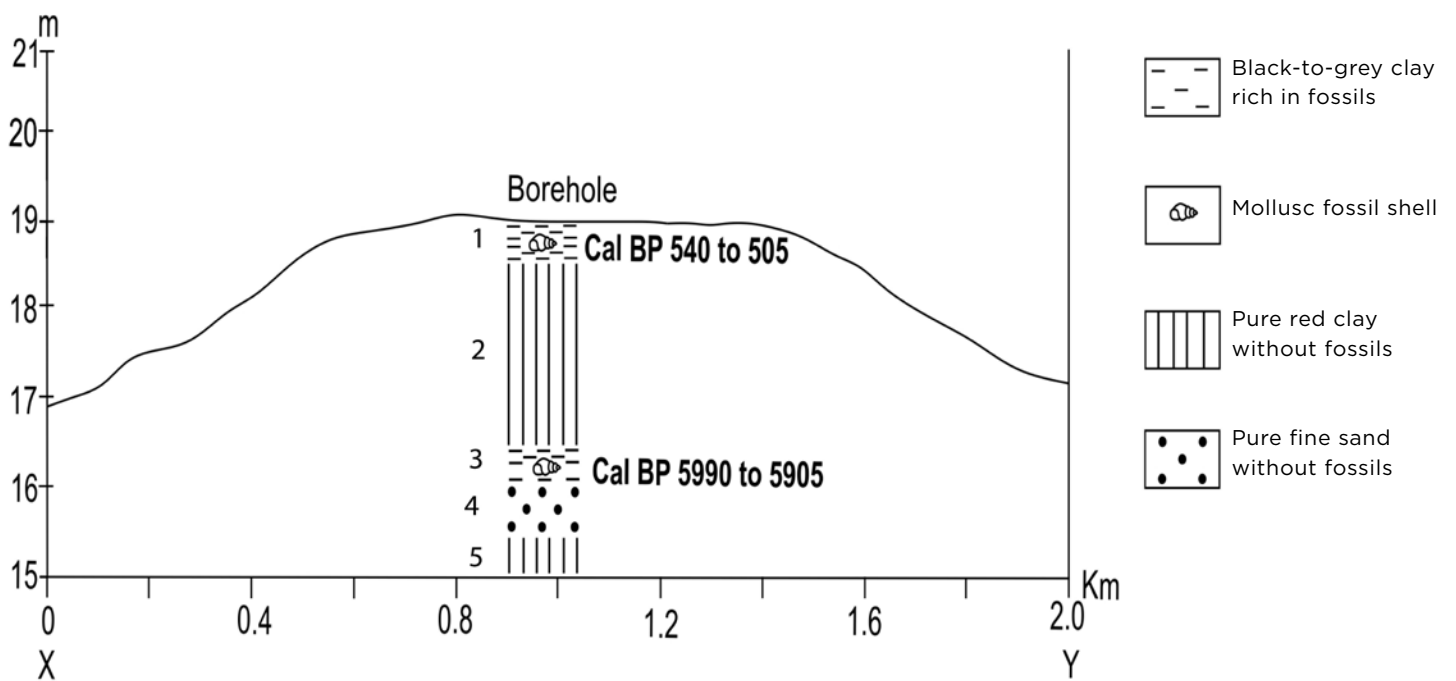


FIGURE 13.9. Section across the secondary levee at Adab and associated deposits described in text.

ADAB SECTION HISTORY

The lowest deposit (5) appears to represent the floodplain deposit of an early Holocene river. There followed (4) the bedload sand of a river which was gradually abandoned before 5990–5905 BP as the area was flooded to form marshes (3). Subsequently these marshes were covered by low-energy deposits interpreted as the floodplain or deposits of the low-energy distal part of a levee (2). These sediments represent the course of a new river which accumulated after 5990–5905 BP and before 540–505 BP. At this time the area was again flooded to form marshes (1). Finally, these marshes dried out to become desert, until the area was reclaimed for modern agriculture as represented by the uppermost soil (removed).

The lower sample supplied a date estimate of 4040–3955 cal BC (cal BP 5990–5905, 2 sigma calibration; Beta 379039); and the upper of cal AD 1410–1445 (cal BP 540–505; Beta 379038). Of these, the earlier falls within the expected date range of the clay sickle from the Nippur Third River Drain section, whereas the latter falls within Adams's Late Islamic period, corresponding to the Ilkhanid and later periods (1256–1353 AD and slightly later) a period when the irrigation systems of the central plains were either abandoned or in the process of being abandoned (Adams 1981, pp. 220–23). These dates provide an estimated rate of sedimentation in the region of 0.49–0.51 mm per annum, which again compares with those estimated from the Nippur section discussed above.

DISCUSSION

The first sedimentary section discussed above suggests that channel flow associated with the levee north-east of Nippur was initiated, either just after the ED, according to figure 13.6 (left), or some time after 4500 BC, depending upon the dating of the Ubaid–Uruk–early ED site on figure 13.6. The creation of a new river course will provide slightly different dates, because any lateral migrations will be of slightly later date, so some variation is inevitable. Therefore, although we cannot provide an unambiguous date for the initiation of the levee, some time in the fourth millennium BC appears a reasonable estimate.

The small occupation site identified in the section in figures 13.3 and 13.6 is stratified within the soils of the early Holocene flood plain, which is associated with the 50 m wide river channel as indicated in figure 13.3. Because the beds of this channel may form part of the apparent meander scrolls in figure 13.4, it follows that this settlement was probably situated adjacent to a broad meandering river. This channel was then followed by the aggradation of a low-sinuosity or virtually straight channel associated with the development of the levee.

Taking the estimated date for the initiation of the levee as between 4000 and 3000 BC, with the end date recorded from the upper soil in the Sasanian Early Islamic period, we can suggest a duration for levee accumulation of some 5,000 to 4,000 years. Unfortunately, the dating evidence from the levee supplies no evidence for continuity of accumulation.

However, the dates of occupation of the sites associated with the levee demonstrate that this levee complex was in use over a remarkably long period, namely: the Late Early Dynastic, Akkadian, Ur III/ Isin-Larsa, Cassite, Neo-Babylonian/Achaemenid; Seleucid/Parthian, Sasanian, Early and Middle Islamic; and less certainly the Uruk, Jemdet Nasr, Early Dynastic I, Old Babylonian, and Middle Babylonian periods.⁵ The levee was then abandoned or hardly settled during Late Islamic time. The evidence from the associated sites therefore also suggests that the levee was in use virtually continuously over some 5,000 years.

Because the Adab sequence represents a second channel which flowed from the northwest (fig. 13.1), the dates from this channel cannot be used to date the main levee to the north. Nevertheless, it is significant that the chronology of deposition, namely from 4040–3955 cal BC to cal AD 1410–1445, not only fits the date range of occupations along the main levee, but also suggests a similar duration of accumulation.

Although there has been little geoarchaeological work on the history of Mesopotamian levees, one sequence located further north around the sites of Tell ed-Der and Sippar suggests that the youngest palaeochannel belt of the Euphrates started at least in ca. 3100 BC/5050 cal BP, and continued until ca. 1400–1000 BC/3350–2950 cal BP (Heyvaert and Baeteman 2008, p. 2409). The Tell ed-Der palaeochannel deposits

⁵ Adams 1981, figs. 13, 18, 21, 29–31, 33–35, 39, 43, 45, 48–49.

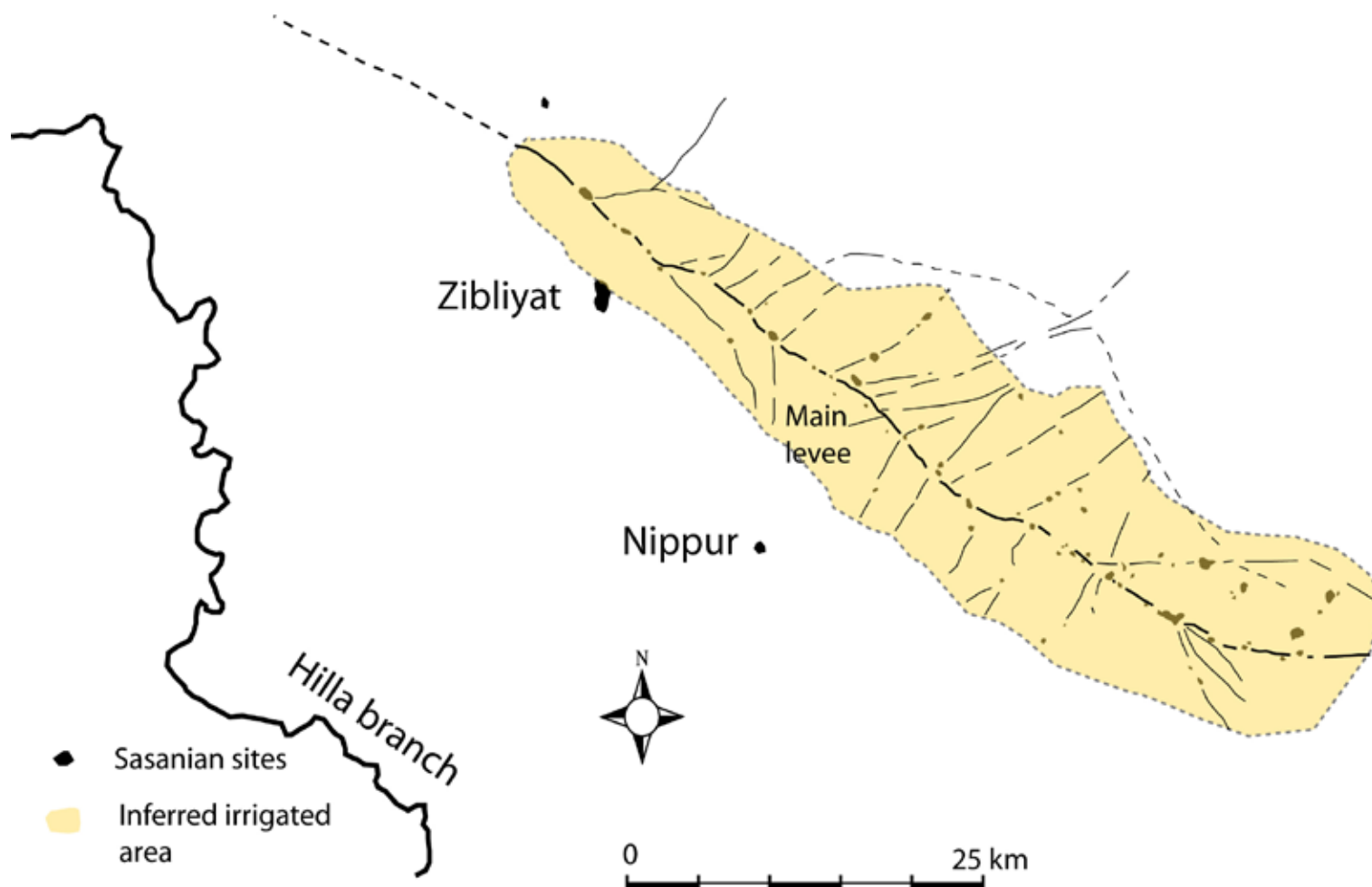


FIGURE 13.10. Sasanian period herringbone pattern of canals and sites for the central Mesopotamian channel complex. (Redrawn from Adams 1981, fig. 44)

accumulated in an alluvial environment of flood plain accumulations, channel belt and crevasse splay deposits, and various soils and anthropogenic deposits (Heyvaert and Baeteman 2008, fig. 13.4). In other words, the date of commencement of all three levee systems was probably sometime during the fourth millennium BC.

In the Third River Drain section, the presence of a small canal cut into the early Holocene flood plain and infilled by the deposits of the main levee implies that canal irrigation commenced approximately with the first development of the main levee, that is during the fourth millennium BC. This has implications for the development of early irrigation in the region. As originally pointed out by Adams (1981, p. 21), the gentle slopes of the plain make the distribution of water for irrigation difficult. However, because the levee slopes provide ideal gradients for water distribution, but for relatively short canals of 1–3 km length, early irrigation would therefore have been much easier when levees were in place.⁶

Whereas there is no direct evidence for the layout of the canals for the earlier phases, presumably because they must have been buried below later sediments, during its later phases the hydraulic system northeast of Nippur apparently consisted of a central longitudinal channel and “spur” canals of modest length which took advantage of the levee slope to deliver water at right angles to the main channel. These are illustrated for the Sasanian period in figure 13.10 (Adams 1981, fig. 44). In this case, the spur canals appear to have become elongated, presumably as the irrigated area was extended on to the lower levee slopes and perhaps into the flood basins; nevertheless, they have retained their distinctive herringbone form.

The environment associated with the Third River drain site near Nippur therefore appears to contrast with that of equivalent sites further south in the Tell Oueli/Eridu area. In the Nippur region, the small site appears to have developed during the fourth millennium BC along a meandering river channel within

⁶ Powell 1988, p. 163; Widell et al. 2013; Wilkinson 2013, pp. 42–43.

a moderately well-drained flood plain. Although marshes have been identified in boreholes around Abu Salabikh (Wilkinson 1990, p. 81, fig. 5) these are stratigraphically late, but undated. In addition, marsh deposits are present in the Adab sequence, dating to around 4000 BC and AD 1400. In contrast, further south, in addition to the extensive brackish peri-marine marshlands of the Holocene marine transgression (Aqrawi 2001), recent investigations suggest the presence of marshlands further inland as in the Eridu region dating between ca. 5837–5644 cal BC and 2621–2351 cal BC, as well as near other sites in the region (Pournelle 2007; Hritz, Pournelle, Smith, et al. 2012). At present, these data from the northern and southern parts of the plain appear to suggest a somewhat more marshy southern region than that further north around Nippur and Sippar, but the database remains rather slim.

CONCLUSIONS

The recording of the Third River Drain section has therefore provided two significant conclusions. First the formation of the two north–south levees through Adab was initiated probably in the fourth millennium BC. A similar date of initiation is also suggested for the major levee near Sippar. This was a time when the Mesopotamian plains, although densely settled, did not show settlement as clearly aligned along channels as was the case during the third millennium BC. For example, Adams's maps for the Early–Middle and Late Uruk periods (1981, figs. 12 and 13) suggests a more broadly dispersed pattern of settlement (see also Ur 2013, fig. 7.3). This suggests that the dispersed pattern of rural settlement in the fourth millennium BC then aggregated and became aligned from about ED times at approximately the same time as the levees were developing as significant features on the plain. Consequently, at this time, by enabling efficient down-levee slope irrigation systems to develop, it was possible for Mesopotamian farmers to provide an efficient form of irrigation system that was more viable than in the nonleveed landscapes that prevailed earlier. This raises the question: was early urbanization in the middle and upper parts of the Mesopotamian plains during the fourth millennium BC made possible by the development of levee-based irrigation systems?

Second, if the levee and its associated channel were in use from the fourth or early third millennium BC, as appears from the combined data sources discussed above, it follows that the levee-based short-canal irrigation system (i.e., the herringbone system) was sustainable over some 4,000–5,000 years. In contrast to the massive and extensive canals of the later periods (such as the Nahrawan) which were difficult to maintain and relatively short lived, the major levee under discussion demonstrates a longevity, and by inference sustainability, which is remarkable. However, such sustainability is hardly surprising because not only do the well-drained soils on the levees avoid the worst effects of salinization (Gibson 1974; Altaweel 2013), but also the levee slopes would supply good crops of grain, with the crests being ideal for palm crops and gardens. This model fits well with Adams's idea that southern Mesopotamia was densely populated, but primarily along specific alluvial strips, and was then much less populated away from them where lower land prevailed (Adams 2008, p. 15).

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Studies of workmen, Üçtepe, 1978. (Drawing by Peggy Sanders)

CHAPTER 14

A QUESTION OF HEIRLOOMS

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ABSTRACT

In 1911, French excavators working at Susa discovered two deposits containing items such as small sculptures and stone vessels. The dating of these “archaic deposits” and their contents has been much discussed. During the course of the Oriental Institute excavations in the Diyala region from 1930 until 1937, a number of objects were discovered in temple contexts that have close parallels to pieces from the archaic deposits at Susa. With one exception, all the Diyala objects were found in contexts dated Early Dynastic I or later, but were seen by the excavators as heirlooms from earlier periods. However, in recent years, evidence has been mounting to suggest that this perception is incorrect. It is best to see the similar objects from both the archaic deposits at Susa and from temples in the Diyala region not as heirlooms but as pieces produced during the early third millennium BC in styles that stem from previous traditions.

I would like to offer this short paper in honor of McGuire Gibson, an enthusiastic and dedicated mentor, colleague, and friend. I hope that, as an individual who values objects for their aesthetic properties, he will find some interest in it.

THE ARCHAIC DEPOSITS AT SUSA

In 1911, Roland de Mecquenem reported the discovery of two deposits containing items such as small sculptures and stone vessels in Trench 26 of the Acropole excavations at Susa. They were situated only a meter apart about 15 m from the west edge of the mound. The artifacts in the first deposit are said to have been in a heap on the earth; those in the second appeared to have been piled between thin limestone tablets placed upright. De Mecquenem described most of the objects and illustrated six of them (de Mecquenem 1911, pp. 51–55).

A tally of the items in what de Mecquenem’s assistant, Louis Le Breton, called the archaic deposits was drawn up by him and illustrated in line drawings published in 1957 (Le Breton 1957, pp. 109–12, fig. 32). In addition to the objects drawn by Le Breton, the first deposit also contained numerous beads in white paste, two beads of rock crystal, a small bronze mirror, about fifty seashells, and a dozen “bizarrely eroded stones” (de Mecquenem 1911, p. 53). The second deposit also contained shells, paste beads, and what de Mecquenem, again, described as bizarrely shaped stones; one with the vague appearance of a dove/pigeon and another of a person (de Mecquenem 1911, p. 54).

Pierre Amiet later noted that the figure of a kneeling female in Le Breton’s figure 32:24 should have been included in the first deposit rather than figure 32:12, which belonged in the second deposit (Amiet 1976, p. 62). In addition, Amiet discovered a sheet of tracing paper amongst de Mecquenem’s papers labeled “Un Dépôt de fondation archaïque. Dessins de Mr. P. Toscanne.” This enabled him to add to the first deposit both “le petit niche en albâtre” (Amiet 1976, p. 62; pl. 19:8) mentioned by de Mecquenem and a copper pin surmounted

by an ibex (Amiet 1966, no. 47D) as well as an alabaster object in the form of a pulley (Amiet 1976, pl. 19:7), a pendant in the form of a dog in pink limestone (Amiet 1976, pl. 19:6), and a curious statue in white-yellow clay painted in red (Amiet 1976, pl. 19:4).

De Mecquenem expressed the opinion that the objects in the two deposits were not fashioned to be buried together but most likely came from the possessions of a nearby temple, possibly one that was being renovated, and that they were chosen from among the least important and most deteriorated objects (de Mecquenem 1911, p. 54).

Le Breton interpreted the two archaic deposits as foundation deposits and noted that they were found in the area where in historic times the chief religious center of the city was located (Le Breton 1957, pp. 109, 112). This, plus the fact that they were found over the earlier massif, suggests that they are comprised of objects from a temple context, buried for some ritual purpose or because they had outlived their usefulness but were too important to simply be discarded.

The dating of the archaic deposits and the objects they contained has been much discussed. Le Breton dated the deposits to his period Cc, roughly equivalent to the Jamdat Nasr period and Protoliterate d in the Diyala Region (Le Breton 1957, pp. 109–13, 124). Subsequent scholars, such as Amiet, have noted that the deposits contain objects in both the Late Uruk and Proto-Elamite styles and suggest that they are Proto-Elamite in date but with a majority of objects coming from the preceding period.¹ Pittman has, on the other hand, wondered whether “the distinctive three-dimensional mode of rendering animal musculature evident in the seals of the later, Proto-Elamite period ... might first have been defined in sculpture at the end of the Late Uruk phase” (Harper, Aruz, and Tallon 1992, pp. 50–51).

TEMPLE FINDS IN THE DIYALA REGION

The Iraq Expedition of the Oriental Institute held the concession for excavations at several sites in the Diyala Region northeast of Baghdad from 1930 until 1937.² During the course of this work, a number of objects were discovered in temple contexts that have close parallels to pieces from the archaic deposits at Susa. These include human and animal sculpture and small multicompartmented stone vessels. Some of these Diyala pieces have appeared in widely scattered publications, while others have never been published. The purpose of this article is to publish these objects fully and to inquire as to whether their findspots can shed light on the date(s) of the similar objects from the archaic deposits at Susa.

The first of these objects is a small, badly weathered kneeling figure carved of gypsum³ from the Shara Temple (fig. 14.1) that was published by Frankfort, who noted that it is “a type known from Susa” (Frankfort 1943, pp. 9, 30–31, pl. 45E). It shares with the Elamite female⁴ the kneeling posture with a skirt that covers the knees and the hair falling down the back held in place by a band, which is now barely discernible on this figurine. The arms are held against the body with the hands clasped beneath the breasts; the base is flat and smooth with no indication of legs/feet.⁵

Another Diyala object with close Susa parallels is a small figurine, again from the Shara Temple, showing a bear with its front paws raised to its face as though drinking from a small container (fig. 14.2). Like

¹ Amiet 1976, p. 63; Harper, Aruz, and Tallon 1992, pp. 58–67.

² During that time the various branches of the Expedition conducted seven consecutive campaigns at Khafajah (1930–37), six campaigns at Tell Asmar (1930–35), two at Tell Agrab (1935–37), and two at Ischali (1934–36). Two more seasons at Khafajah continued under the joint auspices of the University Museum (University of Pennsylvania) and the American Schools of Oriental Research in the spring of 1937 and the winter of 1937/1938.

³ Analyses of the stones, excluding inlay materials, of the items in the Oriental Institute Museum collection was carried out with a portable XRF (Bruker Tracer III-SD) by Laura D’Alessandro, Alison Whyte, and Simona Cristanetti of the Conservation Laboratory, Oriental Institute. For objects not in the Oriental Institute Museum, the excavators’ descriptions of materials have been used.

⁴ De Mecquenem 1911, figs. 15, 19; LeBreton 1957, fig. 32:11–12, 24–25; Amiet 1966, pp. 128–29, nos. 91–92; Harper, Aruz, and Tallon 1992, p. 59, no. 25.

⁵ According to de Mecquenem 1911, both of the figurines he illustrates (figs. 15, 19) showed no details on the undersides (pp. 52, 54). However, the figure illustrated in Harper, Aruz, and Tallon 1992 (p. 59, no. 25), which seems to be the same as de Mecquenem’s fig. 15, has “two small feet, seen from the back, with incisions separating the ten toes.”

sculptures from both the archaic deposits and elsewhere at Susa,⁶ the creature crouches down with its hind legs bent in front of it and its front paws raised to its mouth. Agnès Benoit notes that there is a species of small Persian bear that can still be found in Iran today that, when given a bottle filled with a sweet liquid that it likes, will settle in the position shown on these sculptures (Harper, Aruz, and Tallon 1992, p. 67). The Shara Temple figure is rather cubist in form. However, the front and rear haunches and the upper and lower sections of the rear legs, as well as the feet, with incisions separating the toes, are all carefully delineated. The front paws are separated from the head and from one another by hollow spaces. The head, which has the shape of a flattened oval when seen from behind, is differentiated from the back at the neck and bears two small, round ears. The bear has a short tail and two drilled holes indicating the eyes, which were probably once inlaid.

A gypsum vessel in the form of a bird found inside the altar in Shrine I of the Square Temple (fig. 14.3) closely resembles vessels from archaic deposit 2.⁷ The slightly curved bill at first suggests a bird of prey, but the creature has the benevolent air of a less threatening species—perhaps a partridge or a quail. The legs, on which it squats, are separated from one another by a deep groove. The feet, with the toes curled under in two globular “fists,” are delineated by an incised line. The outline of the wings, which are held against the body, is indicated by a single engraved line. The head is round and separated from the back by a shallow groove; the deep drilled holes indicating the eyes probably were once inlaid. The neck and rim that surrounded the opening of the vessel has been broken or worn away.

A second gypsum vessel in the form of a bird (fig. 14.4) was found in Sin Temple IV at Khafajah. The piece is poorly preserved, and the head is missing. The bird is again shown in a crouching position, with the feet and legs folded underneath the body. A deep incision separates the legs. The wings, folded against the body, are shown in low relief. A single hole in the back is cylindrical in section and was undoubtedly once encircled by a short neck.

A third bird vessel, also in poor condition to judge by the single preserved image (fig. 14.5), is now in the collection of the Iraq Museum. The creature is shown, like the others, in a crouching position with the feet and legs folded underneath the body. The upper and lower sections of the legs are articulated. The wings appear to have been shown in relief and may have been decorated with a striated or cross-hatched pattern. The photograph suggests that there was a single relatively large hole in the back that was probably once encircled by a short neck.

A painted pottery bird vessel from Small Temple VI at Khafajah (fig. 14.6), now in the Iraq Museum, is related to a piece from the second archaic deposit (Le Breton 1957, fig. 32:15, Amiet 1966, p. 112, no. 68). The bird’s body rests on a conical pedestal. Delougaz describes it as follows “the wings are indicated by reserved spaces containing small incised projections and painted designs. ... this bird-vase was made in several parts, of which the base and the body were apparently wheel-turned. The decoration consists of a reddish paint or wash with reserved oval spaces on the body to indicate wings and reserved vertical panels on the base. All the reserved spaces contain simple linear patterns in deeper red” (Delougaz 1952, p. 44). The tail, too, is in reserve, with incisions and lines of red paint. The vessel could have been filled through the opening on the back, which was surrounded by a flaring neck/rim. The head, which rests on a long neck, is summarily modeled with two applied pellet eyes. An opening where the bill would have been could have served as a spout from which to pour liquid from the body.

The Diyala temples also yielded four statues of reclining bovids that appear to have had heads made of a separate material, presumably a metal such as silver or copper, and that are close parallels to one from Susa archaic deposit 1.⁸

The loveliest of these (fig. 14.7) is carved from a calcium based white stone and is embellished with inlays of lapis lazuli or blue paste⁹ scattered over the neck, body, and haunches. The bull/cow (the sex is not indicated) is reclining, with its legs folded beneath it. As with the Susa example, the right rear leg is not

⁶ Le Breton 1957, figs. 32:22, 31:7; Amiet 1966, pp. 114–15, nos. 72–73; Harper, Aruz, and Tallon 1992, p. 67, no. 38.

⁷ De Mecquenem 1911, fig. 18; LeBreton 1957, figs. 32:15–17; Amiet 1966, pp. 112–13, nos. 68–71; Harper, Aruz, and Tallon 1992, p. 65, no. 34.

⁸ Le Breton 1957, fig. 32:9; Amiet 1966, p. 109 no. 64; Harper, Aruz, and Tallon 1992, p. 61, no. 28.

⁹ The analysis of the blue inlays is a complicated process that is in progress and will probably be published at a later date.

shown. The hooves are demarcated by two incised lines, and each is bifurcated by a deep incision. The tail curves down and passes between the legs; the switch appears on the flank above the left rear leg. The head, above a pronounced dewlap, was turned slightly to the left, giving an elegant impression of motion. There is no indication of how a separate head would have been affixed.¹⁰

The second reclining bovid (fig. 14.8) is fashioned of an unusual translucent calcium based red stone, probably red calcite. The legs are folded beneath the body; the right rear leg is shown. The hooves are demarcated by an incised line. The tail is wrapped under the right rear leg and reappears on the animal's right side just in front of the right rear haunch. The head, above a pronounced dewlap, was, again, turned slightly to the left. There is no indication as to how a separate head would have been affixed; the stump of the neck bears a number of rough incisions. A vertical cylindrical piercing just behind the neck passes all the way through the body, suggesting that the piece may have been worn as a pendant.

A third reclining bovid, with its legs folded beneath its body (fig. 14.9), is now in the Iraq Museum. The animal's tail is wrapped under the right rear leg and reappears on the right side just in front of the right rear haunch. The long switch is decorated with parallel incised lines. The hooves are demarcated by an incised line. The piece, which is made of shell, is classified as a pendant; traces of a vertical piercing may be visible in the single preserved photograph, and a piercing is indicated by an arrow in the sketch in the field register. The sketch in the field register also shows a central piercing in the stump of the neck that might have served to attach a head fashioned in a different material.

A fourth reclining bovid (fig. 14.10) is also in the Iraq Museum. The position of the tail and whether or not the right rear leg is visible is not clear from the two surviving photographs. Again, the head was turned slightly to the left above a pronounced dewlap. The piece appears to have been pierced through the neck, which could have served to attach a head made of a separate material.

A statuette in the form of a standing lioness from the Shara Temple, now in the Oriental Institute's collection (fig. 14.11), shares many details with the feline from the first archaic deposit.¹¹ It is perforated obliquely through the back, whether for suspension or for the attachment of wings (thus transforming the creature into a griffin) cannot be determined. A long ridge springs from each side of the chest and rises up to form a curl at the top of each shoulder similar to the curls on the Susa creature. The body and haunches convey a strong sense of muscularity, as do the rear legs. The rear paws are firmly planted together; enough remains of the front legs to indicate that they were stretched out in front of the body. Behm-Blanke (1979, p. 28) related this piece to the motif of the leaping animal. However, the position of the rear legs at a right angle to the body suggests that the creature may have been standing in the position assumed by felines shown with stylized mountains on a well-known seal impression from Uruk.¹² This suggests that the Shara Temple figurine might have formed part of a composite sculpture. If so, it is possible that the oblique piercing of the back served not for suspension but rather to attach the sculpture to another piece or pieces.

As with the Susa feline and bovine cited above, a perforation separates the lioness's upper tail from the body. The head is worked in some detail. The surviving (right) ear has the form of a rounded triangle, with an incised triangle within. The deep hollows of the eyes were presumably once inlaid. The rather frowning mouth and the whiskers are indicated with incised lines.

A figure of a couchant lion,¹³ although less detailed, to judge by the single photograph (fig. 14.13), has a blocky outline and humped neck—perhaps an indication of a mane—similar to the Susa feline. The muzzle of the Shara Temple animal appears to have been broken off.

The Diyala excavations also yielded a number of multicompartmented vessels with very close similarities to those from the Susa archaic deposits.¹⁴ Three are in the collection of the Oriental Institute Museum. The best preserved of these is relatively large (fig. 14.14). It has a semicircular profile, with a rectangular

¹⁰ Evans 2005 (p. 258, n. 127) has suggested that the drill holes on either side of the neck may originally have served that purpose and may have been restored as inlays after the piece was excavated. Analyses of the blue inlays should shed light on this question.

¹¹ LeBreton 1957, fig. 32:8; Amiet 1966, p. 109, no. 63; Harper, Aruz, and Tallon 1992, p. 60, no. 27.

¹² Heinrich 1936, pl. 15:d, h (Level IV Building D); Amiet 1980, no. 192.

¹³ The feline is described as a lion by the excavators; the preserved photographs supply no further information.

¹⁴ Le Breton 1957, figs. 32:2, 13; Harper, Aruz, and Tallon 1992, p. 62, no. 30.

cross-section, and three hollowed-out compartments that were once encircled by narrow necks/rims that are now mostly broken/weathered away.

The second is a fragment of a vessel that probably also originally had three compartments, only two of which are preserved (fig. 14.15). Each compartment was originally encircled by a short neck with a rounded everted rim. The vessel has an almost rectangular profile, with the base rounded up slightly at the preserved end. Traces of an incised zigzag pattern, like that on one of the Susa vessels,¹⁵ are visible on the sides of this piece.

A third multicompartmented vessel in the Oriental Institute's collection is again semicircular in form (fig. 14.16). It appears to have had two compartments, which are now missing their encircling necks. Like the example from Susa Archaic Deposit 1,¹⁶ this piece was decorated with an incised zigzag pattern, now extremely worn, which is also present between the openings on the top of the vessel, and bears faint traces of both red and black paint.

Two additional multicompartmented vessels are now in the collection of the Iraq Museum (figs. 14.17–14.18). Both are, like A21418, rectangular in shape, with the bases rounded near the ends, and both have three compartments. One (fig. 14.18) is, again, decorated with an incised zigzag pattern. The second (fig. 14.17), documented only in one faded negative, appears to be undecorated.

Amiet added a pink limestone dog pendant to the objects in the first archaic deposit based on the drawings of Mr. P. Toscanne (Amiet 1976, p. 62). A very similar red stone amulet from the Snake Shrine at Tell Asmar (fig. 14.12) wears a thick collar decorated with oblique lines like those worn by the archaic deposit and other Susa dogs (e.g., Amiet 1966, p. 69, no. 30; p. 127, no. 89). The Tell Asmar dog has a short tail and small vertical ears; the drill holes for the eyes were probably once inlaid. The front and rear legs are missing. Like its Susa counterpart, the dog is pierced horizontally through the back, presumably for suspension.

A QUESTION OF HEIRLOOMS

The provenances of the Susa-related objects from the Diyala region are given in table 14.1. The majority were from the Shara Temple at Tell Agrab and Sin Temple IV at Khafajah. With one exception, all were found in contexts that date to Early Dynastic I or later,¹⁷ although many of them are similar to styles that have traditionally been called Late Uruk or Jamdat Nasr.

In recent years, evidence has been mounting to suggest that the practice established by the Diyala excavators of dating artifacts by the earliest occurrence of a given type or style¹⁸ is flawed. For example, the redating of Sin IV/Protoliterate d to Early Dynastic I as defined in the south leads to the discovery that some glyptic styles that once were thought to have been produced exclusively during the Jamdat Nasr period instead can be seen to reach the peak of their production in the Diyala during ED I. For example, the glazed steatite glyptic style and temple and herd cylinder seals are both concentrated in Sin IV (Wilson 1985, pp. 89–97; Evans 2005, p. 174). Furthermore, Evans has shown that the temple and herd seals found in Early Dynastic contexts have qualities that distinguish them from those from Jamdat Nasr contexts, which means that not all temple and herd seals in Early Dynastic levels of the Diyala temples can be considered heirlooms (Evans 2011, p. 50). She has also demonstrated that the so-called Jamdat Nasr style relief-carved stone vessels, no example of which was excavated in a pre-Early Dynastic context in the Diyala, are really ED I in style (Evans 2011, pp. 50–51). This all argues for the fact that many items once considered to be heirlooms instead provide evidence for close ties to earlier traditions that were maintained in the Diyala region during at least the first half of the Early Dynastic period (Wilson 1985, pp. 89–97; Evans 2011, p. 47).

The objects discussed in this article, chosen for their close similarities to pieces from the archaic deposits at Susa, have, with one exception, no antecedents from temples in the Diyala that are earlier than Early

¹⁵ Le Breton 1957, fig. 32:2; Harper, Aruz, and Tallon 1992, p. 62, no. 30.

¹⁶ Le Breton 1957, fig. 32:2; Harper, Aruz, and Tallon 1992, p. 62, no. 30.

¹⁷ I follow Evans' redating of the Shara Temple levels and Square Temple I and its predecessor levels to Early Dynastic I on the basis of pottery, other artifacts, and architectural similarities to other Diyala temples (Evans 2005, pp. 119–65; 2007, table 6).

¹⁸ See, for example, Delougaz and Lloyd 1942, p. 4.

Dynastic I. There is thus no older stratified group with which to compare them. At both Tell Asmar and Tell Agrab, the earliest remains were of Protoliterate date, lying directly above virgin soil.¹⁹ It is only at Khafajah that remains of the Uruk period may have been reached. There, two soundings went down to water level. The excavators believed that they had reached the Uruk period because of the presence of “a few sherds of red and gray pottery,” “a typical Uruk tablet, without pictograms but with numerals only,” and by a change in building material from *Riemchen* to *Patzen* (Frankfort 1936, p. 25).

There is thus steadily mounting evidence that dating objects to a period when certain stylistic characteristics first appeared and considering them to be heirlooms when they are excavated from later contexts may not be a valid practice. This argues against dating the Diyala objects considered here (as well as many others) to levels earlier than those in which they were discovered. It is, therefore, best to see them not as heirlooms, but as pieces produced during the Early Dynastic period in styles that stem from earlier Uruk and Jamdat Nasr traditions. Their close parallels to many objects from the two archaic deposits at Susa suggest that those deposits also date to more or less the same time frame, some reflecting a similar continuation of earlier Uruk and Jamdat Nasr traditions and others executed in a somewhat different Proto-Elamite style.

¹⁹ Delougaz 1952, pp. 27–28; table III. Adams (1965, p. 34) notes that there were 'Ubaid sherds at Tell Asmar, Tell Agrab, and Khafajah (Delougaz 1952, p. 29, pl. 17a–c) but that all were in secondary association with later materials rather than a primary 'Ubaid deposit.

Table 14.1. List of Proveniences

Isin-Larsa	Dog (fig. 14.12) As. 35:65; A17895	S37 & T37 Snake Shrine Tell Asmar	
Early Dynastic III	Bird vessel (fig. 14.5) Kh. IV:277	Q42:7 Sin Temple IX Khafajah	
	Reclining bovid (fig. 14.10) Ag. 35:136; IM27495	M14:4 Shara Temple 33.20m. Tell Agrab	Latest Building
Early Dynastic I	Bird vessel (fig. 14.3) As. 33:682; A12323	Inside altar in D17:8 Shrine I, Square Temple I Tell Asmar	
	Painted bird vessel (fig. 14.6) Kh. V 173 IM	O43:21 Small Temple VI Khafajah	
	Reclining bovid (fig. 14.8) Ag. 35:766; A18104	L13:6 Shara Temple 32.75m. Tell Agrab	Main Building 2nd occupation
	Lionness (fig. 14.11) Ag. 35:779; A18107	L14:1 Shara Temple 32.7m. Tell Agrab	Main Building 1st occupation
	Bear (fig. 14.2) Ag. 36:480; A21745	M14:5 Shara Temple 32.30m. Tell Agrab	Main Building 1st occupation
	Reclining bovid with inlays (fig. 14.7) Ag. 35:880; A18139	M14:4 Shara Temple 31.50m. Tell Agrab	Intermediate Foundations
	Reclining shell bovid (fig. 14.9) Ag. 36:136; IM31520	M14:12 Shara Temple 31.00m. Tell Agrab	Intermediate Foundations
	Couchant lion (fig. 14.13) Ag. 35:1041; IM27876	N13:4 Shara Temple 31.00m. Tell Agrab	Intermediate Foundations
	Kneeling female (fig. 14.1) Ag. 36:472; A21742	M14:8 Shara Temple 31.00m. Tell Agrab	Intermediate Foundations
	Bird vessel (fig. 14.4) Kh. VII:45; A21348	Q42:16 Sin Temple IV Khafajah	
	Compartmented vessel (fig. 14.18) Kh. VII:140	Q42:24 Sin Temple IV Khafajah	
	Compartmented vessel (fig. 14.17) Kh. VI:317	Q42:24 Sin Temple IV Khafajah	
	Compartmented vessel (fig. 14.14) Kh. VI:316 A17814	Q42:24 Sin Temple IV Khafajah	
Jamdat Nasr	Compartmented vessel (fig. 14.15) Kh. VII:210; A21418	Q42:39 Sin Temple II Khafajah	
Date of findspot not known	Compartmented vessel (fig. 14.16) Ag. 36:502 OIM 21756	N14 dump, Shara Temple	



FIGURE 14.1. OIM A21742 (Ag. 36:472). M14:8 Shara Temple, 31.00 m. Gypsum. H. 7.3, W. 3.5, D. 5.9 cm. Delougaz and Lloyd 1942, pp. 267, 288; Frankfort 1943, pp. 9, 30-31, pl. 45E. (Images: Anna R. Ressman)



FIGURE 14.2. OIM A21745 (Ag. 36:480). M14:5 Shara Temple, 32.30 m. Gypsum. H. 3.9, W. 2.1, D. 2.9 cm. Delougaz and Lloyd 1942, pp. 282, 288. (Images: Anna R. Ressler)



FIGURE 14.3. OIM A12323 (Ag. 33:682). D 17:8 Square Temple, Level I, Shrine I, inside the altar.
Gypsum. H. 6.3, W. 4.1, L. 9.2 cm. Frankfort 1935, pp. 24, 27, fig. 24;
Delougaz and Lloyd 1942, pp. 13, 185, 210, fig. 143. (Images: Anna R. Ressler)

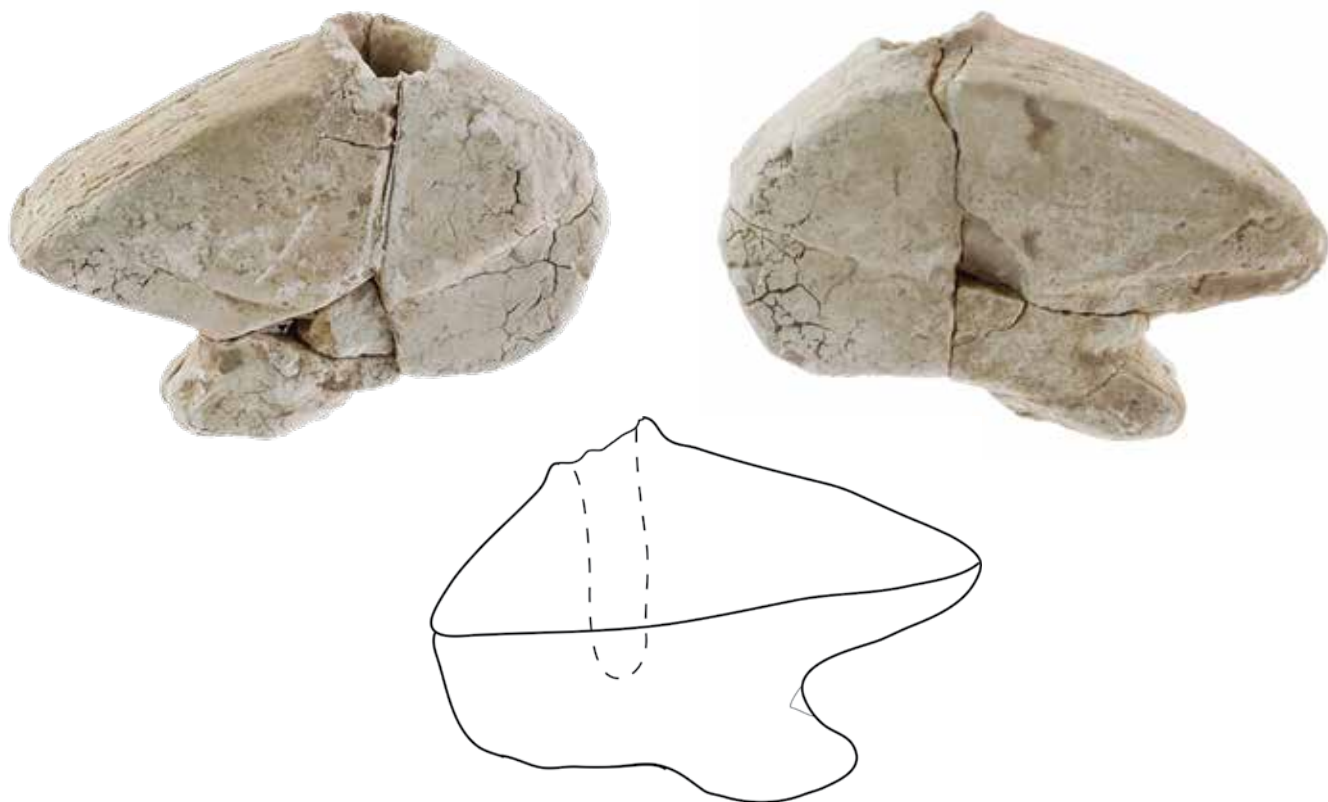


FIGURE 14.4. OIM A21348 (Kh. VII 45). Q42:16 Sin Temple IV. Gypsum. H. 5.8, W. 3.1, L. 8.0 cm.
Delougaz and Lloyd 1942, pp. 139, 154. (Images: Anna R. Ressman)

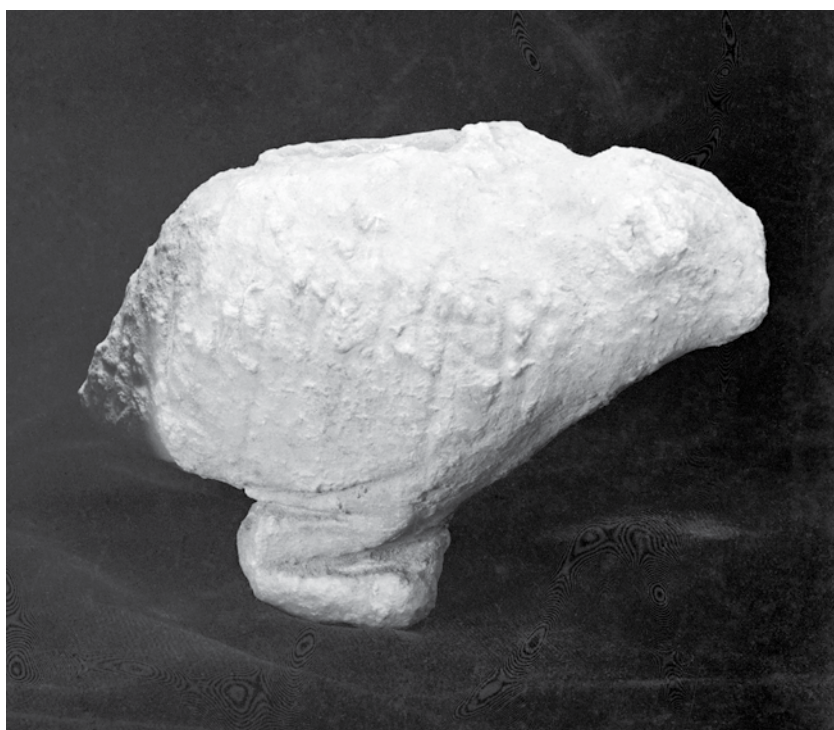


FIGURE 14.5. Kh. IV 277. Q42:7 Sin Temple IX. Limestone. H. 6.5, W. 4.5, L. 11.0 cm.
Delougaz and Lloyd 1942, pp. 146, 153. (Image: Diyala Expedition)



FIGURE 14.6. Kh. V 173. O43:21, Small Temple V. Baked clay. H. 32.5 cm. Frankfort 1936, pp. 70, 73, fig. 55; Delougaz and Lloyd 1942, pp. 105-06, 152, 154, fig. 99; Delougaz 1952, pp. 44, 80, 126, pl. 7, 27, 190. (Images: Diyala Expedition)



FIGURE 14.7. OIM A18139 (Ag. 35:880). M14:4 Shara Temple, 31.50 m. Calcium-based white stone with blue inlays. H. 4.1, W. 3.5, L. 6.7 cm. Delougaz and Lloyd 1942, pp. 266, 287; Behm-Blanke 1979, no. 100. (Images: Anna R. Ressler)



FIGURE 14.8. OIM A18104 (Ag. 35:766). L13:6, Shara Temple, 32.75 m. Translucent calcium based stone, probably red calcite. H. 4.6, W. 3.1, L. 6.8 cm. Delougaz and Lloyd 1942, pp. 274, 287; Behm-Blanke 1979, no. 99. (Images: Anna R. Ressler)



FIGURE 14.9. IM 31520 (Ag. 36:136). M14:12 Shara Temple, 31.00 m. Shell. H. 5.2, W. 3.2 cm.
Delougaz and Lloyd 1942, pp. 268, 288. (Image: Diyala Expedition)



FIGURE 14.10. IM 27495 (Ag. 35:136). M14:4 Shara Temple, 33.20 m. Shell. H. 3.0, L. 5.5 cm.
Delougaz and Lloyd 1942, pp. 278, 285. (Images: Diyala Expedition)



FIGURE 14.11. OIM A18107 (Ag. 35:779). L14:1 Shara Temple, 32.70 m. Calcium based white stone. H. 3.8, W. 2.1, L. 5.7 cm. Delougaz and Lloyd 1942, pp. 274, 287; Behm-Blancke 1979, no. 102; Pittman 2006, p. 31, fig. 11b. (Images: Anna R. Ressman)



FIGURE 14.12. OIM A17895 (As. 35:65) S-T 37 Snake Shrine. Calcium based red stone. H. 2.3, W. 1.0, L. 4.3 cm. Delougaz, Hill, and Lloyd 1967, p. 256 (Images: Anna R. Ressman)



FIGURE 14.13. OIM 27876 (Ag. 35:1041). N13:4 Shara Temple, 31.0 m. Alabaster. H. 6.3, L. 10.2 cm. Delougaz and Lloyd 1942, p. 71, 287; Frankfort 1943, pp. 10, 32-33, pl. 51F, no. 298. (Image: Diyala Expedition)

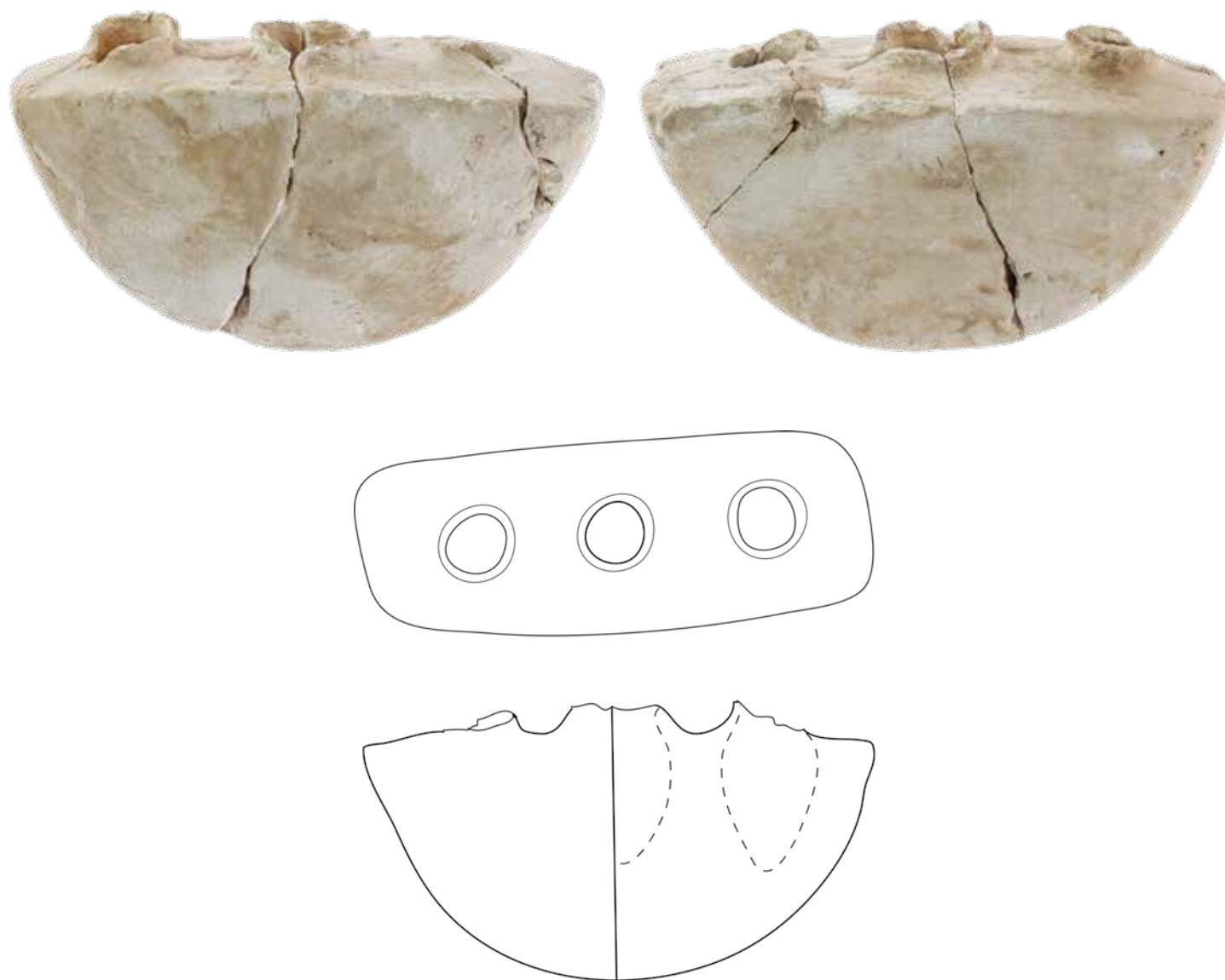


FIGURE 14.14. OIM A17814 (Kh. VI 316). Q42:24, Sin Temple IV. Gypsum. H. 6.1, W. 4.7, L. 11.2 cm. Delougaz and Lloyd 1942, pp. 141, 154. (Images: Anna R. Ressman)

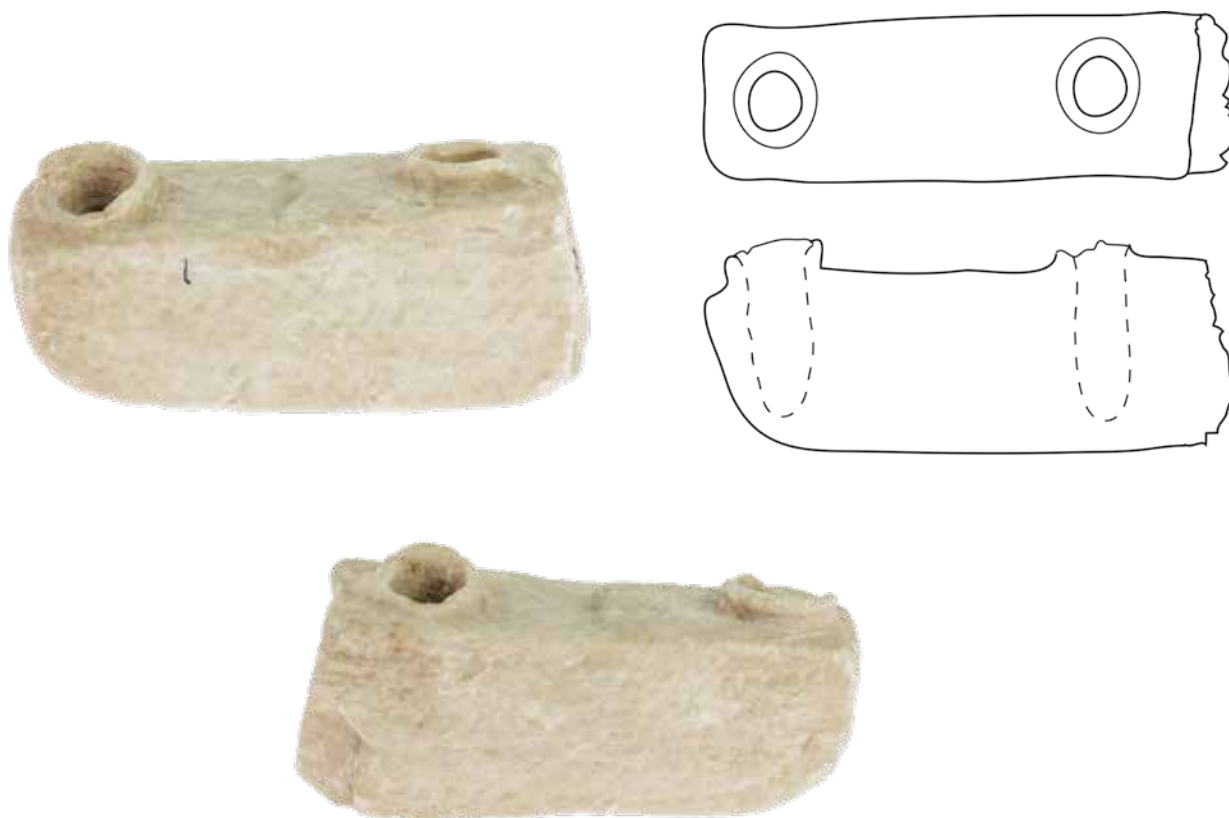


FIGURE 14.15. OIM A21418 (Kh. VII 210). Q42:39, Sin Temple II. Gypsum. H. 4.0, W. 2.6, L. 8.3 cm. Delougaz and Lloyd 1942, pp. 136, 155. (Images: Anna R. Ressman)



FIGURE 14.16. OIM A21756 (Ag. 36:502). N14 dump, Shara Temple, 32.50 m. Gypsum. H. 4.0, W. 2.0, L. 6.7 cm. Delougaz and Lloyd 1942, pp. 284, 288. (Images: Anna R. Ressman)



FIGURE 14.17. Kh. VI 317. Q42:24, Sin Temple IV. White stone. H. 5.0, L. 13.0 cm.
Delougaz and Lloyd 1942, pp. 141, 154. (Image: Diyala Expedition)



FIGURE 14.18. Kh. VII 140. Q42:24, Sin Temple IV. Limestone. H. 4.2, W. 4.0, L. 15.2 cm.
Delougaz and Lloyd 1942, pp. 142, 155. (Image: Diyala Expedition)

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Richard Zettler, Umm al-Hafriyat, 1977. (Drawing by Peggy Sanders)

CHAPTER 15

TWO TOMBS OR THREE? PG 789 AND PG 800 AGAIN!

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The Royal Cemetery of Ur, with the burials of kings and queens who ruled the city-state in the mid- to late third millennium BC, ranks as one of the greatest archaeological discoveries of all time. Of the roughly two thousand graves uncovered in six seasons of digging in the mid-1920s and early 1930s, Charles Leonard Woolley, who directed the excavations, identified sixteen tombs as royal burials based on their structure, e.g., stone-built chambers set at the bottoms of pits, wealth, and the evidence for ritual they revealed. The evidence for elaborate funerary rituals, including large-scale human sacrifice, in particular captured the attention of a public eager for news of discoveries in the heyday of archaeology.

Two of the sixteen royal tombs, PG 789 and PG 800, seemingly typified late Early Dynastic royal burials, at least in Woolley's imagination, and provided the grist for his accounts of the funerary rituals that followed the deaths of Ur's early kings and queens. Indeed, *The Illustrated London News'* noted illustrator, Amédée Forestier (1854–1930), produced one reconstruction of PG 789 for its account of Woolley's discoveries whose realism—grounded firmly in Woolley's descriptions—has made it a canonical representation of these events, and etched that particular representation indelibly into the minds of archaeologists and the general public alike (fig. 15.1). Drawing on Woolley's publications, as well as his unpublished field notes and reports—in particular his biweekly reports to the Directors of the British Museum and Museum of the University of Pennsylvania—we will re-examine PG 789 and PG 800 here, expanding on Zimmerman's initial study of them (1998a, pp. 17–19; 1998b) and reiterating and reinforcing his conclusion that these two seemingly identical

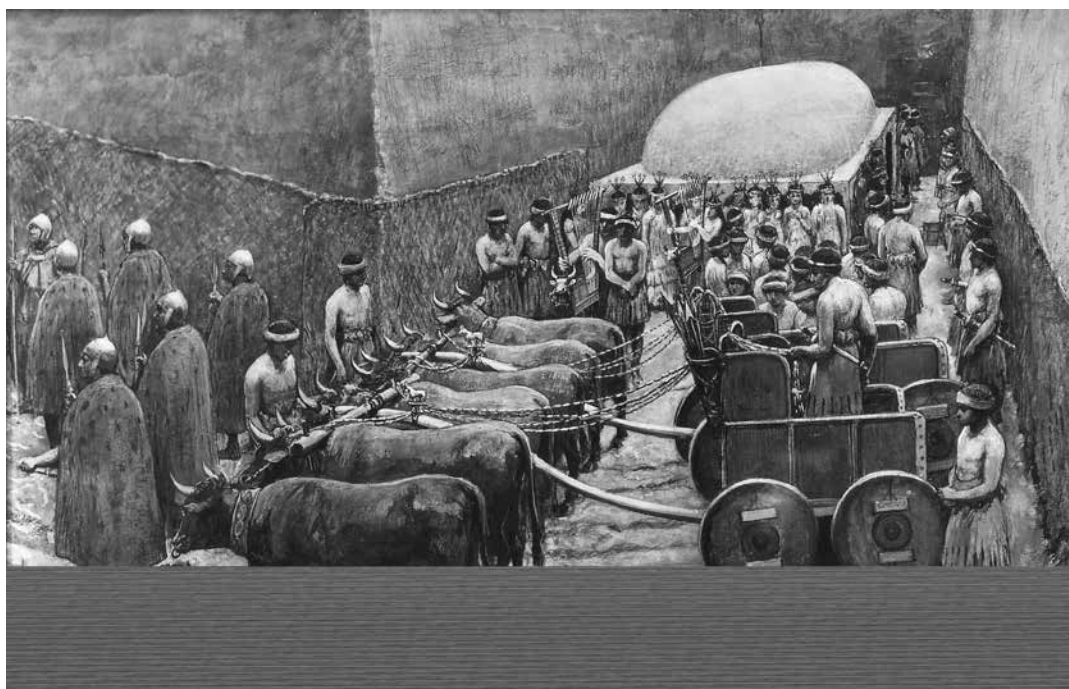


FIGURE 15.1. Amédée Forestier's reconstruction of PG 789 before the deaths of the royal attendants. (Woolley 1934, pl. 30; originally published in *The Illustrated London News*, June 23, 1928, pp. 1171–72)

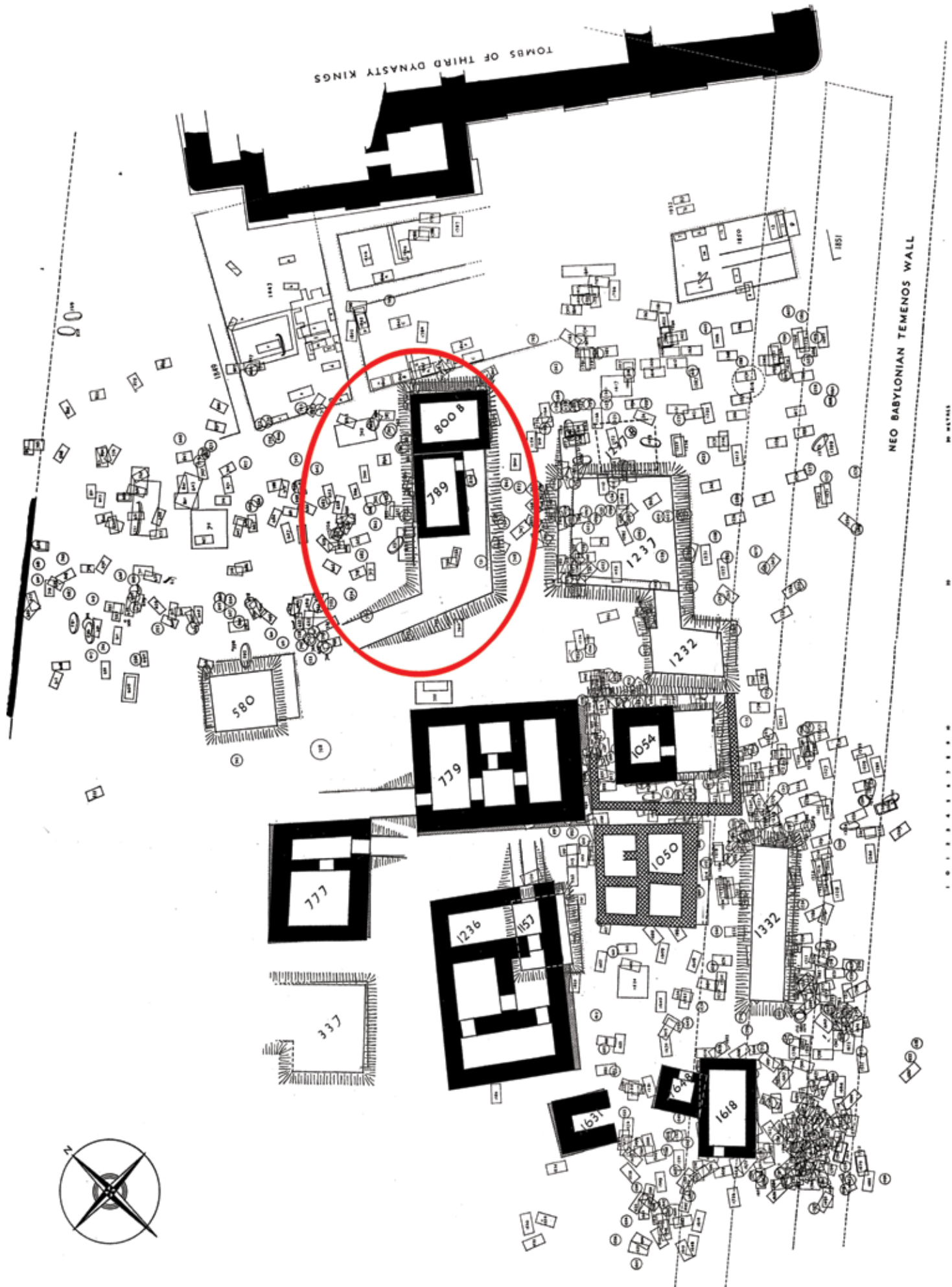


FIGURE 15.2. Plan of the Royal Cemetery of Ur showing the location of PG 789 and PG 800. (William B. Hafford)

and contemporary royal tombs represent not two tombs, as Woolley posited, but a sequence of three royal burials. The authors have circulated this hypothesis, formally and informally, for over a decade. Though its plausibility has been generally accepted, some archaeologists, e.g., Reade (2001, p. 22) and Marchesi and Marchetti (2011, p. 62, n. 160), have expressed skepticism that we hope we can dispel.

In revisiting Woolley's excavations, the authors want to underscore the many contributions McGuire Gibson has made to our understanding of Iraq's ancient past. His critical re-evaluations of older excavations, in particular the Field Museum-Oxford University excavations at Kish (Gibson 1972) and, more recently, the Oriental Institute's excavations in the Diyala (Gibson 1982, 2011) have demonstrated that asking new questions of old data can extract a wealth of information. The large-scale excavations of the past are the very backbone of Mesopotamian archaeology, as the late Donald P. Hansen commonly asserted. With careful analysis and the perspective of new techniques and new discoveries, old data sets can be critiqued, amended, and reintegrated into the modern stream of ancient Near Eastern studies.

DESCRIPTION OF PG 789 AND PG 800

PG 789 and PG 800, uncovered in Woolley's sixth field season, 1927–28, lay adjacent to each other at the northeastern end of the Royal Cemetery (fig. 15.2). Both consisted of stone-built tomb chambers set at the bottoms of pits.¹ Woolley provided detailed accounts of the two tombs in both his preliminary and final reports.² The summary descriptions given here are based largely, though not wholly, on these published accounts.

PG 789 (fig. 15.3) measured 10 × 5 m. The pit's floor was 8.3 m below the modern surface, and a ramp at the southwest corner provided access. The tomb chamber, in the north corner of the pit, consisted of a single room with interior dimensions of 4.0 × 1.8 m. Its walls were made of limestone rubble set in mud, with its faces plastered in mud. The chamber's roof, made of baked bricks, consisted for the most part of a barrel vault formed by contiguous ring arches. Half domes supported on pendentives formed apsidal ends to the barrel vault, and the entire roof was faced with a layer of bricks. An arched doorway, 1.15 m wide, providing access from the pit, was located in the northern end of the southeastern wall, with its jambs 80 cm from the east corner and 3.1 m from the south corner of the chamber. The arch, consisting of twenty-six bricks, had fallen on the inside and was scarcely recognizable, but was well preserved on the outside of the

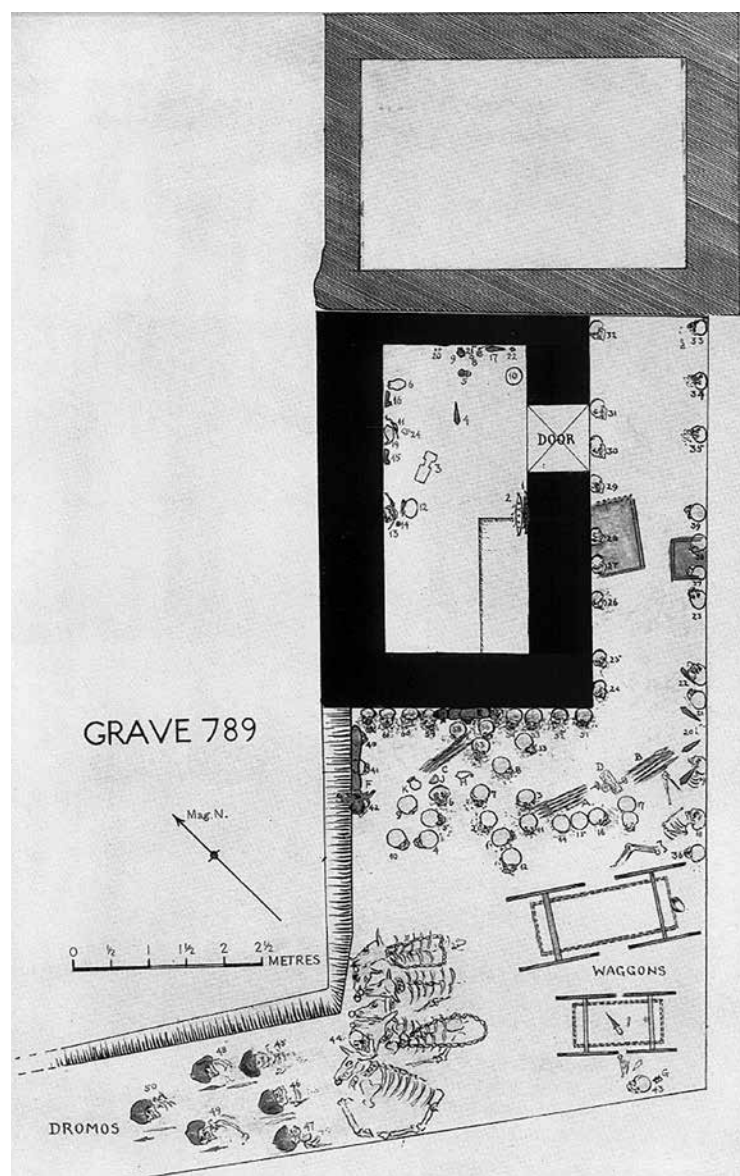


FIGURE 15.3. Plan of PG 789. (Woolley 1934, pl. 29)

¹ Following Woolley's description, Forestier's reconstruction depicts the pits many meters deep. The actual depth of those pits, however, remains an open question (Zimmerman 1998a, pp. 45–47).

² For PG 789, see Woolley 1928, pp. 434–39 and Woolley 1934, pp. 62–71; for PG 800, see Woolley 1928, pp. 439–46 and Woolley 1934, pp. 73–91.

chamber. The doorway had been blocked at the time of entombment and the blocking, consisting of brick and stone, was intact (fig. 15.4). The bricks near the top of the blocking were laid slantwise on edge, though the bricks above them were laid flat, filling the gap under the curve of the arch. Woolley also noted on his field cards, though not in his published description, that the stone foundation courses of the wall ran across the opening, forming a threshold for the doorway.³

PG 789's tomb chamber had been robbed in antiquity through a hole in the roof, probably at the time of the construction of PG 800's pit (see below). Woolley suggested that a shallow depression, 1.9 m long and 70 cm wide, in the south corner along the southeastern wall of the chamber marked the emplacement of the royal burial. No trace of the burial remained, but he assumed it to have been that of a king. The chamber contained the remains of at least three individuals. One of these individuals was probably male, as represented by fragments of a skull with a *brim* (a typical male headdress, consisting in this case of two lengths of gold chain and two lapis and one gold bead), and two were probably females, represented by fragments of skulls and gold wire spiral hair rings. The looters left some intact artifacts behind, including a silver model of a boat and a gaming board.

The pit outside the chamber—Woolley dubbed it a “death pit” because of the number of bodies found there—was undisturbed. Reed matting lined the walls and covered the floor of the pit. At the foot of the access ramp were the bodies of six soldiers, wearing copper helmets and carrying spears (Woolley 1934, pl. 149). In the pit, but just in front of the entrance, were two wagons, each drawn by three oxen (Woolley 1934, pls. 33, 35). By the animals' heads was a body Woolley identified as a groom, and by the side of one wagon and behind the other, two additional bodies, presumably the drivers. To the northeast of the wagons the floor of the pit was covered with bodies, fifty-four in all. Partly leaning against the southwest wall of the tomb chamber was a row of richly dressed women. Of the rest, many were women. Men, including soldiers, and women lined the narrow passage that led from the death pit to the door of the tomb chamber. The bodies were poorly preserved and Woolley based his identification of sexes largely on artifacts found with the bodies. Animal bones found in the center of the passage to the door of the tomb chamber presumably represent the remains of food offerings. With the women against the southwest wall of the tomb chamber (and actually on the skull of one of the women), was a small lyre. Leaning against the northwest side of the pit (on top of the bodies there), was a much larger lyre. Its sounding box (Woolley 1934, pl. 106a) was decorated with the head of a bearded bull in gold and lapis lazuli, below which were shell plaques. Large lumps of lapis lazuli lay in the south corner of the pit.

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The death pit of PG 800 (fig. 15.5) lay directly over PG 789. Its floor was 7 m below the surface of the mound. Irregularly shaped, it approximated a rectangle measuring roughly 11.75 × 4.00 m. Reed mats covered the sides and floor of the pit, and traces of reed matting were also found over the artifacts and bodies within. A ramp descending from the southeast provided access to the pit.



FIGURE 15.4. Blocking of the arched doorway of PG 789's tomb chamber. (Woolley 1934, pl. 32b)

³ British Museum, Department of the Middle East Archives, Woolley's Field Note Cards 194–211, p. 48; http://www.ur-online.org/media_item/261462/ (accessed 6-12-2018).

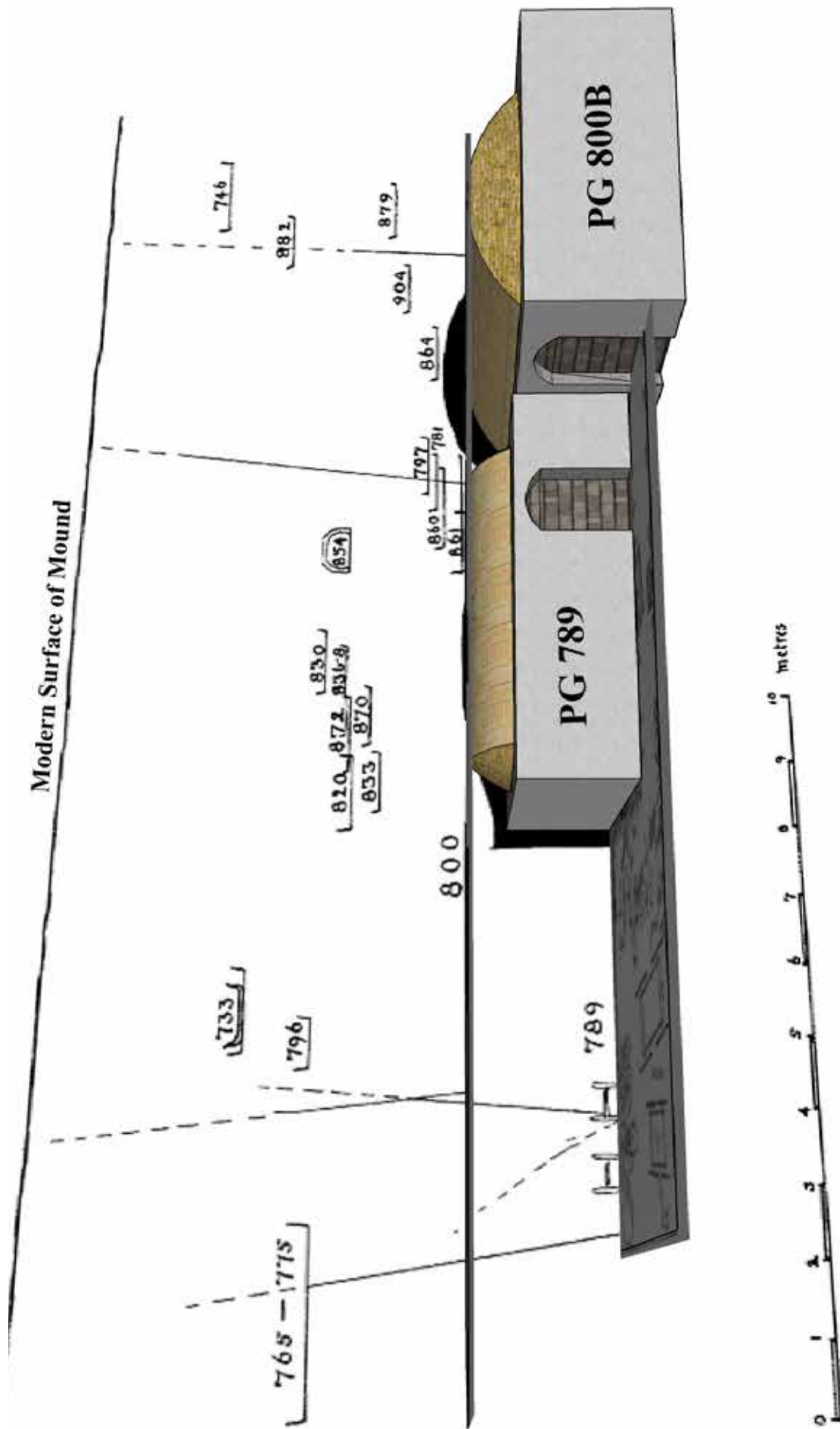


FIGURE 15.5. Three-dimensional reconstruction of Puabi's tomb chamber (PG 800B) abutting PG 789's tomb chamber. The relationship of PG 789 and PG 800 + PG 800B is based on textual, photographic, and mapped data. (Hafford and Zettler 2015, p. 89, figs. 3-2)

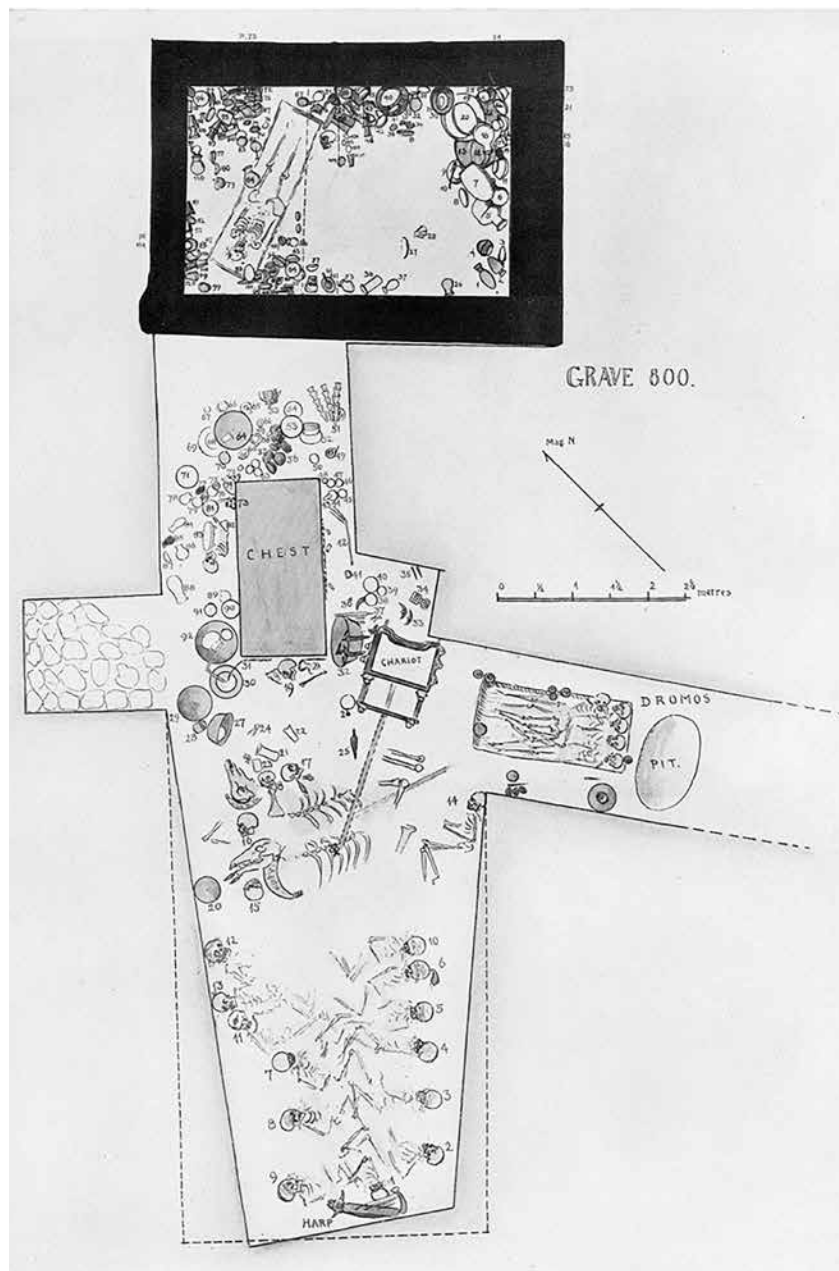


FIGURE 15.6. Plan of PG 800. (Woolley 1934, pl. 36)

The intact tomb chamber Woolley associated with PG 800's death pit was located to the northeast. However, unlike PG 789's tomb chamber, its floor was not on the same level as the death pit, but was in fact 1.7 m below the floor of its death pit, so that the tomb chamber's roof was flush with the floor of the pit (fig. 15.6). The tomb chamber abutted the northeastern wall of PG 789's chamber. Woolley labeled the tomb chamber PG 800B in digging. That tomb chamber, similar in construction to PG 789's chamber, measured 4.35 × 2.80 m internally. Its floor was tamped earth and the plastered interior faces of the walls showed impressions of reed matting up to a height of 60 cm above the floor; the upper part of the walls retained impressions of wood paneling. Woolley was unable to find a doorway in its walls and got into the tomb chamber from the roof that had collapsed in antiquity. Because it lacked a doorway, Woolley (1934, p. 84) assumed that its roof had to have been constructed from outside, after the interment of the body and grave goods, to seal the tomb.

The principal body of PG 800B was that of a female just under five feet tall and roughly forty at the time of her death (Keith 1934, pp. 400–2).⁴ The body, laid out on its back, with its head to the west and its hands crossed over its abdomen, was apparently on a bier that lay askew across the northwestern end of the chamber. On top of the body was a

silver pouring vessel (cf. Winter 1999).⁵

The body was adorned with an elaborate headdress (Woolley 1934, pp. 128–29); the whole of the upper body was covered with beads of gold, silver, lapis lazuli, carnelian, and agate, the remains of a beaded cloak (Woolley 1934, pl. 130); a broad belt of gold, made of carnelian and lapis lazuli tubular beads, lay at the waist; and a chain of large gold rings that Woolley thought had been suspended from the belt probably rested on the hips (Woolley 1934, pl. 130; but cf. Woolley 1934, p. 87, fig. 12).⁶ Against the upper right arm were three pins, which probably secured a garment. With the pins were amulets and three cylinder seals, one of which had an inscription (pu₂-AD, eresh) identifying the deceased as Puabi, Queen (or, more probably Pu-abum, Queen; cf. Marchesi 2004, pp. 186–89, 193–94). Though Puabi is not known from any other documentary sources, the fact that the inscription did not name Puabi in relation to her husband, the king—as, for example, the

⁴ Molleson and Hodgson (2003, pp. 94–95) described the burial as a “mature adult female 1.48–1.51 m tall (4’10”–4’11”).”

⁵ In his report dated January 3, 1928, Woolley says that the body lay on a wooden bier “almost hidden beneath two huge votive lamps of silver.”

⁶ The rings do not have baes and could not have been suspended securely from the belt. Woolley's field drawing shows them considerably below the belt, where the chain of rings had probably rested on the hips.

seal of Ninbanda (or Nintur, cf. Marchesi 2004 pp. 176, 184–85) whose inscription gave her title (queen) and named her as the wife of Mesanepada (Woolley 1934, pl. 207, no. 216)—*might* suggest that she had ruled in her own right. On Puabi's fingers were gold rings;⁷ around the right knee was a garter. On the bier, near her right hip, were four *brim* headbands, perhaps gifts intended for male deities in the Underworld.

In his published descriptions of the tomb chamber, Woolley (1934, p. 89) noted that a shelf or small table, of which only “carbonized material” remained, stood to the left of the bier. On it were thousands of small lapis lazuli beads against a strip of white powdery material whose fibrous texture suggested a leather background to which the beads had been affixed. Against the beaded background were gold amulets depicting plants and animals (cf. Miller 1999, 2000, 2013). Woolley took the beads and amulets to be the remains of a “magnificent diadem,” but both their findspot in the tomb chamber and reconstruction as a diadem are questionable. In his field notes⁸ Woolley records the elements of the “diadem” as having been found, with two strings of beads that were inexplicably integrated into Puabi's beaded cloak, under a large white calcite vase (U.01927) that lay not by the side of the bier, but against the northwestern wall of the tomb chamber. And, recent re-analysis of Woolley's diadem suggests that it was probably not a single diadem, but an ensemble of thematically linked pieces of jewelry (Pittman 1998, pp. 92–94; Pittman and Miller 2014).

Three attendants were in the tomb with Puabi. Of the two at the side of the bier near the head one had daggers and a whetstone and was likely a male. One near the foot of the bier was probably a woman.

An enormous array of artifacts was placed around three sides of the chamber; only its south corner was uncluttered. Some had been placed on the floor, but Woolley speculated that others, particularly those at the southeastern end of the chamber, had been on shelves anchored to the wood paneling of the walls since he found them high up in the fill of the chamber and seemingly arranged in tiers.

Puabi's death pit presented a scene similar to that of PG 789. On the ramp leading into the pit were the bodies of five men, presumably guards, with copper daggers, a razor, and seven pottery cups. In the middle of the pit in front of the ramp, down which it had apparently been driven, was a sled pulled by two oxen. Mixed with the animals' bones were those of four grooms, three of whom wore either a beaded necklace or headband and a single gold or silver earring. Each carried a dagger and/or razor and whetstone. The fourth body had a beaded headband (*brim*) and cylinder seal inscribed with the name Lugal-shapada (lugal-š_a₃-pa₃-da). He carried a spear. A fifth body lay near the oxen's hooves against the corner of the entrance.

In the middle of the northeast end of the pit were the remains of a wooden chest measuring 2.25 × 1.10 m, decorated with lapis lazuli and shell inlay. The wood of the chest had decayed, leaving only a “twisted and warped imprint in the earth” (Woolley 1934, p. 80). Its contents had also decayed, but Woolley speculated that the chest had contained textiles. When he removed traces of the chest, Woolley discovered the hole through the roof of PG 789's tomb chamber, and concluded that it had been robbed when PG 800's death pit was laid out and the wooden chest, placed so as to conceal the “sacrilege.”

Against the wardrobe's southeast end was the body of a man who wore a headband composed of gold chains and gold and carnelian beads and a single gold earring. He had with him a dagger and two whetstones. Woolley speculated that he was the keeper of the wardrobe. Bodies with no personal possessions lay near the north corner and at the northeast end of the chest. An enormous array of goods surrounded the wardrobe (Woolley 1934, pl. 41)—in fact, the overwhelming majority of artifacts in the death pit. Gold and silver vessels, including a tumbler and spouted cup, a spouted cup made of lapis lazuli, a carved steatite bowl, silver heads of lionesses that had decorated a piece of furniture, a lapis lazuli cylinder seal, and a cosmetic box with inlaid lid showing a lion attacking a goat, were all found there.

⁷ Woolley (1934, p. 88) reports that Puabi had ten gold rings, but his notes and catalog cards list only nine, five apparently on her right hand (U.10877A-D and U.10878) and four from her left hand (U.10949A-B and U.10950A-B). The University of Pennsylvania Museum has five rings, the four catalogued as U.10877A-D (B16717–20), and one of two listed as U.10950 (B16721). The latter is mistakenly identified as U.10878 in Pittman 1998, p. 95, no. 31. The British Museum holds U.10878 (BM 121379) and one of the two rings recorded as U.10950 (BM 121378). The Iraq Museum in Baghdad has the two rings with the field numbers U.10949, probably IM 8314–15 (cf. Directorate General of Antiquities 1942, pl. 20).

⁸ British Museum, Department of the Middle East Archives, Woolley's Field Note Cards 194–211, p. 225; http://www.ur-online.org/media_item/261650/ (accessed 6-12-2018).

At the southwest end of PG 800's death pit lay the bodies of ten women. The women, all of whom wore elaborate headdresses, had apparently been in two rows facing each other. A harp and a lyre were found with them, against the pit's wall (Woolley 1934, pl. 38b; cf. Barnett 1969).

EXPLANATION OF THE TWO TOMBS' CONFIGURATION

Woolley explained PG 800's unusual configuration with his customary ingenuity and flair for storytelling. The plundered tomb (PG 789) had been that of a nameless king, who had died first. PG 800 was that of his Queen (Puabi) who so loved him in life that she wanted to be near him in death, though her burial still had to have an independent shaft and requisite human sacrifices.

In the eighty-five years since Woolley uncovered PG 789 and PG 800, few if any archaeologists have questioned his association of the tomb chamber and death pit he linked under the label PG 800, however odd the construction (cf. Reade 2001, p. 22), or convoluted his explanation of the relationship of PG 789 and PG 800. A re-examination of relevant details, however, challenges Woolley's account of the relationship of PG 789 and PG 800 and suggests an alternative interpretation of the two tombs.

SEQUENCE OF THE TOMBS' DISCOVERY

Woolley discovered Puabi's tomb chamber (PG 800B) not because of its association with PG 800's death pit, but because of its proximity to PG 789's tomb chamber, and he excavated the tomb chamber and death pit independent of one another. Woolley made the association of the tomb chamber and death pit after excavation, rather than through any stratigraphic or architectural relationship.

Woolley's biweekly reports detail the sequence of his excavations, showing that he first uncovered PG 800's death pit, then PG 789's tomb chamber and death pit and only subsequently PG 800's tomb chamber.

Woolley began excavations in the Royal Cemetery during his sixth field season on October 17, 1927, and made his first mention of the discovery of PG 800's death pit a month later in his report dated November 20. By that time he had cleared the southwestern end of the death pit, and he reported the discovery of thirteen bodies and a harp.

Woolley reported the clearance of the whole of the death pit two weeks later on December 6. His letter references the discovery of the wooden wardrobe box and the exposure of the vault of PG 789's tomb chamber, not yet opened, below it. Woolley expressed an initial hope that the vaulted tomb chamber might be the royal burial he assumed would be linked with the death pit, but quickly dismissed the notion.

In a supplement to his reports of November 20 and December 6, Woolley gave a detailed account of PG 800's death pit, but prefaced his description with the disappointing news that "we did not find the actual body of the king who must have been buried here."

Early in January 1928 (January 3, 1928) Woolley reported the discovery of PG 789, as well as Puabi's tomb chamber. He noted that when he had removed the wooden wardrobe box in PG 800's death pit, he found bricks from the arched roof of a stone- and brick-built tomb that had been plundered in antiquity, the box serving to conceal the hole made by the looters. In digging down around the tomb chamber he found that it stood in the corner of a large, unplundered grave area similar to PG 800's death pit, but ca. 1.5 m lower, and he provided the Directors with an initial account of PG 789's death pit.

He noted the discovery of Puabi's tomb chamber (PG 800B), built against PG 789's tomb chamber, but only after his detailed description of PG 789's death pit.

Behind the tomb just described there was another chamber built of stone and roofed with brick; constructionally it is not part of the same building, but it only abutted on it: I am strongly inclined to believe that it is slightly later in date (though the floor is rather lower) and is to be connected with the grave area described in my last report; in fact I believe that here we have the missing tomb to which that area was an appanage. In that case the plundered tomb is that of the (nameless?) king, the present chamber, unplundered, is that of his queen buried after him but as nearly as

might be in the same grave, though with an independent shaft and individual sacrifices. The queen is named on her lapis cylinder seal “Shub-ad”; the seal of one of her grooms inscribed “Lugal Shag-pad-da” may identify her husband.⁹

Woolley had to have cleared PG 800’s death pit above PG 789 before he excavated Puabi’s tomb chamber, and though he was quick to identify PG 800B as the “missing tomb” for PG 800’s death pit, he never linked the two parts of the tomb in digging. As Woolley himself noted, he had difficulty delimiting PG 800’s death pit and defined the edges of the pit more by the position of objects than by any clear indications in the soil (Woolley 1934, p. 73). He stopped excavations of the death pit 1.1 m northeast of the eastern corner of the wardrobe box¹⁰ or ca. 50 cm from the southwestern wall of Puabi’s tomb chamber, without showing definitively that they were both in the same shaft.

STRATIGRAPHIC FACTS

As described above, the floor of Puabi’s tomb chamber was substantially (40 cm) lower than the floor of PG 789 (Woolley 1934, p. 84), the roof of the tomb chamber flush with the floor of the death pit that lay above PG 789. Their relative depths suggest that PG 800B was built before PG 789, and the death pit above PG 789 was unlikely to have been associated with it. Despite the fact that he never linked PG 800B and PG 800’s death pit in digging, Woolley crafted an explanatory story that trumped basic stratigraphic facts.

EVIDENCE FOR A DOORWAY IN PG 800B

Contrary to Woolley’s published account, a doorway almost certainly existed at the southern end of the southwestern wall of Puabi’s tomb chamber. Woolley (1934, pp. 83–84) observed evidence of a possible doorway on the exterior face of the southwestern wall of the tomb chamber, where it abutted the narrow passage leading to the doorway of PG 789’s tomb chamber.¹¹ He noted in particular baked bricks mixed with the stonework of the wall and baked bricks in a curve suggestive of an arch. But Woolley also noted that “the masonry appeared quite continuous” on the interior face of the wall, providing no evidence to support the existence of a doorway. Having decided that Puabi’s tomb chamber postdated PG 789, he argued that a doorway in that location could not have been used to access a tomb chamber, whose floor was below the passage leading to PG 789’s tomb chamber, without disturbing the intact bodies lining the passage. Woolley, therefore, again rejected the evidence and concluded that a doorway could not have existed in that location. He reasoned that access to the chamber was from above; the vaulted roof of PG 800B had to have been constructed after Puabi had been interred (Woolley 1934, p. 84).

Woolley’s field notes, however, provide a more detailed description of a doorway in the southern corner of Puabi’s tomb chamber than the brief paragraph in his final report might suggest. His note cards for PG 789 include the following observations.

Facing end of passage [leading to the doorway of PG 789’s tomb chamber]—section of wall of PG 800 was undoubtedly different : it contained a lot of burned brick as well as stone too—bricks at top looked as if they had formed an arch now collapsed : in fact it did look very much as if there had been here a doorway to PG 800 and though no sign of this seen on the interior (except that here too there were lots of bricks : no jambs showed) it is quite possible that there was a door. On the outside—wall face (or blocking) was heavily plastered with mud and on mud there were quite clear impressions of wooden planks set vertically either as a caisson or as a facing.

If these planks formed a caisson it would imply that there was no entrance here and that a caisson was required only because masonry here had to be built against filling of passage which was too loose to form a satisfactory backing. If there was a doorway and the wood was a facing, it would complicate matters as then—passage of PG 789 would had to be dug out again for burial of Shubad and there had to had been a second ramp down from floor of her main pit to threshold of this door : Also it is hard to see what purpose wood work served. It is however noticeable that brickwork

⁹ Woolley’s Report for December 1927 to the Director of the University of Pennsylvania Museum, January 3, 1928.

¹⁰ British Museum, Department of the Middle East Archives, Woolley’s Field Note Cards 194–211, p. 209; http://www.ur-online.org/media_item/261634/ (accessed 6-12-2018).

¹¹ Woolley says “At the west end of the south-west side, where the chamber overlapped that of PG 789 and its wall faced on the passage leading to the chamber of that grave...” Woolley’s reference to the “west end of the southwest side” is confusing. The west face of the south-west side [of the chamber] would be more precise, but the spot he is referring to is clear.

is mostly in upper part of wall : from ground level up were 2 courses of stone (or 3) then 1 of bricks set slanting on edge, then 2 of stone and then bricks to top (starting at 110 above floor) so that possibly entrance was on this higher level. This would rather help matters.¹²

What Woolley almost certainly observed in looking at the exterior face of the southwestern wall of PG 800B from the passage in PG 789 was an arched doorway—with a sill of two to three courses of stone (cf. Woolley's description of PG 789's tomb chamber, with a sill in the doorway, above) — that had been blocked and subsequently covered with a heavy coat of plaster. The wooden planks set vertically against the plastered face of the blocking may have secured the doorway to PG 800B when PG 789 was laid out (see below).

Woolley's notes on PG 800B also contradict his published description of the interior face of the tomb chamber's wall. Far from being continuous, the stone masonry contained "lots of bricks," suggestive of a blocking, even if he couldn't readily distinguish the jambs of the doorway. And, in this regard, it is perhaps worth nothing that Woolley, as he himself admits, also had difficulty distinguishing the blocking of the doorway to PG 1054's tomb chamber from the jambs (1934, p. 104).

Woolley's notes on PG 800B contain additional evidence for a doorway in the south corner of the tomb chamber. His cards include an illustration showing the northeastern part of PG 789's tomb chamber and Puabi's tomb chamber. The drawing shows a break at the southern end of the southwestern wall measuring 1.3 m wide. Woolley's notes read

With this rough stonework it was hard to judge, but it would seem that two parts are of different date, PG 800 being plastered on to PG 789.

Floor of 800B was 040 below that of PG 789 and at "x" the wall was largely composed of bricks set slantwise on edge with stone work below, above and in the middle of them, but there is no evidence for there being a doorway : on the contrary, soil outside is undisturbed by any approach.¹³

The width of the break in the wall Woolley noted on his plan (1.3 m) is roughly the width of the arched doorway to PG 789's tomb chamber. Bricks "set slantwise on edge" in the middle of a wall built of stone rubble at "x"—the "x" presumably marking the exterior face of the wall—would be consistent with what he recorded on his note cards for PG 789.

If additional substantiation were necessary, the distribution of artifacts within the tomb chamber (Woolley 1934, pl. 36) provides compelling evidence for a doorway near the south end of the southwestern wall of the chamber. Artifacts were piled high along the walls of the chamber, but relatively few were in the southern corner of the tomb chamber, and only a single calcite jar (U.10924) lay in front of the proposed doorway in the southwestern wall (cf. fig. 15.6) providing access to the open center of the of Puabi's tomb chamber.

The presence of the door in the southwestern wall of PG 800B would satisfy an outstanding point of comparison in a checklist of features shared with PG 789's tomb chamber. The two tomb chambers are constructed identically; their proportions are identical and their dimensions nearly identical.¹⁴ PG 800B's orientation is rotated 90° clockwise from that of PG 789, but both tomb chambers have doorways near one end of their long walls and evidence a bent-axis approach to the primary burial. Puabi lay on a bier to the left of the doorway and the depression Woolley thought marked the location of PG 789's primary burial was also to the left of the doorway. This bent-axis approach to the primary burial stands in contrast to the single-chambered tombs PG 1054B, PG 1631, and PG 1648—all of which provided direct access to the primary burial—and highlights the close similarity of PG 800B to PG 789.

The foregoing review of Woolley's published accounts of PG 789 and PG 800, as well as his unpublished field notes and reports, make it clear that he excavated PG 800's death pit and Puabi's tomb chamber independent of one another and that his association of the two components of the tomb was hypothetical. Nevertheless, Woolley dismissed certain details indicating that PG 800B was earlier than PG 789. The fact

¹² British Museum, Department of the Middle East Archives, Woolley's Field Note Cards 194–211, pp. 83–84; http://www.ur-online.org/media_item/261498/ (accessed 6-12-2018).

¹³ British Museum, Department of the Middle East Archives, Woolley's Field Note Cards 194–211, p. 174; http://www.ur-online.org/media_item/261595/ (accessed 6-12-2018).

¹⁴ PG 800's footprint is only slightly larger than that of the PG 789 tomb chamber, but within the range of what one might expect for the methods and materials of construction.

that PG 800B's floor was 40 cm below that of PG 789 was suggestive, but the plastered exterior face of the tomb chamber (or blocked doorway) and the doorway in the southern corner providing access to PG 800B were decisive particulars. The exterior face (or blocking) of the tomb chamber's southwestern wall could only have been plastered if it were open and accessible. Though a doorway, whose existence Woolley ruled out, could not have provided access into Puabi's tomb chamber if PG 789 had existed when it was in use, the available evidence strongly suggests that such a doorway did, in fact exist. Woolley clearly inverted the phasing of PG 789 and PG 800.

THREE TOMBS, NOT TWO

As Zimmerman argued more than a decade ago, PG 789 and Woolley's "construct" PG 800 represent not two, but three royal tombs, created in the sequence outlined below.

1. The intact tomb chamber PG 800B, belonging to a royal woman named Puabi, who perhaps ruled in her own right, was the earliest of the three. PG 800B's death pit remains to be discovered, but since PG 800B's floor was 40 cm lower than PG 789, the death pit associated with it was likely on the same level. It may have extended below PG 789's death pit. Woolley never excavated below PG 789, and although 40 cm is not a great depth, it is probably sufficient to conceal skeletons and all but the largest upright artifacts.

Alternatively, if the configuration of PG 800B (with its undetected death pit) precisely mimicked that of PG 789, then only the passageway leading to its doorway would have been below the PG 789 tomb chamber; the rest of the death pit would have extended to the northwest, in a part of the Royal Cemetery that was not excavated to the same depth (fig. 15.7). In either case, it is clear that Woolley did not excavate below the floor of PG 789, so the existence of a death pit for PG 800B, though likely, remains an open question.

2. PG 789 was laid out subsequent to PG 800B and abutted on the plastered exterior face of its southwestern wall, suggesting that the two royal burials were close in time and the occupants probably related by blood. Perhaps the wooden planks whose impressions Woolley noted on the plastered

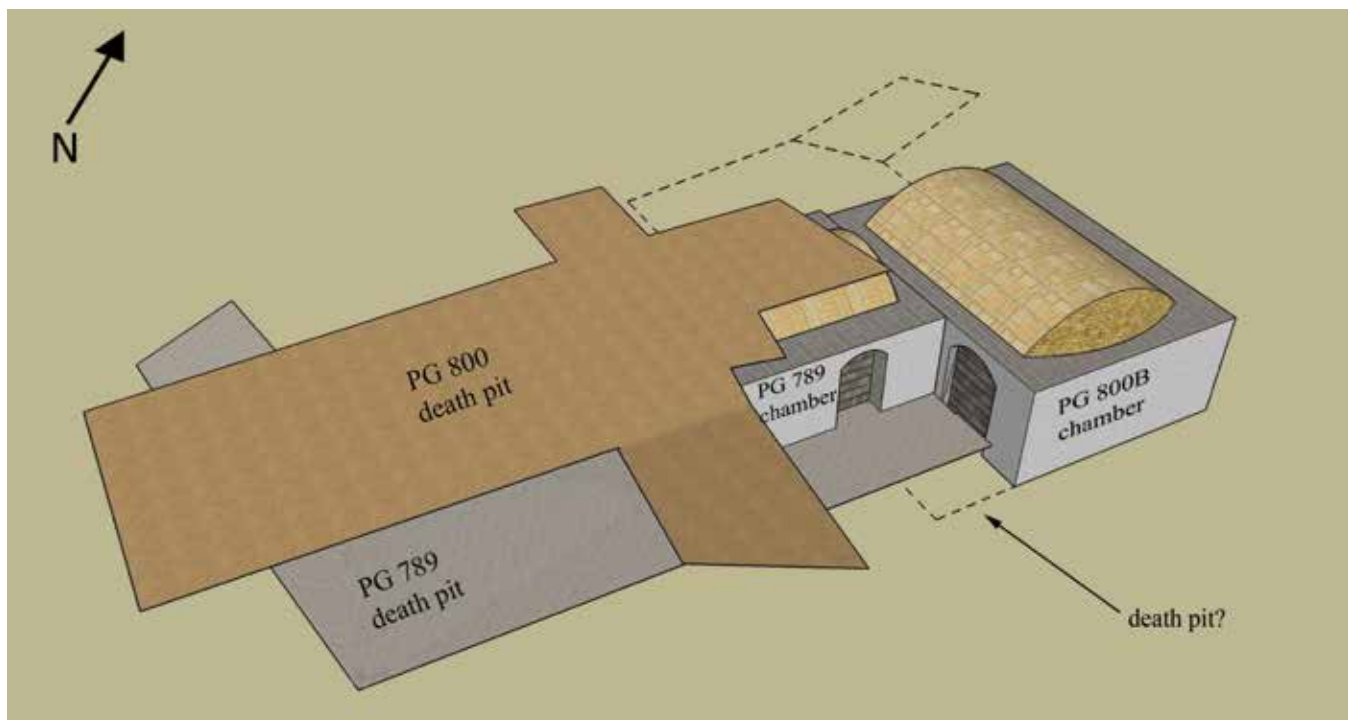


FIGURE 15.7. Three-dimensional reconstruction of PG 789 and PG 800, with the possible location of a death pit associated with Puabi's tomb chamber shown in dashed lines beneath PG 789. (Hafford and Zettler 2015, p. 93, figs. 6–3)

exterior face of PG 800's tomb chamber were put in place when PG 789 was laid out to secure the blocked doorway to Puabi's tomb chamber during its construction.

Despite Woolley's assumption that it belonged to one of Ur's early kings, PG 789 contained no indication as to whether the principal internment had been a male or female. Both male and female personal attendants had been entombed in PG 789 with the (undetermined) primary burial, but the gender of the attendants probably doesn't provide a key to the gender of the primary burials. Male and female attendants had been entombed with Puabi, but apparently all male attendants with the royal female, whom McCaffrey described as a "female king," in PG 1054 (Woolley 1934, p. 106; cf. McCaffrey 2008). Woolley's story of the undying love between Ur's king and queen, though touching, is perhaps greater testament to his knack for composing compelling narratives than it is a strong case built from the archaeological evidence.

3. PG 800's death pit followed PG 789, and the tomb chamber originally associated with it remains as elusive today as in 1927–28. The fact that the workers who laid out the death pit looted PG 789 may suggest that PG 800 was much later in time and the memory of PG 789's royal occupant had long since faded. It is perhaps also worth asking whether the large number of artifacts found at the northeastern end of the death pit might have come originally from PG 789's tomb chamber, the "sacrilege" of looting representing, in effect, the recycling of royal wealth.

If we are correct, then, in asserting that Woolley's PG 789 and PG 800 represent not two tombs, but a sequence of three royal burials, the only question that remains to be answered is why Woolley dismissed indications that PG 800B was in fact earlier than PG 789. If his biweekly reports to the Directors of the British Museum and the University of Pennsylvania Museum provide any insight into his thinking, he appears to have been blinded by his compulsion to associate a royal burial with PG 800's death pit, a hope he expressed already in his report dated December 6, 1927. His subsequent discovery of PG 789, however, provided him a model royal burial to replicate. This model solved his admitted "disappointment" in failing to find the primary burial associated with the PG 800 death pit. Thus, once Woolley had found PG 800B, which he eagerly tied to the PG 800 death pit despite the absence of any physical connection between the two, he linked them and crafted his tale of king and queen. He propounded this tale as early as January 1928 and discarded any indications to the contrary. Nevertheless, it is a testament to his integrity as an archaeologist that he recorded his work in sufficient detail that we could, decades later, return to his work with a critical eye and propose a new interpretation of his data.¹⁵

¹⁵ For a recent assessment of Woolley's field documentation for the excavations at Ur, see Zettler 2021.

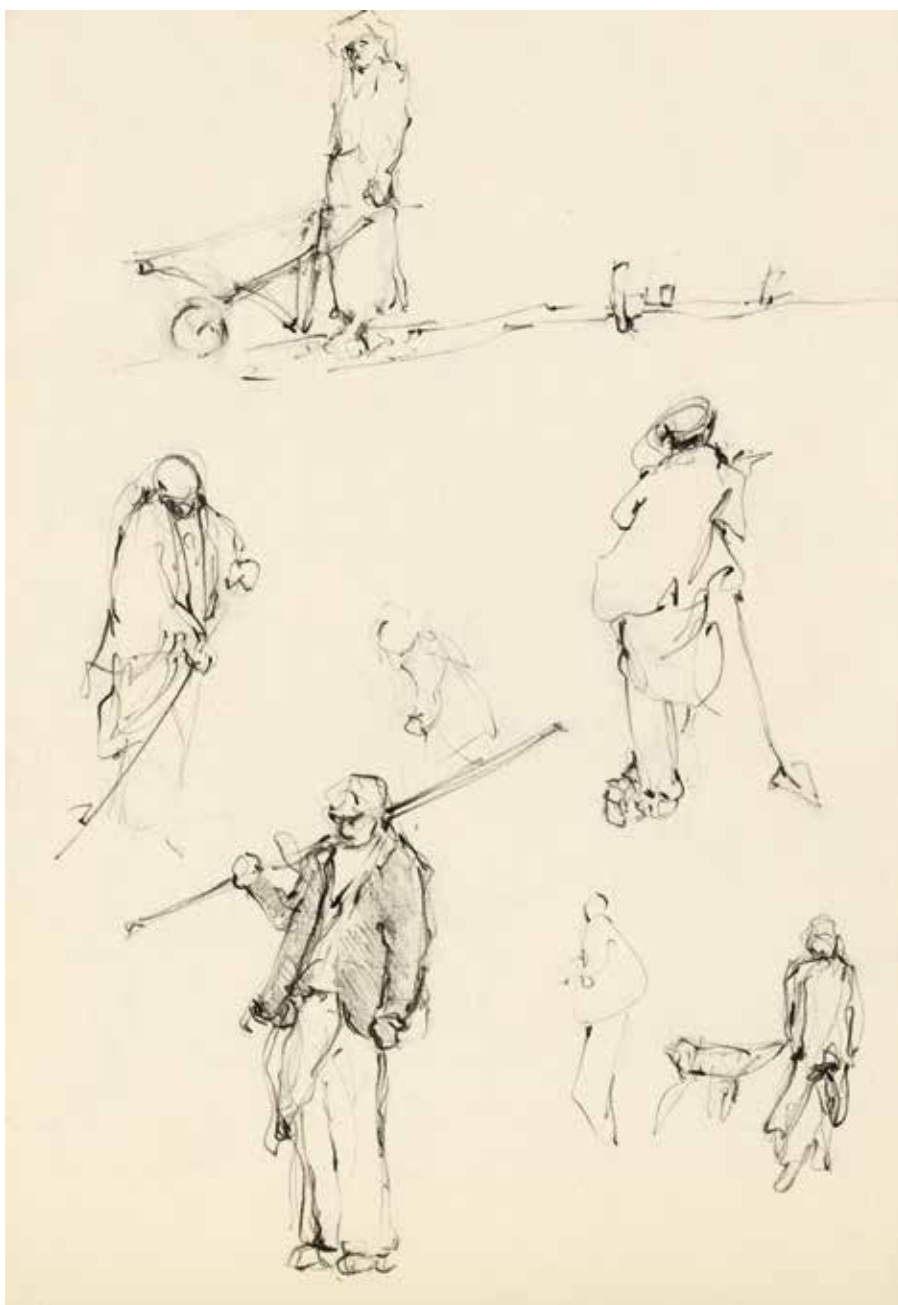
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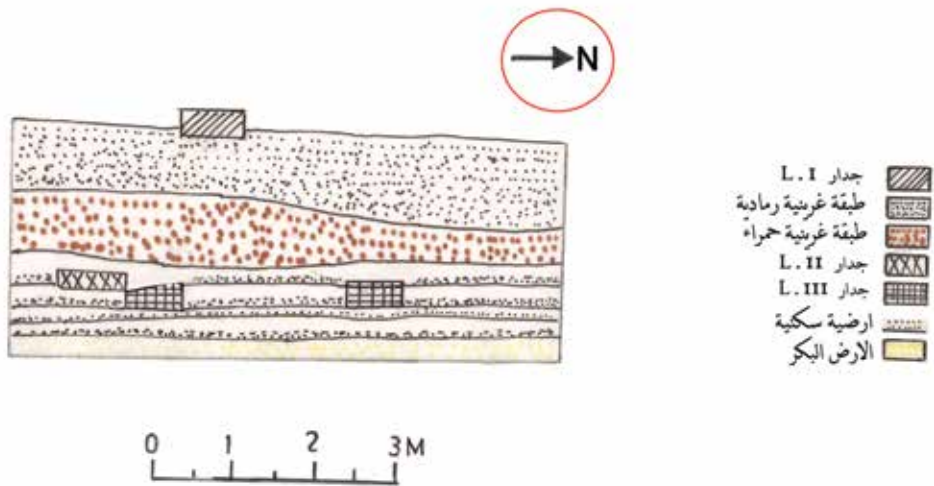




Studies of workmen, Üçtepe, 1978. (Drawing by Peggy Sanders)

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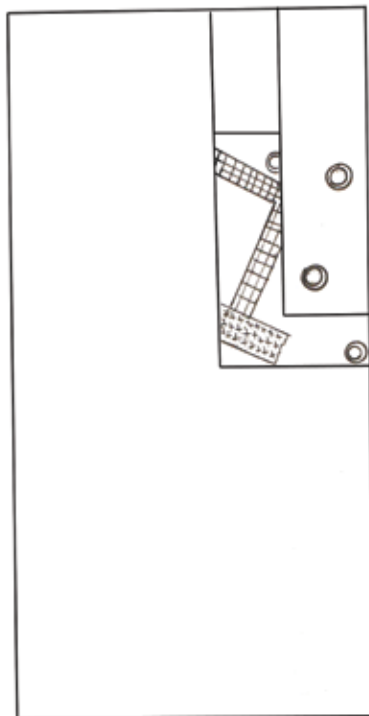
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مخطط / 10

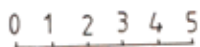


مخطط / 11



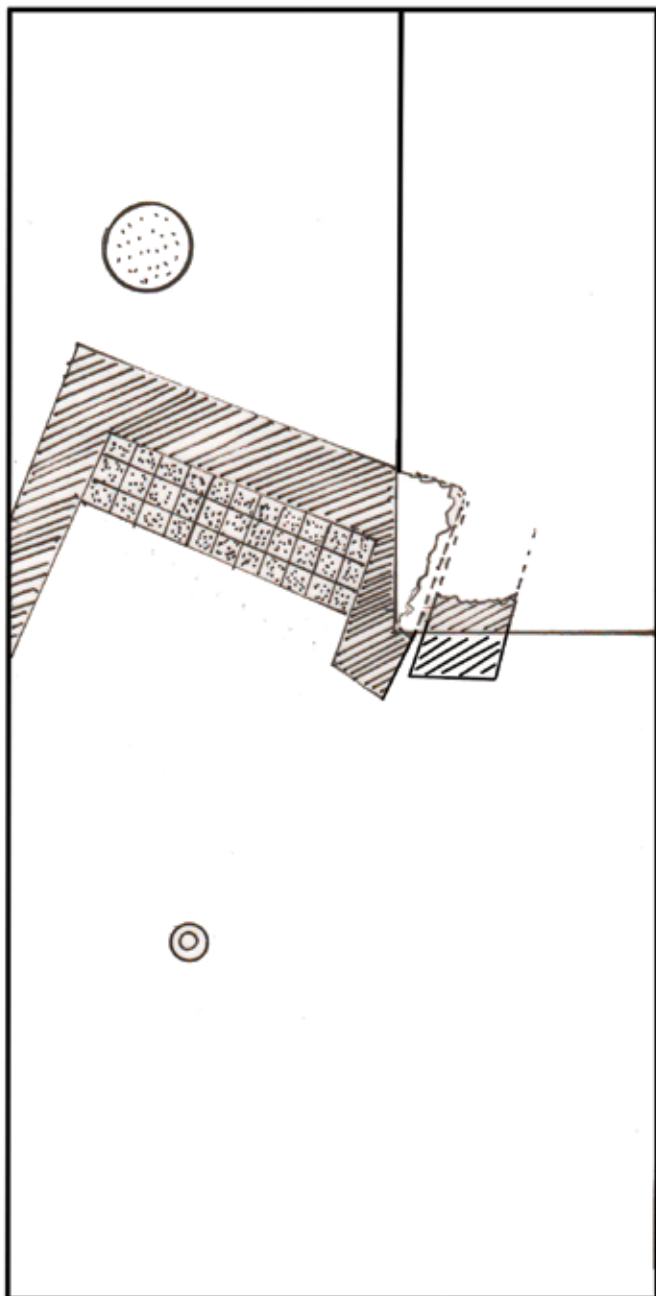
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I.4 مجس النقطة


- جدار لين طبقة ثانية
- جدار لين طبقة ثالثة
- جرة عزن طبقاتية








مخطط / 9



جدار لبن 

تبليط لبن 

مخزن حبوب محفور
بالأرض 

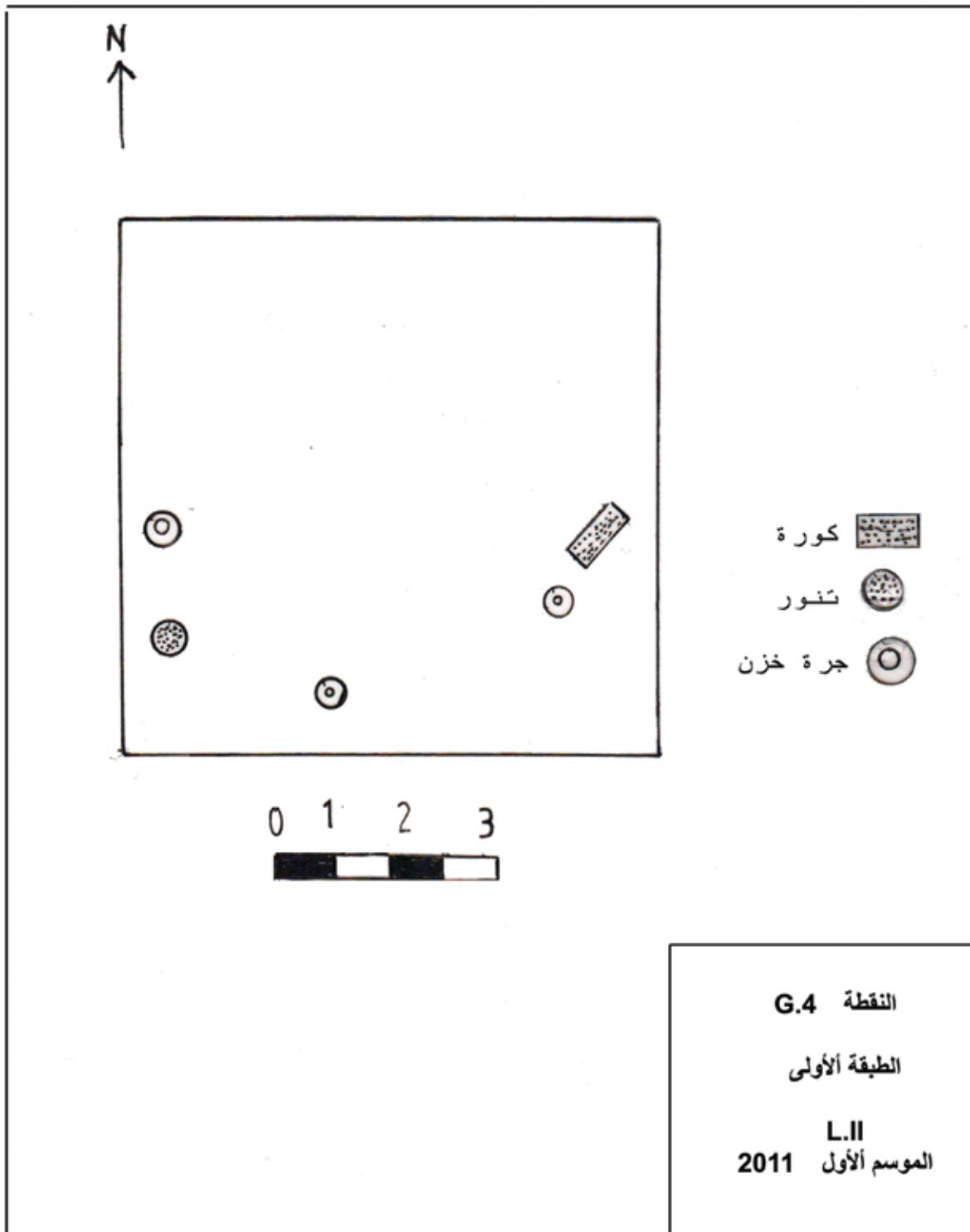
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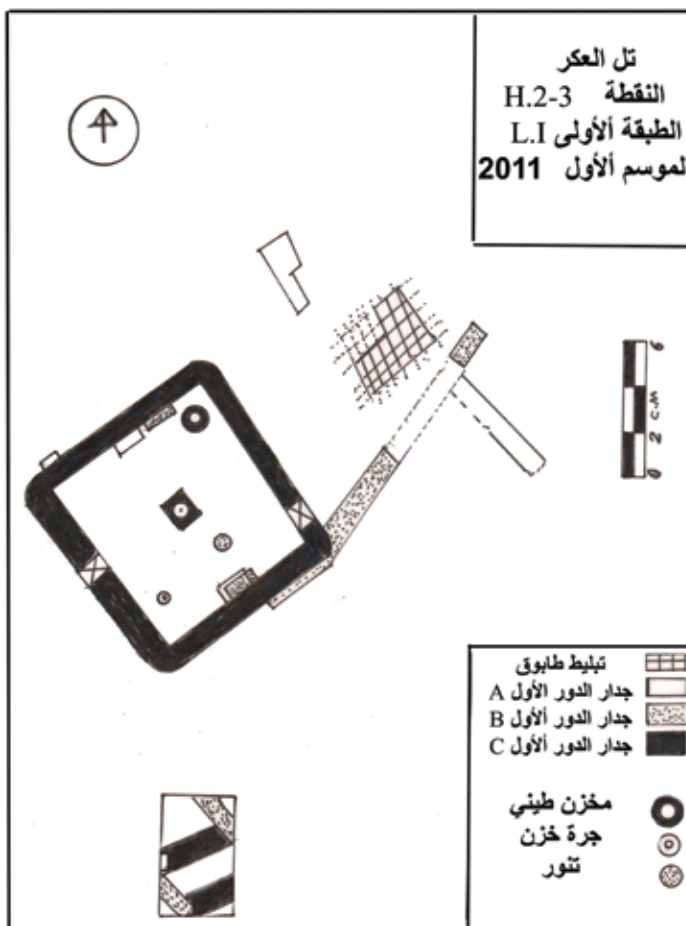
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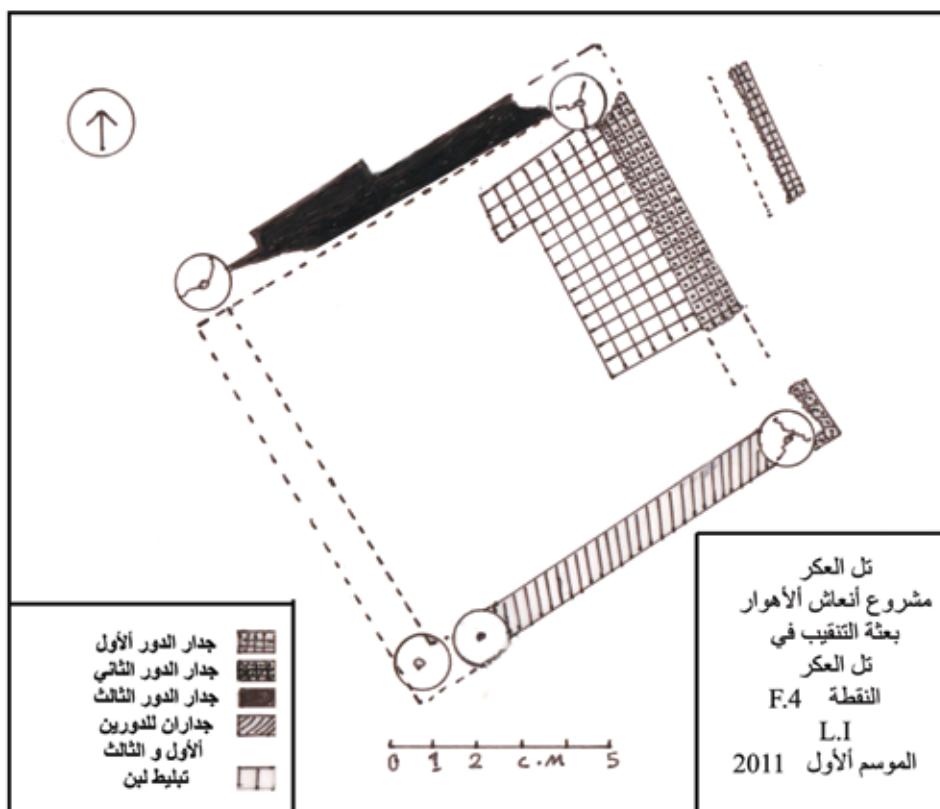
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8 / مخطط



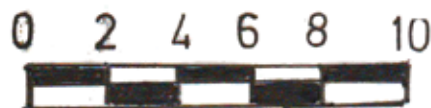


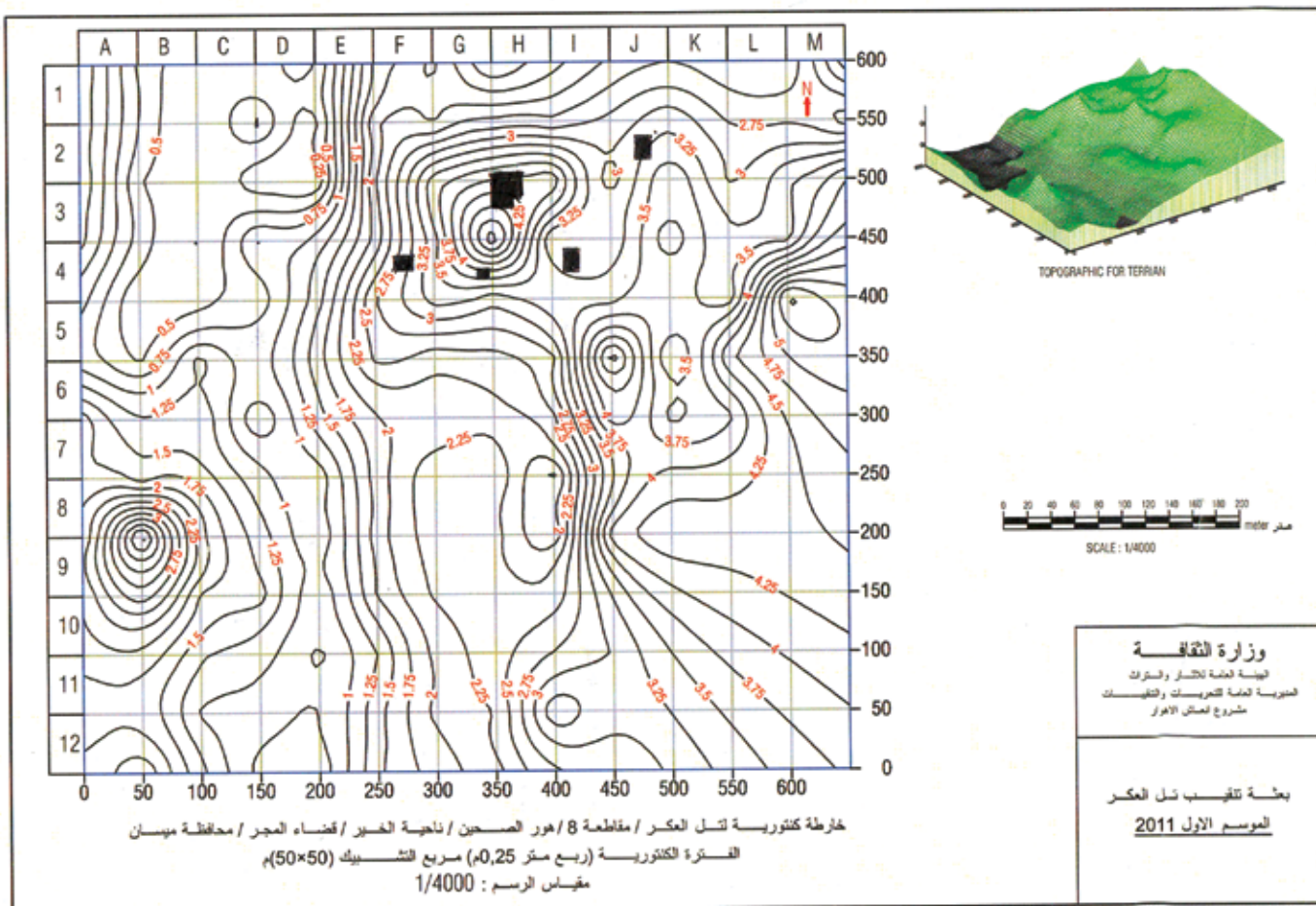
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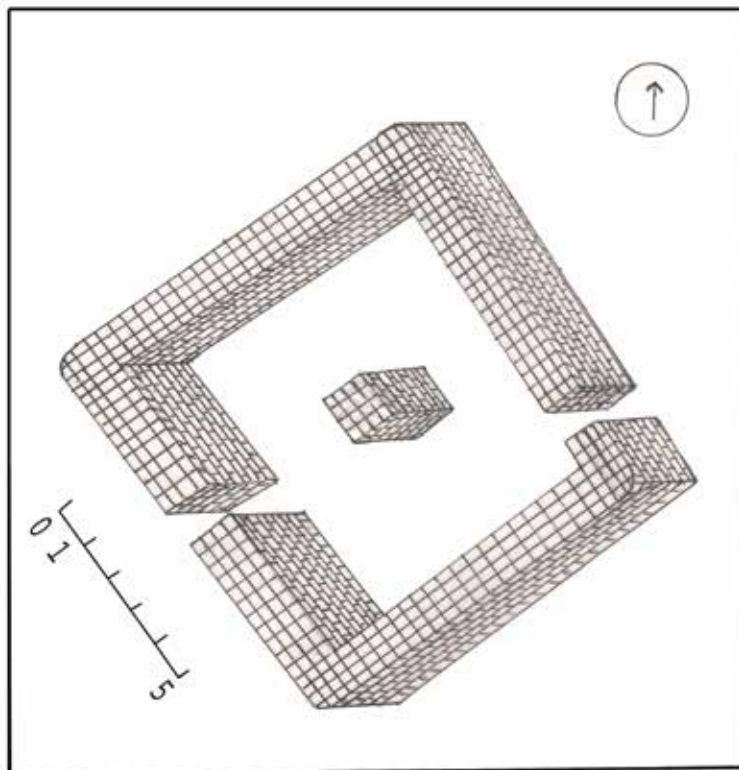
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مخطط 5/



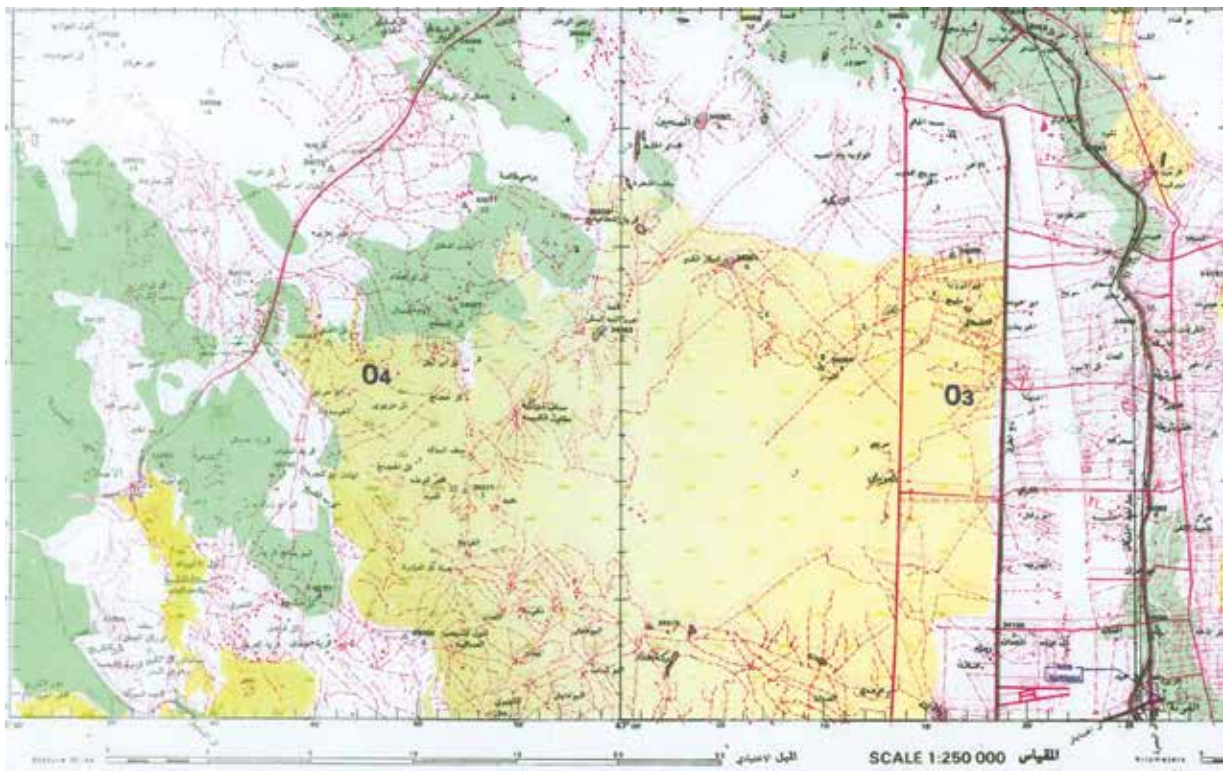
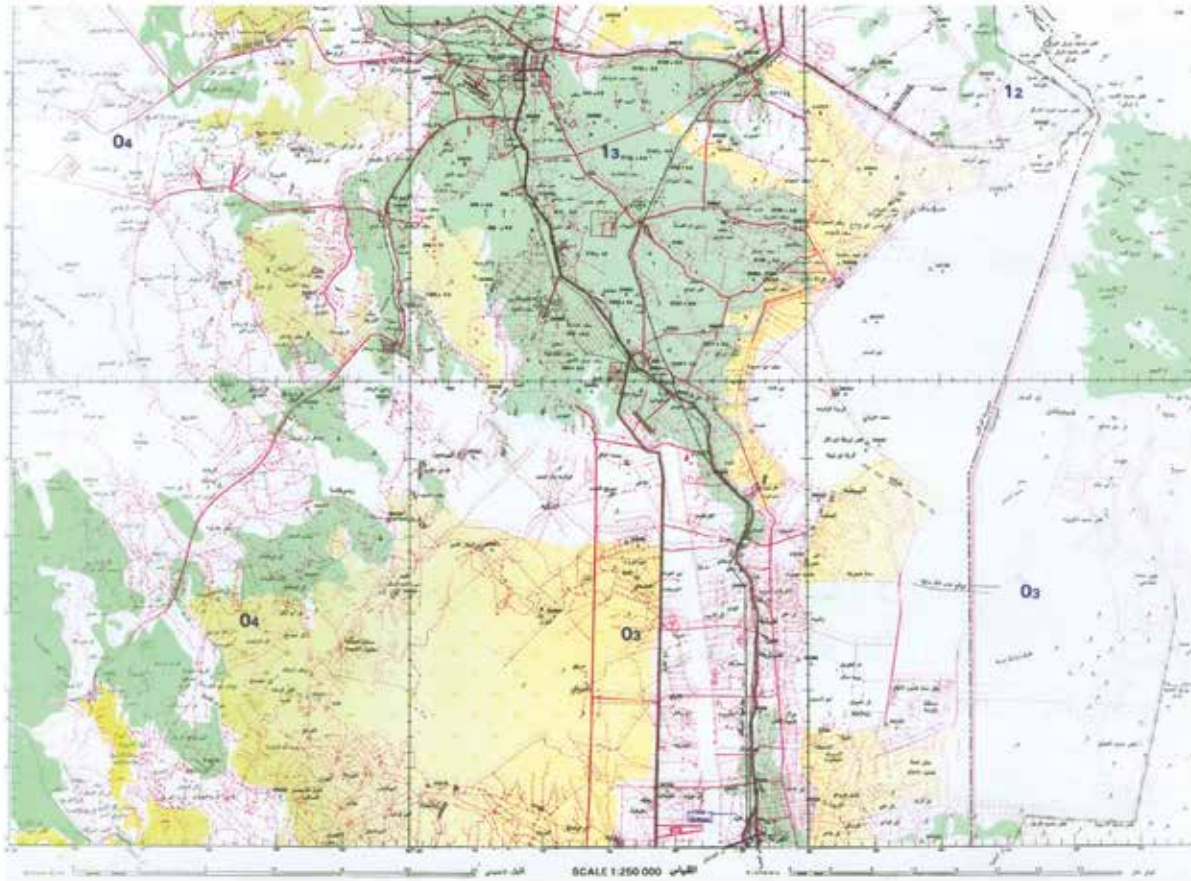


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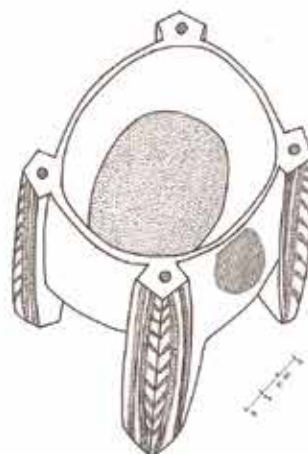
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مخطط 1/

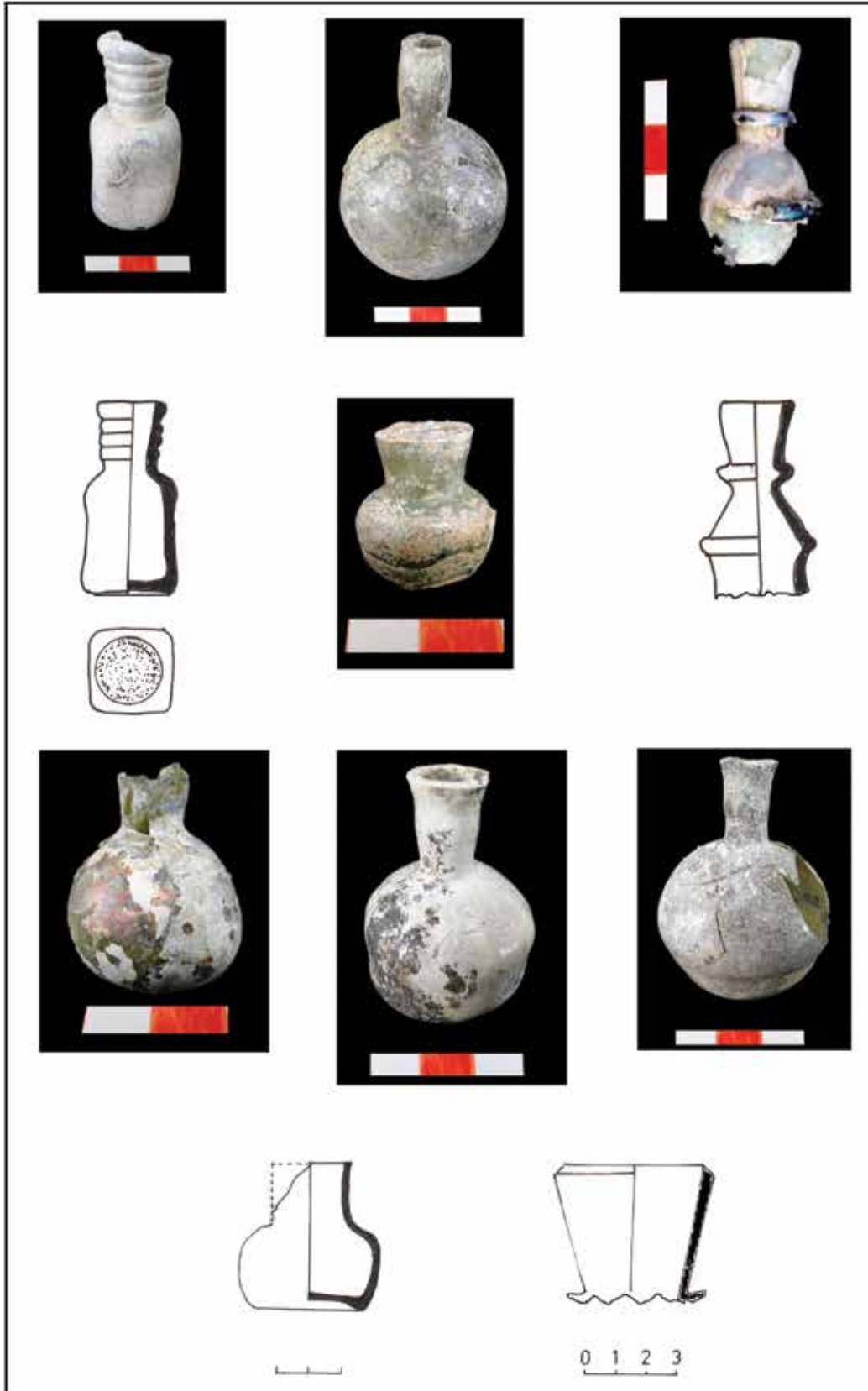


مخطط 2/

لوح 18



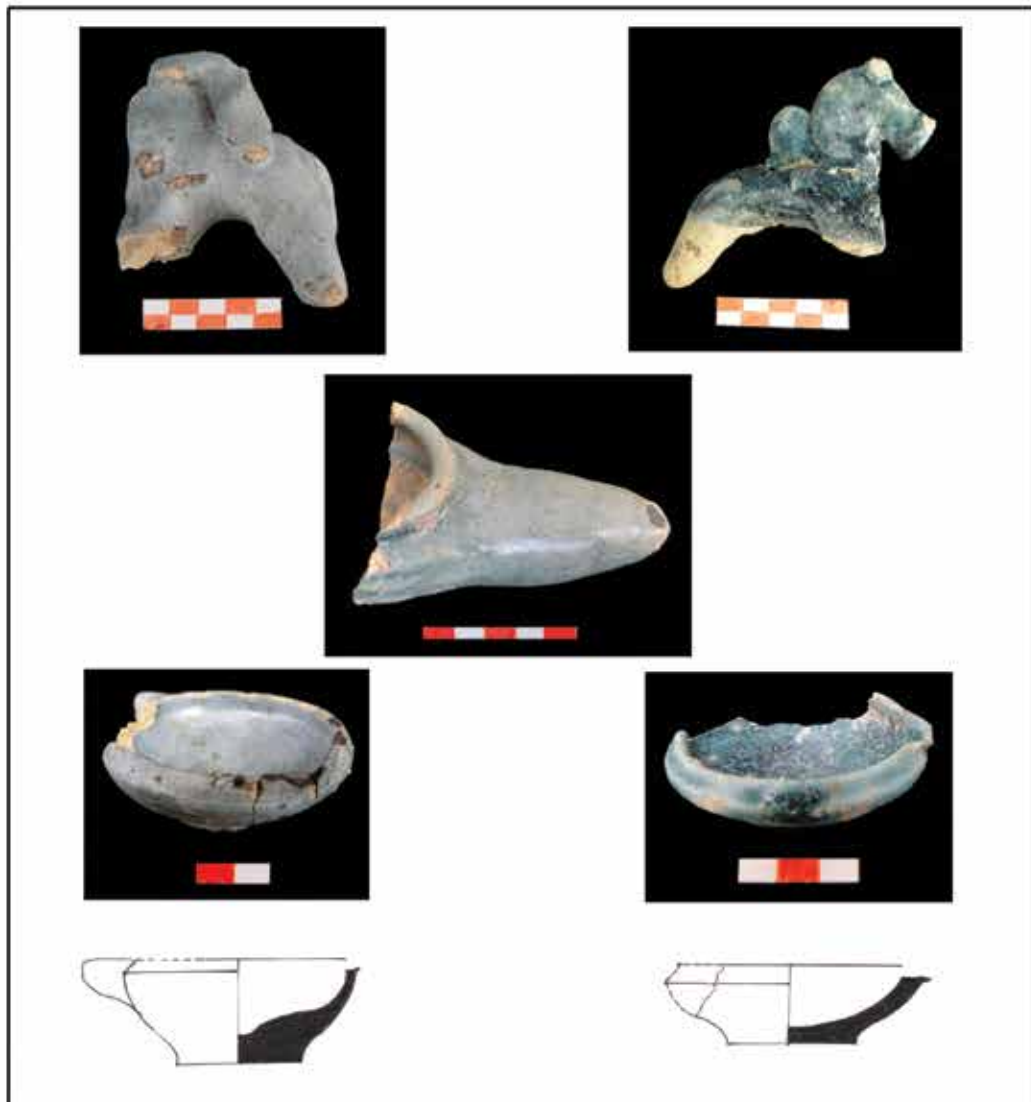
لوح 17



لوح 15



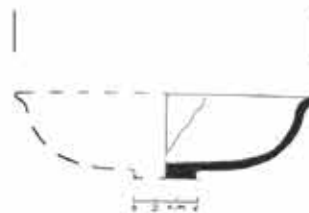
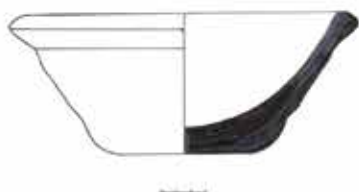
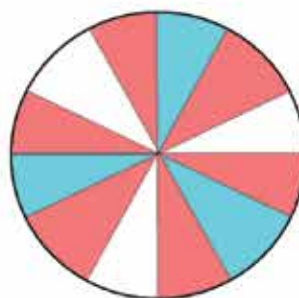
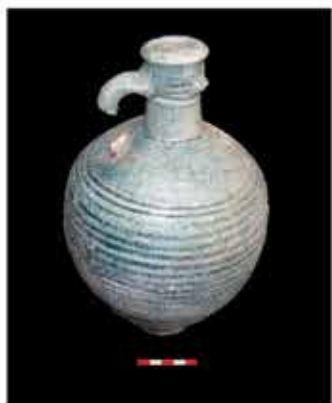
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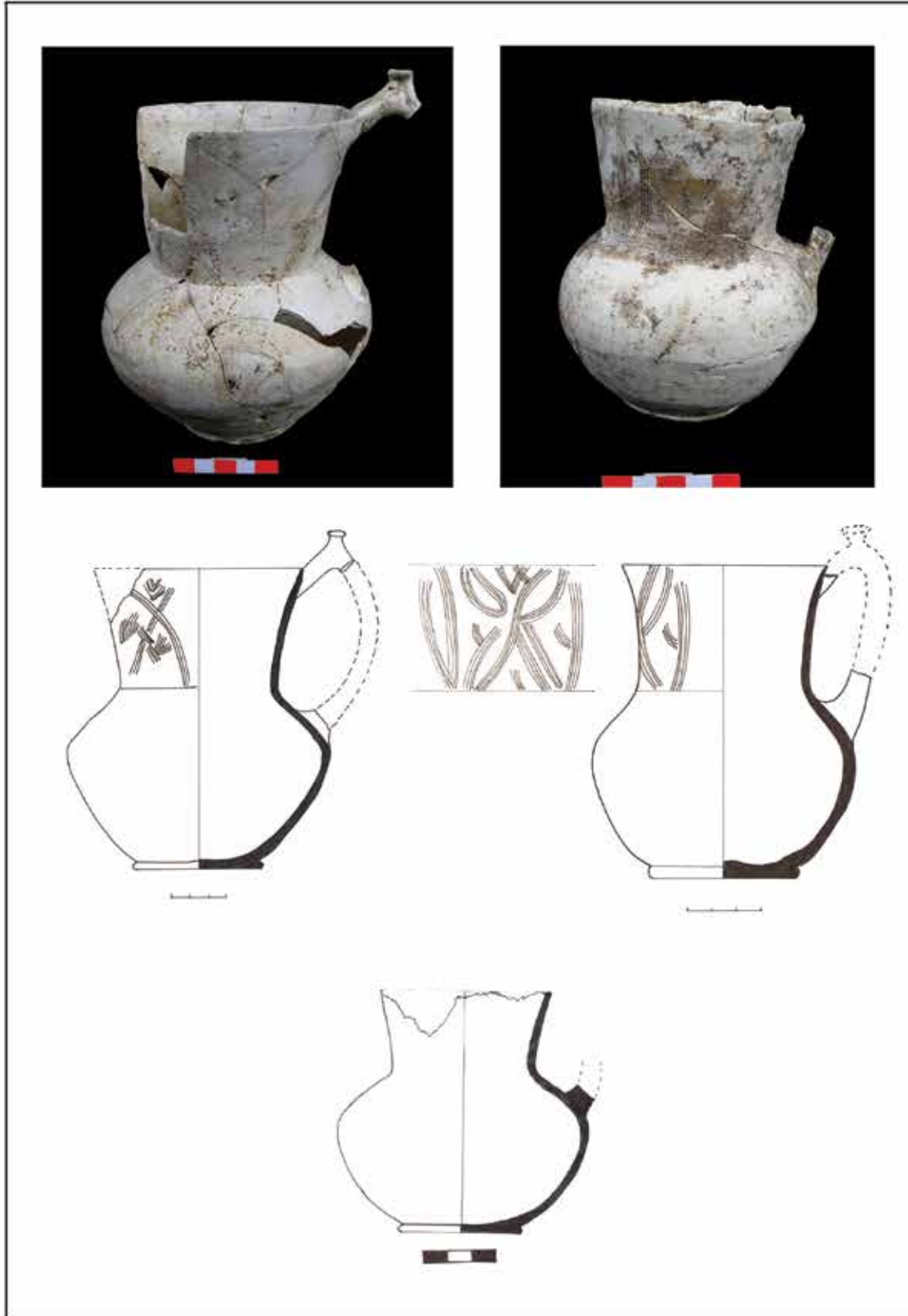
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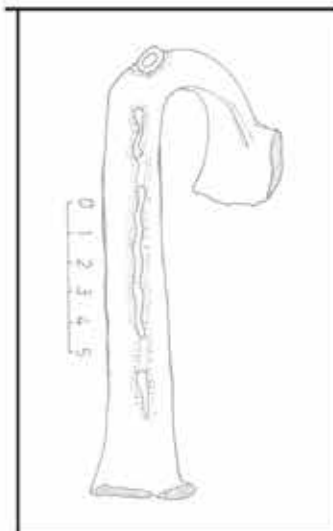
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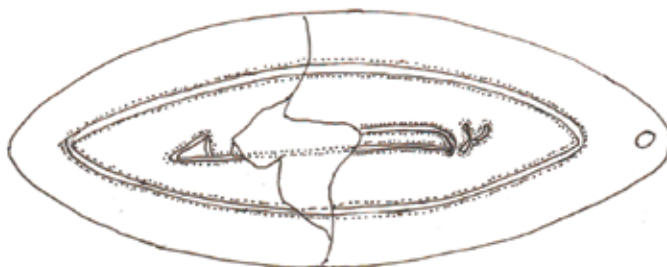
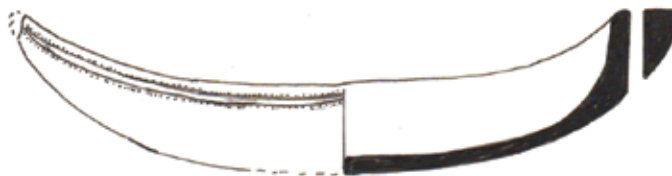
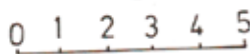
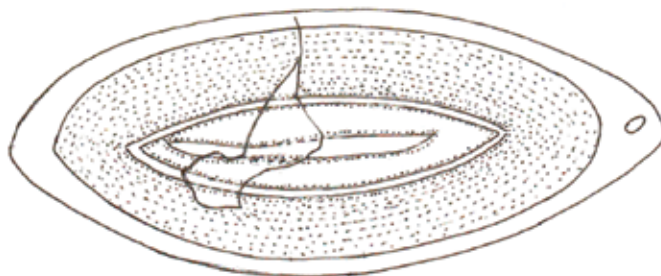
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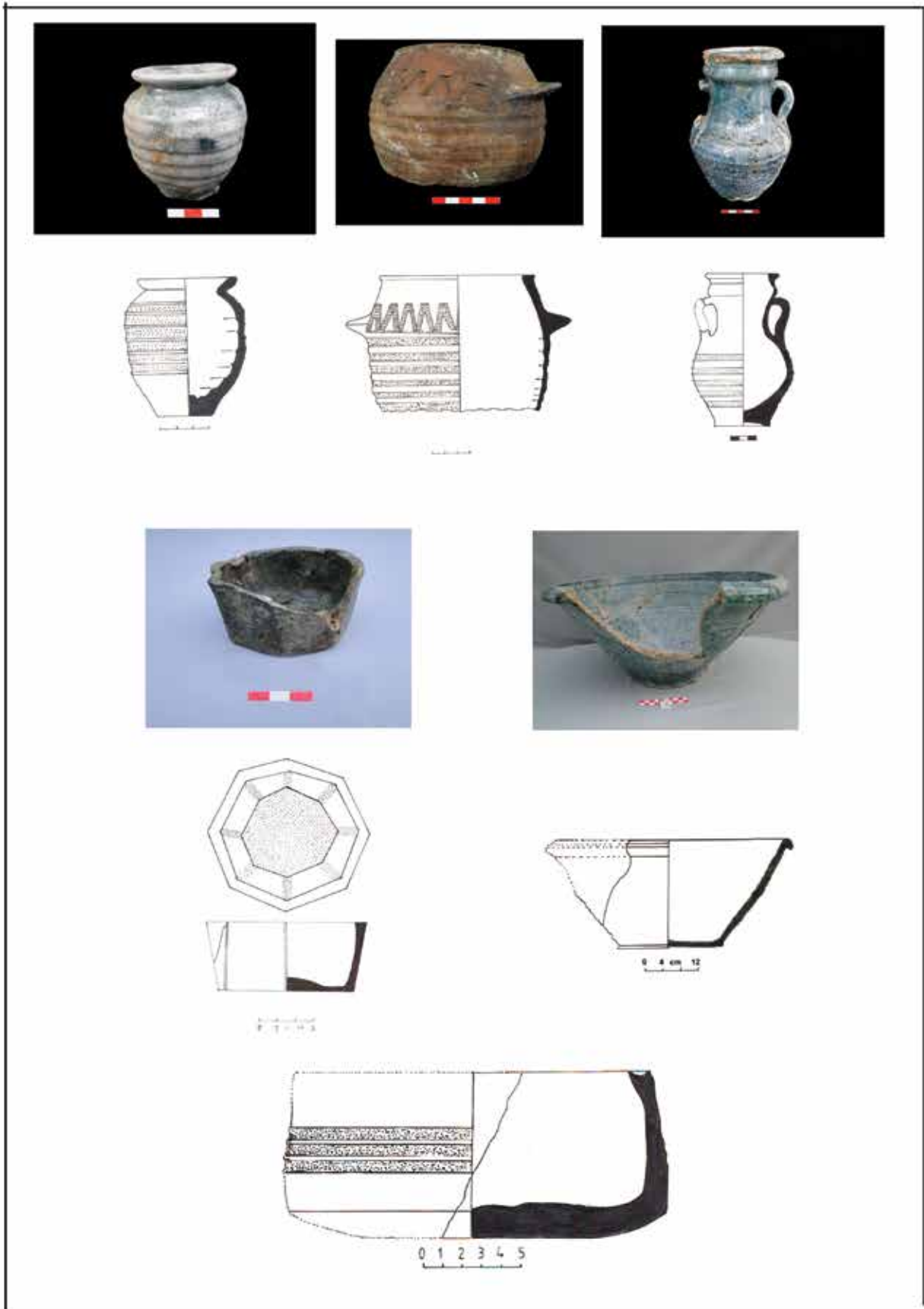
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لوح 10



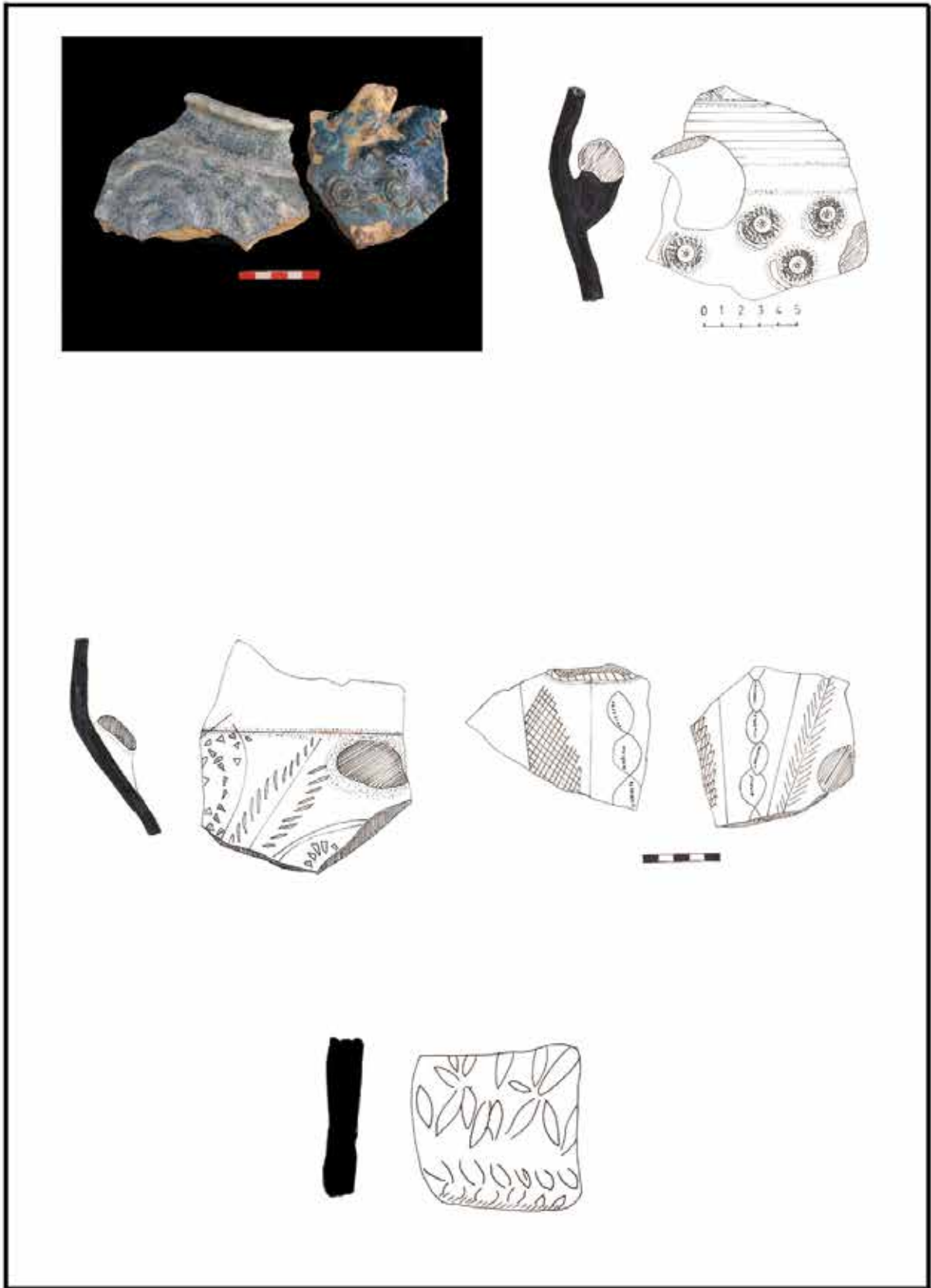
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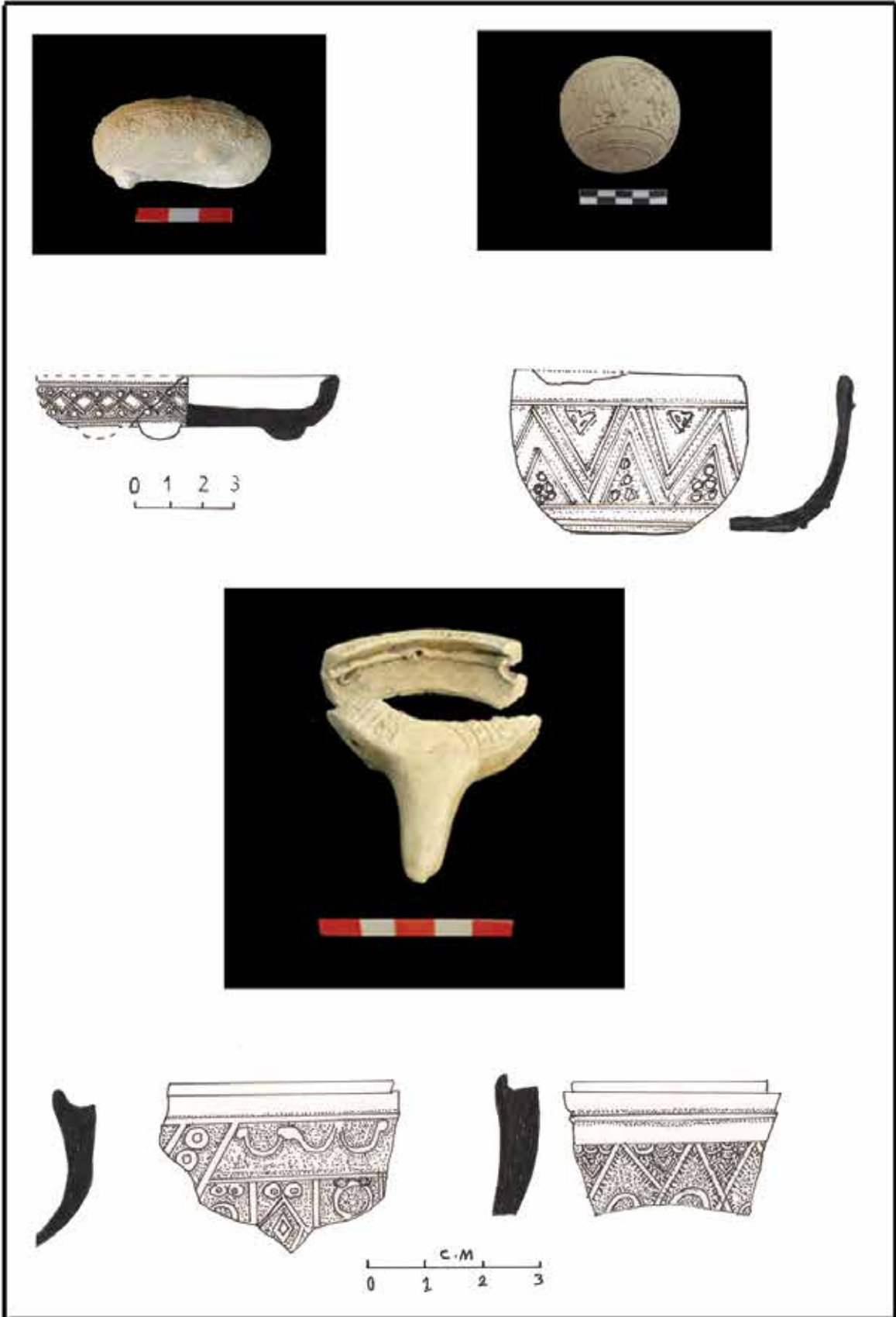
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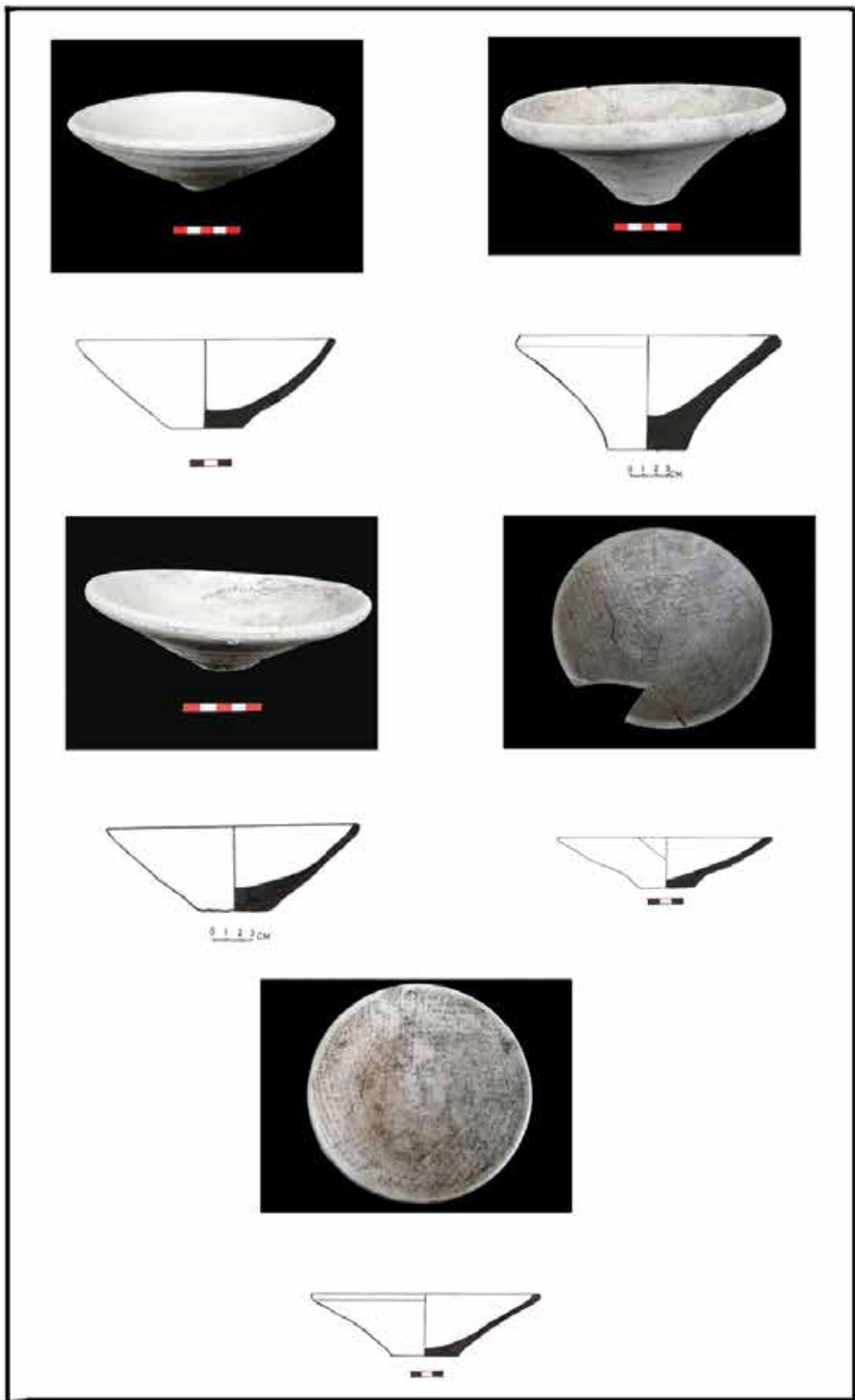
لوح 7



6 لوح



لوح 5



اللوحة / 4



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اللوحة / 3



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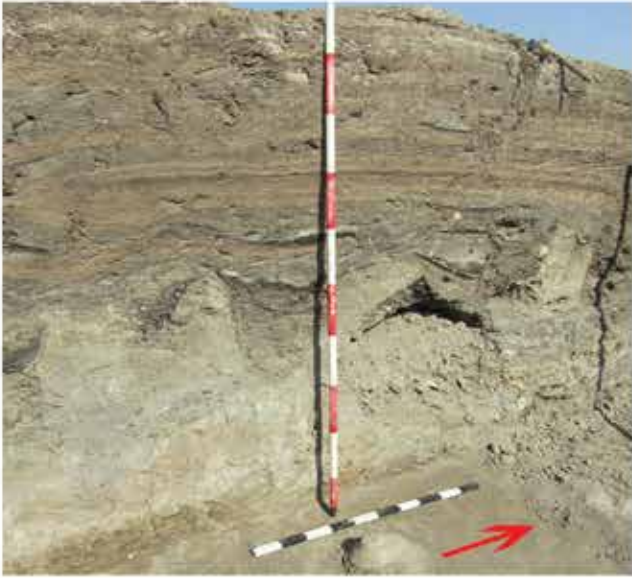


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اللوحة / 2



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اللوحة 1/



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4

الهوامش

- 1- كوبر, جغرافية النقل البحري, ترجمة ربيع عبد الله المسلط, (جامعة القاهرة 1975), ص 231
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- 2- (ب) J. A. Montgomery, Aramaic Incantation Texts from Nippur, 1913, P.40
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- 4- (أ) د. إبراهيم . جابر خليل, المصدر السابق, ص 74, لوح 17
- (ب) الصبيحاي . حيدر فرحان, فخاريات مدينة الأنبار, سومر, ج/ 53, ص 435, شكل 4, 5
- 6- B. Tinsler and J. Schmidt (Sasanidische und fruhislamische uinen im Iraq) Baghdad Mitteilugem 8, (1976), Plat.101, Figure.1
- 7- حمزة. حسين علي و آخرون, نتائج التنقيب في تل مرضي, سومر / ج 49, سنة 1997-1998, ص 257 و ص 281 / شكل 3
- 8- الفتیان. أحمد مالك و رجب. زهير, 7 سنوات في تل أسود, ص 99 و ص 224, لوح 1 و 2
- 9- (أ) - الصبيحاي . حيدر فرحان, المصدر السابق, ص 428
- (ب) خيرى. علي هاشم و عون. إنعام, تنقيبات تلول علي الهيئي, سومر / ج 46 ص 203-204
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- 12- شاكرك. برهان, نتائج أعمال التنقيب في أسكي موصل, سومر / ج 52
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- (ب) الصبيحاي. حيدر فرحان, المصدر السابق, ص 432
- 15- عبد الخالق. هناء, المصدر السابق, ص 116 و 117
- 16- د. العزاوي. عبد الستار, موقع الذهبية, سومر / ج 46, ص 167
- 17- التقرير النهائي لنتائج التنقيب في قلعة عقرة / الموسم الأول 2010-2011 (غير منشور)
- 18- د. نبروه بي. علي ترك, الميثرانية تاريخ و معتقدات, ترجمة بير خدر سليمان, منشورات مركز لاليش, رقم 7, ص 11
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المصادر

- 1- د. إبراهيم. جابر خليل, الفخار بين العصر البابلي القديم و العصر الإسلامي, حضارة العراق / ج 3 (دار الحرية بغداد 1985)
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- 4- حمزة. حسين علي و آخرون, نتائج التنقيب في تل مرضي, سومر / ج 49
- 5- الحسيني. محمد باقر, حفريات بكر أوه, سومر / ج 18
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- 13- الفتیان. أحمد مالك و رجب. زهير, 7 سنوات في تل أسود
- 14- متاب. أمل, الدمى العربية الإسلامية, سومر/ ج 51
- 15- د. هنتنر, أريك. ك. د, طاسات تعزيم من مجموعة المتحف العراقي, سومر/ ج 49
- 16- B. Tinsler and J. Schmidt (Sasanidische und fruhislamische uinen im Iraq) Baghdad Mitteilugem 8 (1976)
- 17- J. A. Montgomery, Aramaic Incantation Texts from Nippur, 1913

أوجه والثانية بخمسة أوجه مع ثقبين إضافيين يخترقان حافتها العليا، وتبرز أهمية الحجر الثانية في احتمال كونها جزءاً من هيكل طقسي؟ من العصر الساساني حيث أن الحلقات المحفورة على حافات الصخور المنحوتة كانت من ميزات المعابد الميترانية (17) التي يعبد فيها الإله ميترا اله النور والمواثق الذي خلقه الإله أوهرامزدا حسب العقيدة الزرادشتية (18) التي كانت الدين الرسمي للإمبراطوريات الفارسية الثلاث (الأخمينية، الفرثية، الساسانية). وربما كانت تلك الحلقات أماكن لإيداع لفائف الرق التي كتبت بها المواثق؟ أو ربما للتمسك بها عند أداء القسم؟ مثلما نرى اليوم في مسك رمز من الرموز الدينية عند أداء القسم.

أما بخصوص الطبقة العباسية فنتمثل أهميتها ببنائيتها المركزيتين، فمخططهما غير الشائع يثير التساؤل عن وظيفتهما لكونهما لا يضمنا إلا ساحة واحدة، فنحن كما رأينا قد جرى الاهتمام ببنائها حيث بنيت بالطابوق وجرت عليهما أعمال صيانة وإضافات دورية وخاصة في بناية النقطة H.2 ذات الدكة الوسطية التي نستبعد أن تكون قاعدة لعمود يرفع سقفاً، فمساحتها البالغة (10×10 م) تحتاج لأكثر من عمود لتسقيفها؟ علماً أن التنقيب في موقع أسكي الموصل المعاصر كشف عن بناية مناظرة خالية من دكة وسطية، ويفترض المنقب الذي اكتشفها أنها كانت مركزاً لبيع المواشي أو المحاصيل الزراعية؟ (19) ونحن من جهتنا لا نرجح هذا الافتراض لكون الأرضيات في المباني الثلاث لا تحمل أثراً لمواد عضوية عادة ما يكون ركامها طينة خضراء إضافة إلى أن أرضية البنائيتين في موقعنا حملت تنورا وجرة خزن وكسيت بكسر الطابوق المسحوق أو باللبن، ومن هنا ستبقى وظيفة هذه المباني مثار تساؤل يستدعي الدراسة والبحث فعسى أن تجيبنا عليه التنقيبات القادمة في هذا الموقع أو غيره.

الخاتمة

مر موقع العكر بعدة عصور شهدت قيام وانهيار عدة حضارات و إمبراطوريات كان آخرها الإمبراطورية العثمانية التي هيمنت على العراق لأربعة قرون تركت فيها البلاد خراباً، ومن معالم ذلك الخراب انهيار مشاريع الري الذي أدى إلى طغيان مياه الفيضانات على الحواضر القديمة وتوسع مساحة الأهوار. وموقع العكر واحد من تلك الحواضر التي غمرتها المياه وتركت طبقة غرينية غطت سطحه، وفي سبيل البقاء تحول أبناء المنطقة إلى صيادين ومربي مواشي بعد هجرانهم لمهنتهم القديمة مثلما هجروا بيوتهم التي كانت مشيدة بالطابوق أو اللبن و تحولوا إلى بيوت قصب قاموا بإنشائها على حافات المياه وفوق المواقع الأثرية المحاطة بالمياه. وفي السبعينيات من عصرنا هذا طور أولئك الأبناء الأعمار فشيئت البيوت الحديثة إلى جانب مدرسة ومركز صحي مع احتفاظ غالبيتهم بمهنة تربية الجاموس والصيد التي اعتادوا عليها، لكن الزمن لم يمهلهم طويلاً فقد جاءهم دمار آخر حل عليهم من السماء على شكل قذائف صاروخية قتلت من قتلت وأجبرت الناجين على هجر ما عمروا وما ملكوا، وكان من جملة ما خلفوه فالآت الصيد الراقدة الى جانب القذائف المهلكة وغير ذلك مما كشفته فرقة التنقيب (اللوحة 4 / الصورة 17) التي أبرزت ما كان مجهولاً.

كانون الأول

2011

1- الجرار

تميزت منها الجرار التي يميل حجمها إلى الصغر والتي عرفت بأبدانها وأعناقها الطويلة المنفرجة المرتبطة غالباً بمقبض رشيق فوق الكتف، وقد صنعت هذه الجرار التي شاعت في نهاية العصر العباسي - الاليخاني (10) من طينة تبنية نقية رقيقة (اللوح 12)، وكان لجمال طرازها تأثير في صناعة الزجاج العباسي حيث عثر على قوارير من طرازها (11).
ضمت الطبقة الأولى العديد من حطام الجرار الكبيرة وجرار الخزن، ولم تعثر البعثة إلا على جرة واحدة طوربيدية الشكل كاملة (اللوح 13) عثرنا عليها في النقطة H.2 في ركام الدور A، عرف طرازها بالعصر العباسي (12) علماً أن هذا الطراز من الجرار عرف في الأصل في العهدين الفرثي والساساني، ومن الجرار المتوسطة عثرنا على جرة خضراء التزجيج تميزت بعنقها الطويل وفوهتها الضيقة المرتبطة بمقبضين (اللوح 13) عثر عليها داخل حفرة قديمة اخترقت الطبقة الأولى.

2- أواني متنوعة

واشتملت على بضعة صحون أحدها تميز بسمكه وحافته المثانة والثاني مخروطي البدن قليلة الغور طينته ممزوجة بالرمل و التبن، وآخر نصف كروي الشكل ذو تزجيج أزرق فقد رونقه، وتلك الصحون عثرنا عليها داخل حفرة متأخرة، كما عثرت البعثة على نصف صحن مزين من الداخل بخطوط مزججة متقاطعة مختلفة الألوان (اللوح 13).
لقد كان من بين الأواني المكتشفة بضعة أواني سمجة مصنوعة باليد تميز منا كأس ذو مقبضين صليدين متقابلين، ونموذج جرة أسطوانية البدن ذات بروز بسيط على جانبيها، وقد طعم هذا النموذج بقطعة زجاج داكنة زرقاء (اللوح 14). علماً إن تطعيم الأواني الفخارية بالزجاج ظهر كصناعة محلية في شمال العراق في نفس الفترة (نهاية العصر العباسي- العصر الاليخاني) (13).

ب- لقي متنوعة

عثرت البعثة على اثنين مهمين غير معهودين، والأثران اسطوانتان فخاريتان سميكتا المقطع يضيق تقيهما في الوسط (اللوح 15) وعلى نهايتهما آثار حرق، عثرنا على أحدهما على الأرضية في النقطة I.4 والثانية اصغر حجماً عثرنا عليها داخل حفرة قديمة في نفس النقطة، وتتمثل أهميتهما في كونهما غير معهودين وربما كانتا جزءاً من منظومة لصهر المعادن؟ ومن اللقى الفخارية الأخرى مجموعة من كسر لمسارج شائعة الطراز خضراء وزرقاء التزجيج (اللوح 15) مع مجموعة من دمي الفرسان زرقاء التزجيج (اللوح 16) شاعت في ذلك العصر (14) كاملة باستثناء دمية واحدة لحصان؟ غريب الشكل صنع له ذيل ثاني بدل الرأس.
ولم تخل الطبقة الأولى من القوارير الزجاجية وأغلبها ذو طرز محافظة عرفت قبل الإسلام غلب على أبدانها الشكل شبه الكروي والقاعدة المقعرة العميقة، وتميزت قنينة ببدنها المتوازي المستطيلات وعنقها المزين بشكل أطواق، عثرنا عليها في ركام الطبقة الثانية في مجس النقطة H.2، وكان من بين النماذج الجميلة عنق قارورة مزين بالباروتين (اللوح 17).
كان من بين اللقى المهمة الأخرى للطبقة الأولى مجمرتان (مخترتان) عثرنا عليهما في ركام النقطة F.4، الأولى مصنوعة من حجر رمادي حملت أرجلها الأربعة زخرفة قوامها شكل سعة (أو غصنا) والمبخر الثانية مصنوعة من الفخار عثرنا على كسرة منها مزينة بزخارف هندسية جميلة عرف طرازها في عصر ما قبل الإسلام (16) (اللوح 18). وإلى جانب الآثار المارة عثرت البعثة على العديد من الأواني الشائعة مثل الثقالات وأدوات السحق وأقراص الغزل. وفي ختام حديثنا عن الطبقة الأولى يجدر بنا الإشارة إلى حجرين مصلعين سميكين ربما يعودان في الأصل إلى طبقة أقدم، الأول منهما عثرنا عليه في النقطة H.2 خارج البناية المركزية في الركام قرب الركن الشرقي، وهو مصنوع من الحجر الرملي وله ثمانية أوجه ويخترقه ثقب في الوسط، والثاني مصنوع من حجر البازلت وله خمسة أوجه يخترقه كذلك ثقب في الوسط وثقبان في الجانبين (اللوح 18) عثرنا عليه فوق الدكة التي تتوسط البناية المارة وقد وضع فوق قرص حجري كبير، يشبه الأقراص التي عثرنا عليها في النقطة F.4.
لقد جاء في حديثنا عند بداية تقريرنا هذا ذكر لطبقة طينية تعلوها الحفر تفصل الطبقة الأولى عن الركام الحديث، والذي نود إن نضيفه هنا إننا عثرنا في حفرة على عدة نماذج لأكواب فخارية سمجة مصنوعة باليد (اللوح 14) وكانت تلك الأكواب من ضمن العديد من مخلفات الطبقات الأخرى، وفي اعتقادنا أنها تعود للطبقة الأولى؟ التي عثرنا فيها على عدد آخر من نماذج الصناعة اليدوية السمجة وقد سبقت الإشارة إليها.

أهمية الموقع:

أن وصول تنقيباتنا في هذا الموسم إلى الأرض البكر وإن بمساحة ضيقة أتاح لنا مع زيارتنا للمواقع القريبة التعرف على حضارة المستوطنات التي ازدهرت في هور الصحين في القرن الثالث- الثالث عشر الميلادي. وفي تل العكر كانت أقدم الآثار المكتشفة تعود للعصر الساساني، ويمكننا الافتراض أن آثار العصر الأموي كانت موجودة بشكل أو بآخر في المنطقة ولكن العمر القصير لهذا العصر جعل ملامحه الفنية متأثرة بلامح العصر السابق ويصعب تحديدها دون نص كتابي.

لم تكن الآثار الساسانية المكتشفة في موقعنا بتميزها عن معاصراتها في المواقع الأخرى باستثناء الحجرين المصلعين التي سبقت الإشارة لهما وباعتقادنا إن لا علاقة أصلية لهما بالطبقة الأولى التي وجدا فيها بدلالة عدم إمكانية ربطهما بوظيفة لها ارتباط بما كشف من آثار تلك الطبقة، وإذا ما افترضنا أنهما كانا جزءاً أساسيين عمود يتوسط البناية المركزية أو أنهما استخدمتا لطحن الحبوب مثلاً، فالطريقة التي نحننا بها تنفي ذلك، فهي غير متجانسة هندسياً (ويشمل الأمر الحجر القرصية الأخرى التي كانت فوق الدكة) فإحدهما نحتت بثمانية

1- عمارة النقطة I.4

أظهر التنقيب أن جدران الطبقة الأولى في هذه النقطة مبنية باللبن مشيدة فوق طبقتين غرينيتين تفصلها عن الطبقة الأقدم (اللوحة 2 / الصورة 8) كما مر بنا ذكره، والملفت إن الطبقتين الغرينيتين لم نجدهما فوق الطبقة الثانية الساسانية في النقطة G.4 مما يدعونا للظن بان بناء الوحدة المشيدة في المربع I.4 قاموا بإزاحة ركام الطبقة الثانية وتعليه هذه المنطقة بتلك الطبقتين الغرينيتين؟ وكانت الجدران في النقطة الأخيرة تعود لبنائيتين مبنيتين باللبن المربع (34 × 34 × 7 سم) وقد دمرتها الحفر المتأخرة والعوامل الطبيعية الغربية منهما حظيت أرضيتها بتبليط بلبن قياسه (40×40×10 سم) وفي الجهة الشمالية الغربية من النقطة المنقبة كشفنا عن حفرة مدورة قطرها 1,2م وعمقها 1,4 م ربما كانت مخزنا للحبوب؟ بدلالة أكساء قعرها بفتات الطابوق. واقتصرنا للقي على عدد من الأواني منها جرة خزن محطمة على الأرضية (المخطط 9).

إما في النقطتين F.4 و H.2-3 فقد كانت المباني المكتشفة فيهما سليمة نسبيا وتعطينا صورة واضحة عن مخططهما الذي يرسم لنا صورة عن وحدة بنائية مركزية مكونة من ساحة كبيرة لا ارتباط لها بأي مرفق، وفي ما يلي وصف لعمارة كل نقطة:

2- عمارة النقطة H.2-3

إن الوحدة البنائية المركزية المكتشفة في هذه النقطة مربعة مساحتها (10,5 × 10,5 م) وتضم ساحة ذات مدخلين و تتوسطها دكة مكعبة مساحة قمتها (1,20×1,20 م) وارتفاعها عن الأرضية (1,10 م) (المخطط 4) بنيت تلك الوحدة بالطابوق (اللوحة 3 / الصورة 9) واستخدم الطين كمادة رابطة وعلى أرضيتها الطينية وجد تنور بدورين وجرة خزن محطمة. وقد أظهر مجس صغير حفر بجوار الدكة شمالا إن أساسها الذي ينزل بعمق 60 سم تحت الأرضية مبنية بكسر الطابوق (اللوحة 3 / الصورة 10) ترتبط بمداك الأسفل أرضية سكنية يكسوها فتات الفحم والرماد. وأظهر مجس ثان صغير حفر في الزاوية الشرقية للساحة إن المدماكين السفليين لجداري البناية غير مترابطين وإن أساس الجدار الجنوبي الشرقي أعمق بمدماكين (اللوحة 3 / الصورة 11) وإن مدماكين على الجدار الثاني يقعان على ارتفاع 80 سم بنيا بنسق واحد (حل) لمسافة مترين. ولم تجد البعثة تفسيراً لهذه الأشكال الهندسية.

لقد أظهر التنقيب إن هذه الوحدة مرت بثلاثة ادوار الأول منها على ارتفاع (30 سم) فوق سطح البحر (2,30 م فوق السهل) جرى في الدور الثاني نقض الجزء العلوي من جدران الدور الأقدم (الدور الثالث) وتعليتها بالطابوق والجص وجعل الجدار الشمالي الغربي أعرض من السابق وأغلق المدخلان. كما تم في هذا الدور والدور الأول المتأخر بناء عدد من الدكاك لصق البناية (المخطط 6) (اللوحة 3 / صورة 12) وجرى وضع طوقين من حجر البازلت فوق الدكة أحدهما مثقوب من الوسط والثاني مضلع الشكل مثقوب من الوسط والجانبين وبلطت الأرضيات بكسر الطابوق الصغيرة المفتتة، كما جرى بناء وحدات أخرى حول البناية موضوعة للبحث تم اكتشاف أجزاء من جدرانها المبنية بنفس الطابوق في الجهتين الشمالية والشرقية مع أرضية مبلطة بالطابوق في هذه الناحية (اللوحة 3 / الصورة 13) وجدران أخرى من الدورين المتأخرين مبنية باللبن وأحد تلك الجدران يقع شرق البناية المركزية المربعة وكان بعرض (1 م) لم يتبق منه سوى مدماك واحد قياس لبنة (30×30×10 سم). وعند المقطع الجنوبي قامت البعثة بحفر مجس بمساحة (2×5 م) تم النزول فيه إلى عمق 2م لغرض التعرف على طبيعة المباني في هذه الناحية، وكشف النزول عن آثار جدران مبنية باللبن تعود لثلاثة ادوار بنائية (المخطط 6) (اللوحة 4 / الصورة 14) يقع الدور الأول منها على عمق مستوى البحر والثالث على عمق (55 سم) تحت مستوى سطح البحر كما تم الكشف عن أثر جدارين غير واضحي المعالم بعمق (85 سم) تحت مستوى سطح البحر، أي بحدود أساس دكة البناية المركزية.

3- عمارة النقطة F.4

كشف التنقيب في المساحة المنقبة (10×20 م) عن بقايا بناية مركزية ثنائية تشبه بناية النقطة المارة، حيث ضمت ساحة وسطية لا ارتباط لها بمرافق أخرى، كما مرت هذه بثلاثة ادوار أيضا غير أنها خلت من الدكة الوسطية (المخطط 7) (اللوحة 4 / الصورة 15). بني الدور الأقدم (الثالث) باللبن (37 × 37 × 7 سم) وكان على عمق (42 سم) تحت مستوى سطح البحر، ولم يتبق منه سوى الجدارين الشمالي الغربي والجنوبي الشرقي، أما الدور الثاني فالمتبقي منه جدار واحد مبني بالطابوق الصغير فوق بقايا جدار الدور الثالث الشمالي الشرقي، وقد وضعت تحت الأسس في الأركان أطواق أشبه بأطواق رحي كبيرة مثقوبة في الوسط معدل قطرها (90 سم)، من المرجح أنها منقولة من ساحة الدور الأقدم، بدلالة عثورنا في الزاوية الغربية من ساحة ذلك الدور على واحدة منها (اللوحة 4 / الصورة 16). واكتشفت آثار الدور الأول المتمثلة بجدارين في هذه النقطة عند مستوى سطح البحر (2 م فوق السهل) وهما مبنيان بالطابوق الصغير (20×20×5 سم) و (16×16×4 سم) وبني أحدهما فوق جدار الطبقة الثانية الجنوبية الشرقي وبني الثاني بموازاة الجدار الشمالي الشرقي خارج البناية، وفي هذا الدور بلطت الساحة باللبن المربع (33×33×10 سم) (المخطط 7).

معاثر الطبقة الأولى

أ- الأواني الفخارية

كانت الأواني المكتشفة قليلة العدد نسبة إلى المساحة المنقبة في هذه الطبقة وبخاصة في النقطة الأكبر H.2-3 في حين جاءت أكثر النماذج التي تمثل طرز عصرها من الحفر المتأخرة في النقطة I.4. وفيما يلي وصف لأهم تلك الأواني:

الأواني، وكان التزجيج من حصة الأواني الكبيرة غالباً وغلب التزجيج الأخضر على الأواني المكتشفة كما بينت اللقى، ومن الجدير بالذكر إن الصحن المكتوبة بالخط الآرامي (أو السرياني و العبري) عثر على الكثير منها في الطبقات الساسانية في كثير من المواقع الأثرية، وتحمل كتابات الصحن المذكورة نصوص تعزيم تستجد ب (أرواح المعبد) و (أرواح الصنم) لطرد الأرواح الشريرة وإزالة اللعنة والإمراض وإبعاد الشر وما إلى ذلك، ومن هنا نجد ذات أهمية خاصة تتمثل في عكس مختلف الثقافات والتأثيرات الدينية (أ2) وربما وضعت مقلوقة للحفاظ على كتاباتها من التلف؟ أو لحبس الأرواح الشريرة حسب بعض الآراء (2ب) (مثلما يرد في الأساطير من حبس الجني في القمقم).

ب- الأواني الصغيرة المزخرفة

وهي مختلفة الطرز طينتها صفراء ممزوجة بالرمل ومزينة من الخارج بزخارف هندسية بارزة منفذة بالقالب قوام زخرفتها معينات ودوائر. عثرنا على نموذج كامل منها تميز ببذنه نصف الكروي، وعلى كسرة من صحن ذو ثلاثة أرجل وكسرتين تميزتا بحافتيهما الشبيه بحرف (L) اللاتيني أحدهما عثرنا عليها في ركام الطبقة الثانية والأخرى على السطح، علماً إن طراز هذه الحافات معروف من العصر الساساني (3) ومن اللقى النادرة كسرة من أداة قرصية مجوفة ذات مقبض وبدنها مصنوع بقالب مزدوج مزخرف تخترقه عدة ثقوب من الجانب (اللوحة 6).

ج- الجرار

زينت بعض الجرار الكبيرة التي عثرنا على حطامها المتناثر على أرضيات الطبقة وركامها بطبعات منفذة بالإبهام، وزينت أخرى بزخارف نباتية نفذت بالحز كما زينت أخرى بزخارف منفذة بالقالب على شكل دوائر متداخلة من النقاط قبل أكسائها بتزجيج أخضر لامع غامق (اللوحة 7) وهذا النوع من التزجيج موروث من العصر الفرثي (القرن الثاني ق.م- القرن الثالث ب.م) وشاع في العصر الساساني (4).

وقد زينت جرار أخرى بطبعات أختام منبسطة حملت نقوشها غالباً رسوم الوعول وقد عثرنا على العديد من كسر تلك الجرار المختومة، علماً إن رسوم الوعول هي الغالبة في طبقات العهد الساساني إلى جانب رسم الزهرة (5) ومن الطبقات النادرة التي حملها فخار موقعنا رسم حصان وحمار وثور ذو سنام ونسر وعقرب رمزي أسلوب (اللوحة 8).
إما الجرار المتوسطة والصغيرة فتمثلت زينتها بأخاديد تطوق البدن تحت طبقة من التزجيج، وقد عثرنا على نموذجين منها تمثلاً بجرة متوسطة ذات مقبضين خضراء التزجيج وأخرى صغيرة زرقاء التزجيج ذات حافة مسحوبة إلى الخارج (اللوحة 9).

د- أواني متنوعة

ومنها أجزاء من أنيتين حوضيتي الشكل متوسطتا الحجم الأولى صفراء الطينة خضراء التزجيج حافاتها مقعرة وبدنها مطوق بأخاديد والثانية كسرة من قدر بني الطينة ذو مقبضين على شكل نتوئين متقابلين زين بزخارف بسيطة من الأعلى وفي الأسفل بأخاديد تطوق البدن (اللوحة 9) وقد عرف نموذجها بالعصر الساساني (6). ومن الأواني النادرة نموذج صغير لأنية مثمثة القاعدة والجوانب مزينة بتزجيج أخضر من الداخل والخارج والأنية المذكورة صنعت باليد (اللوحة 9).

هـ- لقي متنوعة

عثرت الهيئة في ركام الطبقة الثانية وعلى أرضياتها على عدد من اللقى المتنوعة مثل أقراص الغزل والثقلات وكسر أدوات طحن مصنوعة من حجر البازلت، وإلى جانب تلك اللقى الشائعة في أغلب المواقع الأثرية عثرت الهيئة على نموذج جميل لزورق زين من الداخل بطلاء أبيض وزخرفة بسيطة منفذة بالقالب وزينت القاعدة من الخارج بزخرفة مؤطرة غير مفهومة تشبه الكتابة ويخترق النموذج ثقب في احد جانبيه (اللوحة 10) ومن الجدير بالملاحظة إن نماذج الزوارق الفخارية عرفت في العهود السابقة للإسلام (7) وفي إحدى الحالات رافق نموذج الزورق الأثاث الجنائزي (8).

والى جانب اللقى المارة عثرت البعثة في ركام الطبقتين الأولى والثانية على عدد من مقابض جرار على شكل رأس نسر طينتها صفراء ممزوجة بالرمل علاوة على مقابض أخرى مختلفة الزخرفة (اللوحة 11).

4- الطبقة الأولى

أ- العمارة

بنيت جدران هذه الطبقة بطابوق صغير الحجم (20×20×5 سم) و(16×16×4 سم) و(40×40×10 سم) و(38×38×8 سم) و(33×33×7 سم) و(30×30×10 سم)، وهذه الأحجام شاعت في نهاية العصر العباسي - العصر الإليخاني (القرن 12م-14م) (9) وقد عثرنا على بقايا مبانيها في النقاط I.4 و H.2-3 و F.4، إما في النقطة G.4 فلم نجد أثراً لجدار أو أرضية تعود لهذه الطبقة التي ربما أزيلت آثارها في فترة متأخرة بدلالة إن الركام الذي كان يغطي آثار الطبقة الثانية في هذه النقطة قد احتوى على طابوق متناثر وكسر فخارية تعود للطبقة موضوعه البحث.

1- الطبقة الرابعة

إن ما كشفناه في آثار هذه الطبقة في المجس I.4 لا يتعدى أرضيتين سكنيتين يعلوهما الرماد كشفنا عنهما على عمق (1,5 م و 1,75 م) تحت مستوى سطح البحر (المخطط / 10) ومن المؤسف إننا لم نكتشف أي كسرة فخارية تعيننا في تقدير عصرها كما إن عدم اكتشافنا لآثار جدران يجعلنا جاهلين حجم اللين المستعمل والذي ربما كان سيعيننا في تخمين ذلك العصر، وبما إننا لم نكتشف في الحفر المتأخرة في الموقع ولا على سطحه أي اثر يعود طرازه لفترة أقدم من العصر الساساني فانه يمكن الافتراض إن الطبقة الرابعة موضوعة البحث تعود لفترة مبكرة من العصر المذكور.

2- الطبقة الثالثة

وقد ضمت جدارين مبنيين بلبن حجمه (8×38×38 سم) و (8×18×18 سم)، أساسهما يقعان على عمق (1,45 م) تحت مستوى سطح البحر وهذان الجداران يشكلان جزءا من مرفق سكني (المخطط / 11) (اللوحة 1 / الصورة 4) ضم أرضيتين يعلوهما الرماد الممتزج بحبيبات بيضاء متخلفة من مواد كلسيه أفرزتها مواد عضوية متحللة على الأرجح ؟ وقد اقتصرنا معاثرها على ثلاثة كسر فخارية لا توحى بعصرها حملت اثنان منها تزجيجا ازرقا، لذلك يمكننا الافتراض هنا أيضا أن الطبقة الثالثة تعود للعصر الساساني لنفس السبب الذي جعلنا نؤمن أن الطبقة الرابعة السالفة تعود إلى ذلك العصر.

3- الطبقة الثانية

بني جدارها المكتشف بلبن غير شائع في العصر الساساني الذي تعود إليه فهو اسود اللون طويل (10×46×46 سم)، وهذا الجدار لم يتبق منه سوى مدماك واحد (*) (المخطط / 11) (اللوحة 1 / الصورة 5) يقع على عمق (1,10 م) تحت مستوى سطح البحر، وقد كشف التنقيب عن أرضية واحدة ترتبط بالجدار في جهته الشمالية، ومن المرجح إن سكان هذه الناحية استخدموا أرضية الطبقة الثالثة بعد نقض جدرانها في تلك الناحية كما يوحي بذلك مخطط المقطع الغربي لمجس النقطة I.4. وفي النصف الشرقي من المساحة المنقبة كشفت البعثة عن ثلاث أرضيات لهذه الطبقة اخترقتها حفر كبيرة مزجت آثارها بآثار الطبقة العليا (الطبقة الأولى).

وفي النقطة G.4 الواقعة على ارتفاع (2 م) فوق مستوى سطح البحر و(4م فوق سطح الموقع) تم اكتشاف آثار الطبقة الثانية على أرضية سكنية بمساحة (10×10 م) دون العثور على اثر لجدار، وربما كانت الأرضية الواقعة على ارتفاع (2,70 م) فوق سطح البحر جزءا من ساحة كبيرة أنشأت عليها كوره مستطيلة الشكل إبعادها (1,10×0,60 م) وعمقها (65 سم) مع تنور قطره (75 سم)، كما كشفت البعثة عن حطام ثلاث جرار خزن احدها طوربيدية الشكل وضعت في الناحية الجنوبية الغربية (المخطط / 8).

المعائر

كانت معائر الطبقة الثانية تتمثل بالدرجة الأولى بالصحون المكتوبة بالخط الآرامي (أو السرياني) و بكسر الفخار المختومة بأختام منبسطة حملت نقوشها رسوم الوعول غالبا، ومن المعلوم إن تلك الصحون وتلك الطبعات قد شاعت في العصر الساساني وإلى جانب تلك الآثار عثرت البعثة على عدد من الكسر الفخارية المزخرفة بالقالب ونموذج فخاري لزورق وعدد من اللقى الشائعة الأخرى مثل أقراص الغزل والتقالات الحجرية والفخارية.

كانت الأواني الفخارية أهم آثار الطبقة الثانية المكتشفة في النقطتين I.4 و G.4 منها ما كان مزججا ومنها ما كان مكتوبا، ففي النقطة الأولى عثرنا على الأرضيات الثلاث على أهم نماذجها، فعلى الأرضية الأقدم عثرنا على صحن كبير ذو تزجيج اخضر مقلوبا على حافته (اللوحة 2 / الصورة 6) وعثرنا فوق الأرضية الوسطى على حطام أنيتين للخزن أحدهما كانت حبا مقلوبا على حافته أيضا وكان قد تعرض لتخريب حفرة قديمة (اللوحة 1 / الصورة 4) خلفت داخل حطامه مزيجا من آثار الطبقة الأولى العباسية و آثار الطبقة الثانية الساسانية. أما الأرضية الثالثة المتأخرة لهذه الطبقة فقد كانت أكثر الأرضيات المكتشفة في الموقع غنى رغم صغر مساحتها، إذ عثرنا فوقها على خمسة صحون مكتوبة بالخط الآرامي؟ جميعها مقلوبة على حافاتهما (اللوحة 2 / الصورة 7) وثمانية صحون غير مكتوبة. وفي النقطة G.4 كانت الأرضية المكتشفة حافلة كذلك بالصحون، إذ عثرنا فوقها على تسعة صحون سبعة منها مكتوبة وقد وضعت كذلك مقلوبة على حافاتهما. وفي ما يلي وصف لتلك الصحون وبقية معائر الطبقة الثانية متبعين وصفنا في آخر التقرير بجدول معلومات عن أهم الأواني المكتشفة في الطبقة موضوعة البحث لأهميته في الدراسات الأثرية.

أ- الصحون

ساد الشكل المخروطي في طرز صحون هذه الطبقة المكتوبة والغير مكتوبة، وتميزت بأحجامها المتوسطة و حافاتهما البسيطة وقواعدها المستوية (اللوحة 5) وصنعت تلك الصحون غالبا من طينة صفراء جيدة الفخر ممزوجة بالرمل، وهذه ألسمه كانت الغالبة في بقية

(*) أفادنا السيد ضياء مكي رئيس بعثة التنقيب في الحيرة (سابقا) أنه عثر في الطبقة الساسانية في الحيرة على لبن لم يستعمل حجمه قريب من حجم لبن الطبقة الثانية.

1- النقطة H.2-3

ترتفع هذه النقطة 2,5م فوق مستوى سطح البحر و4,50م فوق السهل المجاور وتم فيها التنقيب في 11 مربعا أي بمساحة (110 م) وكانت الطبقات الأثرية فيها وفي بقية الموقع راقدة تحت طبقتين متأخرتين من الركام، العليا منهما معدل سمكها (90-30 سم) وتتكون من مواد بناءية حديثة مثل كتل الاسمنت و أجزاء من أدوات حديدية وعلب زجاجية بعضها منصهر بفعل نيران عالية الحرارة متولدة من المواد الكيميائية الحربية على الأرجح، وتمتاز تلك المواد بالمواد العضوية التي خلفها مربو الجاموس الذين سكنوا سطح الموقع (اللوح 1 / الصورة 1) إما الطبقة الأخرى فتتكون من طين أخضر مزرق سمكها في حدود (35-20 سم) خلفتها ترسبات هورالصحين الذي كان يغطي الموقع قبل عدة قرون، وكانت هذه الطبقة ملتصقة بآثار الطبقة الأولى باستثناء المساحة التي شغلتها بناية مربعة مبنية بالطابوق (مخطط / 4) في النقطة H.2 عملت جدرانها على ما يبدو على وقف زحف تلك الترسبات إلى داخلها. لقد كانت الطبقة الطينية المذكورة في النقطة موضوعة البحث تعلوها حفر كثيرة مدورة ومستطيلة ومربعة ممتدة بامتداد أخاديد مقوسة الشكل (اللوح 1 \ الصورة 2 و3) (المخطط / 5) وقد عثرنا على تلك الحفر في النقاط الأخرى أيضا ولكن بصورة اقل كثافة، وتوضحت لنا وظيفتها عندما شاهدناها فوق موقع أبو شذر الواقع على مسافة 9 كم جنوب شرق تل العكر عند زيارتنا له، حيث أفادنا احد سكان المنطقة بان تلك الحفر هي مواضع لبناء الصراف و آثار أعمدة تثبت لتجفيف شبك الصيد عليها وغير ذلك من الوظائف، وإن الأخاديد حفرت لتثبيت حصائر القصب التي تشكل سياجا لحظائر الماشية(*). وكانت الطبقة الأثرية الأولى المكتشفة في النقطة H.2-3 تضم بناية مركزية تحيط بها بقايا أبنية مشيدة من الطابوق واللبن (المخطط / 6) تعود الى أواخر العصر العباسي – الأيلخاني.

F.4 النقطة

وترتفع عن سطح البحر ب (1م) و(3م) فوق السهل المجاور وتقع على مسافة (75م) جنوب غرب النقطة المارة، وتم التنقيب فيها في أربعة مربعات (أي بمساحة 400 م) وكانت أثارها تعاصر آثار الطبقة الأولى المكتشفة في النقطة H.2-3، وقد ضمت بناية مركزية تشبه بناية النقطة السابقة بنيت جدرانها كذلك بالطابوق واللبن (المخطط / 7).

G.4 النقطة

وتقع على ارتفاع (2 م) فوق مستوى سطح البحر و(4م) فوق السهل المجاور وعلى مسافة (60 م) جنوب النقطة H.2-3، تم التنقيب فيها بمساحة (10×10 م) ولم نكتشف فيها أثر لجدران وتحدد معالمها بأرضية (المخطط / 8) دلت مكتشفاتها إلى عائدتها إلى العصر الساساني (القرن الثالث-السابع للميلاد).

I.4 النقطة

وتقع على مسافة (45 م) جنوب شرق النقطة H.2-3 وعلى إرتفاع (1,25 م) فوق مستوى سطح البحر و (3,25 م) فوق السهل المجاور، جرى التنقيب فيها أول الأمر بمساحة (5×10 م) وقاد النزول فيها بعمق (45 سم) تحت مستوى جدران الطبقة الأولى العباسية المدمرة إلى الكشف عن عدد من الصحون المكتوبة بالخط الأرامي التي شاع استعمالها في العصر الساساني، الأمر الذي دعا البعثة إلى التوسع بالتنقيب غربا لتصبح المساحة المنقبة (10×20 م) املاً في الحصول على المزيد من الآثار في هذا الموقع الفقير وللتعرف بصورة اشملى على آثار الطبقة الأولى. وبعد إن تبين لنا فقرها من ناحية العمارة (المخطط / 9) واللقى إرتأت البعثة حفر مجس اختباري في المساحة التي سبق تنقيبها في هذه النقطة بمساحة (4×10 م) وتم النزول فيه إلى عمق (1م) تحت مستوى سطح البحر الى حيث الأرض البكر، وتبع ذلك تضيق المساحة إلى (4×6.5 م) بعد المرور بآثار الطبقة الثانية الساسانية الواقعة تحت طبقتين غرينيتين العليا منهما حمراء خلت من المخلفات الأثرية سمكها (-1,10, 75, 0 م) والسفلى لونها رمادي مخضر يبلغ سمكها (75-40 سم) (المخطط / 10). اظهر النزول في المجس إن جدران الطبقة الثانية بنيت مباشرة فوق جدار الطبقة الثالثة وأخيرة تفصلها عن الأرض البكر أرضيتان سكنيتان تعودان للطبقة الرابعة دون اثر لجدار من هذه الطبقة. علما إن الأرض البكرتكونت من رمل ناعم يميل لونه إلى الاصفرار وقد شاهدنا امتداداته في الحفر التي خلفها النشاط البشري على بعد عدة كيلومترات من الموقع.

طبقات الموقع

إن وصول تنقيباتنا في مجس النقطة I.4 إلى الأرض البكر وانتهاء عملنا الحقل في الموقع في هذا الموسم يتطلب منا في تقريرنا النهائي تتبع آثار طبقات الموقع تاريخيا أي الابتداء بوصف الطبقة الأقدم صعودا حتى الطبقة الأولى المتأخرة لنواكب التطور والتغير الذي مر على فن العمارة وفن صناعة الفخار، تلك الصناعة التي تتمثل بزخارفها و طرزها و إلى ما ذلك هوية العصر الذي تعود إليه وبما إن التنقيب في النقطة I.4 كشف لنا عن كامل طبقات الموقع فإننا سنبدأ دراستنا لتلك الطبقات بدراسة آثار هذه النقطة.

(*) أيد البروفيسور مكوابر جيسون الذي عمل سنينا طويلة في جنوب العراق وفي مناطق أخرى تلك الوظيفة.

التقرير النهائي لنتائج التنقيب في تل العكر الموسم الأول / 2011

مرتضى هاشم جعفر
حسين علي حمزة
برهان عبد الرضا راضي
سهام جواد كاظم

الموقع و التسمية

يقع تل العكر في هور الصحين الواقع جنوب شرق محافظة ميسان على بعد 82 كم من مركز المحافظة و 26 كم من قضاء المجر الكبير وعلى بعد 16 كم جنوب ناحية الخير في مقاطعة 8 صحين (خارطة / المخطط 1).
وهو الصحين واحد من الاهوار التي احتلت مساحات واسعة من جنوب العراق وقد تشكلت نتيجة حركات أرضية في مطلع العصر الجيولوجي الأخير (1) وقد ثبتت عملية المسح الأثاري الذي نفذته دائرة آثار ميسان عام 2008 بإيعاز من الهيئة العامة للآثار والتراث وتمويل من منظمة طبيعة العراق لغرض إعادة الاهوار. ثبتت 22 موقعا أثريا في هور الصحين لم يسبق إعلان أثريتها ومنها تل العكر موضوع البحث(*) (خارطة \ المخطط 2).
وتلك المواقع كانت محاطة أو مغمورة بمياه الهور لقرون عديدة و استوطن الناس ما كان مكشوفاً منها قبل عمليات التجفيف والتدمير الذي ألحقه النظام المقبور بالطبيعة و الأعمار في تسعينات القرن الماضي واستبدلت الطبيعة ماء اهوارها الذي تتوجه شجيرات القصب و البردي بأرض غزتها أشجار الطرفاء وتحول اغلب السكان الذين تمسكوا ببيئتهم من مهنة صيد الأسماك والطيور و تربية أجاموس و صناعة الحصر إلى زراعة الحبوب والعمل في المدن القريبة. وقد أوعزت الهيئة العامة للآثار بإنقاذ آثار تلك المواقع والمواقع المكتشفة الأخرى في بقية الاهوار. و قد جرى اختيار تل العكر هدفاً للتنقيب من بين عدة مواقع في هور الصحين. اظهر التحري فيها عن تعاصر حضاراتها التي نهضت في القرن الثالث – القرن الثالث عشر للميلاد. وتل العكر بيضوي الشكل تبلغ مساحته 200 دونما، أعلى قمة فيه ترتفع فوق مستوى سطح البحر (3,25 م) وفوق السهل المجاور (5,25 م) (خارطة \ المخطط 3) بما فيها طبقة الركام والمباني الحديثة التي خلفها سكان قرية العكر. تلك القرية التي بعثرت القنابل والنيران أبنيته على سطح الموقع. علما أن السهل المجاور الذي كان يوم ما قاعاً لهور الصحين يقع على عمق 2م تحت مستوى سطح البحر. وتعني كلمة العكر باللهجة المحلية (مساحات الماء المكشوفة بين القصب) وأفادنا احد سكان المنطقة إن الاسم جاء من اسم الرجل الأول الذي سكن فوق التل الأثري؟

التنقيب

تشكلت بعثة التنقيب بموجب الأمر الإداري (4612) في (2011-5-4) برئاسة السيد مرتضى هاشم جعفر (منقب آثار) وعضوية السيد برهان عبد الرضا راضي (منقب آثار) والسيدة سهام جواد كاظم (منقب آثار) والسيد ساهر عبد الرحيم حمود (مهندس) والسيد عدنان هاشم حسوني وحמיד فالح أبو عوجه (إداري)، وعمل مع البعثة المهندس المتقاعد السيد عدنان غيدان الذي قام بإعمال المسح ورسم الخارطة الكونتورية وعدد من المخططات إضافة إلى السيد محمود محسن حاجم (بكالوريوس آثار) وخبير الآثار المتقاعد حسين علي حمزة الذي التحق بالبعثة في شهري الموسم الأخيرين.
انطلق العمل الحقل في (2011-6-25) وجرى تقسيم الموقع إلى مربعات بمساحة (50×50 م) وتبع ذلك تقسيم المربعات المنقبة إلى مربعات أصغر (10×10 م) و اختيرت المربعات (F.4, G.4, H.2-3, I.4) نقاط عمل لكونها تشكل قلب الموقع (كما هو واضح بالخريطة الكونتورية) وتسجل معلومات المساحة إحدائيات تلك النقاط بمستوى سطح البحر والشمال والشرق كما يلي:

(F.4=N:311923.E:470500.Elevation:+1. m)

(I.4=N:311924.E:470505.Elevation:+1,25. m)

(G.4=N:311923.E:470502.Elevation:+2. m)

(H.2-3=N:311926.E:470503.Elevation:+2,5. m)

يعكس قلب الموقع عادة أكثر من غيره حضارة الموقع وطبقاته الأثرية وقد أختيرت أرضية كونكريتية لمدرسة مدمرة مكانا لعلامة الدلالة (Bench Mark) وبمحاذاتها شمالا أختيرت المنطقة H.2-3 لتكون اكبر النقاط المنقبة مساحة في حين توزعت النقاط الثلاث الأخرى على المربعات الجنوبية المجاورة وجرى النزول فيها إلى أعماق مختلفة حدد عمقها متطلبات العمل والزمن المحدد. وقبل الخوض في التفاصيل المطلوبة لآثار الطبقات الأثرية المكتشفة تقدم تعريفا موجزا بطبيعة كل نقطة وما تضمنه لنم بنظرة عامة على النشاط الإنساني في الموقع وعلى ملامحه الحضارية مدرجين في هذا الباب مخططات الطبقات التي ستكون مرجعنا عند الحديث التفصيلي عنها. ومما يجدر ذكره أن التنقيب قد شمل المربع J.2 بمساحة (20×10 م) غير أن العمل سرعان ما توقف بعد اكتشاف العديد من القبور الحديثة.

(*) جرى المسح بإشراف السيد مرتضى هاشم جعفر مدير دائرة آثار محافظة ميسان.

CHAPTER 16

THE FINAL REPORT ON THE EXCAVATIONS
AT TELL AL-AGAR:
THE FIRST SEASON, 2011

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الهيئة العامة للآثار و التراث
مشروع إنقاذ الأهوار
دائرة آثار ميسان
بعثة التنقيب في تل العكر

التقرير النهائي لنتائج التنقيب في تل العكر الموسم الأول / 2011

شكر و تقدير

- 1- السيد محافظ ميسان المحترم
- 2- السيد رئيس مجلس محافظ ميسان المحترم
- 3- السيد رئيس الهيئة العامة للآثار و التراث المحترم
- 4- السيد رئيس لجنة السياحة و للآثار المحترم
- 5- السيد مدير ناحية الخير المحترم
- 6- السيد مدير شرطة حماية الآثار المحترم
- 7- السيد مدير التنقيبات المحترم
- 8- السيد مدير مشروع تنقيبات الأهوار المحترم

تتشرف بعثة التنقيب في تل العكر بتقديم خالص امتنانها, لمساندتكم الحيوية في أنجاز أعمالنا, سائلين الله المزيد من التقدم لعراقنا
لحبيب, الذي أنيرت فيه الشموع الأولى في الحضارة الإنسانية.

مرتضى هاشم جعفر
رئيس البعثة
كانون الأول / 2011





Mac at work in the field, 1978-79. (Drawing by Peggy Sanders)

CHAPTER 17

CONCLUSION

Mark Altaweel and Carrie Hritz

This volume demonstrates the breadth of research, geography, and interests Mac has displayed since beginning his career. The chapters cover Mesopotamian archaeology, history, and art; we also incorporate chapters on archaeology in Iran, Syria, and Yemen. All of these topics reflect areas where Mac has had an impact and significant influence on the field. This final chapter summarizes the research presented in the volume, while discussing the directions scholarship in Mesopotamia and the broader Near East may take in the coming years.

SUMMARY

On the one hand, we wanted a volume that reflects areas in which Mac has contributed, and we also want to display new research in these areas, particularly on the archaeology, history, and art of Mesopotamia and archaeology of Iran, northern Syria, and Yemen. The critical themes presented in this volume include the impact of the rise of social complexity on settlements and societies in Mesopotamia and surrounding regions, the importance of synergies between textual and archaeological datasets, and the multiscalar and interdisciplinary nature of archaeological investigations.

Alizadeh presents on the rise of social complexity, where differential settlement data and material culture show how interactions between southwestern Iran and southern Mesopotamia led to increased settlement occupation in the fifth and fourth millennia and confrontation between the two regions by the third millennium BC. These coevolutionary dynamics are in many ways comparable to what Altaweel discusses in his chapter, where push (i.e., constraints in movement) and pull (i.e., attractiveness of sites) lead to different emergent patterns where certain cities or settlements benefit relative to others. These models shed light on the unique historic role of Nippur, and in particular, how it maintains its relatively large size in an atmosphere of competing city-states in the third millennium BC was examined. McMahon's chapter emphasizes that textiles and cordage can be used as a measure of social complexity development as well, as such material culture serves as a useful proxy for the increased intensity of economic activities that one would expect with urban formation at Tell Brak in the fourth millennium BC. In the late third millennium BC, during the time of the Ur III state, we see that social complexity had reached a new level in bureaucratic administration

Nippur, of course, has been a central focus for much of Mac's career. In his paper, Armstrong integrates older and newer sets of archaeological data, along with textual materials, to piece together the story of Nippur during the late seventh century BC, when Ashurbanipal and the Assyrians were in control of the city. This was a time of revival for the old urban center, and Nippur flourished under imperial domination, despite the Assyrian reputation of oppression. Mac's interests in Nippur extended to the totality of its history and social development, including the city's importance as a center of religion even after the decline of Enlil. Hunter's article on incantation bowls from Nippur highlight the religious and cultural communities that existed in Nippur into the first millennium AD, long after Enlil was worshiped at the site. The multidisciplinary teams that Mac brought to Nippur allowed a much more diverse and new look into Mesopotamian urbanism and landscape, with work by John Sanders being a part of the diverse teams that Mac took. The work by Sanders reflects architectural investigations that can be brought in to better understand building structures in ancient Mesopotamian cities. Mac's interests in Nippur also extended to understanding the site in its environmental, landscape, and social contexts. Work by Wilkinson and Jotheri in this volume demonstrate how a

geoarchaeological approach that integrates satellite imagery and subsurface, sedimentary investigations can provide new insight into how irrigation developed in parts of southern Mesopotamia such as around Nippur.

Despite Iraq's many tribulations in the last four decades, Mac's interest in the people and archaeology of the country has not wavered. The contribution by Hamza focuses on Tell Akar, a new site excavated by the Iraqi State Board of Antiquities and Heritage in 2011. This site also has so far yielded primarily Sasanian and early Islamic remains, once again reflecting Mac's broader interest and engagement in the long history of Iraq and not just the pre-Islamic periods. The article is also by an Iraqi scholar who first worked with Mac in the 1970s, demonstrating/reflecting Mac's long-term loyalty to his Iraqi colleagues.

As many of Mac's students will attest, the importance of the written records to understanding the archaeological material from different periods should not be underestimated. What makes understanding early southern Mesopotamia, particularly in the third millennium BC, so different from any other region are the large number of texts found that give a glimpse of the processes of administrative complexity that had developed. The text investigated by Biggs sheds light on the types of economic activity centered around the state and city of Ur. The Ur III state had formed a large economic and military network in Mesopotamia, and such texts provide insight into its structure and activities. Civil's study of a small group of Ur III scribal exercise texts reveals another side of administration. Here, the training and preparation of scribes were instrumental in maintaining and expanding the complex administrative structures present in palaces and temples, and by the late third millennium BC, the overall large territorial empire.

Another region of interest for Mac has been the Diyala and University of Chicago's past excavations and work in this region. Mac has been instrumental in publishing a database of the University of Chicago's past excavations and work in this region, while also encouraging new research that has resolved some of the chronological and archaeological issues that arose from the early excavations. Evans takes a look at one such issue, the chronological sequence of the Abu Temple at Tell Asmar in the context of understanding the Akkadian levels for the Single-Shrine Temples. Mac has advanced the idea of material culture lag in the appearance of the Akkadian State and period in southern Mesopotamia, and this paper takes up this discussion for the site of Tell Asmar. Work by Wilson shows us what objects from the Diyala region can show with regards to regional connections and cultural interactions. Much of Mac's work in the Diyala has demonstrated the importance of examining old data with new perspectives and methods. The work by Zimmerman and Zettler applies a similar perspective in reassessing Woolley's royal tomb discoveries at Ur and determining the actual number of royal tombs that were uncovered from two Early Dynastic tombs.

One area that has been ignored in Near Eastern archaeology for decades, with the exception of primarily classical sites, was Yemen. In the 1970s, Mac visited the country and began research there, including what eventually became the Dhamar Survey led by Mac and Tony Wilkinson. The paper by Khalidi and Lewis emphasizes the importance of selecting the region of Dhamar for understanding early Arabian prehistory, given the agricultural potential and location of the area within the Arabian Peninsula.

Perhaps one of the greatest contributions to landscape archaeology over the last two decades has been the large increase in the availability of remotely sensed data. Mac was a quick adopter of new datasets that became available to archaeologists in the late 1990s, specifically CORONA, while also utilizing a diverse set of data from multispectral to elevation data recorded from satellites. Such data have given new insights and contextual information to better understand regional landscapes, settlement patterns, and offsite features such as roads and canals. Hritz's work investigates the Lagash territory, and its seemingly advantageous ecological position using some of these datasets that Mac has long encouraged. The work by Ur looks at Kish, a site Mac had initially surveyed and investigated in his PhD research, covering its early development in the Uruk period and until its final abandonment in the Ottoman period. Ur provides an updated view using imagery to reconstruct the third millennium BC and how this may inform us about urban morphology and dimensions in general.

WHAT'S NEXT

The legacies of scholars are often measured by the direction the field takes during and after their years of activity. For Mac, it is abundantly clear that his wide variety of interests, as reflected in the contributions to this volume, have all become important avenues of research in Mesopotamia and beyond in other parts of the Near East. If there is a general theme that is reflected in this volume, it is the need to integrate material culture studies, excavations, and landscape or regional scale studies to best understand how socio-ecological interactions have shaped cultures in time and space. We see that social complexity can be studied in different forms and research methods, while the manifestations of that complexity are evident in historical and material outcomes. Objects from household, temple, or palatial contexts and funerary deposits can reflect landscape change and settlement trends through changes in style, frequency, or context of deposition of these objects. New data from imagery and insights from older investigations should be a priority for scholars in light of the greater restrictions found in the region due to ongoing conflict, while works have demonstrated that reinvestigating older data is worth the effort by scholars in light of new understanding that may have not been present in the earlier history of archaeology in the Near East and Mesopotamia.

The trend of interdisciplinary data gathering and research evident in the body of Mac's work is likely to continue. Environmental archaeological methods and remote sensing are part of this direction, but further methodological developments in the field will likely enhance interdisciplinary insights. One area we did not see well focused on in this volume is the role of micro-archaeological data and how it can lead to new insights into the ancient environment and past landscapes. This lacuna will likely change in the coming decades, particularly as many of these methods have developed since Iraq was largely off limits to foreign teams. Nevertheless, the interdisciplinary philosophy that work by Mac and others has emphasized will likely lead to greater application of these approaches in the future, as the continual exploration of new methods that can elucidate new understanding is one area we had previously seen Mesopotamian archaeology leading the way in the past. In essence, archaeologists and historians try to squeeze more knowledge from their available data sources and new ways to find data are likely to continue, with the Near East and Mesopotamian archaeology likely to be at the forefront of future developments. Again, here we owe Mac much for pushing the boundaries of expected practice and encouraging innovation in methodology and insight.

Another lesson that we can take forward is how to best support and encourage our colleagues in Syria, Iraq, and other regions where conflict and political strife are hindering normal life and scholarly activities. Mac's work in these areas is exemplary, and what is clear is that scholarship can continue even in difficult circumstances. Partnering with researchers in the Near East can not only enable new discoveries but also supports these local researchers so that their contributions are made widely available. Partnership and persistent intellectual interactions help archaeological activity to resume once these regions stabilize.

The question of what happens next in the Near East cannot be easily answered, but clear trends have emerged that are likely to continue. Some of these patterns are out of our control, such as current conflicts, but others are within our control, including the application of new data techniques. On the one hand, new and very significant insights are likely to be made in the coming years in Mesopotamia and beyond in the Near East, while on the other, scholars will likely be restricted or find it difficult to work in many areas. The lessons offered by Mac's career provide us with pathways on how to maximize and produce new knowledge, with new techniques or even with old data, and also encourage our collaborators in places of conflict. Supporting the local people in these countries, as Mac has done, through generosity and keeping their interests in the public eye, can help create a future where there is some positive to build from, in particular how local populations in the Near East view Western scholars. Mac has given us valuable lessons to learn from, but we hope we can build on them.

