ANCIENT SETTLEMENT SYSTEMS AND CULTURES IN THE RAM HORMUZ PLAIN, SOUTHWESTERN IRAN

Frontispiece. Proto-Elamite alabaster figurine of a monkey/baboon from Mound A (fig. 92:C and color pl. 7:D)

ANCIENT SETTLEMENT SYSTEMS AND CULTURES IN THE RAM HORMUZ PLAIN, SOUTHWESTERN IRAN

EXCAVATIONS AT TALL-E GESER AND REGIONAL SURVEY OF THE RAM HORMUZ AREA

by

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Spine Illustration
Proto-Elamite tablet from Tall-e Geser (A27921). See figure 87:E and plate 6:F.

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This book is dedicated to the fond memories of
William (Billy) Sumner

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LIST OF ABBREVIATIONS

asl	above sea level
c.	century, centuries
ca.	*circa*, approximately
cf.	*confer*, compare
cm	centimeter(s)
e.g.	*exempli gratia*, for example
el.	elevation
et al.	*et alii*, and others
etc.	*et cetera*, and so forth
f(f).	and following
fig(s).	figure(s)
gm	gram(s)
ibid.	*ibidem*, in the same place
i.e.	*id est*, that is
m	meter(s)
mg	milligram(s)
mm	millimeter(s)
N/A	not available
n(n).	note(s)
p(p).	page(s)
pers. comm.	personal communication
pl(s).	plate(s)
ppm	parts per million

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PREFACE

After a decade-long hiatus in the years of World War II, archaeological fieldwork was resumed in Iran in 1948. In that year, the Oriental Institute returned to its long tradition of archaeological research by sending Donald E. McCown to the lowlands of southwestern Iran to conduct a series of surface surveys to find a multi-period site for excavation. McCown and his wife, Garnet, set out for Iran in January of 1948. McCown was also accompanied by Mr. Javad Kambys, representative of the Iranian Archaeological Services, and Mr. Sako, as draftsman. For his survey, McCown chose the Ram Hormuz region, southeast of lowland Susiana, and the region south and east of the provincial town of Ahvaz down to the Persian Gulf, "... to explore the hitherto archaeologically unsurveyed area south of Ahwaz, and to locate a promising pre-Achaemenian site at which excavations might contribute evidence of Iranian relationships with Lower Mesopotamia" (McCown 1949).

During this first season, McCown recorded 118 sites in the Ram Hormuz and Ahvaz areas. As none of the ancient mounds in the Ahvaz region dated to a phase earlier than the Parthian/Elymaean phase (see Alizadeh 1985b), he chose for excavations the complex of Tall-e Geser,[8] the largest prehistoric site in the upper west sector of the Ram Hormuz region (pls. 193–95a). During twenty-four days of excavations, from February 11 to 16 and March 10 to 29, McCown excavated a number of test trenches in the various mounds at Geser; no information is available on the expedition activities on the intervening period from February 17 to March 9. McCown excavated two trenches in Mound A (the second largest and the main prehistoric occupation of the complex), designated Trench 1 and Trench 2; he also excavated two more trenches in Mound B and what he referred to as the Fort Mound, probably because of the traces of an abandoned khan's mudbrick fortification on its summit (fig. 1). The work at Mound B revealed traces of Late Middle Susiana date and substantial deposits dating to the Sukkalmah-Achaemenid and post-Sasanian phases; similar deposits were discovered at the Fort Mound.

In April 1949, after finishing his second season of excavations at the site of Nippur, in Iraq, McCown returned to Geser. He was accompanied by Joseph Caldwell, who as a student had also participated in the Nippur excavations. The 1949 excavations lasted almost two months, during which McCown concentrated his efforts on Mound A. Here, he excavated two very large trenches designated as "Step Trench" and "Stake Trench." Most of the materials presented in this volume come from these two trenches.

McCown never returned to the site, or to the country, after 1949; in the mid-1950s, he left the field and the Oriental Institute altogether. The excavated materials and records were kept in Chicago for many years until, through the efforts of Robert J. Braidwood, they were entrusted to McCown's field assistant Joseph Caldwell. Caldwell graduated from the University of Chicago in 1957. In that year he became the head curator of the Department of Anthropology at the Illinois State Museum (ISM), and it must have been around that time when Caldwell took possession of the records.

Caldwell presumably worked on the material during his tenure at the ISM until 1967, when he was offered a teaching position at the University of Georgia, where he subsequently took the materials and records. It appears from the available correspondence in the Oriental Institute Archives that Caldwell submitted a manuscript to the publication committee sometime in 1964 while he was still at the ISM. The manuscript, to the dismay of the then publication committee, only dealt with the pottery from the Step Trench — no detailed account of the stratigraphy was included and the very short and laconic descriptions of the various levels of the Step Trench were woefully inadequate. The manuscript was rejected and sent back to Caldwell for revision and inclusion of other excavated areas and more complete archaeological data. Caldwell's new survey project in Kerman and his excavations at Tall-e Iblis in 1966, as well as the prospect of a new job at the University of Georgia and the onset of a terminal disease that eventually killed him on December 23, 1973, must have distracted and discouraged Caldwell, for he never resumed work on his old pottery manuscript. The materials and records were sent back to the Oriental Institute subsequent to his death.

The lapse of more than fifty years since the excavations and the shipments from the Oriental Institute to Springfield and then to Georgia and back to the Oriental Institute must have been partially responsible for the loss of some materials and records. Missing records include the descriptive field notes from the second season, the description of a large number of sherds, top plans, and section drawings of some of the excavated areas, and the notes on the processes through which McCown designated the various stratigraphic levels.[9] From the available records it seems that McCown organized the excavated materials by "lots," of which a partial list is available, but no description of his excavation or recording procedures is preserved in the available archive.

Tall-e Geser was excavated at a time when collecting bones, seeds, soil samples, and the like was not routine, and the absence of these crucial lines of evidence prevents us from presenting a more comprehensive narrative of the cultural development in the

[8] The site is known in the literature as "Ghazir." The inhabitants of the villages around the site, and in fact others in the region, refer to it as Geser (see pl. 196:C), presumably a corrupt pronunciation and spelling of *qasr*, i.e., palace.

[9] The first season field notebook is so abbreviated that it is of little help for solving major stratigraphic problems. The second season notebook is also laconic, but the amount of stratigraphic information there is by far superior to that of the first season.

region. Also missing is the evidence of the site's chipped stone industry. Except for a few flint blades set in bitumen, the archaeological collection from Geser does not include this class of material.

Such shortcomings might discourage any attempt to produce a final publication on the site. This task was undertaken, however, because of a number of important considerations. First, on the basis of a very short article (Caldwell 1968), the excavations at Tall-e Geser have been cited as justifying the division of the fourth millennium B.C. in southwestern Iran into Early, Middle, and Late phases (Johnson 1973). Second, Geser remains the only systematically excavated site in the Ram Hormuz region — a strategic location between the Susiana and Mesopotamian alluvium and the Zagros highlands of southwestern Iran. Third, Geser has produced a very extensive body of archaeological materials dating to the comparatively less understood proto-Elamite period, roughly the first few centuries of the third millennium B.C. And finally, with a gap of about 700–800 years following the proto-Elamite phase, Geser remains one of those rare sites in the Near East to have a very long and generally uninterrupted depositional sequence from the fifth millennium B.C. to the Safavid period. The site's crucial location, its importance in the archaeological literature, and its long stratigraphic sequence make it imperative that the original excavation results from Geser be published in anticipation of a time when the site can be re-excavated.

To be able to understand Geser in its regional context, to have an idea about the long-term trends in population fluctuation and settlement system, and to compensate for some of the missing information from Geser, we took the opportunity and applied for a permit to conduct an intensive survey of the region. The region, of course, had been surveyed in 1969 by Henry Wright and Elizabeth Carter (2003), but a large part of the Ram Hormuz plain had been left unsurveyed. Therefore, we had a chance to complete Wright and Carter's survey and present a rather complete picture of regional cultural development in southwestern Iran. The results of our surveys are reported in Part II of this publication.

Abbas Alizadeh
September 2011, Chicago

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This publication is truly the result of sincere synergic efforts of a large number of individuals both in the United States and Iran (pls. 197–99). Gil Stein, Director of the Oriental Institute, encouraged me in every step of the process and supported my often lengthy stays in Iran from 2005 to 2008. I am grateful to Helen McDonald, Oriental Institute Registrar, for putting at my disposal the archaeological materials from Tall-e Geser and for competently solving numerous problems I presented her with. I am also grateful to Angela Spidalette, a B.A. graduate in archaeology, working with Helen as a volunteer, for the final checking of the manuscript for possible registration errors. Laura D'Alessandro and Alison Whyte of the Oriental Institute Conservation Laboratory kindly helped me with cleaning some objects and identifying some material as well as preparing some clay "cookies" for Instrumental Neutron Activation Analysis (INAA). Michael Gregg of the University of Toronto graciously facilitated my contact with Jacques Connan, who analyzed bitumen specimens from Geser and produced the results in *Appendix B*; I thank them both. Finally, I would like to express my gratitude to Henry Wright and John Alden for their valuable advice in several stages of my work.

Janet Helman, former director of the Oriental Institute volunteer program, who also worked with me on the Chogha Mish and Tall-e Bakun publications, worked tirelessly on figuring out the proper order of hundreds of scattered field notes and sketches, as well as on thousands of potsherds, which she classified and registered. Without her valuable help, this publication would have been delayed even longer than it was. I offer Janet my deepest gratitude for helping me and for her love of Iranian archaeology. Mrs. Yalda Razmahang also volunteered to register a large number of pot sherds from the site; thank you, Yalda. Diana Olson-Rasche, who also collaborated with the Chogha Mish and Chogha Bonut projects, kindly took a number of color photographs of some of the illustrated objects. Thank you, Diana.

Finally, I must sincerely thank Tom Urban and Leslie Schramer of our Publication Office, who meticulously checked and caught many of my errors and advised me throughout the preparation of the manuscript. Without Leslie's sharp eyes and tremendous patience and attention to details, many errors would still be lurking in every page of this publication

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As it happens, I ran out of time before I could complete the survey of the east bank of the River ʿAla. In my absence, I gave this responsibility to Messrs. Loghman Ahmadzadeh and Mehdi Omidfar, two of my Iranian students who showed their talent and the required discipline for such an undertaking while working with me at several sites in Khuzestan. My survey would have suffered seriously without their help. These two young archaeologists proved to be well organized and meticulous in their measurements and observations. Loghman and Mehdi also turned out to be competent GIS users, and with another Iranian student of mine, Mr. Mohammadreza ("Em Ar") Rokni, expertly produced most of the maps illustrated in this volume. I thank them all and hope for a bright future for these young, talented archaeologists. I would also like to extend my gratitude to Miss Azam Malek Zeidabadi, Miss Parivash Zahedi, Messrs. Kiyumars Haji-Mohammadi, Mojtaba Shahryari, and Mehdi Karamnejad, all graduate students of archaeology, for helping with the second round of the survey (pl. 199).

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BIBLIOGRAPHY

Adams, Robert McCormick

1978 "Strategies of Maximization, Stability, and Resilience in Mesopotamian Society, Settlement and Agriculture." *Proceedings of the American Philosophical Society* 122/5: 329–35.

1981 *Heartland of Cities: Surveys of Ancient Settlement and Land Use in the Central Floodplain of the Euphrates*. Chicago: University of Chicago Press.

1982 "Property Rights and Functional Tenure in Mesopotamian Rural Communities." In *Societies and Languages of the Ancient Near East: Studies in Honour of I. M. Diakonoff*, edited by J. N. Postgate, pp. 1–14. Warminister: Aris & Phillips.

Adams, Robert McCormick, and Hans J. Nissen

1972 *The Uruk Countryside: The Natural Setting of Urban Societies*. Chicago: University of Chicago Press.

Alden, John R.

1979 Regional Economic Organization in Banesh Period Iran. Ph.D. dissertation, Department of Anthropology, University of Michigan.

1982 "Trade and Politics in Proto-Elamite Iran." *Current Anthropology* 23/6: 613–40.

1987 "The Susa III Period." In *The Archaeology of Western Iran: Settlement and Society from Prehistory to the Islamic Conquest*, edited by Frank Hole, pp. 157–70. Smithsonian Series in Archaeological Inquiry. Washington, D.C.: Smithsonian Institution Press.

1988 "Ceramic Ring Scrapers: An Uruk Period Pottery Production Tool." *Paléorient* 14/1: 143–50.

2003 "Excavations at Tal-e Kureh." In *Early Urban Life in the Land of Anshan: Excavations at Tal-e Malyan in the Highlands of Iran*, by William M. Sumner, pp. 187–98. Philadelphia: University of Pennsylvania Museum of Archaeology and Anthropology.

2013 "The Kur River Basin in the Proto-Elamite Era: Surface Survey, Settlement Patterns, and the Appearance of Full-time Transhumant Pastoral Nomadismn." In *Ancient Iran and Its Neighbours*, edited by Cameron Petrie, pp. 207–32. British Institute of Persian Studies Archaeological Monograph Series. London: Oxbow Press.

Alizadeh, Abbas

1985a "A Tomb of the Neo-Elamite Period at Arjan, near Behbahan." *Archäologische Mitteilungen aus Iran* 18: 49–73.

1985b "Elymaean Occupation of Lower Khuzestan during the Seleucid and Parthian Periods: A Proposal." *Iranica Antiqua* 20: 175–95.

1988b "Socio-economic Complexity in Southwestern Iran during the Fifth and Fourth Millennia B.C.: The Evidence from Tall-i Bakun A." *Iran* 26: 17–34.

1992 *Prehistoric Settlement Patterns and Cultures in Susiana, Southwestern Iran: The Analysis of the F. G. I. Gremliza Survey Collection*. Technical Report 24. Ann Arbor: Museum of Anthropology, University of Michigan.

2003a "Some Observations Based on the Nomadic Character of Fars Prehistoric Cultural Development." In *Yeki Bud, Yeki Nabud: Essays on the Archaeology of Iran in Honor of William M. Sumner*, edited by Naomi F. Miller and Kamyar Abdi, pp. 83–97. Cotsen Institute of Archaeology Monograph 48. Los Angeles: University of California Press.

2003b "Report on the Joint Archaeological and Geomorphogical Research Expedition in Lowland Susiana, Iran." *Oriental Institute News & Notes* 177: 1–7.

2006 *The Origins of State Organizations in Prehistoric Highland Fars, Southern Iran: Excavations at Tall-e Bakun*. Oriental Institute Publications 128. Chicago: The Oriental Institute.

2008 Chogha Mish 2. *The Development of a Prehistoric Regional Center in Lowland Susiana, Southwestern Iran: Final Report on the Last Six Seasons of Excavations, 1972–1978*. Oriental Institute Publications 130. Chicago: The Oriental Institute.

2010 "The Rise of the Highland Elamite State in Southwestern Iran: 'Enclosed' or Enclosing Nomadism?" *Current Anthropology* 51/3: 353–83.

n.d. "Survey and Excavations at Abu Fanduweh (KS-59) in Upper Susiana."

Alizadeh, Abbas; Nicholas Kouchoukos; Tony J. Wilkinson; Andrew M. Bauer; and Marjan Mashkour

2004 "Human-Environment Interactions on the Upper Khuzestan Plains, Southwest Iran. Recent Investigations." *Paléorient* 30/1: 69–88.

Alizadeh, Abbas, and Ali Mahfroozi

2005 "Iranian Prehistoric Project: Preliminary Report on the Joint ICHTO-Oriental Institute Excavations at KS-004 and KS-108 in Lowland Susiana, Southwestern Iran." In *Oriental Institute Annual Report 2004–2005*, edited by Gil J. Stein, pp. 56-69. Chicago: The Oriental Institute.

Allan, James, and Caroline Roberts

1987 *Syria and Iran: Three Studies in Medieval Ceramics*. Oxford: Oxford University Press.

Amiet, Pierre

1966 *Elam*. Auvers-sur-Oise: Archée Éditeur.

Archer, Margaret S.

1990 *Culture and Agency: The Place of Culture in Social Theory*. Cambridge: Cambridge University Press.

Azarpay, Guitty

1999 "Elamite Terracotta Figurines." In *The Iranian World: Essays on Iranian Art and Archaeology Presented to Ezat O. Negahban*, edited by Abbas Alizadeh, Yousef Majidzadeh, and Sadegh Malek Shahmirzadi, pp. 131–36. Tehran: Iran University Press.

Barrett, John C.

1994 *Fragments from Antiquity: An Archaeology of Social Life in Britain, 2900–1200 B.C.* Oxford: Blackwell.

2001 "Agency, the Duality of Structure, and the Problem of the Archaeological Method." In *Archaeological Theory Today*, edited by Ian Hodder, pp. 141–64. Cambridge: Polity Press.

Bates, Daniel G., and Susan H. Lees

1977 "The Role of Exchange in Productive Specialization." *American Anthropologist* 79/4: 824–41.

Berman, Judith C.

1986 Ceramic Production and the Development of Complex Polities in Late Prehistoric Southwest Iran. Ph.D. dissertation, City University of New York.

Bintliff, John L.

2004 "Time, Structure, and Agency: The Annals, Emergent Complexity, and Archaeology." In *A Companion to Archaeology*, edited by John Bintliff, pp. 174–94. Malden: Blackwell.

Bishop, Ronald, and M. James Blackman

2002 "Instrumental Neutron Activation Analysis of Archaeological Ceramics: Scale and Interpretation." *Accounts of Chemical Research* 35: 603–10.

Boucharlat, Rémy

2003 "The Persepolis Area in the Achaemenid Period: Some Reconsiderations." In *Yeki Bud, Yeki Nabud: Essays on the Archaeology of Iran in Honor of William M. Sumner*, edited by Naomi F. Miller and Kamyar Abdi, pp. 261–65. Cotsen Institute of Archaeology Monograph 48. Los Angeles: University of California Press.

Boucharlat, Rémy, and Audran Labrousse

1979 "Le palais d'Artaxerxès II sur la rive droite du Chaour à Suse." *Cahiers de la Délégation archéologique française en Iran* 10: 21–136.

Bourdieu, Pierre

1977 *Outline of a Theory of Practice*. Cambridge Studies in Social Anthropology 16. Cambridge: Cambridge University Press.

Braudel, Fernand

1972 *The Mediterranean and the Mediterranean World in the Age of Philip II*. London: Collins.

Caldwell, Joseph R.

1967 *Investigations at Tal-i-Iblis*. Editor. Illinois State Museum Preliminary Reports 9. Springfield: Illinois State Museum.

1968 "Tell-i Ghazir." *Reallexikon der Assyriologie und vorderasiatischen Archäologie* 3: 348–55.

Canal, Daniel

1978 "La haute terrasse de l'Acropole de Suse." *Paléorient* 4: 169–76.

Carter, Elizabeth

1971 Elam in the Second Millennium B.C.: The Archaeological Evidence. Ph.D. dissertation, University of Chicago.

1979 "Elamite Pottery, ca. 2000–1000 B.C." *Journal of Near Eastern Studies* 38/2: 111–28.

1980 "Excavations in Ville Royale I at Susa: The Third Millennium B.C. Occupation." *Cahiers de la Délégation archéologique française en Iran* 11: 11–134.

1996 *Excavations at Anshan (Tal-e Malyan): The Middle Elamite Period*. Malyan Excavation Reports 2. Philadelphia: University Museum of Archaeology and Anthropology.

Carter, Elizabeth, and Matthew W. Stolper

1984 *Elam: Surveys of Political History and Archaeology*. University of California Publications in Near Eastern Studies 25. Berkeley: University of California Press.

Cohen, Ronald, and Elman R. Service

1978 *Origins of the State: The Anthropology of Political Evolution*. Philadelphia: Institute for the Study of Human Issues.

Connan, Jacques

1999 "Use and Trade of Bitumen in Antiquity and Prehistory: Molecular Archaeology Reveals Secret of Past Civilizations." *Philosophical Transactions of the Royal Society London (B: Biological Sciences)* 354: 33–50.

2002 "L'archéologie moléculaire et isotopique: étude géochimique des bitumes, brais et goudrons de bois." In *Géologie de la Préhistoire: Méthodes, Techniques, Applications, Association pour l'étude de l'environnement géologique de*

la préhistoire, edited by J. C.Miskowsky, pp. 1045–66. Paris: Maison de la Géologie

2011 "Les mélanges bitumineux du Tell d'Akkaz (Koweït) / The Bituminous Mixtures from Tell Akkaz (Kuwait)." In *Le Tell d'Akkaz au Koweït / Tell Akkaz in Kuwait*, edited by Jacqueline Gachet-Bizollon, pp. 391–412. Travaux de la Maison de l'Orient 57. Lyon: Maison de l'Orient et de la Méditerranée.

2012 *Le bitume dans l'Antiquité*. Aries: Errance.

Connan, Jacques, and Robert Carter

2007 "A Geochemical Study of Bituminous Mixtures from Failaka and Umm an-Namel (Kuwait) from the Early Dilmun to the Early Islamic Period." *Arabian Archaeology and Epigraphy* 18/2: 139–81.

Connan, Jacques, and Odile Deschesne

1996 Le Bitume à Suse: collection du Musée du Louvre / Bitumen at Susa: The Louvre Museum Collection. Paris : Réunion des musées nationaux.

Connan, Jacques; John Zumberge; Kendra Imbus; and Abbas Moghaddam

2008 "The Bituminous Mixtures of Tall-e Abu Chizan: A Vth millennium B.C. Settlement in Southwestern Iran." *Organic Chemistry* 39/12: 1772–89.

Dahl, Jacob

2005 "Animal Husbandry in Susa during the Proto-Elamite Period." *Studi Minceni ed Egeo-Anatolici* 47: 81–134.

Dales, George

1965 "New Investigations at Mohenjo-Daro." *Archaeology* 18/2: 145–50.

De Bode, Clement Augustus

1845 *Travels in Luristan and Arabistan*. 2 volumes. London: J. Madden.

Delougaz, Pinhas, and Helene J. Kantor

1996 Chogha Mish 1. *The First Five Seasons of Excavations, 1961–1971*. Edited by Abbas Alizadeh. Oriental Institute Publications 101. Chicago: The Oriental Institute.

Dittmann, Reinhard

1984 *Eine Randebene des Zagros in der Frühzeit: Ergebnisse des Behbehan-Zuhreh Surveys*. Berliner Beiträge zum Vorderen Orient 3. Berlin: Dietrich Reimer.

1986 "Susa in the Proto-Elamite Period and Annotations on the Painted Pottery of Proto-Elamite Khuzestan." In *Ǧamdat Naṣr, Period or Regional Style?*, edited by Uwe Finkbeiner and Wolfgang Röllig, pp. 171–96. Beihefte zum Tübinger Atlas Des Vorderenorients Reihe B, Geisteswissenschaften Nr. 62. Wiesbaden: Ludwig Reichert Verlag.

Dobres, Marcia-Anne, and John E. Robb

2000 *Agency in Archaeology*. London: Routledge.

Dollfus, Geneviev

1975 "Les fouilles à Djaffarabad de 1972 à 1974, Djaffarabad périodes I et II." *Cahiers de la Délégation archéologique française en Iran* 5: 11–62.

Earle, Timothy K.

1989 "The Evolution of Chiefdoms." *Current Anthropology* 30/1: 84–88.

1997 *How Chiefs Come to Power: The Political Economy in Prehistory*. Stanford: Stanford University Press.

2001 "The Institutionalization of Chiefdoms: Why Landscapes Are Built." In *From Leaders to Rulers*, edited by Jonathan Haas, pp. 105–24. Fundamental Issues in Archaeology. New York: Kluwer Academic/Plenum Publishers.

Earle, Timothy K., and Kristian Kristiansen, editors

2010 *Organizing Bronze Age Societies: The Mediterranean, Central Europe, and Scandinavia Compared*. Cambridge: Cambridge University Press.

Egami, Namio, and Seiiche Masuda

1962 *Marv Dasht* I: *The Excavations at Tall-i Bakun, 1956*. The Tokyo University Iraq-Iran Archaeological Expedition, Report 2. Tokyo: The Tokyo University.

Eghtedari, Ahmad

1980 *Historical Geography of Khuzestan, Kuhkiluyeh, and Mamasani*. Tehran: Society for National Heritage Press. [In Persian]

Emberling, Geoff

2014 "Ceramics and Trade within Mesopotamia during the Uruk Expansion." Paper presented at the 79th Annual Meeting of the Society for American Archaeology, Symposium 329: Ceramics in the Uruk Expansion: Recent Insights from Archaeometric Analyses, April 27, 2014, Austin.

Emberling, Geoff; J. Robb; J. D. Smith; and Henry Wright

2002 "Kunji Cave: Early Bronze Age Burials in Luristan." *Iranica Antiqua* 37: 47–104.

Esmaeily Jelodar; Mohammad-Esmaeil; and Saeed Zolghadr

n.d. *Cultural Interactions of the Highland Kukrang Region with Fars and Susiana During the Late Susiana 1 Period.*

Fahimi, Hamid

2005 "Kura-Araxes Type Pottery from Gilān and Eastern Extension of the Early Transcaucasian Culture." *Archäologische Mitteilungen aus Iran und Turan* 37: 123–32.

Fazeli Nashli, Hassan, and Rahmat Abbasnezhad Sereshti

2005 "Social Transformation and Interregional Interaction in the Qazvin Plain during the 5th,

4th and 3rd Millennia B.C." *Archäologische Mitteilungen aus Iran und Turan* 37: 7–26.

Finkbeiner, Uwe, and Wolfgang Röllig, editors

1986 *Ğamdat Naṣr: Period or Regional Style?* Beihefte zum Tübinger Atlas des Vorderen Orients B/62. Wiesbaden: Reichert.

Flannery, Kent V.

1976 *The Early Mesoamerican Village*. Editor. Studies in Archeology. New York: Academic Press.

1999 "Chiefdoms in the Early Near East: Why It's so Hard to Identify Them." In *The Iranian World: Essays on Iranian Art and Archaeology, presented to Ezat O. Negahban*, edited by Abbas Alizadeh, Yousef Majidzadeh, and Sadegh Malek Shahmirzadi, pp. 44–63. Tehran: Iran University Press.

Frangipane, Marcella

2001 "Centralization Processes in Greater Mesopotamia: Uruk "Expansion" as the Climax of Systemic Interactions among Areas of the Greater Mesopotamian Region." In *Uruk Mesopotamia and Its Neighbors: Cross-Cultural Interactions in the Era of State Formation*, edited by Mitchell S. Rothman, pp. 307–47. Santa Fe: School of American Research Press.

Frankfort, Henri

1954 *The Art and Architecture of the Ancient Orient*. London: Penguin Books.

Fried, Morton H.

1967 *The Evolution of Political Society: An Essay in Political Anthropology*. New York: Random House.

Frye, Richard Nelson

1975 *The Golden Age of Persia*. London: Phoenix Press

Gasche, Hermann

1973 *La poterie élamite du deuxième millénaire a.C.* Mémoires de la Délégation archéologique en Iran 47, Ville royale de Suse 1. Leiden: E. J. Brill; Paris: Paul Geuthner.

Gasche, Hermann; James A. Armstrong; Steven W. Cole; and V. G. Gurzadyan

1998 *Dating the Fall of Babylon: A Reappraisal of Second-Millennium Chronology*. Mesopotamian History and Environment Series 2, Memoirs 4. Ghent: University of Ghent; Chicago: University of Chicago.

Ghazal, Royal O.; Nicholas Kouchoukos; Robert J. Speakman; Michael D. Glascock; and Christophe Descantes

2008 "Production Zone Sourcing and Intraregional Exchange of Ceramics in the Fourth-millennium B.C. Susiana Plain: A Case Study." In Chogha Mish 2. *The Development of a Prehistoric Regional Center in Lowland Susiana, Southwestern Iran: Final Report on the Last Six Seasons of Excavations, 1972–1978*, by Abbas Alizadeh. Oriental Institute Publications 130. Chicago: The Oriental Institute.

Ghirshman, Roman

1935 *Fouilles du Tépé-Giyan près de Néhavend, 1931 et 1932*. Musée du Louvre, Département des antiquités orientales, Série archéologique 3. Paris: Paul Geuthner.

1938 *Fouilles de Sialk près de Kashan, 1933, 1934, 1937*. Musée du Louvre, Département des antiquités orientales, Série archéologique 4. Paris: Paul Geuthner.

Giddens, Anthony

1979 *Central Problems in Social Theory: Action, Structure and Contradiction in Social Analysis*. Berkeley: University of California Press.

Gilbert, Allan S.

1983 "On the Origins of Specialized Nomadic Pastoralism in Western Iran." *World Archaeology* 15/1: 105–19.

Glascock, Michael D.

1992 "Characterization of Archaeological Ceramics at MURR by Neutron Activation Analysis and Multivariate Statistics". In *Chemical Characterization of Ceramic Pastes in Archaeology*, edited by H. Neff, pp. 11–26. Madison: Prehistory Press.

2006 *Tables for Neutron Activation Analysis*. 6th edition. Columbia: University of Missouri.

Goddard, Victoria A.

2000 *Gender, Agency and Change: Anthropological Perspectives*. London: Routledge.

Goff, Clare L.

1971 "Lūristān before the Iron Age." *Iran* 9: 131–52.

Goff Meade, Clare L.

1968 "Lūristān in the First Half of the First Millennium B.C.: A Preliminary Report on the First Season's Excavations at Bābā Jān and Associated Surveys in the Eastern Pīsh-i-Kūh." *Iran* 6: 105–34.

Goodarzi-Tabrizi, Shoki

1999 "Elamite Terracotta Figurines in the Rosicrucian Egyptian Museum." In *The Iranian World: Essays on Iranian Art and Archaeology Presented to Ezat O. Negahban*, edited by Abbas Alizadeh, Yousef Majidzadeh, and Sadegh Malek Shahmirzadi, pp. 137–45. Tehran: Iran University Press.

Gregg, Michael W.; Rhea Brettel; and Benjamin Stern

2007 "Bitumen in Neolithic Iran: Biomolecular and Isotopic Evidence." In *Archaeological Chemistry: Analytical Techniques and Archaeological Interpretation*, edited by Michael D. Glascock, Robert J. Speakman, and Rachel S. Popelka-Filcoff, pp. 137–51. American Chemical

Society Symposium Series 968. Washington, D.C.: American Chemical Society.

Haerinck, Ernie

1983 *La céramique en Iran pendant la période Parthe (ca. 250 av. J.C. à ca. 225 après J.C.): typologie, chronologie et distribution*. Iranica Antiqua Supplément 2. Leuven: Orientaliste.

Haerinck, Ernie, and Bruno Overlaet

1996 *The Chalcolithic Period, Parchinah and Hakalān*. Luristan Excavation Documents 1. Brussels: Royal Museums of Art and History.

Hansen, Donald P.

1965 "The Relative Chronology of Mesopotamia, Part 2: The Pottery Sequence at Nippur from the Middle Uruk to the End of the Old Babylonian Period (3400–1600 B.C.)" In *Chronologies in Old World Archaeology*, edited by Robert W. Ehrich, pp. 201–13. Chicago: University of Chicago Press.

Hassan, Fekri A.

2004 "Ecology in Archaeology: From Cognition to Action." In *A Companion to Archaeology*, edited by John Bintliff, pp. 311–33. Malden: Blackwell.

Helwing, Barbara

2011 "Proto-Elamite Pottery from Areas A, C, D and E." In *Early Mining and Metallurgy on the Western Central Iranian Plateau: The First Five Years of Work*, edited by Abdolrasool Vatandoust, Hermann Parzinger, and Barbara Helwing, pp. 128–95. Archäologie in Iran und Turan 9. Mainz: Philipp von Zabern.

Henrickson, Elizabeth F.

1985 "An Updated Chronology of the Early and Middle Chalcolithic of the Central Zagros Highlands, Western Iran." *Iran* 23: 63–108.

Henrickson, Robert C.

1984 "Šimaški and Central Western Iran: The Archaeological Evidence." *Zeitschrift für Assyriologie* 74/1: 98–122.

1986 "A Regional Perspective on Godin III Cultural Development in Central Western Iran." *Iran* 24: 1–55.

1987 "Godin III and the Chronology of Central Western Iran circa 2600–1400 B.C." In *The Archaeology of Western Iran: Settlement and Society from Prehistory to the Islamic Conquest*, edited by Frank Hole, pp. 205–28. Smithsonian Series in Archaeological Inquiry. Washington, D.C.: Smithsonian Institution Press.

Hessari, Morteza

2011 "New Evidence on Emergence of Complex Societies in Central Iranian Plateau." *Iranian Journal of Archaeological Studies* 1/2: 1–14.

Hodder, Ian

2000 "Agency and Individuals in Long-term Perspective." In *Agency in Archaeology*, edited by Marcia-Anne Dobres and John E. Robb, pp. 21–33. London: Routledge.

Hole, Frank, editor

1987 *The Archaeology of Western Iran: Settlement and Society from Prehistory to the Islamic Conquest*. Smithsonian Series in Archaeological Inquiry. Washington, D.C.: Smithsonian Institution Press.

Immerwahr, Sara A.

1989 "The Pomegranate Vase: Its Origins and Continuity." *Hesperia* 58/4: 397–410.

Jacob, Linda K.

1980 Darvazeh Tepe and the Iranian Highlands in the Second Millennium B.C. Ph.D. dissertation, University of Philadelphia.

Jacobsen, Thorkild

1939 *The Sumerian King List*. Assyriological Studies 11. Chicago: University of Chicago Press.

Jafarzadeh, Mahdi, and Mahboobeh Hosseini-Barzi

2008 "Petrography and Geochemistry of Ahwaz Sandstone Member of Asmari Formation, Zagros, Iran: Implications on Provenance and Tectonic Setting." *Revista Mexicana de Ciencias Geológicas* 25/2: 247–60.

Javery, Mohsen, and Alamdar Haji Mohammad Alian

2011 "An Introduction to the Early Bronze Age Settlement of Lohramesh in the Golpayegan Plain, Esfahan Province." *Iranian Archaeology* 2: 61–74. [In Persian]

Johnson, Gregory Allan

1973 *Local Exchange and Early State Development in Southwestern Iran*. Anthropological Papers 51. Ann Arbor: Museum of Anthropology, University of Michigan.

1987 "The Changing Organization of Uruk Administration on the Susiana Plain." In *The Archaeology of Western Iran: Settlement and Society from Prehistory to the Islamic Conquest*, edited by Frank Hole, pp. 107–39. Smithsonian Series in Archaeological Inquiry. Washington, D.C.: Smithsonian Institution Press.

Jones, Jennifer E.

2010 "Movement across the Landscape and Residential Stability: Agency and Place in the Southern Levantine Early Bronze Age." In *Agency and Identity in the Ancient Near East: New Paths Forward*, edited by Sharon R. Steadman and Jennifer C. Cross, pp. 14–26. Approaches to Anthropological Archaeology. London: Equinox.

Kaboli, Mir Abedin

2000 *Archaeological Survey at Qomrud*. Tehran: ICHHTO. [In Persian]

Kamand Consulting Engineers

1996a "Report on the Geophysics of the Ram Hormuz Region." Mimeograph presented to the Ministry of Water and Power in Khuzestan.

1996b "Report on the Hydrology of the Ram Hormuz Region." Mimeograph presented to the Ministry of Water and Power in Khuzestan.

1996c "Report on the Sources of Water and Its Uses in the Ram Hormuz Region." Mimeograph presented to the Ministry of Water and Power in Khuzestan.

1996d "Report on the Geology of the Ram Hormuz Region." Mimeograph presented to the Ministry of Water and Power in Khuzestan.

Kasravi, Ahmad

2007 (1933) *A 500-Year History of Khuzestan*. Tehran: Doniay-e Ketab. [In Persian]

Kervran, Monique

1977 "Les niveaux islamiques du secteur oriental du tépé de l'Apadana. II. Le matériel céramique." *Cahiers de la Délégation archéologique française en Iran* 7: 75–161.

1979 "Une sucrerie d'époque islamique sur la rive droite du Chaour à Suse: le matériale archèologique." *Cahiers de la Délégation archéologique française en Iran* 10: 177–237.

Khatib Shahidi, Hamid; Mahmood Tavosi; Ayat Bagherzadeh Shirazi; and Ahmad Salehi Kakhki

2007 "An Overview of the Archaeological Sites in the Northern District of Chadgan in the Zayanderud River Basin from the Chalcolithic to the End of the Iron Age III." *Journal of the Faculty of Literature and Human Sciences of the Tehran University* 48: 27–57. [In Persian]

Khazanov, Anatoli, M.

1978 "Some Theoretical Problems of the Study of the Early State." In *The Early State*, edited by H. J. M. Claessen and Peter Skalník, pp. 77–92. New Babylon, Studies in the Social Sciences 32. The Hague: Mouton.

Khosrowzadeh, Alireza

2010 "Preliminary Results of the 1st Season of Archaeological Survey of Farsan, Bakhtiari Region, Iran." In *Proceedings of the 6th International Congress on the Archaeology of the Ancient Near East, 5 May–10 May 2009, "Sapienza," Università di Roma*, edited by Paolo Matthiae, Frances Pinnock, Lorenzo Nigro, and Nicolò Marchetti, vol. 2, pp. 317–37. Wiesbaden: Harrassowitz.

Knapp, A. Bernard, and Peter van Dommelen

2008 "Past Practices: Rethinking Individuals and Agents in Archaeology." *Cambridge Archaeological Journal* 18/1: 15–34.

Kroll, Stephan

2005 "Early Bronze Age Settlement Patterns in the Orumiye Basin." *Archäologische Mitteilungen aus Iran und Turan* 37: 115–21.

Kupper, J.-R.

1967 "Le pays de Simaški." *Iraq* 31: 24–27.

Lamberg-Karlovsky, Carl C.

1970 *Excavations at Tepe Yahya, Iran, 1967–1969: Progress Report* I. Asia Institute of Pahlavi University, Monograph 1; American School of Prehistoric Research, Bulletin 27. Cambridge: Harvard University Press.

1971 "The Proto-Elamite Settlement at Tepe Yahya." *Iran* 9: 87–95.

1972 "Tepe Yaḥyā 1971: Mesopotamia and the Indo-Iranian Borderlands." *Iran* 10: 89–100.

1977 "Foreign Relations in the Third Millennium B.C. at Tepe Yahya." In *Le plateau iranien et l'Asie centrale des origines à la conquête islamique: leurs relations à la lumière des documents archéologiques*, pp. 33–43. Colloques Internationaux du C.N.R.S. 567. Paris: Éditions du Centre national de la recherche scientifique.

1978 "The Proto-Elamites on the Iranian Plateau." *Antiquity* 52: 114–20.

Langsdorff, Alexander, and Donald E. McCown

1942 *Tall-i-Bakun A, Season of 1932*. Oriental Institute Publications 59. Chicago: University of Chicago Press.

Layard, Austin Henry

1846 "A Description of the Province of Khuzistan." *Journal of the Royal Asiatic Society* 16: 1–105.

1894 *Early Adventures in Persia, Susiana, and Babylonia*. London: John Murray.

Le Brun, Alain

1971 "Recherches stratigraphiques: L'Acropole de Suse 1969–1971." *Cahiers de la Délégation archéologique française en Iran* 1: 163–216.

1978 "Suse, chantier 'Acropole 1.'" *Paléorient* 4: 177–92.

Leroi-Gourhan, André

1943 *Évolution et techniques*, Volume 1: *L'homme et la matière*. Paris: Albin Michel.

Le Strange, Guy

1976 *The Lands of the Eastern Caliphate: Mesopotamia, Persia, and Central Asia from the Moslem Conquest to the Time of Timur*. New York: AMS Press.

Majidzadeh, Yousef

2000 *Excavations at the Ancient Site of Ozbaki*, Volume 2: *Pottery*. Tehran: ICHTO. [In Persian]

Marschner, Robert F., and Henry T. Wright

1978 "Asphalts from Middle Eastern Archaeological Sites." In *Archaeological Chemistry* II, edited by Giles F. Carter, pp. 150–71. Advances in Chemistry Series 171. Washington, D.C.: American Chemical Society.

Matson, Frederick R.

1939 A Technological Study of the Unglazed Pottery and Figurines from Seleucia on the Tigris. Ph.D. dissertation, Unversity of Michigan.

McCown, Donald E.

1949 "The Iranian Project." *American Journal of Archaeology* 53/1: 54.

1954 "The Relative Stratigraphy and Chronology of Iran." In *Relative Chronologies in Old World Archaeology*, edited by Robert W. Ehrich, pp. 56–67. Chicago: University of Chicago Press.

Minc, Leah D.

2013 "Trace-Element Analyses of Near Eastern Ceramics: A Re-evaluation of the Uruk Expansion and Interregional Ceramic Exchange in the Late 4th Millennium B.C." Preliminary report circulated to collaborators for analyses supported by NSF award 1005945: Support of Coordinated, Regional Trace-Element Studies at the OSU-Radiation Center, August, 2013. Corvallis: OSU Archaeometry Lab.

2014 "Trace-element Analyses of Near Eastern Ceramics: Overview and Introduction." Paper presented at the 79th Annual Meeting of the Society for American Archaeology, Symposium 329: Ceramics in the Uruk Expansion: Recent Insights from Archaeometric Analyses, April 27, 2014, Austin.

Miroschedji, Pierre de

1976 "Un four de potier du IV^{e} millénaire sur le tell de l'Apadana à Suse." *Cahiers de la Délégation archéologique française en Iran* 6: 13–45.

1978 "Stratigraphie de la période de néo-élamite a Suse (c. 1110–c. 540)." *Paléorient* 4: 213–28.

1981a "Fouilles du chantier Ville Royale II à Suse (1975–1977). I. Niveaux élamites." *Cahiers de la Délégation archéologique française* 12: 9–136.

1981b "Observations dans les couches neo-élamites au nord-ouest du tell de la Ville Royale à Suse." *Cahiers de la Délégation archéologique française en Iran* 12: 143–67.

1981c "Prospections archéologiques au Khuzistan in 1977." *Cahiers de la Délégation archéologique française en Iran* 12: 169–76.

1985 "La fin du royaume d'Anšan et de Suse et la naissance de l'Empire perse." *Zeitschrift für Assyriologie* 75/2: 265–306.

1987 "Fouilles du chantier Ville Royale II à Suse (1975–1977). II. Niveaux d'époques achéménide, séleucide, parthe et islamique." *Cahiers de la Délégation archéologique française en Iran* 15: 11–143.

1990 "La fin de l'Elam: essai d'analyse et d'interprétation." *Iranica Antiqua* 25: 47–95.

2003 "Susa and the Highlands: Major Trends in the History of Elamite Civilization." In *Yeki Bud, Yeki Nabud: Essays on the Archaeology of Iran in Honor of William M. Sumner*, edited by Naomi F. Miller and Kamyar Abdi, pp. 17–38. Cotsen Institute of Archaeology Monograph 48. Los Angeles: University of California Press.

Mofidi Nasrabadi, Behzad

2005 "Eine Steininschrift des Amar-Suena aus Tappeh Bormi (Iran)." *Zeitschrift für Assyriologie* 95: 161–71.

Moghaddam, Abbas, and Negin Miri

2007 "Archaeological Surveys in the 'Eastern Corridor,' South-western Iran." *Iran* 45: 23–55.

Morgan, Peter, and Janet Leatherby

1987 "Excavated Ceramics from Sīrjān." In *Syria and Iran: Three Studies in Medieval Ceramics*, edited by James Allan and Caroline Roberts, pp. 23–174. Oxford: Oxford University Press.

Motiee, Homayun

2001 "An Introduction to the Geology of the Ram Hormuz Region and the Surface Remains at Mamatian Tar Springs." Official Report to the Geological Survey Center, Ahvaz. Unpublished report. [In Persian]

Mutin, Benjamin

2013 *The Proto-Elamite Settlement and Its Neighbors: Tepe Yhya Period IVC*. Oxford and Oakville: Oxbow Books.

National Iranian Oil Company

1969 Geological Map of Iran, Sheet No. 4: South-West Iran (1:1,000,000). Compiled by Exploration Division of NIOC-EPA under supervision of H. Huber, with considerable contributions of the Geological Survey of Iran. Tehran: N.C.C. Offset Press.

Neely, James A.

1974 "Sassanian and Early Islamic Water-control and Irrigation Systems on the Deh Luran Plain, Iran." In *Irrigation's Impact on Society*, edited by Robert McCormick Adams, Theodore E. Downing, and McGuire Gibson, pp. 21–42. Anthropological Papers of the University of Arizona 25. Tucson: University of Arizona Press.

Neely, James A., and Henry T. Wright

1994 *Early Settlement and Irrigation on the Deh Luran Plain: Village and Early State Societies in Southwestern Iran*. Technical Report 26. Ann Arbor: Museum of Anthropology, University of Michigan.

Negahban, Ezat O.

1969 "Haft Tepe Excavation Report." *Iran* 7: 173–77.

Nicholas, Ilene Mildred

1980 A Spatial/Functional Analysis of Late Fourth Millennium Occupation at the TUV Mound, Tal-e Malyan, Iran. Ph.D. dissertation, University of Pennsylvania.

1990 *The Proto-Elamite Settlement at TUV*. Malyan Excavation Reports 1; University Museum Monograph 69. Philadelphia: University Museum of Archaeology and Anthropology, University of Pennsylvania.

Nissen, Hans J.

1970 "Grabung in den Quadraten K/L XII in Uruk-Warka." *Baghdader Mitteilungen* 5: 101–91.

1976 "The Behbehan Plain in the Fifth Millennium B.C." In *The Memorial Volume of the VIth International Congress of Iranian Art and Archaeology, Oxford, September 11-16, 1972*, edited by Mohammad Yousef Kiani, pp. 273–80. Tehran: Iranian Centre for Archaeological Research.

2001 "Cultural and Political Networks in the Ancient Near East during the Fourth and Third Millennium B.C." In *Uruk Mesopotamia and Its Neighbors*, edited by Mitchell Rothman, pp. 149–80. The School of American Research. Advanced Seminar Series. Santa Fe: School of American Research.

2002 "Uruk: Key Site of the Period and Key Site of the Problem." In *Artefacts of Complexity: Tracking the Uruk in the Near East*, edited by J. N. Postgate, pp. 1–16. Wiltshire: British School of Archaeology.

Noban, Mehrolzaman

1996 *The Origins of Geographical Names*. Tehran: Maa Press. [In Persian]

Pande, B. M.

1971–72 "Harappan Ring-Kernoi: A Study." *East and West* 21/3–4: 311–23.

Petrie, Cameron A.; Alireza Asgari Chaverdi; and Mojgan Seyedin

2005 "From Anshan to Dilmun and Magan: The Spatial and Temporal Distribution of Kaftari and Kaftari-Related Ceramic Vessels." *Iran* 43: 49–86.

Pigulevskaja, N.

1998 *Iranian Cities in the Parthian and Sasanian Periods*. Translated into Persian from Russian by E. Reza. Tehran: Scientific and Cultural Press.

Porada, Edith

1965 "The Relative Chronology of Mesopotamia, Part II. Seals and Trade (6000–1600 B.C.)." In *Chronology in Old World Archaeology*, edited by Robert W. Ehrich, pp. 133–200. Chicago: University of Chicago Press.

1970 *Tchoga Zanbil (Dur-Untash)*, Volume IV: la glyptique. Paris: Librairie Orientaliste Paul Geuthner.

Potts, Daniel T.

1999 *The Archaeology of Elam: Formation and Transformation of an Ancient Iranian State*. Cambridge World Archaeology. Cambridge: Cambridge University Press.

2008 Review of *The Origins of State Organizations in Prehistoric Highland Fars, Southern Iran: Excavations at Tall-e Bakun*, by Abbas Alizadeh. *Bibliotheca Orientalis* 65/1–2: 196–206.

2014 *Nomadism in Iran: From Antiquity to the Modern Era*. New York: Oxford University Press.

Potts, Daniel T.; Koroush Roustaei; Cameron A. Petrie; and Lloyd R. Weeks

2009 *The Mamasani Archaeological Project Stage One: A Report on the First Two Seasons of the ICAR-University of Sydney Expedition to the Mamasani District, Fars Province, Iran*. British Archaeological Reports, International Series 2044. Oxford: Archaeopress.

Rezaii, Mehdi

2011 The Archaeology of the Pul Dokhtar Region: Report of the Archaeological Surveys in the Pul Dokhtar Region of the Zagros. Unpublished manuscript. [In Persian]

Rezvani, Hasan; Kourosh Roustaei; Ahmad Azadi; and Ebrahim Ghezelbash

2007 *Final Report of the Archaeological Excavations at Lama Cemetery, Yasuj*. Tehran: Iranian Center for Archaeological Research. [In Persian]

Rice, Prudence M.

1987 *Pottery Analysis: A Sourcebook*. Chicago: University of Chicago Press.

Richardson, Seth

2012 "Early Mesopotamia: The Presumptive State." *Past and Present* 215/1: 3–49.

Rosen, Arlene Miller

2007 *Civilizing Climate: Social Responses to Climate Change in the Ancient Near East*. Lanham: AltaMira Press.

Rowlands, Michael J.

1989 "A Question of Complexity." In *Domination and Resistance*, edited by Daniel Miller, M. J. Rowland, and Christopher Tilley, pp. 29–40. One World Archaeology 3. London and Boston: Unwin Hyman.

Rowton, Michael

1974 "Enclosed Nomadism." *Journal of the Economic and Social History of the Orient* 17: 1–30.

Sahraeyan, Mohammad, and Mohammad Bahrami

2012 "Geochemistry of Sandstones from the Aghajari Formation, Folded Zagros Zone, Southwestern Iran: Implication for Paleoweathering Condition, Provenance, and Tectonic Setting." *International Journal of Basic and Applied Sciences* 1/4: 390–407.

Schacht, Robert M.

1975 "A Preliminary Report on the Excavations at Tepe Sharafabad, 1971." *Journal of Field Archaeology* 2/4: 307–29.

1987 "Early Historic Cultures." In *The Archaeology of Western Iran: Settlement and Society from Prehistory to the Islamic Conquest*, edited by Frank Hole, pp. 171–204. Smithsonian Series in Archaeological Inquiry. Washington, D.C.: Smithsonian Institution Press.

Sellet, Frédéric

1993 "Châine opératoire: The Concept and Its Applications." *Lithic Technology* 18/1–2: 106–12.

Shennan, Stephen

1993 "After Social Evolution: A New Archaeological Agenda?" In *Archaeological Theory: Who Sets the Agenda?,* edited by Norman Yoffee and Andrew Sherratt, pp. 53–59. New Directions in Archaeology. Cambridge: Cambridge University Press.

Sherratt, Andrew

1983 "The Secondary Exploitation of Animals in the Old World." *World Archaeology* 15/1: 90–104.

Shishegar, Arman

2008 *The Discovery of a Tomb of the House of King Shutur Nahunte, Son of Indada*. Tehran: Cultural Heritage Organization. [In Persian]

Smith, Adam T.

2003 *The Political Landscape: Constellations of Authority in Early Complex Polities*. Berkeley: University of California Press.

Spycket, Agnès

1992 "Les figurines de Suse I: les figurines humaines des 4th–2nd millénaires avant J.-C." *Mémoires de la Délégation archéologique en Iran* 52. Paris: Gabalda.

Stack, Edward

1882 *Six Months in Persia*. London: S. Low, Marston, Searle & Livingston.

Steadman, Sharon R., and Jennifer C. Ross, editors

2010 *Agency and Identity in the Ancient Near East: New Paths Forward*. London: Equinox.

Stein, Aurel

1936 "An Archaeological Tour in the Ancient Persis." *Iraq* 3: 112–225.

Stein, Gil, J.

1988 Pastoral Production in Complex Societies. Ph.D. dissertation, University of Pennsylvania.

1994 "The Organizational Dynamics of Complexity in Greater Mesopotamia." In *Chiefdoms and Early States in the Near East: The Organizational Dynamics of Complexity*, edited by Gil J. Stein and Mitchell S. Rothman, pp. 11–22. Monographs in World Archaeology 18. Madison: Prehistory Press.

1999 *Rethinking World-Systems: Diasporas, Colonies, and Interaction in Uruk Mesopotamia*. Tucson: University of Arizona Press.

2001 "Indigenous Social Complexity at Hacinebi (Turkey) and the Organization of Uruk Colonial Contact." In *Uruk Mesopotamia and Its Neighbors: Cross-Cultural Interactions in the Era of State Formation*, edited by Mitchell S. Rothman, pp. 265–305. Santa Fe: School of American Research Press

2010 "Local Identities and Interaction Spheres: Modeling Regional Variation in the Ubaid Horizon." In *Beyond the Ubaid: Transformation and Integration in the Late Prehistoric Societies of the Middle East*, edited by Robert A. Carter and Graham Philip, pp. 23–44. Studies in Ancient Oriental Civilization 63. Chicago: The Oriental Institute.

Steinkeller, Piotr

1993 "Early Political Development in Mesopotamia and the Origins of the Sargonic Empire." In *Akkad: The First World Empire; Structure, Ideology, Traditions*, edited by Mario Liverani, pp. 107–30. History of the Ancient Near East, Studies 5. Padova: Sargon.

Steve, Marie-Joseph, and Hermann Gasche

1971 *L'Acropole de Suse; nouvelles fouilles (rapport préliminaire)*. Mémoires de la Délégation archéologique en Iran 46, Mission de Susiane. Leiden: E. J. Brill; Paris: Paul Geuthner.

Steve, Marie-Joseph; Hermann Gasche; and L. De Meyer

1980 "La Susiane au deuxième millénaire: à propos d'une interprétation des fouilles de Suse." *Iranica Antiqua* 15: 49–154.

Stronach, David

2003 "The Tomb at Arjan and the History of Southwestern Iran in the Early Sixth Century B.C.E." In *Yeki Bud, Yeki Nabud: Essays on the Archaeology of Iran in Honor of William M. Sumner*, edited by Naomi F. Miller and Kamyar Abdi, pp. 249–59. Cotsen Institute of Archaeology Monograph 48. Los Angeles: University of California Press.

Sumner, William M.

1981 "The Development of an Urban Settlement System in the Kur River Basin, Iran." Paper presented at the Joint U.S.S.R. Academy of Sciences/U.S. National Academy of Science Exchange Program on Central Asia.

1986a "Achaemenid Settlement in the Persepolis Plain." *American Journal of Archaeology* 90/1: 3–31.

1986b "Proto-Elamite Civilization in Fars." In *Ğamdat Naṣr: Period or Regional Style?* Edited by Uwe Finkbeiner and Wolfgang Röllig, pp. 199–211. Beihefte zum Tübinger Atlas des Vorderen Orients B/62. Wiesbaden: Reichert.

1999 "The Birds of Anshan." In *The Iranian World: Essays on Iranian Art and Archaeology Presented to Ezat O. Negahban*, edited by Abbas Alizadeh, Yousef Majidzadeh, and Sadegh Malek Shahmirzadi, pp. 85–100. Tehran: Iran University Press.

2003 *Early Urban Life in the Land of Anshan: Excavations at Tal-e Malyan in the Highlands of Iran*. Philadelphia: University of Pennsylvania Museum of Archaeology and Anthropology.

Thomas, Julian

1996 *Time, Culture and Identity: An Interpretative Archaeology*. London: Routledge.

2004 *Archaeology and Modernity*. London: Routledge.

Vallat, François

1980 *Suse et l'Elam*. Recherche sur les grandes civilisations, Mémoire 1; Études elamites. Paris: Éditions A.D.P.F.

Vanden Berghe, Louis

1970 "Au Luristan, la nécropole de Kalleh Nisar." *Archéologia* 32: 64–73.

1973 "Le Luristan à l'âge du Bronze: la nécropole de Hakalan." *Archéologia* 57: 48–58.

1974 "Le Lorestan avant l'âge du Bronze. la nécropole de Hakalan." Proceedings of the 2nd Annual Symposium on Archaeological Research in Iran, edited by Firouz Bagherzadeh, pp. 66–79. Tehran: Iranian Centre for Archaeological Research.

1975 "La nécropole de Dum-Gar-Parchinah." *Archéologia* 79: 46–61.

1987 "Luristan, Pusht-i-Kuh au chalcolithique moyen (les nécropoles de Parchinah et Hakalān)." In *Préhistoire de la Mésopotamie: la Mésopotamie préhistorique et l'exploration récente du Djebel Hamrin*, edited by Jean-Louis Huot, pp. 91–106. Colloque international du Centre national de la recherche scientifique. Paris: Éditions du Centre national de la recherche scientifique.

Weeks, Lloyd

2010 Review of Chogha Mish 2. *The Development of a Prehistoric Regional Center in Lowland Susiana, Southwestern Iran: Final Report on the Last Six Seasons of Excavations, 1972–1978*, by Abbas Alizadeh. *Archäologische Mitteilungen aus Iran und Turan* 42: 309–13.

Wenke, Robert, J.

1975–76 "Imperial Investment and Agricultural Developments in Parthian and Sasanian Khuzestan, 150 B.C. to A.D. 640." *Mesopotamia* 10–11: 13–221.

1987 "Western Iran in the Partho-Sasanian Period: The Imperial Transformation." In *The Archaeology of Western Iran: Settlement and Society from Prehistory to the Islamic Conquest*, edited by Frank Hole, pp. 379–97. Smithsonian Series in Archaeological Inquiry. Washington, D.C.: Smithsonian Institution Press.

Whitcomb, Donald S.

1971 The Proto-Elamite Period at Tall-i Ghazir, Iran. M.A. thesis, University of Georgia.

1979 Trade and Tradition in Medieval Southern Iran. Ph.D. dissertation, University of Chicago.

1991 "Pseudo-prehistoric Ceramics from Southern Iran." In *Golf-archäologie: Mesopotamien, Iran, Kuwait, Bahrain, Vereinigte Arabische Emirate und Oman*, edited by Klaus Schippmann, Anja Herling, and Jean-François Salles, pp. 95–112. Internationale Archäologie 6. Buch am Erbach: M. L. Leidorf.

Wright, Henry T.

1977 "Recent Research on the Origin of State." *Review of Anthropology* 6: 379–97

1981 *An Early Town on the Deh Luran Plain: Excavations at Tepe Farukhabad*. Edited by Henry T. Wright. Memoirs of the Museum of Anthropology 13. Ann Arbor: Museum of Anthropology, University of Michigan.

1984 "Prestate Political Formations." In *On the Evolution of Complex Societies: Essays in Honor of Harry Hoijer, 1982*, edited by William T. Sanders, Henry T. Wright, Robert McC. Adams, and Timothy K Earle, pp. 41–78. Malibu: Undena Publications.

2001 "Cultural Action in the Uruk World." In *Uruk Mesopotamia and Its Neighbors: Cross-Cultural Interactions in the Era of State Formation*, edited by Mitchell S. Rothman, pp. 123–47. Santa Fe: School of American Research Press.

2010 "The Zagros Frontiers of Susa during the Late 5th Millennium." *Paléorient* 36: 11–21.

2013 "A Bridge between Worlds: Southeastern Iran during the Early IVth Millennium." In *Ancient Iran and Its Neighbors: Local Development and Long-range Interactions from the Late 5th to the Early 3rd Millennium B.C.*, edited by Cameron Petrie, pp. 51–74. Oxford and Oakville: Oxbow Books.

Wright, Henry T., and Mohammed Ismael Bayani

1979 *Archaeological Investigations in Northeastern Xuzestan, 1976*. Research Reports in Archaeology, Contribution 5; Survey Report, Iranian Centre for Archaeological Research 1; Technical Report 10. Ann Arbor: Museum of Anthropology, University of Michigan.

Wright, Henry T., and Elizabeth Carter

2003 "Archaeological Survey on the Western Ram Hormuz Plain, 1969." In *Yeki Bud, Yeki Nabud: Essays on the Archaeology of Iran in Honor of William M. Sumner*, edited by Naomi F. Miller and Kamyar Abdi, pp. 61–82. Cotsen Institute of Archaeology Monograph 48. Los Angeles: University of California Press.

Wright, Henry T., and Gregory A. Johnson

1975 "Population, Exchange, and Early State Formation in Southwestern Iran." *American Anthropologist* 77/2: 267–89.

1985 "Regional Perspectives on Southwest Iranian State Development." *Paléorient* 11/2: 25–30.

Wright, Henry T., and James A. Neely

2010 *Elamite and Achaemenid Settlement on the Deh Luran Plain: Town and Villages of the Early Empires in Southwestern Iran*. Museum of Anthropology Memoirs 47. Ann Arbor: University of Michigan.

Wright, Henry T.; James A. Neely; Gregory A. Johnson; and John Speth

1975 "Early Fourth Millennium Developments in Southwestern Iran." *Iran* 13: 129–47.

Wright, Henry T., and E. S. A. Rupley

2001 "Calibrated Radiocarbon Age Determinations of Uruk-related Assemblages." In *Uruk Mesopotamia and Its Neighbors: Cross-Cultural Interactions in the Era of State Formation*, edited by Mitchell S. Rothman, pp. 85–122. Santa Fe: School of American Research Press

Yadin, Yigal

1972 "The Earliest Representation of a Siege Scene and a 'Scythian Bow' from Mari." *Israel Exploration Journal* 22/2–3: 89–94.

Yoffee, Norman

1993 "Too Many Chiefs? (Or, Safe Texts for the 90s)." In *Archaeological Theory: Who Sets the Agenda?,* edited by Norman Yoffee and Andrew Sherratt, pp. 60–78. New Directions in Archaeology. Cambridge: Cambridge University Press.

Young, T. Cuyler, Jr.

1966 "Survey in Western Iran, 1961." *Journal of Near Eastern Studies* 25: 228–39.

2004 "The Kangavar Survey: Periods VI to IV." In *A View from the Highlands. Archaeological Studies in Honour of Charles Burney*, edited by Antonio Sagona, pp. 645–60. Ancient Near Eastern Studies Supplement 12. Leuven: Peeters.

Zagarell, Allen

1982 *The Prehistory of the Northeast Baḫtiyārī Mountains, Iran: The Rise of a Highland Way of Life*. Beihefte zum Tübinger Atlas des Vorderen Orients B/42. Wiesbaden: Ludwig Reichert.

Table 1. Relative chronology of Iran and Mesopotamia

Date BC	Susiana	Geser (Ram Hormuz)	Fars	Central Plateau	Mesopotamia
651–900 AD	Post Sasanian	Geser XII	Post Sasanian	Post Sasanian	Abbasid Ummayad
224–651 AD	Sasanian	Geser XI	Sasanian	Sasanian	Sasanian
250 BC–224 AD	Parthian	Geser X	Parthian	Parthian	Parthian
550–331	Achaemenid	Geser IX	Achaemenid	Achaemenid	Achaemenid
1000–550	Neo-Elamite	Geser VIII	Shogha/ Teimuran	Iron Age	Neo Babylonian/ Neo Assyrian
1400–1000	Middle Elamite	Geser VII			Kassite/ Middle Assyrian
1600–1400	Transitional	Geser VI	Qaleh	Late Bronze	
1900–1600	Sukkalmah				Old Babylonian
2350–2100	Shimashki				Isin-Larsa
2350–2150	Awan	*G A P*	Kaftari	Middle Bronze	Ur III Akkadian
2600–2350					Early Dynastic
3100–2600	Proto-Elamite (Susa III)	Geser V	Late Banesh	Early Bronze	Jemdet Nasr
3900–3100	Susa II	Geser IV	Middle Banesh Early Banesh		Uruk
4000–3900	Terminal Susa		Lapuii	Late Plateau	Terminal Ubaid
4300–4000	Late Susiana 2 (Susa I)	Geser III	Bakun A		
4700–4300	Late Susiana 1	Geser II	Gap (Tall)	Middle Plateau (Cheshme Ali)	Ubaid 4
5200–4700	Late Middle Susiana	Geser I	Bakun B2	Early Plateau	Ubaid 3
5700–5200	Early Middle Susiana	?	Bakun B1		Ubaid 2
6000–5700	Early Susiana		Jari B	Archaic Plateau	Ubaid 1
6200–6000	Archaic Susiana 3		Mushki		Ubaid 0/Samarra
6300–6200	Archaic Susiana 2		Arsanjan Cave Site		Hassuna
6500–6300	Archaic Susiana 1				Jarmo

PART I

EXCAVATIONS AT TALL-E GESER

CHAPTER 1
GEOLOGY, GEOGRAPHY, AND CLIMATE OF THE RAM HORMUZ REGION

INTRODUCTION

The Ram Hormuz plain is one of the least investigated regions in southwestern Iran. Yet from prehistoric times the plain occupied a strategic position in the nexus of routes connecting various lowland and highland polities. To truly appreciate the strategic position of the plain, and especially that of Tall-e Geser, one must look at the regional topography without the modern division lines within and between the provinces and districts. Looking at the region in this way, one can appreciate its position as a buffer zone between the lowlands and highlands and its position as the nexus of communicating routes to points north, east, and west.

LAND AND CLIMATE

The alluvial plain of Ram Hormuz has an area of ca. 620 sq. km with the mean elevation of 120 m above sea level (pls. 9–12). The plain lies well within the semi-arid zone of southwest Asia with an average rainfall of 250–300/350 mm annually, rendering dry farming possible but still risky. Table 2, however, indicates this pattern can change within one's life time. The mean annual temperature in the region is ca. 23 degrees C, with the highest of 37–40 degrees C in July and lowest of 10 degrees C in January.[1]

The plain is a major syncline that has been filled with the sediments brought down by its rivers and runoffs since the Tertiary period (pl. 10). The oldest geological layers date to the Miocene and Pliocene and consist of the Gachsaran, Mishan, and Agha Jari formations. The uppermost layers of the Bakhtiyari formation are covered by the Quaternary alluvium, although parts of the Agha Jari and Bakhtiyari formations are still visible in the sandy hills of the southwest and eastern parts of the alluvium respectively (pls. 10–12). The northwest–southeast axis of this synclinal valley matches exactly that of the Zagros anticlines. With an average height of 120 m above sea level and with an area of ca. 620 sq. km, the Ram Hormuz region and large portions of its northern piedmont are part of the modern-day Khuzestan province. Some 400 sq. km of the plain lie on the west bank of the ʿAla River and ca. 220 sq. km on the east bank. On the north and northwest, the plain is delimited by the Masjed Suleiman and Shushtar regions (pl. 10:A), on the south by the Ramshir and Jayzan, on the east by the Mei Davud regions, and on the northeast by the Bagh Malek and Izeh region. The foothills that surround the Ram Hormuz region on the north, northeast, and northwest primarily consist of dissected and barren sandstone and limestone hills that rise sharply from the southern plains to some 300 m, forming a belt of rough, low hills from Shushtar to the Ram Hormuz region and southeast to Behbahan (pl. 12). These hills are completely devoid of any farming potential but are both scenic and ideal for pasture in the winter and early spring.

[1] Annual Report of the Iranian Center for Meteorological Survey, 1980–81; Kamand Consulting Engineers 1996a, 1996b, 1996c, 1996d.

Table 2. Annual precipitation in the Ram Hormuz region, in mm

Year	*January*	*February*	*March*	*April*	*May*	*June*	*July*	*August*	*September*	*October*	*November*	*December*	*Annual*
1993	112.3	154.4	43.5	29.2	1.5	—	—	—	—	3.6	20.8	4.1	369.4
1994	48.5	0.7	43.2	14.1	10.2	—	—	—	—	14.0	151.5	28.3	310.5
1995	24.3	52.2	22.4	34.9	0.5	—	—	—	—	—	2.0	77.6	213.9
1996	205.5	94.4	89.8	70.3	2.0	—	0.2	—	—	1.4	5.8	19.0	488.4
1997	34.0	—	253.0	25.7	10.4	—	—	—	—	4.4	36.5	151.3	515.3
1998	122.4	36.4	83.7	4.0	—	1.0	—	—	—	0.1	0.6	2.0	250.2
1999	141.7	88.7	87.2	3.1	—	—	—	—	—	0.1	10.9	60.0	391.7
2000	54.6	20.2	2.2	—	—	—	—	1.0	—	1.7	16.8	196.3	292.8
2001	21.8	14.0	32.0	—	2.0	—	—	—	0.8	2.6	10.4	196.3	279.9
2002	88.1	34.0	32.1	69.8	3.0	—	—	—	—	—	5.9	153.2	386.1
2003	71.0	22.6	19.1	10.4	—	—	—	—	—	—	4.5	51.6	179.2

Six different types of land are recorded for the plain, as indicated in plate 10:B.[2] Following Neely (1974, pp. 21–23) and Wright and Carter (2003, p. 64), we list these micro-environments as:

Zone 1. Alluvial Zone
Zone 2. Sandy Hilly Zone
Zone 3. Rocky Piedmont Zone
Zone 4. Salt/Gypsum-encrusted Central Zone
Zone 5. Shallow Marsh Zone
Zone 6. Mixed Zone

ALLUVIAL ZONE

The most fertile land is to be found within the alluvial zone along the ʿAla River and its two tributaries, the Samoneh and Ramuz. Alluvial land surrounds the town of Ram Hormuz and extends for ca. 4–5 km on east and west banks of the ʿAla River. This is a very fertile region that is almost free of salt. Here is where most of the farming and horticulture

[2] Motiee 2001; Wright and Carter 2003, pp. 64–65 and fig. 6.2, citing an unpublished report by V. S. Subramanian and M. F. Van Osten.

is to be found; it is also where the majority of the ancient sites are located. Closer to the piedmonts we found most of the low, single-period sites that we consider seasonal campsites. Some of the semi-nomadic tribes of the region still winter in this area.

SANDY HILLY ZONE

The sandy hilly zone consists of an area of sandy hills in the south and southwest of the plain. These low, nearly treeless hills and the intervening flat lands between them are suitable for farming but difficult to irrigate. The second large concentration of ancient mounds is recorded in this area, implying the existence of a more suitable environment in ancient times.

ROCKY PIEDMONT ZONE

Land covered with the colluvial slope of the Zagros chain dominates the view north of the plain. This rocky piedmont zone is unsuitable for farming but is excellent pastureland and a source of gypsum, alabaster, and wood for fuel. Bitumen sources are found in this zone at Mamatian, some 15 km northeast of the provincial town of Ram Hormuz (see *Appendix B* for a full discussion).

SALT/GYPSUM-ENCRUSTED CENTRAL ZONE

Surrounded by the ʿAla, Shur, and Kupal Rivers, some 200 sq. km of the central plain is covered with salt-encrusted soil (pl. 191:C), which can be farmed if irrigated, although because of the extremely gentle slope of the plain drainage poses a serious problem, especially if irrigated with the rather brackish waters of the Kupal, the Shur, and a large number of natural springs that are found in this zone. Today, most of this area is used as pasture by the local mobile pastoralists; considering that 10 percent of the ancient sites are located in this area, this specialized use of this zone may be ancient.

There are a number of abandoned villages in this and other zones (pl. 186); these abandoned settlements cannot be precisely dated, but they all must date within the last two centuries. These and many other villages in the northern part of the plain were thriving when Layard (1846, p. 47) visited the area in mid-1800s; Layard attributed the founding of these villages to the policies of Mohammad Taqi Khan Char Lang, the progressive paramount chief of the Bakhtiyari confederation, who, like many pastoral tribal chiefs at that time, sought to diversify their economy by pursuing farming on a much larger scale than what was routinely practiced by the Bakhtiyaris. After the capture and subsequent tragic execution of the Khan by the corrupt and incompetent Mohammad Shah Qajar, and following the chaos that ensued the inter-tribal rivalry for the hegemony of the Bakhtiyari region, many of these villages were abandoned and the Ram Hormuz plain did not recover its potential until very recently — an event that finds numerous parallels in archaeological surveys. This historical event shows the impact on the land by human action. In other words, while the natural characteristics and features of the various geographic and geological zones on the plain may promote or discourage their development, the long-term trends in their occupation must be considered as an interplay of the environment and the decisions made by its inhabitants.

SHALLOW MARSH ZONE

The shallow marsh zone is located west and southwest of the sandy hills zone and extends to the vicinity of the city of Ahvaz. This flat area is found on either side of the road from Ram Hormuz to Ahvaz and often extends as far as the eye can see. The area is inundated for most of the year except from the late spring to early fall. The deeper marshes are home to a variety of fish and birds and a great source for reeds that are used in a variety of building constructions, mat-making, and basketry. No ancient or modern settlement exists in this zone, indicating its great antiquity.

MIXED ZONE

The mixed zone comprises much of the land that is irrigated primarily with spring and qanat waters. This is the zone that all the first four zones overlap. It is also primarily used as winter pasture of the mobile pastoralist tribes of the region.

THE RIVERS

The main rivers in the Ram Hormuz region include the ʿAla/Ram Hormuz (also pronounced locally as Ramuz)/Sandali and the Kupal. Smaller, seasonal rivers are the Maleh, Shur, and Ab Lashkar, all west of the ʿAla, and the Sammoneh east of the ʿAla (pls. 13–14).

The river ʿAla originates near and takes its name from Kalat ʿAla, in the Sar Dofun and Mungasht Mountains (3610 m; pl. 10:A), the now abandoned site of a local khan's fortification (31 19 30.59 N, 50 07 05.28 E). After passing though narrow gorges and combining with the Zard River, the ʿAla enters the floodplain from the northeast and passes south of Ram Hormuz. Twenty km southwest of Ram Hormuz, the river turns southeast, passing the villages of Sandali Sheikh Kanʾan and Sandali Gāv Mishi, where it continues south as the Sandali River. Some 12 km southwest of these two villages, the river joins the Marun and continues west-southwest as the Jarrahi River and empties into the Persian Gulf. Today, the discharge of the ʿAla is not much, but its broad floodplain, at places about 800 m wide, shows it can become very turbulent in the rainy seasons. According to the locals, in the past, before the construction of the Jarreh Dam north of Ram Hormuz (pl. 188), the river would inundate its banks up to 1 km on either side.

We do not know of any geological or geomorphological studies on the evolution of the ʿAla River. At present, it flows some 10–12 m below the level of the plain. In places where the river has cut through loose deposits of conglomerate formation, especially south of the town of Ram Hormuz, the river has expanded its bed to over 600 m wide and, according to the locals, can no longer threaten the plain with violent floods. Without scientific research, it is difficult to say when the river stopped depositing gravel and started to cut down its bed. We can extrapolate from the settlement systems that the down-cutting of the river may have started in the second millennium B.C., as no earlier sites are found at least within 2 km of its banks.

The ʿAla is fordable in most places except in the months of May and April and is today too deeply incised to be used for irrigation without the help of mechanized pumps or irrigation canals feeding from a dam. The only ancient evidence for tapping the river for irrigation are a number of tunnels cut into the conglomerate walls of the river that lead the water to points along the river banks and then on to either a number of open canals that were still visible when Wright and Carter visited the area in 1969 (Wright and Carter 2003). These tunnels could also direct the water to a series of subterranean aqueducts, called qanats, that in turn directed the water to the fields and population centers. Some of these aqueducts are preserved to this day (see pl. 187) and are remarkably similar in construction to those engineered by the Sasanians just south of the dam/bridge of Pāy-e Pul to direct the waters of the Karkheh to their capital city Eiwan-e Karkheh and the fields nearby (pl. 187). Another dam/bridge is located some 13 km northeast of the town of Ram Hormuz on the Zard River (see pl. 188), which joins the ʿAla before the latter enters the plain. The Jarreh Dam,[3] as it is known locally, was also engineered by the Sasanians to bring water to the plain through a number of tunnels, similar to the ones on the plain and those in upper Susiana. All these infrastructure activities during the Sasanian phase show imperial investment in the region that encouraged its settlement. Yet, the survey results indicate that we have a larger settlement of more population during the previous Parthian phase than during the Sasanian times, an anomaly that makes us question the accuracy of our ceramic periodization for these two phases.

The Ramuz, or Ram Hormuz, is a small branch of the ʿAla which itself branches to another smaller stream, the Sammoneh; together they irrigate the fertile alluvial plain on the east bank of the ʿAla River. The Shur and Kupal Rivers form the northern and southern boundaries of the alluvial plain northwest of the ʿAla. Both issue from perennial springs, the Kupal northwest of the town of Ram Hormuz and the Shur some 10 km southwest of the town, near site RH-007. These two rivers flow west and northwest and join some 7 km southwest of Tall-e Geser.

Today, road and dam construction, along with expansion of towns and villages and their cultivated fields, have obliterated remnants of a number of these irrigation canals. Some of these irrigation canals must date to the Sasanian phase, during which a number of weirs along the river and one great dam were constructed. The Jarreh Dam of the Sasanian phase was built at the bottom of a narrow ravine cut by the Zard, a small but turbulent river that peters into the ʿAla directly from the north (pl. 13). As mentioned before, there is no level or terraced land suitable for irrigation agriculture in this area. My search in the area, accompanied with satellite images and aerial photos, did not reveal any canal leading from the dam, but several openings of subterranean aqueducts at several levels around the dam suggest a system of irrigation similar to that used by the Sasanians to tap the waters of the Karkheh for the Sasanian city of Eiwan-e Karkheh in the northwest of the Susiana plain. Today, half of this Sasanian dam/bridge is broken and is used as a temporary cofferdam for a new earth dam being constructed some 200 m to its south. Two large concrete

[3] The Jarreh Dam is located at UTM Zone 39N, 376960, N3479360, pl. 188.

canals will provide water to the Ram Hormuz region in the near future. The relatively large number of sites dating to the second millennium B.C. suggests that the Elamites might have also constructed some of the east–west canals that issued from the ʿAla.

THE NATURAL SPRINGS

Some fifty-five natural seasonal and perennial springs are recorded in the region with a total discharge of 10,980,000 cubic meters annually. Twenty-three are used for irrigation, but only sixteen yield potable water.[4] The volume of irrigation springs is 7,410,000 cu. m, and that of the drinking water 1,180,000 cu. m. The peak of the springs discharge is in June/July and the minimum is in December/January. The most important springs with potable water are located at the villages of ʿAin Kareh, Geser, Dimeh Shargolar, Dimeh Seyyed Ali Rād, and Dimeh Ben Saeed (see pls. 189 and 195:C for examples).

Today, deep wells and some qanats are also used to supplement the available water. Aquatic life of some of these springs consists of turtles, frogs, and a type of carp. The lush vegetation that grows around these springs offers excellent refuge for many types of migratory birds; the reeds are a great source of material for basketry, fuel, and reed huts. The water of some of the less brackish springs is used by the region's mobile pastoralists to water their animals. Through centuries of experience, the mobile pastoralists have come to recognize the digestive benefits of the waters of these springs for their flocks.

MAMATIAN BITUMEN SPRINGS

East and northeast of the Ram Hormuz region is located a region of low (400–800 m high) sandstone and limestone hills (pl. 13). This region is known as Mei Davud and is where the famous natural gas, petroleum, and bitumen springs are located. The most famous, the Mamatian bitumen springs (pl. 190), are located some 15 km northeast of Ram Hormuz, where one can still see a large number of processing installations that are difficult to date. Given the archaeological evidence, however, these springs must have been exploited by the locals from prehistoric times. Analysis has shown that the bitumen extracted from these springs was used in Achaemenid Susa (Connan and Deschesne 1996; see also *Appendix B* in this volume), but could also have been used in both the Ram Hormuz region and the upper plains of Susiana in earlier times. Bitumen was not only used to make vessels, used as mortar and insulating material in buildings and in caulking boats, but also presumably had medicinal qualities in healing broken bones and damaged joints, and as such is known in Iran as *momia*, a term equally used for the resin in mummification. It was the presence of such springs in the Ram Hormuz region and Masjed Suleiman area that attracted the first explorers of oil to these areas. The attempts of the oil engineers at the Mamatian area failed to reach oil, but those in the Masjed Suleiman were successful in 1907. Both the bitumen and oil come from the Asmari formation of the Zagros chain in southwestern Iran.

FARMING AND AGRICULTURAL PRODUCTS

Much of the soil in the central area of the Ram Hormuz region is saline and unsuitable for farming, but is ideal for pasture. Nevertheless, the saline levels of the central sector (Zone 4) are not worse than what one sees in northeastern Susiana, south of Shushtar. Here, former Bakhtiyari nomads and Arab-speaking tribes practice dry farming; but prior to bringing the land under cultivation, they saturate it with rain or runoff waters for at least two seasons and periodically drain it. This practice, I am told and have seen, helps wash the surface salt and makes the land ready to be farmed (see below). There is no reason why this could not have been done in the central Ram Hormuz region, but the lack of archaeological evidence of occupation in this sector indicates that it was probably a built landscape.

[4] Water Management of Khuzestan, Pub. No. 1.

Of the three major rivers that almost surround the occupied part of the plain — that is, the ʿAla, Kupal, and Shur — only the water of the ʿAla is suitable for irrigation; the other two are brackish. This is also reflected in the direction of the few still visible traces of the canals that issued from the west banks of the ʿAla (Wright and Carter 2003). As mentioned above, of the numerous natural springs in the Ram Hormuz region, only a few are potable. While some less brackish springs are used to irrigate palm groves, others are not useable at all. The distribution pattern of potable springs must be very old, as one hardly sees any ancient or modern settlement near the brackish ones. The introduction of the qanat, perhaps during the Sasanian period, does seem to have affected the natural distribution of human occupation and farmlands on the plain. In the areas where farming is possible, wheat, barley, rice, alfalfa, sesame, dates, pomegranates, citrus fruits, and some other vegetables are the main agricultural and horticultural products of the plain.

In the Ram Hormuz region as well as parts of eastern Khuzestan, where the soil contains more salt than other areas, some farmers plant *Aegyptiaca suaeda* (known locally as *qaqel* or *gageleh*), as well as *Salsola* sp., especially the kali type, which consume the salt present in the soil. I am told that two years after planting the soil will be free enough of salt to be farmed (pl. 191:A–C). *Aegyptiaca suaeda* and *Malva* spp. (mallow) are used by the local people, especially the Arabic-speaking population, as a tasty vegetable in salad and in some vegetable-based dishes. Both species of plants are also eaten by sheep and goats as regular fodder and are a valuable source of dietary salt (Mr. Noshad Rokni, a local botanist, pers. comm.). Both these halophytic species exist in the Ram Hormuz region as well and, according to local informants, they are used primarily by the mobile pastoralists of the region and their animals.

MOBILE AGROPASTORALISTS (NOMADS)

As in most of Khuzestan and Deh Luran, the Ram Hormuz region has been the winter pastures of a number of Zagros mobile agropastoralist tribes. The semi-nomadic tribes that winter the plain are primarily the Bakhtiyari, the Qashqaii, the Bahmaii, and some Arab-speaking tribes of the Kuhkiluyeh and the southern Khuzestan regions. The migrating tribes come primarily from the Kuhkiluyeh-Mamasani, the Mungasht, northwestern Fars, and from southwestern Esfahan regions. The nomads, as in many regions in Iran, use both black tents and flimsy, simple small houses built of mud and undressed rocks (pl. 192). Most of the latter are located in the foothills north and northeast of the plain, where our survey identified a number of ancient campsites. Sheep and goats are the primary livestock, but the tribes who travel a relatively short distance to their summer pastures raise cattle as well.

Again, as in northeast Susiana, most of the villages are occupied by settled nomadic tribes as well as the Arab-speaking farmers and horticulturalists of the Kaʾb tribes. Most of the villages northeast of the plain belong to the settled Bakhtiyari pastoralists. This latest settlement phase was the result of the policies of Mohammad Taqi Khan Char Lang, the paramount chief of the Bakhtiyaris in the mid-nineteenth century, who settled some of his tribes to farm the land in the northeast of the plain and to create a defensive line against the allied forces of the Qajar, who posed a threat to the Mohammad Taqi Khan stronghold of Qaleh Tol in Izeh.[5]

THE TOWN OF RAM HORMUZ

Early in the Sasanian phase, the Ram Hormuz region became one of the seven Sasanian *kura*s (districts) of Khuzestan (Frye 1975, p. 11). Evidence from available historical references indicates that Ram Hormuz, the provincial capital and center of the plain, was founded either during the Sasanian phase, by Ardeshir I or Hormuz I, son of Shapur I, or earlier, during the Parthian phase, as these two periods saw the largest population increase on the plain. According to Pigulevskaja (1998, p. 224),[6] Ram, meaning "calm"/"happiness"/"comfort" in Persian, was added to the name of the town where the king would stay for a period of time. In the Kārnāmak (C. G. Cereti in *Encyclopaedia Iranica* http://www.iranicaonline.org/articles/karnamag-i-ardasir), the town is presumably named Ram Ardeshir. Whatever the case may be, it was in the first half of the first millennium A.D. when lower Khuzestan was occupied, Ahvaz, or Hormuz Ardeshir, was founded there by the Sasanians (Frye 1975, pp. 10–11), and the road from Ahvaz joined the one from Shushtar at the town of Ram Hormuz.

[5] See De Bode 1845; Layard 1846.

[6] See also Le Strange 1976, ch. 16; Noban 1996, p. 248.

THE GEOGRAPHIC POSITION OF TALL-E GESER

At first glance, Tall-e Geser seems to have occupied a marginal position. It is located in the far northwest of the plain away from the fertile alluvium of the ʿAla River, the only perennial river in the Ram Hormuz region. In fact, until the Elamite period in the second millennium B.C., when Tappeh Bormi seems to have been founded on the west bank of the river, no major site was established in this fertile, riverine area, though small sites were occupied on the east bank of the river from prehistoric times. However, when the site's position vis-à-vis pre-modern routes of transportation and communication is considered, its location makes a good deal of sense. The region between Ahvaz and the Ram Hormuz region is particularly subject to flooding for several months of the year, so the easiest and most direct route to upper Susiana followed the southern foothills of the mountains, between the Kupal anticline and the slopes of the Zagros (pl. 12).

The location of Geser makes even more sense when we consider the location of Chogha Mish in northeastern Susiana. As the major population and administrative center in Susiana from its establishment in the early seventh millennium until the end of the fourth millennium B.C., Chogha Mish was by no means centrally located; nor was it near any major river or natural spring. The locations of Chogha Mish and most of the major Middle Susiana-phase sites on the northeastern sector of the plain seem to have been determined by the major routes of communication with the highlands. From Chogha Mish, one route followed the natural topography of the valleys of the Karun to the central Zagros region. From the southwest, a route passed the modern-day town of Dezful and continued into the Deh Luran plain and points west and northwest (pl. 12).

The route that linked Chogha Mish and Geser to the east and southeast followed the bed of the mountain valleys from central Fars through the Nurabad Mamasani (pls. 10, 12) and Behbahan regions. In the Ram Hormuz region, this route meets another one from the central Zagros region just northeast of the town of Ram Hormuz. Here these two routes merge and continue westward. After passing Geser, the route follows a natural "corridor" between the Shur River, the Masjed Suleiman foothills, and the low Kupal anticline to the south.[7] This natural route then leads to where it then turns to the northwest and after passing Chogha Mish leads to Deh Luran and Mesopotamia.[8] Of course, we do not have actual archaeological evidence of the early routes, but we do have evidence of lines of settlements, many of which are located in areas with little water and poor farmland and can only have been there to service or protect a route.[9] This almost straight natural communication system also avoided large marshy areas that exist, even today, for several months of the year south of the Haft Tappeh ridge down to the Persian Gulf.

[7] See Moghaddam and Miri 2007.

[8] For a discussion of this route in the Deh Luran region, see Wright and Neely 2010, pp. 3, 91–93, 113–16.

[9] For the results of their survey in the region, see Moghaddam and Miri 2007.

CHAPTER 2
OVERVIEW OF EXCAVATIONS AT THE TALL-E GESER COMPLEX

THE EXCAVATIONS

The archaeological mounds of Tall-e Geser consist of two main complexes, each next to a modern-day village with its own natural spring with potable water (fig. 1, pls. 33, 189, 195:C). In the first season of archaeological investigation, in 1948, Donald McCown excavated Trenches 1 and 2 on Mound A, one trench on Fort Mound, and another on Mound B, adjacent to Mound A. The top layers in Trenches 1 and 2 yielded evidence of a short occupation during the fourteenth to sixteenth centuries A.D. Below these, McCown encountered remains of Elamite occupation from the first half of the second millennium B.C., or the Sukkalmah phase. After digging through layers that represented an occupational hiatus, remains of the proto-Elamite phase were reached. The sole proto-Elamite tablet, however, was not found in those remains, but upper levels (fig. 87:H, pl. 6:F). The proto-Elamite levels continued down into the Late and Early Susa II (Late and Early Uruk)[10] levels without apparent gap. The excavations did not reach below these levels.

The Fort Mound is the most westerly of the major mounds in the complex. Here, remnants of a rectangular mudbrick fortification are still visible today. The top layers of this mound, which were badly mixed during construction of the fort, yielded pottery ranging from the Seljuk to the Sukkalmah periods. Level 2 was basically of the Sukkalmah phase while Level 3, the lowest, revealed some pottery from Sukkalmah as well as a few sherds of the proto-Elamite phase and a few painted sherds of the Late Middle Susiana phase.

Mound B, immediately west of Mound A with a garden in between, was also excavated in the first season. The mound is ca. 10 m high; the single trench here did not penetrate below the Sukkalmah levels at ca. 6 m above the level of the plain. This mound was much less damaged than the Fort Mound. Three levels dating from the Neo-Elamite to the Old Elamite (Sukkalmah) phases were excavated here, but except for a few prehistoric sherds, there were no other signs of much earlier occupation.

Because McCown was interested in the fifth and fourth millennia B.C., in the 1949 season he concentrated his efforts on Mound A, which had produced ample evidence of these phases. During the second season, he excavated two 5 m wide trenches and designated them as "Stake Trench" and "Step Trench." The Stake Trench began on the summit of the mound just east of Trench 1 and ran 45 m north. The length of the trench was divided into three 15 m sections; these were identified by numbered stakes beginning with 7, thus Stakes 7–8, 8–9, and 9–10 are the major divisions of the trench. An extra 5 m was added to the northern limit of Stake 10 and the trench was widened between Stakes 9 and 10 to reveal a proto-Elamite monumental building. Seven levels were distinguished in this trench, mostly in Stakes 7.5–9; excavations did not penetrate below the monumental building of the proto-Elamite phase.

The Step Trench was established to obtain a complete stratigraphic sequence at Mound A. It ran 45 m from near the center of the mound down its southeastern slope to sterile soil, which was reached at 4.92 m above the present level of the plain. It too was divided into three 15 m sections, called Lower, Middle, and Top. The excavators identified a succession of floors, surfaces, washes, and fills labeled in each section with letters, starting with A. However, because all three sections shared a number of identical letters and as such were confusing, we replaced the letters with numbers, starting with Level 1, the earliest and lowest, and continuing to Level 49, the latest and topmost.

It is in the Step Trench that the history of the occupation of Geser can be reconstructed. The earliest phase of occupation dates to the Late Middle Susiana phase (Levels 1–2; ca. 5200–4700 B.C.). Of this phase, only a fragmentary mudbrick wall and its associated beaten earth floor were discovered. It seems that the settlement in this trench was

[10] The fourth-millennium B.C. materials are relatively well represented in the long sequence at Susa Acropolis (Le Brun 1971, 1978). To avoid any theoretical implications, we have used the established and indigenous Susa designation of Early and Late Susa II phases for the fourth millennium B.C. in southwestern Iran, corresponding to Early Uruk and Late Uruk. See also Potts 1999, pp. 52–53; Johnson 1973, p. 59.

then abandoned for some time, during which two burials were dug, one in the mudbrick wall and the other in the dirt floor to its southwest (G1 and G2 in fig. 17). No other architectural features were discovered in this trench for the following Late Susiana 1 and Late Susiana 2 phases (Levels 3–7).[11]

The next phase with evidence of solid architecture was reached in Level 13 (figs. 17–18), dating to the Terminal Susa/Early Susa II phase (4000–3500 B.C.). Again, no coherent architectural plan was detected, but the two thick walls and a thin partition wall suggest a monumental or large building in this phase of occupation. While the pottery found associated with the walls of Level 13 is unmistakably of the first half of the fourth millennium (fig. 59:C–K), the size and shape of the bricks are identical to those of Level 2 (fig. 17). Eight meters of archaeological deposit represent the occupation of the entire fourth millennium B.C., which consist of many fragmentary walls, floors, and thick layers of mudbrick detritus (Levels 8–34).

In contrast, only 1.5 m of debris from Level 35 to Level 37 contained evidence of the short proto-Elamite phase (ca. 3100/3000–2800/2700 B.C.). The only coherent plan of proto-Elamite architecture in this trench was found in Levels 36–37, consisting of two rectangular rooms with thick walls that underwent numerous repairs (fig. 21).

A gap of some 700–800 years separates the latest phase of proto-Elamite architecture from the remains of the Sukkalmah phase (ca. 1900–1600/1500 B.C.). This gap corresponds to the Early Dynastic, Akkadian, and Ur III phases in neighboring Mesopotamia. During this time, not only Geser but the entire Ram Hormuz region seems to have been devoid of permanent occupation. This is a time during which the early Elamite dynasty, the Shimashki, established itself in both the lowlands and the highlands. A similar picture is recorded for highland Fars, though that region was never entirely desettled and the apparent gap between the proto-Elamite occupation (the Late Banesh phase) and the reestablishment of Malyan as an urban center during the following Kaftari phase is shorter perhaps by 200–300 years. Indeed, during the latest centuries of the third millennium B.C., the Shimashki dynasty had established itself so firmly in Fars that when the last king of the Ur III dynasty was captured, he was sent to Anshan as a captive.[12]

The history of the occupation of Tall-e Geser Mound A ends with the Sukkalmah phase around 1600–1500 B.C.[13] During the following Middle and Neo-Elamite phases, the site complex is thinly occupied and Geser is no longer the regional center it was for several millennia. During the Middle Elamite phase, Tappeh Bormi, a site in the eastern part of the plain, next to the ʿAla River, becomes the regional center, a position it preserves until the middle of the first millennium B.C.

A NOTE ON THE RECORDING SYSTEM

As mentioned in the *Preface*, there are serious gaps in the excavation records available in the Archives of the Oriental Institute. Most importantly, several top plans and section drawings are missing. The top plans and section drawings published here are all that were available in the existing excavation records. We inherited these as sketches of a work-in-progress; after organizing them, we corrected and finalized them using McCown's laconic field notes and Caldwell's observations, as well as the logic of stratification when no information was available on an architectural element on the plans. But if there were some ambiguities relating to a feature, layer, or entire stratigraphic level, we only produced a final drawing of the original without correction.

Burials (constructed), graves (simple pits), hearths/ovens, and walls are indicated on the plans by letters B, G, H, and W followed by sequential numbers. Very rarely the size of mudbricks and baked bricks was indicated on the original top plans; the articulated bricks on the final top plans are based on the measurements provided in the field notes — walls that are not articulated do not have any information on brick size.

In the list of illustrated objects the reader will see two sets of numbers: field numbers and museum registration numbers. Field numbers consist of a letter and a number for the first season, and a number and two letters for the second season. For example, G-23 stands for Geser season 1, object 23. In the second season, the prefix was changed to 2TG; thus 2TG-45 stands for Tall Geser season 2, object 45. Almost all the excavated objects bear these numbers. Objects that were registered in Chicago received an Oriental Institute Museum number prefixed with "A", for example, A28747. Sometimes an object has field registration number without a museum number. In such cases the object was left in Iran

[11] For this periodization, see Delougaz and Kantor 1996; Alizadeh 1992, 2006, 2008.

[12] John Alden's ongoing analysis of the Kaftari phase at Malyan indicates no gap between the Late Banesh and Kaftari phases (Alden, pers. comm.).

[13] While no occupational level later than the Sukkalmah phase was detected in Mound A, Henry Wright (pers. comm.) reports that some Safavid sherds existed on the mound.

as the share belonging to the then Department of Antiquity. Pot sherds, however, were never registered. Those that we chose to illustrate were given museum registration numbers. But in many cases, we had to use drawings of some sherds that were not available in the collection. In such cases the illustrated sherds have no field museum numbers and most lacked descriptions.

In the original top plans and in the notebooks elevations are taken from the topmost level of the excavated unit. In the final plans and sections published here we indicate elevation with reference to the plain level.

CHAPTER 3
STRATIGRAPHY

MOUND A, TRENCH 1

Trench 1 measures 15 × 3 m and is located on the northern edge of the summit of Mound A (figs. 1–3); it was excavated in the first season for only nine days, from March 10 to 18, 1948. Several working top plans were produced in the field (fig. 3), but no section drawing was found in the records. The trench was excavated to a depth of 4.80 m from the top of the trench. McCown divided the archaeological remains into three architectural phases with associated objects and pottery.

LEVEL 1

In the topmost layer, Level 1 (fig. 3), the entire trench was filled with loose dirt mixed with sherds, brick fragments, and potsherds of primarily post-Sasanian date (fig. 26). The corner of a building with thick walls (W1–2) made of baked bricks measuring 33 × 28 × 7 cm was discovered 60 cm below surface in the middle of the trench. Wall W2 was furnished with a row of stones, probably as foundation. In the area that was presumably an open court, two circular hearths (H1–2), almost at the same level, were found. To the east of H1, traces of a hard surface were found. In his field note, McCown mentions a post-Sasanian pit burial at 20.40 m above the level of the plain, but did not mark it on the plan. No other features were reported from this level. Records of the remaining 5 m of the trench in this level are missing.

LEVEL 2

The underlying Level 2 (fig. 3) is unmistakably of Elamite date (fig. 27), but in the absence of section drawings it is impossible to speculate on the intervening erosion layers. Apparently immediately below the Level 1 walls, a portion of a substantial architectural feature was recovered, but the eastern half of the trench seems to have been an open area with only a single circular hearth (H1). The single proto-Elamite tablet (marked on the plan as T1–2), obviously not in situ, was found next to this hearth (fig. 87:H, pl. 6:F). Walls W1–3 are certainly of the same phase and belong to a large building, of which only one corner of a single room (Room 1) was excavated. Wall W4 of the adjacent room (Room 2) is not bonded to wall W3 and its base is lower than those of W1–3; it is not certain whether the two rooms are contemporary. The fact that the bricks used in the construction of walls W1–3 are slightly larger (40 × 30 × 10 cm) than those used in walls W4–5 (36 × 36 × ? cm) may lead us to assume two different phases of architecture. Whatever the case may be, the presence of two jar burials (B1 and B2), most probably of the Sukkalmah phase, that were dug into wall W5 and the floor of Room 2 indicates that the entire structure must have been abandoned sometime during the Sukkalmah phase.

LEVEL 3

Some 40–80 cm of erosion layers separate the architectural remains of Levels 2 and 3 (fig. 4). Level 3 was explored only in the area beneath the architecture of Level 2; it is defined by a series of very badly preserved walls with no coherent plan. Whatever the plan and function of these walls might have been, there is no question that they belong to the proto-Elamite phase (fig. 28). Excavations in Trench 1 did not penetrate below Level 3, but the presence of Late Susa II pottery indicates earlier levels below.

MOUND A, TRENCH 2

Trench 2 measures 20 × 5 m and is located in the center and on the eastern slope of Mound A, south of and parallel to Trench 1 (figs. 2–3, 5–7). This trench was excavated simultaneously with Trench 1, from March 10 to 18, 1948. The eastern and western parts of the trench were excavated ca. 5 m below the highest point of the trench at 23.85 m, the central part only to a depth of 2.50–3.00 m.

Archaeological remains in this trench are divided into four architectural phases. Three of these phases can be dated, based on the available pottery types, to the Sukkalmah, Transitional, and post-Sasanian periods. No pottery was available from Level 4.

LEVEL 1

A series of walls and hard surfaces dating probably to the early post-Sasanian phase constitute the architectural remains in Level 1 (fig. 4). Contemporary with these walls are three circular hearths in the western and central parts of the trench. McCown attributed a number of pit burials in this level to the post-Sasanian period, but the orientation of the two simple pit burials indicated on the plan as G1 and G2 do not neatly correspond with Islamic burial customs as practiced in the Middle East. Nevertheless, the apparent absence of any funerary gifts with these interments and the possibility that they belong to post-Sasanian times, when most converts still adhered to their pre-Islamic rituals or were not precisely informed about the direction of Mecca, give some credence to McCown's dating. The pottery from this level dates to the early eighth and eleventh century A.D. (fig. 29:A–C). However, if these burials are of post-Sasanian date of the eighth century A.D., it is difficult to imagine Muslim burial inside residential buildings.

Not much can be said about the floor plans of what appear to be two buildings in the western part of the trench. Wall W1 may form the northern limit of a room also delimited on the north and east by walls W2 and W3. Wall W4 runs parallel to W3 and may have been part of the building as well, though this is by no means certain. In the center of the trench, walls W5–7 have a different orientation and thus may belong to another building, of which only the northwestern portion is preserved. Farther to the east, wall W8 may belong to yet a third building. The space between walls W4 and W5–6 is filled with layers of dirt mixed with sherds and bones and in places with fragments of hard surfaces made of a mixture of mud and lime. East of wall W8 the trench slopes down and the area is filled with ash and loose dirt.

About 1 m below the level of the Level 1 walls, in the western portion of the trench, a typical Elamite baked brick tomb is reported (B1; brick size 34 × 34 × 12 cm). Such tombs appear in Susiana during the Sukkalmah phase (ca. 1900–1600 B.C.) and continued until the appearance of the Achaemenids (ca. 535 B.C.). As no pottery or other objects are available from this tomb it is difficult to attribute it to any of the Elamite phases documented in this area.

LEVEL 2

Level 2 (fig. 5) consists of a number of isolated, fragmentary walls and associated floors in the western half of the trench, while the sloping eastern half produced no features apart from a large pit and a simple pit burial G5. This simple grave is much lower in elevation than all other features in Level 2 and as such it may be mis-assigned; this area is reported to have been filled with baked brick fragments and detritus. The five graves in this level are of simple pit type with two different orientations. Graves G1–3 belong to juveniles, while G4–5 are adults (fig. 5). The pottery (fig. 30) reported by McCown in association with some of these graves as well as other objects (figs. 91:M, 92, 99:C) dates them securely to the latter part of the Sukkalmah phase, perhaps the Transitional phase (ca. 1600–1400 B.C.). Nevertheless, the presence of two metal bowls from the Achaemenid period (fig. 92) suggests some kind of stratigraphic disturbance not reported in the original records. No other information is available on the various walls excavated in this level, except that wall W2, into which grave G1 is dug, was built of baked bricks measuring 36 × ? × 10 cm.

LEVELS 3 AND 4

Evidence for both Levels 3 and 4 was excavated only in the western half of the trench (fig. 6), where the potsherds date the architectural remains to the Sukkalmah and proto-Elamite phases. Nothing about the pottery from Level 4 is known, and Level 3 yielded pottery ranging from the proto-Elamite to the Neo-Elamite phases (fig. 29:D–M). Nevertheless, based on the stratigraphic position of the walls, they can reasonably be assigned to Level 3. The most coherent architectural plan in this trench comes from Level 3, where the southern and eastern walls of a large building were excavated. The area delimited by walls W1 and W2 seems to be an open court that was paved with large stone slabs, one pierced, and

large sherds (fig. 29:D–M). An installation of undetermined function was located in this court where walls W1 and 2 joined. No other features are reported, nor is any information available on the material used in constructing the walls.

Only the open court of the Level 3 building was excavated to a lower level, Level 4 (fig. 6). No pottery has been assigned to this level. But the examples of proto-Elamite sherds (fig. 29:D, F, H, K–L) suggest that this level may have to date to the proto-Elamite phase, though the available section (fig. 6) does not indicate evidence of erosion between the two phases. Here, two parallel walls (W1–2) appeared. These walls seem to have been damaged by the building activities in Level 3. A possible mass of bricks of undetermined function forms the southern border of W1. The presence of a floor between W1 and W2 is indicated on McCown's plan, but no information is given as to its nature.

MOUND B

Mound B is located just beyond the natural spring west of Mound A (fig. 1). This mound seems to consist of north and south parts of almost the same size; the northern part is ca. 10 m high, while the southern mound rises to 2–3 m. The satellite image (fig. 1 lower, dust jacket) clearly shows that these and the two much smaller mounds in between may in the past have been parts of a single mound that was damaged by the road construction and horticultural activities. Excavations did not penetrate deposits earlier than those of the Sukkalmah phase, but the existence of the sherds of much earlier phases both in excavation (fig. 32:K–L) and on the surface of the mound suggest that Mound B and G were occupied as the population of Mound A increased. The natural spring next to Mound A must have been the factor for the location of settlement expansion.

The north part, which McCown chose for excavations, measures ca. 90 × 70 m. It was excavated only in the first season (1948) for four days, from March 27 to 30. In the course of those four days, a 13 × 5 m trench was excavated to a depth of ca. 5 m. McCown started from the upper and lower ends of the trench and connected them in the middle. Three architectural levels were distinguished in this trench, of which three top plans exist, but no section drawing, which makes it difficult to properly interpret the excavated remains.

LEVEL 1

The pottery found and assigned in the original records to the various levels in this mound raises a great uncertainty about the architectural assignment to specific level (fig. 31). Level 1 contained pottery of the Neo-Elamite phase and that of Level 2 dates to the Middle Elamite phase (fig. 31). But strangely, the pottery from the lower Level 3 also dates to the Neo-Elamite phase (fig. 31). Based on the available records, I could not solve this major problem, but the assignment of various architectural features to individual levels posed no problem. In addition to Neo-Elamite and Middle Elamite ceramics, sherds ranging in date from Sukkalmah and late Middle Elamite and late Middle Susiana dates were also found but unassigned to any specific levels (fig. 32).

Level 1 (fig. 7) consisted of ca. 2 m of loose dirt into which one adult (G1) and two child (G2–3) graves had been dug. Based on the funerary pottery vessels, these graves all date to the Neo-Elamite phase, as does the east–west wall fragment W1 that was discovered in the northeastern part of the trench. The wall was built with three rows of grayish baked bricks measuring 37 × 33 × 12 cm. Part of this wall was destroyed by the child grave G3, indicating a later date for the grave. A hard surface and a fragmentary mud-plastered surface are the only features associated with this wall. No features appear in the central and southern parts of the trench, which were, however, littered with brick fragments and detritus.

LEVEL 2

In Level 2 (fig. 7), the central and southern parts of the trench were filled with grayish and brownish baked brick fragments. The northern part of the trench contains three walls (W1/2, W3, W4) and a tomb lined with baked bricks (B1), of the Middle Elamite phase. The different orientations of these walls and the tomb indicate several architectural phases, but the available data do not permit any reasonable reconstruction. The largest and deepest, and presumably the earliest

of the walls in Level 2 is the dogleg wall W1/2, built with three (W1) and two (W2) rows of grayish baked bricks measuring 36 × 32 × 9 cm. The northwestern part of wall W2 was destroyed by the partially preserved brick-lined tomb B1.

The next phase of architecture here is the badly preserved baked brick wall W3 that runs into the dogleg wall W1/2 from the west. The latest phase consists of the east–west baked brick wall W4 with two rows of brownish bricks, each measuring 35 × 35 × 10 cm.

Burial B1, a typical Elamite burial lined with baked bricks and containing a skeleton laid on its right side, was found in the uppermost part of this level. Found inside the tomb were several pottery vessels (fig. 31:F–G), a copper/bronze "mirror" (figs. 7, 91:L), a cylinder seal (fig. 87:D), a female figurine (fig. 90:J, pl. 7:B), and three flint arrowheads (fig. 98:K). Similar arrowheads were found in 2001 in the Middle Elamite sanctuary of Bard-e Kargar, some 15 km southeast of Shushtar (31 58 18.66 N, 49 00 30.77 E).[14]

LEVEL 3

Level 3 (fig. 8) contained the most coherent architecture, consisting of the walls of two monumental buildings (W1–2 and W3–4) that may date to the Sukkalmah phase, despite the Neo-Elamite pottery assigned to this level, especially that Sukkalmah pottery was also present in this area (fig. 32:H–J). It is impossible to tell if the buildings represented by these walls were contemporary, as their bases have different elevations. The large southern wall W1, with a roughly northwest–southeast orientation, was built with four rows of brownish, roughly square bricks each measuring 32/34 × 40 × 8/10 cm. Partition wall W2, two bricks thick, separates the space on the southern part of this structure. On McCown's original plan, the outline of a typical Elamite brick-lined tomb is indicated, but the elevations make it impossible to establish if it was earlier than the wall or if it was dug into it when the building was abandoned.

The base of walls W3–4 of the adjacent building is almost 1 m higher than that of W1 and as such may be of a later phase. Wall W3 has four rows of baked bricks, whilc W4 has three. The brick size is the same size as those of W1. The empty areas between and within these buildings were filled with brick fragments and detritus.

FORT MOUND

The Fort Mound is the most westerly of the Geser complex (figs. 1, 9–10) and was explored in 1948 from March 20 to 28. On the original plan of this mound a rectangular line is indicated to represent the outline of a "fort," of which the large, monumental wall of Level 2 (see below) may have been used as the western wall, hence the appellation. A northeast–southwest trench measuring 5 × 28 m was dug at the west central part of the mound. It is not clear if the excavations reached sterile soil.

For reasons unknown to us, the excavated area was divided into Top, Center, and Base sections that were excavated simultaneously, which may have resulted in mixing of archaeological remains. Moreover, the available top plans and one section drawing do not match, and it was impossible for us to reconcile the differences in the absence of detailed stratigraphic information. Another major problem is the height of the mound. On the original plan and in our 2005 survey (see also Wright and Carter 2003, p. 76), the mound rises to about 9 m above the plain. But in the available drawing of the western section of the mound (fig. 10:B), the top is indicated at 5.70 m above the level of the plain. This is a serious discrepancy that cannot be addressed with the available data. Nevertheless, it was possible to divide the various layers and features into three main stratigraphic levels, though even this division would not eradicate uncertainty in linking the architectural remains to the pottery and other objects.

LEVEL 1, FORT TOP

The topmost layer of Level 1 (figs. 9, 33) produced most of the whole vessels from this area and consisted of seven pit burials and one brick tomb (G1–7, B1). Of the pit burials, four had skeletons laid on their right side and were oriented southeast–northwest (G1, G4–5, and G7). These graves contained pottery vessels (figs. 33–34) and semi-precious stone beads (not illustrated). The other three graves (G2–3, G6) had no objects associated with them and the dead were laid on their back with an almost north–south orientation.

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[14] For a brief report, see Alizadeh 2003b.

The brick-lined tomb (B1) was found on the southeastern sector of this area. Its orientation is different from the rest of the burials to the north. The preserved parts consist of two parallel walls built with two rows of bricks and capped with large stone slabs. This is clearly an Elamite burial typical of the lowlands, but the use of stone slabs instead of bricks to cover the top is clearly a highlands tradition. The only other features in this level are two circular hearths (H1–2).

LEVEL 2, FORT CENTER

Level 2 (fig. 9) occupies much of the middle part of the trench, from approximately meter 11 through meter 23. The only evidence of architecture consists of two large and nicely built parallel walls, just to the south of burial B1. These walls have an almost east–west orientation. The southern wall (W2) was made of six rows of bricks, each measuring 21 × 21 × 6 cm; only four rows of bricks of the same size were used in the northern wall (W1). Not much more is known about this seemingly monumental building. In a later phase this building must have been abandoned. A small circular hearth (H1) and a number of simple pit graves (G1–4) are excavated in this area. The rest of the area remains unexcavated. A wooden comb (fig. 99:H, pl. 8:D), was found in the debris south of G4 (fig. 9), which may be intrusive from the time of the "fort." While a few sherds may date to the Sukkalmah phase (fig. 35:J) the majority date to the Middle Elamite phase.

LEVEL 3, FORT BASE

Even though some Neo-Elamite sherds are assigned to Level 2 (fig. 35:A–C, E), the bulk of the pottery in that level dates to the Middle Elamite phase. Assigned to Level 3 are sherds that range in date from the proto-Elamite to the Achaemenid phases (fig. 36). However, the secure date of Level 1 to the Neo-Elamite phase and the probable date of Level 2 to the Middle Elamite phase together with the presence of Sukkalmah pottery may be a basis on which to date Level 3 to the Sukkalmah phase.

The narrow strip between the eastern wall of the trench and the unexcavated portion of Level 2 was taken down to presumably sterile soil (fig. 10:A). The only feature reported from Level 3 is a typical Elamite brick-lined burial (B1). The presence of the skull of a child/baby between the legs of the adult skeleton in this burial suggests the occupant may have been female.

MOUND A, STAKE TRENCH

The Stake Trench was located on the summit of the mound and was excavated to the levels of late fourth millennium B.C. (figs. 1–2, 11–16). The trench originally measured 5 × 45 m, divided into three 15 m sections starting at the south with stake 7 (we never found out the reason for starting the stakes at 7). Between stakes 9 and 10 the trench was expanded to the east and west, and about 5 m to the north of stake 10, in stake 10/11, to trace proto-Elamite walls found there. A number of objects and pot sherds are assigned to "Stake 10 Room." These objects and sherds do not have exact findspots but were found in the area of the two east–west rooms that were connected by a doorway.

The Stake Trench was excavated in a part of the mound where the surface slopes down toward the northern part of the trench, reaches its lowest level between stakes 8 and 9 and then rises again in stake 10, creating a saddle-shaped profile. As the entire trench was excavated simultaneously, this created a situation that McCown remarked in his notes as making "... digging and stratification unsure." An associated problem was the eastward slope of the layers, which apparently was not noticed during the excavation with the consequence that some mixing of floors, surfaces, and pottery occurred. The most reliable stratigraphy found are in the areas between stakes 7 and 8 and stakes 9 and 10, where most of proto-Elamite architecture, objects, and pottery were found.

Archaeological remains in the Stake Trench were organized by Caldwell into seven levels. We have retained these ascriptions here, even though — and indeed because — so little information about the definition of these levels is available, and for some stakes or levels no pottery is assigned in the records. Stake 7 is divided into two parts, stake 7–7.5 and 7.5–8. The available top plans show the remains in stake 7–7.5 (fig. 11), but the section drawing starts at stake 7.5 (fig. 16). The topmost level in the entire trench consists of an erosion layer mixed with post-Sasanian, Sukkalmah, proto-Elamite, and Late Susa II potsherds. Apart from the potsherds, nothing remains of the Sukkalmah phase of occupation in this trench, which may have been destroyed by the post-Sasanian occupation or, more probably, eroded away after millennia of exposure to the elements.

The area of stakes 7–9 is marked by three surfaces/floors and walls of the post-Sasanian phase (Levels 1–3; figs. 11, 16). Level 3 sits on a greenish chalky and clayish deposit of proto-Elamite date (Level 4A; fig. 12). This may correspond to the early third-millennium B.C. levels in the adjacent Trench 1 (Level 3 in fig. 3), where proto-Elamite material was reported from a depth of 1.85 to 2.60 m below the surface of the trench. The proto-Elamite walls of Level 3 in Trench 1 may well belong to the same phase of architecture recorded in Stake Trench 9–10.

Because no section drawing exists for the area of stake 7–7.5, it is uncertain to what levels the walls and various features in this area belong. McCown (or Caldwell), however, indicated two depositional levels in the area (Levels 1–2; fig. 11). The southern part of Stake 7–7.5, labeled "Level 1," consists of a fragmentary wall or a partition (W4) with two rows of baked bricks measuring 23 × 23 × 4 cm. This wall is eight bricks high; no surface or floor seems to be associated with it. Just east of wall W4 was an irregular rectangular area marked on the original plan as "plastered surface," but no other information on the construction details of this feature is available. Just to the north of wall W4, a peculiarly shaped "fire installation" with black ash and three stone slabs was found. A first-millennium B.C. faience Egyptian scarab (fig. 87:I) that was found just to the east of this installation makes this area even more problematic as no other first-millennium B.C. remains were discovered here, and no pottery was assigned to this area in the records (see *Chapter 5* for details on the scarab).

The western part of a building was discovered in the middle of stake 7–8, shown in two parts in figure 12, as combining them would have made the plan too small. All the walls of this building (fig. 12, Stake 7.5–8, W1-3, 7–8) are only one brick thick, measuring 23 × 23 × 4 cm. An entrance is indicated between walls W1 and W2. Inside the building, next to the entrance, a simple circular hearth (H1) contained ash and potsherds. Another hearth (H4) was excavated north of what seems to be a bench (W9). These features suggest this area was a courtyard for a building that extends east beyond the excavated trench. A similar bench (W5) was excavated just north of this building. Walls W2–3 of this building rest on top of what is marked on the original plan as "sherd pavement" with a mixture of post-Sasanian and proto-Elamite sherds, the latter no doubt out of place.

Farther north, in an area labeled Level 3 in Stake 7.5–8, walls W1–4 form a building whose base is 100 to 50 cm lower than the walls of the post-Sasanian building just described. Unlike the post-Sasanian building and wall W4 to the south of this area, the walls of the Level 3 building are not straight and may have been built of both pisé and bricks of the same size and shape of Levels 1–2 walls (fig. 11, Stake 8). The northern entrance of this building, between walls W1 and W2, leads to a presumably open area, where two small, circular hearths (H2, H3) are found. A similar hearth (H1) was found just northwest of the entrance. As no records or illustrations of the sherds are available and the four objects reported from Levels 1–3 (fig. 89:B, D, E, and K) are difficult to date, except perhaps the bead in figure 89:D, the date of the remains in these levels remains uncertain. Nevertheless, similar construction material, alignment of the walls, and the plan of the buildings suggest that all the architectural features in Levels 1–3 must be contemporary, and based on a single bead of Islamic times (fig. 89:D) may date to a post-Sasanian phase.

Below Level 3 in the area of Stake 7.5–8, a series of reddish bricky, greenish chalky, and clayish layers separate the much earlier proto-Elamite and Late Susa II deposit (fig. 16). Based on the series of beaten earth surfaces and floor in Stake 7.5–8, these earlier deposits were divided by McCown (or Caldwell, it is not clear) into five phases (Levels 4A–E; figs. 12, 37–40). But in the area between stakes 8 and 9 the deposit is divided into four levels, from 1 to 4. The reason for the different level designations in these areas is not clear (fig. 12). Moreover, lack of stratigraphic information makes it impossible to assign any of the levels in the area between stakes 7.5 and 8 to either the proto-Elamite or Late Susa II phases, as all the sublevels attributed to Level 4 have a mixture of potsherds from both phases (figs. 37–40). Exasperating this problem is the lack of individual plans for each level and all the architectural and other features and layers in Stake 7.5–8 are lumped in a single top plan (fig. 12). The same problems exist for the levels found in the area of Stake 8–9 (fig. 13). The following stratigraphic reconstruction is based on the absolute elevation of the architectural features and the associated pottery when available.

An architectural feature is identified on the plan as "mudbrick platform" (fig. 12). The base of this feature and those of walls W1–2 are much lower than the other features in this area and as such belong to the phase D or E of Level 4. On the same basis, wall W3 and a sherd area next to it seem to belong to phase 4C. The fragmentary walls W4-5, as well as the cache of potsherds and vessels and H1 on the northern part of this area, seem to be contemporary and form the latest architectural phase 4A. No features, or even layers, are indicated as Phase B.

The area between stakes 8 and 9 is even more confusing (figs. 13, 16). Here, archaeological deposits are divided into seven levels. As in the area of stakes 7–8, Levels 1–3 of stakes 8–9 (figs. 12, 16) are dated by ceramics to the post-Sasanian phase (fig. 41). No architecture was preserved in Levels 1–2, although it is probable that any structure in this area was destroyed by the same forces that caused the saddle-shaped erosion between stakes 8 and 9. The earliest post-Sasanian deposit in Level 3 consists of a large number of simple, circular hearths/ovens of various sizes that are reported to have been associated with the baked brick walls in the northern part of this area (W1–4; fig. 12). The walls were built

of bricks identical to those in the post-Sasanian levels of stakes 7 and 7.5. The main room (bounded by walls W2–4), or more probably an open area of a building here, is paved with stone slabs. Given the fact that this area is pockmarked by a number of hearths/ovens, the preserved part of this structure may have been the locus of some production activities that cannot be determined with the available data. A triangular structure on the northwest of the building (bounded by walls W1–2) is marked on the section drawing as "bin," but no other information is given.

A clayish deposit, probably of mudbrick detritus (marked "Level 5" in fig. 13) separates the post-Sasanian levels from those of proto-Elamite and Late Susa II levels below. Only two well-preserved hearths (H1–2 in fig. 13) are associated with the mudbrick detritus of Level 5 (see also fig. 14). No pottery or objects are associated with this level. Another deep sounding, not indicated in the original top plan, was excavated below Level 6 and was designated as Level 7 in the original section drawing (fig. 16). No other information is available on the nature of the deposits in this sounding. The most confusing original top plan of stakes 8–9 is illustrated here as figure 13. Here, a dogleg mudbrick wall (Level 6, W1–2) and two horseshoe hearths/ovens (H1–2) are the only architectural features. A large number of various types of objects were found here and marked on the plan (figs. 43–44). One area is marked as Level 4, with no explanation.

The most important and best-preserved proto-Elamite monumental architecture was found in the area between stakes 9 and 10 (figs. 15–16). Excavations did not continue below the buildings in this area. The proto-Elamite deposits here were only covered by a thin layer of topsoil or erosion layer (see fig. 16). The area between stakes 9 and 9.5 was excavated within the original 5 m width of the trench. In the area between stakes 9.5 and 10 the discovery of two thick monumental walls led McCown to expand the width of the trench to the west and east, where he found two large rooms connected to one another through a buttressed doorway. Stake 10 was also expanded 5 m to the north to reveal the northern walls of this monumental building.

In the southern part of the area between stakes 9 and 9.5 three fragmentary walls (W6–8), made of mudbricks measuring 23 × ? × 6 cm, are marked on the original plan as belonging to Level 5 (figs. 15, 17). The bases of these walls are almost at the same level or even deeper than those of the monumental building to the north, the exposed parts of which consist of five thick mudbrick walls (W1–5; figs. 14–15). Judging from the thickness of these walls, their overall plan, and the material richness of their associated deposit, which includes several stone vessels and objects of administrative nature, this large building may have occupied the most prominent space in the settlement and was perhaps the residence of its head.

Wall W1 of this monumental building is perpendicular to the east–west walls W2–3; the latter with walls W4–5 enclosed two long rooms that communicated through a buttressed doorway. The mudbricks used in the construction of this building measure 44 × 22 × 8/10 cm and were laid out in alternate headers and stretchers (figs. 14–15). Both the size and layout are similar to those of the earlier Late Susa II phase. This building and the area just north of wall W4 produced a large number of the best examples of proto-Elamite whole and fragmentary pottery and stone vessels, as well as various types of other objects, but the precise loci of these objects within the building were not indicated (figs. 44–47).

The three intrusive features found in this monumental building consist of two circular hearths/ovens (H1–2) and a mudbrick burial (B1), cut into the buttress of walls W4–5. No records of the associated artifacts exist, but McCown dated the burial to the post-Sasanian phase. It seems that the two intrusive ovens also date to that phase.

MOUND A, STEP TRENCH

The Step Trench is the most important area of excavation at Tall-e Geser (figs. 1–2, 17–25). It is the only excavated area that yielded evidence of the long occupation at the site, with a stratigraphic sequence that spans from the Late Middle Susiana phase in the Lower Section to the latest Sukkalmah deposits in the Top Section (see section drawings, figs. 24–25), and was comparatively better excavated and recorded. Even so, the reader must bear in mind that both this and the Stake Trench, which was just as long and wide but not as deep, were excavated simultaneously in just forty-six days. Excavating such huge areas with probably hundreds of layers and features in such a short time with inadequate supervision has resulted in a confusing picture in both stratigraphy and the attributed ceramics.

While only three meters of archaeological deposit (Levels 1–6, figs. 17, 48–53) can be securely dated to the entire fifth millennium B.C. (Late Middle Susiana to Late Susiana 2, ca. 5200–4000 B.C.), some seven meters of deposit seem to date to the first half of the fourth millennium (Terminal Susa/Early Susa II phases) and about three meters to the second half of that millennium (Late Susa II phase). This stratigraphic problem could have been addressed using pottery types and objects found in the various levels. But since from Level 7 to Level 24 the pottery ranges from the Late Middle Susiana to even Late Susa II phase (ca. 3400–3100 B.C.), it is most probable that some of the fifth millennium levels with intrusive materials from the fourth millennium B.C. were not recognized.

The Step Trench was excavated into the southern slope of Mound A and measured 5 × 45 m. The topmost elevation of the trench was at the 21.16 m contour line and excavations reached sterile soil in a small probe at about 5 m above plain level (figs. 17, 24), indicating the presence of a natural low hill on which the settlement was founded.

The length of the Step Trench was divided by McCown into three 15 m sections that he called Lower, Middle, and Top; we have kept these designations (figs. 2, 24–25). McCown used letters to mark the various excavated levels in each sector, with the result that the same letters appear in all three sectors. Caldwell changed this confusing designation, replacing the letters with sequential numbers from 1 (the lowest) to 49. It is Caldwell's system that we use here.

LOWER SECTION (LEVELS 1–16)

The Lower Section lies at the base of the mound, between the surface elevations 8.86 and 11.28 m above plain level. All the prehistoric deposits were reached only in this section, which comprises Levels 1–16 (figs. 17–18, 24a). When the excavations reached prehistoric painted pottery at 9.40 m above plain level (Level 7; fig. 54), the northern half of the Lower Section was taken down another 4 m, to the lowest prehistoric levels (Levels 1–6; figs. 17, 48–53). A 1 × 1 m test pit was excavated below Level 1; at 4.92 m this pit reached what is marked in the section drawing and top plan as "sterile soil."

Only one top plan is available for Levels 1–5 (fig. 17). The initial occupation in this area of the mound (Level 1) dates to the Late Middle Susiana phase and consists of a deposit of loose dirt mixed with considerable ash and charcoal (pottery: fig. 48). Above this, in Level 2, a fragment of a north–south mudbrick wall (W1) was found with an associated beaten earth floor with burnt patches and charcoal fragments; the bricks used in this wall measure 40 × 20 × 10 cm. Two simple pit burials, both of adults, were found here; one (G1) dug into wall W1 of Level 2 and the other (G2) in the beaten surface of Level 2. Apparently no objects or pottery were found associated with these burials and therefore it is impossible to date them precisely; nevertheless, they must belong to a prehistoric phase later than the Late Middle Susiana phase, when presumably the building was abandoned. The pottery attributed to this level indicates a transitional phase from the Late Middle Susiana to Late Susiana 1 phase (figs. 48–49).

The pottery assigned to Levels 3 and 4 dates them to the Late Susiana 1 phase (figs. 50–51). Levels 3 and 4 are only marked as an accumulation of mudbrick detritus. Above this level of detritus were found a row of four bricks measuring 52 × 28 × 11 cm and two stone slabs set on their edges. A patch of beaten earth on the northwest of the trench is labeled Level 5; but no other information is provided; the pottery dates this level to the Late Susiana 1 phase as well (fig. 52).

On the original plan these bricks are labeled "baked," but no other information is available as to their function and stratigraphic position within the lowest five levels in this part of the trench. Considering the base elevation of the bricks, 6.89 m above the plain, this feature must belong to Level 6, which is marked in the section as an "erosion" level.

Based on the available pottery, it is impossible to determine when the fifth millennium B.C. deposit ends, as examples of pottery of all the phases of the fifth millennium B.C. continues into the upper levels. This problem is exacerbated by the fact that no top plans from Levels 6–11 are available. However, judging by the brick size and shape, Levels 12–13 may well date to the late fifth instead of early fourth millennium B.C. (figs. 17–18).

Apart from what is marked "wall?" in Level 8 in the section drawing, Levels 6–11 are marked as a series of what seem to be floors/surfaces, but no top plan is available and the only information on these levels comes from Caldwell's list of levels at the end of his unpublished manuscript.

As mentioned, no top plans exist in the records for Levels 6–11; the next available top plan contains the remains of Levels 12–13 (fig. 17). Levels 12–13 both seem to contain ceramics of the late fifth and early fourth millennium B.C., but the brick size of walls W1–2 suggest the former date for these levels (fig. 17). Two monumental walls (W1–2) with bricks measuring 55 × 28 × 8 cm, and a small, perhaps partition wall (W3) with bricks of the same size, can be attributed to either Level 12 or Level 13. Contiguous with the northwestern face of wall W2 is an area of brick fill just below the Level 12 floor; the relation between these features remains unknown. Both the top plan and section drawing of Levels 12 and 13 are confusing. In the top plan, three walls are attributed to Level 13 but no floor is associated them in the northern half of the trench. Level 12 floors are all located in the northern half of the trench with no walls assigned to them. These discrepancies cannot be resolved by the available stratigraphic information.

Both the pottery (figs. 17, 58–59) and brick size and shape date Levels 12–13 to the early fourth millennium B.C. Of Level 14, only a floor area with no architecture is indicated in the northern half of the excavated area (figs. 18, 60). This level is reported to consist of a brown earth that increasingly becomes compact and bricky toward the southern half of the area. The southern half of the area was eroded away and only the remains of Level 13 were preserved here. Four "floors" for Level 13 are marked on the section drawing but they look very confusing and Caldwell's brief description (see below) and McCown's abbreviated field notes do not help elucidate this problem.

Of the higher Level 15, two phases of architecture with associated floors are documented (fig. 18). The brick size and wall orientation in Level 15 are the same as those in Level 14, as is the pottery (figs. 60–61). McCown does not indicate brick size in his field notes, nor does he mention it on his top plan. Caldwell, however, in his short description, indicates the brick size for W1 as 33 × 30 × 7/8 cm. The reader will recall that at Geser by the beginning of the fourth millennium B.C. the size of mudbricks changed to ca. 40/35 × 12 × 8/7 cm and remained the same until the end of the millennium. With this problem in mind, the earlier architectural phase of Level 15 is represented by a dogleg wall (W2–3). In the next phase this wall may have been preserved as a bench for another wall (W1) with the exact orientation but twice the width. A buttress or a fragment of a partition wall is preserved on the southern face of wall W1 with a hearth furnished with a stone slab on the bottom next to it. No other information is available from these levels.

The highest and last level in the Lower Section is Level 16 (fig. 18). The same type of early fourth millennium pottery continues into this level as well (fig. 62), although examples of late fifth millennium black-on-buff sherds persist as before. In this level the walls of Level 15 are destroyed and amid the brick fragments and mudbrick detritus a horseshoe-shaped hearth had been dug (H1). A wall in the section drawing of the Middle Section of the Step Trench (fig. 24:B) indicates a Level 16 wall, but no other information is available on its construction and orientation beyond what Caldwell noted in his stratigraphic description (see below).

MIDDLE SECTION (LEVELS 16/17–30)

The available evidence of the succeeding phases of architecture in Levels 17–19 are the most confusing in both the top plan and section drawing (figs. 19, 24:B), and the discrepancies could not be reconciled with the available data. The brick size in these levels changes back to the long rectangular bricks, ca. 50 × 17 × 9 cm, typical of the fifth millennium B.C. The majority of the sherds, however, date to the early fourth millennium B.C. (fig. 63). Some of the architectural features in the top plan and the section drawing do not match. A wall and a floor are attributed in the section drawing to Level 17; in the top plan the wall does not appear, but instead a rectangular area marked as "mudbrick platform?" is said to belong to this phase. The area marked as "cache of clay balls" (i.e., egg-shaped clay sling missiles, fig. 99:A, for example) actually belongs to Level 16, according to Caldwell's note.

To Level 18 are attributed three badly preserved walls (W4–6) that run under the Level 19 walls (W7–9) (fig. 19). In the section drawing, however, two floor levels and an additional wall, about 3.5 m to the north of wall W6, are indicated, but they do not appear on the original top plan. According to the top plan and the section drawing the most extensive architectural remains belong to Level 19. Walls W1–3 seem to form a rectangular unit whose southern wall remains unexcavated under the trench wall. These and wall W9 may represent an early phase of architecture of Level 19. The later phase is represented by the dogleg wall W7–8 (bricks: 50 × 17 × 9 cm). No information is available on the succeeding architectural phase directly above these levels. The pottery examples illustrated on figures 63–64 date primarily to the early fourth millennium B.C.

The next architectural phases are preserved only on the northern part of the Middle Section. At least two architectural phases can be attributed to Level 20 (figs. 19, 24). Walls W1–2 and W4–5, with beaten earth floors, represent an earlier stage and wall W3 the later phase of architecture here, with hard, beaten earth floors. The arrangement of the mudbricks in W3 (40/35 × 12 × 8/7 cm) is typical of the late fourth millennium B.C. Susiana, but the associated ceramics still date to the Early Susa II phase (fig. 65). The only features assigned to Level 21 (fig. 20) are a dogleg wall (W1–2), a circular hearth/oven (H2), a sherd pavement, and some beaten earth floors of unspecified nature. No architectural features were found in the succeeding Levels 22–25 but the excavated area yielded a number of sherd floors, burnt areas, and a stone-lined hearth (H1) (fig. 20).

Level 26 has no top plan, but the available ceramics suggests a date of the first half of the fourth millennium B.C. (fig. 70:J–L). From Level 27, a long thick wall (W1) and a partition wall (W2) with associated floor were excavated (fig. 20). A foundation trench for wall W1 is indicated in the section drawing but not on the top plan. Brick size is not specified. Caldwell's notes indicate a number of walls and floors from Level 27, but only a floor is marked on the top plan and section drawing. The main floor of Level 27 is reported to have been covered with ash with the greatest number of beveled-rim bowls on it. The two sherds of the proto-Elamite date (fig. 71:C, G) in this level may be intrusive, but the others date to the Susa II phase. The number of Late Susa II (Late Uruk) phase diagnostics increases in Levels 28 and 29 (figs. 71:J–K, 72:C–F). These levels did not yield any architectural features; an area marked as "brick fill" in the section drawing is attributed to Level 29, but this feature does not appear on the top plan.

Level 30 yielded pottery of the Late Susa II phase (fig. 72:G–O) and is the highest level in the Middle Section (figs. 20, 24). A three-course mudbrick feature with bricks measuring 27 × 13 × 9 cm is marked as "brick surface" on the top plan, but it may be part of a large wall or, perhaps more likely, a low platform. Another mudbrick feature perpendicular

to this brick surface is specified as a "causeway?" with bricks measuring 44 × 24 × 10 cm; no other information is available as to the reason for this assignment.

TOP SECTION (LEVELS 31–48)

The remaining archaeological deposits (Levels 31–48) come from the Top Section (fig. 21–23, 25). Levels 31–34 date to the Late Susa II phase (figs. 73–74), while Levels 35–37 definitely date to the proto-Elamite phase (figs. 75-78). Levels 38–49 date to the Sukkalmah phase on the basis of their pottery (figs. 79–85). No top plans are available for the remains in Levels 31–34; in the existing section drawing, however, a series of walls and floors/surfaces are marked as belonging to these levels. A single top plan of Level 35 indicates an area in the southeast corner of this section as paved by mudbricks set vertically in the floor (brick size: 26 × 12 × 8 cm; fig. 21). This type of mudbrick pavement is not uncommon in Susiana in the Late Susa II phase with known examples from Chogha Mish (Alizadeh 2008, fig. 17:907/910) and Abu Fanduweh (Alizadeh n.d.). No other information is available from this level.

Two architectural units with confusing wall assignments are found in Levels 36-37 (fig. 21). McCown noted in the records that both buildings belonged to the Level 36 and that some walls of both buildings were repaired or replaced in a later phase. Instead of considering two phases of architecture in Level 36, he considered the later reconstruction as another level, Level 37. We have preserved this original stratigraphy to avoid further confusion. The brick size for Level 36 walls is indicated as 40 × 19 × 9 cm and the size of those of Level 37 as 44 × 19 × 9 cm (fig. 21). Of the southern architectural unit (W1–4) only the southern wall and its northwestern corner are dated to Level 36. The remaining walls and the two oval and circular hearths/ovens (H2 and H3) belong to Level 37 (fig. 21). Hearth/oven H1 in the interior of the southern unit and a "table" with a grinding stone (no. 20 on the top plan) in the northwest corner of the room are the only other features preserved in this unit. Some of the walls of this unit are more than a meter high, but no entrance is indicated. It is perfectly possible that the entrance may have existed in the northern wall, which had been badly eroded. It is impossible to know if the eroded northern wall continued, as did the southern wall, to the east. If it did, this unit may have had an eastern extension now destroyed.

Of the northern architectural unit (W5–7), too, only patches of the Level 36 walls remain; the rest belongs to Level 37. No other features or installations are reported from this unit. None of the observations made on the northern architectural unit walls and floors, however, can be reconciled with its remains as indicated in the section drawing.

A thick layer of mudbrick detritus and occupational debris separates Level 37 from the next architectural phase, Level 38 (fig. 22). The orientation of the two fragmentary walls (W1–2) in this level indicates that whatever building existed here had the same orientation as those of Levels 36 and 37. No information on brick size is provided. Another feature (W3) in the southeastern part of the area may have been a wall, a bench, or some type of mudbrick platform. The pottery from this level is a mixture of proto-Elamite and Sukkalmah phases (fig. 79). Considering that the gap between the proto-Elamite and Sukkalmah phases is about 800 years, Level 38 cannot possibly represent that gap and as such must be the latest architectural level of the proto-Elamite phase.

Level 39 represents a thick erosional level that separates the proto-Elamite and Sukkalmah phases (pottery: fig. 80). Remains of Levels 40–41 are represented in a single top plan (fig. 22). A marked change in the size of the mudbricks from 40 x 19 x 9 cm of the proto-Elamite phase to 35 × 35 × 10 cm of the Sukkalmah phase is recorded, but the earlier pattern of using alternate stretchers and headers can still be seen in the construction of walls W7–8 in Level 41 (fig. 22). Beyond this wall, the trench slopes down and whatever remains of Level 39 existed in this area were eroded away. The northern part of the trench, where all the architectural remains were found, presents a complex stratigraphic problem. On the surface, the various walls and floors seem to belong to a single structure; but the differences in the elevations of floors and wall bases suggest at least two or even three phases of architecture here.

To the succeeding Level 40 are assigned Rooms 2–3 and the walls W2–4 and W9–10 (fig. 22). It is possible that wall W5 also belonged to the Level 40 structure and was reused in the succeeding Level 41; wall W6 of Level 41 may also have been built on the stump of the wall that belonged to Room 2 in Level 40. It is not known whether Room 2 was an open court or a long room, but the black ashy deposit in it, the presence of circular hearth/oven H1 next to wall W6, and hearth/oven H2 projecting from wall W3 suggests Room 2 may have indeed been an open court. Wall W4 may also be part of the Level 40 architecture. Room 4 is attributed to Level 41; however, the presence of an identical hearth/oven (H3) that projects from wall W7 indicates that Room 4 may also have been part of Level 40 architecture that was reused in Level 41. Also associated with Level 40 architecture are a hard-fired surface just south of wall W2, two fragmentary pisé walls or partitions W9–10, and a row of three large stones. Since one of the stones and part of wall W10 overlay wall W2, they may belong to either Level 41 or even a later occupation level.

The architecture of Level 41 consists of a rectangular room to which are assigned walls W5–8. As mentioned above, the walls of Level 40 may have been incorporated into the building of Level 41.

Only the northern 4 m of this area contained remains of the succeeding architectural phases. Only a floor/surface is attributed to Level 42 in the section drawing, with no top plan (pottery: fig. 83:A–E). The existing walls in Levels 43–45 are fragmentary and badly preserved (fig. 23). With the available data it is difficult to determine which walls belong to which level. Considering the base elevations of these walls, all may actually belong to Level 43. There is, however, a marked difference between the size of the mudbricks used in the construction of walls W1–2 and W3. In walls W1–2 the bricks measure 38 × 37× 12 and 36 × 35 × x 12 cm (as in the Sukkalmah levels at Sharafabad; see Schacht 1975), while those used in wall W3 measure 50 × 32 × 10 cm. The area between these walls is considered Level 44 floor, but no more information is available on the composition of this area.

Except for a badly preserved fragmentary wall, no traces of architecture are found in Level 46 (figs. 23, 25). Apparently, from this higher level a circular oven/hearth (H1) and two Sukkalmah-phase jar burials (B1-2) were dug into the remains of the preceding Level 44. A partial skeleton (G1) was also found next to B2, but it is not known if this, too, was a jar burial that was destroyed later (fig. 23). The succeeding Levels 47–49 are only marked as mudbrick detritus in the section drawing, but with no top plan and no pottery in the records.

CHAPTER 4
POTTERY

INTRODUCTION

In the following discussion of the pottery, contemporary examples of all the excavated areas are discussed, not individual assemblages from individual levels. The adoption of this format is by necessity because stratigraphic control in most, if not all, excavated areas was loose and sometimes sherds of vastly different archaeological phases were assigned to a single level. Moreover, while a very large number of sherds were brought to Chicago, lack of stratigraphic information made it impossible to re-assign them to their proper stratigraphic niche.

With the sole exception of the proto-Elamite pottery assemblage, at Tall-e Geser the ceramics, including prehistoric and historical periods, show a limited repertoire of shapes, decoration, and surface treatment in comparison to the corresponding periods in the core region of upper Susiana. Even so, the prehistoric painted buff ware of the Ram Hormuz region cannot be visually distinguished from that of upper Susiana.

Our survey of the region also indicated that apart from the very small site of RH-003 (RH stands for Ram Hormuz; pl. 34), a few kilometers southeast of Geser, where two sherds of the Early Susiana phase were found during our survey (pl. 74:A–B), no other sites in the Ram Hormuz region, including Geser, date to earlier than the Late Middle Susiana phase (ca. 5200–4700 B.C.). Nevertheless, RH-023 yielded some sherds that might be carryovers from the Early Middle Susiana phase (pl. 100:A, D). This rarity of sixth-millennium or earlier sites in the region may simply be the result of accident of discovery; but the fact that the results of McCown's, Wright-Carter's (2003), and our own surveys failed to reveal any site other than RH-003 that is earlier than the Late Middle Susiana phase suggests the known general settlement history of the region is reliable. The "colonization" of the Ram Hormuz region in the Late Middle Susiana phase is not surprising. Upper Susiana population was growing and, with it, social complexity and emergent elite as known from Chogha Mish (for full discussion, see Alizadeh 2008, 2010). This was also a time when the Susiana pottery tradition diverged from that of southern Mesopotamia and began to appear in the highlands.[15] Because of gradual movement of people, itinerant potters/traders, and intermarriage, it is at this juncture that Susiana's contact with the highlands is manifested in the distribution of the lowlands pottery, a process similar to the expansion of the Ubaid 3–4 ceramics in northern Mesopotamia, Syria, and southeastern Anatolia (Alizadeh 1992, 2008, 2010).

Since the Ram Hormuz region had no tradition of painted pottery prior to the late sixth/early fifth millennium B.C., and the painted pottery seems to have appeared suddenly on the plain, it stands to reason to think that two processes may be responsible for this development. This development, however, does not seem to have had a demographic reason as the Ram Hormuz was not the only region where Late Middle Susiana/Late Susiana 1 ceramics penetrated in the early fifth millennium B.C. Just as the expansion of the Ubaid culture, Susiana society may have reached a level of socioeconomic complexity with the attendant elites who began to enlarge their economic base and status by engaging in long-distance trade/exchange with the resource-rich highlands as far as the Central Plateau. Susiana's material presence is documented in almost all central[16] and southern Zagros regions including the Zohre-Behbahan,[17] the Mamasani,[18] and the Izeh/Malamir regions, replacing the soft, simple ceramics of the Neolithic period.[19]

Tall-e Geser with its strategic position may have been occupied to conduct the inter-regional trade and to serve as a depot on the way to the highlands (pl. 10:A). This type of long-distance, highland–lowland trade with faraway places in central Zagros valleys, Fars, and even the Central Plateau through treacherous terrains and hostile territories would have been difficult, if not impossible, for the settled farmers of the lowlands (see Alizadeh 2010 for a more detailed discussion). Considering these factors, it is perfectly logical to conduct this type of economic enterprise by engaging

[15] See below and Alizadeh 1992, pp. 22–25; 2008, pp. 11–16 for full discussion; and 2010.

[16] Esmaeily-Jelodar and Zolghadr n.d.; Khosrowzadeh 2010; A. Stein 1936; Zagarell 1982.

[17] Nissen 1976; Dittmann 1984.

[18] Potts et al. 2009.

[19] Wright and Bayani 1979.

those who were familiar with the mountainous terrain and had kinship ties throughout vast territories. It may have been under these conditions that the Ram Hormuz region was settled, not necessarily by the farmers of the lowlands but by the highland mobile pastoralists. They must have seen benefit in settling down in regions that either had not been settled before or were sparsely settled, a scenario that is in accordance with the sudden wide geographic spread of the ceramics of the Late Middle Susiana phase, where none existed before.

With this digression, we now continue our discussion of the prehistoric pottery. The missing Middle Susiana forms and decorations in the Ram Hormuz region are too numerous to list here, but the absence of a variety of animals, birds, and floral/geometric motifs is noticeable. In the second phase of the occupation, during the Late Susiana 1 phase (ca. 4700–4300 B.C.), Geser shares many more forms and decorative motifs with upper Susiana and to some extent with those of the Bakun B2 and Gap/Bakun A ceramics in the Marv Dasht region of highland Fars (figs. 50–52; pl. 3:A), though some prominent features are still absent.[20] In the final phase of the Susiana sequence, the Late Susiana 2/Susa I phase, only a few scattered examples of Late Susiana 2 ceramics are found associated with the late fifth-millennium B.C. occupation at Geser (for example, in the Step Trench Levels 7, 9, and 12; figs. 54, 56, 58).[21] From Levels 7– 8 in the Step Trench, a class of pottery appears that is similar to what is known in the literature as "Terminal Susa A," an ill-defined phase based on some scant materials from Susa Acropole Level 23 (fig. 68) — but see Wright 2013 for a much better analysis of the Terminal Susa phase pottery.

Chogha Mish had been abandoned during the first half of the fourth millennium B.C. and therefore does not have evidence of occupation for the Terminal Susa and Early Susa II phases; but from our excavations at Abu Fanduweh (K-59), Chogha Do Sar (KS-04), Beladieh (KS-108), and Dar Khazineh (KS-1626), all in upper Susiana, we learned that the fine and standard pottery of the Terminal Susa phase is made of good-quality buff ware with no visible inclusion. The ware is dense and completely oxidized. Except for occasional degenerated simple geometric painted patterns, some of the forms of the Late Susiana 2 phase pottery are manufactured during the Terminal Susa phase without any decoration. The only prominent new form and perhaps the hallmark of this phase is the spectacular flaring high-neck jar (fig. 52:A–B). Globular jars with four pierced simple lugs, but without painted decoration, continue (fig. 55:D), as do the typical sinuous-sided open bowls. Nevertheless, the fact that stratigraphic control at Geser does not seem to have been adequate makes it impossible to separate this and the following Early Susa II phase, although Level 10 of the Step Trench seems to be the transition from the Terminal Susa to the Early Susa II phases (figs. 56–57). During the poorly known and ill-defined Early Susa II phase, forms are very limited and occur side-by-side with those of the Terminal Susa forms until they gradually disappear from Level 10 upward.

CERAMICS OF THE LATE SIXTH AND FIFTH MILLENNIA B.C.

Black-on-Buff Ware (Geser Phases I–III)[22]

The black-on-buff painted pottery with mineral inclusion appeared in lowland Susiana in the Archaic Susiana 3 phase. Starting from the Archaic Susiana 3 (ca. 6200–6000 B.C.) and continuing to the beginning of the Terminal Susa phase (ca. 4000 B.C.), the Susiana prehistoric sequence is characterized by various types of black-on-buff ceramics that had no antecedent in the lowlands. This well-made and expertly painted pottery may have had its origins in the Samarra tradition that spread from north Mesopotamia into Deh Luran and lowland Susiana in the early sixth millennium B.C. and formed the foundation of a number of black-on-buff traditions in both Mesopotamia and southwest Iran.[23] The earliest black-on-buff ceramics at Geser unquestionably date to the Late Middle Susiana phase (Step Trench Levels 1–2; figs. 48–49); pottery of the preceding Early Susiana phase was found at nearby RH-003 during the 1969 (Wright and Carter 2003) and our 2005 surveys (pls. 34, 74:A–B). Not much can be said of this early phase in the Ram Hormuz

[20] I have argued (Alizadeh 1992, 2006, 2008, 2010) that the Late Susiana 1 ceramics are a hybrid of the Susiana and highlands (Fars) traditions (see *Part II* and below in this chapter). If this is correct, then some of the outstanding missing Susiana forms and decorations may have had symbolic significance for the lowland elite and as such are not present in the Ram Hormuz region. On the other hand, the fuller representation of the Late Susiana 1 ceramics in the Ram Hormuz region may suggest that some were symbolically important for the pastoralist elites who inhabited the region.

[21] This situation is not limited to the Ram Hormuz region. In most of the Zagros valleys, even in the Deh Luran region, the Late Susiana 2 ceramics either disappear or are very rare.

[22] Since Geser has produced materials from the sixth millennium B.C. to the late nineteenth century A.D., we have designated the local Ram Hormuz ceramic phases after the type site.

[23] See Alizadeh 2008, pp. 62–70.

region without, of course, excavating the site. Both surveys, nevertheless, showed that this small, 0.36 ha site was the only settlement in this phase (see *Part II* for details).

The Late Middle Susiana pottery assemblage as a whole is identical with the pottery of the same phase in upper Susiana in both decoration and ware. The painted repertoire, however, is much more limited in the Ram Hormuz plain than it is in the upper Susiana region, indicating perhaps the peripheral nature of the settlement in this early phase.

The black-on-buff ware is characteristic of Step Trench Levels 1–6 although it occurs sporadically in the later levels as well (figs. 48–53), no doubt from stratigraphic disturbances not indicated in the original records. Level 1 seems to be purely of Late Middle Susiana phase. Examples decorated with the famous dot motifs, the hallmark of the succeeding Late Susiana 1 phase, and other characteristic motifs appeared in Level 2 and continued into Level 5 (figs. 49:G, L–M, 50:A–H, K). This indicates to us that the Ram Hormuz plain was settled at the very end of the long Middle Susiana period (5700–4700 B.C.).

Step Trench Levels 6 and 7 contain a mixture of the ceramics of both the Late Susiana 1 and Late Susiana 2 phases (figs. 53–54), as well as examples of the succeeding Terminal Susa phase (fig. 54:A–C). Late Susiana 2 black-on-buff jars with simple pierced lugs are completely absent from the sequence. Level 7 (fig. 54:A–F) also may be considered as a transition from the Late Susiana 2 phase to that of Terminal Susa A/Early Susa II phase (ca. 4000/3800 B.C.). One of the characteristics of the Late Susiana 2 pottery is the painted spouts that, according to Caldwell, are found, along with the typical Late Susiana 2 red ware, occasionally in the post-Susiana black-on-buff ware in Levels 8 to 24; but we found only one example (fig. 69:A). While some of these earlier examples surely are intrusive — as some fifth-millennium painted sherds occur even in the late fourth-millennium B.C. context (e.g., Level 30; fig. 72:I) — contemporary levels at Susa, Chogha Do Sar, and Abu Fanduweh suggest that the transition from the Late Susiana 2 phase to Terminal Susa A/Early Susa II phases was gradual, lasting perhaps for one to two hundred years, ca. 4000–3800 B.C., although there is no direct evidence for this estimation.

The black-on-buff ware that is characteristic of Levels 1–6 tends to be decorated with a rather greenish paint and paste in higher levels. Nevertheless, the predominance of the plain buff characteristic of the fourth millennium B.C. from Level 8 onward suggests the extrusive nature of these fifth-millennium B.C. examples.

Plain Buff Ware

Plain buff ware is a component of the late prehistoric levels at Tall-e Geser, but after the disappearance of the painted ware, it continues up to Level 10 (figs. 56–57), presumably the beginning of the Early Susa II phase in the region.

Early Red Ware

According to the unpublished pottery manuscript left by Caldwell, the early red ware occurs side by side with the painted and plain buff wares from Level 1 to Level 10 and then disappears gradually in the succeeding levels (figs. 54:F, 55:D, F, 57:F–G), when it is replaced by a coarse to medium variety of red ware that begins in Level 12 (fig. 58:F, H-I)[24]; in Levels 15 to 35 this early red ware is replaced by a different red ware characteristic of the fourth millennium (see *Later Red Ware*, below). The known early red ware in Susiana has a dense, granular paste with very fine sand, often difficult to detect; the mineral may have been a natural component of the clay used for this and fine buff ware of the last phases of the Susiana prehistoric sequence (Alizadeh 2008, pp. 51, 58). The pottery is high fired and has a clinky ring. It is well smoothed, giving the appearance of the so called “self slip”; real slips include red or buff. The forms, however, differ from the later fourth-millennium B.C. variety in the absence of accessories like spouts and lugs as well as punctuation marks. The basic color is a brick red, but lighter and darker shades do occur. The core is usually completely oxidized, but gray cores occasionally occur in the earlier Late Middle Susiana phase; the gray core occurs more frequently in the succeeding Late Susiana period. While the red ware of the latter period often exhibits traces of surface burnishing, no such treatment occurs in the preceding Middle Susiana period.

[24] This assertion is based on Caldwell’s records and we did not find examples of the early red ware in our collection.

Missing from the Geser assemblage, and in fact from the entire region, is the red-washed red ware that is common in upper Susiana, as well as the special type red ware with a "white-film," known from Chogha Mish as white-film red ware. This ware exhibits a fairly dense white coat on the surface but sometimes it is thin enough for the red fabric underneath to be seen. This white coat is by no means a slip or wash, but rather seems to be the result of some chemical reaction that occurred during the firing.[25]

But the red-slipped buff ware and the buff-slipped red ware, the other varieties of the red ware in upper Susiana, do occur at Geser and in the region. The red ware examples in Step Trench Levels 7–11 (figs. 54:B, E-F; 55:B, D, H, 57:F, G) are distantly similar to the Lapuii red ware (Langsdorff and McCown 1942, pl. 20:4, 7–8, 13, 17; pl. 21:4) and may be contemporary with that final phase of the prehistoric red ware in highland Fars.

Coarse Ware

A coarse, heavily straw-tempered ware occurs throughout the Geser sequence. Those associated with Levels 1–7 have concave bases and rims that either are simple, beaded, or folded. The early coarse ware is a major component of Levels 1–3 (fig. 50:I, M–O). The ware rarely occurs in Levels 4–7 but from Level 8 to Level 25 it steadily increases in frequency (figs. 55–70). There is a sharp drop in the number of coarse ware examples subsequently from Levels 26 to 43, occurring more frequently during the Sukkalmah phase.

The majority of the fourth-millennium B.C. pottery consists of proto and standard beveled-rim bowls. The proto–beveled-rim bowls began in Level 11 (fig. 57:H) and continued into Level 23 (figs. 57–68). Caldwell in his published article (1968) reports that the true beveled-rim bowls begin in Level 18 and after overlapping with proto–beveled-rim bowls[26] they continue by themselves from Level 23 to Level 37, that is, into the proto-Elamite phase, although these later beveled-rim bowls are taller and more slender with often a pinkish or reddish hue on the surface and without the interior base fist-impression typical of the earlier beveled-rim bowls; a complete example was found in much later Level 38 (fig. 79:D).

LATE MIDDLE SUSIANA/LATE SUSIANA 1 SPHERE OF INTERACTION

Prior to the Sasanian phase, when that period's pottery had a very wide geographic distribution in Iran and Mesopotamia, the most widespread ceramic traditions belonged to the Late Susiana 1 and the proto-Elamite phases (Alizadeh 1992, 2010). The latter is discussed below; here we focus on the Late Susiana 1 ceramics. This class of very distinctive pottery is known in the Deh Luran region as "dot motif" ceramics,[27] as small, decorative painted dots populate the surface of many vessels.

Elsewhere I have discussed at length the development and the possible origins of Late Susiana 1 ceramics.[28] Here I briefly describe and analyze this development to provide the necessary background for our later analysis and the possible socioeconomic factors that resulted in the great spatial distribution of this ware. For reasons I have offered previously (Alizadeh 2010), the people of the Middle Susiana period in upper Susiana may have encountered a major problem around 4700 B.C., when Chogha Mish, the largest population center in the entire region, was abandoned along with a number of its satellites for some 400 years, until the Late Susiana 2 phase (ca. 4300–4000 B.C.). This situation is discussed at length in the concluding *Chapter 9*; suffice it to say here that the painted repertoire of the Late Susiana 1 phase was not alien to the region and even some of the motifs of the preceding phase, such as the parallelograms, cross-hatched triangles internally subdivided into four triangles with the central one remaining plain, and three sets of three diagonal lines issuing from the internal rim of open forms, continued into this phase. What was new in the Susiana world was the use of a large number of dots as a filling motif. Interestingly enough, the use of dots is documented on the much earlier highland cultures of Mushki and, especially, Jari. There are many forms and decorative schemes of the Late Middle Susiana phase that completely disappeared from the painted repertoire during the Late Susiana 1 phase. What was retained by the potters of this phase may have been a conscious choice, probably symbolically significant, or they were popular, or easy to draw. The real reasons behind the potters' choice, however, completely escape us.

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[25] Henry Wright (pers. comm.) reminds me that Frederick Matson (1939) recognized the phenomenon and identified the light surface layer as a ferrous chloride on ceramics from Dura Europas.

[26] Caldwell does not provide examples and the only one he actually illustrated is from Level 32 (fig. 75:L).

[27] Wright 1981, p. 30.

[28] See Alizadeh 1992, 2006, 2008, 2010.

Apart from the fact that the development of the Late Susiana 1 ceramics in upper Susiana coincided with the changing of the regional organization of the society in a rudimentary highlands-lowlands unification of resources, there are stylistic reasons to believe the hybrid Late Susiana 1 ceramics were inspired through Susiana's contact with the highlands. Highland Fars is a strong candidate for the development of Late Susiana 1 ceramics. The reader recalls that in the Kur River basin the Jari culture was followed by the not-so-well-known phase of Bakun B1 with characteristic coarse, plain ware. This phase has coarse, undecorated ceramics very different from its predecessors. Sometime around 5000 B.C., a class of black-on-buff pottery, known as Bakun B2, appeared in Fars with absolutely no antecedent. A similar development occurred in the Mamasani region of Fars (Potts et al. 2009), where Susiana/Bakun B2 phase ceramics replaced those of the Neolithic Jari, or something very closely related. In the Mamasani region, only Tol-e Nurabad has phases earlier than the Late Middle Susiana; the rest of this highland valley was settled during the last stages of the Late Middle Susiana phase.

The closest body of comparable material to Bakun B2 belongs to the Middle Susiana period in lowland Susiana. Even though it is very much in the tradition of the Middle Susiana pottery decoration and manufacture technique, the Bakun B2 painted ceramic repertoire lacks a number of characteristics, especially animal motifs. This suggests that if lowland Susiana was the origin of Fars black-on-bluff pottery — and no other contemporary ceramic assemblage in prehistoric Iran comes even close — then Bakun B2 may have developed into its final form elsewhere, perhaps in some of the intermontane valleys between Susiana and Fars, most probably the Behbahan-Zohre (Dittmann 1984) or Mamasani regions.[29]

Elsewhere, Late Susiana 1 ceramics are either mixed with the local traditions, for example, in the Central Plateau (Kaboli 2000), the Kangavar-Hamadan region (Young 2004), central Zagros and Kerman (Caldwell 1967; Lamberg-Karlovsky 1970), or they were introduced as the earliest painted pottery, such as in the mountainous region of Shahr-e Kurd/Kuhrang, west of Esfahan, near the headwaters of the Karun.[30] Allen Zagarell's survey in the Bakhtiyari region recorded a very similar ceramic sequence. His oldest, Neolithic sherds belong to the Qaleh Rustam tradition (Zagarell 1982, fig. 13), followed by a black-on-buff painted ware related to that of Middle Susiana ceramics (ibid., figs. 14–17). This ware is then replaced with genuine Late Susiana 1/Gap ceramics (ibid., figs. 19–22). With a possible gap in the sequence, what follows are genuine Central Plateau (Sialk III) ceramics, a sequence that is duplicated at Godin, the only excavated site in the Zagros with Central Plateau pottery. This clearly shows the complexity of the interactions in the highlands and its relationships with the lowlands, of which we can see only the surface.

Similar results were reported by Goff (1971). Her survey in central Lurestan in the valleys between the mountains of Kuh-e Garin and Kuh-e Sefid revealed an aceramic phase followed by a Neolithic pottery akin to that of Neolithic Guran and Giyan. Goff's next phase, Chalcolithic, is a mixture of the regional ceramics and those of the Late Middle Susiana and Late Susiana 1 phases (ibid., p. 139). There seems to be a gap in the occupation between her black-on-buff phase and the next phase she calls "Uruk" (ibid., p. 134). The description of this "Uruk" pottery (ibid., p. 139, figs. 7–8) and some of the forms and decorations are astonishingly close to our proto-Elamite assemblage (see below), a misnomer that she might have noticed, hence her use of quotation marks, but understandable as the proto-Elamite ceramics were not well known in those days, as indeed they still are not. While we are far from an understanding of the nature and extent of the proto-Elamite sphere of interaction, the central Zagros, with its connections to the Central Plateau, lowland Susiana, and highland Fars, must have been an important part of it.

In Fars, the Bakun B2 ceramics developed into the phase known as Gap ("big" in Persian), first documented at Tall-e Gap in the Marv Dasht region (Egami and Masuda 1962). It is these Gap ceramics that now share many features with the Late Susiana 1 ceramics, including the common use of dots as a filling motif. It is this lowland-highland hybrid that has its widest geographic distribution in prehistoric Iran. If my analysis of the post-fifth-millennium events and processes in southwestern Iran is correct (Alizadeh 2010), then we may propose that the processes of the integration of the two subsistence strategies of sedentary farming and mobile pastoralism began in the fifth millennium B.C. and culminated in the emergence of the highland Elamite state. Moreover, the prehistoric development of material culture that links lowland Susiana with highland Fars seems to be a prelude that becomes the leitmotif of the land of Iran for the millennia that followed.

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[29] Dittmann, in his 1984 report, introduces an "archäische" phase in the occupation of the Behbahan region that he equates with Jari B phase (6060–5920 B.C.; Alizadeh 2006, tables 9–11). Dittmann's following phase of Dervish Akhmad is equated with that of Early Susiana, but the pottery is not similar. The great similarities in the ceramics of the Behbahan-Zohre region with those of Fars and Susiana began in Dittmann's Mahammad Taki and Do Tulune phases, the pottery of which is a mixture of genuine Bakun B2, Gap, Late Middle Susiana, and Late Susiana 1–2 phases (pp. 34–35, figs. 3a–3h).

[30] Khosrowzadeh 2010; Esmaeily and Zolghadr n.d., figs. 2–4.

WARES OF THE FOURTH MILLENNIUM B.C.

Perhaps influenced by Porada (1965) and Hansen (1965), Caldwell (1968) reported that the fourth-millennium B.C. deposit at Geser can be divided into three phases: Early, Middle, and Late Uruk, that is, the period between Early Susa II to Late Susa II phases, Susa Acropolis Levels 23–18 (ca. 3900–3100 B.C.). He used the long, complex, and confusing, stratigraphy of the Step Trench to form his conclusions. Caldwell (1968) assigned Step Trench Levels 11–15 to the Early Uruk (figs. 57–61), Levels 16–27 to the Middle Uruk (figs. 62–71), and Levels 28–35 to the Late Uruk phases (figs. 71–75). Even so, in an unpublished manuscript that deals exclusively with the ceramics of the Step Trench, Caldwell was explicit that the Middle Uruk phase has relatively little of a distinctive nature. Its new traits all continue into the Late Uruk phase, and it is better distinguished by what it lacks. This cautionary note did not appear in his 1968 article, and since then the materials from this trench have been used as further evidence of the existence of a "Middle Uruk" phase at Geser, even though there is no stratigraphic interface that would mark the transition from Caldwell's his Early to Middle Uruk phases. At Geser, as well as at Chogha Mish (Delougaz and Kantor 1996; Alizadeh 2008), the transition seems to be a statistical progression of types, which renders this type of periodization hazardous, especially in surface surveys (Johnson 1973; Neely and Wright 1997).

Based on his ceramic analysis, Johnson (1973) considers Susa Acropole Levels 23–22 as Early Uruk, Levels 21–19 as Middle Uruk, and 18–17 as Late Uruk.

For the Early Uruk phase, Johnson (1973, table 4) has listed nine types, all from Level 22 and none from Level 23. These nine types consist of ledge rim bowls, (only one sherd, the rest belong to Level 17–17B–A), the nose lug (only one piece; the rest come from later levels, one from Level 21 and others from Levels 17–17A), the strap handle (one from Level 22, six from Level 21, two from Level 20, four from level 19, seventeen from level 17, seventeen from level 17B and fifty-five from Level 17A); the diagonal reserved slip (one from Level 22, six from Level 21, three from Level 17, two from Level 17B and two from Level 17A); the straight spout (one from Level 24, one from Level 22, and nine from Level 21); the flat rim bowl (one from Level 22, one from Level 21, one from Level 19, and twenty-nine from Level 17A), beveled-rim bowls (occurring from Level 22 throughout).

For the Middle Uruk phase, Johnson lists the nose lug (one from Level 21, and the rest from levels 19–17A); the strap handle (one from Level 22, six from Level 21, two from Level 20, ninety-three from Levels 19–17A); the diagonal reserved slip (one from Level 22, six from Level 21, three from Level 17, two from Level 17B, and two from Level 17A); the low expanded band rim Jar (eight from Level 21, the rest, eleven, from Levels 19–17A); the straight spout (one from Level 24, one from Level 22, and nine from Level 21); the flat rim bowl (one from Level 22, one from Level 21, one from Level 19, and twenty-nine from Level 17A)

With the exception of the straight spout, all other types occur primarily from Levels 18–17A, dating to the second half of the fourth millennium B.C. Johnson (1973, p. 31 and table 4) expresses the severe limitations of the count of the types attributed to his three Uruk phases. For comparative analysis of his surface collection, Johnson (1973, p. 30) relied on the ceramic assemblages from excavation B at Tappeh Farukhabad, the Deep Sounding at the Eanna precinct at Uruk, the Deep Sounding at the Inana precinct at Nippur, and of the Step Trench at Geser. The problems with the Deep Sounding at Uruk are well known (Nissen 1970, 2001, 2002). Nippur does not seem to have been occupied during the Early Uruk phase and from the following phases the corpus is very limited (Karen Wilson, pers. comm.). The early fourth millennium B.C. at Farukhabad is represented by a local pottery unrelated to Mesopotamia, and the Geser assemblage used by Johnson is limited to a short article by Caldwell (1968). Given these problems, the question of the sub-division of fourth millennium Susiana into three separate and distinct phases with socioeconomic characteristics (Wright and Johnson 1975), as well as a basis for settlement size in each phase remains problematic even though many researchers follow Johnson's periodization.

In his short article on the fourth-millennium B.C. ceramics at Geser Step Trench, Caldwell (1968) considered Levels 7-10 as representing a transitional from the Late Susiana 2 (Susa I) to Early Uruk phases (here Early Susa II); Levels 11–27 as Early Uruk phase; and Levels 28–38 as Late Uruk phase (here Late Susa II), with no mention of the Terminal Susa and proto-Elamite phases. He defined his Early Uruk phase by proto-bevel rim bowls, beaded rim bowls, and straight spouts; his Middle Uruk by strap handles, pear-shaped jars, droop spouts, and the so called Warka "teapots."

What follows is an analysis of the available material as we understand it. Based on the stratigraphy and temporal distribution of the various forms that appeared in the course of the fourth millennium at Tall-e Geser, four major phases can be distinguished: Terminal Susa (Step Trench Levels 8–10), Early and Late Susa II (Step Trench Levels 11–34), and proto-Elamite (Step Trench Levels 35–37), though the latter extends into the early third millennium B.C. as well. It must be emphasized that, like the ceramics of the fifth millennium B.C. at Geser, and indeed in the entire region, the fourth-millennium ceramics are limited in forms and decoration. Therefore, our periodization of fourth-millennium Geser is also based on other lowland sites such as Susa, Chogha Mish, and Abu Fanduweh.

Prominent among the Early Susa II ceramic forms are proto-beveled-rim bowls (figs. 57:H, 59:H), heavy rounded and club rims (figs. 61:N, 65:K), low expanded band-rim hole-mouth jars (figs. 58:K, 59:F, 61:V, 62:O), jars with simple cross-hatched incised decorations (fig. 58:E), and simple pierced lugs (fig. 62:D). The Late Susa II is characterized by the remainder of the major forms and decorations such as vessels with reserved slip (fig. 63:G), jars with simple everted lip (fig. 64:K), out-turned expanded rim jars (figs. 66:N, 69:K, 72:D), straw-tempered trays (fig. 73:H), sinuous sided cups with pouring lip (fig. 76:A), jars with everted club or triangular rims (fig. 66:P), ledge rim bowls (fig. 74:L), strap handle (fig. 74:B), cross-hatched incised triangles (fig. 74: G), trumpet-shaped spout (fig. 73:K), nose lugs (fig. 76: K), low everted blunt rim jar (figs. 67:F, 76:M), and "tea pots" (fig. 76:H),

The paste of Late Susa II standard and fine wares in upper Susiana primarily has mineral inclusion.[31] In sharp contrast, at Geser and its surrounding region, the Late Susa II pottery paste is rarely sandy, and toward the end of the sequence chaff almost completely replaces sand and grits. This change in the tempering agent is attested in the proto-Elamite pottery from Abu Fanduweh as well. And while some of the proto-Elamite vessels/sherds at Susa were chaff-tempered, the majority seems to have mineral inclusion.

Standard Buff Ware

Standard buff ware appears in Level 10 and continues into Level 24 (figs. 56–69). This ware comes in a variety of colors ranging from buff to greenish buff, orange buff, and reddish buff with primarily chaff/straw inclusion. An oxidized core is the norm, but sometimes the core is gray. Almost all the examples of this ware have regular wheel striations, which usually appear on the neck and upper body. While some examples show true slip, which tends to cover the minute concentric wheel marks on the surface of the vessels, it is difficult to distinguish a true slip from the thin surface layer of the vessel that is lighter in color as it was exposed to a higher temperature.

Fine Buff Ware

There is no difference in the clay of the standard and fine buff wares, except that the latter has considerably less sand in the paste or none at all. Both wares appear side-by-side during Geser phases I–III. The color is basically buff, but examples of greenish buff, cream buff, and pink buff also occur; it also has similar distribution to the standard buff ware. Vessels made of this ware were exposed either to higher temperatures or the flow of gases was more controlled in the kiln as no gray or black core is associated with this ware; because the majority of the vessels made of this ware have finer walls than those of the standard buff ware, it is possible that the thin walls allowed oxygen to flow more easily through the paste and oxidized it completely.

Later Red Ware

While the available evidence does not allow us to follow the development of this ware, Caldwell's reports in his manuscript that the prehistoric tradition of red ware continued into the fourth and third millennia B.C. (Levels 20–37; figs. 65–77). The later red ware seems to have replaced the early red ware gradually.

Coarse Ware

Occurring throughout the sequence, coarse ware is primarily drab buff, but orange buff and reddish buff varieties also occur. The ware is characteristically heavily straw tempered with a rough exterior surface. Some sand and dark grits may be found mixed with the straw, which may be the natural component of the clay used. The ware was primarily used in making proto-beveled-rim bowls, beveled-rim bowls, shallow trays, flower pots, and straight- or convex-sided bowls. Sherds made of this ware were fired at low temperatures and usually have a gray or light gray core.

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[31] See, for example, Delougaz and Kantor 1996, pp. 37–39; Alizadeh 2008, pp. 49–50.

STRATIGRAPHIC DISTRIBUTION OF THE VARIOUS FORMS AND DECORATIONS OF THE POTTERY OF THE SUSA II PHASE AT GESER

Simple Cross-hatched Incised Decoration

This type is assigned by Johnson to the Middle Uruk phase (Johnson 1973, p. 56); this type first appears in the Step Trench Level 12 (fig. 58:E), that dates to the Early Susa II phase (or Johnson's Early Uruk). This type continues through Level 24 of the Late Susa II phase (fig. 69:M).

Wide Flaring-rim Jars

Jars with wide flaring rims are typical of the Terminal Susa phase. They are made of fine light buff paste with no visible inclusion. Caldwell reports that this form starts in Level 9 (fig. 56:F) and continues through Level 22 with additional examples in Level 25 (figs. 67:D–E, 70:E), most probably extrusive. Our observations indicate that the appearance of this type coincides with the rapid disappearance of the prehistoric painted buff ware and continues into the earliest stages of Early Susa II phase.

Low Expanded Band-rim Jars

Low expanded band-rim jars are presumably an early type associated with the Early Susa II assemblage and considered by Johnson as transitional from the Early to Middle Uruk phase (Johnson 1973, p. 57). At Geser this type begins in Level 12 (fig. 58:K), early in this phase. and continues into Level 20 (fig. 65:J). Caldwell has confused a simple beaded-rim jar with this specific Early Susa II type.

Reserved Slip

Johnson (1973, p. 58, type 38) did not include reserved slip in his seriation,[32] but he considered it as part of his Late Uruk assemblage. At Geser (as well as at Abu Fanduweh), this type seems to have appeared at the end of the Early Susa II phase and lasted until the end of the sequence. According to Caldwell, it begins in Level 15, but the earliest example we could find is from Level 18 (fig. 63:G). The latest example occurred in Level 34 (fig. 74:F), just at the end of the Susa II sequence. In this latter example, reserved slip is combined with punctate decoration on a shoulder fragment.

Straight Spout

Straight-spouted types do not seem to have occurred at Geser. This is Johnson's Early Uruk type 12 (Johnson 1973, p. 55, type 16). Caldwell reports in his unpublished manuscript that this type first appeared in Level 16 and continued into Level 37. But in his published article (1968, p. 350), he assigns this type to the earlier Level 11, of Early Susa II date. Neither in his manuscript nor in his article has he produced any example of this type. The closest example we could find comes from Level 16 (fig. 62:C), but without the vessel body there is no way of knowing if this is an example of the straight spout attributed to the Early Susa II phase. This and other examples from later Levels 24 and 37, however, seem to belong to the type of spout used in the so-called "teapots."

Punctate Shoulder Decoration

Punctate shoulder decoration is another of Johnson's Early Uruk types (1973, type 33). It does not occur until late in the sequence. The earliest example we could find comes from Level 23 (fig. 68:I) and the latest from Level 32 (fig. 73:J), though this latter example is not typical for this type.

Proto-Beveled-rim Bowls

Proto-beveled-rim bowls appear first in Level 11 (fig. 57:H) and possibly reappear in Level 23 (fig. 68:A). From Level 18 this type overlaps with true beveled-rim bowls. Proto-beveled-rim bowls do not seem to have occurred at Chogha Mish,

[32] Wright (pers. comm.) tells me that Johnson did not think this type survived well in surface collections.

Nippur, Uruk, and Farukhabad in Deh Luran. In upper Susiana, they are found at Abu Fanduweh (KS-59) right above the layers with "Terminal Susa" pottery.

Beaded-rim Bowls/Jars

Beaded-rim bowls and jars (Johnson's Early Uruk type 17) occurred first in Level 13 of the Early Susa II phase (figs. 57:J, 59:K) and continued until the end of fourth millennium B.C.; as such, it is not a good indicator for the first half of the fourth millennium, especially in a surface collection.

Simple Nose Lugs

Simple pierced lugs (not the typical nose lug) on the shoulders of jars first appear in upper Susiana during the Late Susiana 2 phase. According to Caldwell's statistical chart in his unpublished manuscript, "nose lugs" started from Level 7 and continued into Level 37, but examples are not available to confirm his observation.

True Nose Lugs

Caldwell reports nose lugs as occurring early in the fourth-millennium B.C. sequence at Geser, though the illustration of Caldwell's example (Caldwell 1968, p. 350, fig. 12, Step Trench Levels 11–15) is very crude and it is impossible to say from the profile if it represents a true nose lug. Moreover, at Geser this accessory (also dated to the Early Uruk phase in Johnson 1973, p. 55) did not occur until Level 32 (fig. 73:M) and continued into the proto-Elamite phase in Levels 35–37 (figs. 75:H, 76:K, N, 78:A–B, D).

Sinuous-sided Cups with Pouring Lip

Caldwell illustrated one example of a sinuous-sided cup with pouring lip (1968, fig. 8) as coming from the very early Levels 7–10, which he considered as transitional from the fifth to the fourth millennium B.C. This is Johnson's Middle Uruk type 9–10 (Johnson 1973, p. 57, pl. 1:g). The only example we could find in the Geser collection comes from the much later Level 36 (Late Susa II/proto-Elamite, fig. 76:A). At Chogha Mish, Abu Fanduweh, and Geser this type is clearly from Late Susa II contexts. Outside Susiana, this type appears only at Uruk in the not-secure levels VII–V at the Eanna Precinct and in the more reliable context of Nissen's K/L XII Sounding in "Spät-Uruk" levels (Nissen 1970, 2002).

Strap-handle Jars

Strap-handle jars are considered by Johnson (1973, p. 56) as characteristic of the Middle and Late Uruk phases (ca. 3500–3100 B.C.). They are extremely rare at Geser and appeared late in the sequence (Level 33, fig. 74:B). At Chogha Mish, Susa, and Abu Fanduweh, where the type is very common and comes in great varieties, the type is reported from Late Susa II contexts.

FOURTH-MILLENNIUM CERAMIC TYPES ABSENT FROM GESER

Impressed Strip Bowls

Johnson attributed impressed strip bowls to the Early Susa II phase (1973, p. 54, pl. 2:b, d). Neither this prominent type nor its cruder, simpler variety, dated by Johnson to the preceding Terminal Susa phase, occurs at Geser.

Heavy Lugs

Jars with heavy lugs are attributed to the Early Uruk phase by Johnson (1973, p. 54, pl. 5:c). This type, however, does not seem to occur at Geser, Chogha Mish, Abu Fanduweh, or Susa.

Other Types

As mentioned above, the pottery assemblage of fourth-millennium B.C. Geser is limited and numerous common types that occur regularly at Susa, Chogha Mish, and Abu Fanduweh are absent. Chief among the missing types are: (1)

band-rim bottles, (2) jars with grooved and incised shoulder decorations, (3) vessels with a variety of single or double nose lugs, (4) jars with round or flat twisted handles, (5) jars with low expanded band rims, and (6) jars with incised rocker decoration, to name a few.

EARLY THIRD-MILLENNIUM B.C. (GESER PHASE V, THE PROTO-ELAMITE PHASE)

The most noticeable and important aspect of cultural development in the Ram Hormuz region is that, unlike the core region of upper Susiana, 60 percent of the fourth-millennium sites continued into the proto-Elamite phase (see tables 7–9). Proto-Elamite ceramics as we know them from Susa, Abu Fanduweh, the Mamasani region,[33] and Fars[34] did not exist in the Deh Luran region, where ceramics from the Jemdet Nasr and Early Dynastic I–II phases dominate.[35] Thus it stands to reason to look to the regions east and southeast of Susiana for their origins. Furthermore, in terms of material culture, there seems to be another regional re-organization of the lowlands of southwestern Iran. Throughout the third millennium B.C., Deh Luran seems to be squarely in the Mesopotamian sphere of interaction; the Ram Hormuz region appears to have contact with both Susiana and the highlands; and Susa seems to have connection with all these regions.

As in Susa,[36] a number of ceramic forms and accessories from the Late Susa II phase continued into the proto-Elamite phase, many others disappeared, and some new forms and decorative schemes were introduced. The pottery is wheel made and in most cases is tempered with fine and very fine chaff (possibly animal dung). The assemblage consists of coarse, standard, and fine wares, as in the previous phase (figs. 42–44, 74–76, pls. 1:A–B, 3:C–F, 4:A–D). All the coarse and the majority of the standard vessel groups have a thin or a 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 (figs. 75:H, 76:I, K, 78:A–B, D–E), usually with a sharp carnation and one or two ridges on the shoulder (pls. 3:C, 4:A), spouted vessels (figs. 76:H, 78:F–G, pl. 3:F), cylindrical and bottle forms with or without nose lugs (fig. 78:G, I), low and high pedestal goblets (fig. 77:L–M), bell-shaped or flaring carinated bowls (pl. 4:B), standard and tall, slender beveled-rim bowls (fig. 79:D), and shallow trays (figs. 46:H, 76:D, 77:A). Gray ware does not seem to exist, but some examples of buff ware exhibit a thin gray wash (pl. 4:C).

The most characteristic feature of the pottery of the proto-Elamite phase is its surface treatment (pls. 3:C–E, 4), 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), commonly applied at least two different colors of wash to the exterior of the vessel; open forms received wash on both the interior and exterior surfaces (pl. 4:D). Washes range in color from bright red to maroon to light brown, dark brown, and sometimes even gray-brown. The wash is applied unevenly and the vessel surface is often streaky. The firing process must have been complicated as the layers of wash and paint are all baked (see, for example, pl. 3:C).

Apart from the colorful washes applied to the surface of the pottery, both open and closed vessel forms 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. Examples of a simpler band decoration first appeared at Susa Acropole I level 17, that is, the end of the Susa II sequence at Susa.[37] In addition, some large shouldered jars of the same phase are decorated with a single or multiple fine ridges that are almost always applied above the carination. Such Late Susa II decorations, if they actually are of that phase, do not occur at Chogha Mish; this suggests that Chogha Mish must have been abandoned by the time of Susa Acropolis Level 18. It also suggests that Susa Acropolis Level 17 may be considered as a transition to the following proto-Elamite phase in Level 16.

As mentioned above, while most of the forms, especially jars, continued from the preceding phase, the proto-Elamite pottery exhibits strong predilection for multi-color surfaces, almost always covered with two different colors of wash. In excavation, proto-Elamite ceramics as described here are unmistakable; but as the surface sherds are exposed to the elements on the mounds they lose their surface treatment and may look very much like the forms of the Late Susa II phase, except for the chaff temper that separates them from those of the Late Susa II pottery.[38]

[33] Phases A13 to A12a and A10, A9 at Nurabad are badly mixed, but proto-Elamite ceramics are well represented in phases A8 to A5 and possibly A4 (Potts et al. 2009, pp. 321–45).

[34] Nicholas 1990, pls. 13–24.

[35] Neely and Wright 1994, pp. 28–29

[36] Le Brun 1971. For detailed comparison of the Late Susa II and proto-Elamite ceramics from Susa, see Dittmann 1986.

[37] Le Brun 1971, pp. 192–205; 1978, p. 192, fig. 36.

[38] This distinction is valid only for upper Susiana, as noted by Le Brun (1971, p. 192); in the Ram Hormuz region, where even the Susa II-related pottery is chaff tempered, the distinction becomes more difficult.

There are some major differences, however, between the proto-Elamite ceramics found at Susa and those found in the Ram Hormuz region and at Abu Fanduweh. At Abu Fanduweh and Geser (and other sites in the region) the pottery is primarily chaff tempered with usually light gray core and many forms are common between the two sites. At Susa there seems to be a regional variation in many forms and the chaff-tempered pottery, if we discount the beveled-rim bowls and shallow trays, constitutes a very small percentage of Susa Acropole levels 16–14. Moreover, there is a complete absence at Abu Fanduweh and Geser of the polychrome and monochrome painted (known as "First" and "Second Style") of the early third millennium B.C. The latter wares have connection to both the Diyala and central Zagros regions and are also found in the Deh Luran plain (see also Carter 1980, pp. 16–17). As mentioned above, the proto-Elamite pottery as it is known from Abu Fanduweh and Geser shares much with the ceramics of Late Banesh in Fars, Kerman (Yahya IV), and the contemporary Central Plateau sites, especially from Arisman (Helwing 2011, figs. 14–26), Ozbaki (Majidzadeh 2000, fig. 51, pls. 14, 24, 27), and the newly discovered site of Tappeh Sofalin near Tehran that also yielded a large number of proto-Elamite tablets (Hessari 2011). Excavations at Kunji Cave graves of the third millennium B.C. yielded a large number of typical proto-Elamite mono- and poly-chrome globular or carinated jars often with a thick wash and simple band or complex geometric decoration on the shoulder (Emberling et al. 2002, figs. 8:c, 10:d, 11, 26, 27:a).

THE PROTO-ELAMITE SPHERE OF INTERACTION

The proto-Elamite pottery that is defined, described, and illustrated here has a specific geographic distribution in western Iran and is often accompanied by administrative tablets. It does not appear in Deh Luran at all, where the pottery is much influenced by the polychrome and monochrome ceramics of the Diyala and the western Zagros regions (Neely and Wright 1994). In upper Susiana, it appears at Susa (Le Brun 1971), Abu Fanduweh (Alizadeh n.d.), and at a few much smaller sites, primarily in the central sector of upper Susiana between the Karun and Dez rivers (Alden 1987, fig. 41). The northeastern and northern sectors of the plain seem to be devoid of any settlements, a type of landscape that harks back to the events that began in the fifth millennium B.C. Even the small sites in the central sector of the plain are considered by Alden (1987, p. 160) as temporary campsites.[39] The shallow and narrow valley between the Kupal ridge and the foothills of Lali and Masjed Suleiman (fig. 103) is another strong nomadic area that serves as a natural corridor linking the Ram Hormuz region to northern and central Khuzestan. It is important to note that this region has almost identical settlement history to that of the Ram Hormuz region, that is, it was settled during the final stages of the Late Middle Susiana phase and continued uninterrupted until the end of the proto-Elamite phase, with a similar gap of some 800 years until the area was re-occupied during the Sukkalmah period and continued into the first millennium.[40]

Except for Tol-e Nurabad, in the Mamasani area, just as in Masjed Suleiman-Lali and the Ram Hormuz region, contact with Susiana was established in the Late Middle Susiana period, which is then developed progressively into the typical painted potteries of the Bakun B2 and the following Gap phase.[41] Also, unlike the Ram Hormuz region, the Susa II pottery assemblage in the Mamasani area is primarily limited to beveled-rim bowls, coarse trays, and perhaps a few jars (see below for later assemblages).

In Fars, the Middle–Late Banesh pottery has produced the closest, though limited and not exact parallels for the lowland proto-Elamite pottery; but unlike the proto-Elamite pottery in the Ram Hormuz region, almost all are tempered with sand/grit.[42] This distribution pattern indicates that this specific class of pottery may have its origins in the highlands somewhere east and southeast of lowland Susiana, although it has yet to be reported from the inner Zagros Mountains, an area that is still awaiting systematic survey and excavation. Although the Kur River basin was not completely desettled after the Middle–Late Banesh/proto-Elamite phase (Sumner 1986b; see also Alden 2013) and the region continued to have settled population during the following Kaftari phase, the severe reduction in the settled sites is similar to the areas just mentioned (ibid., pp. 206–09). Sumner attributes this almost 1,000 years of desettlement to soil salinization (ibid., p. 207). This hypothetical salinization may have occurred, however, a millennium seems simply too long for the land to recover, and as we offer in *Part II*, the reduction in the settled population, which was not limited to the "salinized" Kur River basin but was common elsewhere in southwestern Iran, may have been caused by sociopolitical factors in the third millennium B.C.

[39] Alden (1982, 1987) does not provide a definition of the proto-Elamite sherds he collected in his survey, but from the twenty-one sherds he illustrated (1987, fig. 42:1–21), most have gray core, eleven have no chaff inclusion, and the remaining have a mixture of chaff and grits. It is impossible to tell whether the grits were a natural component of the clay or intentionally added.

[40] See Moghaddam and Miri 2007 for the sequence.

[41] Potts et al. 2009, figs. 3.82–3.86.

[42] Nicholas 1990, pp. 58–63, pls. 14:a, 17:f, 18:b, 19:c, g, t; Sumner 2003, pl. 18:c.

As mentioned previously, Late Susiana 1 and proto-Elamite ceramics have the widest geographic distribution of all phases prior to the Sasanian phase. The proto-Elamite distribution pattern slightly differs from that of the Late Susiana 1 in that it is not reported from the western Zagros region, where the Jemdet Nasr/Early Dynastic-related Godin III ceramics dominated.[43] We believe this is not an accident of discovery; rather, this distribution pattern may reflect the increasing sociopolitical developments among the early highland Elamite political entities that vied for regional economic and political hegemony within a sphere of interaction that included the intermontane valleys of the Zagros as well as highland Fars and perhaps Kerman.[44]

Tangible contact between the Central Plateau, highland Fars, and lowland Susiana began in the fifth millennium B.C. This was the time when lapis lazuli, turquoise, and copper appeared in the lowlands and highland Fars (see *Chapter 9* for detailed discussion). This incentive to procure raw materials and prestigious goods from the Central Plateau may have continued until the invasion/migration of a people with typical Bronze Age gray-black Caucasian pottery[45] disturbed this sphere of interaction to the point that many early Bronze Age settlements in the western Central Plateau, including Ghabrestan, Arisman, Sofalin, and Sialk, were abandoned and the world of proto-Elamite shifted to the east, where contacts can be seen at Shahdad, Konar Sandal, and Shahr-e Sokhteh, to name a few, and Malyan was reduced to a much smaller settlement and did not recover until the Sukkalmah phase.[46]

RAM HORMUZ AND THE THIRD MILLENNIUM B.C. DISTURBANCE IN THE REGIONAL ORGANIZATION AND OCCUPATION

Shortly after 2800 B.C., the entire Ram Hormuz region became desettled[47] until the beginning of the second millennium B.C. The events that took place during the Early Bronze Age in the Central Plateau cannot be decoupled from the events that occurred in lowland Susiana and highland Fars. The short proto-Elamite phase (ca. 3100–2800/2600 B.C.) was followed by the reorganization of society in southwestern and southern Iran. The Ram Hormuz region became completely devoid of any settlement. In Susiana, a period of resurgence of Mesopotamian influence was followed by Early Dynastic and Akkadian political and material domination (Carter and Stolper 1984, pp. 11–16). There is no apparent reason why the Ram Hormuz region should have been left unoccupied 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.

Godin III:5–4 ceramics are attributed to the Shimashki polity, based on the assumption that this polity arose somewhere in the central Zagros area (R. Henrickson 1984). As we argue, it is not the Godin III ceramics that should be attributed to the Shimashki polity but, rather, the Kaftari ceramics, which seem to be a much better candidate for the Shimashkians. Godin III dates to the period of ca. 2600–1400 B.C., roughly the same period as the Kaftari in Fars. Nothing related to Godin III pottery is found in Fars, particularly in Anshan (Malyan), where historical records make it clear that it was a major Shimashki center, if not its capital city (Carter and Stolper 1984, pp. 16–19; Potts 1999). The characteristic ceramics of late third-millennium B.C. Anshan are known as Kaftari with no real connection to the Godin III ceramics; and if Alden (n.d.) is correct, there was no gap between the Late Banesh and Kaftari phases, and Kaftari pottery may have developed out of those of Late Banesh and as such may be attributed to both the Shimashkians and the Sukkalmahs.[48]

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[43] R. C. Henrickson 1986, 1987. Godin III:6 related ceramics are reported from Susa (Steve and Gasche 1971; Carter 1980), but this is a post–proto-Elamite occurrence, where Susiana was somehow controlled by Mesopotamian forces.

[44] Just as at Arisman in the Central Plateau (Helwing 2011), at Tappeh Yahya in Kerman, typical proto-Elamite pottery occurs alongside the local ware; see Lamberg-Karlovsky 1971, fig. 2.

[45] See, for example, Fazeli and Abbasnezhad Sereshti 2005; Kroll 2005; Fahimi 2005; Young 2004.

[46] Sumner, though never explicitly, left open the question of the continuation of proto-Elamite Malyan into the later Kaftari phase. John Alden's recent analysis of the pottery and data shows what Sumner always expected that there was a continuation and that Kaftari pottery did develop out of the Late Banesh tradition (Alden n.d. and pers. comm.).

[47] This neologism is offered to make a distinction between the abandonment of a region's settled population and the presence of mobile agro-pastoralists with no fixed settlements. I am using it as an alternative to "deserted" and "depopulated" since the population in such cases adopted a mobile way of life without abandoning the region.

[48] See Carter and Stolper 1984, pp. 11–28, 151; Petrie, Chaverdi, and Seyedin 2005. We revisit this question below, but suffice to it say here that if pottery is any indication, the Godin III tradition of the central Zagros region (presumably the homeland of the Shimashki) never reached Fars, Ram Hormuz, or Deh Luran, although jars with similar painted tradition are found at Susa. Not a single sherd was found at the nearby Abu Fanduweh, whose early third-millennium pottery is typical proto-Elamite in the traditions of Fars and Ram Hormuz, suggesting that Susa was operating in more than one sphere of interaction. See also Gasche 1973; Carter and Stolper 1984, p. 152. Kaftari ceramics, not those of Godin III, also appear in Kerman at the same time (Lamberg-Karlovsky 1977, pp. 42–43).

It is important to note that the Kaftari ceramics, primarily a highland type that developed in Fars following the Late Banesh phase,[49] do not occur in the Ram Hormuz region. Kaftari pottery is wheel-made with chaff and straw inclusions. Examples can be plain, painted (primarily closed forms), covered with red wash/slip, or burnished. In cases where the surface is not treated, it has a straw face. In the Kaftari ceramics, birds are the only animal motifs that decorate in many shapes and styles the closed forms made of monochrome buff ware, but not the red slipped or buff open forms (Sumner 1999). The painted Kaftari pottery is characterized by painted motifs such as files of birds facing left and placed in a fussy geometric matrix (Gasche 1973, pl. 30:3–4a–c; Lamberg-Karlovsky 1977, pp. 42–43; Sumner 1999; Alden n.d.). As in many chaff-tempered ceramics in the Ram Hormuz region, Kaftari ceramics sometimes show calcite blooms and particles as well as occasional grits that seem to be a natural part of the clay rather than an intentional additive. Some Kaftari ware characteristics are common with the Sukkalmah/Transitional painted ware found in upper Susiana, the Ram Hormuz region, the Mamasani region, and the valleys of Yasuj, just north of Nurabad (see below).

Parallels for the Kaftari ceramics primarily come from upper Susiana and Susa in particular. In comparison with the Sukkalmah pottery forms from upper Susiana, the Sukkalmah ceramic repertoire from Geser and the region is limited. In addition, there are other regional differences between the ceramics of the two regions. For example, Ram Hormuz pottery seems to have been baked at a higher temperature, and simple painted bands decorating the upper parts of the vessels occur more frequently (figs. 27:A, 29:E, 30:M, 36:D; see also Carter 1971, pp. 262–63). Finally, the contemporary Isin-Larsa prominent white-filled incised gray pottery types are completely absent from Ram Hormuz.

Historical information (Carter and Stolper 1984, pp. 16–32), too, makes it clear that not only was Anshan the center of the rising Elamite polity of Shimashki, but also of the Sukkalmahs, who also inherited the triumvirate political structure of the Shimashkians; the first occurrence of the honorific title "King of Anshan and Susa" was held by Ebarat, but also earlier by some Shimashkian rulers (Potts 1999, p. 147). It is also important to bear in mind that, after Malyan was reduced in size following the Late Banesh phase and most of the sites in the region were abandoned, it was with the rise of the Shimashkians and later the Sukkalmah that Anshan began to grow in size and the number of permanent settlements rose, when kings of Anshan and Susa brought stability and wealth to the region.[50]

Similar lack of evidence for the post-proto-Elamite occupation is recorded in the Mamasani region southeast of the Ram Hormuz region,[51] 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 period ceramic material from the Kur River Basin" (Potts et al. 2009, p. 178). An examination of the sample pottery illustrated in the Mamasani report[52] reveals, however, that despite some very general resemblance with the Qaleh ceramics (ca. 1600 B.C.) almost all the illustrated examples of painted pottery have their closest parallels with what is known in lowland Susiana and the Ram Hormuz region as Sukkalmah transitional painted pottery and as such hardly have any affinities with the known Kaftari ceramics from Fars (see below), which around 1600 B.C. was developing into the Qaleh ceramics. It is important to note that the maroon-on-buff/pink/light red ceramics of the Sukkalmah-Middle Elamite transition does not occur in Fars, nor does it occur in the Deh Luran region, but occurs in Susiana, though is not common; it is common in the Ram Hormuz region, the Mamasani area, and the valleys around the Shahr-e Kurd, northeast of the Ram Hormuz region and ca. 80 km directly north of Nurabad (Rezvani et al. 2007, and figs. 47–51, pls. 3, 15; here pl. 59). This is perhaps another indication of how complex the Elamite polities were in terms of material culture and tribal distribution and a source of confusion for both ancient Mesopotamian scribes and modern scholars.

SECOND MILLENNIUM B.C. (GESER PHASE VI, THE SUKKALMAH PHASE, CA. 1900–1600 B.C.)

Beginning with the mighty Sukkalmah dynasty, the Ram Hormuz region was revived. As discussed above, at Geser, and in fact in the entire Ram Hormuz region, there is a substantial stratigraphic gap in the ceramic sequence between the end of the proto-Elamite settlement around 2600 B.C. and the appearance of the Sukkalmahs around 1900 B.C. This long hiatus, however, should not be taken as the region's depopulation, but rather as a reflection of the volatile situation between the regrouping highland Elamite polities and the Mesopotamian forces in upper Susiana. Given the fertility of

[49] John Alden's recent analysis of the ABC pottery from Malyan has indicated no gap in the pottery tradition from the Late Banesh to the Kaftari phase, a possibility that Sumner always suspected (John Alden n.d., pers. comm.). In this regard, Sumner (1999, p. 94) notes that "... the Kaftari parallels often occur in assemblages with carinated vessels and other forms that are comparable to Late Banesh forms rather than Kaftari forms."

[50] See Sumner 1981; Carter and Stolper 1984, pp. 150–54.

[51] Potts et al. 2009, pp. 177–78.

[52] Potts et al. 2009, figs. 3.110–13, and 4.74–82.

the soil on both banks of the ʿAla River and the region's excellent pastures, the absence of mounded sites for almost 800 years in a fertile land with plenty of water does not necessarily mean absence of seasonal population (see Alizadeh 2010).

The Sukkalmah pottery primarily shares a large number of contemporary Mesopotamian forms — as do the Shimashki ceramics — and is well known and well defined in the literature (Carter 1971, 1979; Carter and Stolper 1984, pp. 146–48; Gasche 1973). As with the ceramics of other phases in the Ram Hormuz region except the proto-Elamite assemblage, the Sukkalmah assemblage is missing a number of forms attested in upper Susiana and Deh Luran. In the case of the Sukkalmah pottery, this should not be surprising, as the Ram Hormuz region is farther away from Mesopotamia and closer to the highlands, especially Fars, where the painted and plain Kaftari ceramics and their variations constitute the local Sukkalmah, and perhaps Shimashki, assemblages.

In the Ram Hormuz region, the Sukkalmah pottery consists primarily of plain and decorated wares; it is buff, primarily chaff tempered and often with a dark core (figs. 79:B, E, G–H; 80:A, E, H–I; 81:A–C, F-G, I–J; 82:A–B, C–G, I–K, N; 83:B–C, H, J–A–D, F; 85:A–B, D–F), unlike the contemporary pottery in upper Susiana, where the standard ware is usually a light green buff. The standard buff ware comes in shades varying from light orange or yellow on one side, to brown or gray on the other; the brownish gray ware reported by Carter from upper Susiana (1971, pp. 101f.), rare but typical of the phase, does not seem to have occurred in the Ram Hormuz region. While purely grit-tempered ceramics are rare, the grit or sand that is occasionally found mixed with chaff or straw in the paste may be a component of the clay. Larger forms such as vats and pots contain much more straw than smaller forms and are often chaff face, though in some examples a fine slip has covered the chaff underneath; this slip is occasionally of a different color from the paste. Nevertheless, when the color of the surface is lighter than the paste but of the same color, the slip may be an illusion made by higher temperatures the surface is exposed to during the firing. On smaller forms, a somewhat coarse surface with marked wheel striations on the base seems to be standard. Ridges on the body serve to emphasize the carination (fig. 80:G). Incised and excised wavy lines and imprints are common on vats and larger jars and bowls (figs. 80:E, 81:B, 82:G). Medium-size open forms with a disc base and semi-carnation and almost vertical upper body are common (this group is assigned by Gasche to group 3; Gasche 1973, pl. 3:15, Susa Ville Royale level B V).

In the closed forms, the shouldered jars with vertical or flaring necks, sharp shoulder carination, ring or foot bases, and wheel striations on the lower bodies are dominant (figs. 80:I, 83:L; Gasche 1973, group 21). Almost straight-sided flat-lip bowls with ribbing just below the rim or carination are also common (Gasche 1973, pl. 24:11, Susa Ville Royale level A XV). Jars without shoulders do occur but are not common (Gasche 1973, group 25). Another common type constitutes jars with a club rim (figs. 80:I, 83:L herein; Gasche 1973, group 25, pl. 28:20–21, Susa Ville Royale levels B IV, A XV). Other prominent forms are the large vats and storage jars with heavy rims and prominent ledges near the rim. In such vessels rim shape varies according to the stance of the upper body (Gasche 1973, pls. 42–48, groups 33–35); relatively vertical walls have ledge or club rims with a pronounced overhang, while incurving walls have normally, but not always, recumbent rims (Gasche 1973, groups 36–37).

THE PAINTED CERAMICS

In the Ram Hormuz region, a special and distinct class of painted pottery is associated with the Sukkalmah ceramics from the beginning (e.g., see fig. 28:A, C–D, F). In upper Susiana this specific painted pottery seems to have appeared much later, around 1600 to 1400 B.C., and there it is attributed to a phase between the Sukkalmah and the Middle Elamite periods (ca. 1400 B.C.) known as the "Transitional" (Carter and Stolper 1984, p. 164).

This ware is chaff tempered, chaff face, and almost always has a dark core that is sandwiched between two layers of pinkish buff, light brown buff, and pale red layers. The surface may be slipped and is usually pinkish buff, but shades of buff and light red also occur. The majority of the examples of this class of painted pottery seem to be small to medium-size globular pots with very gentle shoulders (fig. 28:C–D, pls. 1:C–D, 88); the painted designs are applied exclusively to the shoulder and include simple straight and wavy lines ranging from red to maroon to dark brown in color.

This type has a marked geographic distribution. It appears in upper Susiana (Susa, Abu Fanduweh, and Haft Tappeh), the Ram Hormuz plain and its continuation into a narrow corridor between the Kupal anticline and the foothills of Masjed Suleiman,[53] in the Mamasani region,[54] and in the Lama cemetery north of Yasuj,[55] some 70 km directly north of Nurabad Mamasani, and in Fars (Carter 1996, p. 25, fig. 27), where it might have developed out of the Kaftari/Qaleh tradition, but in the Ram Hormuz region never with the bird motif. This pottery does not occur in the Deh Luran plain

[53] Moghaddam and Miri 2007, fig. 14.

[54] Potts et al. 2009, figs. 4.69: TS 1265, 1403, 1257; 4.76: TS 1091, 1085, 1030; 4.79; 4.127: TS 1516, 1257; 4.129: TS 1085, TS 1030, passim.

[55] Rezvani et al. 2007, pls. 15–16, fig. 48.

and its southeastern boundary seems to be the Kur River basin. In the Mamasani plain it is reported from the excavations at Tol-e Nurabad and Tol-e Espid phases 17–14, again, never with the bird motif. Based on a series of radiocarbon dates,[56] the said Nurabad and Tol-e Espid phases are dated from ca. 1800 to 1600 B.C. While these dates imply that this specific painted pottery disappears in the Mamasani region by the end of the Sukkalmah phase, in upper Susiana and in the Ram Hormuz area it continues into the Transitional phase, ca. 1600–1400 B.C. Again, no painted highland Kaftari or Qaleh ceramics, typical for the Shimashki and Sukkalmah phases in Fars, appeared in the Ram Hormuz area, but the red/brown/maroon-on-pink/buff/red/greenish buff may be related to the same highland tradition of painted wares. Nevertheless, the solid triangles painted on the shoulder of some Geser (fig. 79:B) and Mamasani jars are reminiscent of some of the Qaleh painted ceramics.

THE TRANSITIONAL PHASE (1600–1400 B.C.)

Spatially, the Transitional phase seems to be limited to upper Susiana, as the excavations at Tall-e Geser indicate that both the plain buff of the Sukkalmah phase and the "'Transitional" painted ware disappeared together and were gradually replaced by the ceramics known as Middle Elamite. Archaeological evidence of this poorly defined phase has been found at Susa Ville Royale A levels A XII–XI,[57] at Haft Tappeh,[58] and at Sharafabad,[59] all in the upper Susiana region. Carter (Carter 1971; Carter and Stolper 1984, p. 156) defines this phase as the time span between the end of the Sukkalmah phase (ca. 1600 B.C.) to the rise of the Middle Elamite dynasties in the late fourteenth century B.C., that is, from the last Sukkalmah king, Kuk-nashur (ca. 1646 B.C.), to Tepti-ahar (ca. 1350 B.C.), a last king of what Stolper calls "Early Middle Elamite," whose kings resided not at Susa but at Kabnak, that is, Haft Tappeh.

Typical for this phase is a grit/sand- and straw/chaff-tempered painted buff pottery with a pale red or pinkish buff paste. At Geser, this painted pottery seems to have appeared earlier than in Susiana, hence the Sukkalmah/Transitional assignment in our periodization. A variety of elegant spherical jars with button, stump, or pedestal bases commonly occur alongside simple, straight-sided bowls with string-cut bases with rounded or cut rims. The chaff-tempered, chaff-faced, red/brown/maroon-on-pink/pale red/buff painted of the previous phase continued into this phase as well. This type seems to be more at home in the Ram Hormuz area than it is in upper Susiana (pls. 79, 91).

Based on the materials from the sites just mentioned, as well as on those from Geser, a variety of round-shouldered, button/stump or pedestal-base jars and goblets, ranging from a sagging to a more elongated and angular-bellied forms, to a much elongated ovoid jar, are the most characteristic (pls. 75:R, V, 77:F–H). Cylindrical goblets[60] and the step-shouldered jars,[61] both very close to the similar Sukkalmah types, are also characteristic of this phase. Since neither type occurs in the securely dated Middle Elamite Chogha Zanbil, they seem to be a good diagnostic for the Transitional phase.

It must also be noted that during this phase, or during any other Elamite phase before and after, Geser did not produce any historical documents in Sumerian, Akkadian, or Elamite. Considering that Tall-e Geser was the regional center and presumably an important communication node until the Middle Elamite phase when Tappeh Bormi (RH-011; pls. 13–14, 84–88) seems to have replaced it, the absence of textual material there is puzzling.

THE MIDDLE ELAMITE PHASE (GESER PHASE VII, 1400–1000 B.C.)

The Middle Elamite phase is a comparatively well-known and well-defined historical and archaeological phase, dated to ca. 1400 to 1000 B.C. (Miroschedji 1981a; Carter and Stolper 1984, p. 164). The ware of the pottery is primarily buff or light brown with possible buff slip and chaff or combination of chaff and sand/grit temper. Conical bowls, Elamite goblets, globular pots with sharp carinated shoulder, jars with button base, band-rim jars, and funnel-base vats are the most characteristic forms in this phase (figs. 31:D–E, 32:A–H; pls. 76:A–L). Compared with the Sukkalmah phase, the repertoire of the ceramic forms is now limited, a characteristic that is attributed to the increasing urbanization and centralization of this craft (Carter and Stolper 1984, p. 164).

[56] Potts et al. 2009, p. 124–25, table 4.4.

[57] Steve, Gasche, and De Meyer 1980; Miroschedji 1978.

[58] Negahban 1969; Carter 1971, pp. 93–94; Carter and Stolper 1984, pp. 156–59.

[59] Schacht 1975.

[60] Gasche 1973, group 19b, pl. 22, A XII; Schacht 1975, fig. 6:m.

[61] Gasche 1973, group 21b, pl. 22; Carter 1971, pp. 97-98; Miroschedji 1978, p. 255; Schacht 1975, fig. 6:a–c, h–j.

THE NEO-ELAMITE PHASE (GESER PHASE VIII, 1000–550 B.C.)

It seems that, beginning with the Neo-Elamite phase, or even late in the Middle Elamite phase, Mound A at Geser was completely abandoned; some post-Sasanian sherds that have no context might indicate the presence of temporary camps. The remains of the Neo-Elamite and the succeeding phases were concentrated in the northwestern group of mounds in the complex (fig. 1).

The ceramics of the Neo-Elamite I phase are well published, but seem to be missing from Geser and the region as a whole. It is therefore difficult to discuss the evolution of the ceramic types from the Middle Elamite phase, which itself is not documented in the long sequence of the Step Trench, appearing at Geser in the following areas: figs. 29:I (Trench 2), 31:A–D, H–J (Mound B), 34:C–E, H–I (Fort Mound); 35:A–C, E–F (Fort Mound); 36:B–C (Fort Mound); 92:A–B (Trench 2); pls. 5:C–F; 75:B; 80:E; 103:D; 120:G, L; 125:D; 165:C–D, F–H, L; 181:A–D, G.

The pertinent archaeological materials come primarily from Susa Ville Royale levels 9–8 (Neo-Elamite I) and levels 7–6 (Neo-Elamite II), as well as from the Achaemenid Village I and Apadana Trench 5223. This period is divided archaeologically by Miroschedji (1981a; 1981b; 2003, pp. 34–35) into Neo-Elamite I (1000–725/700 B.C.) and Neo-Elamite II (725/700–535 B.C.) phases based on both historical and archaeological evidence. Historically, it is dated from the end of the Elamite king Shilhina-hamru-Lagamar (ca. 1120 B.C.) and the end of the reign of Humban-haltash III (648–642(?) B.C.). From 1100 B.C. to the rise of Humban-nikash (743–711 B.C.), the first known Neo-Elamite king, the evidence is primarily archaeological. The Neo-Elamite I phase corresponds with the so-called Near Eastern "dark ages," which may have been caused by the relentless penetration of the Indo-Iranian tribes into the Near East.

The Neo-Elamite I phase is a period of desettlement of the lowlands. It is also a period of Assyrian expansion into the central Zagros region as well as incursion of the Aramean and Sutian tribes (Carter and Stolper 1984, pp. 188–89). But it must be the wholesale migration of the Indo-Iranian tribes deep into the Zagros and highland Fars that deprived the lowland Elamites of their primary resources and refuge (Alizadeh 2010). While in the previous phases Fars shared with lowland Susiana similar traits in material culture, no such connection is noted in the first millennium B.C.

The following Neo-Elamite II phase is much better documented in upper Susiana, especially at Susa. The ware of this phase in general ranges from dark buff to light reddish brown with chaff and a combination of chaff and sand/grits. In general, squat carinated pots and band-rim jars continue; the prominent Elamite goblets become extremely rare and completely disappear in Ville Royale II level 8. New to this phase are simple bowls and jars with convex base, bottles, and vessels decorated with fine incised wavy bands. Prominent among the following Neo-Elamite II phase buff ware are cups with flat base (fig. 35:A–C), goblets (fig. 33:G), elongated pointed based jars (fig. 33:K), most with strong wheel striations and string-cut bases (Miroschedji 1981a, pp. 158–59, fig. 51; Carter and Stolper 1984, p. 184).

THE ACHAEMENID PHASE (GESER PHASE IX, 550–331 B.C.)

We are not confident in our knowledge of the Achaemenid ceramic repertoire, particularly between 600 and 400 B.C.; for much of our knowledge about Achaemenid pottery is based on the fourth century B.C. Persepolis fortification pottery. Moreover, the mounded site of Geser and two others on the west bank of the ʿAla River seem to be different from those we found on the east bank (pls. 33–34). Here, sites are almost always flat (seasonal?) and very small (pl. 54), with an average of 0.80 ha (see table C11). This pattern makes the estimate 13.62 ha of the total area of occupation even more uncertain, and only systematic excavations may shed light on the extent of Achaemenid occupation at these two relatively large regional centers (pl. 25; RH-001, 058).

Consistent with the apparent seasonal nature of the Achaemenid sites in the Ram Hormuz area, the recovered Achaemenid sherds belong to small groups of open and closed vessels. The pottery has a buff or light brown paste, sometimes with a very pale gray core. It is tempered with fine chaff, often mixed mica and sand, which may be natural components of the clay. In open forms the surface bears a reddish or reddish brown wash that flakes easily. The repertoire of Achaemenid pottery from the Ram Hormuz region is limited, and without radiocarbon dating it is impossible to estimate the date of its initial appearance. But the small assemblage from both Geser and the survey does not suggest an early date (550–500 B.C.). Carinated bowls with out-turned lip (the so-called phiale), globular, unshouldered jars, and straight-sided bowls with flat or very low ring base are common (figs. 30:F, 33:A, pls. 104:K–L, 120:H–R, 137:A–B, 180:E–L).

PARTHIAN AND SASANIAN PHASES (GESER PHASE X, 250 B.C.–A.D. 224)

We could not identify any sherds belonging to the Seleucid phase and could not distinguish between Parthian and Elymaean sherds in the region. The extent of the occupation of the Parthian and Sasanian phases at Geser and in the region is difficult to estimate. We found a few in the collection, two from Fort Mound Level 1B (fig. 34:J); our own survey did not reveal any certain first-millennium A.D. ceramics from the complex. However, Wright and Carter (2003, p. 76) report that, as in the Neo-Elamite and Achaemenid phases, the few Parthian and Sasanian sherds that they found came from the mounds of the northwest cluster of the Geser complex (fig. 1, Fort Mound and Mound D). Since the town of Ram Hormuz was founded during these phases, it is possible that Geser lost its previous status as the major center and was replaced by the town itself, a status that the town of Ram Hormuz retains to this day.

In our survey, however, we found a large number of sites (tables 14–15) with Parthian and Sasanian ceramics (see *Part II* for examples). Parthian pottery comes in three major categories: coarse, fine, and glazed wares. Coarse ware comes in drab red, orange, buff, brownish buff, and grayish buff, with chaff and large mineral inclusions as well as calcite particles; the core is often gray. The standard or fine ware ranges in color from buff to greenish buff, pinkish buff, and whitish buff. The paste is primarily well oxidized and tempered with chaff, grits, or a mixture of both; occasionally the paste has calcite particles.[62] A small class of Parthian painted pottery is reported from Bard-e Neshandeh and Masjed Suleiman (Haerinck 1983, pp. 25–27), but none have been found either at Geser or other sites in the region. Equally absent from the Ram Hormuz assemblage is what is known as Parthian "clinky" ware (Haerinck 1983, pp. 41–43). During our survey, we did find a number of club-rim sherds that are typical of the so-called Parthian "torpedo" jars, but no body sherds (pls. 82:O, 90:B, 102:B, 116:D).

The glaze applied to some class of Parthian ceramics is of poor quality compared with the Sasanian and post-Sasanian glazed wares. The color varies from off-white to light green and light yellow through blue green. The forms are limited to the so-called fish plates, large and medium bowls with fancy lips, and a variety of one- or two-handled jugs and flasks. Vessels can be glazed on the exterior, interior, or both.

The fine ware is well fired, smoothed, and usually has a light brown to creamy white slip. The color of the paste ranges from yellowish buff to red, reddish brown, and grayish buff. Most of the examples of this ware have a small amount of sand in the paste, but sometimes fine chaff is included. This class of Parthian pottery is characterized by a number of different complex rims with grooves on and ridges below the rim.

THE SASANIAN PHASE (GESER PHASE XI, A.D. 224–651)

There seems to be a strong continuation of the Parthian tradition of pot-making into the Sasanian phase. The Sasanian pottery can be divided into fine, standard, coarse, and glazed wares. The fine ware consists almost exclusively of thin-walled, conical, and hemispherical bowls with tapered lip and straight-sided vases. The color ranges from light buff to pale greenish buff with or without sand inclusion (see *Part II* for examples).

The Sasanian common ware, by far the most abundant, is creamy white, light and dark buff, or beige buff ware with the surface often untreated. The paste has mineral inclusion that is sometimes mixed with chaff. Forms range from various types of shallow basins and medium to large bowls with beaded, everted, club, band, and ledge rims. One- or two-handled jugs with high neck and large jars with pointed base and ribbed body also occur. Open bowls often have on the tip of their rim or just below it a finger-impressed band as decoration. Similar decoration is applied to some of the glazed vessels as well. Both vessels of the standard and fine wares also share incised, combed, and appliqué decorative patterns of primarily geometric shapes.

The glazed ware has a granular, sometimes porous paste that is usually yellow or yellowish buff in color. The inclusion, when visible, seems to be fine minerals, probably sand. The color of the glaze includes blue, greenish blue, and yellowish white (figs. 90:M–N, 105:L, 148:G, K, M). The typical two-handled jars with narrow neck of the Parthian phase continue into this phase (fig. 107:A). Other glazed forms include the forms cited for the common ware.

The coarse ware primarily is used for cooking pots and, occasionally, shallow basins. As with the fine ware, this category makes a very small percentage of the assemblage. Most of the pots in this category are provided with two

[62] Thanks to the staff of the Haft Tappeh chemical laboratory, our chemical analysis of the white particles in the paste indicates that they are composed of $CaCO_3$, a calcium carbonate.

handles but pots with no handle also occur. Both dark and brown grits and chaff, sometimes together, are used as tempering agents. The color of the ware can be dark red, reddish buff, brownish buff, and light brown (see, e.g., pls. 80:F, H, 82:A, G, J–K, 107:C–G).

THE POST-SASANIAN PHASE (GESER PHASE XII A.D. 651–900)

We could not identify with any certainty any post-Sasanian pottery at the Geser complex, but many other sites in the region yielded ceramics from this phase (see *Part II* and table C14). The Sasanian tradition of pottery-making techniques continued into the first centuries after the Arab invasion. As in the Sasanian phase, coarse, standard, fine, and glazed wares are the major categories in these early centuries of post-Sasanian Ram Hormuz (see *Part II* for examples). A large number of decorative schemes exhibiting fine and complex floral and geometric patterns decorate the molded bowls and jars. Jars with long splayed necks and slender, studded handles (Kervran 1977, fig. 31) are very common, but not in the Ram Hormuz region. Large flat-bottom basins with excised wavy lines or finger-impressed band just below the rim also continue into the early post-Sasanian phase (see pls. 81:F–G, 113:G, J).

The glazed open bowls of this phase display a variety of floral patterns under the glaze (lusterware), but none was found in the Ram Hormuz region. Kufic writing as decorative scheme was also employed a bit later in the phase, but none could be found in the Ram Hormuz region. Since the lusterware and a variety of glazed open bowls are dated to the ninth century A.D. (Kervran 1977), the possibility of a short gap in the occupation of the early post-Sasanian phase in the Ram Hormuz region is strong; it is also possible that the lack of these luxury items simply reflects the socioeconomic and demographic structure of the region that seems to have been its hallmark from the beginning of its occupation during the Late Middle Susiana phase. This latter possibility becomes even stronger when we consider the fact that not even a single Parthian, Elymaean, or Sasanian coin was found either in excavations or surveys. Even post-Sasanian coins are rare; we did not find any coins in our survey, nor did Wright and Carter note such discovery in their 1969 survey. Geser itself produced two copper coins of the post-Sasanian times, but these are in bad shape and cannot be dated (not illustrated). While there is no doubt that coins must have been used in the region, especially in the provincial town of Ram Hormuz, which rose to prominence starting with the Parthian phase and continued to be the only urban center in the region to this day, a money-based economy does not seem to have been the norm in the region as a whole, the primary mode of economic interaction must have been barter and exchange, typical of all mobile pastoralist tribes until the twentieth century.

THE SELJUK, ILKHANID, TIMURID, SAFAVID, AND QAJAR PHASES (GESER PHASES XIII–XVII, 10TH TO EARLY 20TH CENTURIES A.D.)

The Geser complex may have also been insignificant or sparsely occupied during the eleventh through fourteenth centuries A.D., but it seems to have been extensively occupied at least from the Safavid phase (pl. 2:A–F). In our survey of the Geser complex, we only found Safavid glazed pottery on Mound A. Moreover, no traces of settlement were found in any of the excavated areas by McCown, and the few that are illustrated on plate 2 come exclusively from the Stake Trench with no associated architecture. Therefore, the estimated 8 ha of occupation at the Geser complex during this phase is based on Wright and Carter's report (2003). Our description of the ceramics of the eleventh through seventeenth centuries A.D. is therefore based on the materials we gathered in our survey (see *Part II* for examples).

A distinctive series of painted sherds is found on the sites that span from the tenth to the fifteenth centuries A.D. The pottery is known as "pseudo-prehistoric" and is poorly made and has a mixture of sand, grits, grog, and even straw. It is painted unskillfully with simple geometric lines in red and maroon. This pottery is found in the same period in Syria, Mesopotamia, and southern Iran. Donald Whitcomb first noticed and reported it from Fars (Whitcomb 1991, here pls. 117:P–R, 123:M [RH-065B], 159:A, E–F, H, 167:P, R).

CHAPTER 5
ADMINISTRATIVE TECHNOLOGY

Even though Tall-e Geser has been almost continuously occupied from the late sixth millennium B.C. to today and is one of the largest sites in the region, the evidence of administrative technology for any phase is very slim, a fact that might be a reflection of the political economy of not only the site itself but of the region throughout its history of occupation. It is, of course, always possible that the dearth of evidence of administrative technology at Geser is an accident of discovery; but, given the fact that large areas of the site complex have been excavated, this possibility may be very slim.

THE ADMINISTRATIVE ASSEMBLAGE

Two stone and one baked clay stamp seals and a single clay token (see below) comprise the entire corpus of administrative objects from the fifth millennium B.C. All three stamp seals come from the Step Trench; figure 88:A and figure 87:A were found in Levels 6 and 7 respectively, corresponding to the late fifth millennium B.C.; figure 87:B (pl. 6:D–E) was found in the much later Late Susa II context (Level 31). The seals and the clay token date to the Late Susiana 2 phase and have their closest parallels from the contemporary Tall-e Bakun A in highland Fars.[63]

Only two cylinder seals were found in the entire Geser complex. One (pl. 6:A, fig. 87:C) belongs to the late fourth millennium B.C., probably of proto-Elamite date, and the other, made of faience (pl. 6:C, fig. 87:D), dates to the Middle Elamite phase. No sealings were found.

A faience scarab (fig. 87:I) made of yellowish paste was found in a mixed layer in the Stake Trench and may date to the Achaemenid phase. Emily Teeter, an Egyptologist at the Oriental Institute, believes the design consists of two uraei (snakes) that wear the double crown of Lower and Upper Egypt surrounding the *nfr* sign; below is the *nb* and above the *dšrt* signs, implying "Re is the good lord [of Upper and Lower Egypt]."

TOKENS

Various clay and stone spherical and discoid objects were found at almost all levels at Geser, which we interpret as tokens, though some may have been used as beads (figs. 87:E–G, 88:C–E, 98:D, H–I). None of these have any special markings or shape except for a single discoid clay token found in a mixed deposit at Stake Trench 7.5–8, Level 4 (fig. 88:F). A cross is painted on this token in brown ink, a sign known later in Sumerian as UDU, representing sheep (and goat). Based on several close parallels from Tall-e Bakun A in Fars (Alizadeh 2006, fig. 72:J, L–N), token figure 88:F must date to the late fifth millennium B.C.

TABLET

A single fragmentary proto-Elamite numerical tablet (fig. 87:H, pl. 6:F) came from much later Level 2 in Trench 1. The tablet is referred to in the literature as proto-Elamite, but it has only impressed signs with no pictographic or scratched marks that are typical of the known proto-Elamite tablets. It is also not strictly of the Late Susa II phase. As such, it may well belong to the very early phase of the proto-Elamite phase and is presumably the record of a grain transaction (Robert Englund, pers. comm.).

[63] Langsdorff and McCown 1942, pls. 81–82; Alizadeh 2006, fig. 76.

CHAPTER 6
SMALL OBJECTS

INTRODUCTION

The dearth of material objects at Tall-e Geser, a reflection of its economy and social structure as well as its taphonomy, does not allow for extensive treatment of each category in separate chapters. Therefore, we have included here all the objects traditionally treated as "small objects" as well as other categories such as stone vessels, metal objects and vessels, lamps, and the chipped-stone industry.

From the preceding chapters, the reader has noticed that a large number of archaeological objects and classes of pottery are missing from the archaeological assemblage at Geser. Apart from those that so far have been listed, we can also add that while most late fourth-millennium B.C. sites in upper Susiana produced baked clay and occasionally stone wall cones, only one example is found at Geser (fig. 98:J). Also, of the entire Elamite period, no stelae, no stone or metal sculptures, no written documents or stone reliefs, and no bitumen vessels have been found at the site and evidence of ceramic industry and metallurgy is non-existent. Many of these characteristics, particularly the lack of written documents, are shared by the sites in the Deh Luran region, even the major site of Tappeh Musiyan, and at Farukhabad (Wright 1981, pp. 218–19). The Mamasani region, another periphery/buffer zone area, demonstrates similar dearth of small objects and precious and semiprecious stones and metals (Potts et al. 2009). This shared characteristic of these marginal zones also suggests a shared political economy and social structure that were different from the core regions of Susiana and Fars. Whether the difference arises from the seasonality of the occupation or the low status of the political hierarchy in these regions is a question that requires systematic research in the intermontane valleys of the Zagros.

PERSONAL ORNAMENTS

Objects that can be interpreted as personal ornament are rare and limited in shape and material. Except for one made of the semiprecious stone carnelian (fig. 89:D), all are made of regular stone, frit, or blue glazed paste (fig. 89:A–C, E–M). A group of eight baked clay cylindrical beads (fig. 89:N) with no decoration may have been used as a necklace, though this is by no means certain.

ANIMAL AND HUMAN FIGURINES

The earliest examples of figurines at Geser are three animal figurines that belong to the proto-Elamite phase. The first is made of alabaster-like stone, common in the mountains just north of the site, and is actually an aviamorphic vase (fig. 90:A, pl. 7:D). As with many proto-Elamite examples, this vase had a base, now broken, and the eyes were indicated (for a similar example, see Amiet 1966, figs. 68–71). The second is made of the same type of stone, but is not strictly a figurine; rather it is a pendant in the shape of a quadruped, probably a bull or a cow (fig. 90:B). The third is a baboon/monkey figurine with a human body, also made of alabaster-like stone (fig. 90:C, pl. 7:D). The figurine is rendered in a sitting position with the arms raised perpendicular to the body and hands, presumably, covering the mouth, a style very common in the proto-Elamite phase (see Amiet 1966, figs. 72–74). The body is decorated with a series of fine herringbone-like excisions and covered with what seems to be red ochre paint, of which traces are clearly visible.

Much more common at Geser are the typical second-millennium B.C. humpbacked bulls made of buff clay with chaff inclusion (fig. 90:D–H).

The only baked clay human figurines discovered at Geser are the common Middle Elamite female figurines and plaques, rare at Geser (fig. 90:I–L, pl. 7:B–C). Such figurines are made in single-faced baked clay molds with flattened

back (visible in fig. 90:I–J). They come from mixed contexts and cannot be dated on the basis of stratigraphy and associated pottery. Nevertheless, the almost naturalistic features and anatomical proportions of the Geser figurines suggest that they may date to the early second millennium B.C. (Spycket 1992; Goodarzi-Tabrizi 1999).

METAL OBJECTS

Some twenty-six copper, bronze, and iron objects were found in the three mounds of the Geser complex, but only thirteen can be identified with any certainty (fig. 91). The recognizable pieces consist of chisels/awls, pins, projectile tips, rings, blades, and a mirror. No metal tool or object is reported from the fifth millennium B.C. One object, a pin/needle (fig. 91:H), comes from an Early Susa II context; none come from the Late Susa II. Six objects come from the proto-Elamite contexts in the Stake and Step trenches (2TG-37, 2TG-162, 2TG-169, 2TG-99, 2TG-168, and 2TG-110; fig. 91:B–D, G). From the first half of the second millennium B.C., the sole example (fig. 91:E) comes from Level 39 of the Step Trench. The remainders come from mixed and insecure contexts. The most interesting piece is a curved bronze dagger blade still in its original copper scabbard (fig. 91:K). This object was found in Level 37 of the Step Trench and as such may date to the proto-Elamite phase.

METAL VESSELS

Only two intact bronze vessels and a small number of badly preserved metal vessel fragments were found at Geser. The two intact vessels were found in Trench 2. One (fig. 92:A) comes from a grave that must date either to the Neo-Elamite or Achaemenid phase. The other vessel (fig. 92:B) was found in the same area and may date to the same period. These vessels show no decoration.

KERNOI AND LAMPS

One complete and several fragments of kernoi were found in the proto-Elamite levels at Geser (fig. 93, pl. 4:D). Kernoi seem to have first appeared in the Near East and the Aegean world around 2500 B.C. and continued in use in many shapes and decorations for several millennia. They first appear in Egypt during the Ninth and Tenth Dynasties (ca. 2160–2025 B.C.); in Greece in the Early Minoan period (ca. 2500–2100 B.C.); and at the same time at Harappa and Mohenjo-Daro. Such ceremonial objects are also common at Jericho, Gezer, Hazor, and Beth Shan (Dales 1965; Pande 1971–72). Another, much more elaborate and ritual example is the kernos from early Archaic Mycenaean Samos with a hollow rind and a series of cups and a whole menagerie of animal forms and a pomegranate (Immerwahr 1989, pl. 72:d). Unlike most of the known kernoi, which have a hollow tubular base, the kernoi of the proto-Elamite Geser are made of a solid circular low band base with a number of small cups attached to it with clay. The ware and decoration are typical of proto-Elamite pottery; pinkish buff ware with chaff inclusion, and matte, thick reddish brown flaky wash. The only vague and doubtful parallel for this object comes from Susa Acropole level 17 (Le Brun 1971, fig. 46:6).

A number of intact and fragmentary glazed and unglazed lamps, primarily from the thirteenth though seventeenth centuries A.D., were found in various contexts in all the excavated areas (fig. 94, pls. 2:A, 3:B). An exception may be lamp figure 94:A, which is a shoe-shaped oil lamp made of gray ware with no visible inclusion. It comes from Level 44 of the Step Trench and therefore might date to the late Sukkalmah phase.

SPINDLE WHORLS

A variety of baked clay and stone spindle whorls were found scattered in various levels, primarily in the Step and Stake trenches (fig. 95). They all date from the late Middle Susiana to the Late Susa II, and possibly proto-Elamite, phases; none can be dated with any certainty to post-fourth millennium B.C. The ware is a buff clay that contained some sand. Typical shapes consist of flat, low and high-domed, convex, biconical, discoidal, and solid and hollow conical, with intermediate examples in between. The flat type is always made of either broken sherds or of stone (fig. 95:N–Q). It is

not certain whether the latter were actually used as spindle whorls; it is possible that these objects were used as sinkers or loom weights.

Those dating to the late Middle Susiana and Late Susiana 1 phases are usually decorated with simple geometric patterns (fig. 95:M). The painted conical whorls are the dominant form in the late Middle Susiana. In the fourth millennium B.C., the low-domed plain whorls of the fifth millennium B.C. continued without painted decoration, but with a variety of decorative features such as notches, pinched edges, punctation, and incision (fig. 95:A–L).

STONE VESSELS

A comparatively large number of stone vessel fragments and unfinished stone objects were strewn on the surface of Geser (see also Wright and Carter 2003), indicating the site may have been active in procuring and processing this material. This is not surprising as there are large deposits of alabaster and gypsum just north of the site in the piedmonts. Nevertheless, the collection of materials from Geser does not contain residues of this industry at the site, but the collection of this type of material was not a common practice in the 1940s.

A limited number of stone vessels and vessel fragments were found in the course of two seasons of excavation at the Geser complex (fig. 96). Most of the vessels and vessel fragments are made of an alabaster-like stone that in color ranges from cream white to yellowish to light greenish white. These vessels are skillfully made and polished with almost no traces of chisel marks. The vessel illustrated in figure 96:A has two sets of shallow grooves on the upper body. In addition to these alabaster-like stone vessels, a shallow tray made of bituminous stone was also found in the Stake Trench (fig. 96:K). Except for one example discovered in the post-Sasanian levels of Fort Mound (fig. 96:E), which was made of a reddish stone, and another from Mound B (fig. 96:I), all came from Mound A, particularly from the proto-Elamite levels at Stake Trench.

The post-Sasanian limestone vessel from Fort Mound is by far the most elaborate in decoration; the bowl has two pierced handles set opposite one another and bears a lattice decoration on its upper part (fig. 96:E). Even though it was not found in a post-Sasanian context, the dating is based on a similar example from Susa (Kervran 1979, fig. 66).

STONE OBJECTS

The small number of objects made of various types of stones, all locally available, can be divided into two categories: recognizable utilitarian objects and those whose use is not readily apparent. The former group consists of an adz/celt (fig. 97:D), a few sinkers or loom weights (fig. 97:E, G–H), a rubbing stone (fig. 97:A), and two standard stone weights with crossed grooves of the Late Susa II/proto-Elamite phase (fig. 97:F, fig. 97:I, pl. 8:A). Another object of stone is a shallow cup or paint well (fig. 97:C). This type of object is very common in many periods in Susiana and is usually shaped by natural processes in the rivers when the limestone that was fused to a metamorphic rock dissolves in water and leaves the base rock hollow.

In the functionally unknown group,figure 97:B looks like a fine-grained sandstone version of the common baked clay sickles from the fifth and fourth millennia B.C. But it does not taper to any sharp edge and it has a square and round section on either end of the object.

The most enigmatic among the group of miscellaneous stone objects from Geser is an alabaster slab fragment with one flat and one concave surface (fig. 98:A). Images of a bull and another quadruped are engraved on the polished flat side; the concave side is blank. The context in which it was found (Stake Trench 7–7.5, below Level 3) is a mix of Late Susa II and proto-Elamite date, and stylistically, the rendering of the animals confirms this general dating, though the object seems to be unique.

A number of polished stone balls, one even made of alabaster (fig. 98:H), were found in the Stake Trench. These objects were found scattered in the proto-Elamite monumental structure (Stake 10 Room area) and as such their context does not provide any clue to their function. There are also no particular features associated with them to provide any basis for interpreting their function and use, although they might be tokens. It is possible, however, that they were meant to be forged into beads or pendants for personal use. The same may be the case for the truncated cone-shape object made of carnelian (fig. 98:I) that was found in a mixed level in the Stake Trench (7–7.5, Level 1).

A finger-shaped object made of a veined stone is also enigmatic; it may, however, have been naturally shaped as no work marks appear on its surface. Figure 98:D is a plano-convex disc made of a black stone with a band of white stone

around the core. Both sides of the object are skillfully polished and it may have been meant to be worked into a bead/pendant/token. Figure 98:C is made of grayish sandstone and is pierced. It comes from a mixed post-Sasanian-Neo Elamite context and may be a whetstone or a pendant. A finger-shaped object made of sandstone (fig. 98:J), found in Level 2 of Mound B, may have been used architectural decoration, but this is not certain.

FLINTS AND FLINT BLADES

While it is difficult to believe that McCown and Caldwell, even in the 1940s, did not collect chipped stone objects, such a collection is entirely missing from the materials at the Oriental Institute. The only examples that exist in the collection are three arrow/javelin heads of Middle Elamite date (fig. 98:K, pl. 8:E)[64] and a set of serrated flint blades set in bitumen and obviously part of a sickle (pl. 8:F). It was found in the Step Trench but the context is not indicated. This fragmentary sickle blade may well date to the late prehistoric times when they were common.

MISCELLANEOUS CLAY OBJECTS

A number of baked and unbaked clay objects were found at Geser, primarily from the Step and Stake Trenches (fig. 99). Among this group, there are several objects with known function and parallels. Figure 99:A is one of the few examples of the typical egg-shaped baked clay sling shot so common throughout the ancient Near East. The context of this object dates it to the Late Susa II phase, but a large cache was found in Level 16 of the Step Trench, dating to the early fourth millennium B.C.

A fragmentary model bed of perhaps the mid-fifteenth century B.C., if not earlier, is the sole example of this type of common Elamite votive objects (fig. 99:C). The preserved parts indicate a couple in loving embrace; the border of the bed seems to be decorated with the image of a snake, of which only the tail is preserved. It comes from a mixed context and the dating is based on stylistic grounds.

A flat disc with a round, hollow base (fig. 99:G) may have been a slow wheel for throwing pottery. Two clay jar stoppers (fig. 99:B, E) have a good context and date to the Susa II period, while a wheel for a toy chariot (fig. 99:F) is from a level with Sukkalmah materials. A single baked clay wheel of a toy or votive cart was found in the collection that both by context and type dates to the Elamite period.

A relatively well-preserved wooden comb (fig. 99:H, pl. 8:D) was found in the top layers of the Fort Mound and may have been left by nomads who used the top of the mound as their campsite in contemporary times. Figure 100:D is a piece of pierced clay that seems to have been exposed to high temperature and as such may be a fragmentary oven grate.

[64] Similar flint arrowheads were found at the Middle Elamite sanctuary of Bard-e Kargar, ca. 15 km southeast of Shushtar; for a short report on the site, see Alizadeh 2003b.

FIGURES 1–99

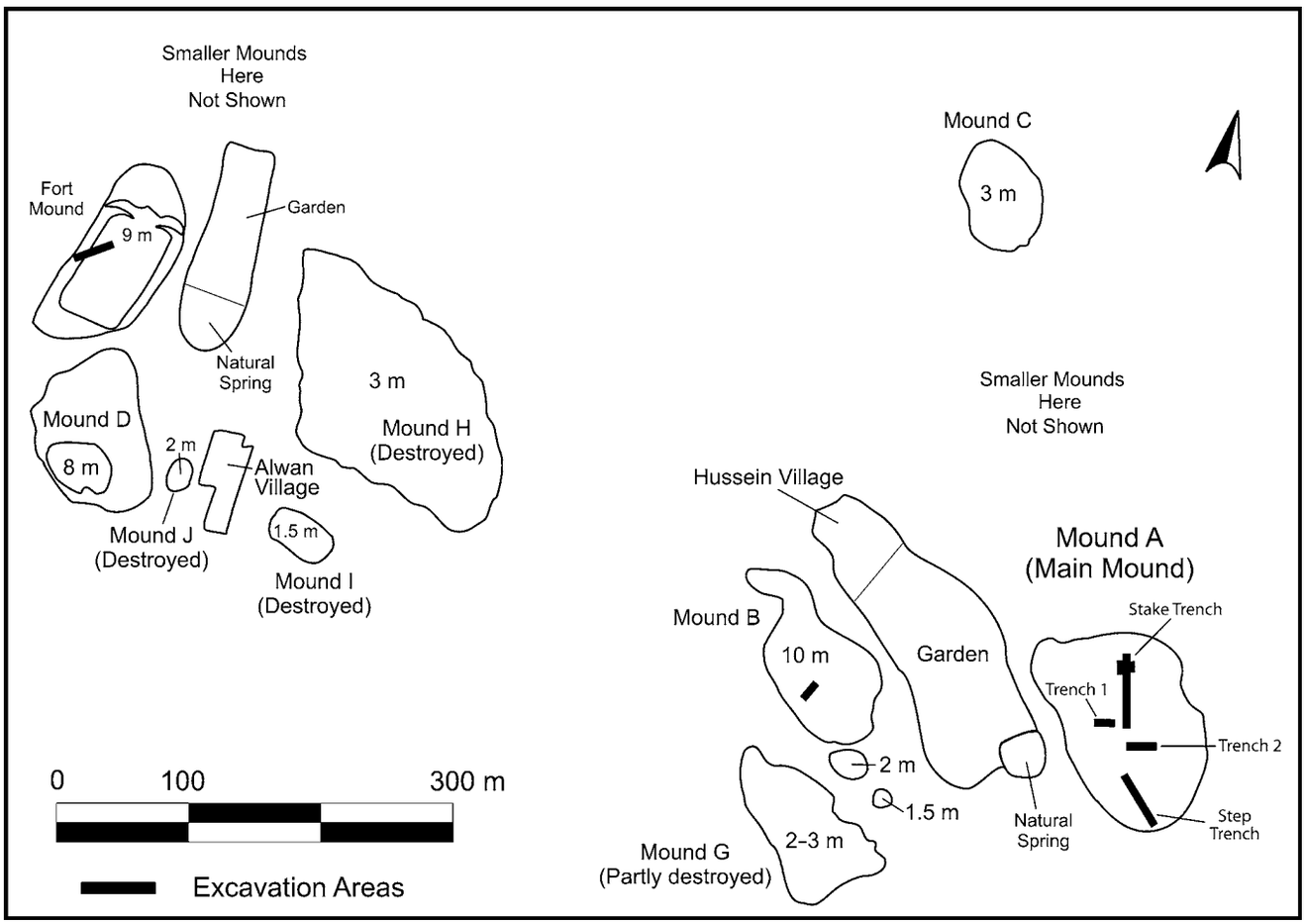


Figure 1. Map and satellite photo showing the various mounds at the Tall-e Geser complex

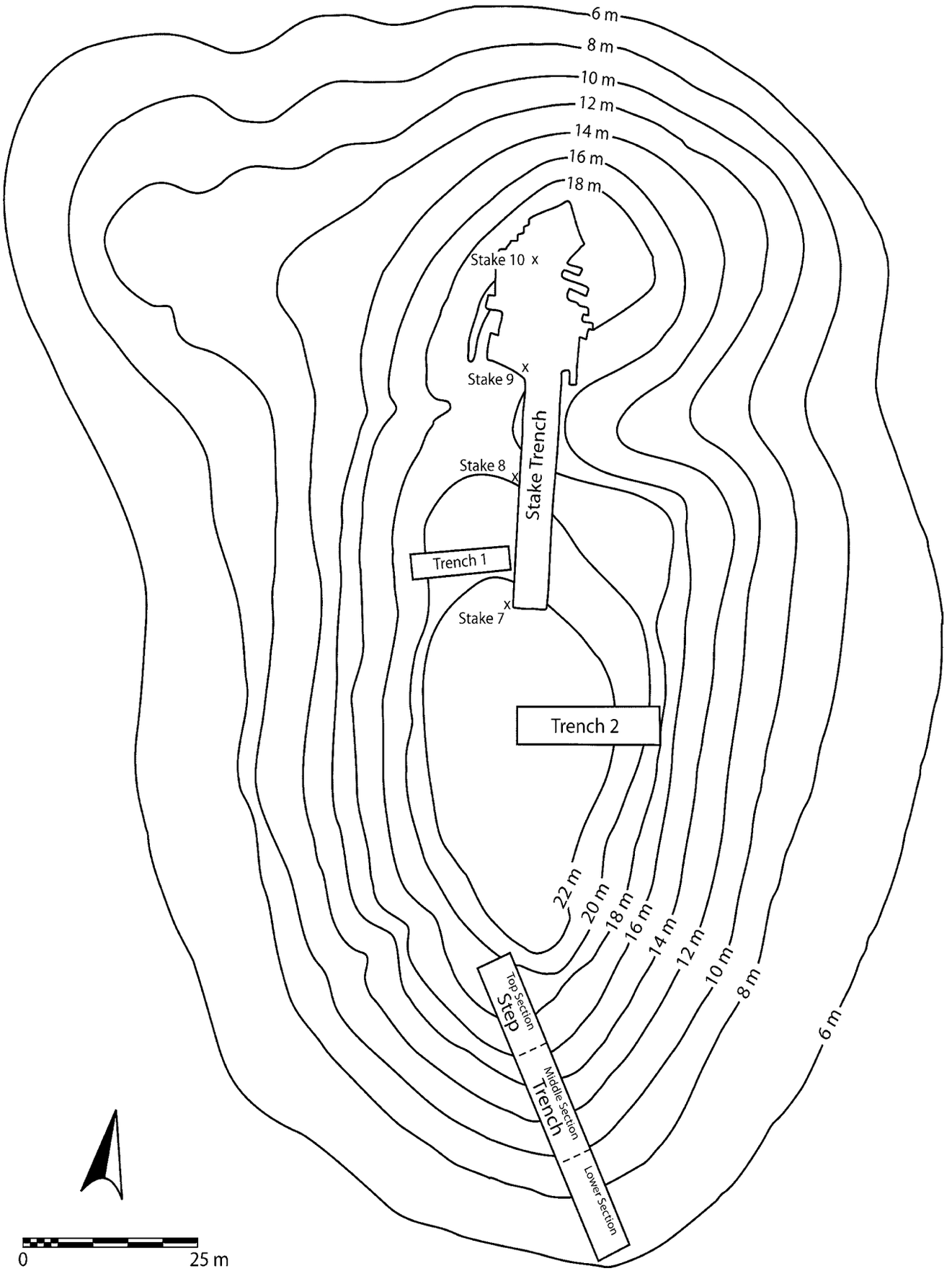
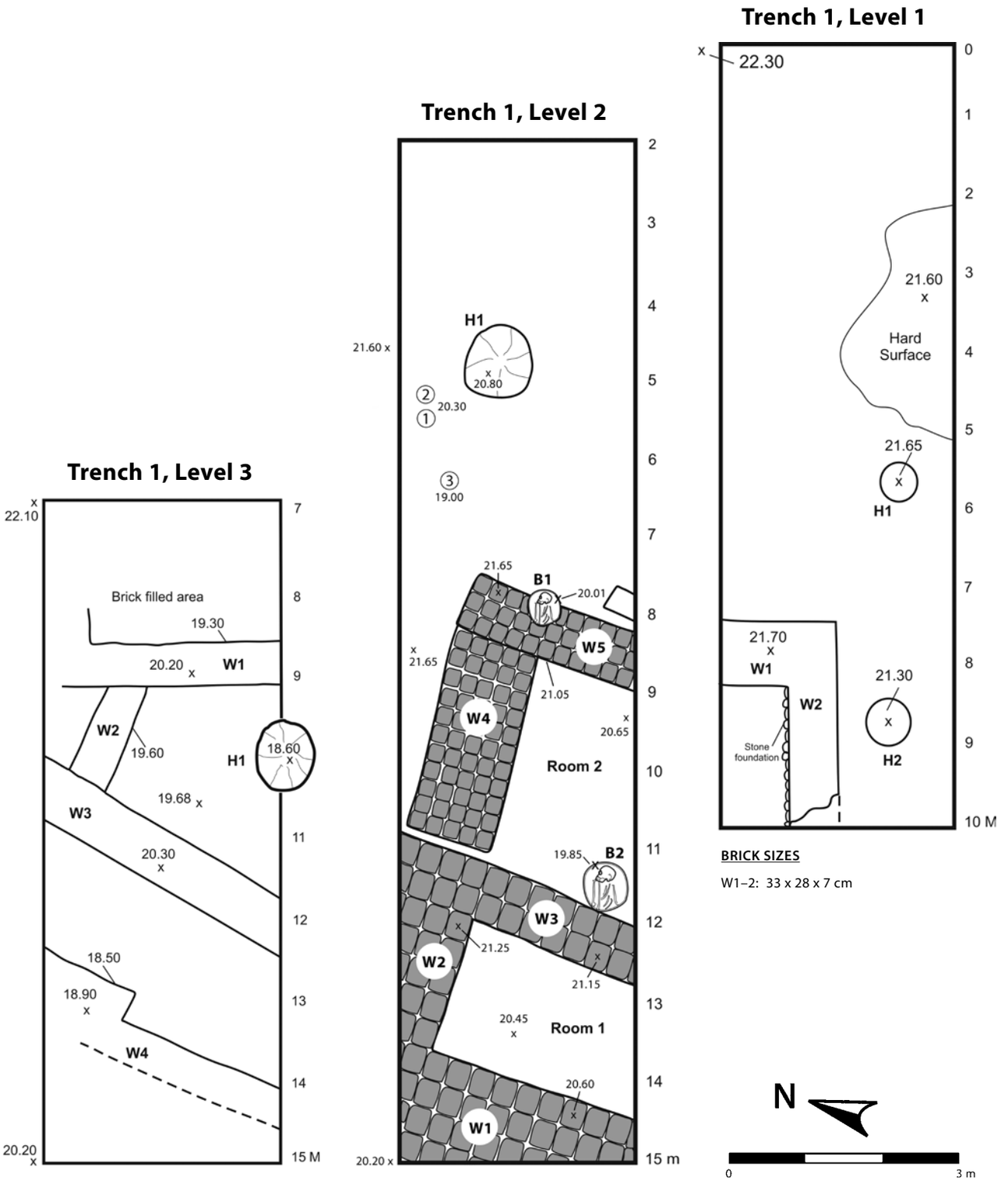


Figure 2. Contour map of the Main Mound (Mound A) at Tall-e Geser



BRICK SIZES

W1–2: 33 x 28 x 7 cm

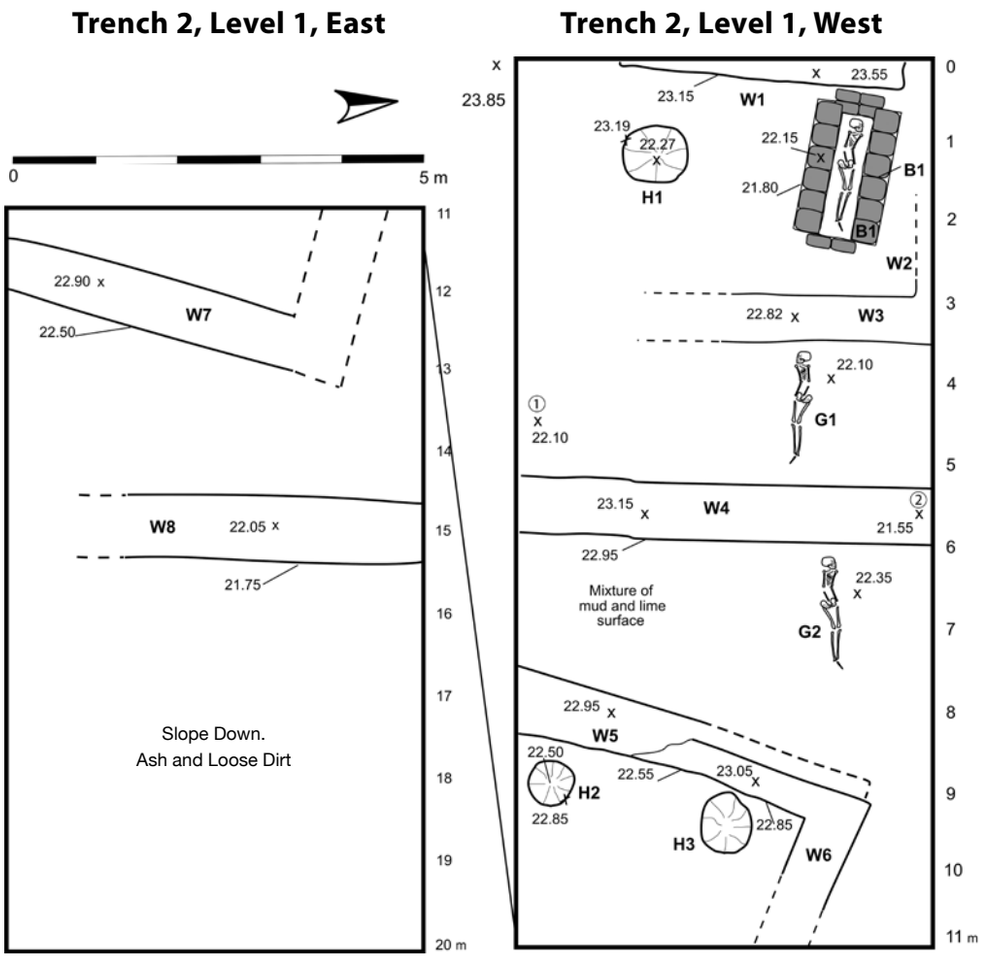
OBJECTS (circled numbers on plan)

1. Miniature Jar
2. Proto-Elamite Tablet (fig. 87:E, pl. 6:F) and Animal Figurine (fig. 90:C, pl. 7:D)
3. Bowl and Beaker

BRICK SIZES

W1–3: 40 x 30 x 10 cm
W4–5: 36 x 36 x ? cm

Figure 3. Top plans of Trench 1, Levels 1–3



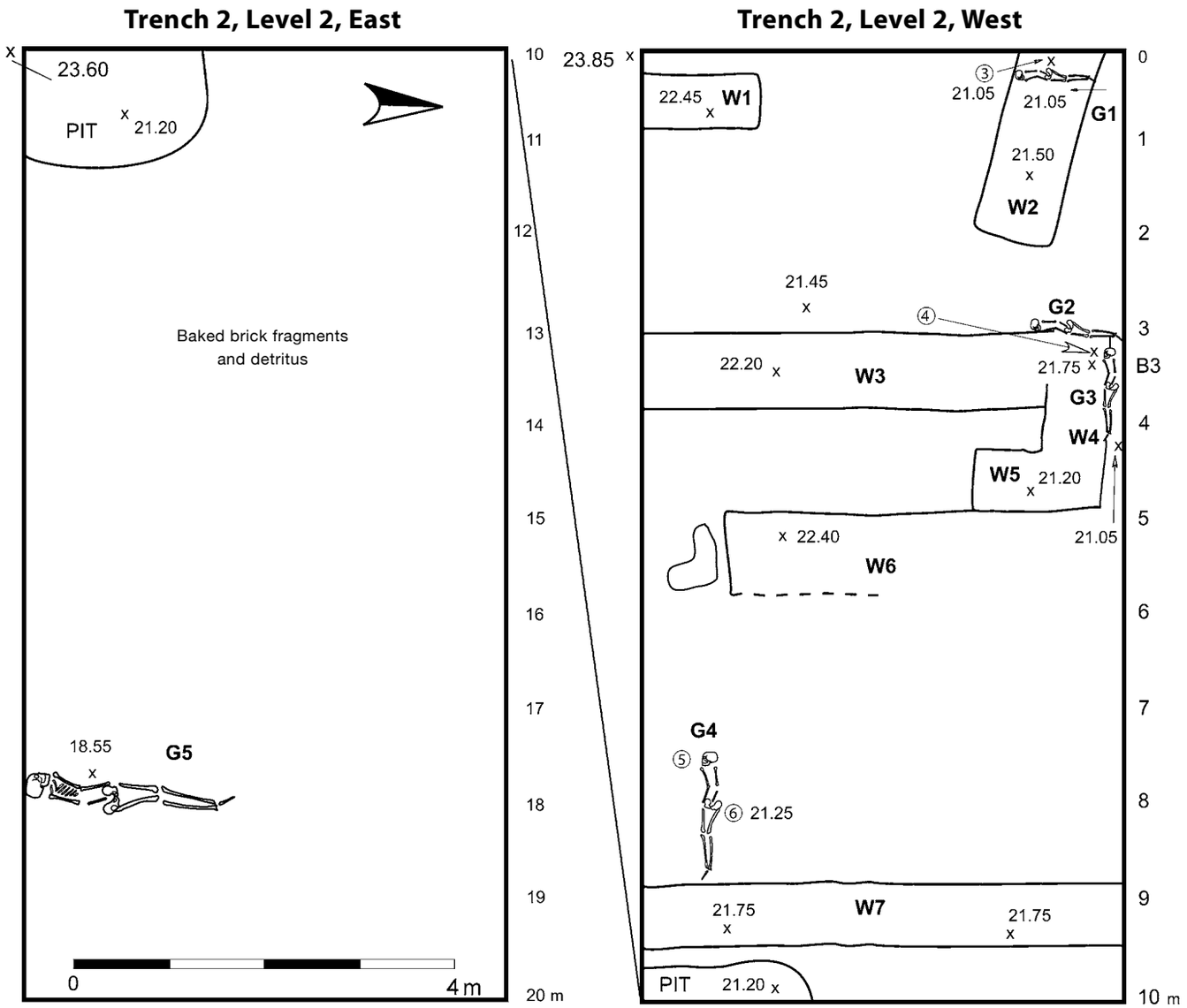
LEVEL 1
OBJECTS (circled numbers on plan)

1. Pot
2. Pot

BRICK SIZE

B1: 34 x 34 x 12 cm

Figure 4. Top plans of Trench 2, Level 1



LEVEL 2

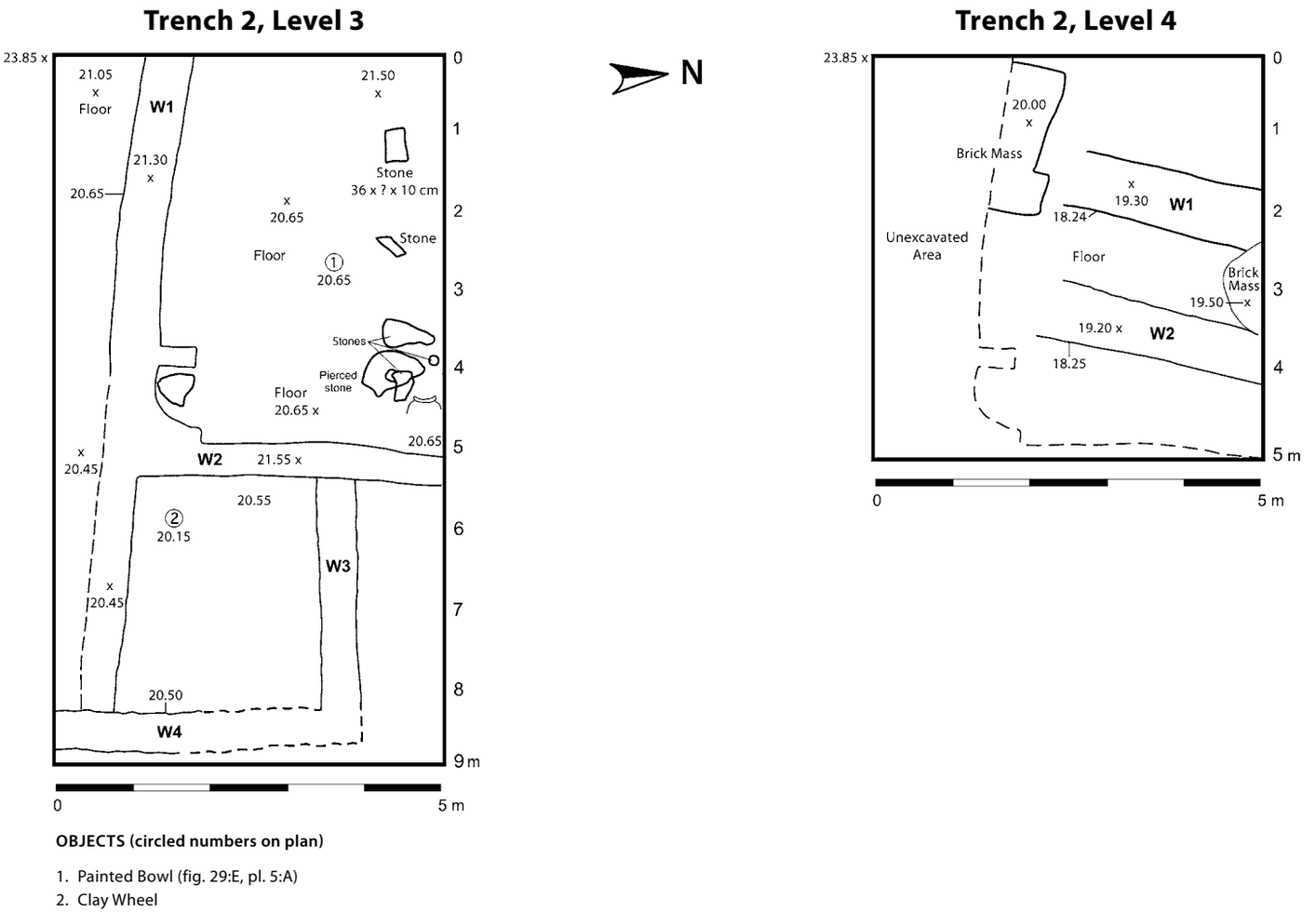
OBJECTS (circled numbers on plan)

3. Iron Dagger (fig. 91:M)
4. Metal Vessels
5. Votive Clay Bed
6. Metal Bowl (fig. 92:B)

BRICK SIZE

W2: 36 x ? x 10 cm

Figure 5. Top plans of Trench 2, Level 2



OBJECTS (circled numbers on plan)

1. Painted Bowl (fig. 29:E, pl. 5:A)
2. Clay Wheel

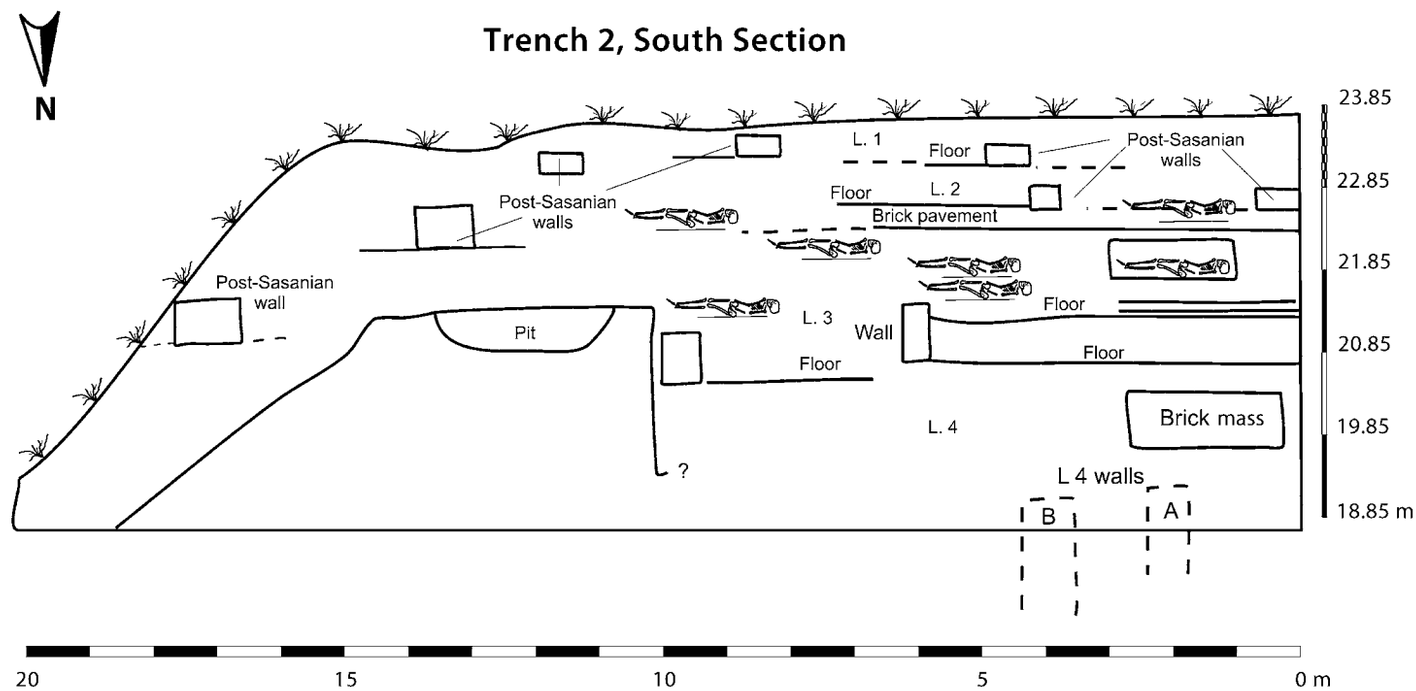
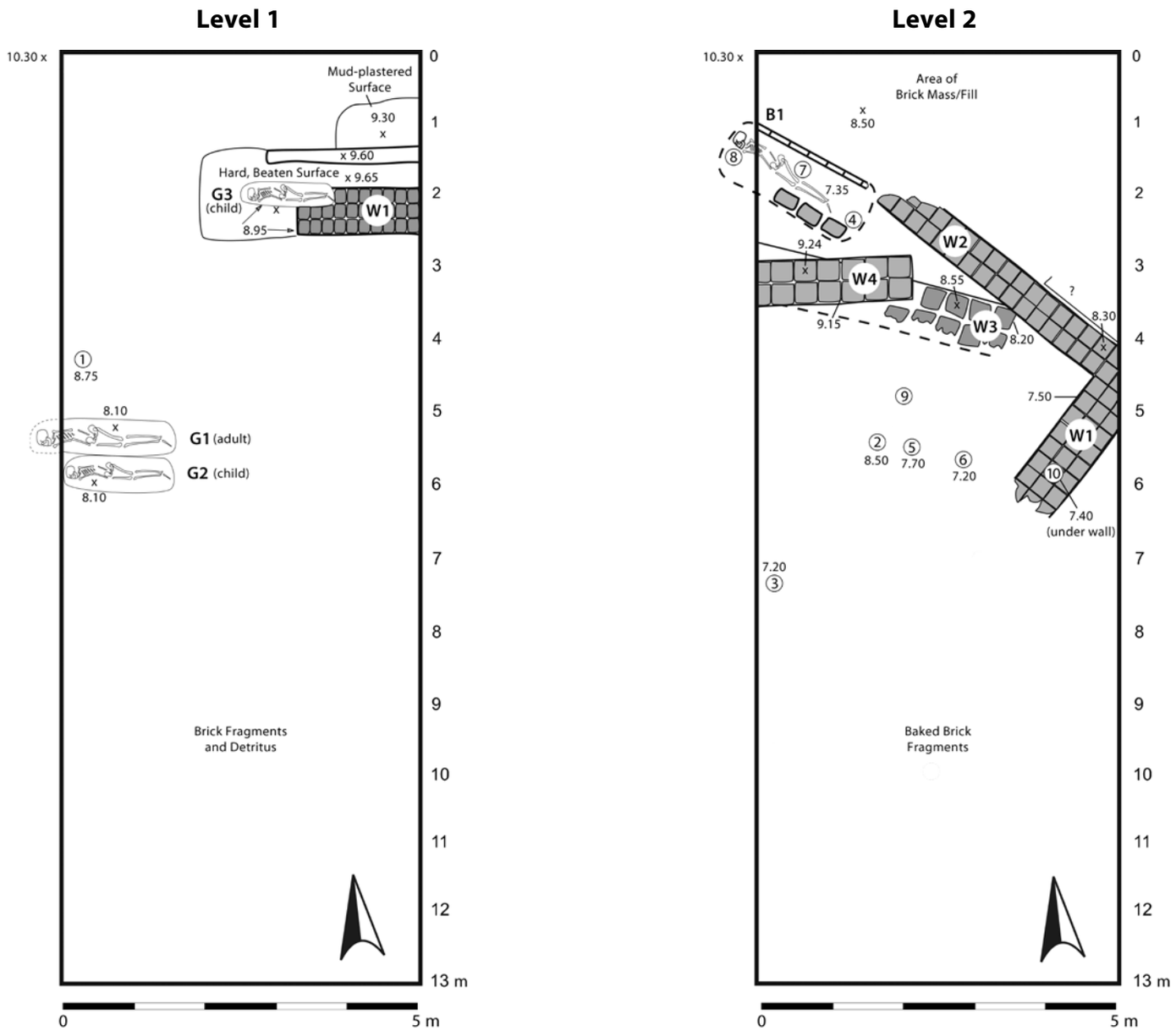


Figure 6. Top plan of Trench 2, Levels 3 and 4, and Trench 2 south section



LEVEL 1

OBJECT (circled number on plan)

1. Two-handled Pot

BRICK SIZE

W1 (gray bricks): 37 x 33 x 12 cm

LEVEL 2

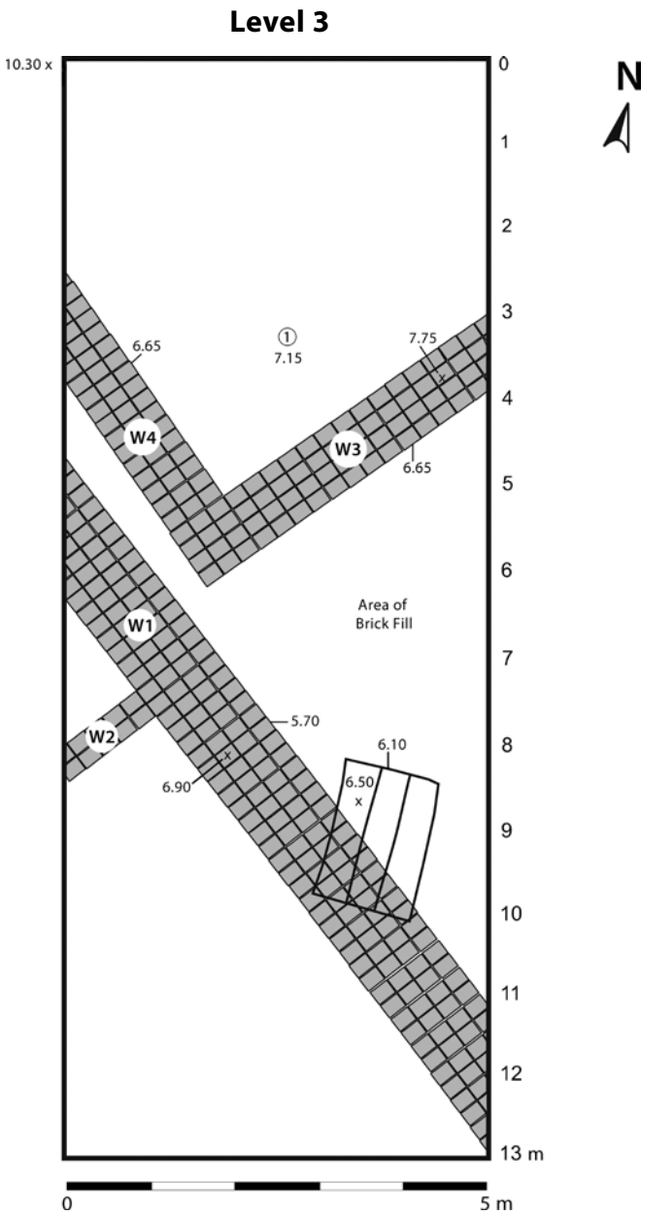
OBJECTS (circled numbers on plan)

2. Perforated Stone
3. Pottery Vessel
4. Pottery Jar
5. Cylinder Seal (fig. 87:D, pl. 6:C)
6. Female Figurine
7. Three Arrowheads (fig. 98:H, pl. 8:E)
8. Bronze Mirror (fig. 91:L)
9. Unknown
10. Clay Figurine

BRICK SIZES

W1/2 (gray bricks): 36 x 32 x 9 cm
W4 (brown bricks): 35 x 35 x 10 cm

Figure 7. Top plans of Mound B, Levels 1 and 2



LEVEL 3

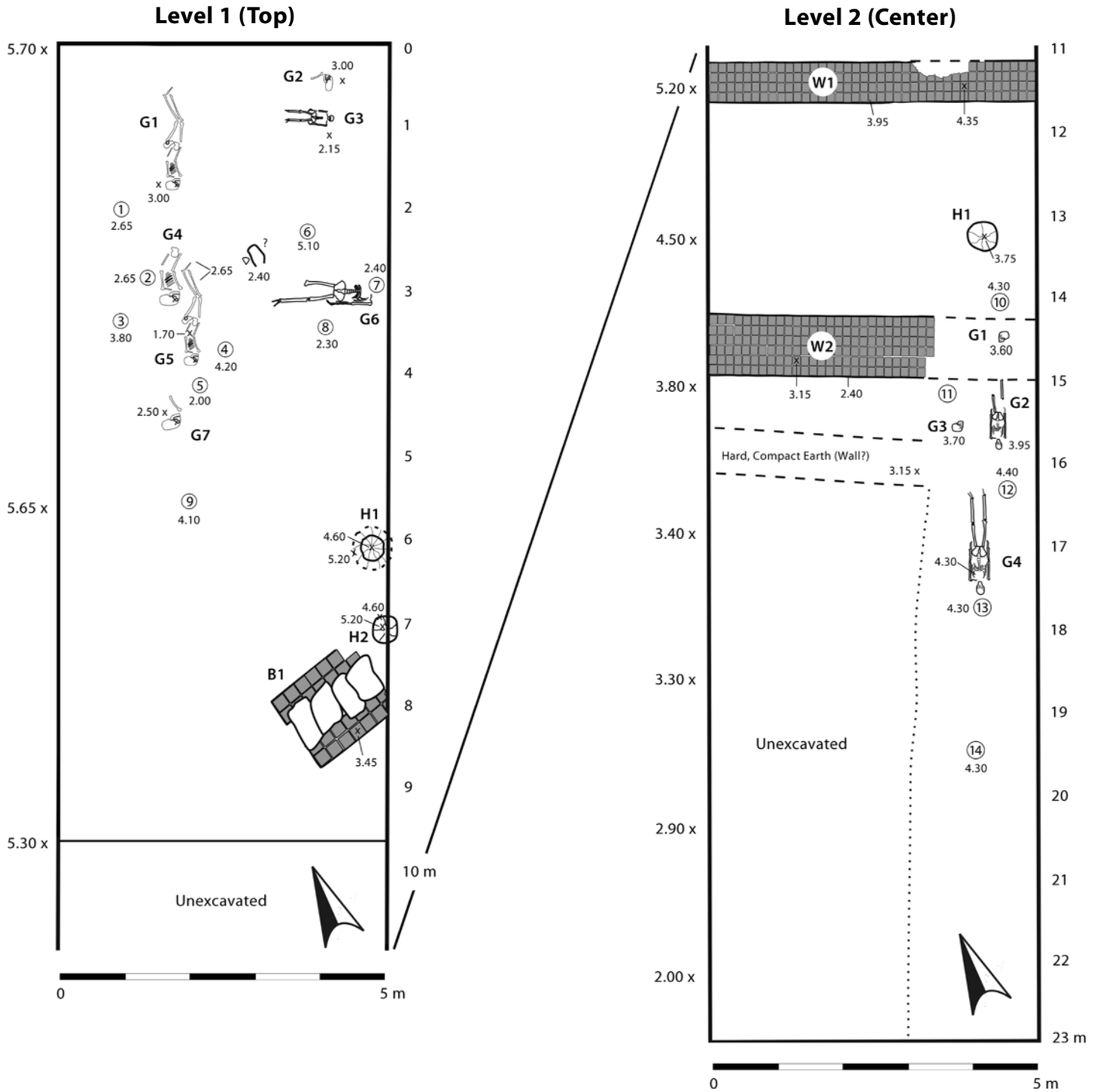
OBJECT (circled number on plan)

1. Fragment of Alabaster Vessel (fig. 96:l)

BRICK SIZE

W1 (brown bricks): 32/34 x 40 x 8/10 cm
W3–4: 32/34 x 40 x 8/10 cm

Figure 8. Top plan of Mound B, Level 3



LEVEL 1 (TOP)

OBJECTS (circled numbers on plan)

1. Holemouth Jar
2. Two Copper Rings (A27957 and unregistered; fig. 91:I–J)
3. Animal Figurine
4. Stone Pendant (fig. 89:H)
5. Jar
6. Stone Vase
7. Glazed Flask (fig. 33:F, pl. 5:E)
8. Jar
9. Glazed Cylindrical Vessel (fig. 33:B, pl. 5:C)

LEVEL 2 (CENTER)

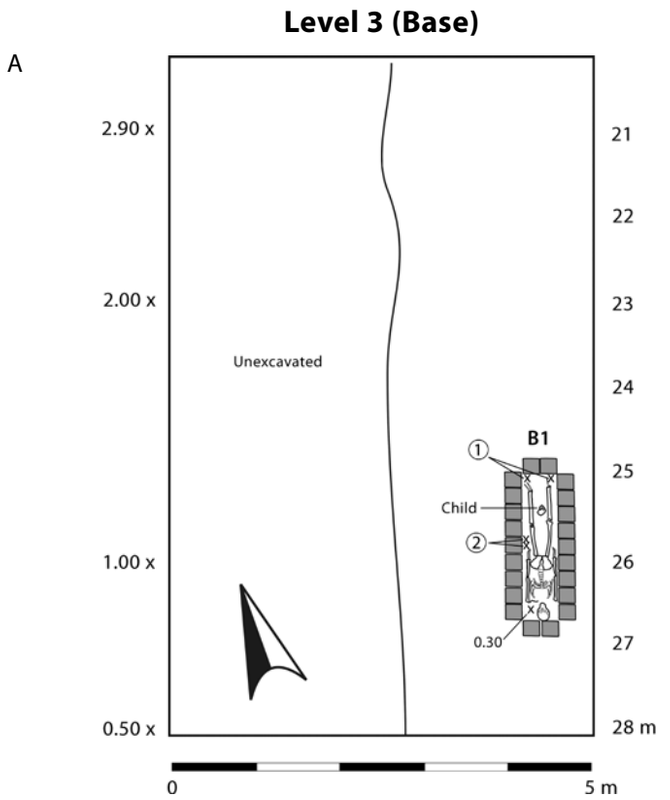
OBJECTS (circled numbers on plan)

10. Cylindrical Bottle
11. Lamp (fig. 94:B, pl. 8:B)
12. Pot
13. Jar
14. Wooden Comb (fig. 99:H, pl. 8:D)

BRICK SIZE

W1–2: 21 x 21 x 6 cm

Figure 9. Top plans of Fort Mound, Levels 1 (Top) and 2 (Center)



LEVEL3 (BASE)

OBJECTS (circled numbers on plan)

1. Animal Bones
2. Conical Bowls

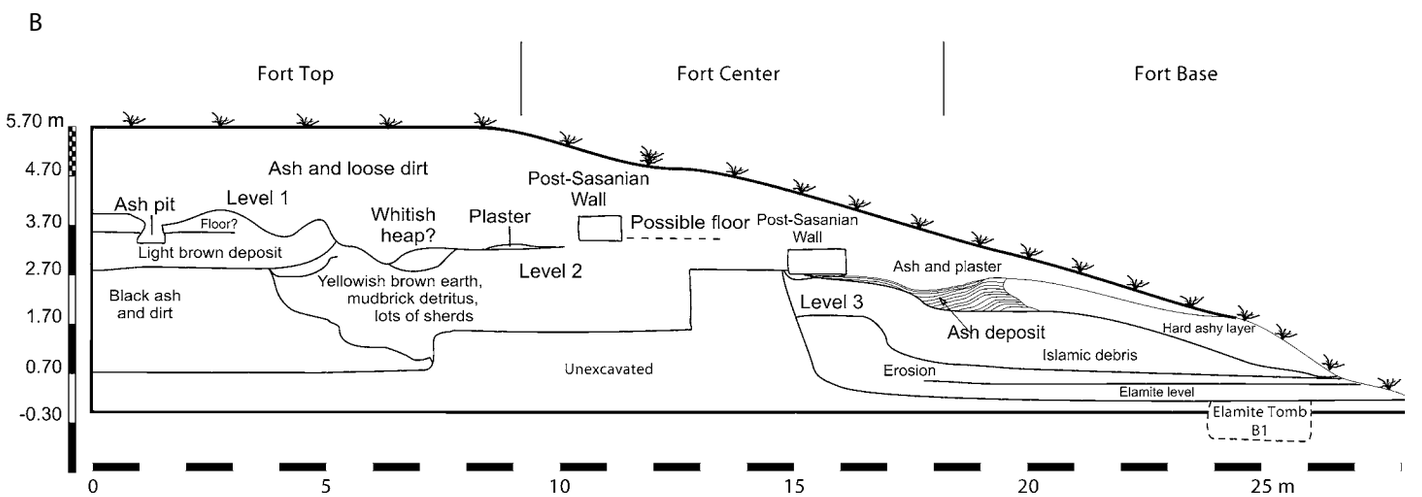
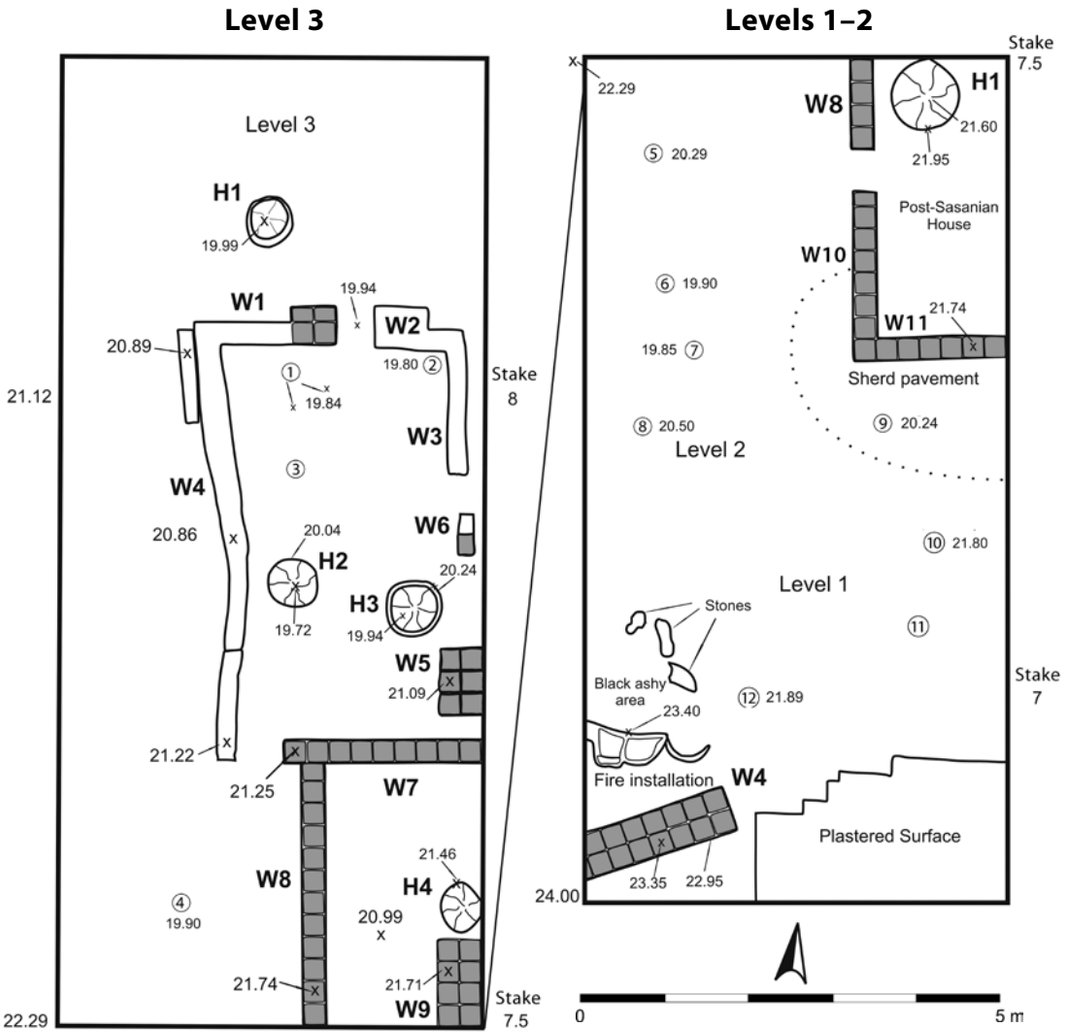


Figure 10. (*A*) Top plan of Fort Mound, Level 3 (Base), and (*B*) Fort Mound west section



STAKE TRENCH 7–8, LEVELS 1–3

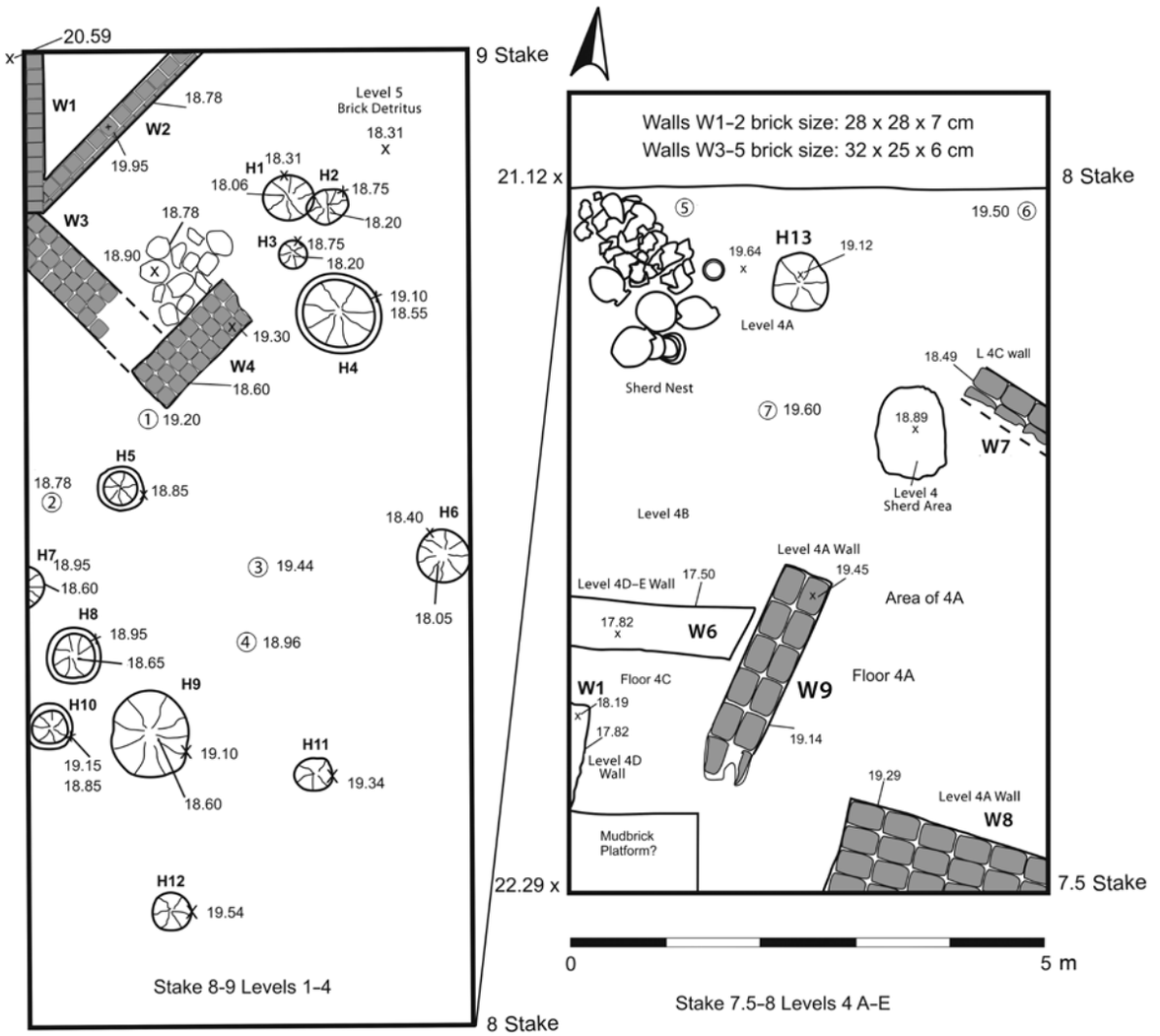
OBJECTS (circled numbers on plan)

1. Bowl
2. Pendant (fig. 89:B)
3. Frit Pendant? (fig. 89:K)
4. Animal Figurine (pl. 90:B)
5. Spindle Whorl (fig. 95:L)
6. Human Figurine (not illustrated)
7. Animal Figurine (fig. 90:H)
8. Alabaster Base (fig. 96:G)
9. Pot
10. Carnelian Bead (fig. 89:D)
11. Brown Stone (fig. 89:E)
12. Scarab (fig. 87:F)

BRICK SIZE

W10 and W12: 23 x 23 x 4 cm

Figure 11. Top plans of Stake Trench 7–7.5, Levels 1–2, and Stake Trench 7.5–8, Level 3



STAKE TRENCH 8–9, LEVELS 1–4

OBJECTS (circled numbers on plan)

1. Two Glazed Beads (fig. 89:F–G)
2. Red Pot
3. Large Jar
4. Glazed Lamp (fig. 94:C, pl. 2:A)

STAKE TRENCH 7.5–8, LEVELS 4A–E

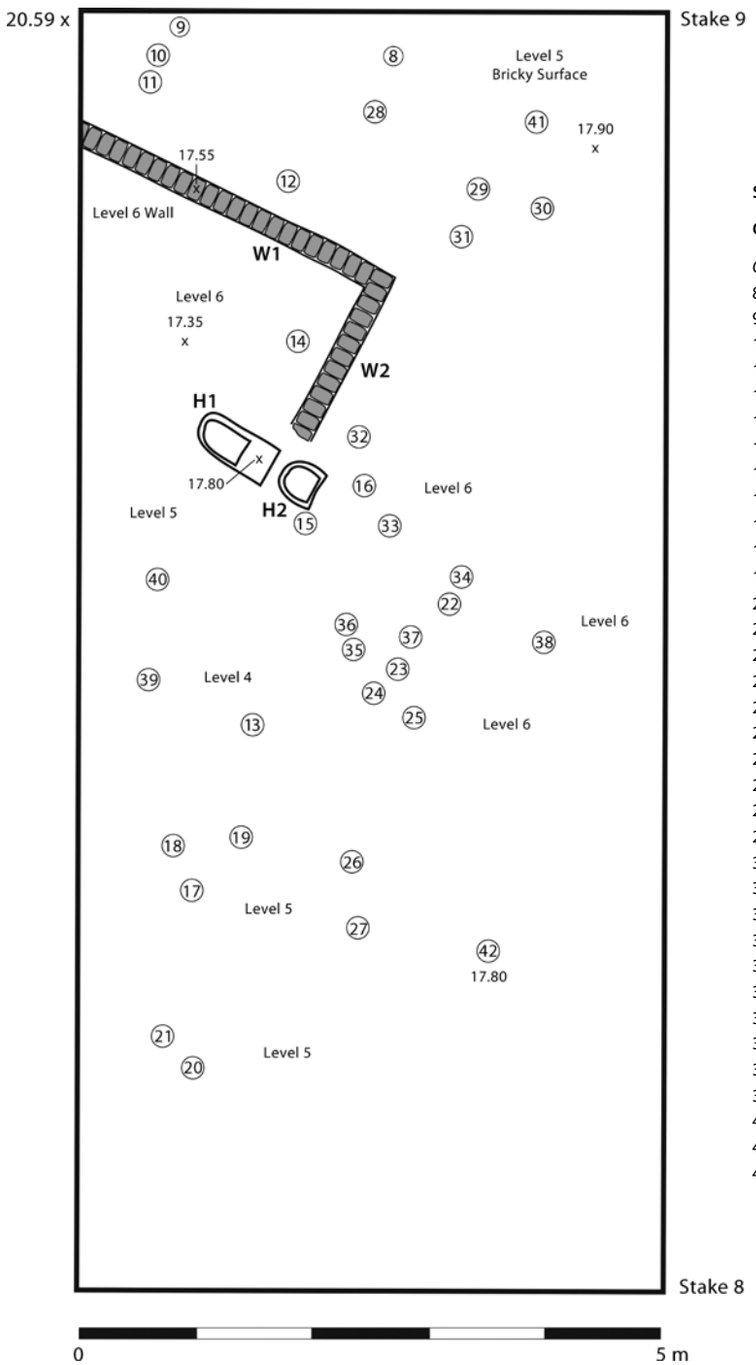
OBJECTS (circled numbers on plan)

5. Stone Vessel Fragment (fig. 96:J)
6. Complex Clay Token
7. Spindle Whorl (fig. 95:I)

BRICK SIZE

W5–6: 28 x 28 x 7 cm
W7–9: 32 x 25 x 6 cm

Figure 12. Top plans of Stake Trench 7.5–8, Levels 4A–E, and 8–9, Levels 1–4



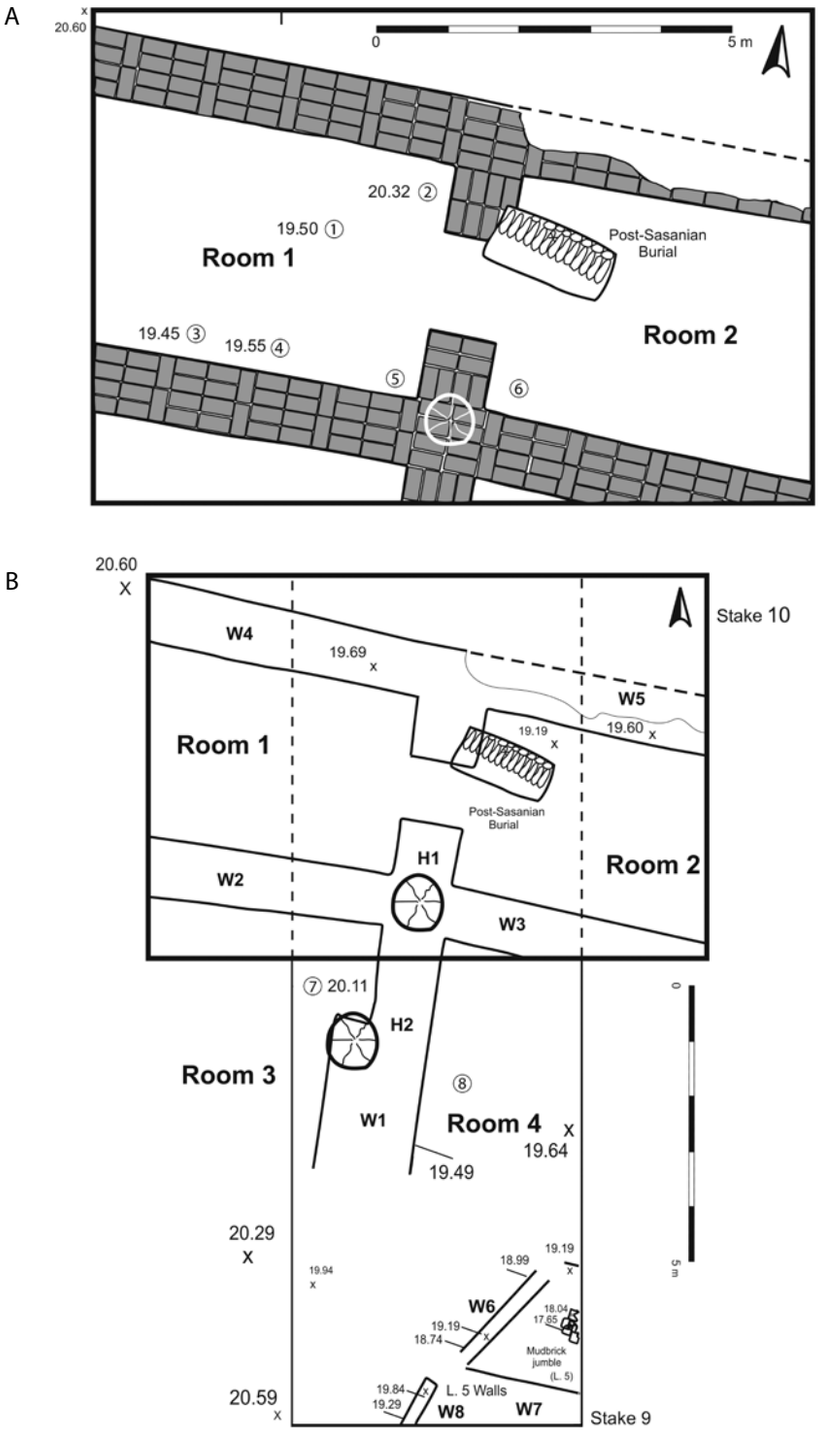
STAKE TRENCH 8–9, LEVELS 5–6/7?

OBJECTS (circled numbers on plan)

Objects 1–7 could not be located

8. Small Pot, Level 5, el. 17.94
9. Miniature Pot, el. 18.59
10. Copper/Bronze Awl, el. 18.39
11. Beveled-rim Bowl, Level 5, el. 18.14
12. Beveled-rim Bowl, Level 4, el. 18.31
13. Beveled-rim Bowl, Level 4, el. 18.34
14. Red Wash Pot, el. 18.39
15. Alabaster Bowl (fig. 96:D), Level 5, el. 17.94
16. Beveled-rim Bowl, Level 5, el. 17.94
17. Vessel, Level 5, el. 18.36
18. Vessel, Level 5, el. 18.36
19. Beveled-rim Bowl, el. 18.65
20. Beveled-rim Bowl, el. 18.25
21. Small Elongated Jar, el. 18.25
22. Beveled-rim Bowl, el. 18.14
23. Beveled-rim Bowl, el. 18.14
24. Beveled-rim Bowl, el. 18.14
25. Vessel Fragment, el. 18.14
26. Beveled-rim Bowl Fragment, el. 18.42
27. Beveled-rim Bowl, el. 18.22
28. Small Pot, below Level 5, el. 17.80
29. Beveled-rim Bowl, above Level 6, el. 17.69
30. Beveled-rim Bowl, above Level 6, el. 17.70
31. Beveled-rim Bowl, above Level 6, el. 17.70
32. Base of Cup, above Level 7, el. 17.10
33. Beveled-rim Bowl, Level 7, el. 17.10
34. Stone Sinker/Loom Weight, above Level 7, el. 17.20 (fig. 97:G)
35. Cylindrical Vessels, above Level 7, el. 17.10
36. Spouted Vessel, above Level 7, el. 17.10
37. Beveled-rim Bowl, above Level 7, el. 17.10
38. Stone Slab, above Level 7, el. 17.10
39. Inverted Votive, Level 5
40. Beveled-rim Bowl, on Level 7
41. Beveled-rim Bowl, on Level 7
42. Stone Vessel (fig. 96:C), el. 17.80

Figure 13. Top plan of Stake 8–9, Levels 5–6/7?



STAKE TRENCH 9–10

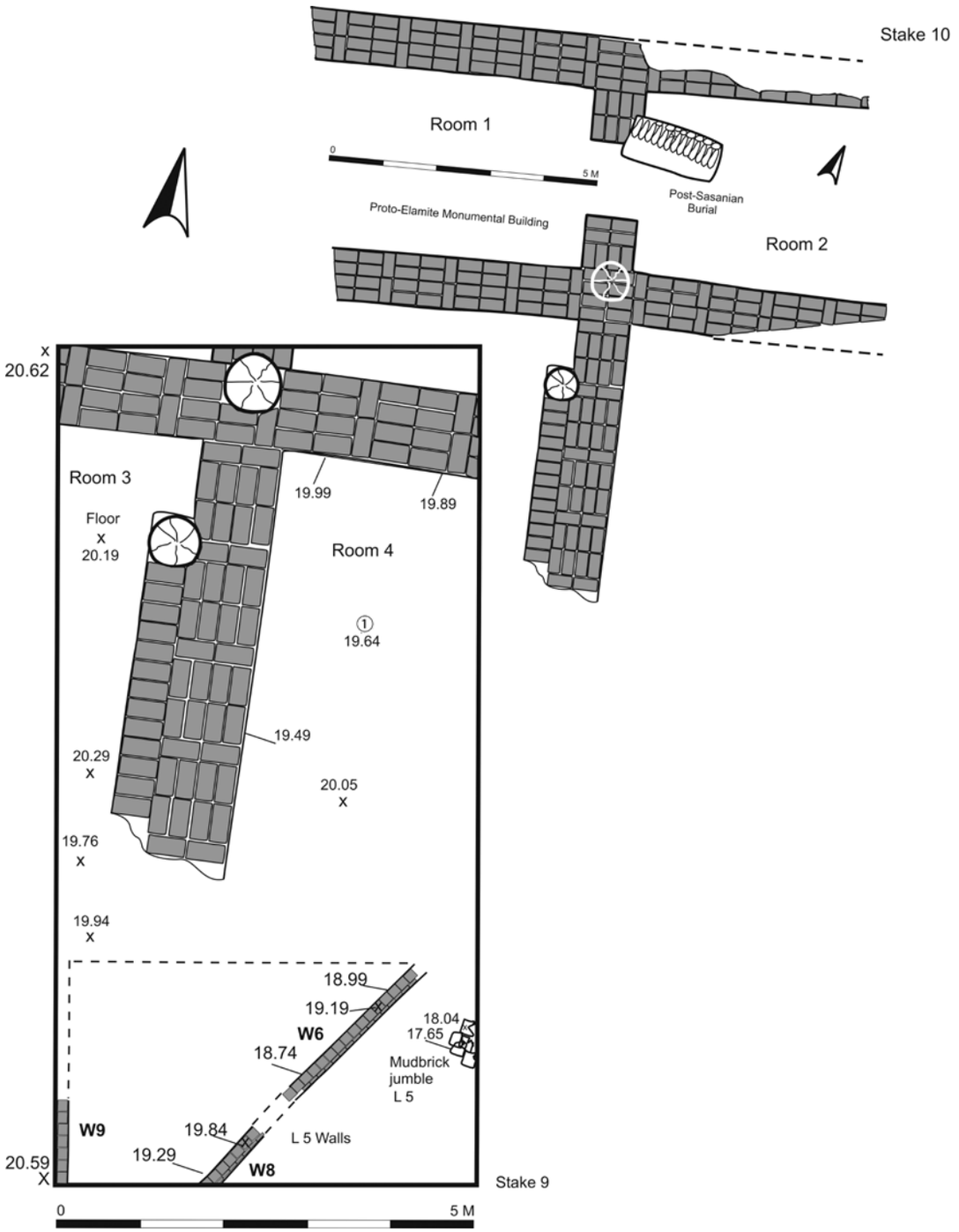
OBJECTS (circled numbers on plan)

1. Crystal Pendant (fig. 89:A)
2. Clay and Stone Spheres
3. Small Pot (pl. 3:F)
4. Carinated Jar (fig. 46:E, pl. 4:A)
5. Stone Vessel (fig. 96:A)
6. Alabaster Vase (fig. 96:H)
7. Cylinder Seal (fig. 87:C, pl. 6:A)
8. Shallow Tray (fig. 44:I, pl. 4:B)

BRICK SIZES

W4 and W5: 24 x 23 x 10 cm
W6: 23 x ? x 6 cm

Figure 14. (*A*) Detail of Stake 10 Room area, and (*B*) top plan of Stake 9–10



STAKE TRENCH 9–10

OBJECT (circled number on plan)

1. Shallow Tray (fig. 44:I, pl. 4:B)

Figure 15. Details of top plans of Stake 9–10 and Stake 10 rooms

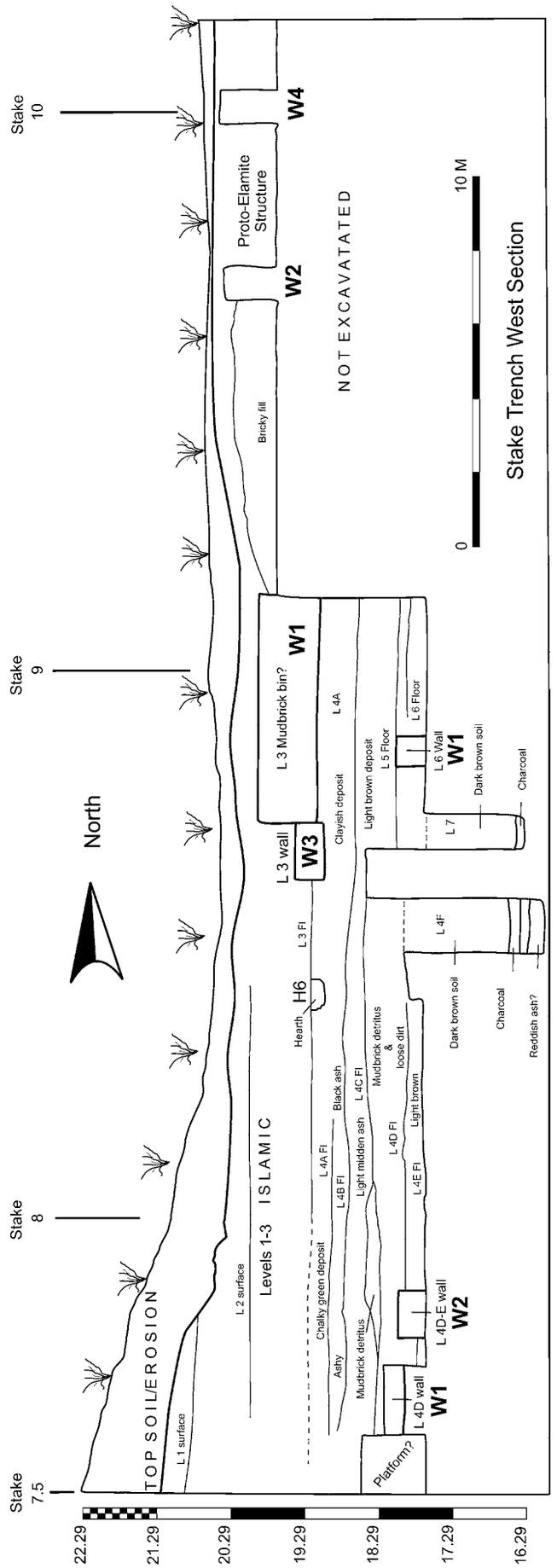
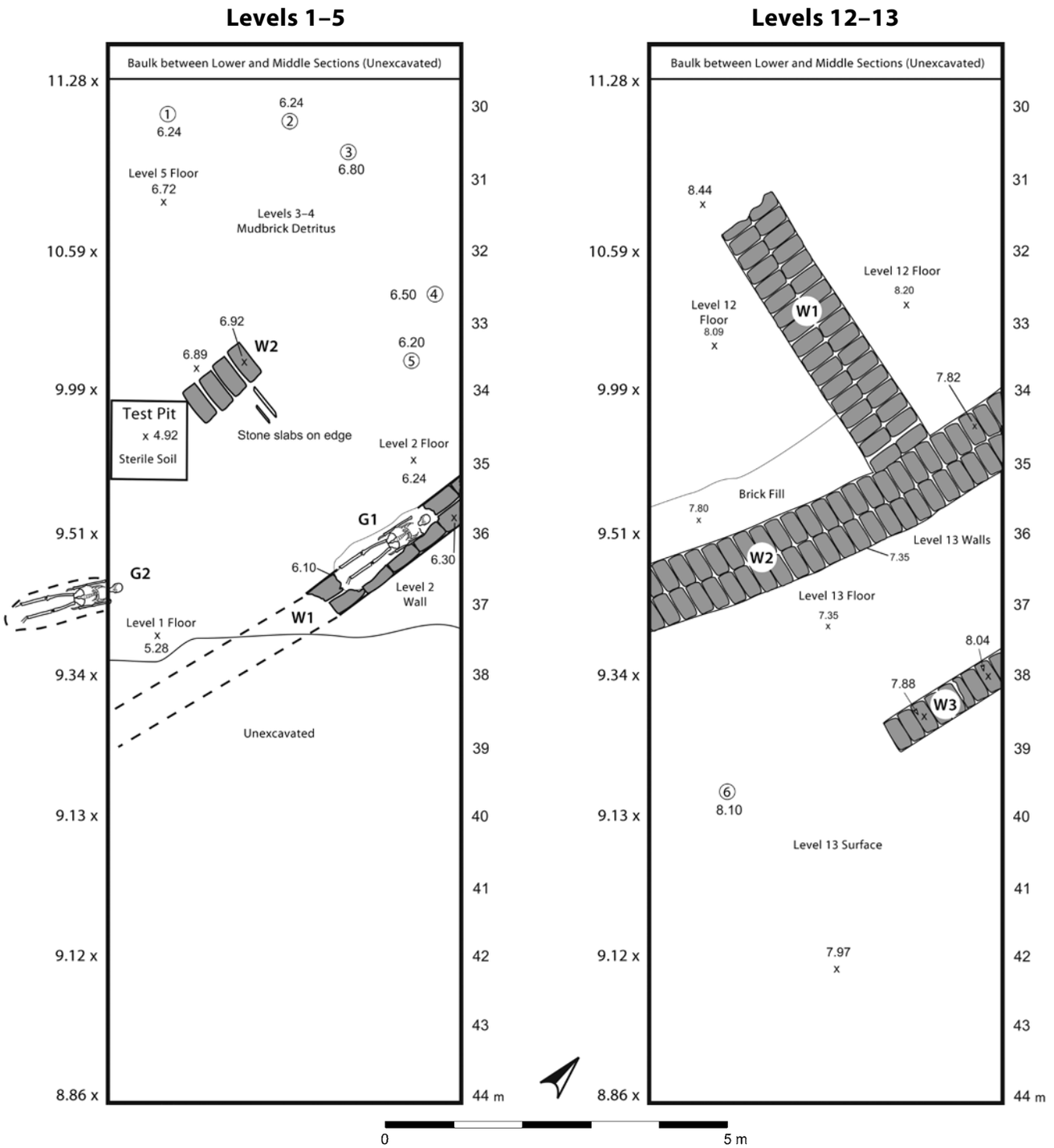


Figure 16. West section of Stake Trench



STEP TRENCH LOWER, LEVELS 1–5

OBJECTS (circled numbers on plan)

1. Painted Vessel
2. Painted Vessel
3. Spindle Whorl
4. Stone Object (fig. 98:D)
5. Painted Bowl (fig. 49:B, pl. 3:A)

BRICK SIZE

W1: 40 x 20 x 10 cm
W2: 52 x 28 x 11 cm

STEP TRENCH LOWER, LEVELS 12–13

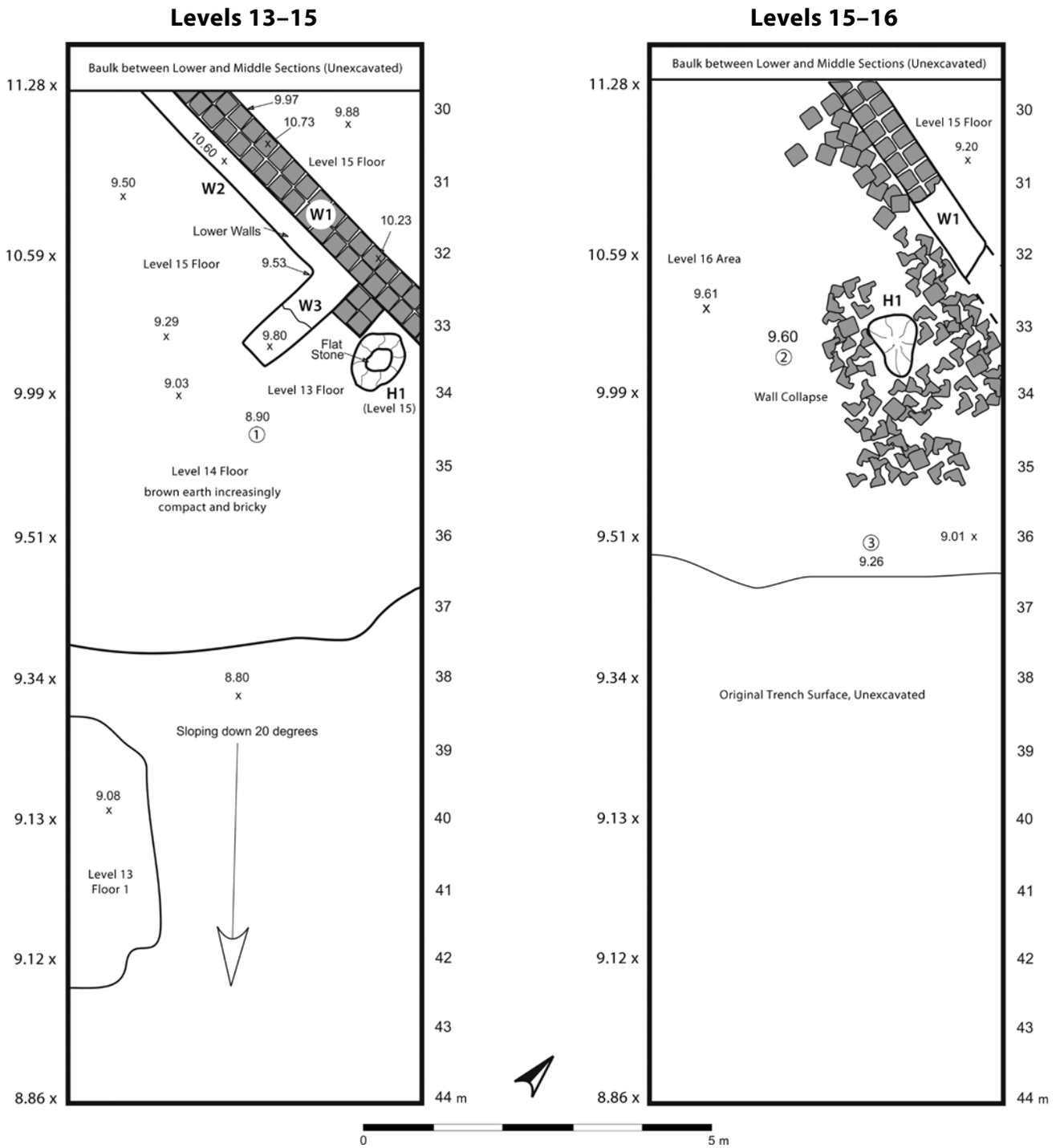
OBJECTS (circled numbers on plan)

6. Spindle Whorl (fig. 95:A)

BRICK SIZE

W1–3: 55 x 28 x 8 cm

Figure 17. Top plans of Step Trench, Lower Section, Levels 1–5 and 12–13



STEP TRENCH LOWER, LEVELS 13–15

OBJECTS (circled numbers on plan)

1. Two Spindle Whorls

BRICK SIZE

W1: 33 x 30 x 7/8 cm

STEP TRENCH LOWER, LEVELS 15–16

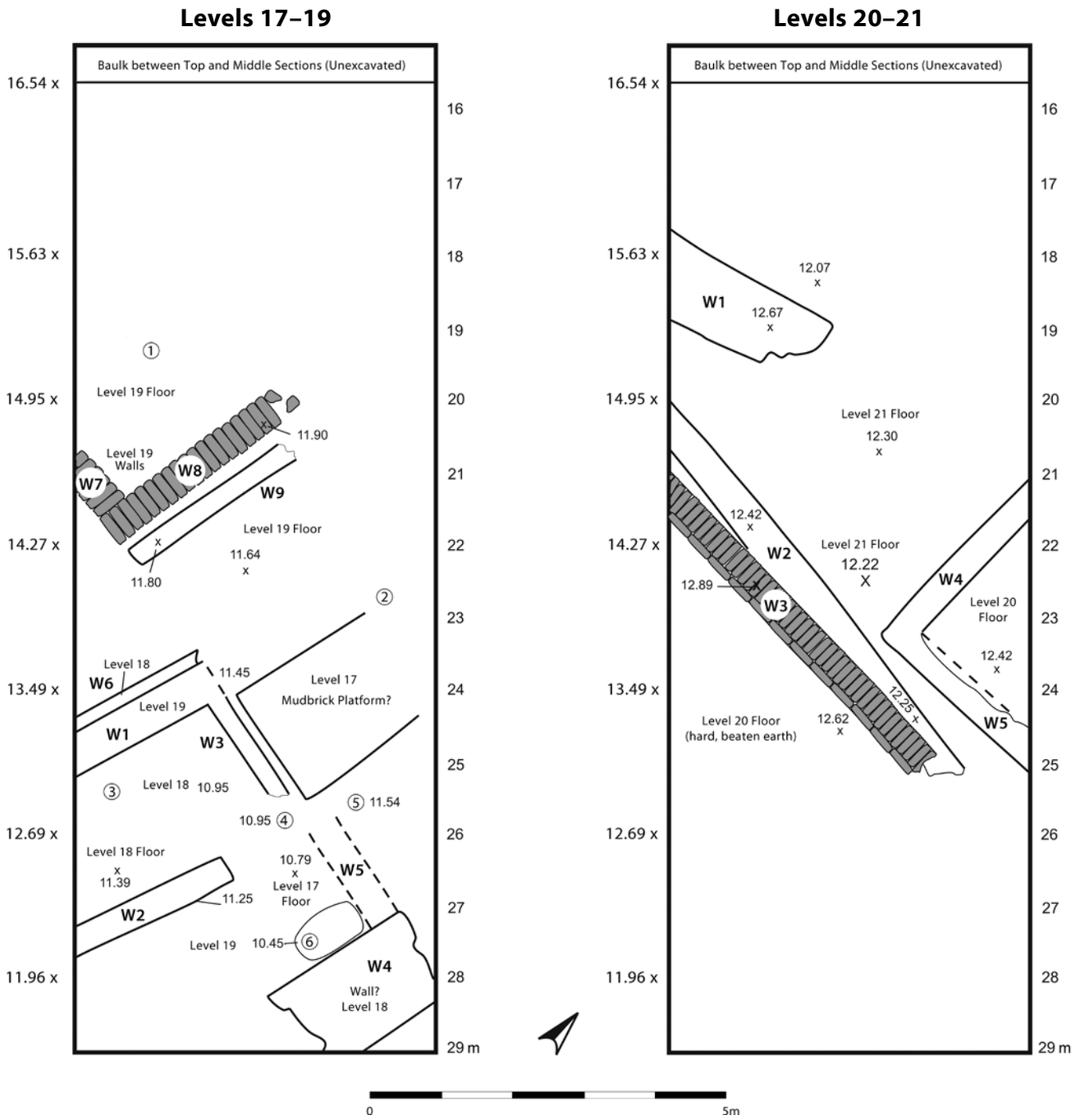
OBJECTS (circled numbers on plan)

2. Stone Adz (fig. 97:D)
3. Two Spindle Whorls (fig. 95:O)

BRICK SIZE

W1: 33 x 30 x 8 cm

Figure 18. Top plans of Step Trench, Middle Section, Levels 13–16



STEP TRENCH MIDDLE, LEVELS 17–19

OBJECTS (circled numbers on plan)

1. Two Clay Jar Stoppers
2. Stamp Seal
3. Needle/pin (fig. 91:H)
4. Vessel
5. Vessel
6. Cache of Clay Balls (Level 16)

BRICK SIZE

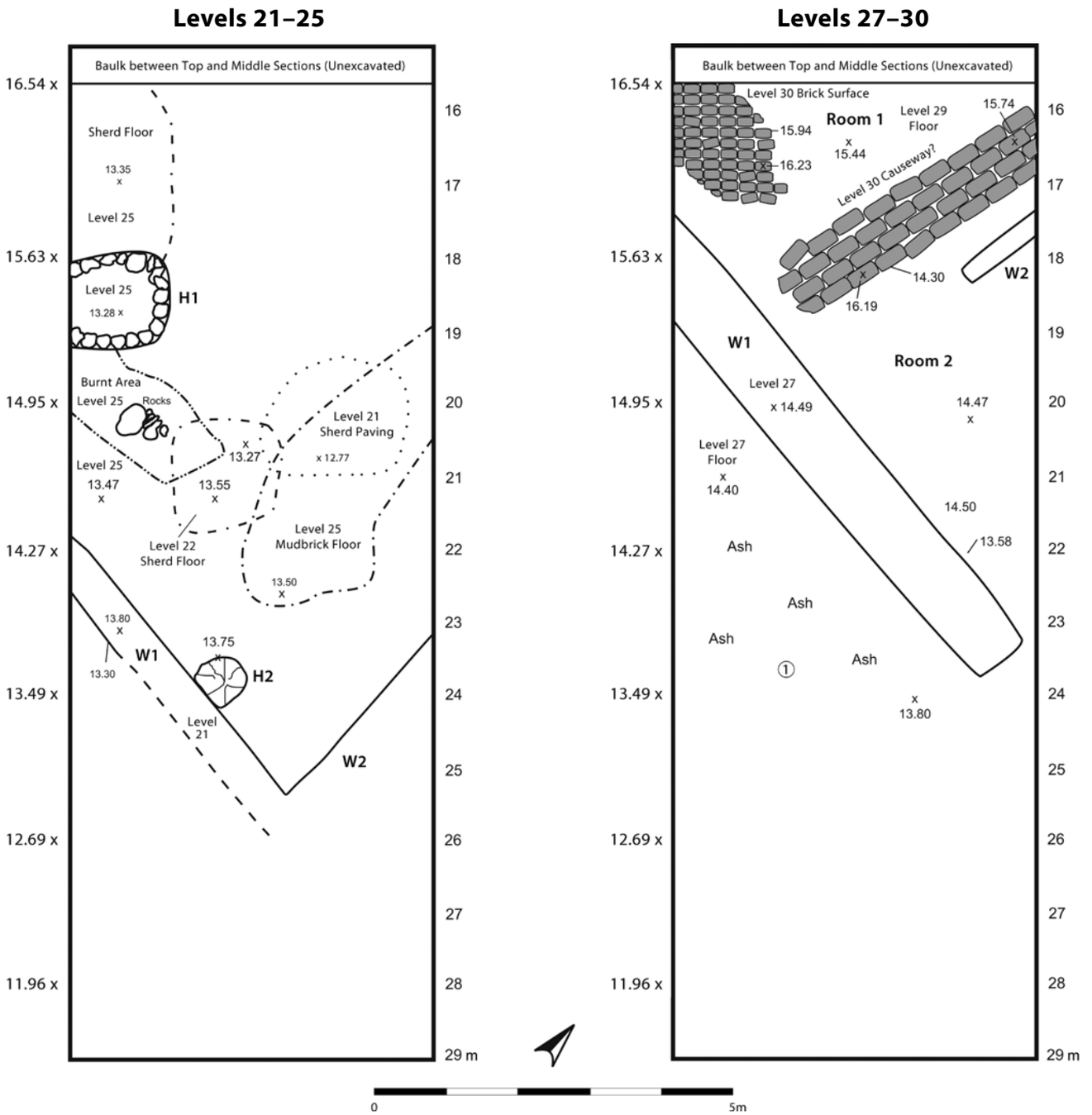
W7–8: 50 x 17 x 9 cm

STEP TRENCH MIDDLE, LEVELS 20–21

BRICK SIZE

W3: 40/35 x 12 x 8/7 cm

Figure 19. Top plans of Step Trench, Middle Section, Levels 17–21



STEP TRENCH MIDDLE, LEVELS 27–30

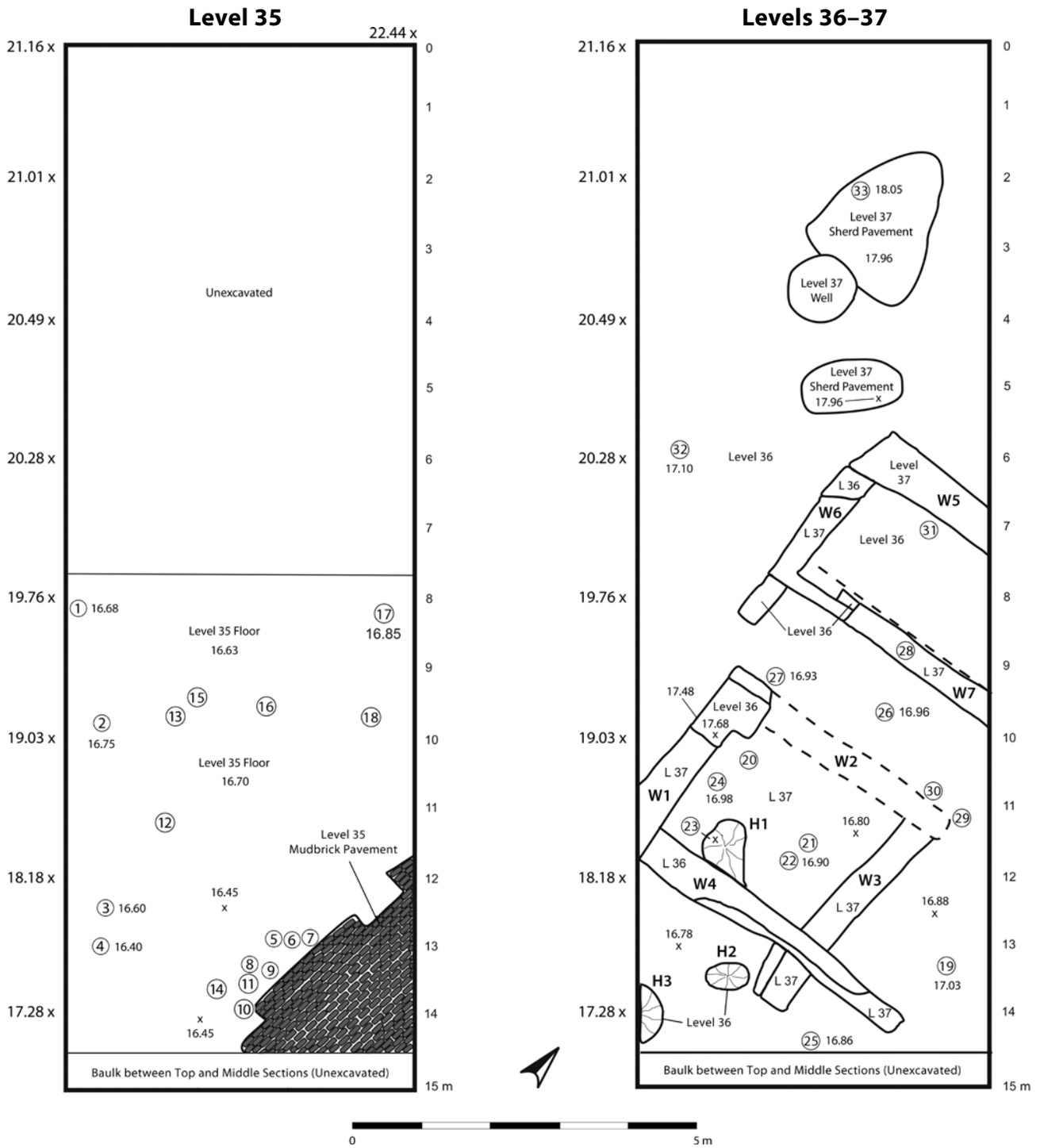
OBJECT (circled number on plan)

1. Three Beveled-rim Bowls

BRICK SIZE

Level 30 Brick Surface: 27 x 13 x 9 cm
Level 30 Causeway: 44 x 24 x 10 cm

Figure 20. Top plans of Step Trench, Middle Section, Levels 21–25, and 27–30



STEP TRENCH TOP, LEVEL 35

OBJECTS (circled numbers on plan)

1. High-footed Bowl
2. Jar Shoulder Fragment
3. Elongated Brown Wash Small Pot
4. Miniature Pot (pl. 3:B)
5. Vessel
6. Vessel
7. Vessel
8. Cylinder Seal
9. Vessel
10. Vessel
11. Vessel
12. Beveled-rim Bowl
13. Vessel
14. Vessel
15. Vessel
16. Vessel and Stone?
17. Spindle Whorl (fig. 95:E)
18. Polished Stone

BRICK SIZE

Level 35 Pavement: 26 x 12 x 8 cm

STEP TRENCH TOP, LEVELS 36–37

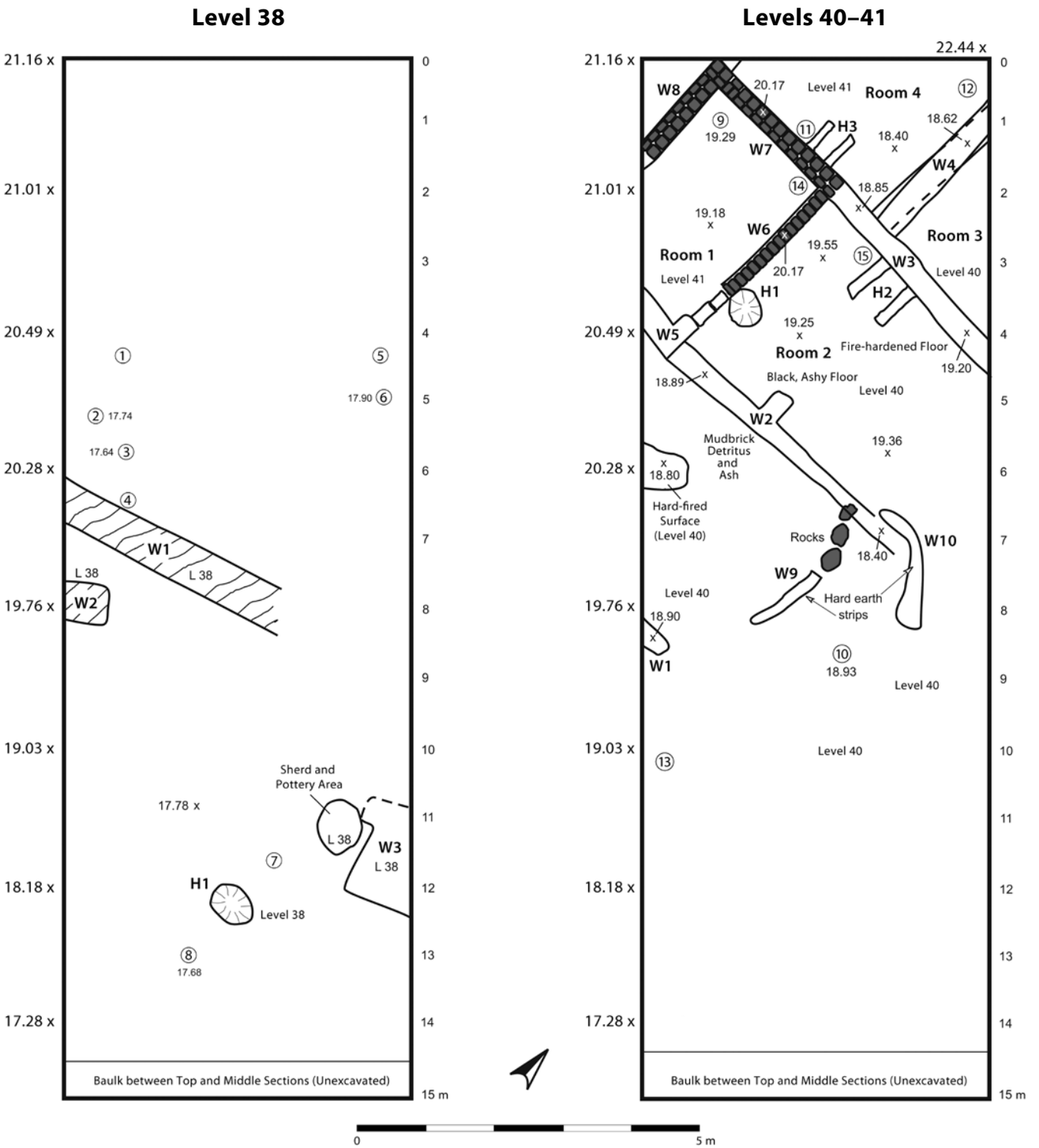
OBJECTS (circled numbers on plan)

19. Small Pot
20. Pottery "Table" and Grinding Stone
21. Gold Object
22. Copper Object
23. Decorated Sherds and Disk
24. Two Four-lugged Pots
25. Small Beaker
26. Elongated Pot
27. Beveled-rim Bowl
28. Small Vessel
29. Small Pedestal Vessel
30. Small Vessel
31. Kernos (fig. 93, pl. 4:D)
32. Spindle Whorl (fig. 95:C)
33. Blade and Scabbard (fig. 91:K)

BRICK SIZE

W1 (Level 36): 40 x 19 x 9 cm
W7: 44 x 19 x 9 cm

Figure 21. Top plans of Step Trench, Top Section, Levels 34–37



STEP TRENCH TOP, LEVEL 38

OBJECTS (circled numbers on plan)

1. Beveled-rim Bowl
2. Red-wash Pot
3. Large Pot
4. Pot on Floor
5. Pot on Floor
6. Vessel
7. Beveled-rim Bowl
8. Jar

STEP TRENCH TOP, LEVELS 40–41

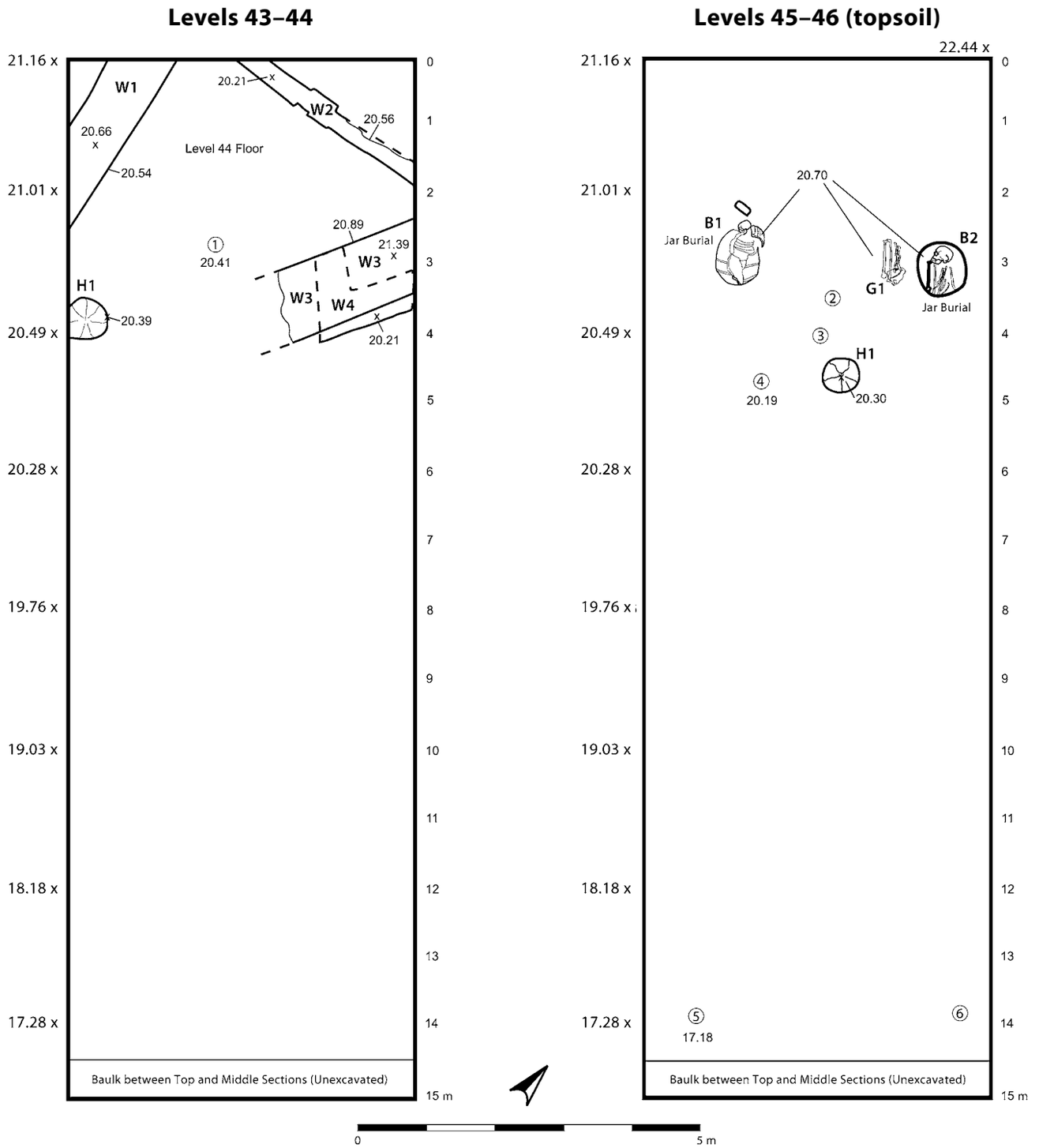
OBJECTS (circled numbers on plan)

9. Miniature Vessel
10. Beveled-rim Bowl
11. Pottery Vessel
12. Stone Pestle
13. Bronze Figurine?
14. Miniature Pottery Wheel (fig. 99:F)
15. Painted Elamite Flask

BRICK SIZE

W6–8: 35 x 35 x 10 cm; half-bricks: 35 x 25 x 10 cm

Figure 22. Top Plans, Step Trench, Top Section, Levels 38, 40–41



STEP TRENCH TOP, LEVELS 43–44

OBJECT (circled number on plan)

1. Lamp (fig. 94:A)

BRICK SIZE

W1–2: 37 x 38 x 12 and 36 x 35 x 12 cm
W3: 51 x 32 x 10 cm

STEP TRENCH TOP, LEVELS 45–46 (TOPSOIL)

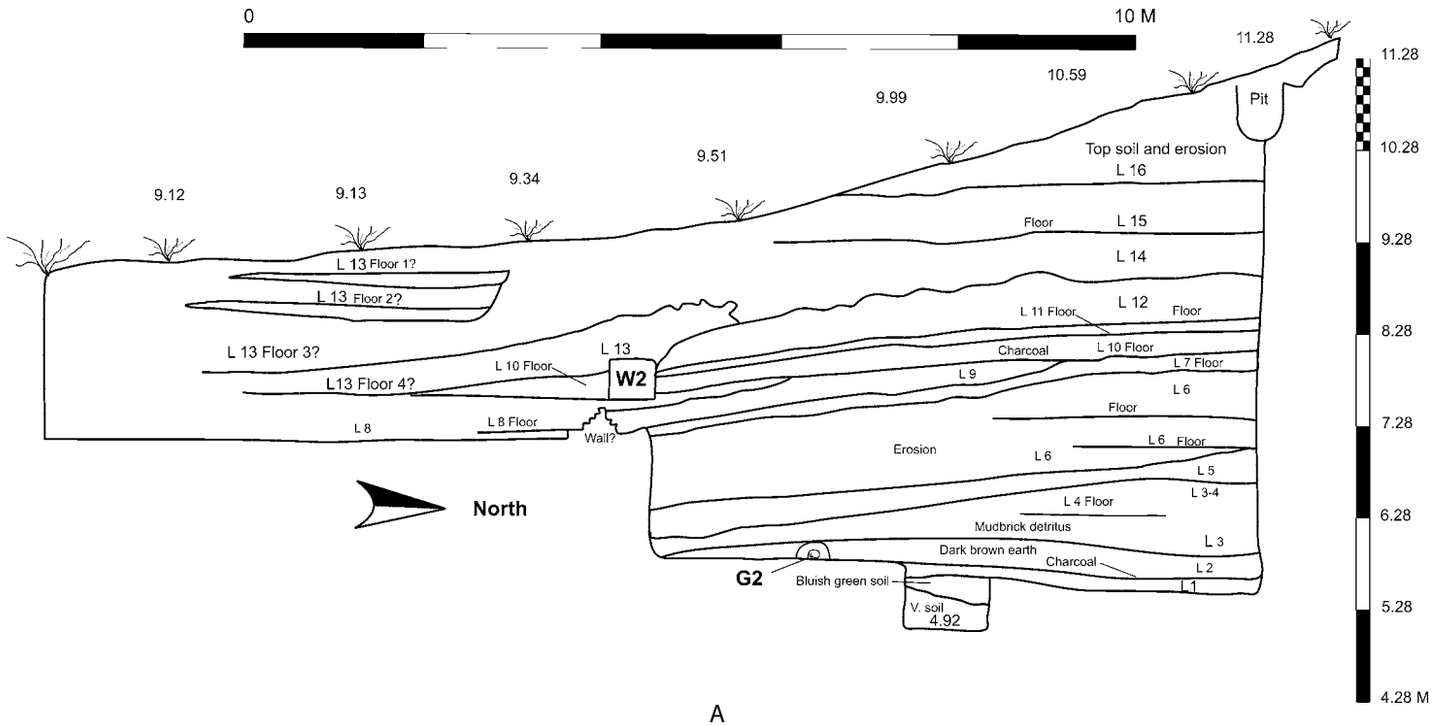
OBJECTS (circled numbers on plan)

2. Ground Stone
3. Bowl Fragment
4. Vessel Fragment
5. Stone Mace
6. Spouted Vessel

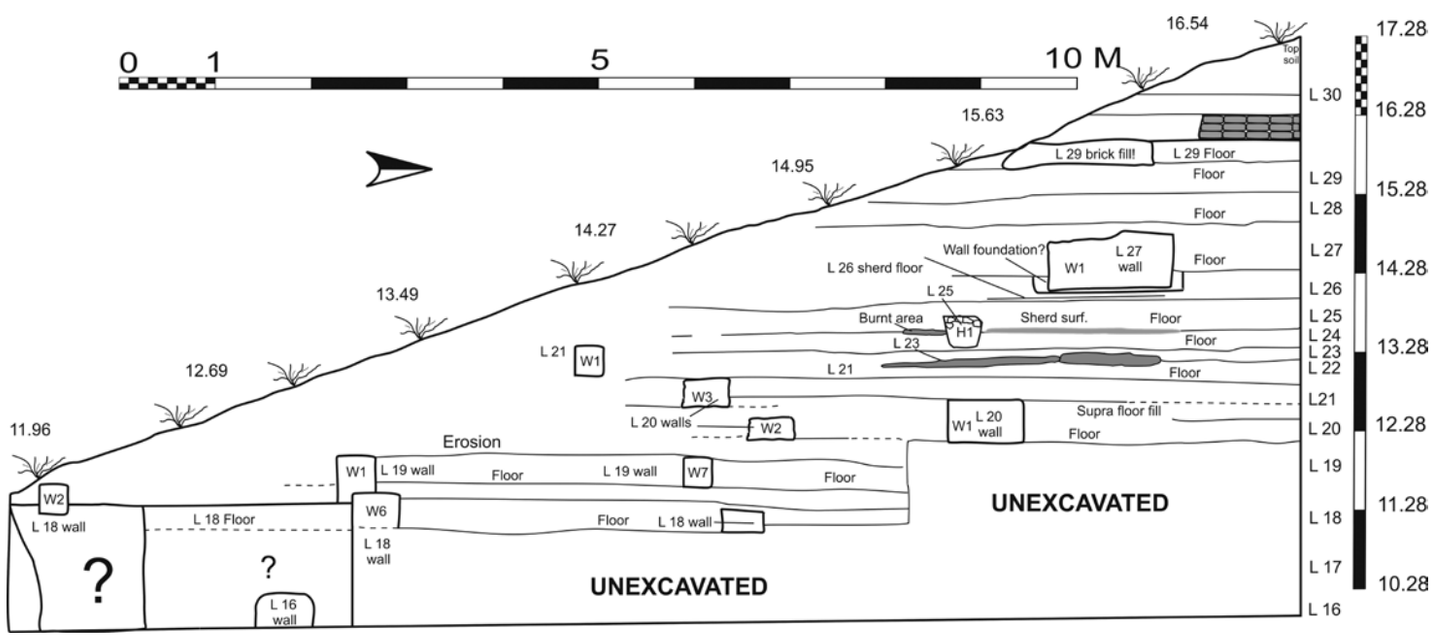
BURIALS

Jar burials B1 and B2 were cut down into Levels 45 and 46 from above

Figure 23. Top Plans, Step Trench, Top Section, Levels 43–44, and 45–46



A



B

Figure 24. (*A*) Step Trench Lower, Levels 1–16, west section, and (*B*) Step Trench Middle, Levels 16–30, west section

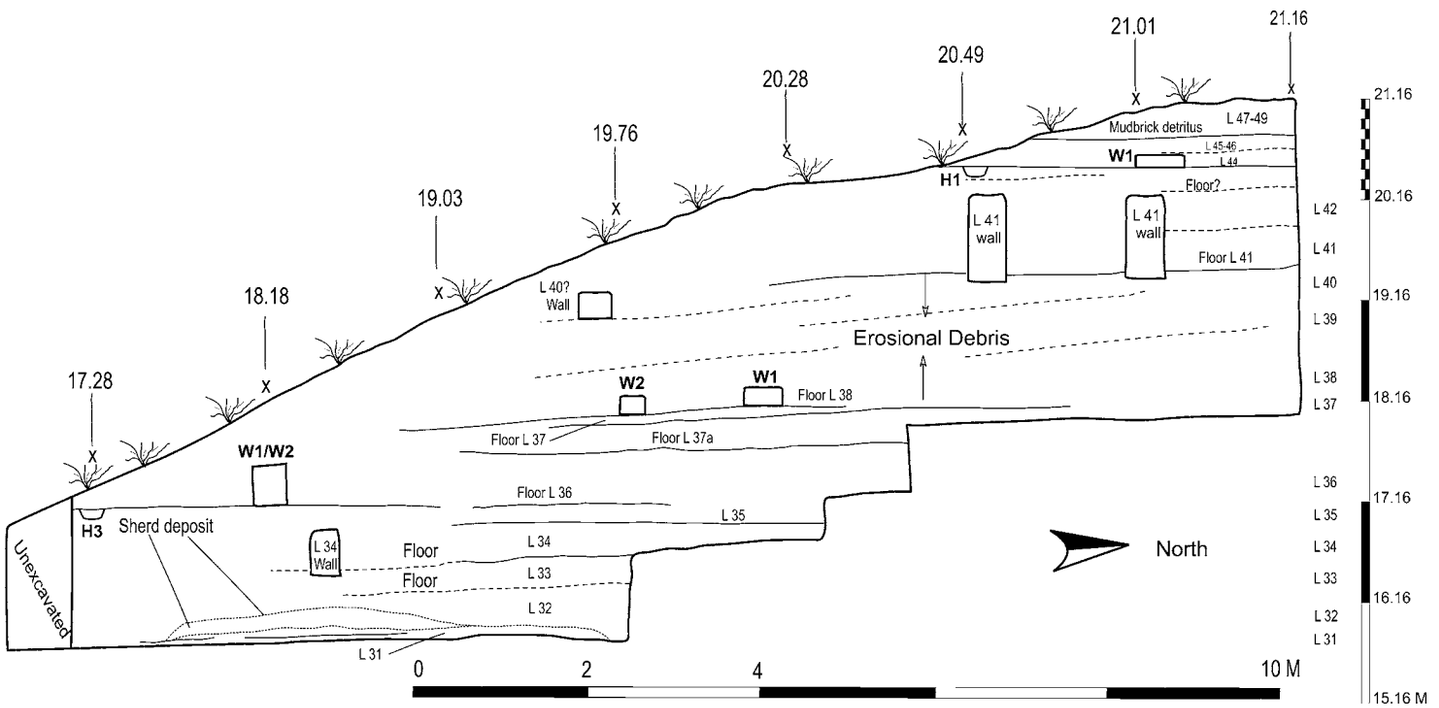


Figure 25. Step Trench Top, Levels 31–49, west section

Figure 26. Pottery from Trench 1, Level 1

	Elevation	*Field No.*	*Museum No.*	*Description*
A	21.50–21.05 m	—	—	Brown buff ware, chaff inclusion, burnished exterior. Transitional/Middle Elamite *Comparanda:* Miroschedji 1981a, fig. 10:3
B	21.50–21.05 m	—	A154844	Buff ware, large red and brown grits in paste, cracked surface interior. Post-Sasanian?
C	21.10–21.00 m	—	—	Buff ware, smeared with bitumen interior and exterior. Sukkalmah?
D	21.50–21.05 m	—	—	Grayish brown ware, buff surface. Middle Elamite *Comparanda:* Similar to Miroschedji 1981a, fig. 14:10
E	21.50–21.05 m	—	—	Reddish brown ware, large gray grits in paste, light brown surface, some burnishing strokes on shoulder. Middle Elamite *Comparanda:* Similar to Miroschedji 1981a, fig. 14:10
F	21.50 m	—	—	No description available. Probably Sukkalmah
G	21.50 m	—	—	Pale brown ware, gritty paste, low fired. Post-Sasanian

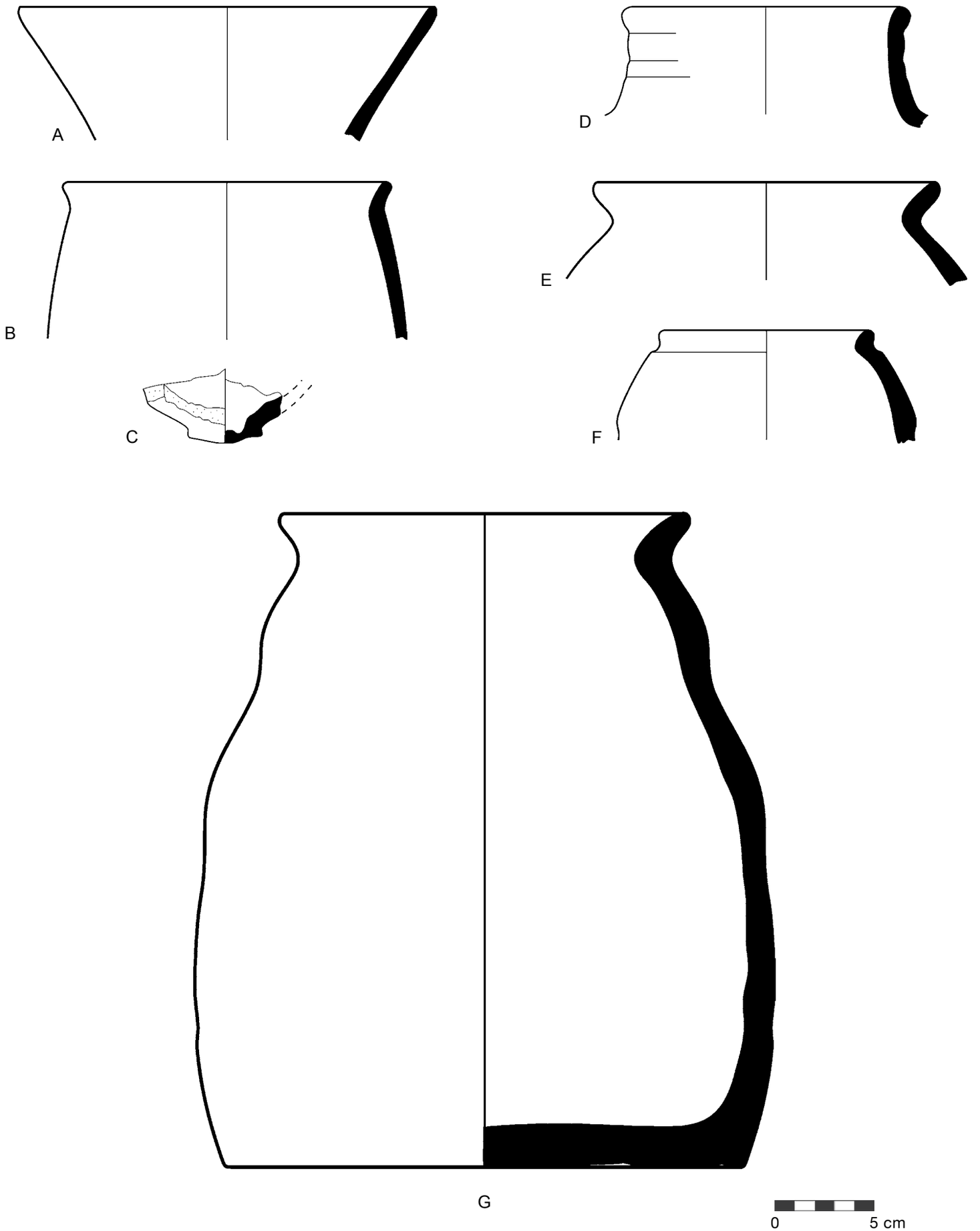


Figure 26. Pottery from Trench 1, Level 1

Figure 27. Pottery from Trench 1, Level 2

	Elevation	*Field No.*	*Museum No.*	*Description*
A	20.20–19.50 m	—	—	Pale pinkish buff ware, black core, chaff inclusion, pinkish buff surface, reddish brown paint. Sukkalmah
B	20.45–20.20 m	—	—	Buff ware, chaff inclusion, brown wash exterior scallop design white wash. Proto-Elamite?
C	20.45–20.20 m	—	—	Buff ware, fine chaff inclusion, pale brown wash interior and exterior. Proto-Elamite *Comparanda:* Malyan, Late Banesh phase (Sumner 2003, fig. 21:aj–aq)
D	20.80–20.50 m	—	—	Pinkish buff ware, buff surface. Probably Late Susa II phase
E	20.45–20.20 m	—	A154870	Pale bricky red ware, gray core, some chaff inclusion, red wash/slip on exterior. Sukkalmah/Middle Elamite *Comparanda:* Susa Ville Royale B V (Gasche 1973, pl. 2:1–4), Ville Royale II A, level 10 (Miroschedji 1981a, fig. 11:15)
F	20.20–19.50 m	—	—	Buff ware, chaff inclusion, brown paint, lug handle. Proto-Elamite
G	20.20–19.50 m	—	—	Pinkish buff ware, 2/3 of core gray, some chaff inclusion, buff surface. Early Susa II *Comparanda:* Susa Acropole, level 23 (Le Brun 1971, fig. 40:9)
H	20.20–19.50 m	—	—	Pinkish buff ware, straw inclusion, buff surface. Early Susa II *Comparanda:* Susa Acropole, level 23 (Le Brun 1971, fig. 40:6) (the Susa example has no straw inclusion)
I	20.80–20.20 m	—	—	Pinkish buff ware, chaff inclusion, raised ridge running under the nose lugs. Proto-Elamite
J	20.80–19.95 m	—	—	Pinkish buff ware, fine chaff inclusion, buff surface. Middle Elamite *Comparanda:* Susa Ville Royale II A, level 12 (Miroschedji 1981a, fig. 12:2)
K	20.45–20.20 m	—	—	Brown ware, chaff inclusion, buff surface, brown paint, false spout. Proto-Elamite
L	20.80–20.45 m	—	A154854	Pale bricky red ware, chaff inclusion, creamy buff slip/wash exterior, inner neck. Proto-Elamite?
M	19.50–18.50 m	—	—	Buff ware, gray core gradually turning buff, straw inclusion, buff surface. Sukkalmah?
N	20.80–19.95 m	—	A154846	Pale greenish buff medium ware, straw inclusion, straw face, flaky surface, probably slipped. Sukkalmah?
O	20.20–19.50 m	—	—	Buff ware, some small grits in paste, chaff inclusion, buff surface. Sukkalmah/Middle Elamite *Comparanda:* Carter 1996, fig. 20:10
P	20.20–19.50 m	—	—	Pinkish buff ware, chaff inclusion. Sukkalmah?
Q	20.80–19.95 m	—	—	Pinkish buff coarse ware, straw inclusion, straw face, buff surface
R	19.50–18.50 m	—	A154872	Pale pinkish buff ware, black core, chaff inclusion, regular striations on interior. Sukkalmah *Comparanda:* At Farukhabad this form is dated to the Simashki phase, but unlike the typical Deh Luran Simashki ware it has straw inclusion; it may date here to the Sukkalmah phase (Wright 1981, fig. 84:i).
S	20.80–19.95 m	—	A154847	Warm buff ware, dense, no visible inclusion, yellowish buff exterior and inner neck, probably slipped. Sukkalmah *Comparanda:* Farukhabad level B15–16 (Wright 1981, fig. 85:j)
T	19.50–18.50 m	—	—	Pinkish buff ware, chaff inclusion, chaff face, buff surface. Sukkalmah *Comparanda:* At Farukhabad this form is dated to the Simashki phase, but unlike the typical Deh Luran Simashki ware it has straw inclusion; it may date here to the Sukkalmah phase (Wright 1981, fig. 84:i).
U	20.20–19.50 m	—	A154845	Very pale pinkish buff coarse ware, pale grayish brown core, straw inclusion. Proto-Elamite *Comparanda:* Malyan, Banesh phase (Sumner 2003, fig. 22:u–w)
V	20.80–20.50 m	—	—	Light brown coarse ware, core 1/3 gray, chaff inclusion. Proto-Elamite *Comparanda:* Malyan, Banesh phase (Sumner 2003, fig. 22:u–w)
W	20.80–20.50 m	—	—	Pinkish buff ware, fine chaff inclusion, buff surface. Proto-Elamite
X	21.05–20.50 m	—	—	Pinkish buff ware, fine chaff inclusion, buff surface. Middle Elamite?

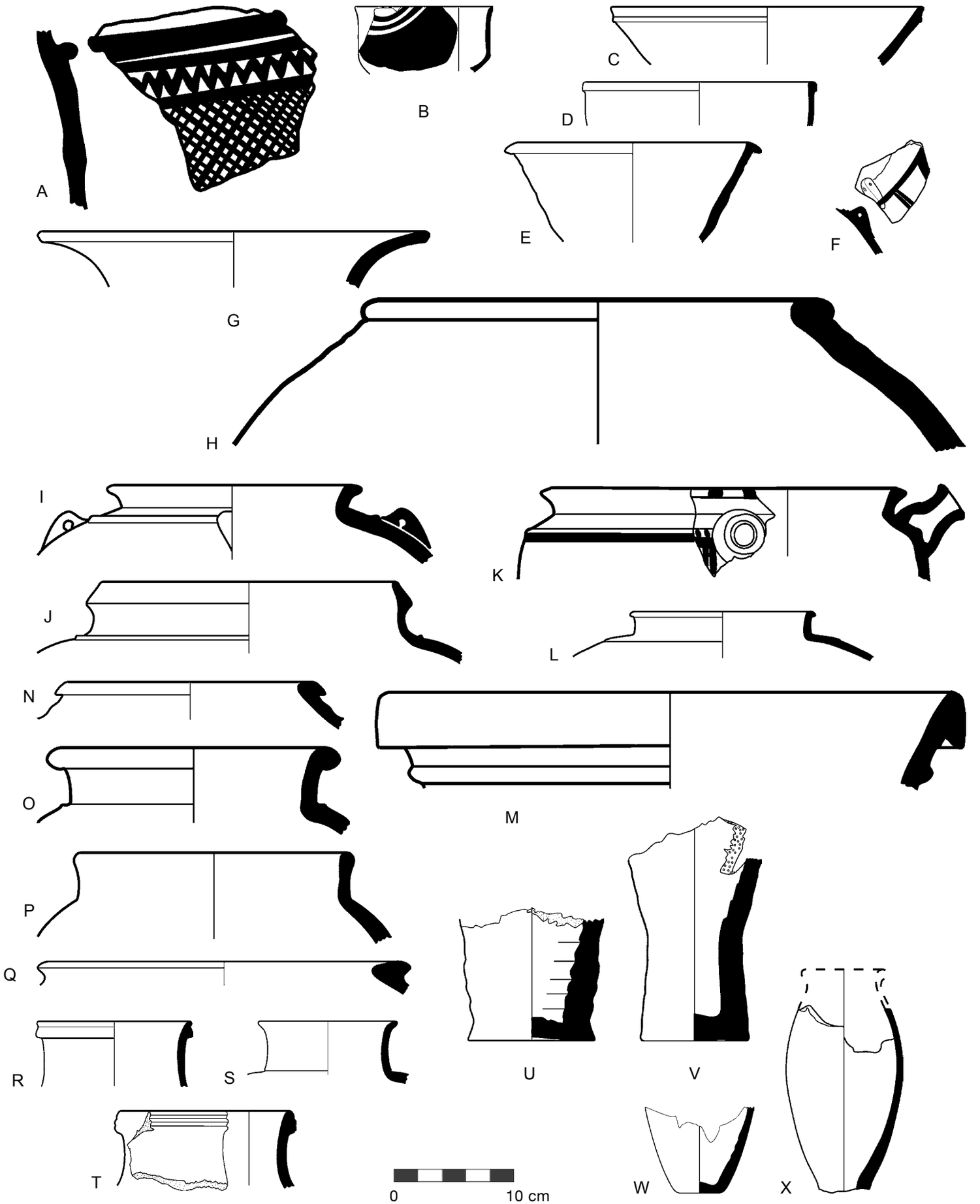


Figure 27. Pottery from Trench 1, Level 2

Figure 28. Pottery from Trench 1, Level 3

	Elevation	*Field No.*	*Museum No.*	*Description*
A	19.50–18.50 m	—	—	Pinkish buff, 1/3 black core, chaff inclusion, maroon paint. Sukkalmah *Comparanda:* Lama Cemetery, tomb 26 (Rezvani et al. 2007, color pl. 15); for later versions at Middle Elamite Malyan, see Carter 1996, fig. 27:2, 5, 9. All the examples from Malyan have chaff inclusion and the noted mineral may have to be a natural component of the clay.
B	—	—	—	Pinkish buff, 1/3 black core, fine chaff inclusion, chaff face, reddish brown paint. Sukkalmah/Transitional *Comparanda:* Lama Cemetery, tomb 26 (Rezvani et al. 2007, color pl. 15); for later versions at Middle Elamite Malyan, see Carter 1996, fig. 27:2, 5, 9. For Malyan inclusion, see above
C	19.30–18.80 m	—	—	Pinkish buff, fine chaff, 1/3 black core, maroon paint, creamy buff slip/wash. Sukkalmah/Transitional *Comparanda:* Lama Cemetery, tomb 26 (Rezvani et al. 2007, color pl. 15); for later versions at Middle Elamite Malyan, see Carter 1996, fig. 27:2, 5, 9. For Malyan inclusion, see above
D	19.30 m	G-42	Tehran	Light buff coarse ware, straw inclusion, rough surface. Probably early Neo-Elamite *Comparanda:* Miroschedji 1981a, fig. 18:10
E	18.80–17.80 m	—	—	Pinkish buff, fine chaff, 1/3 black core, maroon paint. Sukkalmah *Comparanda:* Lama Cemetery, tomb 26 (Rezvani et al. 2007, color pl. 15); for later versions at Middle Elamite Malyan, see Carter 1996, fig. 27:2, 5, 9. For Malyan inclusion, see above
F	18.80–17.80 m	G-16	Tehran	Pale buff ware, chaff inclusion, buff surface. Middle Elamite? *Comparanda:* Susa Ville Royale II A, levels 9–8 (Miroschedji 1981a, fig. 19:2, 5). Examples from Susa have a pouring lip; the Geser example is not compete and thus may have originally had one
G	18.80–17.80 m	—	A154871	Pale pinkish buff ware, chaff inclusion, buff surface. Sukkalmah?
H	19.80–18.30 m	—	—	Yellowish brown ware, dense, chaff inclusion, creamy buff slip exterior and interior. Sukkalmah?
I	19.00 m	G-17	A27920	Bricky red ware, 1–2 mm light gray core, some fine chaff, lower body scraped, brown wash exterior and interior rim. Mottled surface. Proto-Elamite?
J	18.80–17.80 m	—	—	Pinkish buff ware, chaff inclusion, buff surface. Late Susa II/proto-Elamite
K	19.80–18.30 m	—	—	Reddish buff fine ware, chaff inclusion, reddish brown wash exterior and on inner rim. Proto-Elamite

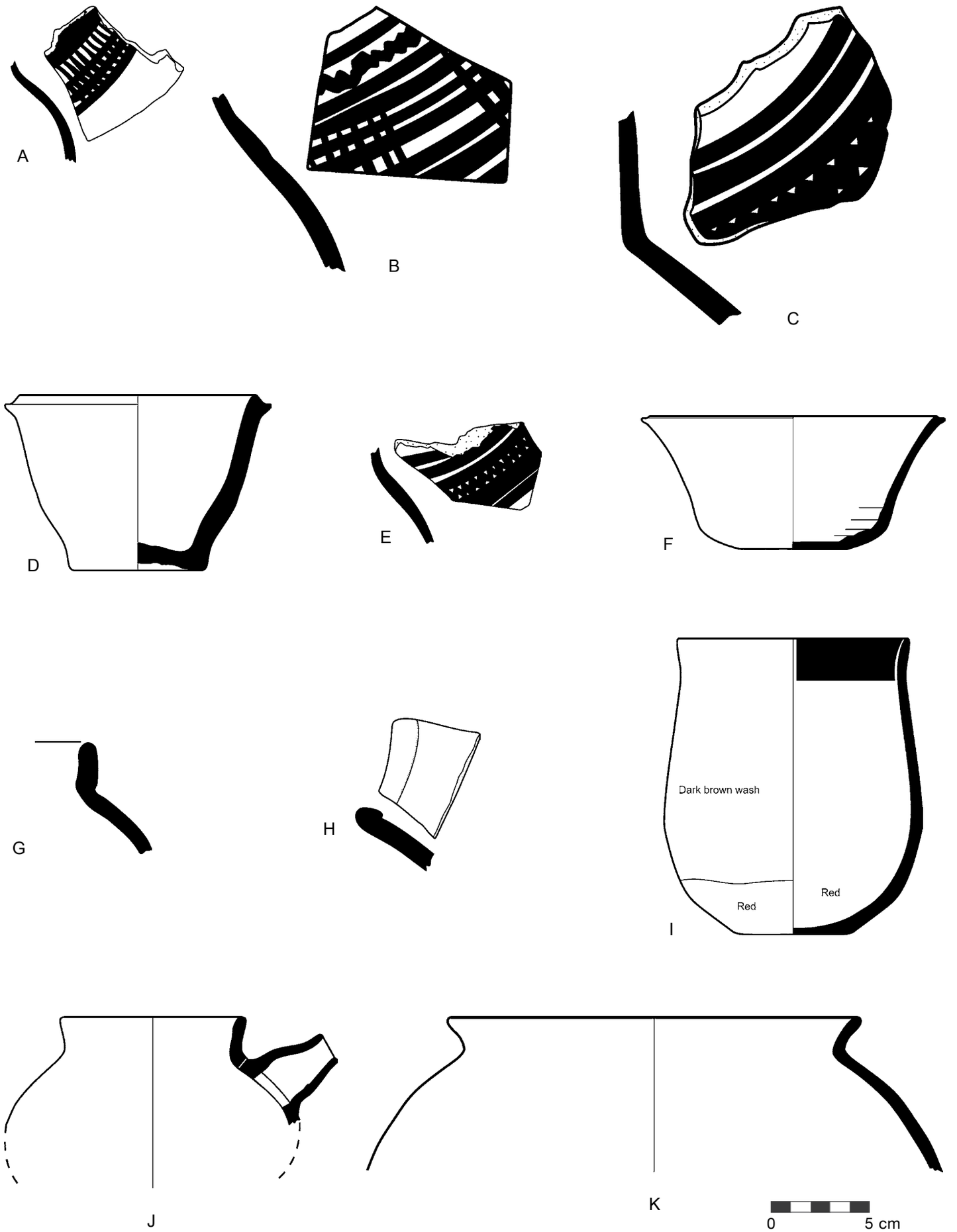


Figure 28. Pottery from Trench 1, Level 3

Figure 29. Pottery from Trench 2, Levels 1 and 3

	Elevation	*Field No.*	*Museum No.*	*Description*
LEVEL 1				
A	23.85–22.65 m	—	—	Pale brown buff ware, some medium dark grits in paste, dark buff surface. Islamic
B	23.15 m	G-2	A27913	Pale bricky red ware, some white calcite particles in paste, no visible inclusion. Islamic?
C	23.85–22.65 m	—	A154843	Buff coarse ware, porous, very pale gray core, some large gray grits in paste, chaff inclusion, rough exterior, smoothed interior, interior and upper exterior body covered with pale red ochre wash (much of it flaked off). Islamic, 11th–14th C. A.D.
LEVEL 3				
D	21.50–22.00 m	G-13	Tehran	Buff ware, chaff inclusion, red brown wash upper exterior and interior, two excised grooves at base. Proto-Elamite
E	20.65 m	G-10	A27916	Pale brown buff ware, chaff inclusion, chaff face, creamy buff slip exterior, brown paint, similar to Kaftari painted bell-shaped bowls at Malyan. Sukkalmah (for findspot, see fig. 6, no. 1; for color photo, see pl. 5:A) *Comparanda:* Nickerson 1985, fig. 52:j
F	20.65 m	—	—	Buff ware, dark core, white grits (calcite) in paste, traces of irregular burnishing strokes on exterior. Proto-Elamite *Comparanda:* Susa Ville Royale I, level 16/17 (Carter 1980, fig. 15:16)
G	20.85–20.35 m	—	—	Red ware, chaff inclusion, bright red surface. Middle Elamite *Comparanda:* Susa Ville Royale II A, level 11 (Miroschedji 1981a, fig 11:13)
H	20.65 m	—	A154841	Gray coarse ware, small to medium dark grits and calcite particles in paste, calcite and grit face, exterior surface patchy gray brown, some irregular burnishing strokes on outer surface. Proto-Elamite? *Comparanda:* Susa Ville Royale I, level 16/17 (Carter 1980, fig. 15:16)
I	20.15 m	—	—	Pale reddish buff ware, chaff inclusion, buff surface. Middle to Neo-Elamite *Comparanda:* Susa Ville Royale II A, level 7B (Miroschedji 1981a, fig. 33:11)
J	21.00 m	G-9	Tehran	Pinkish buff ware, chaff inclusion, buff surface. Neo-Elamite? *Comparanda:* Similar to Miroschedji 1981a, fig. 28:8
K	20.85–20.05 m	—	—	Brownish buff coarse ware, straw inclusion. Proto-Elamite *Comparanda:* Malyan, Banesh phase (Sumner 2003, fig. 22:u–w); Susa Acropole, levels 16–15 (Le Brun 1971, fig. 60:1–4)
L	20.65 m	—	A154840	Warm buff coarse ware, core 1/3 light gray, straw inclusion, straw face, string-cut base. Proto-Elamite *Comparanda:* Malyan, Banesh phase (Sumner 2003, fig. 22:u–w); Susa Acropole, levels 16–15 (Le Brun 1971, fig. 60:1–4)
M	21.50–22.00 m	—	A154848	Pale reddish buff ware, no visible inclusion, exterior creamy buff, probably slipped, strong striations inside. Proto-Elamite?

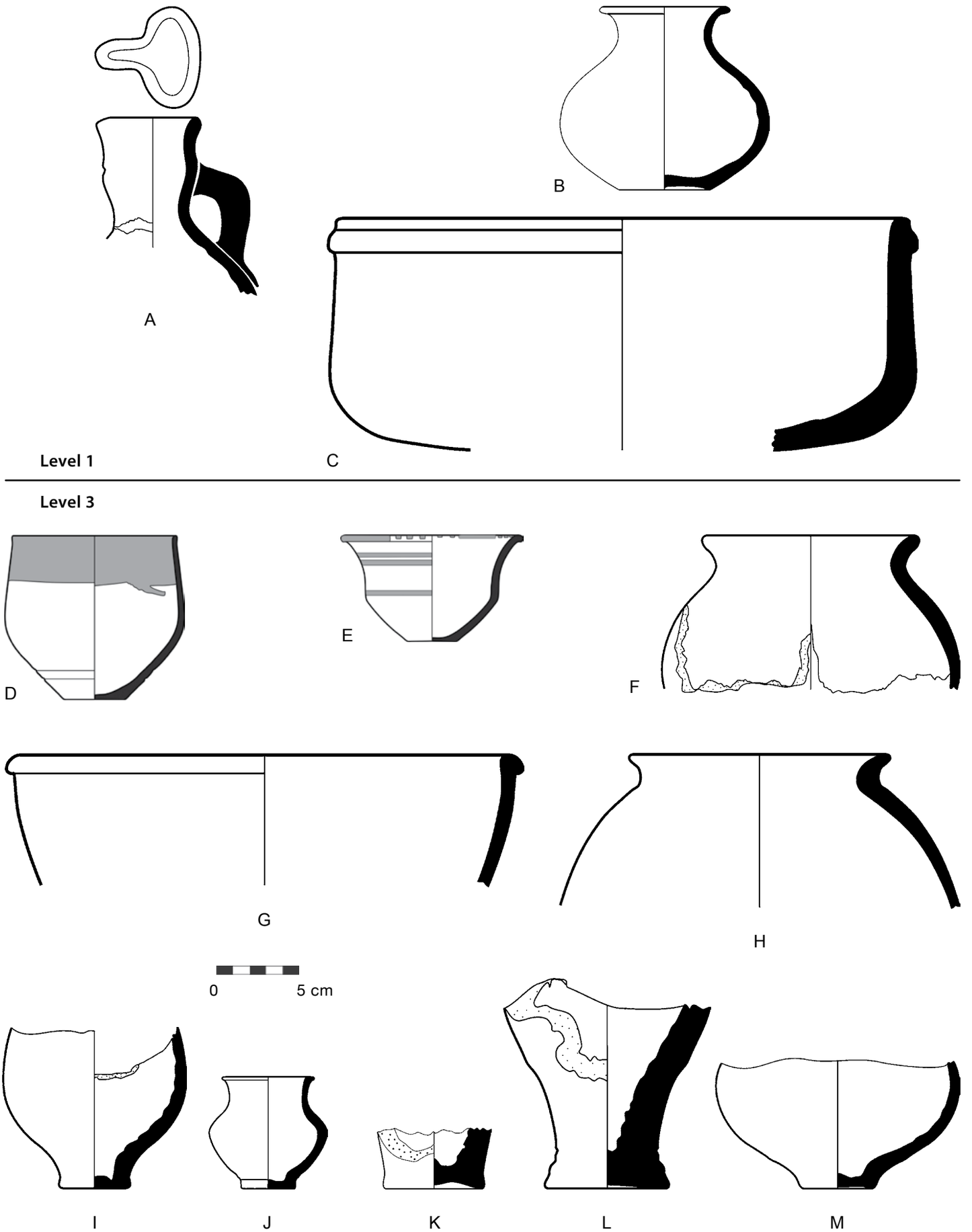


Figure 29. Pottery from Trench 2, Levels 1 and 3

Figure 30. Pottery from Trench 2, Level 2

	Provenance	*Elevation*	*Field No.*	*Museum No.*	*Description*
A	Level 2	22.00–22.95 m	—	—	Yellow brown ware, chaff inclusion, buff surface. Sukkalmah *Comparanda:* for general shape and decoration, see Carter 1980, fig. 50; Steve and Gasche 1971, pls. 3, 6
B	Level 2	22.00–22.95 m	—	—	Yellowish brown ware, 3/4 dark core, straw inclusion, traces of bitumen on surface, excised wavy lines above ridge and finger impressions on ridge. Sukkalmah *Comparanda:* for general shape and decoration, see Carter 1980, fig. 50; Steve and Gasche 1971, pls. 3, 6
C	Level 2	22.00–22.95 m	—	—	Buff ware, 2/3 dark core, straw inclusion, punctates on ridge. Sukkalmah *Comparanda:* for general shape and decoration, see Carter 1980, fig. 50; Steve and Gasche 1971, pls. 3, 6
D	Level 2	22.00–22.95 m	—	—	Brownish buff ware, sandy paste, buff surface. Islamic?
E	Level 2	22.00–22.95 m	—	—	No description available. Middle Elamite?
F	Level 2	22.00–22.95 m	G-6	Tehran	Buff ware, some fine chaff inclusion, slightly burnished. Achaemenid? *Comparanda:* for general shape, see Chogha Mish (Alizadeh 2008, fig. 22:L)
G	Level 2	22.00–22.95 m	—	—	Light brown ware, gray core, chaff inclusion, yellowish buff slip. Sukkalmah
H	Level 2	22.00–22.95 m	—	—	Reddish buff ware, core 1/4 gray, chaff inclusion, buff surface. Sukkalmah *Comparanda:* Wright 1981, fig. 86:b
I	Level 2	22.00–22.95 m	—	—	Light yellow brown, core 1/3 gray, chaff inclusion. Sukkalmah *Comparanda:* Susa Ville Royale A XIV (Gasche 1973, pl. 43:4)
J	Level 2	22.00–22.95 m	—	A154842	Bricky red ware, dense, some chaff inclusion, 1 mm thick inner and outer surface creamy buff. Sukkalmah
K	Level 2	22.00–22.95 m	—	—	Pale red bricky ware, chaff inclusion, pale pinkish white wash
L	Level 2, no. 2	22.00–22.95 m	G-12	A27917	Pale pinkish buff ware, fine chaff inclusion, maroon paint. Sukkalmah *Comparanda:* Lama Cemetery, tomb 26 (Rezvani et al. 2007, color pl. 15); for later versions at Middle Elamite Malyan, see Carter 1996, fig. 27:2, 5, 9. All the examples from Malyan have chaff inclusion and the noted mineral may have to be a natural component of the clay
M	Level 2	22.00–22.95 m	G-3	Tehran	Orange buff ware, chaff inclusion, red brown paint. Sukkalmah/ Transitional *Comparanda:* Lama Cemetery, tomb 26 (Rezvani et al. 2007, color pl. 15); for later versions at Middle Elamite Malyan, see Carter 1996, fig. 27:2, 5, 9; see above
N	Level 2	22.00–22.95 m	G-11	Tehran	Pale buff ware, fine chaff inclusion. Sukkalmah *Comparanda:* Susa Ville Royale B V, A XIV (Gasche 1973, pls. 1:21, 3:15)
O	Level 2, no. 5	22.00–22.95 m	G-31	A27927	Reddish brown ware, gray core, no visible inclusion, two excised grooves on shoulder, rim smeared with bitumen. Sukkalmah?
P	Level 2	22.00–22.95 m	G-5	Tehran	Buff ware, fine chaff inclusion. Sukkalmah *Comparanda:* Farukhabad, level BF16 (Wright 1981, fig. 90:c)
Q	Level 2	22.00–22.95 m	—	A154868	Bricky red ware, interior half pale grayish buff, some chaff, small dark grits and granulated paste, some small calcite particles in paste, surface mottled brown, red and buff, traces of brown wash exterior, inner rim. Sukkalmah?

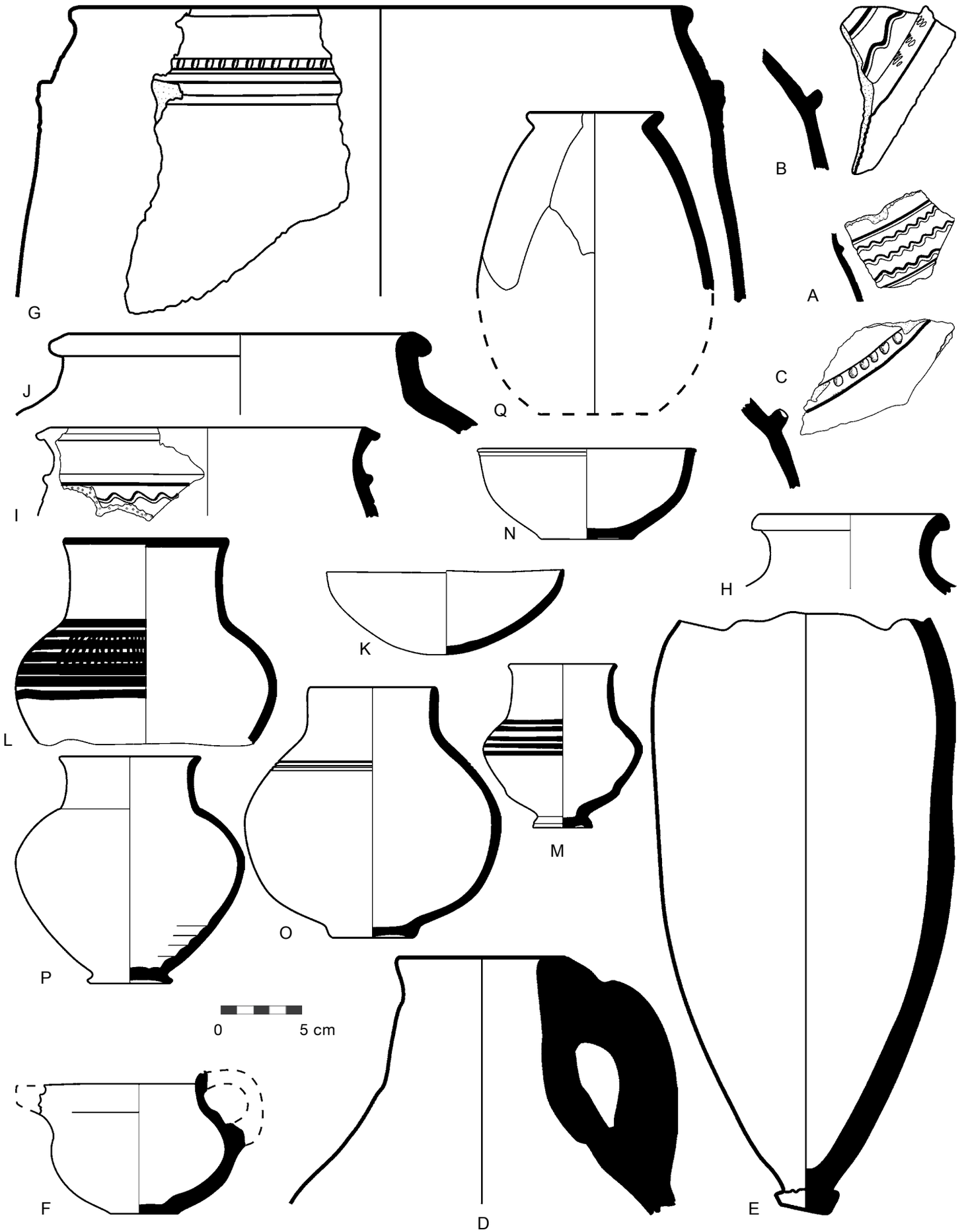


Figure 30. Pottery from Trench 2, Level 2

Figure 31. Pottery from Mound B, Levels 1–3

	Elevation	*Field No.*	*Museum No.*	*Description*
LEVEL 1				
A	10.30–8.10 m	—	—	Yellowish buff ware, small dark grits in paste, creamy white glaze exterior and interior. Neo-Elamite?
B	9.10 m	G-105	A27962	Pale gray buff ware, some calcite particles in paste, chaff inclusion. Sukkalmah?
C	8.75 m	G-104	A27961	Light buff ware, some scattered sand in paste, no visible inclusion, gray-green glaze exterior and interior. Neo-Elamite?
LEVEL 2				
D	8.10–7.20 m	—	—	Red bricky ware, chaff inclusion, chaff face, creamy buff wash exterior and interior. Late Middle Elamite/Neo-Elamite *Comparanda:* Susa Ville Royale II A, level 8 (Miroschedji 1981a, fig. 18:10)
E	8.10–7.20 m	—	A154946	Bricky red ware, dark gray core is sandwiched between 1 mm thick bricky red layers, dense, chaff inclusion, lump of bitumen under rim. Middle Elamite *Comparanda:* Susa Ville Royale II A, level 12 (Miroschedji 1981a, fig. 13:11–12)
F	7.20 m	G-109	A27964	Pale reddish buff ware, chaff inclusion, creamy buff surface. Middle Elamite *Comparanda:* Susa Ville Royale II A, level 11 (Miroschedji 1981a, fig. 12:9–11)
G	7.20 m	G-111	—	Light buff ware, chaff inclusion. Middle Elamite *Comparanda:* Susa Ville Royale II A, levels 12–10 (Miroschedji 1981a, figs. 15:9–10, 12, 26:8)
LEVEL 3				
H	7.20–5.70 m	G-108	Tehran	Bricky red ware, dense, chaff inclusion, pale grayish white wash interior, exterior. Neo-Elamite *Comparanda:* Susa Ville Royale II A, level 7 B (Miroschedji 1981a, fig. 29:8, 10)
I	7.20–5.70 m	G-106	A27963	Pale bricky buff ware, straw inclusion, straw face, yellow buff surface, two incised grooves on the shoulder. Middle to Neo-Elamite *Comparanda:* Susa Ville Royale II A, level 9 (Miroschedji 1981a, fig. 25:16–17)
J	7.20–5.70 m	G-110	A27965	Pale bricky buff ware, straw inclusion, straw face, yellow buff surface, three excised grooves on the shoulder. Middle to Neo-Elamite

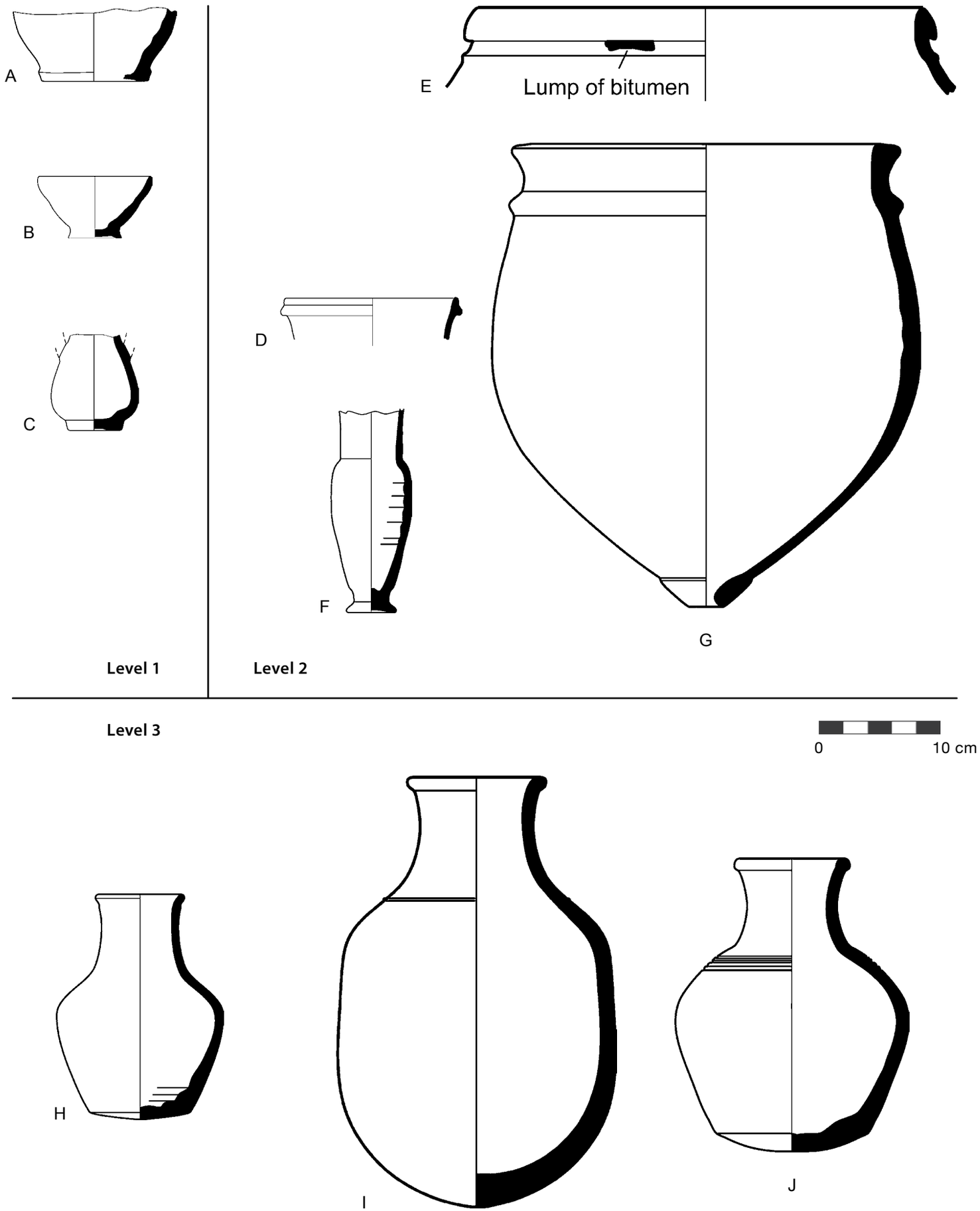


Figure 31. Pottery from Mound B, Levels 1–3

Figure 32. Pottery from Mound B, unidentified levels

	Elevation	*Field No.*	*Museum No.*	*Description*
A	—	—	—	Pale beige ware, straw inclusion. Middle Elamite. Scale unknown *Comparanda:* Susa Ville Royale II A, levels 12–10 (Miroschedji 1981a, fig. 15:14, 16–17); Malyan EDD, level 4A (Carter 1996, fig. 24:2)
B	—	—	—	Buff ware, straw inclusion. Middle Elamite *Comparanda:* Susa Ville Royale II A, levels 12–10 (Miroschedji 1981a, fig. 14:3–4)
C	—	—	A154947	Bricky red ware, chaff inclusion, creamy buff wash/slip exterior, inner rim. Middle Elamite. Possibly from Level 2 *Comparanda:* Susa Ville Royale II A, levels 12–10 (Miroschedji 1981a, fig. 14:3–4)
D	—	—	A154945	Bricky red ware, dense, chaff inclusion, creamy buff wash/slip exterior, and inner rim. Middle Elamite. Possibly from Level 2 *Comparanda:* Susa Ville Royale II A, levels 9–8 (Miroschedji 1981a, fig. 22:15); Malyan EDD, level 4A (Carter 1996, fig. 22:14)
E	—	—	—	Light brown ware, dark brown core, straw inclusion. Middle Elamite *Comparanda:* Susa Ville Royale II A, levels 12–10 (Miroschedji 1981a, figs. 15:18–20, 22:15)
F	—	—	A154859	Buff ware, straw inclusion, probably slipped. Middle Elamite
G	—	—	—	Light buff ware, straw inclusion. Middle Elamite *Comparanda:* Susa Ville Royale II A, levels 9–8 (Miroschedji 1981a, fig. 23:9–10)
H	—	—	—	Buff ware, gray core, chaff inclusion, creamy buff slip exterior. Sukkalmah/Middle Elamite *Comparanda:* Farukhabad, level B11–13 (Wright 1981, fig. 86:o); Susa Ville Royale II A, levels 12–10 (Miroschedji 1981a, fig. 15:18, 20)
I	—	—	A154869	Pale pinkish buff ware, dark core, chaff inclusion, chaff face, exterior, creamy buff wash/slip, light brown paint. Sukkalmah/Middle Elamite *Comparanda:* Malyan EDD, level 4A (Carter 1996, fig. 27:2); Lama Cemetery, tomb 26 (Rezvani et al. 2007, color pl. 15)
J	—	—	A154860	Pale brown buff ware, very little fine chaff inclusion, exterior and interior yellowish buff, probably slipped, pale gray brown paint. Sukkalmah–Middle Elamite *Comparanda:* Malyan EDD, level 4B (Carter 1996, fig. 27:6); Lama Cemetery, tomb 57 (Rezvani et al. 2007, fig. 48:10)
K	—	—	—	Buff ware, few sand in paste, no visible inclusion, brown paint. Late Middle Susiana
L	—	—	—	Creamy buff ware, occasional fine chaff, brown paint. Late Middle Susiana

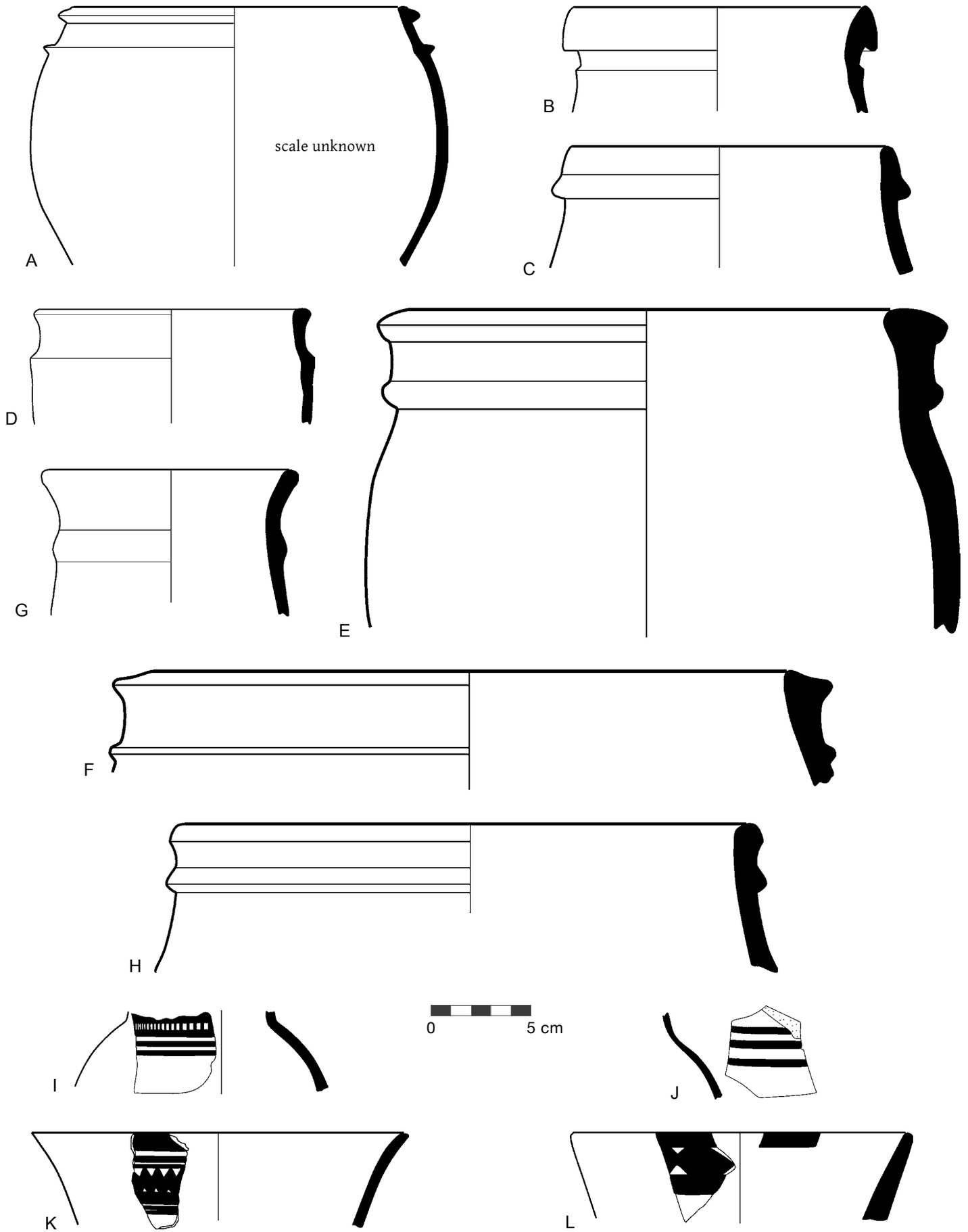


Figure 32. Pottery from Mound B, unidentified levels

Figure 33. Pottery from Fort Mound, Top, Level 1

	Elevation	*Field No.*	*Museum No.*	*Note*
A	3.90 m	G-102	A27960	Pale reddish buff ware, some calcite particles in paste, chaff inclusion, bright red maroon wash, polished. Achaemenid *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pl. 75:A)
B	4.10 m	G-64	A27940	Pale yellow buff ware, no visible inclusion, pale gray green glaze on exterior and inner rim. Neo-Elamite (for findspot, see fig. 9, no. 9; for color photo, see pl. 5:C) *Comparanda:* Similar to Lama Cemetery, Tomb 37 (Rezvani et al. 2007, color pl. 18; for shape, see Amiet 1966, pl. 372)
C	5.70–3.70 m	G-45	Tehran	Light grayish brown ware, apple green glaze, excised grooves on lower body. Neo-Elamite
D	4.80 m	G-48	Tehran	Orange red ware, no visible inclusion. Achaemenid
E	5.00 m	G-61	Tehran	Light yellowish buff ware, no visible inclusion, white glaze exterior, traces of green glaze on inner rim. Neo-Elamite *Comparanda:* Susa Ville Royale II A, L. 7B (Miroschedji 1981a, fig. 39:26–33)
F	2.40 m	G-62	A27939	Pale yellowish buff ware, no visible inclusion, pale grayish green glaze used for decorative scheme. Neo-Elamite (for findspot, see fig. 9, no. 7; for color photo, see pl. 5:E) *Comparanda:* For general shape, see Susa Ville Royale II A, L. 7B (Miroschedji 1981a, fig. 39:26–33); for glazed decoration, see Amiet 1966, pl. 378
G	4.00 m	G-65	A27941	Warm buff ware, some small light gray grits in paste, chaff inclusion, string cut. Achaemenid?
H	5.20–4.20 m	—	—	Light buff, straw inclusion, straw face, probably slipped. Late Middle Elamite/Neo-Elamite *Comparanda:* Susa Ville Royale II A, L. 9–8 (Miroschedji 1981a, fig. 29:8–9)
I	4.70–3.70 m	—	A163104	Gray black ware, dense, some chaff inclusion. Neo-Elamite/ Achaemenid
J	5.10 m	G-100	A27958	Light buff ware, straw inclusion, straw face, probably slipped. Neo-Elamite *Comparanda:* Susa Ville Royale II A, L. 7B (Miroschedji 1981a, fig. 29:8–9)
K	5.20 m	G-99	Tehran	Grayish buff ware, straw inclusion, straw face. Neo-Elamite *Comparanda:* Susa Ville Royale II A, L. 7B (Miroschedji 1981a, fig. 35)
L	4.80 m	G-68	Tehran	Buff ware, straw inclusion. Neo-Elamite
M	5.05 m	G-69	Tehran	Light buff ware, straw inclusion. Neo-Elamite *Comparanda:* Susa Ville Royale, II A, L. 7B (Miroschedji 1981a, fig. 34:7–9)

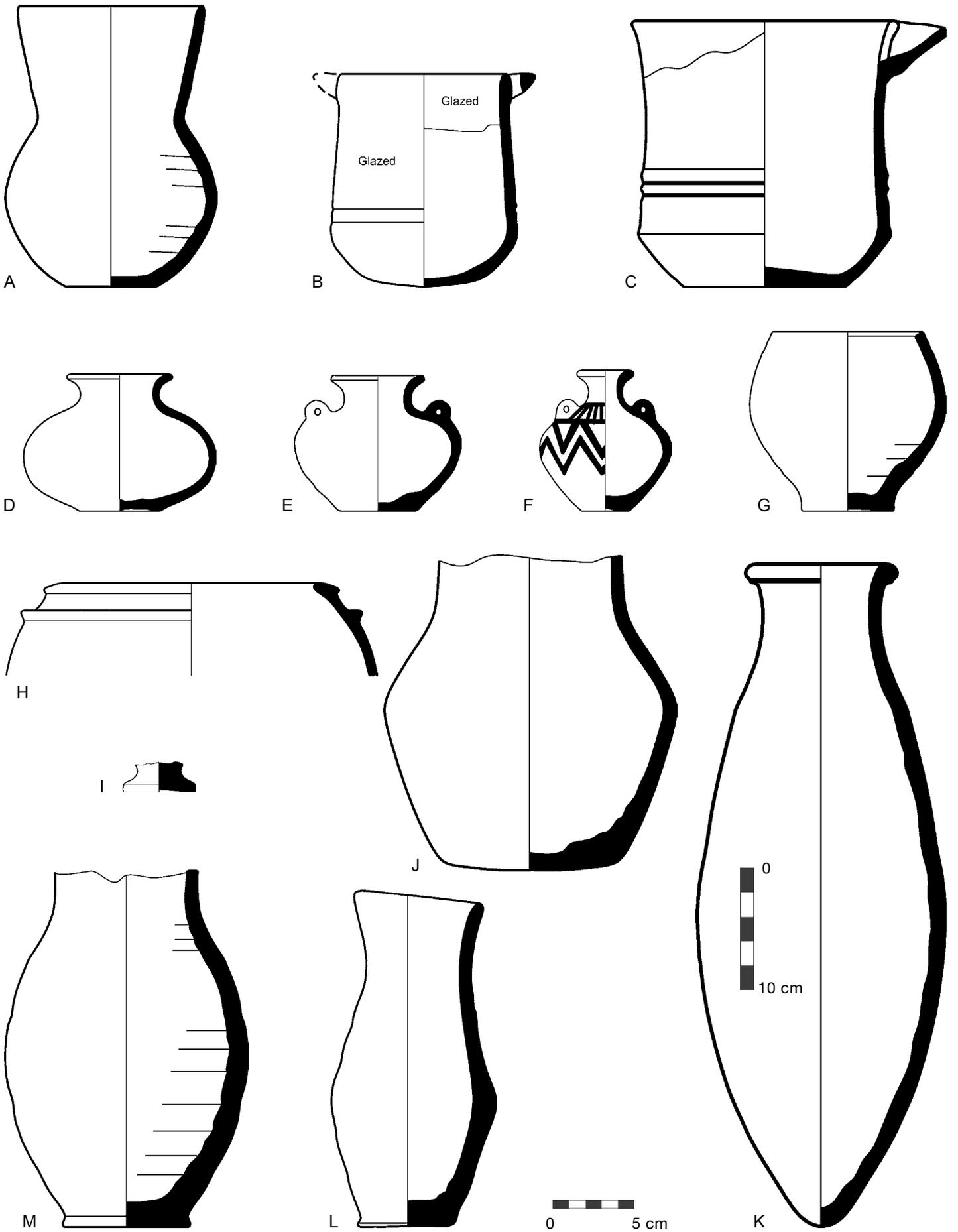


Figure 33. Pottery from Fort Mound, Level 1

Figure 34. Pottery from Fort Mound, Level 1B

	Elevation	*Field No.*	*Museum No.*	*Description*
A	—	—	—	Light gray ware, gritty paste, buff surface, basket impression below rim. Islamic
B	3.61 m	—	—	Pinkish buff ware, large grits in paste. Islamic
C	4.20 m	—	A154823	Buff ware, dense, 2 mm thick gray core, fine chaff inclusion, probably slipped. Neo-Elamite *Comparanda:* Susa Ville Royale II A, level 7B (Miroschedji 1981a, fig. 33:9)
D	—	—	—	Brown buff ware, no visible inclusion, pale buff surface, red brown wash exterior and interior. Neo-Elamite/Achaemenid *Comparanda:* Chogha Mish, Early Achaemenid (Alizadeh 2008, fig. 24:J)
E	4.20 m	—	A154822	Pale brown buff ware, dense, 2 mm thick gray core, chaff inclusion, probably reddish brown wash exterior. Neo-Elamite/Achaemenid *Comparanda:* Susa Ville Royale II A, level 7A (Miroschedji 1981a, fig. 39:26–33); Chogha Mish, Early Achaemenid (Alizadeh 2008, fig. 22:M)
F	4.20 m	—	A154824	Yellowish buff ware, chaff inclusion, chaff face, probably slipped. Partian/Sasanian
G		—	—	Buff ware, no visible inclusion, brown paint; Late Middle Susiana (intrusive) *Comparanda:* Chogha Mish (Alizadeh 2008, fig. 287:F)
H	4.20 m	—	A154828	Buff ware, chaff inclusion, chaff face, uneven striations on the interior. Neo-Elamite *Comparanda:* Susa Ville Royale II A, level 7B (Miroschedji 1981a, fig. 35)
I	5.00 m	G-57	A27936	Pinkish buff coarse ware, chaff inclusion, chaff face, string-cut base. Neo-Elamite (for color photo, see pl. 5:D) *Comparanda:* Susa Ville Royale II, level 7 (tomb) (Miroschedji 1981a, fig. 41:3–4)
J	—	—	A154826	Yellowish buff ware, no visible inclusions, turquoise glaze exterior, upper interior. Parthian

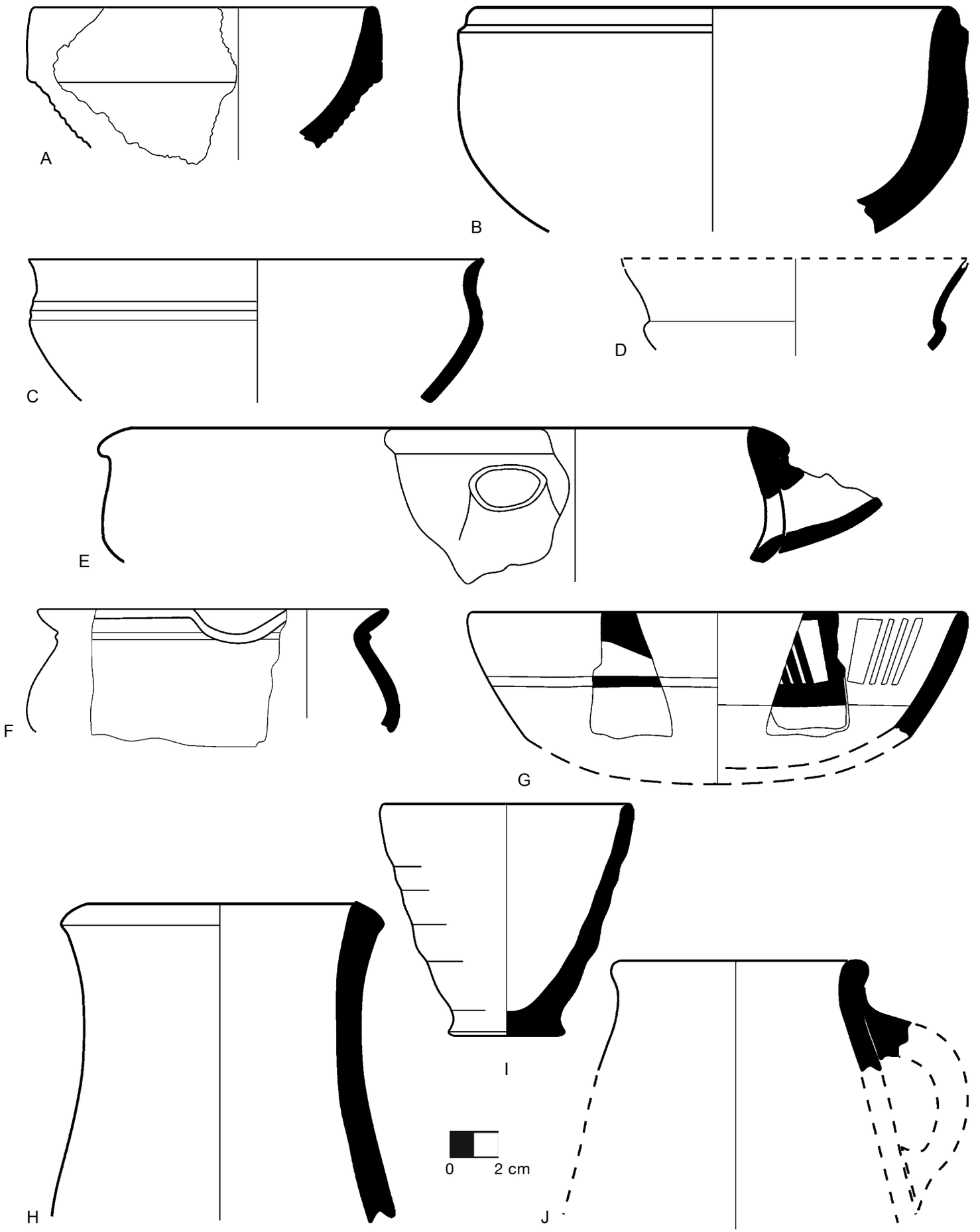


Figure 34. Pottery from Fort Mound, Level 1B

Figure 35. Pottery from Fort Mound, Level 2

	Elevation	*Field No.*	*Museum No.*	*Description*
A	2.40 m	G-52	Tehran	Light yellowish brown ware, chaff inclusion, chaff face. Neo-Elamite *Comparanda:* Susa Ville Royale II A, level 7B (Miroschedji 1981a, fig. 33:1–7)
B	1.70 m	G-66	Tehran	Light yellowish brown ware, chaff inclusion. Neo-Elamite *Comparanda:* Susa Ville Royale II A, level 7B (Miroschedji 1981a, fig. 33:1–7)
C	2.50 m	G-47	Tehran	Light yellowish brown ware, straw inclusion. Neo-Elamite *Comparanda:* Susa Ville Royale II A, level 7B (Miroschedji 1981a, fig. 33:1–7)
D	2.30 m	—	—	Light yellowish brown ware, straw inclusion, string-cut base
E	2.30 m	—	—	Light yellowish brown ware, straw inclusion. Neo-Elamite *Comparanda:* Susa Ville Royale II A, level 7B (Miroschedji 1981a, fig. 33:7)
F	—	—	—	Reddish buff ware, chaff inclusion. Late Middle Elamite/Neo-Elamite *Comparanda:* Susa Ville Royale II A, levels 9–8 (Miroschedji 1981a, fig. 20:11)
G	2.5–3.0 m	—	—	Buff ware, heavy chaff inclusion. Middle Elamite *Comparanda:* Susa Ville Royale II A, level 11 (Miroschedji 1981a, fig. 14:3)
H	0.80–1.25 m	—	—	Yellowish buff ware, much straw inclusion. Middle Elamite?
I	2.60 m	G-60	A27938	Pinkish buff ware, 1 mm gray core, chaff inclusion, light buff surface. Middle Elamite *Comparanda:* Susa Ville Royale II A, levels 9–8 (Miroschedji 1981a, fig. 22); Malyan, Middle Elamite (Carter 1996, fig. 21:1–4); Susa Ville Royale A X (Gasche 1973, pl. 31:1)
J	1.45 m	—	A154814	Pale brown buff ware, straw inclusion, straw face. Sukkalmah

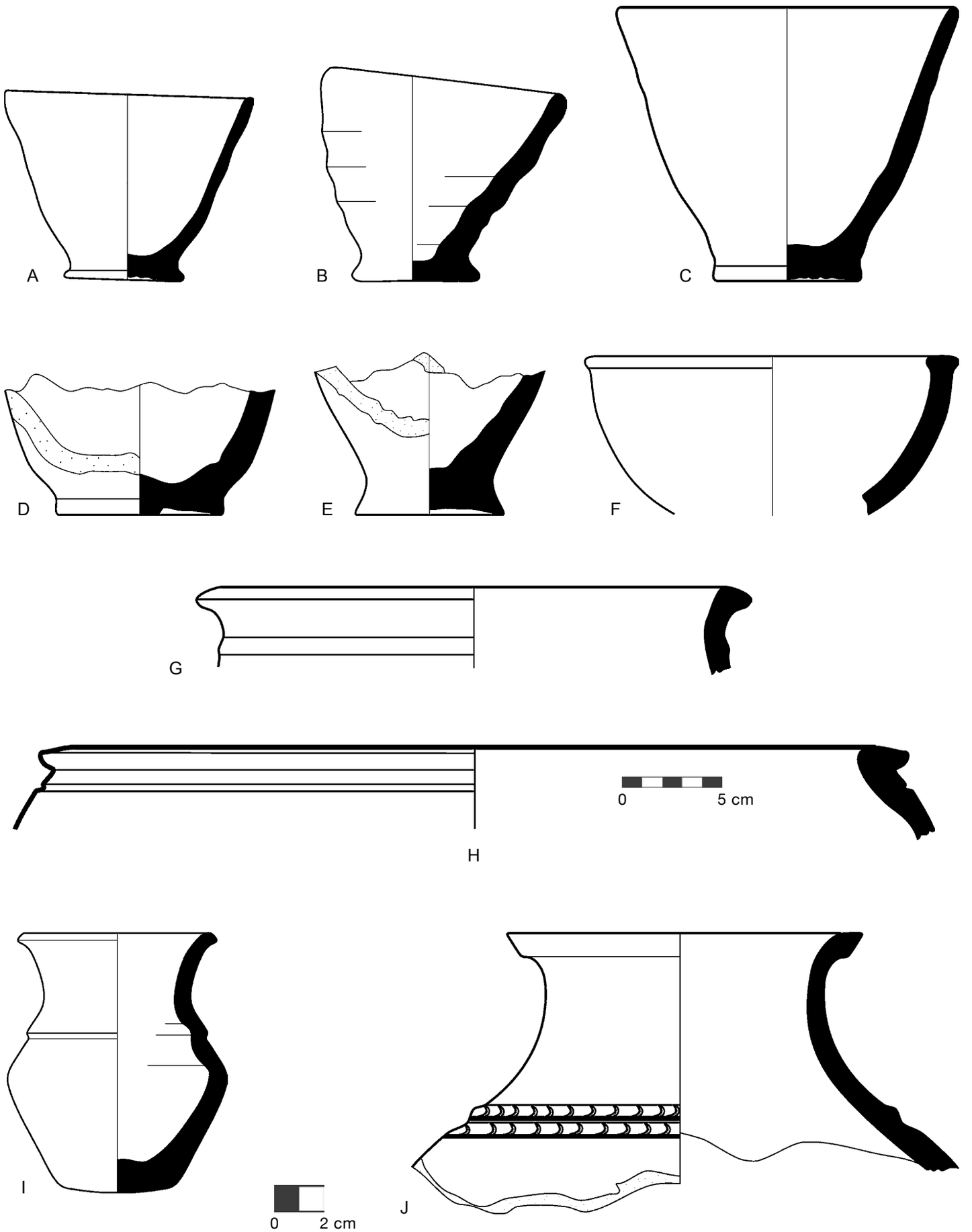


Figure 35. Pottery from Fort Mound, Level 2

Figure 36. Pottery from Fort Mound, Level 3

	Elevation	*Field No.*	*Museum No.*	*Description*
A	—	—	A154821	Pale bricky red ware, no visible inclusion, brown wash exterior, red brown wash on inner rim, vertical burnishing strokes on exterior, wheel striations interior. Probably from Level 3. Proto-Elamite
B	3.0–3.75 m	—	—	Light gray ware, some sand in paste, buff surface. Neo-Elamite *Comparanda:* Susa Ville Royale II A, level 7B (Miroschedji 1981a, fig. 38:8)
C	2.30 m	—	—	Light yellowish brown ware, straw inclusion. Neo-Elamite *Comparanda:* Susa Ville Royale II A, level 7B (Miroschedji 1981a, fig. 33:1–7)
D	2.40 m	—	—	Red ware, chaff inclusion, buff surface, red paint. Sukkalmah *Comparanda:* Malyan EE, level 4B (Carter 1996, fig. 27:22, 24)
E	2.60 m	G-46	Tehran	Light buff ware, buff surface. Middle Elamite?
F	2.3–2.6 m	—	A154827	Buff fine ware, light gray core, fine chaff inclusion, red maroon wash exterior and inner rim, vertical burnishing strokes on exterior. Achaemenid
G	3.0–3.75 m	—	—	Orange buff ware, some chaff inclusion, buff surface. Middle Elamite *Comparanda:* Susa Ville Royale II A, level 10 (Miroschedji 1981a, fig. 14:9–10)

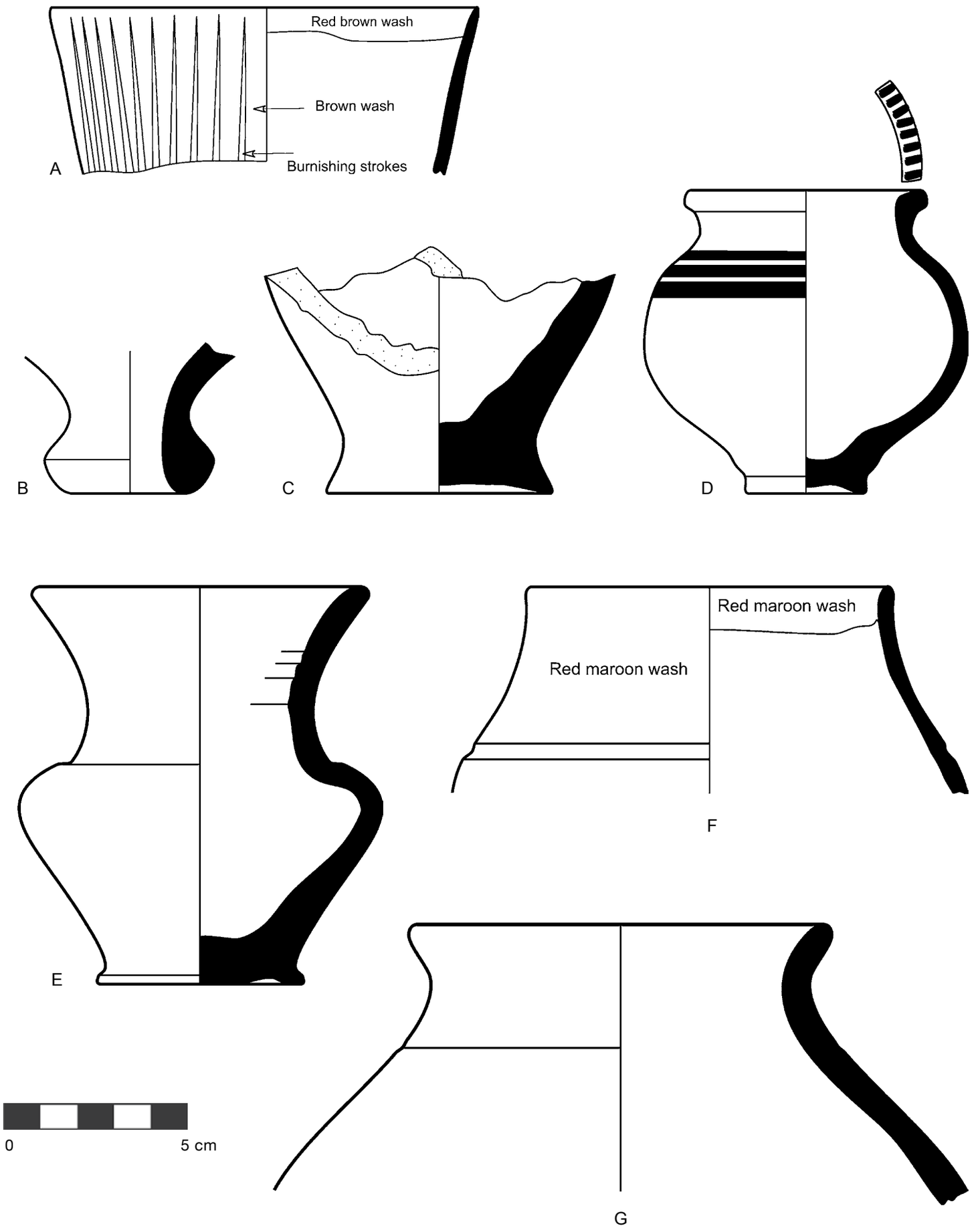


Figure 36. Pottery from Fort Mound, Level 3

Figure 37. Pottery from Stake Trench 7.5–8, Level 4A

	Elevation	*Field No.*	*Museum No.*	*Description*
A	19.40 m	—	A154797	Warm buff coarse ware, thick dark gray core, straw inclusion, hand-made irregular striations, smoothed, rough base. Islamic?
B	19.90 m	—	A154796	Very pale brown buff, fine chaff/wool/hair inclusion, cream buff slip interior and exterior. Post-Sasanian?
C	18.94 m	2TG-70	Tehran	Warm buff coarse ware, straw inclusion, straw face. Proto-Elamite
D	18.65 m	2TG-49	A28687	Pale buff ware, some chaff inclusion, scraped lower body. Proto-Elamite *Comparanda:* Malyan B.L. IIIA (Nickolas 1990, pl. 15:b)
E	—	2TG-64	Tehran	Pinkish buff ware, buff surface. Late Susa II/proto-Elamite
F	17.80 m	—	A154798	Very pale brown buff ware, some very fine chaff/hair/wool inclusion, red wash interior and exterior, burnished. Proto-Elamite
G	—	—	—	Pinkish buff ware, chaff inclusion, buff surface. Proto-Elamite
H	—	—	—	Pinkish buff ware, straw inclusion, buff surface. Proto-Elamite
I	—	—	—	Pinkish buff ware, chaff inclusion, buff surface. Proto-Elamite
J	18.94 m	—	A154795	Pale bricky red ware, pale gray core, dense, chaff/straw inclusion. Proto-Elamite *Comparanda:* Malyan B.L. III A (Nicholas 1990, pl. 19:k)
K	—	—	A163059	Buff ware, dense, fine dark grits in paste, gritty face where buff slip eroded. Late Susa II *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pl. 107:B)
L	—	2TG-43	Tehran	Pale bricky buff ware, chaff inclusion, buff surface. Proto-Elamite
M	—	—	—	Yellowish buff ware, scattered red and light grits. Late Susa II
N	—	—	—	Buff ware, fine chaff inclusion, traces of reserved slip on shoulder. Proto-Elamite

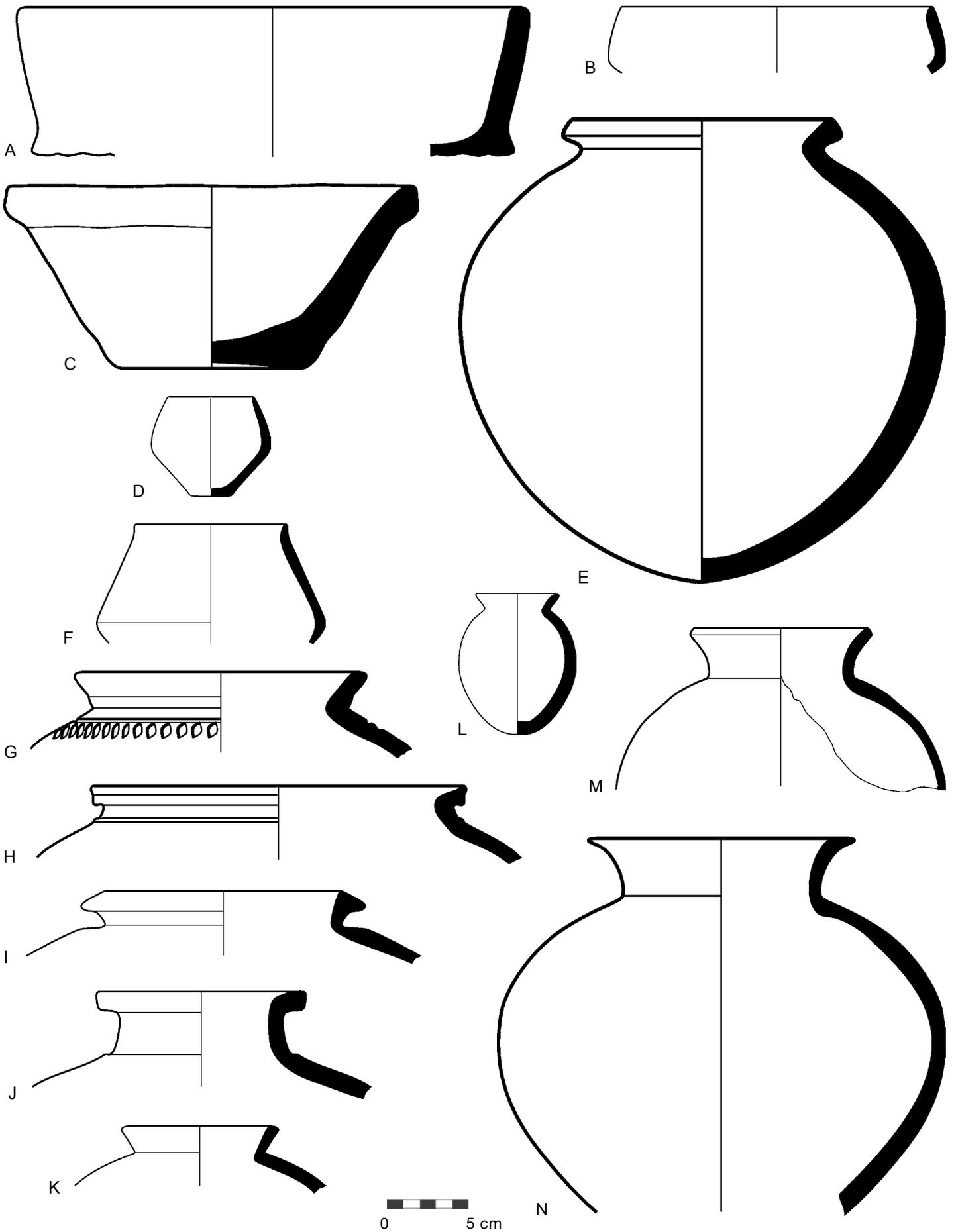


Figure 37. Pottery from Stake Trench 7.5–8, Level 4A

Figure 38. Pottery from Stake Trench 7.5–8, Level 4B

	Elevation	*Field No.*	*Museum No.*	*Description*
A	18.60–18.35 m	—	A154818	Pale brown buff ware, dense, some very fine chaff/hair/wool inclusion, some accidental calcite particles in paste, pale bricky red wash exterior and interior, regular striations. Terminal Susa/Early Susa II *Comparanda:* Wright 2013, fig. 4.4:f
B	18.60–18.35 m	—	A154810	Pale pinkish buff fine ware, dense, some very fine chaff/hair/wool inclusion, yellowish buff exterior. Late Susa II
C	18.60–18.35 m	—	A154811	Buff ware, no visible inclusion, red wash on exterior surface and inner rim, burnished. Late Susa II
D	18.60–18.35 m	—	A154812	Warm buff ware, dense, some fine chaff/hair/wool in paste, creamy buff surface. Late Susa II
E	18.60–18.35 m	—	—	Warm buff ware, sandy paste, yellowish buff surface. Late Susa II
F	18.60–18.35 m	—	—	Warm buff ware, no visible inclusion, yellowish buff surface. Late Susa II
G	18.70 m	2TG-45	A28685	Buff ware, dark grits in paste, gritty face. Late Susa II. From Level 4A/B
H	18.60–18.35 m	—	A154817	Buff ware, dense, some fine chaff/hair/wool in paste, creamy buff interior, mottled warm buff exterior, regular striations. Proto-Elamite
I	18.60–18.35 m	2TG-46	A28686	Yellowish buff ware, chaff inclusion, probably slipped. Proto-Elamite
J	18.60–18.35 m	2TG-34	A28679	Yellowish buff ware, chaff inclusion. Proto-Elamite

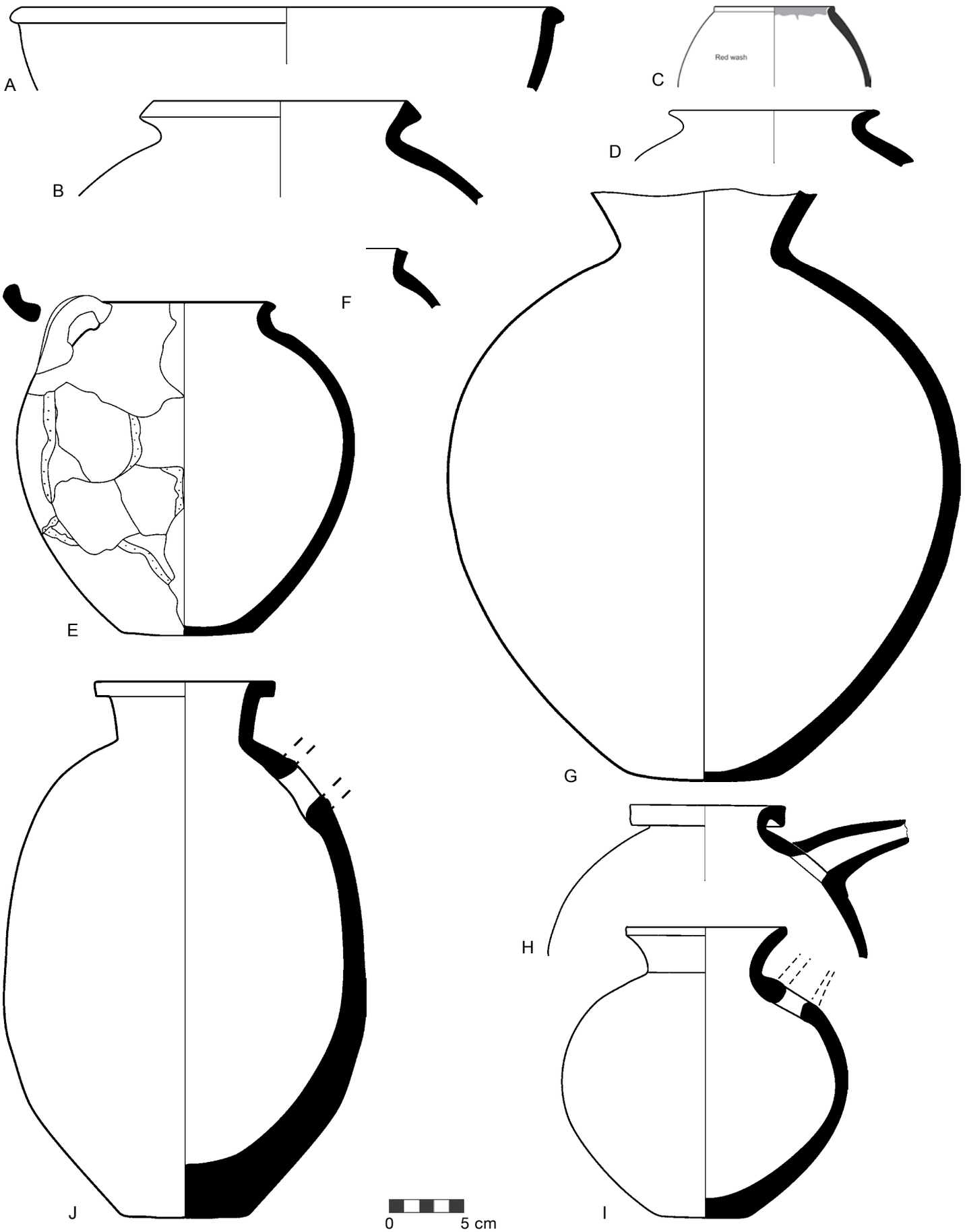


Figure 38. Pottery from Stake Trench 7.5–8, Level 4B

Figure 39. Pottery from Stake Trench 7.5–8, Level 4C

	Elevation	*Field No.*	*Museum No.*	*Description*
A	18.35–18.29 m	—	A154692	Creamy buff ware, dense, very fine chaff/hair/wool inclusion, strong striations on interior and exterior. Late Susa II *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pl. 85:K)
B	18.35–18.29 m	—	A154680	Pale bricky buff, pale gray core, fine chaff inclusion, strap handle. Late Susa II/proto-Elamite
C	18.35–18.29 m	—	—	Pinkish buff ware, straw inclusion. Late Susa II/proto-Elamite
D	18.35–18.29 m	—	—	Pinkish buff ware, no visible inclusion, buff surface. Late Susa II
E	18.35–18.29 m	—	A154573	Warm buff, thick gray core sandwiched between two 2–3 mm buff layers, dense, chaff inclusion, striations on exterior and interior, rough exterior. Late Susa II/proto-Elamite
F	18.35–18.29 m	—	—	Pinkish buff ware, sandy paste, buff surface. Late Susa II
G	18.35–18.29 m	—	A154809	Buff ware, dense, very fine chaff/hair/wool inclusion, creamy buff exterior. Late Susa II
H	18.35–18.29 m	—	—	Creamy buff ware, no visible inclusion, brown paint. Proto-Elamite
I	18.35–18.29 m	—	A154816	Buff ware, chaff inclusion, body pared below rim, painted dark band below rim. Proto-Elamite

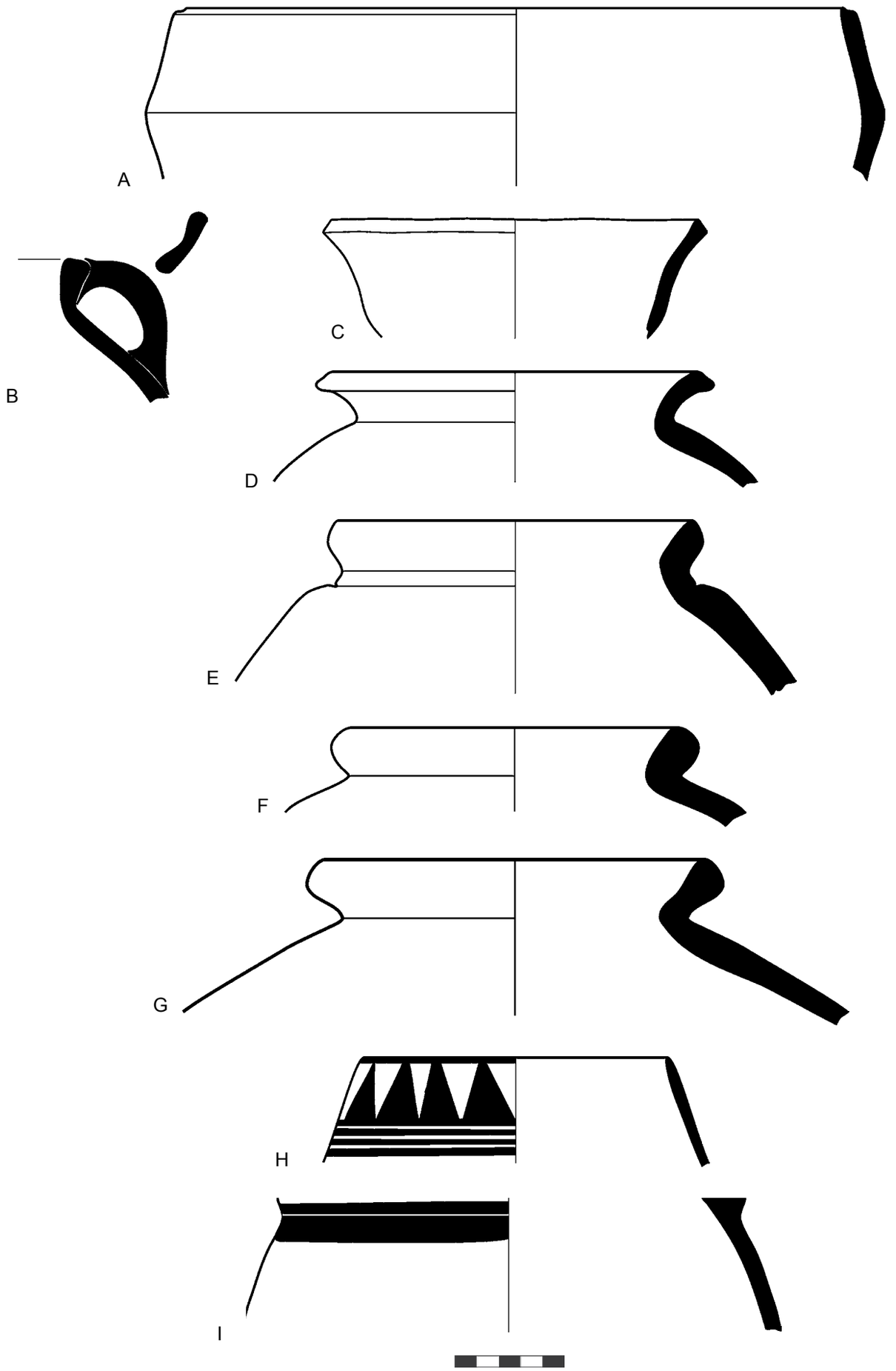


Figure 39. Pottery from Stake Trench 7.5–8, Level 4C

Figure 40. Pottery from Stake Trench 7.5–8, Levels 4D–F

	Elevation	*Field No.*	*Museum No.*	*Description*
LEVEL 4D				
A	18.29–18.10 m	—	—	Pale brown ware, much chaff inclusion, buff surface. Proto-Elamite?
B	18.29–18.10 m	2TG-61	A28689	Spout fragment. Grayish buff ware, red wash, no visible inclusion, painted deep red bands on applied snake. Proto-Elamite *Comparanda:* Susa Acropole, Period C (Steve and Gasche 1971, pl. 20:22–23), for snake appliqué decoration; for general practice of decorating vessels with appliqué animals, see Malyan (Sumner 2003, pl. 27)
LEVEL 4E				
C	18.10–17.30 m	—	—	Pinkish buff ware, some sand in paste, burnished shoulder. Late Susa II
D	18.10–17.30 m	—	—	Buff ware, chaff inclusion, bright red wash, burnished. Proto-Elamite *Comparanda:* Susa Acropole, level 13 (Le Brun 1971, fig. 66:19)
E	18.10–17.30 m	—	—	Pinkish buff ware, no visible inclusion, pink surface. Late Susa II
F	18.10–17.30 m	—	—	Pinkish buff ware, some sand in paste, gray core, buff surface. Late Susa II
LEVEL 4F				
G	17.30–16.40 m	—	A154799	Light brown ware, dense, no visible inclusion, light buff surface. Late Susa II–proto-Elamite *Comparanda:* Malyan, Banesh phase (Sumner 2003, fig. 26:e [similar])
H	17.30–16.40 m	—	—	Brownish buff ware, black core, some chaff inclusion. Late Susa II *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pl. 87:G [similar])
I	17.30–16.40 m	—	A154793	Very pale pinkish buff ware, very pale gray core, very fine chaff/hair/wool inclusion, regular striations on interior. Proto-Elamite
J	17.30–16.40 m	—	—	Pinkish buff ware, gray core, no visible inclusion, buff surface. Proto-Elamite *Comparanda:* Susa Acropole, levels 16, 15B (Le Brun 1971, figs. 61:21, 62:10, 12)
K	17.30–16.40 m	—	A154800	Buff ware, chaff inclusion, creamy buff slip on exterior and inner rim. Late Susa II–proto-Elamite *Comparanda:* Susa Acropole, levels 16, 15 (Le Brun 1971, fig. 63:11–14)
L	17.30–16.40 m	—	—	Pinkish buff ware, gray core, chaff inclusion, buff surface, red wash upper shoulder and pinkish red between two deep red bands. Proto-Elamite
M	17.30–16.40 m	—	—	Buff ware, no visible inclusion. Late Susa II

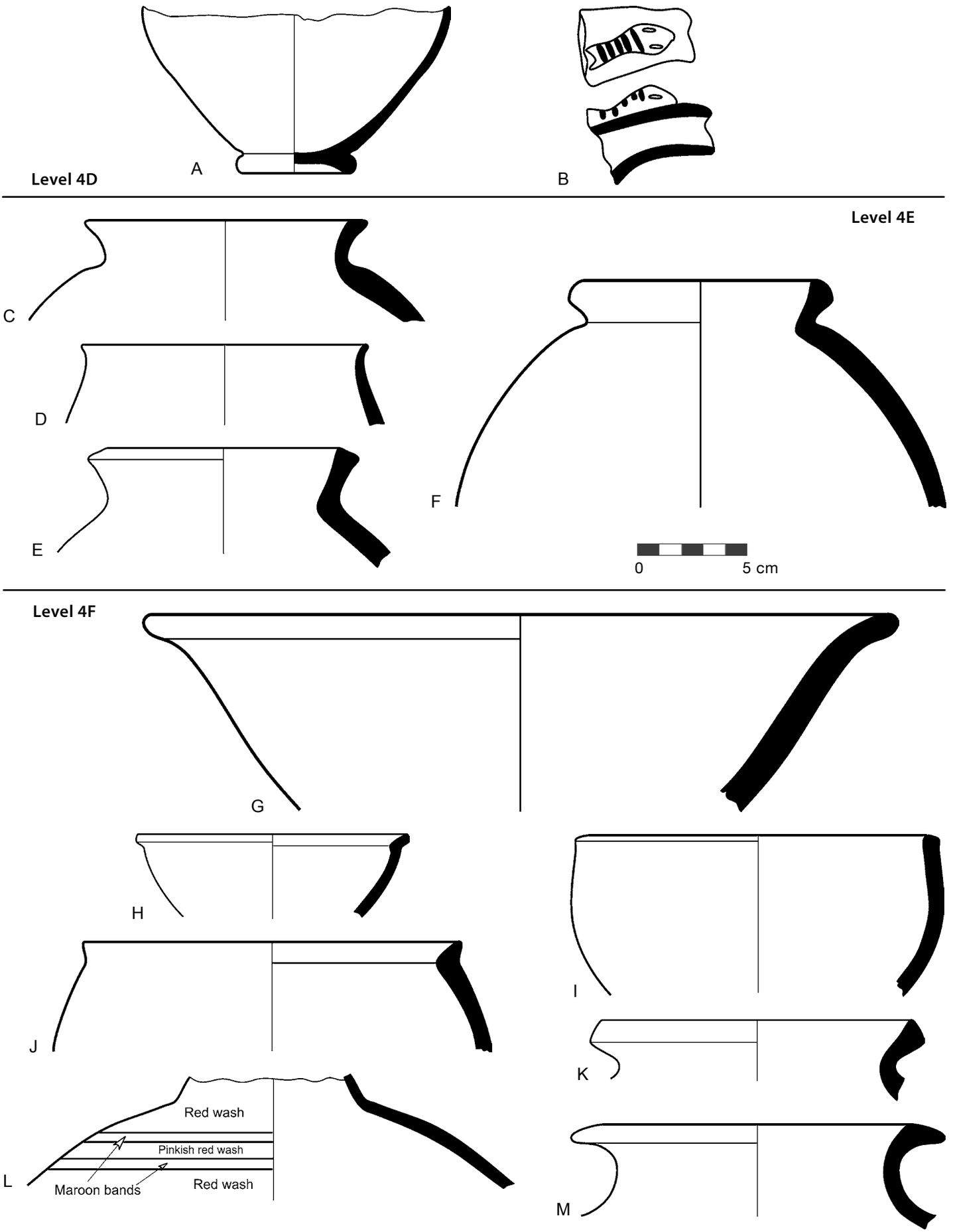
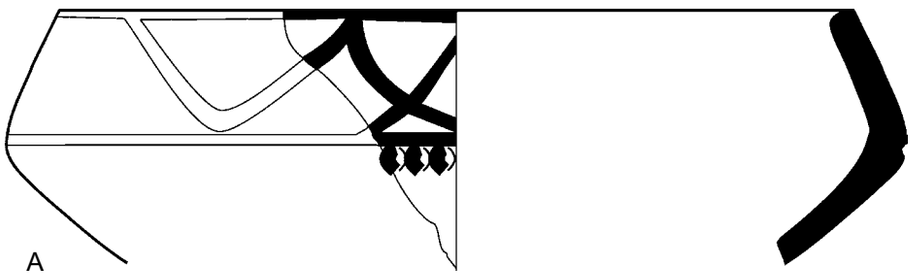


Figure 40. Pottery from Stake Trench 7.5–8, Levels 4D–F

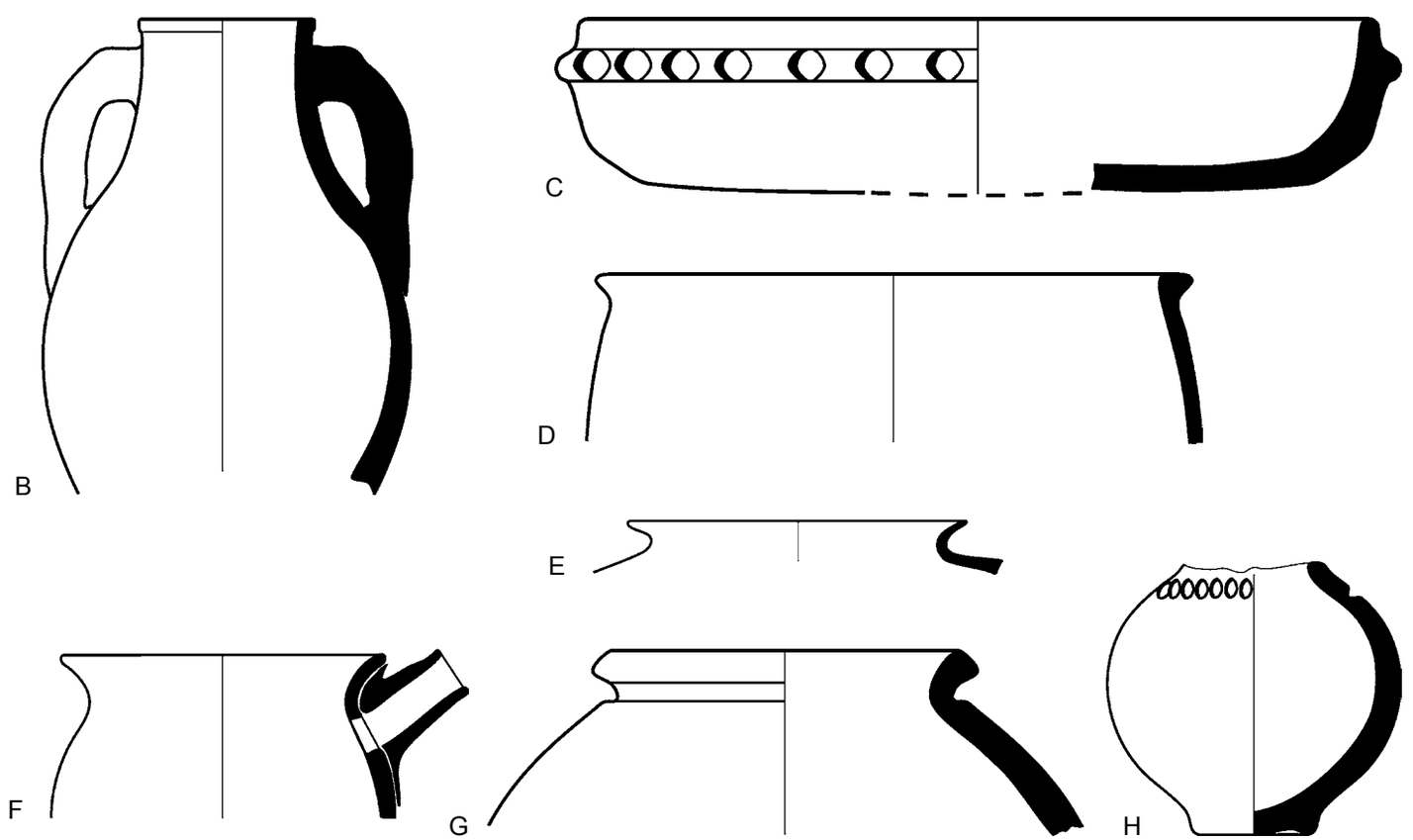
Figure 41. Pottery from Stake Trench 8–9, Levels 1–4

	Elevation	*Field No.*	*Museum No.*	*Description*
LEVEL 1				
A	—	—	A154808	Grayish buff ware, gray core, grog and straw inclusion, red paint, rope decoration, warm buff exterior, pinkish buff interior. Islamic pseudo-prehistoric, 11th–14th C. A.D.
LEVELS 2–3				
B	—	—	—	Buff ware, sandy paste. Post-Sasanian
C	—	G-22	A27922	Pale gray buff, some large grits in paste, chaff inclusion, basket impression on exterior base, shaved above base, appliqué decoration; Islamic
D	—	—	—	Buff ware, some dark grits in paste, cream buff surface. Islamic
E	—	—	A154815	Pale brown buff ware, dense, some fine chaff inclusion, creamy buff slip exterior. Proto-Elamite?
F	—	—	—	Buff ware, chaff inclusion, creamy buff surface. Proto-Elamite
G	—	—	A154807	Pale pinkish buff ware, pale gray core sandwiched by two 2 mm pinkish buff layers, scattered chaff inclusion, rough exterior below neck. Proto-Elamite
H	—	2TG-17	A28676	Buff ware, chaff inclusion, traces of red wash on exterior, excised notches on shoulder. Proto-Elamite
LEVEL 4				
I	—	2TG-74	Tehran	Light buff coarse ware, straw inclusion. Late Susa II
J	—	2TG-52	A28688	Red ware, some chaff inclusion, buff surface. Proto-Elamite



Level 1

Levels 2–3



Level 4

Figure 41. Pottery from Stake Trench 8–9, Levels 1–4

Figure 42. Pottery from Stake Trench 8–9, Levels 4F–5

	Elevation	*Field No.*	*Museum No.*	*Description*
LEVEL 4F				
A	—	—	—	Buff ware, some sand in paste, buff surface. Late Susa II
B	—	2TG-35	A28680	Reddish buff ware, some chaff inclusion, buff surface. Possibly from Level 4F. Late Susa II
C	—	—	—	Creamy buff ware, dark brown wash on exterior. Possibly from Level 4F. Proto-Elamite
D	—	—	—	Pinkish buff ware, no visible inclusion, buff surface. Possibly from Level 4F. Late Susa II
E	—	—	—	Buff ware, no visible inclusion, creamy buff surface. Possibly from Level 4F. Proto-Elamite *Comparanda:* Tall-e Kureh (Alden 2003, fig. D7:5)
F	—	—	—	Bright orange red ware, chaff inclusion. Possibly from Level 4F. Proto-Elamite *Comparanda:* Susa Acropole, level 14A (Le Brun 1971, fig. 66:18)
LEVEL 5				
G	—	2TG-33	A28678	Dark buff, light gray core, straw inclusion. Late Susa II
H	—	2TG-48	Tehran	Reddish tan ware, straw inclusion with scattered grits. Late Susa II/ proto-Elamite
I	—	2TG-56	Tehran	Yellowish buff ware, chaff inclusion, red wash exterior, deep red painted bands. Proto-Elamite *Comparanda:* Susa Acropole, level 15A (Le Brun 1971, fig. 62:14)
J	—	2TG-29	Tehran	Red ware, chaff inclusion, deep red wash on white wash. Late Susa II/ proto-Elamite *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pl. 113:D)

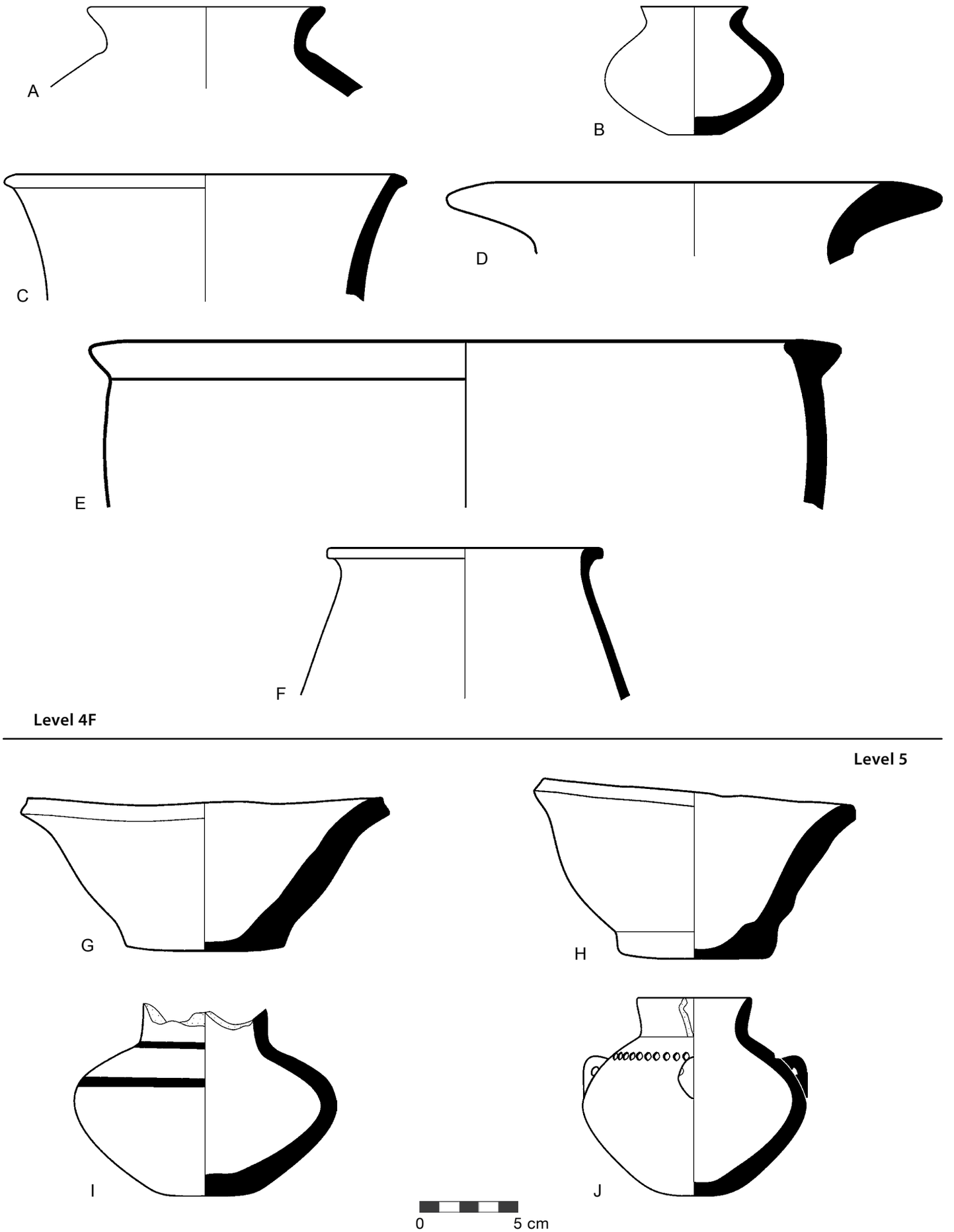


Figure 42. Pottery from Stake Trench 8–9, Levels 4F–5

Figure 43. Pottery from Stake Trench 8–9, Levels 6–7

	Elevation	*Field No.*	*Museum No.*	*Description*
LEVEL 6				
A	—	—	A154803	Very pale brown buff ware, dense, fine chaff inclusion, creamy buff slip on exterior and interior, regular striations on exterior. Proto-Elamite *Comparanda:* Banesh pottery plate at Malyan (Nicholas 1990, pl. 15:c)
B	—	2TG-60	Tehran	Pale pink buff ware, much straw and chaff inclusion, buff surface. Proto-Elamite?
C	—	—	—	Pinkish buff ware, chaff inclusion, lug handle, deep red wash triangular area of lug, and pale red wash on shoulder. Proto-Elamite
D	—	—	—	Buff ware, chaff inclusion, light buff surface. Proto-Elamite
E	—	—	—	Pinkish buff ware, chaff inclusion. Proto-Elamite *Comparanda:* Susa Acropole, level 15 (Le Brun 1971, fig. 61:5 [similar])
F	—	—	—	Grayish buff ware, no visible inclusion, buff surface. Late Susa II
G	—	—	A154805	Grayish buff ware, dense, some calcite particles in paste, chaff inclusion. Late Susa II?
H	—	—	A154802	Pinkish buff ware, some chaff inclusion, creamy buff slip interior, and exterior. Late Susa II–proto-Elamite *Comparanda:* Susa Acropole period II (Steve and Gasche 1971, pl. 27:25); Farukhabad, 4th millennium B.C., level B39 (Wright 1981, fig. 41:n)
I	—	—	A154806	Pale pinkish buff ware, very pale gray core, scattered small to medium grits in paste, chaff inclusion, rough surface below neck. Late Susa II
J	—	—	A154804	Pale brown buff ware, chaff inclusion, some calcite particles in paste, scraped below neck. Late Susa II
LEVEL 6/7				
K	—	—	A154861	Pale brown buff ware, dense, very pale gray core, fine chaff inclusion, smoothed interior, rough exterior. Late Susa II
L	—	—	A154862	Very pale brown buff ware, fine chaff inclusion, some calcite particles in paste, scraped below neck, rough exterior. Late Susa II
LEVEL 7				
M	—	—	A154863	Pinkish buff ware, pale gray core, chaff inclusion. Late Susa II
N	—	—	A154864	Pale pinkish buff ware, pale gray core, chaff inclusion, scraped below neck. Late Susa II

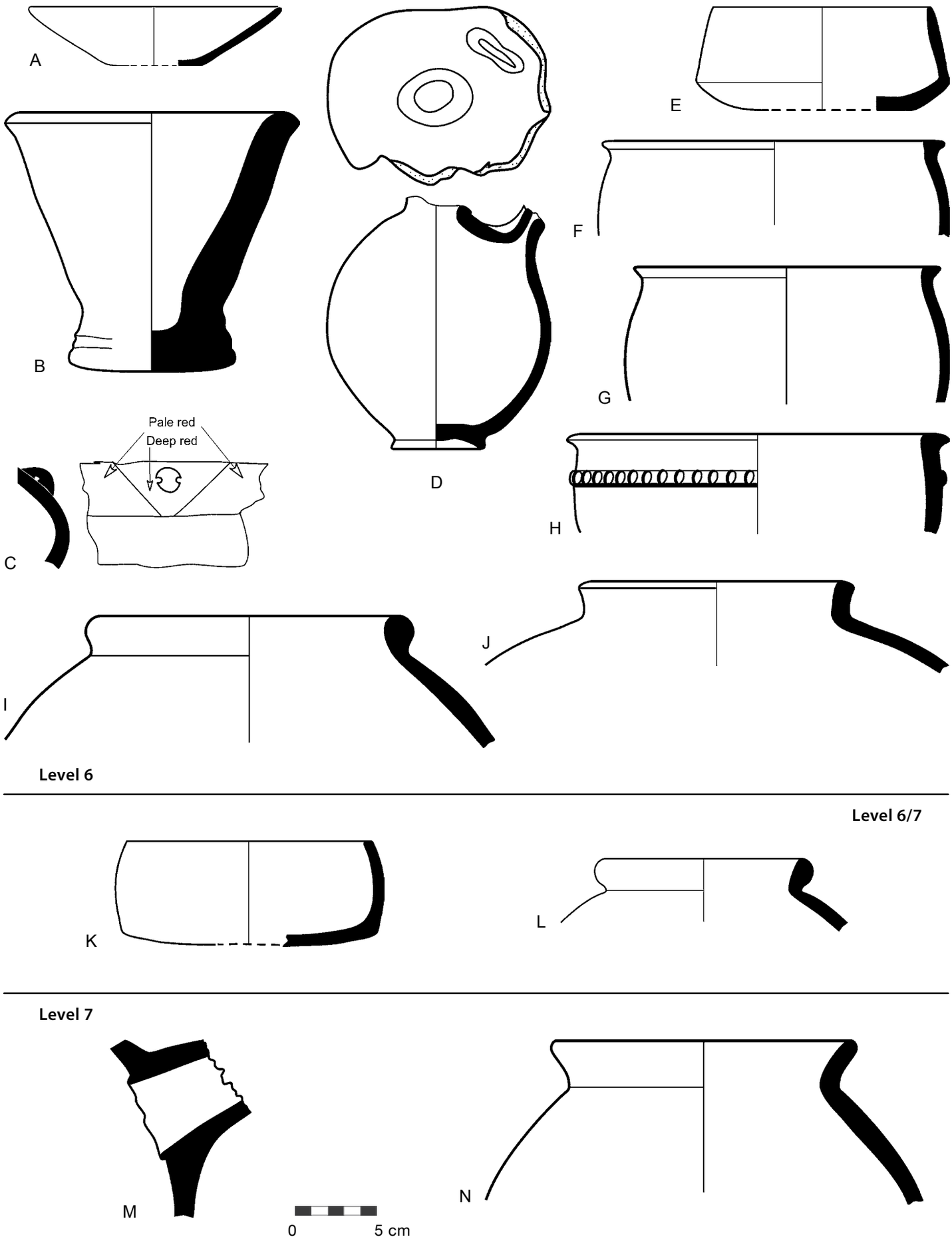


Figure 43. Pottery from Stake Trench 8–9, Levels 6–7

Figure 44. Pottery from Stake Trench 9–10, Levels 1–5

	Level	*Field No.*	*Museum No.*	*Description*
A	Level 2/3	TG-189	Tehran	*Pale* bricky buff ware, chaff inclusion, buff surface, red wash, dark paint, scraped close to base. Proto-Elamite *Comparanda:* Susa Acropolis, L. 17 (Le Brun 1971, fig. 53:4; Mutin 2013, figs. 3.16:1, 3.18)
B	Level 5	2TG-190	Tehran	Brownish buff ware, dark core, straw inclusion. Proto-Elamite *Comparanda:* Susa Acropole, level 16 (Le Brun 1971, fig. 60:15); Malyan, Banesh phase (Nicholas 1990, pl. 14:c)
C	Level 4	—	—	Yellowish brown ware, chaff inclusion, buff surface. Proto-Elamite
D	Level 1	—	—	Buff ware, gray core, straw inclusion. Proto-Elamite
E	Level 5?	2TG-32	Tehran	—
F	Level 4	2TG-93	A28694	Pinkish buff ware, no visible inclusion. Late Susa II *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pl. 80:A [similar])
G	Level 4	—	—	Buff ware, chaff inclusion, two rows of incised patterns, 4 lug handles. Proto-Elamite *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pl. 112:J [similar])
H	Level 5	2TG-92	Tehran	Grayish buff ware, chaff inclusion, buff surface. Proto-Elamite *Comparanda:* Susa Acropole, level 16 (Le Brun 1971, fig. 60:1–4); Malyan, Banesh phase (Sumner 2003, fig. 22:v)
I	Level 5	2TG-191	A28734	Pinkish buff ware, gray core sandwiched between pinkish buff layers, straw inclusion. Proto-Elamite (for findspot, see fig. 14, no. 8, and fig. 15, no. 1; for color photo, see pl. 4:B) *Comparanda:* Susa Acropole, level 16 (Le Brun 1971, fig. 60:15)

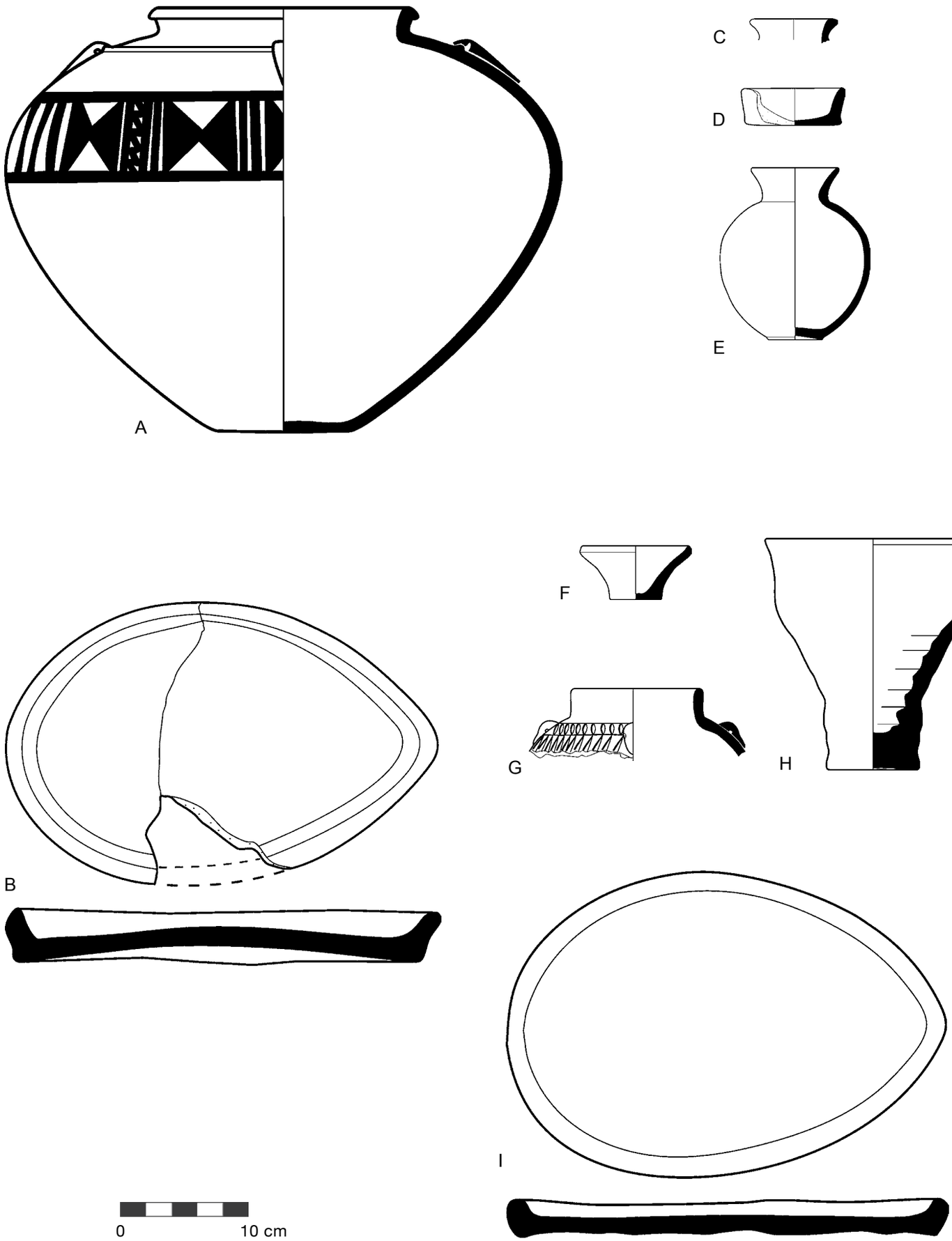


Figure 44. Pottery from Stake Trench 9–10, Levels 1–5

Figure 45. Open pottery forms from Stake Trench 10 Room

	Elevation	*Field No.*	*Museum No.*	*Description*
A	—	—	—	Buff ware, chaff inclusion, gray core, whitish buff surface. Sukkalmah (intrusive)
B	—	2TG-182	Tehran	Pale brown ware, chaff inclusion, red wash. Proto-Elamite *Comparanda:* Susa Acropole, level 15 (Le Brun 1971, fig. 60:18–19)
C	—	2TG-174	Tehran	Pinkish buff ware, some chaff inclusion, buff surface. Proto-Elamite
D	—	—	—	Pinkish buff ware, chaff inclusion, chaff face, red wash. Proto-Elamite *Comparanda:* Susa Acropole, levels 16–15 (Le Brun 1971, fig. 61:11–13)
E	—	2TG-199	Tehran	Pinkish buff ware, chaff inclusion, chaff face, red orange wash and broad white band exterior, red orange wash inner rim. Proto-Elamite *Comparanda:* for general form, see Susa Acropole, level 16 (Le Brun 1971, fig. 64:2). Simpler bell-shaped bowls without decoration appear in the Banesh level at Malyan (Nicholas 1990, fig. 27:1; Sumner 2003, fig. 26:e–f)
F	—	2TG-179	A28727	Pinkish buff ware, 2 mm pale gray core sandwiched between pink layers, chaff and straw inclusion, red maroon wash exterior and inner rim. Proto-Elamite *Comparanda:* for general form, see Susa Acropole, level 16 (Le Brun 1971, fig. 64:2)
G	—	2TG-188	Tehran	Pale orange red, black core, chaff inclusion, light brown wash exterior and inner rim. Proto-Elamite *Comparanda:* for general form, see Susa Acropole, level 16 (Le Brun 1971, fig. 64:2)
H	20.10 m	2TG-180	A28728	Pinkish buff ware, dark core, chaff inclusion, wide white wash band and thin yellow lines separates red maroon wash on exterior. Proto-Elamite (for color photo, see pl. 3:D) *Comparanda:* for general form, see Susa Acropole, level 16 (Le Brun 1971, fig. 64:2)

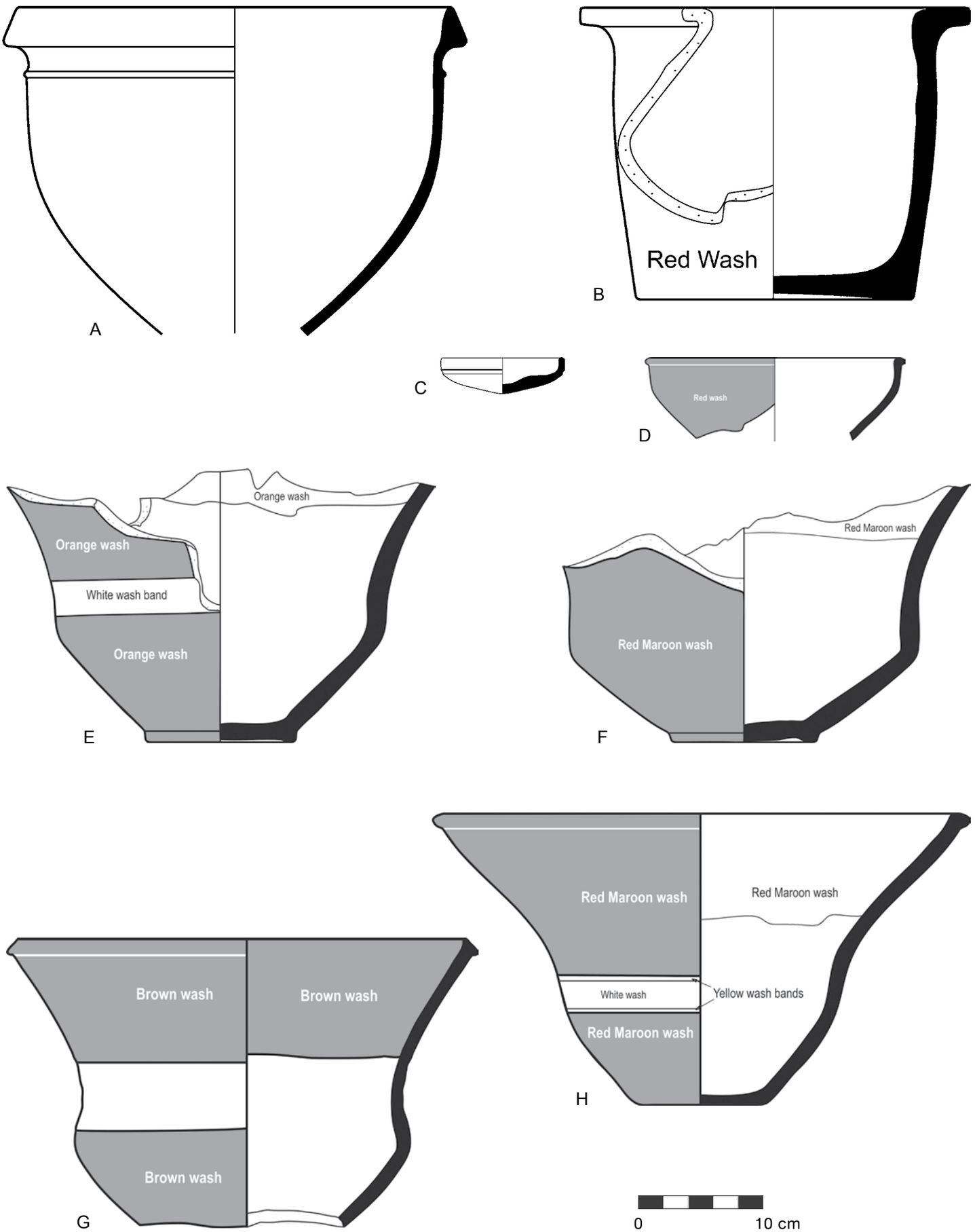


Figure 45. Open pottery forms from Stake Trench 10 Room

Figure 46. Closed pottery forms from Stake Trench 10 Room

	Elevation	*Field No.*	*Museum No.*	*Description*
A	—	2TG-197	A28736	Pale red ware, straw inclusion, small air pockets on exterior and interior, pale brown wash (flaky) on exterior regular striations interior, dark paint. Proto-Elamite *Comparanda:* similar to a four-lugged painted jar with shoulder ridge at Susa Acropole, level 17 (Le Brun 1971, fig. 53:4). For checkered metope design, see Malyan, Banesh phase (Sumner 2003, fig. 28); Arisman, Area C (Helwing 2011, fig. 1:1, p. 202, fig. 21:75, p. 233); Tappeh Yahya (Mutin 2013, figs. 3.25–3.26)
B	—	—	—	Pinkish buff ware, chaff inclusion, light brown wash, white wash bands. Proto-Elamite *Comparanda:* similar in shape to Susa Acropole, level 15B (Le Brun 1971, fig. 62:8); Malyan, Banesh phase (Sumner 2003, fig. 25:a)
C	—	2TG-185	Tehran	Gray black ware, chaff inclusion, gray surface, burnished. Proto-Elamite *Comparanda:* for a later example, see Susa Acropole, level 13 (Le Brun 1971, fig. 66:20)
D	—	2TG-186	A28732	Red ware, black core, chaff inclusion, pinkish buff surface, deep maroon painted bands on a pale bricky wash. Proto-Elamite *Comparanda:* Malyan, Banesh phase (Nicholas 1990, fig. 19:t)
E	19.55 m	2TG-177	A28726	Pinkish buff ware, some chaff inclusion, buff surface, pale maroon wash exterior and inner neck, red painted pattern on shoulder, three pierced lug handles and three knobs. Proto-Elamite (for findspot, see fig. 14, no. 4; for color photo, see pl. 4:A)
F	—	—	—	Orange red ware, chaff inclusion, purple red wash exterior, black paint design on white wash, four pierced lugs and four knobs. Proto-Elamite *Comparanda:* for general shape and metope design structure, see Susa Acropole, level 15B (Le Brun 1971, fig. 64:8); Tappeh Yahya (Mutin 2013, figs. 3.16:1, 3.18)

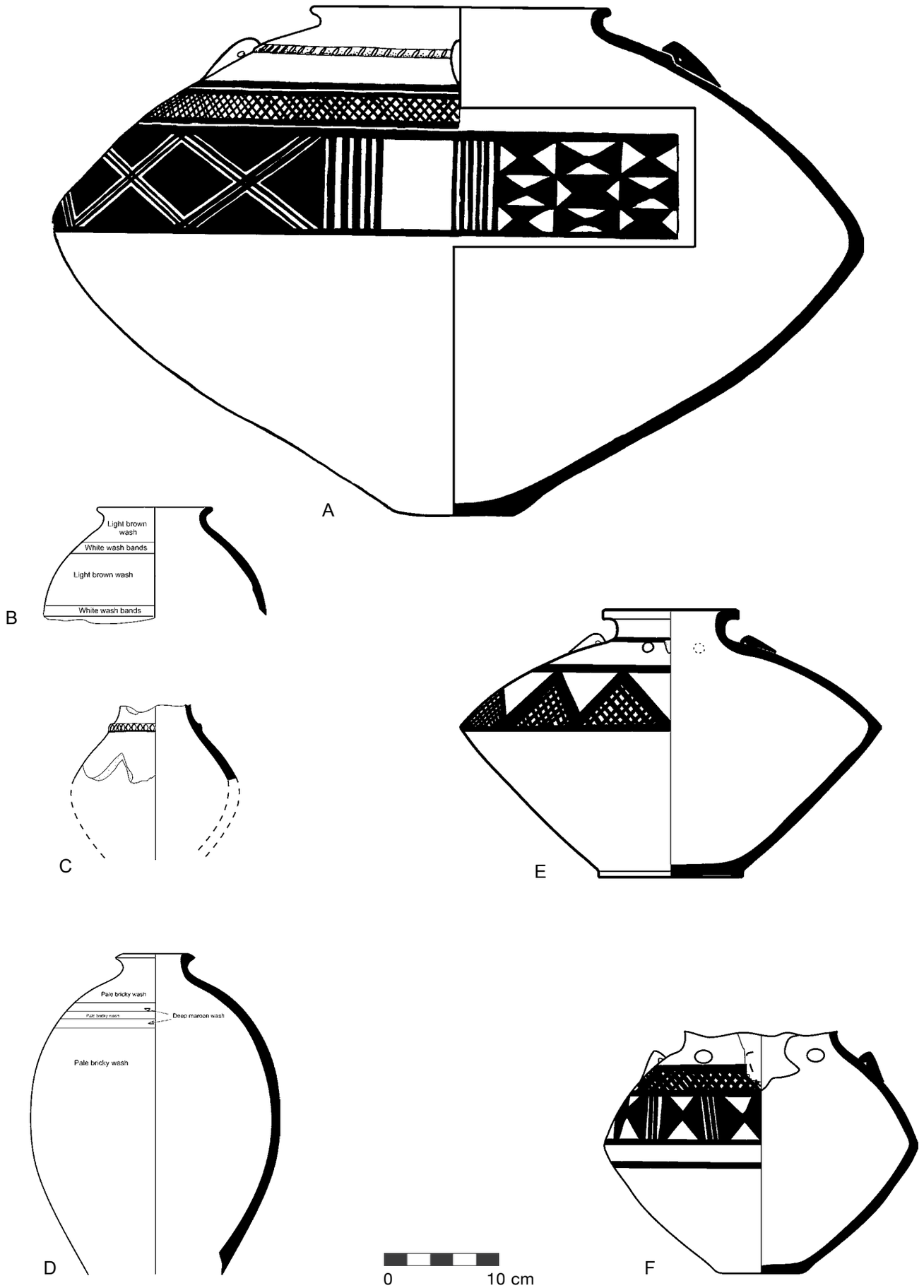


Figure 46. Closed pottery forms from Stake Trench 10, Rooms

Figure 47. Closed pottery forms from Stake Trench 10 Room

	Elevation	*Field No.*	*Museum No.*	*Description*
A	—	2TG-214	Tehran	Buff ware, chaff inclusion, excised groove on shoulder. Proto-Elamite
B	—	2TG-128	A28749	Buff ware, chaff inclusion, pale buff surface, scraped below carination. Proto-Elamite
C	—	2TG-198	A28737	Light gray ware, chaff inclusion, chaff face, horizontal burnishing strokes, four lugs, raised ridge between lugs. Proto-Elamite
D	—	2TG-193	Tehran	Pinkish buff ware, chaff inclusion, red wash exterior and inner rim. Proto-Elamite
E	—	2TG-185	Tehran	Dark gray ware, chaff inclusion, burnished. Proto-Elamite *Comparanda:* the shape without the ridges and lugs occurs at Susa Ville Royale I, grave 576 (Carter 1980, fig. 8:1)
F	—	2TG-194	A28735	Pale bricky buff ware, chaff inclusion, buff surface, red band on interior rim. Proto-Elamite

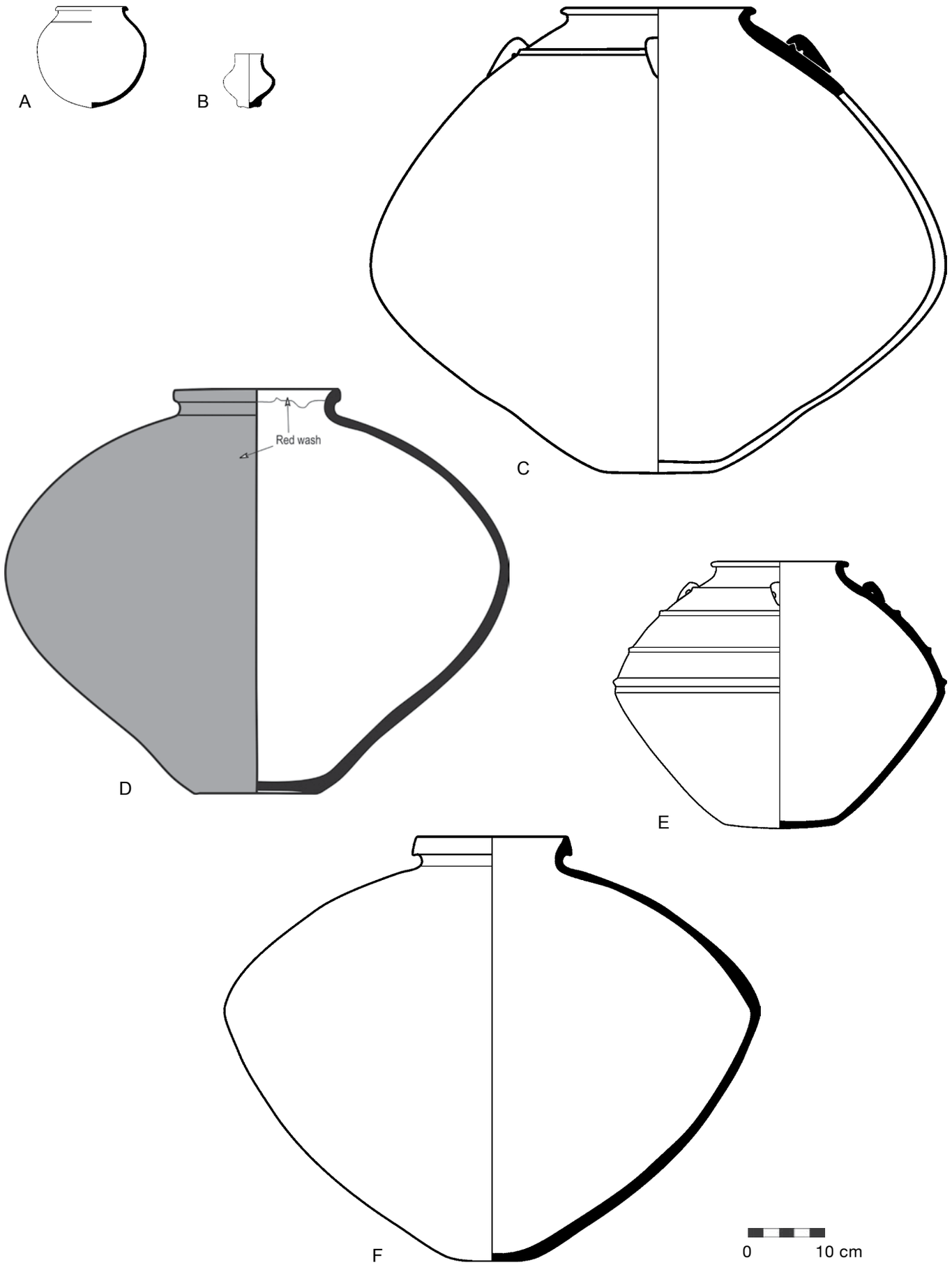


Figure 47. Closed pottery forms from Stake Trench 10, Rooms

Figure 48. Pottery from Step Trench, Level 1

	Elevation	*Field No.*	*Museum No.*	*Description*
A	5.28–5.40 m	—	A154570a–b	Creamy buff ware, no visible inclusion, grayish green paint. Late Middle Susiana
B	5.28–5.40 m	2TG-173	Tehran	Warm buff ware, light grayish buff core grading to warm buff, no visible inclusion, brown paint. Late Middle Susiana *Comparanda:* for an almost exact shape and design, see Tall-e Nurabad, phase 16 (Potts et al. 2009, fig. 3.89: TNP 1101)
C	5.28–5.40 m	—	A154571	Pale greenish buff ware, no visible inclusion, greenish brown paint. Late Middle Susiana
D	5.28–5.40 m	—	A154583	Creamy buff ware, no visible inclusion, reddish brown paint. Late Middle Susiana
E	5.28–5.40 m	—	A154527	Grayish green buff ware, no visible inclusion, greenish brown paint, in some spots eaten into clay. Late Middle Susiana
F	5.28–5.40 m	—	A154516	Yellowish buff ware, no visible inclusion, brown paint. Late Middle Susiana
G	5.28–5.40 m	—	—	Buff ware, some sand in paste, no visible inclusion, brown paint. Late Middle Susiana
H	5.28–5.40 m	—	A154780	Buff ware, some sand in paste, no visible inclusion, thick maroon paint, on exterior and interior. Late Middle Susiana
I	5.28–5.40 m	—	A154514	Buff ware, no visible inclusion, greenish gray paint. Late Middle Susiana
J	5.28–5.40 m	—	A154650	Pale greenish buff ware, no visible inclusion. Late Middle Susiana
K	5.28–5.40 m	—	A154651	Orange buff ware, some fine grits in paste. Late Middle Susiana
L	5.28–5.40 m	—	A154649	Light brown ware, dense no visible inclusion, creamy buff slip exterior and interior. Late Middle Susiana

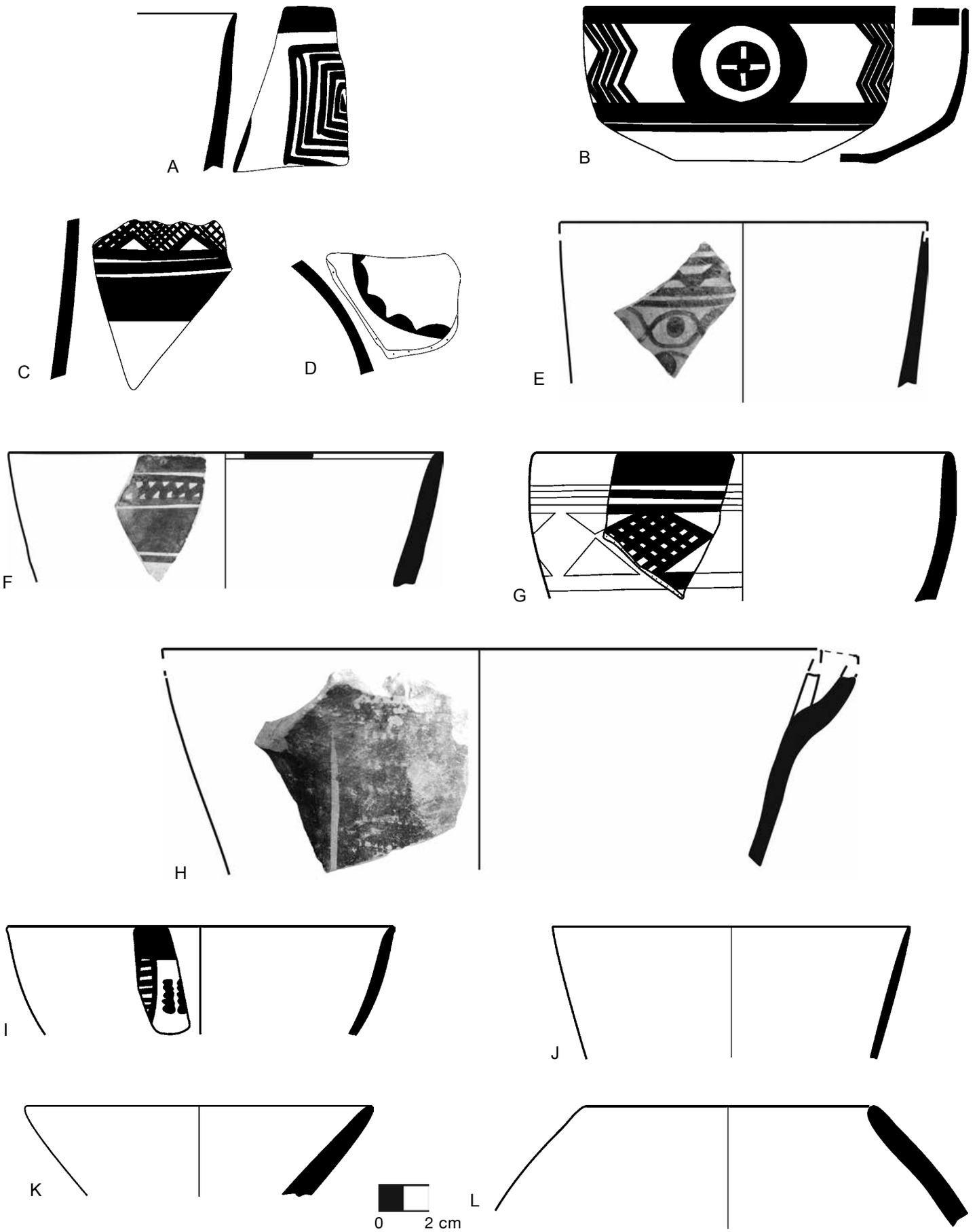


Figure 48. Pottery from Step Trench Lower, Level 1

Figure 49. Pottery from Step Trench, Level 2

	Elevation	*Field No.*	*Museum No.*	*Description*
A	5.40–5.90 m	—	A154531	Buff ware, no visible inclusion, brown paint. Late Middle Susiana
B	5.40–5.90 m	2TG-158	A28650	Painted bowl. Creamy buff ware, no visible inclusion, brown paint. Late Middle Susiana (for findspot, see fig. 17, no. 5; for color photo, see pl. 3:A)
C	5.40–5.90 m	—	—	Buff ware, no visible inclusion, light brown paint. Late Middle Susiana
D	5.40–5.90 m	—	A154596	Yellowish buff ware, no visible inclusion, olive green paint. Late Middle Susiana
E	5.40–5.90 m	—	A154652	Creamy buff ware, no visible inclusion, creamy buff surface, scraped exterior
F	5.40–5.90 m	—	A154505	Buff ware, no visible inclusion, brown paint. Late Middle Susiana
G	5.40–5.90 m	—	A154612	Creamy buff ware, no visible inclusion, brown paint. Late Susiana 1
H	5.40–5.90 m	—	A154580	Orange buff ware, no visible inclusion, brown paint. Late Middle Susiana
I	5.40–5.90 m	—	A154529	Greenish buff ware, slightly over fired, no visible inclusion, grayish green paint. Late Middle Susiana
J	5.40–5.90 m	—	A154592	Greenish buff ware, no visible inclusion, greenish brown paint. Late Middle Susiana
K	5.40–5.90 m	—	A154567	Buff ware, no visible inclusion, brown paint. Late Susiana 1
L	5.40–5.90 m	—	A154628	Buff ware, no visible inclusion, brown paint. Late Susiana 1
M	5.40–5.90 m	—	A154550	Creamy buff ware, no visible inclusion, brown paint. Late Susiana 1

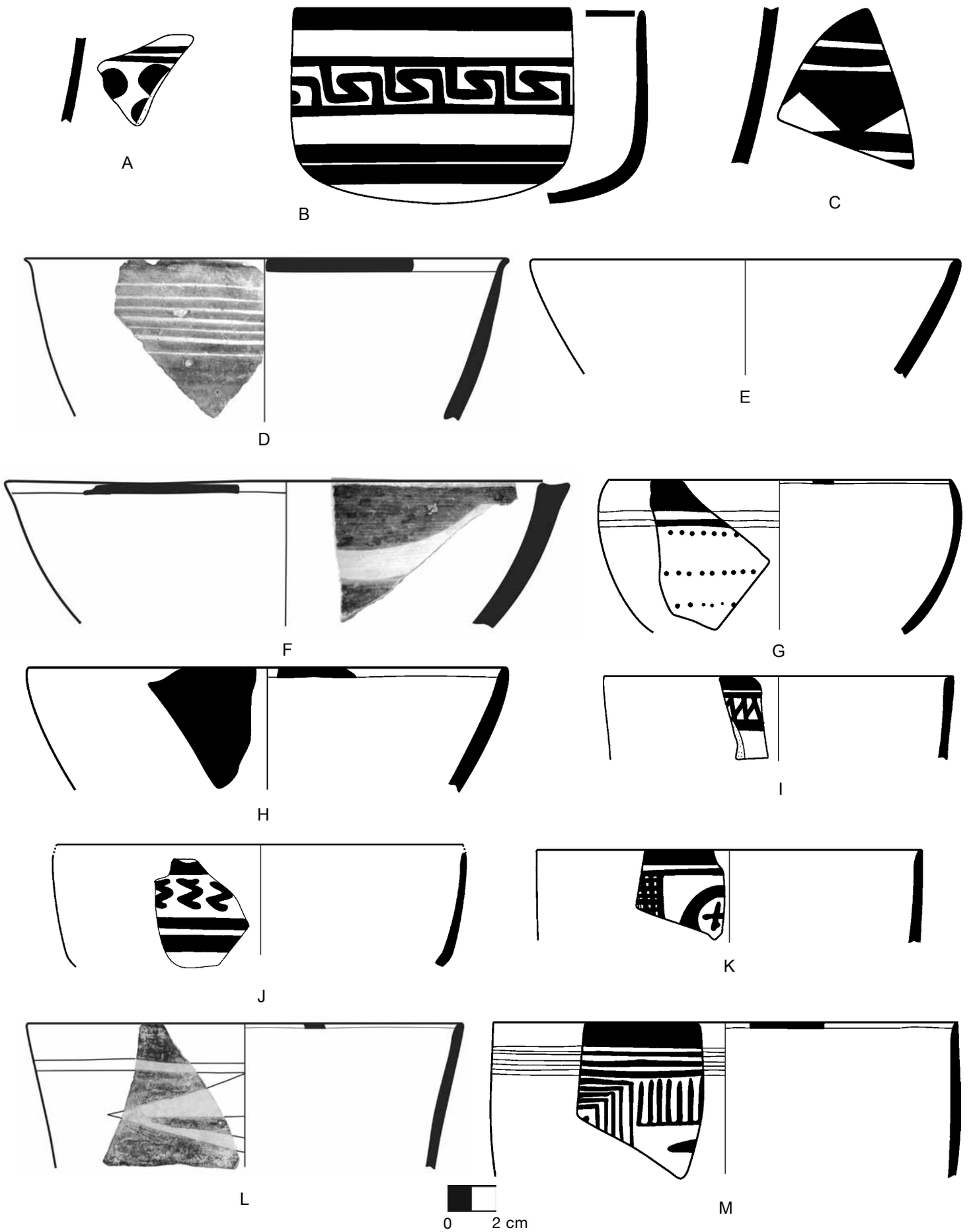


Figure 49. Pottery from Step Trench, Level 2

Figure 50. Pottery from Step Trench, Level 3

	Elevation	*Field No.*	*Museum No.*	*Description*
A	5.90–6.40 m	—	A154622	Creamy buff ware, no visible inclusion, light brown paint. Late Susiana 1
B	5.90–6.40 m	—	A154584	Greenish buff ware, no visible inclusion, dark brown paint. Late Susiana 1
C	5.90–6.40 m	—	A154610	Buff ware, no visible inclusion, creamy buff slip on interior and exterior, brown paint. Late Susiana 1
D	5.90–6.40 m	—	A154605	Creamy buff ware, no visible inclusion, brown paint. Late Susiana 1
E	5.90–6.40 m	—	A154525	Warm buff ware, some fine grits in paste, brown paint. Late Susiana 1
F	5.90–6.40 m	—	A154623	Creamy buff ware, no visible inclusion, brown paint. Late Susiana 1
G	5.90–6.40 m	—	A154777	Creamy buff ware, dense, no visible inclusion, black paint. Late Susiana 1 (goats/sheep with notched horns and in metope are characteristic of the highland painted repertoire)
H	5.90–6.40 m	—	A154552	Pale green buff ware, no visible inclusion, thick brown paint. Late Susiana 1
I	5.90–6.40 m	—	—	Warm buff ware, some fine grits in paste, smoothed. Late Susiana 1
J	5.90–6.40 m	—	A154615	Creamy buff ware, no visible inclusion, greenish brown paint. Late Susiana 1
K	5.90–6.40 m	—	—	Greenish buff ware, no visible inclusion, brown paint. Late Susiana 1
L	5.90–6.40 m	—	—	Buff ware, some sand in paste, red slip/wash, smoothed
M	5.90–6.40 m	—	—	Pinkish buff coarse ware, straw inclusion
N	5.90–6.40 m	—	—	Buff coarse ware, black core, straw inclusion
O	5.90–6.40 m	—	—	Buff coarse ware, gritty paste, black core, smoothed. Late Susiana *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pl. 162:O–T). Such neckless pots continue into the Early Susa II phase

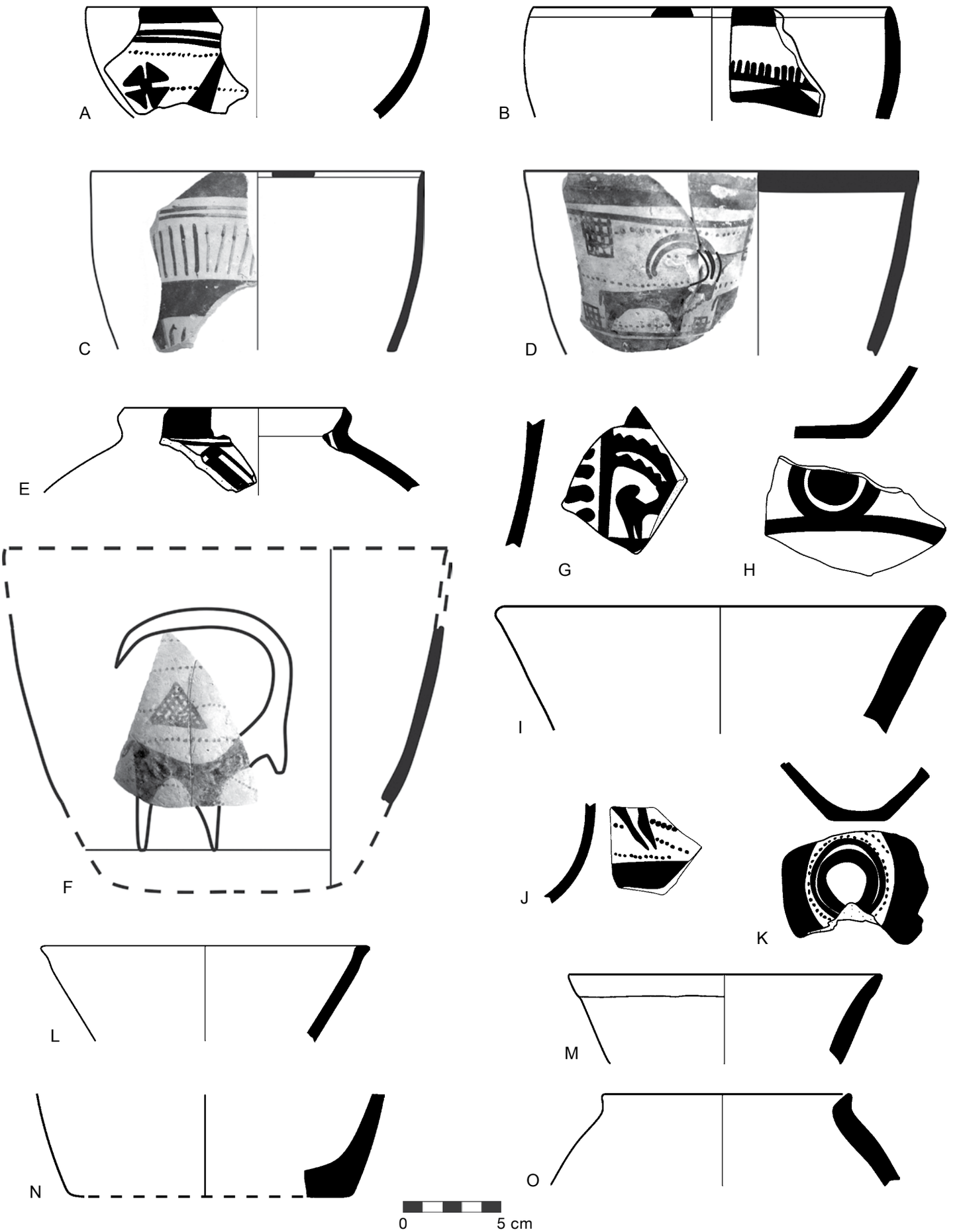


Figure 50. Pottery from Step Trench, Level 3

Figure 51. Pottery from Step Trench, Level 4

	Elevation	*Field No.*	*Museum No.*	*Description*
A	6.30–6.58 m	—	A154555	Light buff ware, no visible inclusion, dark brown paint. Late Middle Susiana
B	6.30–6.58 m	—	A154611	Creamy buff ware, no visible inclusion, brown paint, low ring base made separately. Late Middle Susiana
C	6.30–6.58 m	—	A154554	Creamy buff ware, no visible inclusion, brown paint. Late Middle Susiana
D	6.30 m	2TG-97	A28664	Pink buff ware, some sand in paste, red wash. Found on Level 4, floor. Late Susiana 1
E	6.30–6.58 m	—	—	Buff ware, no visible inclusion, pinkish buff surface. Late Susiana 1
F	6.30–6.58 m	—	—	Buff ware, some chaff inclusion, smoothed. Late Susiana 1
G	6.30–6.58 m	—	—	Buff ware, some sand in paste, scraped below rim. Late Susiana 1

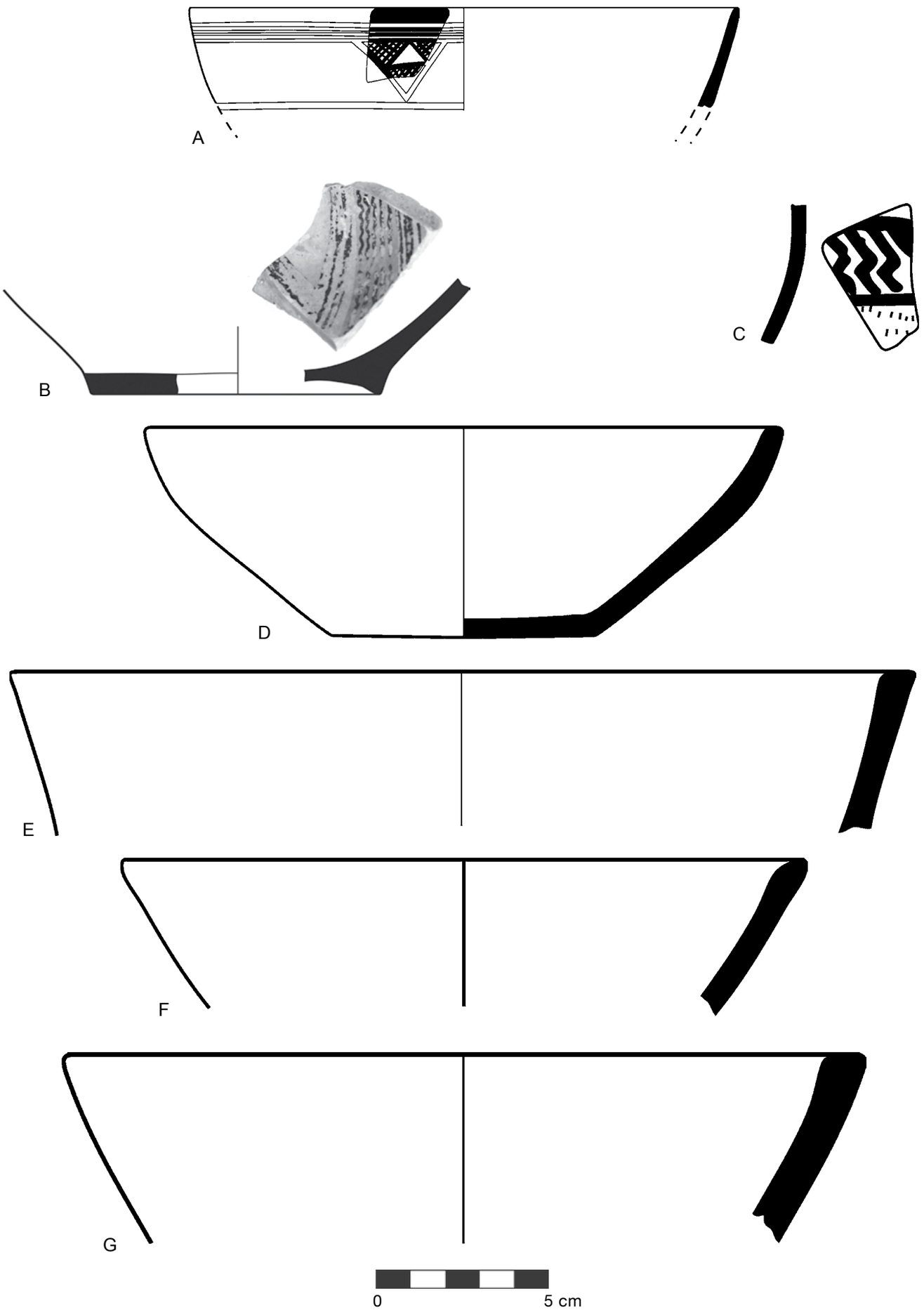


Figure 51. Pottery from Step Trench, Level 4

Figure 52. Pottery from Step Trench, Level 5

	Elevation	*Field No.*	*Museum No.*	*Description*
A	5.90–7.00 m	2TG-138	A28648	Creamy buff ware, no visible inclusion, brown paint. Late Susiana 1
B	5.90–7.00 m	2TG-118	Tehran	Creamy buff ware, no visible inclusion, dark brown paint. Late Susiana 1
C	5.90–7.00 m	—	A154621	Creamy buff ware, no visible inclusion, brown paint. Late Susiana 1
D	5.90–7.00 m	—	A154556	Greenish buff ware, no visible inclusion, greenish brown paint. Late Susiana 1
E	5.90–7.00 m	—	A154542	Creamy buff ware, no visible inclusion, brown paint. Late Susiana 1
F	5.90–7.00 m	—	A154643	Buff ware, no visible inclusion, light brown paint. Late Susiana 1
G	5.90–7.00 m	—	A154541	Warm buff ware, dense, scattered fine chaff in paste, creamy buff surface, brown paint. Late Middle Susiana/Late Susiana 1
H	5.90–7.00 m	—	A154553	Buff ware, no visible inclusion, grayish brown paint. Late Middle Susiana
I	5.90–7.00 m	—	A154566	Creamy buff ware, no visible inclusion, brown paint. Late Susiana 1
J	5.90–7.00 m	—	—	Orange buff ware, some fine chaff inclusion, smoothed. Middle–Late Susiana
K	5.90–7.00 m	—	—	Buff coarse ware, some sand in paste, scraped below rim. Middle–Late Susiana
L	5.90–7.00 m	—	—	Buff coarse ware, occasional chaff and sand. Middle–Late Susiana
M	5.90–7.00 m	—	—	Buff coarse ware, no visible inclusion, red wash. Middle–Late Susiana

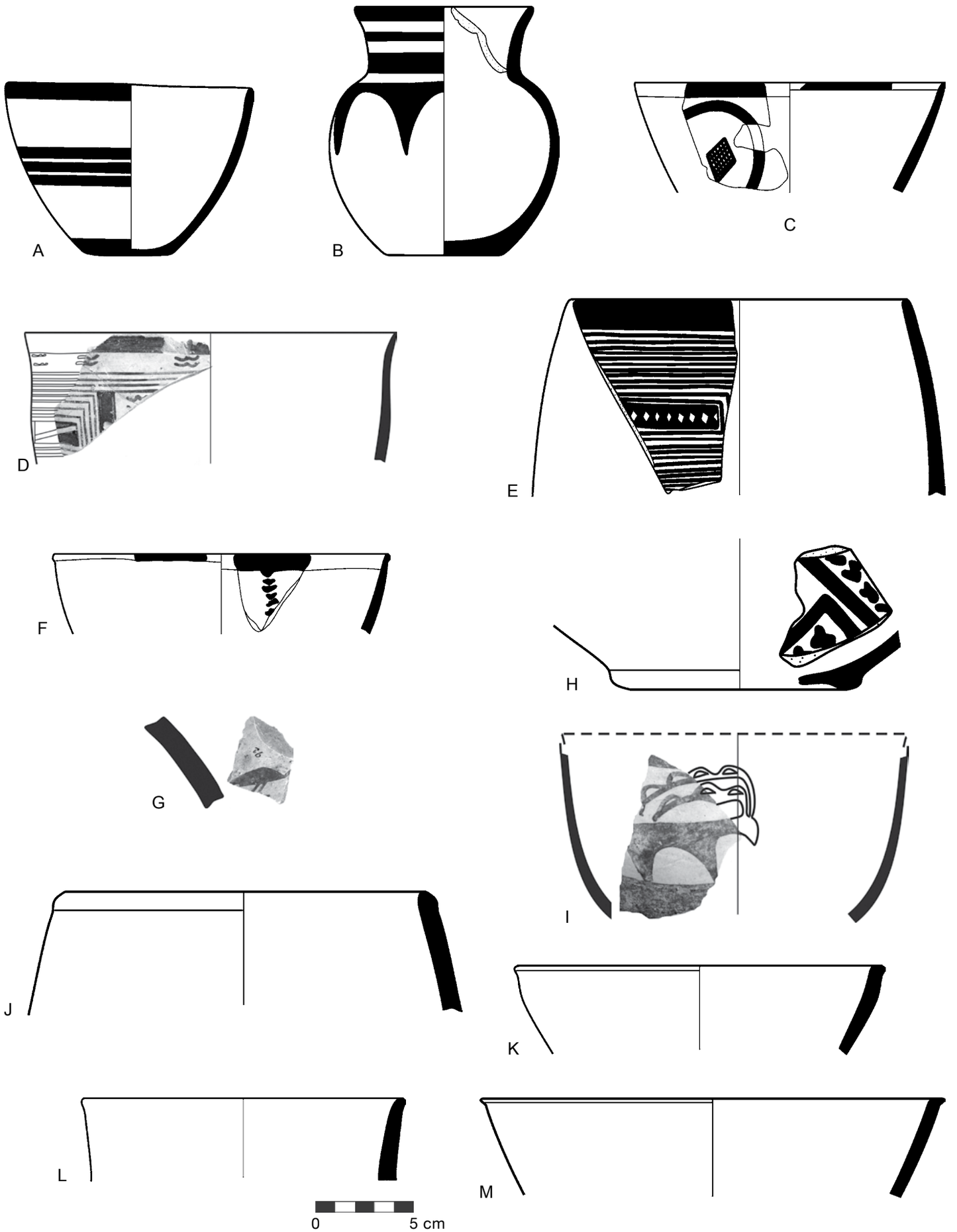


Figure 52. Pottery from Step Trench, Level 5

Figure 53. Pottery from Step Trench, Level 6

	Elevation	*Field No.*	*Museum No.*	*Description*
A	6.20–7.90 m	—	A154641	Buff ware, no visible inclusion, brown paint. Late Susiana 1
B	6.20–7.90 m	2TG-115	Tehran	Creamy buff ware, scattered fine chaff, brown paint. Late Susiana 1 *Comparanda:* An identical parallel from Tall-e Nurabad phase A 16 (Potts et al. 2009, fig. 3.89: TNP 1121)
C	6.20–7.90 m	—	A154501	Pale buff ware, scattered fine grits in paste, no visible inclusion, brown paint. Late Middle Susiana
D	6.20–7.90 m	—	A154509	Buff ware, no visible inclusion, brown paint. Late Susiana 1
E	6.20–7.90 m	—	A154559, A154544	Pale greenish buff ware, no visible inclusion, brown paint. Late Susiana 1
F	6.20–7.90 m	—	A154626	Pale bricky red ware, occasional fine chaff, creamy buff slip on exterior and interior, brown paint. Late Susiana 2

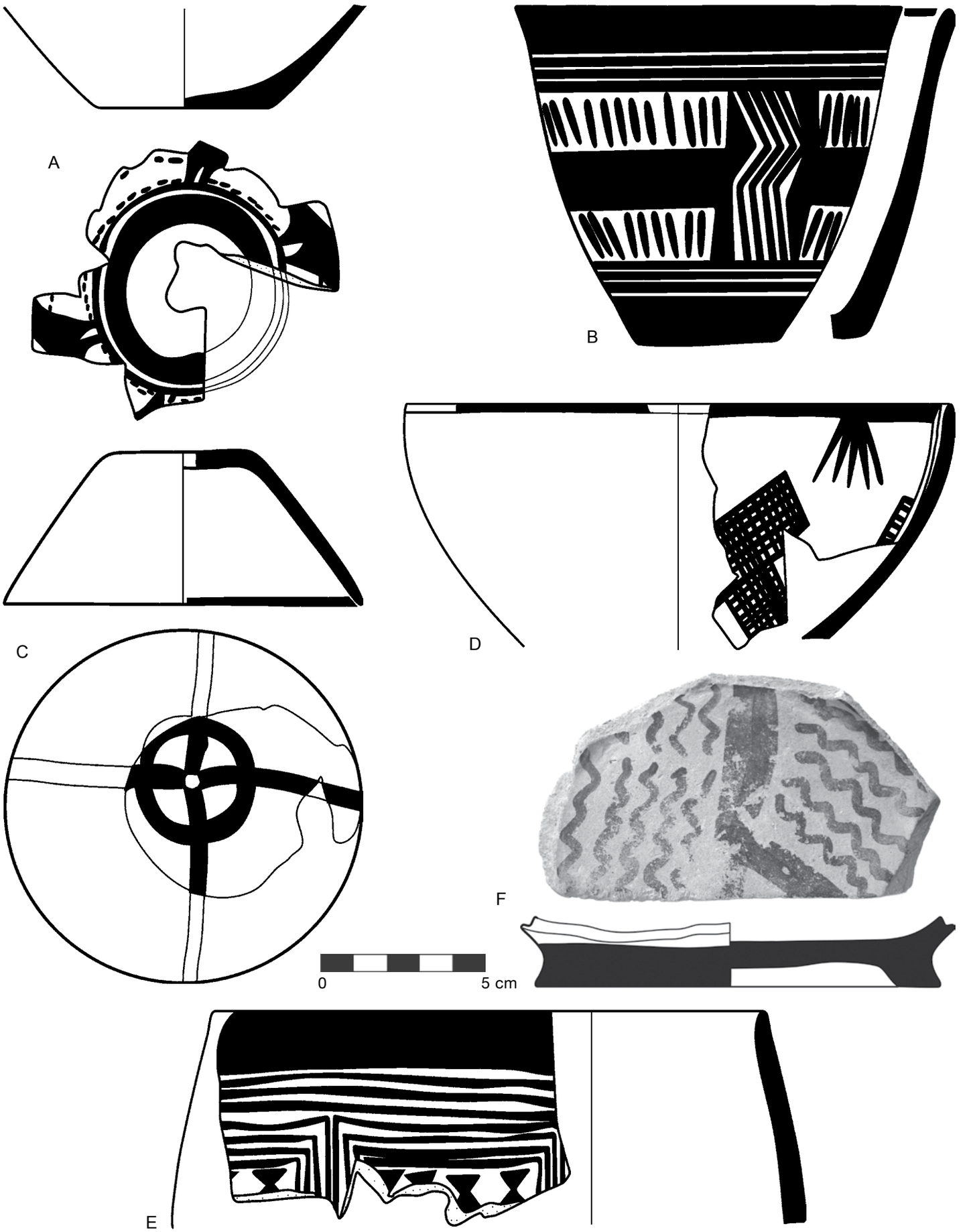


Figure 53. Pottery from Step Trench, Level 6

Figure 54. Pottery from Step Trench, Level 7

	Elevation	*Field No.*	*Museum No.*	*Description*
A	7.90–8.20 m	—	A154654	Very pale pinkish buff ware, fine chaff inclusion, warm buff surface, wheel striations on the inner neck. Terminal Susa/Early Susa II *Comparanda:* Similar to Susa Acropole, level 23, Terminal Susa (Le Brun 1971, fig. 40:9; Steve and Gasche 1971, pl. 34:10)
B	7.90–8.20 m	—	—	Red coarse ware, chaff inclusion. Terminal Susa/Early Susa II *Comparanda:* Wright 2013, fig. 4.7:5
C	7.90–8.20 m	—	—	Buff ware, traces of burnishing on exterior. Terminal Susa
D	7.90–8.20 m	—	A154655	Very pale pinkish buff ware, occasional fine chaff, warm buff surface. Early Susa II
E	7.90–8.20 m	—	—	Reddish buff ware, some chaff inclusion. Early Susa II *Comparanda:* Farukhabad, level B32 (Wright 1981, fig. 43:d–e)
F	7.90–8.20 m	—	—	Red ware, some sand in paste, chaff inclusion, smoothed surface
G	7.90–8.20 m	—	—	Buff ware, some sand in paste. Early Susa II *Comparanda:* Farukhabad, level B33 (Wright 1981, fig. 43:b–c)
H	7.90–8.20 m	—	—	Greenish buff ware, no visible inclusion, dark olive green paint on inner rim. Terminal Susa?
I	7.90–8.20 m	—	A154563	Greenish buff ware, no visible inclusion, brown paint. Late Susiana 2
J	7.90–8.20 m	—	A154513	Creamy buff ware, no visible inclusion, brown paint. Late Susiana 2
K	7.90–8.20 m	—	A154637, A154526	Creamy buff ware, no visible inclusion, brown paint. Late Susiana 1
L	7.90–8.20 m	—	—	Warm buff ware, some sand in paste. Late Susiana
M	7.90–8.20 m	—	A154535	Pale greenish buff ware, no visible inclusion, greenish brown paint. Late Susiana 1
N	7.90–8.20 m	—	A154538	Creamy buff ware, no visible inclusion, brown paint. Late Susiana 1
O	7.90–8.20 m	—	A154560	Creamy buff ware, no visible inclusion, brown paint. Late Susiana 1

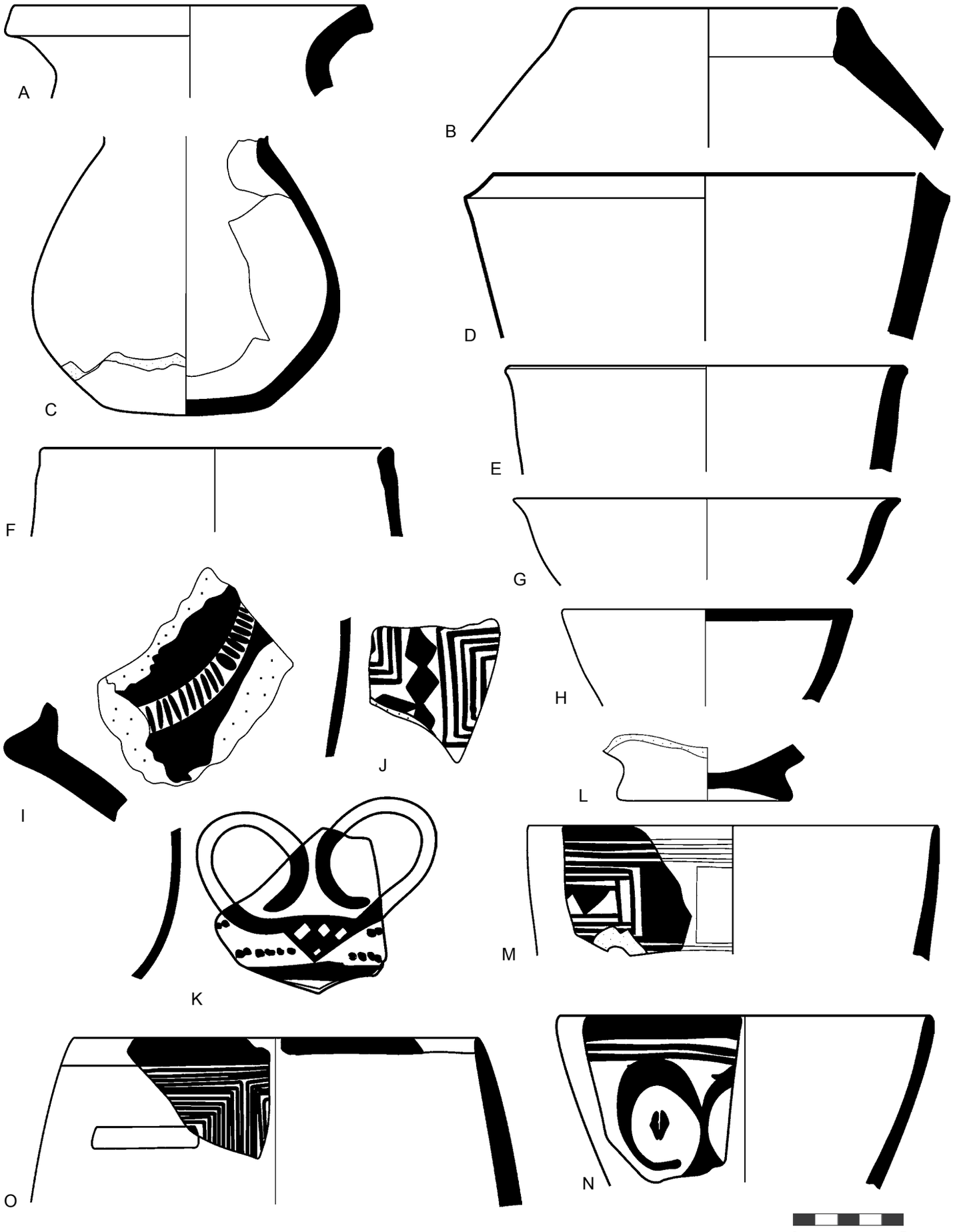


Figure 54. Pottery from Step Trench, Level 7

Figure 55. Pottery from Step Trench, Level 8

	Elevation	*Field No.*	*Museum No.*	*Description*
A	7.10–7.40 m	—	—	Buff ware, some sand in paste, no visible inclusion, creamy buff surface. Early Susa II *Comparanda:* Susa Acropole, level 23, Terminal Susa (Le Brun 1971, fig. 40:9; Steve and Gasche 1971, pl. 34:10)
B	7.10–7.40 m	—	—	Red ware, some sand in paste, no visible inclusion. Early Susa II *Comparanda:* Susa Acropole, level 23, Terminal Susa (Le Brun 1971, fig. 40:9; Steve and Gasche 1971, pl. 34:10)
C	7.10–7.40 m	—	—	Buff ware, some scattered small grits in paste, four pierced lugs. Early Susa II *Comparanda:* Farukhabad, level B32 (Wright 1981, fig. 43:d–e)
D	7.10–7.40 m	—	—	Red ware, chaff inclusion, buff slip. Terminal Susa
E	7.10–7.40 m	—	—	Buff coarse ware, straw inclusion. Terminal Susa/Early Susa II
F	7.10–7.40 m	—	—	Orange buff ware. Terminal Susa
G	7.10–7.40 m	—	—	Orange buff ware, straw inclusion. Terminal Susa?
H	7.10–7.40 m	—	—	Red ware, pale gray core. Early Susa II?
I	7.10–7.40 m	—	—	Pinkish buff coarse ware, straw inclusion. Early Susa II

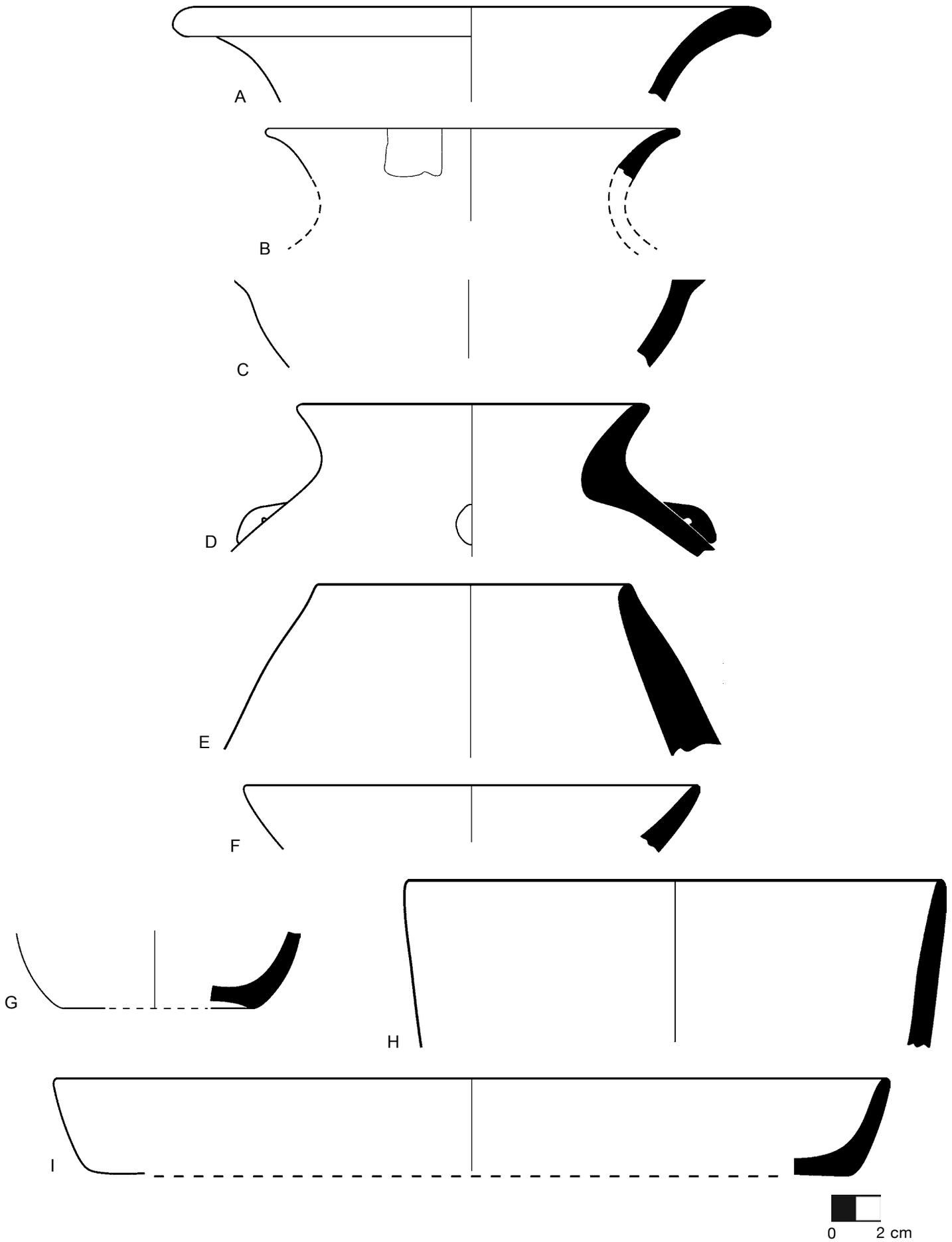


Figure 55. Pottery from Step Trench, Level 8

Figure 56. Pottery from Step Trench, Level 9/10

	Elevation	*Field No.*	*Museum No.*	*Description*
A	7.28–8.28 m	—	—	Buff ware, no visible inclusion, traces of brown paint on surface. Late Susiana 2
B	7.28–8.28 m	—	—	Buff ware, straw inclusion. Terminal Susa?
C	7.28–8.28 m	—	—	Buff ware. Early Susa II
D	7.28–8.28 m	—	—	Orange buff ware, some chaff inclusion, buff slip, scraped lower body. Early Susa II *Comparanda:* Farukhabad, level B32 (Wright 1981, fig. 46:e)
E	7.28–8.28 m	—	—	Buff ware. Early Susa II?
F	7.28–8.28 m	—	—	Pale brown buff ware, no visible inclusion, creamy buff slip on interior and exterior. Early Susa II *Comparanda:* Susa Acropole, level 23, Terminal Susa (Le Brun 1971, fig. 40:9; Steve and Gasche 1971, pl. 34:10)
G	7.28–8.28 m	—	—	Buff ware. Terminal Susa (Wright 2013, fig. 4.2:k)

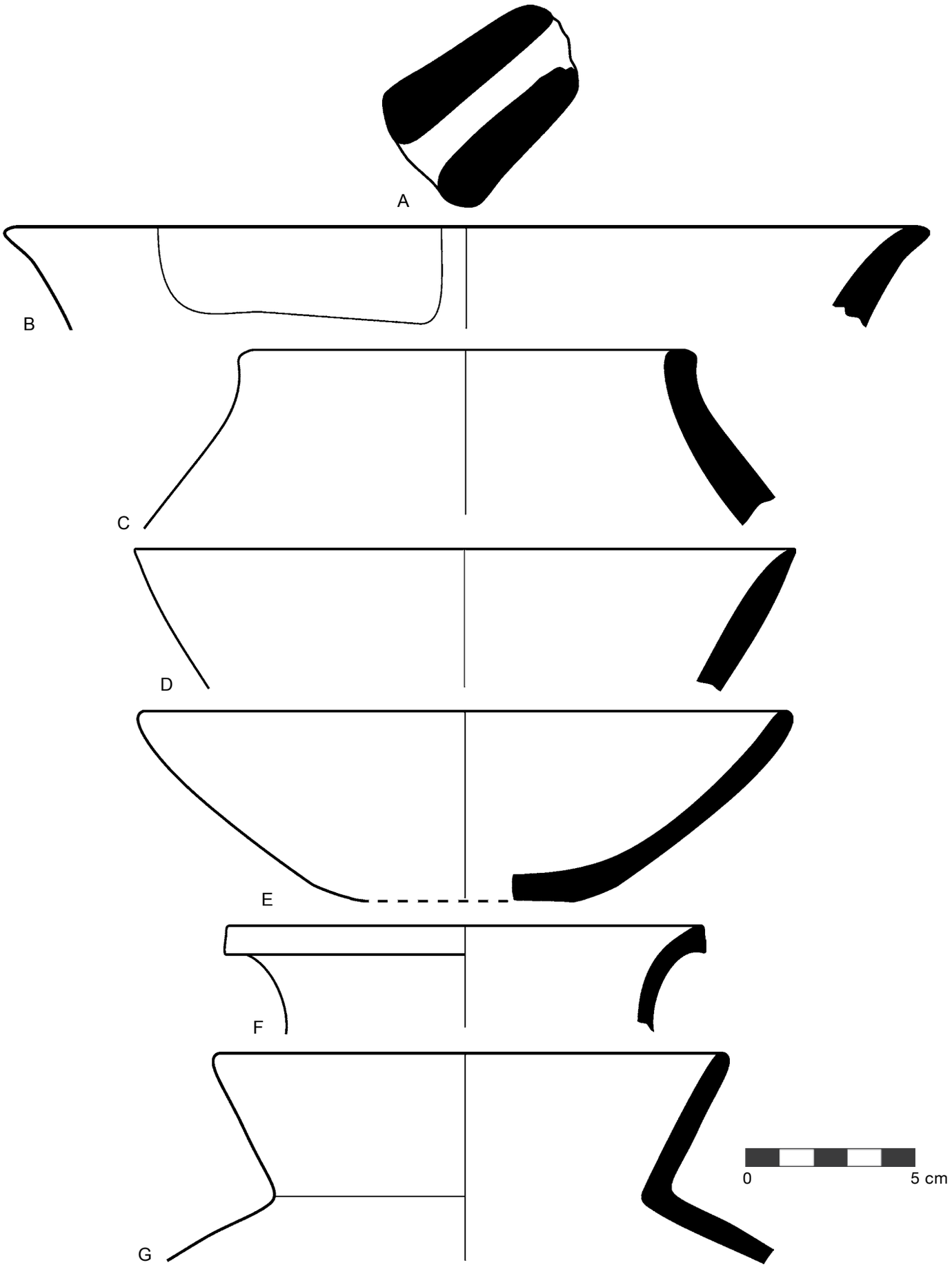


Figure 56. Pottery from Step Trench, Level 9/10

Figure 57. Pottery from Step Trench, Levels 10–11

	Elevation	*Field No.*	*Museum No.*	*Description*
LEVEL 10				
A	7.50–8.28 m	—	—	Red ware, buff slip. Early Susa II?
B	7.50–8.28 m	—	—	Buff ware. Early Susa II?
C	7.50–8.28 m	—	—	Pale brown ware, buff slip. Early Susa II?
D	7.50–8.28 m	—	—	Buff ware. Early Susa II?
LEVEL 11				
E	7.75–8.37 m	—	—	Buff ware, chaff inclusion. Early Susa II?
F	7.75–8.37 m	—	—	Red ware, chaff inclusion. Early Susa II?
G	7.75–8.37 m	—	—	Red ware, chaff inclusion. Early Susa II?
H	7.75–8.37 m	—	—	Proto-beveled-rim bowl. Buff coarse ware, straw inclusion. Terminal Susa/Early Susa II
I	7.75–8.37 m	—	—	Light buff ware, chaff inclusion (Wright 2013, fig. 4.2:n–o). Early Susa II
J	7.75–8.37 m	—	—	Buff ware (Wright 2013, fig. 4.4:f). Terminal Susa
K	7.75–8.37 m	—	—	No description available. Terminal Susa?
L	7.75–8.37 m	—	—	Buff ware, chaff inclusion. Early Susa II?
M	7.75–8.37 m	—	—	Buff ware. Early Susa II?
N	7.75–8.37 m	—	—	Buff ware. Terminal Susa?
O	7.75–8.37 m	—	A154739	Yellowish buff ware, dense, no visible inclusion. Early Susa II

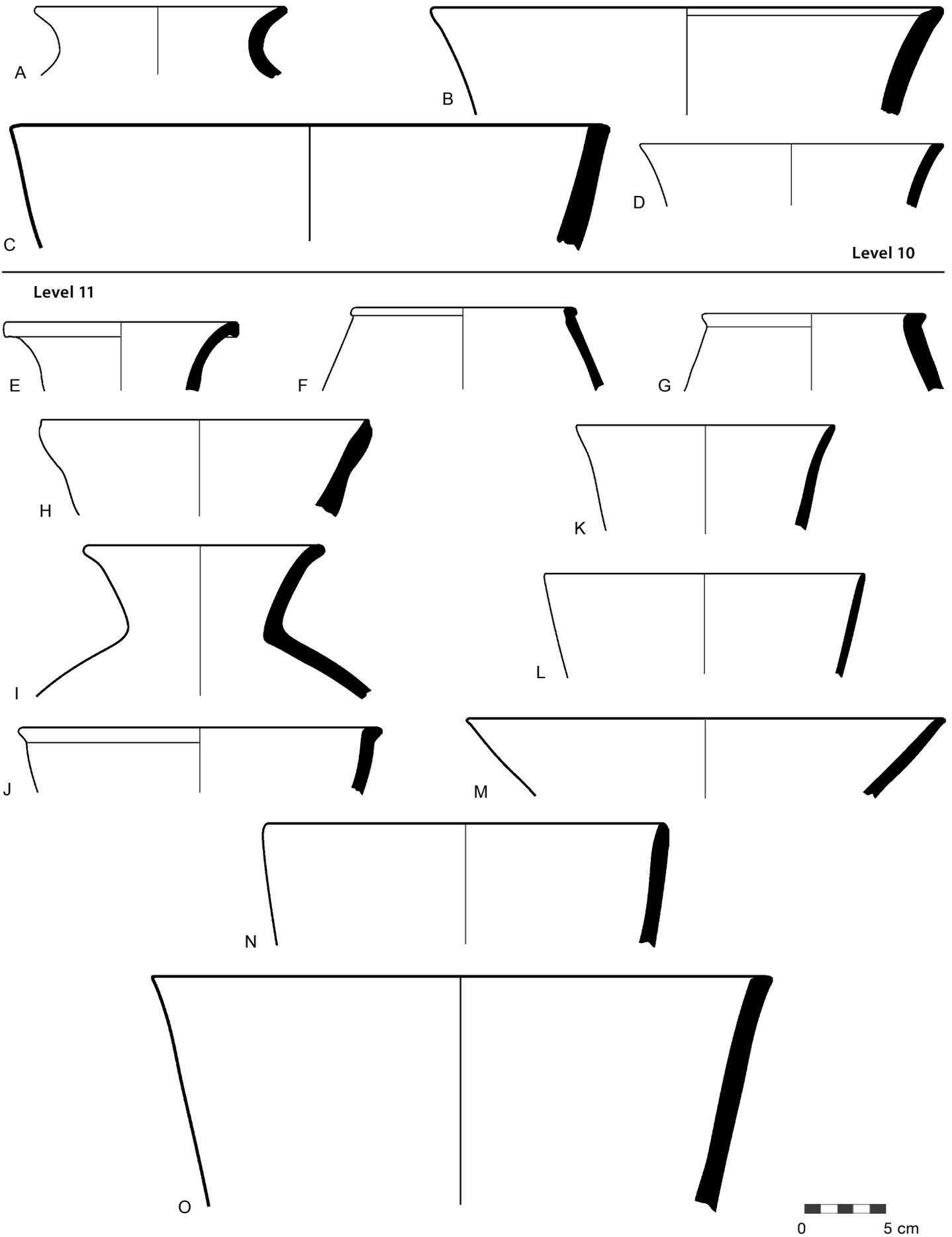


Figure 57. Pottery from Step Trench, Levels 10–11

Figure 58. Pottery from Step Trench, Level 12

	Elevation	*Field No.*	*Museum No.*	*Description*
A	8.37–8.90 m	—	A154604	Buff ware, no visible inclusion, whitish buff exterior, brown paint. Found on south floor? Late Susiana 2
B	8.37–8.90 m	—	—	Buff ware, some sand in paste, no visible inclusion, brown paint. Late Susiana 2
C	8.37–8.90 m	—	A154517	Buff ware, few small grits in paste, no visible inclusion, red-brown paint. Late Susiana
D	8.37–8.90 m	—	A154754	Very light brown buff, fine chaff inclusion, creamy buff surface. Terminal Susa/Early Susa II *Comparanda:* Susa Acropole (Steve and Gasche 1971, pl. 34:8; Wright 2013, fig. 4.2:k)
E	8.37–8.90 m	—	A154671	Buff ware, some sand in paste, chaff inclusion, buff surface. Early Susa II
F	8.37–8.90 m	—	—	Red ware. Early Susa II
G	8.37–8.90 m	—	A154670	Warm buff ware, no visible inclusion, buff surface. Early Susa II
H	8.37–8.90 m	—	—	Red ware, buff slip. Terminal Susa/Early Susa II *Comparanda:* Susa Acropole, level 25 (Le Brun 1971, fig. 40:1)
I	8.37–8.90 m	—	—	Red ware. Early Susa II
J	8.37–8.90 m	—	A154672	Buff ware, scattered small dark grits and calcite particles in paste, buff surface. Early Susa II
K	8.37–8.90 m	—	—	Orange buff ware, small grits in paste. Early Susa II

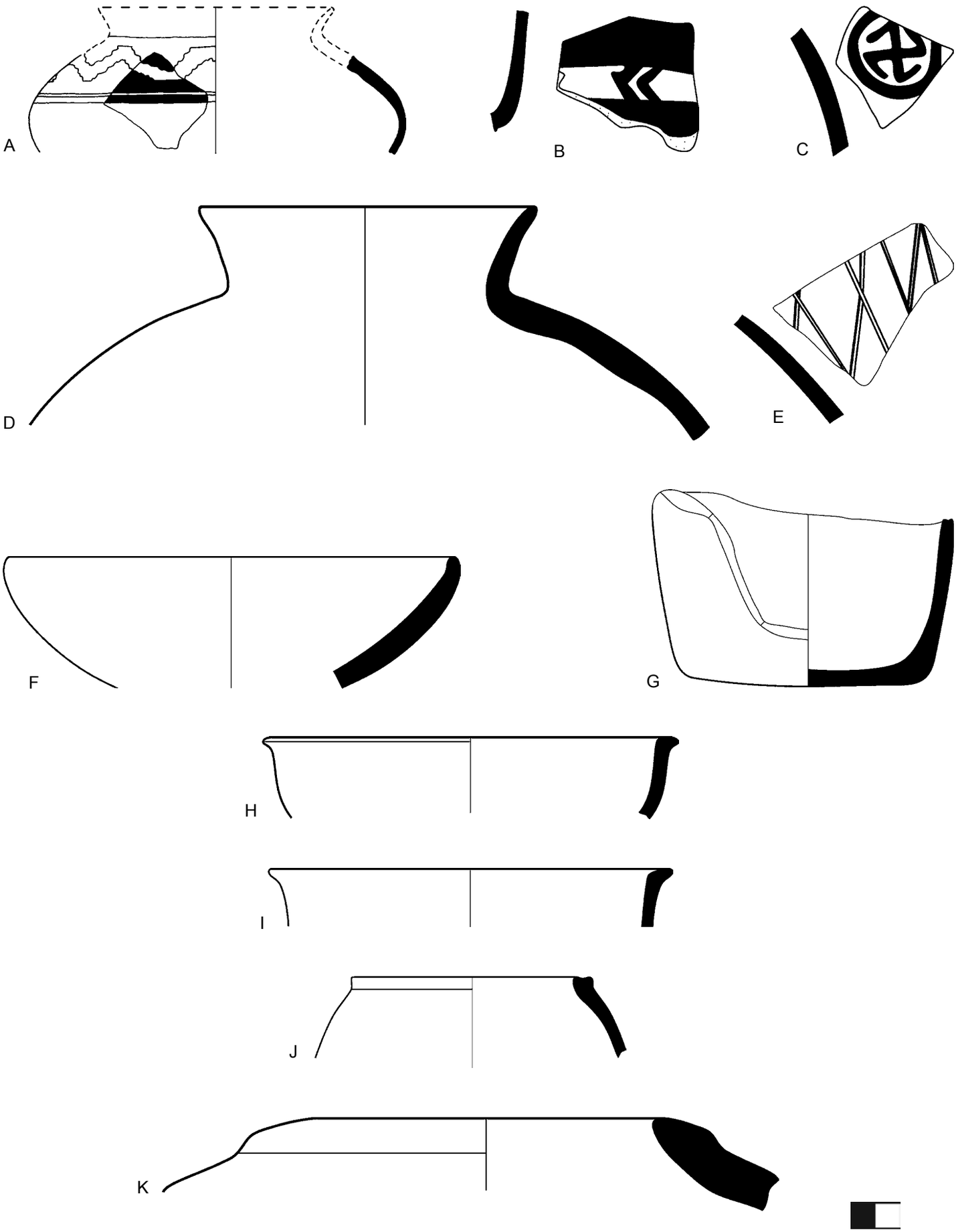


Figure 58. Pottery from Step Trench, Level 12

Figure 59. Pottery from Step Trench, Level 13

	Elevation	*Field No.*	*Museum No.*	*Description*
A	7.35–8.35 m	—	A154585	Buff ware, no visible inclusion, brown paint. Middle–Late Susiana
B	7.35–8.35 m	—	—	Buff ware, no visible inclusion, brown paint. Middle–Late Susiana
C	7.35–8.35 m	2TG-94	A28662	Pale buff coarse ware, straw inclusion, buff slip, finger impressions on base. Early Susa II? *Comparanda:* Johnson (1973, pl. 1:f) illustrates an exact parallel for this type of vessel but does not define it or give it a type number. A more slender version of this vessel occurs at late third-millennium B.C. Susa (Steve and Gasche 1971, pl. 26:13), but it has a solid foot instead of a ring base
D	7.35–8.35 m	—	A154752	Light brown buff coarse ware, black core, straw inclusion, light pink buff surface. Late Susiana
E	7.35–8.35 m	—	A154743	Buff ware, chaff inclusion, smoothed (Wright 2013, fig. 4.7:l). Early Susa II
F	7.35–8.35 m	—	—	Light brown coarse ware, straw and chaff inclusion (Wright 2013, fig. 4.7:i–j). Early Susa II
G	7.35–8.35 m	—	A154673	Buff coarse ware, thick black core, straw inclusion, uneven surface (Wright 2013, fig. 4.7:h). Early Susa II
H	7.35–8.35 m	—	—	Proto-beveled-rim bowl. Buff coarse ware, straw inclusion. Early Susa II
I	7.35–8.35 m	—	A154742	Buff ware, some chaff, probably slipped exterior (Wright 2013, fig. 4.4:b). Terminal Susa/Early Susa II
J	7.35–8.35 m	—	—	Buff ware. Early Susa II. A late, variant form of this bowl occurs in Late Susa II *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pl. 87:G)
K	7.35–8.35 m	—	—	Buff ware. Early Susa II

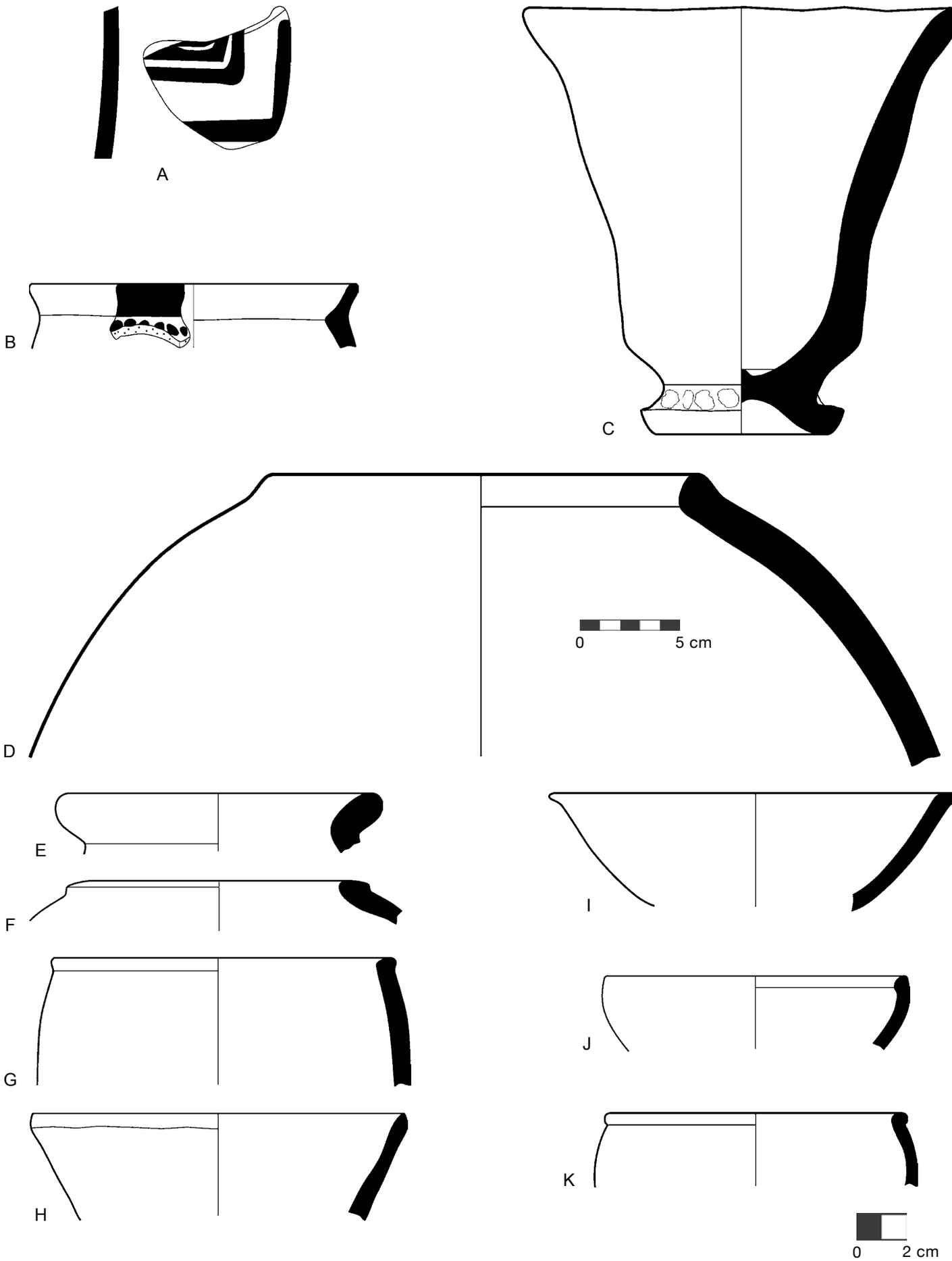


Figure 59. Pottery from Step Trench, Level 13

Figure 60. Pottery from Step Trench, Level 14

	Elevation	*Field No.*	*Museum No.*	*Description*
A	8.35–9.35 m	—	—	Buff ware, no visible inclusion, brown paint. Late Susiana 1
B	8.35–9.35 m	—	A154745	Warm buff coarse ware, dark core, straw inclusion. Early–Late Susa II
C	8.35–9.35 m	—	—	Buff coarse ware, gray core, straw inclusion. Early Susa II
D	8.35–9.35 m	—	—	Orange buff ware, chaff inclusion, buff surface. Early Susa II
E	8.35–9.35 m	—	—	Orange buff coarse ware, pale gray core, chaff inclusion. Early Susa II
F	8.35–9.35 m	—	—	Pale buff ware, no visible inclusion. Terminal Susa/Early Susa II *Comparanda:* Susa Acropole, level 23, Terminal Susa (Le Brun 1971, fig. 40:9; Steve and Gasche 1971, pl. 34:10; Wright 2013, fig. 4.2:q–r)
G	8.35–9.35 m	—	A154746	Orange tan ware, chaff inclusion. Early Susa II
H	8.35–9.35 m	—	A154741	Buff coarse ware, gray core, straw inclusion. Early Susa II *Comparanda:* Farukhabad, level B36 (Wright 1981, fig. 43:a)
I	8.35–9.35 m	—	A154661	Pale orange buff ware, very pale buff gray core, chaff inclusion. Early Susa II
J	8.35–9.35 m	—	A154744	Light brown ware, medium white grits in paste, no visible inclusion. Early Susa II *Comparanda:* Farukhabad, level B32 (Wright 1981, fig. 42:h)
K	8.35–9.35 m	—	—	Buff ware, gray core, chaff inclusion. Early Susa II *Comparanda:* Farukhabad, level B36 (Wright 1981, fig. 43:a)
L	8.35–9.35 m	—	A154740	Buff ware, gray core, chaff inclusion, red surface. Early Susa II *Comparanda:* Farukhabad, level B32 (Wright 1981, fig. 42:h)
M	8.35–9.35 m	—	—	Buff ware. Fourth millennium

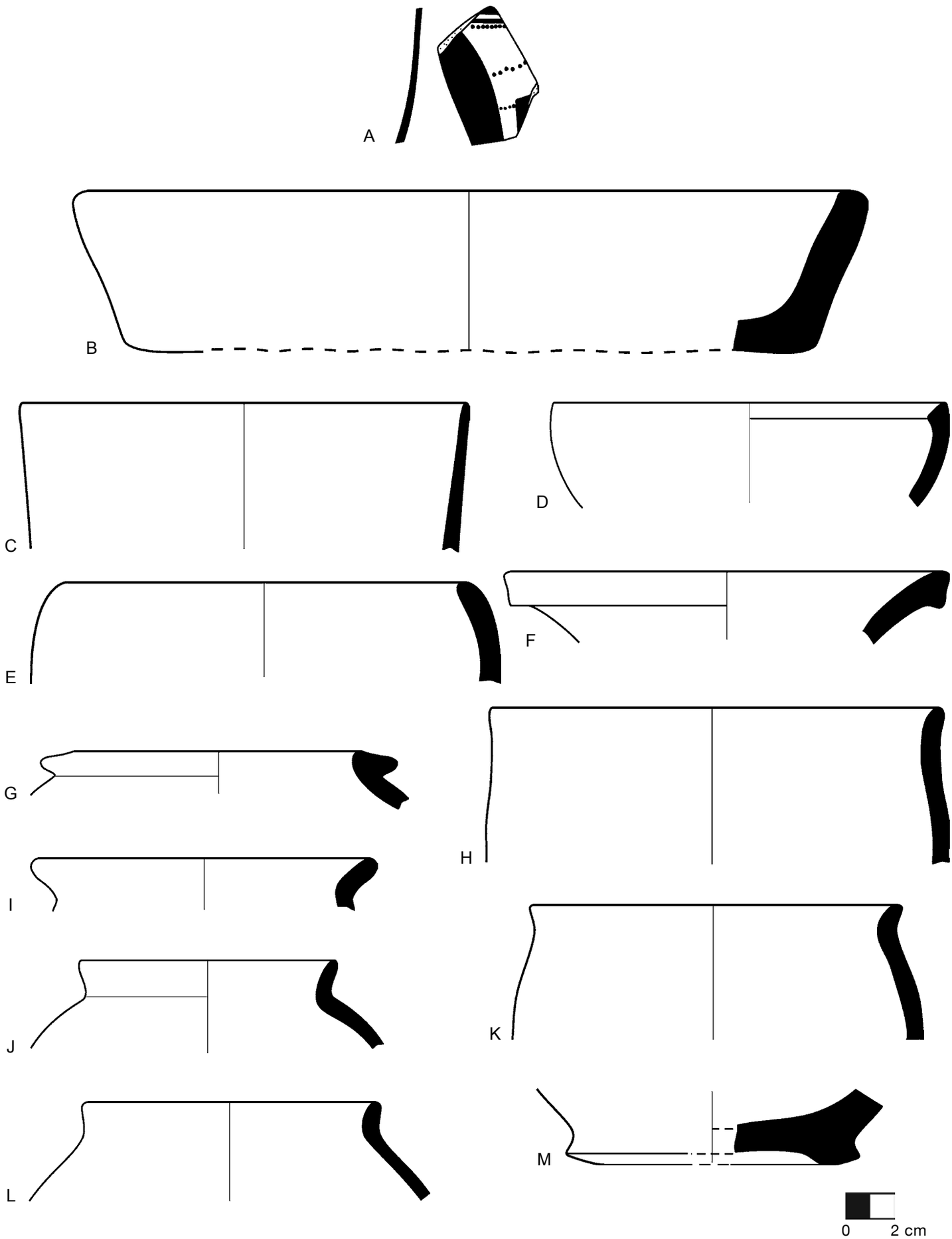


Figure 60. Pottery from Step Trench, Level 14

Figure 61. Pottery from Step Trench, Level 15

	Elevation	*Field No.*	*Museum No.*	*Description*
A	9.35–9.90 m	—	—	Buff ware, no visible inclusion, brown paint. Late Susiana 1
B	9.35–9.90 m	—	—	Buff ware, no visible inclusion, brown paint. Late Susiana 2
C	9.35–9.90 m	—	—	Orange buff ware, some chaff inclusion, buff surface. Early Susa II *Comparanda:* Similar to Wright 2013, fig. 4.10:i)
D	9.35–9.90 m	—	—	Buff ware, chaff inclusion
E	9.35–9.90 m	—	—	Orange buff, some chaff inclusion, buff surface. Early Susa II *Comparanda:* Farukhabad, level B30 (Wright 1981, fig. 46:h)
F	9.35–9.90 m	—	A154691	Very pale red bricky buff ware, light gray core where thick, occasional large to small dark grits in paste, chaff inclusion, mottled pale red surface. Early Susa II
G	9.35–9.90 m	—	—	Buff coarse ware, straw inclusion. Early Susa II
H	9.35–9.90 m	—	—	No description available. Early Susa II?
I	9.35–9.90 m	—	A154693	Very pale pinkish buff ware, no visible inclusion, creamy buff surface. Early Susa II *Comparanda:* Farukhabad, level B33 ("Middle Uruk," Wright 1981, fig. 41:a)
J	9.35–9.90 m	—	A154694	Pale bricky red ware, fine chaff inclusion, creamy buff surface
K	9.35–9.90 m	—	A154769	Pale reddish buff ware, dense, scattered fine chaff inclusion, buff surface. Early Susa II *Comparanda:* Susa Acropole, level 23, Terminal Susa (Le Brun 1971, fig. 40:9; Steve and Gasche 1971, pl. 34:10; Wright 2013, fig. 4.7:q–r)
L	9.35–9.90 m	2TG-63	A28661	Reddish buff ware, chaff inclusion. Early Susa II
M	9.35–9.90 m	—	—	Reddish buff ware, dark core, straw inclusion, buff surface. Early Susa II
N	9.35–9.90 m	—	—	Reddish buff ware, buff surface. Early Susa II
O	9.35–9.90 m	—	—	No description available. Early Susa II *Comparanda:* Susa Acropole, level 23 (Le Brun 1971, fig. 40:7)
P	9.35–9.90 m	—	A154696	Buff ware, some sand in paste, no visible inclusion, buff surface. Early Susa II *Comparanda:* Farukhabad, level B33 ("Middle Uruk," Wright 1981, fig. 43:k)
Q	9.35–9.90 m	—	—	Reddish buff ware, buff surface. Early Susa II
R	9.35–9.90 m	—	A154689	Buff coarse ware, dark core, straw inclusion, straw face, 1 mm thick pale bricky buff surface. Early Susa II
S	9.35–9.90 m	—	A154695	Light buff ware, very fine dark grits in paste and some accidental chaff. Early Susa II
T	9.35–9.90 m	—	A154659	Pale bricky red ware, dense, light gray core, some fine chaff inclusion. Similar to Early–Late Susa II *Comparanda:* Farukhabad, level B34 (Wright 1981, fig. 47:a); Chogha Mish (Delougaz and Kantor 1996, pl. 85:Z–AA, GG, pl. 87:E)
U	9.35–9.90 m	—	—	Buff coarse ware, straw inclusion, red slip. Early Susa II
V	9.35–9.90 m	—	A154690	Pale reddish buff ware, light gray core, straw inclusion, straw face, creamy white wash exterior (Wright 2013, fig. 4.7:i–j). Early Susa II

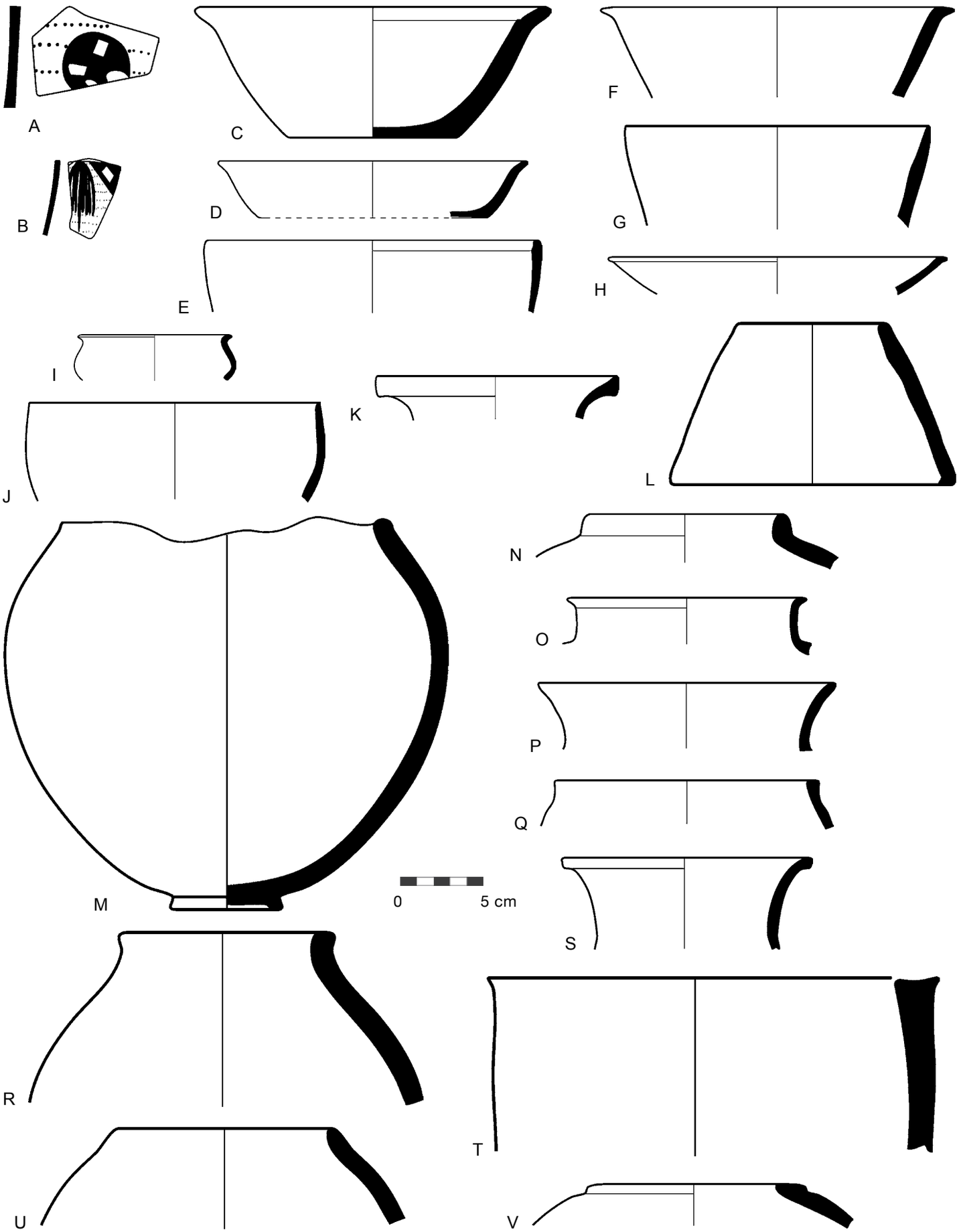


Figure 61. Pottery from Step Trench, Level 15

Figure 62. Pottery from Step Trench, Level 16

	Elevation	*Field No.*	*Museum No.*	*Description*
A	9.90–10.50 m	—	—	Buff ware, no visible inclusion, brown paint. Late Susiana 1
B	9.90–10.50 m	—	—	Greenish buff ware, no visible inclusion, glossy greenish brown paint. Late Susiana 2
C	9.90–10.50 m	—	A154729	Straight spout. Reddish buff ware, no visible inclusion, creamy buff surface (Wright 2013, fig. 4.7:u). Early Susa II
D	9.90–10.50 m	—	A154730	Pale reddish buff ware, dense, light gray core abruptly changing into pale bricky red, some sand in paste, occasional chaff, pale bricky red surface. Early Susa II
E	9.90–10.50 m	—	A154660	Pale bricky buff ware, pale gray buff core, no visible inclusion. Early Susa II?
F	9.90–10.50 m	—	A154738	Very pale grayish brown ware, dense, no visible inclusion, light brown surface. Early Susa II
G	9.90–10.50 m	—	A154732	Warm buff ware, straw inclusion, uneven surface, proto-beveled-rim bowl. Early Susa II
H	9.90–10.50 m	—	A154731	Creamy buff ware, no visible inclusion. Susa II
I	9.90–10.50 m	—	A154733	Pale grayish buff coarse ware, straw inclusion, straw face, uneven surface. Early Susa II
J	9.90–10.50 m	—	A154737	Pale bricky red coarse ware, very pale gray core sandwiched between two 2 mm thick red layers, no visible inclusion, occasional pocket marks. Susa II
K	9.90–10.50 m	—	A154728	Warm buff coarse ware, straw inclusion, straw face, buff surface crackled. Susa II
L	9.90–10.50 m	—	A154735	Pale bricky red ware, creamy buff slip exterior, fine chaff/hair inclusion, granulated paste. Susa II
M	9.90–10.50 m	—	A154734	Buff ware, occasional chaff inclusion, buff surface. Early Susa II
N	9.90–10.50 m	—	A154736	Buff ware, very pale gray buff paste sandwiched between two 1 mm thick pale pink buff layers, some chaff inclusion, creamy buff slip exterior. Early Susa II
O	9.90–10.50 m	—	A154658	Buff coarse ware, very light gray core grading to buff toward surface, straw inclusion, scraped marks on interior (Wright 2013, fig. 4.7:i–j). Early Susa II

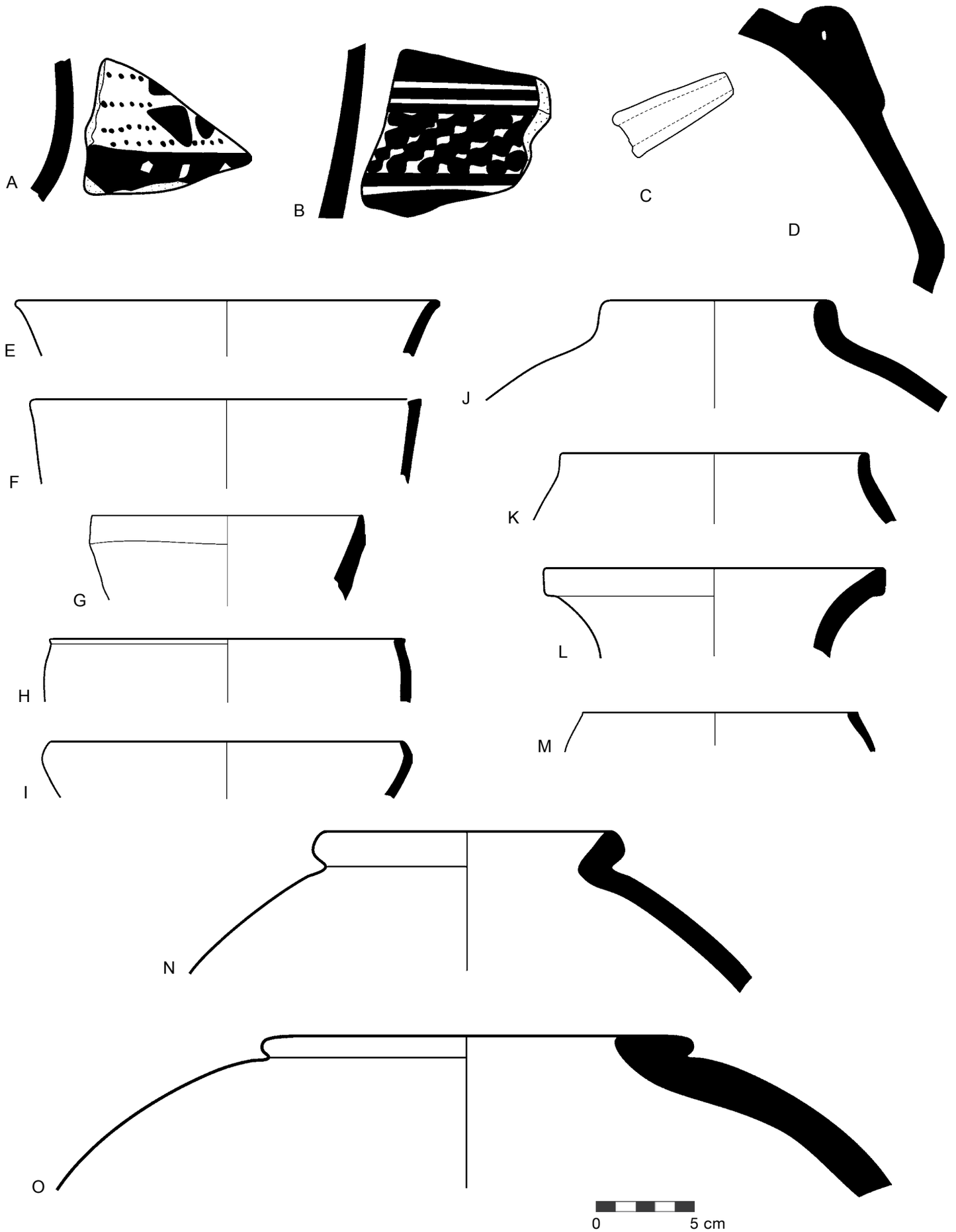


Figure 62. Pottery from Step Trench, Level 16

Figure 63. Pottery from Step Trench, Levels 17–18

	Elevation	*Field No.*	*Museum No.*	*Description*
LEVEL 17				
A	10.50–11.28 m	—	—	Yellowish buff ware, gray core, chaff inclusion. Early Susa II?
LEVEL 18				
B	10.60–11.28 m	—	—	Buff ware, gritty paste, dark brown paint on shoulder, red band below. Early Susa II
C	10.60–11.28 m	—	—	Coarse reddish buff ware, gray core, straw inclusion. Early Susa II
D	10.60–11.28 m	—	—	Buff ware. Early Susa II?
E	10.60–11.28 m	2TG-152	Tehran	No description available. Early Susa II?
F	10.60–11.28 m	—	—	Reddish buff ware, buff surface. Early Susa II
G	10.60–11.28 m	—	—	Pink buff, chaff inclusion, reserved slip below neck. Early Susa II
H	10.60–11.28 m	—	A154704	Pale bricky red ware, light gray core, some chaff inclusion, pale red surface, scraped exterior. Early Susa II
I	10.60–11.28 m	—	—	Coarse reddish buff ware, straw inclusion, buff surface. Early Susa II
J	10.60–11.28 m	—	—	Coarse reddish buff ware, gray core, straw inclusion. Early Susa II

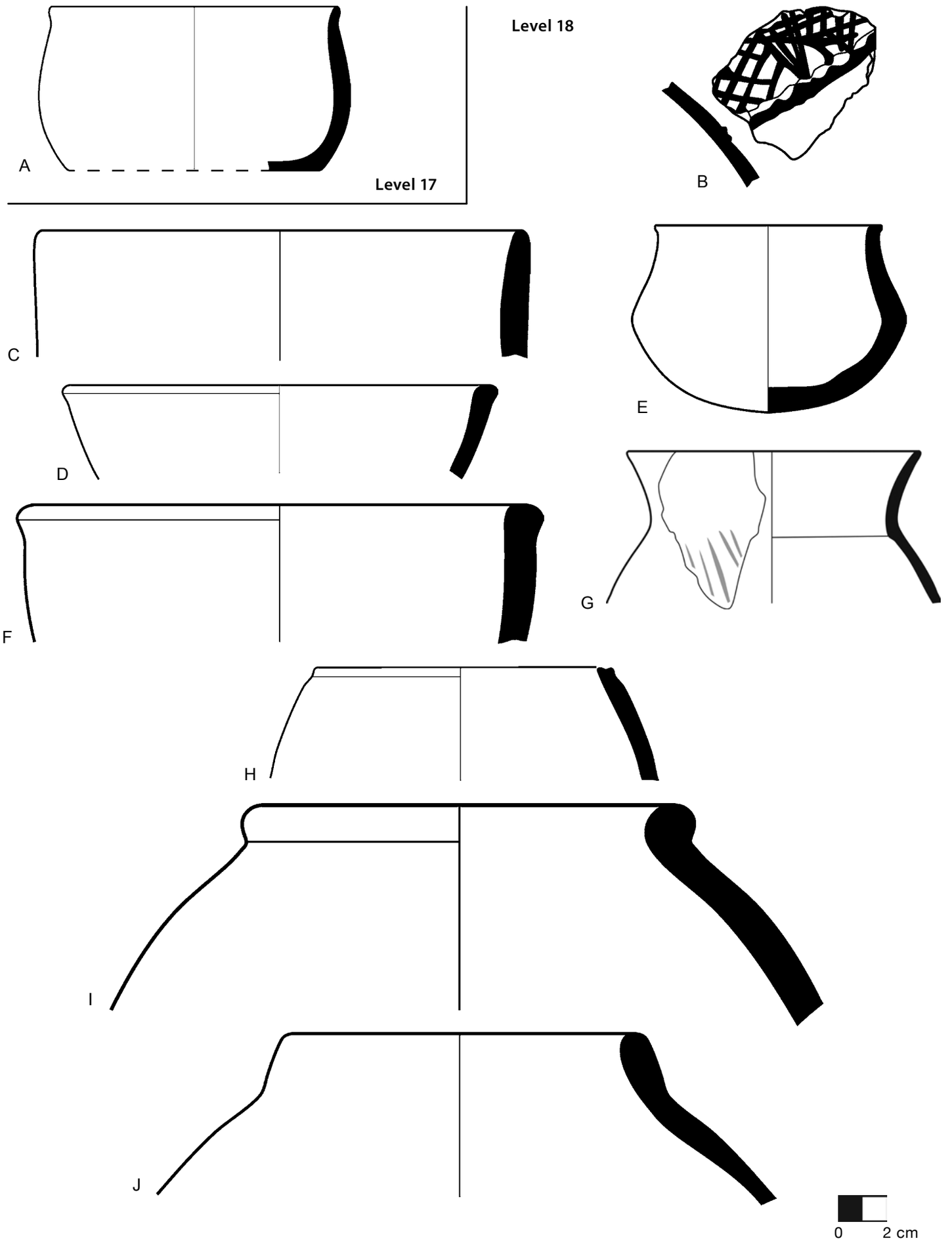


Figure 63. Pottery from Step Trench, Levels 17–18

Figure 64. Pottery from Step Trench, Level 19

	Elevation	*Field No.*	*Museum No.*	*Description*
A	11.28–11.85 m	—	A154701	Dark gray core abruptly changing to grayish buff, some calcite particles in paste, chaff inclusion, bricky red wash exterior, interior. Early Susa II
B	11.28–11.85 m	—	A154699	Pale brown red ware, some dark, small grits in paste, chaff inclusion, red surface. Early Susa II
C	11.28–11.85 m	—	A154703	Creamy white ware, no visible inclusion, very light surface. Susa II
D	11.28–11.85 m	2TG-55	Tehran	Pale buff coarse ware, chaff inclusion. Susa II
E	11.28–11.85 m	—	—	Buff ware, some small grits in paste. Early Susa II
F	11.28–11.85 m	—	—	No description available. Susa II
G	11.28–11.85 m	—	—	Pink buff ware, buff surface. ?
H	11.28–11.85 m	—	—	Pink buff, fine chaff inclusion, buff surface. Early Susa II
I	11.28–11.85 m	—	A154698	Buff ware, straw inclusion, straw face, buff surface. Early Susa II
J	11.28–11.85 m	—	—	Pale pinkish buff coarse ware, dark gray core is sandwiched by two layers (1 mm thick) of pale pinkish buff, some calcite particles in paste, straw inclusion, uneven surface. Early Susa II
K	11.28–11.85 m	—	—	Pinkish buff ware, gray core, fine chaff inclusion, buff surface. Early Susa II
L	11.28–11.85 m	—	A154700	Pale bricky buff ware, some calcite particles in paste, chaff inclusion, buff surface, probably reserved slip. Early Susa II
M	11.28–11.85 m	—	A154697	Buff ware, chaff inclusion, buff surface. Early Susa II

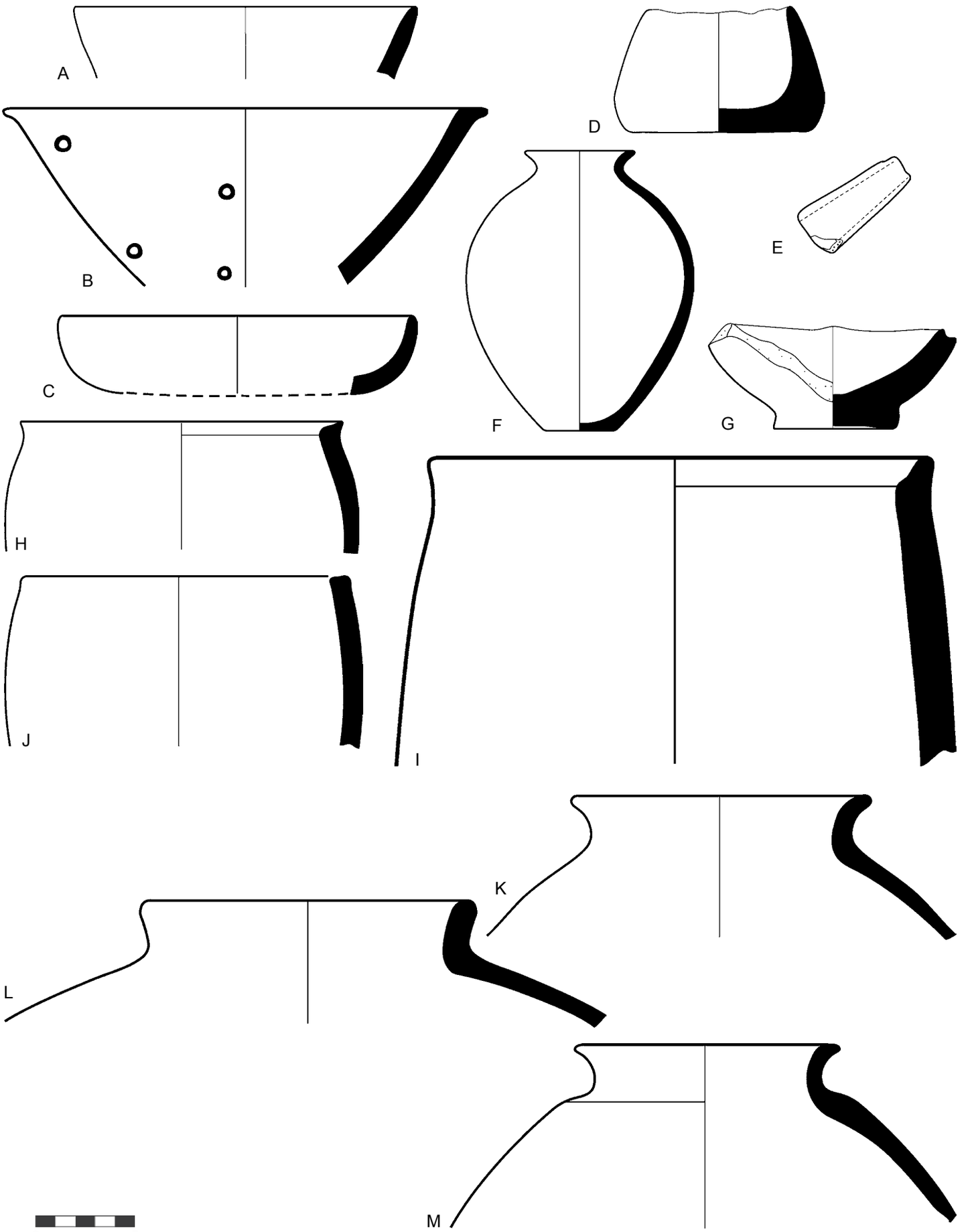


Figure 64. Pottery from Step Trench, Level 19

Figure 65. Pottery from Step Trench, Level 20

	Elevation	*Field No.*	*Museum No.*	*Description*
A	11.85–12.35 m	—	A154597	Over-fired grayish green buff ware, occasional sand in paste, no visible inclusion, greenish brown paint. Late Middle Susiana
B	11.85–12.35 m	—	A154677	Warm buff ware, straw inclusion, creamy buff surface. Late Susa II
C	11.85–12.35 m	2TG-96	A28663	Buff ware, no visible inclusion (some accidental fine chaff), wheel-made, uneven exterior surface. Early Susa II?
D	11.85–12.35 m	—	A154676	Pale buff ware, fine chaff inclusion, base ring made separately. Early Susa II?
E	11.85–12.35 m	—	—	Pinkish buff, fine chaff inclusion, reserved slip. Early Susa II
F	11.85–12.35 m	—	—	Pinkish buff, dark core, chaff inclusion. Early Susa II
G	11.85–12.35 m	—	—	Buff ware, fine chaff inclusion. Early Susa II
H	11.85–12.35 m	—	—	Pinkish buff ware, fine chaff inclusion. Early Susa II
I	11.85–12.35 m	—	—	Pinkish buff ware, fine chaff inclusion. Early Susa II
J	11.85–12.35 m	—	A154675	Buff ware, light gray core, straw inclusion, warm buff surface. Early Susa II
K	11.85–12.35 m	—	—	Pinkish buff ware, occasional small white grits in paste, chaff inclusion. Early Susa II

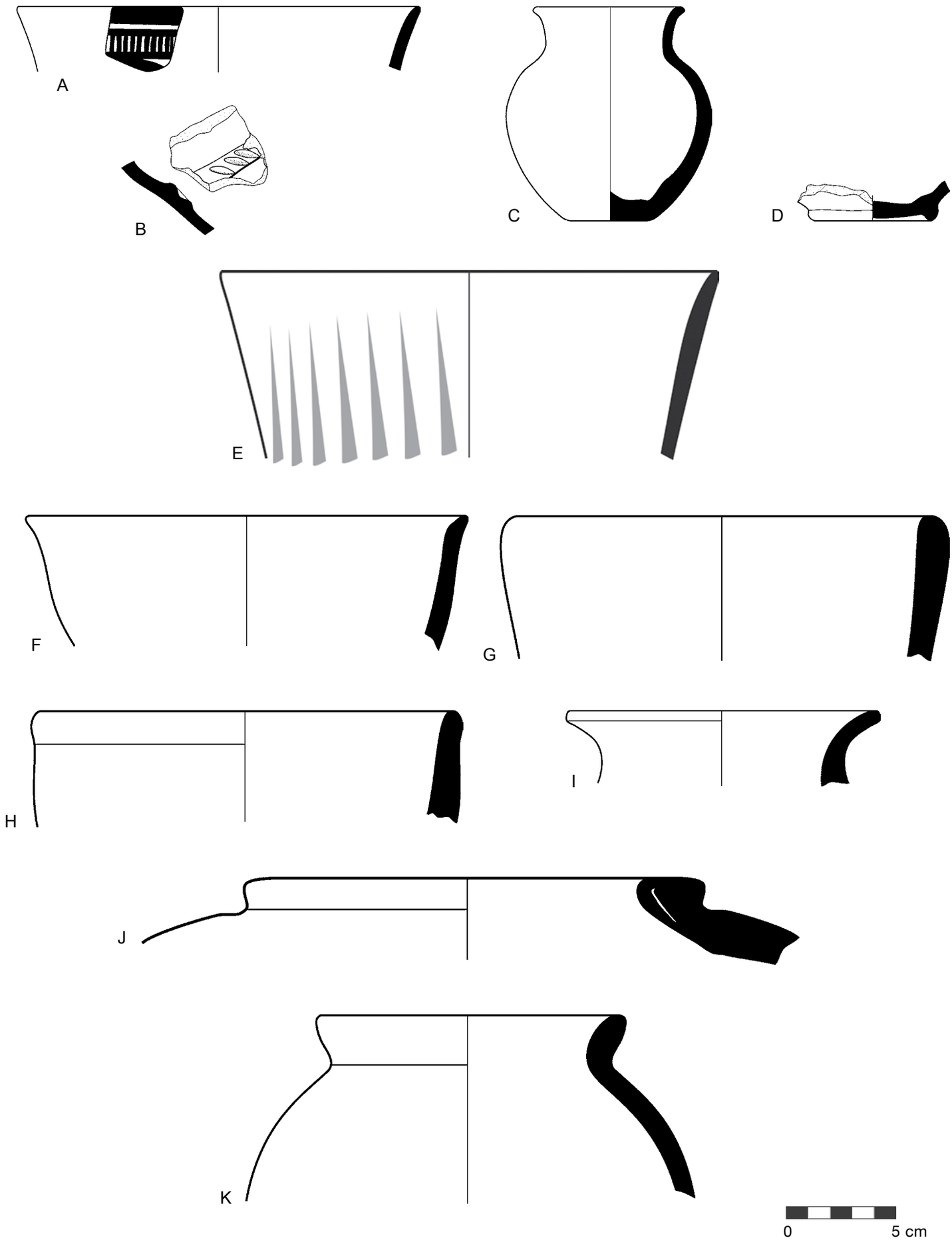


Figure 65. Pottery from Step Trench, Level 20

Figure 66. Pottery from Step Trench, Level 21

	Elevation	*Field No.*	*Museum No.*	*Description*
A	12.35–12.60 m	—	—	Over fired greenish buff ware, no visible inclusion, greenish brown paint. Late Susiana
B	12.35–12.60 m	—	—	Buff ware, some small dark grits in paste, no visible inclusion, light purple paint. Late Susiana
C	12.35–12.60 m	—	—	Pinkish buff ware, some sand in paste, some chaff inclusion. Early Susa II
D	12.35–12.60 m	—	A154667	Pale brown buff ware, fine chaff inclusion, buff surface (Wright 2013, fig. 4.7:h). Early Susa II
E	12.35–12.60 m	—	—	Light buff ware. early Susa II
F	12.35–12.60 m	—	—	Light buff ware. Early Susa II
G	12.35–12.60 m	—	—	Red ware, pale gray core. Early Susa II
H	12.35–12.60 m	—	A154679	Light gray buff ware, straw inclusion, straw face, creamy buff surface. Early Susa II
I	12.35–12.60 m	—	—	Pale pink buff ware, red wash exterior (Wright 2013, fig. 4.7:b). Early Susa II
J	12.35–12.60 m	—	—	Light buff ware. Early Susa II
K	12.35–12.60 m	—	—	No description available. Early Susa II *Comparanda:* Farukhabad, level B31 (Wright 1981, fig. 47:k)
L	12.35–12.60 m	—	A154726	Very pale pinkish gray buff ware, no visible inclusion, few accidental straw, base made separately. Late Susiana
M	12.35–12.60 m	—	A154662	Pale gray buff ware, straw inclusion, straw face, warm buff surface. Early Susa II *Comparanda:* Susa Acropole, level 23, Terminal Susa (Le Brun 1971, fig. 40:9; Steve and Gasche 1971, pl. 34:10)
N	12.35–12.60 m	—	A154668	Warm buff ware, large (4 mm) to small gray grits in paste, cracked surface, but smoothed (Wright 2013, 4.7:m). Early Susa II?
O	12.35–12.60 m	—	A154664	Pinkish buff ware, dense, chaff inclusion, cream buff interior. Early Susa II *Comparanda:* Susa Acropole, level 23, Terminal Susa (Le Brun 1971, fig. 40:9; Steve and Gasche 1971, pl. 34:10)
P	12.35–12.60 m	—	A154665	Very pale pink buff ware, very light gray core, medium to small gray grits in paste, no visible inclusion, smoothed. Early Susa II?
Q	12.35–12.60 m	—	A154768A–B	Brown buff ware, dense, fine chaff inclusion, warm buff surface, reserved slip. Early–Late Susa II
R	12.35–12.60 m	—	—	Pinkish buff ware, chaff inclusion. Early Susa II
S	12.35–12.60 m	—	A154678	Warm buff ware, straw inclusion, light buff surface. Early Susa II
T	12.35–12.60 m	—	—	Pinkish buff ware. Early Susa II?
U	12.35–12.60 m	—	—	Pinkish buff ware, fine chaff inclusion. Terminal Susa/Early Susa II? *Comparanda:* Susa Acropole, level 25 (Le Brun 1971, fig. 40:6)
V	12.35–12.60 m	—	—	Pinkish buff ware, chaff inclusion (Wright 2013, fig. 4.7:i–j). Early Susa II
W	12.35–12.60 m	—	—	Pinkish buff ware, some small creamy white grits in paste, chaff inclusion, brown paint. Early Susa II
X	12.35–12.60 m	—	A154666	Very pale pinkish buff ware, no visible inclusion, creamy buff slip interior and exterior. Early Susa II

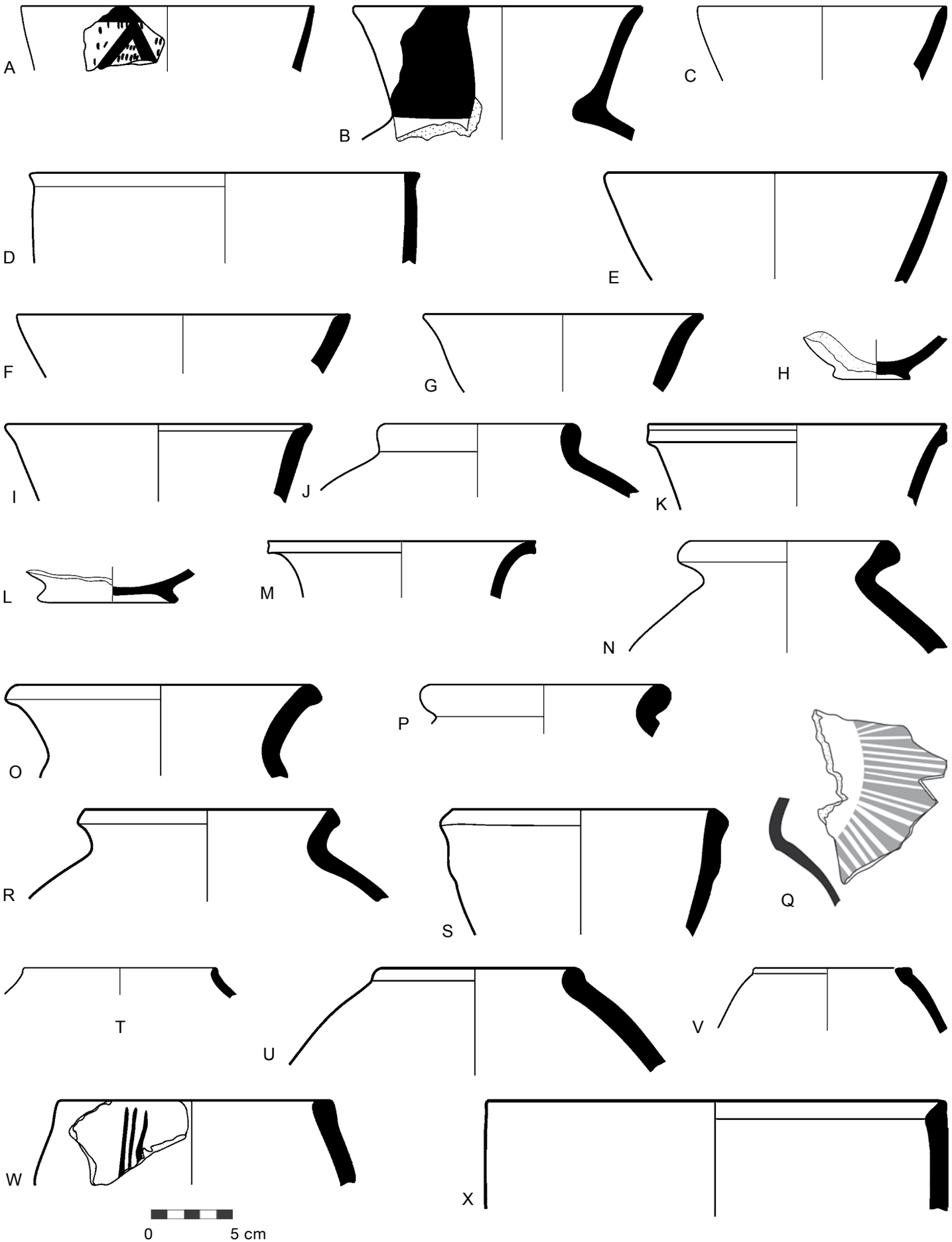


Figure 66. Pottery from Step Trench, Level 21

Figure 67. Pottery from Step Trench, Level 22

	Elevation	*Field No.*	*Museum No.*	*Description*
A	12.60–13.28 m	—	—	No description available. Early Susa II
B	12.60–13.28 m	—	—	No description available. Early Susa II
C	12.60–13.28 m	—	—	No description available. Early Susa II
D	12.60–13.28 m	—	—	Buff ware, dense. Terminal Susa/Early Susa II *Comparanda:* Susa Acropole, level 23, Terminal Susa (Le Brun 1971, fig. 40:9; Steve and Gasche 1971, pl. 34:10)
E	12.60–13.28 m	—	A154663	Bricky red ware, chaff inclusion. Terminal Susa/Early Susa II *Comparanda:* Susa Acropole, level 23, Terminal Susa (Le Brun 1971, fig. 40:9; Steve and Gasche 1971, pl. 34:10)
F	12.60–13.28 m	—	—	Buff ware, some small, white grits in paste, fine chaff inclusion, reserved slip. Early–Late Susa II
G	12.60–13.28 m	—	A154674	Buff ware, creamy buff surface, scattered fine dark grits, reserved slip. Early–Late Susa II
H	12.60–13.28 m	—	A154669	Pale bricky red ware, some small grits in paste, straw inclusion, buff slip. Early Susa II?
I	12.60–13.28 m	—	—	Buff ware, straw inclusion. Early Susa II
J	12.60–13.28 m	—	A154656	Pale buff ware, fine chaff inclusion, creamy buff surface. Early Susa II
K	12.60–13.28 m	—	—	No description available. Late Susa II
L	12.60–13.28 m	—	—	Buff ware, straw inclusion. Early Susa II?
M	12.60–13.28 m	—	—	No description available (Goff 1971, fig. 5:20–21). Early Susa II?

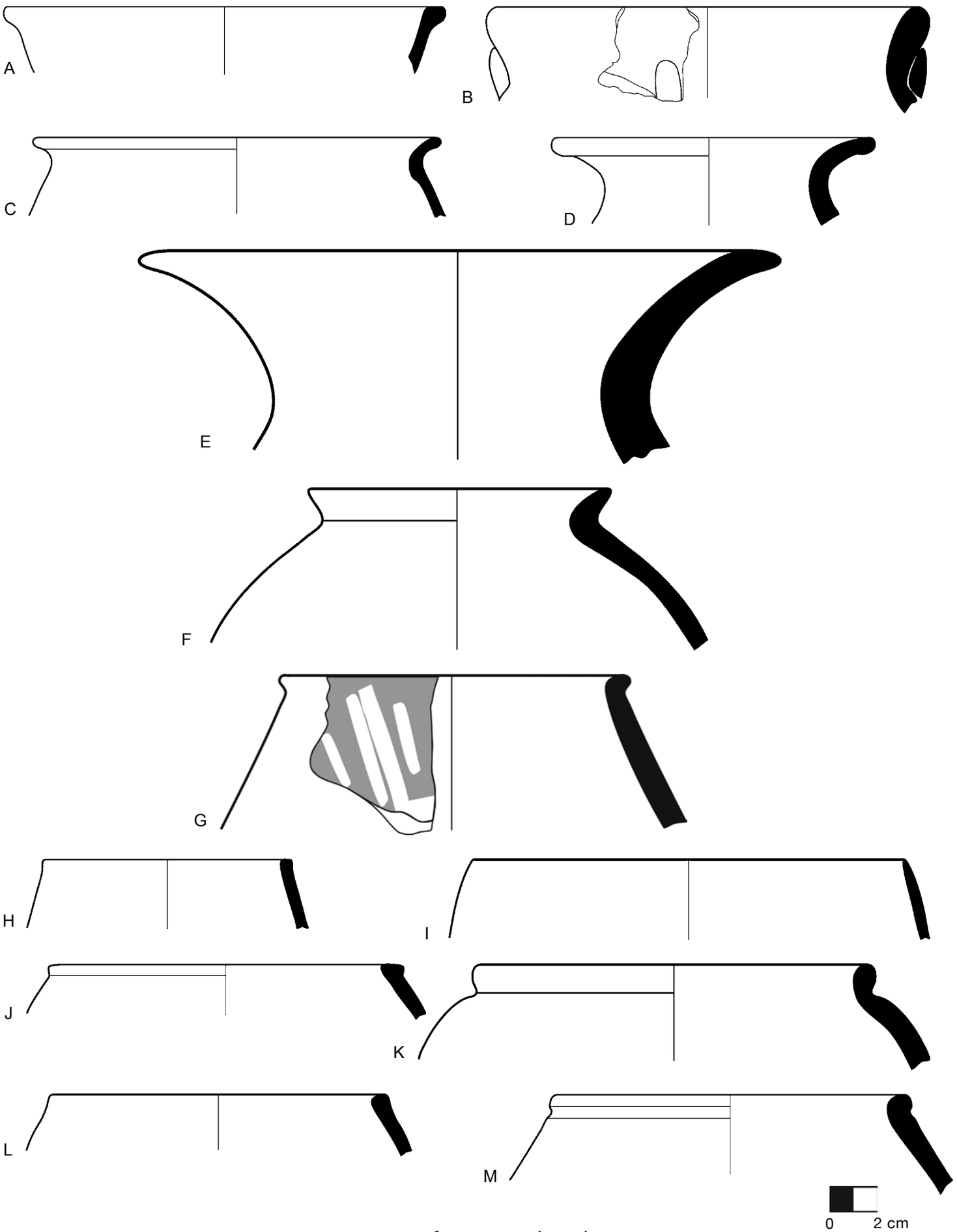


Figure 67. Pottery from Step Trench, Level 22

Figure 68. Pottery from Step Trench, Level 23

	Elevation	*Field No.*	*Museum No.*	*Description*
A	13.28–13.35 m	—	—	Proto–beveled-rim bowl. Pale gray buff ware, straw inclusion. Early Susa II *Comparanda:* Susa Acropole, level 23 (Le Brun 1971, fig. 40:5)
B	13.28–13.35 m	—	A154727	Creamy buff ware, fine dark grits in paste, creamy white surface. Early Susa II *Comparanda:* Susa Acropole, level 23 (Le Brun 1971, fig. 40:4)
C	13.28–13.35 m	—	—	Buff ware, red wash exterior. Susa II
D	13.28–13.35 m	—	—	Buff ware, no visible inclusion, creamy buff slip interior and exterior. Susa II
E	13.28–13.35 m	—	—	Pinkish buff ware, buff surface. Early–Late Susa II *Comparanda:* Farukhabad, level B32 (Wright 1981, fig. 43:d)
F	13.28–13.35 m	—	—	Pinkish buff coarse ware, buff surface (Goff 1971, fig. 5:61). Susa II
G	13.28–13.35 m	—	—	Buff ware, some fine grits in paste, some chaff inclusion. Early–Late Susa II *Comparanda:* Farukhabad, level B34 (Wright 1981, fig. 47:a); Chogha Mish (Delougaz and Kantor 1996, pl. 85:Z–AA, GG, pl. 87:E)
H	13.28–13.35 m	—	—	Pinkish buff ware, buff surface. Susa II
I	13.28–13.35 m	—	—	Pinkish buff ware, chaff inclusion, red slip exterior, punctate marks on shoulder. Early–Late Susa II *Comparanda:* Farukhabad, level B37 (Wright 1981, fig. 43:n)

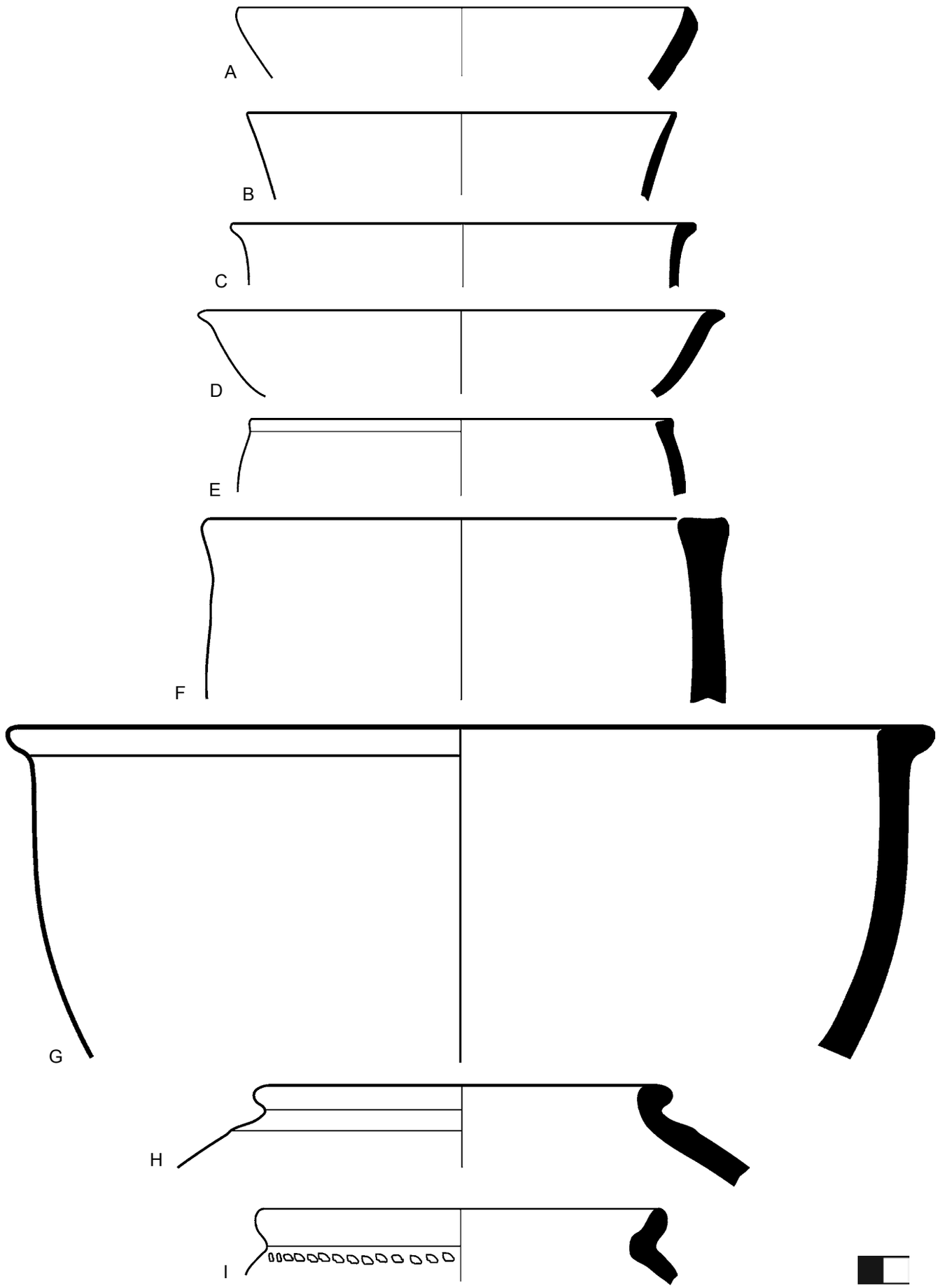


Figure 68. Pottery from Step Trench, Level 23

Figure 69. Pottery from Step Trench, Level 24

	Elevation	*Field No.*	*Museum No.*	*Description*
A	13.35–13.50 m	—	—	Creamy buff ware, no visible inclusion, purple brown paint, intrusive. Late Susiana 2
B	13.35–13.50 m	—	—	Pinkish buff ware, Late Susa II
C	13.35–13.50 m	—	—	Buff ware, some sand in paste, brown paint, intrusive. Late Susiana 2
D	13.35–13.50 m	—	—	No description available. Early Susa II?
E	13.35–13.50 m	—	—	Buff ware, some fine sand in paste, brown paint, intrusive. Late Susiana 2?
F	13.35–13.50 m	—	—	Buff ware, some fine dark grits in paste, pale buff surface (Goff 1971, fig. 6:37). Susa II
G	13.35–13.50 m	—	—	No description available. Susa II
H	13.35–13.50 m	—	A154725	Light gray buff ware abruptly changing to pinkish red surfaces (2–3 mm thick), chaff inclusion. Late Susa II
I	13.35–13.50 m	—	—	Pinkish buff ware, buff surface, reserved slip. Early–Late Susa II
J	13.35–13.50 m	—	—	No description available. Susa II
K	13.35–13.50 m	—	A154684	Buff ware over-fired light green, very fine dark grits in paste, scraped below neck. Late Susa II
L	13.35–13.50 m	—	A154683	Warm buff ware, chaff inclusion, some occasional (1–2 mm) grits and calcite particles, pale brown slip and exterior on inner rim. Late Susa II *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pls. 96:F, 100:F)
M	13.35–13.50 m	—	—	Pale pinkish buff ware, some sand and occasional medium to large grits in paste, creamy white exterior. Late Susa II
N	13.35–13.50 m	—	—	Buff ware, greenish buff surf, no visible inclusion, scraped below rim, reserved slip. Early–Late Susa II
O	13.35–13.50 m	—	A154681	Light buff ware, sandy paste, dense, creamy white surface. Probably late?
P	13.35–13.50 m	—	A154682	Very pale red buff ware, sandy paste with occasional medium grits, buff surface. Susa II?

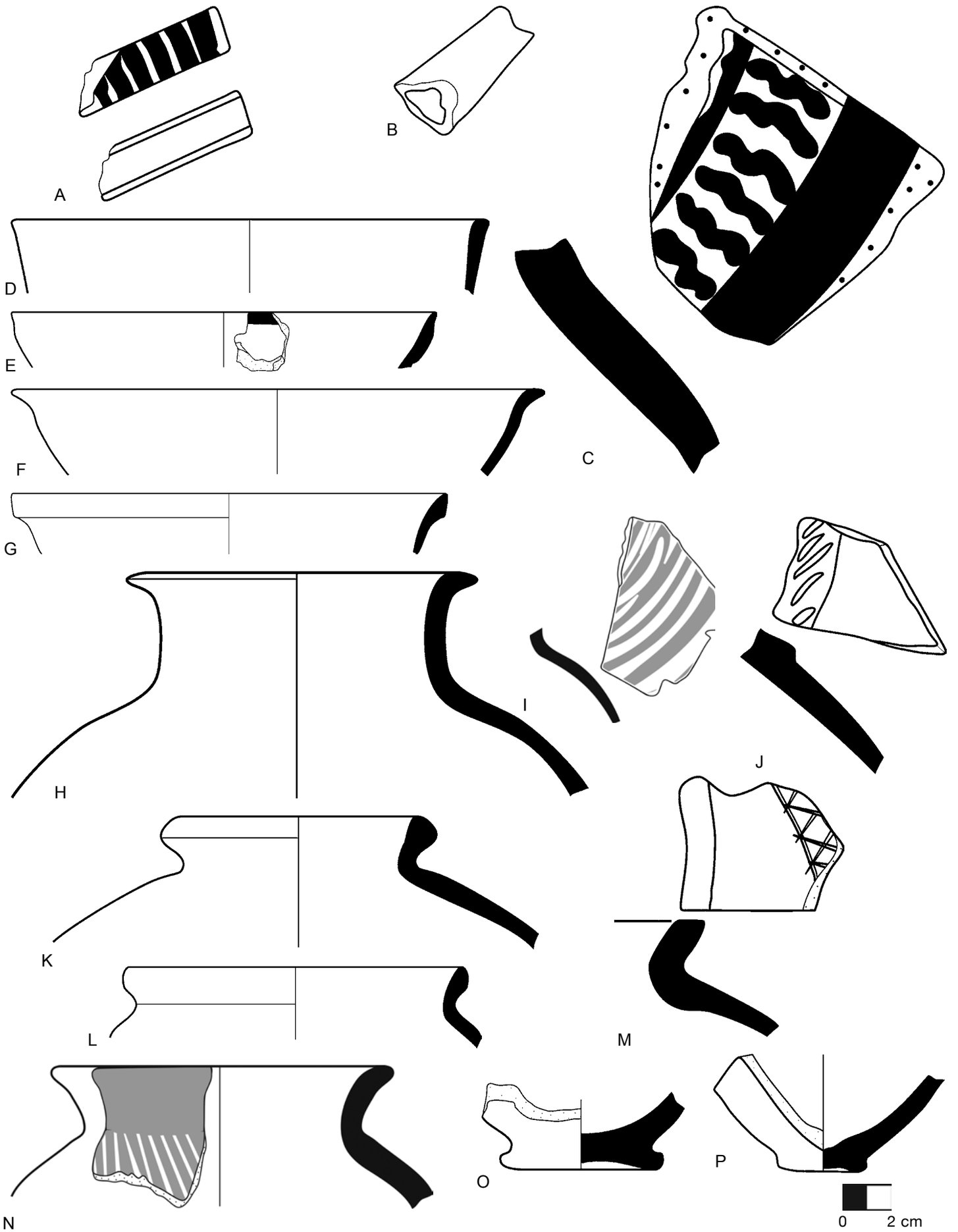


Figure 69. Pottery from Step Trench, Level 24

Figure 70. Pottery from Step Trench, Levels 25–26

	Elevation	*Field No.*	*Museum No.*	*Description*
LEVEL 25				
A	13.50–14.00 m	—	—	Gray ware, some sand in paste, no visible inclusion. Late Susa II
B	13.50–14.00 m	—	—	Pinkish buff ware, no visible inclusion, buff surface. Late Susa II
C	13.50–14.00 m	—	—	Pinkish buff ware, no visible inclusion, buff surface. Late Susa II
D	13.50–14.00 m	—	A154706	Very light gray buff ware, some fine calcite particles in paste, fine chaff inclusion, pale red bricky surface, creamy buff slip exterior and interior. Early Susa II *Comparanda:* Susa Acropole, level 23 (Le Brun 1971, fig. 40:9; Steve and Gasche 1971, pl. 34:10)
E	13.50–14.00 m	—	—	Pinkish buff ware, buff surface. Late Susa II
F	13.50–14.00 m	—	—	Pinkish buff ware, buff surface. Late Susa II
G	13.50–14.00 m	—	—	Pinkish buff ware, buff surface (Wright 2013, fig. 4.7:b). Early Susa II
H	13.50–14.00 m	—	—	Light buff coarse ware, straw inclusion, straw face. Late Susa II *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pl. 85:Z–AA, GG, pl. 87:E)
LEVEL 26				
I	14.00–14.30 m	—	A154711	Light buff ware, dense, some sand in paste, no visible inclusion. Late Susa II
J	14.00–14.30 m	—	A154710	Pinkish buff ware, dense, some sand in paste, some straw inclusion, warm buff surface (proto-beveled-rim bowl?). Late Susa II
K	14.00–14.30 m	—	A154712	Very pale brown buff ware, dense, no visible inclusion, buff surface. Late Susa II

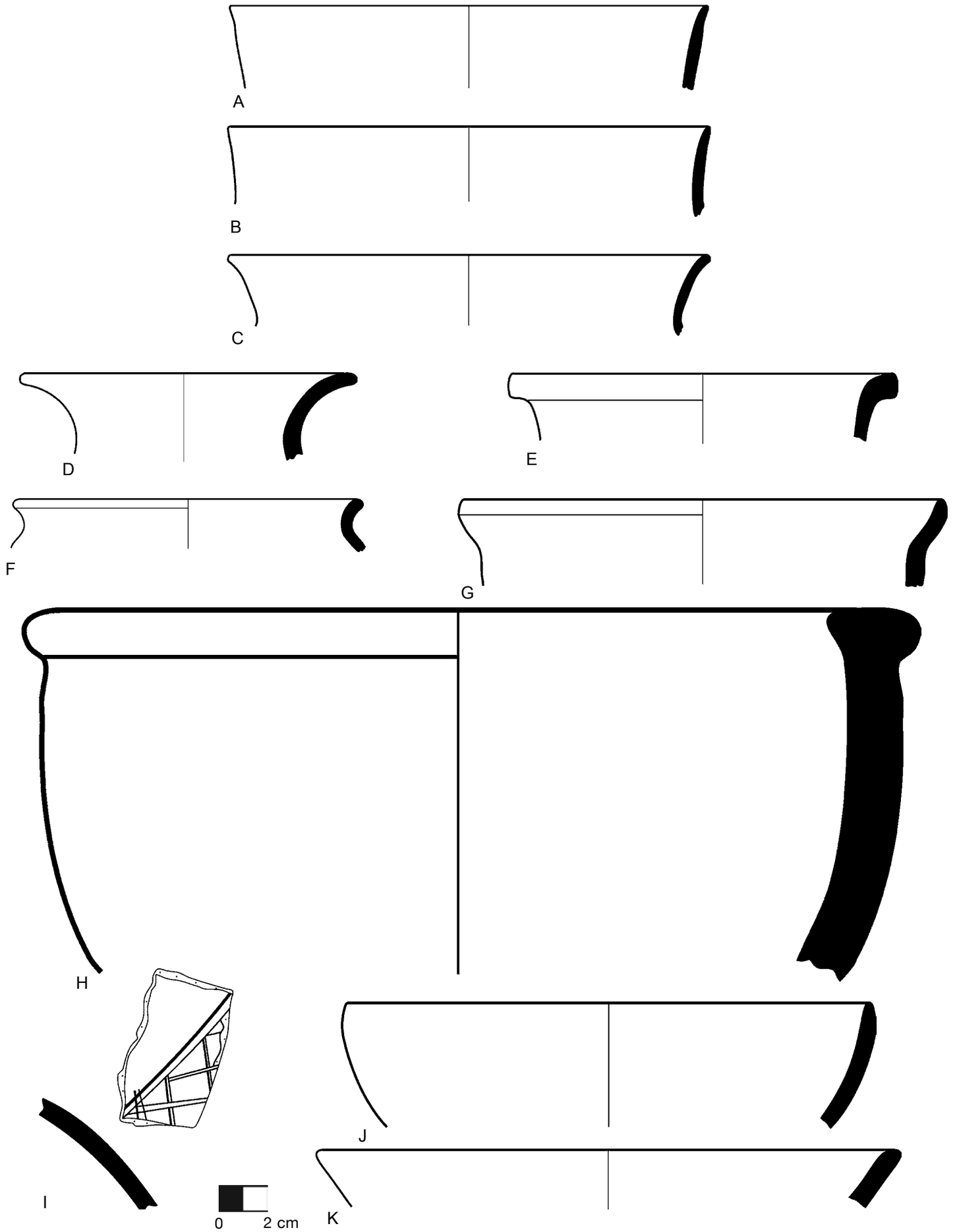


Figure 70. Pottery from Step Trench, Levels 25–26

Figure 71. Pottery from Step Trench, Levels 27–28

	Elevation	*Field No.*	*Museum No.*	*Description*
LEVEL 27				
A	14.30–15.05 m	—	—	Reddish buff coarse ware, straw inclusion. Late Susa II
B	14.30–15.05 m	—	A154707	Pinkish buff ware, some fine calcite particles in paste, fine chaff inclusion, buff surface, reserved slip, spout inserted into the body. Late Susa II *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pl. 107:N)
C	14.30–15.05 m	—	—	Pinkish buff ware, fine chaff inclusion, bright red wash. Intrusive. Proto-Elamite; cf. Step Trench, Level 37
D	14.30–15.05 m	—	A154705	Pinkish buff ware, some fine chaff inclusion, buff surface. Late Susa II
E	14.30–15.05 m	—	—	Pinkish buff ware, straw inclusion, buff surface. Late Susa II
F	14.30–15.05 m	—	—	Bright red ware, gray core, chaff inclusion, maroon red wash all over. Proto-Elamite
G	14.30–15.05 m	—	—	Pinkish buff ware, chaff inclusion, dark red wash below rim. Intrusive. Late Susa II/proto-Elamite
H	14.30–15.05 m	—	—	Pinkish buff ware, dark core, straw inclusion, straw face. Late Susa II
LEVEL 28				
I	15.05–15.30 m	—	A154709A–C	Very light gray buff core, medium to small maroon grits in paste, 1 mm thick bricky red surface, red wash on exterior. Late Susa II/ proto-Elamite
J	15.05–15.30 m	—	A154708	Creamy buff ware, dense, no visible inclusion, reserved slip. Late Susa II
K	15.05–15.30 m	—	—	Pinkish buff ware, some chaff inclusion, buff surface, reserved slip. Late Susa II. Found on Level 28, floor *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pl. 105:B); Susa Acropole (Steve and Gasche 1971, pl. 27:9)

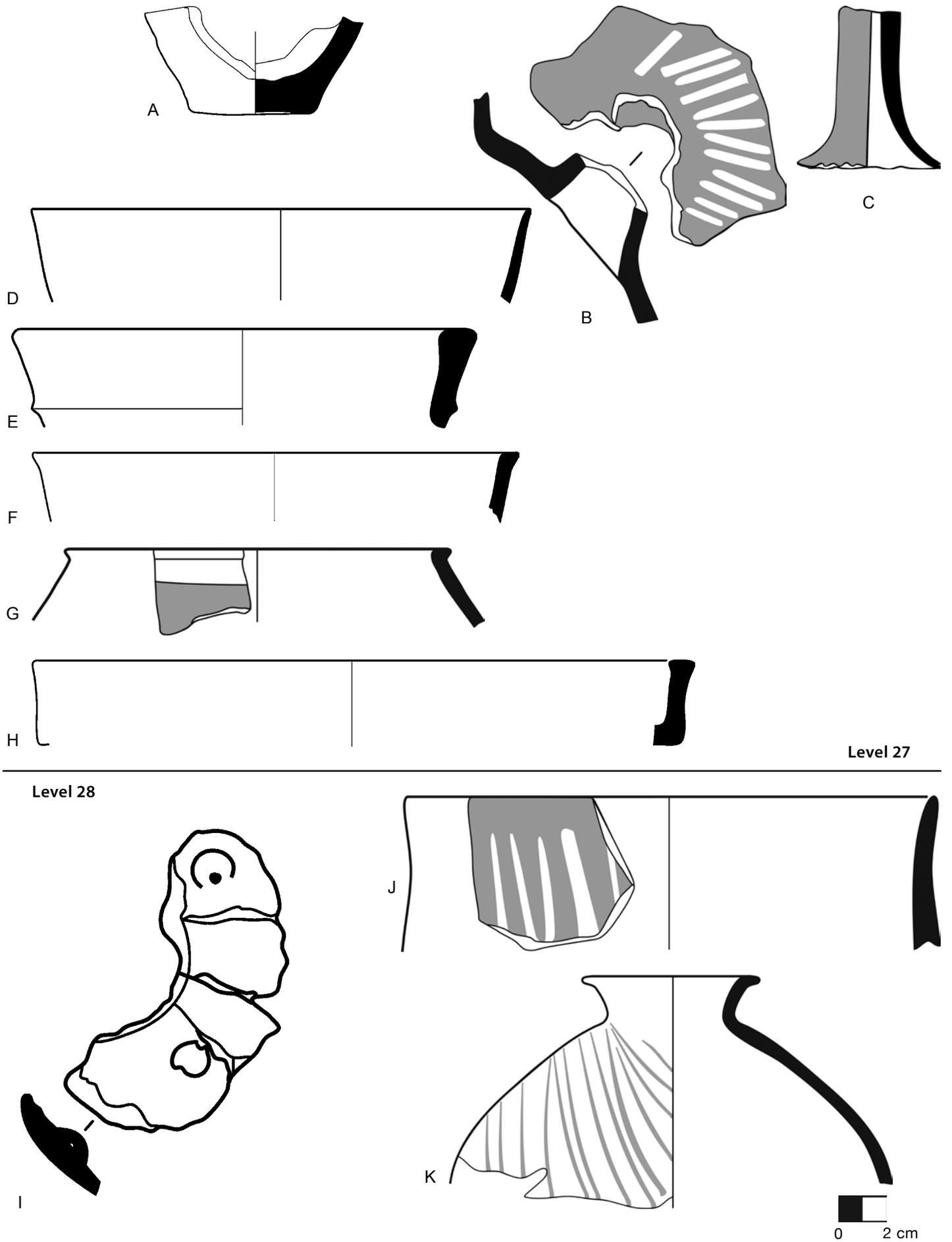


Figure 71. Pottery from Step Trench, Levels 27–28

Figure 72. Pottery from Step Trench, Levels 29–30

	Elevation	*Field No.*	*Museum No.*	*Description*
LEVEL 29				
A	15.30–15.70 m	—	A154713	Light buff ware, no visible inclusion, a few fine calcite particles in paste, pale pink buff surface. Late Susa II *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, fig. 5:100)
B	15.30–15.70 m	—	—	Pinkish buff ware, no visible inclusion, buff surface (Wright 1981, fig. 46:a–c). Late Susa II
C	15.30–15.70 m	—	—	No description available. Late Susa II
D	15.30–15.70 m	—	—	No description available. Late Susa II *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pl. 90:E–F; Alizadeh 2008, fig. 27:C)
E	15.30–15.70 m	—	—	No description available (Alizadeh 2008, fig. 28:A). Late Susa II
F	15.30–15.70 m	—	A154714	Very pale brown buff ware, 2–3 mm thick light gray core, some very fine chaff/hair inclusion, warm buff surface. Late Susa II
LEVEL 30				
G	15.70–16.48 m	—	—	Pinkish buff ware, scattered chaff in paste, buff surface. Late Susa II
H	15.70–16.48 m	—	—	Light buff ware, some sand in paste. Late Susa II
I	15.70–16.48 m	—	—	Buff ware, no visible inclusion, greenish brown paint. Late Susiana 1, extrusive
J	15.70–16.48 m	—	—	Light buff ware, some sand in paste. Late Susa II *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pl. 104:E)
K	15.70–16.48 m	—	—	No description available. Late Susa II *Comparanda:* Chogha Mish (Alizadeh 2008, fig. 28:A)
L	15.70–16.48 m	—	—	Red ware, buff exterior and interior (Wright 1981, fig. 48:d). Late Susa II
M	15.70–16.48 m	—	—	Pinkish buff ware, chaff inclusion, buff surface, reserved slip. Late Susa II *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, fig. 4:95)
N	15.70–16.48 m	—	—	Pinkish buff ware, some sand in paste, buff surface (Wright 1981, fig. 50:b). Late Susa II
O	15.70–16.48 m	—	—	Pinkish buff ware, some sand in paste, scraped below shoulder. Late Susa II

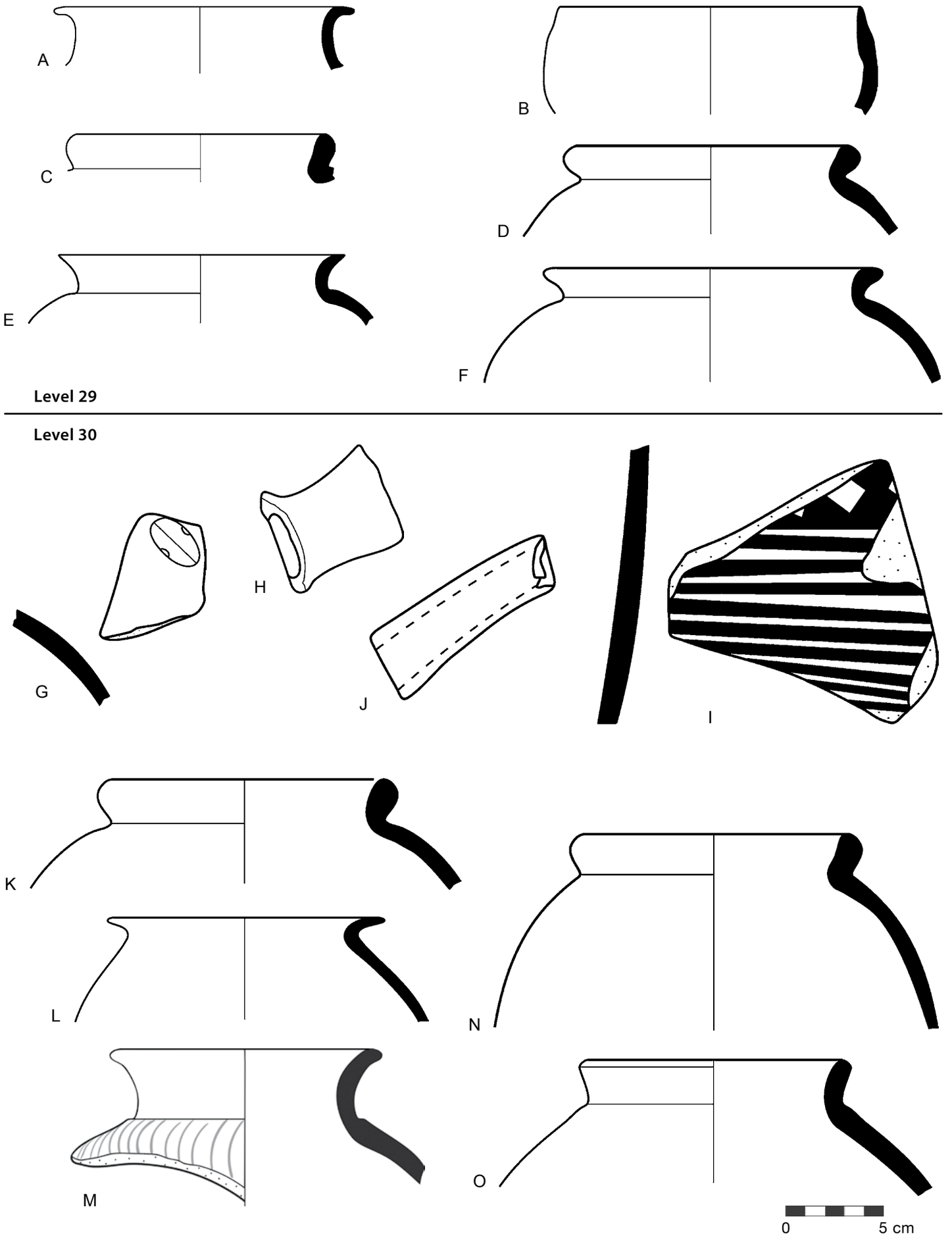


Figure 72. Pottery from Step Trench, Levels 29–30

Figure 73. Pottery from Step Trench, Levels 31–32

	Elevation	*Field No.*	*Museum No.*	*Description*
LEVEL 31*				
A	15.65–15.95 m	—	A154715	Buff ware, some chaff inclusion, buff surface, reserved slip below the excised line. Late Susa II
B	15.65–15.95 m	—	A154716	Pinkish buff ware, some sand in paste, no visible inclusion, buff surface. Late Susa II *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pl. 103:I)
C	15.65–15.95 m	—	A154720A–B	Buff ware, gray core is sandwiched by two buff layers (2–3 mm thick), some chaff and small grits in paste, red wash on exterior. Late Susa II *Comparanda:* At Chogha Mish (Delougaz and Kantor 1996, p. 39; Alizadeh 2008, p. 50), red wash ware is limited to medium-size four-lugged jars and as such this vessel might be a closed form
D	15.65–15.95 m	—	A154721	Very pale grayish buff ware, some sand in paste, no visible inclusion, buff surface. Late Susa II *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pl. 85:Z–AA, GG, pl. 87:E)
E	15.65–15.95 m	—	A154717	Pinkish buff ware, some chaff inclusion, cream buff surface, reserved slip. Late Susa II
F	15.65–15.95 m	—	A154718	Very pale brown buff ware, some fine chaff inclusion, creamy buff exterior. Late Susa II
G	15.65–15.95 m	—	A154723	Creamy white buff ware, no visible inclusion, whitish surface. Late Susa II *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pl. 9:I)
H	15.65–15.95 m	—	A154719	Light buff ware, some sand in paste, no visible inclusion, pale red wash on exterior and inner rim. Late Susa II *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pls. 95:H, 102:J)
I	15.65–15.95 m	—	A154722	Grayish buff ware, some fine chaff inclusion, pale pinkish red surface. Late Susa II *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pl. 115:E)
LEVEL 32				
J	15.95–16.26 m	—	A154762	Buff ware, straw inclusion, straw face, creamy buff surface, diameter 15 cm. Late Susa II *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pls. 93:C, 109:F)
K	15.95–16.26 m	—	A154763	Very pale grayish buff ware, gray core, occasional dark, small grits in paste, pale pink buff surface. Late Susa II *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pls. 110:L, 115:E)
L	15.95–16.26 m	—	A154764	Beveled-rim bowl. Very pale pinkish buff ware, pale gray core, straw inclusion. Late Susa II
M	15.95–16.26 m	—	—	Pale brown ware, scattered small grits in paste, light grayish brown surface. Late Susa II *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pl. 113:A–B)
N	15.95–16.26 m	—	—	Pinkish buff ware, some chaff inclusion, buff surface, reserved slip, two pointed knobs on shoulder; Late Susa II *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pl. 107:B, J, for general shape without the knobs)
O	15.95–16.26 m	—	—	Buff ware, fine gray and white grits in paste, appliqué rope decoration. Late Susa II *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pl. 90:J; Alizadeh 2008, fig. 28:A)

* Level 31 was excavated in the adjacent area and does not directly lie on Level 30, hence the lower elevation.

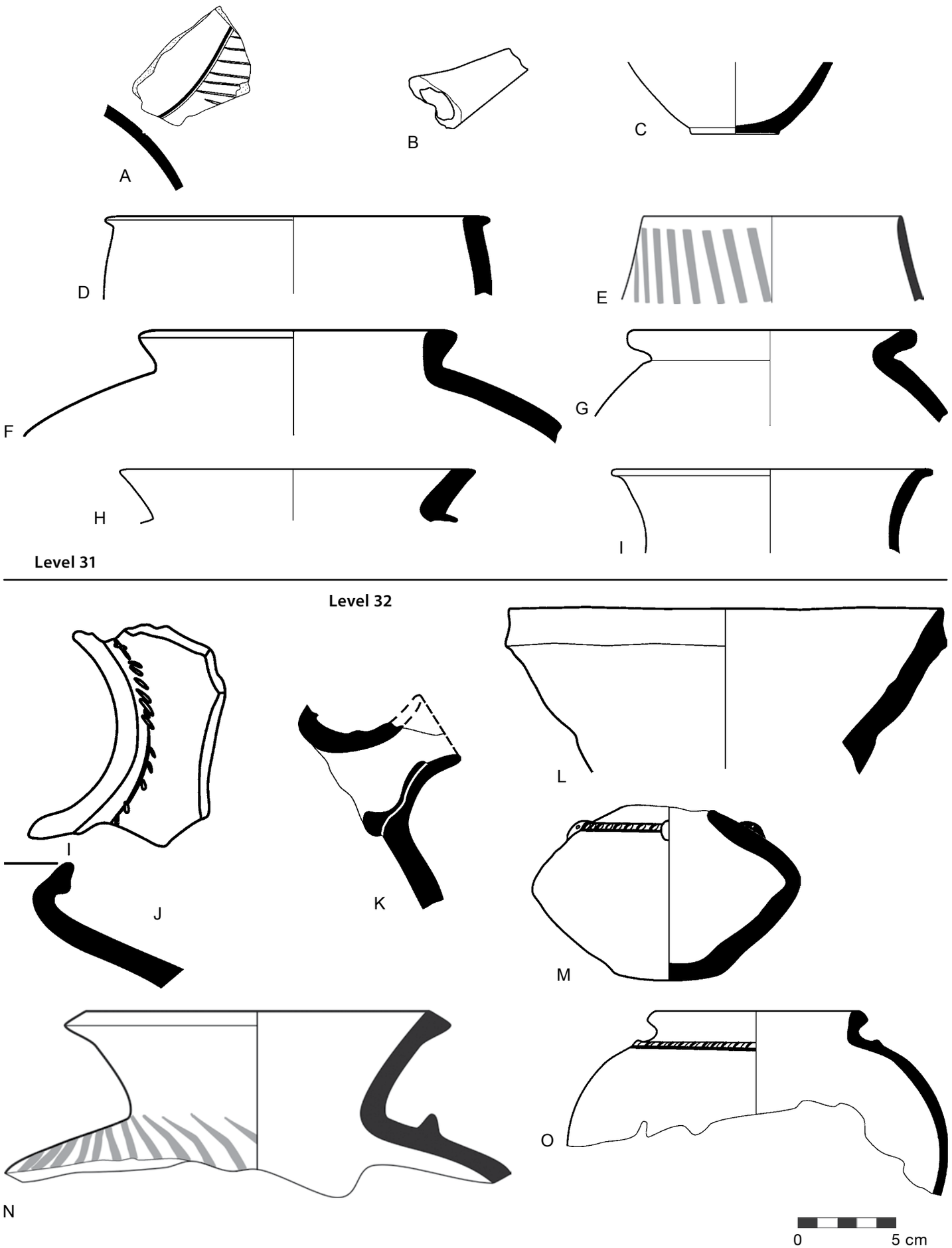


Figure 73. Pottery from Step Trench, Levels 31–32

Figure 74. Pottery from Step Trench, Levels 33–34

	Elevation	*Field No.*	*Museum No.*	*Description*
LEVEL 33				
A	16.26–16.56 m	2TG-69	Tehran	Reddish buff ware, scattered chaff inclusion. Late Susa II
B	16.26–16.56 m	—	—	Buff ware, sandy paste, no visible inclusion. Late Susa II *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pl. 84:V)
C	16.26–16.56 m	2TG-14	A28657	Pinkish buff coarse ware, straw inclusion, straw face, buff surface. Late Susa II
D	16.26–16.56 m	—	—	Pinkish buff ware, no visible inclusion, red wash exterior. Late Susa II
E	16.26–16.56 m	—	—	No description available. Late Susa II
LEVEL 34				
F	16.56–16.80 m	—	A154760	Buff ware, dense paste, scattered fine chaff inclusion, creamy buff surface, impressed notches above reserved slip. Late Susa II *Comparanda:* for combined reserved slip and punctate marks on shoulder, see Chogha Mish (Delougaz and Kantor 1996, pls. 92:B, 94:C)
G	16.56–16.80 m	—	A154755	Buff ware, chaff inclusion, buff surface, shallow incised pattern. Late Susa II
H	16.56–16.80 m	—	—	Pale pink ware, gray core, some chaff inclusion, reddish brown wash on exterior and interior. Late Susa II *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pl. 84:G, Q)
I	16.56–16.80 m	—	—	No description available; see fig. 36:D. Late Susa II *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, fig. 86:CC)
J	16.56–16.80 m	—	A154758	Pale brown buff ware, thick dark core, chaff inclusion, pale brown buff surface, traces of red brown wash exterior. Late Susa II *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pl. 80:X)
K	16.56–16.80 m	—	A154757	Pale bricky red ware, some sand in paste, red wash on interior and exterior. Late Susa II *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pl. 85:R)
L	16.56–16.80 m	—	—	Red ware, 1/3 of core black, straw inclusion. Late Susa II/proto-Elamite *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pls. 85:HH, 87:E; Sumner 2003, fig. D7:34)
M	16.56–16.80 m	—	A154759	Buff ware, some small grits in paste, cream buff surface. Late Susa II *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pl. 90:I; Alizadeh 2008, fig. 28)
N	16.56–16.80 m	—	A154756	Very pale reddish buff ware, some chaff inclusion, pale reddish buff surface, exterior fire-blackened rim and body, interior pale reddish buff. Late Susa II/proto-Elamite *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pl. 90:E)

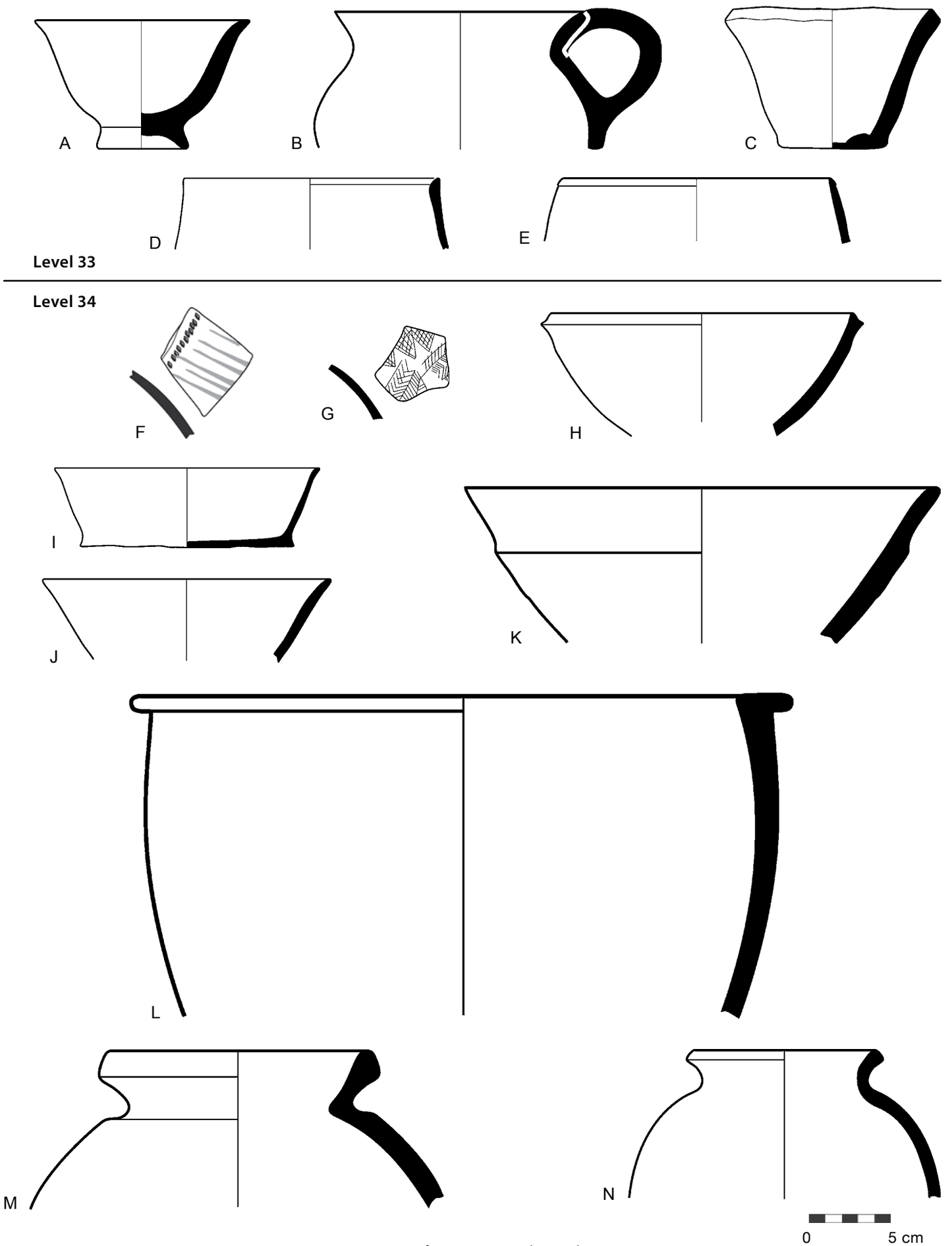


Figure 74. Pottery from Step Trench, Levels 33–34

Figure 75. Pottery from Step Trench, Level 35

	Elevation	*Field No.*	*Museum No.*	*Description*
A	16.80–17.16 m	—	—	No description available. Susa II?
B	16.80–17.16 m	—	—	No description available. Proto-Elamite *Comparanda:* Malyan, Banesh phase (Nicholas 1990, pl. 17:g)
C	16.70–16.80 m	2TG-121	A28706	Buff ware, chaff inclusion, red wash interior exterior. Proto–Elamite. Excavated below floor of Level 35 *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pl. 85:N–O [similar shape without the wash])
D	16.80–17.16 m	—	—	Yellowish buff ware, chaff inclusion. Proto-Elamite *Comparanda:* Malyan, Banesh phase (Nicholas 1990, pl. 15:b [a gray ware]; Alizadeh 2008, fig. 26:J)
E	16.80–17.16 m	2TG-141	Tehran	Pinkish buff ware, no visible inclusion. Late Susa II
F	16.80–17.16 m	—	—	Buff ware, some sand in paste, no visible inclusion, red wash exterior. Proto-Elamite *Comparanda:* Susa Acropole, level 16 (Le Brun 1971, fig. 62:12; Sumner 2003, fig. D6:63; Nicholas 1990, pl. 16:I)
G	16.80–17.16 m	—	A154943	Pale pinkish buff ware, dense, very fine chaff/hair/wool inclusion, reddish brown wash interior and exterior. Proto-Elamite
H	16.80–17.16 m	—	A154942	Pale reddish brown ware, some chaff inclusion, wheel striations on the interior, grayish brown wash exterior, inner rim. Proto-Elamite

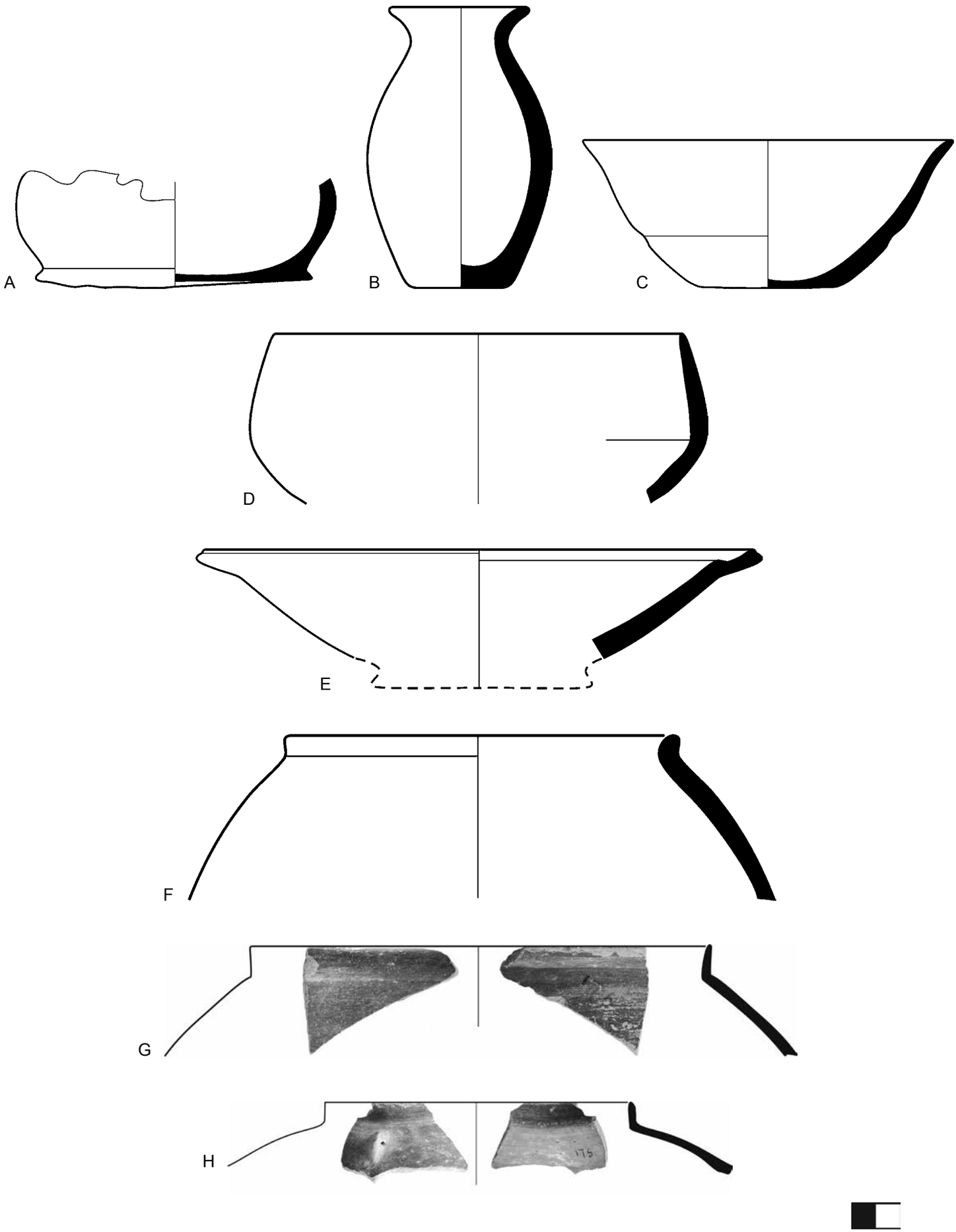


Figure 75. Pottery from Step Trench, Level 35

Figure 76. Pottery from Step Trench, Level 36

	Elevation	*Field No.*	*Museum No.*	*Description*
A	17.16–17.76 m	2TG-89	A28693	Pinkish buff fine ware, some fine sand in paste, no visible inclusion. Late Susa II *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pl. 80:Y–CC; Alizadeh 2008, fig. 26:E). At Farukhabad, such fine bowls are dated to Farukh, level B34 ("Middle" Uruk phase) (Wright 1981, fig. 40:e); this is Johnson's (1973) Middle Uruk type 9, "sinuous-sided cups," but the parallel Johnson cites (Le Brun 1971, fig. 47:1) is from Susa Acropole, level 17A (Late Susa II) and is not even similar to Johnson's type. Elsewhere it appears at Uruk in the Eanna Precinct and Test Pit, level VII–V; Nippur, Inanna Temple, level XVII–XV; and at Habuba Kabira South (for references, see Delougaz and Kantor 1996, p. 46 n. 8)
B	17.16–17.76 m	—	A154791	Pale bricky buff standard ware, dense, some fine chaff inclusion, smeared reddish brown wash exterior and interior. Proto-Elamite
C	17.16–17.76 m	2TG-140	Tehran	Pinkish buff standard ware, fine chaff inclusion, buff surface. Proto-Elamite
D	17.16–17.76 m	—	—	Dark buff coarse ware, straw inclusion, straw face, light buff surface. Late Susa II/proto-Elmite *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pl. 86:FF; Sumner 2003, 23:q)
E	17.16–17.76 m	—	A154761	Pale red bricky buff ware, pale gray core, fine chaff inclusion, exterior surface pale red, interior surface light gray, very shallow incised decoration on shoulder. Proto-Elamite
F	17.16–17.76 m	—	—	Red ware, some sand in paste, no visible inclusion. Late Susa II *Comparanda:* Similar to Johnson's Early Uruk type 33, "punctate jar shoulder," but because of its wide distribution, Johnson is not certain about its exact date (Johnson 1973, p. 55)
G	17.16–17.76 m	2TG-114	A28704	Pale red ware, fine chaff inclusion, traces of dark red wash exterior. Proto-Elamite
H	17.16–17.76 m	—	—	Greenish buff ware, slightly over fired, some small grits in paste, no visible inclusion. Late Susa II
I	17.16–17.76 m	2TG-90	Tehran	Pinkish buff ware, chaff inclusion, red wash exterior. Proto-Elamite *Comparanda:* Susa Acropole, level 17B (Le Brun 1971, fig. 50:3–4)
J	17.16–17.76 m	—	—	Buff ware, chaff inclusion, red wash exterior inner rim. Proto-Elamite
K	17.16–17.76 m	—	—	Buff ware, chaff inclusion, red wash exterior. Proto-Elamite
L	17.16–17.76 m	—	—	No description available. Late Susa II?
M	17.16–17.76 m	—	A154792	Buff ware, occasional calcite particle in paste, some scattered fine chaff inclusion. Proto-Elamite

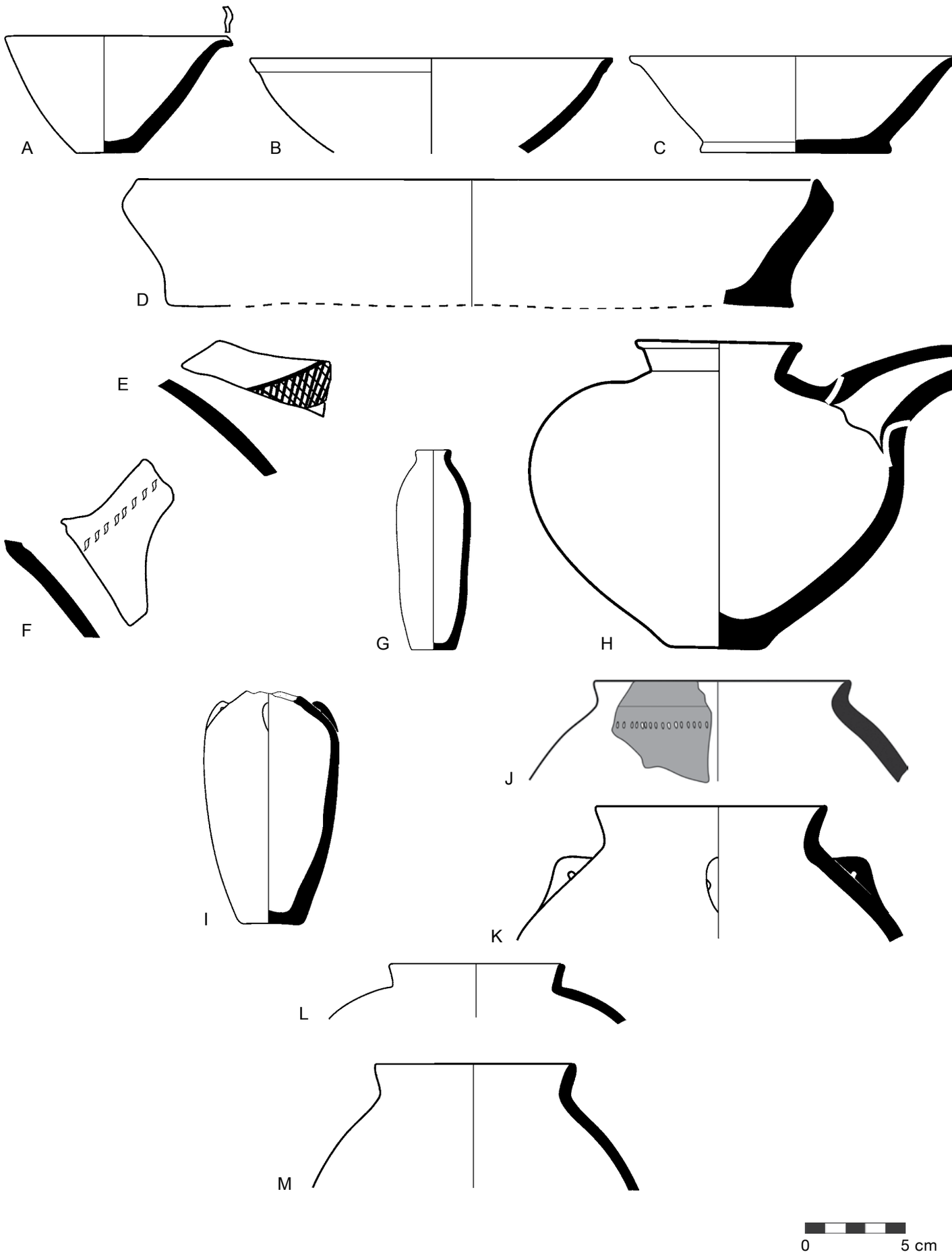


Figure 76. Pottery from Step Trench, Level 36

Figure 77. Open pottery forms from Step Trench, Level 37

	Elevation	*Field No.*	*Museum No.*	*Description*
A	17.76–18.16 m	—	A154748	Buff ware, straw inclusion. Proto-Elamite *Comparanda:* Tall-e Malyan (Sumner 2003, fig. 23:a)
B	17.76–18.16 m	—	—	Pale pinkish buff ware, gray core, straw inclusion. Proto-Elamite
C	17.76–18.16 m	—	A154749	Buff ware, dense, fine chaff/hair/wool inclusion, wheel striations interior, smoothed exterior, brownish gray wash interior, and on exterior rim. Proto-Elamite *Comparanda:* Tall-e Malyan (Nicholas 1990, pl. 21:h [without the wash])
D	17.76–18.16 m	—	—	Pinkish buff ware, gray core, chaff inclusion, red painted bands. Proto-Elamite *Comparanda:* decorative scheme similar to Susa Acropole, level 16 (Le Brun 1971, fig. 64:1–2); shape similar to Susa Ville Royale I, period III B, level 18 (Carter 1980, fig. 9:11)
E	17.76–18.16 m	—	A154820	Pinkish buff ware, chaff inclusion, creamy buff wash on exterior and interior, brown paint. Proto-Elamite *Comparanda:* Decorative scheme similar to Susa, Acropole, level 16 (Le Brun 1971, fig. 64:1–2), shape similar to Susa Ville Royale I, period III B, level 18 (Carter 1980, fig. 9:11)
F	17.76–18.16 m	—	—	Pinkish buff ware, chaff inclusion, red wash on exterior and interior. Proto-Elamite *Comparanda:* Susa Acropole, level 14A (Le Brun 1971, fig. 65:19; Sumner 2003, fig. D5:1)
G	17.76–18.16 m	—	—	Red ware, straw inclusion, straw face, probably upright spout above appliqué decoration. Proto-Elamite *Comparanda:* Steve and Gasche (1971, pl. 20: 22–23) date such appliqué decorations to the Early Dynastic I period
H	17.76–18.16 m	—	—	No description available
I	17.76–18.16 m	—	—	No description available
J	17.76–18.16 m	—	A154751	Pale brown buff ware, very pale gray core grading into pale buff, dark medium grits in paste, granulated paste, gritty face. Proto-Elamite
K	17.76–18.16 m	2TG-178	Tehran	Bricky red ware, gray core (3 mm thick) sandwiched by 1 mm red layers, some fine calcite particles in paste, some very fine chaff inclusion, bright red wash exterior, white wash broad bands bordered by thin bands. Proto-Elamite
L	17.76–18.16 m	2TG-181	A28729	Pale red bricky ware, some rare fine in paste, flaky red ochre wash exterior and inner rim, strong wheel striations on interior, base made separately. Proto-Elamite

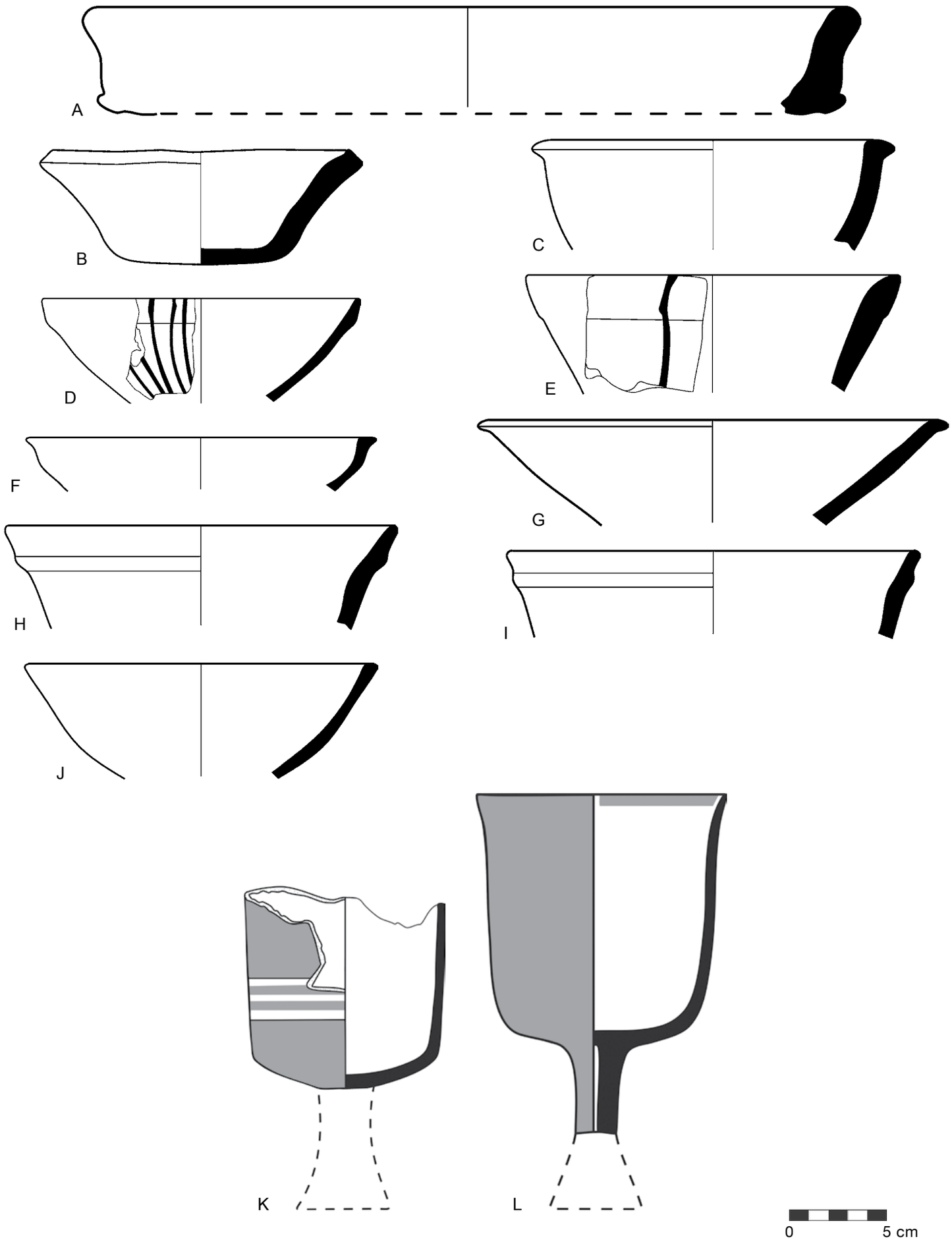


Figure 77. Open pottery forms from Step Trench, Level 37

Figure 78. Closed pottery forms from Step Trench, Level 37

	Elevation	*Field No.*	*Museum No.*	*Description*
A	17.76–18.16 m	2TG-195	Tehran	Pale red ware, some chaff inclusion, buff surface, bright orange wash with white bands. Proto-Elamite
B	17.76–18.16 m	2TG-184	A28731	Bricky red ware, dense, no visible inclusion, some accidental fine chaff, creamy white wash under dark brown wash and two parallel white painted bands below the lugs. Both cream white and brown wash extends on the inner rim, exterior surface mottled. Proto-Elamite
C	17.76–18.16 m	—	—	Red ware, no visible inclusion, buff surface, black paint. Proto-Elamite *Comparanda:* Malyan, Banesh phase (Nicholas 1990, pl. 19:g)
D	17.76–18.16 m	2TG-196	Tehran	Bricky red ware, occasional sand in paste, fine chaff inclusion, pale brown streaky wash exterior, red wash inner rim, white and dark brown triangles, white bands, brown polka dots on white surface. Proto-Elamite
E	17.76–18.16 m	—	—	Red ware, some chaff inclusion, buff surface, red wash, area of excised triangles reserved (buff), lug handle. For sherds of similar vessels, see Mutin 2013, fig. 3.17:1–7. For color photo, see pl. 3:C. Proto-Elamite
F	17.76–18.16 m	2TG-72	Tehran	Red ware, some chaff inclusion, maroon wash exterior. Late Susa II/ Proto-Elamite
G	17.76–18.16 m	—	Tehran	Buff ware, straw inclusion, straw face, probably upright spout above appliqué decoration. Proto-Elamite *Comparanda:* Steve and Gasche (1971, pl. 20:22–23) date such appliqué decorations to the Early Dynastic I period
H	17.76-18.16 m	—	—	Pinkish buff ware, some chaff inclusion, red wash exterior. Proto-Elamite
I	17.76–18.16 m	2TG-183	A28730	Pale bricky red ware, some chaff inclusion, mottled pale pinkish buff surface, but upper part more uniform buff, scoring and scraping on interior and exterior. Proto-Elamite *Comparanda:* Similar to Susa Ville Royale I, level 18B (Carter 1980, fig. 13:12)
J	17.76–18.16 m	—	—	Red ware, no visible inclusion, buff surface, deep red brown wash exterior. Proto-Elamite

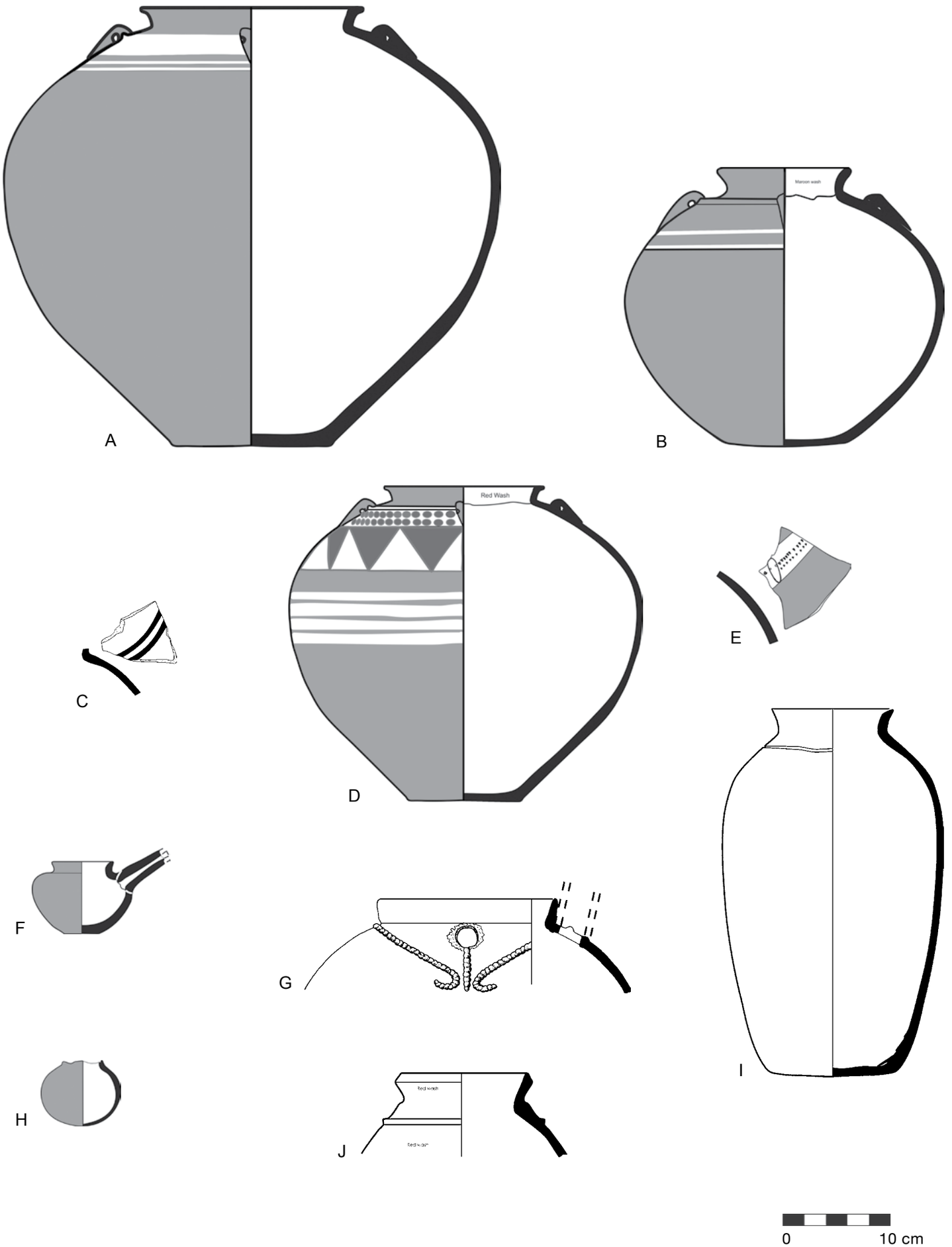


Figure 78. Closed pottery forms from Step Trench, Level 37

Figure 79. Pottery from Step Trench, Level 38

	Elevation	*Field No.*	*Museum No.*	*Description*
A	18.16–18.70 m	—	—	Buff ware, chaff inclusion, buff surface. Proto-Elamite
B	18.16–18.70 m	—	—	Buff ware, some sand in paste, brown paint. Sukkalmah *Comparanda:* Lama Cemetery, tombs 26, 28 (Rezvani et al. 2007, fig. 48:6–8)
C	18.16–18.70 m	—	—	Pale bricky red ware, no visible inclusion, dark red wash, dark paint. Proto-Elamite
D	18.16–18.70 m	2TG-113	A28703	Beveled-rim bowl. Pinkish buff coarse ware, dark core, straw inclusion. Proto-Elamite *Comparanda:* Le Brun 1978, fig. 34:3
E	18.16–18.70 m	—	—	Pink ware, black core is sandwiched between two pink layers (1 mm), chaff inclusion, pinkish gray surface red paint. Sukkalmah
F	18.16–18.70 m	—	A154766	Pale brown buff ware, dense, fine chaff inclusion, maroon red wash exterior and interior. Proto-Elamite
G	18.16–18.70 m	—	A154765	Pale bricky red ware, chaff inclusion, cream buff exterior and inner rim. Sukkalmah *Comparanda:* Susa Acropole (Steve and Gasche 1971, pl. 3:1–2, 6, 13)
H	18.16–18.70 m	—	—	No description available. Sukkalmah *Comparanda:* Farukhabad, Farukh II, levels B15–17 (Wright 1981, fig. 84:m)

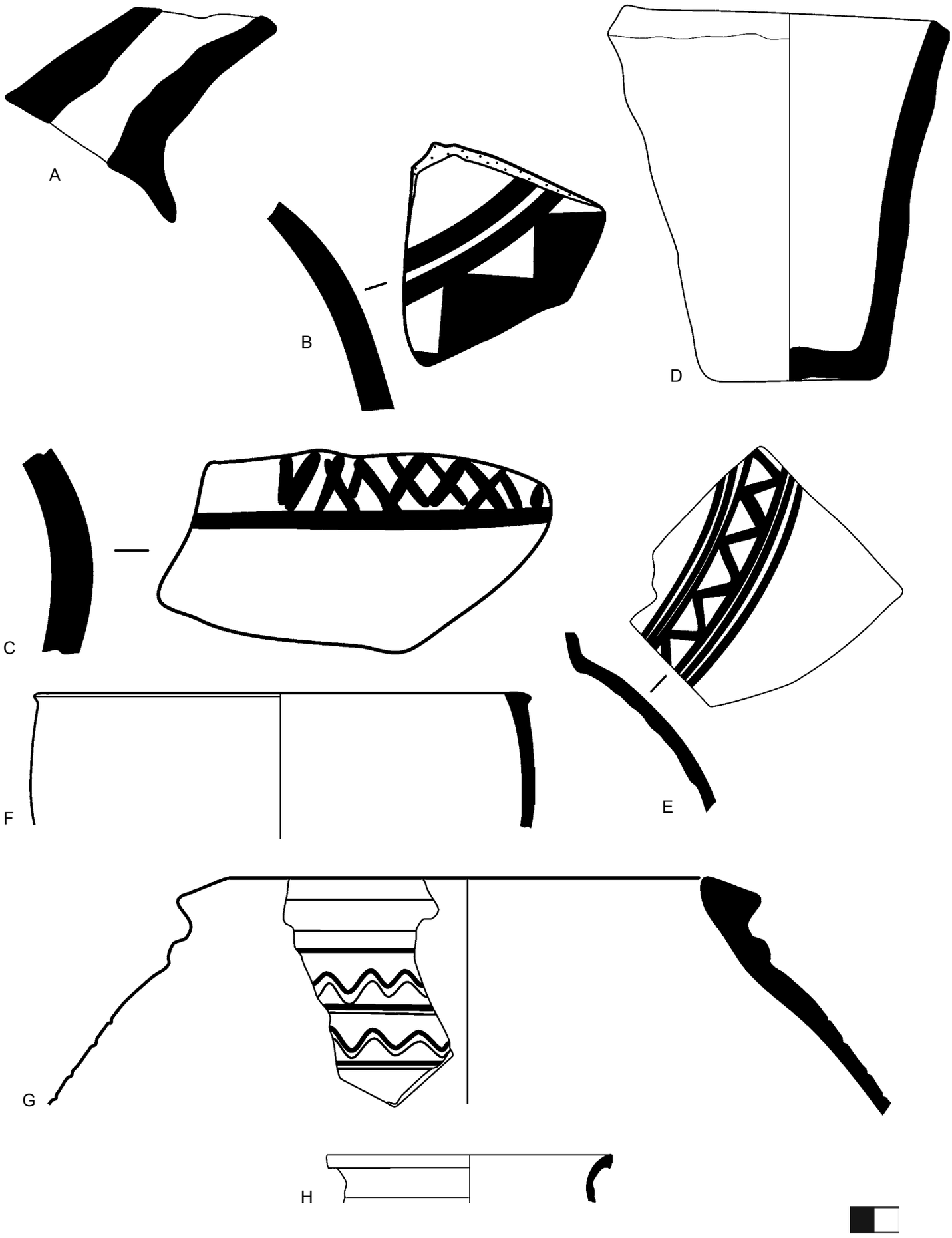


Figure 79. Pottery from Step Trench, Level 38

Figure 80. Pottery from Step Trench, Level 39

	Elevation	*Field No.*	*Museum No.*	*Description*
A	18.70–19.16 m	—	—	Reddish buff ware, gray core, chaff inclusion. Sukkalmah *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pl. 77:H; Wright 1981, fig. 87:l, r)
B	18.70–19.16 m	—	—	Pale red ware, dark core, some chaff inclusion, red wash, white and black bands. Proto-Elamite *Comparanda:* Malyan Banesh (Nicholas 1990, pl. 19:g)
C	18.70–19.16 m	—	—	Dark brown orange ware, no visible inclusion, reddish brown surface, burnished. Sukkalmah?
D	18.70–19.16 m	—	—	Pinkish buff ware, gray core, small dark grits in paste, buff surface. Sukkalmah *Comparanda:* Carter 1971, p. 414, no. 3; Wright 1981, fig. 85:h–i
E	18.70–19.16 m	—	—	Red ware, gray core, chaff inclusion, incised wavy pattern. Sukkalmah *Comparanda:* Susa Ville Royale A XV (Steve and Gasche 1971, pl 40:4; Carter 1971, p. 381, no. 7)
F	18.70–19.16 m	—	A154686	Burnt gray sherd. Originally pale brown buff, dense, chaff inclusion. Proto-Elamite (extrusive)
G	18.70–19.16 m	—	A154685	Red ware, straw inclusion, buff surface, probably slipped. Sukkalmah *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pl. 79:Q)
H	18.70–19.16 m	—	A154688	Warm buff ware, no visible inclusion. Sukkalmah *Comparanda:* Susa Ville Royale A XIV (Steve and Gasche 1971, pl. 23:27); Chogha Mish (Alizadeh 2008, fig. 25:Q–T;Carter 1971, p. 414, no. 7)
I	18.70–19.16 m	—	A154687	Pinkish buff ware, some medium calcite particles in paste, straw inclusion, chaff face, buff surface, rough exterior, interior

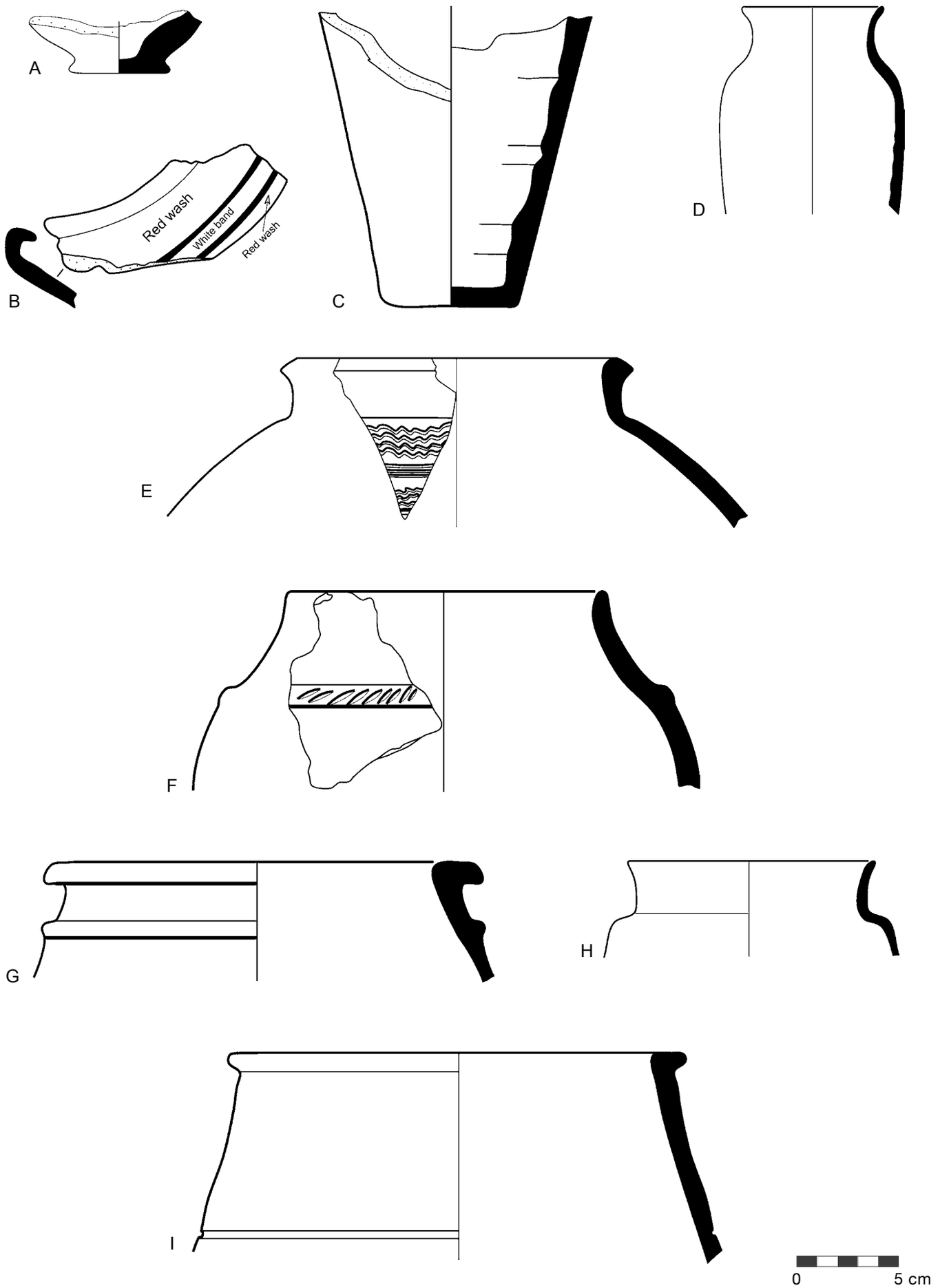


Figure 80. Pottery from Step Trench, Level 39

Figure 81. Pottery from Step Trench, Level 40

	Elevation	*Field No.*	*Museum No.*	*Description*
A	19.16–19.45 m	—	—	Red ware, gray core, chaff inclusion, incised decoration. Sukkalmah *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pl. 79:T)
B	19.16–19.45 m	—	—	Red ware, gray core, chaff inclusion, buff surface, incised decoration. Sukkalmah *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pl. 79:I, M, P, U)
C	19.16–19.45 m	—	—	Red ware, chaff inclusion, buff surface. Sukkalmah *Comparanda:* Sharafabad, phase II (Schacht 1975, fig. 7:m–p)
D	19.16–19.45 m	—	—	Red ware, gray core grading into buff toward surface, some medium grits in paste, straw inclusion, buff surface. Probably Islamic
E	19.16–19.45 m	—	A154767	Warm buff coarse ware, straw inclusion, smoothed. Proto-Elamite
F	19.16–19.45 m	2TG-62	Tehran	Pinkish buff ware, chaff inclusion, buff surface. Sukkalmah *Comparanda:* Wright 1981, fig. 88:a
G	19.16–19.45 m	—	—	Red ware, chaff inclusion, buff surface. Sukkalmah *Comparanda:* Wright 1981, fig. 87:i
H	19.16–19.45 m	2TG-59	Tehran	Red ware, straw inclusion, buff surface. Proto-Elamite
I	19.16–19.45 m	—	—	Red ware, chaff inclusion, buff surface. Sukkalmah *Comparanda:* Wright 1981, fig. 87:r
J	19.16–19.45 m	—	—	Red ware, chaff inclusion, buff surface. Sukkalmah *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pl. 77:H; Wright 1981, fig. 87:j)

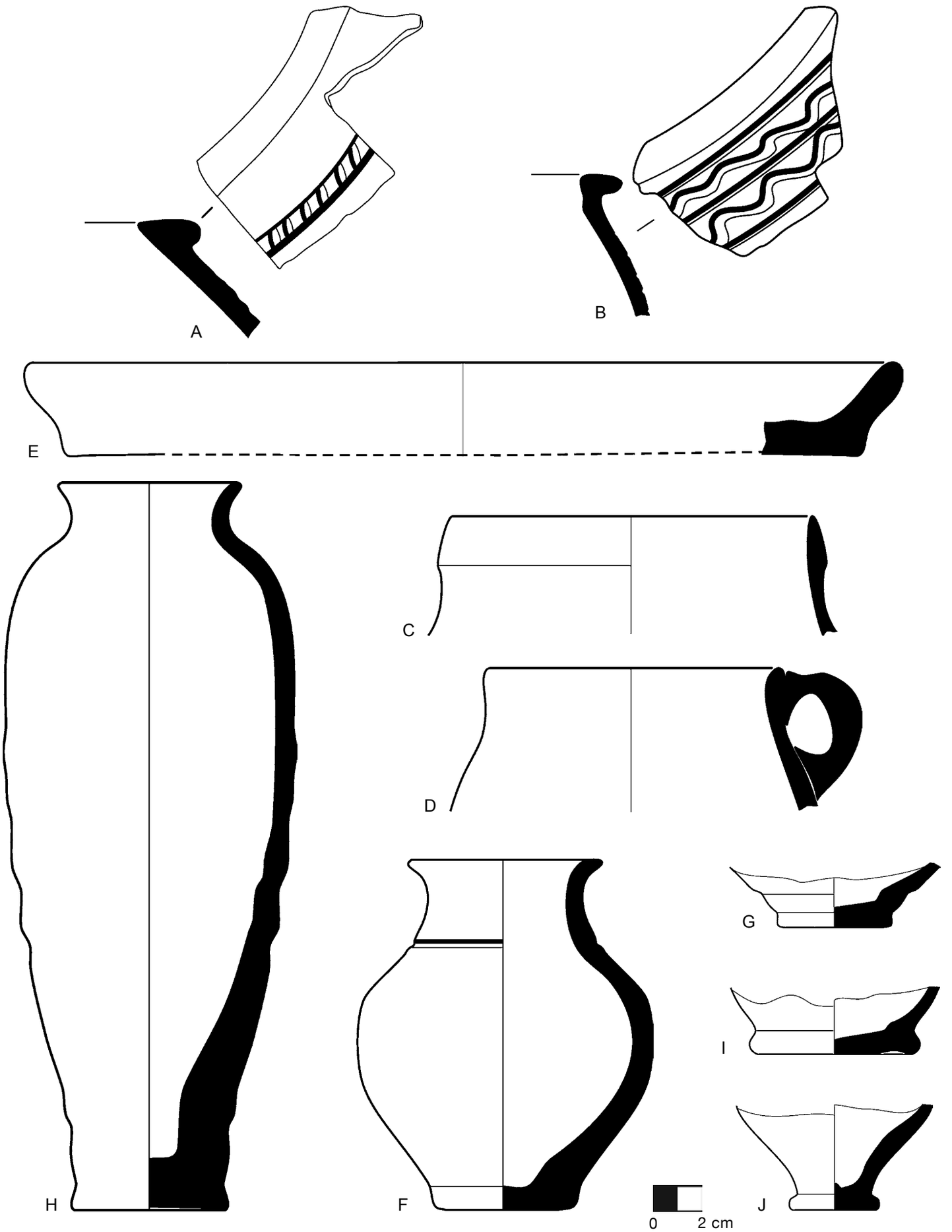


Figure 81. Pottery from Step Trench, Level 40

Figure 82. Pottery from Step Trench, Level 41

	Elevation	*Field No.*	*Museum No.*	*Description*
A	19.45–20.26 m	—	—	Pinkish buff ware, some chaff inclusion, buff surface, incised decoration. Sukkalmah *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pl. 79:T)
B	19.45–20.26 m	—	A154771	Yellowish buff ware, fine chaff inclusion, light buff surface, shallow incised decoration. Sukkalmah
C	19.45 m	—	A154770	Pale brown buff ware, completely blackened core is sandwiched between two 1 mm layers of pale brown buff, some small to medium calcite particles in paste, chaff inclusion, rope decoration. Found in Room 2. Proto-Elamite (extrusive)
D	19.45–20.26 m	—	—	Red ware, dark core, no visible inclusion, buff surface, purple brown paint on rim. Sukkalmah *Comparanda:* Tol-e Spid, phase 17 (Potts et al. 2009, fig. 4.67: TS 1306, 1467)
E	19.45–20.26 m	—	—	Pinkish buff, 1/3 of core dark, some chaff inclusion, red wash exterior and interior, excised decoration on rim. Sukkalmah
F	19.45–20.26 m	—	—	Buff ware, chaff inclusion, excised decoration on rim. Sukkalmah
G	19.45–20.26 m	—	—	Red ware, chaff inclusion, buff surface, incised decoration. Sukkalmah *Comparanda:* Susa Ville Royale, level A XIV–XV (Steve and Gasche 1971, pl 43:1)
H	19.45–20.26 m	—	—	Buff ware, dark core, straw inclusion
I	19.45–20.26 m	—	—	No description available. Sukkalmah *Comparanda:* Susa Ville Royale, level A XV (Gasche 1973, pl. 45); Farukhabad, level B13 (Wright 1981, fig. 88:g; Wright 1981, fig. 88:g)
J	19.45–20.26 m	—	—	No description available. Sukkalmah *Comparanda:* Wright 1981, fig. 87:k
K	19.45–20.26 m	—	—	Pink buff ware, straw inclusion, buff surface. Early Sukkalmah *Comparanda:* Farukhabad, levels B15–17 (Wright 1981, fig. 84:m); Sharafabad, phase II (Schacht 1975, fig. 7:p)
L	19.45 m	—	—	Pinkish buff, some chaff inclusion, light red surface, traces of burnishing on exterior. Found in Room 1. Sukkalmah?
M	19.45–20.26 m	2TG-26	Tehran	Red ware, some chaff inclusion. Sukkalmah *Comparanda:* Susa Ville Royale, level A XIV (Steve and Gasche 1971, pl 12:9)
N	19.45–20.26 m	—	—	No description available. Sukkalmah?

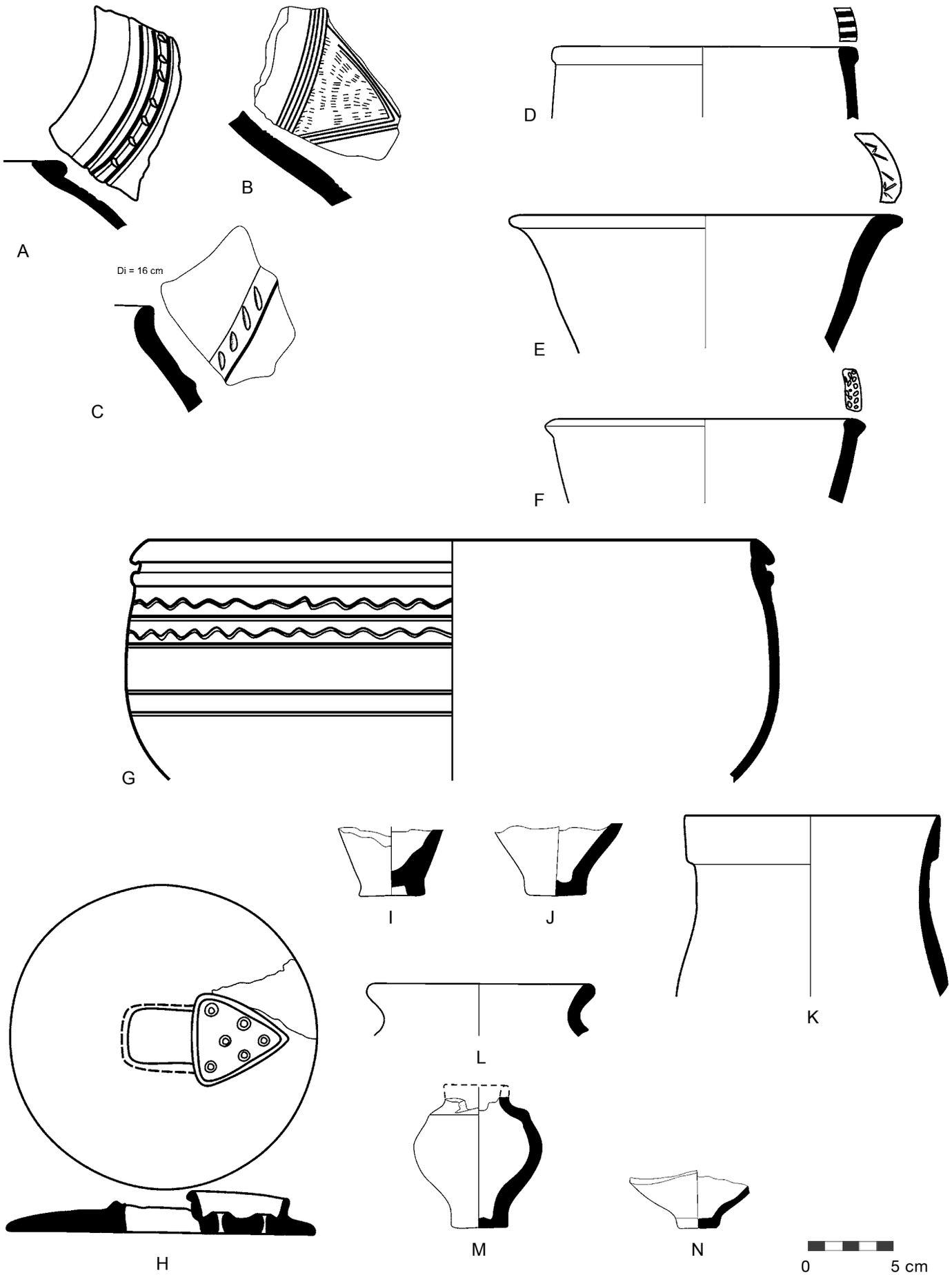


Figure 82. Pottery from Step Trench, Level 41

Figure 83. Pottery from Step Trench, Levels 42–43

	Elevation	*Field No.*	*Museum No.*	*Description*
LEVEL 42				
A	20.26–20.46 m	—	—	No description available. Sukkalmah *Comparanda:* Wright 1981, fig. 85:g
B	20.26–20.46 m	—	—	No description available. Sukkalmah *Comparanda:* Wright 1981, fig. 90:g
C	20.26–20.46 m	—	A154789	Very pale brown buff, fine chaff inclusion, light buff surface. The raised floor of the base puts the form in late Sukkalmah phase
D	20.26–20.46 m	—	—	No description available. Sukkalmah *Comparanda:* Wright 1981, fig. 87:e [similar]
E	20.26–20.46 m	—	—	No description available. Sukkalmah?
LEVEL 43				
F	20.35–20.46 m	2TG-25	A28745	Red ware, chaff inclusion, buff surface. Sukkalmah *Comparanda:* Susa Ville Royale, level A XIV (Steve and Gasche 1971, pl. 12:9)
G	20.35–20.46 m	—	A154781	Yellowish green buff ware, straw inclusion, greenish buff surface
H	20.35–20.46 m	—	A154782	Pinkish buff ware, some chaff inclusion, buff surface, traces of bitumen around interior and exterior rim. Sukkalmah
I	20.35–20.46 m	—	A154783	Warm buff ware, fine chaff inclusion, yellowish buff slip/wash. Sukkalmah
J	20.35–20.46 m	—	A154784	Bricky red ware, 2 mm thick gray core, chaff inclusion, traces of buff slip. Sukkalmah
K	20.35–20.46 m	—	A154785	Warm buff ware, fine chaff inclusion, pale buff surface. Sukkalmah/ Middle Elamite *Comparanda:* Susa Ville Royale I, level 4–3, period V B (Carter 1980, fig. 51:2; Carter 1996, fig. 24:4)
L	20.35–20.46 m	—	A154786	Pinkish buff ware, fine chaff inclusion, buff surface. Sukkalmah *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pl. 77:J; Alizadeh 2008, fig. 25: R–T); Susa Ville Royale I, period V B, grave 507 (Carter 1980, fig. 47)
M	20.35–20.46 m	—	A154787	Pale bricky red ware, dense, no visible inclusion, red maroon wash exterior and inner neck. Proto-Elamite?
N	20.35–20.46 m	—	—	Red ware, dark core, chaff inclusion, buff surface. Sukkalmah *Comparanda:* Wright 1981, fig. 87:f

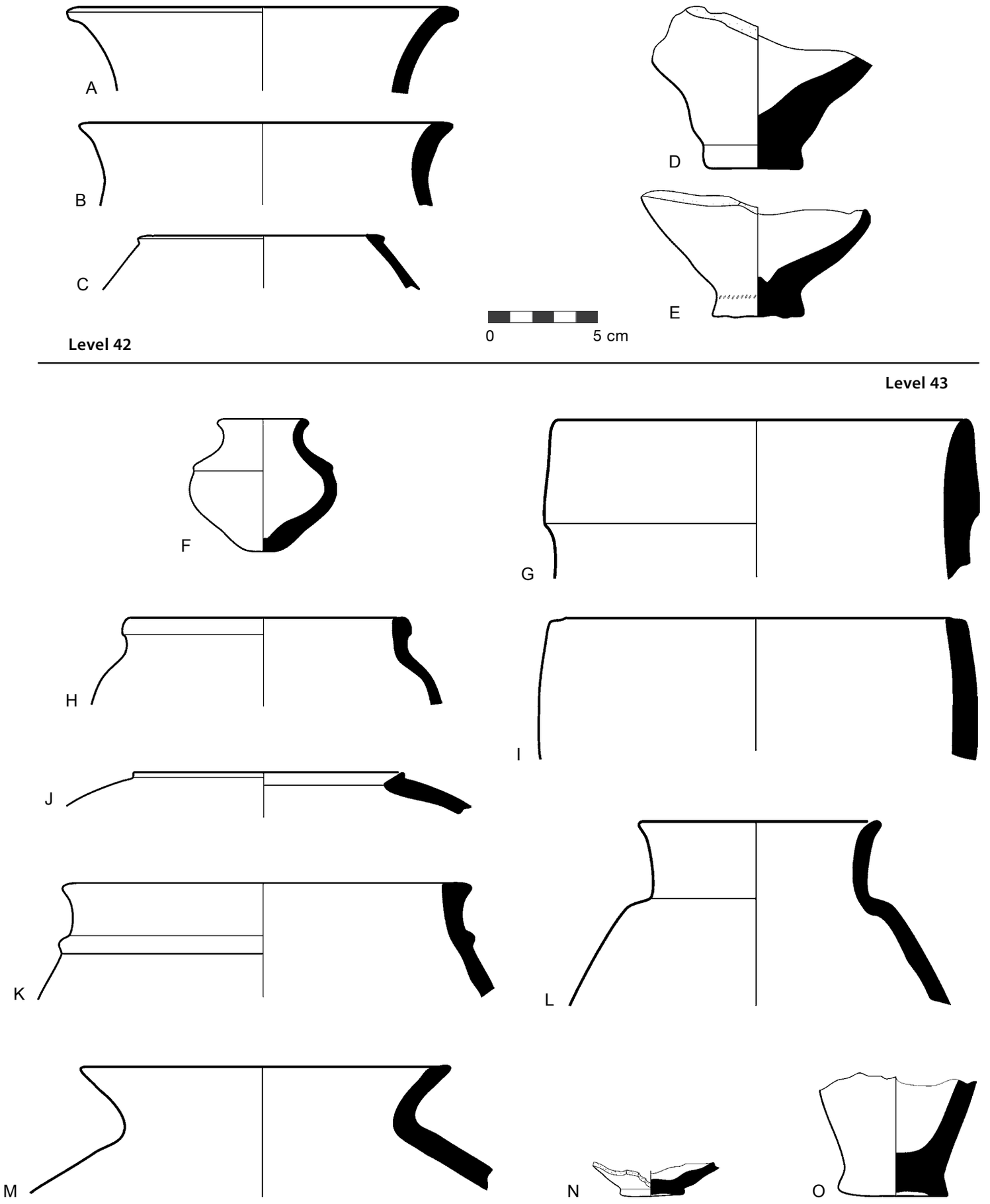
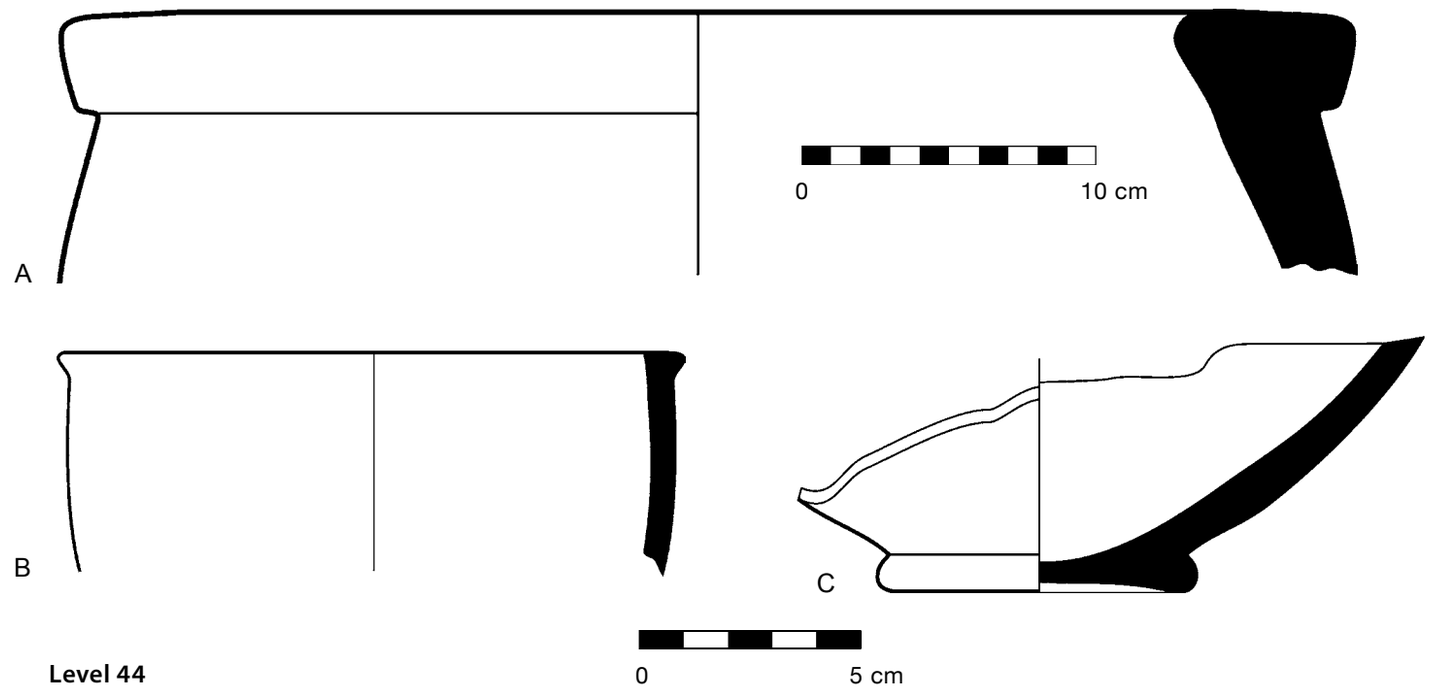


Figure 83. Pottery from Step Trench, Levels 42–43

Figure 84. Pottery from Step Trench, Levels 44–45

	Elevation	*Field No.*	*Museum No.*	*Description*
LEVEL 44				
A	20.46–20.65 m	—	A154774	Buff ware, straw inclusion, yellowish buff surface, straw face. Sukkalmah *Comparanda:* Wright 1981, fig. 86:c, e
B	20.46–20.65 m	—	A154776	Pale pinkish buff ware, no visible inclusion, creamy buff wash/slip interior and exterior. Sukkalmah *Comparanda:* Chogha Mish (Alizadeh 2008, fig. 25:A)
C	20.46–20.65 m	—	A154790	Pale bricky red ware, 3 mm thick gray core, pale buff wash/slip exterior, straw inclusion, straw face, ring base made separately. Sukkalmah *Comparanda:* Wright 1981, fig. 87:o
LEVEL 45				
D	20.65–20.75 m	—	A154775	Buff ware, dense, chaff inclusion, buff surface. Sukkalmah *Comparanda:* Sharafabad, phase IV (Schacht 1975, fig. 7:m–p; Wright 1981, fig. 86:b)
E	20.65–20.75 m	—	—	Pinkish buff ware, no visible inclusion, buff surface. Early Susa II (intrusive)
F	20.65–20.75 m	—	—	Pinkish buff ware, dark core, chaff inclusion, buff surface. Sukkalmah *Comparanda:* Similar to Chogha Mish (Delougaz and Kantor 1996, pl. 77:L)
G	20.65–20.75 m	—	—	Red ware, chaff inclusion, deep red wash exterior, and on inner rim. Sukkalmah *Comparanda:* Wright 1981, fig. 85:k
H	20.65–20.75 m	—	—	Buff ware. Sukkalmah *Comparanda:* Wright 1981, fig. 86:o



Level 44

Level 45

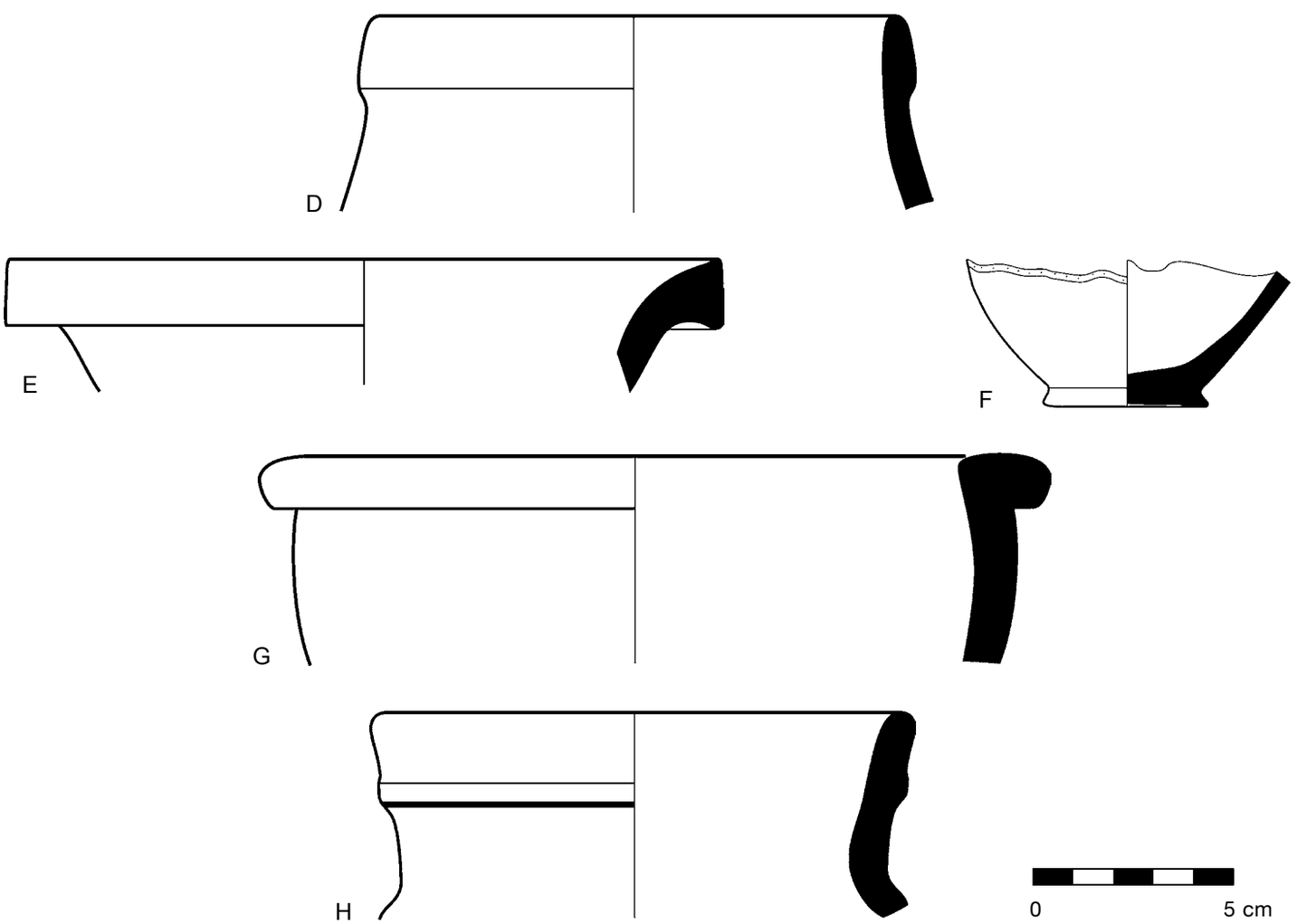


Figure 84. Pottery from Step Trench, Levels 44–45

Figure 85. Pottery from Step Trench, Level 46

	Elevation	*Field No.*	*Museum No.*	*Description*
A	20.75–21.16 m	—	—	Light buff ware, chaff inclusion, creamy buff slip? Sukkalmah *Comparanda:* Sharafabad, phase IV (Schacht 1975, fig. 7:m–p)
B	20.75–21.16 m	—	A154773	Pale reddish brown ware, dark gray core sandwiched by two 1 mm reddish brown layers, chaff inclusion, grayish green buff wash exterior, and interior, dense. Sukkalmah?
C	20.75–21.16 m	—	—	No description available. Sukkalmah *Comparanda:* Wright 1981, fig. 84:e
D	20.75–21.16 m	—	A154772	Very pale brown buff ware, dark core sandwiched by two 1 mm pale pink buff layers, straw inclusion, remains of bitumen on inner base. Sukkalmah *Comparanda:* Similar to Chogha Mish (Delougaz and Kantor 1996, pl. 77:N)
E	20.75–21.16 m	—	—	Red ware, dark core, chaff inclusion, pinkish buff surface. Sukkalmah *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pl. 77:H, K)
F	20.75–21.16 m	—	—	Pinkish buff ware, chaff inclusion, buff surface. Sukkalmah *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pl. 77:H, K)

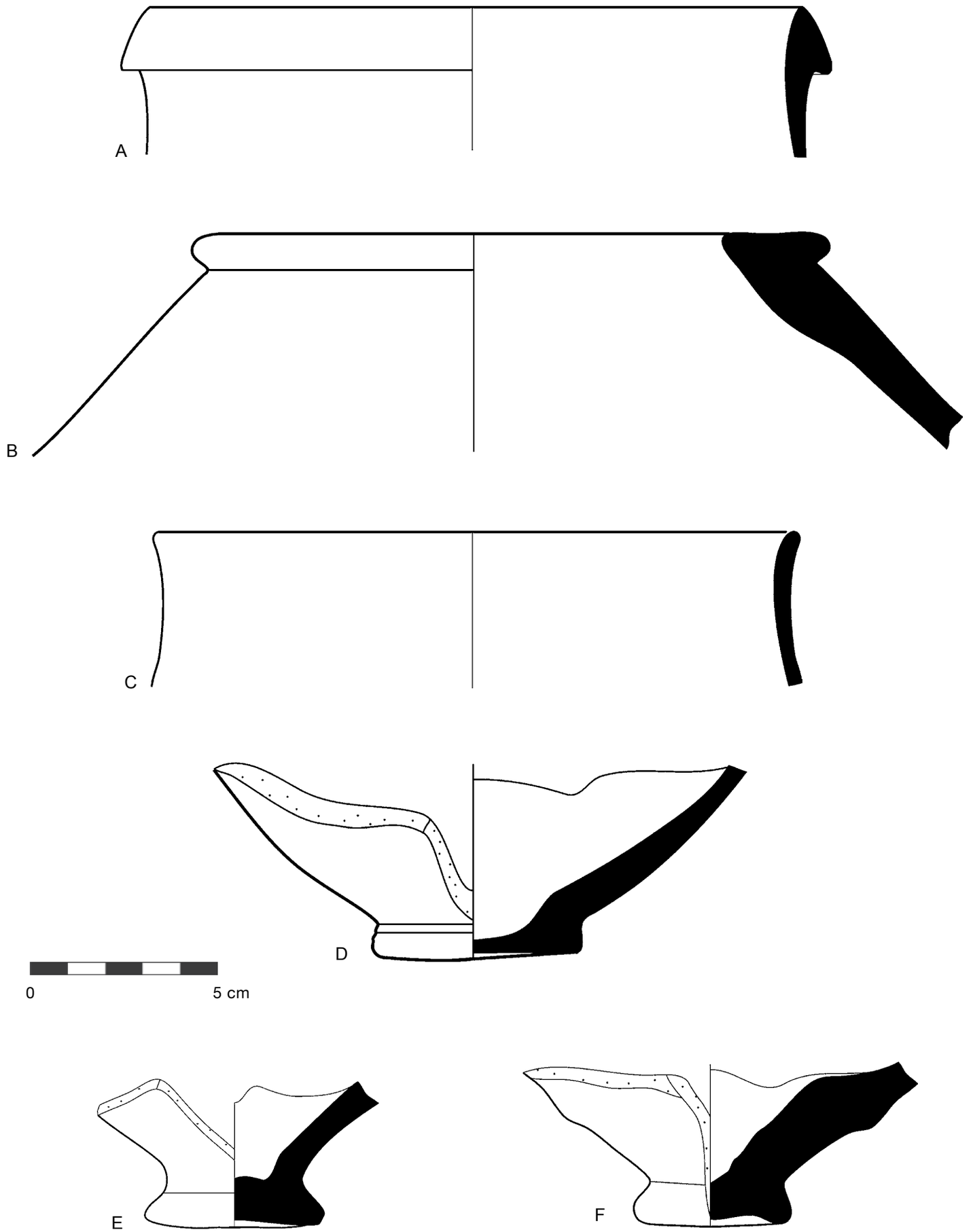


Figure 85. Pottery from Step Trench, Level 46

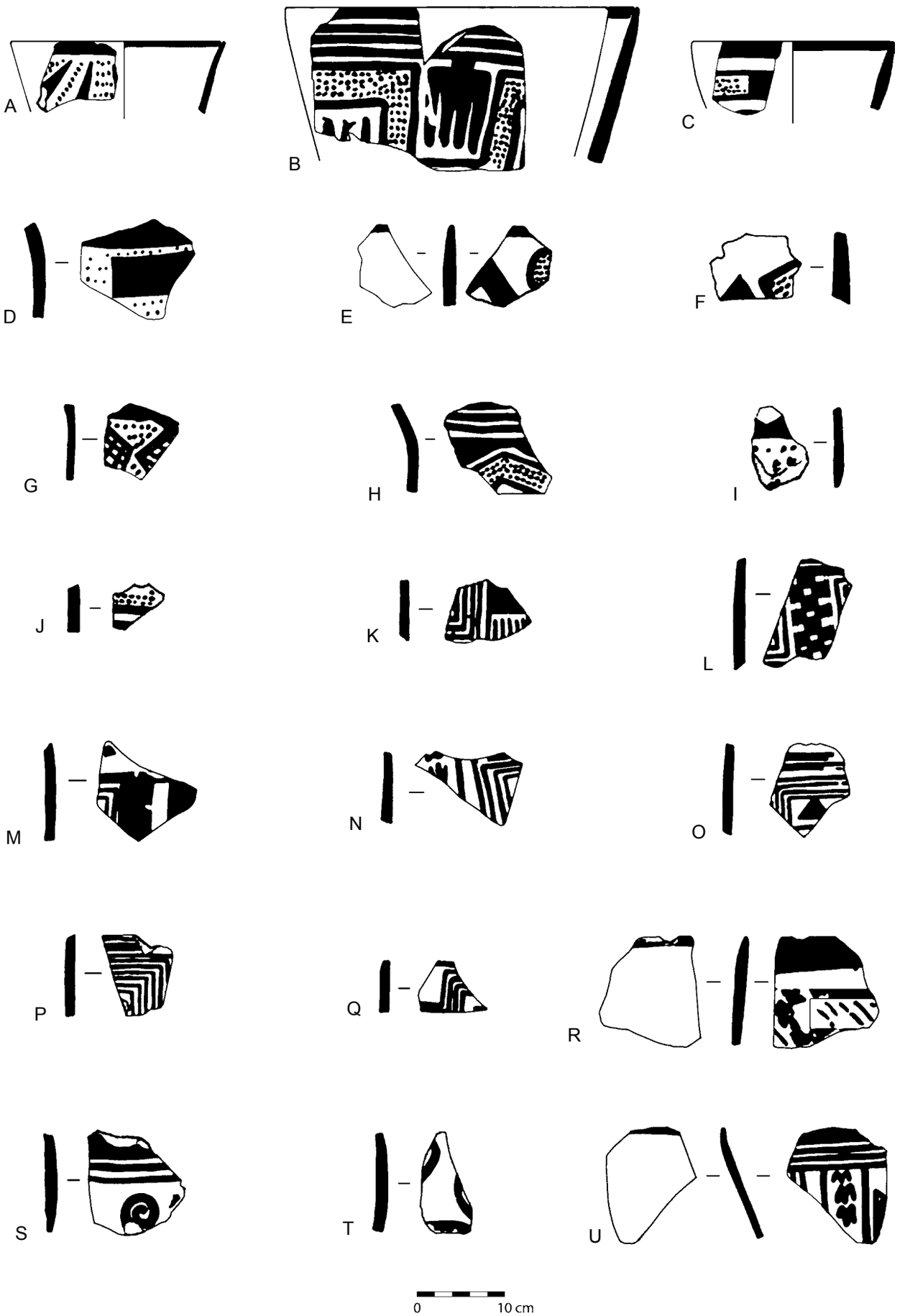


Figure 86. Samples of Late Susiana 1 pottery from the Kuhrang region (courtesy of Dr. Esmaeil Esmaeily)

Figure 87. Stamps, cylinder seals, balls, tablet, scarab from various levels

	Provenance	*Elevation*	*Field No.*	*Museum No.*	*Description*
A	Step Trench, Level 7	7.00 m	2TG-54	A28660	Stamp seal. Baked clay, dark buff, no visible inclusion. Late Susiana 1/ Late Susiana 2 (for color photo, see pl. 6:E)
B	Step Trench, Level 31	15.80 m	2TG-164	A28673	Stamp seal. Grayish white stone. Late Susiana 1/Late Susiana 2 (for color photo, see pl. 6:D)
C	Stake Trench 9–10, Level 2	20.11	2TG-97a	A28695	Cylinder seal. Grayish white alabaster; three connecting "eyes." Late Susa II/proto-Elamite (for findspot, see fig. 14, no. 7; for color photo, see pl. 6:A) *Comparanda:* Susa (Amiet 1972, pls. 92–93)
D	Mound B, Level 2	7.70	G-120	A27972	Cylinder seal. Faience, pale creamy white, unfinished hole. Middle Elamite (for findspot, see fig. 7, no. 5; for color photo, see pl. 6:C) *Comparanda:* Susa Ville Royale A XII (Amiet 1972, p. 271, pl. 183), Susa (Amiet 1972, pls. 92–93) Susa (Amiet 1972, pp. 265–67, pl. 183; Porada 1970, pl. 12)
E	Trench 1, Level 2	20.30	G-20	A27921	Fragmentary numerical tablet, possibly record of a grain transaction (Robert Englund, pers. comm.). Buff clay, no visible inclusion except for a small (4 mm) gray pebble. Early proto-Elamite (for findspot, see fig. 3, no. 2; for color photo, see pl. 6:F)
F	Stake Trench 7–7.5, Level 1	21.89	—	A28747	Scarab. Faience, yellowish paste. Design consists of two uraei (snakes), wearing the crown of Lower and Upper Egypt, surrounding the *nfr* sign, below is the *nb* sign and above the *dsrt* sign, implying "Re is the good lord [of Upper and Lower Egypt]." Emily Teeter, pers. comm. Neo-Elamite/Achaemenid (for findspot, see fig. 11, no. 12)

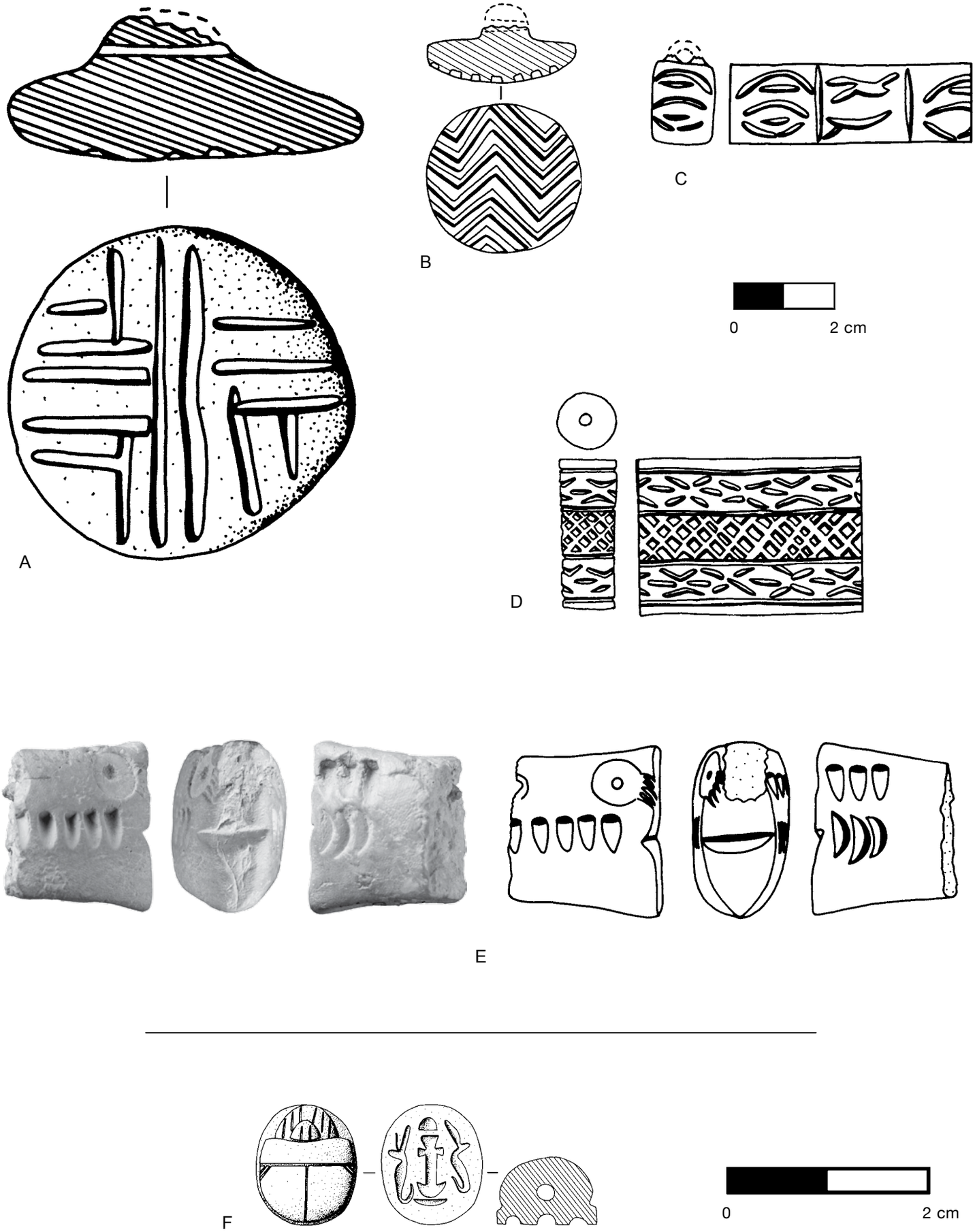


Figure 87. Stamps, cylinder seals, balls, tablet, scarab from various levels from various levels

Figure 88. Stamp seal, cylinder seal, and tokens

	Provenance	*Elevation*	*Field No.*	*Museum No.*	*Description*
A	Step Trench, Level 6 (floor)	7.00 m	2TG-107	Tehran	Stamp seal. Grayish tan stone, block-cut design. Late Susiana 2 *Comparanda:* Tall-e Bakun A (Langsdorff and McCown 1942, pl. 82:3; Alizadeh 2006, pl. 22:L–N), Susa (Amiet 1972, pl. 39:42, 46)
B	Step Trench, Level 34	16.45 m	2TG-160	Tehran	Cylinder seal. Grayish white alabaster, three connecting "eyes" design. Late Susa II/proto-Elamite *Comparanda:* Susa (Amiet 1972, pls. 92–93)
C	Stake Trench, 10 Room	19.50 m	2TG-176a	A28721	Ball (token?). Polished pinkish white stone. Proto-Elamite (for color photo, see pl. 6:B)
D	Stake Trench, 10 Room	19.50 m	2TG-176c	A28723	Ball (token?). Polished pinkish white stone. Proto-Elamite
E	Stake Trench, 10 Room	19.45 m	2TG-176e	A28725	Polished pinkish white stone ball (token?). Proto-Elamite
F	Fort Mound	—	2TG-19b	A28757	Token. Baked clay, buff ware, no visible inclusion
G	Fort Mound	—	2TG-19c	A28758	Token. Baked clay, buff ware, no visible inclusion
H	Fort Mound	—	2TG-19a	A28756	Token. Baked clay, buff ware, no visible inclusion
I	Stake Trench 7.5–8, Level 4	19.50	—	—	Complex token. Baked clay, buff ware, no visible inclusion, brown paint; Late Susiana 2 Later in the proto-Sumerian script the cross sign stands for UDU, that is, sheep (and goat) *Comparanda:* Identical parallels come from Tall-e Bakun (Langsdorff and McCown 1942, pl. 82:38; Alizadeh 2006, p. 84, fig. 72:J, M–N) and Susa (Schmandt-Besserat 1992, fig. 19)

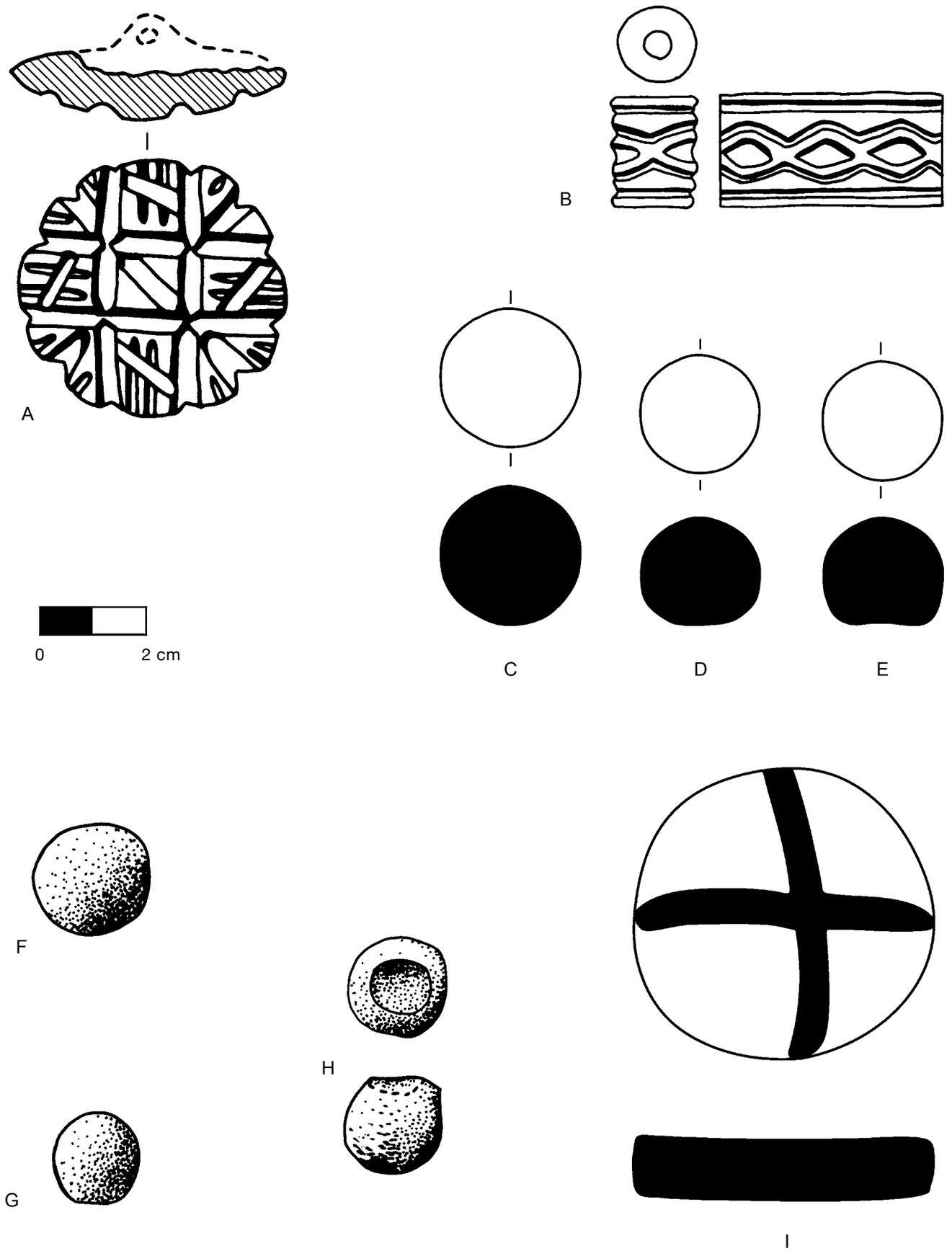


Figure 88. Stamp seal, cylinder seal, and tokens

Figure 89. Beads and personal ornaments from various levels

	Provenance	*Elevation*	*Field No.*	*Museum No.*	*Description*
A	Stake Trench 10 Room 1, floor	19.50	2TG-170	A28717	Pendant. Cut rock crystal (quartz, SiO_2). Proto-Elamite (for findspot, see fig. 14, no. 1)
B	Stake Trench 7–7.5, Level 3	19.80	2TG-111	A28702	Pendant. Polished white stone (for findspot, see fig. 11, no. 2)
C	Step Trench, surface	—	G-38	A27930	Turquoise blue glass paste. Islamic?
D	Stake Trench 7–7.5, Level 1	21.80	2TG-81	Tehran	Bead, truncated cone. Carnelian. Islamic (for findspot, see fig. 11, no. 10)
E	Stake Trench 7–7.5, Level 1	21.80	2TG-112	Tehran	Pink-brown stone, one side convex, the other flat with no design (for findspot, see fig. 11, no. 11)
F	Stake Trench 8–9, Level 4	19.20	2TG-21a	Tehran	Blue-green glazed bead. Islamic (for findspot, see fig. 12, no. 1)
G	Stake Trench 8–9, Level 4	19.20	2TG-21b	Tehran	Blue-green glazed bead. Islamic (for findspot, see fig. 12, no. 1)
H	Fort Mound, Level 1	4.20	G-72	Tehran	Veined brown and white stone (for findspot, see fig. 9, no. 4)
I	Step Trench Level 42, floor	—	2TG-106	A28700	Salmon pink stone
J	Stake Trench, surface	—	—	—	Pinkish brown stone
K	Stake Trench 7.5–8, Level 3	19.80	2TG-42	A28683	White frit (for findspot, see fig. 11, no. 3)
L	Stake Trench 8–9	—	2TG-23b	A28752	Polished brown black stone
M	Stake Trench 8–9	—	2TG-23a	A28753	Polished gray white stone
N	Stake Trench 8–9, Level 4A	19.48 m	2TG-44a–h	A28684	Eight cylindrical beads (necklace?). Baked clay, buff to pale pinkish buff ware, no visible inclusion (for color photo, see pl. 8:C)

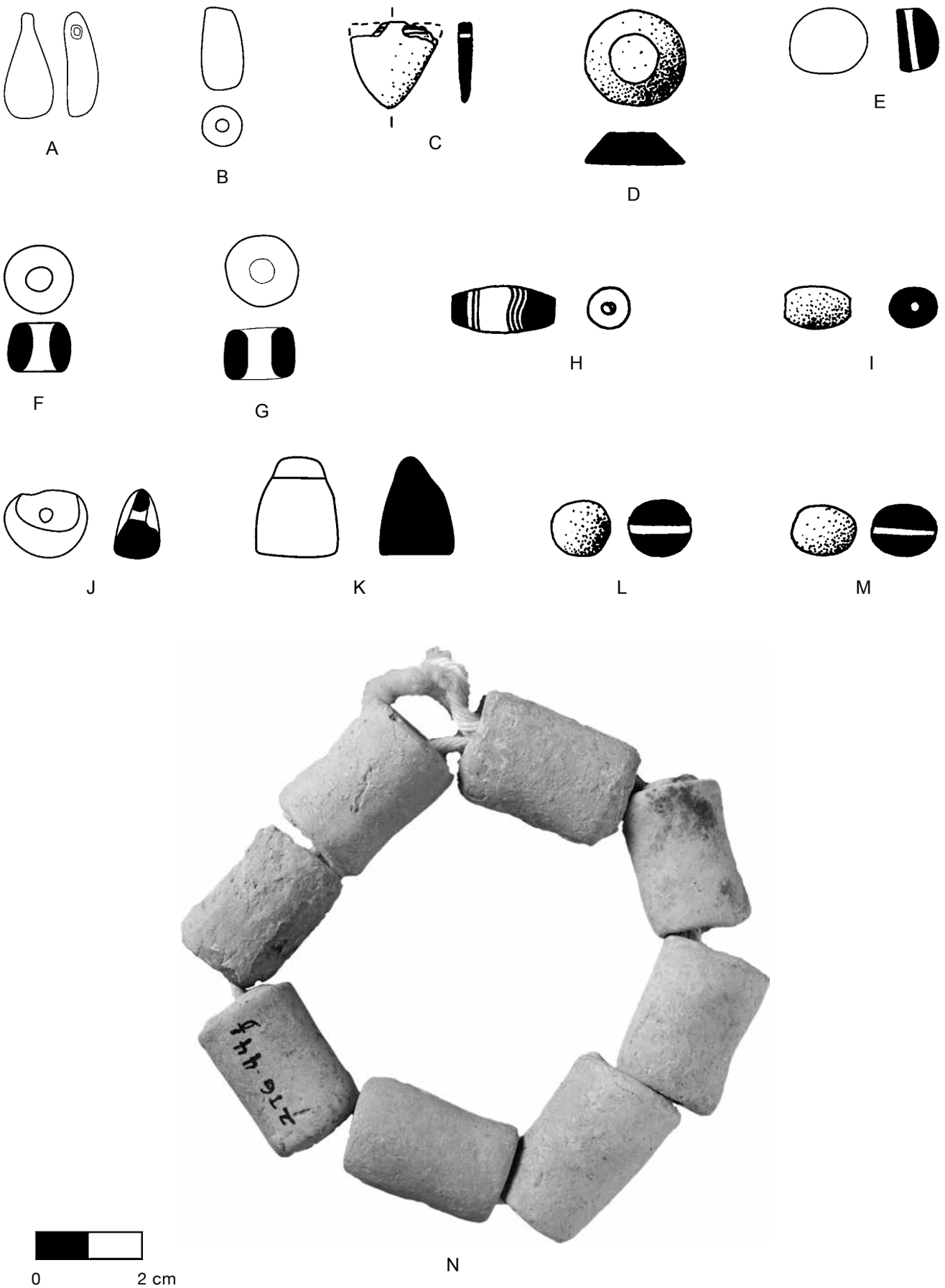


Figure 89. Beads and personal ornaments from various levels

Figure 90. Animal and human figurines from various levels

	Provenance	*Elevation*	*Field No.*	*Museum No.*	*Description*
A	Stake Trench 8–9, surface	—	2TG-8	A28675	Alabaster aviamorphic vase with broken base. Proto-Elamite (for color photo, see also pl. 7:A) *Comparanda:* Susa (Amiet 1966, pls. 68–71, 7780–83)
B	Stake Trench 7–7.5	19.90 m	2TG-83	Tehran	White alabaster pendant in the shape of a quadruped, probably a bull or cow; eyes pierced through, pierced knob on back. Proto-Elamite (for findspot, see fig. 11, no. 4)
C	Trench 1, Level 2	20.30 m	G-15	A27919	Alabaster figurine of a monkey/baboon-headed human, paralleled incised zigzag decorative lines, the entire body covered with red paint. Proto-Elamite (for findspot, see fig. 3, no. 2; for color photo, see frontispiece and pl. 7:D) *Comparanda:* Susa (Amiet 1966, pls. 72–74)
D	Step Trench, Level 16	—	2TG-163	A28672	Humpbacked bull figurine. Yellowish buff ware, no visible inclusion
E	Fort Mound	3.80 m	G-93	A27955	Humpbacked bull figurine. Pale brown buff, dense, occasional chaff, eyes pierced through
F	Stake Trench 7–7.5, Level 1 or 2	—	—	—	Humpbacked bull figurine. Pinkish buff ware, the thick gray core sandwiched by two 1 mm pink buff layers, dense, chaff inclusion
G	Stake Trench 9–10, Level 2 or 3	—	—	—	Humpbacked bull figurine. Red ware, almost completely gray core sandwiched by two 1 mm red layers, dense, chaff inclusion. Middle Elamite
H	Stake Trench 7–7.5	19.85 m	2TG-80	Tehran	Humpbacked bull figurine. Red ware, the almost completely gray core sandwiched by two 1 mm red layers, dense, chaff inclusion. Middle Elamite (for findspot, see fig. 11, no. 7)
I	Stake Trench 7.5–8	19.50 m	2TG-22	Tehran	Female figurine. Yellowish buff ware, no visible inclusion. Middle Elamite
J	Mound B, Level 2	7.20 m	G-113	A27967	Female figurine. Pale bricky red ware, gray core, some scattered chaff, creamy buff slip/wash. Sukkalmah/Middle Elamite (for color photo, see pl. 7:B)
K	Stake Trench 7.5–8	—	—	—	Female figurine. Pale brown buff ware, dense, occasional chaff, creamy buff surface (for color photo, see pl. 7:C)
L	Stake Trench 7.5–8	—	—	A163151	Female figurine. Yellowish buff ware, no visible inclusion. Middle Elamite

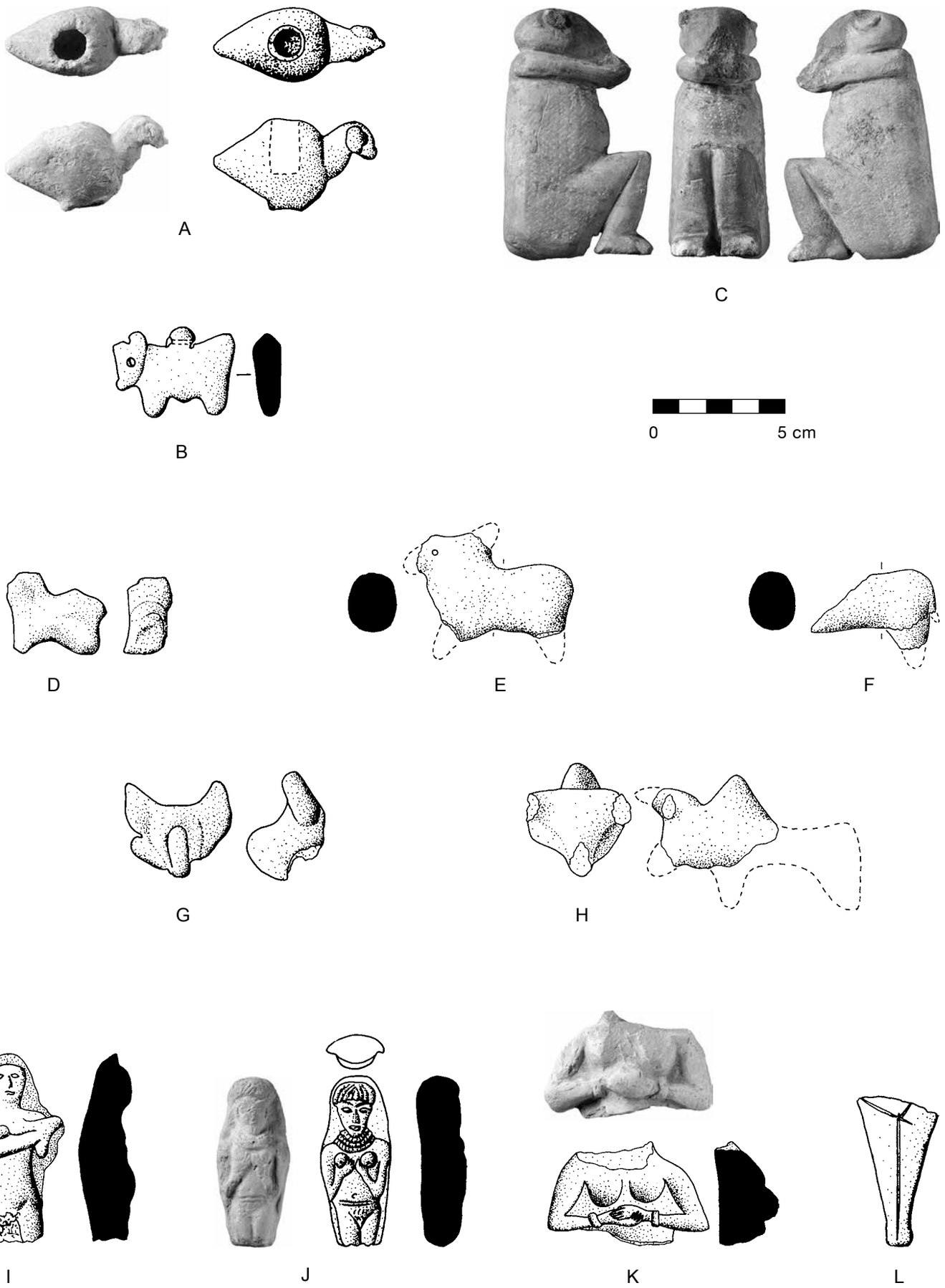


Figure 90. Animal and human figurines from various levels

Figure 91. Metal objects from various areas

	Provenance	*Elevation*	*Field No.*	*Museum No.*	*Description*
A	Stake Trench 7–7.5, Level 1	20.95 m	2TG-79	Tehran	Bronze chisel with square section on top and rounded tip
B	Stake Trench 8–9, Level 5	18.30 m	2TG-37	A28682	Bronze chisel or awl. Proto-Elamite
C	Stake Trench, 10 Room	19.45 m	2TG-162	A28716	Bronze chisel with flattened tip. Proto-Elamite
D	Stake Trench, 10 Room, floor, southwest corner	19.40 m	2TG-169	Tehran	Copper/bronze pin. Proto-Elamite
E	Step Trench, Level 39	18.00 m	2TG-101	Tehran	Copper/bronze figurine? Sukkalmah?
F	Stake Trench 7–7.5, Level 4, floor	—	2TG-99	A28696	Bronze pin or arrowhead with flattened end. Proto-Elamite
G	Stake Trench, 10 Room, floor	19.45 m	2TG-168	A28740	Bronze arrowhead or spear tip. Proto-Elamite
H	Step Trench, Level 18	10.90 m	G-28	Tehran	Copper/bronze pin. Proto-Elamite (for findspot, see fig. 19, no. 3)
I	Fort Mound, Level 1	2.65 m	—	Tehran	Copper/bronze ring. Found near skull of burial G4. Sukkalmah? (for findspot, see fig. 9, no. 2)
J	Fort Mound, Level 1	2.65 m	G-97	A27957	Copper/bronze ring. Found near skull of burial G4. Sukkalmah? (for findspot, see fig. 9, no. 2)
K	Step Trench, Level 37	18.05 m	2TG-110	A28701	Bronze blade in what appears to be a copper scabbard. Recovered from above sherd pavement. Proto-Elamite (for findspot, see fig. 21, no. 33)
L	Mound B, Level 2	7.50 m	G-127	A27976	Bronze mirror. Found in association with Elamite tomb B1. Middle Elamite (for findspot, see fig. 7, no. 8)
M	Trench 2, Level 2	21.05 m	G-32	A27928	Iron dagger with two rivets in place. Found near skull of grave G1. Neo-Elamite (for findspot, see fig. 5, no. 3)

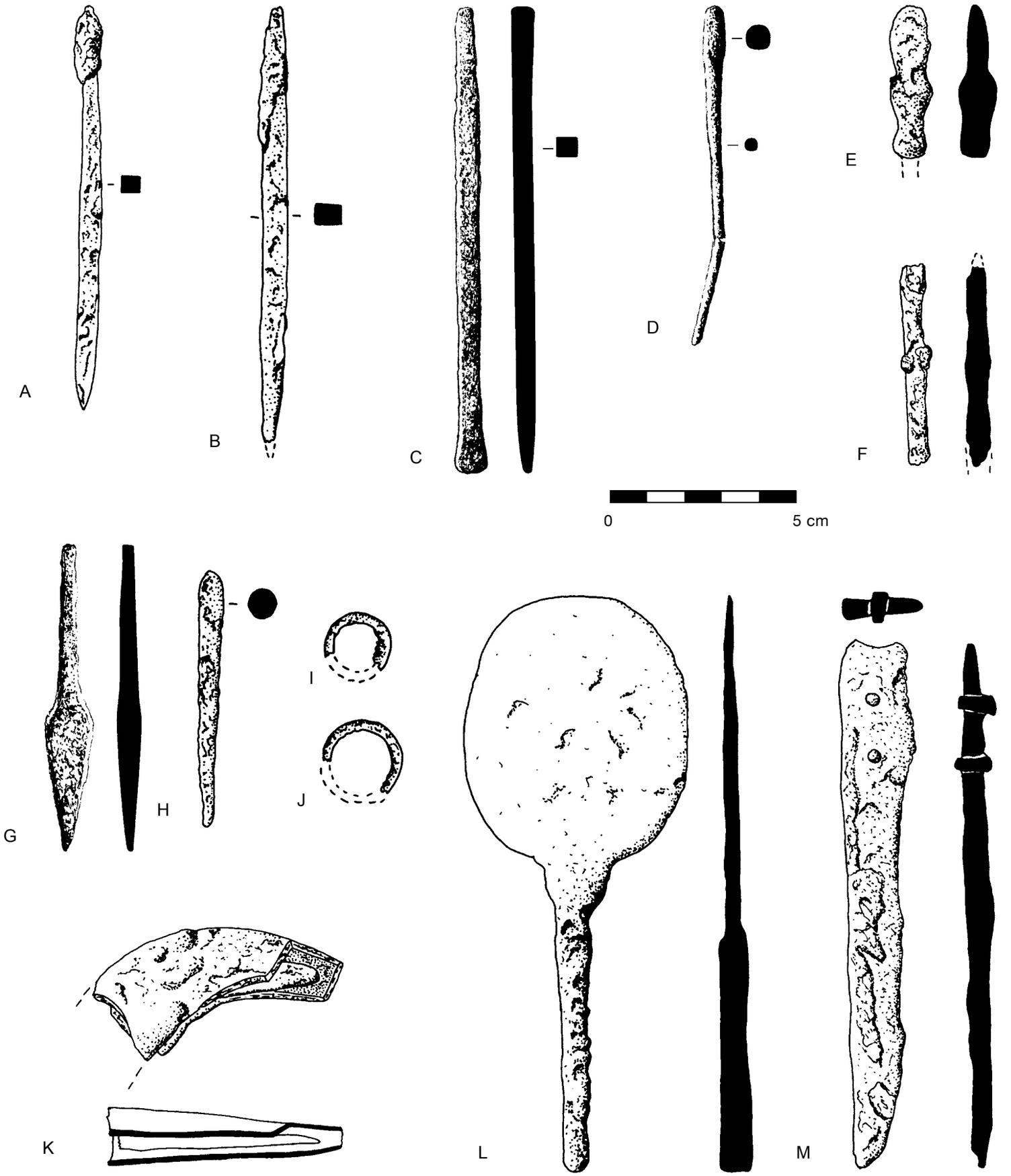


Figure 91. Metal objects from various areas

Figure 92. Metal vessels from Trench 2, Level 2

	Elevation	*Field No.*	*Museum No.*	*Description*
A	21.75 m	G-7	Tehran	Bronze phiale. Neo-Elamite/Achaemenid. Found in association with juvenile burial G3
B	21.25 m	G-36	A27929	Bronze bowl, cloth impression on base. Neo-Elamite/ Achaemenid. Found in association with adult burial G4 (for findspot, see fig. 5, no. 6)

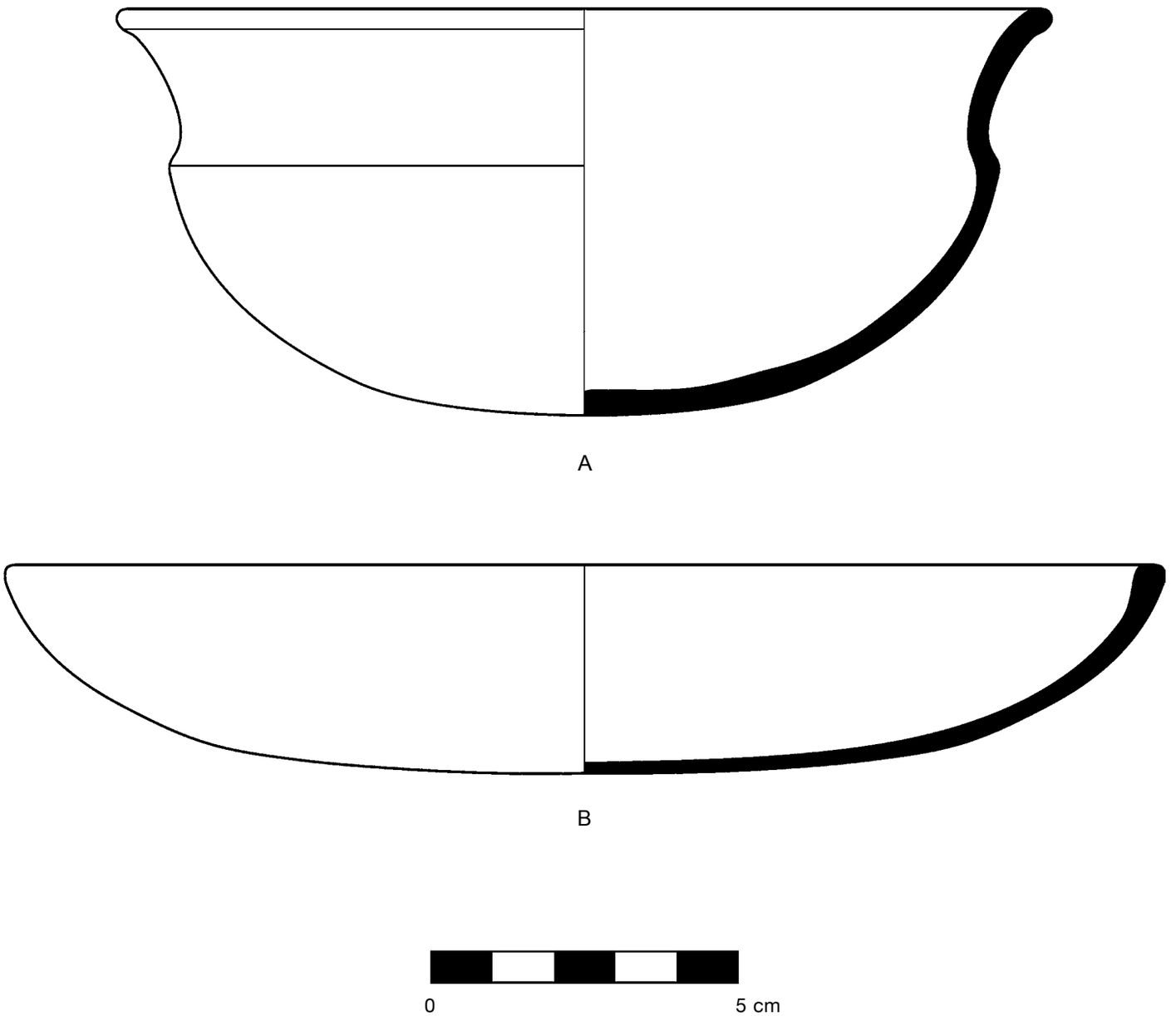


Figure 92. Metal vessels from Trench 2, Level 2

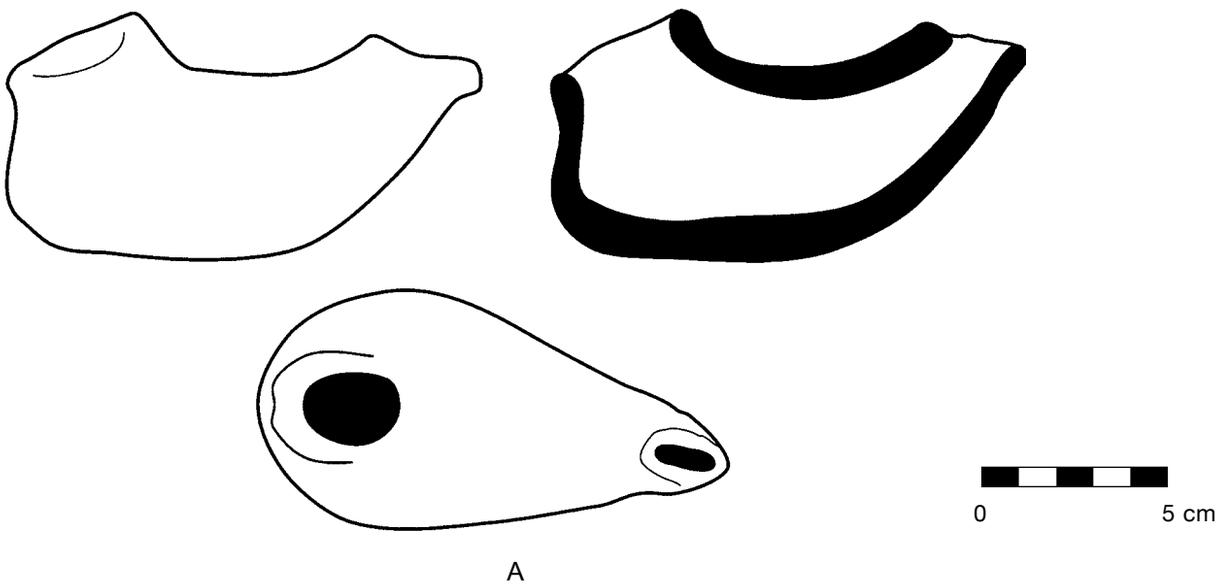
Figure 93. Proto-Elamite kernos

Provenance	*Elevation*	*Field No.*	*Museum No.*	*Description*
Step Trench, Level 36	17.86 m	2TG-154 a–e	A28709–14	Ceremonial object (kernos) with ten miniature cups on a circular solid strap. Cups are made separately and attached to the ring by clay. Pinkish buff ware, some chaff inclusion, reddish brown flaky wash all over. Proto-Elamite (for findspot, see fig. 21, no. 31; for color photo, see pl. 4:D) *Comparanda:* Similar pieces are in Tehran (2TG-91)

Figure 93. Proto-Elamite kernos

Figure 94. Lamps from various periods

	Provenance	*Elevation*	*Field No.*	*Museum No.*	*Description*
A	Step Trench, Level 44	20.41 m	2TG-7	A28743	Lamp. Light gray ware, no visible inclusion, badly charred. Sukkalmah (for findspot, see fig. 23, no. 1)
B	Fort Mound, Level 1	4.90 m	G-101	A27959	Lamp. Pale gray ware covered with bitumen, finger impressions on base. Islamic (for findspot, see fig. 9, no. 11; for color photo, see pl. 8:B)
C	Stake Trench 8–9, below surface	18.96 m	2TG-16	A28751	Lamp. Yellowish buff ware, no visible inclusion, green blue glaze. Safavid (for findspot, see fig. 12, no. 4; for color photo, see pl. 2:A)



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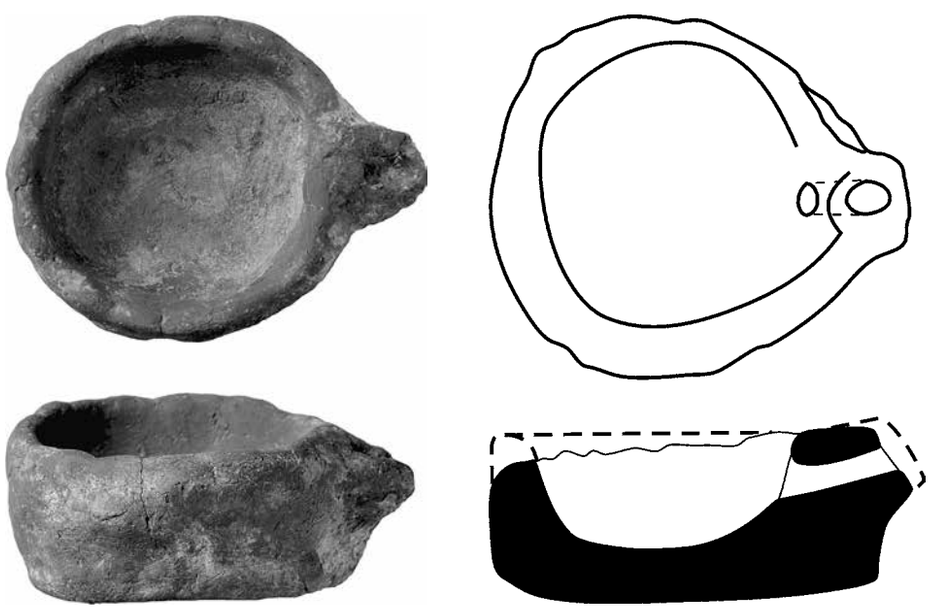

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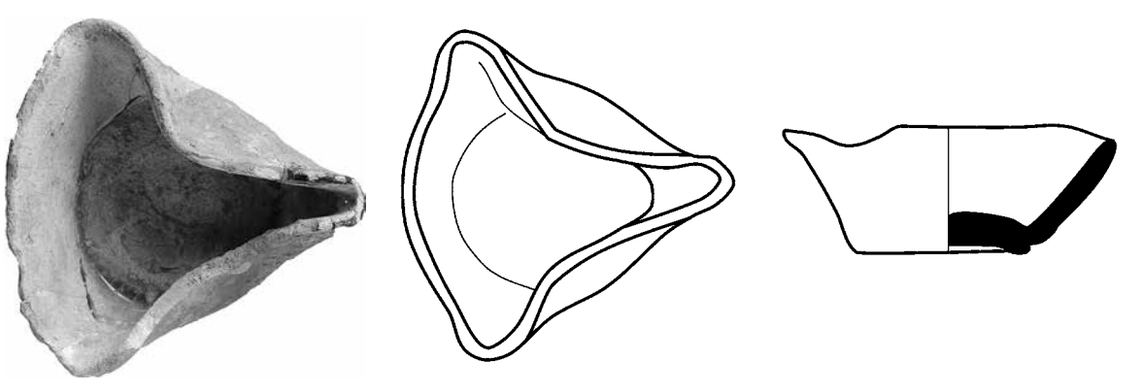

C

Figure 94. Lamps from various periods

Figure 95. Spindle whorls from various periods

	Provenance	*Elevation*	*Field No.*	*Museum No.*	*Description*
A	Step Trench, Level 13	8.10 m	2TG-66	Tehran	Buff ware, no visible inclusion. Early Susa II (for findspot, see fig. 17, no. 6)
B	Step Trench, Level 32	—	2TG-148	A28669	Buff ware, no visible inclusion. Late Susa II
C	Step Trench, Level 36	17.10 m	2TG-105	A28699	Light buff ware, no visible inclusion. Proto-Elamite (for findspot, see fig. 21, no. 32)
D	Step Trench, Level 14	8.10 m	2TG-38	Tehran	Light buff ware, no visible inclusion. Early Susa II
E	Step Trench, Level 34	16.85 m	2TG-130	Tehran	Buff ware, no visible inclusion. Late Susa II (for findspot, see fig. 21, no. 17)
F	Step Trench, Level 5	—	2TG-146	Tehran	Buff ware, no visible inclusion. Late Susa II (intrusive) *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pl. 126:G)
G	Step Trench, Level 36	16.19 m	2TG-131	Tehran	Light buff, chaff inclusion. Late Susa II/proto-Elamite
H	Step Trench, Level 14	8.90 m	2TG-9	A28655	Yellowish white alabaster. Early Susa II
I	Stake Trench 8–9, Level 4A	19.50 m	2TG-20	A28677	Gray sandstone. Late Susa II (for findspot, see fig. 12, no. 7)
J	Stake Trench 7–7.5, Level 4	19.20 m	2TG-98	Tehran	Light buff ware, no visible inclusion. Late Susa II
K	Step Trench, Level 29	15.70 m	2TG-172	Tehran	Buff ware, no visible inclusion. Late Susa II
L	Stake Trench 7–7.5, Level 2	20.29 m	2TG-82	A28738	Light buff ware, no visible inclusion. Late Susa II (for findspot, see fig. 11, no. 5)
M	Stake Trench 7–7.5, Level 4	19.20 m	2TG-84	A28651	Light buff ware, occasional small grits in paste, greenish brown paint. Middle Susiana *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pl. 232:X)
N	Mound B, Level 2	8.50 m	G-119	Tehran	Yellow to light gray brown sandstone. Sukkalmah
O	Step Trench, Level 16	9.26 m	2TG-1	A26852	Red ware, chaff inclusion, white wash. Early Susa II (for findspot, see fig. 18, no. 3)
P	Step Trench, Level 41	19.30 m	—	—	Gray stone. Sukkalmah
Q	Step Trench, Level 14	8.90 m	2TG-165	A28674	Gray black stone. Early Susa II

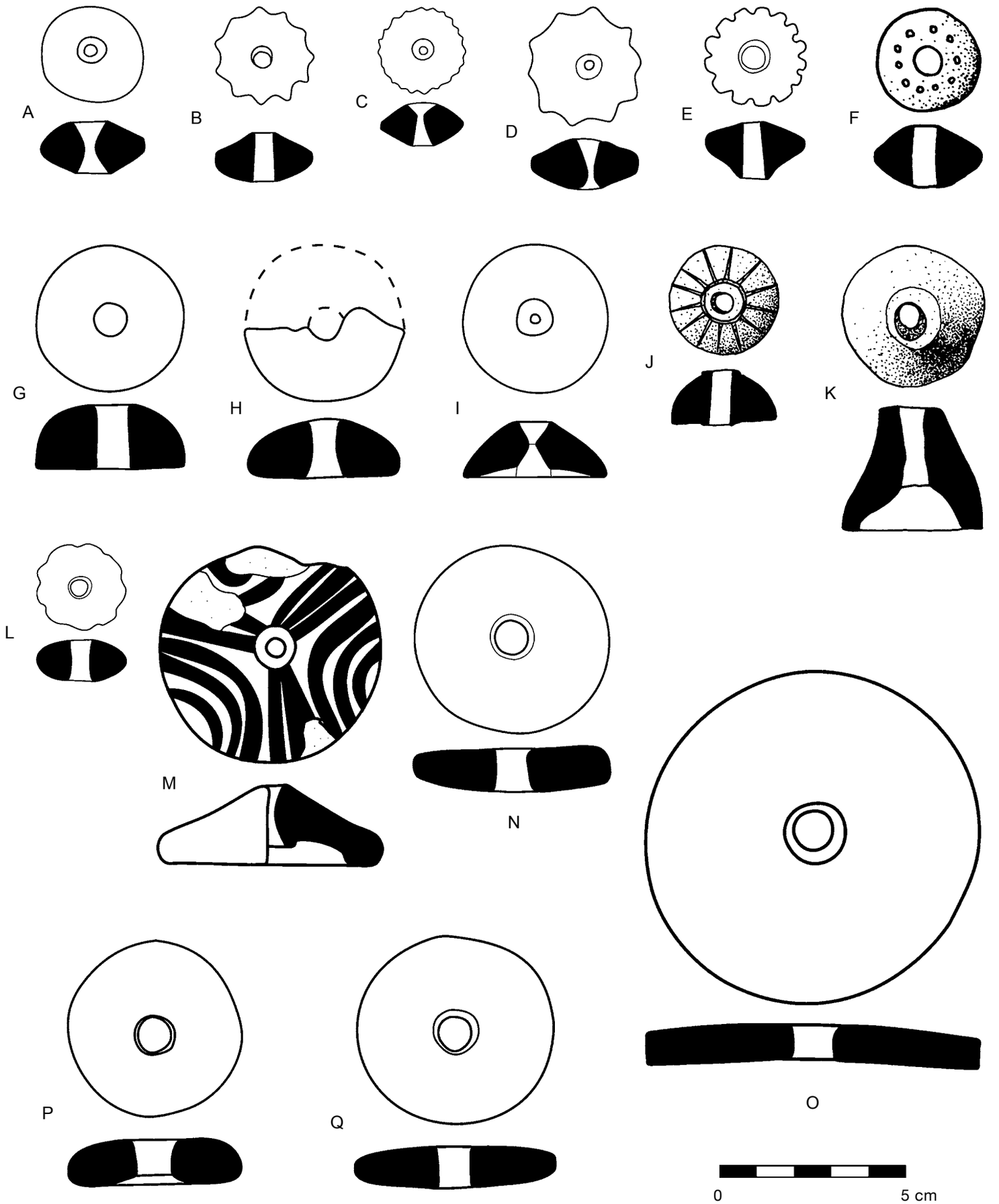

Figure 95. Spindle whorls from various periods

Figure 96. Stone vessels from various periods

	Provenance	*Elevation*	*Field No.*	*Museum No.*	*Description*
A	Stake Trench 10, Room 1	19.50 m	2TG-175	A28718	Cream white alabaster, chisel marks on interior. Proto-Elamite (for findspot, see fig. 14, no. 5)
B	Stake Trench 8–9, Level 6	17.90 m	2TG-36	A28681	Alabaster, whitish cream, red stains on the interior, smoothed interior and exterior. Proto-Elamite
C	Stake Trench 8–9, Level 5	17.80 m	2TG-28	Tehran	Reddish stone vessel. Proto-Elamite (for findspot, see fig. 13, no. 42)
D	Stake Trench 8–9, Level 5	17.94 m	2TG-47	Tehran	Alabaster bowl. Proto-Elamite (for findspot, see fig. 13, no. 15)
E	Fort Mound, Level 1	5.10 m	G-59	Tehran	Cream limestone. Two pierced handles, lattice decoration on upper part of vessel. Post-Sasanian *Comparanda:* Kervran 1979, fig. 66
F	Trench 1, Level 1	20.30 m	G-14	A27918	Cream white alabaster. Proto-Elamite (extrusive)
G	Stake Trench 7–8, Level 2	20.50 m	2TG-151	A28708	White alabaster pedestal base, top broken. Proto-Elamite (for findspot, see fig. 11, no. 8)
H	Stake Trench 10, Room 2	19.30 m	2TG-157	Tehran	Cream white alabaster. Proto-Elamite (for findspot, see fig. 14, no. 6)
I	Mound B, Level 3	7.15 m	—	A154867	Translucent very pale yellowish green alabaster. Proto-Elamite (for findspot, see fig. 8, no. 1)
J	Stake Trench 7.5–8, near sherd nest	19.60 m	—	A154855	Off-white alabaster, 2.5 cm thick below shoulder. Proto-Elamite (for findspot, see fig. 12, no. 5)
K	Stake Trench 7.5–8, Level 4C	18.34? m	—	—	Shallow tray of bituminous stone. Proto-Elamite

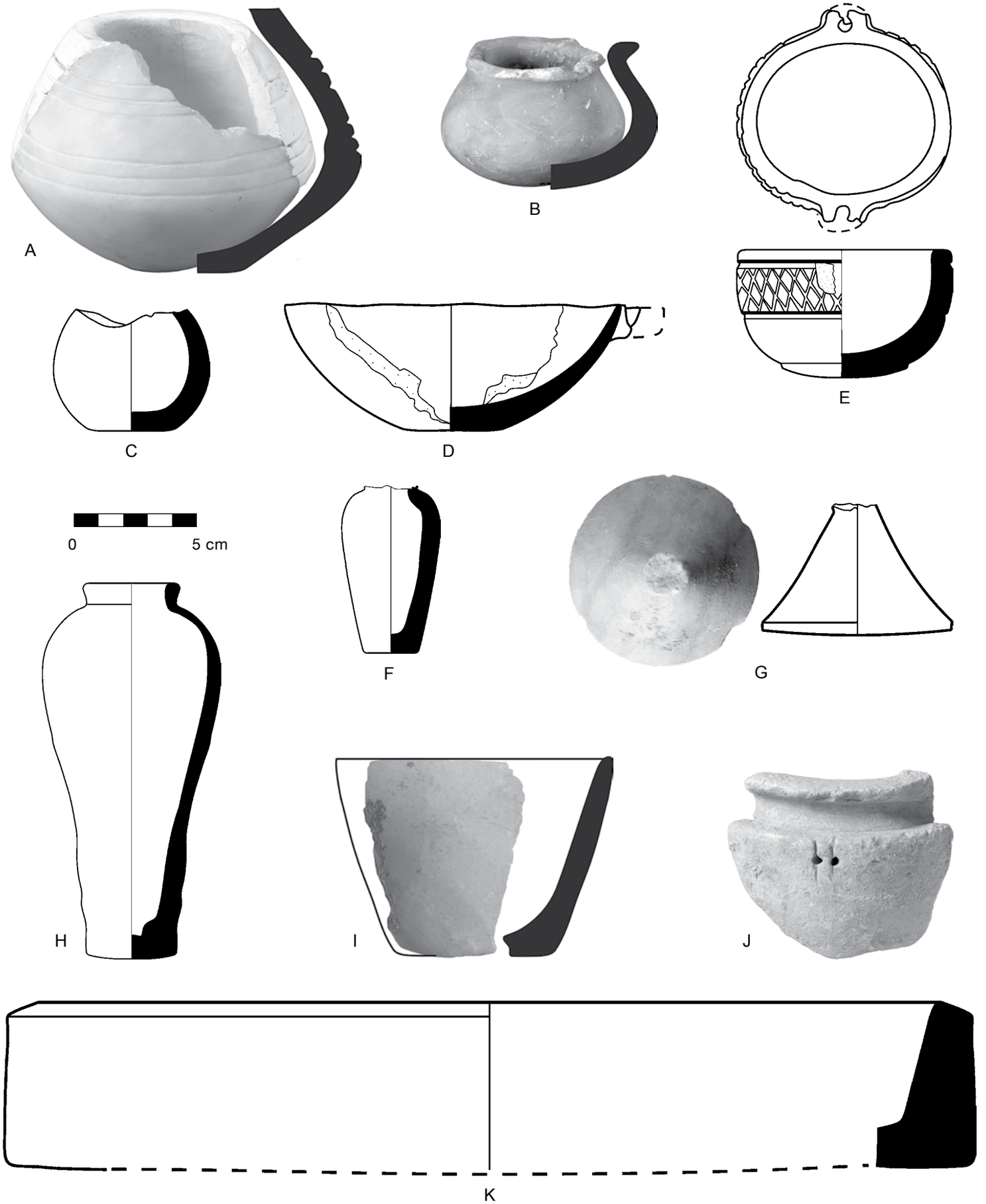

Figure 96. Stone vessels from various periods

Figure 97. Miscellaneous stone objects from various periods

	Provenance	*Elevation*	*Field No.*	*Museum No.*	*Description*
A	Step Trench, Level 34	—	—	—	Yellowish white stone. Proto-Elamite
B	Step Trench, Level 34	16.80 m	2TG-167	A28760	Dark gray polished stone tool. Proto-Elamite
C	Stake Trench 10, Rooms	19.50 m	2TG-166	Tehran	Whitish buff stone, probably a paint/ink well. Proto-Elamite. (Such metamorphic rocks fused with limestone exist in southwestern Iran. When limestone dissolves, the rock makes a natural receptacle.)
D	Step Trench, Level 16	9.60 m	2TG-4	Tehran	Adz/celt. Polished gray black stone. Early Susa II (for findspot, see fig. 18, no. 2)
E	Step Trench, Level 36	17.15 m	—	—	Sinker/loom weight. Proto-Elamite
F	Step Trench, topsoil	ca. 22.00 m	2TG-5	A28741	Stone weight. Off-white stone. Weight: 1,041 gm. Late Susa II/proto-Elamite *Comparanda:* Susa Acropole level 17A (Le Brun 1971, pls. 28:1, 95:S.49); Sialk (Ghirshman 1938, pl. 28:1)
G	Stake Trench, 8–9, Level 6	17.20 m	—	—	White sandstone sinker/loom weight. Late Susa II (for findspot, see fig. 13, no. 34)
H	Trench 1, Level 2	20.15 m	G-43	A27931	Limestone weight (906 gm). Late Susa II/proto-Elamite (for color photo, see pl. 8:A) *Comparanda:* Susa Acropole, level 17A (Le Brun 1971, fig. 55:2); Sialk, level IV (Ghirshman 1938, pl. 28:1, 95:S.49)

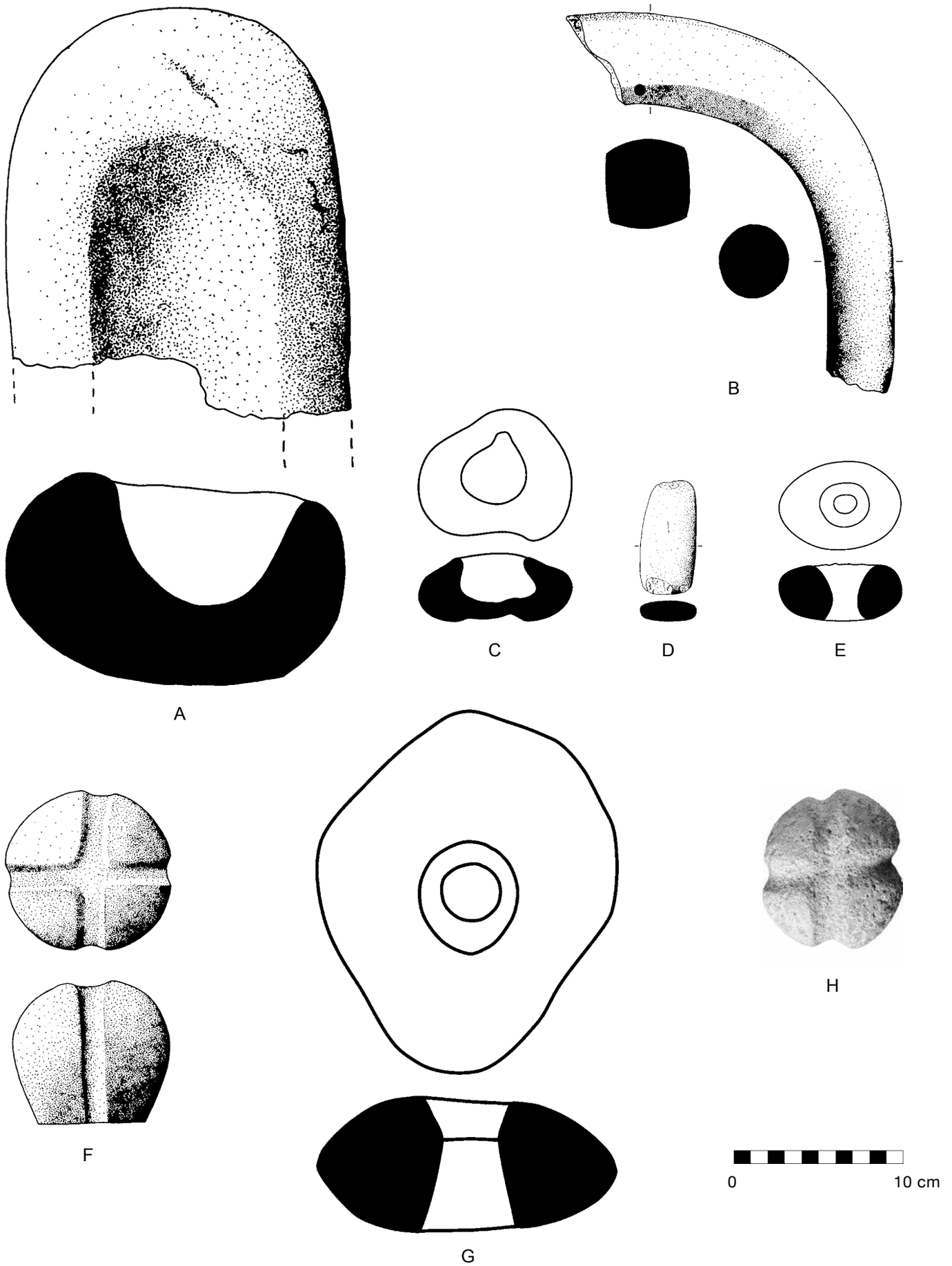

Figure 97. Miscellaneous stone objects from various periods

Figure 98. Miscellaneous stone objects from various periods (*cont.*)

	Provenance	*Elevation*	*Field No.*	*Museum No.*	*Description*
A	Stake Trench 7–7.5, below Level 3	—	2TG-109	Tehran	Alabaster slab engraved with images of a bull and another quadruped. Edges are broken and underneath rather rough. Proto-Elamite
B	Step Trench, Level 33	—	2TG-149	Tehran	Polished creamy white stone with brown horizontal layers. Late Susa II
C	Fort Mound, Level 1	4.80 m	G-89	A27953	Pendant or polisher. Gray sandstone
D	Step Trench, Level 3	6.50 m	2TG-150	Tehran	Black and white stone. Late Susiana 1 (for findspot, see fig. 17, no. 4)
E	Stake Trench 9–10	19.64 m	2TG-85	Tehran	Ball. White alabaster. Proto-Elamite
F	Stake Trench 7–7.5, Level 1	—	—	—	Truncated cone (token?). Carnelian. Proto-Elamite
G	Mound B, Level 2	7.20 m	—	A163148	Wall cone. Gray sandstone. Late Susa II
H	Mound B, Level 2	7.35 m	G-121, G-123, G-126	A27973, A27974, A27975	Three flint arrowheads. Middle Elamite. Found in association with Elamite tomb B1 (for findspot, see fig. 7, no. 7; for color photo, see pl. 8:E)
I	Step Trench, Level 6	7.35 m	2TG-103	A28739	Sickle. Two serrated flint blades set in bitumen. Late Susiana 1–2 (for color photo, see pl. 8:F; for bitumen analysis, see *Appendix B*)

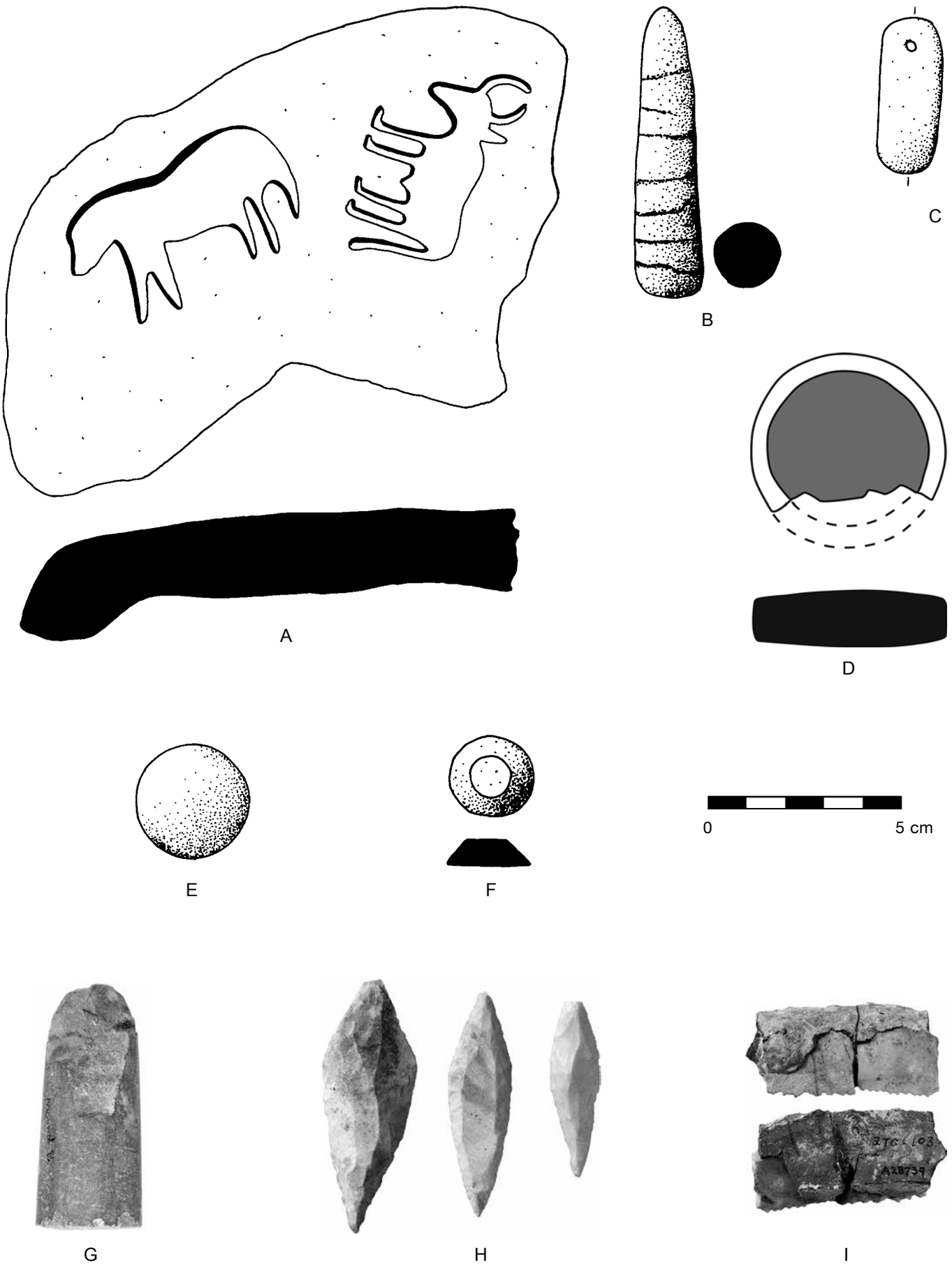

Figure 98. Miscellaneous stone objects from various periods

Figure 99. Miscellaneous objects from various periods

	Provenance	*Elevation*	*Field No.*	*Museum No.*	*Description*
A	Step Trench, Level 33	—	2TG-155	Tehran	Baked clay sling missile. Buff ware, accidental chaff. Late Susa II
B	Step Trench, Level 19	11.60 m	—	—	Partially baked jar stopper. Buff ware, some grits and chaff in paste. Early Susa II
C	Trench 2, Level 2, next to G4	18.55 m	G-33	Tehran	Votive bed. Baked clay, buff ware, no visible inclusion. Sukkalmah/Middle Elamite
D	Mound B	—	—	A154939	Oven grate fragment? Pale brown buff ware, dense, thick light gray core, some chaff inclusion
E	Step Trench, Level 19	11.60 m	—	—	Partially baked jar stopper. Buff ware, some grits and chaff in paste
F	Step Trench, Level 41	19.25 m	—	A163152	Baked toy wheel. Buff ware, dense, some chaff inclusion. Sukkalmah (for findspot, see fig. 22, no. 14)
G	Stake Trench 8–9	—	—	—	Slow potter's wheel. Pale orange buff ware, dark core, chaff inclusion. Proto-Elamite?
H	Fort Mound, Level 1	4.30 m	G-78	A27946	Wooden comb, well preserved. Possibly contemporary. Proto-Elamite (for findspot, see fig. 9, no. 14; for color photo, see pl. 8:D)

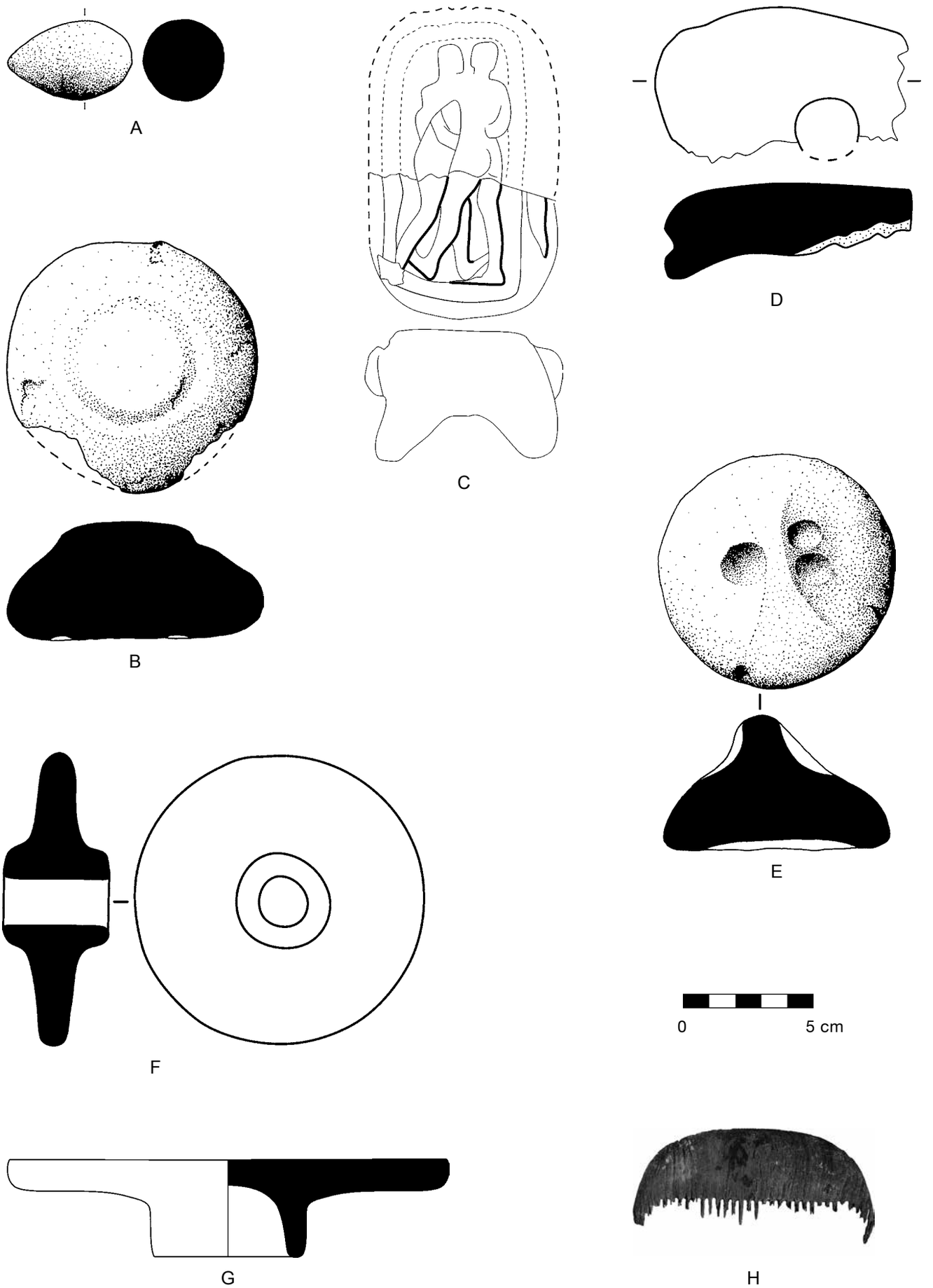

Figure 99. Miscellaneous objects from various periods

PART II

ARCHAEOLOGICAL SURVEY IN THE RAM HORMUZ PLAIN 2005–2008

CHAPTER 7

ARCHAEOLOGICAL SURVEY IN THE RAM HORMUZ PLAIN

ABBAS ALIZADEH, LOGHMAN AHMADZADEH, AND MEHDI OMIDFAR

INTRODUCTION

The following is the report of our regional surveys conducted in the Ram Hormuz plain from 2005 to 2008. For many years, we have been very much interested in understanding the semi-nomadic, mobile component of lowland Susiana and its hinterlands. Surveys and excavations, including ours, we have indicated that archaeological evidence of the ancient mobile pastoralists is to be found in the eastern sector of upper Susiana, the same area that is utilized by the contemporary semi-nomadic tribes from April to the end of September.

The publication of the results of the 1969 regional survey in the Ram Hormuz plain (Wright and Carter 2003) was particularly revealing in the organization of settlement in that ecologically marginal zone where the region, even though part of the alluvium, experienced a very different trajectory of socioeconomic development from that of the heartland. Since one of us (Alizadeh) had already been working to publish the results of two seasons of excavations at the regional population center of Tall-e Geser (*Part I* of this volume), the results of the 1969 survey were a valuable source of information and insights that provide a regional context for the excavated materials. Nevertheless, for a number of logistic and practical problems, Wright and Carter could not complete their survey, and the entire east bank of the ʿAla River was left unsurveyed. Moreover, Wright and Carter did not benefit from the recent digital technology and satellite images and, as a result, the sites could not exactly be plotted on the distribution maps. Despite the problems just cited, without the 2003 report that has provided a valuable guide for subsequent surveys, it would have been much more difficult for us to accomplish the task at hand.

Nevertheless, the ever-present vagaries and uncertainty in conducting sustained, long-term field projects in the country, particularly by those operating from without the country, seriously discourage and undermine any long-term projects and detailed observations. So when Alizadeh's research design was approved and the ICHHTO granted him a permit for a single season, Alizadeh immediately departed for the region in early September 2005. Nevertheless, the project could not be completed within the allotted time and we had to return to the Haft Tappeh compound to prepare for the joint ICHHTO-Oriental Institute excavations at Abu Fanduweh.

We did not give up, however. By the end of our season at Abu Fanduweh, I had to return to Chicago and the opportunity to complete the survey would have been lost. So I decided to include in the continuation of the survey Messrs. Loghman Ahmadzadeh and Mehdi Omidfar, two of the local students of archaeology who had worked with me and were trained in the field. Through the kind offices of Dr. Fazeli of the ICHTO, the permit was renewed and work was resumed in 2007. Again, because of various problems that inevitably arose in the course of the survey, it took two seasons and several short, targeted visits to a number of sites for the survey to be completed. Even so, much more could and should have been done on the geomorphology, geology, ethnoarchaeology, hydrology, and especially offsite archaeology. A major shortcoming of this survey is the omission of some 500 sq. km of the piedmont zone that surrounds the plain. Had we had assurances that we could regularly come back to the region and that we could enlist the cooperation of a number of field specialists, we would be able to do more research. As a consequence, the following is the presentation of an old-fashioned regional survey. We hope that when systematic long-term projects are feasible in Iran again, others will be able to fill the blanks in our current knowledge of the region.

PAST ARCHAEOLOGICAL RESEARCH IN THE RAM HORMUZ REGION

As mentioned in the *Preface*, the Ram Hormuz region did not attract any archaeological research until the late 1940s, when Donald McCown conducted his regional survey and excavations at Tall-e Geser. In the mid-1960s, when Tappeh Bormi, another important Elamite site in the region, was being threatened by local farmers, A. Sarfaraz, an employee of the then Center for Archaeological Services, conducted a test excavation at the site. The results were never published, and until the publication of the results of the 1969 survey (Wright and Carter 2003), the only available information was limited to two brief notes published by McCown (1949, 1954) and a very short report on the pottery from the Step and Stake Trenches published by Joseph Caldwell twenty years after the expedition left Geser (Caldwell 1968). In 1963, Mr. Andranik Hovian, another government employee, conducted a survey on the east bank of the ʿAla River; in his unpublished records he mentions only five sites in the area, ranging in date from the Late Susiana 2 to Sukkalmah, Middle Elamite, Achaemenid, Parthian, Sasanian, and post-Sasanian phases. Under the supervision of Caldwell, Donald Whitcomb based his M.A. thesis on Geser (1971). He illustrated selected examples of the proto-Elamite materials and architecture in that work, but did not formally publish the material.

It was not until 1969 that a series of systematic surface surveys were conducted by Henry Wright and Elizabeth Carter. Data on the fifth and fourth millennia Ram Hormuz region sites were published in 1975 (Wright and Johnson 1975), but the more extensive results were published in 2003 (Wright and Carter 2003). Until then, not much was known of this important buffer zone between the highlands and lowlands. It was the results of the 1969 survey that provided major incentive for us to initiate a new archaeological survey program to complete what Wright and Carter did not have enough time to do. Moreover, as modern digital technology (GPS, satellite images, etc.) were not readily available until two decades ago, many reported known sites could not be accurately located on the plain or be geo-referenced on distribution maps. Despite all the red tape and difficulties international expeditions routinely encounter, we managed to gather enough information to treat long-term settlement systems adequately. When research is again feasible in the region, close attention should be paid to aerial photographs and satellite images for possible ancient canals issuing from the ʿAla River and to the off-site features, as well as to cut sections across them to obtain datable ceramics and/or OSL (optically stimulated luminescence) dates of sediment and to establish their cross-sectional size and slope, which may tell us about the type of irrigation system. We also would like to extend our survey to the area that serves as a natural "corridor" between upper Susiana and the Ram Hormuz region. Preliminary survey in this area[65] has indicated a shared settlement history and the settlement systems and material culture almost duplicating what we have obtained in the Ram Hormuz region.

ANALYTICAL OBJECTIVES OF RENEWED REGIONAL SURVEY

Even in its brevity, the results of the 1969 Wright-Carter survey showed that the Ram Hormuz region is promising in shedding light on the relation between the highlands and lowlands of southwest Iran. Moreover, site-size measures, spatial distributions, and the ceramic collections clearly show that despite the region being part of the alluvial lowland Susiana it shared a number of features with highland Fars and the intermontane valleys to the north and southeast. The low density of population in most cultural phases and the small size of the sites suggested to us that the Ram Hormuz region may have served as a major mobile pastoral region just as it was during the last 500 years of its recorded history. So, encouraged by the results of the 1969 survey and keen on furthering our research into the pastoralist utilization of the lowlands, we conducted a systematic survey of the entire plain that took us three years to complete. Apart from the fact that we wanted to provide a regional context for Tall-e Geser, this survey was designed to address the following issues:

1) the human geography of the region;
2) the evolution of settlement systems and demographic change;
3) the relation between the spatial organization of settlements and the demographic trends, on the one hand, and the known prehistoric and historical events in lowland Susiana and the highlands, on the other;
4) the search for evidence of nomadic footprints in the region throughout its history of occupation, including the twentieth century A.D.

[65] Moghaddam and Miri 2007.

The third issue arose only after our survey was completed. With the benefit of hindsight, we were encouraged to assess the impact of historical events on the archaeological records in the region. This is, however, a hazardous realm to enter. Historians of the ancient Near East now know that what is called "Elam" by Mesopotamian sources was in fact a large and complex collection of intermontane polities. These groups vied for control of natural resources, made and broke alliances with one another, and even allied with Mesopotamian powers against other Elamite polities until, it seems, the dynasties of the Middle Elamite period finally forged a stable confederation that reached imperial levels. The presence of Anshan (in Fars) and Marhashi (in Kerman) east of Fars brought additional complexity to the political history of the region and created additional confusion in historical records (for a detailed discussion of this major problem, see Wright and Neely 2010, pp. 105–11).

The history of greater Elam in terms of its highland-lowland relations, on the one hand, and its relations with Mesopotamia, on the other, is therefore both complex and complicated. Any attempt to use archaeological data derived from surface survey to support or challenge available historical development in the region would be very hazardous indeed. Nevertheless, this marginal zone, similar to the Deh Luran plain, seems to have functioned as an archaeological "barometer" for historical developments in the wider region, as the demographic fluctuations and spatial organization of settlements seem to reflect broad patterns of historical development in southwestern Iran.

For example, the proto-Elamite phase material that is so prominent in the Ram Hormuz region does not exist in Deh Luran. During the early third millennium B.C., while the Deh Luran region shows strong influence by Mesopotamian material tradition, the Ram Hormuz region and its western extension along the Kupal anticline[66] exhibit a class of pottery with closest parallels in the proto-Elamite/Middle–Late Banesh phase of highland Fars. Upper Susiana, Susa in particular, on the other hand, shows a mixture of both Mesopotamian and highland influence in material culture. Such variations in material culture assemblages within the lowlands, especially during historical phases, cannot be glossed over and must be explained reflectively within the sociopolitical and economic framework of the region.

Moreover, the only period (ca. 2800–2000/1900 B.C.) in the long history of the occupation of the Ram Hormuz region when no settlement seems to have existed on the plain corresponds to the turbulent third millennium B.C., when lowland Susiana was controlled by the various Early Dynastic, Akkadian, and Ur III states. The Ram Hormuz region "desettlement" between 2800 and 1900 was completely reversed by the time the Elamites consolidated their powers in the dynasty of the Sukkalmahs, another highland (Fars) power. It is from this time on when the region seems to be prosperous with some minor desettlement during the turbulent centuries of the Neo-Elamite dynasties. None of these observations, of course, would have been possible without a full-coverage surface survey of many parts of the region.

FIELD METHODOLOGY

Through the good offices of Mr. Mohammadi, former director of Khuzestan ICHHTO, we were given the ICHHTO guest quarters on the third floor of its head office in Ahvaz. In the first phase of our survey, we concentrated on visiting the sites reported by Wright and Carter. To find the sites, we used the map and information published in the 2003 report as well as our own 1:10000, 1:25000, and 1:50000 maps and Google satellite images — we could not obtain aerial photos of the region.[67] The illustrated contour maps (pls. 13–40, 42, 44–47, 49–53, 61–62, 64–65, 67–71) are based on the 1:25000 maps; the missing landscape features are added to these maps using Google satellite images of the region. Even with all this available technology, small flat sites could be found only by walking or with the help of the information provided by local shepherds; it is, therefore, very much possible that we have missed some of these apparently seasonal sites.

At the time of our survey, the plain of Ram Hormuz was still undeveloped in terms of irrigation farming, which made it very easy to drive around without running into obstacles such as irrigation ditches and canals, as one would constantly encounter in upper Susiana. Despite this ease of movement, we could not locate all the sites recorded in the 1969 survey. When we did find them, we quickly found their geographic coordinates, measured,[68] and conducted a sherd collection; the same steps were taken when we discovered new sites.

In calculating the area of the mounds, we did not use the straightforward but erroneous, yet common, method of multiplying width by length. To obtain the real occupation area, we (Ahmadzadeh and Omidfar) entered all the points

[66] Moghaddam and Miri 2007.

[67] Google satellite images of the region do not have high resolution and many details of the landscape either do not show or are blurry. Today, Microsoft's BingMap (http://www.bing.com/maps) has provided a powerful tool in some parts of the Middle East (including the Ram Hormuz region), with 50 m resolution, resolving an incredible number of details on the ground.

[68] To save valuable time, we did not measure the sites for which contour maps were available in the 2003 report.

generated by a GPS device in MapSource and created .dxf and .gpx data files, which, using GlobalMapper v11.00, generated the actual areas of the sites.

We followed the numbering system used by Wright and Carter in their 2003 report, where sequential numbers are preceded with RH, initials for Ram Hormuz. We kept all the forty-two numbers assigned to the sites discovered in 1969.

Once we visited all the 1969 sites we could find, using topographic maps we divided the plain into a number of strips and began to survey them until we were sure we had visited all the archaeological features in that strip. Again, we also asked the local farmers and shepherds if they knew of any archaeological sites in their neighborhoods. To these we paid more attention in our measurement and sherd collections. In many cases, especially on small sites, we collected every sherd and flint blade (extremely rare) we could find, as some sites in the Ram Hormuz region, while obviously artificial, do not have any sherds at all (see *Appendix C*). For example, RH-003, the earliest mound in the area, is a small site with Early Susiana deposit.[69] Wright and Carter published a single sherd from the site (2003, fig. 6.4:a). When we visited RH-003, we could not find even one sherd on the mound and the two we have illustrated here we found in a large hole that had been dug there illegally (pls. 34, 74:A–B). In collecting artifacts from each site, we did not use any specific units but rather collected everything we saw, which, as just mentioned, usually amounted to a few sherds and no other artifacts. For large and multi-period sites, like RH-001, RH-011, and RH-118, we collected diagnostics only.

The survey in this phase was conducted on foot, on a motorcycle, and in a pickup truck, depending on the circumstances. Because Ahmadzadeh and Omidfar are local and live in the region (Shush), over the next two years they visited and revisited not only the new sites on both sides of the ʿAla River, but also a number of sites that had posed some problems in the course of our analyses. We managed all this through the Internet and occasional phone calls. The entire survey collections are kept at the local ICHHTO along with a copy of the documentation.

Because of the paucity of sherds on many mounds in the Ram Hormuz region, statistical collection procedures to determine occupation size would be deceptive and, in any case, we believe that the results of such procedures will have to be confirmed by test trenches on the site, which could not possibly be done in a short season. For most of the sites that Wright and Carter had surveyed, we primarily used their estimated mound areas. For the remaining sites, we based our estimates on the frequency of the sherds dating to specific phases, an admittedly unsatisfactory procedure.[70]

In dating the ceramic collections we relied heavily on the published materials, primarily from upper Susiana and the sequence recorded at Tall-e Geser. Comparative methodology for dating is, of course, always problematic, especially when dealing with surface collections. Because of this, we have published as many sherds as possible from all the sites so that readers will be able to judge for themselves and correct our errors in dating. To avoid redundancy and repetition, we decided not to duplicate the general and specific characteristics and features of each class of the known ceramics from the Ram Hormuz plain; for this the reader is referred to *Part I*.

Finally, there is no question in our minds that we may have misdated some of the sherds, particularly those representing the transitional phases between the late historical periods and the post-Sasanian phases. But by illustrating and explicitly dating examples of all phases from all sites, we hope that any errors will be corrected by others in the future.

[69] Even though the two sherds from RH-003 are dated to the Early Susiana phase, the settlement history of the region began in the late Middle Susiana phase. Nevertheless, we should entertain the possibility that these two sherds may be survivors of an earlier phase and do not necessarily represent an earlier phase, a problem that can only be solved by excavating the site or finding additional sherds there.

[70] Henry Wright (pers. comm.) informs me that the paucity of sherds on ancient mounds in the Izeh area is even worse.

CHAPTER 8
SETTLEMENT HISTORY AND ORGANIZATION

In this chapter we introduce our findings from the 2005–2008 survey seasons. We have provided illustrations of all the diagnostic ceramics from every phase and for every site we surveyed, unless the site did not yield any sherds or the sherds were not diagnostic. These are illustrated in plates 73–184; plate 185 illustrates most of the flint blades we collected. Since we do not refer to all the survey sites individually, the reader can find the illustrated pottery of each specific phase by referring to the statistical tables 3–20, and after finding the RH number of the sites of that specific phase, the reader can simply go to the pottery illustration figures and find the pottery of a particular site in plates 74–184, which are arranged by the sequential number of the sites.

Similarly, in our discussion we do not refer to every individual site, as this is done in the gazetteer (*Appendix C*). Both for the benefit of the reader, but most importantly, for posterity, most of the sites are photographed and are drawn along with their immediate environs in plates 13–72.

GENERAL TRENDS IN THE USE OF LAND IN THE RAM HORMUZ PLAIN

The settlement history of the Ram Hormuz plain is influenced not only by the political, economic, and social factors, but also by natural features, including the major natural communication route that spanned the length of the plain along the southern bank of the Kupal River. This is the area where the earliest settlement (RH-003) was established in the sixth millennium B.C. (pls. 15, 34, 74). In the early fifth millennium B.C., Tall-e Geser (RH-001) replaced RH-003 as the regional center. Even though in the second millennium B.C. Tappeh Bormi (RH-011) replaced Geser as the major regional population center, Geser retained its position as the node of communication until Parthian/Sasanian times, when the town of Ram Hormuz, after which the region is named, became both the node of communication and the largest population center in the area. The development of the town of Ram Hormuz may have been directly related to the occupation of southern Susiana during the Parthian phase, when a line of direct communication between Ahvaz, the newly established Partho-Sasanian city, and Ram Hormuz became necessary (pl. 10).[71]

As already noted, the concentration and sparseness of settlements across the region may also be attributed to the types of soil and availability of surface water, as well as the requirements of farming and tribal inter-politics. The salient micro-environmental zones in this plain are remarkably similar to those observed in the Deh Luran region (Neely 1974). The spatial distribution of ancient sites as well as the contemporary occupied or abandoned villages almost match the agricultural and grazing potentials of each of these zones and, as such, one may assume that the types of soil and water resources have not changed much since the early Neolithic.

The Wright and Carter's 2003 report revealed that the organization of settlement in the ecologically marginal zone of the Ram Hormuz region experienced a very different trajectory of socioeconomic development than that of the heartland of upper Susiana. This uneven development seems to be the case in other peripheral regions in southwestern Iran (Wright and Bayani 1979; Wright and Neely 2010) and we seek to provide a tentative scenario to address this historical issue in a much wider, inter-regional context. We argue here that the settlement history of the Ram Hormuz region reinforces the model of lowland-highland political formation proposed previously by Alizadeh (2008, 2010).

[71] For the occupation of southern Susiana, see Alizadeh 1985b.

PRE-SUSIANA PHASES (BEFORE 6000 B.C.)

We could not find any traces on the plain that date to the Pleistocene and early Holocene times; nor did the 1969 survey (Wright and Carter 2003, p. 65) or that of McCown in 1948. Such evidence may well be found in the piedmont surrounding the plain, but this zone remains to be surveyed intensively and extensively.

EARLY SUSIANA PHASE (CA. 6000–5700 B.C.)

In both our own and Wright and Carter's survey (2003, p. 76), only one site — RH-003 — has been found dating to the Early Susiana phase (table C1, pls. 15, 74). Wright and Carter published one sherd in what they described as exposed remains of an oval oven (2003, fig. 6.4:a). We found only two sherds from the same context, which by 2006 had been extensively expanded into a large hole by illegal diggers, but surprisingly no other material, save for ashes.[72] Wright and Carter also reported evidence of first-millennium A.D. occupation at this small site (2003, p. 76), but we found no other sherds.

The location of this single early site on the plain is very inconspicuous; it is nowhere near any river, stream, or existing natural spring. The mound itself is small and conical with almost no sherds on its surface and if it were not for the erosion or vandalism on its lower southwest slope we could not find any evidence of its occupation. The surface of this mound is hard and patches of salt or gypsum encrustation are found all over the mound, features common on many small sites in the region.

We believe that, had there been other Early Susiana sites in the region, both surveys would have been able to find them since sedimentation seems to be minimal, particularly away from the only major river, the ʿAla. Therefore, the presence of a single small occupation in the area could not convincingly be considered as the beginning of colonization of this plain by Early Susiana farmers, particularly that Susiana had plenty of water and huge tracks of land available at this early time. Therefore, considering the proximity of this site to the ancient route that linked Susiana to the highlands, it is possible that RH-003 was the earliest node of communication established by the Susiana community in the region, but we have no hard evidence to support this claim.[73]

EARLY MIDDLE SUSIANA PHASE (CA. 5700–5200 B.C.)

Whatever the purpose and function of RH-003, the site seems to have been abandoned by the end of the Early Susiana phase. No traces of occupation during the Early Middle Susiana phase were found in either the 1969 or the 2006 surveys in the region, although some sherds may be carryovers of this phase (see pl. 100:D). While the wet climatic conditions of sixth-millennium B.C. southwestern Iran may have been a factor, we think it is the internal social and demographic development in the core region of upper Susiana that led to the colonization of the Ram Hormuz region.

LATE MIDDLE SUSIANA PHASE, GESER PHASE I (CA. 5200–4700 B.C.)

The Late Middle Susiana is the first major phase of occupation in the Ram Hormuz region (pl. 16). The transition between the Early and Late Middle Susiana phases was gradual and smooth in upper Susiana. The settlement system and spatial distribution of population centers remained the same, while the population increased. A number of ceramic forms and decorative motifs disappeared gradually and were replaced by new types and decorative schemes.[74] A large number of forms and decorative schemes typical of the early stages of the Late Middle Susiana phase are missing from the Ram Hormuz region, similar to the situation during this phase in the Mamasani region, another marginal zone influenced

[72] All these three sherds are typical of the Early Susiana phase (see Delougaz and Kantor 1996, pls. 197:I, 202:C; Dollfus 1975, figs. 25:1, 28:13).

[73] Henry Wright (pers. comm.) suggested that, given the location and date of the site, RH-003 could be a winter village of the earliest nomads.

[74] For a full discussion, see Alizadeh 2008, pp. 67–68.

by the late Susiana phase material culture around this time.[75] A comparison of the pottery forms and painted motifs of the pottery assemblage in upper Susiana and those found in the Ram Hormuz region reveals that the Late Middle Susiana phase in the latter region should be dated to the middle and the final stages of the Late Middle Susiana phase.

Twenty-four sites are dated to this phase with an average area of ca. 0.85 ha (table C2). With an area of ca. 2 ha, RH-001 and RH-053 are the largest; RH-081, with ca. 0.06 ha, is the smallest. The sites dating to this phase are concentrated on the southwestern and southeastern of the plain while the center of the plain was not occupied by villages, a pattern that is repeated in most of the following phases. On the upper northwest sector of the plain, the locus of the communication route to upper Susiana, only three sites, RH-001, RH-002 and RH-044, were found (pls. 43, 45). RH-044 is a mound about 1.5 km north of Geser on the north bank of the Kupal and very close to the piedmont and the road linking Ram Hormuz to Haft Gel. RH-002 (pl. 33) occupies a location similar to Geser, that is, on the major communication route to upper Susiana. However, the temporary nature of RH-002 and RH-044 in this phase and a number of other sites in the following phases suggests either agricultural hamlets or shifting nomadic camps. This question can only be addressed by excavation.

Wright and Carter (2003, p. 61) proposed that "[the Ram Hormuz region] became more prosperous when the nearby central Susiana plain required an 'overflow' for excess population, regardless of whether or not exchange activity intensified." Apart from the difficulties involved in defining and measuring overpopulation in a given region, distribution maps of the Middle Susiana phase settlements in upper Susiana indicate large tracks of unoccupied land and do not support the notion of overpopulation in this phase. We think there is an alternative explanation. As a marginal zone and historically a strong nomadic region, the Ram Hormuz region as well as upper Susiana absorbed people from the highlands who may have been responsible for the change in the organization of the settlement and shift of the seat of power (Chogha Mish) to the western sector of the plain in the fifth millennium B.C. beginning with the Late Susiana 1 phase.

There are several reasons that this alternative view is viable. With the exception of a single small site of the Early Susiana/Early Middle Susiana date (RH-003; pl. 34), the Ram Hormuz region was first populated during the Late Middle Susiana phase at the end of the sixth millennium B.C. While the Late Middle Susiana phase experienced the largest prehistoric population yet seen in upper Susiana, vast tracks of fertile land were still available and could have been occupied by the excess population. Farming communities can use as many extra hands as they can muster, while not very many people are required in herding animals, which is routinely done by one, two, or three shepherds, including boys and girls. As the mobile pastoralist population is comparatively healthier than the settled farming population, on account of their lifeways and their environment, mobile pastoralists can and do generate excess animal and human populations that need to be channeled to the sectors in need of both. The combined factors of an increase in the population of both settled and mobile sectors of the society, as well as the expansion of Susiana influence into the highlands, created an opportunity for the highland pastoralist tribes. By settling in small villages in the area, the mobile pastoralists also could control (possibly by proxy) the major routes of communication and exchange that linked Susiana to points east, southeast, and north.[76] This, of course, remains a hypothesis that can only be supported by excavation.

LATE SUSIANA 1 PHASE, GESER PHASE II (CA. 4700–4300 B.C.)

The basic spatial organization of the settlements continued from the Late Middle Susiana into the Late Susiana 1 phase (table C3, pl. 17). In upper Susiana, this phase was a turning point in both the organization of settlements and socioeconomic development of the lowland. Since the possible dynamics of the development of the Late Susiana 1 phase has been discussed elsewhere (Alizadeh 2008, 2010), it suffices here to say that by the end of Late Middle Susiana phase Chogha Mish, the largest site in the region, and a number of its satellites were largely abandoned, presumably because of some regional violence, which may have resulted in the relocation of many Late Middle Susiana settlements to the western sector of the plain, where somewhat later Susa assumed Chogha Mish's regional status. Moreover, the characteristic pottery of this phase exhibits a convergence of the lowland and highland motifs and decorative schemes. While the

[75] See ceramics from phases A18–17, Potts et al. 2009, figs. 3.83–87, 6.7–9. These Late Middle Susiana ceramics are reported from both the Nurabad plain and the adjacent Dasht-e Rustam. While the Nurabad sequence dates back to the Mushki and Jari periods, Dasht-e Rustam's earliest occupation is contemporary with that of the Ram Hormuz region, that is, Late Middle Susiana.

[76] Henry Wright (pers. comm.) suggested that there are social reasons for people to move out of an area with higher density, even if they are not running out of farmland. He also considers the nomadic practice of tending the herds with few individuals may be a recent development under the aegis of the Iranian state, as well as during other times of less pervasive state control, for example, in the turbulent nineteenth century.

lowland ceramics penetrated the central Zagros and highland Fars during the Late Middle Susiana phase, it was during the following Late Susiana 1 that the lowland ceramics have their widest geographic distribution in both the lowlands and highlands, even reaching the central plateau.[77]

The changes that took place in the Ram Hormuz region in the size of the settled population and settlement systems during the Late Susiana 1 phase are very similar to those in upper Susiana but on a much smaller scale. Most of this change took place on the west bank of the ʿAla River, where much of the productive land is located. Geser continued to be occupied, but eleven sites were abandoned and four new sites were established (table 5 and fig. pl. 17). The number of sites dropped from twenty-four to thirteen, the total area of occupation from 20.52 to 10.35 ha; the central parts of the plain continued to be largely unoccupied.

LATE SUSIANA 2 PHASE, GESER PHASE III (CA. 4300–4000 B.C.)

Again, similar to the regional development in upper Susiana, there was a marked drop in the number of settlements in the Late Susiana 2 phase, but the general spatial distribution of sites remained the same as in the preceding phase (table C4, pl. 18). Five widely separated sites are dated to this phase, of which two, RH-067 and RH-097A, are new; because of the small size and scattered pattern of settlement during this phase, security does not seem to have been a factor. These five sites have a total area of occupation of 6.70 ha. In contrast to the preceding phases, all the sites of this phase are between 1 and 2 ha in area; only Geser seems to have been reduced in size from 2 to 1.60 ha, but this is an estimate.

TERMINAL SUSA/EARLY SUSA II PHASE, GESER PHASE IV (CA. 4000–3500 B.C.)

Our definition of the Early Susa II ceramic assemblage as collected in the Ram Hormuz region is poor; the same is true about the so-called Terminal Susa phase; in southwestern Iran these two phases cover the first half of the fourth millennium B.C.[78] In the excavations at Geser, characteristic pottery forms and decorations of these two phases occur together from Levels 7 to 15 in the Step Trench, with few extrusive samples up to Level 22.[79] Neither of these poorly known phases is well defined elsewhere, and it was therefore impossible for us to distinguish between them on the basis of surface collection. Accordingly, we treat them as a single phase.

There are very few forms that can be attributed to the Terminal Susa phase. They primarily consist of jars with flaring high necks as well as open forms of the Late Susiana 2 phase (Susa A/Susa I) but without decoration. The ware is very fine and ranges in color from buff to cream buff with completely oxidized cores. There are also occasional coarse cooking wares associated with the fine vessels of the Terminal Susa phase, but it is impossible to distinguish these and the Early Susa II coarse ware examples on the surface.

Just as in upper Susiana, there was a marked drop in the settled population during this phase, while the settlement system and spatial relation of the settlements remained the same (table C5, pl. 19). Of the eight sites dated to this phase, only two from the preceding phase of occupation survived, RH-001 and RH-077A; the remainders were founded during this phase. The total area of occupation also dropped to 5.77 ha from 8.27 ha in the previous phase. During this phase, Geser continues to be occupied but the entire central region seems to be completely lacking in settlement. Three of the sites are very close to rivers while the piedmont northwest of the plain is occupied for the first time (RH-086; pls. 63, 150–56).

[77] For full discussion of the Late Susiana 1 phase in the lowlands and highlands, see Alizadeh 1992, 2008, and 2010.

[78] The first half of the fourth millennium B.C. is our suggested date for the Terminal Susa and Early Susa II phases. The beginning of the Early Uruk phase in Mesopotamia (Early Susa II in Susiana) is dated to 4150 B.C. (Wright and Rupley 2001) and as such is too early for the Terminal Susa phase in southwestern Iran.

[79] There can be no doubt that statistical procedures can reveal pottery characteristics of each phase, but we do not have the actual counts.

LATE SUSA II PHASE, GESER PHASE IV (CA. 3500–3100 B.C.)

In the Late Susa II phase the number of sites dropped from eight in the previous phase to five, with a slight decrease in the total area of occupation, from 6.57 to 5.47 ha (table C6, pl. 20). Of the total five sites recorded for this phase, four continued from the previous phase and one, RH-006, was established. The spatial distribution of the sites remained unchanged. Again, other than Geser, the four sites of this phase were established in the fertile zones of the plain.

PROTO-ELAMITE PHASE (EARLY SUSA III), GESER PHASE V (CA. 3100–2600 B.C.)

The Ram Hormuz region regained the level of its late prehistoric settled population during the proto-Elamite phase (table C7, pl. 21). Fourteen sites with a total area of 11.07 ha of occupation are dated to this phase. The average area of occupation is ca. 0.80 ha, with Geser (1.60 ha) the largest and RH-084B (0.08 ha) the smallest (psl. 61, 146). With the exception of RH-077D (pls. 58, 138), all other Late Susa II sites continued to be occupied during this phase, a sign of continuity from the previous phase. The spatial pattern of the distribution of the sites remained the same; again, except for Geser, all the other proto-Elamite sites are found in the fertile and well-watered parts of the plain while the central parts were avoided.

This relatively large increase in the number of mounded sites on the plain during the proto-Elamite phase is in contrast to the post-Susa II phase in Susiana, even though the sites are small, as in upper Susiana. Alden (1987), who has done the only systematic study of this phase in Susiana, has subdivided the Susa III/proto-Elamite period into Early, Middle, and Late phases, corresponding respectively to the Jemdet Nasr, Early Dynastic I, and Early Dynastic II phases. The problem of extending the proto-Elamite phase with its distinct glyptic, "script," and pottery styles into the Early Dynastic phases notwithstanding, we are concerned here with the early phase of Alden's analysis. During this phase, Susa apparently shrank to 11 ha, though this is by no means certain. But more telling is the number and size of the contemporary sites on the plain. As Alden's revisit to the then known proto-Elamite sites revealed, most "... yielded so little diagnostic pottery that it seems they were probably occupied only sporadically or for very short times" (Alden 1987, p. 159).

This seeming paucity of proto-Elamite sherds on the Susiana sites may have to do with the difficulty in recognizing its pottery on the surface of the mounds.[80] This difficulty is more apparent when we consider the fact that Abu Fanduweh (KS-059),[81] which was surveyed several times, had not been recognized as having a proto-Elamite occupation and therefore was not on Alden's list of the known proto-Elamite sites.[82] Nevertheless, there is no doubt that there was a sharp drop in the number of settlements and in the size of the settled farming population in Susiana after the end of the fourth millennium B.C.

The pre-third-millennium B.C. settled population of Susiana did not simply disappear into the proverbial thin air, though some may have taken up a semi-nomadic lifeway. The population of fourth-millennium B.C. Susiana may have contained a large number of immigrants from Mesopotamia. Some of this presumably non-local population may have been forced to return to their homeland as the results of conflicts of interests between the farming and pastoralist populations; some may have simply relocated to the almost "empty" Deh Luran plain, as no proto-Elamite pottery or any other related materials are found there and much of the third-millennium B.C. materials reported from surveys and excavations are unquestionably of Mesopotamian origin.[83] Similarly, there may have been unresolved internal problems within the Late Susa II Susiana elite that boiled over by ca. 3000 B.C. (see also Johnson 1973, 1987; Wright and Johnson 1975). But these are the types of questions we cannot address at this point.

Alizadeh (2010) has argued that the early third-millennium B.C. Susiana was a landscape built by the precursors of the Elamites who were in the long process of forging an economy based on both long-distance herding and settled

[80] See *Chapter 4* and Alizadeh 2010 for the difficulty in recognizing proto-Elamite sherds in surface surveys.

[81] Henry Wright (pers. comm.) informs me that Gregory Johnson did collect proto-Elamite sherds from KS-059, which obviously was not reported.

[82] We excavated Abu Fanduweh for two months in 2005/06. The results are in the process of publication. The southern mound was strewn with a number of chaff-tempered sherds with faint traces of red, brown, or white washes, but the forms were almost identical to those of the Late Susa II pottery. It was not until we found a one-meter deposit immediately on top of the Late Susa II levels in our trench that we realized we were dealing with typical proto-Elamite pottery. This pottery loses its surface wash when exposed to the elements and is thus easily mistaken for Susa II pottery.

[83] See Wright 1981; Neely and Wright 1994.

farming. Alden (1987, pp. 159–60) suggests that insecurity and/or violence could not have been the reason for the paucity of settled sites and low population during this phase, as sites are not clustered but widely scattered on the plain, except for the eastern and northern sectors, where no proto-Elamite sites are reported. We propose an alternative explanation, namely, that the spatial distribution of the sites in this phase can be compared to the fifth millennium B.C., when conflict of interests resulted in the abandonment of sites in the eastern and northern sectors of Susiana (Alizadeh 2008, 2010).

AWAN AND SHIMASHKI PHASES, GESER GAP (CA. 2600–2000/1900 B.C.)

The Awan and Shimashki phases correspond to the Early Dynastic, Akkadian, and Ur III phases in Mesopotamia. Nothing in the Ram Hormuz region was found that can be dated to these phases, nor in the Mamasani area.[84] This anomaly is difficult to explain unless we appeal to the historical narrative as known from Mesopotamian sources. The third millennium B.C. is a time of crystallization of the early states in southern Mesopotamia that culminated in the Akkadian and Ur III empires. During much of this time, lowland Susiana seems to have been controlled by the Mesopotamian powers that were in constant confrontation with Elam, Awan, and Anshan, presumably over fertile and strategic lowland Susiana, but also for the highland resources and plunder.

Such inter-regional hostilities and protracted military campaigns in the era of early state formation in southwestern Iran and Mesopotamia required state organizations on all the sides involved, despite the common, unsubstantiated claim that Elamite states were secondary and were formed late, as the results of Sumerian, Akkadian, and Ur III campaigns.[85] To see the material manifestation of socioeconomic complexity in both the lowlands (Chogha Mish, Susa) and the highlands (Bakun, Malyan) from at least the fifth millennium B.C., followed by the far-reaching proto-Elamite administration and its vast sphere of interaction, it is difficult to understand why the Elamites get short shrift from scholars. This is not a question of prestige or doling out undue credit to the pre-Shimashkian Elamites, but a question the answer to which would influence interpretations of third-millennium southwestern Iran.

The legendary Sumerian King List (Jacobsen 1939) makes it clear that Elam and Awan must have politically and militarily so impressed the Sumerians that, like no others, they were given a place of honor in the king list as worthy adversaries, and not just some wild highland tribes who ran around creating havoc. The king list aside, there is a dedicatory inscription of an Early Dynastic king of Kish, Enna-il, who commemorates his battle with Elam (Carter and Stolper 1984, p. 11), and this was long before the Shimashkians dominated the scene.

We know that at least from the Early Dynastic period, southern Mesopotamian armies were well organized, utilizing phalanx formation and siege technology,[86] and Akkadians were even more formidable. Nevertheless, Assyriologists have for decades realized the incompleteness of Mesopotamian third- and first half of the second-millennium B.C. early states in controlling even their own hinterland.[87]

Surely, the inability of a state to subdue its peripheral tribal societies is even evident in many Middle Eastern and African countries, but a very ethnically charged, legendary/historical document such as the Sumerian King List also speaks of conquering highland and lowland polities. Certainly, when it comes to the highlands with dangerous terrain and numerous hostile tribes, the claim of conquest may well be hyperbole. Elamite political organization may have

[84] Behzad Mofidi-Nasrabadi (2005) has maintained that the stone inscription he attributed to the reign of Amar-Sin of the Ur III dynasty comes from Tappeh Bormi in the Ram Hormuz region. I found this inscription in 1995 in the storage area behind the Susa Museum, when excavating at Chogha Bonut. It was under a Land Rover, being used as a "jack." My colleagues and I took it up to the Castle, cleaned it, and copied it. A copy was subsequently given to Bob Biggs, who could not publish it because of the lack of permit. At that time, I was told by the museum guards that the inscription came from the Ram Hormuz region, but such "information" is always suspect. Unfortunately, Mofidi-Nasrabadi has misrepresented the facts surrounding the discovery of this inscription and in so doing has identified the ancient town of "Huhnuri" with Tappeh Bormi. Since 1969, it was known that neither the site nor the region was occupied from ca. 2700 to 1900 B.C. (Wright and Carter 2003). Besides, Huhnuri is characterized in an Ur III (Ibbi-Sin) text as the "bolt of the land of Anshan" (Potts 1999: 138). Tappeh Bormi being located on an open plain and exposed from all sides can hardly be characterized as such.

[85] Potts 1999, p. 127; Stolper 1982, p. 51. Secondary state formation is a p urely anthropological notion (e.g., Fried 1967, pp. 240–42; Cohen and Service 1978, pp. 141–60) and while the idea may or may not be applicable to the polities that developed after state societies had already existed, such as the Medes, it is by no means applicable to the period of state formation in the Near East (see detailed critique in Smith 2003).

[86] See Yadin 1972, fig. 1; see also the scenes on the so-called Standard of Ur and the Stela of Eannatum (Frankfort 1954, pls. 33, 36).

[87] Much of the debate and evidence is marshaled in an excellent article by Seth Richardson (2012). See also Adams 1978.

[88] For a critique, see Rowlands 1989; Shennan 1993; Yoffee 1993; Smith 2003.

[89] The categorization of early polities into primary/early/archaic and secondary in such an early stage of political formation in the ancient Near East has been criticized by several scholars; see Frangipane 2001; Stein 1999, 2001; and Smith 2003 for the latest and most extensive treatment of the problem.

evolved from a segmentary lineage type of political organization during the proto-Elamite phase when grounds were laid for the subsequent Shimashki and Sukkalmah powers.

Apart from the social evolutionary problems[88] of the "secondary state formation" hypothesis in the early stages of political development in the ancient Near East,[89] the view of the early Elamites seems to be negatively affected by the comparative dearth of textual material from much of Elamite history, as well as the peculiar non-urban landscape of the Elamites. But once we recognize that the trajectory of cultural development in southwestern Iran was entirely different from that of southern Mesopotamia, and that a civilization with an administration, political hierarchy, craft production, and inter-regional exchange system can develop without a landscape populated by cities, towns, and their satellite farming villages, then we may seek to evaluate the early Elamite world on its own highland-lowland universe. In fact, even when the Elamites are considered a state society, in the second millennium B.C., they left precious little textual evidence behind.[90] One of the many differences between lowland Mesopotamia and the highlands of Iran is that the processes of social complexity in Sumer culminated in a number independent city-states with large regional territories, while in the highlands, including and especially Fars, it resulted in a number of small territorial polities based in the various intermontane valleys, the same areas that gave Mesopotamian scribes and military commanders so much confusion, a confusion that has lasted to this day among the historians and archaeologists of Elam.

Episodes of organized violence between the lowland and highland forces must have created the need for some volatile buffer zones, which, in our opinion, at various phases of history included the Deh Luran, the Ram Hormuz, and the Mamasani 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 both the Ram Hormuz and the Mamasani regions are settled again. Notwithstanding the numerous and contradictory analyses of Elam's political geography, archaeological consideration suggests a homeland for both these Elamite dynasties was in highland Fars.

SUKKALMAH/TRANSITIONAL (CA. 1900–1400 B.C.) AND MIDDLE ELAMITE (CA. 1300–1000 B.C.) PHASES, GESER PHASES VI–VII

Fifteen sites with a total area of 45.53 ha were found in the region dating to the Sukkalmah/Transitional phase (table C8, pl. 22). While Geser continued to be occupied, it was no longer the largest population center on the plain. This status was now assumed by Tappeh Bormi (RH-011; pls. 22, 39, 84–88), which had an estimated area of 18 ha, surpassing all other pre-Parthian and Sasanian sites in the region. The average occupation area during the Sukkalmah phase is ca. 3 ha, with the largest 18 ha and the smallest, RH-69A, 0.50 ha (*Appendix C*, pls. 53, 127–29, 185).

With the odd exception of RH-004 (pls. 35, 75), situated in the middle of the area that was previously unoccupied, the settlement system did not change from the preceding phases. The central region was still largely unsettled and the other population centers were widely spaced in the fertile zones.

The spatial distribution of sites in the following Middle Elamite phase remained the same, but the number of sites grew to twenty with a total of 55.74 ha of occupation (table C9, pl. 23). There was also an unprecedented continuation in the settlements; out of twenty sites, thirteen continued from the Sukkalmah phase. Four sites (RH-007S, 035, 058, and 096) were founded during the Middle Elamite phase with a total area of occupation of 10.21 ha (pls. 71–72). The average occupation area was 2.79 ha with 18 ha for the largest (RH-011) and 0.12 ha the smallest (RH-035).

The late third and early second millennium B.C. seems to have been the time when the various Elamite (highlands) polities finally successfully forged a lasting alliance, which seems to be manifested in the archaeological as well as textual records. The increase in the number of sites and size of the population in the Ram Hormuz region during the entire second millennium B.C. closely matches the Susiana population graph produced by Miroschedji in his seminal 2003 article. Similar trends are also noted by Sumner in the Kur River basin (Sumner 1986b).

[90] It may be objected that more excavations at major Elamite sites such as Malyan, Tappeh Sanjar, and Deh No (the latter two in lowland Susiana) may produce more Elamite texts. But this is a comparative statement based on the available data, though decades of excavations at Susa, the most important lowland Elamite center, did not produce many Elamite documents and those from the Middle Elamite onward are very limited in scope.

During the Sukkalmah phase, the number of sites and size of population quadrupled in the Ram Hormuz region and continued to grow in the following Middle Elamite phase. Similar growth in the same phases is recorded in the heartland of Susiana (Schacht 1987). In the following turbulent Neo-Elamite phase, however, when the theater of war shifted to southwestern Iran, the number of sites and the size of the settled population were drastically reduced.

NEO-ELAMITE PHASE, GESER PHASE VIII (CA. 1000–535 B.C.)

By the end of the Middle Elamite phase, major changes had taken place in southwest Asia. The Iranian tribes that began to penetrate into the Iranian Plateau in the second half of the second millennium B.C. had established themselves in the highlands, including Fars, depriving the now mostly lowlands Elamites not only of the vital highland resources, but also of their strong refuge in the mountains (see also Miroschedji 2003, p. 36). Simultaneously, the Assyrians and the Babylonians emerged from the so-called dark age stronger than before and imposed costly military campaigns on the Elamites. The Elamites must have felt squeezed and cornered in lowland Susiana, with little room to maneuver. Coupled with diffused political power, dynastic rivalries, and economic problems, this proved disastrous for the Elamites (see Miroschedji 1985, 1990, 2003; Carter and Stolper 1984, pp. 44–55).

The Neo-Elamite period has been divided by Miroschedji (1978, 1981a, 1981b, 2003) into Neo-Elamite I (ca. 1000–725 B.C.) and Neo-Elamite II (ca. 725/700–535 B.C.) phases. During the Neo-Elamite I phase, the settled, farming population of Susiana steadily decreased. The political and economic troubles in Susiana (Miroschedji 1990, 2003) severely affected the population trends and prosperity in the Ram Hormuz region as well as in Deh Luran (Wright and Neely 2010, p. 114) and in most of the intermontane valleys north and southeast of Susiana. We could date only seven settlements to this phase, with a total area of occupation ca. 33.09 ha (table C10, pl. 24). Geser was reduced (3.50 ha) but still occupied; so was Tappeh Bormi, but the estimated 18 ha for this very important Middle Elamite site may be misleading because of the overlap of a number of diagnostic features of the Middle and Neo-Elamite phases. We cannot have a definite solution to this problem short of excavating this important site that is today superimposed by a large living village. As in previous phases, the events in highland Fars and lowland Susiana also negatively affected the periphery regions of Mamasani and Izeh, the former perhaps with a few occupied sites (Potts et al. 2009, p. 181) and the latter with no occupied site (Wright and Bayani 1979, p. 102); similarly, Nissen's survey in the Behbahan region (Nissen 1976) did not identify any Middle or Neo-Elamite settlements there, which may, of course, be attributed to his unfamiliarity with the ceramics.

RH-116A and B are most probably a single site with two prominent hills (pls. 41–42, 181); however, we kept the materials separate to be on the safe side. Together, these sites have an area of occupation of 1.79 ha. The drastic change in settlement organization and the reduction of the local population, the Ram Hormuz region must have entered an unstable period that made sedentary, farming life difficult in the region.

The third site, RH-058 (pls. 51, 120), is Jobaji, the now rather famous site of a recently discovered Neo-Elamite tomb.[91] This is a vast site — much larger than the estimated 7.73 ha we have recorded for it — and consists of a number of small hills scattered with sherds of the Middle and Neo-Elamite dates, and possibly Achaemenid. Accordingly, we use this estimate with great caution and there exists the possibility that the Neo-Elamite occupation at the site was much smaller, a problem that can only be addressed by meticulous survey and excavation.

The tomb at RH-058 is a typical Elamite vaulted brick chamber with two U-shaped bronze coffins very much in the style of that discovered at Arjan (Alizadeh 1985a). The tomb was discovered accidentally during the construction of a pipeline, which destroyed much of the site and the tomb in the process. Only two-tenths of each bronze coffin were left intact, but a large amount of jewelry, metal and pottery vessels, as well as bones of both animals and humans were mixed with the debris. The tomb is attributed to one Shutur-Nahunte, son of Indada (585–539 B.C.?).[92] The date of the tomb can be solidly based on the typical Neo-Elamite pointed-base jars as well as several glazed and unglazed small globular pots found in the tomb.[93] Non-ceramic objects, however, seem to date from the second to the mid-first millennium B.C. Among the non-ceramic items, hundreds of beads made of gold, silver, and precious and semi-precious stones

[91] Our information about the tomb comes from a laconic pamphlet in Persian that was published shortly after the excavations by the excavator of the site, Arman Shishegar, in 2008.

[92] The name appeared engraved in Elamite on a gold ring found in the debris; another gold ring bore the name of La-ar-na, presumably a female name (Shishegar 2008, p. 6).

[93] If Stronach is correct in dating the Arjan tomb to the Neo-Elamite IIIb phase (Stronach 2008, p. 245), then both the Arjan and Jobaji tombs with their high-ranking, if not royal, occupants provide further evidence of the political fragmentation of Elam in this phase; see also Miroschedji 2003, p. 35.

were found; taking into account the fact that the tomb was partially looted before the authorities reached it, one can only imagine the original riches deposited there. Among the precious items, a large number of gold buttons, earrings, and necklaces were found with Assyrian-style of craftsmanship. Considering the fact that by the sixth century B.C. the Elamites had lost much of their power, the wealth of the tomb does not fit with the latter-day Elam political fortune. One possibility is that the Assyrian-style jewelry in the tomb was the Elamite share of booty in helping the Medes and Babylonians attack Assyria.

ACHAEMENID PHASE, GESER PHASE IX (CA. 535–330 B.C.)

In upper Susiana, and by extension in the Ram Hormuz region, the Neo-Elamite II phase is dated on archaeological evidence to 725/700–535 B.C. (Miroschedji 1978, 1981a, 1981b, 2003), with the implication that some of the sites dated to this phase continued to be occupied during the early Persian phase and as such inflating the number of settlements attributed to the Achaemenid phase in the lowlands.[94] With this caveat in mind, we now proceed to describe the settlement trends in this phase.

Major changes occurred in the Ram Hormuz region with the onset of the Achaemenid phase. Even though the number of sites increased from the previous phase, there was a marked reduction in the population (table C11, pl. 25). RH-011 (Tappeh Bormi), previously the only urban center in the region, seems to have been abandoned and, apart from Geser, which continued its old function as a nexus of communication, the remaining sixteen sites on the plain were low and small with few sherds scattered on their surface. With the exception of Geser, RH-032, RH-084, and RH-116 (pls. 10, 42, 45, 61, 145–46, 181), the rest of the sites of this phase are located in the piedmonts, away from the fertile zones, which, as in the previous phase, remained unoccupied by sedentary farmers.

The eighteen sites recorded for this phase have the total occupation area of 18.67; the average area of occupation is ca. 1 ha, with Geser (3.5 ha) the largest and RH-081 (0.06 ha; pls. 59, 143) the smallest. Again, the total area of occupation might be much less, considering the difficulties in the estimation of the Achaemenid occupation at Geser and Jobaji (RH-058).

We must remind the reader that the sherds found on the Achaemenid sites in the Ram Hormuz region belong to a later phase of the Achaemenid empire (see Miroschedji 1987), most probably after the time of Darius I, as the pre-Persepolis Achaemenid ceramics have not been identified in any stratified sites and the best examples so far are the Shogha/Teimuran ceramics from Fars, which are absent from the Ram Hormuz region.[95] It follows that the small, flat Achaemenid sites in the Ram Hormuz region were established when the region became politically and economically stable. Nevertheless, except for these seasonal mobile-pastoralist campsites, no attempt in establishing a local urban center was made in the area. This is perhaps not surprising as, unlike the Sasanians and to a much lesser degree the Parthians, the Achaemenids were not an urban-based dynasty and to our knowledge never founded any major urban center and their three capitals of Babylon, Susa, and Hegmataneh, the modern-day Hamadan, were already old by the time of Cyrus II.

This type of Achaemenid landscape is also found not only in their homeland Fars, but also in other peripheral regions surrounding Susiana. In the Deh Luran area (Wright and Neely 2010, pp. 91–93), the natural corridor linking the two major Achaemenid provinces of Babylonia and Susiana, the three sites that survived into this phase indicate a linear pattern that may reflect their function as depots or supply stations on the Royal Road. In the Mamasani region, the eight mounded sites dated to the Achaemenid phase have a total occupation area of 5.69 ha (Potts et al. 2009, p. 156, table 6.1). The Izeh/Malamir region seems to have completely changed into a nomadic landscape; except for two uncertain small sites, nothing dates to this phase in this region (Wright and Bayani 1979, p. 114).

PARTHIAN PHASE, GESER PHASE X (250 B.C.–A.D. 224)

A major change in the landscape took place sometime in the Parthian phase (table C12, pl. 26). Beginning with this phase, the seasonal, almost empty landscape of the Ram Hormuz region was transformed into a relatively densely settled

[94] Miroschedji (1981a) persuasively argues that some of Wenke's Achaemenid sites belong to the Neo-Elamite phase.

[95] For the debate on the date of what is known as Late Plain Ware, see Sumner 1986a and Boucharlat 2003.

farming region. The total occupation area jumped from 18.67 ha in the Achaemenid phase to the unprecedented 92.32 ha. Twenty-two sites are dated to this phase; these vary widely in size, the largest (RH-009; pls. 37, 82) being 31 ha and the smallest (RH-065C) only 0.03 ha, with an average size of 4.2 ha. This is in contrast to the settlement size in upper Susiana, where population density during the Achaemenid phase was higher than that of the Seleucid/Parthian phase (Miroschedji 1981a; cf. Wenke 1987, p. 254).

The drastic change in the structure of the landscape in the Ram Hormuz region during the Parthian phase was part of a larger, systematic change in the economy and social structure of not only upper Susiana, but also the region south of the Haft Tappeh ridge, where a large number of settlements were established in the Ahvaz area, a development that continued into the Sasanian and post-Sasanian times (Frye 1975; Alizadeh 1985b). Wenke (1987, pp. 252–53) suggests that, "Because of their greater size and complexity, Parthian and Sasanian cultures interacted with their ecological environment in a manner different from that of their predecessors." Nevertheless, we may have over-estimated the number of Parthian settlements in both lower Susiana and the Ram Hormuz region because it was difficult for us to account for the transitional ceramic forms that exist at the interfaces of all these phases.

The spatial distribution pattern of the sites, however, is reminiscent of the earlier phases. Most of the sites are in the arable and fertile zones, while the piedmonts are also occupied by few small, low sites with few sherds. The central zone was still devoid of settled population.

The above picture is in sharp contrast to the contemporary landscape of the Deh Luran plain (Neely 1974), where only eleven sites are recorded,[96] but the population was certainly much larger than that of the Ram Hormuz region, as all the eleven Parthian sites in the Deh Luran region are large, between 5 and 16 ha, with a total estimated population of ca. 35,000 (Neely 1974, pp. 26–27). This difference between the settlement and population trends in both regions actually started in the Achaemenid phase. During this phase, Deh Luran had only population centers, but the total area of occupation is ca. 30 ha (Wright and Neely 2010, pp. 92–93). These two different landscapes may have been due to the different strategic locations of these plains, one linking Susiana to Mesopotamia, the other, Ram Hormuz, to the inner Zagros and Fars.

SASANIAN PHASE, GESER PHASE XI (A.D. 224–651)

As in upper Susiana (Wenke 1987), the settlement system and population density of the Parthian phase continued into the following Sasanian phase in the Ram Hormuz region (table C13, pl. 27). This settlement continuity in both upper Susiana and the Ram Hormuz region is in contrast to both the Deh Luran and the Mamasani regions (Potts et al. 2009), where a sharp increase in the number of settlement sites is noted.

We have ascribed twenty sites to the Sasanian phase. Compared to the Parthian phase, the total area of occupation seems to have dropped, from 92.32 to 79.27 ha. Because we may have misdated some early Sasanian sites to the Parthian phase, and because the town of Ram Hormuz, the Sasanian-founded large regional center, is now completely covered by buildings and roads, it is likely that the number of Sasanian sites and population density were higher than our survey indicates. RH-009 registers as the largest, with 31 ha, and RH-005, with only 0.20 ha, is the smallest.

The question of overlapping Parthian-Sasanian ceramics, the Sasanian imperial investment in the Ram Hormuz region indicates its importance during this phase. We did not find any traces of irrigation canals, but Wright and Carter (2003, fig. 6.8) indicated a number of irrigation canals issuing from the ʿAla River that are attributed to the Partho-Sasanian phase. Because OSL[97] analysis was not available in 1969, the date of these canals remains uncertain. But two pieces of evidence in the region may support a Sasanian irrigation system. The evidence consists of a bridge-dam on the Zard River and a number of subterranean aqueducts dug into walls of the bed of the ʿAla River (pls. 187–88; see *Chapter 2* for more details). There is no inscription or any other historical evidence to indicate the date of these irrigation projects; but they are typical of the Sasanian engineering know-how, especially the use of *sāruj*, a type of pozzolanic plaster,[98] and considering the reports of post-Sasanian geographers that attribute to the Sasanians the founding of the town of Ram Hormuz, these irrigation constructions and canals may well belong to the Sasanian phase.

[96] This could well be the results of the major problem with recognizing late Parthian ceramics from those of the early Sasanian phase.

[97] Optically stimulated luminescence.

[98] This type of plaster is made of lime, gypsum, sand, and sometimes volcanic ash.

[99] For this problem in the periodization of Elamite phases, see Miroschedji 2003, p. 37; for the historical archaeology of the Islamic periods, see Whitcomb 1979, pp. 197–205.

POST-SASANIAN PHASE, GESER PHASE XII (7TH–10TH CENTURIES A.D.)

The post-Sasanian phase spans the time of the Arab invasion of Iran to the time of the powerful Seljuk dynasty. We have mentioned above the difficulty in attributing surface sherds to specific historical phases because of the overlap of styles of ceramic manufacture and decoration as well as the difference between archaeological and historical phases, which in many cases are not synonymous.[99] This problem is even more acute in the post-Sasanian phases, when there were a number of contemporary and overlapping autonomous regional dynasties in the Iranian Plateau with the nominal suzerainty of the caliph in Baghdad. For example, when we attribute a class of ceramics to the Seljuk phase, we do not imply that the pottery came and went with the Seljuks, as they overlapped with the powerful Ghaznavid and Buyyid dynasties, to which no classes of ceramics are attributed by archaeologists. The dynastic terms we use here are for convenience and we have supplemented the dynastic designations with absolute dates, even though these dates should not be taken as starting or cutting-off point in various styles of ceramics.

The post-Sasanian phase in the Ram Hormuz region is marked by a 50 percent reduction in the total size of the settled occupation (table C14, pl. 28). Only four sites from the Sasanian phase continued to be occupied in this phase (RH-001, 008, 014, 106). The remaining eleven sites were either founded or reoccupied. RH-009, the largest Partho-Sasanian site in the region, with 31 ha of occupation, is abandoned and the new large population center is now RH-025, with 22 ha of occupation (pl. 101). The remaining post-Sasanian sites are quite small: the largest is RH-083 with 5.10 ha (pl. 144:G–P) and the smallest RH-109 with only 0.03 ha (pl. 177:A–I).

The spatial pattern of site distribution remained almost the same, however. Most of the sites were still located in the fertile sectors of the plain, but RH-005 (pls. 35, 74) of the preceding phase, which had been established in the center of the plain, is now abandoned. It is perfectly possible that we have attributed some late Sasanian sites to this phase, in which case the drop in the settled population in this phase may be even larger than we indicate here. If this is the case, then it is not surprising that the turmoil, violence, and the atrocities committed by the victors created an unstable environment for perhaps several generations. The settlement systems and demographic trends in the post-Sasanian Ram Hormuz region would have shed more light on these issues in the greater southwestern Iran had we had survey results of these phases in the Deh Luran and other regions.[100] An analysis of the post-Sasanian phases in the Mamasani region remains to be published; but it is reported (Potts et al. 2009, p. 183) that that post-Sasanian evidence of occupation was not detected in the excavations at Tol-e Nurabad and Tol-e Espid, even though sherds of the post-Sasanian phases were found on these two and other sites surveyed in the region, suggesting perhaps semi-nomadic activity in these valleys during the post-Sasanian phases.

SELJUK-ILKHANID PHASE, GESER PHASES XIII–XIV (10TH–14TH CENTURIES A.D.)

For the reasons just mentioned, we have combined the materials datable to the tenth to fourteenth centuries A.D. under the rubric Seljuk-Ilkhanid phase (table C15, pl. 29). The relative explosion of settled population in the Ram Hormuz region during this phase testifies to the political and socioeconomic stability of the land. The Seljuk-Ilkhanid phase witnessed the largest settled population in the entire pre-modern history of the Ram Hormuz region. Twenty-nine sites with a total area of 118.64 ha are dated to this phase; the average area of occupation is 4.1 ha, the largest (RH-026; pls. 43, 102) with 34 ha and the smallest (RH-103, pl. 173) with 0.05 ha. Unlike the previous phase, when one site dominated the region, we now have three sites (RH-025, RH-026, RH-098) with a total of 71 ha (pls. 43, 65, 101–02, 171). RH-025 and RH-026 are located in the sandy hill zone, while RH-098 dominated the sites in the fertile alluvial zone of the southeastern plain.

It is difficult to attribute this increase in the settled population in the Ram Hormuz region to adverse conditions in other regions; but it is highly probable that mobile pastoralists of the region, as they always did, took advantage of the stability and joined the workforce in the now larger urban centers in the region and perhaps established some small villages on their own, but, obviously, we do not have any evidence for this interpretation.

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[100] See, however, Neely 1974, where he published a distribution map of the Sasanian and post-Sasanian phases in the Deh Luran region with 249 sites, of which most continued into the post-Sasanian phase.

It must be added that, beginning with the Sasanian phase, we know from post-Sasanian geographers that the provincial town of Ram Hormuz was the largest urban center on the plain, a status it maintains to this day. Nevertheless, the turmoil that ensued with the coming to power of the Timurids as well as the protracted hostilities between the following dynasties and mobile-pastoralist tribes, retarded this pattern of urbanization in the Ram Hormuz region to such an extent that only recently is the region being revived by settled mobile pastoralists, large dam and irrigation projects, and improved techniques in agriculture.

TIMURID PHASE, GESER PHASE XV (15TH CENTURY A.D.)

The scantest occupation since Early Susiana times is recorded in the Timurid phase (table C16, pl. 30). Only two very small sites (RH-056 and RH-091; pls. 64, 118) survived into this phase. The reader should bear in mind that the dating of these two sites is based on only four dubious sherds that we could attribute to neither the Seljuk nor Safavid phase, with the implication that during the Timurid phase there may have been no settled site at all in the region. These sites are located on either side of the town of Ram Hormuz, on the northeast sector of the plain. With the exception of these two small, low sites that might very well be seasonal campsites, the Ram Hormuz region seems to be completely devoid of any settled population. The town of Ram Hormuz may have had the largest population in this phase, but this is impossible to verify without excavations in the town itself. Whatever the case may be, it is apparent that the Ram Hormuz region experienced the worst upheaval since its initial occupation in the sixth millennium B.C.

SAFAVID PHASE, GESER PHASE XVI (16TH–17TH CENTURIES A.D.)

After a period of instability, the Safavids created a stable government following the Timurids, with the positive outcome for the Ram Hormuz region (table C17, pl. 31). Nevertheless, compared with the previous phases, the settled population is still low. We attribute eight sites to this phase with a total occupation area of 12.62 ha. Based on Wright and Carter's report (2003), the largest settlement was Geser with perhaps 8 ha and the smallest RH-109 with an area of only 0.03 ha. Except for Geser, whose function as the nexus of connection to upper Susiana determined its spatial position, the other sites were in the alluvial zone close to water sources. It is also possible that RH-056 and RH-018 (pls. 39, 94–97, 118), both on the highway to Ahvaz and Behbahan, had similar function as Geser and the town of Ram Hormuz.

POST-SAFAVID AND QAJAR PHASE, GESER PHASE XVII (18TH–20TH CENTURIES A.D.)

Following Wright and Carter (2003) and based on our own observations, all the abandoned villages, abandoned mills, nomadic cemeteries with stone-lined edges dug into ancient sites, and sites with sherds that could not be dated to any pre-Zand/Qajar period are attributed to the post-Safavid phase (table C18, pl. 32; see *Appendix C*). We have estimated 12.99 ha of occupation for the twenty-two sites of this phase; but, considering that most of the sites were not mounded, the estimated occupation area must be even lower.

Geser, after millennia of occupation, was finally deserted after the Safavid phase. The Fort Mound had a mudbrick fortification presumably of a local khan, but we cannot date this structure. Suffice it to say that the well-documented turmoil in post-Safavid southwestern Iran between the two major tribal confederations of the Qashqaii and Bakhtiyari united against the Qajar monarchs on the one hand, and the competition between the Bakhtiyari and the Arab-speaking tribes on the other over the control of Khuzestan, must have rendered the region so unstable that apart from the town of Ram Hormuz, now reduced to the size of a village, no other large population center existed on the plain.[101]

[101] See, for example, De Bode 1845; Layard 1846, 1894; Stack 1882; and Kasravi 2007 (1933).

CHAPTER 9
SUMMARY, DISCUSSION, AND CONCLUSIONS

INTRODUCTION TO THE INTERPRETIVE APPROACH

In this chapter, we offer our inferences, understanding, insights, interpretations, and conclusions that have been presented briefly throughout *Parts I* and *II*. The large number of published excavations and surveys in southwestern Iran (including the present work), as well as those focusing on the intermontane valleys to the north and southeast of Susiana, enable us to draw tentative conclusions about long-term changes and continuity in these physically and politically inter-connected regions; the available data also allow us to make broad comparison of organizational differences in the regions as well as their possible influence on each other's regional development. We are well aware that while much of our interpretation is in accordance with the available data, the incomplete nature of the archaeological as well as historical records demands that we make some reasonable assumptions and logical inferences that, together with our evidence-based interpretations, may open new avenues of research and inquiry. We have no doubt that further investigations, particularly in the unexplored intermontane valleys of the Zagros, could drastically change or enhance the picture we have painted of southwestern Iran.

In this interpretive journey, we will see that the picture emerging from the excavations and surveys in the Ram Hormuz region cannot be decoupled from the core region of Susiana or its other periphery or buffer zones. These zones include the Deh Luran plain, the Izeh and Dasht-e Susan plain, as well as the natural "corridor" between Masjed Suleiman and Lali (pl. 10). More importantly, the emergent picture cannot be separated and studied independent of the actions of those who either inhabited these regions or had vested interest in them. The long-term trends that are known from both archaeological and historical studies of these areas demonstrate that by manipulation of the material conditions through social practices, a series of mechanisms of systemic integration was achieved that characterized the political economy and social structure of southwestern Iran for millennia. While we believe that the environment and geography were extremely important factors in cultural development, they are not deterministic.[102] Rather, the material conditions in any cultural sphere are changed, manipulated, and even destroyed by the conscious and unconscious actions of the members of society, or agents — that is, individuals or groups of individuals who were in a position to effect change.[103]

We have tried to address reflectively the variability we see in the material remains and material similarities and differences among the assemblages from various regions of southwestern Iran. We have also tried to avoid the minimization of variability in the archaeological record and, when possible, in the role of competing corporate groups (various Elamite polities) in order to formulate a systemic or evolutionary model of cultural development. Instead, whenever possible, we treat the material culture in the various regions under discussion as the results of both the effect of a particular environmental niche and the action of individuals or groups of individuals with capacity to effect cultural change and change in their landscape.[104] In this process, we have abandoned the search for the elusive ancient Near Eastern elites/big men/leaders[105] and have focused instead on the groups of people with conflicting and overlapping interests and agendas within each local polity.[106]

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[102] This is best exemplified in the recent work by Arlene Miller Rosen (2007).

[103] Agency is a theoretical construct adopted, like many other theories and approaches in archaeology, from a modern discipline. Apart from the pioneering works of Giddens (1979) and Bourdieu (1977), there is a vast literature on the practice theory, structure, and agency debate. See, for example, Archer 1990; Barrett 2001; Bintliff 2004; Bourdieu 1977; Dobres and Robb 2000; Earle and Kristiansen 2010; Goddard 2000; Hassan 2004; Hodder 2000; Steadman and Ross 2010.

[104] The most difficult part of the agency approach has been its definition (Dobres and Robb 2000), but it seems to be a valuable interpretive tool for archaeologists who wish to have a glimpse of the real world, when possible, outside of the confines of systemic or evolutionary approaches.

[105] See Flannery 1999, for example.

[106] Concern about individuals and their role in a given society is obviously modern, in the sense that pre-classical world did not consider individuals outside of the realm of power worthy of consideration (Thomas 1996, 2004; contra Knapp and van Dommelen 2008). And while modern social theorists may deal with real individuals, in the ancient world the best we can do is to concentrate on groups of individuals, such as farmers, artisans, nomads, builders, etc.

Southwestern Iran, with its varied environmental niches and differing natural resources and specific geographic positions, must have produced varying chiefdoms that cannot possibly lend themselves to a single analytical model. However, as Timothy Earle argues (1989, 1997, 2001), a set of political, economic, and ideological processes is common among them, that is, forging a political economy to maintain a cadre of individuals; financing and maintaining institutions through which political power is exercised; the creation of built, symbolic landscapes; symbolic creation of prestige objects and monuments; and creating a sphere of interaction through exchanged goods and common ideology.[107] Such processes seem to have been fueled by the need for stability, greed, competition, aggressive behaviors, and expansionist policies, to name a few.

Regional archaeological surveys in both the New and Old Worlds have demonstrated that the process of social complexity in the core regions involves organizational changes in their hinterlands.[108] Even though the nature of this transformation is poorly known, we may assume that food, labor, and procurement of raw material and status goods play important roles. In such interactions, Robert McC. Adams (1978, 1982) argues for the centrifugal tension in the relationship between the centers and periphery, or urban centers and farming villages and, by extension, between mobile-pastoralists and sedentary farmers. As Gil Stein has persuasively argued, Adams's distinction between stability and resilience can be used as a framework within which the lowlands-highlands dynamics, as well as urban centers-farming villages, may be understood.[109]

Needless to say, the role of elites in exploiting labor, procuring resources, controlling production and its distribution is of paramount importance in social complexity. But in the absence of sumptuary and flamboyant goods (or chiefs) in the Near East, we have little choice but to focus on the lower level of the decision-making processes; this in turn requires horizontal, as opposed to vertical, links between communities of individuals. It follows that we need to focus on a set of processes that may have been common to the chiefly societies in their socioeconomic and political behaviors, of which the outcome and trajectory can only be appreciated in the long term. For instance, we cannot appreciate the emergence of the competing "city-states" in southern Mesopotamia without an understanding of the external and internal processes that intensified during the Ubaid and Uruk phases. Similarly, we cannot appreciate the very different trajectories of cultural development that culminated in the formation the highland Elamite polity/polities in southwestern Iran, in the fourth and third millennium B.C. without an understanding of the preceding cultural phases.

Another useful agency concept or methodology is what is known as *chaîne opératoire*, or "operational chain/sequence of production." Chaîne opératoire originally referred to the step-by-step sequence in the production of material items or assemblages, from the acquisition to the discard of material.[110] But it also has been used by archaeologists to focus on decision points, or contextualizing choices in subsistence activities and material production, or the relation between the social and material worlds. Chaîne opératoire requires close attention to variability in the material records, leading to a concern with the inter-relationships between material items and social practices. It also forces archaeologists to reconstruct in logical steps inter-regional variations, similarities and differences based on the cultural understanding of production and distribution of material goods. This is "logical" because archaeologists almost always deal with proxy evidence for the social phenomena on which they focus.

Nevertheless, the fact that archaeological field practice and procedures in Iran, as in many other places in the Near East, have been varied not only in a single region but also at a single site, seriously undermines any systematic use of the insights of the agency approach, though trends in this direction have already started.[111] Despite the difficulties involved in the application of these ideas in Near Eastern archaeology, both agency and chaîne opératoire are useful interpretive tools, allowing/reminding the archaeologist to look for any clues to include individuals or groups of individuals in reconstructing the past. It is with this serious limitation in mind that we address the long-term trends in cultural development in southwestern Iran.

MATERIAL COMPONENTS IN THE RAM HORMUZ REGION

We begin our summary with the description of the material components of the archaeological context of the Geser complex and proceed to the material characteristics of the settlements in the region. We then use our data and insights

[107] For the discussion of ancient identities and spheres of interaction in the Near Eastern context, see Stein 2010, pp. 37–38.

[108] Adams 1978, 1981; Flannery 1976; Wright 1984.

[109] Gil Stein (1988) used this model to account for the similar relationships in third-millennium B.C. southeast Anatolia. See also Stein 1994.

[110] See Leroi-Gourhan 1943; Sellet 1993.

[111] See Wright 2010 (not explicitly couched in agency concept); Steadman and Ross 2010, directly seeking application of this concept to Near Eastern archaeology and history.

from the Ram Hormuz region to explore the role of Geser and the other sites in the wider contexts of the highlands and lowlands of southwestern and south-central (highland Fars) Iran. Excavations at Geser have provided a matrix within which the results of the surveys can be contextualized. The following combines the two sets of data, but before we present our insights and understanding of the long-term sociocultural development in southwestern Iran, it is important to highlight the characteristics of the region in terms of material variability.

Let us first begin with the Geser complex. As the reader has noticed in *Part I*, the material assemblage at the site is by no means representative of a millennia-old major regional center, including much of the Elamite period. Exotic luxury items as well as metal and components of administrative technology are extremely rare. From the beginning of the occupation in the Late Middle Susiana (Geser I) phase until the proto-Elamite (Geser V) phase, the architecture consists of domestic units made of mudbricks with no special features. Beginning with the proto-Elamite through the Middle Elamite phase, there is evidence of large monumental buildings very different in size and layout from those of the previous and following phases; nevertheless, even these buildings or the rubbish pits associated with them contained ordinary, everyday objects.

Cylinder and stamp seals are extremely rare, as are other administrative tools. No Sumerian, Akkadian, or Elamite tablets or inscribed stones were found. Also absent are buildings that may be interpreted as temples. Despite the major occupation in the proto-Elamite phase, Geser yielded only one fragmentary tablet from that period. Nowhere in the excavated areas did we encounter evidence for any type of material production, including pottery; nor did Geser yield any pottery kilns. In fact, our INAA analysis (see *Appendix A*) has indicated that a significant proportion of the pottery found at Geser was probably imported to the site from the Abu Fanduweh area, which, incidentally, is the only site that we know that produced a similar proto-Elamite pottery repertoire in lowland Susiana (Alizadeh n.d.).

Whether Donald McCown collected bones during his work at the site is not known. The absence of faunal and floral evidence prevents us from discussing the subsistence strategies of the inhabitants of the site, but we may assume Geser had a mixed economy of farming and animal husbandry that may have been supplemented by hunting wild game.

This limited repertoire of manufactured material is not limited to the regional center of Geser; it is a characteristic shared by almost all sites in the region. To begin with, except for the proto-Elamite ceramics, the ceramics of all other phases show a limited repertoire of shapes and decorative schemes compared with upper Susiana. A large number of the sites are small and shallow with only one or two phases of occupation. As noted above, even though large areas were excavated at Geser, not a single structure was found that could be interpreted as pottery kiln; nor did Geser produce any pottery wasters. In our survey, only a few over-fired, deformed sherds of the Parthian and post-Sasanian phases were found (at RH-009, RH-025, and RH-095; pls. 37, 82, 101, 164). The sole exception is a single Late Middle Susiana phase sherd from RH-078B (pl. 141:D); this fused piece of pottery, however, is not necessarily proof of in situ pottery production. The same is true of flint blades; only thirty-five flint blades of low quality were found on 144 sites with very few, if any, debitage, suggesting flint-knapping may have been done outside of the region (pl. 185). Grinding and chopping tools, too, were almost non-existent and completely absent from the surface of other sites; a similar picture during the Shimashki phase was recorded in the Deh Luran region (Wright and Neely 2010, p. 87).[112]

Most of the larger sites in the region date to the Partho-Sasanian and post-Sasanian phases. In Susiana, Fars, and the Central Plateau, coins are routinely found on the surface of such sites; no coins were found on the sites we surveyed, and the only coins we possess are two badly preserved copper specimens of post-Sasanian phases from Geser, not from survey but from the excavations; Wright and Carter (2003) did not report any either. It is possible that the town of Ram Hormuz, the Sasanian and post-Sasanian regional center with reported caravanserais and bazaars,[113] contains coins, but the modern-day town of Ram Hormuz has completely covered the remains of those phases. If this extreme paucity of coins is representative of the subsurface assemblage, then we may consider a regional economy based on exchange and barter for much of its history.[114] The small size of the sites, scant evidence of material production, very few sites larger than two hectares, short duration in occupation of the majority of the sites, all point to a regional population that may have been in flux for much of the history of the region. We believe this picture might represent seasonal use of the Ram Hormuz region in an economy based on semi-nomadic or fully nomadic pastoralism. Archaeology cannot help us reveal the reasons behind the periodicity of occupation and movement, but history provides some tantalizing explanations.

[112] Similar paucity of such materials may have existed in the Mamasani region, but the expedition report focuses on potsherds and, except in one instance (Potts et al. 2009, p. 152), does not mention or illustrate the lithics or other surface materials.

[113] See Le Strange 1976; Pigulevskaja 1998; Eghtedari 1980.

[114] The paucity of coins is also observed in other periphery regions such as the Mehran plain (Mohsen Zeidi, pers. comm.), the Semirum region, northwest Fars Province (Alizadeh 2003a), in the "corridor" between Ram Hormuz and Shushtar (Moghaddam and Miri 2007, only one coin from KS-1664), possibly in the Izeh plain (Wright and Bayani 1979), and in the Mamasani region (Potts et al. 2009), though there is no specific mention of coins in the latter two reports. The Mamasani region may have provided some flint blades and coins, but there is no illustration of any from the survey.

In *Chapter 8* we discuss the settlement systems for each known archaeological phase. Here we discuss in more detail the relation of specific types of land on either side of the ʿAla River and variation in demographic trends. Out of 144 sites, forty sites with the total occupation area of 31.78 ha were recorded on the east bank of the ʿAla River by Wright and Carter and us). Compared with the number and size of the total occupation of the settlements on the west bank of the river, this low density is revealing, perhaps an example of a built, intentional landscape. This part of the plain consists of the most fertile land in the Ram Hormuz region with the ʿAla and its two major branches providing ample water for irrigation; unlike the central part of the west bank, there is no salt/gypsum-encrusted land on the east bank. Yet, throughout the history of occupation of the Ram Hormuz region, the land on the east bank of the ʿAla was sparsely occupied.

Nomadic graves marked by uncut rocks arranged in circles or rectangles are found on top of many sites, particularly in the area of the east bank of the ʿAla (see pl. 67). Similar mound graves are found throughout Fars and the Zagros region as well (Khosrowzadeh 2010, p. 319). Only excavations may provide evidence of the dates of these nomadic cemeteries. The local residents did not have any recollection of the occupants of these graves, indicating this practice must have ceased a long time ago. Similar graves on top of many mounds in northeastern Susiana also occur but most are without stone lining. Some, like those at Beladieh (KS-108) and Chogha Do Sar (KS-004) that were discovered and excavated by us in 2004, did not belong to any villages nearby and the local workers attributed them to old Bakhtiyari tribes.[115] These graves and those in the Ram Hormuz region all face southwest and must belong to the post-Sasanian era. But some (at Beladieh) were accompanied by grave goods such as necklaces and wristbands made of semi-precious stones. This non-Islamic behavior indicates that at least some of these graves may be even older than they appear, perhaps from the few centuries of the post-Sasanian era.

The changing organization of settlement and the built landscape are consequences of human action and require explanation. However, as with many other ancient phenomena, events, and processes, the lens of archaeology is not powerful enough to resolve much of the mechanism and dynamic involved in the processes of the emergence of built landscapes. Notwithstanding the objection of some historically oriented scholars who are reluctant to accept the application of ethnographic analogies to distant eras when socioeconomic structures may have been very different from those present in ethnographically known societies, reconstruction and interpretations of pre-literate societies solely based on archaeological evidence would be severely limited and would not lead to new insights and avenues of inquiry. While we appreciate the need for caution when making ethnographically based arguments, we believe that in this situation we can appeal to our knowledge of the historical mobile-pastoralists of the region, their efforts to be viable economically and politically, and their inter-tribal rivalries that shaped them into large territorial confederations.[116] This is, of course, an exercise in logic based on analogy that would help us fill huge gaps in our archaeological records and does not necessarily represent reality on the ground. In the case under consideration here, we would argue that the situation in the Ram Hormuz region from proto-Elamite to Achaemenid times certainly appears to correspond with the available historical and archaeological records of pastoral nomadic economies.

Alizadeh (2010) has already made use of historical and ethnographic analogies in an essay concerning the rise of highland Elamite polities, so we refer the interested reader to that article. It suffices to say that the relationships between residential mobility and year-round occupation could generate complex behavioral trends that no amount of archaeological data can bring to light. In fact, to have an appreciation for this complexity, we do not even have to confine our argument to historical records and ethnographic analogies of the past Zagros mobile-pastoralists. We need to bear in mind, however, that residential mobility and permanent occupation are two subsistence strategies that developed to cope with given environments both natural and sociopolitical. The existence of these two strategies in a shared landscape such as upper Susiana and highland Fars would create a dynamic web of relationships between the

[115] See Alizadeh and Mahfroozi 2005, p. 64.

[116] While Dan Potts (2008) as a traditional historical archaeologist is adamantly against the use of analogy in archaeology and the existence of mobile pastoralism in pre-Achaemenid times (Potts 2014), his former student Lloyd Weeks (2010) casts doubt on the earliest archaeological evidence for highland pastoralism, claiming that the fifth-millennium B.C. isolated cemeteries of Hakalan and Parchineh (Haerinck and Overlaet 1996; Alizadeh 2008, 2010) belonged to some settlements in the Mehran plain. His "evidence" is personal communication with one local Javanzadeh who presumably reported to him the existence in the Mehran plain of "... plenty of sedentary Chalcolithic occupation and these sites could represent at least some candidates for the villages that supplied the population buried at Hakalan and Parchineh." This type of banal "reasoning" is selective, biased, and most unreflective. These cemeteries are respectively ca. 40 and 70 km southeast of the Mehran plain; In fact, Hakalan and Parchineh are much closer to the Deh Luran plain. Apart from the untenable aspect of Weeks's suggestion that sedentary farmers would travel up to 70 km to bury their dead in the middle of "nowhere" for reasons unexplained, he also ignores the fact that Vanden Berghe (1970 passim; see also Goff Meade 1968, pp. 127–28) spent a lifetime searching for settlements that would be associated with the numerous cemeteries he discovered and excavated. Architecturally, Hakalan and Parchineh also represent the blueprint for the fourth–first millennia B.C. nomadic tombs in the Zagros.

people and their shared landscape[117] that do not necessarily leave direct tangible evidence. In archaeology we have primarily the results of the processes, such as long-term and drastic changes in settlement organization.

From the earliest appearance of advanced writing, historical and legendary, in Sumer during the Early Dynastic period, it was the Iranian highlands that appeared prominently in Mesopotamian records, enumerating a large number of highland polities with which southern Mesopotamian states claimed to have engaged in incessant military campaigns, as well as trade, for almost 3,000 years. The political rhetoric of such texts notwithstanding, the third millennium B.C. could not have possibly been the starting point of such a complex highland-lowland relationship; but the absence of written records from pre–Early Dynastic times certainly creates this impression. Similarly, itis perfectly possible and logical to conceive of a similar tug-of-war with its northern and northeastern highland neighbors who were seeking to expand their economic and ultimately political base by possessing fertile land and wider pastures?

The highland polities could have developed in the numerous intermontane valleys of the Zagros as well as in Fars (Anshan) and Kerman (Marhashi). Save for Fars, the highland valleys to the north and east of Susiana are circumscribed and have limited resources in cultivable land but provide excellent pasture. So it is completely logical, if not imperative, that their inhabitants adopted and developed a mixed economy of farming and mobile animal husbandry, "mobile" because with the available technology keeping and feeding animals indoors for at least four to five months in the harsh winter was not an option. Just as the nascent Sumerian city-states rivaled for more water and more land,[118] we may envisage similar competition for resources among the nascent highland polities. But the strategy to build a foundation for the expansion and solidification of these polities would be different from their Sumerian neighbors. While in Sumer, farmers could be taxed perhaps with impunity, the ambitious early leaders of highland communities would have had a problem in expanding their power base by coercion.[119] Such leaders would run into problem in taxing their subjects, beyond the tribal norms, to support a retinue necessary for their early political ambitions beyond a tribal leadership. In such cases, mobility would create an equalizing force against coercion, where one or more kin-based groups can simply move and join another tribe in another valley or region. It is in this universe of highland inter-valley competition and the centrifugal tendency of tribes rank and file that make the vast tracks of available lands in the easily accessible lowland Susiana become an attractive resource for the politically ambitious tribal leaders. Archaeological and historical clues indicate that this was a long and complex process that, starting by the end of the Late Middle Susiana phase, lead to the foundation of the numerous highland polities and eventually to the lasting confederation of Elam and Anshan in the third millennium B.C. The creation of a powerful highland polity did not necessarily unite all highland polities/tribes. No doubt there were other polities or tribes who stayed independent and may even have been hostile to the Anshan- or Susiana-based polity. Historical records are silent on this question, but the impressive Sukkalmah fortification on the High Mound at Chogha Mish[120] on the northeastern front close to the mountains certainly was not intended to ward off Mesopotamian forces.

We argue here that, in order to have an understanding of the settlement systems and land-use in the Ram Hormuz region, it is appropriate to use the analogy of the historical mobile-pastoralists in the region, as their movement through the landscape is determined both by the natural features and a concern to avoid contact with other tribes using the same environmental niche. Alizadeh (2008, 2010) has discussed the question of the forging agricultural and pastoral subsistence strategies into a single political economy that became the backbone of the Elamite polity. Here it suffices to allude to this process and focus on other issues.

During the 500-year known history of the Zagros semi-nomadic pastoralist tribes, we know that the eastern piedmonts were traditionally occupied by the Luri and Arab-speaking tribes (De Bode 1845; Layard 1846, 1894; Eghtedari 1980). The southwestern piedmonts were occupied by the Bakhtiyari tribes; the southeastern Zagros by the Kuhkiloyeh tribes and the Qashqaii confederation. Since this pattern in the seasonal migration and camping is dictated by inter-tribal politics, environmental features, and peaceful co-existence with the farmers who themselves were primarily settled tribes,[121] it stands to reason that a similar condition may have obtained throughout the history of the occupation of the Ram Hormuz region.

While we are hesitant to speculate on the details of the social and political factors affecting the spatial distribution patterns recorded in the Ram Hormuz region, we envisage that the ʿAla River played a major role. Prior to the mid-twentieth century, when bridges spanning major rivers were rare in Iran, mobile pastoralist tribes always avoided

[117] See, for example, Jones 2010.

[118] See the excellent summary and insights of this process in Richardson 2012.

[119] For a more detailed discussion, see Alizadeh 2010.

[120] Alizadeh 2008, pp. 34–35, figs. 8, 10, pl. 3:A. The structure has a 10 m thick outer wall with a gate and possibly watchtowers. A rectangular Late Susa II watchtower with 3 m thick walls adjacent to the Sukkalmah fort may have had similar function (Alizadeh 2008, fig. 8).

[121] Today almost all permanent villages in the Ram Hormuz region are occupied by former mobile-pastoralists of the Bakhtiyari, Lurs, Qashqaii, and Arab-speaking tribes with specific spatial distribution.

crossing a river if they had a choice. For example, the Bakhtiyaris, who used the central Zagros region as their summer quarters, would descend from the mountains following the west banks of the Zard and ʿAla Rivers they then entered the plain from northeast of the town of Ram Hormuz as well as from the north through the valleys of the Ab Lashkar and Tanbakokar Rivers (pl. 13), where they remained for several months. The tribes coming from northeast, east, and southeast of the plain entered the east bank of the river without having to cross the ʿAla. Because of the modern dams upstream, today the ʿAla actually becomes almost completely dry or turns into a small stream in the summer months and therefore is easily fordable; but before the dam constructions, it flooded violently, especially in the spring when the tribes had to move to their summer quarters.

Similar conditions obtained in upper Susiana. Until four decades ago when traditional mobile pastoralist tribes still moved around without the help of trucks and pickups, they descended into the plain from the north, east, and southeast, following the river valleys of the Karun, its tributaries, and the river valley of the eastern tributary of the Dez — the most formidable obstacle was the restless Karun with a depth of 10–15 m. Those coming from the northeast camped around Bagh Malek, Izeh, and Masjed Suleiman, as well as in the region on either side of the Kupal ridge, south of the Shur River (pls. 13–14). Those coming from the north wintered in the region between the Dez and Karun; Bakhtiyari tribes rarely, if ever, crossed the Dez, which seems to have served as a natural boundary between the Feili Lur tribes of the western slopes of the Zagros and the Bakhtiyaris of the central Zagros region.

The built landscape that we witness in the Ram Hormuz region and in northeast Susiana continued with minor modification for several millennia. Even during the height of the Sasanian phase the area east of the Karun and between the Karun and Shur Rivers, near Chogha Mish, remained almost free of permanent settlements (Wenke 1987, figs. 74–79). The Ram Hormuz region shared a number of other features not only with lowland Susiana but also with the intermountain plains in southwestern and southeastern Iran. The following is a narrative journey through these regions with the aim of connecting them with a set of archaeological and historical threads that are so far available to us.

THE LONG PROCESS OF SOCIOPOLITICAL COMPLEXITY

INTRODUCTION

The prehistoric roots and long-term development of the highland Elamite polity are discussed above and elsewhere (Alizadeh 2006, 2008, 2010) so there is no need to repeat the arguments here. Nevertheless, some relatively recent discoveries in the central Zagros regions[122] and in the Central Plateau, as well as data from some seminal recent publications,[123] demand that the subject be revisited.

Lowland Susiana is the locus of the earliest civilization and the main theater for the development of sociopolitical organizations developed in a vast region of what is now Iran. Susiana was also the breadbasket and seat of power of the Elamites and the three empires — Achaemenid, Parthian, and Sasanian — that succeeded them. It is extremely important to bear in mind that none of these powers originated in lowland Susiana, but rather in the highlands. Susiana is a very fertile region with the three largest rivers in Iran. 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. Archaeological surveys and excavations have shown that these regions were in close contact with the Susiana core from prehistoric times.

As Alizadeh has argued (2010), southwestern Iran experienced a rich history of movement of people. As mentioned above, mobility and fixedness of a region's populations are dynamic processes that create a network of mutual relationships, including hostile, friendly and complementary, between themselves and their environment.[124] Because of the long-term nature of such processes, the evidence inevitably consists of broad patterns of people's actions and reactions in spatial change and continuity of settlements, as well as historical documents when available. Our basic hypothesis revolves around the presumed dual political economy and social structure of southwestern Iran, where through long and undoubtedly arduous processes the resources of the lowlands and highlands were successfully combined into a

[122] Unpublished reports on the surveys and excavations in the Pul Dokhtar and Kuhrang regions by Mehdi Rezaii (2011); see also Khosrowzadeh 2010; Esmaeily and Zolghadr n.d. The majority of the fifth-millennium sites in the Kuhrang (headwaters of the Karun) consist of sherd and flint scatters located on the valley slopes near water (Khosrowzadeh 2010, p. 318).

[123] They include Potts et al. 2009; Wright and Neely 2010; Helwing 2011; and Hessari 2011.

[124] See Jones 2010.

single political economy that served as the backbone of the long-lasting Elamite polity. The settlement systems recorded in the Ram Hormuz region coupled with the excavated evidence at Tall-e Geser provide the material matrix for our interpretations of the region as a hinterland/buffer zone of lowland Susiana.

The resource disparities between the lowlands and the surrounding highland regions must have bound these two regions together in a complex web of interactions. Accordingly, heartland Susiana cannot be fully understood without an understanding of the regions in its immediate sphere of interaction. Until recently, the study of such inter-regional dynamics was difficult, if not impossible, as these regions were either unexplored archaeologically or research reports had not been published or fully published. Today, we are fortunate to have access to much important information that sheds more light on the complex relationships between the lowlands and highlands.

In addition, other surveys and excavations farther afield in the central Zagros region and in the pivotal region of Mamasani as well as in the far-away Central Plateau and the Esfahan region (Khatib Shahidi et al. 2007; Javeri and Alian 2011) have provided archaeological evidence that would indicate the vast sphere of socioeconomic interaction that was established in the fifth millennium B.C. (the Late Susiana 1 phase) and continued until the early third millennium B.C., when an invasion/migration of some tribes with typical gray-black Caucasian pottery undermined this nexus by penetrating into the western Central Plateau and central Zagros regions. It seems to be at this point that the proto-Elamite sphere of interaction was re-directed toward eastern and southeastern Iran, as the development of Shahdad, Shahr-e Sokhteh, and Konar Sandal in southeastern Iran suggest. The cultural development in the Ram Hormuz region can be appreciated in this diachronic inter-regional framework.

As individuals or groups of individuals, humans had decisive roles in cultural change and landscape transformation; even though the evidence is almost always indirect, the actions of the agents can be appreciated as part of a much larger universe of the Annales school of historiography.[125] Briefly, the Annales treatment of history consists of three terms: the short/événements (individuals and events), the medium/conjonctures (processes and cycles that operate over one or several centuries), and the long/longue (several hundred centuries to millennia), "... where we can observe the effect of environmental constraints, the spread and impact of new technology, and the very long-lasting ways of seeing the world."[126]

With this brief introduction, we now focus our attention on the long-term processes that culminated in the formation of a lowland-highland Elamite state.

THE LONG PROCESS

> During the unfolding of this process [of the desettlement of the Kur River basin], the ranks of the herders swelled and it was difficult to sustain the initial success of the herding strategy. The local marshy pastures were overgrazed; flocks were taken further afield and stayed longer until a growing segment of society became full-time pastoral nomads, migrating freely between summer and winter pastures. Soon the political and military advantages of mobility became manifest. Friction between settled farmers and pastoral nomads was common and, as often as not, the pastoralists would disappear before a force could be mobilized to obtain compensation for trampled and grazed fields. Eventually this political chaos was resolved as villagers obtained protection from tribal leader in exchange for allegiance. The khans settled, each in his village headquarters, for the serious business of dynastic intrigue and political maneuvering. (Sumner 1986b, p. 207)

In the above paragraph, Sumner describes his rather detailed understanding of the events that took place during the fourth millennium B.C. in highland Fars. His general model of early pastoral nomadism is well known in the literature and we need not elaborate on it here.[127] Sumner's description is somewhat similar to the scenario we have proposed, with the major difference that the tension between the highland pastoralists and lowland farmers seems to have begun in the early fifth-millennium B.C. lowlands, which caused an almost permanent desettlement of northeast Susiana until the post Sasanian times (see Alizadeh 2006, 2008, 2010, and herein). In connection to the long-term development of the landscape in the Ram Hormuz region, it is necessary to return to our model with some elaboration.

Lowland Susiana is the cradle of urbanism and civilization in southwestern Iran. Deh Luran and Ram Hormuz are two major periphery plains that separate and connect Susiana to lowland Mesopotamia and highland Fars and the central Zagros valleys respectively. The Deh Luran and Susiana plains were in lockstep in the development of material culture from the initial phase of the colonization of the lowlands in the late eighth millennium B.C. This intimate connection and interaction between the inhabitants of the two regions continued until the Late Middle Susiana (ca. Ubaid 3) phase

[125] Bintliff 2004; Braudel 1972; see contra Barrett 1994.

[126] Bintliff 2004, p. 176.

[127] See, for example, Bates and Lees 1977; Gilbert 1983; Rowton 1974; Sherratt 1983; and Zagarell 1982.

(ca. 5700–5200 B.C.), when the two cultures diverged not only in the shared material culture, but also, more importantly, in their shared sphere of interaction. We begin with a brief account of the shared tradition of material culture between Susiana and southern Mesopotamia and continue our account with Susiana's new sphere of interaction during the Late Susiana 1 (early Ubaid 4) phase, ca. 4700–4300 B.C.

We begin with a synopsis of the cultural interaction of lowland Susiana and southern Mesopotamia in the sixth millennium B.C. that we alluded to above. A shared repertoire of material culture existed between Susiana and southern Mesopotamia from the time of the Archaic Susiana 3/Ubaid 0 (or El Oueili) phase.[128] Beginning in the late sixth or early fifth millennium B.C., however, the two regions diverged. Ubaid 2 material culture developed along the same artistic tradition into the Ubaid 3 and 4 phases, expanding into northern Mesopotamia and even into Syria and southeastern Anatolia along the Euphrates valley. Similarly, Middle Susiana-phase material culture penetrated the interior of the central Zagros Mountains as well as highland Kerman and Fars, where it replaced the local pottery traditions of soft ware (here and Alizadeh 1992, 2006). The social reorientation and cultural expansion of southern Mesopotamia and Susiana may be addressed in terms of rapid population growth, the development of a local elite class, and a regional exchange network that developed to obtain natural resources such as timber, stone, and copper that were found in the highlands of Iran and eastern Anatolia, as well as pastoral production, including wool. Therefore we may consider the late sixth or the early fifth millennium as the period of increasing interaction of the lowlands and the highlands in both Susiana and southern Mesopotamia. Both the highland and lowland populations must have benefited from this reorientation of the sphere of interactions, judging by the prosperous prehistoric cemeteries of Hakalan and Parchineh[129] and the observed prosperity in the material culture of Susiana, which witnessed significant population increase and the appearance of exotic status materials, administrative technology, and monumental architecture.[130]

Population increase in Susiana naturally and logically must have led to the expansion of farmlands, especially in northeastern Susiana, where most of the sites were located. This development must have taken place at the expense of pasturelands. We do not know, of course, how the two complementary economies solved this conflict of interest, but the available archaeological evidence from early fifth-millennium B.C. Susiana indicates that it may not have been achieved peacefully. Sometime between 5000 and 4800 B.C., the monumental building at Chogha Mish (the so-called Burnt Building) was destroyed and Chogha Mish, with a large number of its satellites in northeastern Susiana, was abandoned. Subsequent to this development, there was a shift of the settlement system to the western sector of the plain, which had been sporadically settled until the beginning of the fifth millennium B.C., and Susa and many other sites were established there, away from the presumably disputed pasturelands of the northeast.

A glance at the distribution maps of Susiana settlement systems during the late sixth and early fifth millennia B.C. shows that even though there was a noticeable population growth with new sites, there was still much available pasture to go around without resorting to violence to settle the land issue. So, why was Chogha Mish, the only regional center, abandoned along with a number of its satellites, its residents resettling in the western sector of the plain? We may never know, but we do know that environmental or climatic changes were not factors. We also know that there was no other site in the region that could pose a threat to the 15 ha Chogha Mish. Excluding these major factors, agency and its actions, conscious or unconscious, seem to be a reasonable alternative, as we proposed above in the question of the dilemma facing some ambitious highland elites in creating a political economy.

The change of the Susiana sphere of interaction from southern Mesopotamia to the highlands, including Fars, must have engaged the highlanders, or more accurately, the highland chiefs, in the process of procuring the resources that were only available in the highlands, as far away as the Central Plateau. This new "career" for the highland chiefs must have benefited them as well, in such a way that their own small societies grew more prosperous and numerous. Again, here the ambitious chiefs would encounter a dilemma that plagues any tribal society that includes a moving population. If the chief taxes his subjects to a level that would make it possible for the development of a political economy and for the ability to maintain a non-producing retinue and specialized fighting force, then the pastoralist has the very powerful option of leaving the area to join another tribe. As mentioned before, this is a good example of the centrifugal tension between chiefs and their clients in such societies. This problem cannot be solved internally and in the context of the Zagros the only way to stabilize this tension without abandoning political ambitions would be to include farming surplus as a source of revenue. Taxing farmers, who had fixed assets and were at the mercy of the local chiefs, would be far easier and more profitable. This does not, of course, mean that the early highland chiefs in the beginning were able to exert force on the prehistoric farming communities of Susiana, but they were initially capable of seizing their very fertile land to finance their political ambitions.[131]

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[128] Delougaz and Kantor 1996, pp. 289–306; Alizadeh 2008, pp. 7–13, 57–60.

[129] Haerinck and Overlaet 1996.

[130] Delougaz and Kantor 1996; Alizadeh 2008.

[131] For more details on the military capabilities of mobile pastoralists versus settled farmers, see Alizadeh 2010.

This hypothetical series of events in northeastern Susiana ushered a new archaeological phase (Late Susiana 1or Susiana d/Farukh phase) with a pottery (the so-called dot motif) that is unquestionably the most widespread of prehistoric pottery in Iran. Dot-motif pottery is found in Deh Luran, the Mehran plain, in almost all the valleys of southern and central Zagros, in highland Fars, parts of Kerman, and even in the Central Plateau.[132] We consider this expansion of the material culture as a reflection of a new sphere of lowlands/highlands interaction that lasted, with varying degree of influence, until the end of the proto-Elamite phase, when the Central Plateau and upper Zagros valleys (Godin IV phase) were penetrated by people from the Caucasian region, invaders that T. Cuyler Young used to refer to as "the barbarians of Godin IV." This migration/invasion/forced settlement of the Caucasians deep into the central Zagros region and the Central Plateau seems to coincide with the abandonment of some major production sites in the Central Plateau such as Arisman, Sialk, Ghabrestan, Ozbaki, Sofalin, and many others.[133] This development had profound impact on the long-established relations between resource-poor southwestern Iran and the mineral-rich Central Plateau, for the early third millennium B.C. marks the reorganization of the sphere of interaction from north-central Iran to northeast and southern parts of the country with sites such as Shahdad, Jiroft, and Shahr-e Sokhteh, and points east.

The events that took place in Early Dynastic Sumer and the Central Plateau in the early third millennium B.C. did not bode well for the inhabitants of the burgeoning proto-Elamite polities. The intrusion of the Caucasian people into the Central Plateau resulted in the abandonment of a number of key sites with economic connection to the lowlands and highland Fars in such a way that the millennia-old economic and social interaction with the Central Plateau was not to be documented again until the Achaemenid phase. More importantly, the rise of the city-states in Sumer created an environment where local rulers were competing for hegemony and control of the trade routes and valuable resources found in the highlands. This could presumably be achieved by first subjugating the local polities in Susiana and Deh Luran. It is at this juncture that Deh Luran seems to have fallen into the hands of Sumerian rulers and Susiana proper may have been ruled by a subordinate local ruler.[134]

SOUTHWESTERN IRAN IN THE THIRD MILLENNIUM B.C. AND THE RISE OF ELAMITE POLITIES

The processes of early state formation in both southern Mesopotamia and southwestern Iran, which most probably began in the fifth millennium B.C.,[135] seem to have run their course by the end of the fourth millennium B.C. (Wright 1977, 1984). But their outcome in the two regions was drastically different; in southern Mesopotamia, major population centers grew and consolidated their hinterlands,[136] while Susiana became depopulated, or more appropriately, "desettled" (see below).

Lowland Susiana is the most fertile region in Iran and as such there must have been logical, imperative reasons for the proto-Elamite population to keep it thinly settled for at least 250 years before forces of the Early Dynastic Sumer occupied or dominated it for the next 700 years, until the Shimashki dynasty liberated the region. We need to bear in mind that it was during this period of low population density (Alden 1982, 1987) that lowland Susiana produced the largest body of administrative tablets in the proto-Elamite universe.[137] These proto-Elamite administrative tablets contain information on disbursements of grain, sheep, goats, their products, and disbursements of labor lists (Dahl 2005). If our hypothesis regarding the dual political economy of Elam and the long-term tension between the lowlands and highlands is somewhat valid, then we have a purposefully built landscape in which pastoralism was dominant but, as the tablets tell us, was combined with grain production without major settled population. Therefore, the rarity of mounded sites in early third-millennium B.C. Susiana does not necessarily mean low population, but low *settled* population. The Zagros pastoralists routinely practice farming, thanks to the fertile intermontane valleys in the highland territories, and in the seemingly almost empty landscape of Susiana, they could have produced both dairy and grain products with minimal efforts. This proto-Elamite built landscape with very low settled population had unintended consequences for the polity, as the region could easily be overwhelmed by the hordes from Sumer who dominated it for at least 700 years.

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[132] For a detailed report on the geographic and stratigraphic position of the Late Susiana 1 ceramics, see Alizadeh 1992 and 2008.

[133] See Alizadeh 2010 for references, and *Part I*; see also Young in Finkbeiner and Röllig 1986, p. 169.

[134] Carter and Stolper 1984, pp. 10–16.

[135] For detailed discussion, see Alizadeh 2008, 2010.

[136] See Richardson 2012 for the problems of early Mesopotamian states to control their hinterlands.

[137] Proto-Elamite tablets have been found at sites as far as the Iranian Central Plateau (19 from Sialk, 1 from Hissar, 1 from Ozbaki, ca. 20 from Sofalin), Kerman (27 from Yahya), Sistan (1 from Shahr-e Sokhteh), Fars (32 from Malyan), and the Ram Hormuz area (1 from Geser), but the overwhelming majority come from Susa (over 1,400).

Following the Sumerian hegemony in Susiana, the settled population increased rapidly, relative to the previous phase. However, by Mesopotamian standards, early third-millennium Susa, with an area of ca. 10–11 ha and a total regional occupation of ca. 17 ha, may be considered a small town presiding over an almost empty landscape.[138] Even though the material culture and written records in post-proto-Elamite Susiana are primarily Sumerian, the regional organization of the society is obviously non-Sumerian, with only one very large urban center and a very small rural population scattered across the plain. Is it possible that the proto-Elamite hierarchy had come to a détente with the Sumerian occupiers while in the process of consolidating their power base in the highlands? We can only guess.

Whatever the case may be in Susiana — and excavations of some of these small sites may provide further information — the Ram Hormuz region seems to be completely devoid of any settled population from ca. 2800 to 1900 B.C., when the mighty Sukkalmah dynasty finally forged the powerful lowland-highland alliance that lasted for at least 1,500 years. Again, because the Ram Hormuz region has large tracks of fertile land, there must have been reasons other than poor natural resources for the absence of settled population during this period. The third millennium B.C. seems to have been a time of major conflicts between Sumer and Elam.[139] While we need to account for the bombastic and propagandist Sumerian claims of major campaigns into the highlands, including Fars, occasional hostilities must have rendered settled life in the Ram Hormuz region, as well as in the fertile Mamasani region,[140] very difficult. To appreciate this situation, we need to remember that the Ram Hormuz region is a natural buffer zone between the lowlands and the highlands and provides the easiest access routes to the intermontane valleys to where the Elamite forces would retreat; it is also through the Ram Hormuz region that the natural routes to highland Fars pass. Given this strategic location, it is feasible that in the periods of calm, mobile 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.

The absence of settlements lasted until the early second millennium B.C. With the rise of the Sukkalmah, the regional organization of the society in both upper Susiana and the Ram Hormuz region, as well as in the Mamasani area, changed. Settlements were established rapidly in both regions and continued to be occupied and expand until the turbulent Neo-Elamite II phase (725/700–535 B.C.).[141] Moreover, beginning with what is defined by Elizabeth Carter (1971) as the "Transitional" phase, Susiana's landscape went through radical transformation. Throughout the Elamite period, the lowlands and highlands were each dominated by a single urban center many times larger than other sites, if not the only one in the landscape — often Susa in the lowlands and Anshan (Malyan) in the highlands. While Elamites never developed a fully urban landscape either in lowland Susiana or highland Fars, the polity seems to have gone through some transformation by the end of the Sukkalmah period. We cannot know the details of the Elamite "nationalistic" resurgence, but the results seem to suggest that there was a major shift toward urbanism as well as in spatial and material expression of political authority.[142]

The earliest known and extant Elamite urban monuments date to the reign of Tepti-ahar (ca. 1375 B.C.), followed shortly by the great precinct and ziggurat at Dur Untash (Chogha Zanbil). Subsequent Elamite rulers continued building activities until they lost political power to the Persian Achaemenids. What is also important in this transformation is the use of Elamite language and script that marks the Middle Elamite period. We do not know the impetus and dynamics behind this major transformation, but some clues are suggestive. This major transformation in the Elamite society coincided with the gradual loss of Fars to the migrating Iranian tribes; by about the beginning of the first millennium B.C., there is nothing in Fars that indicates connection with the now primarily lowland Elamite power.

In fact, the Elamites at the height of their political and economic power seem to have left precious little textual evidence behind. It is important to bear in mind that the absence of urbanism and the types of literature that urban societies routinely produce was not limited to the Elamite era; the succeeding highland dynasties of Achaemenids and Parthians also exhibit similar trends until the rise of the urban-based Sasanians. Except for Persepolis as a palace complex, numerous surveys have failed to detect a farming landscape, let alone an urban setting, in Fars during the reign of the Achaemenids. Similarly, with the sole exception of the limited range of factual data recorded in the Persepolis clay tablets, the Persian Achaemenids produced almost no textual evidence that bears on any details of economic, social, religious, and political structure of their society. This picture almost completely changed with the rise of the urban-based Sasanians. The Elamites, primarily highlanders and mobile, might have had a powerful oral way of presenting and expressing themselves, just as the Achaemenids and Parthians surely must have done.[143] This can be beautifully

[138] Alden 1987, pp. 159–60, table 28; for a lower estimate, see Carter and Stolper 1984, p. 135.

[139] Carter and Stolper 1984, pp. 10–16.

[140] A Similar lack of settlements from 2700 to 1900 B.C. is recorded in this area; see Potts et al. 2009.

[141] For this archaeological periodization, see Miroschedji 1978, 2003.

[142] For the question of spatial political authority, see Smith 2003, pp. 17–21.

[143] Alizadeh 2010; the Persepolis tablets are an anomaly and at any rate show a limited range of information.

contrasted with the relatively large amount of written records left by the urban-based Sasanians, among whom agriculture and its development was a major religious (Zoroastrian) tenet.[144]

As highlanders, the Elamites must have had different attitudes from their lowland Mesopotamian urban-based neighbors in how to express themselves in their environment with a political landscape that is not dotted by symbols directly linked to the apex of the political hierarchy. Space for the highlanders does not seem to have had the very fixed boundaries of walled cities of southern Mesopotamia. It was not until the "Transitional" phase in the upper Susiana plain at Haft Tappeh, where the Elamites began to use concrete monuments to create a political landscape, and in this sense the period between 1600 and 1300 B.C. was not just a dynastic transition or change in the material culture, but a fundamental sociopolitical change.

The Neo-Elamite period was a time of trouble and fundamental re-organization of the entire southwest Asian society. The Iron Age hordes had penetrated deep into the Iranian and Anatolian plateaus as well as into northern Mesopotamia; the Assyrians had become a powerful empire with a type of war machine and siege technology unprecedented in the ancient Near East. The Iranian tribes had penetrated deep into the Zagros, depriving the Elamites of their traditional power bases and resources, both material and human. Highland Fars, which had been firmly connected to the Elamite world for millennia, had been lost to the early Persians and was only nominally Elamite. The combination of these and other factors must have finally undermined the millennia-old Elamite federation, resulting in a period of political and economic fragmentation. Even though the Elamites might have survived this onslaught and continued as a small polity in or around Susiana as Elymaeans, the loss of the highlands and its resources and the successive appearance of the Achaemenid, Parthian, and Sasanian empires eclipsed them forever.[145]

The post-Elamite settlement history of the Ram Hormuz region also reflects the policies and strategies of the dynasties that controlled it. During the Achaemenid phase, the settled population dropped even further, to a total of 17.27 ha of occupation, with no site large enough to be an urban center. This is not surprising as no Achaemenid-founded city has been recorded. The three Achaemenid capitals of Susa, Babylon, and Hegmataneh[146] were old cities. This is also most evident in their homeland Fars, where archaeological research has failed to find an urban center associated with the Persepolis palace complex.[147]

Dramatic re-organization of the society and landscape occurred during the Parthian and Sasanian phases, when both lowland Susiana and the Ram Hormuz region reached their highest settled population density since the Middle Elamite phase. The marked decrease in the settled population following the Arab invasion of lowland Susiana and the Ram Hormuz region must have contributed to this demographic change. The establishment of the Arab rule and the subsequent rise of the Iranian dynasty of the Buyyid and the Seljuk Turks must have brought stability to the society as the settled population in the entire lowlands rose to the highest level in the entire history of the region. Again, the political turmoil and savagery of Timur caused the region to be almost devoid of settled population. This and subsequent political and economic uncertainty and lack of security that plagued the entire Iranian Plateau until the Safavid firmly established themselves may have encouraged the expansion and further development of the highland mobile pastoralists tribes into forging confederations that until the 1920s ruled supreme in their region.

FUTURE RESEARCH

It is almost a commonplace in archaeology that research designed to shed light on some obscure or unknown aspects of ancient societies ironically generate more questions. But it is the strength of archaeology and its self-correcting scientific methodology and approach that demands the insights and interpretations are considered temporary and as much as possible in accordance with the available data. This is what we have endeavored to follow in this synergic work. We hope the ideas we offer here will generate new questions and research programs to either discredit our pronouncements or open up new fieldwork in the still unknown or poorly known regions of Central Zagros, where much of Elamite history and archaeology is still hidden.

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[144] Visit www.sasanika.com for the written sources.

[145] For a detailed account of the fate of the Elamites, see Miroschedji 2003, pp. 34–36.

[146] Archaeological research at Hegmataneh has yet to document an Achaemenid occupation there.

[147] "Firuzi" and "Persepolis East" are very low sites that remain to be excavated and were probably established for the workers engaged in the construction of the palace complex; see Sumner 1986a for the description of these sites.

APPENDIX A

INAA ANALYSIS OF CERAMICS FROM TALL-E GESER AND ABU FANDUWEH: COMPOSITIONAL SIGNATURES AND EVIDENCE FOR CERAMIC EXCHANGE

JOHN R. ALDEN,[a] LEAH MINC,[b] AND ABBAS ALIZADEH

INTRODUCTION

This *Appendix* reports the results of a compositional analysis of ceramics from Tall-e Geser (the largest prehistoric site in the Ram Hormuz plain of southeastern Khuzestan) and Abu Fanduweh (a large Late Susa II [Late Uruk] period site in the Susiana plain roughly 130 km to the northwest of Geser). Elemental compositions of two series of samples, totaling 104 ceramic and nine soil and clay samples from the two sites, were assessed via Instrumental Neutron Activation Analysis (INAA) at the Oregon State University Radiation Center (OSU-RC), with the goal of establishing compositional signatures for ceramics produced at or near these ancient centers. In addition, it seemed possible that the analysis would identify examples or classes of ceramics from these sites that were non-local in origin, thus offering an indication of contact between these sites and other locations during various eras.

Analysis of the first series of samples identified local compositional signatures for both sites, as well as a number of what appeared to be non-local sherds. We were also able to link our data to the results of previous INAA studies of ceramics from the Susiana plain (Ghazal et al. 2008). But at the time of this initial analysis, ceramics from other potential source regions had not been well characterized and little information was available on their chemical or mineral composition. However, during the next few years the OSU-RC carried out a large study of Iranian and Mesopotamian ceramics that greatly expanded the available database of regional ceramic compositions. The results of those studies encouraged us to run a second series of ceramic samples from Tall-e Geser, because increasing the Geser sample size would allow us to establish more robust compositional signatures for the two principal groups of ceramics found at the site and also allow us to evaluate the place of Geser in the context of a regional study of late fourth to mid-third millennium ceramics from sites stretching across Syria, Iraq, and southwest Iran (Minc 2013).

The additional data sharpened the definition of compositional signatures for two apparently local groups of Geser ceramics and helped us refine our interpretations of the material from the site. We now suggest that a small number of sherds from Geser closely match the compositional signature of Mesopotamia, while a slightly larger group of Geser sherds match the signature of Abu Fanduweh. We also observed several clear patterns in the chronological distribution of the Geser compositional groups. These patterns, and possible explanations for the distribution of non-local ceramics at the site, are considered in the final section of this report.

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PROCEDURE: SAMPLE SELECTION

In total, seventy-seven ceramic samples from Tall-e Geser (RH-001; 31° 21′ 06.5″ N, 49° 25′ 06.5″ E, 76 m asl), ranging in age from the Late Middle Susiana to the Middle Elamite periods, were taken from collections in the University of Chicago's Oriental Institute. This material was excavated in 1948 and 1949 by Donald and Garnet McCown and Joseph Caldwell (Caldwell 1968, Whitcomb 1971), and its archaeological context is described in detail in the present volume. In addition, twenty-seven Susa II-period sherds and nine samples of soils and clays from Abu Fanduweh (KS-59; 32° 05′ 39.6″ N, 48° 18′ 59.9″ E, 69 m asl) were selected from material collected during 2006 by the joint Oriental Institute–ICHHTO excavations at Abu Fanduweh. Site locations are shown in figure A1 (see pp. 313–23 for Appendix A figures); table A1 lists sample type and provenience data.

The samples from Tall-e Geser (figs. A2–A4), which chronologically include ceramics from the Late Middle Susiana through Susa II [Uruk] and Early proto-Elamite to the Elamite era, were selected to provide the outlines of a compositional signature for the site and the Ram Hormuz plain. Ram Hormuz lies on the easiest route between the Susiana plain and the Kur River basin, and it is a source area for both bitumen and fine green-tinted and colored alabaster/calcite (Wright and Carter 2003, pp. 61, 65). In addition, the prehistoric social and political economy of the Ram Hormuz plain appears to have included a component of mobile pastoralism during many of the periods of Geser's occupation (Alizadeh 2010). Because of these features, we felt that it would not be surprising if ceramics from Tall-e Geser included material that had been produced elsewhere and brought into Ram Hormuz. By testing a chronologically and typologically diverse selection of material from the site, we hoped to define a compositional signature for the site and to identify any ceramics from the Geser deposits that had not been locally manufactured.

The ceramic samples from Abu Fanduweh were chosen to provide a cross section of Susa II-period ceramic types from this site (fig. A5), while the soil samples were intended to provide a compositional signature for local clays that could be compared to the signature for the sampled ceramics. Johnson (1973, pp. 93–94) proposed that Abu Fanduweh was one of his two Early Uruk centers of ceramic production in the Susiana plain, and one of three large administrative centers in that region during what he defines as the Middle Uruk (Johnson 1987, p. 117). We hoped that establishing a compositional signature for Abu Fanduweh would allow ceramics manufactured there to be distinguished from ceramics produced at the contemporaneous centers of Susa and Chogha Mish. Berman had attempted a similar analysis in the 1980s but had not succeeded in identifying distinctive compositional signatures for sites in the Susiana plain (Berman 1986, pp. 262–64). However, the work of Ghazal and colleagues (2008) on Susiana ceramics indicated that, with the analytical devices and statistical tools now available, it was possible to distinguish ceramics made in different parts of the plain. We hoped to build on the results obtained by Ghazal and colleagues by increasing the number and typological variety of ceramic samples from this important region.

PROCEDURE: SAMPLE PROCESSING

Prior to submission, all ceramics were examined and assigned to stylistic and chronological categories appropriate for each region. For the first series of samples, paste, temper, and decoration were described, and sherds with rims, bases, or painted decoration were drawn. For the second series of samples, drawings were made after the sherds had been sampled for INAA testing. To remove soluble salts from the samples of Abu Fanduweh soils and clays, the samples were mixing with distilled water and the sediment allowed to settle. The water was then decanted and the washing repeated. After the second washing the samples were air-dried and the clay fraction separated from any non-target coarse material. The clay fractions were then formed into small disks and fired for six hours to a maximum temperature of 600 degrees Celsius. The samples were then submitted to the Oregon State University Radiation Center for photography, preparation, irradiation, and analysis.

In the Radiation Center, the disks of geological clays were refired at 800° C to ensure that all carbon and entrained moisture had been removed. The ceramic samples were prepared by grinding away any slip, paint, or surface deposit that might contaminate the ceramic paste and temper. A piece of the de-surfaced sherd approximately 1 cm^2 in size was ground into powder using an agate mortar and pestle, and powdered samples were dried for forty-eight hours in a desiccating oven.

Approximately 250 mg of powdered, desiccated material from each sample was encapsulated in a high-purity polyethylene vial and subjected to two separate irradiations in order to characterize a full suite of elements standard in archaeometric analysis (Al, As, Ba, Ca, Dy, K, La, Lu, Mn, Na, Sm, U, Yb, Ce, Co, Cr, Cs, Eu, Fe, Hf, Nd, Rb, Sc, Sr, Ta, Tb, Th, Ti, V, Zn, Zr). To quantify elements with intermediate and long half-life isotopes (As, Ba, La, Lu, K, Na, Sm, U, Yb,

Table A1. Sample type and provenience data

INAA ID	*Museum Reg. No.*	*Area*	*Level*	*Date*	*Notes*
AF-01	?	Sq. 787	L. 5, F. 11	Susa II	Beveled-rim bowl base
AF-02	?	Probe 6, -100 cm	–100 cm	Susa II	Beveled-rim bowl rim
AF-03	?	Sq. 787	L. 5, F. 11	Susa II	Beveled-rim bowl rim
AF-04	?	Sq. 787	L. 5, F. 11	Susa II	Beveled-rim bowl
AF-05	?	Sq. 787	L. 5, F. 11	Susa II	Beveled-rim bowl rim
AF-06	?	Probe E	–75 cm	Susa II	Beveled-rim bowl base, greenish
AF-07	?	Surface, N. Mound		Susa II	Beveled-rim bowl, greenish
AF-08	?	Surface, N. Mound		Early Susa II	Straight spout
AF-09	?	Surface, N. Mound		Late Susa II	Drooping spout
AF-10	?	Sq. 822	L. 5	Early Susa II	Small four-lug jar
AF-11	?	Sq. 787	L. 1	Late Susa II	Jar, incised bands
AF-12	?	Probe 6		Susa II	Everted rim jar, red ware
AF-13	?	Sq. 822	L. 2	Late Susa II	Short necked jar
AF-14	?	Surface, S. Mound		Early Susa II	Small jar, impressed decoration
AF-15	?	Probe 9	–100 cm	Late Susa II	Small jar, undercut band rim
AF-16	?	Sq. 288	L. 7	Late Susa II	Jar, crosshatch incised
AF-17	?	Surface, N. Mound		Late Susa II	Thumb impressed band
AF-18	?	Sq. 822	L. 14	Early Susa II	Jar, everted rim
AF-19	?	Sq. 288	L. 3	Susa II	Jar, everted rim
AF-20	?	Sq. 822	L. 2	Susa II	Jar, thickened rim
AF-21	?	Surface, S. Mound		Late Susa II	Ledge rim bowl or basin
AF-22	?	Surface, N. Mound		Late Susa II	Fine ware conical cup
AF-23	?	Sq. 822	L. 20	Susa II	Fine ware conical cup
AF-24	?	Sq. 787	L. 5, F. 11	Susa II	Fine ware conical cup
AF-25	?	Sq. 787	L. 1	Late Susa II	Twisted handle
AF-26	?	Probe 6		Late Susa II	Jar, crosshatch incised
AF-27	?	Probe 6	–140 cm	Susa II	Slag
TG-01	?	Step Trench Lower	5	Middle / Late Susiana	Jar shoulder, painted
TG-02	?	Step Trench Lower	5	Late Susiana	Bowl, int and ext painted
TG-03	?	—	—	Middle / Late Susiana	Jar shoulder, painted
TG-04	?	—	—	Susa II	Proto beveled-rim bowl
TG-05	?	Step Trench Top	34	Late Susa II	Jar, oblique reserved slip
TG-06	?	Stake Trench 7.5–8	4E	Late Susa II	Jar, oblique reserved slip
TG-07	?	Stake Trench 8–9	5	Late Susa II	Jar, crosshatch incised
TG-08	?	Stake 10	Stake 10 Room	Late Susa II	Nose lug jar, crosshatch incised
TG-09	?	Stake Trench 8–9	5	Late Susa II	Conical spout
TG-10	?	Stake Trench 7.5–8	4E	Late Susa II	Jar, round rim and impressed band
TG-11	?	Stake Trench 7.5–8	4E	Late Susa II	Jar, band rim
TG-12	?	Stake Trench 7.5–8	4E	Late Susa II	Jar, band rim?
TG-13	?	—	Ash floor	Late Susa II / proto-Elamite	Cup

Table A1. Sample type and provenience data (*cont.*)

INAA ID	*Museum Reg. No.*	*Area*	*Level*	*Date*	*Notes*
TG-14	?	Step Trench Lower	10	Early Susa II	Everted round rim jar
TG-15	?	Stake Trench 8–9	6	Late Susa II	Jar, impressed bands
TG-16	?	Step Trench 2	17	Late Susa II	Large jar, thick round rim
TG-17	?	Step Trench Lower	12	Late Susa II	Jar, flaring round rim
TG-18	?	Stake Trench 8–9	6	Late Susa II	Ring scraper
TG-19	?	—	—	Late Susa II / proto-Elamite	Body sherd
TG-20	?	Stake Trench 7.5–8	4E	Late Susa II / proto-Elamite	Ledge-rim bowl
TG-21	?	Stake Trench 7–7.5	3	Proto-Elamite	Jar shoulder, bichrome
TG-22	?	Trench 2	3	Proto-Elamite	Interior painted bowl
TG-23	?	Trench 2	3	Late Susiana 1	Jar, high necked
TG-24	?	Stake Trench 8-9	4	Proto-Elamite	Bowl
TG-25	?	Stake Trench 7–7.5	-	Proto-Elamite	Jar neck
TG-26	?	Step Trench	40	Sukkalmah / Transitional	Jar shoulder, painted
TG-27	?	—	—	Middle Elamite	Large-necked jar
TG-28	?	Step Trench	39	Sukkalmah	Ring base
TG-29	?	—	—	Sukkalmah	Storage jar rim
TG-30	A154795	Stake Trench 7.5–8	4A	?	Med/large jar, out-turned rim
TG-31	A154820	Step Trench	37	Proto-Elamite	Large deep bowl
TG-32	A154815	Stake Trench 8–9	2-3	Late Susa II?	Jar, out-turned rim
TG-33	A154755	Step Trench	35	Late Susa II	Jar shoulder, crosshatch incised
TG-34	A154749	Step Trench	37	Proto-Elamite	Everted rim
TG-35	A154757	Step Trench	34	Late Susa II	Red slipped
TG-36	A154863	Stake Trench 8–9	7	Late Susa II	Conical spout
TG-37	A154876	Stake Trench 10	Stake 10 Room	Sukkalmah	Jar body, red painted
TG-38	A154799	Stake Trench 7.5–8	4	Proto-Elamite	Large bowl
TG-39	A154764	Step Trench	32	Late Susa II	Beveled-rim bowl
TG-40	A154761	Step Trench	36	Proto-Elamite	Jar shoulder, crosshatch incised
TG-41	A154809	Stake Trench 7.5–8	4C	Late Susa II	Jar, everted rim
TG-42	A154759	Step Trench	34	Late Susa II	Jar, everted rim
TG-43	A154818	Stake Trench 7.5–8	4B	Proto-Elamite	Large bowl, rounded rim
TG-44	A154732	Step Trench	16	Early Susa II	Thick bowl rim, hand made
TG-45	A154811	Stake Trench 7.5–8	4B	Proto-Elamite	Jar, red slipped
TG-46	A154817	Stake Trench 7.5–8	?	Late Susa II	Band rim jar, curved spout
TG-47	A154942	Step Trench	35	Proto-Elamite	—
TG-48	A154751	Step Trench	37	Proto-Elamite	Small bowl
TG-49	A154807	Stake Trench 8–9	2-3	Late Susa II	Jar, everted rim
TG-50	A154874	Stake Trench 10	Stake 10 Room	Proto-Elamite	Jar shoulder, polychrome bands
TG-51	A154659	Step Trench	15	Early Susa II	Jar, wide mouthed
TG-52	A154750	Step Trench	37	Proto-Elamite	Deep bowl or basin

Table A1. Sample type and provenience data (*cont.*)

INAA ID	*Museum Reg. No.*	*Area*	*Level*	*Date*	*Notes*
TG-53	A154760	Step Trench	34	Late Susa II	Jar shoulder, oblique reserved slip
TG-54	A154943	Step Trench	35	Proto-Elamite	—
TG-55	A154695	Step Trench	15	Early Susa II	Bowl, everted rim
TG-56	A154690	Step Trench	15	Early Susa II	Neckless jar
TG-57	A154768	Step Trench	21	Early Susa II	Jar shoulder, oblique reserved slip
TG-58	A154778	Stake Trench 8–9	7	Late Susa II / proto-Elamite	Ring base
TG-59	A154683	Step Trench	24	Late Susa II	Everted rim jar, crosshatch incised
TG-60	A154723	Step Trench	31	Late Susa II	Jar, everted rim
TG-61	A154810	Stake Trench 7.5–8	?	Late Susa II	Jar, everted rim
TG-62	A154762	Step Trench	32	Late Susa II	Jar, band rim
TG-63	A154573	Stake Trench 7.5–8	4C	Late Susa II	Jar, everted rim
TG-64	A154879	Stake Trench 10	Stake 10 Room	Sukkalmah	—
TG-65	A154878	Stake Trench 10	Stake 10 Room	Sukkalmah	—
TG-66	A154791	Step Trench	36	Proto-Elamite	—
TG-67	A154938	Step Trench	38	Proto-Elamite	Bichrome
TG-68	A154623	Step Trench	5	Late Susiana 1	Painted body, goat motif
TG-69	A154521	Step Trench	6	Late Susiana 1	Ring-base bowl, interior painting
TG-70	A154638	Step Trench	?	Late Susiana 1	Painted body
TG-71	A154511	Stake Trench 8–9	6F	Late Middle–Late Susiana	Large jar, flaring neck
TG-72	A154528	Step Trench	2	Late Middle–Late Susiana	Painted body
TG-73	A154640	Step Trench	?	Late Susiana 2	Globular jar, painted and pierced lug
TG-74	A154581	Step Trench	1	Late Middle Susiana	Necked jar, painted
TG-75	A154512	Stake Trench 8–9	?	Susiana	—
TG-76	A154617	Step Trench	?	Late Middle-Late Susiana	High base, painted
TG-77	A154557	Step Trench	?	Late Middle Susiana	Jar shoulder, painted

Ce, Co, Cr, Cs, Eu, Fe, Hf, Nd, Rb, Sc, Sr, Ta, Tb, Th, Zn, Zr), samples were irradiated for fourteen hours in the rotating rack of the reactor, which experiences an average thermal neutron flux of 2×10^{12} n · cm^{-2} · s^{-1}. Following irradiation, two separate counts of gamma activity were acquired using a 30–40 percent relative efficiency HPGe detector: a 5000-s count (live time) of each sample after a one-week decay period, and a 10000-s count (live time) after four weeks' decay. In contrast, the data for short half-life isotopes result from a 20-s irradiation delivered via pneumatic tube to an in-core location with an average thermal flux of 10^{13} n · cm^{-2} · s^{-1}. Again, two separate counts were necessary, one after a 13-m decay (for Al, Ca, Ti, and V) and a second count after a 2-hour decay (for Dy, K, Mn, and Na); both counts were for 500 seconds. NIST certified reference standards were irradiated with each batch of samples to calibrate the readings from the irradiated materials.

Element concentrations were determined through direct comparison with three replicates of the standard reference material NIST1633A (coal fly ash) on a weight-ratio basis. All data reductions were based on current consensus element libraries utilized by the University of Missouri Research Reactor (MURR) for archaeological materials (Glascock 2006). Samples of NIST688 (basalt rock) and New Ohio Red Clay were included as check standards. Element concentration data for all the soil and ceramic samples analyzed in this project will be made available online in the Oregon State University Scholar's Archive.

COMPARATIVE MATERIAL FROM THE SUSIANA PLAIN AND MESOPOTAMIA

Until fairly recently, little comparative material was available to place chemical composition analyses of Near Eastern ceramics in a regional context. A large, early study by Berman (1986) had analyzed 965 samples of Susa I and II [Susa A and Uruk] period ceramics from 104 sites, mainly in the Susiana plain. She divided these materials into five broad categories — Black on Buff, Plain, Red, Salmon, and Miscellaneous Slipped — and thirty-seven subgroups based on criteria like site of origin, vessel shape, decorative characteristics, surface treatment, and temper (Berman 1986, pp. 153–54). Unfortunately, Berman conducted her research prior to the availability of powerful interactive statistical software, which would have greatly assisted in the identification of subgroups within this complex sample. In addition, the wide breadth of her sample selection, in the words of Ghazal and colleagues (2008, p. 94), "may have significantly hampered her ability to construct compositional groups" based on either differences between wares or differences in provenance. For either or both reasons, Berman did not succeed in identifying distinctive compositional signatures for sites in the Susiana plain.

In a more focused study conducted at MURR, Ghazal and colleagues (2008, pp. 95–96) demonstrated that with the analytical devices and statistical tools now available, it was possible to distinguish ceramics made in different parts of this plain. This study successfully distinguished compositional signatures of chaff-tempered beveled-rim bowls from three sites in the Susiana plain — Chogha Mish, Sharafabad, and Abu Fanduweh — and also distinguished the elemental compositions of grit-tempered crosshatch incised band (CHB) jars from Chogha Mish and Tepe Sharafabad. Our sample from Abu Fanduweh was designed to add a sample of grit-tempered ceramics to this important Susiana data set.

Further, we are now able to compare the Susiana and Ram Hormuz ceramics with pottery from the Mesopotamian heartland, with which the Tall-e Geser and Abu Fanduweh material shares some stylistic similarities. In a recent effort to characterize compositional signatures of ceramics from Mesopotamia, Emberling and Wright (Emberling 2014; Minc 2013, 2014) analyzed ninety samples from the Warka (WS) and Akkad (AS) surveys (Adams and Nissen 1972; Adams 1981) that reflect the diversity of classic Late Uruk forms. These include a variety of bottles and conical and droop-spout jars, jars with nose-lugs and crosshatch incised bands, globular storage jars with diagonal reserve-slip, hammerhead-rim bowls, and heavy ledge-rim jars. This analysis identified a unified and distinctive chemical composition group that provides a reference group for Mesopotamia.

ANALYTICAL METHODS: ESTABLISHING COMPOSITIONAL SIGNATURES FOR TALL-E GESER AND ABU FANDUWEH

A series of statistical procedures were used to identify samples with similar elemental composition, where each group is distinctly different from other groups, and with each group presumably representing a distinct source of clay and temper. The ability to define such reference groups depends on the geochemical distinctiveness of the raw material sources being utilized (Bishop and Blackman 2002), and it can be difficult to identify specific sources of clay or temper if those materials are derived from extensive beds of geological material exhibiting a single compositional signature. The analytical process followed standard procedures for group identification and verification (Glascock 1992), involving (1) preliminary identification of compositional groups, (2) group refinement to create statistically homogeneous core groups, and (3) classification of non-core members into their most likely compositional group.

Preliminary group identification utilized a combination of bivariate and multivariate statistical techniques to distinguish possible groups within the data set and to identify outliers. Bivariate plots were used to screen the data for subsets of samples that might form groups with similar elemental compositions, while cluster analysis, principal components analysis, and discriminant analysis were used to differentiate the groupings in multivariate space. Finally, reference-group membership was refined and tested using the Mahalanobis distance statistic, a measure of the distance between an individual sample and the centroid of a reference group. Prior analyses (Minc 2013, 2014) indicated that a subset of eight elements (Al, Ca, Na, Sc, Cr, Mn, La, Th) provided excellent group separation at the regional level, and this subset of elements was utilized to refine the Abu Fanduweh and Geser groups, as well as to calculate probabilities of sample affiliation with other ceramic reference groups.

The primary dimensions of elemental variability within this ceramic sample were explored using principal components analysis based on inter-element correlations (table A2 and fig. A6). This analysis includes grit-tempered ceramics, chaff-tempered (BRB) ceramics, and clay samples from Abu Fanduweh (n=44), Chogha Mish (n=66), Tepe Sharafabad (n=78), and Tall-e Geser (n=76). Multivariate outliers (identified as cases with a high jack-knifed distance from the global centroid) were excluded, including AF-26, AF-27, ROG-188, and TG-77. The comparative material from Mesopotamia was

Table A2. Principal Components analysis, combined sample

Number	*PC1*	*PC2*	*PC3*	*PC4*	*PC5*
Eigenvalue	15.72	2.37	1.77	1.41	1.17
Percent	56.16	8.46	6.32	5.04	4.20
Cum. %	56.16	64.62	70.94	75.98	80.18
Total Structure Coefficients					
Al	**0.956**	0.077	-0.067	0.036	0.042
Ca	***-0.858***	0.146	-0.059	0.006	-0.119
K	0.320	***-0.368***	**0.490**	0.198	0.374
Na	0.475	-0.218	-0.378	***-0.473***	0.375
Fe	**0.826**	**0.466**	-0.023	-0.070	0.058
Ti	**0.854**	0.047	0.035	-0.141	-0.011
Sc	**0.914**	0.292	0.007	-0.093	-0.007
V	**0.719**	-0.117	0.330	-0.037	0.077
Cr	**0.778**	-0.285	-0.344	-0.048	0.081
Mn	0.020	**0.853**	-0.095	0.130	0.251
Co	**0.704**	**0.581**	-0.094	-0.096	0.075
Zn	0.053	0.272	**0.718**	-0.064	-0.009
Rb	**0.628**	-0.318	**0.461**	0.307	-0.041
Sr	-0.300	-0.293	***-0.480***	0.355	0.114
Cs	**0.831**	0.018	0.149	0.107	-0.203
Ba	0.134	0.257	-0.197	**0.795**	-0.235
As	-0.115	0.116	0.070	0.307	**0.810**
La	**0.963**	0.023	-0.027	0.021	-0.091
Ce	**0.968**	0.018	-0.030	0.021	-0.084
Sm	**0.968**	0.047	-0.042	0.038	-0.039
Eu	**0.964**	0.017	-0.048	-0.031	-0.056
Tb	**0.792**	-0.007	-0.158	0.169	0.005
Yb	**0.932**	-0.101	-0.083	0.093	-0.001
Lu	**0.900**	-0.051	0.022	0.106	0.017
Hf	**0.877**	-0.300	-0.207	0.033	0.020
Ta	**0.831**	0.116	0.121	-0.249	-0.074
Th	**0.962**	-0.026	-0.080	0.089	-0.011
U	**0.501**	***-0.484***	0.077	0.019	0.004

also excluded from this analysis since its inclusion tended to obscure the more subtle differences between Susiana and Geser; however, principal component scores were calculated for Mesopotamia as well, and these samples are projected on principal component graphs.

The first five components for the combined sample had eigenvalues greater than 1, indicating that they account for significant portions of inter-element co-variation; jointly, these five PCs explain 80 percent of total variance. Based on the component loadings, these ceramics show a classic dilution effect on the first principal component. This PC (accounting for 56% of the variance explained) reveals a high positive correlation with aluminum (a primary constituent of clays) as well as most other elements, combined with a strong negative correlation with calcium (presumably representing limestone or calcite grit). This strong bivalent pattern suggests that most element concentrations vary with the amount of clay in the sherd, and are diluted according to the amount of calcium-rich grit that is present. In samples with high calcium content (e.g., ca. 20%), this dilution can exceed 10 percent.

The second PC accounts for an additional 8.5 percent of the variance, and in contrast with the first PC, highlights significant positive co-variation among cobalt, iron, and manganese, which as a group co-vary negatively with potassium and uranium content. The third and fourth components each account for an additional 5–6 percent of the variance and largely represent variation among the alkali elements (barium, sodium, potassium, and strontium), while the fifth component (4% of the variance) reflects arsenic concentrations.

The relative abundance of calcium, the importance of which is revealed by the component loadings of the first PC, may well reflect regional differences in geology and the weathering of parent materials. Regions differ on average in the calcium content of their ceramics, with ceramics from Mesopotamia having the lowest calcium content (mean 9.4%), followed by the Ram Hormuz plain (mean 10% calcium), and the Susiana plain (mean 14.6%). Within the Susiana plain, ceramics from the more northerly sites of Chogha Mish and Tepe Sharafabad have higher concentrations of calcium (mean 16.3% and 13.7%, respectively) than Abu Fanduweh on the southern plain (mean 10.2%).

Alternatively, variability in calcium content may reflect cultural differences in ceramic paste preparation. At both Abu Fanduweh and Tepe Sharafabad, local natural clays have higher calcium content than do archaeological ceramics (fig. A7), possibly indicating that potting clays were levigated to remove fragments of limestone, which can cause surface spalling ("lime popping") and cracking in finished ceramics if wares are fired above ca. 800° C (Rice 1987, p. 98). The generally negative covariation between calcium and aluminum observed within most regions could therefore reflect variable success in or effort at removing limestone grit from potting clays.

COMPOSITIONAL VARIATION ACROSS THE SUSIANA PLAIN

We first wanted to determine if our grit-tempered Abu Fanduweh samples clustered with previously sampled chaff-tempered material from the site (Ghazal et al. 2008). If they did, we could merge our data from Abu Fanduweh with those from Ghazal's study to create a reference group large enough to allow multivariate statistical methods to be successfully applied to the grouped data.[1] In addition, we wanted to determine whether the AF samples could be distinguished from ceramics from other Susa II period centers in the Susiana plain, specifically from Chogha Mish and Sharafabad in the northern Susiana plain.

Ghazal and associates (2008, pp. 96–98 and figs. 94–96) had compared jars with crosshatch incision (CHB jars) from Chogha Mish and Tepe Sharafabad and demonstrated that vessels from those two sites could be clearly differentiated on their Al:Ba, Ta:Cs, and principal component ratios. With the addition of the Abu Fanduweh material, we could further evaluate whether CHB jars from the southern Susiana plain could be distinguished from similar vessels from Chogha Mish and Sharafabad in the northern Susiana plain. We therefore combined our Abu Fanduweh material with a subset of the Ghazal et al. data on CHB jars from Chogha Mish (n=24) and Tepe Sharafabad (n=38), and used these data to evaluate potential differences between ceramics from the three Susiana sites.

Bivariate analyses suggest that the ceramics from Abu Fanduweh form a single but rather disperse reference group, a finding confirmed by multivariate testing and refinement. All AF soils (except KS-S5, an outlier) appropriately match this group as well, indicating that the group originates at or near the Abu Fanduweh site. A bivariate plot of chromium and cobalt for the Combined Susiana data set clearly illustrates key compositional differences between the more southerly Abu Fanduweh and the northern sites (Chogha Mish and Sharafabad) (fig. A8a). Further, while overall differences as summarized by principal components analysis (fig. A6) show that the sites are compositionally different but closely spaced and not sharply distinct, discriminant analysis indicates that based on the concentrations of Ba, Ca, Co, Cr, Na, Ta, Th, Ti, Sc:Al, and Ta:Th, the samples from the three sites can be separated at a statistically significant level ($p < .05$) (fig. A8b).

These analyses further reveal that four CHB jar sherds from Tepe Sharafabad (samples ROG022, ROG182, ROG188, and ROG192) have compositions indicating that they were manufactured from clays like those at Abu Fanduweh in the southern Susiana (fig. A8b). Because Sharafabad is a small site closer to Chogha Mish than it is to Abu Fanduweh, the discovery of jars made of Abu Fanduweh clays at Sharafabad has negative implications for Johnson's hypothesis (1973, pp. 113–18) that production of CHB jars was centralized in workshops in large centers and that the products of these workshops were then distributed to subsidiary sites within spheres surrounding the central locations of ceramic pro-

[1] Long-term data indicate a close agreement between the MURR and OSU-RC labs; however, a few elements deviate by more than 5 percent and required adjustment. Inter-lab calibration was based on comparison of long-term mean values obtained for two check standards, Ohio Red clay and NIST1633B (coal fly ash); elements affected included: Ba, Ca, Sb, Ti, and Zn.

duction. Ghazal et al. (2008), citing the composition data derived from their study of bevel-rim bowls, make a similar observation.

COMPOSITIONAL GROUP DEFINITION FOR TALL-E GESER

Our second goal was to determine variability within the Geser ceramic sample. Preliminary assessment indicated that our assemblage from Tall-e Geser separated into two clear composition groups: Tall-e Geser Main (n=42) and Tall-e Geser Low Mn (n=23). As the name suggests, the Geser Low Mn group differs from the Geser Main group in having low manganese (Mn < 500 ppm) concentrations, as well as higher average concentrations of aluminum, the rare earth elements, chromium, and hafnium. On many elements, however, the boundary between these two TG groups is not sharp, and they overlap slightly on the primary principal component axes (table A2 and fig. A6).

While both Tall-e Geser ceramic groups can be readily distinguished from Mesopotamian pottery, there is a strong similarity between the Tall-e Geser Main and the Abu Fanduweh reference groups. These groups differ somewhat in key trace-element ratios (including La:Mn, Sc:Th, and Sc:Al), but the differences are not strong, resulting in closely spaced, parallel groups in the bivariate plots (fig. A9a–b). In multivariate space formed by the first two principal component axes (fig. A6), there is a clearer offset between the AF and TG-Main samples, but again with some degree of overlap between the two groups. Based on 8-element probabilities of group membership (table A3), a substantial number of samples from Tall-e Geser have a significant probability of membership in the Abu Fanduweh group, and a number of Abu Fanduweh members show at least a low probability of membership in Tall-e Geser Main.

While we suspect that there is some degree of actual exchange between these two regions, we attribute the compositional overlap between the Abu Fanduweh and Geser Main groups to broad similarities in parent geological material between the two regions. As shown in figure A10, the alluvia in both the Susiana and Ram Hormuz plains are derived from material eroding from the sedimentary strata of the Zagros foothills and mountains (National Iranian Oil Company 1969). The hills bordering the Ram Hormuz plain on the southwest are composed of sandstone/marl/siltstone of the Mio-Pliocene Lahbari Member of the Agha Jari Formation [unit Ma in fig. A10] and associated polymictic conglomerates of the Bakhtiari Formation [Plb], while the higher mountains to the northeast are faulted blocks of the lower Miocene Gachsaran Formation (marl/limestone/shale/evaporites) [Mgs] and the lower-middle Miocene Mishan Formation (limestone/marl) [Mm]. Any or all of these strata could have been the sources of alluvial clays most readily available to the potters of Tall-e Geser. In addition, the ʻAla River, about 15 km southeast of Geser, carries fluvial sand and silt from formations deeper in the Zagros foothills. The river cuts through faulted blocks of the Oligocene/Miocene Asmari Formation [OMa] as well as Gachsaran and Mishan strata, and clays from the ʻAla River may also have been used by Ram Hormuz potters.

In contrast, the alluvial clays around Abu Fanduweh would derive from the Agha Jari Formation and Bakhtiari Formation conglomerate/sandstone found in the Haft Tepe ridge. The Dez and Karkheh rivers could be depositing fluvial silts and clays from more distant regions to the north of the Susiana plain, but the most obvious sources of alluvial material in the neighborhood of Abu Fanduweh would be the Pliocene sedimentary formations of the Haft Tepe ridge.[2] In summary, the potters of Tall-e Geser could have been using alluvial clays derived from Agha Jari, Bakhtiari, or Gachsaran/Mishan strata, or perhaps fluvial clays from the ʻAla River. The Abu Fanduweh potters were most likely utilizing alluvial clays from Agha Jari/Bakhtiari exposures. Close compositional similarities between ceramics from the two regions would be expected if the local potters were utilizing clays from the same Mio-Pliocene geological strata.

Published information on manganese concentrations in samples of Agah Jari and Asmari sandstones indicates that the Agha Jari samples (n=15) contain from 0.04 to 0.15 percent MnO by weight (Sahraeyan and Bahrami 2012), while Asmari samples (n=9) contain 0.01 to 0.02 percent MnO (Jafarzadeh and Hosseini-Barzi 2008). These data tentatively suggest that the Abu Fanduweh and Geser Main groups might be derived from Agha Jari strata, while the Geser Low Mn group might be derived from alluvial or fluvial clays derived in part from the older Asmari Formation. Unfortunately, because we could not find any data on the Mn content of Gachsaran material, we only make this suggestion with considerable caution.

If the broadly similar Abu Fanduweh and Geser Main compositional groups are both derived from clays from Agha Jari strata, the observed differences between the two groups could reflect clinal changes in the elemental compositions of the sedimentary formations along the extended arc of the southern Zagros. But ultimately, without testing actual

[2] Seasonal dust storms, which are particularly strong during drought years, may also have carried aeolian deposits from lower Mesopotamia into the Susiana plain, and it is possible that such deposits could have been incorporated into some Susiana pottery.

samples of geological clays, it is not possible to identify a clear geological explanation for the sources of the Geser Main, Geser Low Mn, and Abu Fanduweh compositional groups of ceramics from the Susiana and Ram Hormuz regions.

IDENTIFYING NON-LOCAL SHERDS AT ABU FANDUWEH AND GESER

Our analyses of TG and AF samples have allowed us to define two chemical reference groups for the Ram Hormuz plain (Tall-e Geser Main and Tall-e Geser Low Mn) and one for the northern Susiana plain (Abu Fanduweh), which complement existing reference groups for the northern Susiana and Mesopotamia. In addition, we identified a small number of sherds that do not fit within their local group and thus appear to be of non-local origin.

Four Abu Fanduweh sherds (AF-03 through AF-05, AF-23) have a significant probability of membership in the TG Main group based on 8-element distance calculations combined with a very low probability of membership in the Abu Fanduweh group, suggesting that they might originate from Ram Hormuz (table A3). One additional sample (AF-06) has a substantial probability of membership in the TG Low Mn group. However, all fall within the 95 percent confidence interval ellipse for the Abu Fanduweh group on the first two principal components and all are classed to that group by discriminant analysis. We therefore take the conservative view that they are outliers of the local AF group rather than imports. None of the AF samples had a significant probability of group membership in either the Mesopotamian or the north Susiana reference group.

A number of sherds from Geser have reasonable probabilities of belonging to the Abu Fanduweh composition group, and we cannot reject the possibility that at least some of these sherds were imported to Geser from the upper Susiana. Five of the seventy-seven sampled sherds from Geser (TG-01, -02, -58, -60, -76) make a particularly compelling case. All have a significant probability of group membership in the Abu Fanduweh group, while at the same time having substantially lower probabilities of membership in the TG Main group (table A3). In addition, all are assigned to the AF group based on discriminant analysis (fig. A11b). One other sample (TG-18) may possibly belong to the Susiana plain, based on a low probability of AF group membership and posterior classification following discriminant analysis.

In addition, a distinctive trio of Geser sherds (TG13, TG27, and TG73) share high manganese, cobalt, and chromium concentrations that, in combination, place them well within the range of sherds sampled from southern Mesopotamia. These three sherds have significant probabilities of membership in the Mesopotamian reference group and are assigned to that group by discriminant analysis (fig. A11b). Two other sherds (TG-09 and TG-55) are similarly classed to Mesopotamia, but have insignificant probabilities of group membership based on the eight regionally sensitive elements. Again taking a conservative view, we have assigned the first three sherds to the Mesopotamian group but list the latter two sherds as "other." We also note a possible reciprocal exchange, involving a single Mesopotamian vessel (URUK-40) with a chemical signature characteristic of the TG Low Mn group (fig. A11b).

The TG sherds with Mesopotamian compositions date to the Late Middle Susiana (TG-73), Late Susa II [Uruk/Proto Elamite] (TG-13), and Middle Elamite (TG-27) eras, indicating a low but more or less continuous level of contact between Ram Hormuz and southern Mesopotamia from the late fifth/early fourth to the late second millennia B.C. Because Geser is only about 300 km from southern Mesopotamia and a good part of the journey between these two places could have been made by boat, this level of ceramic movement, while noteworthy, does not seem shockingly surprising.

In summary, the assemblage from Tall-e Geser can be divided into four groups, as shown in table A3:

1. Two groups of ceramics of local manufacture — TG Main (n=42) and TG Low Mn (n=23). These sixty-five samples differ from the Susiana plain material in their La:Mn and Sc:Th ratios and have low probabilities of group membership in the Susiana composition groups based on the Mahalanobis distance statistic.
2. Ceramics apparently imported from the southern Susiana. These five samples have significant probabilities of belonging to the Abu Fanduweh composition group.
3. Ceramics apparently imported from Mesopotamia. These three samples have significant Mahalanobis probabilities of group membership in the Mesopotamia group, and are assigned to Mesopotamia by the discriminant analysis as the most likely source
4. Ceramics of unknown source or that show a mixed affiliation. TG-18 cannot be clearly assigned to either Abu Fanduweh or Geser. TG-19 is an outlier with no measurable probability of belonging to any known regional group. TG-09 and TG-53 are both assigned to Mesopotamia by discriminant analysis but have higher (although still quite low) probabilities of belonging to the Abu Fanduweh group.

Table A3. Group assignments and probabilities of group membership

INAA ID	*Mesopotamia*	*Susiana*	*Abu Fanduweh*	*TG-Main*	*TG-Low Mn*	*Composition Group*	*Stylistic Period*
AF-01	0.000	0.000	0.027	0.008	0.000	AF Assigned - Prob.	Susa II
AF-02	0.000	0.000	0.749	0.084	0.000	AF Core	Susa II
AF-03	0.000	0.000	0.000	0.103	0.000	AF Assigned - Discrim.	Susa II
AF-04	0.000	0.000	0.020	0.732	0.000	AF Assigned - Discrim.	Susa II
AF-05	0.000	0.000	0.011	0.444	0.000	AF Assigned - Discrim.	Susa II
AF-06	0.000	0.000	0.082	0.058	0.237	Mixed AF/TG; AF Assigned - Discrim.	Susa II
AF-07	0.000	0.037	0.290	0.052	0.000	AF Core	Susa II
AF-08	0.003	0.000	0.284	0.000	0.001	AF Core	Early Susa II
AF-09	0.000	0.000	0.785	0.063	0.002	AF Assigned - Prob.	Late Susa II
AF-10	0.000	0.000	0.088	0.104	0.002	AF Assigned - Discrim.	Early Susa II
AF-11	0.000	0.000	0.002	0.001	0.000	AF Assigned - Discrim.	Late Susa II
AF-12	0.000	0.000	0.196	0.000	0.000	AF Assigned - Prob.	Susa II
AF-13	0.000	0.000	0.549	0.096	0.069	AF Core	Late Susa II
AF-14	0.000	0.000	0.420	0.000	0.000	AF Core	Early Susa II
AF-15	0.000	0.000	0.675	0.000	0.000	AF Core	Late Susa II
AF-16	0.001	0.000	0.635	0.000	0.000	AF Core	Late Susa II
AF-17	0.000	0.000	0.780	0.003	0.000	AF Core	Late Susa II
AF-18	0.000	0.000	0.014	0.009	0.000	AF Assigned - Prob.	Early Susa II
AF-19	0.000	0.000	0.019	0.000	0.000	AF Assigned - Prob.	Susa II
AF-20	0.000	0.000	0.124	0.000	0.000	AF Core	Susa II
AF-21	0.000	0.000	0.351	0.000	0.000	AF Core	Late Susa II
AF-22	0.002	0.000	0.804	0.018	0.007	AF Core	Late Susa II
AF-23	0.000	0.000	0.000	0.044	0.000	AF Assigned - Discrim.	Susa II
AF-24	0.000	0.000	0.000	0.001	0.000	AF Assigned - Discrim.	Susa II
AF-25	0.000	0.000	0.038	0.000	0.000	AF Assigned - Prob.	Late Susa II
AF-26	0.000	0.000	0.000	0.000	0.000	AF Assigned - Discrim.	Late Susa II
AF-27	0.000	0.000	0.812	0.013	0.000	AF Assigned - Prob.	Susa II
TG-01	0.000	0.000	0.027	0.002	0.000	AF Assigned - Prob.	Middle / Late Susiana
TG-02	0.000	0.000	0.063	0.008	0.014	AF Assigned - Prob.	Late Susiana
TG-03	0.000	0.000	0.000	0.036	0.349	TG-2 Core	Middle / Late Susiana
TG-04	0.000	0.000	0.020	0.490	0.000	TG-1 Core	Susa II
TG-05	0.000	0.000	0.011	0.060	0.011	TG-1 Core	Late Susa II
TG-06	0.000	0.000	0.001	0.813	0.001	TG-1 Core	Late Susa II
TG-07	0.000	0.000	0.036	0.682	0.000	TG-1 Core	Late Susa II
TG-08	0.000	0.000	0.123	0.518	0.001	TG-1 Core	Late Susa II
TG-09	0.000	0.000	0.006	0.000	0.001	Other (Meso. Assigned - Discrim.)	Late Susa II
TG-10	0.000	0.000	0.088	0.159	0.000	TG-1 Core	Late Susa II
TG-11	0.000	0.000	0.002	0.679	0.001	TG-1 Core	Late Susa II

Table A3. Group assignments and probabilities of group membership (*cont.*)

INAA ID	*Mesopotamia*	*Susiana*	*Abu Fanduweh*	*TG-Main*	*TG-Low Mn*	*Composition Group*	*Stylistic Period*
TG-12	0.000	0.000	0.196	0.921	0.000	TG-1 Core	Late Susa II
TG-13	0.530	0.000	0.000	0.000	0.000	Mesopotamia	Late Susa II / proto-Elamite
TG-14	0.000	0.000	0.001	0.494	0.135	TG-1 Core	Early Susa II
TG-15	0.000	0.000	0.081	0.616	0.014	TG-1 Core	Late Susa II
TG-16	0.000	0.000	0.018	0.986	0.000	TG-1 Core	Late Susa II
TG-17	0.000	0.000	0.061	0.767	0.243	TG-1 Core	Late Susa II
TG-18	0.000	0.000	0.014	0.008	0.004	Mixed Sus/AF - Discrim.	Late Susa II
TG-19	0.000	0.000	0.000	0.000	0.000	Outlier - Assigned	Late Susa II / proto-Elamite
TG-20	0.000	0.000	0.000	0.000	0.024	TG-2 Assigned - Discrim.	Late Susa II / proto-Elamite
TG-21	0.000	0.000	0.000	0.000	0.042	TG-2 Assigned - Discrim.	Proto-Elamite
TG-22	0.000	0.000	0.000	0.000	0.278	TG-2 Core	Proto-Elamite
TG-23	0.000	0.000	0.000	0.000	0.206	TG-2 Core	Late Susiana 1
TG-24	0.000	0.000	0.000	0.011	0.666	TG-2 Core	Proto-Elamite
TG-25	0.000	0.000	0.000	0.036	0.677	TG-2 Core	Proto-Elamite
TG-26	0.000	0.000	0.000	0.000	0.089	TG-2 Core	Sukkalmah / Transitional
TG-27	0.070	0.000	0.001	0.000	0.000	Mesopotamia	Middle Elamite
TG-28	0.000	0.000	0.235	0.398	0.002	TG-1 Core	Sukkalmah
TG-29	0.000	0.000	0.000	0.001	0.568	TG-2 Assigned - Prob.	Sukkalmah
TG-30	0.000	0.002	0.025	0.322	0.000	TG-1 Assigned - Prob.	?
TG-31	0.000	0.000	0.000	0.104	0.832	TG-2 Core	Proto-Elamite
TG-32	0.000	0.000	0.000	0.060	0.000	TG-1 Core	Late Susa II?
TG-33	0.000	0.000	0.177	0.665	0.002	TG-1 Core	Late Susa II
TG-34	0.000	0.000	0.000	0.004	0.524	TG-2 Core	Proto-Elamite
TG-35	0.000	0.000	0.057	0.504	0.027	TG-1 Core	Late Susa II
TG-36	0.000	0.000	0.005	0.651	0.000	TG-1 Core	Late Susa II
TG-37	0.000	0.000	0.000	0.000	0.722	TG-2 Core	Sukkalmah
TG-38	0.000	0.000	0.041	0.515	0.000	TG-1 Core	Proto-Elamite
TG-39	0.000	0.000	0.000	0.073	0.000	TG-1 Core	Late Susa II
TG-40	0.000	0.000	0.232	0.604	0.000	TG-1 Core	Proto-Elamite
TG-41	0.000	0.000	0.004	0.845	0.000	TG-1 Core	Late Susa II
TG-42	0.000	0.000	0.001	0.727	0.000	TG-1 Core	Late Susa II
TG-43	0.000	0.000	0.005	0.027	0.010	TG-1 Assigned - Prob.	Proto-Elamite
TG-44	0.000	0.000	0.001	0.006	0.000	TG-1 Assigned - Discrim.	Early Susa II
TG-45	0.000	0.000	0.014	0.355	0.000	TG-1 Core	Proto-Elamite
TG-46	0.000	0.010	0.047	0.627	0.000	TG-1 Core	Late Susa II
TG-47	0.000	0.000	0.000	0.000	0.355	TG-2 Core	Proto-Elamite

Table A3. Group assignments and probabilities of group membership (*cont.*)

INAA ID	*Mesopotamia*	*Susiana*	*Abu Fanduweh*	*TG-Main*	*TG-Low Mn*	*Composition Group*	*Stylistic Period*
TG-48	0.000	0.000	0.000	0.001	0.000	TG-1 Assigned - Discrim.	Proto-Elamite
TG-49	0.000	0.000	0.000	0.000	0.000	TG-1 Assigned - Discrim.	Late Susa II
TG-50	0.000	0.000	0.000	0.000	0.007	TG-2 Assigned - Discrim.	Proto-Elamite
TG-51	0.000	0.000	0.039	0.363	0.000	TG-1 Core	Early Susa II
TG-52	0.000	0.000	0.008	0.711	0.000	TG-1 Core	Proto-Elamite
TG-53	0.000	0.000	0.000	0.142	0.001	TG-1 Core	Late Susa II
TG-54	0.000	0.000	0.000	0.019	0.859	TG-2 Core	Proto-Elamite
TG-55	0.007	0.000	0.069	0.000	0.000	Other (Meso. Assigned - Discrim.)	Early Susa II
TG-56	0.000	0.000	0.250	0.736	0.000	TG-1 Core	Early Susa II
TG-57	0.000	0.000	0.009	0.070	0.004	TG-1 Core	Early Susa II
TG-58	0.000	0.000	0.314	0.114	0.256	AF Assigned - Discrim.	Late Susa II / proto-Elamite
TG-59	0.000	0.000	0.004	0.419	0.000	TG-1 Core	Late Susa II
TG-60	0.000	0.000	0.605	0.190	0.003	AF Assigned - Prob. and Discrim.	Late Susa II
TG-61	0.000	0.000	0.000	0.734	0.000	TG-1 Core	Late Susa II
TG-62	0.000	0.000	0.015	0.264	0.001	TG-1 Core	Late Susa II
TG-63	0.000	0.000	0.005	0.315	0.000	TG-1 Core	Late Susa II
TG-64	0.000	0.000	0.000	0.000	0.061	TG-2 Core	Sukkalmah
TG-65	0.000	0.000	0.000	0.000	0.247	TG-2 Core	Sukkalmah
TG-66	0.000	0.000	0.000	0.002	0.059	TG-2 Core	Proto-Elamite
TG-67	0.000	0.000	0.000	0.000	0.017	TG-2 Assigned - Discrim.	Proto-Elamite
TG-68	0.000	0.000	0.000	0.098	0.671	TG-2 Core	Late Susana 1
TG-69	0.000	0.000	0.000	0.049	0.576	TG-2 Core	Late Susiana 1
TG-70	0.000	0.000	0.000	0.107	0.902	TG-2 Core	Late Susiana 1
TG-71	0.000	0.000	0.107	0.325	0.003	TG-1 Core	Late Middle-Late Susiana
TG-72	0.000	0.000	0.000	0.010	0.007	TG-1 Assigned - Discrim.	Late Middle–Late Susiana
TG-73	0.545	0.000	0.046	0.000	0.002	Mesopotamia	Late Susiana 2
TG-74	0.000	0.000	0.000	0.029	0.000	TG-1 Assigned - Discrim.	Late Middle Susiana
TG-75	0.000	0.000	0.000	0.027	0.563	TG-2 Core	Susiana
TG-76	0.000	0.000	0.107	0.000	0.000	AF Assigned - Prob.	Late Middle–Late Susiana
TG-77	0.000	0.000	0.007	0.025	0.004	TG-1 Assigned - Prob.	Late Middle Susiana

CHRONOLOGICAL PATTERNS IN THE DISTRIBUTION OF NON-LOCAL CERAMICS

In the analyses presented here, we identified a series of distinctive ceramic groups in samples from Tall-e Geser in the Ram Hormuz and Abu Fanduweh in the northern Susiana plain. There were five sherds from Abu Fanduweh that had notably higher probabilities of membership in Geser groups than in the Abu Fanduweh group, but because these samples were assigned to Abu Fanduweh by discriminant analysis, we concluded we could not confidently identify these as non-local sherds. Among the Geser samples were five samples that we interpret as coming from Abu Fanduweh, three samples we identify as of Mesopotamian origin, and four samples that could not be clearly assigned to any ceramic group. Table A4 shows the chronological distribution of these local ceramic groups and anomalous or non-local sherds in the tested material from Tall-e Geser.

There is a strikingly clear pattern in the chronological distribution of these groups. Of the thirty-four Susa II period sherds in our sample, thirty (88%) are from the Geser Main composition group and none are Geser Low Mn. Of the seventeen proto-Elamite sherds, however, six (35%) are Geser Main and eleven (65%) are Geser Low Mn. During the Late Middle Susiana and Sukkalmah periods, Geser Low Mn sherds are also more common than sherds of Geser Main. In short, during the Susa II period the potters at Geser are exploiting only one source of clay, the source for the Geser Main composition group. During all other periods, two distinctly different clay sources are being used and ceramics from the Geser Low Mn source are more common than ceramics from Geser Main.

Table A4. Chronological distribution of local and imported sherds at Tall-e Geser

	Geser Main	*Geser Low Mn*	*Abu Fanduweh*	*Mesopotamia*	*Uncertain*	***Total***
Late Middle Susiana	4	6	3	1	—	**14**
Susa II	30	—	1	—	3	**34**
Susa II/proto-Elamite	—	1	1	1	1	**4**
Proto-Elamite	6	11	—	—	—	**17**
Sukkalmah	1	5	—	—	—	**6**
Middle Elamite	—	—	—	1	—	**1**
Total	**41**	**23**	**5**	**3**	**4**	**76**

Among the imported pottery, sherds of Abu Fanduweh composition are most common at Geser during the Late Middle Susiana period and sherds of uncertain source are most frequent during the Susa II. The frequency of imported pottery is highest during the Late Middle Susiana, and notably, there are no imported sherds at Geser during either the proto-Elamite or the Sukkalmah eras (although only a small number of Sukkalmah sherds were tested).

While these patterns are clear, they are not readily interpreted or obviously explained. One possibility for the exclusive use of Geser Main clays during the Susa II period is that during this era, craft specialists familiar with Uruk ceramic styles and manufacturing techniques moved in to Tall-e Geser and, because of either technical preferences or unfamiliarity with the full range of local sources, only utilized TG-Main clays in their ceramic production. Whether the hypothetical appearance of such craft specialists might have represented an Uruk-era colonization of the Ram Hormuz plain is beyond the scope of our present study to address.

The high frequency of imported pottery during Late Middle Susiana times might be a result of fewer social restrictions on trade and travel during an era of village and town-level societies when ceramic manufacture was more a part-time activity and less the business of craft specialists. The high frequency of pottery of uncertain provenance during the Susa II might result from non-specialists producing ceramics of idiosyncratic compositions during a time when the majority of ceramics were produced by specialized potters or workshops. Finally, the absence of imported pottery during proto-Elamite times might reflect an era of increasing insularity after the breakdown of a Mesopotamian-focused Uruk supra-regional political organization. But absent a careful examination of additional archaeological evidence, these suggestions should be considered speculative.

Our testing program revealed one other finding relevant to the issues of ceramic production and distribution. Sample TG-18 from Geser, which was made of what appears to be a mixed composition of Susiana clays, was a fragment of a ceramic ring scraper — a distinctively shaped tool used during the Uruk/Susa II/proto-Elamite periods in the manufacture of grit-tempered ceramics (Alden 1988). Thus, our analysis identified a specialized ceramic manufacturing tool that appears to have been made in the Susiana plain and brought to and broken in Ram Hormuz. The ring scraper

might have been traded from a Susiana potter to a potter in Tall-e Geser, but it seems more likely that an itinerant craftsman carried it from the Susiana to Ram Hormuz.

The specific chronological status of ring scrapers is not clear. Examples are known from Middle/Late Uruk sites throughout Mesopotamia and Susa II sites in Khuzestan as well as from Early Banesh contexts in the Kur River basin, and together these cultural complexes span a period of at least five centuries (Miroschedji 2003, p. 20; Potts et al. 2009, p. 231). In addition, neither the earliest nor latest appearance of ring scrapers has been identified, and it would not be surprising to find itinerant potters in either the Uruk, as has been suggested by Wright (2001, p. 135) or the Susa II/proto-Elamite periods. However, on the basis of the excavation locus of TG-18, we are inclined to assign that sample to the Late Susa II, and given the close stylistic similarities between the pottery of the Khuzestan and Ram Hormuz sites during this period, the movement of a potter from the Susiana to Tall-e Geser would not be surprising.

GENERAL CONSIDERATIONS ON THE MOVEMENT OF CERAMICS

It is difficult to establish how and why ceramics were being moved from region to region, especially without a detailed examination of their archaeological contexts and a careful technical and stylistic comparison of the local and non-local vessels. Nevertheless, it is still possible to present some general ideas about possible cultural factors behind the observed movement of vessels and to judge which circumstances and explanations are more likely.

Because the ceramics imported into the Ram Hormuz plain do not seem to have shapes or pastes making them functionally distinctive, it seems likely that the non-local ceramics we have identified at Geser were not being moved between sites because they served special practical functions. However, they may have been personal property that travelers acquired in one place and carried, as part of their quotidian equipment, on their journeys. They may also have been containers used to carry goods from source areas to points of consumption, and specific features of their shape or decoration may have signaled the source or nature of the material they contained. Finally, the non-local ceramics may have been objects with shapes or decoration that carried social meaning, and that were moved from place to place for socio-symbolic reasons rather than practical ones.

If the Geser non-local ceramics were part of the equipment of occasional travelers or traders, it would seem likely that ceramics would have moved in both directions rather than asymmetrically. In this light, the apparent presence of a Geser-composition vessel (sample URUK-40) in southern Mesopotamia and the observation that samples AF-03 through AF-06 and AF-23 have higher probabilities of being made from Geser-source clays than of clays from Abu Fanduweh are intriguing. Still, the available data do not seem sufficient to either confirm or refute the possibility that the non-local ceramics at Geser were the personal property of travelers moving between sites.

The pattern of non-local vessels moving from one site to another with limited reciprocal flow is, however, consistent with the proposition that these objects were containers used to move specific products from one site to another. Ceramic vessels would be suitable for moving goods like powders, liquids, seeds, oils or unguents, and sticky products like dates, while goods like cloth, wool, dyestuffs, metal, and stones would be carried in bags, baskets, or bales. It is easy to imagine patterns of exchange where ceramic containers would move in one direction but not the other.

The socio-symbolic dimensions of ceramic decoration, style, and exchange are complex and potentially relate to a wide range of activities, and at this point we do not have sufficient data to examine the likelihood that some of the non-local pottery identified in this study was moved for such reasons. For the kinds of social behavior that involve prestation of physical objects, either from subordinate to superior (e.g., tribute) or from superior to subordinate (redistribution), it would not be unusual for such movements to be asymmetric. Still, it would be expected that these kinds of exchanges would involve only a limited range of vessel types with standardized styles of decoration and generally vessels of high quality. In the Uruk assemblage, jars with crosshatch incised or reserve slip decoration might perhaps be the kinds of distinctly styled vessels redistributed from elites in one site to subordinates in another. The generally ordinary quality of the non-local vessels identified in this study would not, however, seem consistent with this kind of exchange model. Ultimately, we can neither confirm nor refute the possibility that the movement of at least some of the non-local vessels identified in our INAA analysis was motivated by socio-symbolic behavior.

SUMMARY AND CONCLUSIONS

In the Susiana plain, we were able to confirm and more explicitly define the compositional reference group for Abu Fanduweh in the southern sector of the northern Susiana plain. We then combined our Abu Fanduweh samples with samples from Chogha Mish and Tepe Sharafabad in the northern Susiana plain, and used this Combined Sample set to investigate compositional differences between crosshatch incised band jars from the three Susiana sites. We were able to distinguish the ceramics from these sites, and identified four sherds from Sharafabad that apparently came from Abu Fanduweh or its environs. We have not identified a compositional signature for Susa, but the apparent presence of locally made crosshatch incised jars at Sharafabad would contradict Johnson's hypothesis that during the Middle Uruk these jars were produced in three Susiana regional centers — Susa, Abu Fanduweh, and Chogha Mish — and redistributed to subsidiary towns or villages throughout the Susiana plain.

In the corpus of ceramics from Tall-e Geser, we identified two local compositional groups — Geser Main and Geser Low Mn. The Geser Low Mn group was quite distinctive, and we were also able to distinguish the Geser Main group from Abu Fanduweh despite strong similarities in geological parent materials. In addition, we identified apparent imports to Geser from both Susiana and Mesopotamia.

When we examined the chronological distribution of the various ceramic groups at Geser, we found that 88 percent of the Susa II period sherds were from the Geser Main composition group — a restricted use of clay resources not seen in any other period at Geser. We also found interesting differences in the frequencies and sources of imported sherds among the various periods. We offered several possible explanations for these chronological differences, but at this point consider such proposals to be speculative.

Finally, we discovered that a fragment of a ceramic ring scraper from Tall-e Geser had a compositional signature like a mix of material from the Susiana, indicating that this ceramic-working tool had been manufactured in the Susiana plain but broken at Tall-e Geser. Although this is only a single sample, it implies that ceramic specialists may have been moving from region to region during Uruk/Susa II times, and is an intriguing indication of how ceramic styles and manufacturing techniques could have been spread across greater Mesopotamia during the era of early state formation.

APPENDIX B

BITUMINOUS MIXTURES OF TALL-E GESER: A DIVERSIFIED ORIGIN OF BITUMEN

JACQUES CONNAN,[a] *JOHN ZUMBERGE,*[b] *AND KENDRA IMBUS*[b]

1. INTRODUCTION

Eight samples of bituminous mixtures from Tall-e Geser (fig. B1), covering a date range from the proto-Elamite (ca. 3100–2600 B.C.) to the Parthian period (250 B.C.–A.D. 224), were analysed using geochemical techniques in order to try to identify the origin of the bitumen. Tall-e Geser is located at 32 km from the famous Mamatian oil seeps, which therefore appear as the most likely candidate. Results of molecular and isotopic analyses end with a more complex pattern, showing that several sources were involved through time.

2. EXPERIMENT

The eight samples were studied using the same analytical scheme applied in previous archaeometric studies (Connan 2002; Connan et al. 2008). For this sample set, the analytical flow chart has been simplified and restricted to the acquisition of the most important parameters, namely, gross composition of dichloromethane extract; molecular ratios on steranes and terpanes; and isotopic data on saturates, aromatics, resins and asphaltenes (Connan et al. 2008).

3. SAMPLES

3.1. ARCHAEOLOGICAL SAMPLES

Eight samples (fig. B2) were studied:

- a lump (no. 2596) from the proto-Elamite period (3000–2600 B.C.)
- three lumps (no. 2595) and one coarse powder (no. 2518) of the Sukkalmah phase (ca. 1900–1600 B.C.) (No. 2518 is described as pottery encrustation by M. Gregg, pers. comm.)
- a thin crust (no. 2597) scratched from a potsherd, from the Middle to Neo-Elamite period (1000–725/700 B.C.)
- a thin crust (no. 2519) scratched from the exterior surface of a coarse potsherd, from the Neo-Elamite period (725/700–535 B.C.)
- three samples from the Parthian phase (200 B.C.–A.D. 200): one powder (no. 2517) referred as pottery encrustation by M. Gregg (pers. comm.) and two crusts (nos. 2520 and 2521) scratched from the interior surface of potsherds

Basic information about samples is provided in table B1. All bituminous mixtures came from samples attached to potsherds.

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3.2. OIL SEEPS AND ARCHAEOLOGICAL SITES REFERENCES (FIG. B1)

The bituminous samples of Geser were compared to samples of oil seeps from the area and to samples from some archaeological sites (table B2).

The oil seeps comprise Mamatian, located 30 km from Geser and therefore thought to be the most likely source of its bitumen; Chersch Merghir, used as reference for the famous Ain Ghir Deh Luran area; Naft Safid, collected close to Abu Chizan; and Sultan bitumen, from the Pul Dokthar-Sultan area comprising the so-called solid bitumen dykes.

The archaeological sites used as references are Tappeh Aliabad, Masjed-e Suleiman, Susa, Abu Chizan, Chogha Sefid, Tappeh Tuleii, and Ali Kosh. Abu Chizan bituminous mixtures were recently studied in detail (Connan et al. 2008) and results on Ali Kosh, Chogha Sefid, and Tappeh Tuleii are given in Gregg, Brettel, and Stern 2007. New samples provided by Michael Gregg were re-examined within this study with the same analytical flow chart in order to offer references that will be directly comparable to our data. Their results, mostly confirming the Gregg and colleagues conclusions, are not included in this report.

4. RESULTS

4.1. GROSS COMPOSITION

Gross composition data, gathered in table B1, clearly show that bituminous mixtures of Geser are classical ones, currently encountered in archaeological samples. Their gross composition is dominated by polar compounds and especially asphaltenes with saturated and aromatic hydrocarbons drastically reduced due to biodegradation, evaporation, water washing, and oxidation. The few data collected on dichloromethane extract quantities gave rather high values, between 11 and 34 percent of bitumen, that is, much higher amounts than necessary in bituminous mixtures as currently seen in antique preparations. Present-day bituminous mixtures average between 7 and 9 percent of asphalt in their amalgam. One sample only gave an amount of the same order of magnitude due to dilution of bitumen with potsherd powder when scraping the thin black coating for analysis.

4.2. MOLECULAR AND ISOTOPIC DATA (TABLE B3)

Distribution of diagnostic saturated biomarkers, namely, steranes and terpanes, used to characterize bitumen and trace their source, were recorded for all samples. Strikingly, some samples (e.g., no. 2518; fig. B3) do show an obvious lack of 18α-oleanane, which is well represented in all Mamatian bitumens (Connan and Deschesne 1996, p. 71). As a consequence, some samples from Geser originate from another source.

In order to identify the different sources of bitumen from Geser, the oil seep references at disposal in the area have been compiled. In addition, bituminous mixtures analyzed at the neighboring archaeological sites were also used as proxies.

Following our past experience, reported in several papers (Connan and Carter 2007; Connan et al. 2008; Connan 2011), characteristic molecular and isotopic ratios were compared in both references and Geser samples.

18α-oleanane (OLN)/C_{30}αβHopane (C_{30}αβH), examined vs. 18α-22,29,30-trisnorneohopane (Ts)/17α-22,29,30-trisnorhopane (Tm) in figure B4, confirm the diversity of sources among the Geser bitumen and if three samples (nos. 2519, 2596, 2597) do show affinities with Mamatian references, the other samples fall within the area of either Cheshme Ghir/ᶜAin Ghir-Deh Luran (no. 2595) or Sultan (nos. 2517, 2518, 2521) bitumens. One should note that Naft Safid oil seeps do not match the archaeological bitumens of Abu Chizan due to the lack of 18α-oleanane and that bitumens from different sources were also imported at Susa.

In order to complete this preliminary source assignment, two additional plots were considered: Ts/Tm vs. $\delta^{13}C$ (in ‰/PDB) of asphaltenes (fig. B5) and gammacerane (GCRN)/C_{30} αβHopane vs. Ts/Tm (fig. B6). Both figures confirm the previous correlations with Sultan (fig. B5) and Mamatian (fig. B6). As expected on a regional basis, Masjid-e Suleiman falls within the Mamatian family (fig. B4) whereas Naft Safid and Abu Chizan show some overlapping, despite the lack of 18α-oleanane in Naft Safid samples. Multisource inputs are again confirmed at Susa.

5. CONCLUSIONS

Archaeological bitumens analyzed at Tall-e Geser show gross properties that are consistent with mixtures analyzed on most antique sites. They are highly depleted in hydrocarbons and their asphaltene fraction strongly predominates. Their content in samples reaches 11 to 34 percent, that is, within the current range found for this kind of mixture.

Despite the proximity of the famous Mamatian oil seeps, bitumen import at Geser was diversified (table B3, fig. B1). According to the present-day references available and analyzed in the area, bitumen came from both the ʿAin Ghir and Sultan areas. One should remember that all bituminous mixtures are attached to potsherds and therefore may have been imported with the pottery itself as a thin film on the vessel interior. Our pottery sherds were not chemically analyzed to identify their geographic origin, and pottery origin was therefore not related to the defined source of bitumen. However, the bitumen analysis testifies that exchanges may have occurred between Geser and areas located in both Lurestan and Khuzestan and that the trade network to which bitumen belonged was ultimately much more complex than expected for the Mamatian source is not the only one. Nomadism, emphasized by Abbas Alizadeh (2010), may have played a key role through the millennia in the transport of goods — likely including bitumen — along the exchange trade routes across the Zagros lowlands.

Table B1. Basic information about bitumen samples from Tall-e Geser*

Sample Number	*Archaeological Reference*	*Macroscopic Description*	*Cultural Period*	*Date Range*	*% EO*	*% sat. / EO*	*% aro. / EO*	*% res. / EO*	*% asp. / EO*
2596	2TG-103, OIM A28739. Step Trench 1, Level 36	Bituminous brown mixture with rare vegetal remains. Three serrated flint blades set in bitumen	Proto-Elamite	ca. 3100–2800 B.C.	36.3	2.6	2.3	10.1	85.0
2595	Step Trench 1, Level 42	Two lumps of brown bitumen without vegetal remains	Sukkalmah	ca. 1800–1600 B.C.	32.4	1.9	2.0	9.4	86.7
2518	Mound A?	Brown lumps with clear vegetal remains in all directions. Mortar type	Sukkalmah	ca. 1900–1600 B.C.	11.3	1.4	2.9	5.9	89.8
2597	Mound B, Level 1	Rather pure bitumen covering a potsherd	Middle Elamite	1100–700 B.C.	7.1	4.2	6.3	28.9	60.6
2519	Mound B, Level 1	Bitumen crust on the exterior face of a potsherd	Neo-Elamite	700–500 B.C.	—	7.7	15.4	53.8	23.1
2517	Mound A?	Coarse powder without vegetal remains; some white minerals	Parthian?	200 B.C.–A.D. 200	—	1.6	1.9	9.0	87.5
2520	Mound A?	Thin crust of bitumen covering the interior surface of a small vase	Parthian	200 B.C.–A.D. 200	—	0.7	0.7	21.3	77.3
2521	Mound A?	Bitumen crust covering the interior surface of a potsherd	Parthian	200 B.C.–A.D. 200	24.0	1.7	1.6	6.1	90.6

* EO = extraorganic matter; sat. = saturates; aro. = aromatics; res. = resins; asp. = asphaltenes

Table B2. Bitumen samples from Tall-e Geser compared to samples from nearby oil seeps and archaeological sites

Sample Numbers	*Site*	*Samples*	*Field Identification*	*Reference*
2464	Chersh Merghir	1 soft bitumen	CM	Gregg, Brettel, and Stern 2007
974 and 975	Mamatian	2 samples	BM1 and 2	S. Ashkan
2634–2639	Naft Safid	6 samples	—	A. Moghaddam
1191 and 1193	Sultan	2 samples	—	Connan et al. 2008
2419–2430	Tall-e Abu Chizan	12 samples	—	Connan et al. 2008
917 and 920	Tepe Aliabad	2 samples	—	Connan 2012
71–290	Susa	16 bituminous mixtures	—	Connan 2012
166	Masjid i-Suleiman	1 sample	—	Connan 2012

Table B3. Molecular and isotopic data from the Tall-e Geser bitumen samples

Sample Number	*Molecular Ratios*			*Isotopic Ratios*				*Bitumen Origin*
	Ts/Tm	*OLN/ $C_{30}\alpha\beta H$*	*GCRN/ $C_{30}\alpha\beta H$*	*$\delta^{13}C$ sat.*	*$\delta^{13}C$ aro.*	*$\delta^{13}C$ res.*	*$\delta^{13}C$ asp.*	
2596	0.51	0.1	0.07	–27.5	–26.9	—	—	Mamatian
2595	0.29	0	0.15	–28.2	–27.7	—	—	Ain Gir / Chersch Merghir
2518	0.11	0	0.19	–28.5	–27.5	–27.6	–28.0	Sultan
2597	0.63	0.17	0.07	—	—	—	—	Mamatian
2519	0.75	0.09	0.09	—	—	—	—	Mamatian
2517	0.09	0	0.15	—	—	—	–28.0	Sultan
2520	0.09	0	0.18	—	—	—	–27.8	Sultan
2521	0.14	0	0.15	–28.3	–27.5	–27.6	–27.6	Sultan

* TS = 18α-22,29,30-trisnorneohopane; TM = 17α-22,29,30-trisnorhopane; OLN = 18α-oleanane; $C_{30}\alpha\beta H$ = $C_{30}\alpha\beta$Hopane; GCRN = gammacerane; $\delta^{13}C$ sat. = $\delta^{13}C$ of saturates (in ‰/VPDB standard), $\delta^{13}C$ aro. = $\delta^{13}C$ of aromatics (in ‰/VPDB standard), $\delta^{13}C$ res. = $\delta^{13}C$ of resins (in ‰/VPDB standard), $\delta^{13}C$ asp. = $\delta^{13}C$ of asphaltenes (in ‰ / VPDB standard)

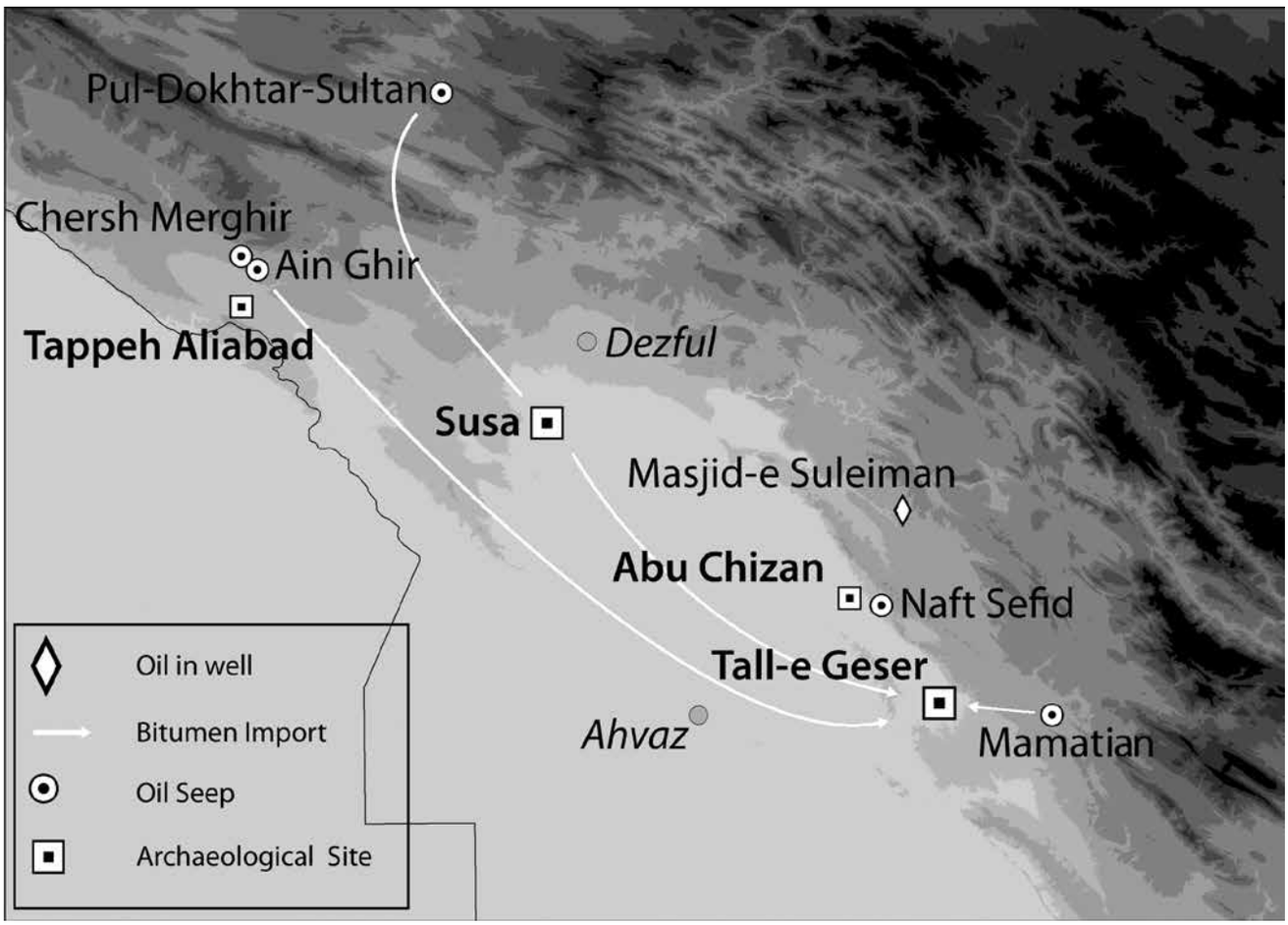


Figure B1. Location of oil seeps and archaeological sites

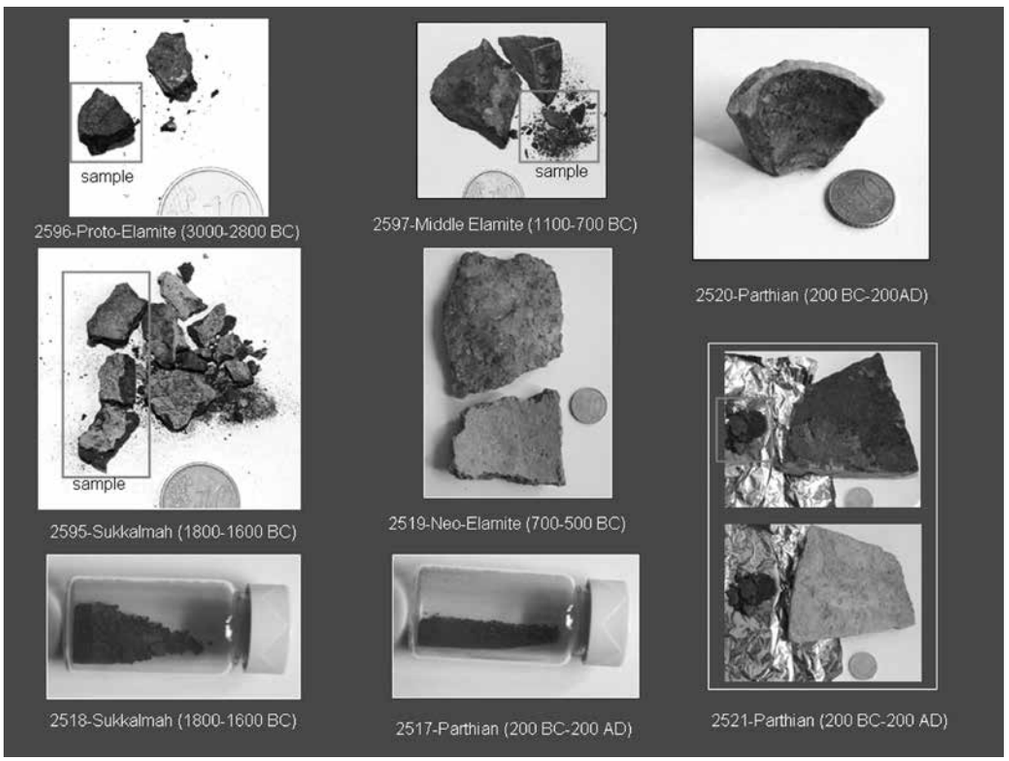


Figure B2. Photographs of the Geser samples analyzed

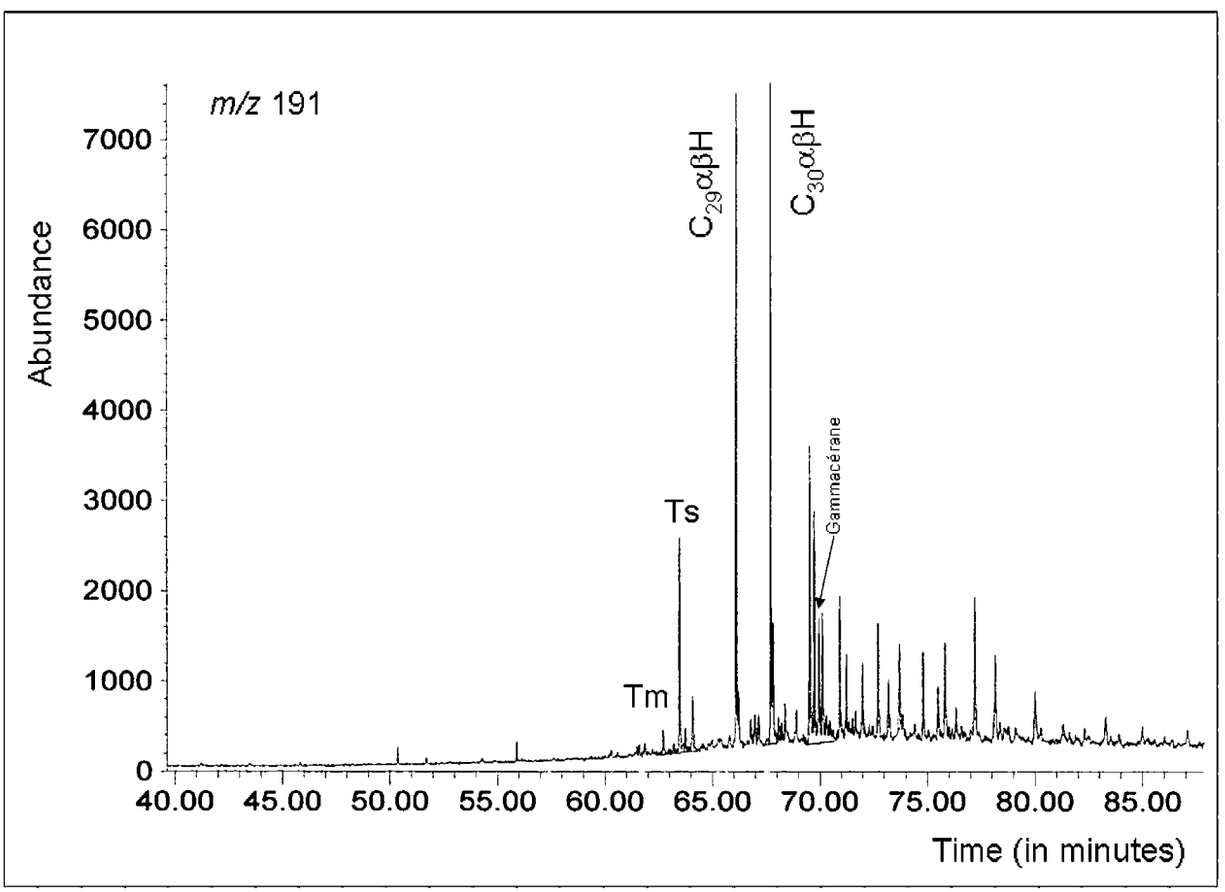


Figure B3. Mass fragmentogram (m/z 191) showing the distribution of terpanes in sample no. 2518 and the lack of 18α-oleanane

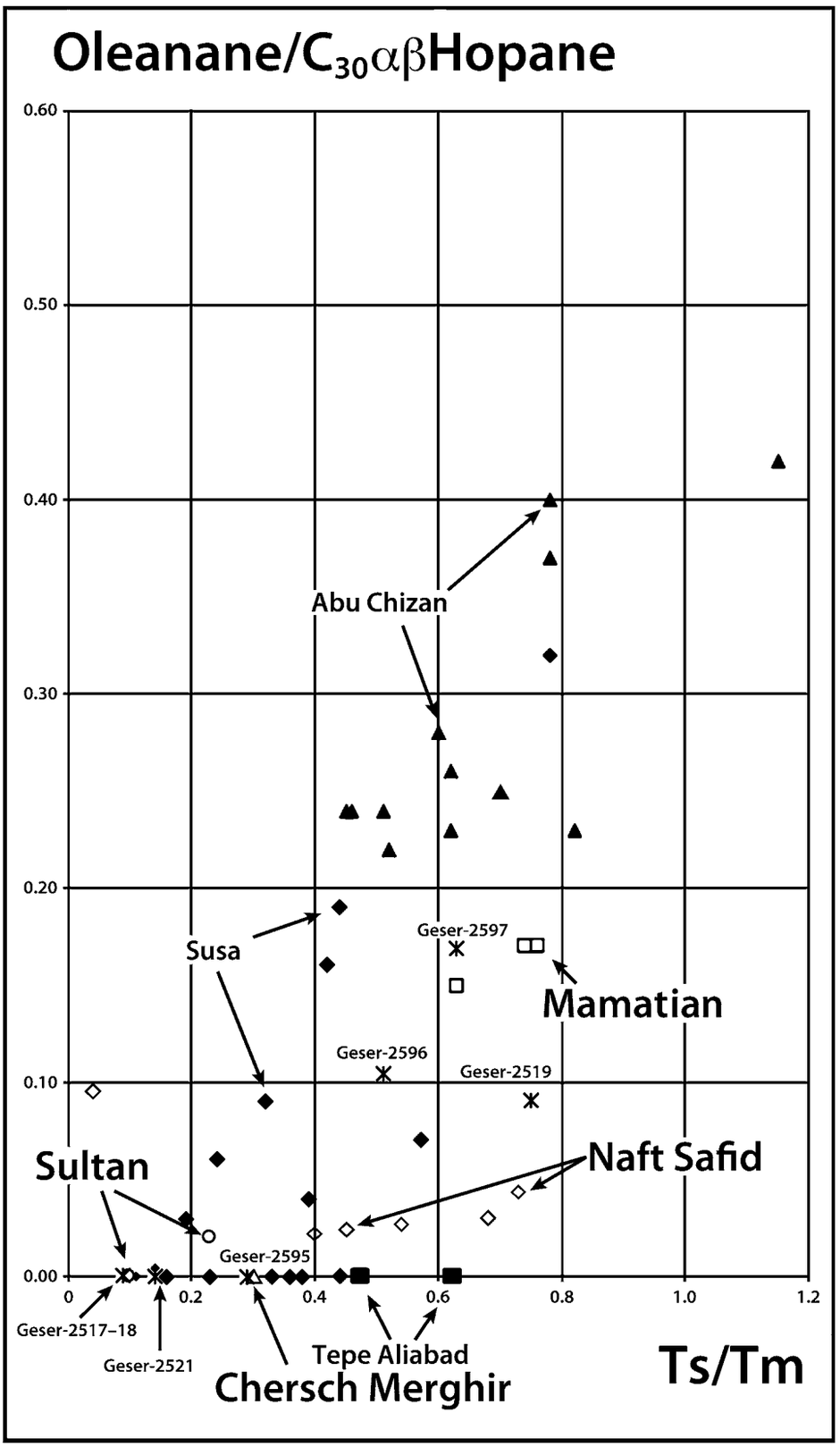


Figure B4. Plot of 18α-oleanane/C_{30}αβHopane vs. 18α-22,29,30-trisnorneohopane (Ts)/17α-22,29,30-trisnorhopane (Tm)

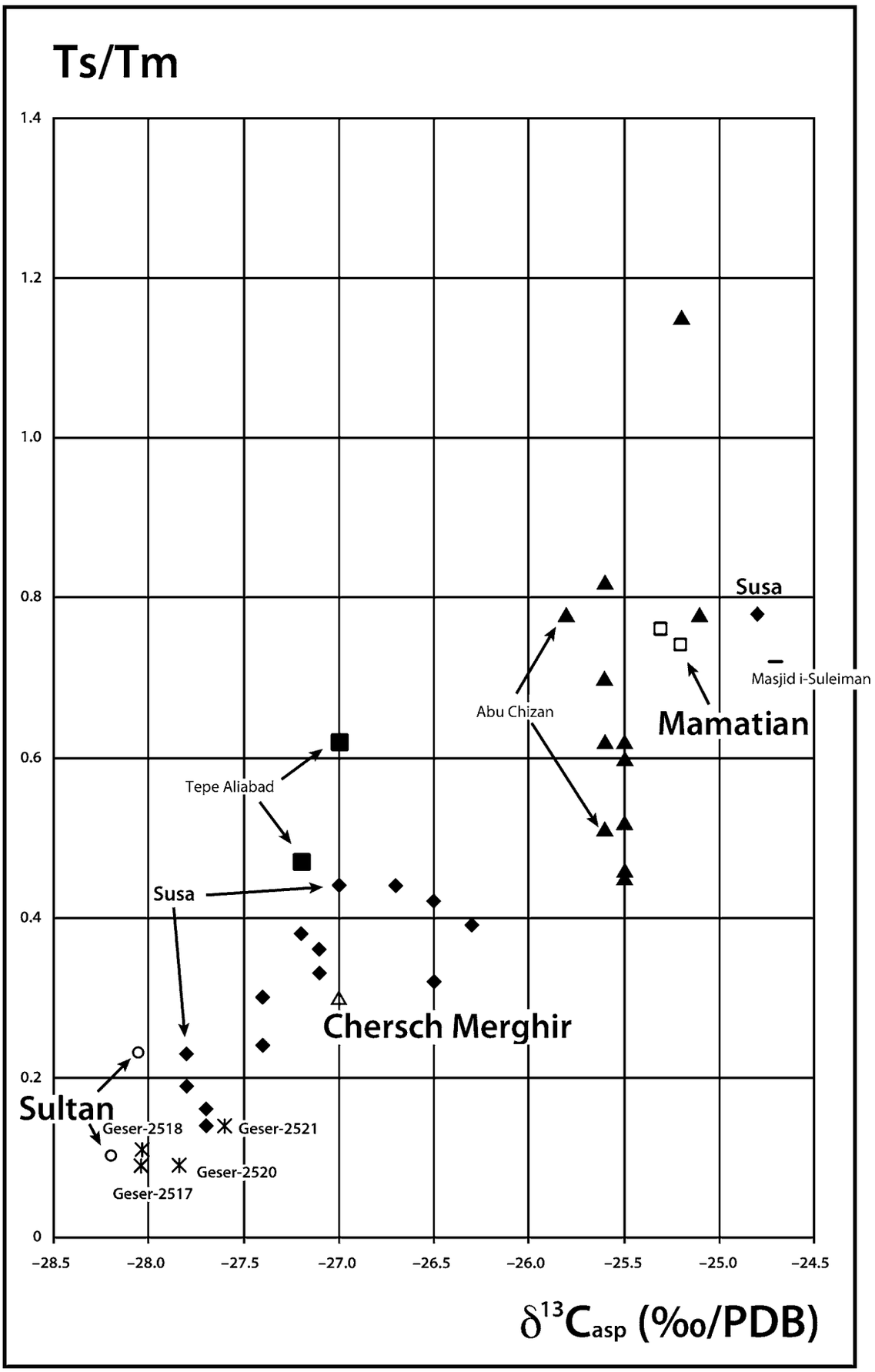


Figure B5. Plot of Ts/Tm vs. $\delta^{13}C$ (in ‰/PDB) of asphaltenes

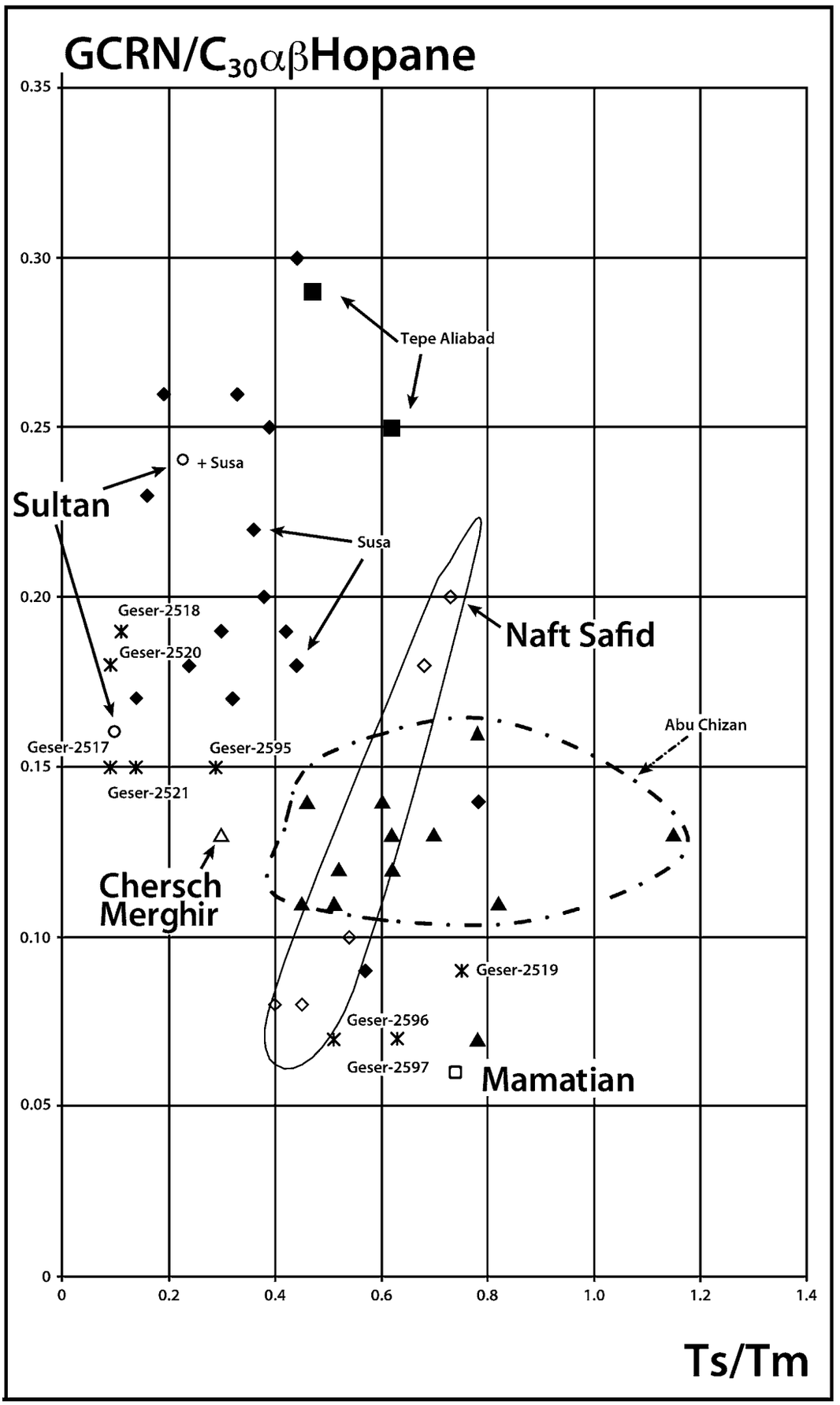


Figure B6. Plot of gammacerane (GCRN)/C_{30}αβHopane vs. Ts/Tm

APPENDIX C

GAZETTEER OF THE RAM HORMUZ SURVEYED SITES (2005–2009) AND SETTLEMENT SIZE TABLES

RH-001

Site Name: Tall-e Geser complex (fig. 1, pls. 9–12, 33)

Geographic Reference: UTM Zone 39N; 349661 E, 3470384 N; Elevation: 99 m asl

Site Measurements: Mound A: 160 × 100 × 22 m; Area = 1.60 ha. There is a discrepancy between our measurements of the height of Mound A and McCown's measurement (19 m) used by Wright and Carter in their 2003 article. We believe this is because the mound sits on a low natural hill with various elevations. The original section drawings of the Stake Trench also corroborate the height as slightly over 22 m. Measurements of the other mounds are as follows, Mound B: 90 × 70 × 10 m (0.63 ha); Fort Mound: 160 × 60 × 9 m (0.96 ha); Mound D: 130 × 80 × 8 m (1.04 ha); Mound G: 140 × 70 × 3 m (0.98 ha); Mound H: 250 × 140 × 3 m (3.5 ha).

Periods Attested: Late Middle Susiana, Late Susiana 1, Late Susiana 2, Early and Late Susa II, proto-Elamite, Sukkalmah, Middle Elamite, Neo-Elamite, Achaemenid, Parthian, Sasanian, post-Sasanian, Seljuk, Safavid

Remarks: The total area of all the mounds in the Geser complex is ca. 8.71 ha. Following Wright and Carter (2003), and our own estimate based on both our survey and McCown's excavation results, the estimated sizes of the occupation of the attested periods are as follow: Late Middle Susiana, ca. 2.00 ha; Late Susiana 1 to Late Susiana 2, ca. 1.60 ha; Early to Late Susa II, ca. 1.20 ha; proto-Elamite, ca. 1.60 ha; Sukkalmah-Middle Elamite, ca. 6.00 ha; Neo-Elamite–Achaemenid, ca. 3.50; Parthian, Sasanian/post-Sasanian, ca. 2.00 ha; Seljuk and Safavid, 8.00 ha.

RH-002

Site Name: Ishan Alyamaleh (pl. 33)

Geographic Reference: UTM Zone 39N; 351146 E, 3469906 N; Elevation: 84 m asl

Site Measurements: 58 × 45 × 2.5 m; Area = 0.20 ha

Periods Attested: Late Middle Susiana, post-Safavid/Qajar

Remarks: Only three non-diagnostic body sherds were found; an unspecific "late Islamic" (post-13th c. A.D.) date was noted in the 1969 Wright-Carter survey; we have not included it in our statistics.

RH-003

Site Name: Tall-e Eswedeh (pls. 34, 74:A–B)

Geographic Reference: UTM Zone 39N; 351836 E, 3467389 N; Elevation: 90 m asl

Site Measurements: 81 × 60 × 4.5 m; Area = 0.36 ha

Periods Attested: Early Susiana

Remarks: The only site in the entire region with evidence from this period; this site was dated to Middle Susiana 1 (Early Middle Susiana) in the 1969 Wright-Carter survey.

RH-004

Site Name: Tall-e Quvileh (pls. 35, 75)

Geographic Reference: UTM Zone 39N; 354578 E, 3464429 N; Elevation: 101 m asl

Site Measurements: 160 × 102 × 7 m; Area = 1.20 ha

Periods Attested: Sukkalmah, Middle Elamite, Achaemenid

Remarks: Only a general "1st millennium C.E." date was attested in the 1969 survey; according to Henry Wright (pers. comm.), this general dating includes Parthian, Sasanian, and post-Sasanian phases and as such we are unable to include

it in our statistics. Only two doubtful sherds represent the Late Middle Susiana phase; they are not included in our statistics.

RH-005

Site Name: Ishan Ghazo (pls. 35, 74:C–G)

Geographic Reference: UTM Zone 39N; 356392 E, 3465672 N; Elevation: 105 m asl

Site Measurements: 60 × 59 × 3.2 m; Area = 0.20 ha

Periods Attested: Late Susiana 1, Achaemenid, Sasanian

Remarks: Wright and Carter (2003) report "Late Susiana" sherds on the site; we did not find any. By "Late Susiana," Wright (pers. comm.) means Late Susiana 1 and this is the period we include in our statistics.

RH-006

Site Name: Tall-e Subiti/Marbache cemetery (pls. 36, 76–77) (Marbache fortification site [the Qaleh] is RH-046)

Geographic Reference: UTM Zone 39N; 350796 E, 3460270 N; Elevation: 112 m asl

Site Measurements: 210 × 143 × 7 m; Area = 2.36 ha

Periods Attested: Late Middle Susiana, Late Susa II, proto-Elamite, Sukkalmah, Middle Elamite

Remarks: An almost intact Middle Elamite jar was found smashed in a robber's pit (pl. 77:I); following Wright and Carter 2003, we estimate 1 ha for the Late Middle Susiana and 2.00 ha for the Late Susa II and proto-Elamite periods.

RH-007 NORTH

Site Name: Tall-e Zarini (pls. 71–72, 78–79)

Geographic Reference: UTM Zone 39N; 355326 E, 3456943 N; Elevation: 118 m asl

Site Measurements: 212 × 100 × 7.5 m; Area = 1.77 ha

Periods Attested: Sukkalmah, Middle Elamite

Remarks: Possible Seljuk and Ilkhanid periods reported in the 1969 survey are not included in our statistics.

RH-007 SOUTH

Site Name: Ishan Seyyed Harab (pls. 71–72, 80)

Geographic Reference: UTM Zone 39N; 354976 E, 3456628 N; Elevation: 122 m asl

Site Measurements: 199 × 146 × 7 m; Area = 2.07 ha

Periods Attested: Middle Elamite, Neo-Elamite, Sasanian

Remarks: —

RH-008

Site Name: Ishan Bergheishe (pls. 71, 81)

Geographic Reference: UTM Zone 39N; 355266 E, 3454746 N; Elevation: 119 m asl

Site Measurements: 200 × 134 × 3 m; Area = 1.98 ha

Periods Attested: Sasanian, post-Sasanian

Remarks: One dubious "Parthian" sherd not counted, but illustrated.

RH-009

Site Name: Ishan Etheier (pls. 37, 43, 82)

Geographic Reference: UTM Zone 39N; 358018 E, 3451819 N; Elevation: 127 m asl

Site Measurements: 1000 × 700 × 5 m; Area = 70.00 ha. The total area is based on GPS tracking. 31.00 ha, according to Wright and Carter (2003).

Periods Attested: Parthian, Sasanian

Remarks: This is a large scatter of six large mounds and many smaller ones with ample space in between. The single doubtful post-Sasanian sherd is not counted in our statistics.

RH-010

Site Name: Ishan Yamaleh (pls. 38, 83)

Geographic Reference: UTM Zone 39N; 359677 E, 3451143 N; Elevation: 121 m asl

Site Measurements: 61 × 51 × 2 m; Area = 0.22 ha

Periods Attested: Late Middle Susiana, Late Susiana 1

Remarks: This is the same as Wright and Carter's "Tepe Mal-e Sandali"; Late Susiana 1 was detected in the 1969 survey.

RH-011

Site Name: Tappeh Bormi (pls. 39, 84–88)

Geographic Reference: UTM Zone 39N; 365745 E, 3457203 N; Elevation: 157 m asl

Site Measurements: 540 × 340 × 10 m; Area = 18.36 ha. Since the 1969 survey (Wright and Carter 2003, p. 79), the village on top of RH-011 has expanded, resulting in the reduction and destruction of almost half of the original site, now measuring 500 × 253 m; we therefore use the site size and period estimated size of the 1969 survey. Thus, 1.5 ha for the Late Susiana 1, 18.00 ha for Sukkalmah to Neo-Elamite periods, and 10.00 ha for the Partho-Sasanian period.

Periods Attested: Sukkalmah, Middle Elamite, Neo-Elamite, Parthian, Sasanian. Pierre de Miroschedji surveyed this site in the 1970s. His sherd collection, now at the Iran Bastan National Museum in Tehran, includes sherds of the Late Middle Susiana, Late Susiana 1, proto-Elamite, Neo-Elamite, and Achaemenid phases.

Remarks: Sherds of the Late Susiana 1 phase were detected in the 1969 survey and two non-diagnostic Late Middle Susiana sherds were discovered in our survey. However, Wright and Carter note (2003, p. 80) that there is a very good possibility that these sherds were brought to the site with the dirt dug at the base of nearby RH-018 (Sartoli), so we have omitted these phases from our statistics.

RH-012

Site Name: —

Geographic Reference: UTM Zone 39N; Easting: —, Northing: —; Elevation: —

Site Measurements: Area = 3.40 ha

Periods Attested: Post-Safavid/Qajar

Remarks: Abandoned contemporary settlement reported in the 1969 survey.

RH-013

Site Name: —

Geographic Reference: UTM Zone 39N; 369438 E, 3463056 N; Elevation: 169 m asl

Site Measurements: 65 × 53 × 2 m; Area = 0.34 ha

Periods Attested: post-Safavid/Qajar

Remarks: Abandoned contemporary settlement. This site was razed to the ground in 2009. The dimensions given in the 1969 survey differ from ours.

RH-014

Site Name: Emamzadeh Abbas Ali (pls. 64, 89–91)

Geographic Reference: UTM Zone 39N; 371481 E, 3461609 N; Elevation: 194 m asl

Site Measurements: 680 × 130 × 0.5 m; Area = 8.84 ha (actual area of occupation = 5.17 ha)

Periods Attested: Sukkalmah, Middle Elamite, Parthian, Sasanian, post-Sasanian. Wright and Carter (2003) also noted ninth–thirteenth century A.D. occupation. Compared to the other periods attested, the site did not produce many Parthian, Sasanian, and post-Sasanian sherds; therefore we follow the Wright and Carter's estimate of 3.00 ha for these periods.

Remarks: A large scatter of small flat mounds. The mausoleum of one Seyyed Mohammad and a contemporary cemetery have covered much of the site.

RH-015

Site Name: Dar Chehel (see RH-093A–B)

Geographic Reference: UTM Zone 39N; Easting: —, Northing: —; Elevation: —

Site Measurements: 300 × 50 × 30 m; Area = 1.50 ha

Periods Attested: 1st millennium A.D. through 19th century A.D. (Wright and Carter 2003, p. 80)

Remarks: This fortification site was identified by McCown as "Dau Dukhtar" fortification. This is erroneous; the Dau Dukhtar fortification is RH-092. This site, RH-015, is the same site we have numbered RH-093A–B

RH-016

Site Name: —

Geographic Reference: UTM Zone 39N; Easting: —, Northing: —; Elevation: —

Site Measurements: —

Periods Attested: Post-Safavid/Qajar

Remarks: Sherd scatter on a natural hill (possibly a nomadic campsite). This site could not be located and the data are from the 1969 survey; it is therefore not counted in our statistics.

RH-017 NORTH

Site Name: Tall-e Mullah Suzi (pls. 40, 72, 92)

Geographic Reference: UTM Zone 39N; 370907 E, 3459356 N; Elevation: 199 m asl

Site Measurements: 92 × 45 × 4 m; Area = 0.30 ha

Periods Attested: Seljuk, Timurid?, Safavid, post-Safavid/Qajar

Remarks: Abandoned village; the Safavid phase is represented by a single sherd; the Timurid phase is represented by two doubtful sherds and is therefore not counted in our statistics.

RH-017 SOUTH

Site Name: Tall-e Huri Neʾmat (pls. 40, 72, 93)

Geographic Reference: UTM Zone 39N; 371038 E, 3459125 N; Elevation: 199 m asl

Site Measurements: 72 × 33 × 3 m; Area = 0.11 ha

Periods Attested: Seljuk, post-Safavid/Qajar

Remarks: Cemetery of RH-017N, same as Wright and Carter 2003, RH-17.

RH-018

Site Name: Sartoli (pls. 39, 94–97)

Geographic Reference: UTM Zone 39N; 365155 E, 3457711 N; Elevation: 153 m

Site Measurements: 250 × 153 × 4.5 m; Area = ca. 3.37 ha. Our measurements differ from those taken in the 1969 survey (Wright and Carter 2003, p. 80).

Periods Attested: Late Middle Susiana, Late Susiana 1, Late Susiana 2, Ilkhanid, Safavid

Remarks: In 2006 a building was erected on the mound. We estimate 1.5 ha for the Late Middle Susiana, Late Susiana 1, and Late Susiana 2 phases.

RH-019

Site Name: Ishan ʿAbed (pls. 71–72)

Geographic Reference: UTM Zone 39N; 354999 E, 3455464 N; Elevation: 119 m asl

Site Measurements: 100 × 75 × 2 m; Area = 0.50 ha

Periods Attested: Late Middle Susiana, Late Susiana 1

Remarks: Late Susiana 1 is based on the 1969 survey.

RH-020

Site Name: — (pls. 36, 98:A–C)

Geographic Reference: UTM Zone 39N; 351579 E, 3460015 N; Elevation: 106 m asl

Site Measurements: 120 × 100 × 0.05 m; Area = 1.20 ha

Periods Attested: Sasanian?

Remarks: A low mound that is now razed to the ground; Wright and Carter (2003) dated the site to the first millennium A.D.; not in our statistics; the three doubtful Sasanian sherds we found are illustrated but not counted in our statistics.

RH-021

Site Name: Peer Haji (pl. 36)

Geographic Reference: UTM Zone 39N; 351787 E, 3460584 N; Elevation: 107 m asl

Site Measurements: 68.0 × 51.0 × 4.5 m; Area = 0.32 ha

Periods Attested: 1st millennium A.D.

Remarks: No diagnostic sherds were found, therefore the date is based on the 1969 Wright-Carter survey; not in our statistics; see explanation in remarks to RH-004.

RH-022 NORTH

Site Name: Ishan Gharrab (pls. 42, 99)

Geographic Reference: UTM Zone 39N; 352515 E, 3463463 N; Elevation: 93 m asl

Site Measurements: 139 × 82 × 4 m; Area = 0.85 ha

Periods Attested: Late Middle Susiana, Late Susiana 1, Parthian, Seljuk, Ilkhanid, post-Safavid/Qajar

Remarks: Late Susiana 1 is reported from the 1969 Wright-Carter survey.

RH-022 SOUTH

Site Name: Ishan Abu Ogbur (pls. 42, 98:D–I)

Geographic Reference: UTM Zone 39N; 352560 E, 3463309 N; Elevation: 93 m asl

Site Measurements: 59.0 × 57.0 × 2.3 m; Area = 0.27 ha

Periods Attested: Parthian, Sasanian, post-Safavid/Qajar

Remarks: In the 1969 Wright-Carter survey the site was dated to the Late Sasanian period but our survey yielded no recognizable Sasanian sherds. The Sasanian date is therefore based on the

1969 survey. The round and oval stone arrangements on top of the mound indicate it was once used as a cemetery by nomadic tribes.

RH-023 NORTHEAST

SITE NAME: Ishan Deghibesh (pls. 42, 100:F–H)

GEOGRAPHIC REFERENCE: UTM Zone 39N; 352173 E, 3463562 N; Elevation: 91 m asl

SITE MEASUREMENTS: 60.0 × 41.0 × 2.6 m; Area = 0.22 ha

PERIODS ATTESTED: Late Middle Susiana, proto-Elamite

REMARKS: RH-023 has two prominent peaks and therefore is treated as two separate mounds for periodization. (Only one proto-Elamite lug handle, pl. 100:F.)

RH-023 SOUTHWEST

SITE NAME: Ishan Deghibesh (pls. 42, 100:A–E)

GEOGRAPHIC REFERENCE: UTM Zone 39N; 352084 E, 3463543 N; Elevation: 91 m asl

SITE MEASUREMENTS: 86.0 × 86.0 × 2.5 m; Area = 0.51 ha

PERIODS ATTESTED: Late Middle Susiana, with some possible carryovers from the Early Middle Susiana phase

REMARKS: See Remarks for RH-023 Northeast. Same as RH-023 of 1969 survey.

RH-024

SITE NAME: Char Peer (pls. 41, 100:I–O)

GEOGRAPHIC REFERENCE: UTM Zone 39N; 349425 E, 3464283 N; Elevation: 93 m asl

SITE MEASUREMENTS: 115 × 102 × 5 m; Area = 0.88 ha

PERIODS ATTESTED: Late Middle Susiana, Late Susiana 1, Seljuk

REMARKS: Late Susiana 1 material was attested in the 1969 survey.

RH-025

SITE NAME: Jaliyat/Darvizeh (pls. 42, 101)

GEOGRAPHIC REFERENCE: UTM Zone 39N; 348715 E, 3464007 N; Elevation: 96 m asl

SITE MEASUREMENTS: 750 × 600 × ?; Area = 45.00 ha

PERIODS ATTESTED: Post-Sasanian, Seljuk

REMARKS: A series of very low mounds with scattered sherds. An estimated 22 ha for the occupation is taken from Wright and Carter 2003, p. 81.

RH-026

SITE NAME: Basitin (pls. 43, 102)

GEOGRAPHIC REFERENCE: UTM Zone 39N; 346539 E, 3465284 N; Elevation: 91 m asl

SITE MEASUREMENTS: 700 × 600 × ?; Area = 42.00 ha. Actual occupation area = 34.00 ha, estimated in the 1969 survey.

PERIODS ATTESTED: Parthian, Seljuk

REMARKS: A large area of sherd scatter but very few diagnostics. We did not recognize any material from the post-Sasanian period, only the Parthian and Seljuk, to which the majority of the sherds belonged. Therefore, we estimate 34 ha for the Seljuk and an arbitrary 10 ha for the Parthian occupation.

RH-027

SITE NAME: — (pl. 43)

GEOGRAPHIC REFERENCE: UTM Zone 39N; 351905 E, 3471866 N; Elevation: —

SITE MEASUREMENTS: 90 × 70 × 1 m; Area = 0.63 ha

PERIODS ATTESTED: 1st millennium A.D.

REMARKS: See explanation in remarks to RH-004.

RH-028

SITE NAME: —

GEOGRAPHIC REFERENCE: UTM Zone 39N; Easting: —, Northing: —; Elevation: —

SITE MEASUREMENTS: 150 × 110 × 1 m; Area = 1.65 ha

PERIODS ATTESTED: 1st millennium A.D.

REMARKS: See explanation in remarks to RH-004.

RH-029

SITE NAME: —

GEOGRAPHIC REFERENCE: UTM Zone 39N; Easting: —, Northing: —; Elevation: —

SITE MEASUREMENTS: 120 × 80 × 2 m; Area = 0.96 ha

PERIODS ATTESTED: 1st millennium A.D.

REMARKS: See explanation in remarks to RH-004.

RH-030

Site Name: —

Geographic Reference: UTM Zone 39N; Easting: —, Northing: —; Elevation: —

Site Measurements: 50 m long × 1 m high

Periods Attested: 1st millennium A.D.

Remarks: See explanation in remarks to RH-004.

RH-031

Site Name: Ishan Ezhary/Tall-e Toraifeh (pls. 44, 103)

Geographic Reference: UTM Zone 39N; 361490 E, 3466903 N; Elevation: 125 m asl

Site Measurements: 160 × 108 × 7.5 m; Area = 1.15 ha

Periods Attested: Sukkalmah, Middle Elamite, post-Safavid/Qajar

Remarks: Late Islamic/post-Safavid date from the 1969 Wright-Carter survey.

RH-032

Site Name: Tall-e Abbas (pls. 45, 104)

Geographic Reference: UTM Zone 39N; 362857 E, 3464838 N; Elevation: 128 m

Site Measurements: 168.0 × 104.0 × 3.5 m; Area = 1.27 ha. Our two separate visits to the site provided different measurements from those indicated in the 2003 report (130 × 65 × 10 m), and these larger measurements correspond closely to the contour map of the site published in Wright 2003 (fig. 6.12). Since 1969, however, some 6.5 m of the site had been destroyed by the local farmers, hence our 3.5 m for the height of the site.

Periods Attested: Late Susiana 1, Terminal Susa/Early Susa II, proto-Elamite, Achaemenid, Sasanian. Evidence for the Late Susiana 1 phase is from the 1969 survey; the 2003 article also reports of the presence of Late Uruk (Late Susa II); we did not find sherds of this phase and the illustrated sherds in the 2003 article (fig. 6.4:k–s) consist only of beveled-rim bowls, the rim of a heavy expanded jar, a rim-band jar, a reserved-slip body sherd, a cross-hatch sherd with nose lug, and a nose lug with punctates. With the exception of the last piece, unlike the Late Susa II pottery, all these sherds have chaff and straw inclusion and all are the types that continue into the proto-Elamite period with chaff inclusion, as the excavated levels at Geser and Abu Fanduweh (unpublished) indicate.

Remarks: This is the same as Wright and Carter 2003, RH-032. In their 2003 publication, however, it is referred to as "Tepe Bayamun." RH-032 is the same as McCown's Tall-e Abbas (no. 74), a name that the local farmers know for the site. Wright and Carter named it after the nearby village of Biyamun (BEE-YA-MOON).

RH-033

Site Name: —

Geographic Reference: UTM Zone 39N; 363911 E, 3464232 N; Elevation: 129 m asl

Site Measurements: 650 × 300 × ? m; Area = 19.50 ha

Periods Attested: 1st millennium A.D.

Remarks: This is a large series of very low mounds with no clear diagnostic sherds; see explanation in RH-004.

RH-034

Site Name: Tappeh Sar Cheshmeh (pl. 105:A–B)

Geographic Reference: UTM Zone 39N; 365632 E, 3464690 N; Elevation: 138 m asl

Site Measurements: Height = 2.50 m; Area = 75 sq. m

Periods Attested: Seljuk?, Safavid

Remarks: Flattened ruins of a large mudbrick building(s). The two doubtful Seljuk sherds are not counted in our statistics. We did not find any Safavid diagnostics; the Safavid dating is taken from Wright and Carter 2003.

RH-035

Site Name: Dareh Doon (pl. 105:C–H)

Geographic Reference: UTM Zone 39N; 366191 E, 3462755 N; Elevation: 144 m asl

Site Measurements: 60.0 × 20.0 × 2.5 m; Area = 0.12 ha

Periods Attested: Middle Elamite

Remarks: This small mound is now razed to the ground. Wright and Carter (2003) detected possible Sasanian sherds; not included in our statistics.

RH-036

SITE NAME: Ram Hormuz township cemetery

GEOGRAPHIC REFERENCE: UTM Zone 39N; Easting: —, Northing: —; Elevation: —

SITE MEASUREMENTS: Area = ca. 1.40 ha

PERIODS ATTESTED: Seljuk, Ilkhanid

REMARKS: By 2006 the cemetery had been covered completely with buildings and we could neither determine its limits nor its coordinates.

RH-037

SITE NAME: —

GEOGRAPHIC REFERENCE: UTM Zone 39N; Easting: —, Northing: —; Elevation: —

SITE MEASUREMENTS: Diameter: 35 m, Height = 4 m; Area = ca. 0.08

PERIODS ATTESTED: Ilkhanid

REMARKS: We could not find the site; dating is from the 1969 survey.

RH-038

SITE NAME: —

GEOGRAPHIC REFERENCE: UTM Zone 39N; Easting: —, Northing: —; Elevation: —

SITE MEASUREMENTS: Diameter: 40 m, Height = 2 m; Area = 0.10 ha

PERIODS ATTESTED: 1st millennium A.D.

REMARKS: This site was surveyed in 1969 but we could not find it. Perhaps it is our RH-063 or 057. The 1969 survey general dating is not counted in our statistics; see explanation in remarks to RH-004.

RH-039

SITE NAME: Tall-e Sur [Surkh] (pls. 50, 105:I–L)

GEOGRAPHIC REFERENCE: UTM Zone 39N; 370670 E, 3453112 N; Elevation: 164 m asl

SITE MEASUREMENTS: 108 × 90 × 8 m; Area = 0.62 ha

PERIODS ATTESTED: Sasanian, Ilkhanid, post-Safavid/Qajar

REMARKS: There is a Qajar/early Pahlavi water mill near the mound.

RH-040

SITE NAME: Tall-e Ma'va (pls. 46, 106)

GEOGRAPHIC REFERENCE: UTM Zone 39N; 369520 E, 3449093 N; Elevation: 125 m asl

SITE MEASUREMENTS: 98 × 80 × 6 m; Area = 0.55 ha

PERIODS ATTESTED: Sukkalmah, Middle Elamite

REMARKS: Possible Achaemenid and Seljuk sherds were noticed in the 1969 survey; these not in our statistics.

RH-041

SITE NAME: Ram Hormuz township cistern

GEOGRAPHIC REFERENCE: UTM Zone 39N; Easting: —, Northing: —; Elevation: —

SITE MEASUREMENTS: —

PERIODS ATTESTED: Post-Safavid/Qajar

REMARKS: This cistern is now destroyed; not counted in our statistics.

RH-042

SITE NAME: Qaleh Kohneh (pls. 42, 107:A–H)

GEOGRAPHIC REFERENCE: UTM Zone 39N; 351558 E, 3462518 N; Elevation: 102 m asl

SITE MEASUREMENTS: 404 × 353 × ? m; Area = 11.50 ha

PERIODS ATTESTED: Sasanian, post-Sasanian, post-Safavid/Qajar

REMARKS: Ruins of a mudbrick *qaleh* (fortification) with defensive towers. The area of 11.50 ha of this fortification is not counted in our statistics as occupation for any attested period.

RH-043

SITE NAME: Emamzadeh Bibi Taj (pl. 47)

GEOGRAPHIC REFERENCE: UTM Zone 39N; 365503 E, 3464136 N; Elevation: 138 m asl

SITE MEASUREMENTS: 69.0 × 54.0 × 2.5 m; Area = 0.37 ha

PERIODS ATTESTED: Post-Safavid/Qajar

REMARKS: A local shrine with a cemetery. Only two, non-diagnostic sherds were recovered.

RH-044

Site Name: Kharman Khak (pls. 43, 107:I)

Geographic Reference: UTM Zone 39N; 351041 E, 3475050 N; Elevation: 88 m asl

Site Measurements: 80 × 47 × 4 m; Area = 0.37 ha

Periods Attested: Late Middle Susiana, proto-Elamite

Remarks: This site yielded only one piece of pottery. In a sounding in 2012 by Loghman Ahmadzadeh and Mehdi Omidfar, 1 m of proto-Elamite deposit was discovered.

RH-045

Site Name: Tall-e Mokhtari (pls. 41–42)

Geographic Reference: UTM Zone 39N; 348788 E, 3463565 N; Elevation: 98 m asl

Site Measurements: 134 × 118 × 2 m; Area = 1.09 ha

Periods Attested: —

Remarks: No diagnostic sherds were found.

RH-046

Site Name: Qaleh Marbacheh (pls. 36, 108)

Geographic Reference: UTM Zone 39N; 350394 E, 3460582 N; Elevation: 107 m asl

Site Measurements: 170 × 100 × 10 m; Area = 1.70 ha

Periods Attested: Sukkalmah, Middle Elamite

Remarks: A *Huseinieh*, a special mourning place, now sits on top of this old fortification site.

RH-047 NORTH

Site Name: Qaleh Qaravul (pls. 48, 109–11)

Geographic Reference: UTM Zone 39N; 350791 E, 3457562 N; Elevation: 118 m asl

Site Measurements: 180 × 150 × 10 m; Area = 2.70 ha

Periods Attested: Late Middle Susiana, Parthian, post-Sasanian, Seljuk, Ilkhanid

Remarks: We estimate 1.5 ha for the Late Middle Susiana phase.

RH-047 SOUTH

Site Name: Qaleh Qaravul (pls. 48, 112–13)

Geographic Reference: UTM Zone 39N; 350759 E, 3457503 N; Elevation: 118 m asl

Site Measurements: 150 × 100 × 9 m; Area = 1.50 ha

Periods Attested: Late Middle Susiana, Late Susiana 1, post-Sasanian, Seljuk

Remarks: —

RH-048

Site Name: — (pl. 114)

Geographic Reference: UTM Zone 39N; 351080 E, 3457405 N; Elevation: 109 m asl

Site Measurements: 380 × 195 × ? m; Area = 7.41 ha

Periods Attested: Parthian?

Remarks: There is a discrepancy in our records concerning the height of this site. Because of the dubious Parthian sherds, this site is not counted in our statistics.

RH-049

Site Name: —

Geographic Reference: UTM Zone 39N; 355433 E, 3459590 N; Elevation: 109 m asl

Site Measurements: 200 × 120 × 3 m; Area = 2.40 ha

Periods Attested: —

Remarks: Only one, non-diagnostic sherd was found.

RH-050

Site Name: —

Geographic Reference: UTM Zone 39N; 355849 E, 3459549 N; Elevation: 109 m asl

Site Measurements: Height = 1 m

Periods Attested: —

Remarks: No diagnostic sherds were found.

RH-051

Site Name: —

Geographic Reference: UTM Zone 39N; 355198 E, 3460470 N; Elevation: 125 m asl

Site Measurements: 60 × 55 × 3 m; Area = 0.33 ha

Periods Attested: —

Remarks: Only one, non-diagnostic sherd was found.

RH-052

Site Name: Tall-e Basedi Olya (pls. 49, 115, 185)

Geographic Reference: UTM Zone 39N; 363982 E, 3451475 N; Elevation: 124 m asl

Site Measurements: 118 × 111 × 5 m; Area = 0.98 ha

Periods Attested: Late Middle Susiana, Sukkalmah, Middle Elamite

Remarks: —

RH-053

Site Name: Tall-e Basedi Sofla (pls. 49, 116–17)

Geographic Reference: UTM Zone 39N; 363523 E, 3449191 N; Elevation: 125 m asl

Site Measurements: 298 × 188 × 8 m; Area = 3.96 ha

Periods Attested: Late Middle Susiana, Parthian, Seljuk, Ilkhanid

Remarks: We estimate 2 ha for Late Middle Susiana occupation.

RH-054

Site Name: Zoveidi Mosa

Geographic Reference: UTM Zone 39N; 364154 E, 3447867 N; Elevation: 116 m asl

Site Measurements: 95 × 80 × 8 m; Area = 0.76 ha

Periods Attested: —

Remarks: A clear artificial mound with no surface sherds.

RH-055

Site Name: Zoveidi Mosa

Geographic Reference: UTM Zone 39N; 364154 E, 3447867 N; Elevation: 116 m asl

Site Measurements: 95 × 70 × 6 m; Area = 0.66 ha

Periods Attested: —

Remarks: A clear artificial mound with no surface sherds.

RH-056

Site Name: Dehyur Village (pl. 118)

Geographic Reference: UTM Zone 39N; 372069 E, 3458015 N; Elevation: 207 m asl

Site Measurements: 47 × 46 × ? m; Area = 0.14 ha

Periods Attested: Seljuk, Ilkhanid, Timurid, Safavid, post-Safavid/Qajar

Remarks: —

RH-057

Site Name: Dehyur old cemetery (pls. 51, 119)

Geographic Reference: UTM Zone 39N; 372555 E, 3457914 N; Elevation: 212 m asl

Site Measurements: 73 × 50 × 2 m; Area = 0.28 ha

Periods Attested: Post-Safavid/Qajar

Remarks: —

RH-058

Site Name: Jobaji (pls. 51, 120)

Geographic Reference: UTM Zone 39N; 373283 E, 3457991 N; Elevation: 221 m asl

Site Measurements: 675 × 166 × ? m; Area = 7.73 ha. The site consists of a large area of low mounds of various low elevations; most of the area is covered with river sediments from repeated flooding of the area. We were unable to establish occupation area for the Achaemenid period, but based on the average size of other Achaemenid sites, we estimate 3 ha for this period.

Periods Attested: Middle Elamite, Neo-Elamite, Achaemenid, Parthian

Remarks: The Neo-Elamite date is based on surface sherds and the recent discovery of a tomb with two burials (Shishegar 2008). This is primarily a double tomb with an earlier settlement next to it. These two Neo-Elamite burials were intact at the time of discovery by bulldozer but are now destroyed. Recent investigations at the site also revealed large number of Parthian jar burials, but since the extent of Parthian occupation is unknown to us, this period is excluded.

RH-059

Site Name: — (pl. 121)

Geographic Reference: UTM Zone 39N; 372413 E, 3457052 N; Elevation: 202 m asl

Site Measurements: 43 × 37 × 3 m; Area = 0.10 ha

Periods Attested: Seljuk, Ilkhanid, post-Safavid/Qajar

Remarks: Remnants of a farmstead now abandoned and ruined; some doubtful Middle Elamite sherds are excluded in our statistics.

RH-060

Site Name: Asiab-e Dehyur

Geographic Reference: UTM Zone 39N; 370293 E, 3455778 N; Elevation: —

Site Measurements: —

Periods Attested: Late Qajar/early Pahlavi

Remarks: A contemporary water mill of the early Pahlavi period.

RH-061

Site Name: Asyab-e Basedi

Geographic Reference: UTM Zone 39N; 370952 E, 3457355 N; Elevation: 187 m asl

Site Measurements: —

Periods Attested: Late Qajar/early Pahlavi

Remarks: An abandoned water mill.

RH-062

Site Name: — (pl. 122:A–C)

Geographic Reference: UTM Zone 39N; 371268 E, 3457214 N; Elevation: —

Site Measurements: —

Periods Attested: Parthian/Sasanian?

Remarks: This is presumably an archaeological site buried 1.7 m under sediment and revealed during a piping project; few uncertain sherds; not counted in our statistics.

RH-063

Site Name: Tall-e Gorgi (pls. 50, 122:D–I)

Geographic Reference: UTM Zone 39N; 369759 E, 3454606 N; Elevation: 162 m asl

Site Measurements: 30 × 29 × 1.85 m; Area = 0.07 ha

Periods Attested: Seljuk, Ilkhanid?, post-Safavid/Qajar

Remarks: Remnants of a farmstead now abandoned and ruined; doubtful Ilkhanid sherds are not counted in our statistics.

RH-064

Site Name: Peer Aziz/Qabrestan Do Gosh (pls. 50, 123:A–I)

Geographic Reference: UTM Zone 39N; 370972 E, 3454736 N; Elevation: 174 m asl

Site Measurements: 60 × 40 × 6 m; Area = 0.21 ha

Periods Attested: Post-Sasanian, Seljuk/Ilkhanid?

Remarks: A cemetery; the doubtful Seljuk/Ilkhanid period is excluded from our statistics.

RH-065A

Site Name: Mehr al-Nesa (pl. 123:J–L)

Geographic Reference: UTM Zone 39N; 367003 E, 3452075 N; Elevation: 136 m asl

Site Measurements: Area = 0.04 ha

Periods Attested: Parthian?

Remarks: The doubtful dating is not counted in our statistics.

RH-065B

Site Name: Bahr al-Nesa (pl. 123:M–P)

Geographic Reference: UTM Zone 39N; 366968 E, 3451996 N; Elevation: 136 m asl

Site Measurements: 24 × 21 × 1 m; Area = 0.05 ha

Periods Attested: Seljuk, Ilkhanid, post-Safavid/Qajar

Remarks: A cemetery and Imamzadeh (Shiite Islamic "saint" mausoleum).

RH-065C

Site Name: Kheir al-Nesa (pl. 123:Q–R)

Geographic Reference: UTM Zone 39N; 366996 E, 3451878 N; Elevation: 132 m asl

Site Measurements: 54 × 43 × 2.5 m; Area = 0.03 ha

Periods Attested: Parthian, post-Safavid/Qajar

Remarks: A cemetery and Imamzadeh (Shiite Islamic "saint" mausoleum).

RH-066A

Site Name: Qaleh Sheikh (pl. 52)

Geographic Reference: UTM Zone 39N; 364749 E, 3449664 N; Elevation: 116 m asl

Site Measurements: 43 × 37 × 1.5 m; Area = 0.07 ha

Periods Attested: —

Remarks: No diagnostic sherds found.

RH-066B

Site Name: Do Piran (pl. 52)

Geographic Reference: UTM Zone 39N; 364754 E, 3449586 N; Elevation: 116 m asl

Site Measurements: 45 × 33 × 4 m; Area = 0.14 ha

Periods Attested: —

Remarks: No sherds.

RH-066C

Site Name: Qaleh Sheikh (pls. 52, 124)

Geographic Reference: UTM Zone 39N; 364809 E, 3449373 N; Elevation: 116 m asl

Site Measurements: 198 × 78 × 3.9 m; Area = 1.43 ha

Periods Attested: Parthian

Remarks: —

RH-066D

Site Name: Qaleh Sheikh (pls. 52, 125:A–C)

Geographic Reference: UTM Zone 39N; 364759 E, 3449296 N; Elevation: 115 m

Site Measurements: 39 × 32 × 2.2 m; Area = 0.13 ha

Periods Attested: —

Remarks: This site provided a few uncertain sherds; it is not included in our statistics.

RH-066E

Site Name: Qaleh Sheikh (pls. 52, 125:D–H)

Geographic Reference: UTM Zone 39N; 364746 E, 3449005 N; Elevation: 113 m asl

Site Measurements: Area = 0.23 ha

Periods Attested: —

Remarks: No diagnostic sherds were found.

RH-067

Site Name: Kut (pls. 56, 126, 185)

Geographic Reference: UTM Zone 39N; 364829 E, 3447825 N; Elevation: 112 m asl

Site Measurements: 270 × 245 × ? m; Area = 6.71 ha

Periods Attested: Late Susiana 2, proto-Elamite, Seljuk

Remarks: The ruins of a mudbrick fortification sit on top of the mound; we estimate 1.5 ha for the Late Susiana 2 and proto-Elamite occupation.

RH-068

Site Name: Ishan Abu Wawieh (pls. 53–54)

Geographic Reference: UTM Zone 39N; 367139 E, 3448359 N; Elevation: 111 m asl

Site Measurements: 87 × 30 × 3 m; Area = 0.18 ha

Periods Attested: —

Remarks: No diagnostic sherds were found.

RH-069A

Site Name: Ishan Abu Sharr Galleh (pls. 53–54, 127–29, 185)

Geographic Reference: UTM Zone 39N; 366893 E, 3447838 N; Elevation: 113 m asl

Site Measurements: 77 × 66 × 5.5 m; Area = 0.50 ha

Periods Attested: Early Susa II, proto-Elamite, Sukkalmah, Middle Elamite

Remarks: We cannot account for a single, blue-glazed sherd of the Sasanian/post-Sasanian period; not in our statistics.

RH-069B

Site Name: — (pls. 53–54)

Geographic Reference: UTM Zone 39N; 366972 E, 3447906 N; Elevation: 111 m asl

Site Measurements: 33 × 19 × 1.3 m; Area = 0.05 ha

Periods Attested: —

Remarks: No sherds.

RH-069C

Site Name: — (pls. 53–54)

Geographic Reference: UTM Zone 39N; 367052 E, 3447917 N; Elevation: 110 m asl

Site Measurements: 23 × 19 × 1.3 m; Area = 0.02 ha

Periods Attested: —

Remarks: Artificial mound with no sherds on surface.

RH-069D

Site Name: Ishan Hamrain (pl. 53)

Geographic Reference: UTM Zone 39N; 366666 E, 3447590 N; Elevation: 110 m

Site Measurements: 160 × 105 × 5.5 m; Area = 1.16 ha

Periods Attested: —

Remarks: An artificial mound with no sherds on surface.

RH-070

Site Name: Ishan Azad (pls. 53, 130)

Geographic Reference: UTM Zone 39N; 367023 E, 3447319 N; Elevation: 110 m

Site Measurements: 256 × 103 × 2 m; Area = 1.60 ha

Periods Attested: Seljuk, Ilkhanid

Remarks: —

RH-071

Site Name: Ishan Seyyed Shebeiyb/Tall-e Toppi (pls. 56, 131)

Geographic Reference: UTM Zone 39N; 365569 E, 3446871 N; Elevation: 111 m asl

Site Measurements: 80 × 65 × 3.8 m; Area = 0.42 ha

Periods Attested: Late Middle Susiana, Late Susiana 1, Parthian

Remarks: —

RH-072

Site Name: Qaleh Kohneh (pls. 55, 132–33)

Geographic Reference: UTM Zone 39N; 364886 E, 3445366 N; Elevation: 103 m asl

Site Measurements: 770 × 170 × ? m; Area = 13.09 ha. Actual occupation area = 2.34 ha

Periods Attested: Early Susa II, proto-Elamite, Sasanian

Remarks: A large, flat area with a number of small hills. Only one dubious Parthian sherd was found, not in our statistics. We estimate 1 ha for the Early Susa II and proto-Elamite periods.

RH-073

Site Name: — (pl. 55)

Geographic Reference: UTM Zone 39N; 365524 E, 3445709 N; Elevation: 105 m asl

Site Measurements: —

Periods Attested: —

Remarks: A leveled area within a farm with some unidentifiable sherds.

RH-074

Site Name: Tall-e Makineh (pls. 57, 134:A–G)

Geographic Reference: UTM Zone 39N; 366389 E, 3445811 N; Elevation: 106 m asl

Site Measurements: —

Periods Attested: Seljuk, Ilkhanid

Remarks: A leveled area within a farm. A diesel-powered mill on the mound, hence the name *makineh* "machine." Not included in our statistics.

RH-075

Site Name: Mashlush (pls. 57, 134:H–O)

Geographic Reference: UTM Zone 39N; 367241 E, 3445889 N; Elevation: 102 m asl

Site Measurements: 50 × 40 × 2.35 m; Area = 0.18 ha

Periods Attested: Seljuk, Ilkhanid

Remarks: —

RH-076

Site Name: Jaber Nesa (pls. 57, 135)

Geographic Reference: UTM Zone 39N; 366742 E, 3444675 N; Elevation: 97 m asl

Site Measurements: 170 × 90 × ? m; Area = 1.53 ha

Periods Attested: Post-Sasanian, Seljuk, Ilkhanid, post-Safavid/Qajar

Remarks: An artificial mound with some stone-lined nomads' graves of probably historical date.

RH-077A

Site Name: Tall-e Gapo Cham (pls. 58, 60, 136

Geographic Reference: UTM Zone 39N; 367359 E, 3442271 N; Elevation: 103 m asl

Site Measurements: 190 × 73 × 12 m; Area = 1.10 ha

Periods Attested: Late Middle Susiana, Late Susiana 2, Terminal Susa, Early Susa II, Late Susa II, proto-Elamite

Remarks: —

RH-077B

Site Name: — (pls. 58, 60, 137:A–E)

Geographic Reference: UTM Zone 39N; 367375 E, 3442530 N; Elevation: 90 m asl

Site Measurements: 95 × 65 × 3 m; Area = 0.26 ha

Periods Attested: Proto-Elamite

Remarks: —

RH-077C

Site Name: — (pls. 58, 60, 137:F–M

Geographic Reference: UTM Zone 39N; 367470 E, 3442188 N; Elevation: 87 m asl

Site Measurements: 71 × 54 × 3 m; Area = 0.30 ha

Periods Attested: Proto-Elamite, Achaemenid, Seljuk, Ilkhanid

Remarks: —

RH-077D

Site Name: — (pls. 58, 60, 138)

Geographic Reference: UTM Zone 39N; 367407 E, 3441910 N; Elevation: 88 m asl

Site Measurements: 120 × 55 × 4.5 m; Area = 0.37 ha

Periods Attested: Early Susa II, Late Susa II

Remarks: —

RH-078A

Site Name: Tall-e Cheshmeh Seyyed (pls. 57–58, 139–40)

Geographic Reference: UTM Zone 39N; 368094 E, 3442678 N; Elevation: 112 m asl

Site Measurements: 146 × 100 × 9 m; Area = 1.20 ha

Periods Attested: Late Middle Susiana, Sukkalmah, Middle Elamite

Remarks: —

RH-078B

Site Name: Tall-e Kavireh (pls. 57–58, 141)

Geographic Reference: UTM Zone 39N; 368024 E, 3442547 N; Elevation: 102 m asl

Site Measurements: 66 × 43 × 3 m; Area = 0.21 ha

Periods Attested: Late Middle Susiana

Remarks: Pottery waster (pl. 141:D) indicates this was probably a production center.

RH-079

Site Name: Felifel (pl. 60)

Geographic Reference: UTM Zone 39N; 367896 E, 3442292 N; Elevation: 95 m asl

Site Measurements: 31 × 19 × 1.5 m; Area = 0.05 ha

Periods Attested: —

Remarks: No sherds.

RH-080

Site Name: Tall-e Halvati (pls. 59, 142)

Geographic Reference: UTM Zone 39N; 370424 E, 3442418 N; Elevation: 94 m asl

Site Measurements: 70 × 67 × 4 m; Area = 0.32 ha

Periods Attested: Late Middle Susiana, Sasanian?

Remarks: The Sasanian period is doubtful and is not included in our statistics.

RH-081

Site Name: Ishan Embrij (pls. 59, 143)

Geographic Reference: UTM Zone 39N; 371639 E, 3442672 N; Elevation: 91 m asl

Site Measurements: 36 × 29 × 2 m; Area = 0.06 ha

Periods Attested: Late Middle Susiana, Achaemenid

Remarks: —

RH-082

Site Name: — (pls. 57, 60, 144:A–F)

Geographic Reference: UTM Zone 39N; 367726 E, 3441818 N; Elevation: 93 m asl

Site Measurements: 63 × 27 × 1 m; Area = 0.11 ha

Periods Attested: Late Middle Susiana, proto-Elamite

Remarks: —

RH-083

Site Name: Cham Hashem (pls. 58, 144:G–P)

Geographic Reference: UTM Zone 39N; 367735 E, 3441481 N; Elevation: 92 m asl

Site Measurements: 320 × 160 × ? m; Area = 5.10 ha

Periods Attested: Post-Sasanian, Seljuk

Remarks: Cluster of small, low mounds.

RH-084A

Site Name: Tall-e Gobeir (pls. 61, 145)

Geographic Reference: UTM Zone 39N; 370276 E, 3440189 N; Elevation: 83 m asl

Site Measurements: 590 × 170 × 5.5 m; Area = 6.31 ha

Periods Attested: Achaemenid, Parthian, Sasanian

Remarks: We estimate 1 ha for the Achaemenid occupation.

RH-084B

Site Name: Tall-e Gobeir (pls. 61, 146)

Geographic Reference: UTM Zone 39N; 370433 E, 3440063 N; Elevation: 82 m asl

Site Measurements: 33 × 32 × 3 m; Area = 0.08 ha

Periods Attested: Proto-Elamite, Achaemenid

Remarks: —

RH-085

Site Name: Tall-e Suz (pls. 62, 147–49)

Geographic Reference: UTM Zone 39N; 372574 E, 3448840 N; Elevation: 140 m asl

Site Measurements: 246 × 213 × 8.5 m; Area = 5.23 ha. Actual occupation area = 2.96 ha. We estimate 1 ha for the Achaemenid period.

Periods Attested: Sukkalmah, Middle Elamite, Achaemenid, Parthian, Sasanian

Remarks: The sherd scatter can be seen up to 200 m away.

RH-086

Site Name: Qaleh Sefid (pls. 63, 150–56)

Geographic Reference: UTM Zone 39N; 374899 E, 3454561 N; Elevation: 244 m asl

Site Measurements: 95 × 35 × ? m; Area = 0.33 ha

Periods Attested: Early Susa II, proto-Elamite

Remarks: —

RH-087

Site Name: Qaleh Quchi (pls. 63, 157)

Geographic Reference: UTM Zone 39N; 376369 E, 3453728 N; Elevation: 254 m asl

Site Measurements: —

Periods Attested: Neo-Elamite

Remarks: A scatter of baked bricks with plaster and bitumen, presumably from a robbed tomb; only four non-diagnostic sherds were found.

RH-088

Site Name: Bard-e Yal Rustam (pl. 63)

Geographic Reference: UTM Zone 39N; 375061 E, 3454465 N; Elevation: 207 m asl

Site Measurements: —

Periods Attested: Contemporary

Remarks: A large collection of mill stones.

RH-089

Site Name: Abshar-e O Mahak (pls. 63, 158)

Geographic Reference: UTM Zone 39N; 378309 E, 3455613 N; Elevation: 222 m asl

Site Measurements: 60 × 40 × 0.5 m; Area = 0.19 ha

Periods Attested: Achaemenid, Parthian?

Remarks: An almost flat site in a rocky terrain, near source of water (small waterfall). The doubtful Parthian sherds are not included in our statistics.

RH-090

Site Name: —

Geographic Reference: UTM Zone 39N; 378434 E, 3455580 N; Elevation: 214 m asl

Site Measurements: 44 × 25 × 2.5 m; Area = 0.08 ha

Periods Attested: Post-Safavid/Qajar

Remarks: A nomads' cemetery with no sherds.

RH-091

Site Name: Pacheh Kuh (pls. 64, 159)

Geographic Reference: UTM Zone 39N; 370871 E, 3462979 N; Elevation: 196 m asl

Site Measurements: 311 × 128 × ? m; Area = 3.90 ha

Periods Attested: Achaemenid, Seljuk, Ilkhanid

Remarks: We estimate 1 ha for the Achaemenid occupation.

RH-092

Site Name: Qaleh Dav Dokhtar (pl. 64)

Geographic Reference: UTM Zone 39N; 371014 E, 3463297 N; Elevation: 313 m asl

Site Measurements: 165 × 16 m; Area = 0.26 ha

Periods Attested: Sasanian?

Remarks: A stone fortification of possible Sasanian period; not counted as a settlement site, not counted in our statistics.

RH-093A

Site Name: Tall-e Gur Piyazi (pl. 160)

Geographic Reference: UTM Zone 39N; 373133 E, 3459676 N; Elevation: 221 m asl

Site Measurements: 268.0 × 65.0 × 3.5 m; Area = 0.80 ha

Periods Attested: Parthian, Sasanian

Remarks: Same as Wright and Carter site RH-015 (East). This site is near the village of Dorikal.

RH-093B

Site Name: Char Taq (pls. 161–62)

Geographic Reference: UTM Zone 39N; 373347 E, 3459653 N; Elevation: 228 m asl

Site Measurements: 150 × 100 × 11.5 m; Area = 1.50 ha

Periods Attested: Parthian, Sasanian

Remarks: Same as Wright and Carter site RH-015 (West). This site is near the village of Dorikal.

RH-094

Site Name: Zir Zard (pl. 163)

Geographic Reference: UTM Zone 39N; 374518 E, 3458925 N; Elevation: 233 m asl

Site Measurements: Area = ca. 1 ha

Periods Attested: Sasanian

Remarks: This mound, destroyed during dam construction activities, displays badly broken and scattered sherds.

RH-095

Site Name: ʿAin Korreh (pl. 164)

Geographic Reference: UTM Zone 39N; 362867 E, 3446291 N; Elevation: 114 m asl

Site Measurements: 350 × 170 × ? m; Area = 5.90 ha

Periods Attested: Parthian, Sasanian

Remarks: —

RH-096

Site Name: Bulaibul (pls. 65–66, 165–66)

Geographic Reference: UTM Zone 39N; 364184 E, 3444696 N; Elevation: 106 m asl

Site Measurements: 78 × 57 × 5 m; Area = 0.29 ha

Periods Attested: Middle Elamite, Parthian

Remarks: Most of the mound is leveled.

RH-097A

Site Name: Dimeh Sadat (pls. 65–66, 167–68)

Geographic Reference: UTM Zone 39N; 363852 E, 3444557 N; Elevation: 111 m asl

Site Measurements: 168 × 118 × 4 m; Area = 1.42 ha

Periods Attested: Late Susiana 2, Sukkalmah, Middle Elamite, Parthian

Remarks: —

RH-097B

Site Name: Dimeh Sadat (pls. 65–66, 169–70)

Geographic Reference: UTM Zone 39N; 364002 E, 3444491 N; Elevation: 110 m asl

Site Measurements: 100 × 72 × 4 m; Area = 0.57 ha

Periods Attested: Sukkalmah, Middle Elamite, Achaemenid

Remarks: —

RH-098

Site Name: — (pls. 65, 171)

Geographic Reference: UTM Zone 39N; 363762 E, 3444192 N; Elevation: 113 m asl

Site Measurements: 600 × 400 m; Area = 23 ha. Actual occupation area = 15 ha

Periods Attested: Seljuk

Remarks: A cluster of small, low mounds; unable to track the individual mounds, we estimate 15 ha for the entire occupation. The Safavid period is represented by a few glazed sherds that are not typical of the period and most probably are imports (probably from India). Some uncertain Safavid sherds found; these are not included in our statistics.

RH-099

Site Name: Ali Mokhlet (pls. 67, 172:A–H)

Geographic Reference: UTM Zone 39N; 366970 E, 3439412 N; Elevation: 83 m asl

Site Measurements: 233 × 134 × ? m; Area = 3.10 ha

Periods Attested: Parthian, Sasanian, post-Safavid/Qajar, Seljuk/Ilkhanid

Remarks: A Shiite shrine of a "saint" (Ali Mokhlet) and its associated cemetery are built on the mound; the late period is not counted in our statistics.

RH-100

Site Name: —

Geographic Reference: UTM Zone 39N; 367536 E, 3461412 N; Elevation: 167 m asl

Site Measurements: —

Periods Attested: Safavid

Remarks: This site is in the city of Ram Hormuz and was found during a construction project. The sherds were confiscated and therefore not included in our statistics.

RH-101

Site Name: Qadamgah-e Khezr Nabi (pl. 172:I–K)

Geographic Reference: UTM Zone 39N; 367088 E, 3460578 N; Elevation: 161 m asl

Site Measurements: 34 × 15 × 1.3 m; Area = 0.06 ha

Periods Attested: Post-Sasanian

Remarks: —

RH-102

Site Name: Tappeh Seyyed Mohammad

Geographic Reference: UTM Zone 39N; 367451 E, 3460494 N; Elevation: 167 m asl

Site Measurements: 116 × 32 × 3.2 m; Area = 0.25 ha

Periods Attested: —

Remarks: An artificial mound with no sherds.

RH-103

Site Name: Bagh-e Manuchehri (pl. 173)

Geographic Reference: UTM Zone 39N; 368210 E, 3460304 N; Elevation: —

Site Measurements: 34 × 17 × 2 m; Area = 0.05 ha

Periods Attested: Seljuk

Remarks: A garden sits on this site.

RH-104

Site Name: Tall-e Kayd (pls. 68, 174:A–M)

Geographic Reference: UTM Zone 39N; 366370 E, 3459444 N; Elevation: 158 m asl

Site Measurements: 66 × 65 × 2 m; Area = 0.31 ha

Periods Attested: Parthian, Sasanian

Remarks: —

RH-105

Site Name: Ishan Eshmileh (pls. 69, 174:N–O)

Geographic Reference: UTM Zone 39N; 362508 E, 3459449 N; Elevation: 136 m asl

Site Measurements: 47 × 46 × 3 m; Area = 0.20 ha

Periods Attested: Post-Sasanian

Remarks: —

RH-106

Site Name: Tall-e Samum (pls. 69, 175)
Geographic Reference: UTM Zone 39N; 362936 E, 3459538 N; Elevation: 136 m asl
Site Measurements: 61 × 44 × 1 m; Area = 0.22 ha
Periods Attested: Sasanian, post-Sasanian
Remarks: —

RH-107

Site Name: Ja Kharman/Seyyed Ashura Huseini
Geographic Reference: UTM Zone 39N; 363670 E, 3462387 N; Elevation: 135 m asl
Site Measurements: 100 × 100 × 1 m; Area = 0.78 ha
Periods Attested: —
Remarks: No diagnostic sherds.

RH-108

Site Name: Tall-e Qasili (pls. 47, 176)
Geographic Reference: UTM Zone 39N; 365639 E, 3463808 N; Elevation: 141 m asl
Site Measurements: 57 × 50 × 2.2 m; Area = 0.15 ha
Periods Attested: Sasanian, Seljuk, Safavid
Remarks: —

RH-109

Site Name: Gelaldoon (pls. 45, 177:A–I)
Geographic Reference: UTM Zone 39N; 363777 E, 3464807 N; Elevation: 128 m asl
Site Measurements: 25 × 20 × 2 m; Area = 0.03 ha
Periods Attested: Post-Sasanian, Safavid
Remarks: Only one sherd, dated to the Safavid period.

RH-110

Site Name: Ishan Toʾaimeh (pls. 70, 177:J
Geographic Reference: UTM Zone 39N; 360259 E, 3465190 N; Elevation: 116 m asl
Site Measurements: 92 × 74 × 3 m; Area = 0.68 ha
Periods Attested: —
Remarks: Only one sherd, illustrated but not included in our statistics.

RH-111A

Site Name: Seh Tulun, Mound A (pls. 45, 178:A–E)
Geographic Reference: UTM Zone 39N; 363797 E, 3465692 N; Elevation: 130 m asl
Site Measurements: 108 × 61 × 2.5 m; Area = 0.47 ha
Periods Attested: Post-Sasanian
Remarks: —

RH-111B

Site Name: Seh Tulun, Mound B (pl. 45)
Geographic Reference: UTM Zone 39N; 363682 E, 3465898 N; Elevation: 133 m asl
Site Measurements: 156 × 75 × 1.2 m; Area = 0.89 ha
Periods Attested: —
Remarks: No diagnostic sherds.

RH-111C

Site Name: Seh Tulun, Mound C (pls. 45, 178:F–J)
Geographic Reference: UTM Zone 39N; 363589 E, 3465845 N; Elevation: 133 m asl
Site Measurements: 85 × 67 × 1.8 m; Area = 0.30 ha
Periods Attested: Post-Sasanian
Remarks: —

RH-112

Site Name: — (pl. 179:A–D)
Geographic Reference: UTM Zone 39N; 356955 E, 3470461 N; Elevation: 94 m asl
Site Measurements: 170 × 108 × 3.5 m; Area = 1.80 ha
Periods Attested: Parthian
Remarks: —

RH-113

Site Name: Qaleh Tavakul (pl. 179:E–K)
Geographic Reference: UTM Zone 39N; 357533 E, 3470579 N; Elevation: 94 m asl
Site Measurements: 60 × 40 m; Area = 0.20 ha
Periods Attested: Seljuk, Safavid, Qajar
Remarks: A Qajar fortification built on a Safavid site.

RH-114

Site Name: Toll-e Goloii (pls. 42, 180:A–D)

Geographic Reference: UTM Zone 39N; 350235 E, 3462037 N; Elevation: 100 m asl

Site Measurements: 147 × 113 × 1.5 m; Area = 1.46 ha

Periods Attested: Late Middle Susiana

Remarks: —

RH-115

Site Name: Toll-e Mentar (pls. 42, 180:E–L)

Geographic Reference: UTM Zone 39N; 349943 E, 3462238 N; Elevation: 101 m asl

Site Measurements: 146 × 126 × 1.5 m; Area = 2.55 ha

Periods Attested: Sukkalmah?, Achaemenid

Remarks: A possible nomadic campsite; the period is included in our statistics. One dubious Sukkalmah sherd is not counted in our statistics.

RH-116A

Site Name: Toll-e Kaviri (pls. 41–42, 181)

Geographic Reference: UTM Zone 39N; 349063 E, 3463236 N; Elevation: 97 m asl

Site Measurements: 136 × 89 × 1.2 m; Area = 0.95 ha

Periods Attested: Neo-Elamite, Achaemenid

Remarks: —

RH-116B

Site Name: Toll-e Karami (pls. 42, 181)

Geographic Reference: UTM Zone 39N; 349162 E, 3463269 N; Elevation: 98 m asl

Site Measurements: 143 × 79 × 1.5 m; Area = 0.84 ha

Periods Attested: Neo-Elamite, Achaemenid

Remarks: —

RH-116C

Site Name: Toll-e Karami (pl. 42)

Geographic Reference: UTM Zone 39N; 349486 E, 3463326 N; Elevation: 98 m asl

Site Measurements: 52 × 42 × 1.5 m; Area = 0.16 ha

Periods Attested: Achaemenid

Remarks: —

RH-117

Site Name: Ishan al-Yamalah (pls. 71–72, 182, 185)

Geographic Reference: UTM Zone 39N; 352520 E, 3456886 N; Elevation: 113 m asl

Site Measurements: 154 × 82 × 3.5 m; Area = 0.80 ha

Periods Attested: Late Middle Susiana?, Early Susa II, Late Susa II, proto-Elamite

Remarks: Two dubious Late Middle Susiana sherds are not counted in our statistics.

RH-118A

Site Name: Ishan Abu Ghoraib (pls. 71–72, 183)

Geographic Reference: UTM Zone 39N; 352871 E, 3455721 N; Elevation: 114 m asl

Site Measurements: 170 × 110 × 8 m; Area = 1.15 ha

Periods Attested: Late Middle Susiana, Late Susiana 1

Remarks: —

RH-118B

Site Name: Ishan Abu Ghoraib (pls. 71–72, 184)

Geographic Reference: UTM Zone 39N; 352750 E, 3455746 N; Elevation: 111 m asl

Site Measurements: 81 × 42 × 2.5 m; Area = 0.26 ha

Periods Attested: Late Middle Susiana, Late Susiana 1

Remarks: —

APPROXIMATE AREA OF OCCUPATION FOR THE PERIODS ATTESTED

Table C1. Early Susiana settlement size and numbers

	Site Number	*Area in Hectares*
1	RH-003	0.36
		Total =0.36

Table C2. Late Middle Susiana (Geser I) settlement size and numbers

	Site Number	*Area in Hectares*
1	RH-001	2.00
2	RH-002	0.20
3	RH-006	1.00
3	RH-010	0.22
4	RH-018	1.50
5	RH-019	0.50
6	RH-022N	0.85
7	RH-023NE	0.22
8	RH-023SW	0.51
9	RH-024	0.88
10	RH-044	0.37
11	RH-047N	1.50
12	RH-047S	1.50
13	RH-052	0.98
14	RH-053	2.00
15	RH-071	0.42
16	RH-077A	1.10
17	RH-078A	1.20
18	RH-078B	0.21
19	RH-080	0.32
20	RH-081	0.06
21	RH-082	0.11
22	RH-114	1.46
23	RH-117	0.80
24	RH-118A	1.15
25	RH-118B	0.26
		Total = 21.32

Table C3. Late Susiana 1 (Geser II) settlement size and numbers

	Site Number	*Area in Hectares*
1	RH-001	1.60
2	RH-005	0.20
3	RH-010	0.22
4	RH-011	1.50
5	RH-018	1.50
6	RH-019	0.50
7	RH-022N	0.85
8	RH-024	0.88
9	RH-032	1.27
10	RH-047S	? (one sherd)
11	RH-071	0.42
12	RH-118A	1.15
13	RH-118B	0.26
		Total = 10.35

Table C4. Late Susiana 2 (Geser III) settlement size and numbers

	Site Number	*Area in Hectares*
1	RH-001	1.60
2	RH-018	1.50
3	RH-067	1.50
4	RH-077A	1.10
5	RH-097A	1.42
6	RH-118A	1.15
		Total = 8.27

Table C5. Terminal Susa/Early Susa II settlement size and numbers

	Site Number	*Area in Hectares*
1	RH-001	1.20
2	RH-032	1.27
3	RH-069A	0.50
4	RH-072	1.00
5	RH-077A	1.10
6	RH-077D	0.37
7	RH-086	0.33
		Total = 5.77

Table C6. Late Susa II (Geser IV) settlement size and numbers

	Site Number	*Area in Hectares*
1	RH-001	1.20
2	RH-006	2.00
3	RH-077A	1.10
4	RH-077D	0.37
5	RH-117	0.80
		Total = 5.47

Table C7. Proto-Elamite (Early Susa III) (Geser V) settlement size and numbers (ca. 3100–2800 B.C.)

	Site Number	*Area in Hectares*
1	RH-001	1.60
2	RH-006	2.00
3	RH-023NE	0.22
4	RH-032	1.27
5	RH-067	1.50
6	RH-069A	0.50
7	RH-072	1.00
8	RH-077A	1.10
9	RH-077B	0.26
10	RH-077C	0.30
11	RH-082	0.11
12	RH-084B	0.08
13	RH-086	0.33
14	RH-117	0.80
		Total = 11.07

Table C8. Sukkalmah and Transitional (Geser VI) settlement size and numbers (ca. 1900–1400 B.C.)

	Site Number	*Area in Hectares*
1	RH-001	6.00
2	RH-004	1.20
3	RH-006	2.36
4	RH-007N	1.77
5	RH-011	18.00
6	RH-014	5.17
7	RH-040	0.55
8	RH-046	1.70
9	RH-052	0.98
10	RH-069A	0.50
11	RH-078A	1.20
12	RH-085	2.96
13	RH-097A	1.42
14	RH-097B	0.57
15	RH-115?	?
		Total = 44.38

Table C9. Middle Elamite (Geser VII) settlement size and numbers (ca. 1300–1000 B.C.)

	Site Number	*Area in Hectares*
1	RH-001	6.00
2	RH-004	1.20
3	RH-006	2.36
4	RH-007N	1.77
5	RH-007S	2.07
6	RH-011	18.00
7	RH-014	5.17
8	RH-031	1.15
9	RH-035	0.12
11	RH-040	0.55
12	RH-046	1.70
13	RH-052	0.98
14	RH-058	7.73
15	RH-069A	0.50
16	RH-078A	1.20
17	RH-085	2.96
18	RH-096	0.29
19	RH-097A	1.42
20	RH-097B	0.57
		Total = 55.74

Table C10. Neo-Elamite (Geser VIII) settlement size and numbers (ca. 1000–535 B.C.)

	Site Number	*Area in Hectares*
1	RH-001	3.50
2	RH-007S	2.07
3	RH-011	18.00
4	RH-058	7.73
5	RH-087	?
6	RH-116A	0.95
7	RH-116B	0.84
		Total = 33.09

Table C11. Achaemenid (Geser IX) settlement size and numbers (ca. 550-330 B.C.)

	Site Number	*Area in Hectares*
1	RH-001	3.50
2	RH-032	1.27
3	RH-058	3.00
4	RH-077C	0.30
5	RH-081	0.06
6	RH-084A	1.00
7	RH-084B	0.08
8	RH-085	1.00
9	RH-089	0.19
10	RH-091	1.00
11	RH-097B	0.57
12	RH-115	2.55
13	RH-116A	0.95
14	RH-116B	0.84
15	RH-116C	0.16
16	RH-117	0.80
		Total = 17.27

Table C12. Parthian (Geser X) settlement size and numbers

	Site Number	*Area in Hectares*
1	RH-001	2.00
2	RH-009	31.00
3	RH-011	10.00
4	RH-014	3.00
5	RH-022S	0.27
6	RH-022N	0.85
7	RH-026	10.00
8	RH-047N	2.70
9	RH-048	7.41
10	RH-053	3.96
11	RH-065C	0.03
12	RH-066C	1.43
13	RH-071	0.42
14	RH-084A	6.31
15	RH-085	5.23
16	RH-093A/015	0.80
17	RH-093B	1.50
18	RH-095	5.90
19	RH-096	0.29
20	RH-097A	1.42
21	RH-099	3.10
22	RH-104	0.31
23	RH-112	1.80
		Total = 99.73

Table C13. Sasanian (Geser XI) settlement size and numbers

	Site Number	*Area in Hectares*
1	RH-001	2.00
2	RH-005	0.20
3	RH-007S	2.07
4	RH-008	1.98
5	RH-009	31.00
6	RH-011	10.00
7	RH-014	3.00
8	RH-022S	0.27
9	RH-032	1.27
10	RH-039	0.62
11	RH-072	2.34
12	RH-084A	6.31
13	RH-085	5.23
14	RH-091	3.90
15	RH-93A/015	0.80
16	RH-093B	1.50
17	RH-094	1.00
18	RH-095	5.90
19	RH-099	3.10
20	RH-104	0.31
21	RH-106	0.22
22	RH-108	.015
		Total = 83.17*

* If we consider the ruins of the large Sasanian city under the modern town of Ram Hormuz, total Sasanian occupation area would be larger than that of the Parthian.

Table C14. Post-Sasanian (Geser XII) settlement size and numbers (7th–10th c. A.D.)

	Site Number	*Area in Hectares*
1	RH-001	2.00
2	RH-008	1.98
3	RH-014	3.00
4	RH-025	22.00
5	RH-047N	2.70
6	RH-047S	1.50
7	RH-064	0.21
8	RH-076	1.53
9	RH-083	5.10
10	RH-101	0.06
11	RH-105	0.20
12	RH-106	0.22
13	RH-108	0.15
14	RH-109	0.03
15	RH-111A	0.47
16	RH-111C	0.30
		Total = 41.45*

* If we consider the ruins of the large post-Sasanian city under the modern town of Ram Hormuz, the total area of occupation would be larger.

Table C15. Seljuk/Ilkhanid (Geser XIII–XIV) settlement size (10th–14th c. A.D.)

	Site Number	*Area in Hectares*
1	RH-001	8.00
2	RH-017N	0.30
3	RH-018	3.37
4	RH-022N	0.85
5	RH-024	0.88
6	RH-025	22.00
7	RH-026	34.00
8	RH-036	1.40
9	RH-037	0.08
10	RH-039	0.62
11	RH-047N	2.70
12	RH-047S	1.50
13	RH-053	3.96
14	RH-056	0.14
15	RH-059	0.10
16	RH-063	0.07
17	RH-065B	0.05
18	RH-067	6.71
19	RH-070	1.60
20	RH-075	0.18
21	RH-076	1.53
22	RH-077C	0.30
23	RH-083	5.10
24	RH-091	3.90
25	RH-098	15.00
26	RH-099	3.10
27	RH-103	0.05
28	RH-108	0.15
29	RH-113	0.20
		Total = 118.64

Table C16. Timurid (Geser XV) settlement size and numbers(15th c. A.D.)

	Site Number	*Area in Hectares*
1	RH-017N	0.30
2	RH-056	0.14
		Total = 0.44

Table C17. Safavid (Geser XVI) settlement size and numbers (16th–17th c. A.D.)

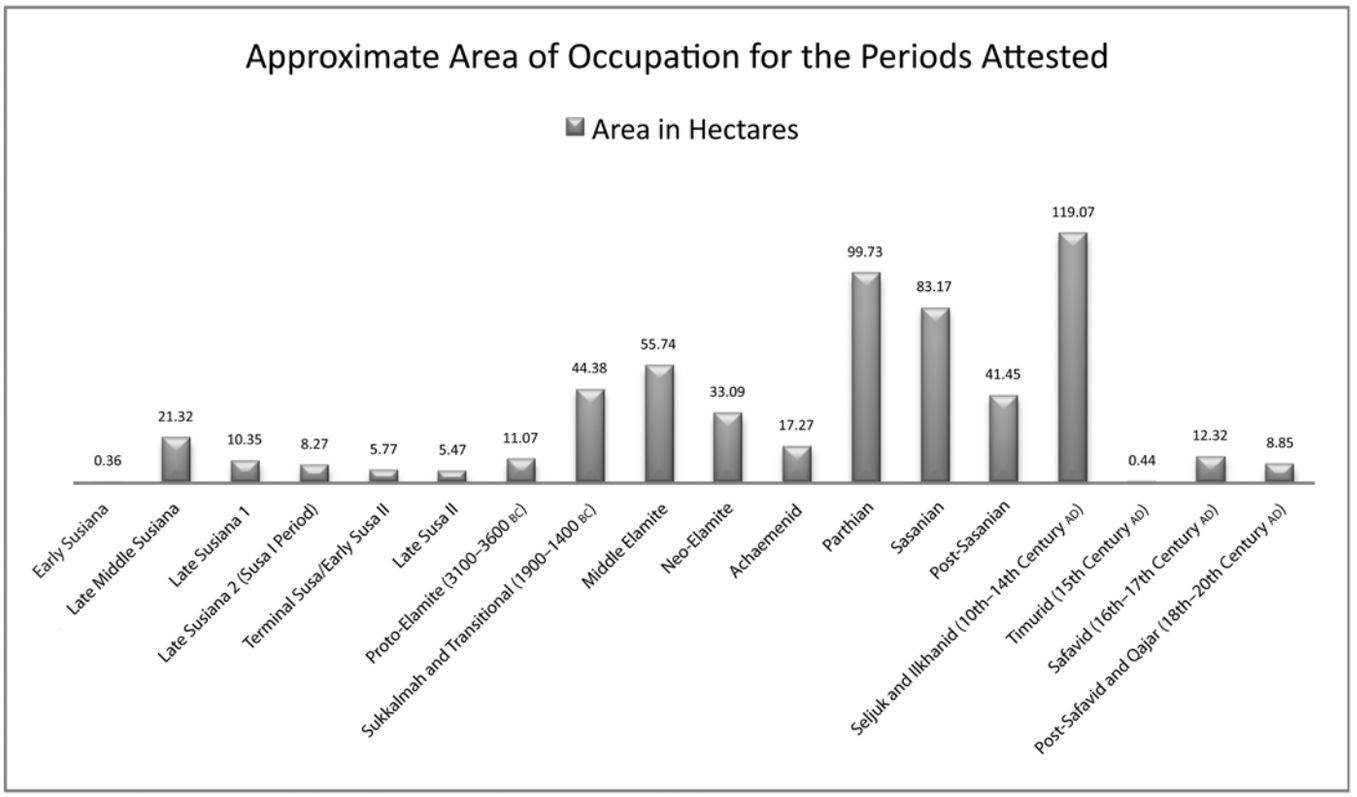
	Site Number	*Area in Hectares*
1	RH-001	8.00
2	RH-018	3.80
3	RH-034	?
4	RH-056	0.14
5	RH-108	0.15
6	RH-109	0.03
7	RH-113	0.20
		Total = 12.32

Table C18. Post-Safavid–Qajar (Geser XVII) settlement size and numbers (18th–20th c. A.D.)*

	Site Number	*Area in Hectares*
1	RH-001	?
2	RH-002	0.20
3	RH-015/93A	1.50
4	RH-017N	0.30
5	RH-017S	0.11
6	RH-022N	1.13/0.85
7	RH-022S	0.27
8	RH-031	1.15
9	RH-036	?
10	RH-039	0.62
11	RH-043	0.37
12	RH-056	0.14
13	RH-057	0.28
14	RH-059	0.10
15	RH-60	?
16	RH-61	?
17	RH-063	0.07
18	RH-065B	0.05
19	RH-065C	0.03
20	RH-076	1.53
21	RH-090	0.08
22	RH-094	1.00
23	RH-113	0.20
		Total = 8.85

* These are abandoned villages, water mills, and abandoned fortifications

Table C19. Approximate area of occupation for the periods attested in the Ram Hormuz plain



INDEX OF ACQUISITION NUMBERS

OIM No.	*Description*	*Reference*
A27913	Jar	Fig. 29:B
A27916	Bowl	Fig. 29:E; pl. 5:A
A27917	Jar	Fig. 30:L
A27918	Jar	Fig. 96:F
A27919	Figurine, monkey/ baboon	Fig. 90:C; pl. 7:D
A27920	Beaker	Fig. 28:I
A27921	Tablet	Fig. 87:E; pl. 6:F
A27922	Bowl	Fig. 41:C
A27927	Jar	Fig. 30:O
A27928	Dagger blade	Figs. 5, 91:M
A27929	Bowl	Figs. 5, 92:B
A27930	Pendant	Fig. 89:C
A27931	Weight	Fig. 97:H; pl. 8:A
A27936	Bowl	Fig. 34:I; pl. 5:D
A27938	Jar	Fig. 35:I
A27939	Jar	Fig. 33:F; pl. 5:E
A27940	Beaker	Fig. 33:B; pl. 5:C
A27941	Jar	Fig. 33:G
A27946	Comb	Fig. 99:H; pl. 8:D
A27953	Pendant	Fig. 98:C
A27955	Figurine, bull	Fig. 90:E
A27957	Ring	Fig. 91:J
A27958	Jar	Fig. 33:J
A27959	Lamp	Fig. 94:B; pl. 8:B
A27960	Jar	Fig. 33:A; pl. 5:F
A27961	Jar	Fig. 31:C
A27962	Bowl	Fig. 31:B
A27963	Jar	Fig. 31:I
A27964	Jar	Fig. 31:F
A27965	Jar	Fig. 31:J
A27966	Jar	Fig. 31:G
A27967	Figurine, female	Fig. 90:J; pl. 7:B
A27972	Seal, cylinder	Fig. 87:D; pl. 6:C
A27973	Arrowhead	Fig. 98:H; pl. 8:E
A27974	Arrowhead	Fig. 98:H; pl. 8:E
A27975	Arrowhead	Fig. 98:H; pl. 8:E
A27976	Mirror	Fig. 91:L
A28648	Bowl	Fig. 52:A
A28650	Bowl	Fig. 9:B; pl. 3:A

OIM No.	*Description*	*Reference*
A28655	Spindle whorl	Fig. 95:H
A28657	Bowl	Fig. 74:C
A28660	Seal, stamp	Fig. 87:A; pl. 6:E
A28661	Stand	Fig. 61:L
A28662	Bowl	Fig. 59:C
A28663	Bowl	Fig. 65:C
A28664	Bowl	Fig: 51:D
A28666	Cup	Fig. 21; pl. 3:B
A28669	Spindle whorl	Fig. 95:B
A28671	Jar	Pl. 3:D
A28672	Figurine, bull	Fig. 90:D
A28673	Seal, stamp	Fig. 87:B; pl. 6:D
A28674	Spindle whorl	Fig. 95:Q
A28675	Vase, aviamorphic	Fig. 90:A; pl. 7:A
A28676	Bowl	Fig. 41:H
A28677	Bowl	Fig. 95:I
A28678	Bowl	Fig. 42:G
A28679	Jar	Fig. 38:J
A28680	Bowl	Fig. 42:B
A28681	Bowl	Fig. 96:B
A28682	Chisel or Awl	Fig. 91:B
A28683	Cone	Fig. 89:K
A28684	Beads (8)	Fig. 89:N; pl. 8:C
A28685	Jar	Fig. 38:G
A28686	Jar	Fig. 38:I
A28688	Jar	Fig. 41:J
A28689	Spout	Fig. 40:B
A28692	Bowl	Pl. 3:F
A28693	Cup	Fig. 76:A
A28694	Bowl	Fig. 44:F
A28695	Seal, cylinder	Fig. 87:C; pl. 6:A
A28696	Arrowhead or pin	Fig. 91:F
A28699	Spindle whorl	Fig. 95:C
A28700	Bead	Fig. 89:I
A28701	Blade in scabbard	Fig. 91:K
A28702	Pendant	Fig. 89:B
A28703	Beveled-rim bowl	Fig. 79:D
A28704	Bottle	Fig. 76:G
A28706	Bowl	Fig. 75:C
A28708	Goblet base	Fig. 96:G

OIM No.	Description	Reference
A28709–14	Kernos ring	Fig. 93; pl. 4:D
A28716	Chisel	Fig. 91:C
A28717	Pendant	Fig. 89:A
A28718	Bowl	Fig. 37:D
A28721	Ball	Fig. 88:C; pl. 6:B
A28723	Ball	Fig. 88:D
A28725	Ball	Fig. 88:E
A28726	Jar	Fig. 46:E
A28727	Bowl	Fig. 45:F
A28728	Sherd	Fig. 45:H; pl. 3:D
A28729	Goblet	Fig. 77:L
A28730	Stemmed bowl/chalice	Fig. 78:I
A28731	Bowl	Fig. 78:B; pl. 3:C
A28732	Jar	Fig. 46:D
A28734	Platter	Fig. 44:I; pl. 4:B
A28735A–X	Jar	Fig. 47:F
A28736	Jar	Fig. 46:A
A28737	Jar	Fig. 47:C
A28738	Spindle whorl	Fig. 95:L
A28739	Sickle blade	Fig. 98:I; pl. 8:F
A28740	Arrowhead	Fig. 91:G
A28741	Weight	Fig. 97:F
A28743	Lamp	Figs. 23, 94:A
A28745	Bowl	Fig. 83:F
A28747	Scarab	Fig. 87:F
A28749	Bowl	Fig. 47:B
A28751	Lamp	Fig. 94:C; pl. 2:A
A28752	Bead	Fig. 89:M
A28753	Bead	Fig. 89:L
A28756	Token	Fig. 88:H
A28757	Token (unclassifiable)	Fig. 88:F
A28758	Token (unclassifiable)	Fig. 88:G
A28760	Unidentified	Fig. 97:B
A154501	Sherd	Fig. 53:C
A154505	Bowl	Fig. 49:F
A154509	Sherd	Fig. 53:D
A154513	Sherd	Fig. 54:J
A154514	Sherd	Fig. 48:I
A154516	Sherd	Fig. 48:F
A154517	Sherd	Fig. 58:C
A154525	Sherd	Fig. 50:E
A154526, A154637	Sherd	Fig. 54:K
A154527	Sherd	Fig. 48:E
A154529	Sherd	Fig. 49:I
A154531	Sherd	Fig. 49:A

OIM No.	Description	Reference
A154535	Sherd	Fig. 54:M
A154538	Sherd	Fig. 54:N
A154541	Sherd	Fig. 52:G
A154542	Sherd	Fig. 52:E
A154544	Sherd	Fig. 53:E
A154550	Sherd	Fig. 49:M
A154552	Sherd	Fig. 50:H
4A154553	Sherd	Fig. 52:H
A154554	Sherd	Fig. 51:C
A154555	Sherd	Fig. 51:A
A154556	Sherd	Fig. 52:D
A154559, A154544	Sherd	Fig. 53:E
A154560	Sherd	Fig. 54:O
A154563	Sherd	Fig. 54:I
A154566	Sherd	Fig. 52:I
A154567	Sherd	Fig. 49:K
A154570a–b	Sherd	Fig. 48:A
A154571	Sherd	Fig. 48:C
A154573	Sherd	Fig. 39:E
A154580	Sherd	Fig. 49:H
A154583	Sherd	Fig. 48:D
A154584	Sherd	Fig. 50:B
A154585	Sherd	Fig. 59:A
A154592	Sherd	Fig. 49:J
A154596	Sherd	Fig. 49:D
A154597	Sherd	Fig. 65:A
A154604	Sherd	Fig. 58:A
A154605	Sherd	Fig. 50:D
A154610	Sherd	Fig. 50:C
A154611	Sherd	Fig. 51:B
A154612	Sherd	Fig. 49:G
A154615	Sherd	Fig. 50:J
A154621	Sherd	Fig. 52:C
A154622	Sherd	Fig. 50:A
A154623	Sherd	Fig. 50:F
A154626	Sherd	Fig. 53:F
A154628	Sherd	Fig. 49:L
A154637, A154526	Sherd	Fig. 54:K
A154641	Sherd	Fig. 53:A
A154643	Sherd	Fig. 52:F
A154649	Sherd	Fig. 48:L
A154650	Sherd	Fig. 48:J
A154651	Sherd	Fig. 48:K
A154652	Sherd	Fig. 49:E
A154654	Sherd	Fig. 54:A

OIM No.	Description	Reference
A154655	Sherd	Fig. 54:D
A154656	Sherd	Fig. 67:J
A154658	Sherd	Fig. 62:O
A154659	Sherd	Fig. 61:T
A154660	Sherd	Fig. 62:E
A154661	Sherd	Fig. 60:I
A154662	Sherd	Fig. 66:M
A154663	Sherd	Fig. 67:E
A154664	Sherd	Fig. 66:O
A154665	Sherd	Fig. 66:P
A154666	Sherd	Fig. 66:X
A154667	Sherd	Fig. 66:D
A154668	Sherd	Fig. 66:N
A154669	Sherd	Fig. 67:H
A154670	Sherd	Fig. 58:G
A154671	Sherd	Fig. 58:E
A154672	Sherd	Fig. 58:J
A154673	Sherd	Fig. 59:G
A154674	Sherd	Fig. 67:G
A154675	Sherd	Fig. 65:J
A154676	Sherd	Fig. 65:D
A154677	Sherd	Fig. 65:B
A154678	Sherd	Fig. 66:S
A154679	Sherd	Fig. 66:H
A154680	Sherd	Fig. 39:B
A154681	Sherd	Fig. 60:O
A154682	Sherd	Fig. 69:P
A154683	Sherd	Fig. 69:L
A154684	Sherd	Fig. 69:K
A154685	Sherd	Fig. 80:G
A154686	Sherd	Fig. 80:F
A154687	Sherd	Fig. 80:I
A154688	Sherd	Fig. 80:H
A154689	Sherd	Fig. 61:R
A154690	Sherd	Fig. 61:V
A154691	Sherd	Fig. 61:F
A154692	Sherd	Fig. 39:A
A154693	Sherd	Fig. 61:I
A154694	Sherd	Fig. 61:J
A154695	Sherd	Fig. 61:S
A154696	Sherd	Fig. 61:P
A154697	Sherd	Fig. 64:M
A154698	Sherd	Fig. 64:I
A154699	Sherd	Fig. 64:B
A154700	Sherd	Fig. 64:L
A154701	Sherd	Fig. 64:A
A154703	Sherd	Fig. 64:C
A154704	Sherd	Fig. 63:H
A154705	Sherd	Fig. 71:D
A154706	Sherd	Fig. 70:D
A154707	Sherd	Fig. 71:B
A154708	Sherd	Fig. 71:J
A154709A–C	Sherd	Fig. 71:I
A154710	Sherd	Fig. 70:J
A154711	Sherd	Fig. 70:I
A154712	Sherd	Fig. 70:K
A154713	Sherd	Fig. 72:A
A154714	Sherd	Fig. 72:F
A154715	Sherd	Fig. 73:A
A154716	Sherd	Fig. 73:B
A154717	Sherd	Fig. 73:E
A154718	Sherd	Fig. 73:F
A154719	Sherd	Fig. 73:H
A154720A–B	Sherd	Fig. 73:C
A154721	Sherd	Fig. 73:D
A154722	Sherd	Fig. 73:I
A154723	Sherd	Fig. 73:G
A154725	Sherd	Fig. 69:H
A154726	Sherd	Fig. 66:L
A154727	Sherd	Fig. 68:B
A154728	Sherd	Fig. 62:J
A154729	Sherd	Fig. 62:C
A154730	Sherd	Fig. 62:D
A154731	Sherd	Fig. 62:H
A154732	Sherd	Fig. 62:G
A154733	Sherd	Fig. 62:I
A154734	Sherd	Fig. 62:M
A154735	Sherd	Fig. 62:L
A154736	Sherd	Fig. 62:N
A154737	Sherd	Fig. 62:K
A154738	Sherd	Fig. 62:F
A154739	Sherd	Fig. 57:O
A154740	Sherd	Fig. 60:L
A154741	Sherd	Fig. 60:H
A154742	Sherd	FIg. 59:I
A154743	Sherd	Fig. 59:E
A154744	Sherd	Fig. 60:J
A154745	Sherd	Fig. 60:B
A154746	Sherd	Fig. 60:G
A154748	Sherd	Fig. 77:A
A154749	Sherd	Fig. 77:C
A154751	Sherd	Fig. 77:J

OIM No.	Description	Reference
A154752	Sherd	Fig. 59:D
A154754	Sherd	Fig. 58:D
A154755	Sherd	Fig. 74:G
A154756	Sherd	Fig. 74:N
A154757	Sherd	Fig. 74:K
A154758	Sherd	Fig. 74:J
A154759	Sherd	Fig. 74:M
A154760	Sherd	Fig. 74:F
A154761	Sherd	Fig. 76:E
A154762	Sherd	Fig. 73:J
A154763	Sherd	Fig. 73:K
A154764	Sherd	FIg. 73:L
A154765	Sherd	Fig. 79:G
A154766	Sherd	Fig. 79:F
A154767	Sherd	Fig. 81:E
A154768A–B	Sherd	Fig. 66:Q
A154769	Sherd	Fig. 61:K
A154770	Sherd	Fig. 82:C
A154771	Sherd	Fig. 82:B
A154772	Sherd	Fig. 85:D
A154773	Sherd	Fig. 85:B
A154774	Sherd	Fig. 84:A
A154775	Sherd	Fig. 84:D
A154776	Sherd	Fig. 84:B
A154777	Sherd	Fig. 50:G
A154780	Sherd	Fig. 48:H
A154781	Sherd	Fig. 83:G
A154782	Sherd	Fig. 83:H
A154783	Sherd	Fig. 83:I
A154784	Sherd	Fig. 83:J
A154785	Sherd	Fig. 83:K
A154786	Sherd	Fig. 83:L
A154787	Sherd	Fig. 83:M
A154789	Sherd	Fig. 83:C
A154790	Sherd	Fig. 84:C
A154791	Sherd	Fig. 76:B
A154792	Sherd	Fig. 76:M
A154793	Sherd	Fig. 40:I
A154795	Sherd	Fig. 37:J
A154796	Sherd	Fig. 37:B
A154797	Sherd	Fig. 37:A
A154798	Sherd	Fig. 37:F
A154799	Sherd	Fig. 40:G
A154800	Sherd	Fig. 40:K
A154802	Sherd	Fig. 43:H
A154803	Sherd	Fig. 43:A
A154804	Sherd	Fig. 43:J
A154805	Sherd	Fig. 43:G
A154806	Sherd	Fig. 43:I
A154807	Sherd	Fig. 41:G
A154808	Sherd	Fig. 41:A
A154809	Sherd	Fig. 39:G
A154810	Sherd	Fig. 38:B
A154811	Sherd	Fig. 38:C
A154812	Sherd	Fig. 38:D
A154814	Sherd	Fig. 35:J
A154815	Sherd	Fig. 41:E
A154816	Sherd	Fig. 39:I
A154817	Sherd	Fig. 38:H
A154818	Sherd	Fig. 38:A
A154820	Sherd	Fig. 77:E
A154821	Sherd	Fig. 36:A
A154822	Sherd	Fig. 34:E
A154823	Sherd	Fig. 34:C
A154824	Sherd	Fig 34:F
A154826	Sherd	Fig. 34:J
A154827	Sherd	Fig. 36:F
A154828	Sherd	Fig. 34:H
A154840	Sherd	Fig. 29:L
A154841	Sherd	Fig. 29:H
A154842	Sherd	Fig. 30:J
A154843	Sherd	Fig. 29:C
A154844	Sherd	Fig. 26:B
A154845	Sherd	Fig. 27:U
A154846	Sherd	Fig. 27:N
A154847	Sherd	Fig. 27:S
A154848	Sherd	Fig. 29:M
A154854	Sherd	Fig. 27:L
A154855	Sherd	Fig. 96:J
A154859	Sherd	Fig. 32:F
A154860	Sherd	Fig. 32:J
A154861	Sherd	Fig. 43:K
A154862	Sherd	Fig. 43:L
A154863	Sherd	Fig. 43:M
A154864	Sherd	Fig. 43:N
A154867	Sherd	Figs. 8, 96:I
A154868	Sherd	Fig. 30:Q
A154869	Sherd	Fig. 32:I
A154870	Sherd	Fig. 27:E
A154871	Sherd	Fig. 28:G
A154872	Sherd	Fig. 27:R
A154874	Sherd	Pl. 1:A

OIM No.	Description	Reference
A154875	Sherd	Pl. 1:B
A154876	Sherd	Pl. 1:D
A154877	Sherd	Pl. 1:F
A154878	Sherd	Pl. 1:C

OIM No.	Description	Reference
A163059	Sherd	Fig. 37:K
A163104	Sherd	Fig. 33:i
A163148	Wall cone	Fig. 98:G
A163152	Wheel	Fig. 99:F

FIGURES FOR APPENDIX A

INAA ANALYSIS OF CERAMICS FROM TALL-E GESER AND ABU FANDUWEH

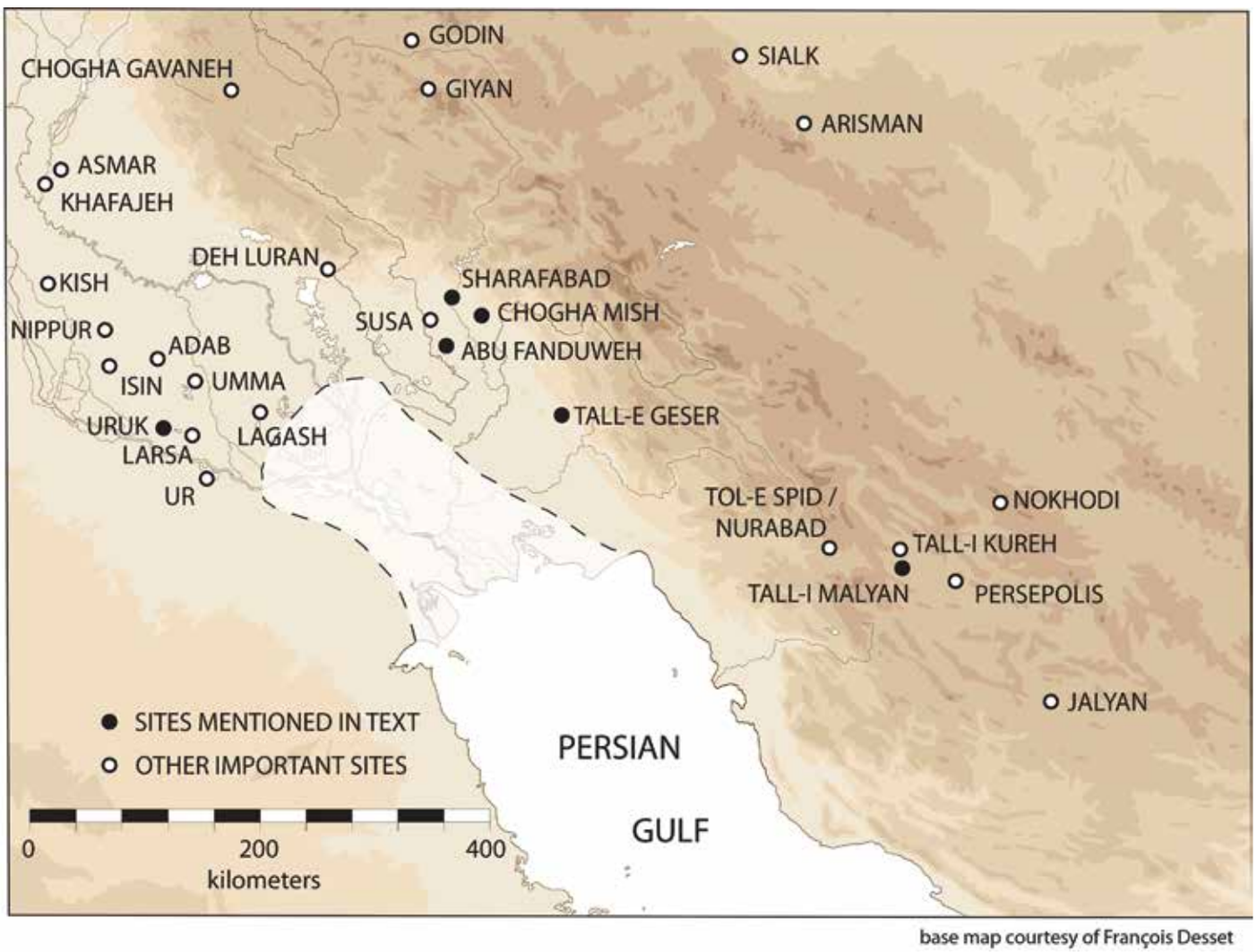


Figure A1. Map showing locations of tested sites

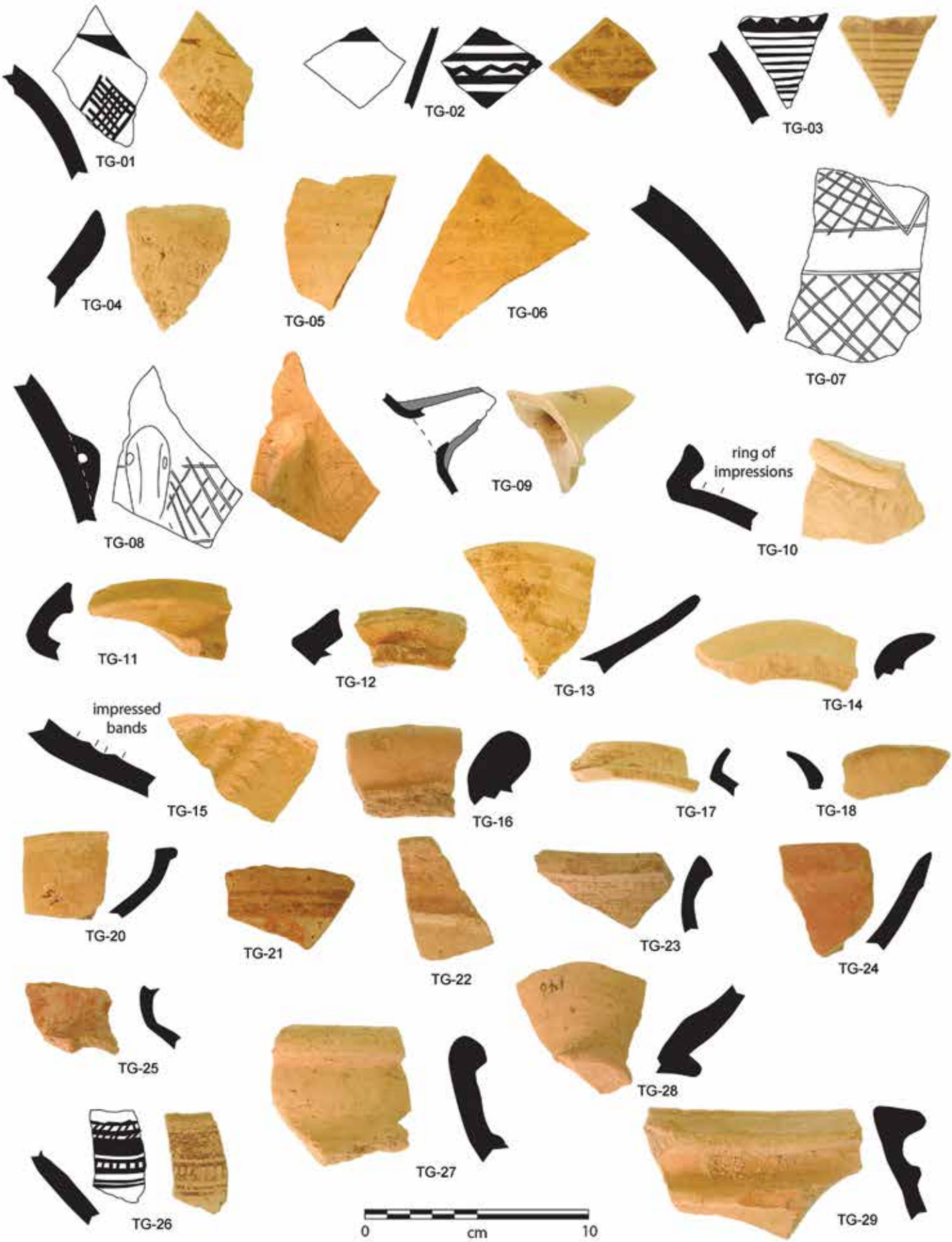


Figure A2. Ceramics from Tall-e Geser

Figure A3. Ceramics from Tall-e Geser (*cont.*). Images not to same scale

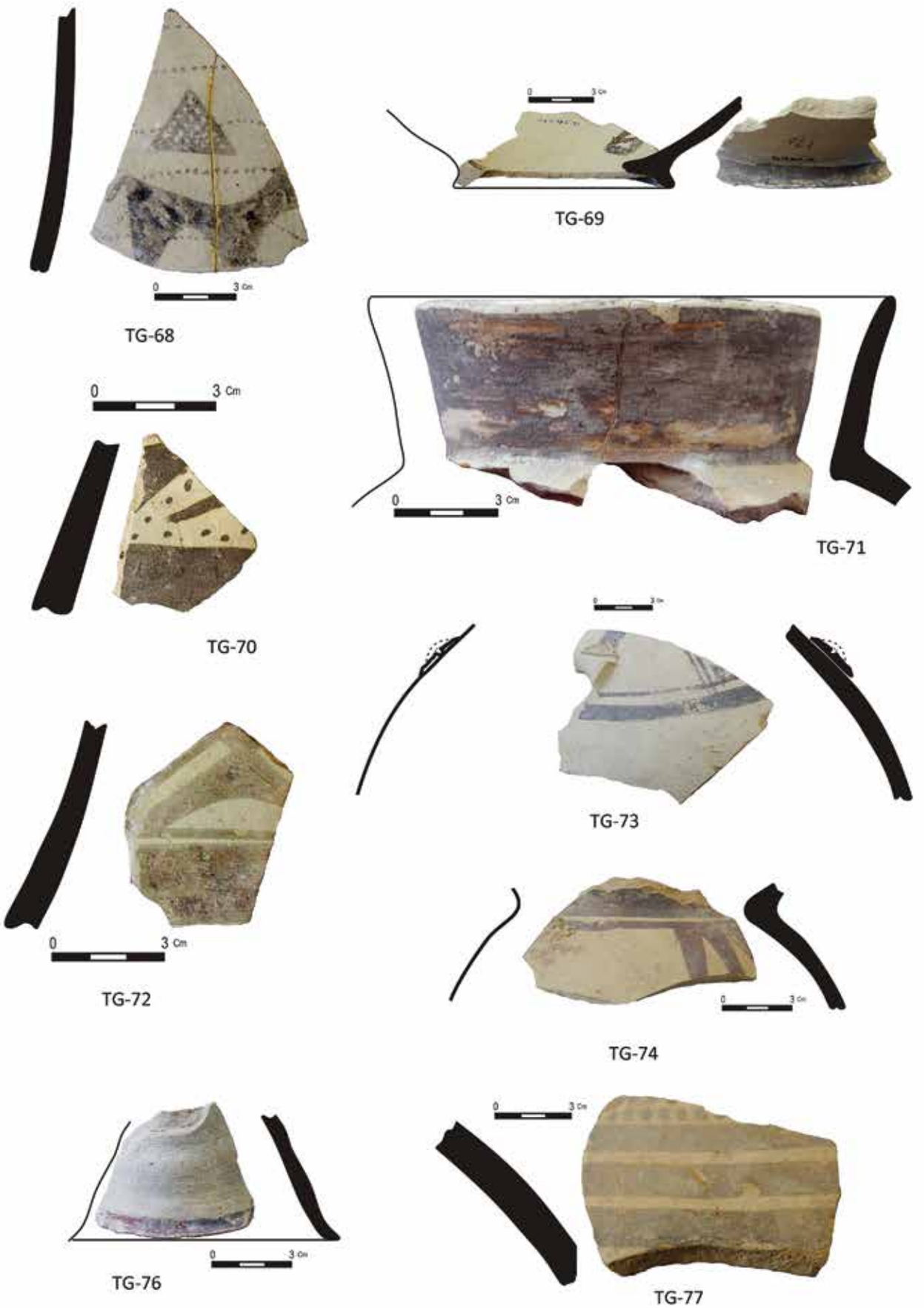


Figure A4. Ceramics from Tall-e Geser (*cont.*)

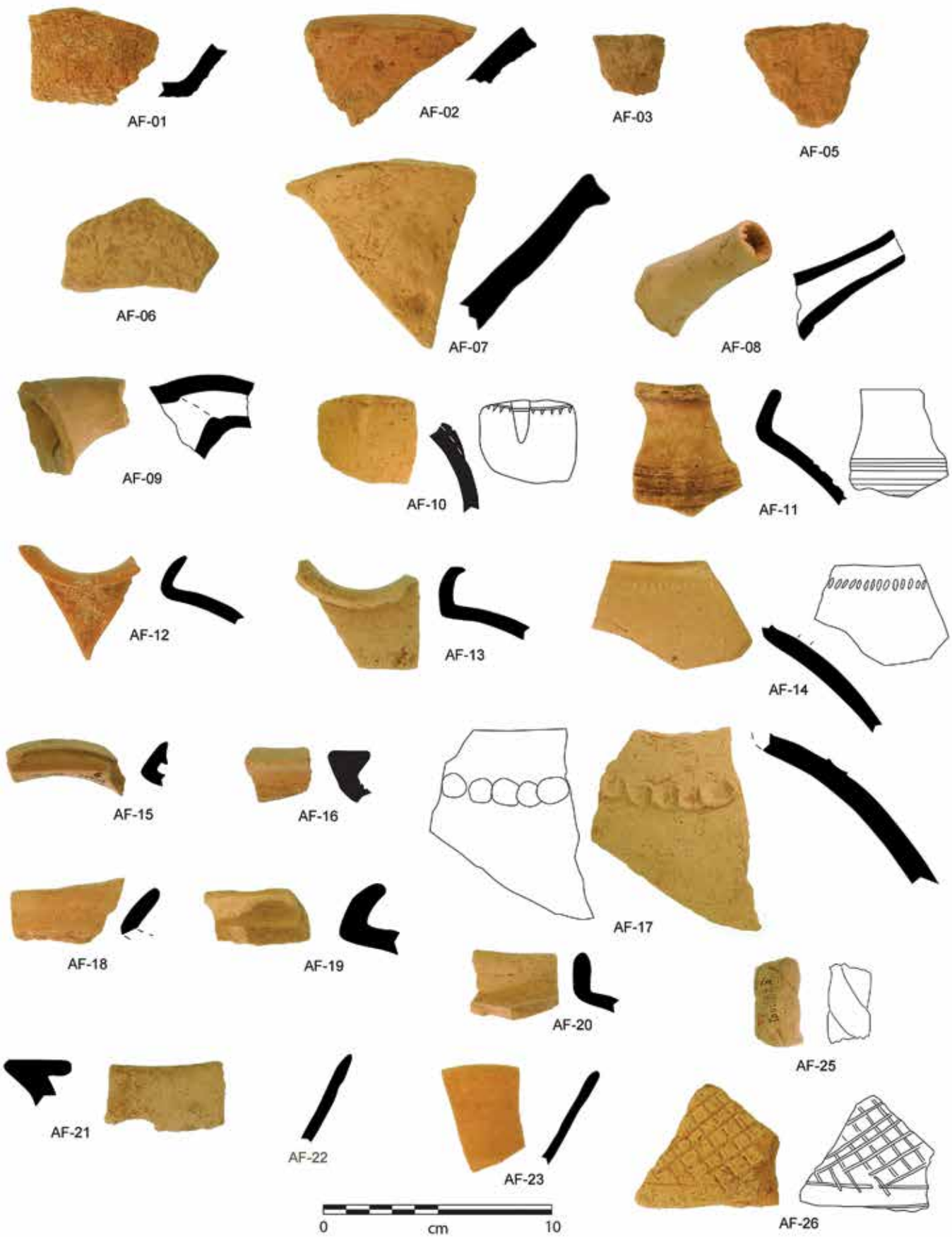


Figure A5. Ceramics from Abu Fanduweh

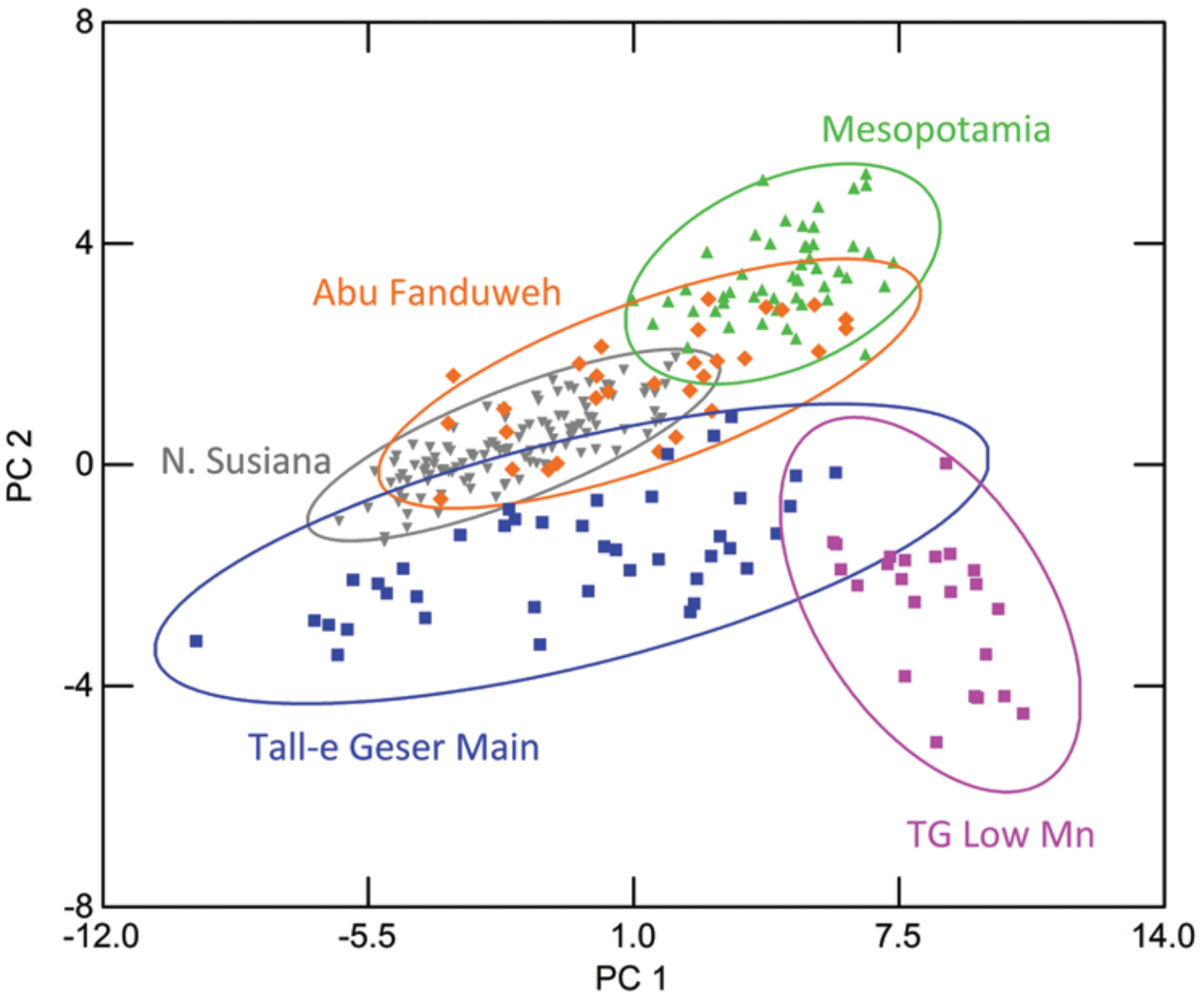


Figure A6. Principal Components analysis, combined sample

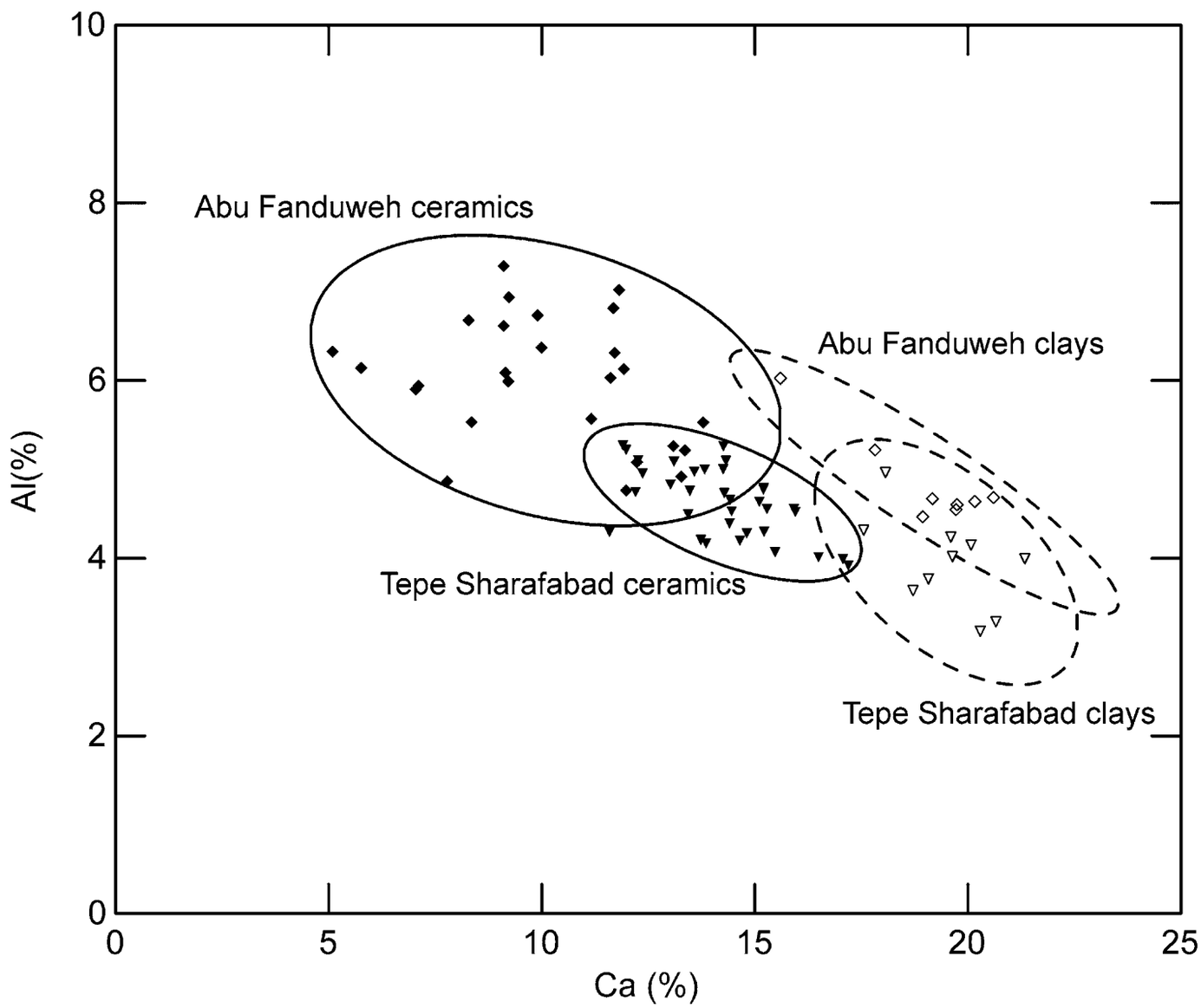


Figure A7. Aluminum:calcium concentrations, Sharafabad and Abu Fanduweh ceramics and clays

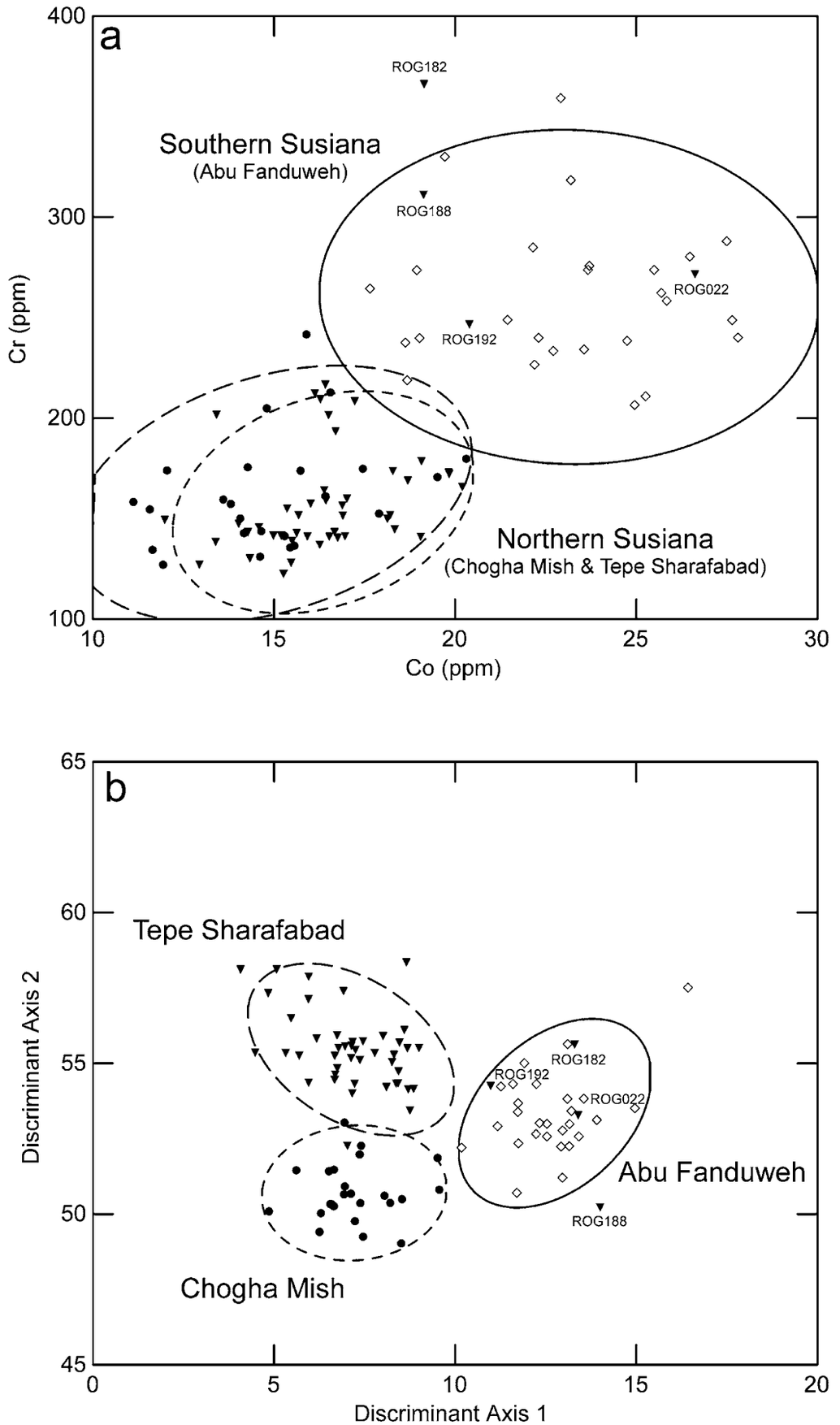


Figure A8. (*a*) Chromium:cobalt concentrations, Susiana sites and (*b*) discriminating axes for sites in the Susiana plain

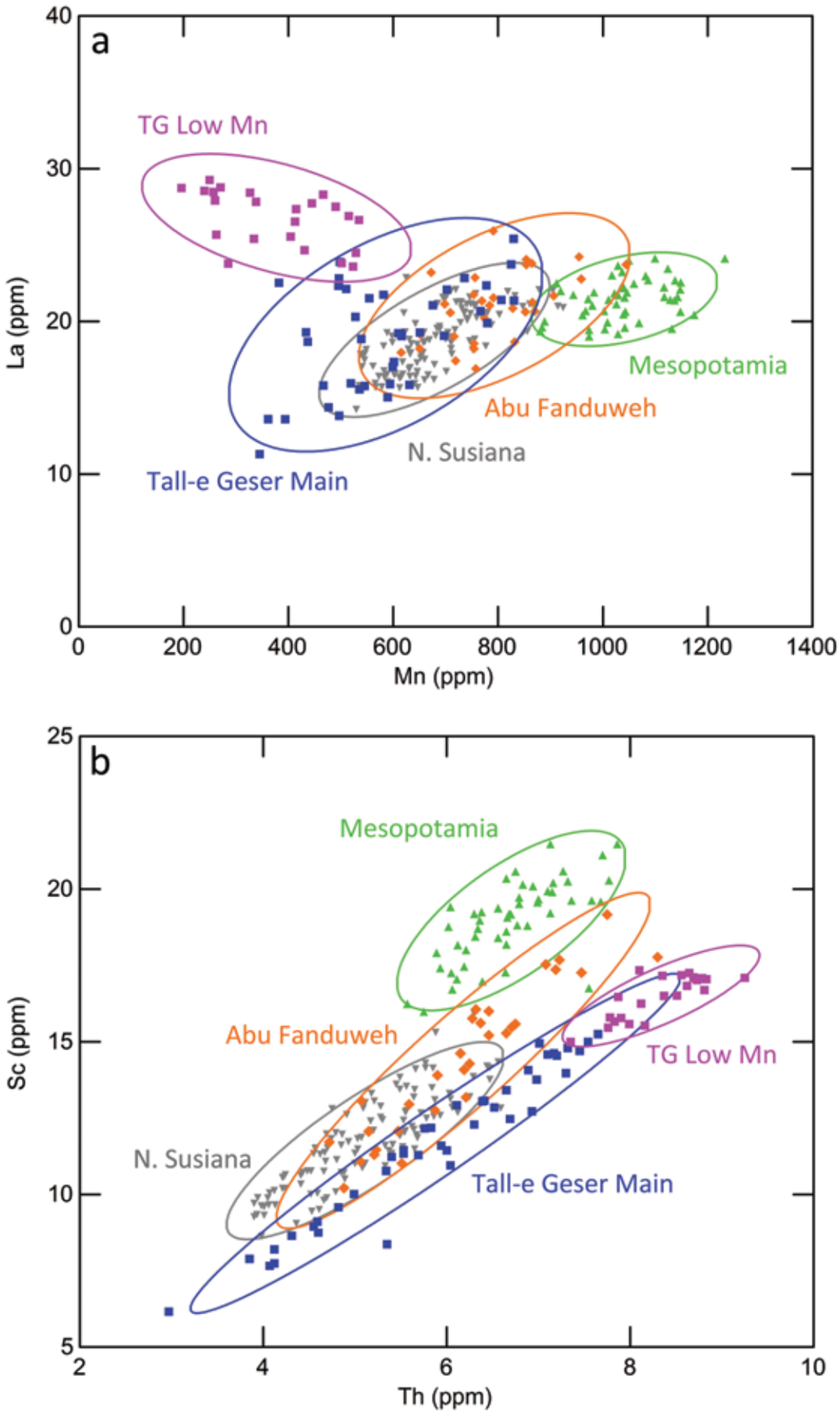


Figure A9. (*a*) Lanthanum:manganese concentrations, all reference groups and (*b*) scandium:thorium concentrations, all reference groups

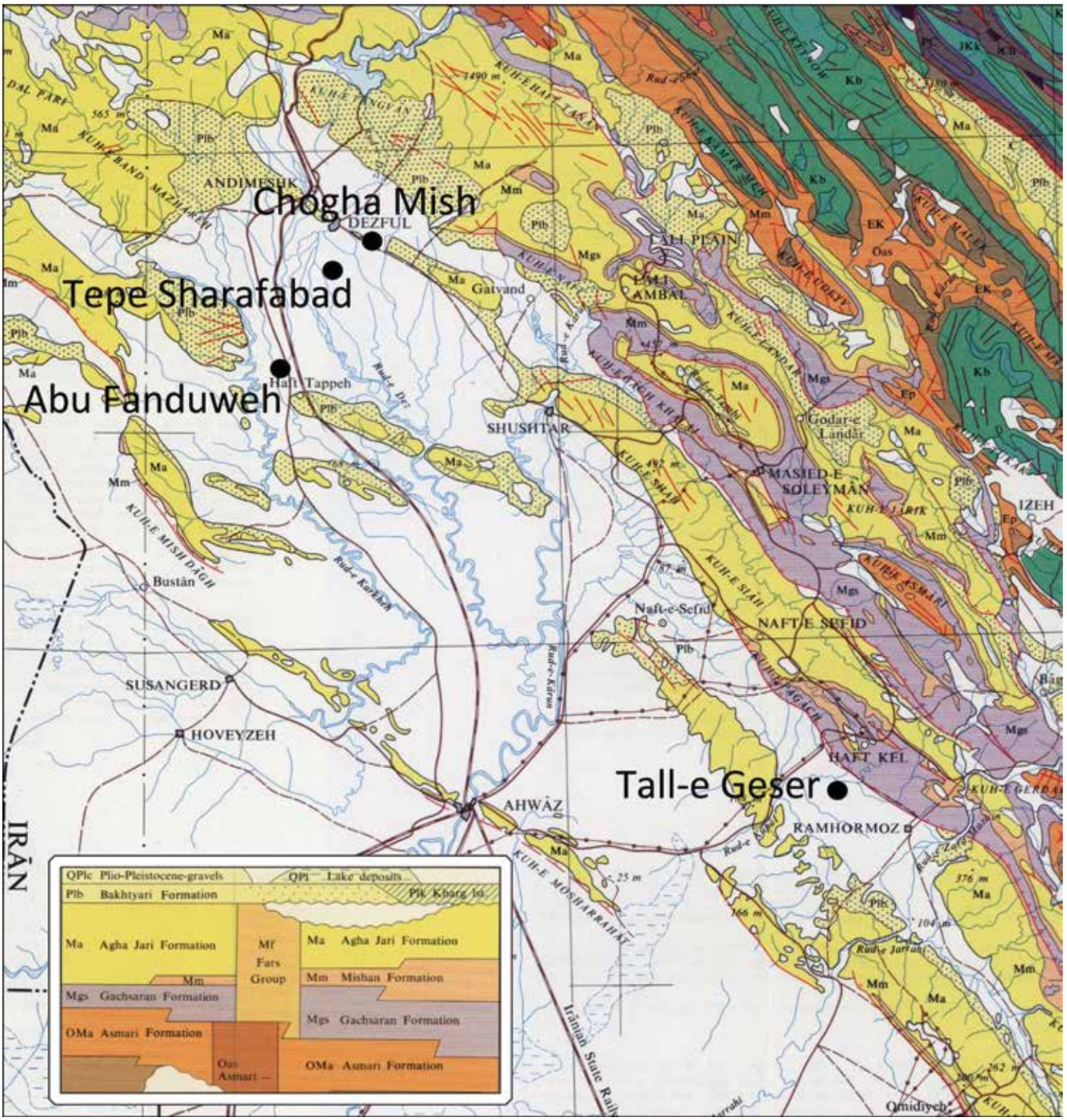


Figure A10. Geology map, Southwestern Iran (after National Iranian Oil Company 1969)

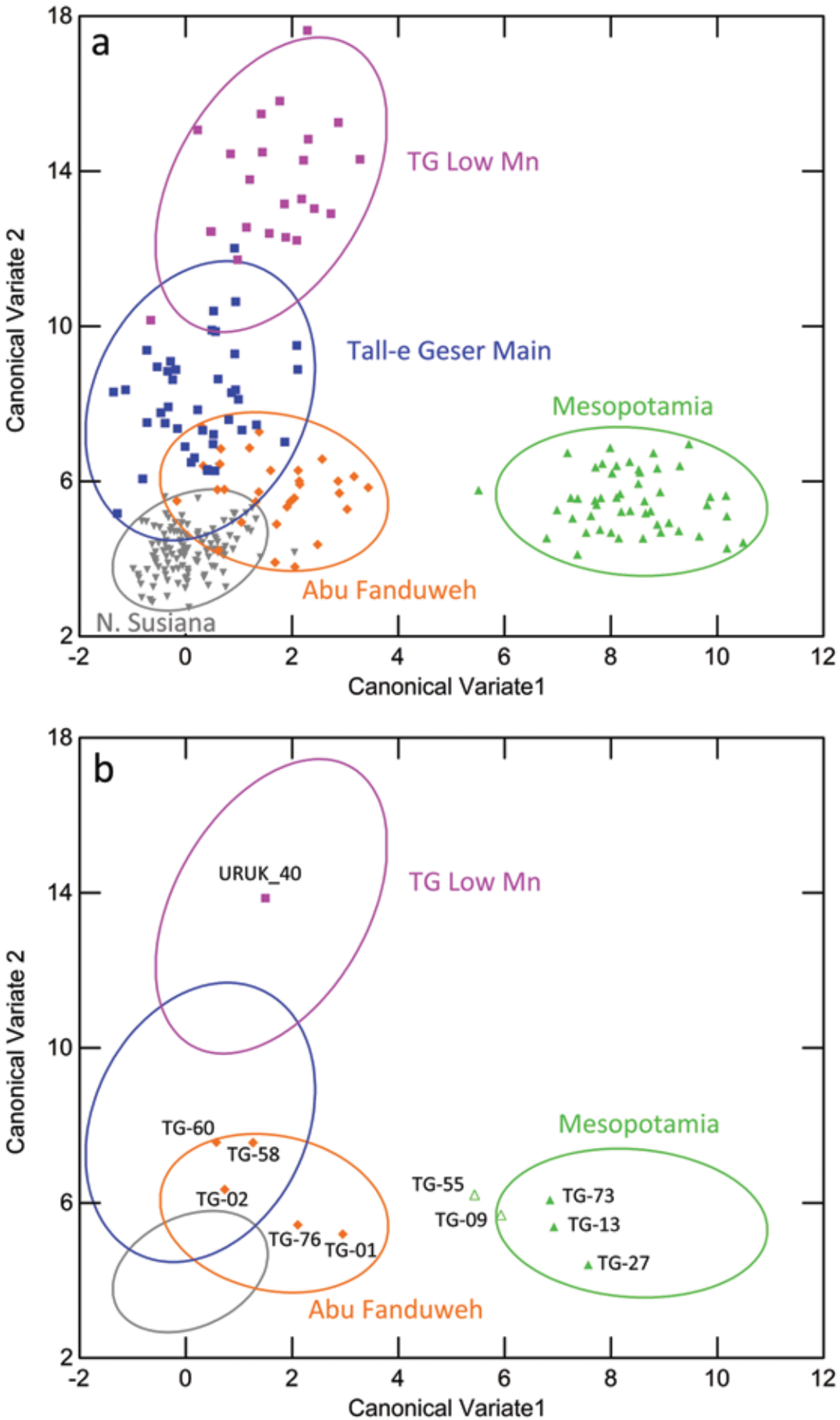


Figure A11. Discriminant analysis, all reference groups

Plate 1. Sherds from the proto-Elamite and Sukkalmah/Transitional periods

	Provenance	*Elevation*	*Field No.*	*Museum No.*	*Description*
Proto-Elamite					
A	Stake Trench, 9–10	—	—	A154874	Pale bricky red ware, fine chaff inclusion, thin gray core, grayish white wash exterior, and on rim, light brown painted band. Proto-Elamite
B	Stake Trench, 9–10, Level 3	19.30 m	—	A154875	Pale bricky red ware, light gray core, chaff inclusion, red ochre wash all over, dark painted bands on white wash on shoulder. Proto-Elamite
Sukkalmah/Transitional					
C	Stake Trench, 10 Room	21.00 m	—	A154878	Pale bricky red ware, black core, chaff inclusion, chaff face, red ochre pained bands. Sukkalmah *Comparanda:* Lama Cemetery, tomb 11 (Rezvani et al. 2007, color pl. 13)
D	Stake Trench, 10 Room	21.00 m	—	A154876	Bricky red ware, chaff inclusion, black core, granulated paste, red painted bands on rim. Sukkalmah
E	Stake Trench, 10 Room	21.00 m	—	A154879	Pale bricky red ware, dark gray core, chaff inclusion, chaff face, red ochre painted bands. Sukkalmah
F	Stake Trench, 10 Room	21.00 m	—	A154877	Pale bricky red ware, black core, chaff inclusion, creamy buff slip interior and exterior, maroon red paint. Sukkalmah *Comparanda:* Lama Cemetery, tomb 26 (Rezvani et al. 2007, color pl. 15)

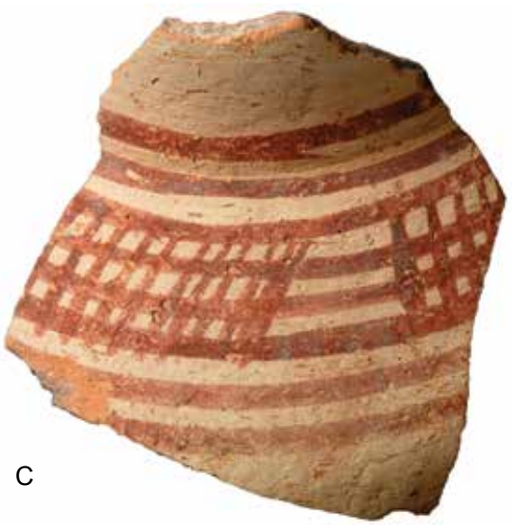
A

B

0 2 cm

Proto-Elamite

Sukkalmah



C

D

0 2 cm

E

F

Sherds from the proto-Elamite and Sukkalmah/Transitional periods

Plate 2. Glazed sherds from the Safavid period

	Provenance	*Elevation*	*Field No.*	*Museum No.*	*Description*
A	Stake Trench 8–9, below surface	18.96 m	2TG-16	A28751	Lamp. Yellowish buff ware, no visible inclusion, green blue glaze. Safavid (for findspot, see fig. 12, no. 4; for drawing, see fig. 94:C)
B	Stake Trench 8–9, Level 1	19.10 m	—	A154880	Yellowish buff ware, no visible inclusion, blue glaze
C	Stake Trench 8–9, Level 1	19.10 m	—	A154881	Yellowish buff ware, no visible inclusion, blue glaze
D	Stake Trench, 10 Room	—	—	A154882	Yellowish buff ware, no visible inclusion, blue glaze
E	Stake Trench 8–9, Level 1	19.10 m	—	A154883	Yellowish buff ware, no visible inclusion, blue glaze
F	Stake Trench 8–9, Level 1	19.10 m	—	A154884	Yellowish buff ware, no visible inclusion, blue glaze
G	Stake Trench 8–9, Level 1	19.10 m	—	A154885	Yellowish buff ware, no visible inclusion, turquoise blue glaze

A

B

D

C

0 5 cm

E

F

G

Glazed sherds from the Safavid period

Plate 3. Pottery vessels from various provenances and periods

	Provenance	*Field No.*	*Museum No.*	*Description*
Late Middle Susiana				
A	Step Trench, Level 2, elevation 6.20 m	2TG-158	A28650	Painted bowl. Creamy buff ware, no visible inclusion, brown paint. Late Middle Susiana (for findspot, see fig. 17, no. 5; for drawing, see fig. 49:B)
Late Susa II				
B	Step Trench, Level 35, elevation 16.40 m	2TG-142	A28666	Buff ware, no visible inclusion, handmade, scraped below carination. Late Susa II (for findspot, see fig. 21, no. 4)
C	Step Trench, Level 7, elevation 16.98 m	2TG-184	A28731	Bricky red ware, dense, no visible inclusion, some accidental fine chaff, creamy white wash under dark brown wash and two parallel white painted bands below the lugs. Both cream white and brown wash extends on the inner rim, exterior surface mottled. Proto-Elamite. For drawing, see fig. 78:B
Proto-Elamite				
D	Stake Trench 10 Room, elevation 20.10 m	2TG-180	A28728	Pinkish buff ware, dark core, chaff inclusion, wide white wash band and thin yellow lines separates red maroon wash on exterior. Proto-Elamite (for drawing, see pl. 45:H) *Comparanda:* for general form, see Susa Acropole, level 16 (Le Brun 1971, fig. 64:2)
E	Step Trench , Level 36, elevation 17.20 m	2TG-156	A28671	Four-lugged pot. Warm buff ware, no visible inclusion, regular striations on the interior, brown wash on exterior and inner rim. Proto-Elamite
F	Stake Trench, Rooms, elevation 19.45 m	2TG-71	A28692	Pale bricky red ware, gray core, chaff inclusion, granulate paste, red wash exterior and inner rim. Proto-Elamite (for findspot, see fig. 14, no. 3)

A

0 5 cm

Late Middle Susiana

B

0 5 cm

Late Susa II

Proto-Elamite

C

D

0 10 cm

E

0 5 cm

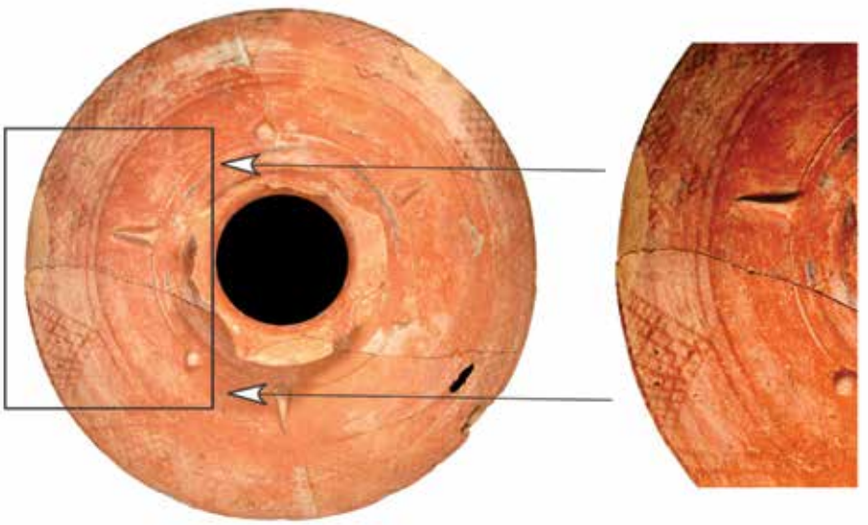
F

Pottery vessels from various provenances and periods

Plate 4. Pottery vessels from the proto-Elamite period

	Provenance	*Field No.*	*Museum No.*	*Description*
A	Stake Trench Room 10	2TG-177	A28726	Pinkish buff ware, some chaff inclusion, buff surface, pale maroon wash exterior and inner neck, red painted pattern on shoulder, three pierced lug handles and three knobs. Proto-Elamite (for findspot, see fig. 14, no. 4; for drawing, see fig. 46:E)
B	Stake Trench 9–10, Level 5	2TG-191	A28734	Pinkish buff ware, gray core sandwiched between pinkish buff layers, straw inclusion. Proto-Elamite (for findspot, see fig. 14, no. 8, and fig. 15, no. 1; for drawing, see fig. 44:I) *Comparanda:* Susa Acropole, level 16 (Le Brun 1971, fig. 60:15)
C	Mound B, Level 3, elevation 7.40 m	2TG-196	Tehran	Grayish brown ware, dense, some chaff inclusion, wheel striations on interior and exterior, flaky red wash. Proto-Elamite (two non-joining pieces)
D	Step Trench, Level 37, elevation 17.86 m	2TG-154 a–e	A28709–14	Ceremonial object (kernos) with ten miniature cups on a circular solid strap. Cups are made separately and attached to the ring by clay. Pinkish buff ware, some chaff inclusion, reddish brown flaky wash all over. Proto-Elamite (for findspot, see fig. 21, no. 31; for drawing, see fig. 93)

Proto-Elamite



A

B

C

D

no scale

Pottery vessels from the proto-Elamite period

Plate 5. Pottery vessels from the Sukkalmah and Neo-Elamite periods

	Provenance	Field No.	Museum No.	Description
Sukkalmah				
A	Trench 2, Level 3, elevation 20.65 m	G-10	A27916	Dark buff ware, chaff inclusion, light buff surface, scraped below carination, dark brown paint, similar to Kaftari painted bell-shaped bowls at Malyan. Sukkalmah (for findspot, see fig. 6, no. 1; for drawing, see fig. 29:E) *Comparanda:* Nickerson 1985, fig. 52:j
B	Trench 1, Level 41, elevation 18.60 m	—	A154886	Pale brown buff ware, black core, chaff inclusion, grayish buff interior, red ochre wash on exterior and inner rim, brown paint. Sukkalmah *Comparanda:* Susa Ville Royale A XIV–XV (Gasche 1973, pl. 15)
Neo-Elamite				
C	Fort Mound, Level 1, elevation 4.10 m	G-64	A27940	For findspot, see fig. 9, no. 9; for drawing, see fig. 33:B
D	Fort Mound, Level 1B, elevation 0.70 m	G-57	A27936	Yellowish brown ware, straw inclusion. Neo-Elamite (for drawing, see fig. 34:I) *Comparanda:* Susa Ville Royale II, level 7 (tomb) (Miroschedji 1981a, fig. 41:3–4)
E	Fort Mound, Level 1, elevation 4.95 m	G-62	A27939	For findspot, see fig. 9, no. 7; for drawing, see fig. 33:F
F	Fort Mound, Level 1, elevation 3.90 m	G-102	A27960	For drawing and description, see fig. 33:A. Achaemenid

Sukkalmah

Neo-Elamite

Pottery vessels from the Sukkalmah and Neo-Elamite periods

Plate 6. Items of administrative technology

	Provenance	*Field No.*	*Museum No.*	*Description*
A	Stake Trench 9–10, Level 2, elevation 20.11 m	2TG-97a	A28695	Cylinder seal. Grayish white alabaster; three connecting "eyes." Late Susa II/proto-Elamite (for findspot, see fig. 14, no. 7; for drawing, see fig. 87:C) *Comparanda:* Susa (Amiet 1972, pls. 92–93)
B	Stake Trench, 10 Room, elevation 19.50 m	2TG-176a	A28721	Ball (token?). Polished pinkish white stone. Proto-Elamite (for drawing, see fig. 87:E)
C	Mound B, Level 2, elevation 7.35 m	G-120	A27972	Cylinder seal. Glazed steatite, pale creamy white, unfinished hole. Middle Elamite (for findspot, see fig. 7, no. 5; for drawing, see fig. 87:D) *Comparanda:* Susa Ville Royale A XII (Amiet 1972, p. 271, pl. 183), Susa (Amiet 1972, pls. 92–93) Susa (Amiet 1972, pp. 265–67, pl. 183; Porada 1970, pl. 12)
D	Step Trench, Level 31, elevation 15.80 m	2TG-164	A28673	Stamp seal. Grayish white stone. Late Susiana 1/Late Susiana 2 (for drawing, see fig. 87:D)
E	Step Trench, Level 7, elevation 7.00 m	2TG-54	A28660	Stamp seal. Baked clay, dark buff, no visible inclusion. Late Susiana 1/ Late Susiana 2 (for drawing, see fig. 87:A)
F	Trench 1, Level 2, elevation 20.30	G-20	A27921	Fragmentary numerical tablet, possibly record of a grain transaction (Robert Englund, pers. comm.). Buff clay, no visible inclusion except for a small (4 mm) gray pebble. Early proto-Elamite (for findspot, see fig. 3, no. 2; for drawing, see fig. 87:E)

A

B

C

D

E

F

Items of administrative technology

Plate 7. Human and animal figurines from various periods

	Provenance	*Field No.*	*Museum No.*	*Description*
A	Stake Trench 8–9, surface	2TG-8	A28675	Alabaster aviamorphic vase with broken base. Proto-Elamite (for color photo, see also fig. 90:A) *Comparanda:* Susa (Amiet 1966, pls. 68–71, 7780–83)
B	Mound B, Level 2, elevation 7.20 m	G-113	A27967	Female figurine. Pale bricky red ware, gray core, some scattered chaff, creamy buff slip/wash. Sukkalmah/Middle Elamite (for drawing, see fig. 90:J)
C	Stake Trench 7.5–8	—	—	Female figurine. Pale brown buff ware, dense, occasional chaff, creamy buff surface (for drawing, see fig. 90:K)
D	Trench 1, Level 1, elevation 20.30 m	G-15	A27919	Alabaster figurine of a monkey/baboon-headed human, paralleled incised zigzag decorative lines, the entire body covered with red paint. Proto-Elamite (for findspot, see fig. 3, no. 2) *Comparanda:* Susa (Amiet 1966, pls. 72–74)

A

B

C

D

Human and animal figurines from various periods

Plate 8. Miscellaneous objects from various levels

	Provenance	*Field No.*	*Museum No.*	*Description*
A	Trench 1, Level 2, elevation 20.15 m	G-43	A27931	Limestone weight (906 gr). Late Susa II/proto-Elamite (for B&W photo, see fig. 97:H) *Comparanda:* Susa Acropole, level 17A (Le Brun 1971, fig. 55:2); Sialk, level IV (Ghirshman 1938, pl. 28:1, 95:S.49)
B	Fort Mound, Level 1, elevation 4.90 m	G-101	A27959	Lamp. Pale gray ware covered with bitumen, finger impressions on base. Islamic (for findspot, see fig. 9, no. 11; for drawing, see fig. 94:B)
C	Stake Trench 8–9, Level 4A, elevation 19.48 m	2TG-44a–h	A28684	Eight cylindrical beads (necklace?). Baked clay, buff to pale pinkish buff ware, no visible inclusion (for B&W photo, see fig. 89:N)
D	Fort Mound, Level 1, elevation 4.30 m	G-78	A27946	Wooden comb, well preserved. Possibly contemporary (for findspot, see fig. 9, no. 14; for B&W photo, see fig. 99:H)
E	Mound B, Level 2, elevation 7.35 m	G-121, G-123, G-126	A27973, A27974, A27975	Three flint arrowheads. Middle Elamite. Found in association with Elamite tomb B1 (for findspot, see fig. 7, no. 7; for B&W photo, see fig. 98:H)
F	Step Trench, Level 6, elevation 7.35 m	2TG-103	A28739	Sickle. Two serrated flint blades set in bitumen. Late Susiana 1–2. For B&W photo, see fig. 98:L (for bitumen analysis, see *Appendix B*)

A

B

C

D

0 5 cm

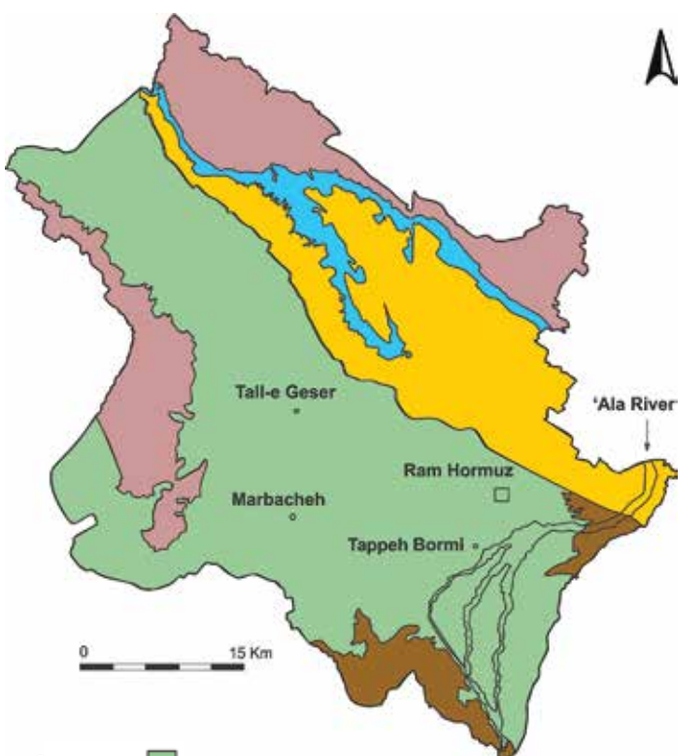
E

F

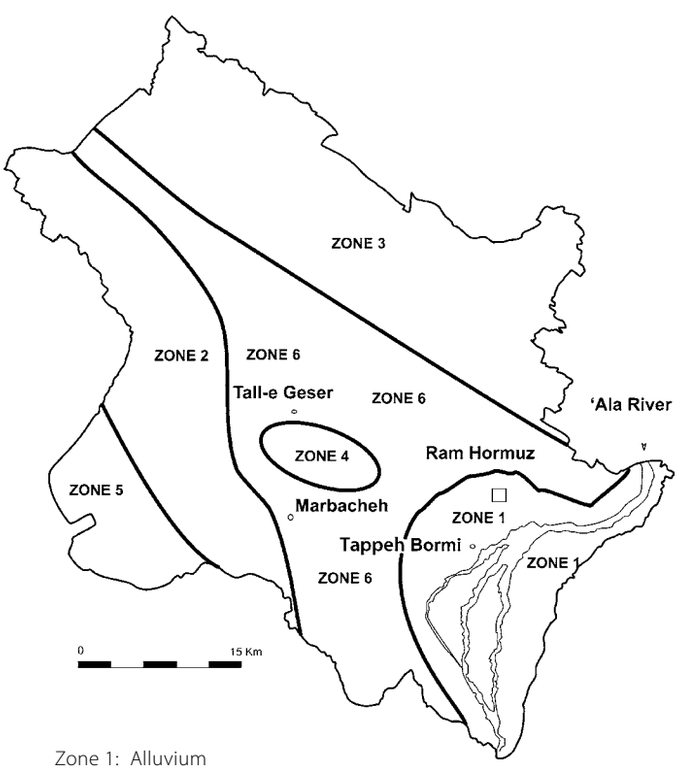
Miscellaneous objects from various levels

Map of Iran showing major ancient sites

A. Map of southwestern Iran showing major communication routes



Quaternary — Alluvium and Recent Deposit
Upper Pliocene — Bakhtiyari Formation
Pliocene — Agha Jari Formation
Miocene — Mishan Formation
Miocene — Gachsaran Formation

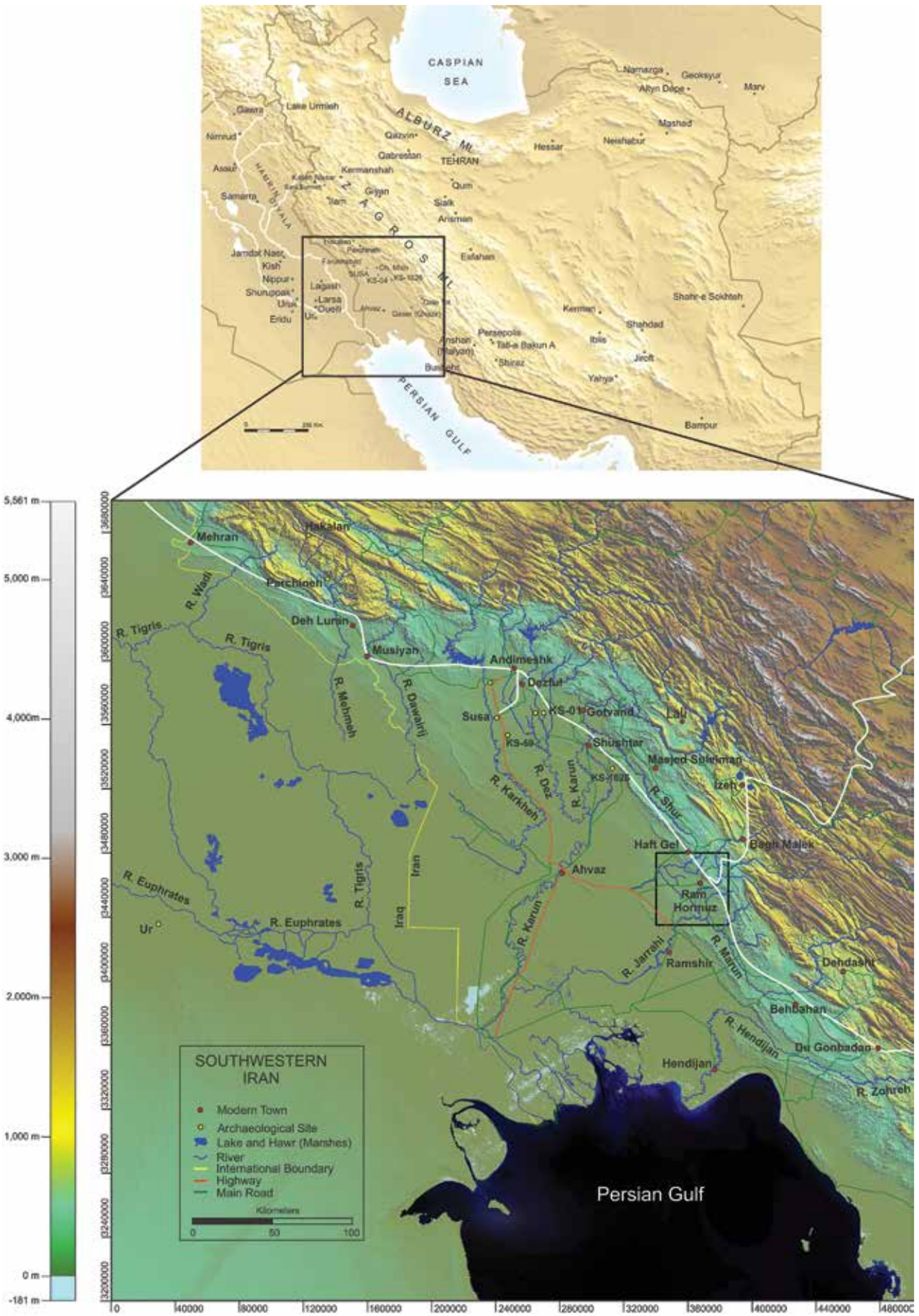


Zone 1: Alluvium
Zone 2: Sandy Hills
Zone 3: Rocky Piedmont
Zone 4: Salt/Gypsum-encrusted Central Zone
Zone 5: Shallow Marsh
Zone 6: Mixed

B. (*left*) Geological map of the Ram Hormuz plain, (*right*) approximate boundaries of different types of land

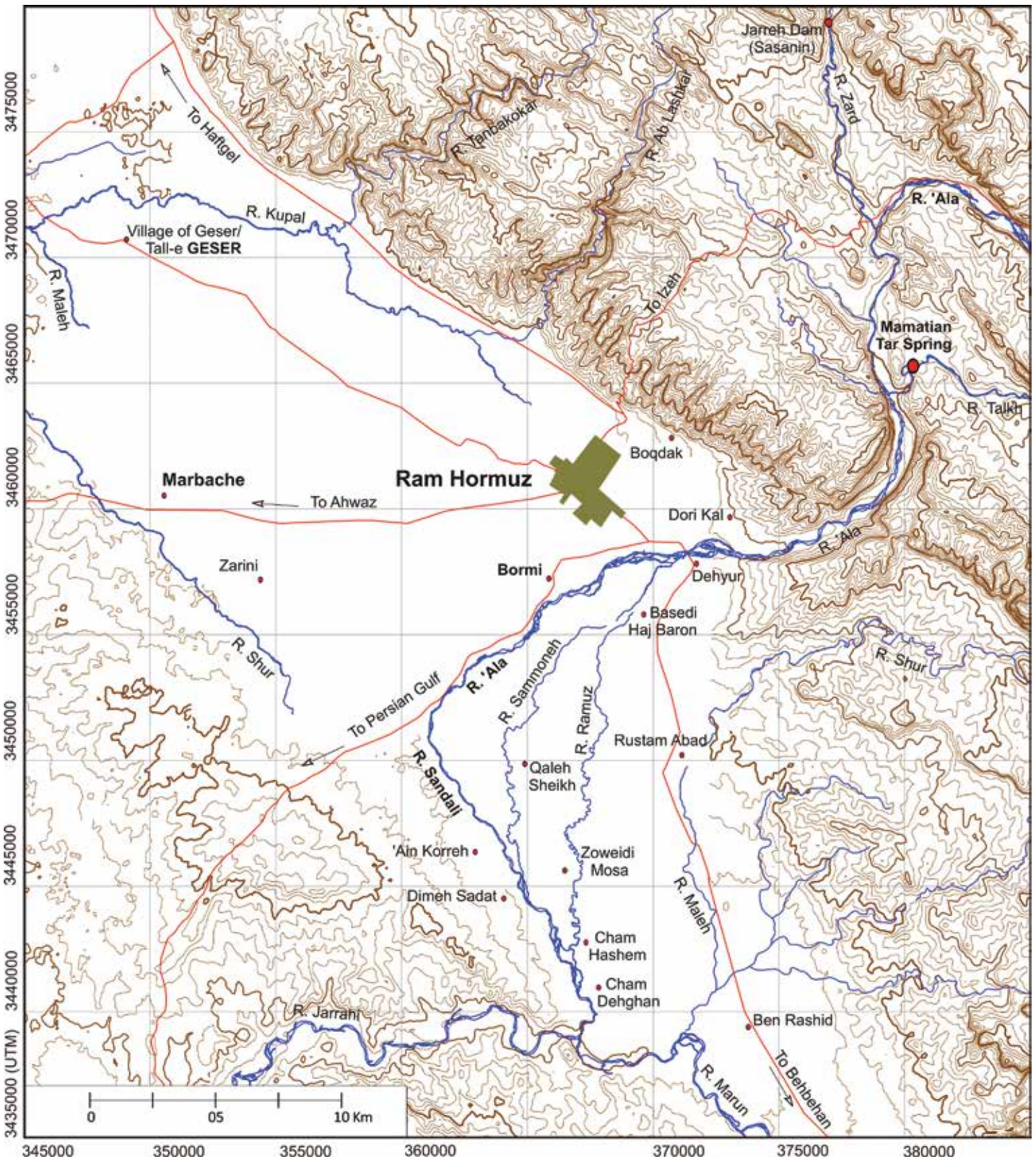
Plate 11

Satellite image of Tall-e Geser and its environs

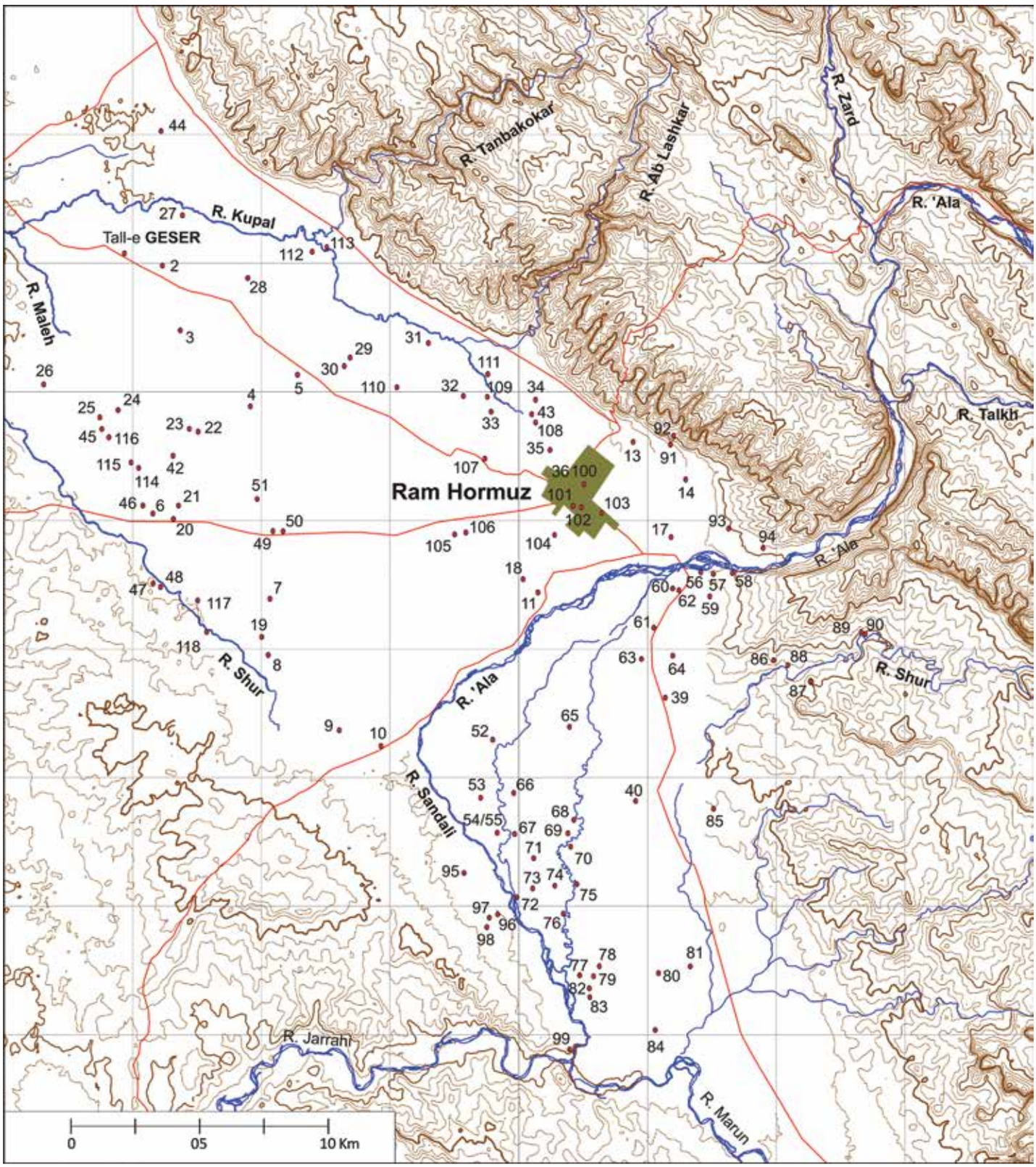


Map of southwest Iran showing major archaeological sites (square around Ram Hormuz is the survey area; see *Part II*)

Plate 13

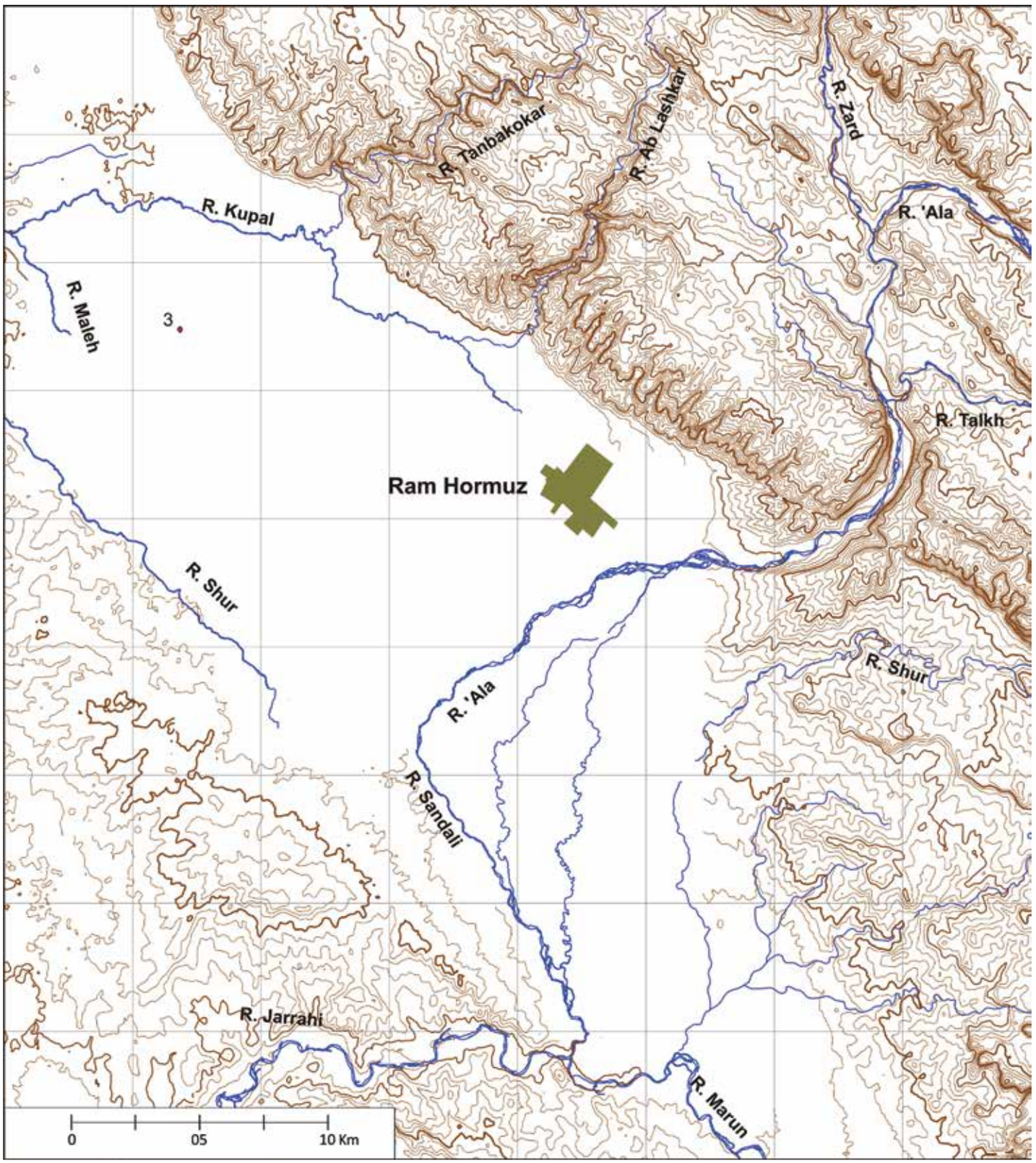


Map of modern Ram Hormuz region showing major towns, villages, ancient sites, and communication routes



Map of the Ram Hormuz region showing all surveyed/ancient sites

Plate 15



Early Susiana settlement system

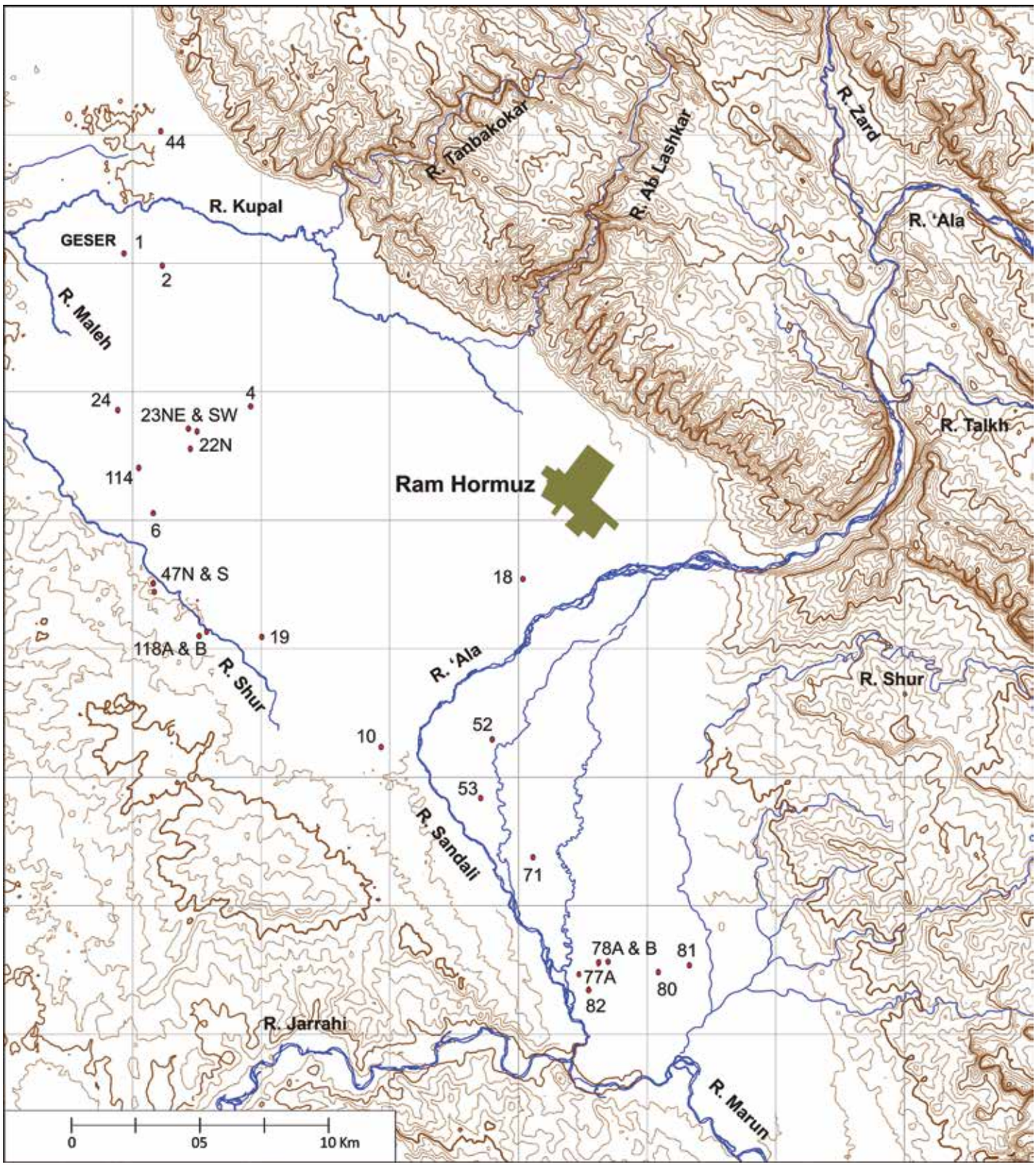
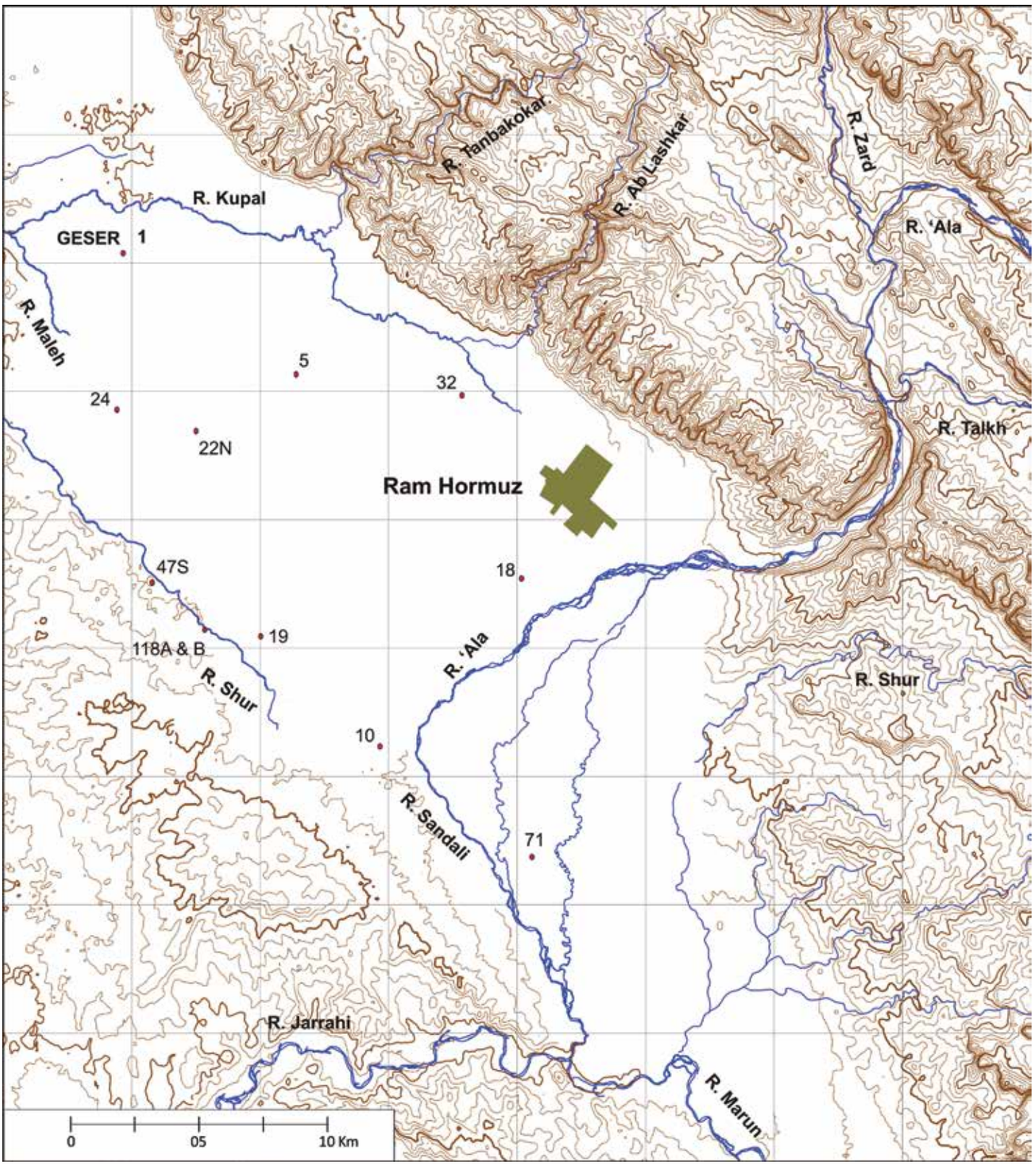
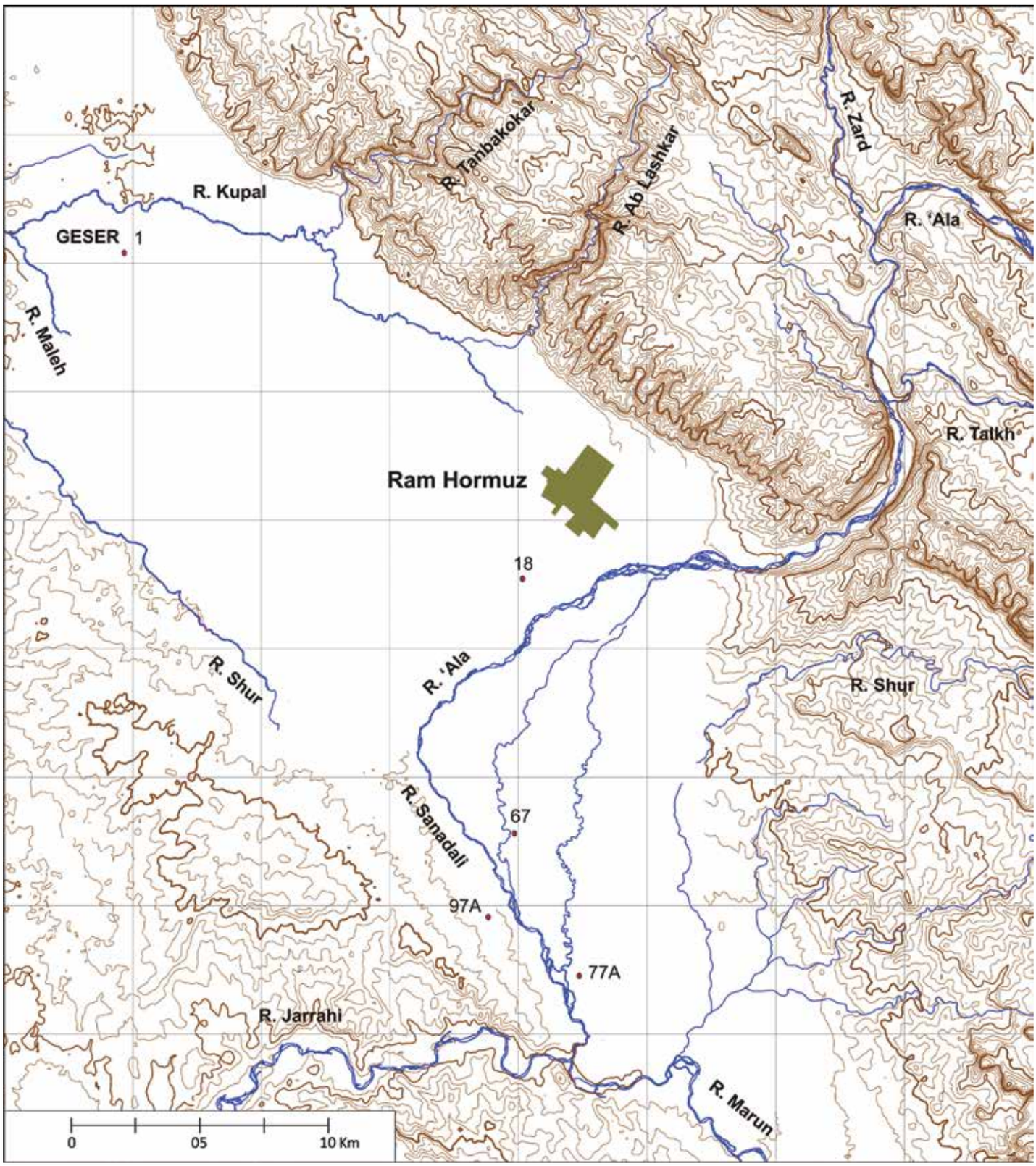


Plate 17

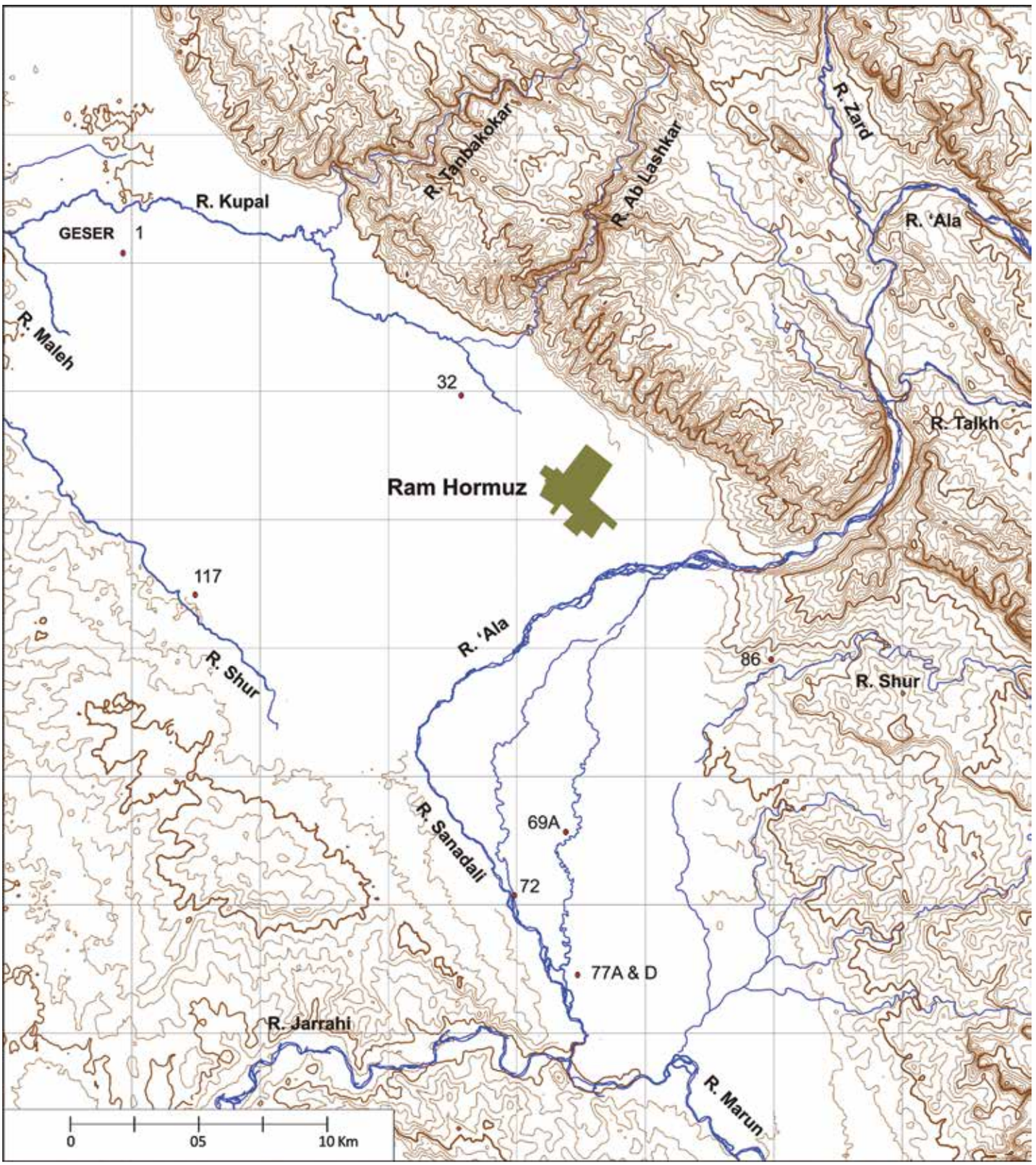


Late Susiana 1 settlement system

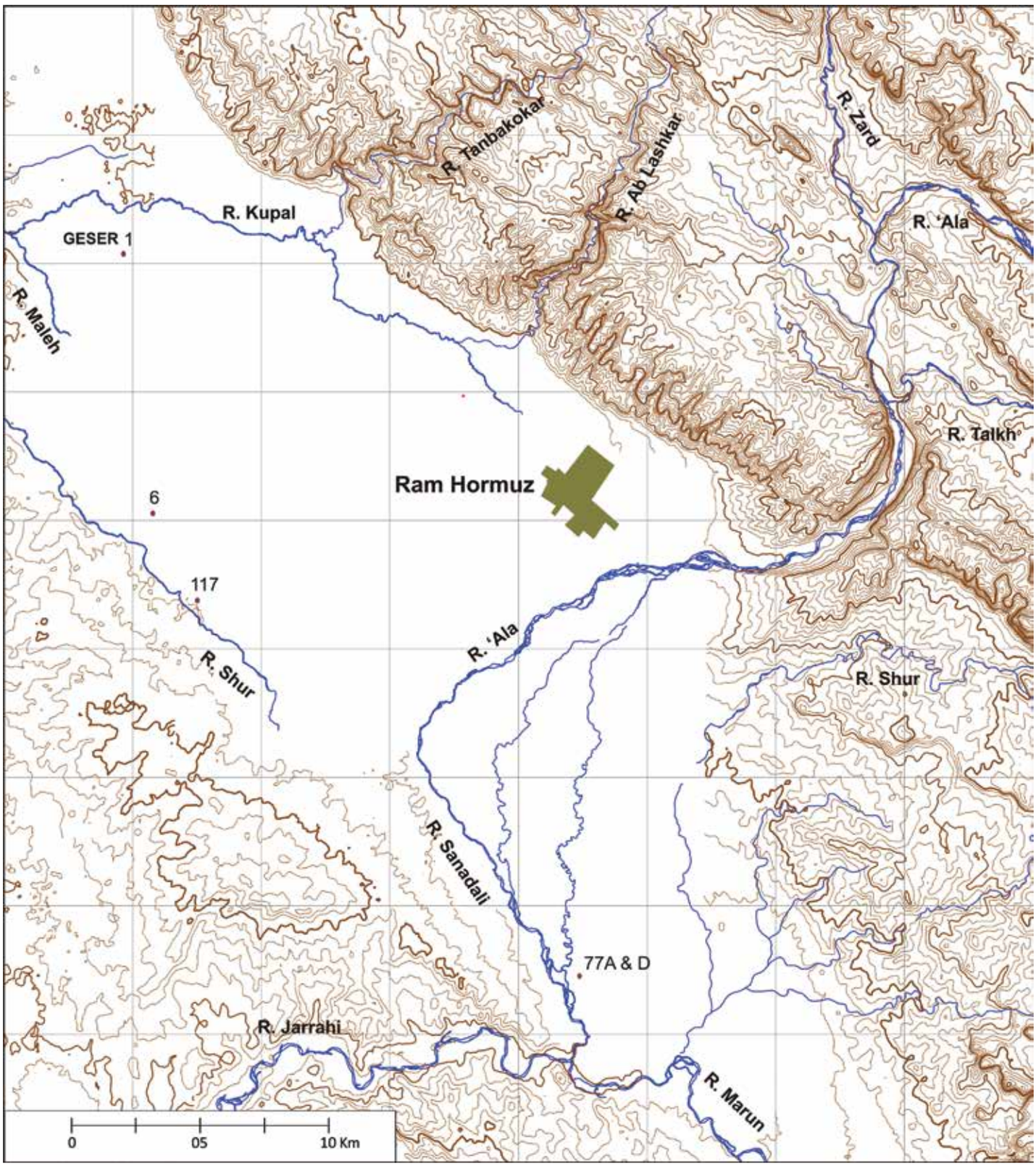


Late Susiana 2 (Susa A) settlement system

Plate 19

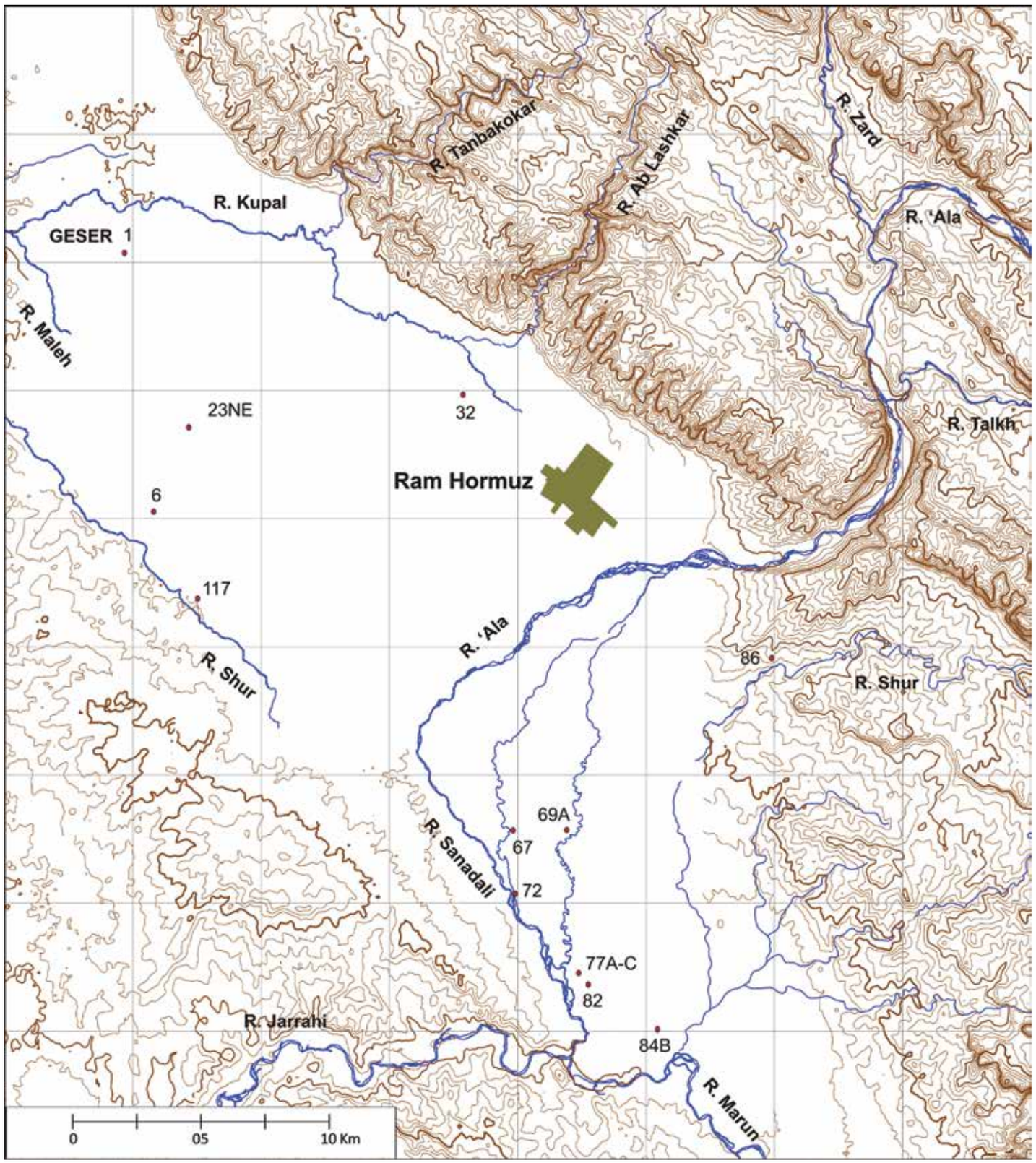


Terminal Susa/Early Susa II (Early Uruk) settlement system



Late Susa II (Late Uruk) settlement system

Plate 21



Proto-Elamite settlement system

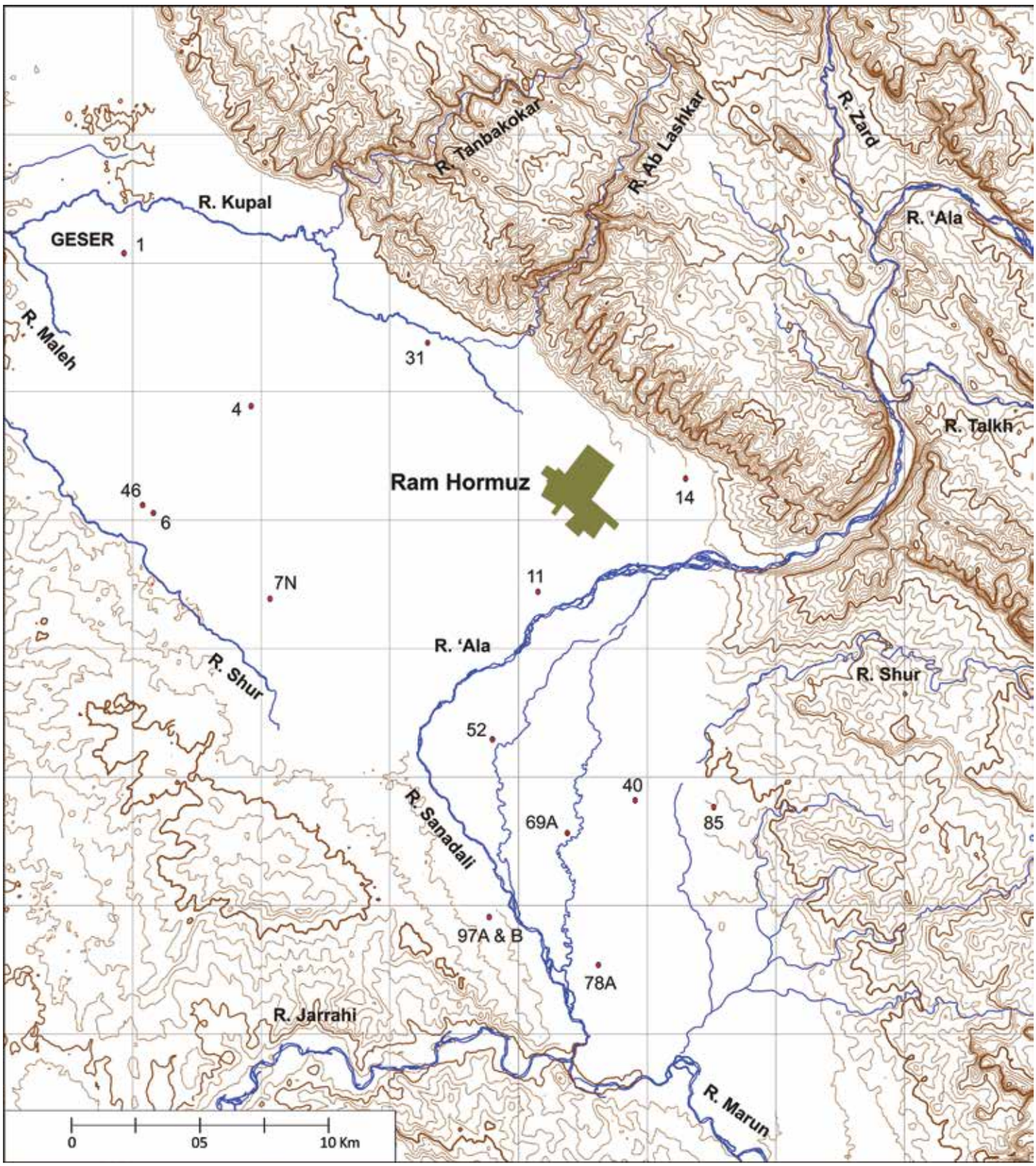
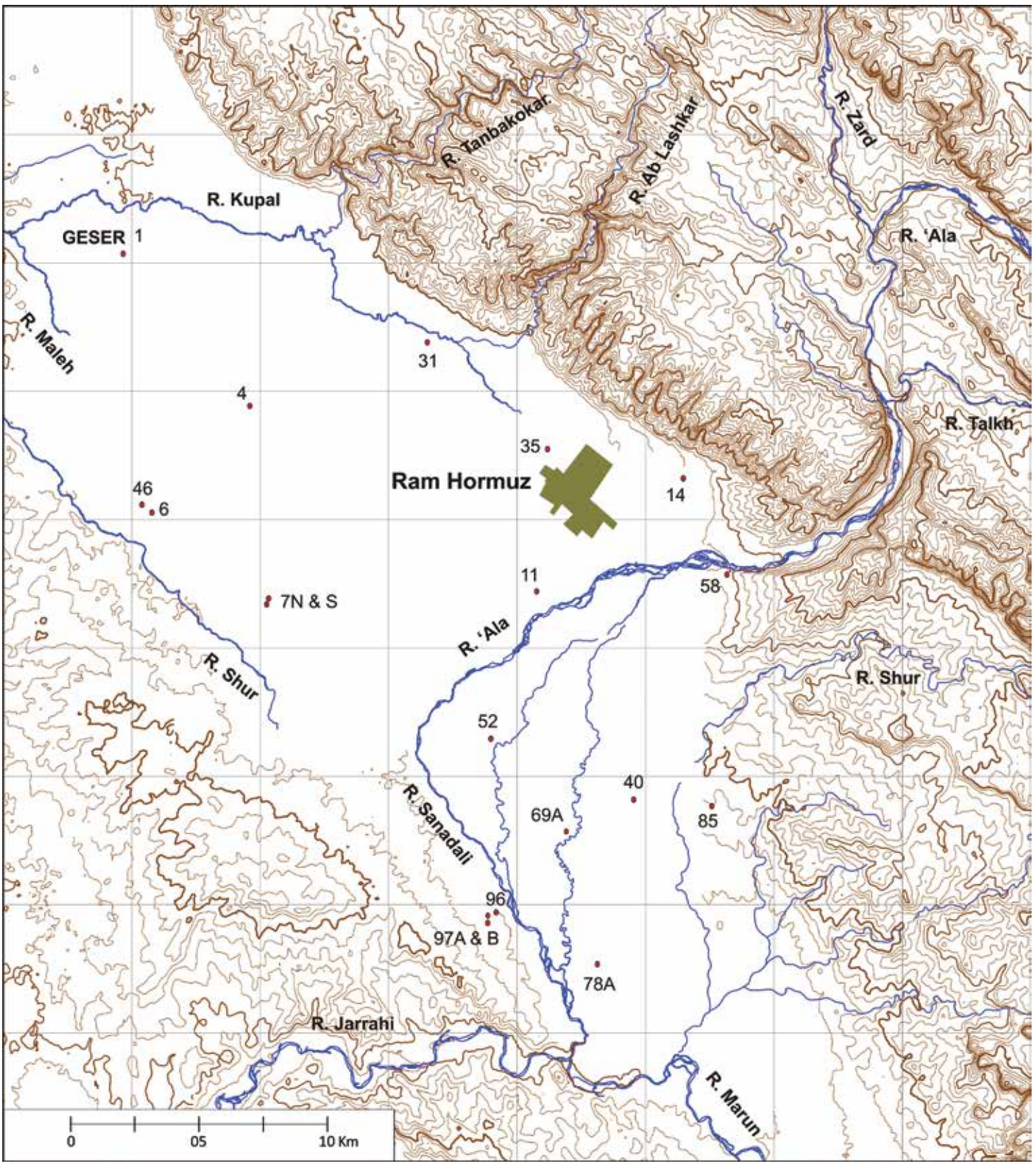
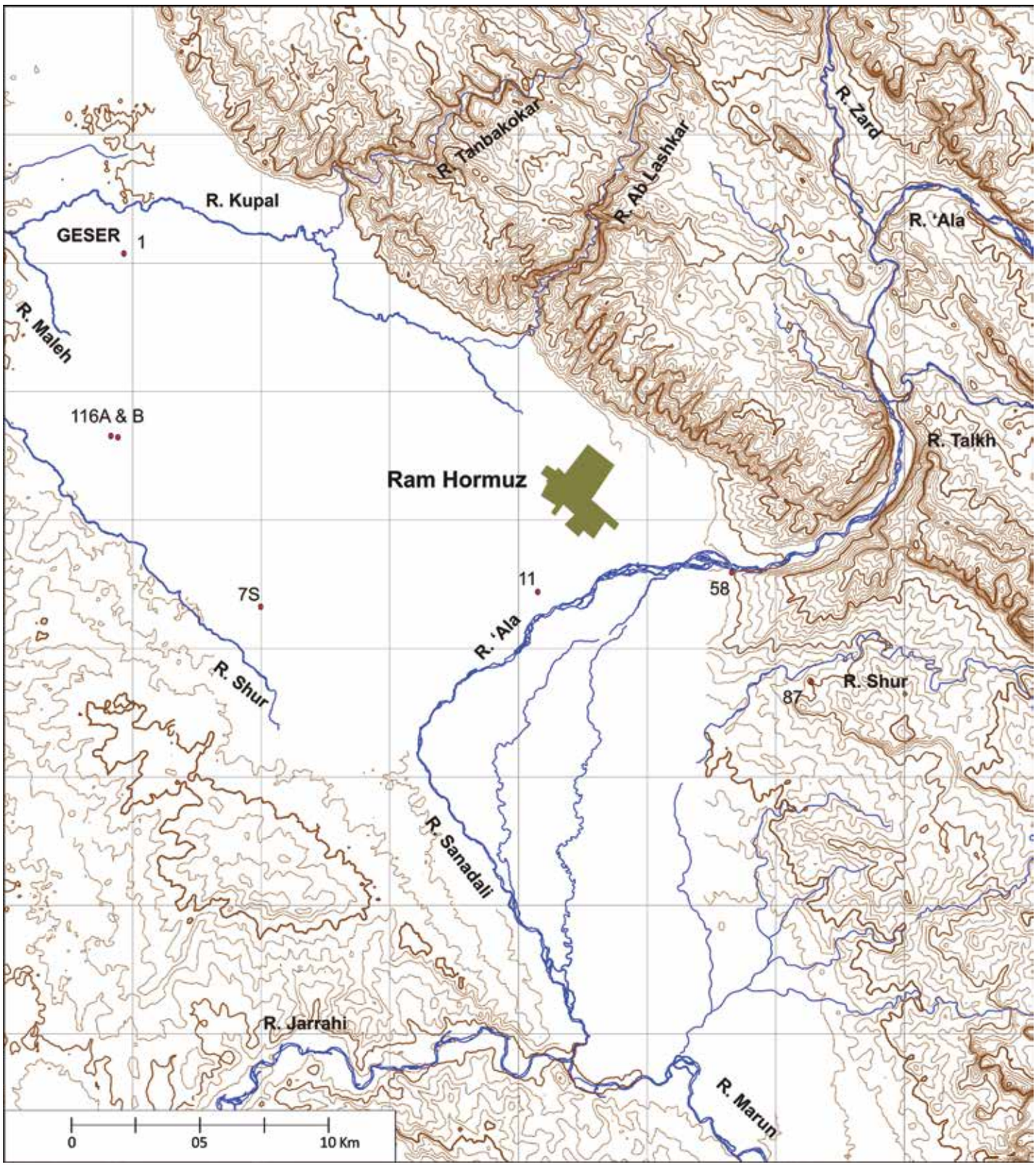


Plate 23

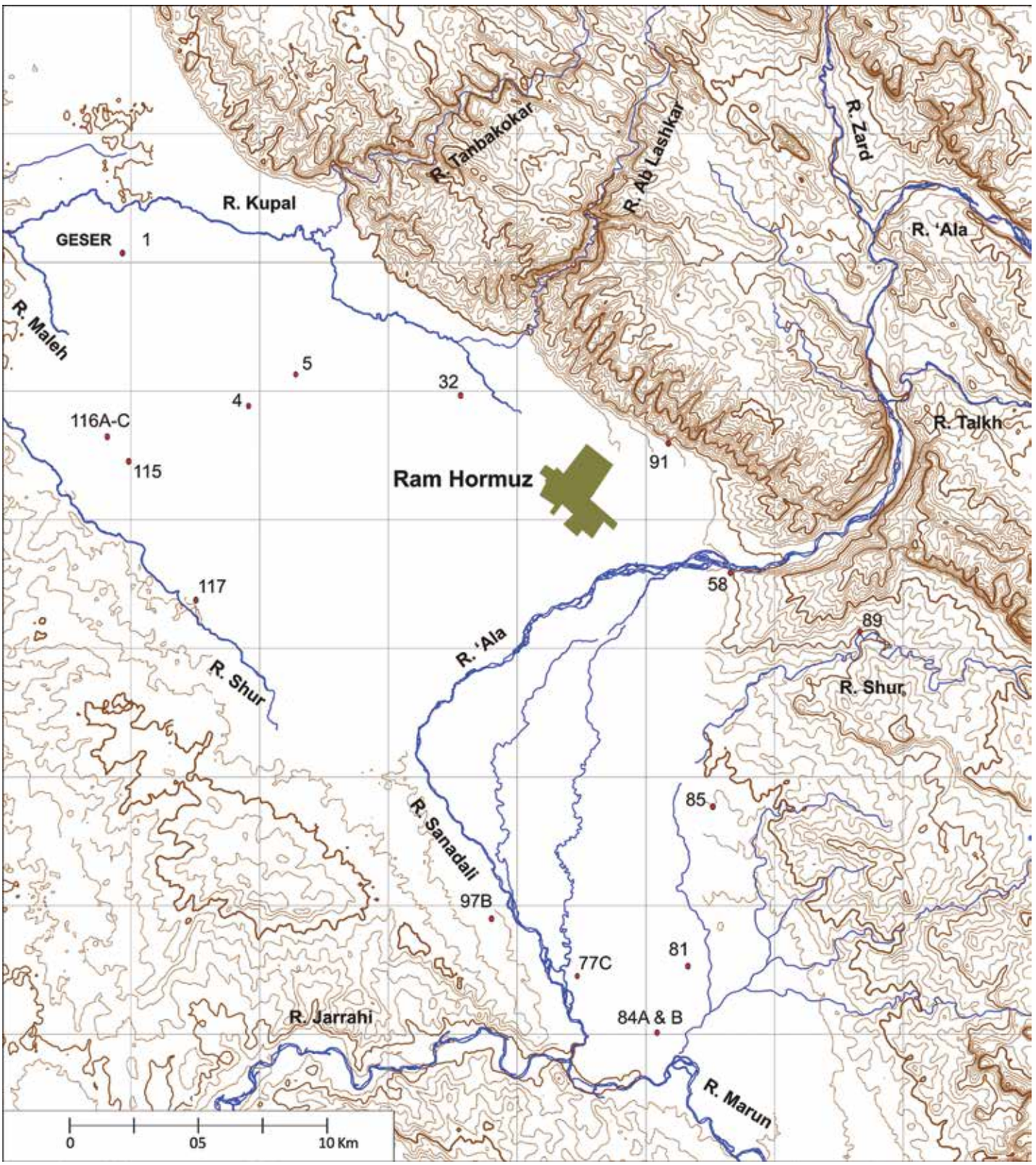


Middle Elamite settlement system

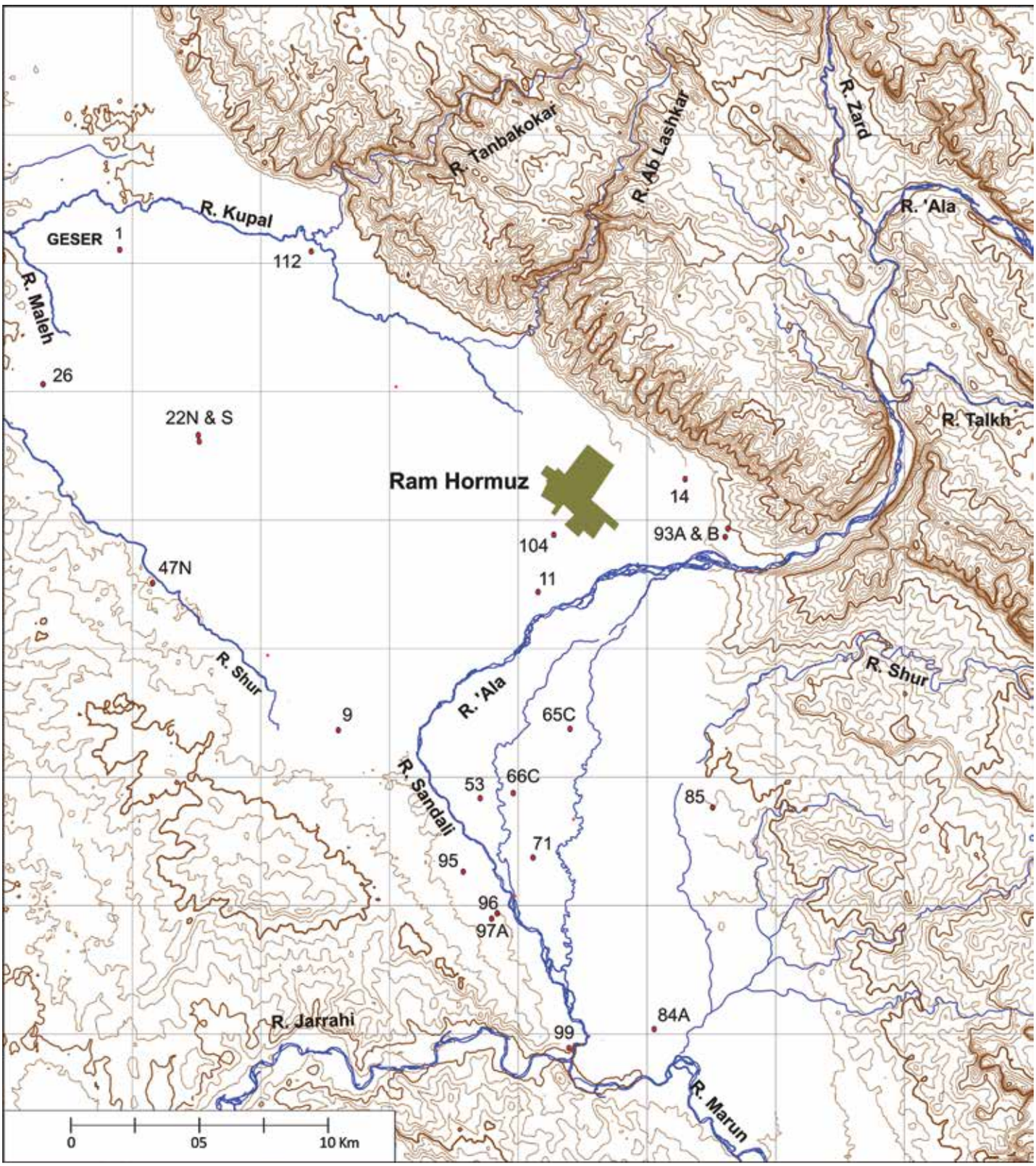


Neo-Elamite settlement system

Plate 25

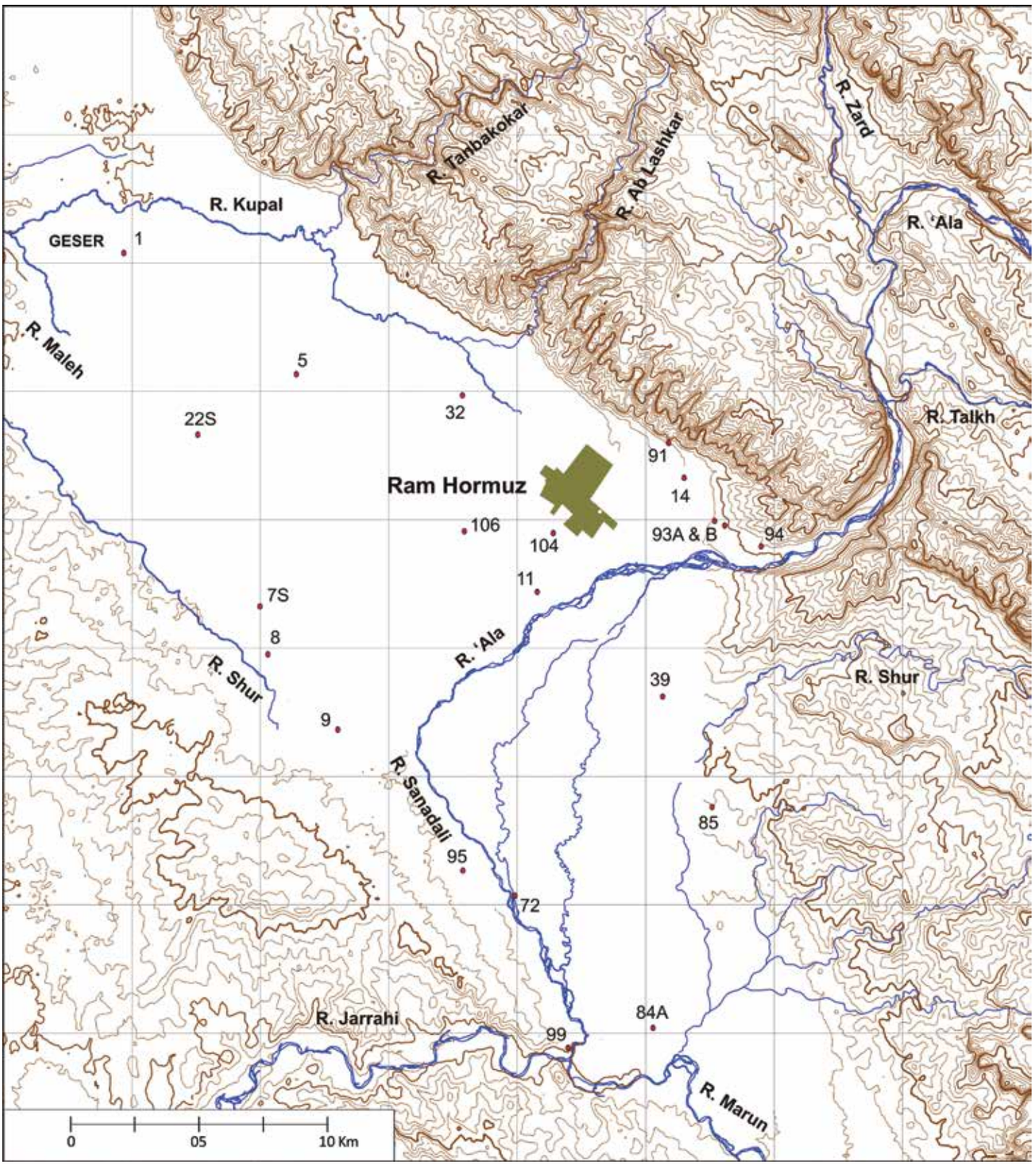


Achaemenid settlement system

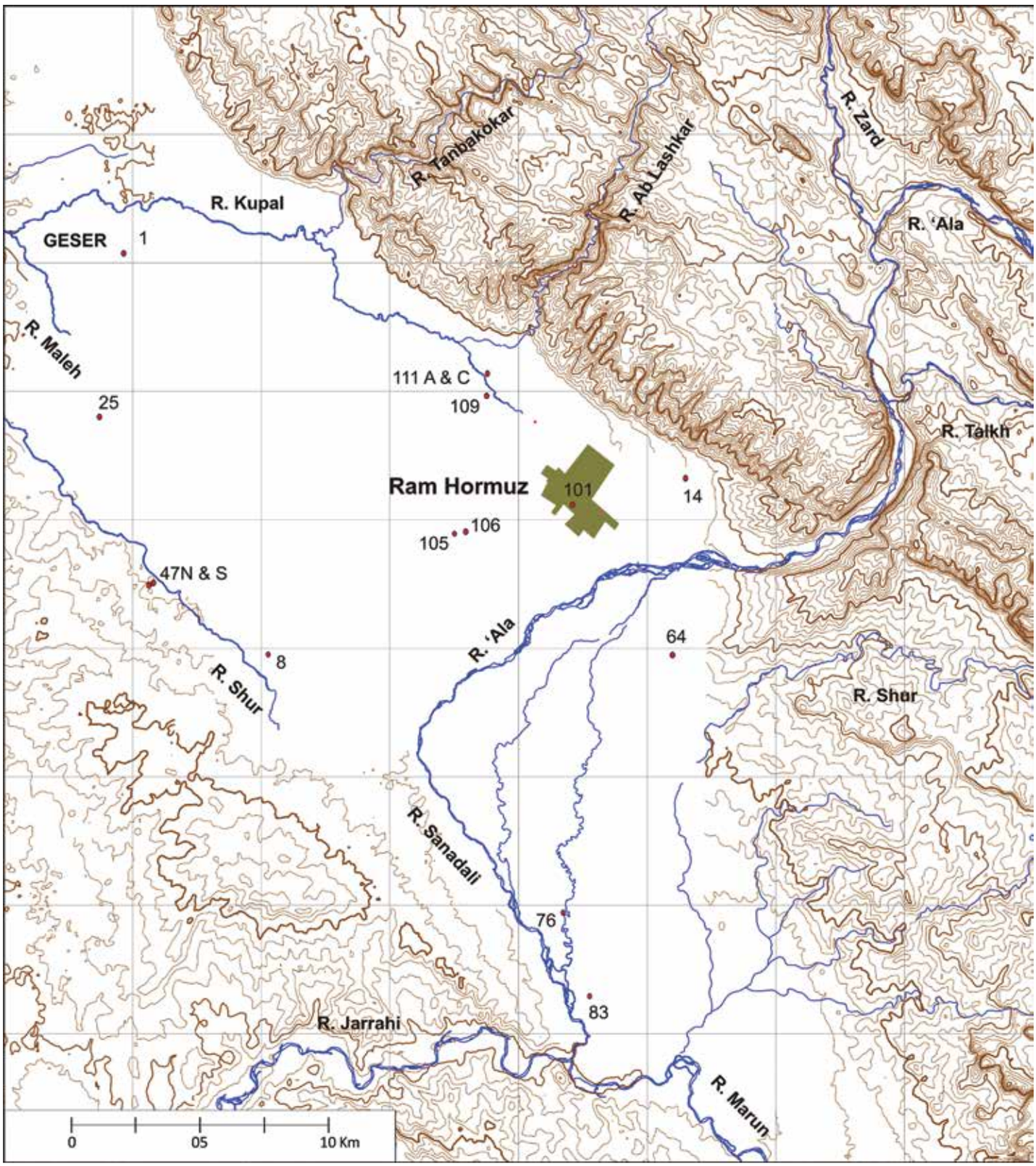


Parthian settlement system

Plate 27

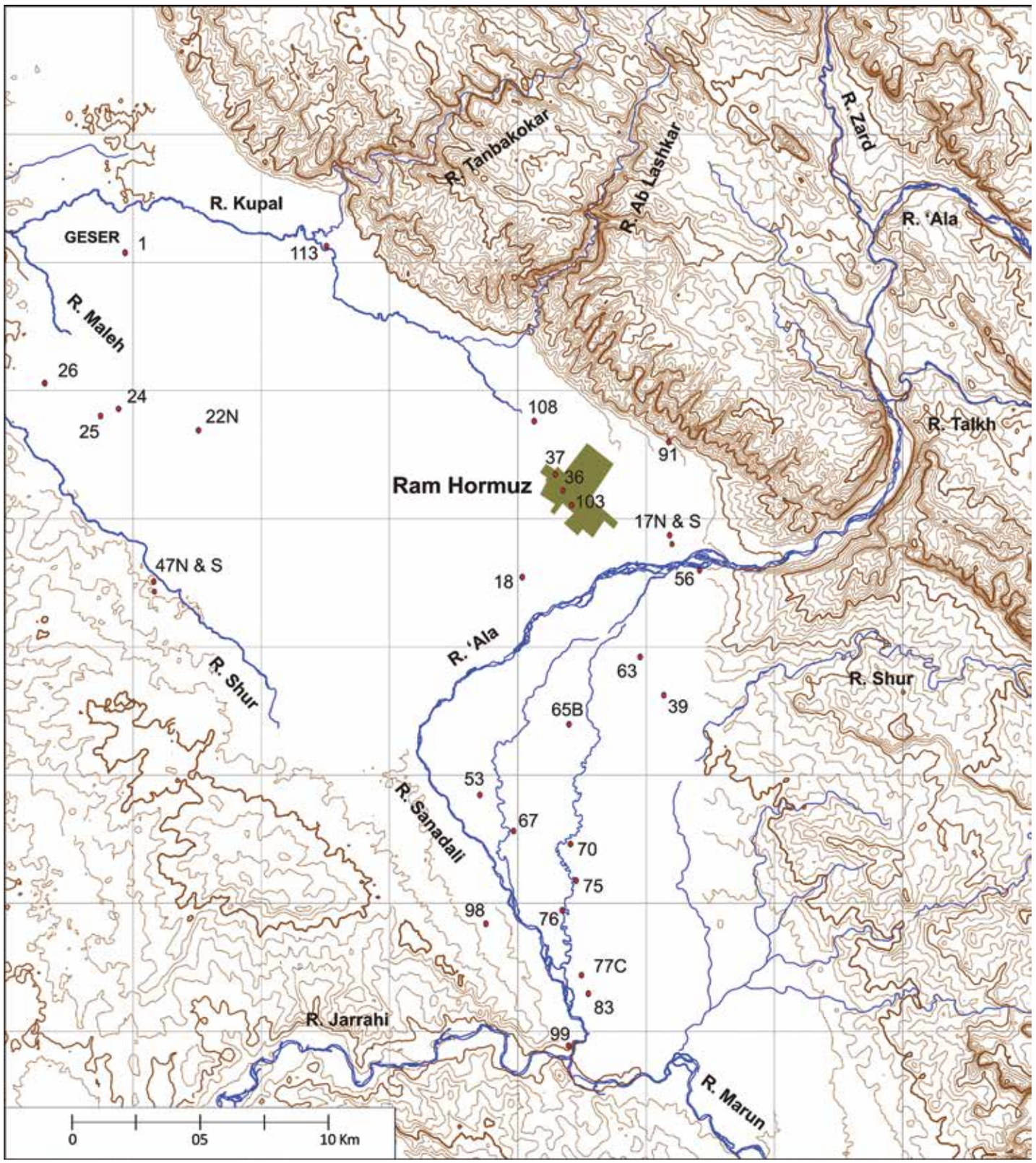


Sasanian settlement system

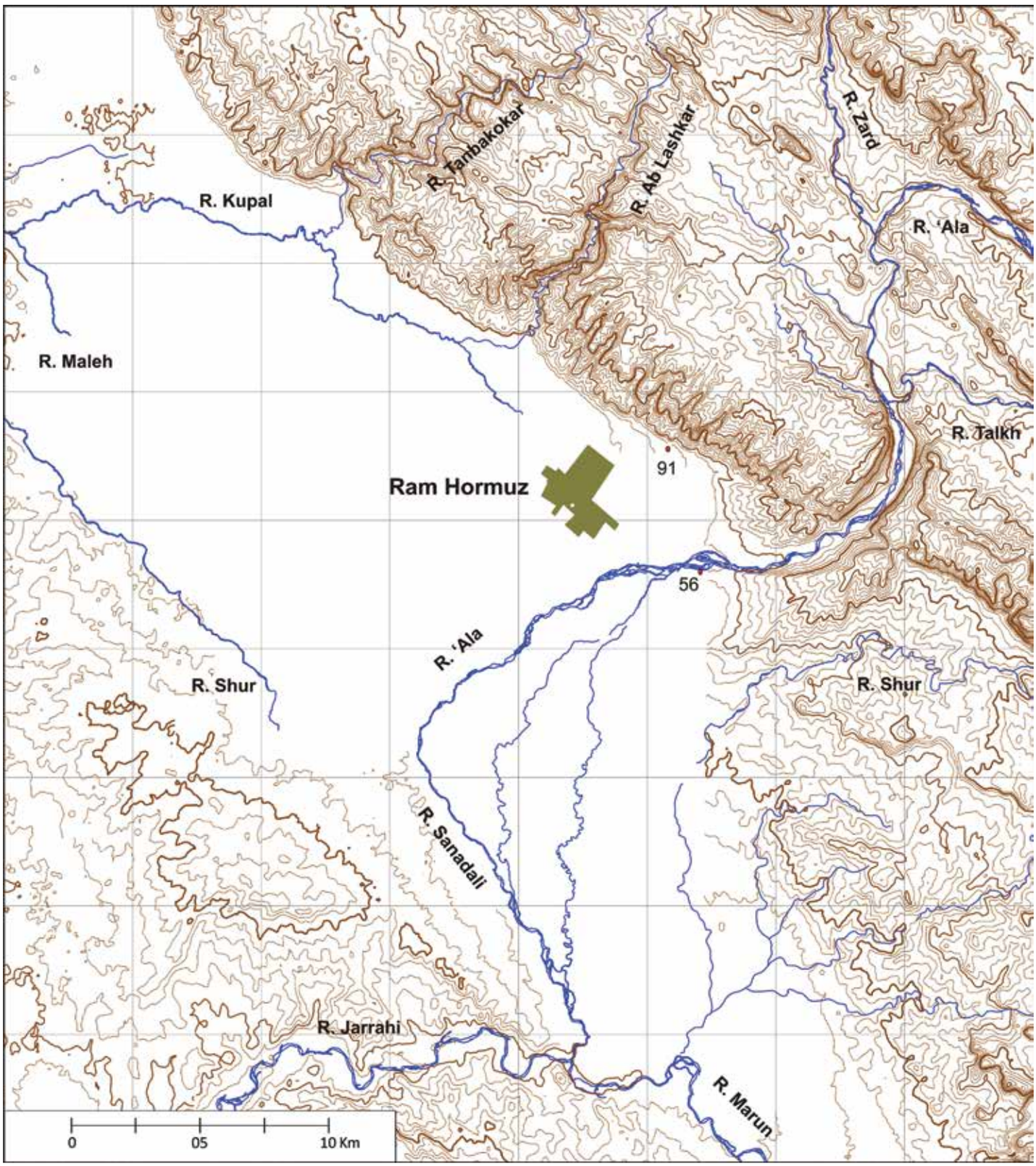


Post-Sasanian (7th–10th c. A.D.) settlement system

Plate 29

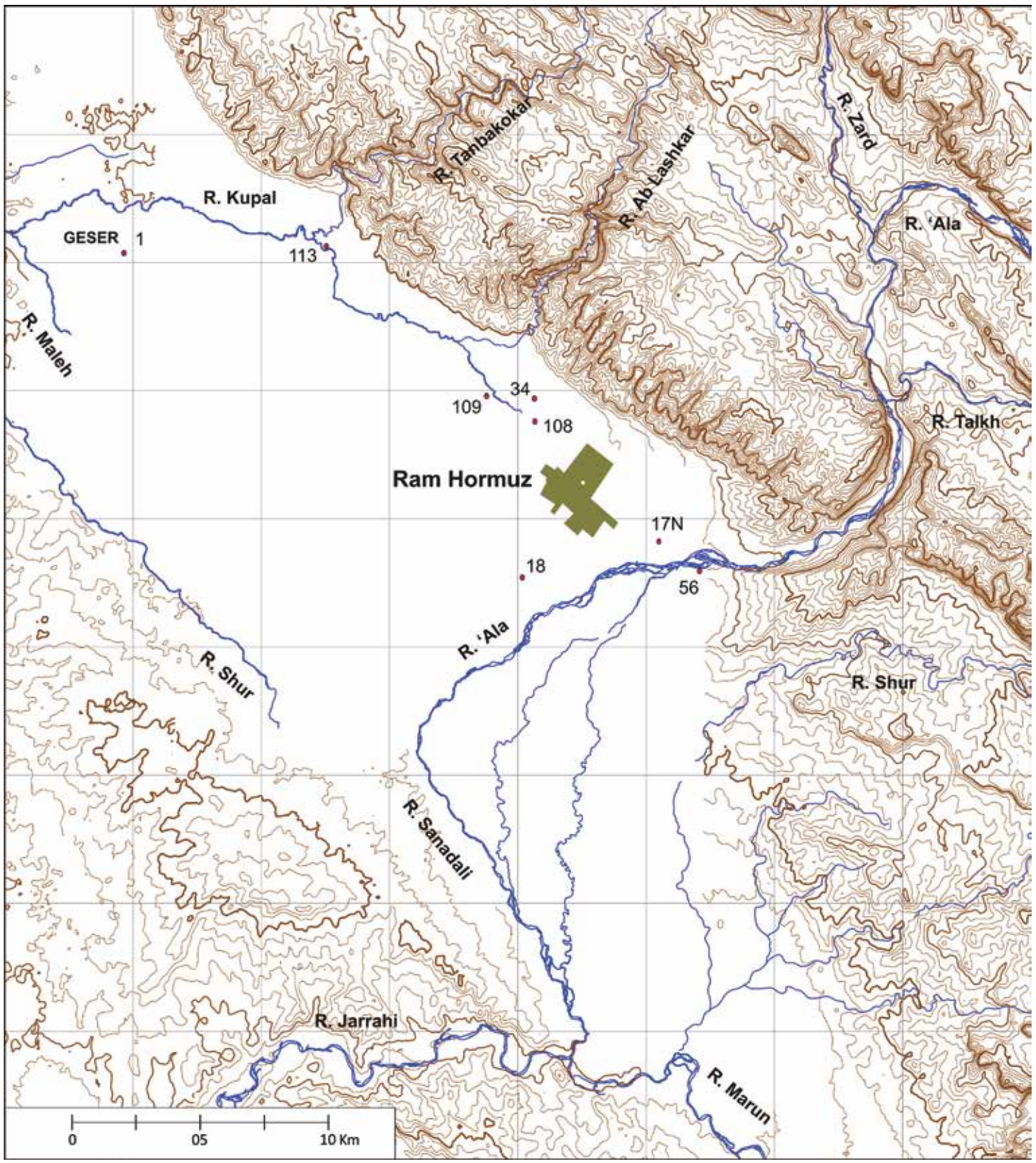


Seljuk/Ilkhanid (10th–14th c. A.D.) settlement system

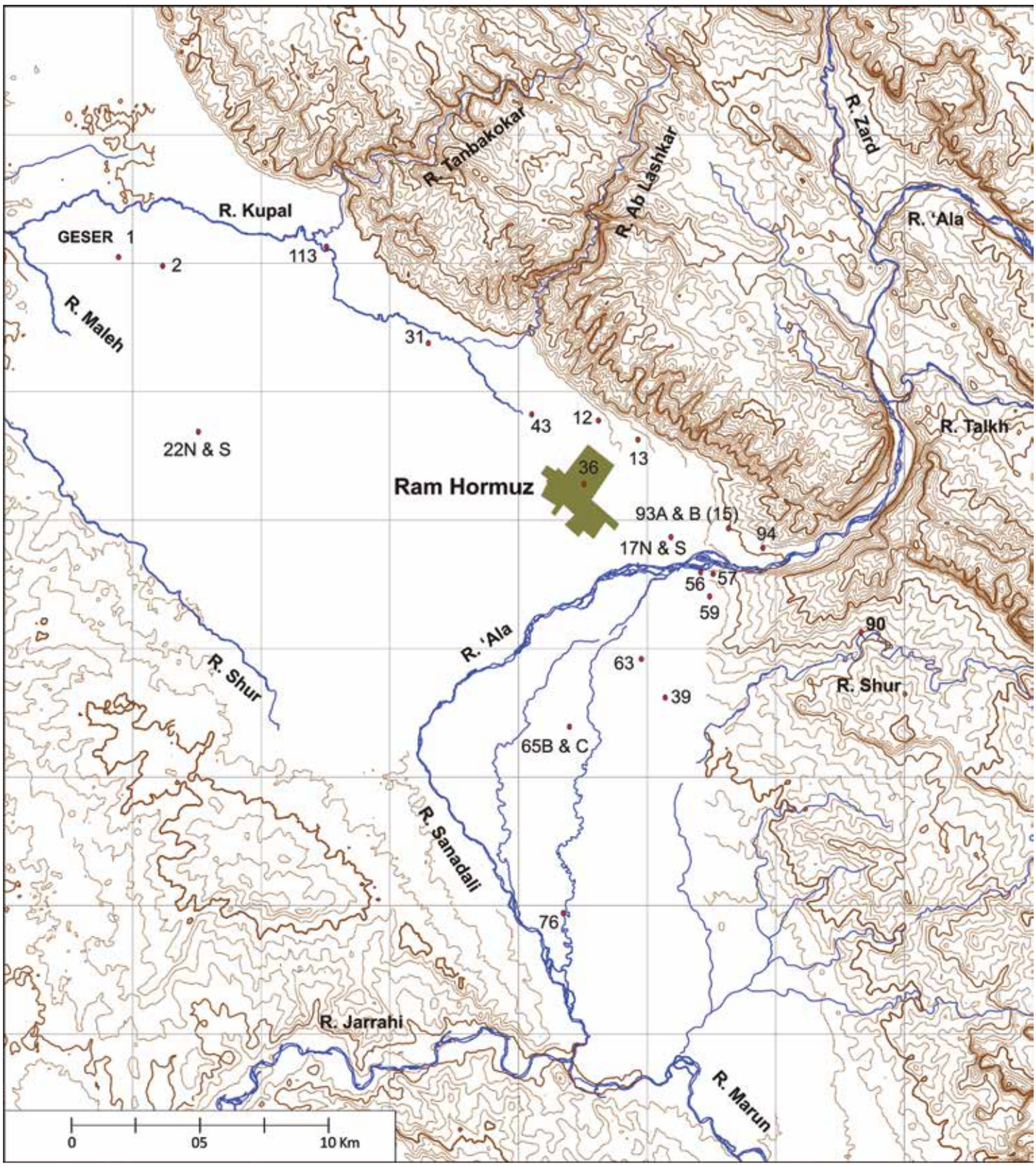


Timurid (15th c. A.D.) settlement system

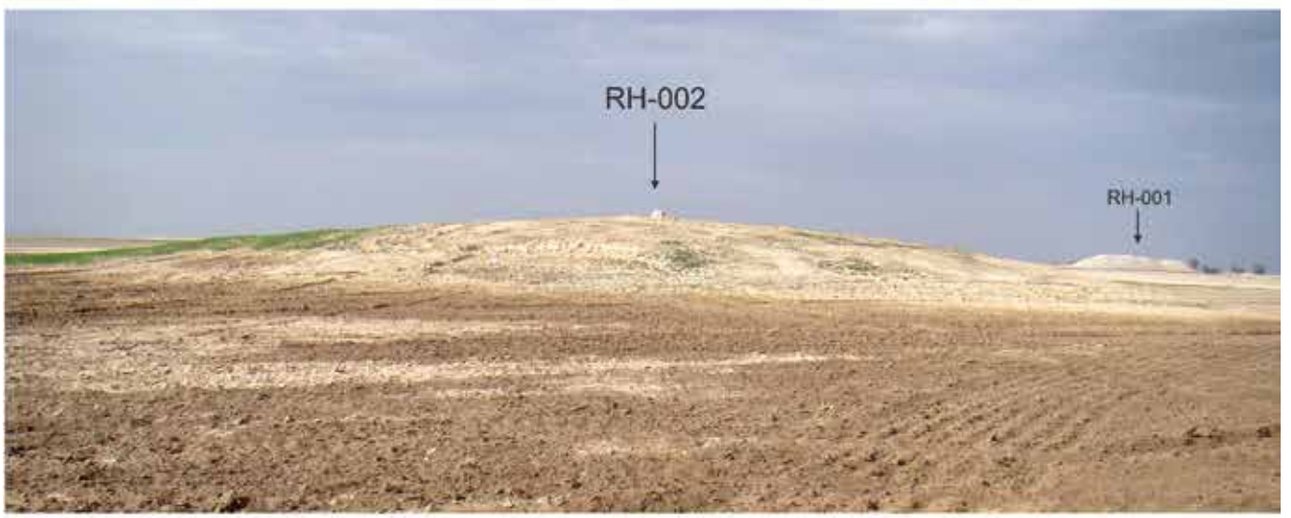
Plate 31

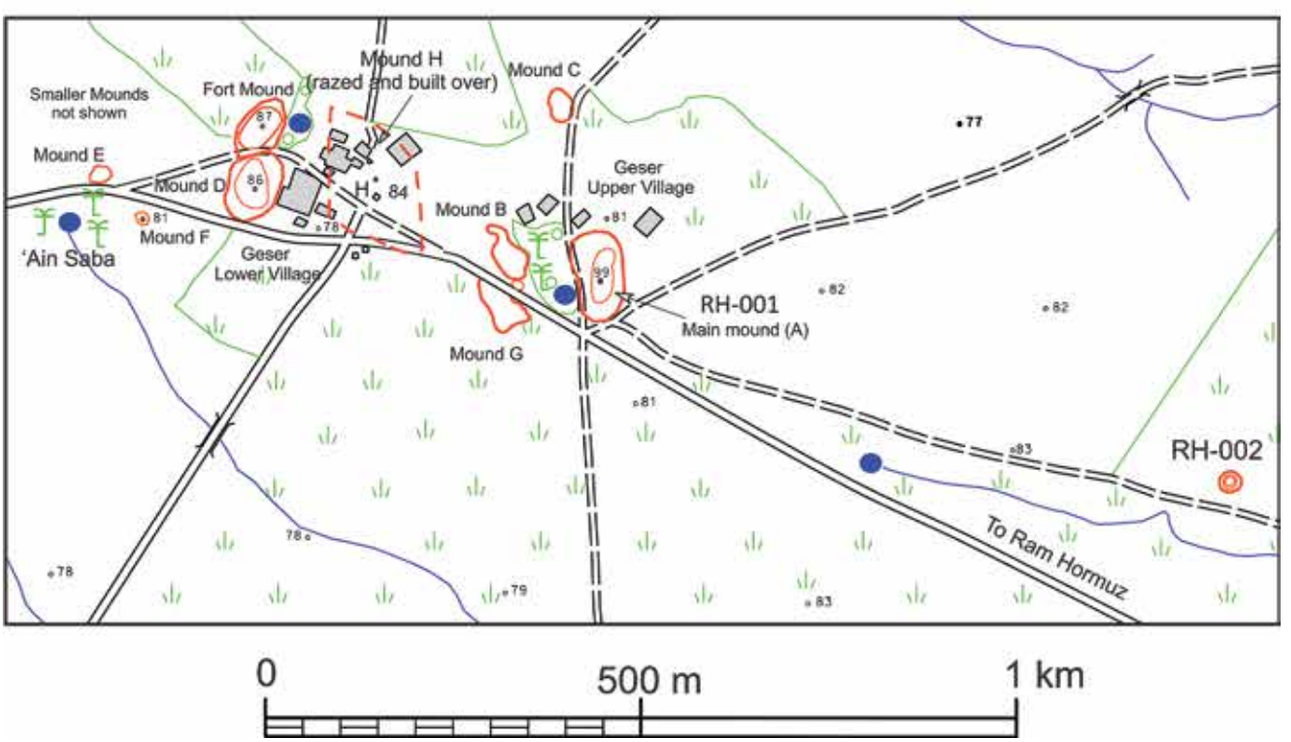


Safavid (16th–17th c. A.D.) settlement system

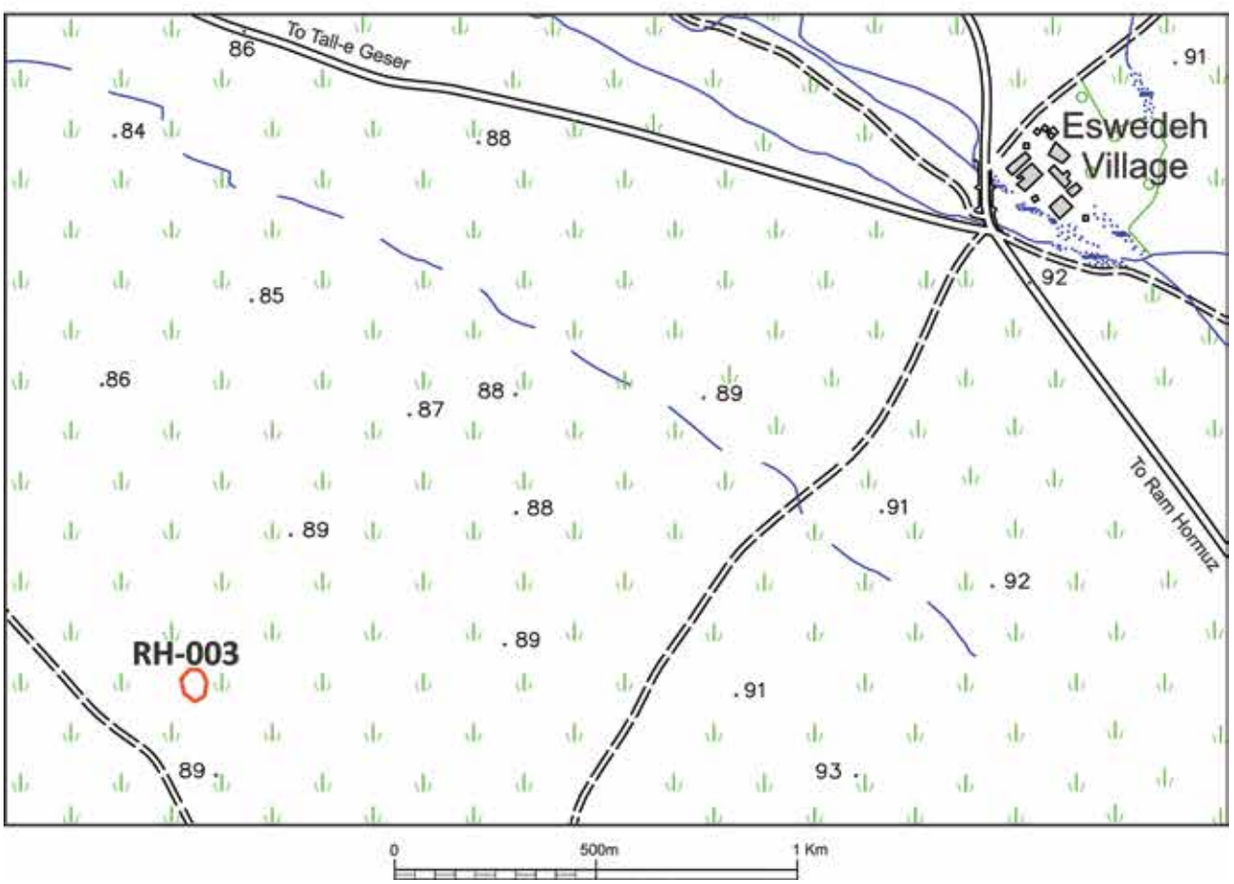


Post-Safavid-Qajar (18th–20th c. A.D.) settlement system

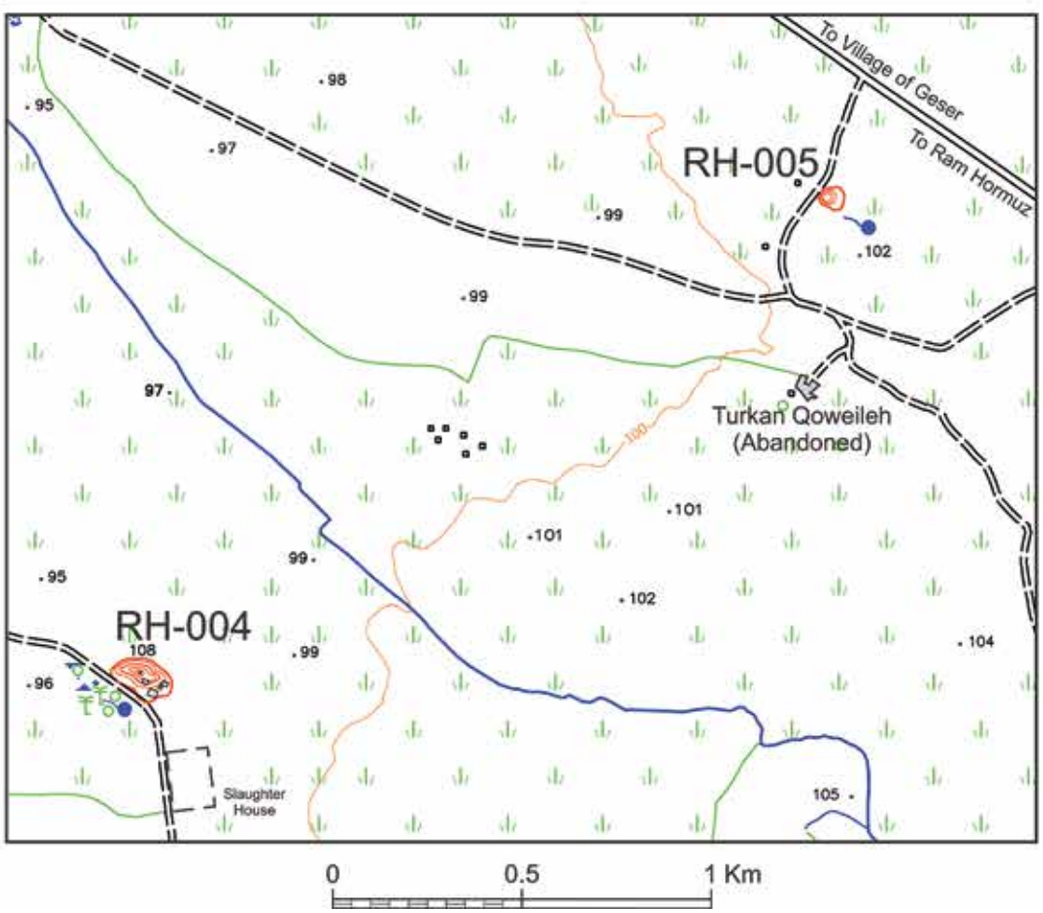




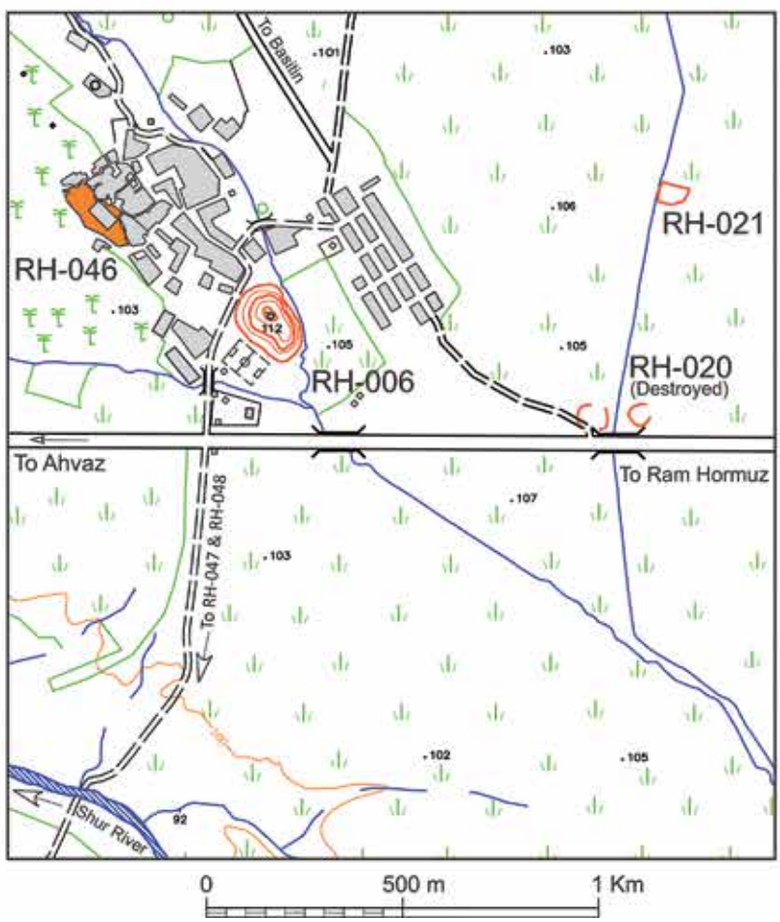
RH-001 (Tall-e Geser Complex) and RH-002 and their environs



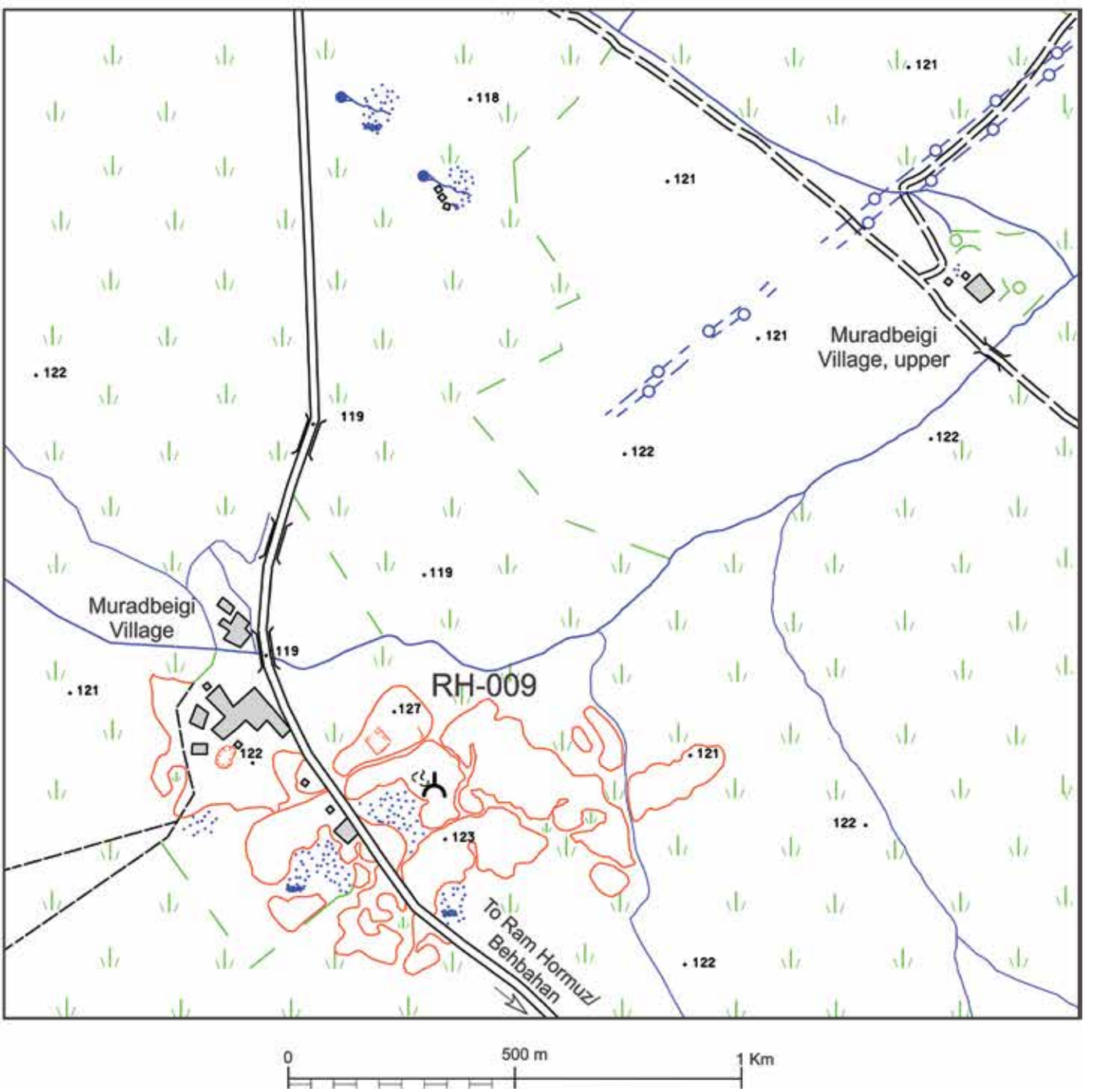
RH-003 and its environs



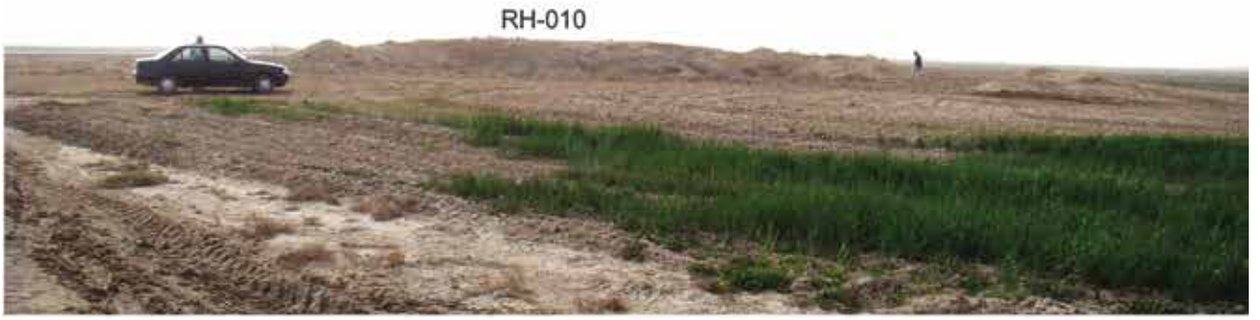
RH-004 and 005 and their environs

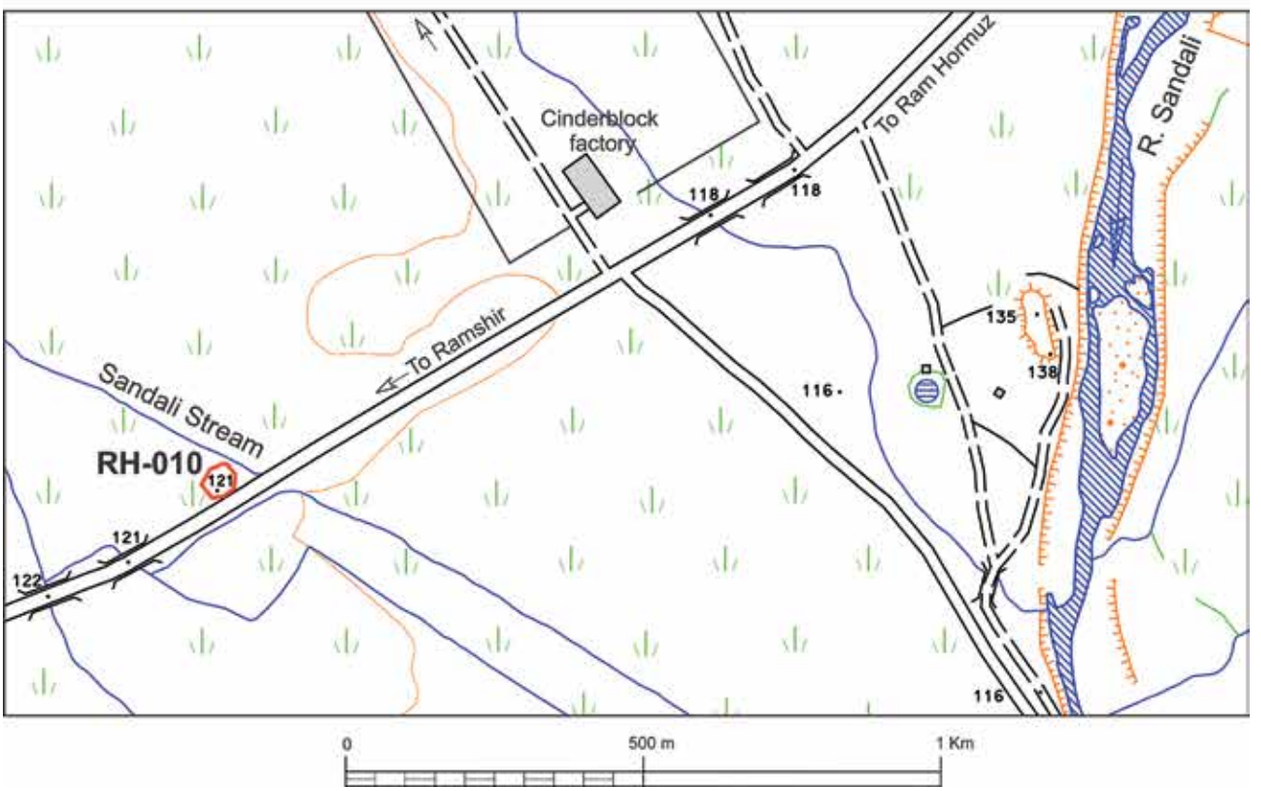


RH-006, 020, 021, and 046 and their environs



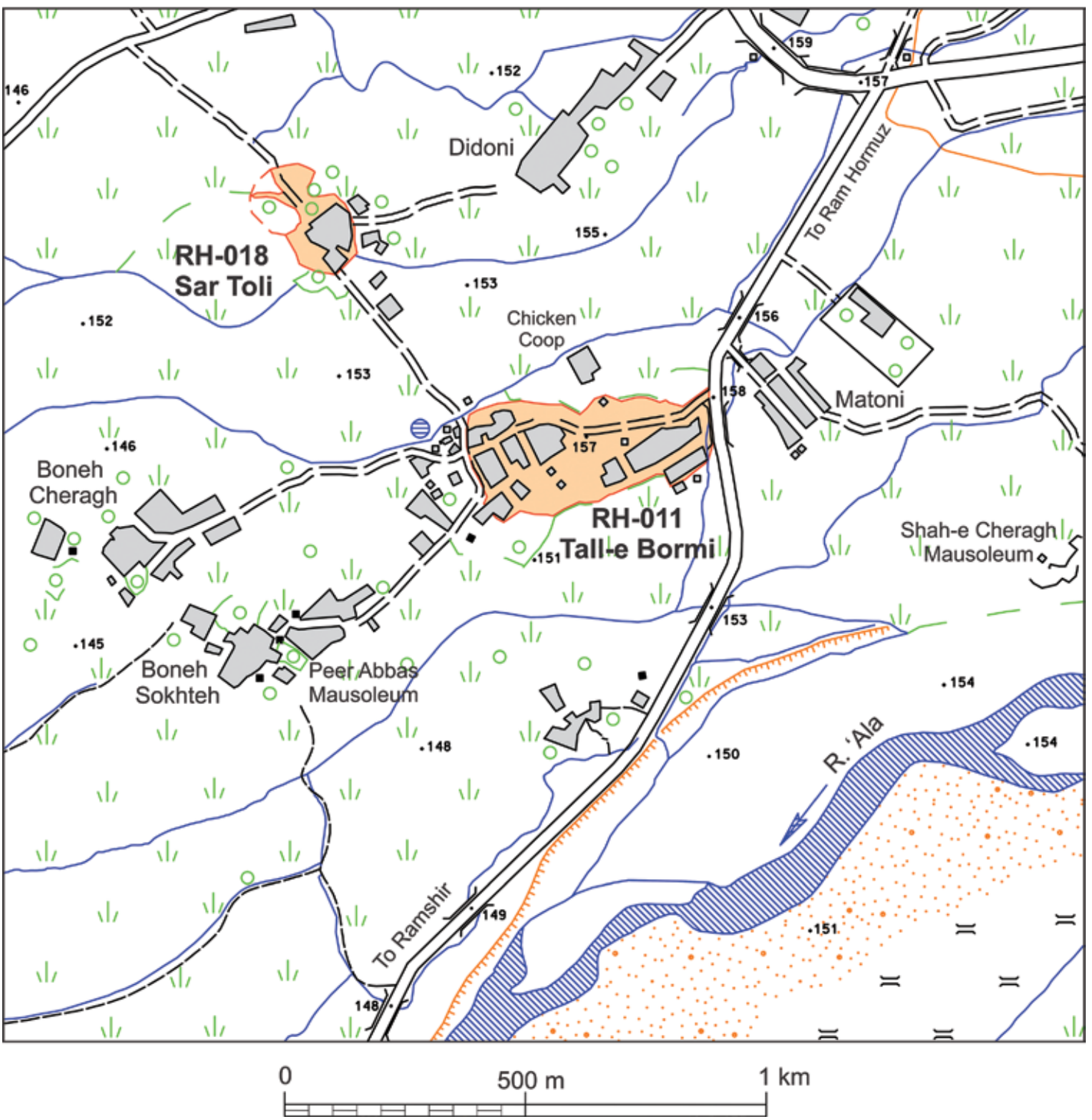
RH-009 and its environs



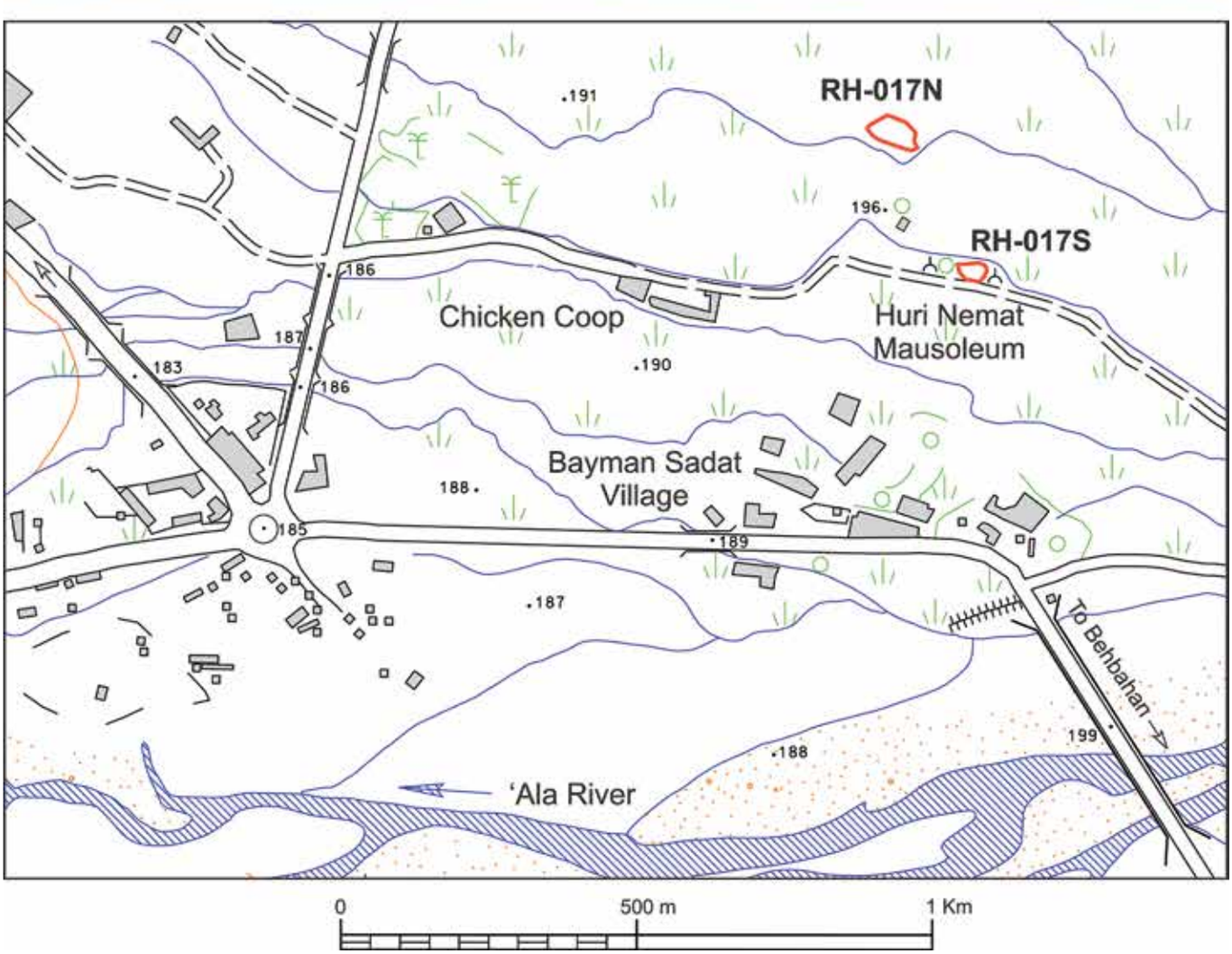


RH-010 and its environs

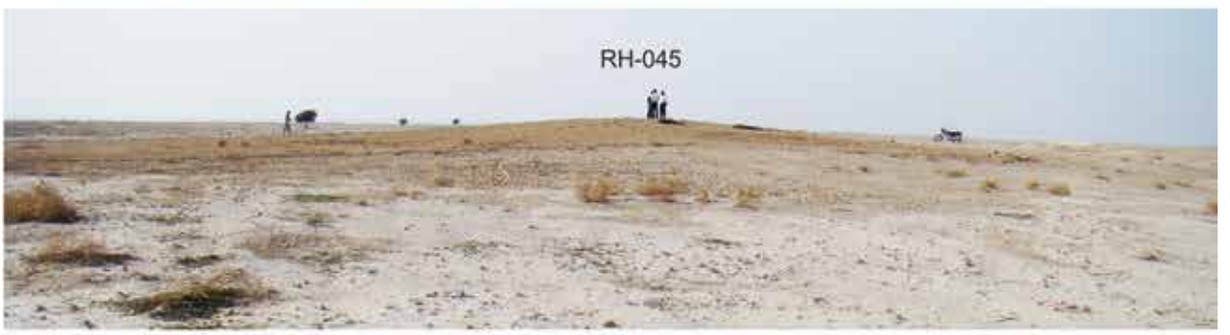
Plate 39



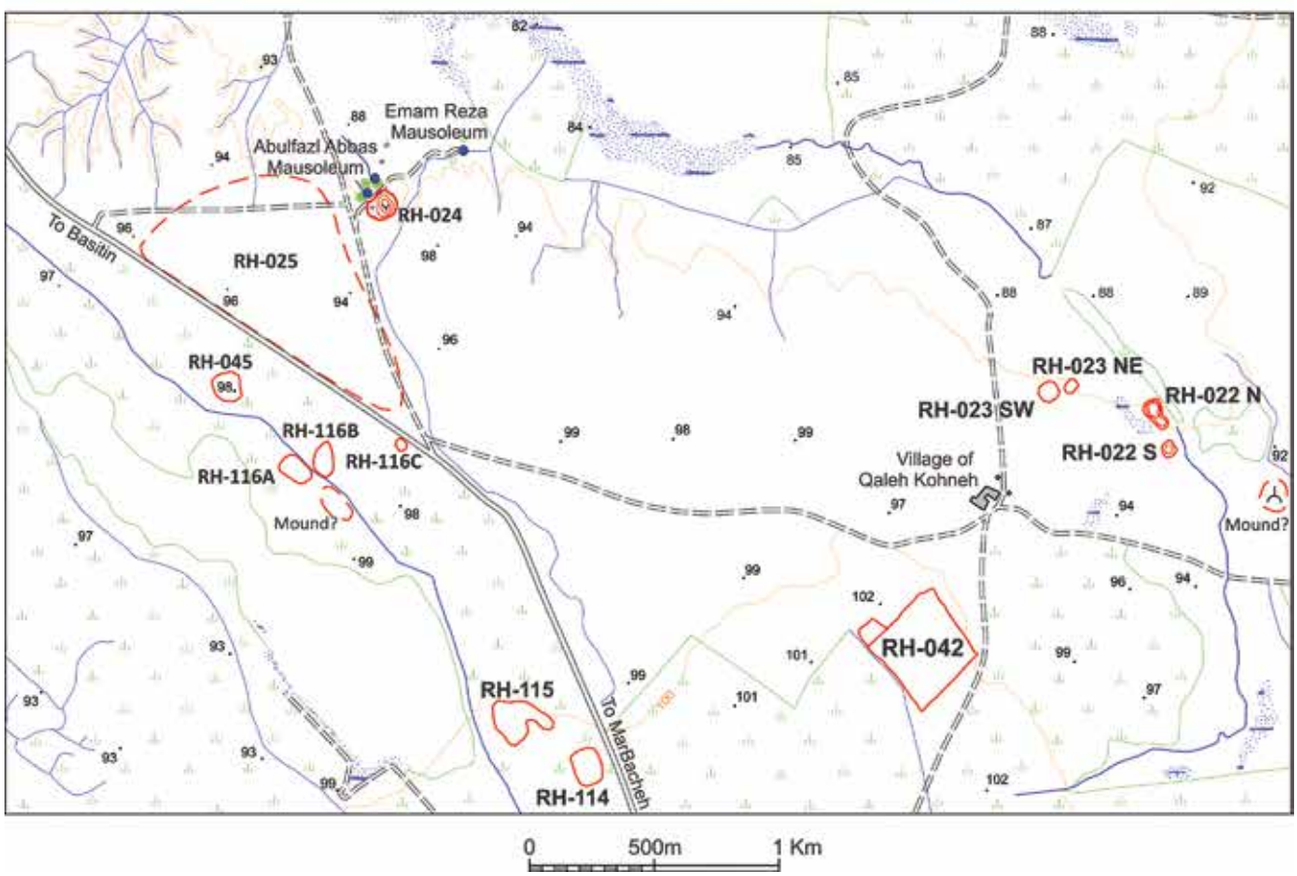
RH-011 and 018 and their environs



RH-017S and 017N and their environs

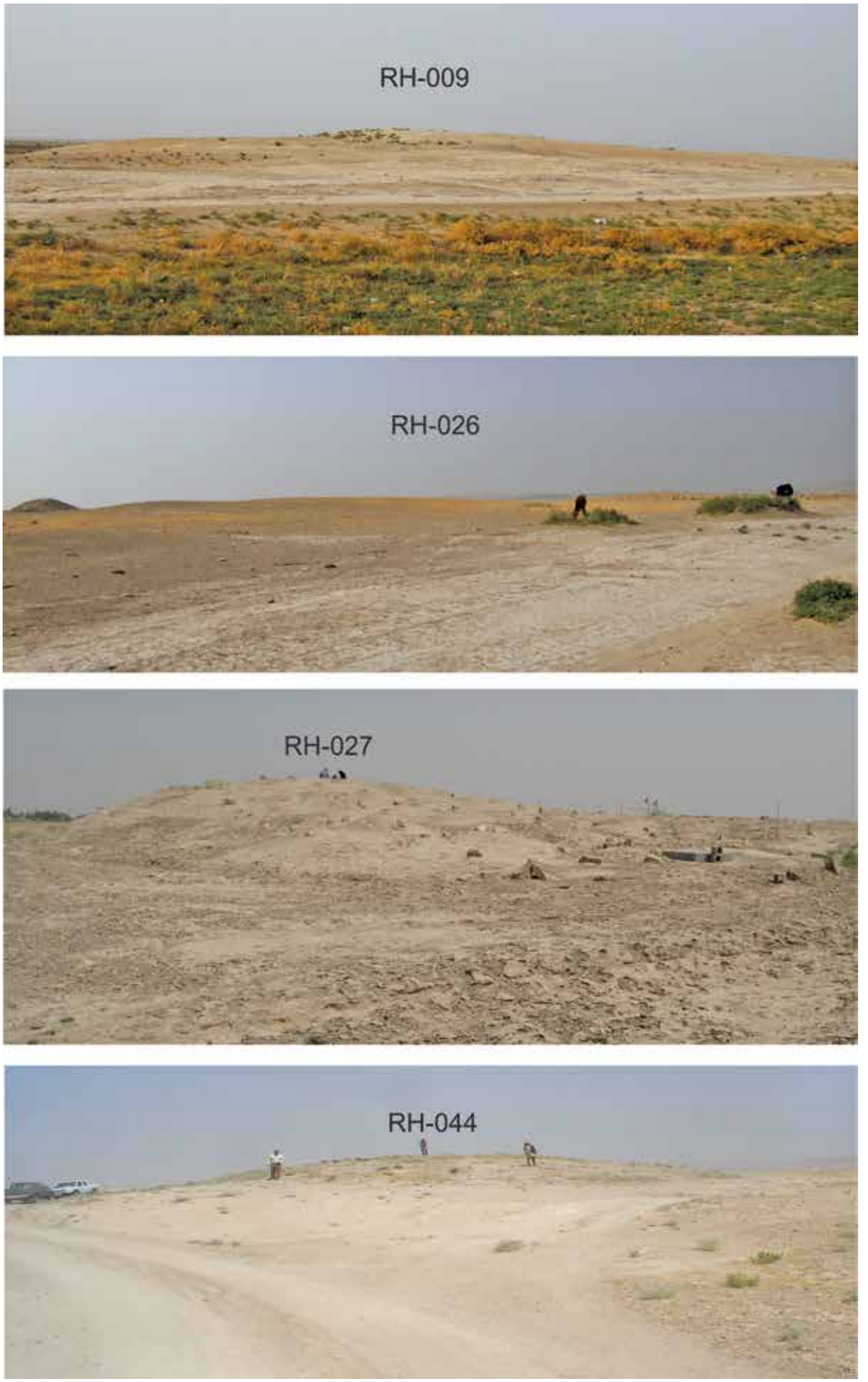


RH-024, 045, 116A and their environs

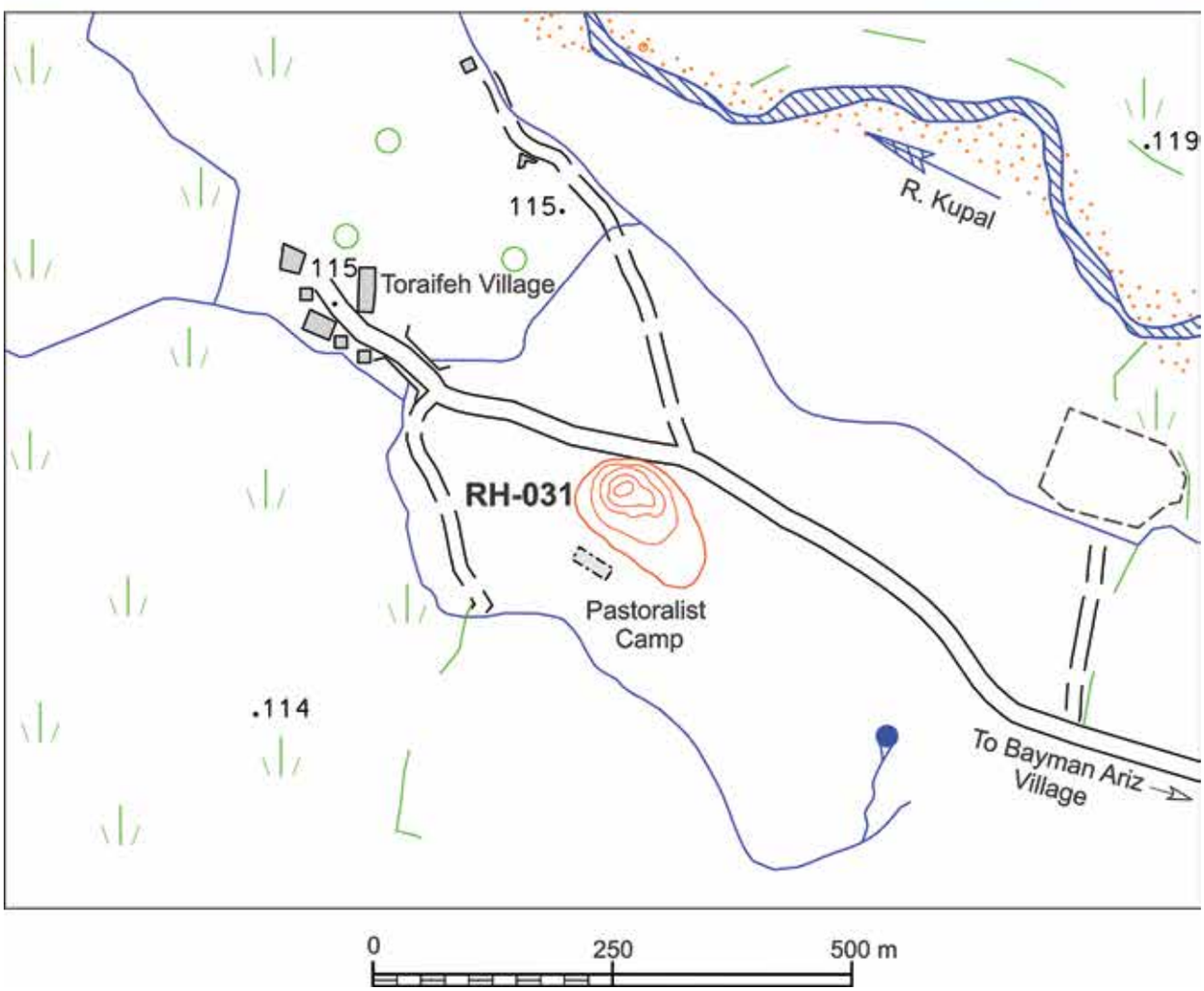


RH-022N, 022S, 023NE, 023SW, 042, 045, 114, 115, 116A–C, and their environs

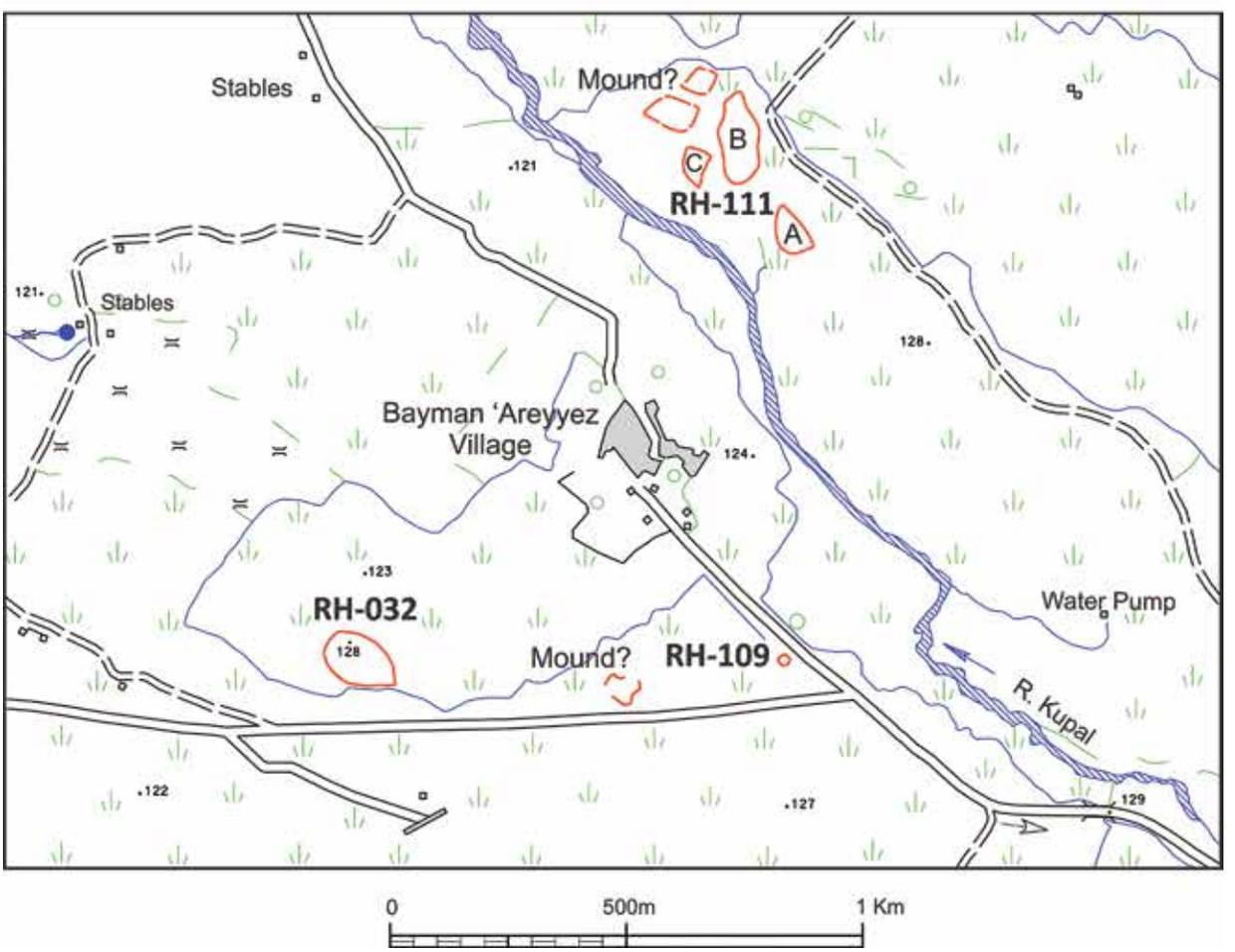
Plate 43



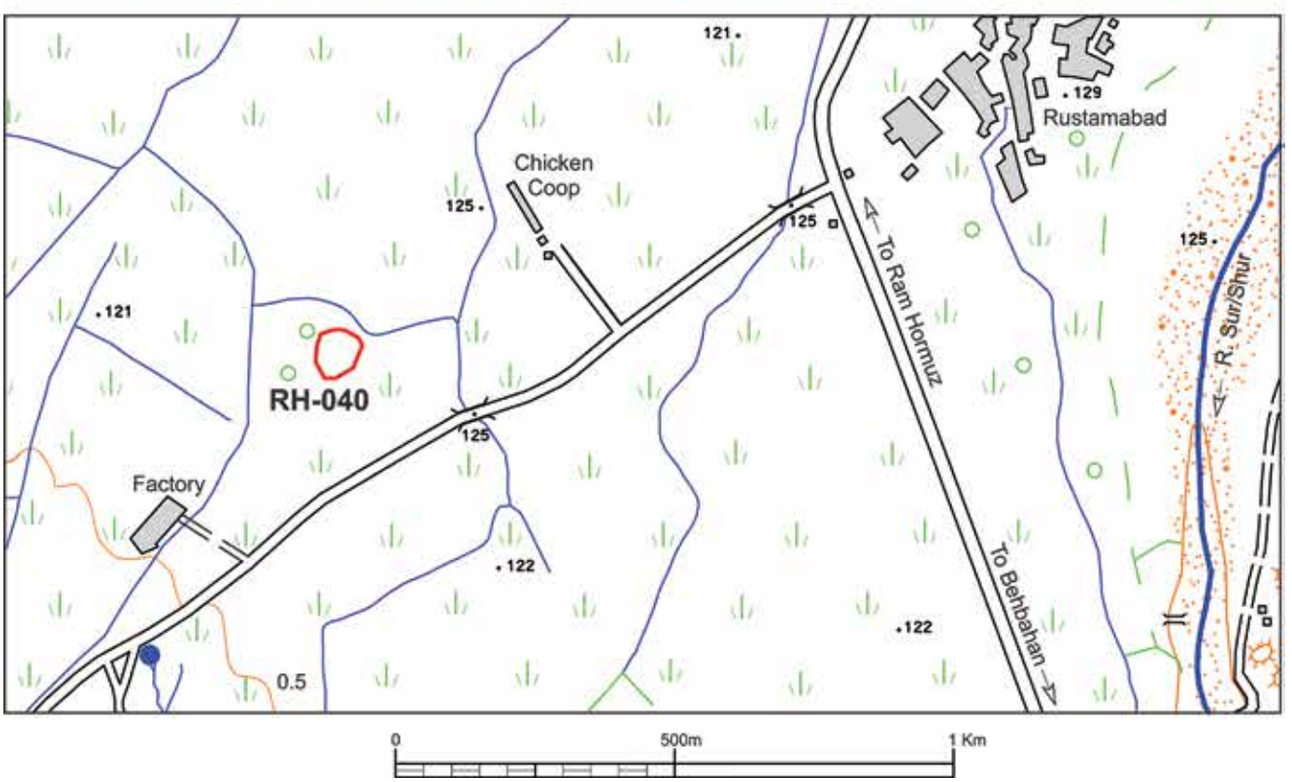
RH-009 (different view), 026, 027, and 044 and their environs



RH-031 and its environs

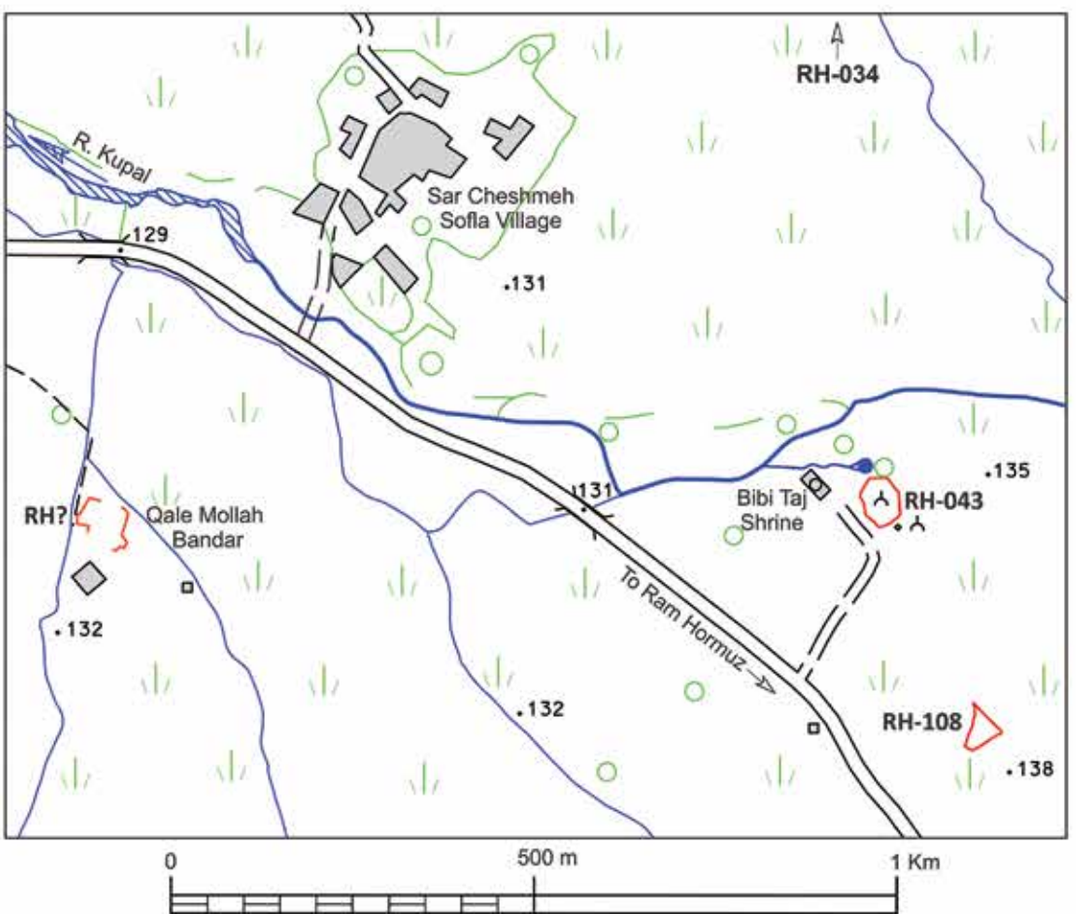


RH-032, 109, 111 and their environs

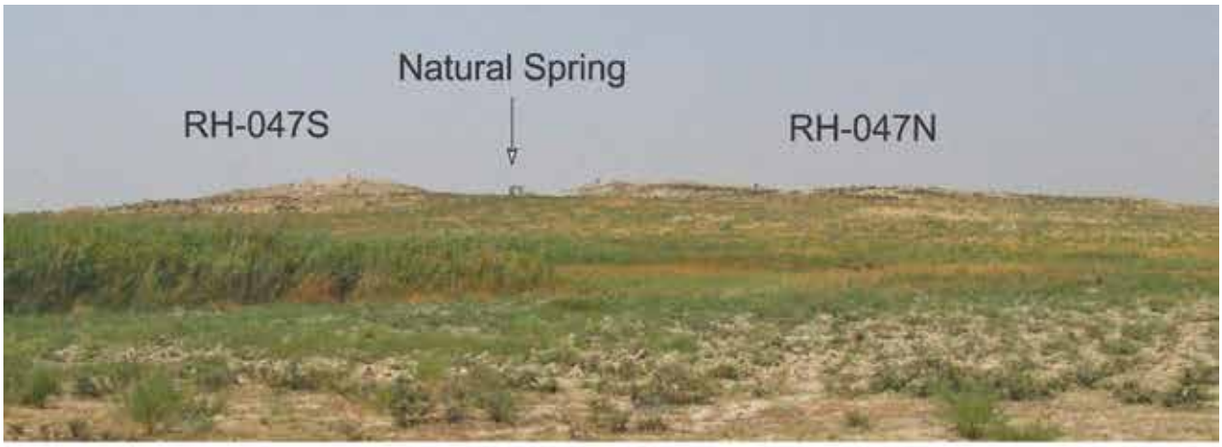


RH-040 and its environs

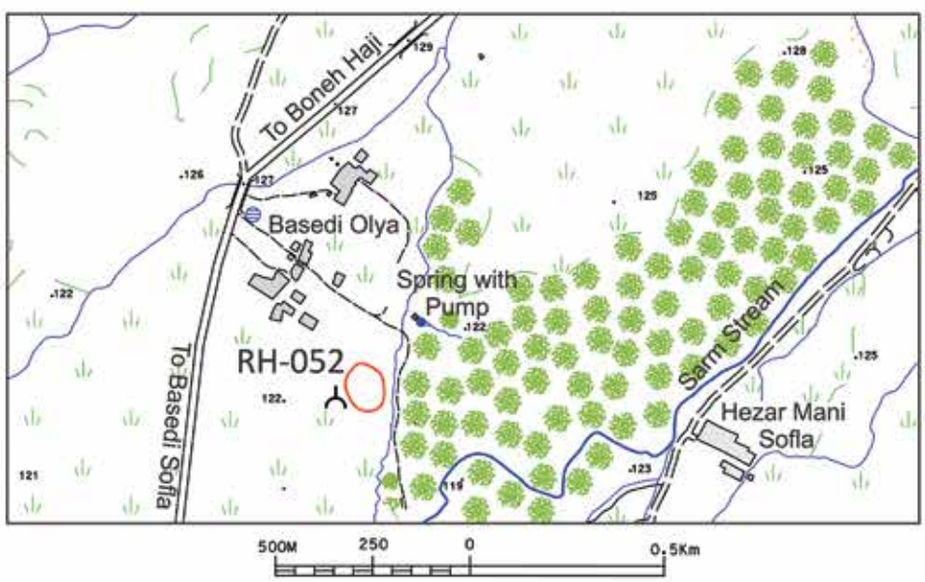
Bibi Taj Spring

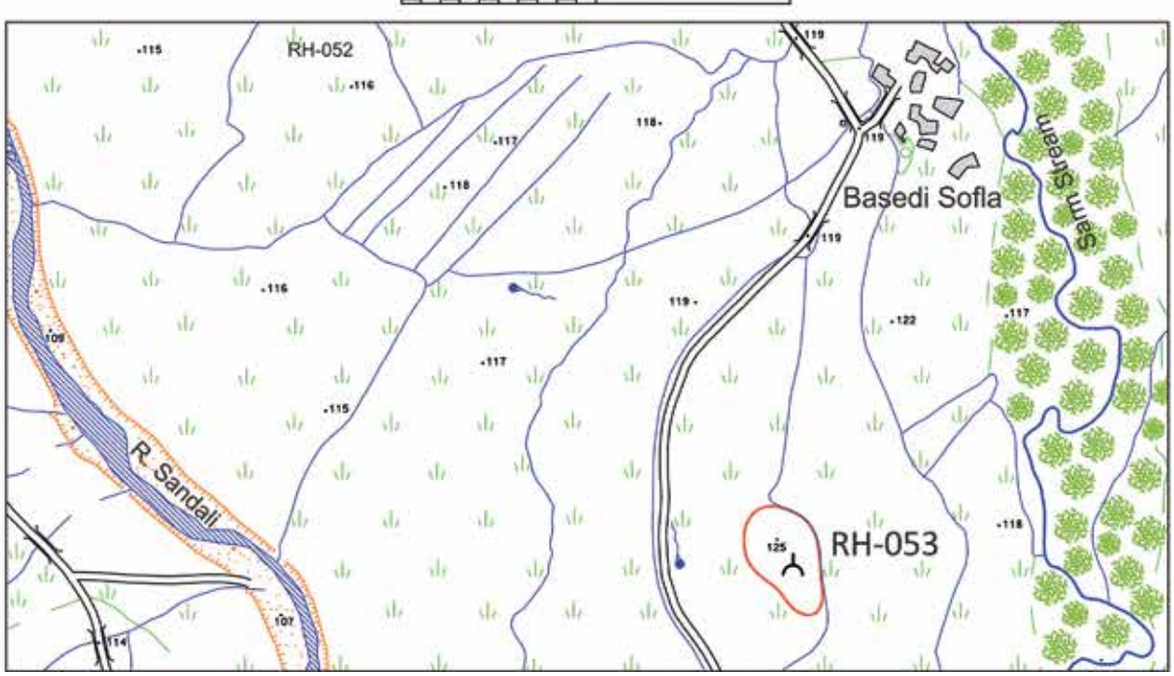


RH-43, 108 and their environs

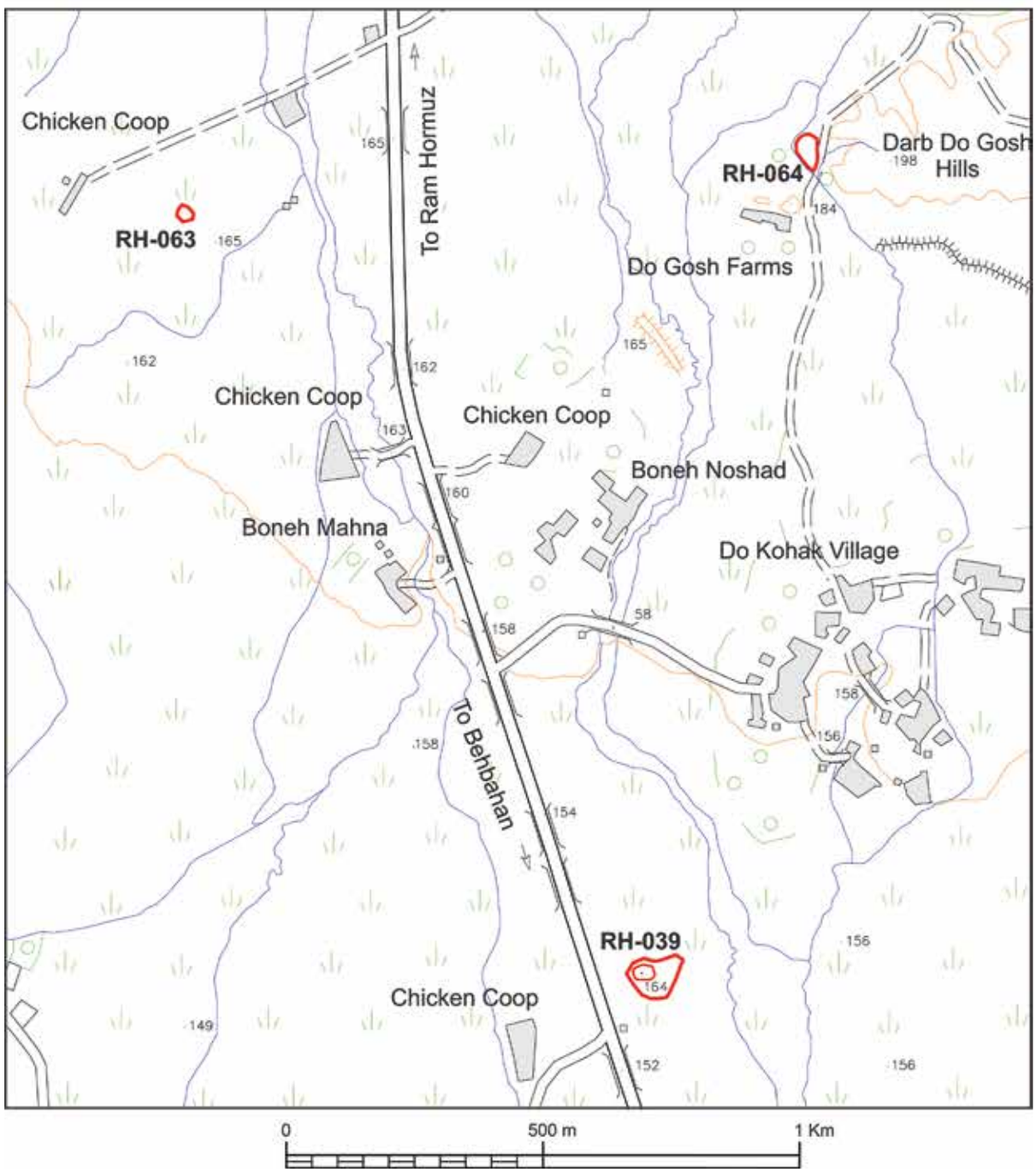


RH-047S, 047N and their natural spring and environs



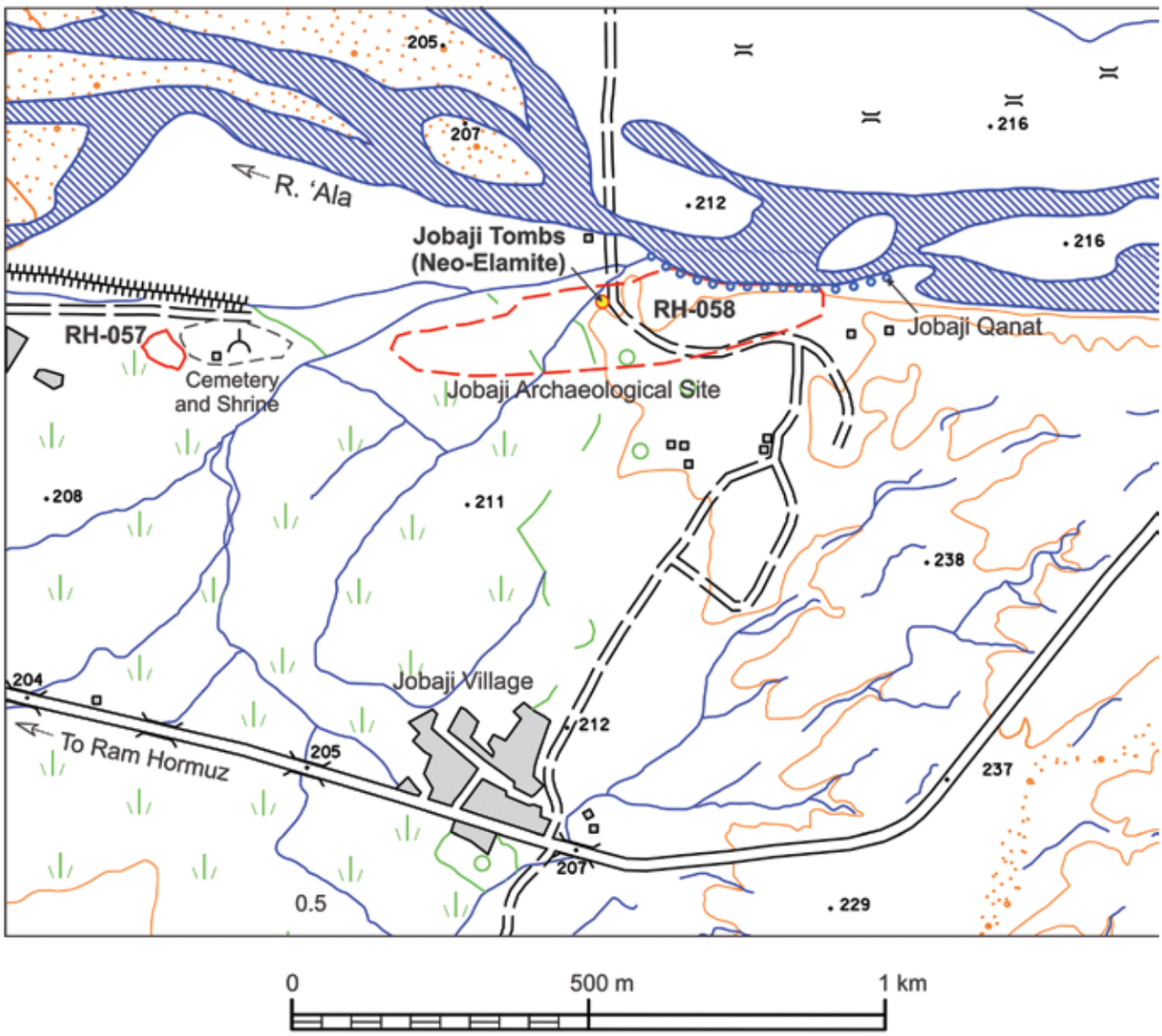


RH-052 and 053 and their environs

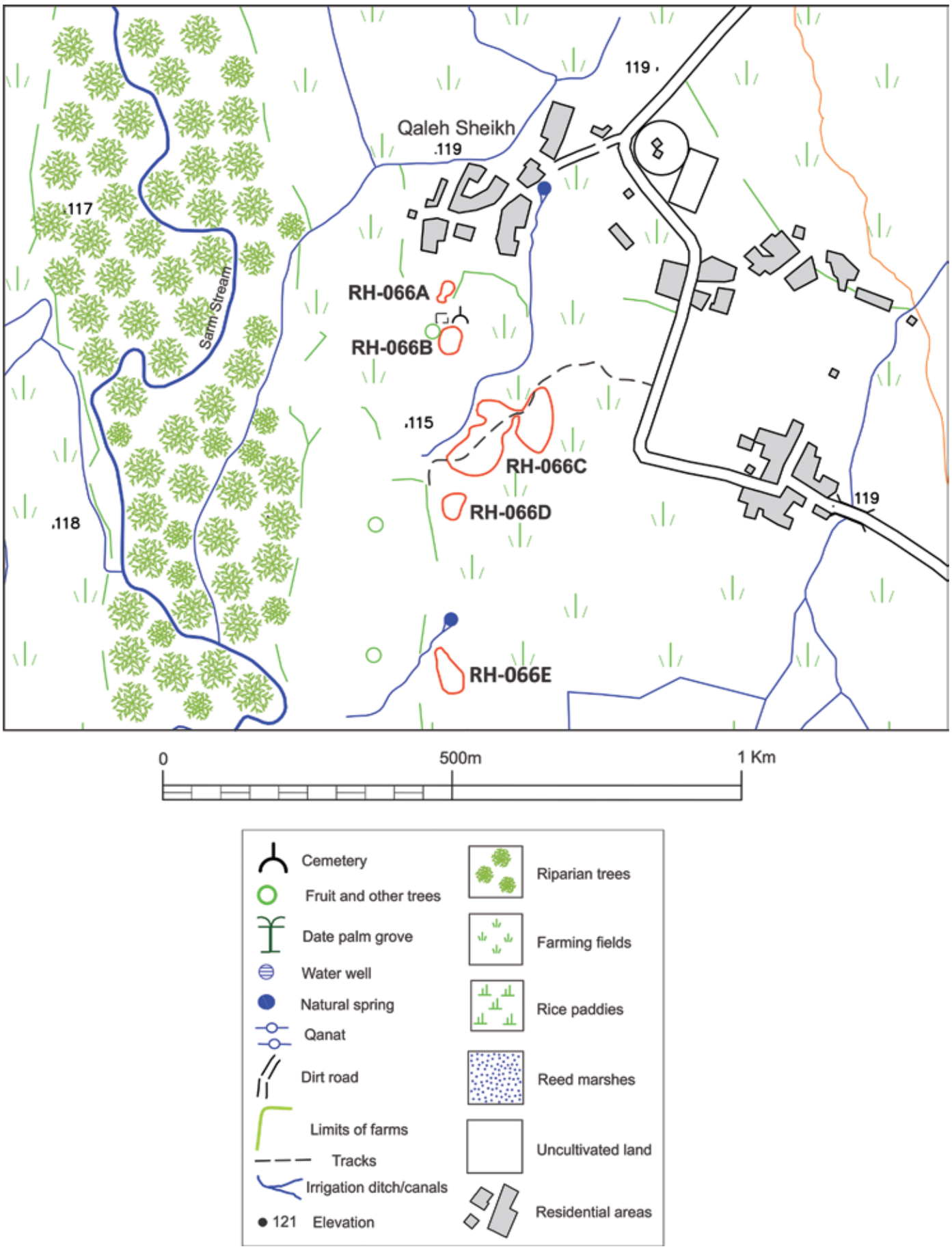


RH-039, 063, 064 and their environs

Plate 51

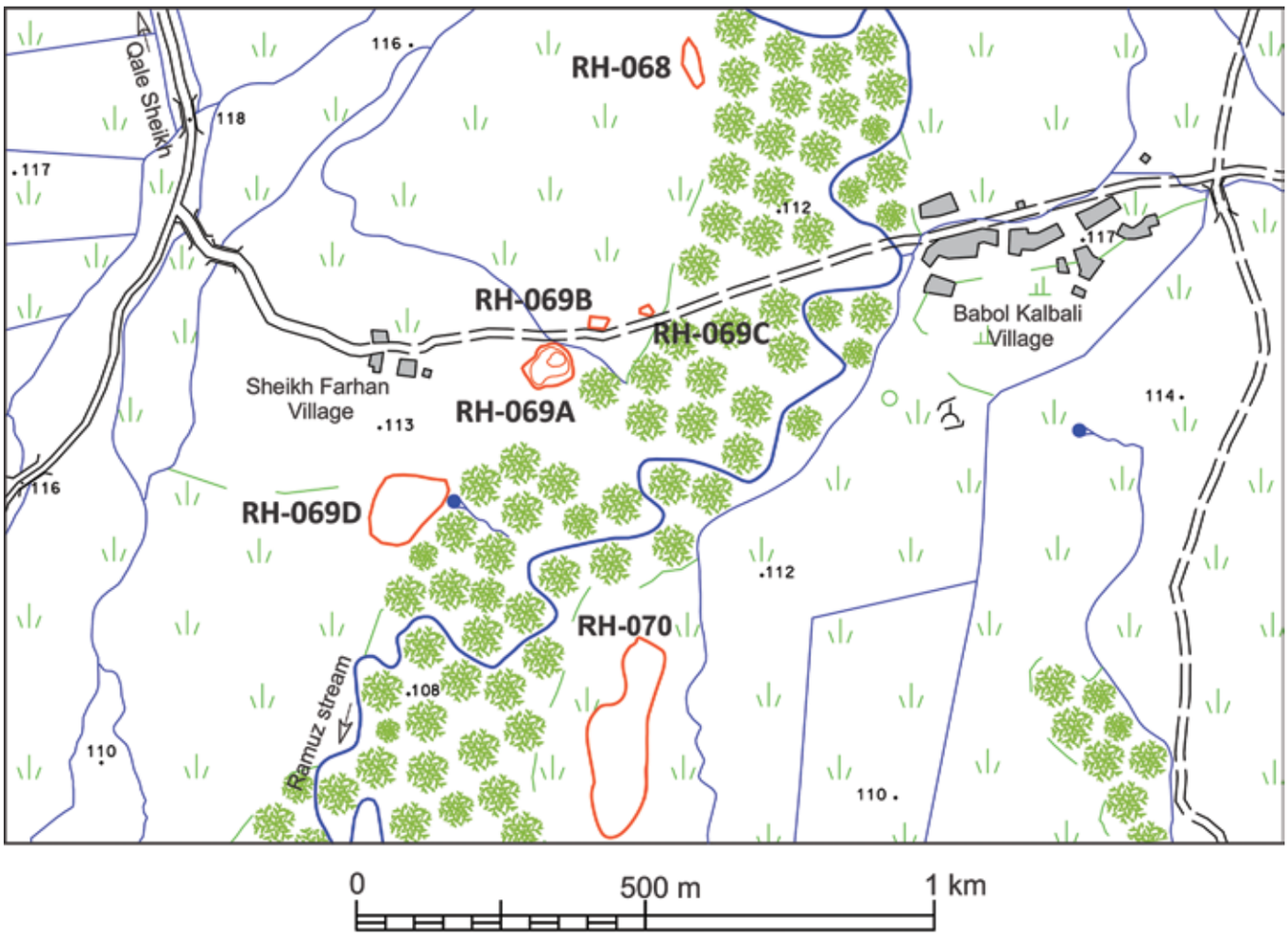


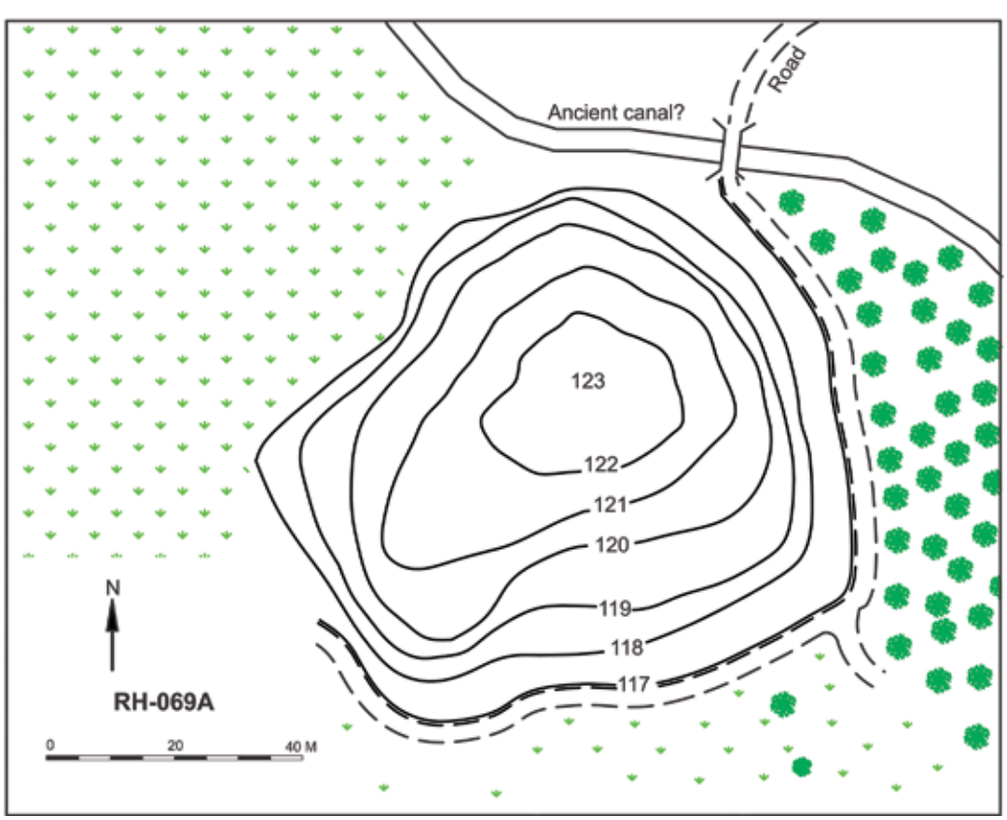
RH-058 (Jobaji) and its environs



RH-066A-E and their environs

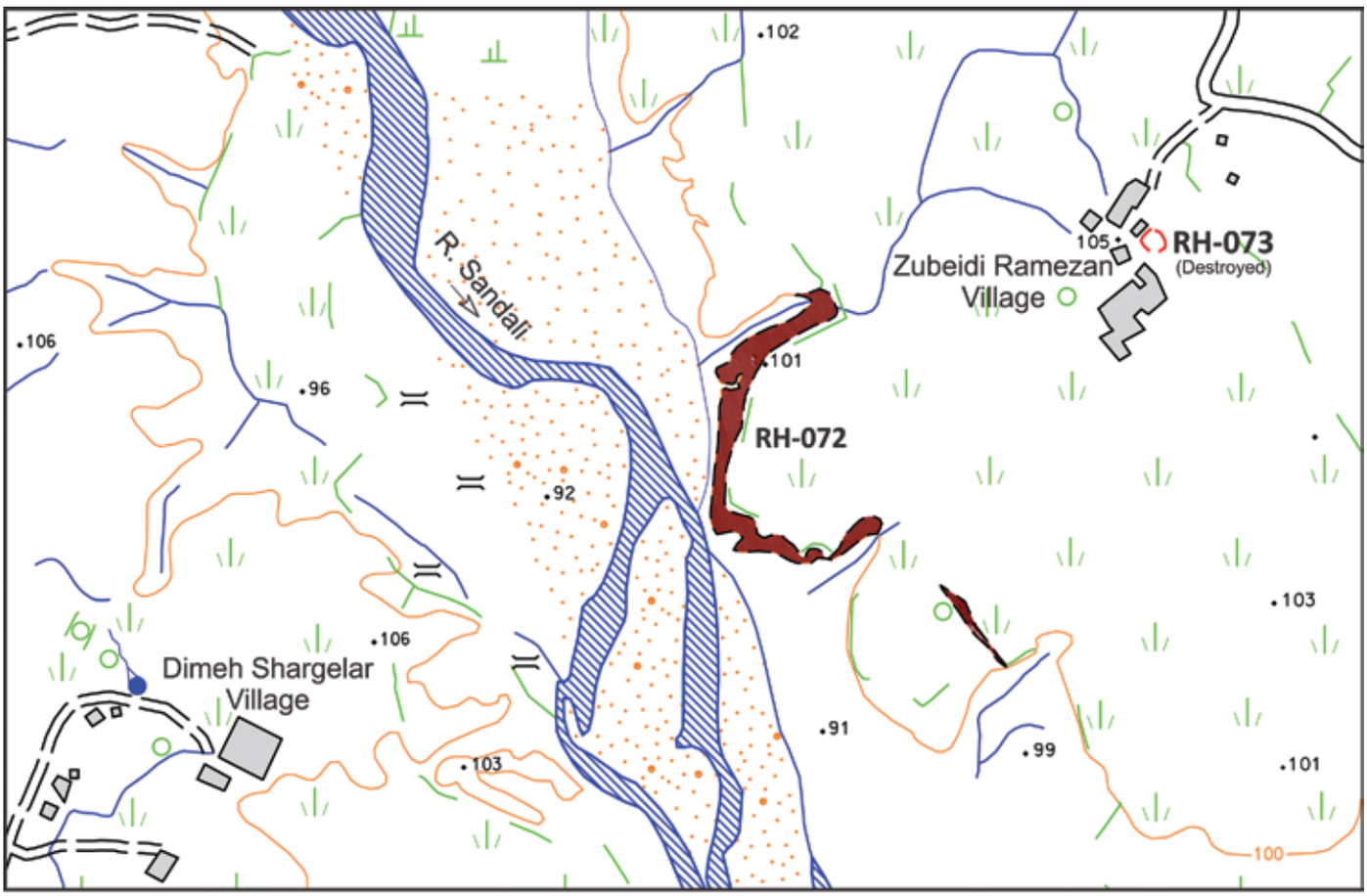
Plate 53

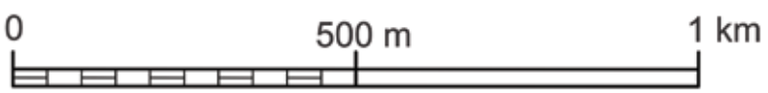


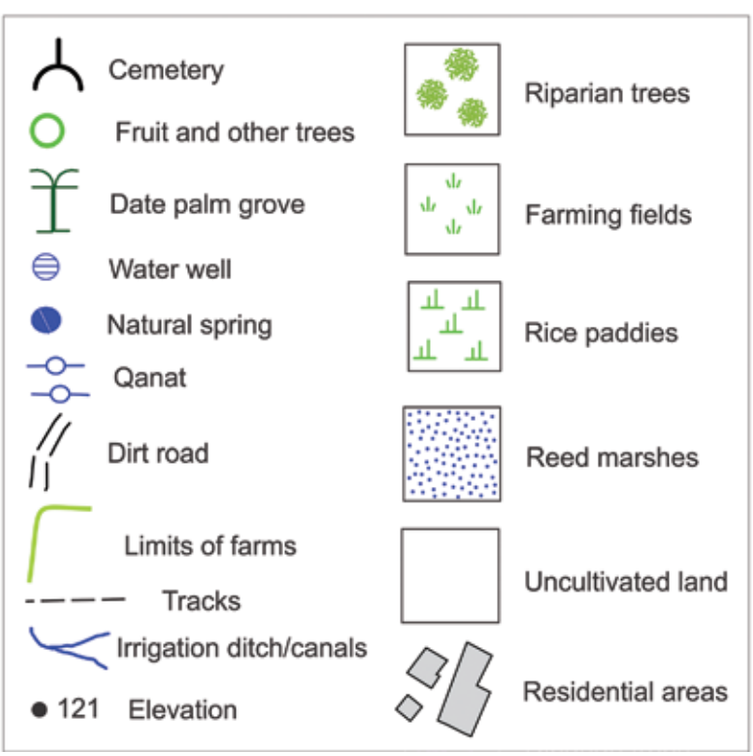


RH-068, 069A-D, 070 and their environs

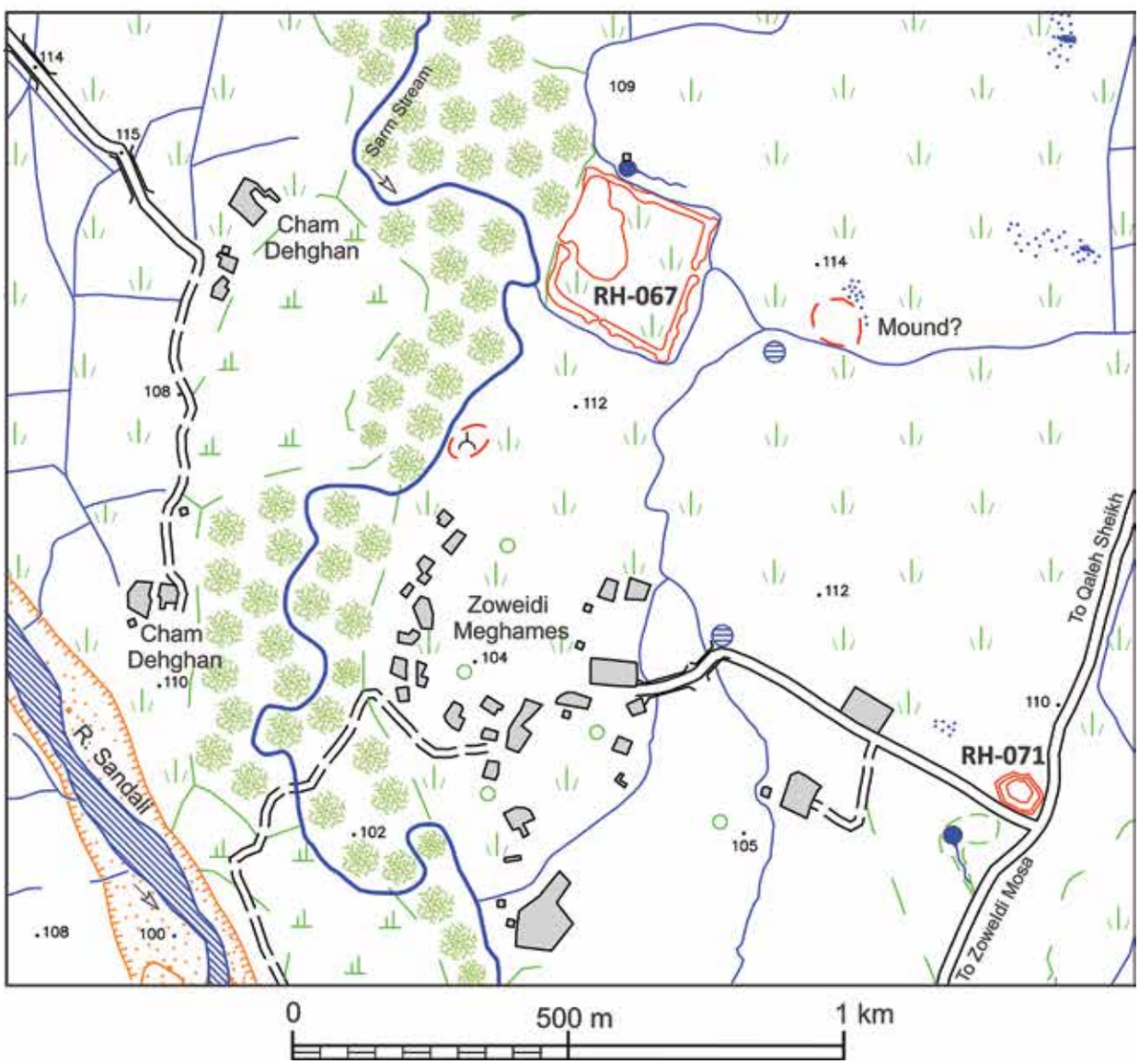
RH-068, 069A-C and their environs





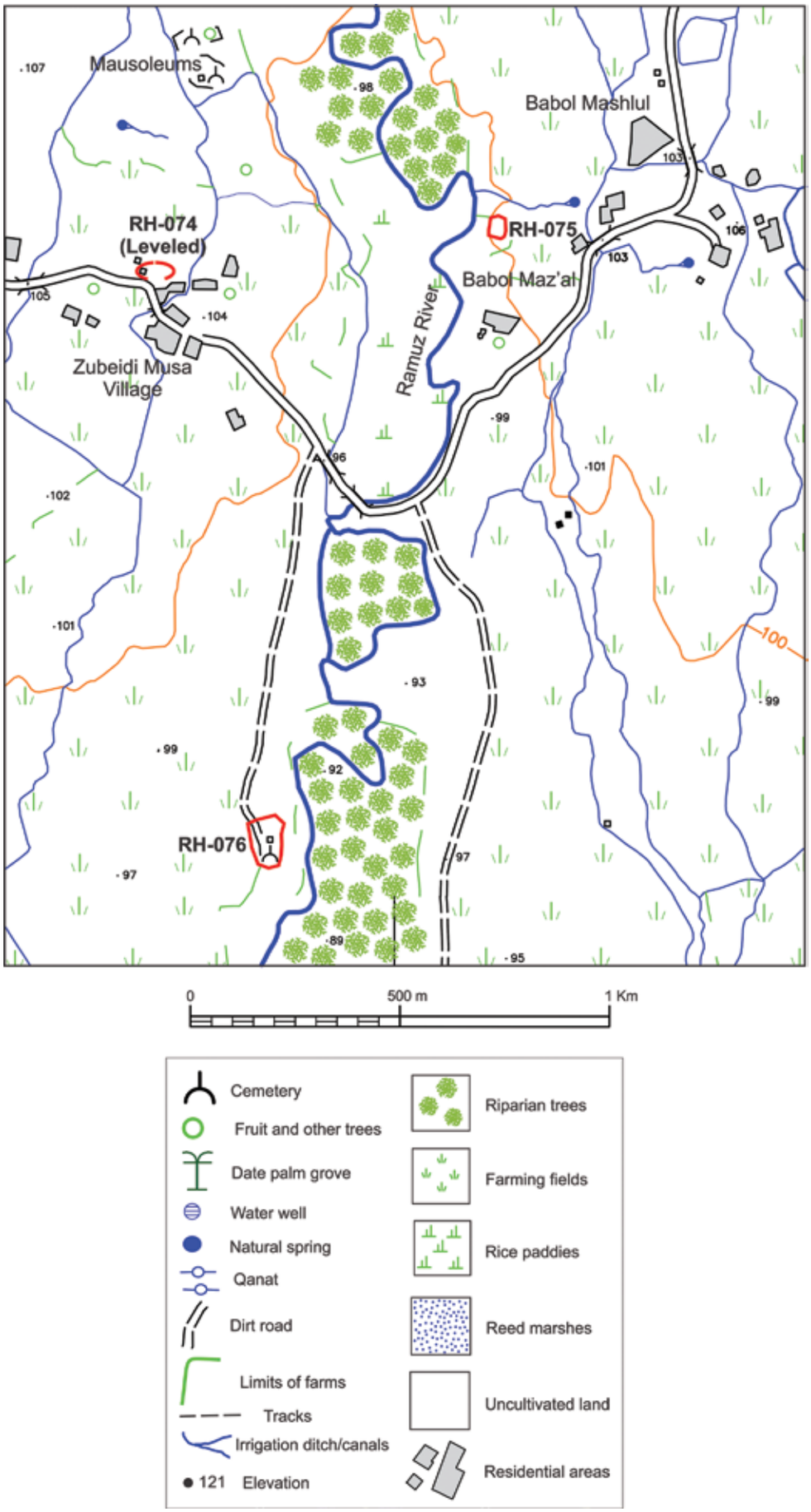


RH-072, RH-073 and their environs

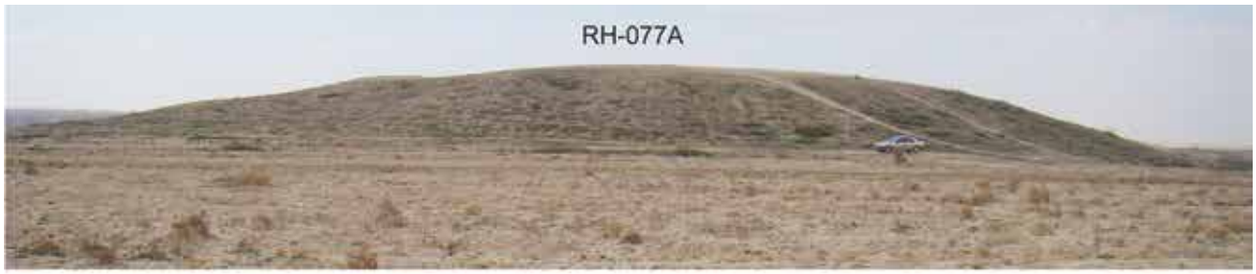


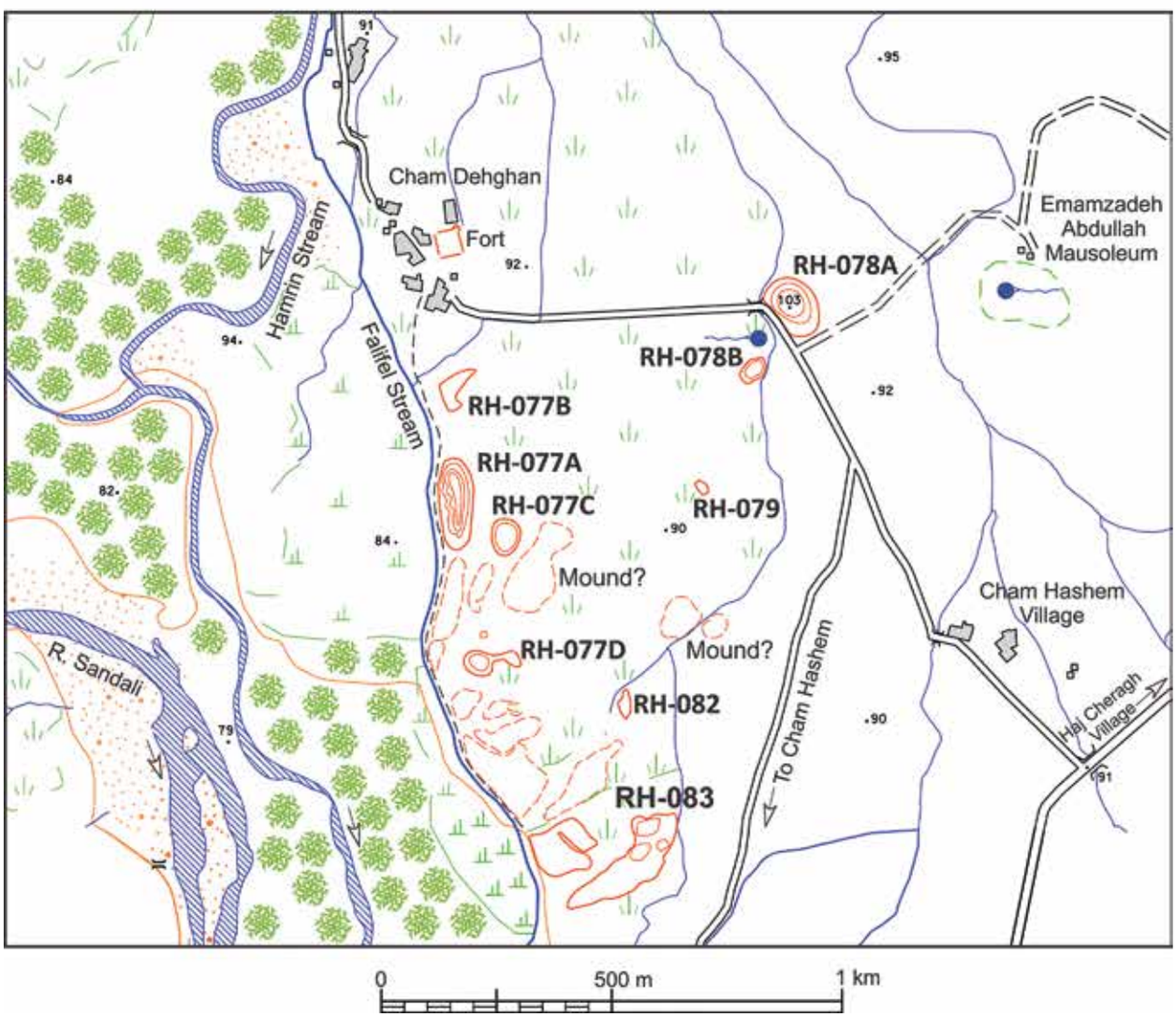
RH-067, RH-071 and their environs

Plate 57



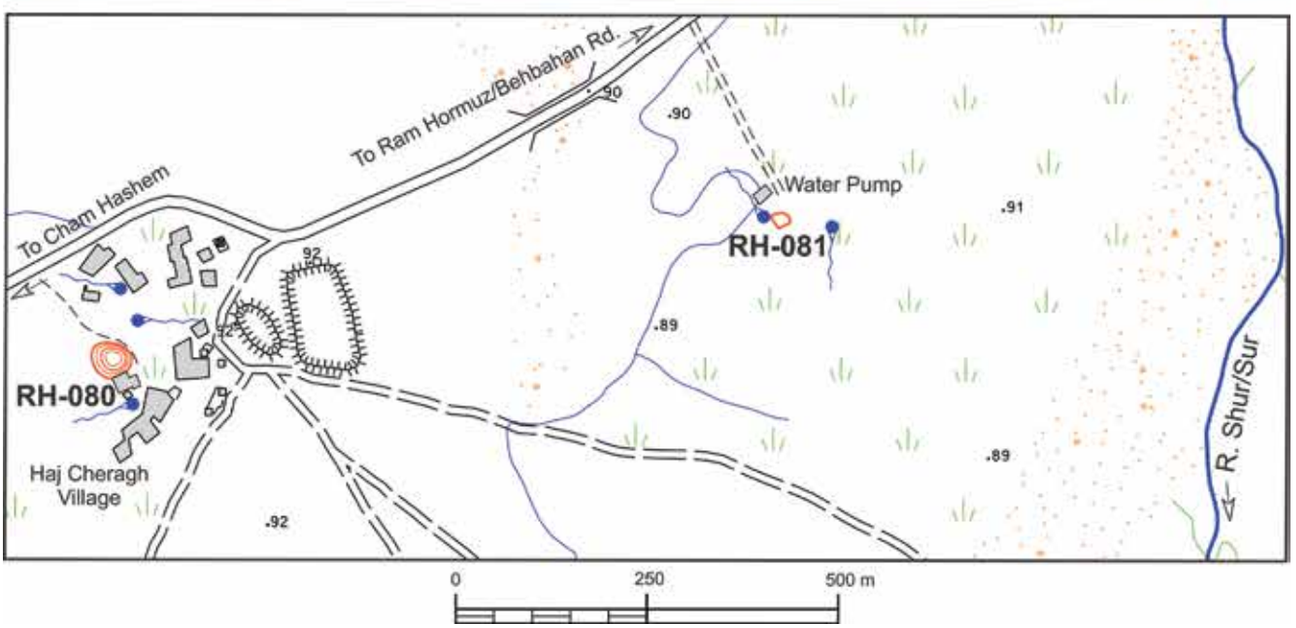
RH-074, 075, 076 and their environs





RH-077A-D, 078A-B, 082, 083 and their environs

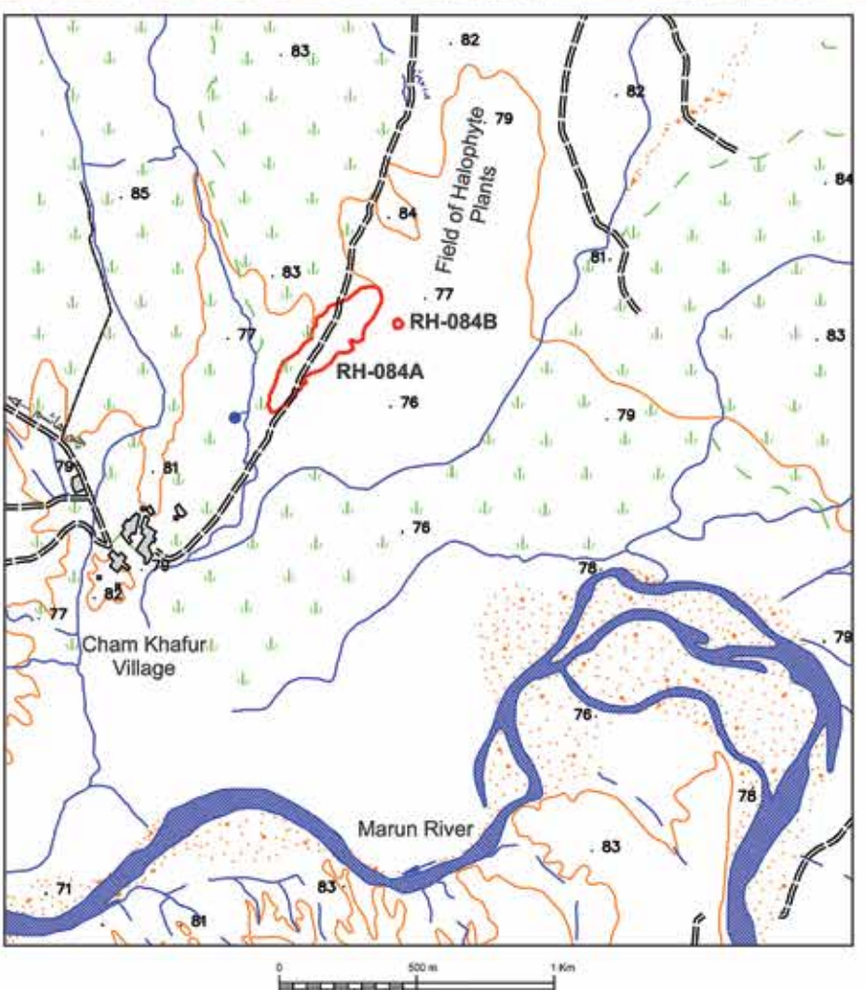
Plate 59



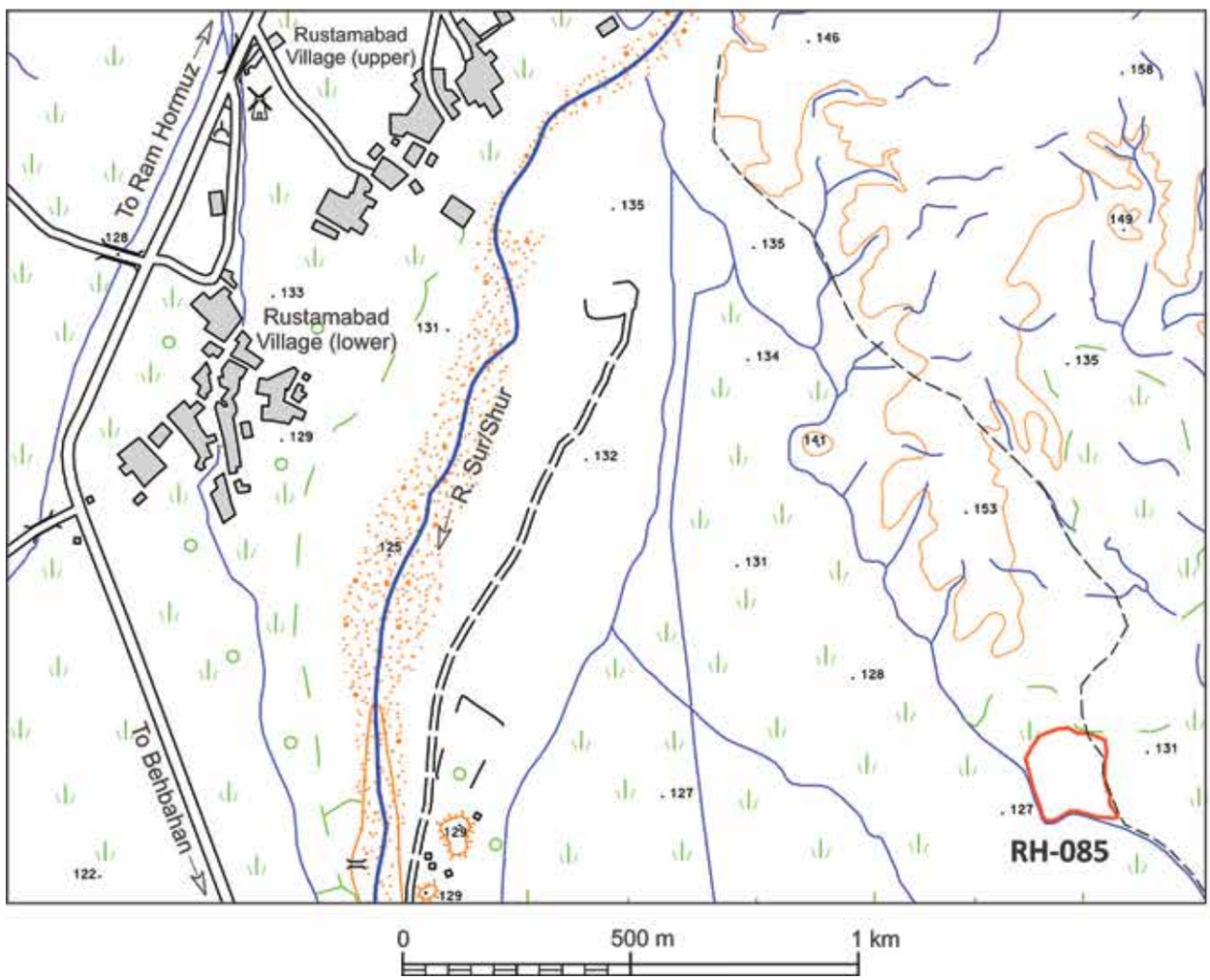
RH-080, RH-081 and their environs

RH-077A-D, 078A-B, 079, 082 and their environs

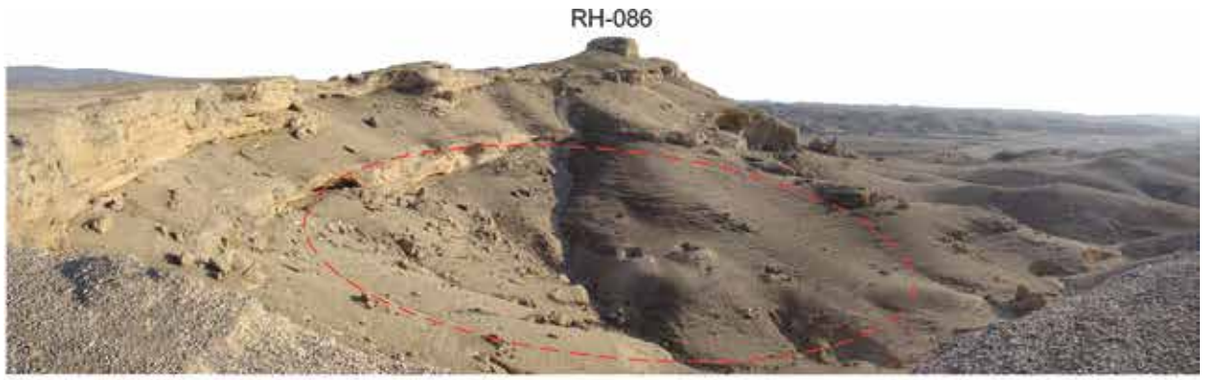
Plate 61



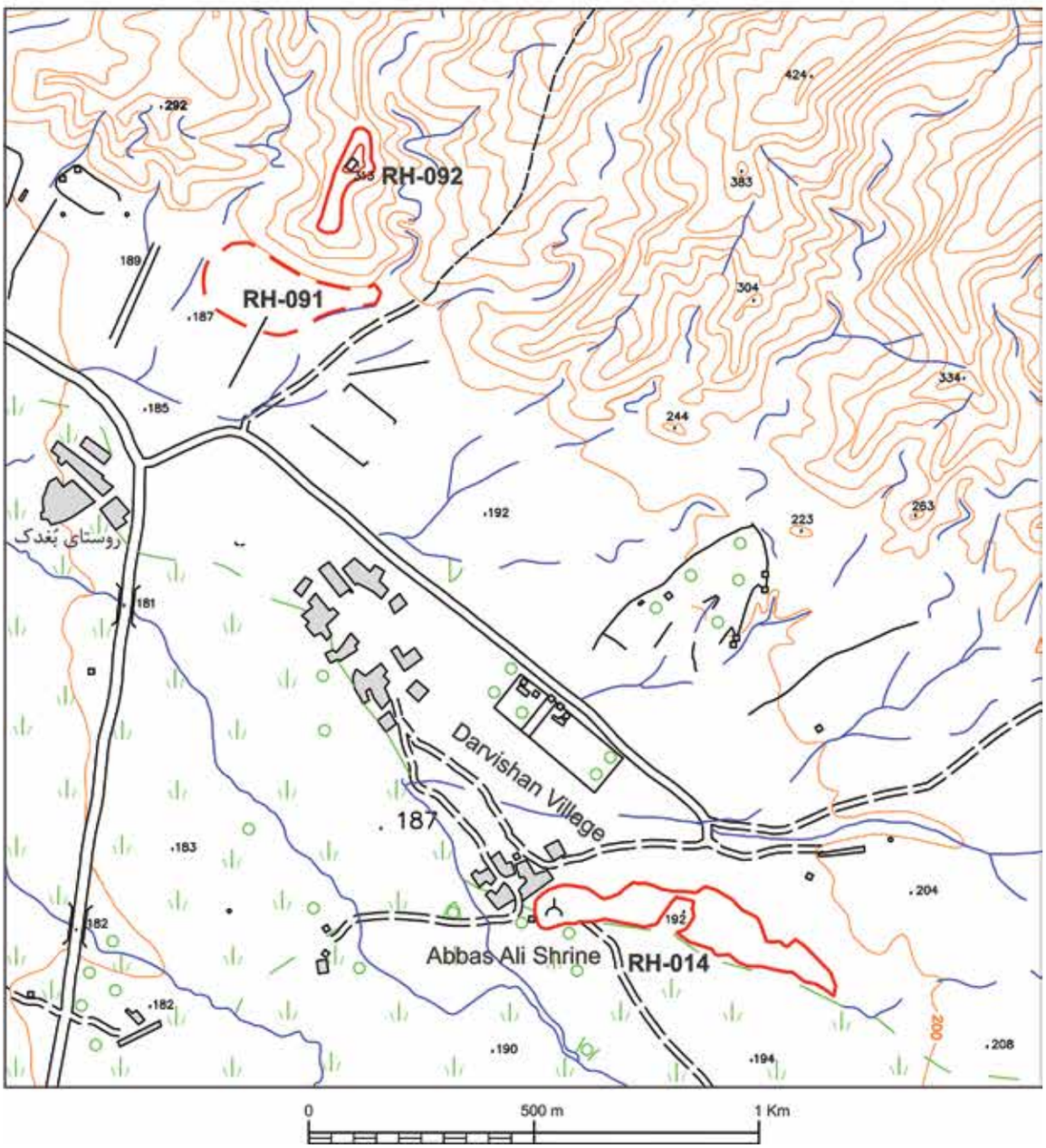
RH-084A, 084B and their environs



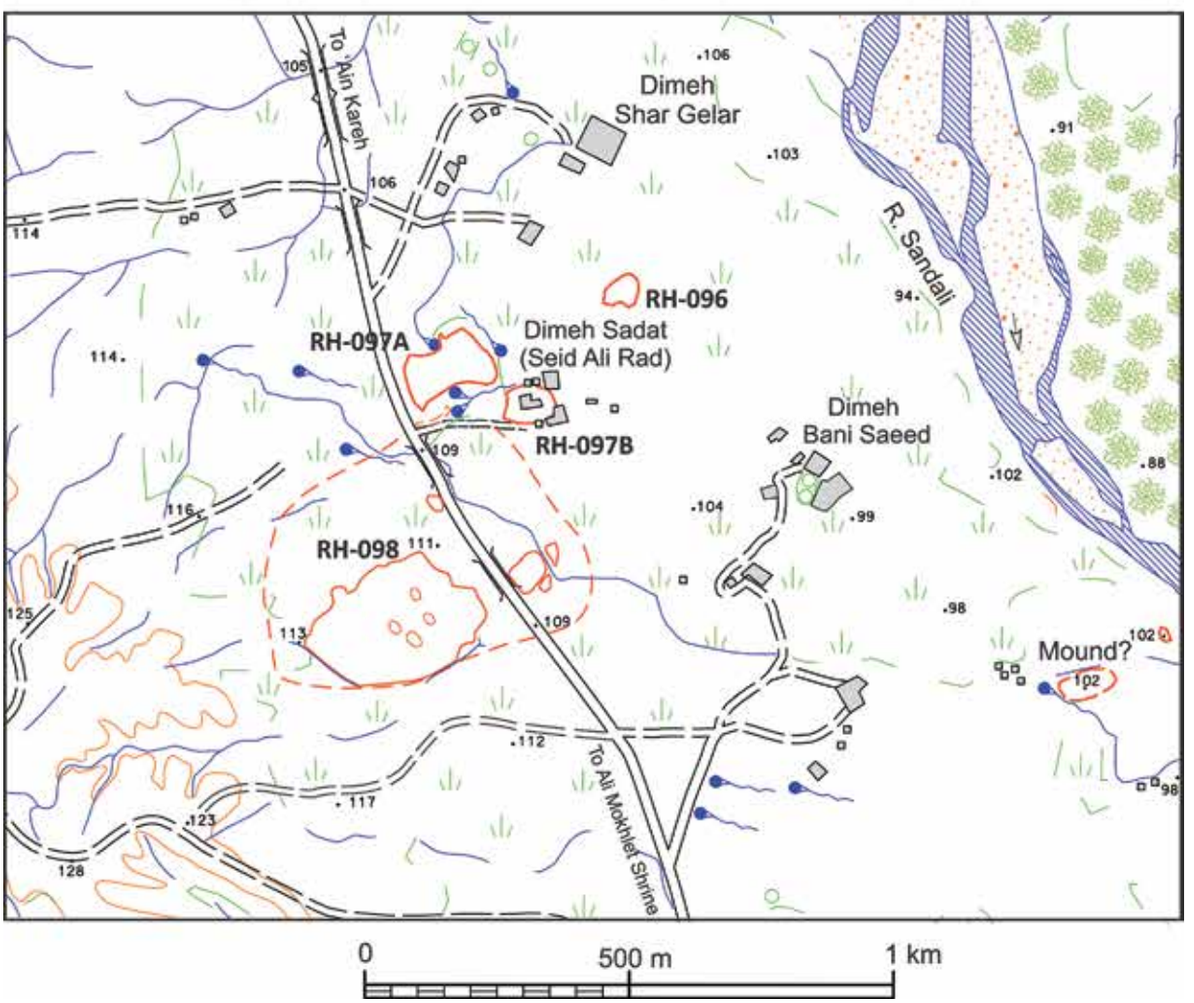
RH-085 and its environs



RH-086, 087, 088, and 089 and their environs

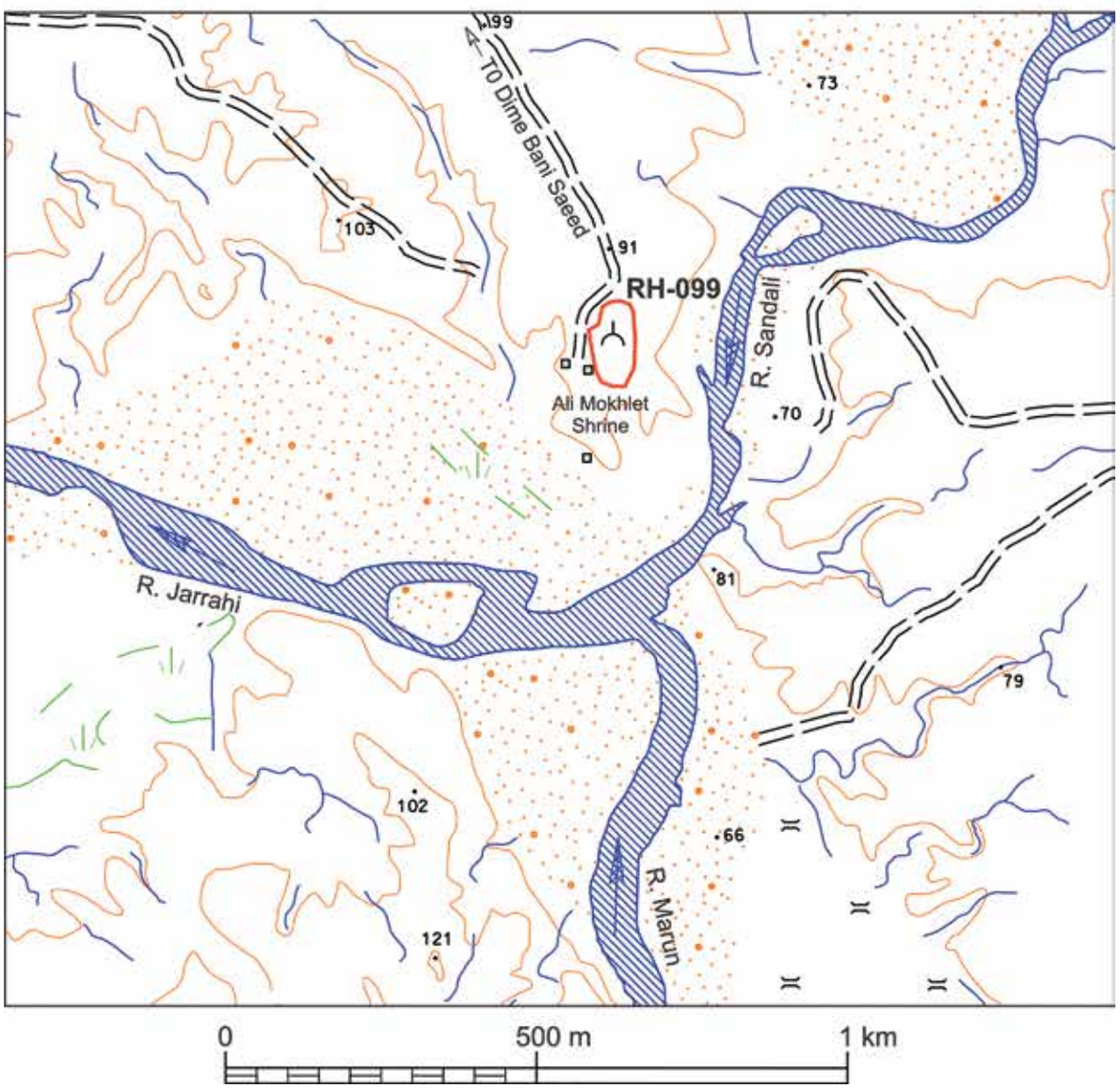


RH-014, 091, 092 and their environs

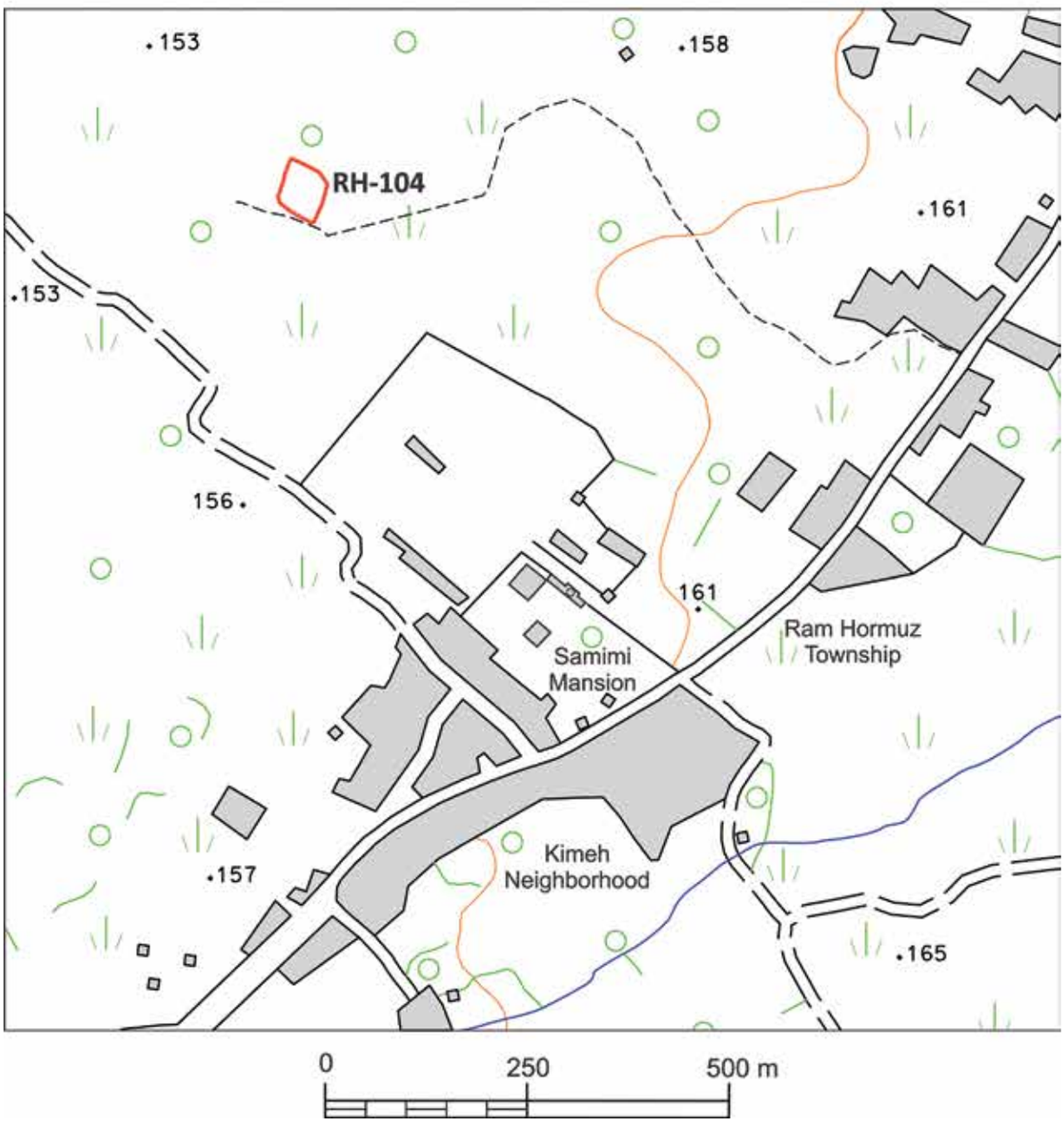


RH-096, 097A, 097B, 098 and their environs

RH-096, 097A, and 097B and their environs

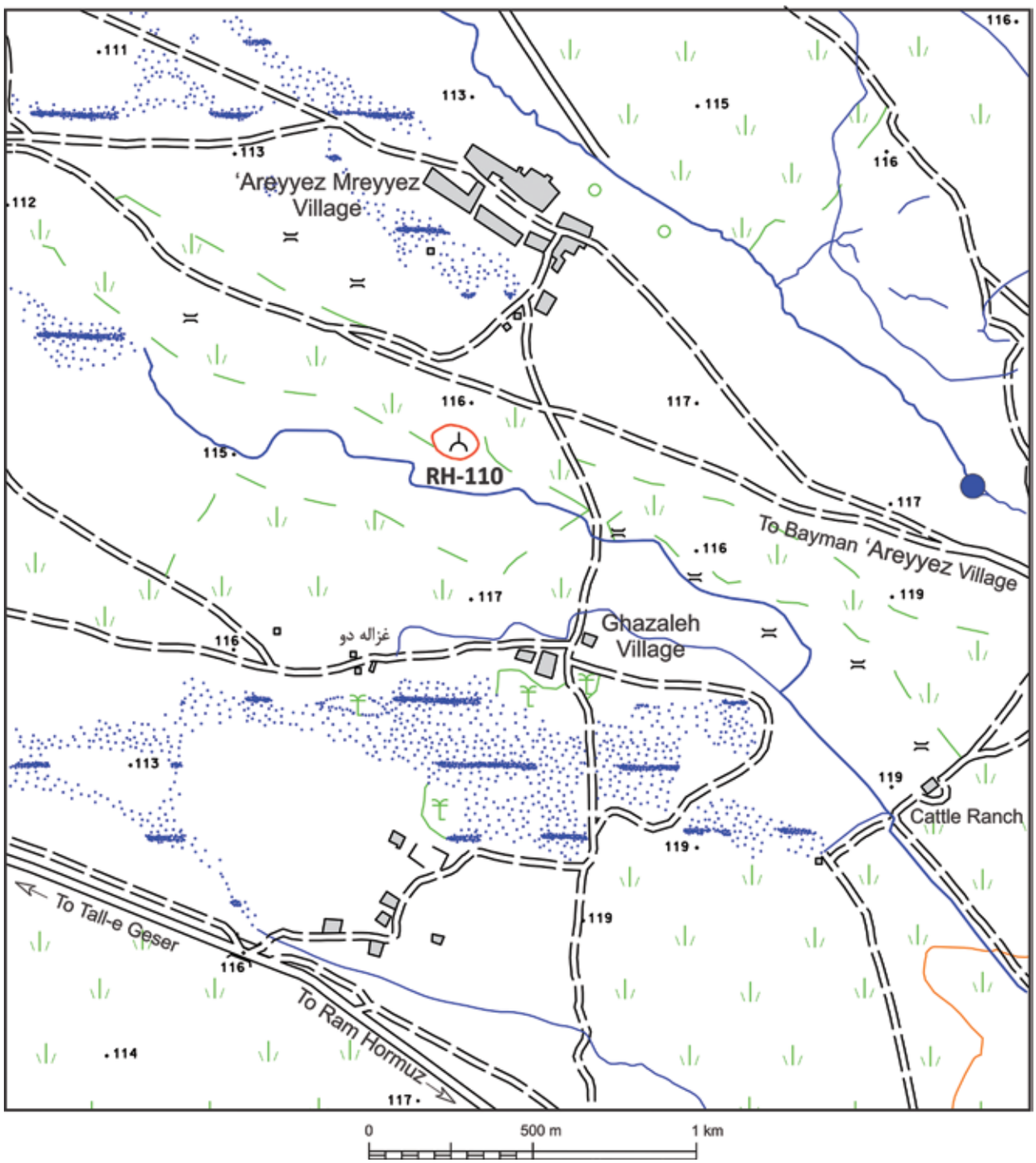


RH-099 and its environs



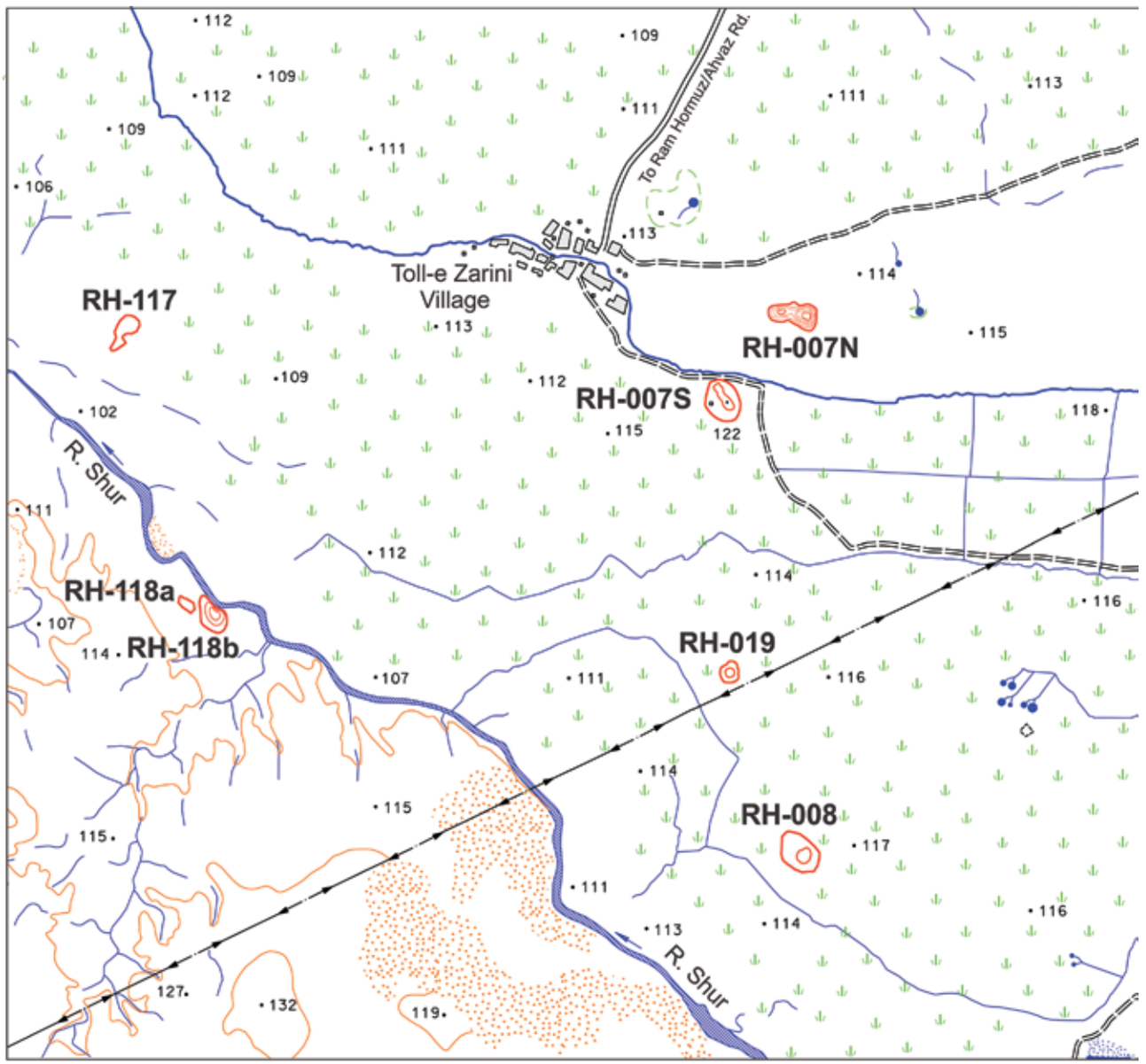
RH-104 and its environs

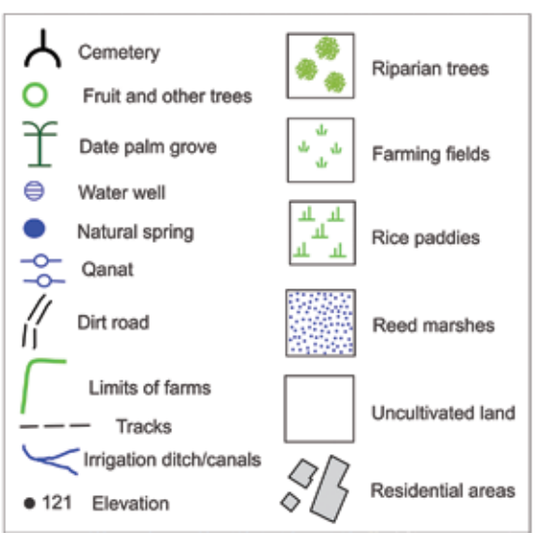
RH-105, RH-106, and their environs



RH-110 and its environs

Plate 71





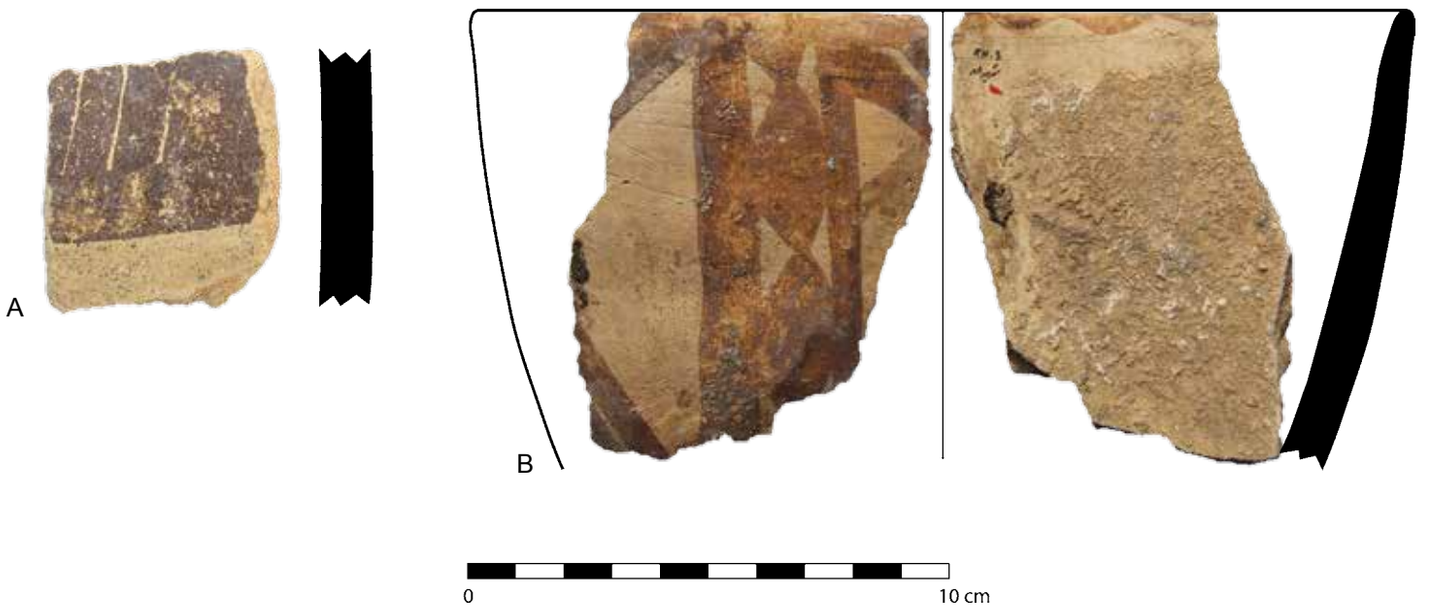
RH-007, 008, 019, 117, 118A, 118B

RH-007S, 007N, 017S, 019, 118A, and 118B and their environs

Lama cemetery (near Yasuj), its environ, and sample pottery (courtesy of Hasan Rezvani)

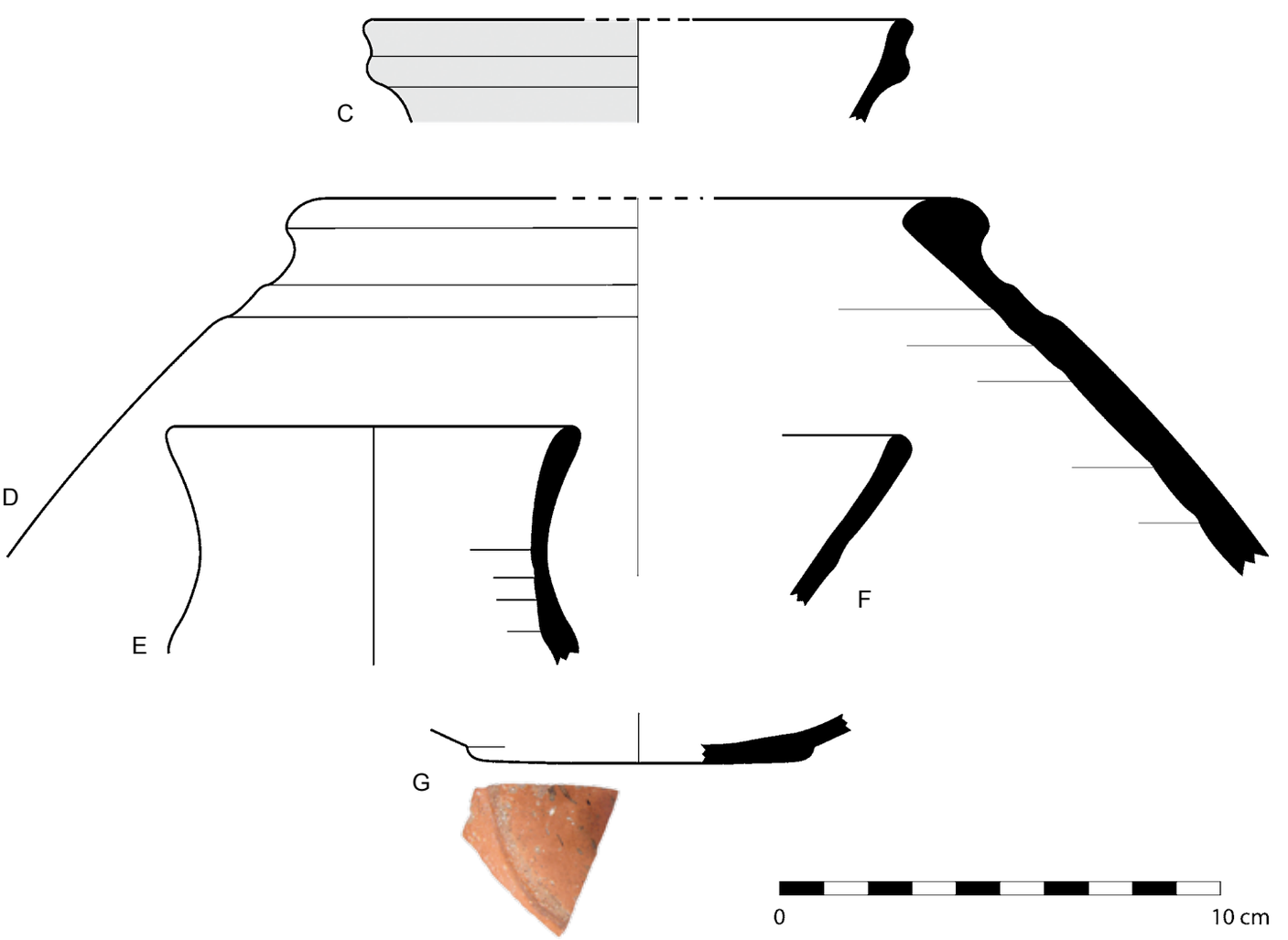
Plate 74. Pottery from RH-003 and RH-005

	Period	*Description*
RH-003		
A	Early Susiana	Buff ware, dark grits in paste, dark brown paint
B	Early Susiana	Yellowish buff ware, some fine chaff or hair/wool inclusion, completely oxidized, well baked, uneven surface, brown paint flaked off in places
RH-005		
C	Sasanian	Buff ware, light gray core, chaff inclusion, reddish brown wash *Comparanda:* Wenke 1975–76, fig. 10:408
D	Sasanian	Light brown ware, chaff inclusion, micaceous, chaff and mica face *Comparanda:* Similar to Wenke 1975–76, fig. 7:202–03
E	Sasanian?	Light brown ware, chaff inclusion, micaceous, chaff and mica face, buff brown exterior, grayish buff interior
F	Sasanian?	Light pinkish brown ware, chaff inclusion, micaceous, chaff and mica face, brownish buff exterior, greenish buff interior *Comparanda:* Similar to Wenke 1975–76, fig. 8:303
G	Achaemenid	Bricky red ware, light gray core, chaff inclusion, occasional calcite particles, light bricky red surface, polished exterior and interior



RH-003

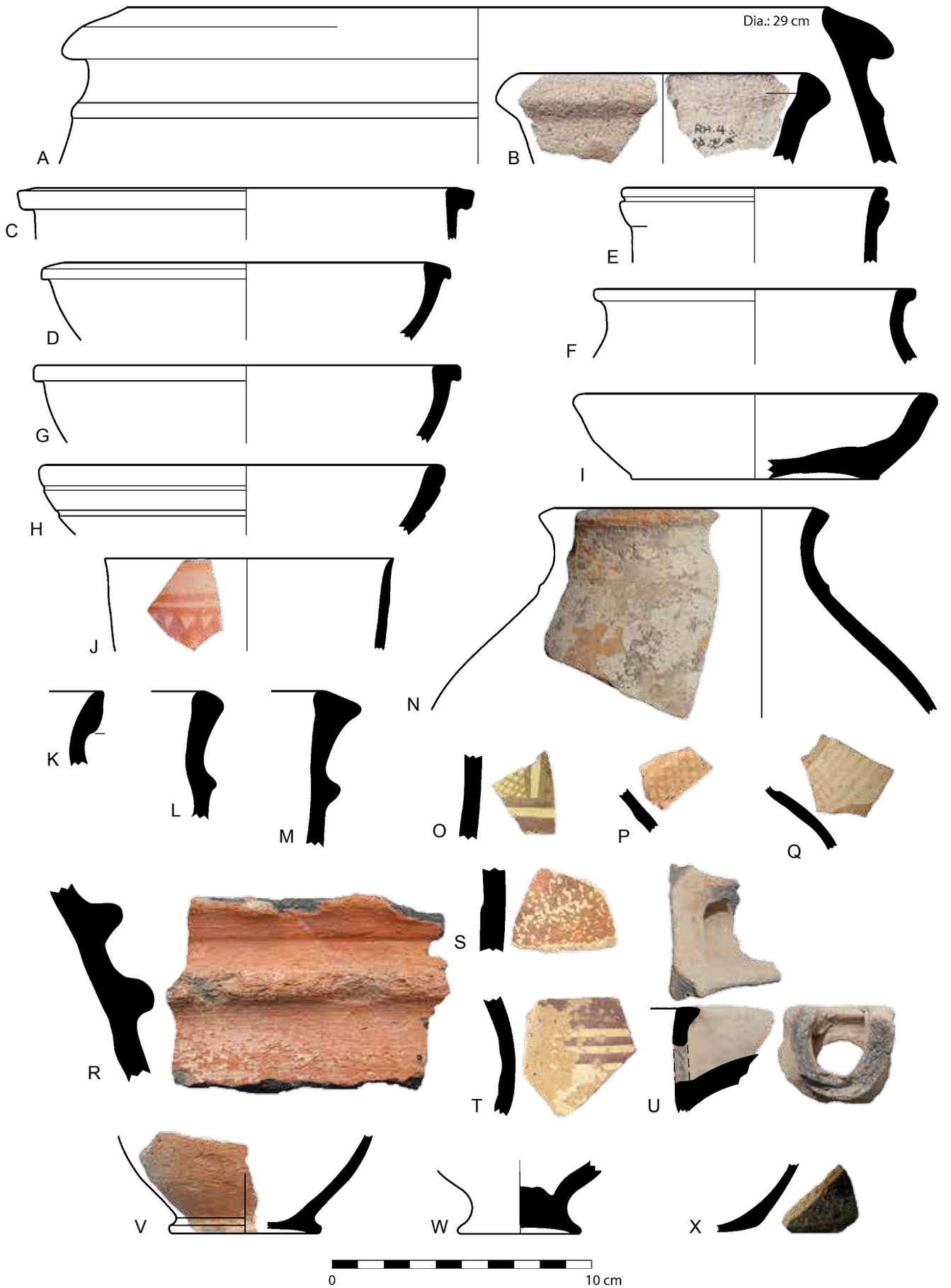
RH-005



Pottery from RH-003 and RH-005

Plate 75. Pottery from RH-004

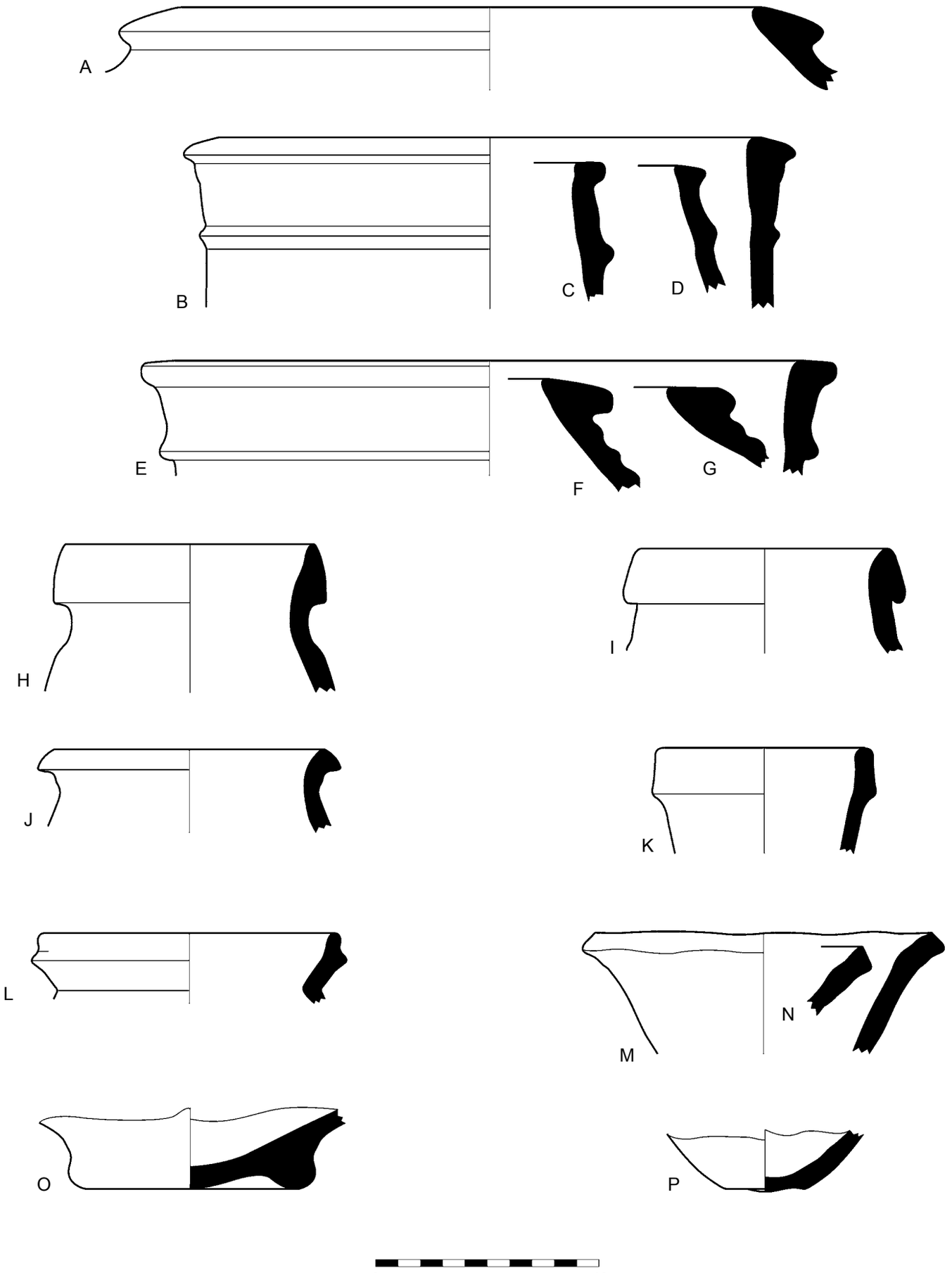
	Period	*Description*
A	Middle Elamite	Light brown ware, chaff temper, micaceous, light buff interior and exterior
B	Achaemenid/ Neo-Elamite	Buff ware, sand and chaff inclusion, sandy face, pinkish buff surfaces
C	Middle Elamite	Light brown ware, dark core, chaff inclusion, micaceous *Comparanda:* Susa Ville Royale II, level 9 (Miroschedji 1981a, fig. 20:11)
D	Sukkalmah	Light brown ware, very light gray core, chaff inclusion, light greenish buff interior and exterior *Comparanda:* Farukhabad, level B12 (Wright 1981, fig. 85:d)
E	Sukkalmah	Light brown buff ware, dark core, chaff inclusion, micaceous, buff surface *Comparanda:* Similar to Farukhabad, level B18 (Wright 1981, fig. 84:i)
F	Middle Elamite	Grayish brown ware, black core, chaff inclusion, micaceous, light brownish buff surface
G	Middle Elamite	Light brown ware, black core, chaff inclusion, buff surface
H	—	Light brown coarse ware, porous, grog inclusion, buff surface, handmade?
I	Sukkalmah	Light brown ware, chaff inclusion, chaff face *Comparanda:* Similar to Farukhabad, level B12 (Wright 1981, fig. 85:c)
J	Sukkalmah	Pinkish buff ware, gray core, no visible inclusion, red brown paint
K	—	Light brown ware, gray core, chaff inclusion, some calcite particles
L	—	Brown ware, black core, chaff inclusion, light brown surface
M	Middle Elamite	Buff ware, chaff inclusion, micaceous, chaff face, greenish buff surface
N	Sukkalmah/ Middle Elamite	Red ware, chaff inclusion, chaff face, cream buff wash exterior, flaky
O	Late Middle Susiana	Greenish buff ware, no visible inclusion, greenish paint
P	Sukkalmah/ Transitional	Light buff ware, gray core, chaff inclusion, light brown paint, pinkish buff surface
Q	Sukkalmah/ Transitional	Light brown ware, gray core, occasional calcite particles in paste, chaff inclusion, micaceous, chaff face, grayish white wash exterior, light brown paint
R	Sukkalmah	Bricky red ware, black core is sandwiched between 1 mm thick red layers, chaff inclusion
S	Achaemenid	Light brown ware, chaff inclusion, reddish brown wash interior and exterior
T	Sukkalmah/ Transitional	Light brown ware, gray core, chaff inclusion, off white wash exterior, brown paint, buff surface
U	Middle Elamite	Bricky red ware, black core is sandwiched between two 1 mm red layers, sand in paste, chaff inclusion *Comparanda:* Susa Ville Royale II, level 10 (Miroschedji 1981a, fig. 14:6)
V	Sukkalmah	Pale red ware, thick black core, chaff inclusion *Comparanda:* Farukhabad (Wright 1981, fig. 87, ring bases)
W	Middle Elamite	Light brown ware, light gray core, chaff and mica, chaff and mica face
X	Late Middle Susiana	Greenish buff ware, no visible inclusion, olive green paint



Pottery from RH-004

Plate 76. Pottery from RH-006

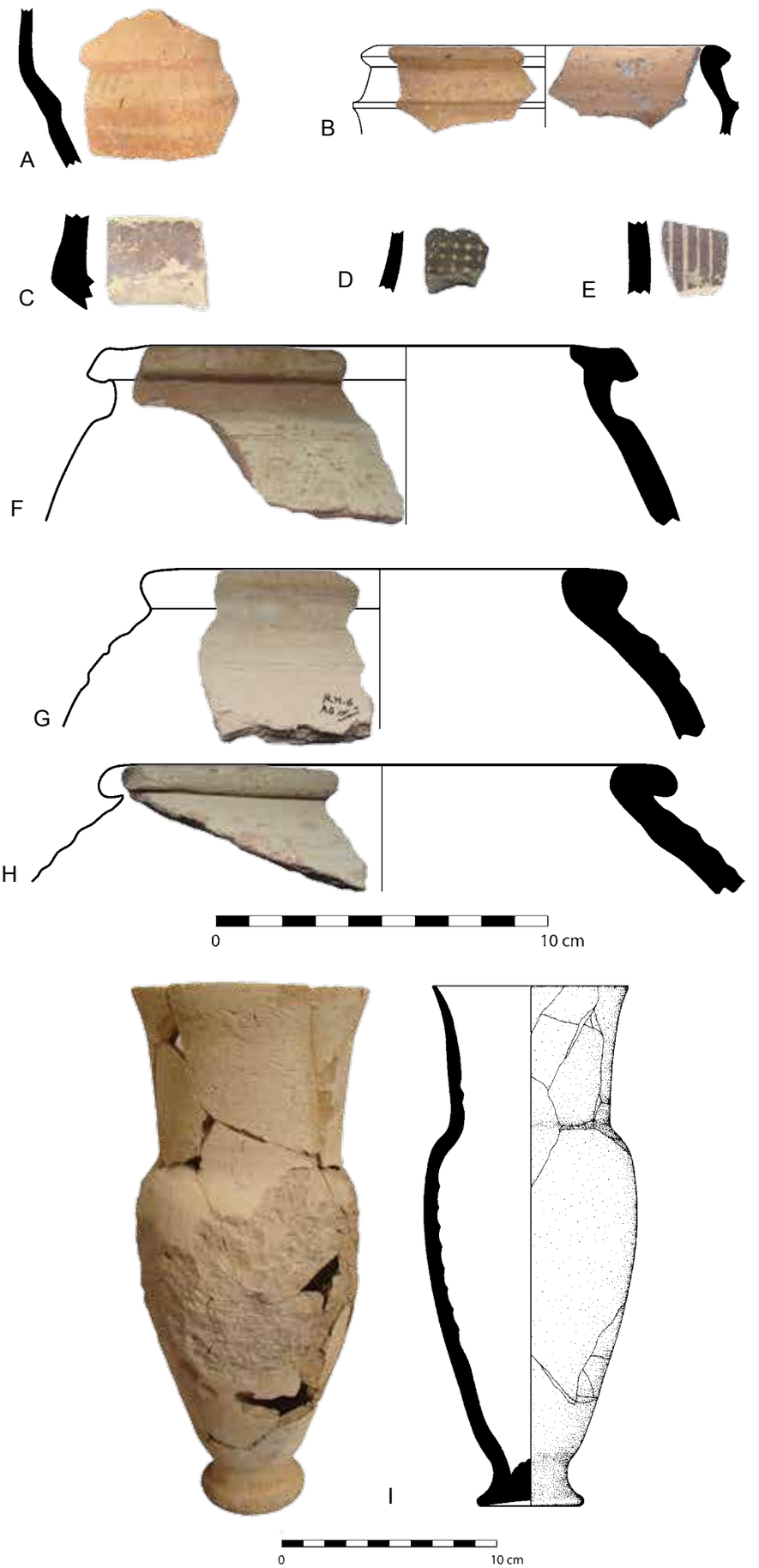
	Period	*Description*
A	Middle Elamite	Light brown ware, black core, chaff inclusion, brownish buff surface, chaff face
B	Middle Elamite	Pinkish buff ware, chaff inclusion, pinkish, chaff face, buff surface
C	Middle Elamite	Buff ware, chaff inclusion, micaceous, pink exterior, chaff and mica face
D	Middle Elamite	Buff ware, chaff inclusion, greenish buff surface, chaff face
E	Middle Elamite	Buff ware, chaff inclusion
F	Middle Elamite	Light brown ware, chaff inclusion, heat-blackened exterior
G	Middle Elamite	Pinkish buff ware, chaff inclusion, chaff face
H	Middle Elamite	Light brown ware, chaff inclusion, micaceous, pinkish brown surface, chaff and mica face
I	Middle Elamite	Buff ware, chaff inclusion, micaceous, pinkish buff surface, chaff and mica face
J	Middle Elamite	Light brown ware, micaceous, pinkish buff surface, chaff and mica face
K	Middle Elamite	Light brown ware, light gray core, chaff inclusion, pinkish brown surface
L	Middle Elamite	Buff ware, chaff inclusion, greenish buff surface
M	Proto-Elamite	Buff ware, chaff inclusion, chaff face, pinkish buff surface
N	Proto-Elamite	Light brown ware, light gray core, chaff inclusion, pinkish brown surface, handmade?
O	Middle Elamite	Light brown ware, light gray core, chaff inclusion, chaff face
P	Proto-Elamite?	Light brown ware, light gray core, chaff inclusion, chaff face



Pottery from RH-006

Plate 77. Pottery from RH-006 (*cont.*)

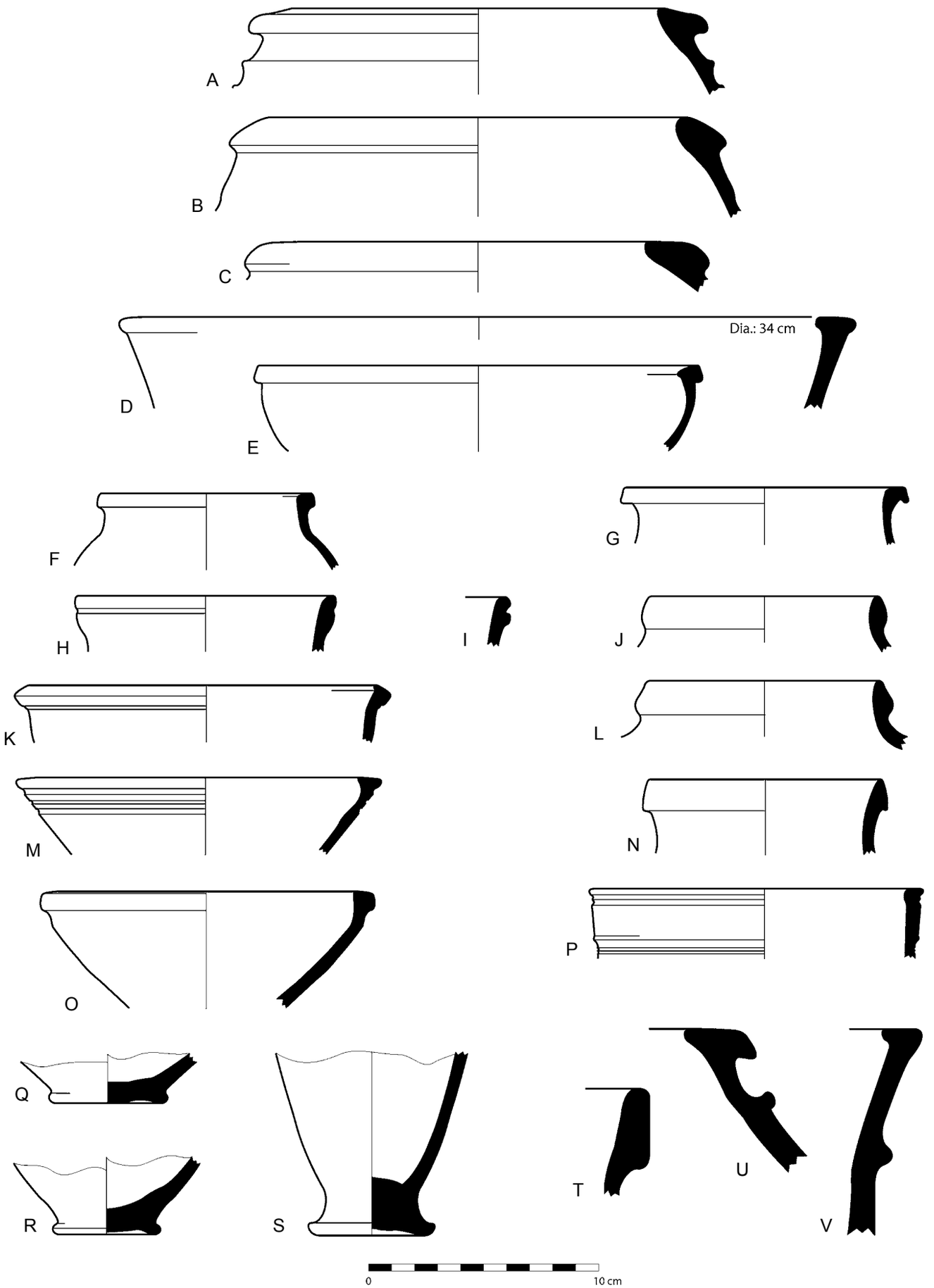
	Period	*Description*
A	Sukkalmah	Light brown ware, chaff inclusion, chaff face, brown paint
B	Middle Elamite	Light brown ware, gray core, grog inclusion, pinkish brown surface
C	Late Middle Susiana	Buff ware, occasional chaff in paste, brown wash
D	Late Middle Susiana	Buff ware, no visible inclusion, olive green paint, over-fired green paste
E	Late Middle Susiana	Buff ware, no inclusion visible, brown paint
F	Sukkalmah	Bricky red ware, gray core, chaff inclusion, chaff face, yellowish buff wash on exterior and inner rim
G	Middle Elamite	Light brown buff ware, chaff inclusion, chaff face
H	Middle Elamite	Light brown buff ware, dark gray core is sandwiched between two 2 mm layers of light brown buff, chaff inclusion, chaff face, yellow buff wash on exterior and inner rim
I	Middle Elamite	Pale brown buff ware, light gray core, straw inclusion, warm buff surface. Found smashed in a robber pit



Pottery from RH-006 (*cont.*)

Plate 78. Pottery from RH-007N

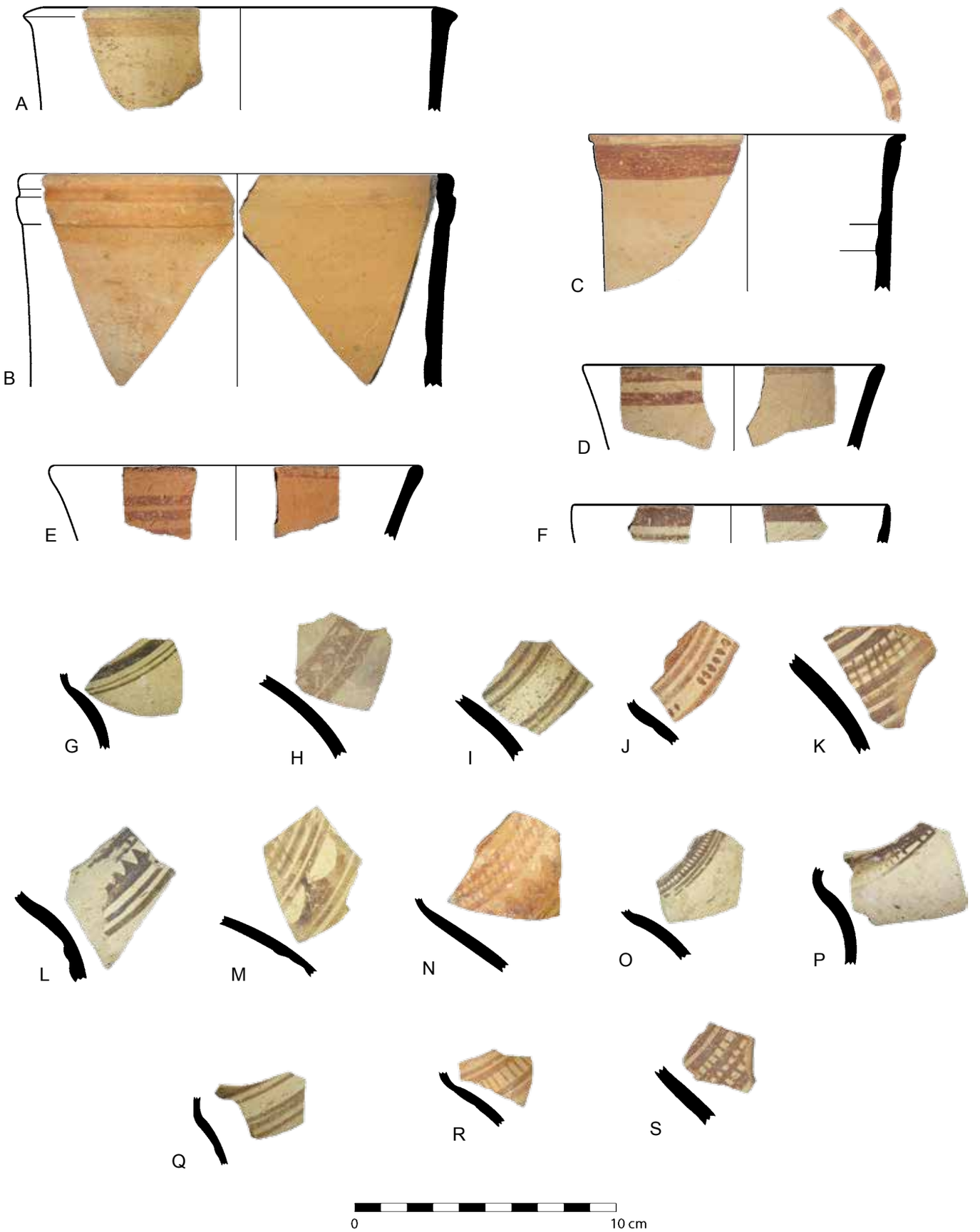
	Period	*Description*
A	Middle Elamite	Light brown ware, black core, chaff inclusion, micaceous, greenish buff, chaff and mica face *Comparanda:* Malyan (Carter 1996, fig. 20:7)
B	Middle Elamite	Light brown ware, light gray thin core grading into buff, chaff inclusion, micaceous with calcite particles. Mica and chalk face, greenish buff exterior, light brown interior
C	Middle Elamite	Buff ware, chaff inclusion, chaff face, greenish buff surface
D	Middle Elamite	Light buff ware, chaff inclusion, micaceous, chaff and mica face, pinkish brown surface *Comparanda:* Malyan (Carter 1996, fig. 18:12)
E	Middle Elamite	Light brown ware, chaff inclusion, micaceous, chaff and calcite particle face
F	Middle Elamite	Light brown ware, chaff inclusion, micaceous, chaff and mica face
G	Middle Elamite	Gray ware, chaff inclusion, micaceous, chaff and mica face, very light gray exterior
H	Middle Elamite	Light brown ware, black core, chaff inclusion, brownish buff exterior
I	Middle Elamite	Brown ware, black core, chaff inclusion
J	Middle Elamite	Light brown ware, chaff inclusion, chaff face, buff surface
K	Middle Elamite	Light brown ware, gray core, chaff inclusion, chaff face, red wash on exterior and interior
L	Middle Elamite	Light brown ware, light gray core, chaff inclusion, micaceous, chaff and mica face, greenish buff exterior
M	Middle Elamite	Light brown ware, light gray core, chaff inclusion, micaceous, chaff and mica face
N	Middle Elamite	Light brown ware, light gray core, chaff inclusion, micaceous, chaff and mica face, pinkish brown surface
O	Middle Elamite	Brown ware, black core, chaff inclusion, micaceous, chaff and mica face, light brown surface *Comparanda:* Malyan (Carter 1996, fig. 18:15)
P	Middle Elamite	Light brown ware, gray core, chaff inclusion, chaff and calcite particle face, buff exterior
Q	Middle Elamite	Light brown ware, black core, chaff inclusion, chaff face, greenish buff exterior
R	Middle Elamite	Buff ware, slightly over-fired light green, light gray core, chaff inclusion, micaceous, chaff and mica face
S	Middle Elamite	Light brown ware, light gray core, chaff inclusion
T	Middle Elamite	Light brown ware, gray core, chaff inclusion, light greenish buff surface
U	Middle Elamite	Light brown ware, gray core, chaff inclusion, chaff and calcite particle face, grayish brown surface
V	Middle Elamite	Light brown ware, chaff inclusion, micaceous, chaff and mica face, light brownish buff surface



Pottery from RH-007N

Plate 79. Pottery from RH-007N (*cont.*)

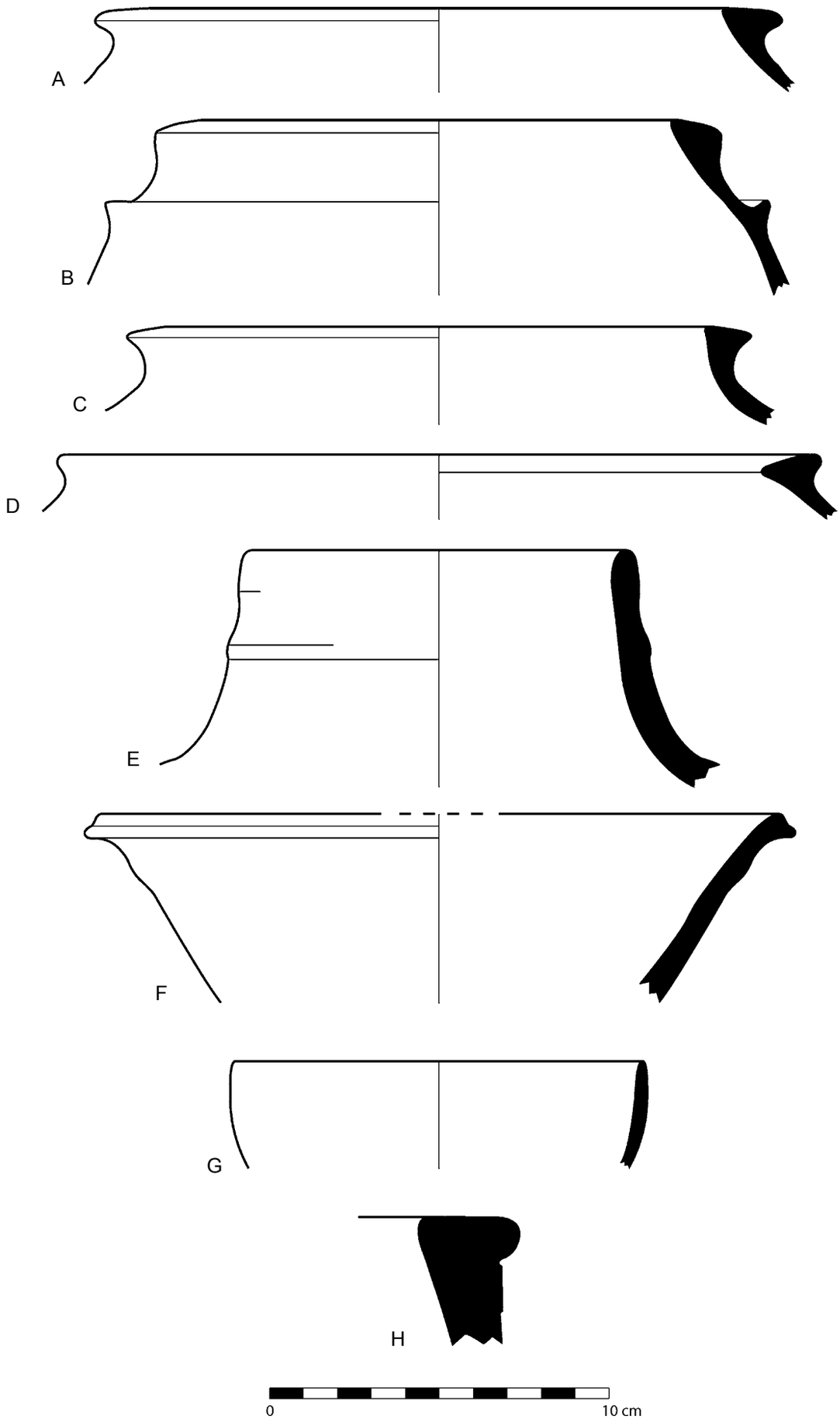
	Period	*Description*
A	Sukkalmah	Light brown ware, gray core, chaff inclusion, micaceous, chaff and mica face, light greenish buff surface, brown pain
B	Sukkalmah	Light brown ware, black core, chaff inclusion, brown paint
C	Sukkalmah	Light brown ware, gray core, chaff inclusion, micaceous, chaff and mica face, light pinkish brown surface, brown paint
D	Sukkalmah	Light brown ware, chaff inclusion, brownish buff surface, reddish brown paint
E	Sukkalmah	Light brown ware, black core, chaff inclusion, chaff face, reddish brown paint
F	Sukkalmah	Buff ware, chaff inclusion, chaff face, greenish buff surface, brown paint
G	Sukkalmah/ Transitional	Buff ware, chaff inclusion, chaff face, greenish buff surface, greenish paint, slightly over-fired
H	Sukkalmah/ Transitional	Light brown ware, chaff inclusion, grayish brown surface, brown paint
I	Sukkalmah/ Transitional	Light brown ware, chaff inclusion, grayish brown surface, greenish paint, slightly over-fired
J	Sukkalmah/ Transitional	Light brown ware, chaff inclusion, brownish buff surface, brown paint
K	Sukkalmah/ Transitional	Light brown ware, chaff inclusion, greenish buff exterior, brown paint
L	Sukkalmah/ Transitional	Buff ware, gray core, chaff inclusion, greenish buff surface, greenish paint, slightly over-fired
M	Sukkalmah/ Transitional	Buff ware, chaff inclusion, greenish buff surface, olive green paint
N	Sukkalmah/ Transitional	Buff ware, black core, chaff inclusion, reddish brown paint
O	Sukkalmah/ Transitional	Buff ware, chaff inclusion, greenish buff surface, olive green paint, slightly over-fired
P	Sukkalmah/ Transitional	Buff ware, chaff inclusion, light greenish buff surface, brown paint
Q	Sukkalmah/ Transitional	Buff ware, chaff inclusion, greenish paint
R	Sukkalmah/ Transitional	Buff ware, chaff inclusion, greenish paint
S	Sukkalmah/ Transitional	Light brown ware, black core, chaff inclusion, light gray buff exterior, brown paint



Pottery from RH-007N (*cont.*)

Plate 80. Pottery from RH-007S

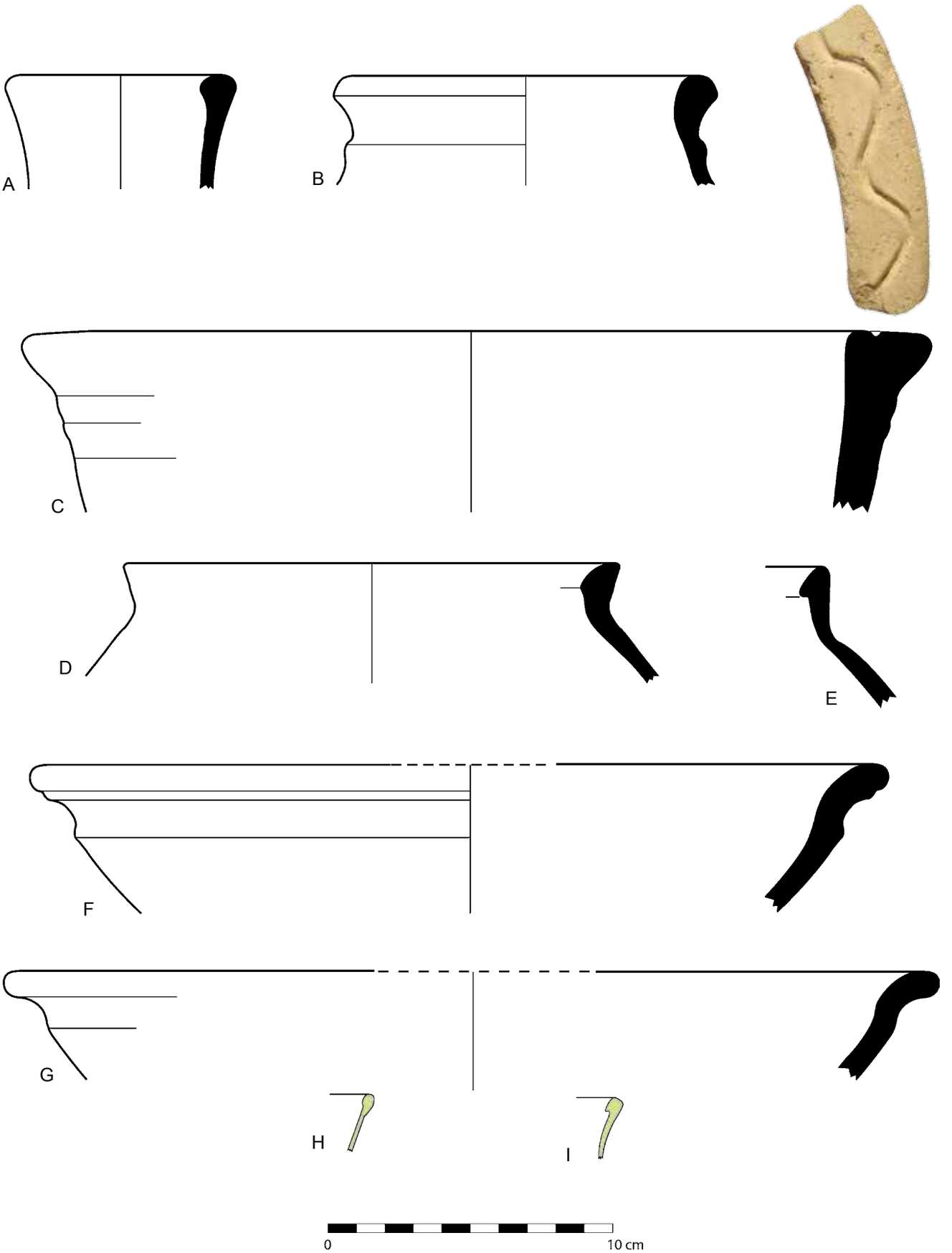
	Period	*Description*
A	Middle Elamite	Brown ware, black core, chaff inclusion, chaff face, brownish buff surface
B	Middle Elamite	Light brown ware, chaff inclusion, micaceous, chaff and mica face
C	Middle Elamite	Light brown ware, gray core, chaff inclusion, chaff face, light brown surface
D	Middle Elamite	Light brown ware, gray core, chaff inclusion
E	Neo-Elamite	Light brown ware, chaff inclusion, some sand, chaff and sand face, pinkish brown surface *Comparanda:* Susa Ville Royale II (Miroschedji 1981a, fig. 25:10–12)
F	Sasanian	Buff ware, chaff inclusion, chaff face *Comparanda:* Khuzestan (Wenke 1975–76, fig. 8:326; Sirjan (Allan and Roberts 1987, fig. 59:1)
G	Middle Elamite?	Light brown ware, chaff inclusion, chaff face, greenish buff surface
H	Late Sasanian	Light brown ware, chaff inclusion, brownish buff interior *Comparanda:* Wenke 1975–76, fig. 7:133



Pottery from RH-007S

Plate 81. Pottery and glass from RH-008

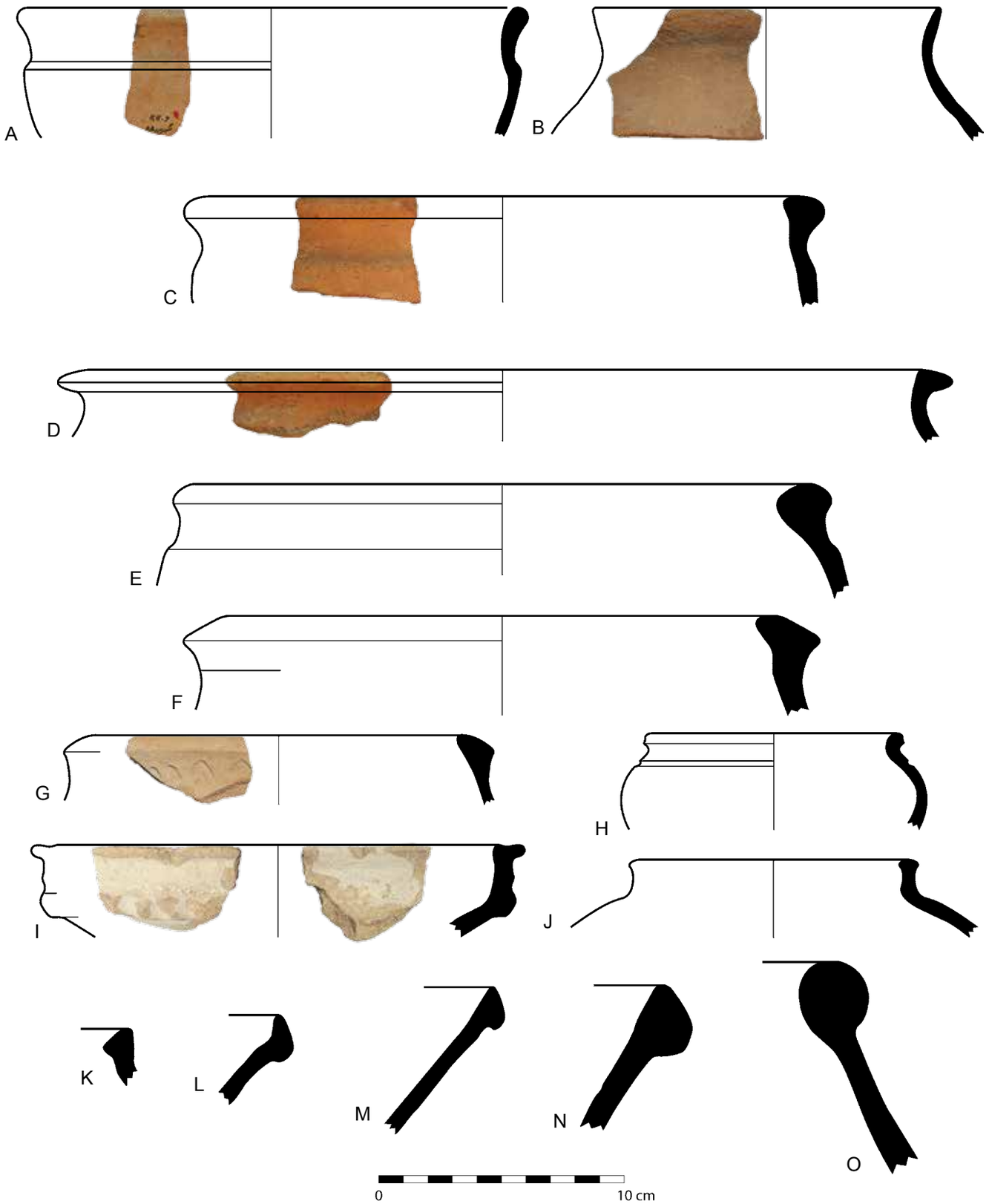
	Period	*Description*
A	Parthian?	Light brown ware, chaff inclusion, micaceous, chaff and mica face, greenish buff exterior
B	Sasanian	Light brown ware, chaff inclusion, micaceous, chaff and mica face, greenish buff exterior
C	Sasanian	Buff ware, chaff inclusion, micaceous, chaff and mica face, creamy buff surface *Comparanda:* Susa Shaur Palace (Boucharlat and Labrousse 1979, fig. 33:4, without the rim decoration)
D	Sasanian	Brown ware, dark core, crushed calcite and "crystalline" in paste, micaceous, mica face *Comparanda:* Khuzestan (Wenke 1975–76, fig. 8:309–10)
E	Sasanian	Brown ware, dark core, crushed calcite and "crystalline" in paste, micaceous, mica face *Comparanda:* Khuzestan (Wenke 1975–76, fig. 8:309–10)
F	Sasanian/ post-Sasanian	Light brown ware, gray core, chaff inclusion, brownish buff surface *Comparanda:* Khuzestan (Wenke 1975–76, fig. 8:329)
G	Sasanian/ post-Sasanian	Light brown ware, chaff inclusion, greenish buff surface *Comparanda:* Khuzestan (Wenke 1975–76, fig. 8:329)
H	Sasanian/ post-Sasanian	Greenish glass
I	Sasanian/ post-Sasanian	Greenish glass



Pottery and glass from RH-008

Plate 82. Pottery from RH-009

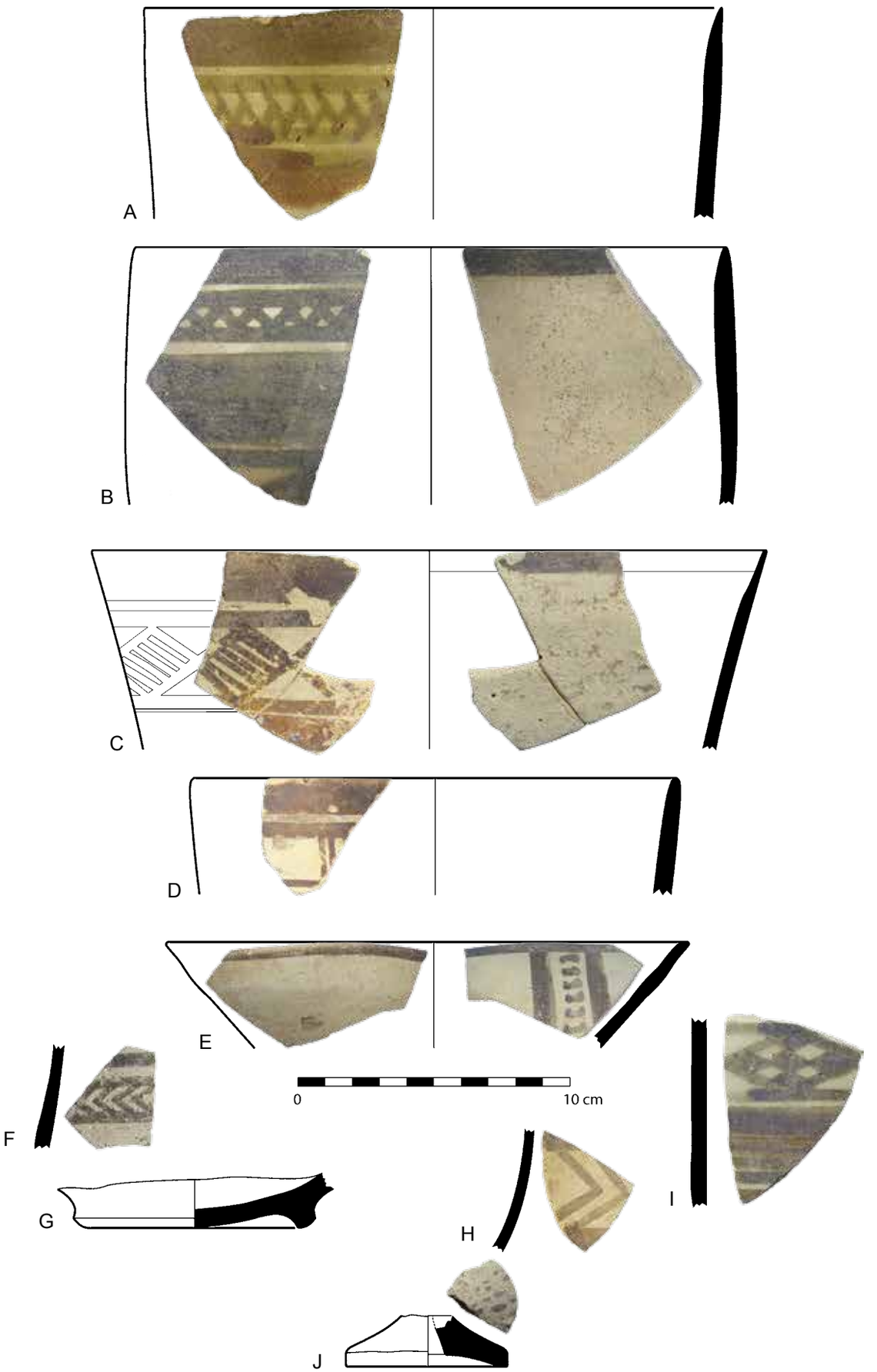
	Period	*Description*
A	Sasanian	Pale brown ware, chaff inclusion, chaff face, buff slip interior *Comparanda:* Khuzestan (Wenke 1975–76, fig. 8:329)
B	Parthian	Pale brown ware, black core, extending to the interior of the vessel, some chaff inclusion
C	Partho-Sasanian	Pale brown ware, black core, extending to the interior of the vessel, chaff inclusion, only a 2 mm thick pale brown layer on the exterior, the rest black
D	Parthian	Pale brown ware, thick gray core, chaff inclusion, creamy buff slip
E	Partho-Sasanian	Brown ware, black core, chaff inclusion, micaceous, chaff and mica face
F	Partho-Sasanian	Brown ware, black core, chaff inclusion, micaceous, chaff and mica face, light brown interior
G	Sasanian	Light brown ware, some chaff inclusion, light brown buff exterior
H	Parthian	Light brown buff, chaff inclusion, chaff face, pale green buff exterior *Comparanda:* Khuzestan (Wenke 1975–76, fig. 11:514)
I	Sasanian–post-Sasanian	Brown ware, thick gray core, some sand and calcite particles in paste, chaff inclusion, white speckled face *Comparanda:* Susa Shaur Palace (Boucharlat and Labrousse 1979, fig. 34:13–14), Apadana post-Sasanian, level II (Kervran 1977, fig. 34:3, 8–10)
J	Sasanian	Brown ware, crushed calcite and “crystalline” in paste, white speckled face
K	Sasanian	Buff ware, sandy paste, milky white glaze interior and exterior *Comparanda:* Khuzestan (Wenke 1975–76, fig. 8:309–10)
L	Parthian	Light brown ware, chaff inclusion, greenish buff surface *Comparanda:* Khuzestan (Wenke 1975–76, fig. 10:427; Haerinck 1983, fig. 3:4)
M	Parthian	Greenish buff ware, chaff inclusion *Comparanda:* Khuzestan (Wenke 1975–76, fig. 10:431)
N	Parthian	Light brown ware, chaff inclusion, buff surface *Comparanda:* Khuzestan (Wenke 1975–76, fig. 10:435)
O	Parthian	Brown ware, chaff inclusion, chaff face, greenish buff surface *Comparanda:* Khuzestan (Wenke 1975–76, fig. 11:503)



Pottery from RH-009

Plate 83. Pottery from RH-010

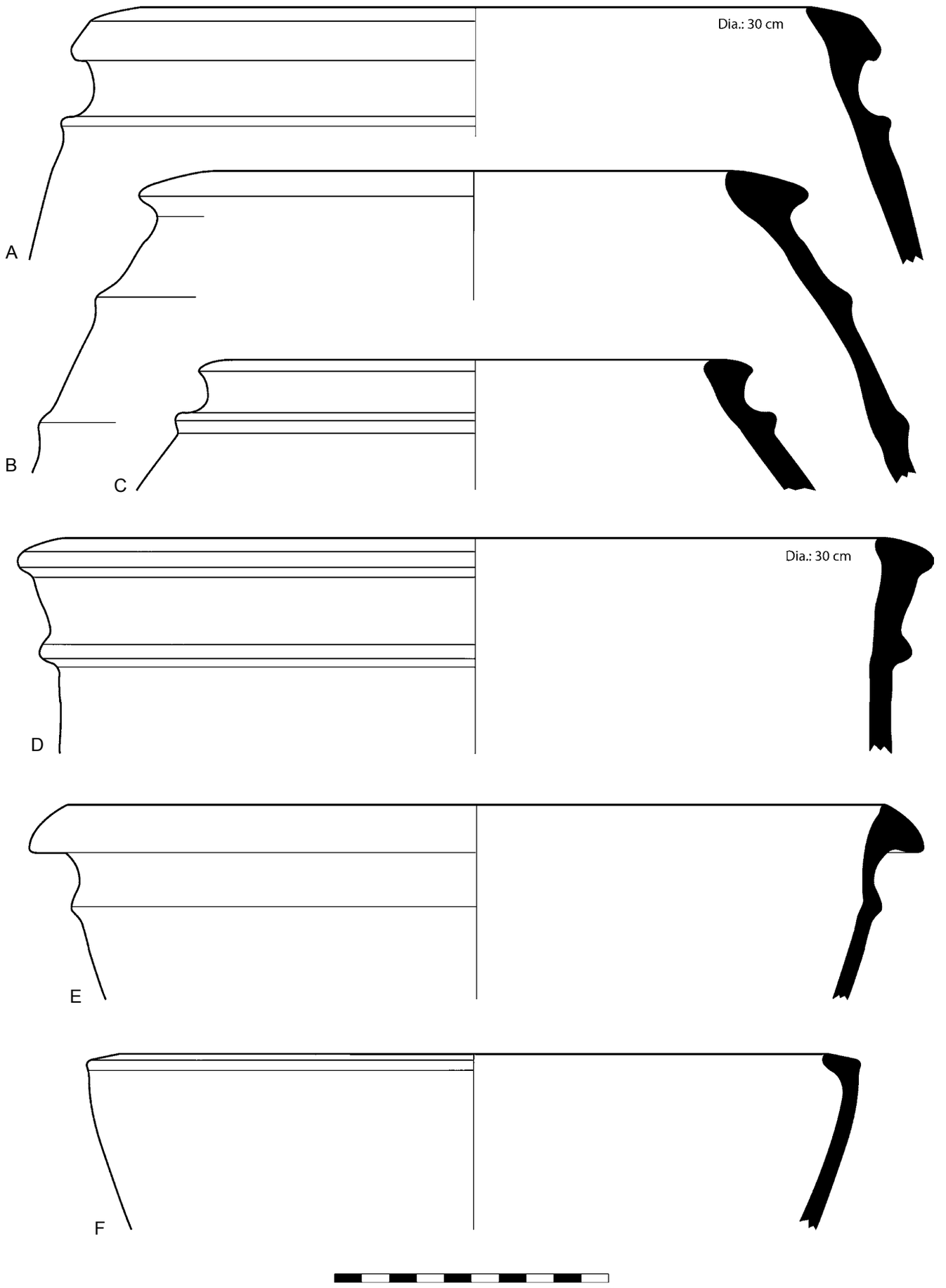
	Period	*Description*
A	Late Middle Susiana	Buff ware, no visible inclusion, greenish paint, greenish buff surface
B	Late Middle Susiana	Buff ware, no visible inclusion, greenish paint, greenish buff surface
C	Late Middle Susiana	Buff ware, no visible inclusion, brown paint
D	Late Middle Susiana	Buff ware, no visible inclusion, greenish paint, greenish buff surface
E	Late Middle Susiana	Buff ware, no visible inclusion, greenish paint, greenish buff surface
F	Late Middle Susiana	Buff ware, no visible inclusion, brown paint
G	Late Middle Susiana	Buff ware, no visible inclusion, brown paint
H	Late Middle Susiana	Buff ware, no visible inclusion, greenish paint, greenish buff surface
I	Late Middle Susiana	Buff ware, no visible inclusion, greenish paint, greenish buff surface
J	Late Middle Susiana	Buff ware, no visible inclusion, greenish paint, greenish buff surface



Pottery from RH-010

Plate 84. Pottery from RH-011

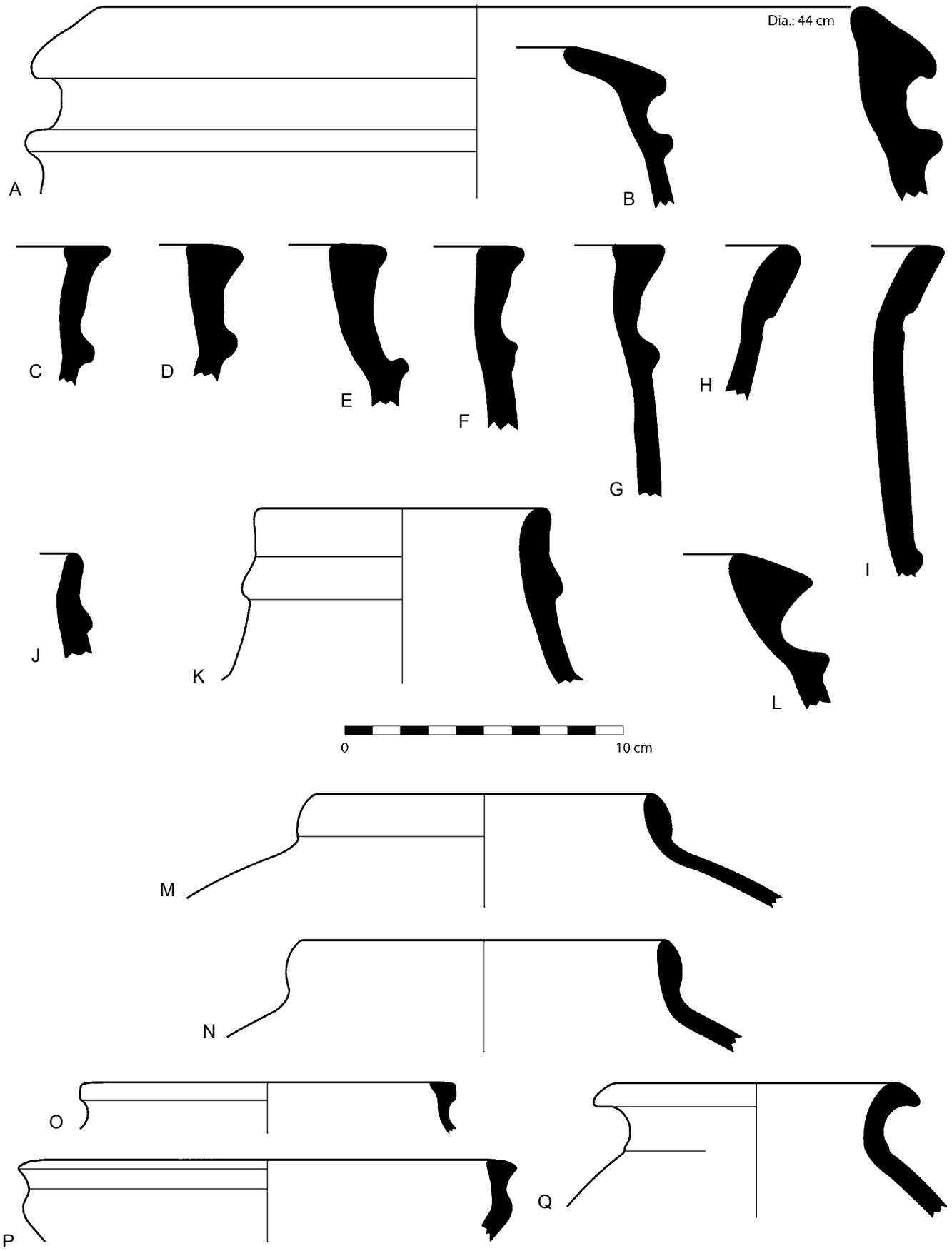
	Period	*Description*
A	Middle Elamite	Light brown ware, black core, chaff inclusion, micaceous, chaff and mica face, dark buff exterior
B	Middle Elamite	Buff ware, chaff inclusion, chaff face, greenish buff surface
C	Middle Elamite	Light buff ware, gray core, chaff inclusion, greenish buff surface, slightly over-fired
D	Middle Elamite	Buff ware, chaff inclusion, chaff face
E	Middle Elamite	Light brown ware, black core, chaff inclusion, micaceous, chaff and mica face
F	Middle Elamite	Buff ware, black core, chaff inclusion, micaceous, chaff and mica face



Pottery from RH-011

Plate 85. Pottery from RH-011 (*cont.*)

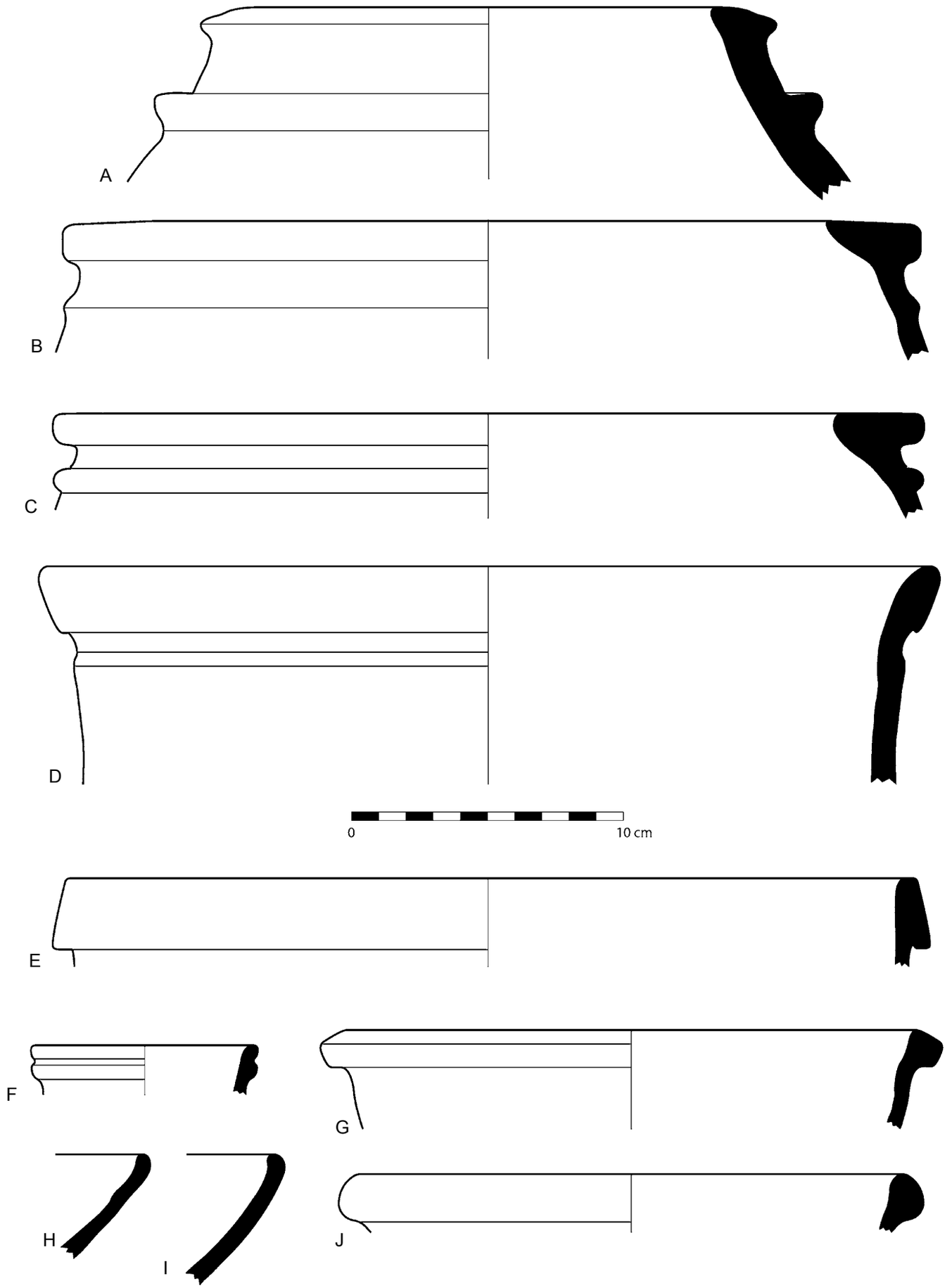
	Period	*Description*
A	Sukkalmah	Light brown ware, chaff inclusion, micaceous, chaff and mica face, brownish buff surface
B	Sukkalmah	Light brown ware, chaff inclusion, micaceous, chaff and mica face, brownish buff surface
C	Middle Elamite	Buff ware, chaff inclusion, micaceous, chaff and mica face, pinkish buff surface
D	Middle Elamite	Buff ware, chaff inclusion, chaff face, pinkish buff surface
E	Middle Elamite	Buff ware, gray core, chaff inclusion, chaff face, pinkish buff surface
F	Middle Elamite	Light brown ware, black core, chaff inclusion, micaceous, chaff and mica face
G	Middle Elamite	Buff ware, chaff inclusion, micaceous, chaff and mica face
H	Middle Elamite	Light brown ware, black core, chaff inclusion, micaceous, chaff and mica face, brownish buff surface
I	Middle Elamite	Light brown ware, black core, chaff inclusion, micaceous, chaff and mica face, brownish buff surface
J	Middle Elamite	Light brown ware, light gray core, chaff inclusion, micaceous, chaff and mica face
K	Middle Elamite	Buff ware, chaff inclusion, micaceous, chaff and mica face, pinkish buff surface
L	Sukkalmah	Brown ware, light gray core, chaff inclusion, micaceous, chaff and mica face
M	Middle Elamite	Light brown ware, black core, chaff inclusion, micaceous, chaff and mica face, greenish buff surface, slightly over-fired
N	Middle Elamite	Light brown ware, light gray core, chaff inclusion, micaceous, chaff and mica face
O	Middle Elamite	Light brown ware, chaff inclusion, chaff face
P	Middle Elamite	Buff ware, black core, chaff inclusion, micaceous, chaff and mica face, pinkish buff surface
Q	Middle Elamite	Buff ware, black core, chaff inclusion, micaceous, chaff and mica face, pinkish buff surface



Pottery from RH-011 (*cont.*)

Plate 86. Pottery from RH-011 (*cont.*)

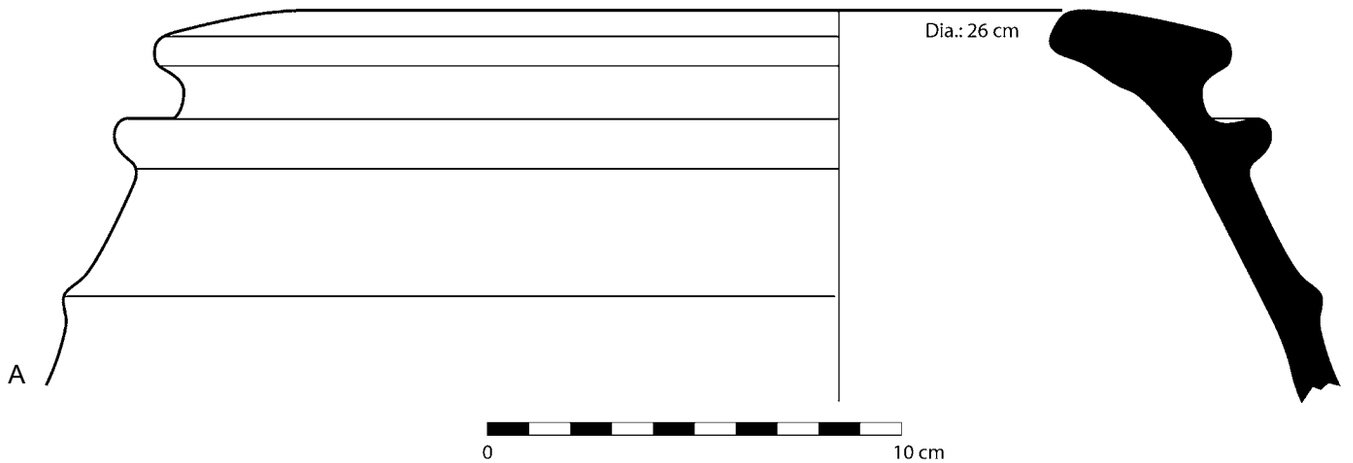
	Period	*Description*
A	Middle Elamite	Light brown ware, gray core, chaff inclusion, micaceous, chaff and mica face, brownish buff surface
B	Middle Elamite	Light brown ware, black core, chaff inclusion, brownish buff surface
C	Middle Elamite	Light brown ware, black core, chaff inclusion, brownish buff surface
D	Middle Elamite	Light brown ware, black core, chaff inclusion, micaceous, chaff and mica face, brownish buff interior, buff exterior
E	Middle Elamite	Light brown ware, chaff inclusion, micaceous, chaff and mica face
F	Middle Elamite	Light brown ware, chaff inclusion, brownish buff surface
G	Middle Elamite	Light brown ware, black core, chaff inclusion
H	Middle Elamite	Light brown ware, light gray core, chaff inclusion, slightly sandy paste
I	Middle Elamite	Buff ware, chaff inclusion, chaff face, greenish buff surface, slightly over-fired
J	Middle Elamite	Brown ware, black core, chaff inclusion

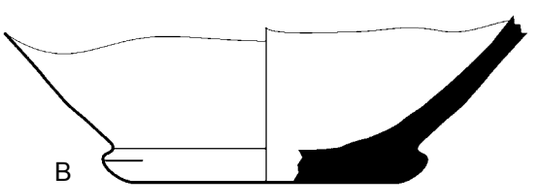


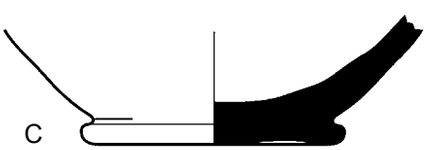
Pottery from RH-011 (*cont.*)

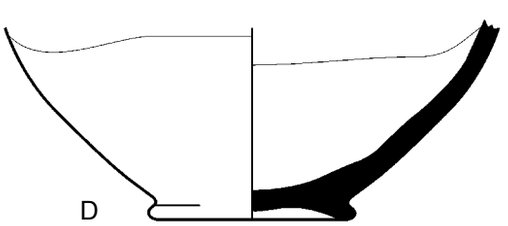
Plate 87. Pottery from RH-011 (*cont.*)

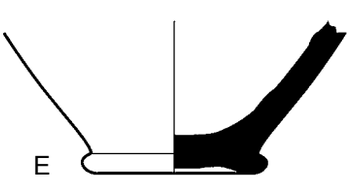
	Period	*Description*
A	Sukkalmah	Light brown face, black core, chaff inclusion, micaceous, chaff and mica face, greenish buff exterior, brown buff interior
B	Sukkalmah	Light brown face, chaff inclusion, micaceous, chaff and mica face
C	Sukkalmah	Buff ware, chaff inclusion, micaceous, chaff and mica face, pinkish buff surface
D	Sukkalmah	Light brown ware, black core, chaff inclusion, buff exterior
E	Sukkalmah	Light brown face, black core, chaff inclusion, micaceous, chaff and mica face, brownish buff surface
F	Sukkalmah	Buff ware, light gray core, chaff inclusion, greenish buff surface, slightly over-fired
G	Sukkalmah	Buff ware, chaff inclusion, micaceous, chaff and mica face, pinkish buff surface
H	Sukkalmah	Buff ware, chaff inclusion, chaff face, greenish buff surface, slightly over-fired
I	Sukkalmah	Light brown face, black core, chaff inclusion, micaceous, chaff and mica face, pinkish brownish surface
J	Sukkalmah	Light brown face, black core, chaff inclusion, micaceous, chaff and mica face
K	Middle Elamite?	Light brown ware, black core, chaff inclusion
L	Middle Elamite	Light brown ware, chaff inclusion, chaff face
M	Middle Elamite	Buff ware, chaff inclusion
N	Middle Elamite	Light brown ware, chaff inclusion, pinkish brown surface
O	Middle Elamite	Light brown face, light gray core, chaff inclusion, micaceous, chaff and mica face

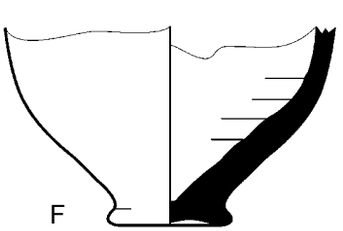


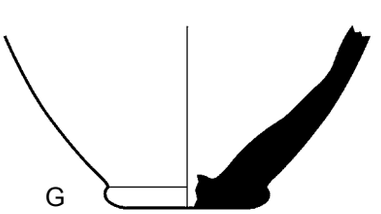


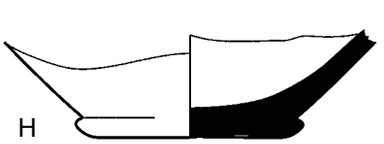


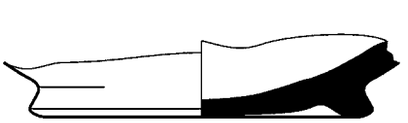


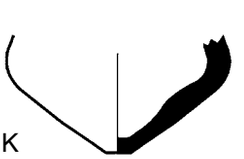


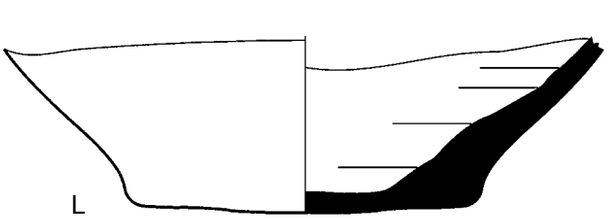


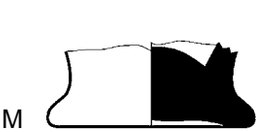


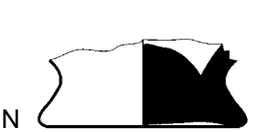








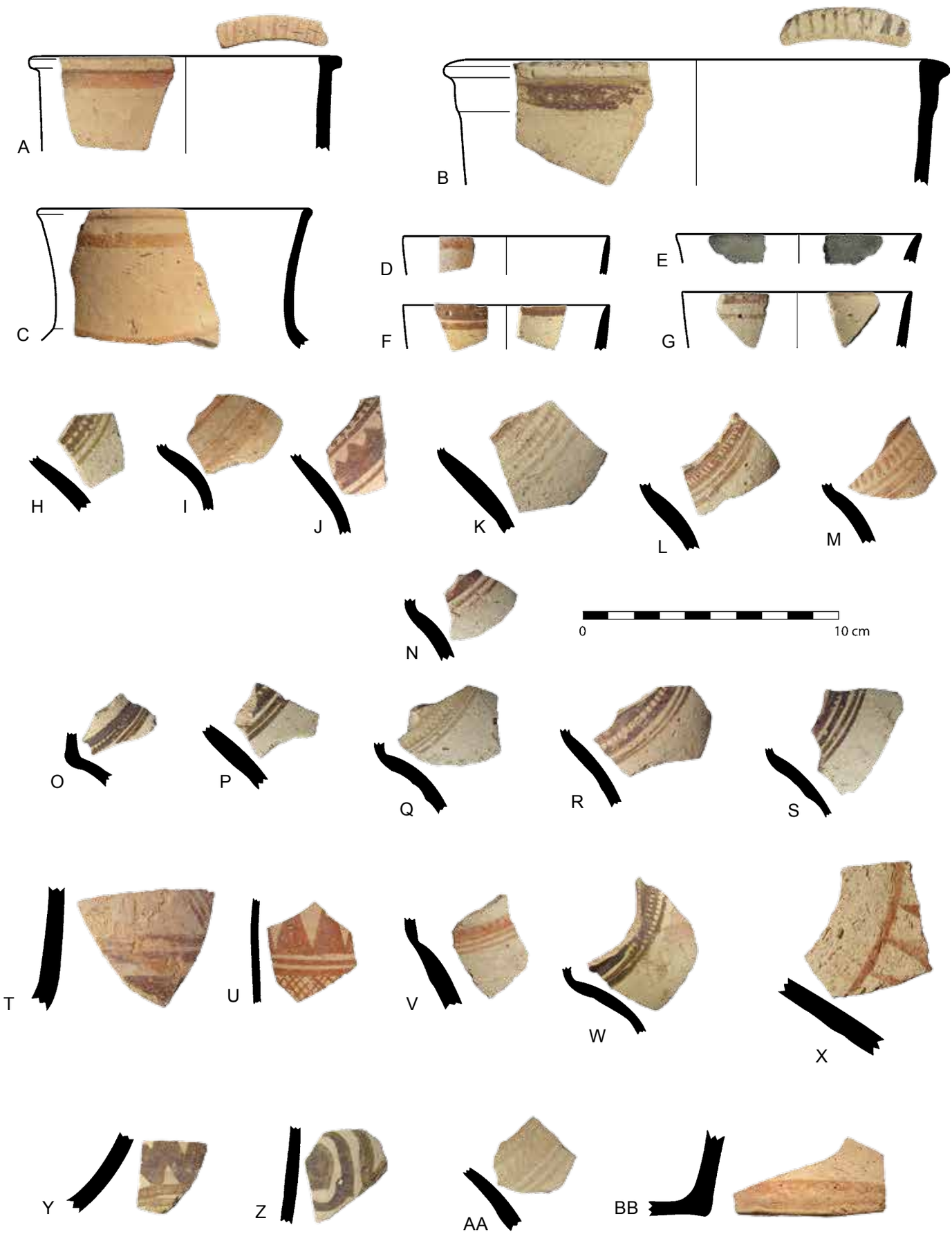




Pottery from RH-011 (*cont.*)

Plate 88. Pottery from RH-011 (*cont.*)

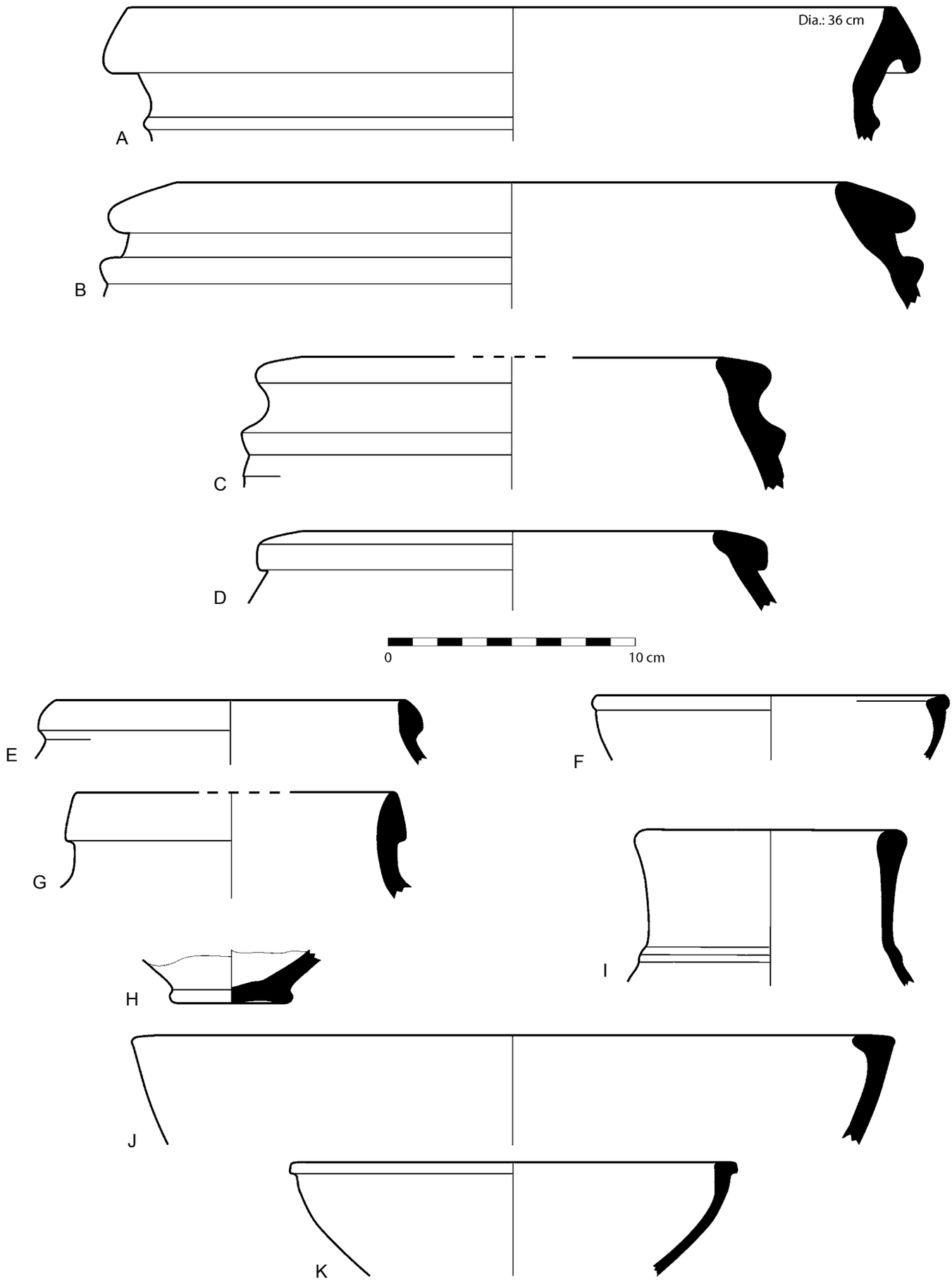
	Period	*Description*
A	Sukkalmah/ Transitional	Light brown face, chaff inclusion, chaff face, pinkish brownish surface, brown paint
B	Sukkalmah/ Transitional	Buff ware, chaff inclusion, chaff face, light greenish buff surface, dark brown paint
C	Sukkalmah/ Transitional	Light brown face, gray core, chaff inclusion, pinkish brownish surface, brown paint
D	Sukkalmah/ Transitional	Light brown face, black core, chaff inclusion, pinkish brownish surface, red paint
E	Sukkalmah/ Transitional	Stone, bitumen
F	Sukkalmah/ Transitional	Buff ware, chaff inclusion, brown paint
G	Sukkalmah/ Transitional	Buff ware, chaff inclusion, brown paint, greenish buff surface
H	Sukkalmah/ Transitional	Buff ware, chaff inclusion, greenish paint, greenish buff surface
I	Sukkalmah/ Transitional	Light brown face, black core, chaff inclusion, greenish brown surface, brown paint
J	Sukkalmah/ Transitional	Light brown face, black core, chaff inclusion, brown buff surface, brown paint *Comparanda:* Malyan, level IVB (Carter 1996, fig. 27:10)
K	Sukkalmah/ Transitional	Light brown face, light gray core, chaff inclusion, pinkish brown buff surface, brown paint
L	Sukkalmah/ Transitional	Buff ware, chaff inclusion, greenish buff surface, brown paint
M	Sukkalmah/ Transitional	Light brown face, gray core, chaff inclusion, pinkish brown surface, brown paint
N	Sukkalmah/ Transitional	Buff ware, chaff inclusion, greenish buff surface, brown paint
O	Sukkalmah/ Transitional	Buff ware, chaff inclusion, greenish buff surface, brown paint
P	Sukkalmah/ Transitional	Light brown face, chaff inclusion, pinkish brown surface, greenish paint *Comparanda:* Malyan, level IVB (Carter 1996, fig. 27:10)
Q	Sukkalmah/ Transitional	Buff ware, chaff inclusion, brown paint, greenish buff surface
R	Sukkalmah/ Transitional	Buff ware, chaff inclusion, brown paint *Comparanda:* Lama Cemetery, Yasuj (Rezvani et al. 2007 fig. 48)
S	Sukkalmah/ Transitional	Light gray ware, chaff inclusion, greenish buff surface, brown paint *Comparanda:* Lama Cemetery, Yasuj (Rezvani et al. 2007, fig. 48)
T	Sukkalmah/ Transitional?	Light brown face, chaff inclusion, buff brown exterior, brown paint
U	Sukkalmah/ Transitional	Light brown ware, chaff inclusion, red paint *Comparanda:* Lama Cemetery, Yasuj (Rezvani et al. 2007, fig. 48:8)
V	Sukkalmah/ Transitional	Light brown ware, gray core, chaff inclusion, buff exterior, light red paint
W	Sukkalmah/ Transitional	Light brown face, chaff inclusion, greenish buff surface, dark green paint
X	Sukkalmah/ Transitional	Light brown ware, chaff inclusion, chaff face, light gray interior, red paint
Y	Late Susiana 1?	Buff ware, no visible inclusion, brown paint
Z	Late Susiana 1?	Buff ware, no visible inclusion, dark green paint
AA	Sukkalmah/ Transitional	Light brown face, black core, chaff inclusion, greenish buff surface, brown paint
BB	Sukkalmah/ Transitional	Light brown face, gray core, chaff inclusion, chaff face, greenish buff surface, red paint *Comparanda:* Malyan, level IVA (Carter 1996, fig. 26:14)



Pottery from RH-011 (*cont.*)

Plate 89. Pottery from RH-014

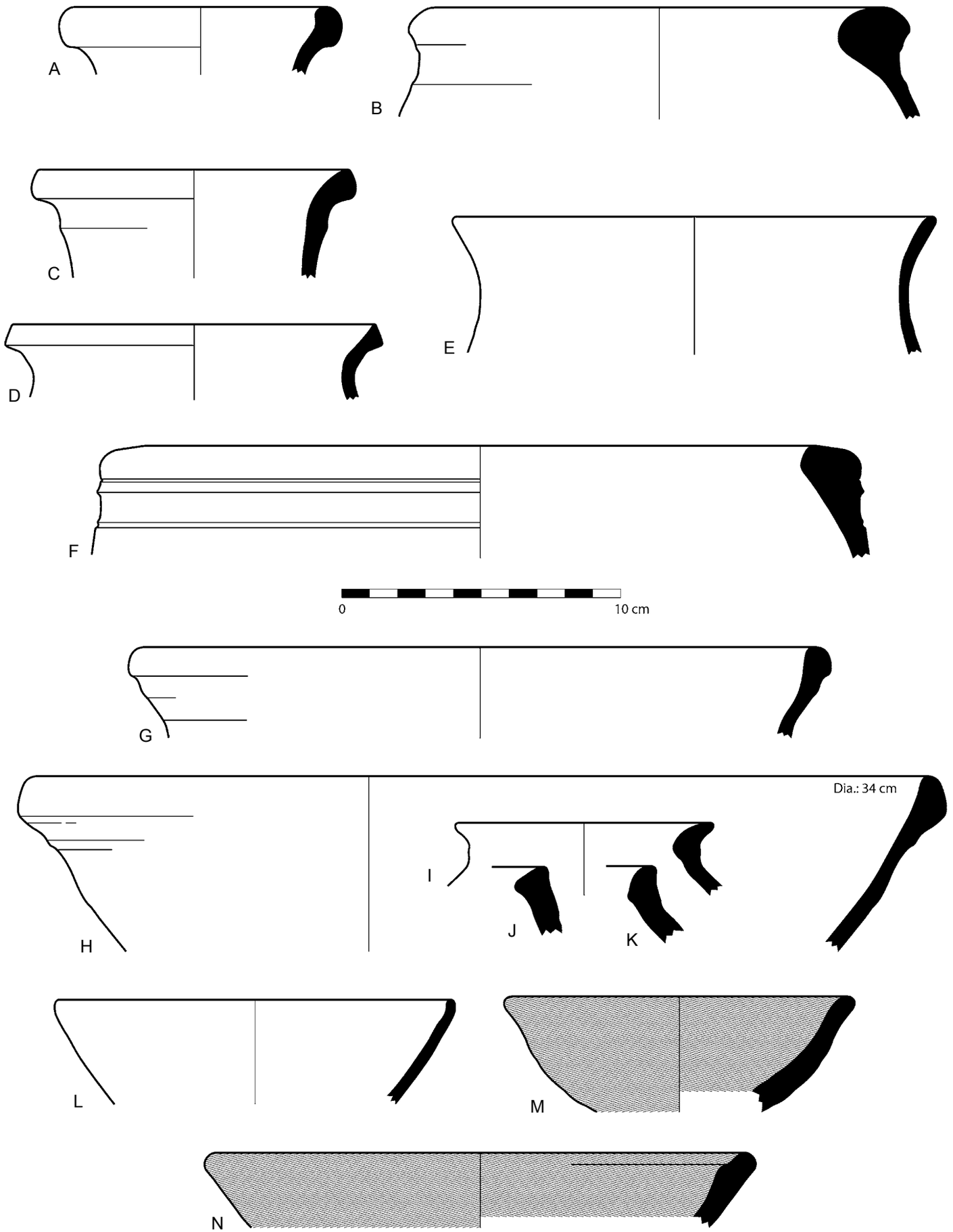
	Period	*Description*
A	Middle Elamite	Light brown ware, gray core, chaff inclusion, scattered calcite in paste, buff surface
B	Middle Elamite	Buff ware, chaff inclusion, micaceous, chaff and mica face, greenish buff surface
C	Middle Elamite	Light brown ware, chaff inclusion, micaceous, chaff and mica face
D	Middle Elamite	Light brown ware, black core, chaff inclusion, chaff face, buff surface
E	Middle Elamite	Buff ware, some chaff inclusion, buff surface
F	Middle Elamite	Light brown ware, black core, chaff inclusion, micaceous, chaff and mica face
G	Middle Elamite	Buff ware, scattered calcite in paste, chaff inclusion, cream buff surface
H	Middle Elamite	Buff ware, some chaff inclusion
I	Middle Elamite	Light brown ware, scattered calcite in paste, chaff inclusion, pinkish brown surface
J	Middle Elamite	Light brown ware, black core, chaff inclusion, micaceous, chaff and mica face, buff surface
K	Middle Elamite	Light brown ware, black core, scattered calcite in paste, chaff inclusion, brownish buff surface



Pottery from RH-014

Plate 90. Pottery from RH-014 (*cont.*)

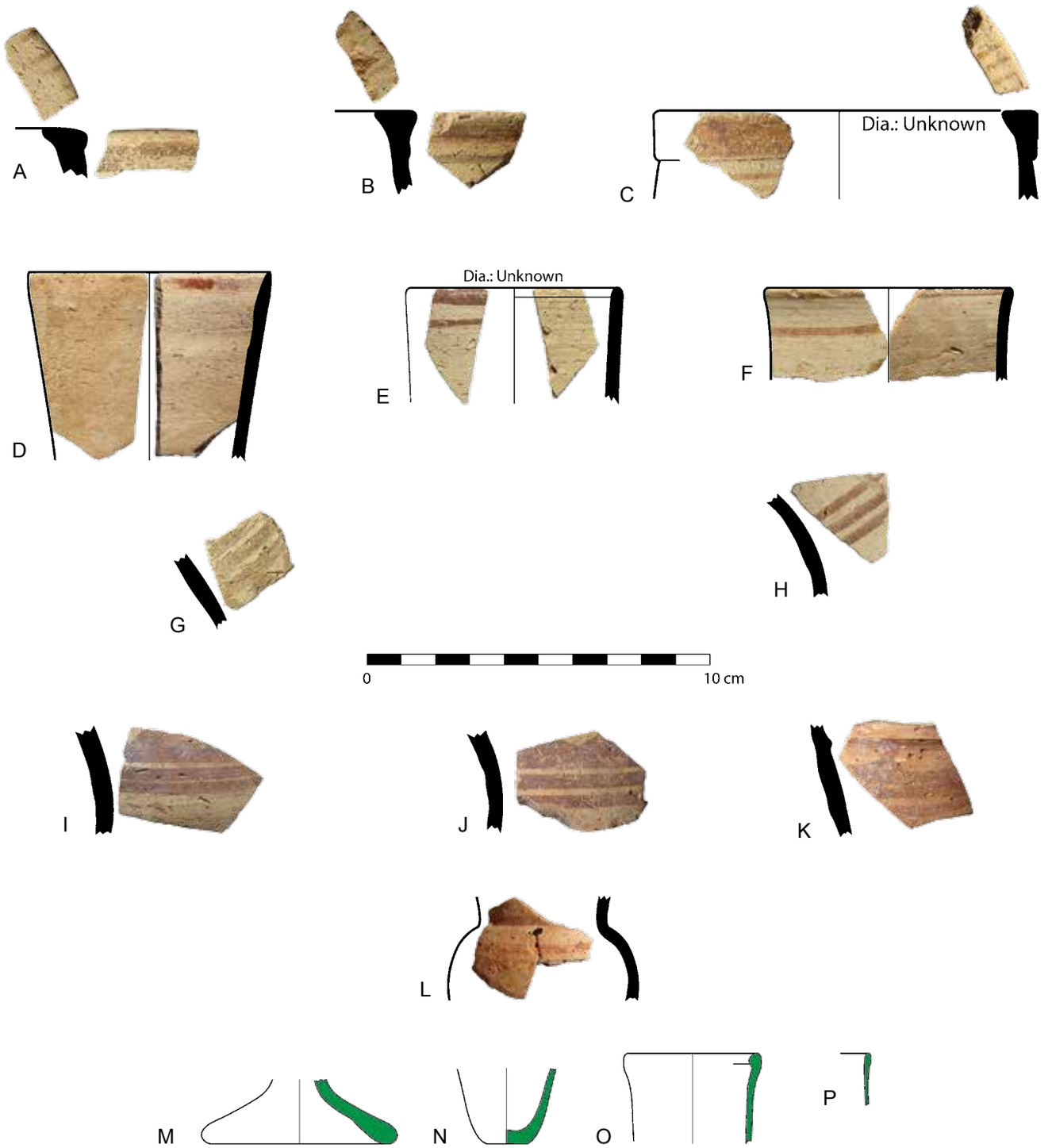
	Period	*Description*
A	Parthian-Sasanian	Light brown ware, chaff inclusion, greenish buff surface *Comparanda:* Haerinck 1983, fig. 6:7
B	Parthian/Sasanian	Light brown ware, gray core, chaff inclusion, micaceous, chaff and mica face, buff surface, greenish buff exterior rim similar to Wenke 1975–76, fig. 10:435
C	Parthian/Sasanian	Light brown ware, chaff inclusion, brownish buff surface *Comparanda:* Khuzestan (Wenke 1975–76, fig. 12:409)
D	Parthian	Light brown ware, gray core, chaff inclusion *Comparanda:* Khuzestan (Wenke 1975–76, fig. 13:712)
E	Parthian	Light brown ware, chaff inclusion, dark buff exterior
F	Parthian	Buff ware, chaff inclusion *Comparanda:* Khuzestan (Wenke 1975–76, fig. 11:504)
G	Parthian	Gray ware, chaff inclusion
H	Parthian	Light brown ware, chaff inclusion, brownish buff surface *Comparanda:* Khuzestan (Wenke 1975–76, fig. 12:636)
I	Parthian	Light brown ware, calcite particles in paste *Comparanda:* Khuzestan (Wenke 1975–76, fig. 10:402)
J	Parthian/Sasanian	Light brown ware, calcite particles in paste *Comparanda:* Khuzestan (Wenke 1975–76, figs. 8:309–10, 10:401)
K	Parthian/Sasanian	Light brown ware, calcite particles in paste *Comparanda:* Khuzestan (Wenke 1975–76, figs. 8:309–10, 10:401)
L	Parthian	Light brown ware, some chaff inclusion, buff surface
M	Sasanian/ post-Sasanian	Large, flat-bottom basin. Buff ware, some chaff inclusion, milky white glaze *Comparanda:* Haerinck 1983, figs. 9:2, 11:1
N	Sasanian/ post-Sasanian	Large, flat-bottom basin. Buff ware, sandy paste, light blue glaze exterior, turquoise blue glaze interior



Pottery from RH-014 (*cont.*)

Plate 91. Pottery and glass from RH-014 (*cont.*)

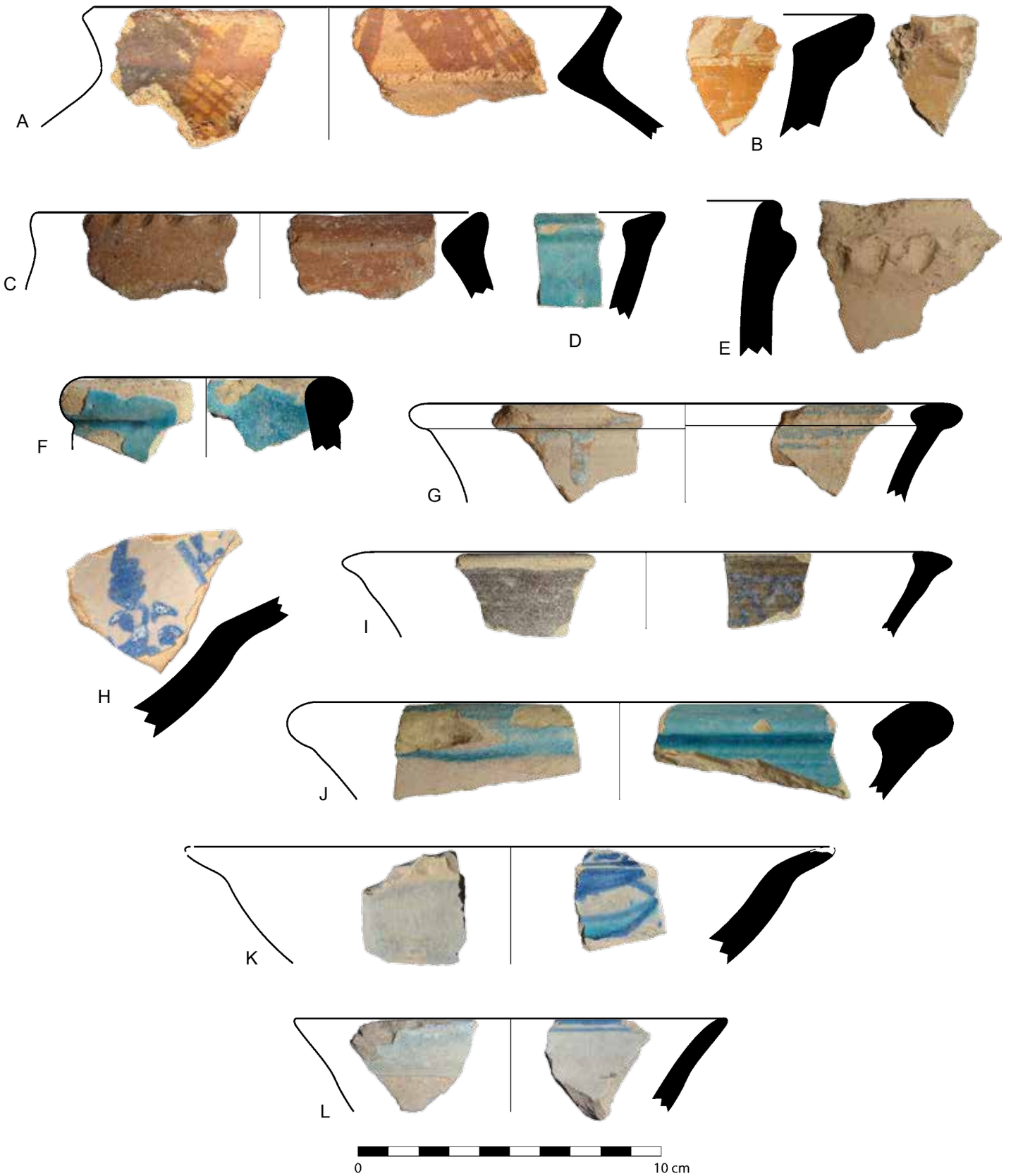
	Period	*Description*
A	Sukkalmah/ Transitional	Buff ware, chaff inclusion, greenish buff surface, brown paint *Comparanda:* Malyan, level IVA (Carter 1996, figs. 26:6, 27:22, 24)
B	Sukkalmah/ Transitional	Buff ware, chaff inclusion, greenish buff exterior, pinkish buff interior, brown paint *Comparanda:* Malyan, level IVA (Carter 1996, figs. 26:6, 27:22, 24)
C	Sukkalmah/ Transitional	Buff ware, black core, chaff inclusion, greenish buff surface, brown paint *Comparanda:* Malyan, level IVA (Carter 1996, figs. 26:6, 27:22, 24)
D	Sukkalmah/ Transitional	Buff ware, black core, chaff inclusion, chaff face, pinkish buff surface *Comparanda:* Malyan, level IVB (Carter 1996, fig. 26:9)
E	Sukkalmah/ Transitional	Buff ware, chaff inclusion, brown paint, greenish buff surface
F	Sukkalmah/ Transitional	Light brown ware, chaff inclusion, greenish buff surface, brown paint
G	Sukkalmah/ Transitional	Buff ware, chaff inclusion, green paint *Comparanda:* Lama Cemetery, tomb 57 (Rezvani et al. 2007, fig. 48:10)
H	Sukkalmah/ Transitional	Light brown ware, chaff inclusion, greenish buff surface, brown paint *Comparanda:* Lama Cemetery, tomb 57 (Rezvani et al. 2007, fig. 48:10)
I	Sukkalmah/ Transitional	Brown ware, chaff inclusion, grayish brown surface, brown paint *Comparanda:* Lama Cemetery, tomb 57 (Rezvani et al. 2007, fig. 48:10)
J	Sukkalmah/ Transitional	Light brown paint, black core, chaff inclusion, brownish buff exterior, brown paint *Comparanda:* Lama Cemetery, tomb 57 (Rezvani et al. 2007, fig. 48:10)
K	Sukkalmah/ Transitional	Light brown paint, black paint, chaff inclusion, brown paint
L	Sukkalmah/ Transitional	Light brown paint, black paint, chaff inclusion, brown paint *Comparanda:* Malyan, level IVB (Carter 1996, fig. 27:10)
M	Sasanian	Matte green glass
N	Sasanian	Matte green glass
O	Sasanian	Matte green glass
P	Sasanian	Matte green glass



Pottery and glass from RH-014 (*cont.*)

Plate 92. Pottery from RH-017N

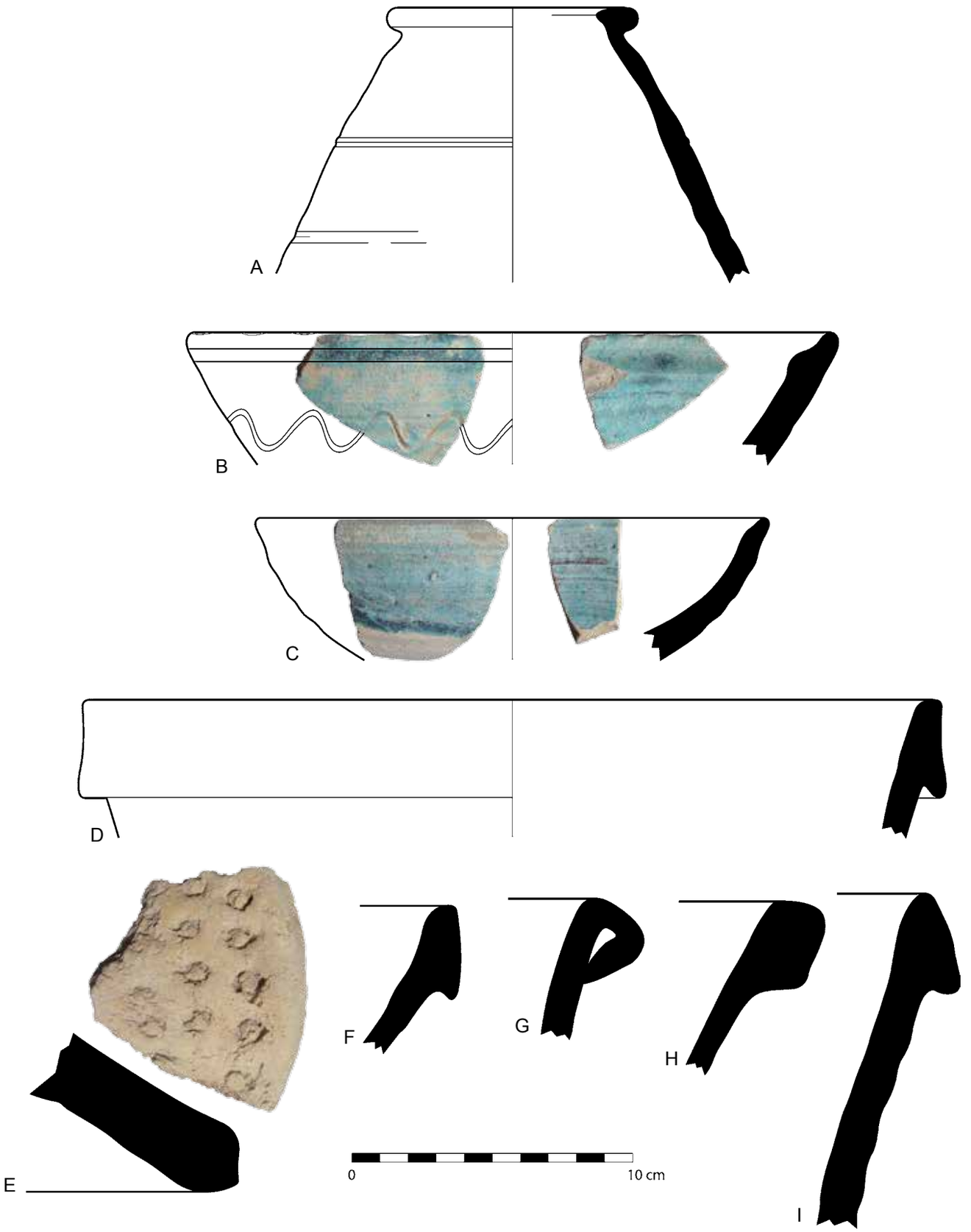
	Period	*Description*
A	Seljuk	Pinkish ware, light gray core, grog inclusion, brown paint
B	Seljuk	Light brown ware, grog inclusion, brown paint, pinkish brown surface
C	Seljuk	Light brown ware, grit inclusion, gritty face, red wash
D	Seljuk	Buff ware, no visible inclusion
E	Seljuk	Buff ware, no visible inclusion, blue glaze, pinkish buff surface
F	Timurid?	Buff ware, no visible inclusion, blue glaze
G	Seljuk	Light brown ware, no visible inclusion, blue glaze, buff surface
H	Safavid	Buff ware, no visible inclusion, blue white glaze, pinkish buff surface
I	Seljuk?	Buff ware, no visible inclusion, brown glaze exterior, blue paint under glaze interior
J	Timurid?	Buff ware, no visible inclusion, blue glaze
K	Safavid	Buff, no visible inclusion, blue white glaze
L	Seljuk	Buff, no visible inclusion, blue white glaze



Pottery from RH-017N

Plate 93. Pottery from RH-017S

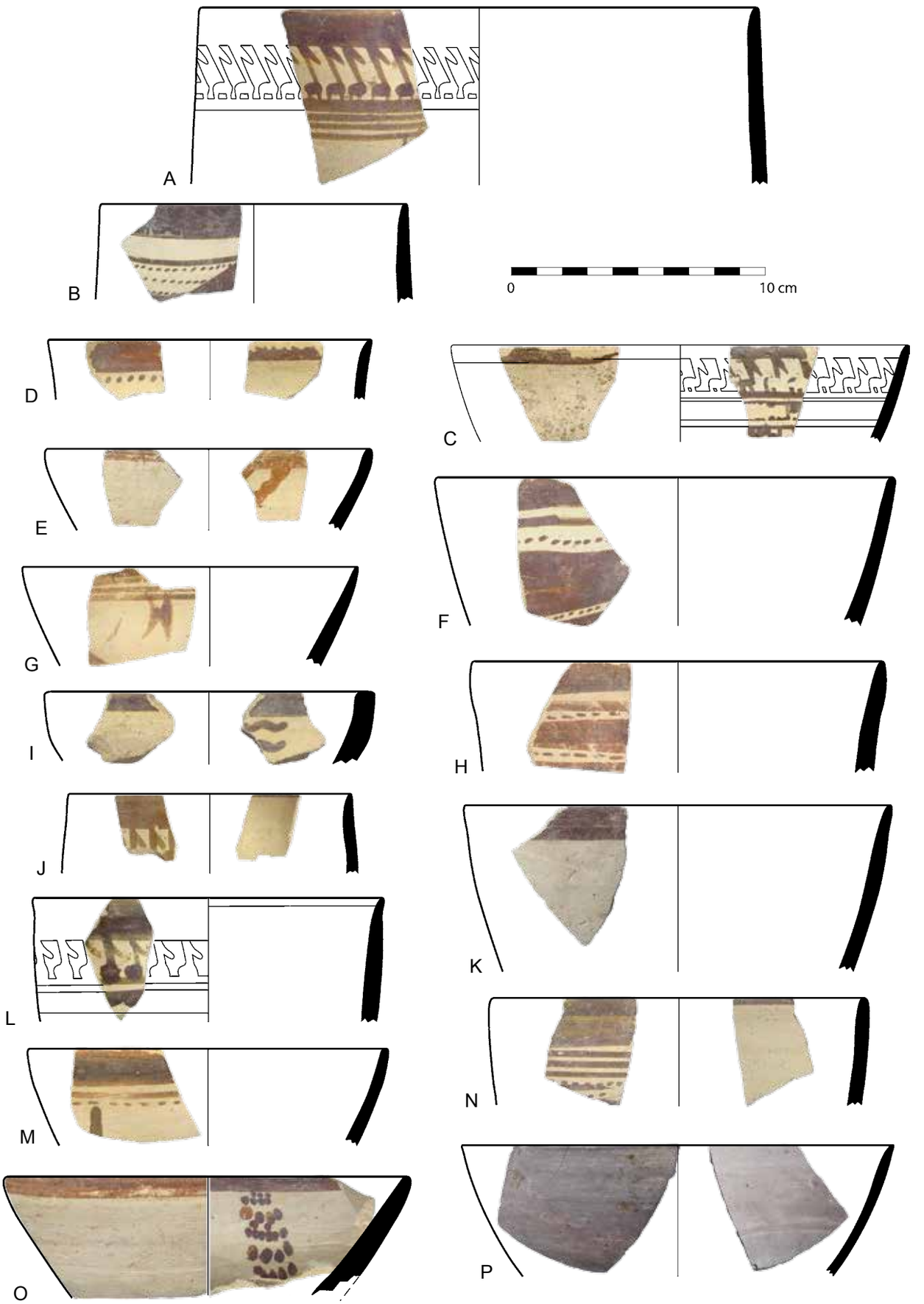
	Period	*Description*
A	Seljuk?	Buff ware, gray core, some chaff inclusion, pinkish buff surface
B	Seljuk	Buff ware, some sand in paste, no visible inclusion, light blue glaze
C	Seljuk	Buff ware, some sand in paste, no visible inclusion, light blue glaze
D	Seljuk?	Buff ware, chaff inclusion, pinkish buff surface
E	Seljuk?	Light brown ware, grog inclusion, some sand in paste
F	Seljuk?	Buff ware, some chaff inclusion, pinkish buff surface
G	Seljuk?	Buff ware, some chaff inclusion
H	Seljuk?	Buff ware, some chaff inclusion
I	Seljuk?	Buff ware, no visible inclusion, pinkish buff ware



Pottery from RH-017S

Plate 94. Pottery from RH-018

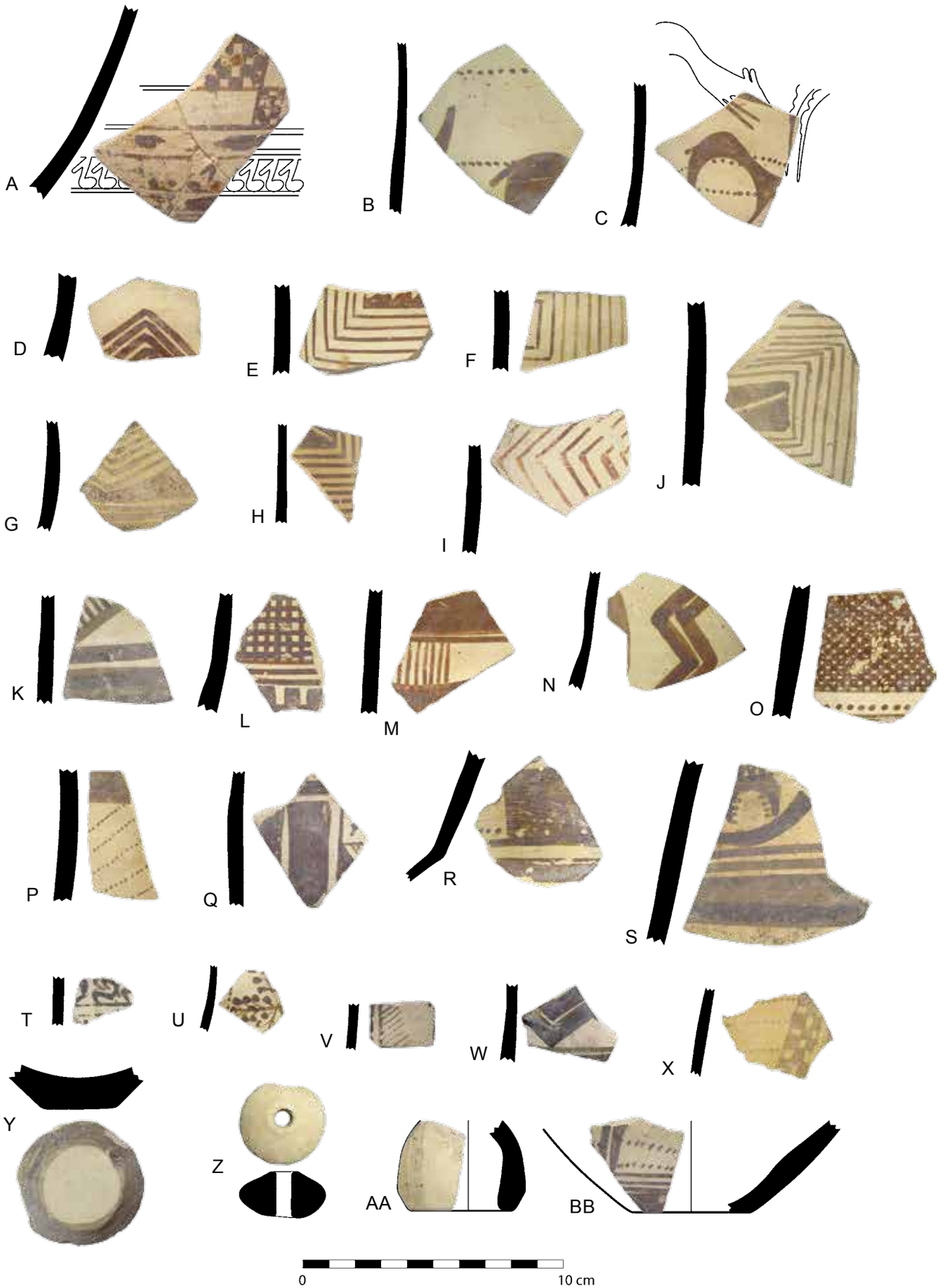
	Period	*Description*
A	Late Susiana 1	Buff ware, some sand in paste, no visible inclusion, brown paint, creamy buff surface
B	Late Susiana 1	Buff ware, no visible inclusion, brown paint, creamy buff surface
C	Late Susiana 1	Buff ware, no visible inclusion, brown paint, creamy buff surface
D	Late Susiana 1	Buff ware, no visible inclusion, brown paint, creamy buff surface
E	Late Susiana 1	Buff ware, no visible inclusion, brown paint, creamy buff surface
F	Late Susiana 1	Buff ware, no visible inclusion, brown paint, creamy buff surface
G	Late Susiana 1	Buff ware, no visible inclusion, brown paint, creamy buff surface
H	Late Susiana 1	Buff ware, no visible inclusion, brown paint, creamy buff surface
I	Late Susiana 1	Buff ware, no visible inclusion, brown paint, greenish buff surface
J	Late Susiana 1	Buff ware, no visible inclusion, olive green paint, greenish buff surface
K	Late Susiana 1	Buff ware, no visible inclusion, brown paint, creamy buff surface
L	Late Susiana 1	Buff ware, no visible inclusion, olive green paint, greenish buff surface
M	Late Susiana 1	Buff ware, no visible inclusion, brown paint, creamy buff surface
N	Late Susiana 1	Buff ware, no visible inclusion, greenish brown paint, light green buff surface
O	Late Susiana 1	Buff ware, no visible inclusion, brown paint, creamy buff surface
P	Late Susiana 1	Gray ware, no visible inclusion, micaceous, mica face



Pottery from RH-018

Plate 95. Pottery from RH-018 (*cont.*)

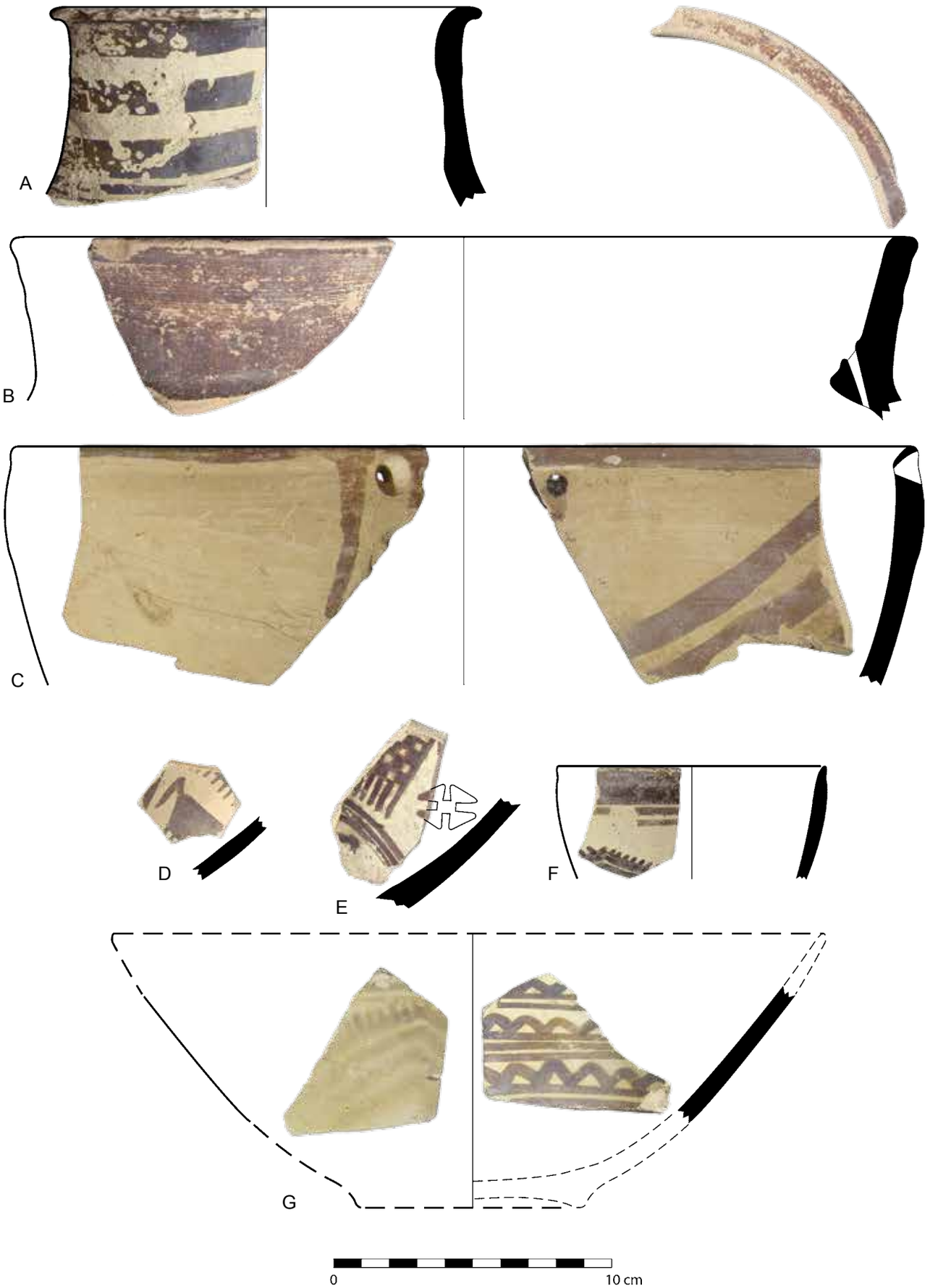
	Period	*Description*
A	Late Susiana 1	Buff ware, no visible inclusion, brown paint, creamy buff surface
B	Late Susiana 1	Buff ware, no visible inclusion, brown paint, creamy buff surface
C	Late Susiana 1	Buff ware, no visible inclusion, brown paint, buff surface
D	Late Susiana 1	Buff ware, no visible inclusion, brown paint, buff surface
E	Late Susiana 1	Buff ware, no visible inclusion, brown paint, buff surface
F	Late Susiana 1	Buff ware, no visible inclusion, greenish brown paint
G	Late Susiana 1	Buff ware, no visible inclusion, greenish paint, greenish buff surface
H	Late Susiana 1	Buff ware, no visible inclusion, brown paint, pinkish buff surface
I	Late Susiana 1	Buff ware, no visible inclusion, brown paint
J	Late Susiana 1	Buff ware, no visible inclusion, greenish paint, greenish buff surface
K	Late Susiana 1	Buff ware, no visible inclusion, greenish paint, greenish buff surface
L	Late Susiana 1	Buff ware, no visible inclusion, brown paint, creamy buff surface
M	Late Susiana 1	Buff ware, no visible inclusion, brown paint, creamy buff surface
N	Late Susiana 1	Buff ware, no visible inclusion, brown paint, greenish buff surface
O	Late Susiana 1	Buff ware, no visible inclusion, brown paint, buff surface
P	Late Susiana 1	Buff ware, no visible inclusion, brown paint, buff surface
Q	Late Susiana 1	Buff ware, no visible inclusion, brown paint, buff surface
R	Late Susiana 1	Buff ware, no visible inclusion, olive green paint
S	Late Susiana 1	Buff ware, no visible inclusion, brown paint, buff surface
T	Late Susiana 1	Buff ware, no visible inclusion, brown paint, buff surface
U	Late Susiana 2	Buff ware, no visible inclusion, brown paint, buff surface
V	Late Susiana 2	Buff ware, no visible inclusion, brown paint, buff surface
W	Late Susiana 2	Buff ware, no visible inclusion, olive green paint
X	Late Susiana 1	Buff ware, no visible inclusion, olive green paint, yellowish buff surface
Y	Late Susiana 1	Buff ware, no visible inclusion, olive green paint
Z	Late Susiana 2	Buff ware, no visible inclusion, spindle whorl
AA	Late Susiana 1	Spindle whorl. Buff ware, no visible inclusion, brown paint
BB	Late Susiana 1	Buff ware, no visible inclusion, olive green paint



Pottery from RH-018 (*cont.*)

Plate 96. Pottery from RH-018 (*cont.*)

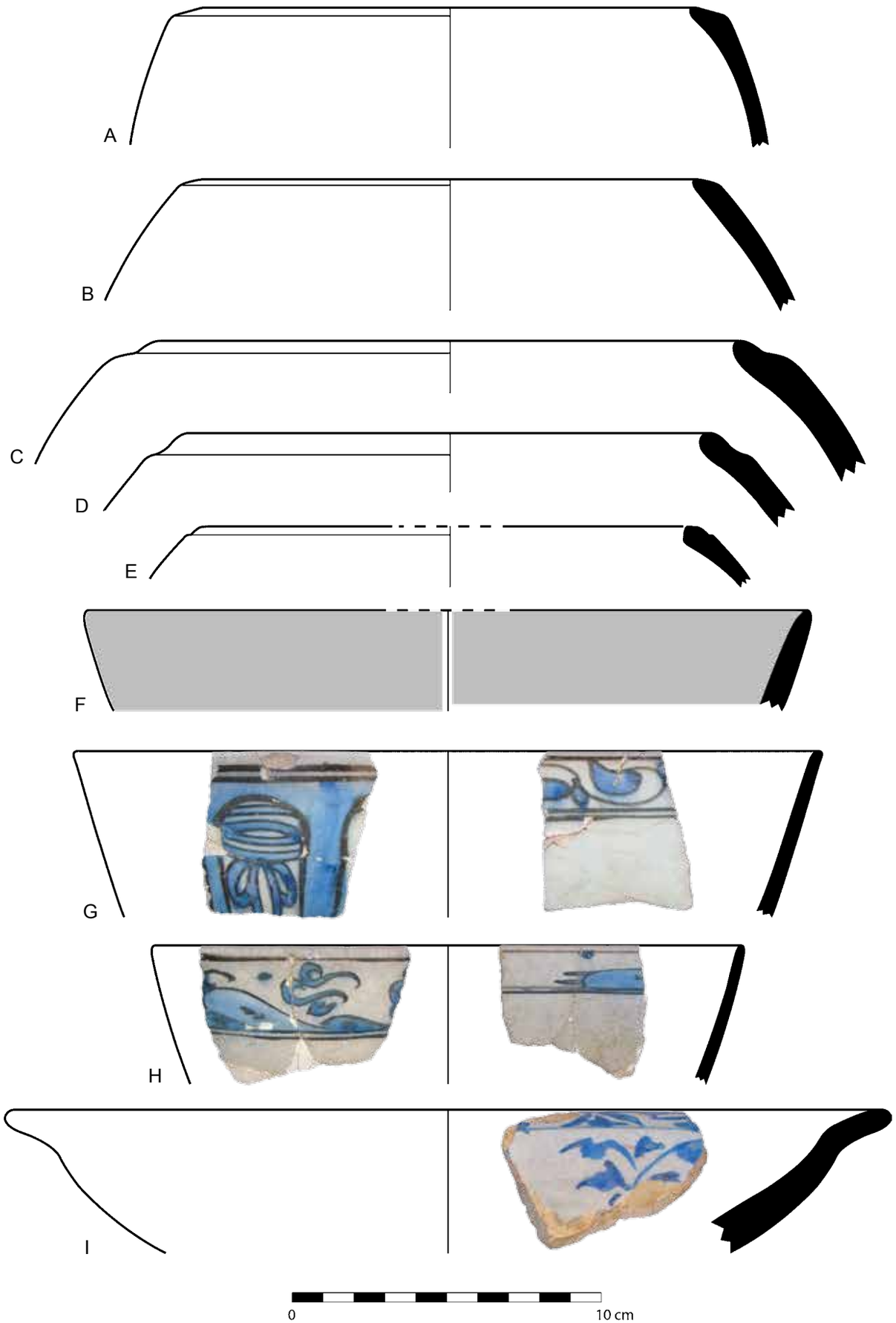
	Period	*Description*
A	Late Susiana 2	Buff ware, chaff inclusion, olive green paint, greenish buff surface
B	Late Middle Susiana	Buff ware, no visible inclusion, some calcite particles in paste, brown paint, pinkish buff surface
C	Late Middle Susiana	Buff ware, no visible inclusion, brown paint, greenish buff surface
D	Late Susiana 2	Buff ware, no visible inclusion, brown paint
E	Late Susiana 2	Buff ware, no visible inclusion, brown paint, pinkish buff surface
F	Late Susiana 2	Buff ware, no visible inclusion, brown paint, greenish buff surface
G	Late Susiana 2	Buff ware, no visible inclusion, brown paint, greenish buff surface



Pottery from RH-018 (*cont.*)

Plate 97. Pottery from RH-018 (*cont.*)

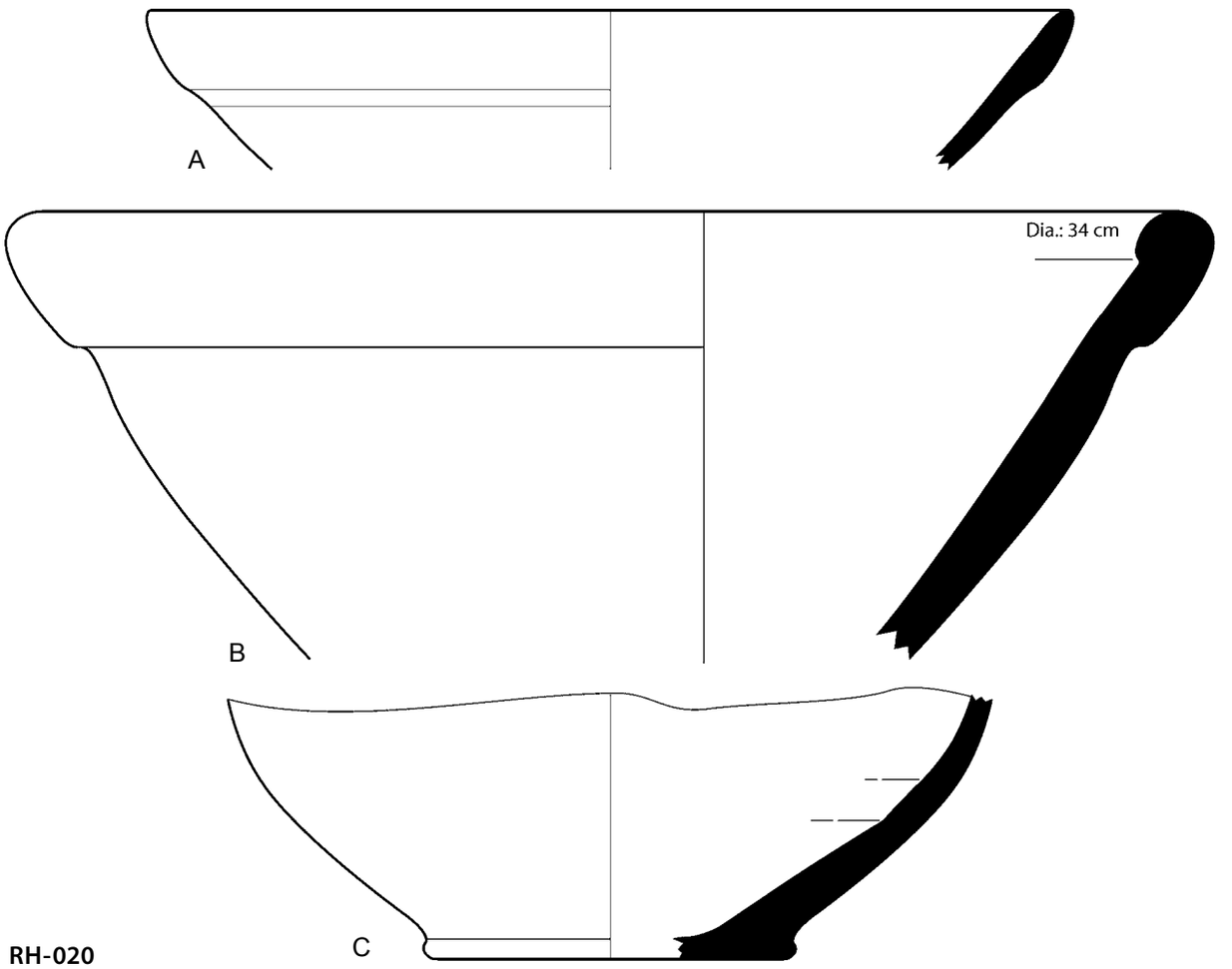
	Period	*Description*
A	—	Light brown ware, no visible inclusion, micaceous, mica face
B	Late Middle Susiana	Light brown ware, gray core, no visible inclusion, micaceous, mica face
C	Late Middle Susiana	Light brown ware, gray core, no visible inclusion, micaceous, mica face
D	—	Light brown ware, no visible inclusion, micaceous, mica face, grayish brown surface
E	—	Light brown ware, no visible inclusion, micaceous, mica face, brownish buff surface
F	Late Middle Susiana	Light brown ware, no visible inclusion, micaceous, mica face, reddish brown wash
G	Ilkhanid/Safavid	Milky white ware, under glaze paint
H	Ilkhanid/Safavid	Milky white ware, under glaze paint
I	Safavid	Buff ware, no visible inclusion, blue white glaze

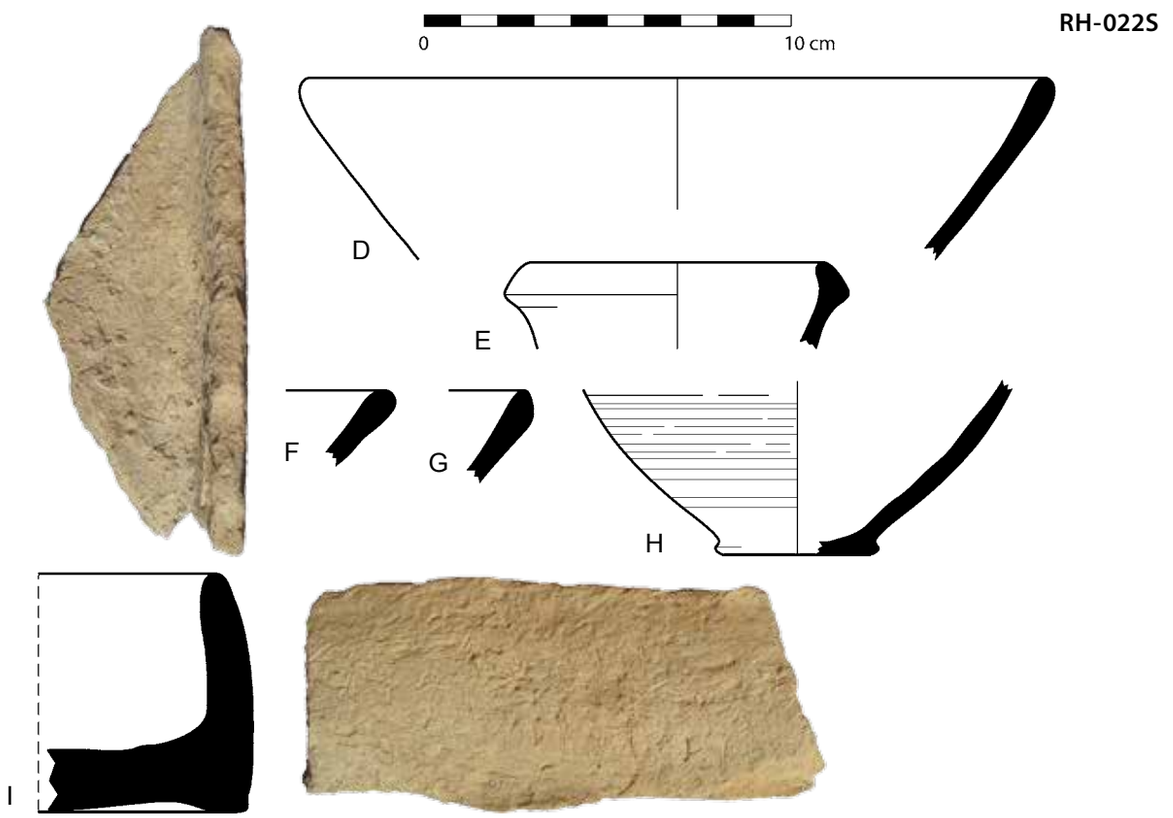


Pottery from RH-018 (*cont.*)

Plate 98. Pottery from RH-020 and RH-022S

	Period	*Description*
RH-020		
A	Sasanian?	Light brown ware, chaff inclusion, chaff face
B	Sasanian?	Buff ware, chaff inclusion, micaceous, some sand in paste, chaff and mica face
C	Sasanian?	Brown ware, chaff inclusion, micaceous, chaff and mica face
RH-022S		
D	Parthian	Light brown ware, chaff inclusion, greenish buff surface *Comparanda:* Khuzestan (Wenke 1975–76, fig. 11:538)
E	Parthian	Light brown ware, gray core, chaff inclusion, greenish buff surface *Comparanda:* Khuzestan (Wenke 1975–76, fig. 10:427, 431); Susa (Haerinck 1983, fig. 6:7)
F	Parthian	Light brown ware, chaff inclusion, greenish buff surface *Comparanda:* Khuzestan (Wenke 1975–76, fig. 11:538)
G	Parthian	Light brown ware, chaff inclusion, micaceous, chaff and mica face, greenish buff surface
H	Parthian	Buff ware, some chaff, greenish buff surface *Comparanda:* Susa (Haerinck 1983, fig. 6:5)
I	Parthian	Buff ware, gray core, chaff inclusion, chaff face, pinkish buff surface

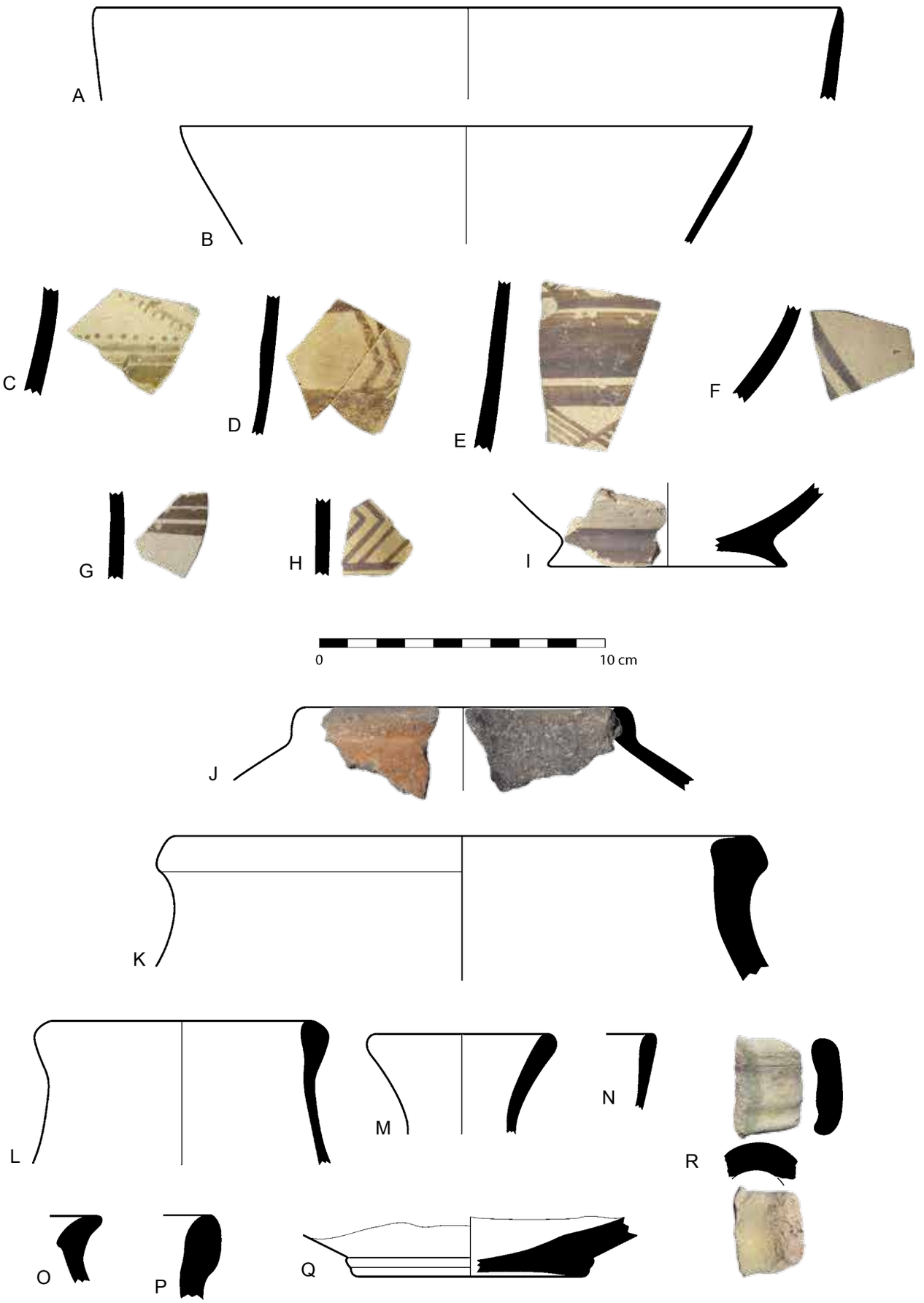




Pottery from RH-020 and RH-022S

Plate 99. Pottery from RH-022N

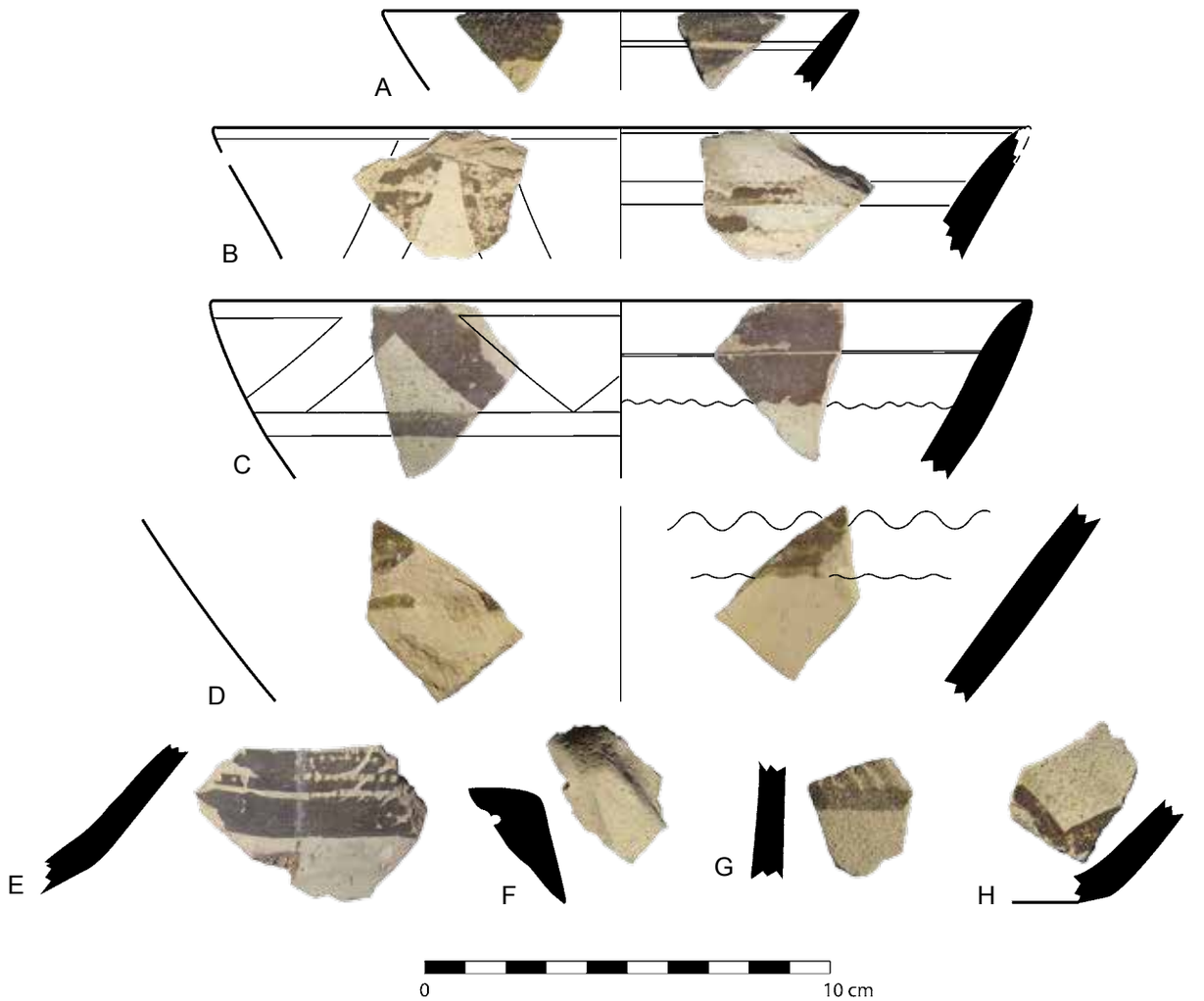
	Period	*Description*
A	Late Middle Susiana?	Buff ware, no visible inclusion, micaceous, mica face
B	Late Middle Susiana?	Buff ware, no visible inclusion, micaceous, mica face
C	Late Susiana 1?	Buff ware, no visible inclusion, greenish paint, greenish buff surface
D	Late Middle Susiana	Buff ware, no visible inclusion, brown paint
E	Late Middle Susiana	Buff ware, no visible inclusion, brown paint
F	Late Middle Susiana	Buff ware, no visible inclusion, greenish paint, greenish buff surface
G	Late Middle Susiana	Buff ware, no visible inclusion, greenish brown paint
H	Late Middle Susiana	Buff ware, no visible inclusion, brown paint, pinkish buff surface
I	Late Middle Susiana	Buff ware, occasional chaff, olive greenish paint
J	Parthian?	Brown ware, dark core, calcite particles in paste
K	Parthian	Light brown ware, some chaff, calcite particles in paste, chaff and chalky face *Comparanda:* Khuzestan (Wenke 1975–76, fig. 11:503)
L	Parthian?	Light brown paint, some chaff, micaceous, chaff and mica face, greenish buff surface
M	Parthian?	Light brown ware, chaff inclusion, greenish brown surface
N	Parthian	Light brown ware, chaff inclusion, buff surface
O	Parthian	Brown ware, core completely dark, calcite particles in paste *Comparanda:* Khuzestan (Wenke 1975–76, fig. 10:401, 404)
P	Parthian	Buff ware, chaff inclusion *Comparanda:* Khuzestan (Wenke 1975–76, figs. 12:605, 13:716)
Q	Parthian?	Light brown ware, gray core, chaff inclusion
R	Parthian	Buff ware, gray core, some sand in paste, no visible inclusion, yellowish green glaze



Pottery from RH-022N

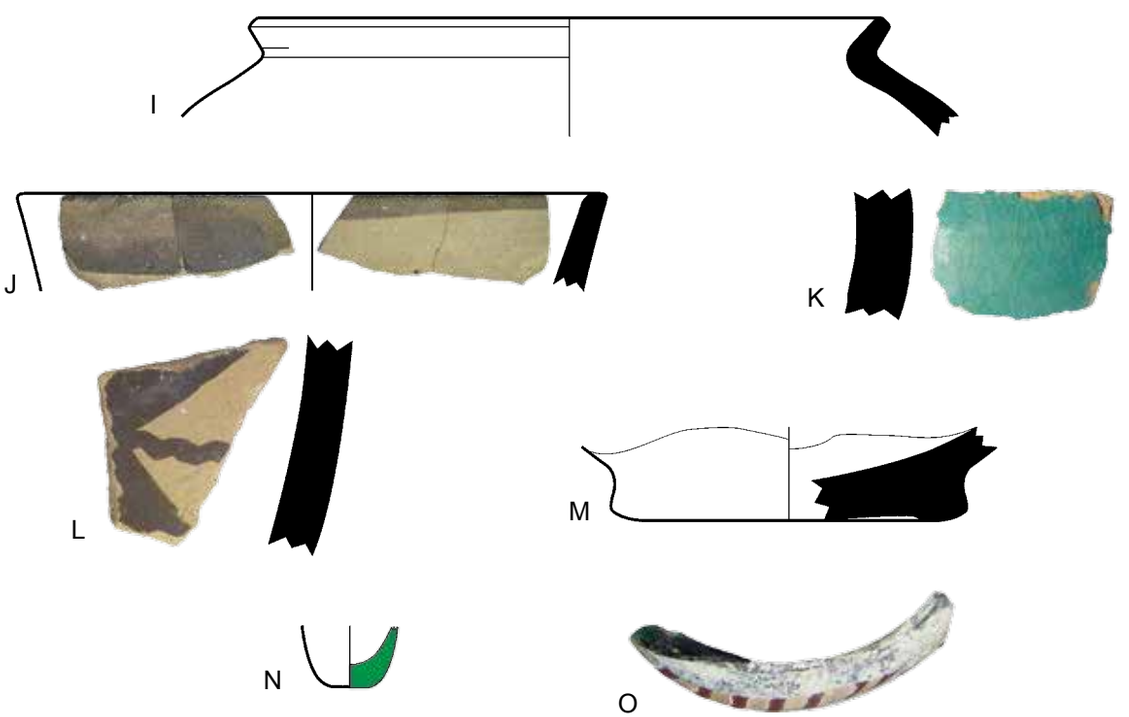
Plate 100. Pottery and glass from RH-023 and RH-024

	Period	*Description*
RH-023		
	Southwest Mound	
A	Late Middle Susiana	Buff ware, no visible inclusion, brown paint
B	Late Middle Susiana	Buff ware, no visible inclusion, brown paint
C	Late Middle Susiana	Buff ware, no visible inclusion, brown paint
D	Early/Late Middle Susiana	Buff ware, no visible inclusion, olive green paint, greenish buff surface
E	Late Middle Susiana	Greenish buff ware, no visible inclusion, dark green paint
	Northeast Mound	
F	Proto-Elamite	Lug handle. Buff ware, some chaff inclusion, greenish buff surface
G	Late Middle Susiana	Greenish buff ware, some sand, dark green paint
H	Late Middle Susiana	Greenish buff ware, no visible inclusion, dark green paint
RH-024		
I	Seljuk	Brown ware, chaff inclusion, micaceous, chaff and mica face, buff surface
J	Late Middle Susiana	Buff ware, some chaff inclusion, olive green paint, greenish buff surface
K	Seljuk	Buff ware, no visible inclusion, blue green glaze
L	Late Middle Susiana	Buff ware, chaff inclusion, brown paint, pinkish buff surface
M	Seljuk	Buff ware, chaff inclusion
N	Post-Sasanian	Matte green glass
O	Post-Sasanian	Glass bracelet



RH-023

RH-024



Pottery and glass from RH-023 and RH-024

Plate 101. Pottery from RH-025

	Period	*Description*
A	Post-Sasanian	Brown ware, calcite particles in paste, gray interior, chalky face
B	Post-Sasanian	Buff ware, no visible inclusion
C	Post-Sasanian	Buff ware, chaff inclusion, green glaze
D	Seljuk	Buff ware, no visible inclusion, dark yellow glaze
E	Seljuk	Buff ware, chaff inclusion
F	Post-Sasanian	Buff ware, chaff inclusion, greenish buff surface
G	Post-Sasanian	Brown ware, gray core, grog inclusion, micaceous, grog and mica face
H	Seljuk	Light brown ware, yellow and green glaze, incised design under glaze

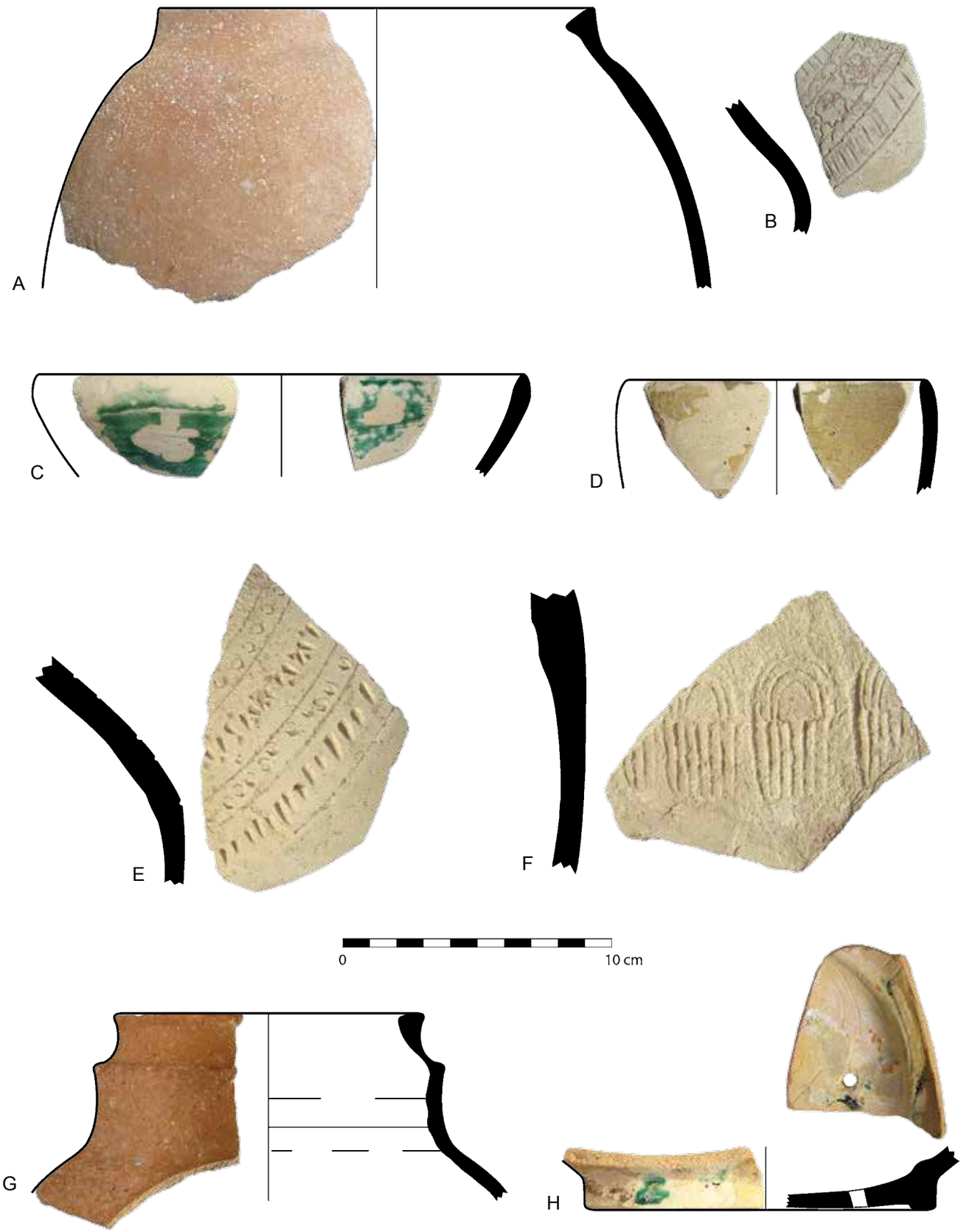


Plate 102. Pottery from RH-026

	Period	*Description*
A	Parthian	Bricky red ware, dense, occasional chaff, probably buff slipped *Comparanda:* Khuzestan (Wenke 1975–76, fig. 11:503)
B	Parthian	Reddish brown ware, dense, thick dark core sandwiched between two 2 mm thick reddish brown layers, occasional chaff, buff slipped *Comparanda:* Khuzestan (rim similar to Wenke 1975–76, fig. 10:435)
C	Seljuk	Yellowish buff ware, dense, hair or wool inclusion, probably slipped. Impressed floral design on exterior

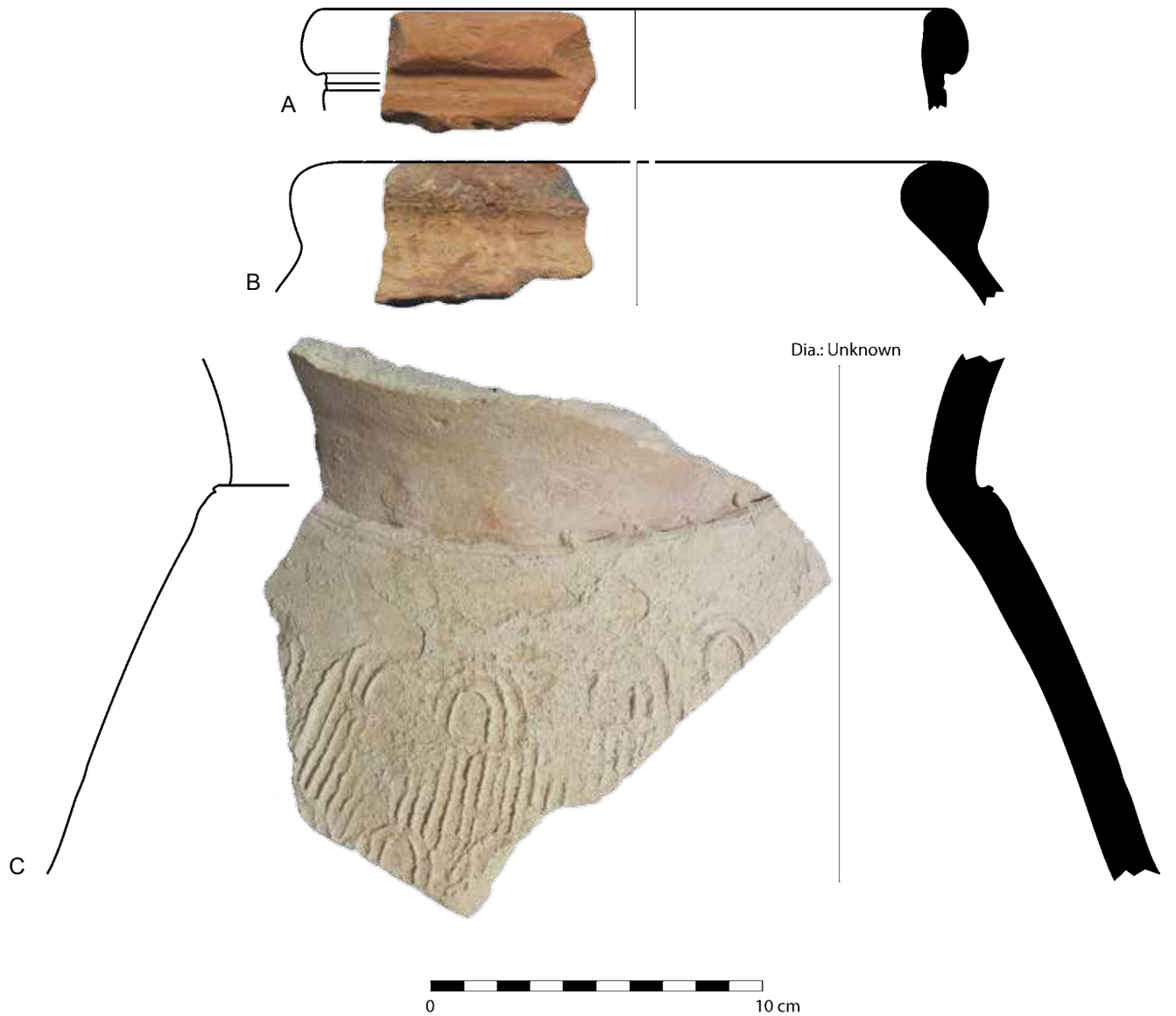


Plate 103. Pottery from RH-031

	Period	*Description*
A	Sukkalmah	Pale bricky red ware, thick gray core sandwiched between two 2 mm pale red layers, chaff inclusion, buff wash exterior
B	Sukkalmah	Light brown ware, black core, chaff inclusion, micaceous, chaff and mica face, brownish buff surface
C	Sukkalmah?	Light brown ware, black core, chaff inclusion, micaceous, chaff and mica face
D	Middle Elamite/ Neo-Elamite	Light brown ware, gray core, chaff inclusion, sand in paste, chaff and sandy face, pinkish brownish surface *Comparanda:* Susa Ville Royale II, level 10 (Miroschedji 1981a, fig. 11:11)
E	Sukkalmah?	Light brown ware, black core, chaff inclusion, micaceous, chaff and mica face
F	Middle Elamite	Light brown ware, black core, chaff inclusion, micaceous, chaff and mica face, brownish buff surface
G	—	Light brown ware, chaff inclusion, chaff face
H	Sukkalmah	Light brown ware, black core, chaff inclusion, chaff face, pinkish brown surface
I	Middle Elamite	Light brown ware, black core, chaff inclusion, micaceous, chaff and mica face, brownish buff surface *Comparanda:* Susa Ville Royale II, level 13 (Miroschedji 1981a, fig. 10:17, 19)
J	Middle Elamite	Light brown ware, black core, chaff inclusion, micaceous, chaff and mica face, brownish buff surface
K	Middle Elamite	Light brown ware, chaff inclusion *Comparanda:* Susa Ville Royale II, level 12, 7B (Miroschedji 1981a, figs. 13:1, 35:1–4)

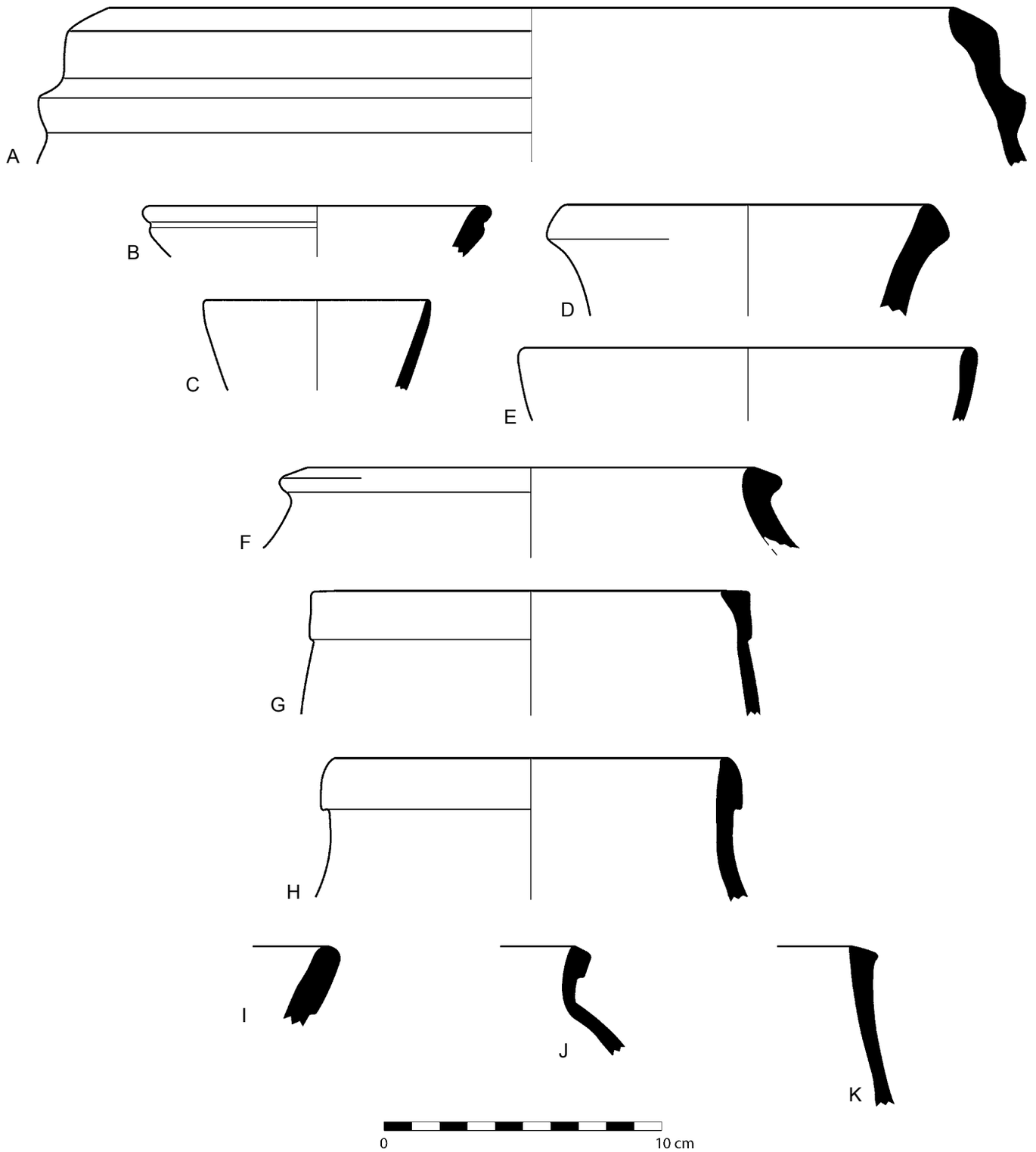
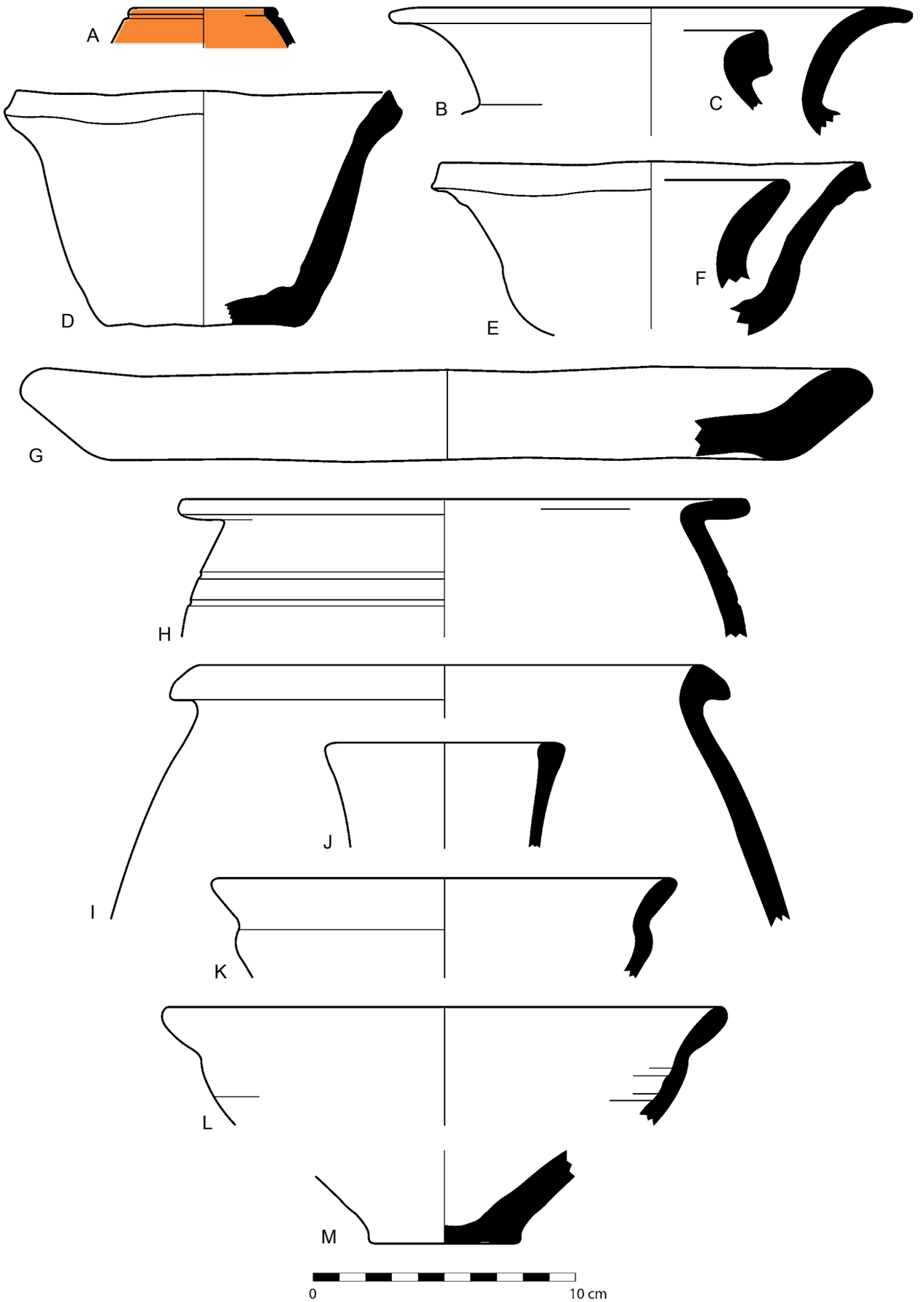


Plate 104. Pottery from RH-032

	Period	*Description*
A	Proto-Elamite	Light brown ware, no visible inclusion, micaceous, calcite particles in paste, calcite and mica face, dark brown wash
B	Terminal Susa	Brown ware, no visible inclusion, micaceous, mica face, brown buff surface
C	Early Susa II?	Light brown ware, gray core, chaff inclusion, dark brown wash
D	Proto-Elamite	Buff ware, dark core, straw inclusion, straw face, pinkish buff surface
E	Proto-Elamite	Buff ware, straw inclusion, straw face, pinkish buff surface
F	Proto-Elamite	Buff ware, straw inclusion, straw face, pinkish buff surface
G	Proto-Elamite	Buff ware, gray core, straw inclusion, straw face, pinkish buff surface
H	Sasanian	Light brown ware, chaff inclusion, micaceous, chaff and mica face, pinkish brown exterior, light gray interior
I	Sasanian	Light brown ware, chaff inclusion, chaff face, brown buff exterior
J	Sasanian	Light brown ware, chaff inclusion, micaceous, chaff and mica face, greenish buff exterior
K	Achaemenid	Light brown ware, some chaff inclusion, greenish buff surface
L	Achaemenid	Light brown ware, chaff inclusion, chaff face, greenish buff surface Comparanda: Khuzestan, Tappeh Patak (Miroschedji 1981c, fig. 64:6)
M	—	Brown ware, chaff inclusion, micaceous, calcite particle in paste, chaff and mica face



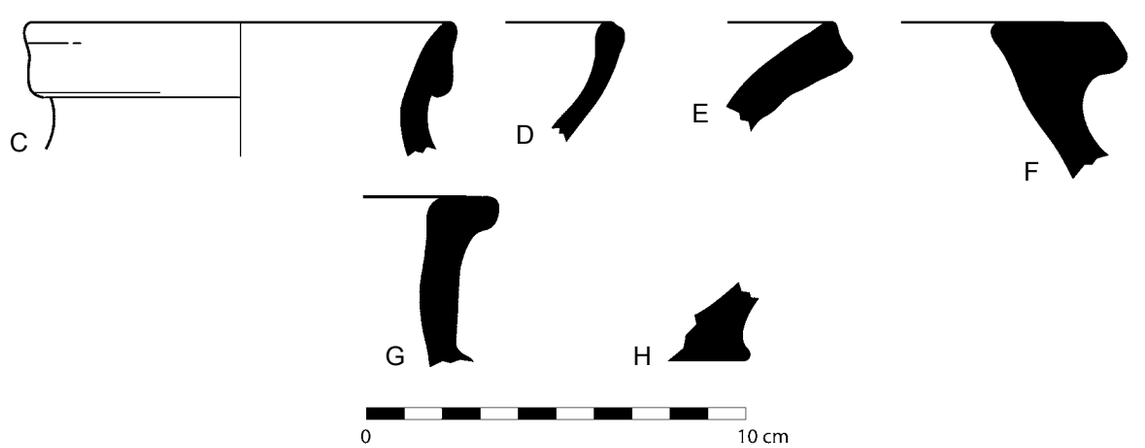
Pottery from RH-032

Plate 105. Pottery from RH-034, RH-035, and RH-039

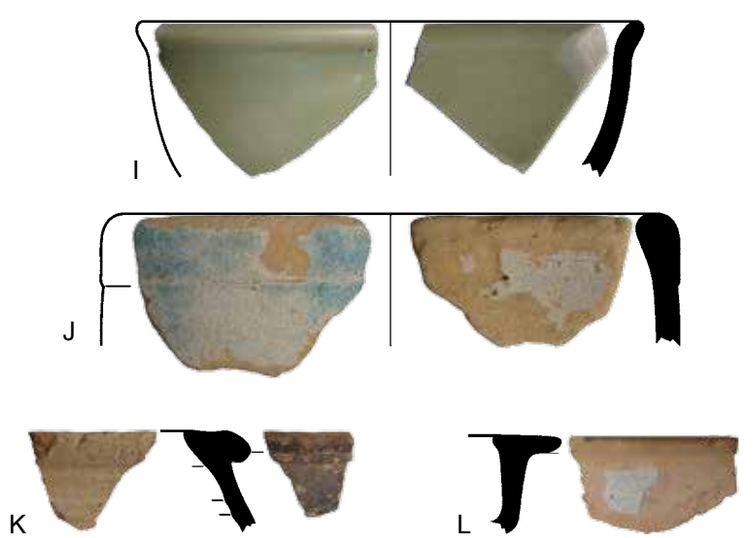
	Period	*Description*
RH-034		
A	Seljuk?	Buff ware, large white grits inclusion, light brown wash interior exterior
B	Seljuk?	Buff ware, large white grits inclusion, pinkish buff surface
RH-035		
C	Sukkalmah/ Middle Elamite	Buff ware, chaff inclusion, chaff face *Comparanda:* Farukhabad, level B18 (Wright 1981, fig. 84:i); Susa Ville Royale II, level 11 (Miroschedji 1981a, fig. 13:10)
D	Middle Elamite	Light brown ware, chaff inclusion, greenish buff exterior
E	Middle Elamite?	Buff ware, chaff inclusion, chaff face
F	Middle Elamite	Light brown ware, chaff inclusion, brown buff exterior *Comparanda:* Susa Ville Royale II, level 11 (Miroschedji 1981a, fig. 15:20)
G	Middle Elamite	Buff ware, chaff inclusion, chaff face, pinkish buff surface *Comparanda:* Susa Ville Royale II, level 11 (Miroschedji 1981a, fig. 15:19)
H	Middle Elamite	Buff ware, gray core, chaff inclusion
RH-039		
I	Ilkhanid	Celadon
J	Sasanian	Buff ware, occasional chaff, light blue glaze, pinkish buff surface
K	Sasanian	Light brown ware, grog inclusion, dark brown wash exterior, creamy buff interior
L	Sasanian	Light brown ware, occasional chaff, light blue glaze

RH-034

RH-035



RH-039



Pottery from RH-034, RH-035, and RH-039

Plate 106. Pottery from RH-040

	Period	*Description*
A	Sukkalmah/ Middle Elamite	Light brown ware, black core, chaff inclusion, micaceous, chaff and mica face *Comparanda:* Susa Ville Royale II, level 12 (Miroschedji 1981a, figs. 15:1, 26:10)
B	Middle Elamite	Light brown ware, gray core, some chaff inclusion *Comparanda:* Susa Ville Royale II, level 13 (Miroschedji 1981a, fig. 10:17, 19)
C	Middle Elamite	Light brown ware, gray core, chaff inclusion, micaceous, chaff and mica face *Comparanda:* Susa Ville Royale II, level 13 (Miroschedji 1981a, fig. 10:16)
D	Middle Elamite	Light grayish brown ware, black core, chaff inclusion
E	Middle Elamite	Light brown ware, black core, chaff inclusion, micaceous, chaff and mica face, brownish buff exterior *Comparanda:* Susa Ville Royale II, level 13 (Miroschedji 1981a, fig. 10:16)
F	Middle Elamite	Buff ware, some chaff inclusion, chaff face
G	Middle Elamite	Light grayish brown ware, chaff inclusion
H	Middle Elamite	Light grayish brown ware, chaff inclusion
I	Middle Elamite	Light grayish brown ware, chaff inclusion, chaff face *Comparanda:* Susa Ville Royale II, level 10 (Miroschedji 1981a, fig. 15:9)
J	Middle Elamite	Buff ware, black core, chaff inclusion *Comparanda:* Susa Ville Royale II, level 13 (Miroschedji 1981a, fig. 10:10)
K	Sukkalmah	Light brown ware, chaff inclusion, chaff face, brown buff surface
L	Sukkalmah	Light brown ware, chaff inclusion, chaff face, brown buff surface
M	Sukkalmah/ Transitional	Buff ware, chaff inclusion, greenish buff exterior, brown paint
N	Sukkalmah/ Transitional	Buff ware, chaff inclusion, greenish buff exterior, brown paint
O	Sukkalmah/ Transitional	Buff ware, black core, chaff inclusion, pinkish buff exterior, brown paint *Comparanda:* Lama Cemetery, tomb 57 (Rezvani et al. 2007, fig. 48:10)
P	Sukkalmah/ Transitional	Buff ware, chaff inclusion, greenish buff surface, brown paint *Comparanda:* Lama Cemetery, tomb 57 (Rezvani et al. 2007, fig. 48:10)
Q	Sukkalmah/ Transitional	Buff ware, chaff inclusion, greenish buff surface, brown paint *Comparanda:* Lama Cemetery, tomb 57 (Rezvani et al. 2007, fig. 48:10)

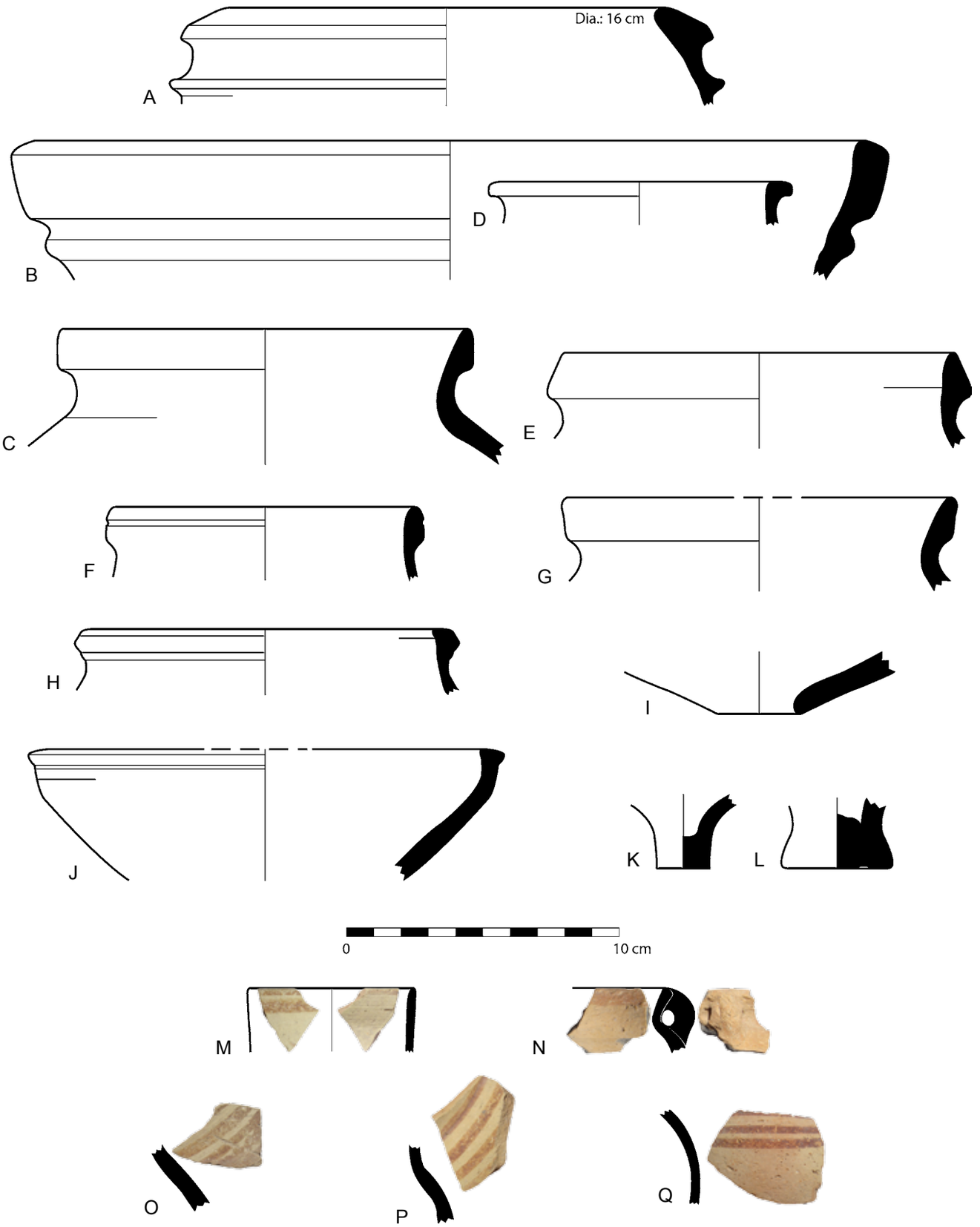
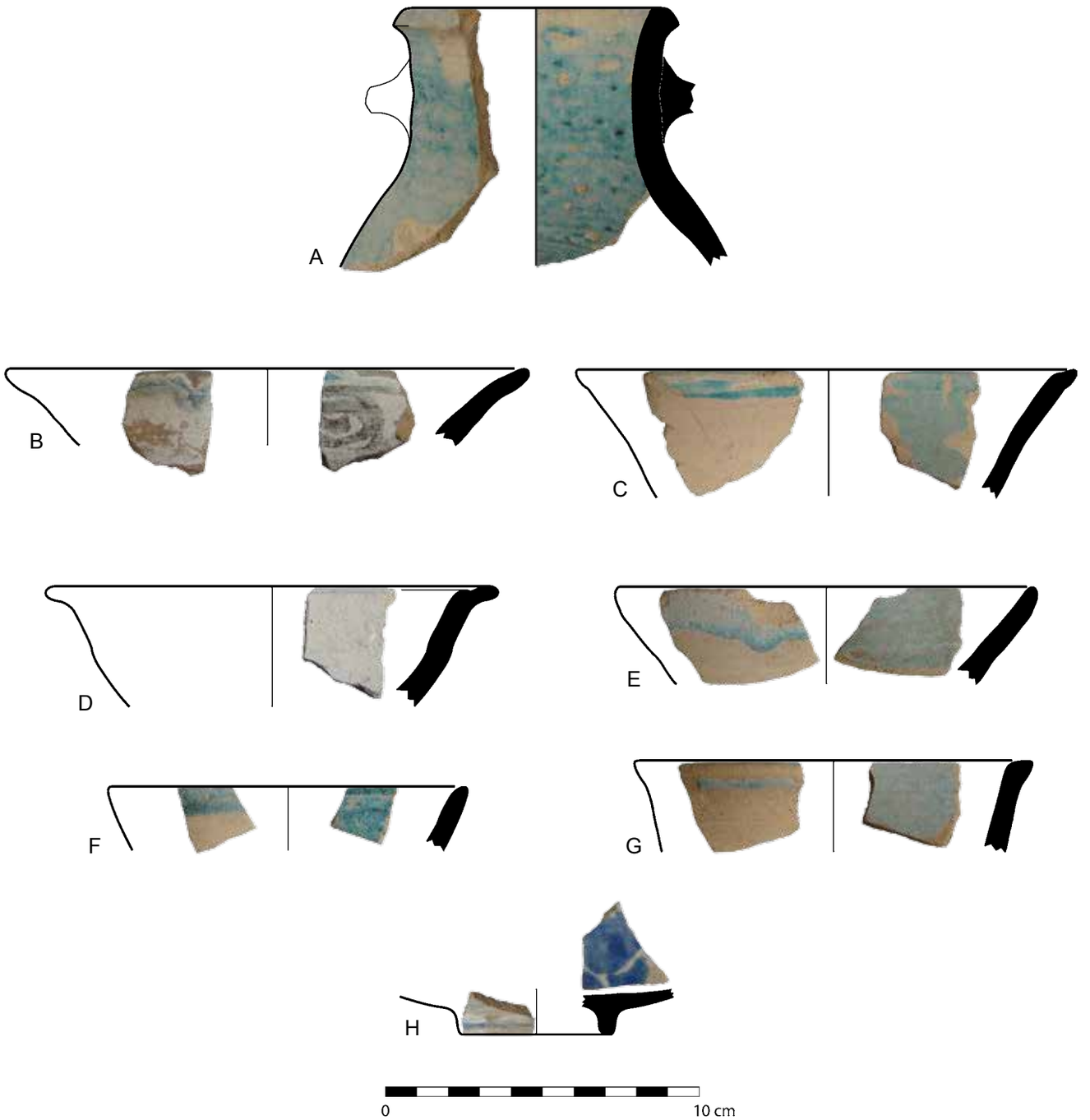


Plate 107. Pottery from RH-042 and RH-044

	Period	*Description*
RH-042		
A	Sasanian	Buff ware, grog inclusion, turquoise glaze
B	Post-Sasanian	Light brown ware, gray core, no visible inclusion, under glaze paint, off-white glaze
C	Sasanian	Buff ware, chaff inclusion, light blue glaze
D	Sasanian	Buff ware, chaff inclusion, off white glaze
E	Sasanian	Buff ware, chaff inclusion, light blue glaze
F	Sasanian	Buff ware, no visible inclusion, turquoise glaze
G	Sasanian	Buff ware, light blue glaze
H	Safavid	Buff ware, no visible inclusion, blue glaze
RH-044		
I	Late Middle Susiana	Greenish buff ware, no visible inclusion, dark green paint



RH-042

RH-044

Pottery from RH-042 and RH-044

Plate 108. Pottery from RH-046

	Period	*Description*
A	Middle Elamite	Light brown ware, gray core, chaff inclusion, micaceous, chaff and mica face
B	Middle Elamite	Light brown ware, calcite particles in paste, chaff inclusion, micaceous, chaff, mica and chalky face *Comparanda:* Susa Ville Royale II, level 10 (Miroschedji 1981a, fig. 14:9)
C	Middle Elamite	Light brown ware, gray core, chaff inclusion, micaceous, chaff and mica face, buff brown surface
D	Middle Elamite	Light brown ware, chaff inclusion, micaceous, chaff and mica face *Comparanda:* Susa Ville Royale II, level 10 (Miroschedji 1981a, fig. 14:9)
E	Sukkalmah/ Middle Elamite	Light brown ware, black core, chaff inclusion, micaceous, chaff and mica face, grayish brown surface *Comparanda:* Susa Ville Royale II, level 13 (Miroschedji 1981a, fig. 10:16), Farukhabad, level B11–13 (Wright 1981, fig. 86:b)
F	Middle Elamite	Light brown ware, chaff inclusion, greenish buff surface
G	Middle Elamite	Light brown ware, gray core, chaff inclusion, light grayish buff wash *Comparanda:* Susa Ville Royale II, level 12 (Miroschedji 1981a, fig. 14:9); Malyan, level IVA (Carter 1996, fig. 24)
H	Middle Elamite	Light brown ware, black core, chaff inclusion, brown buff surface *Comparanda:* Susa Ville Royale II, level 9 (Miroschedji 1981a, fig. 20:11)
I	Middle Elamite	Brown ware, gray core, chaff inclusion, micaceous, chaff and mica face
J	Middle Elamite	Light brown ware, chaff inclusion, chaff face, greenish buff surface
K	Middle Elamite	Light brown ware, chaff inclusion, chaff face, greenish buff surface
L	Sukkalmah/ Middle Elamite	Light brown ware, chaff inclusion, micaceous, chaff and mica face *Comparanda:* Farukhabad, level B15–16 (Wright 1981, fig. 90:f); Susa Ville Royale II, levels 9–8 (Miroschedji 1981a, fig. 26)
M	Sukkalmah	Light brown ware, chaff inclusion, micaceous, chaff and mica face
N	Sukkalmah	Light brown ware, gray core, chaff inclusion, micaceous, chaff and mica face
O	Middle Elamite	Light brown ware, chaff inclusion, micaceous, chaff and mica face *Comparanda:* Susa Ville Royale II, level 10 (Miroschedji 1981a, fig. 15:9, 10, 13)
P	Sukkalmah	Light brown ware, black core, chaff inclusion, micaceous, chaff and mica face
Q	Sukkalmah	Light brown ware, gray core, chaff inclusion, micaceous, chaff and mica face, reddish brown paint
R	Sukkalmah/ Transitional	Light brown ware, black core, chaff inclusion, micaceous, chaff and mica face, reddish brown paint
S	Sukkalmah/ Transitional	Light brown ware, chaff inclusion, chaff face, dark brown paint, buff brown exterior *Comparanda:* Malyan, level IVB (Carter 1996, fig. 27:10)
T	Sukkalmah/ Transitional	Light brown ware, black core, chaff inclusion, micaceous, chaff and mica face, reddish brown paint *Comparanda:* Malyan, level IVB (Carter 1996, fig. 27:10)
U	Sukkalmah/ Transitional	Light brown ware, gray core, chaff inclusion, chaff face, dark brown paint *Comparanda:* Malyan, level IVB (Carter 1996, fig. 27:5)
V	Sukkalmah/ Transitional	Light brown ware, black core, chaff inclusion, light grayish white wash, light brown paint *Comparanda:* Lama Cemetery, tomb 57 (Rezvani et al. 2007, fig. 48:10)

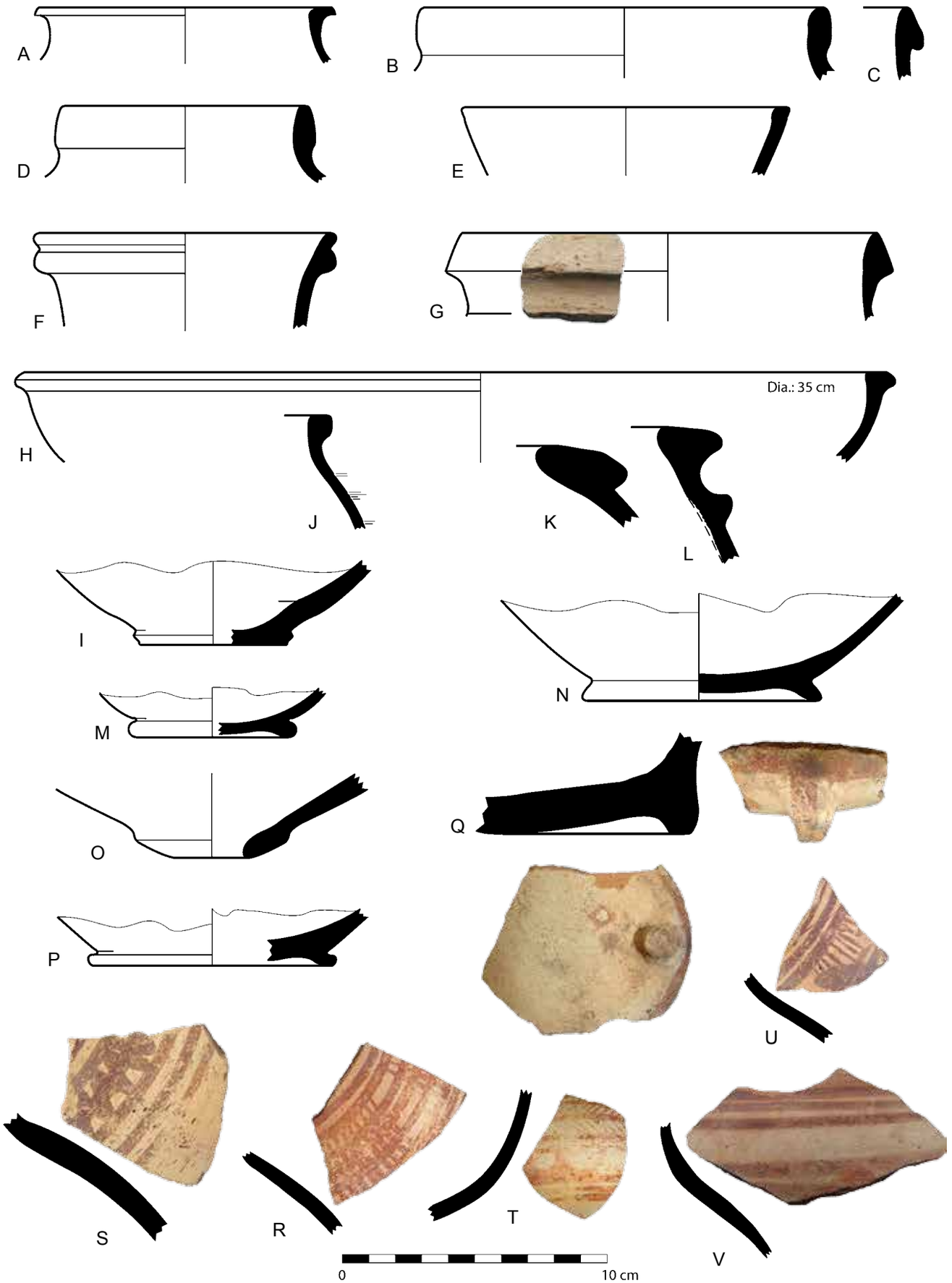
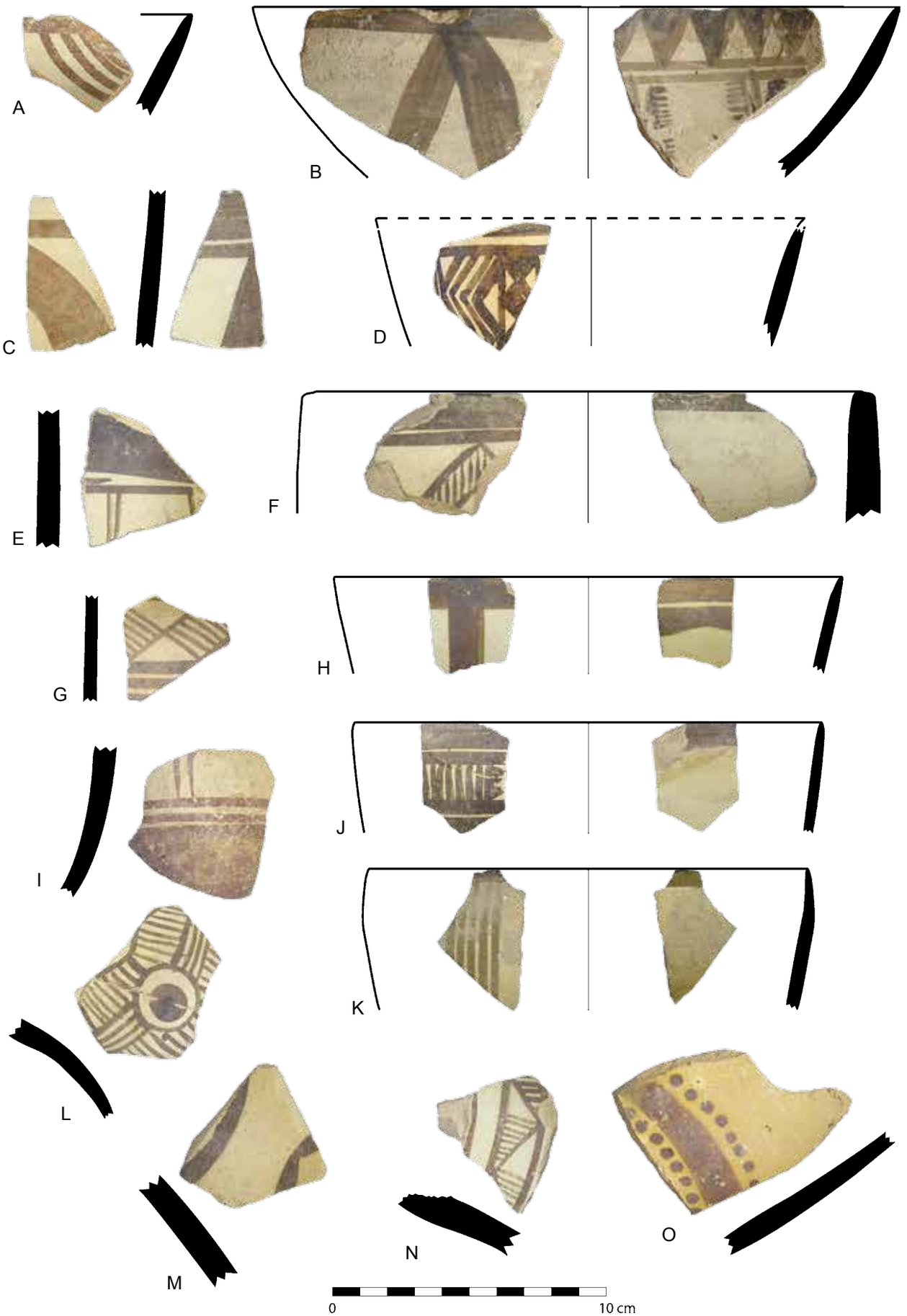


Plate 109. Pottery from RH-047N

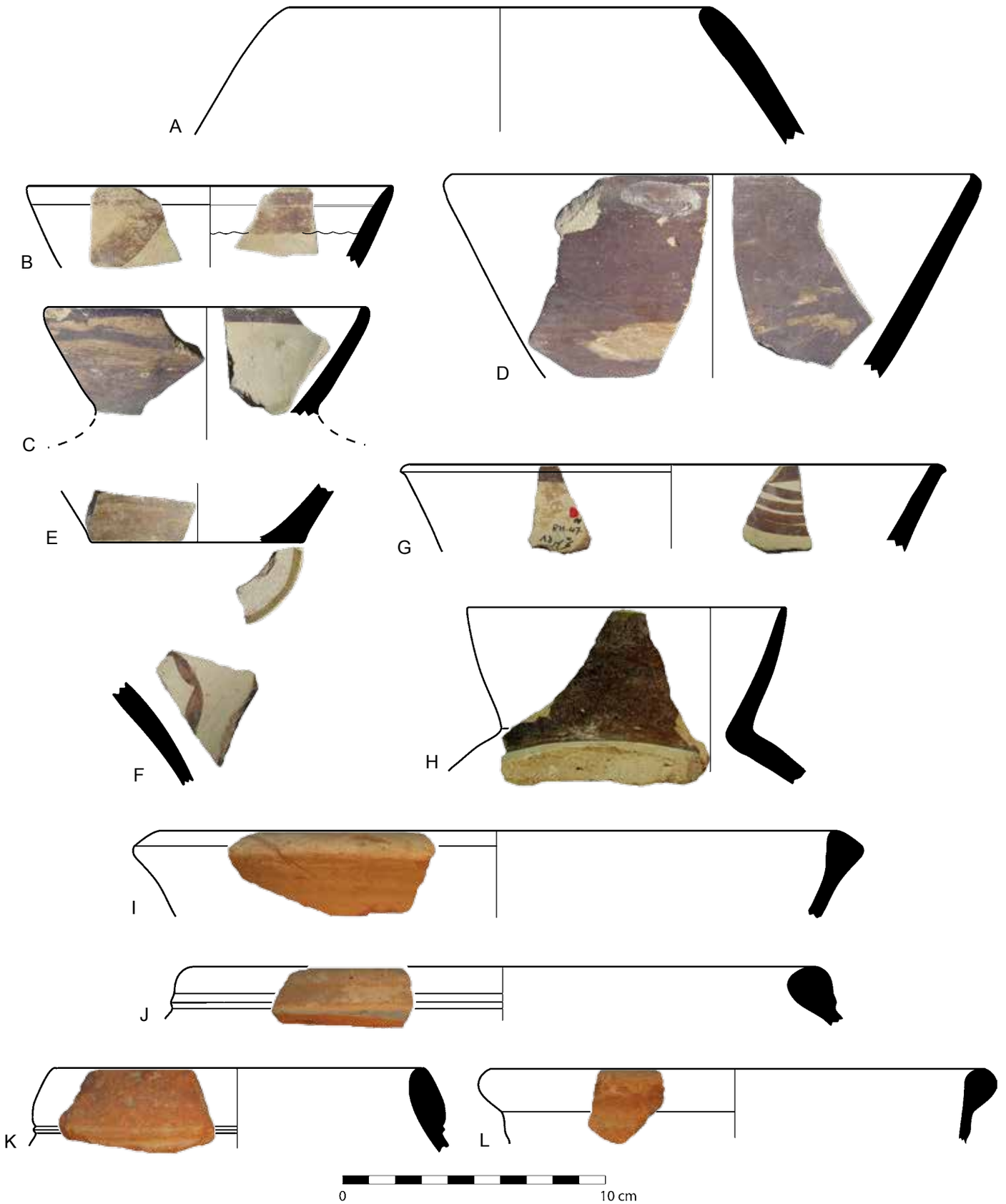
	Period	*Description*
A	Late Middle Susiana	Buff ware, some minerals in paste and on surface, no visible inclusion, brown paint
B	Late Middle Susiana	Buff ware, no visible inclusion, greenish paint, light buff surface
C	Late Middle Susiana	Buff ware, no visible inclusion, micaceous, mica face, dark brown paint
D	Late Middle Susiana	Buff ware, no visible inclusion, brown paint, greenish buff surface
E	—	Buff ware, no visible inclusion, greenish paint, greenish buff surface
F	Late Middle Susiana	Buff ware, very light gray paste, some minerals in paste and on surface, no visible inclusion, olive green paint
G	Late Middle Susiana	Buff ware, no visible inclusion, brown paint
H	Late Middle Susiana	Buff ware, no visible inclusion, olive green paint, light green buff surface
I	Late Middle Susiana	Light brown ware, chaff inclusion, calcite particles in paste, chaff and chalky face, brown paint, greenish brown exterior
J	Late Middle Susiana	Buff ware, no visible inclusion, greenish paint, greenish buff surface
K	Late Middle Susiana	Buff ware, no visible inclusion, greenish paint, greenish buff surface, over-fired
L	—	Buff ware, no visible inclusion, greenish paint, greenish buff surface
M	Late Middle Susiana	Buff ware, no visible inclusion, brown paint
N	Late Middle Susiana	Buff ware, no visible inclusion, greenish brown paint
O	Late Middle Susiana	Buff ware, chaff inclusion, brown paint, pinkish buff surface



Pottery from RH-047N

Plate 110. Pottery from RH-047N (*cont.*)

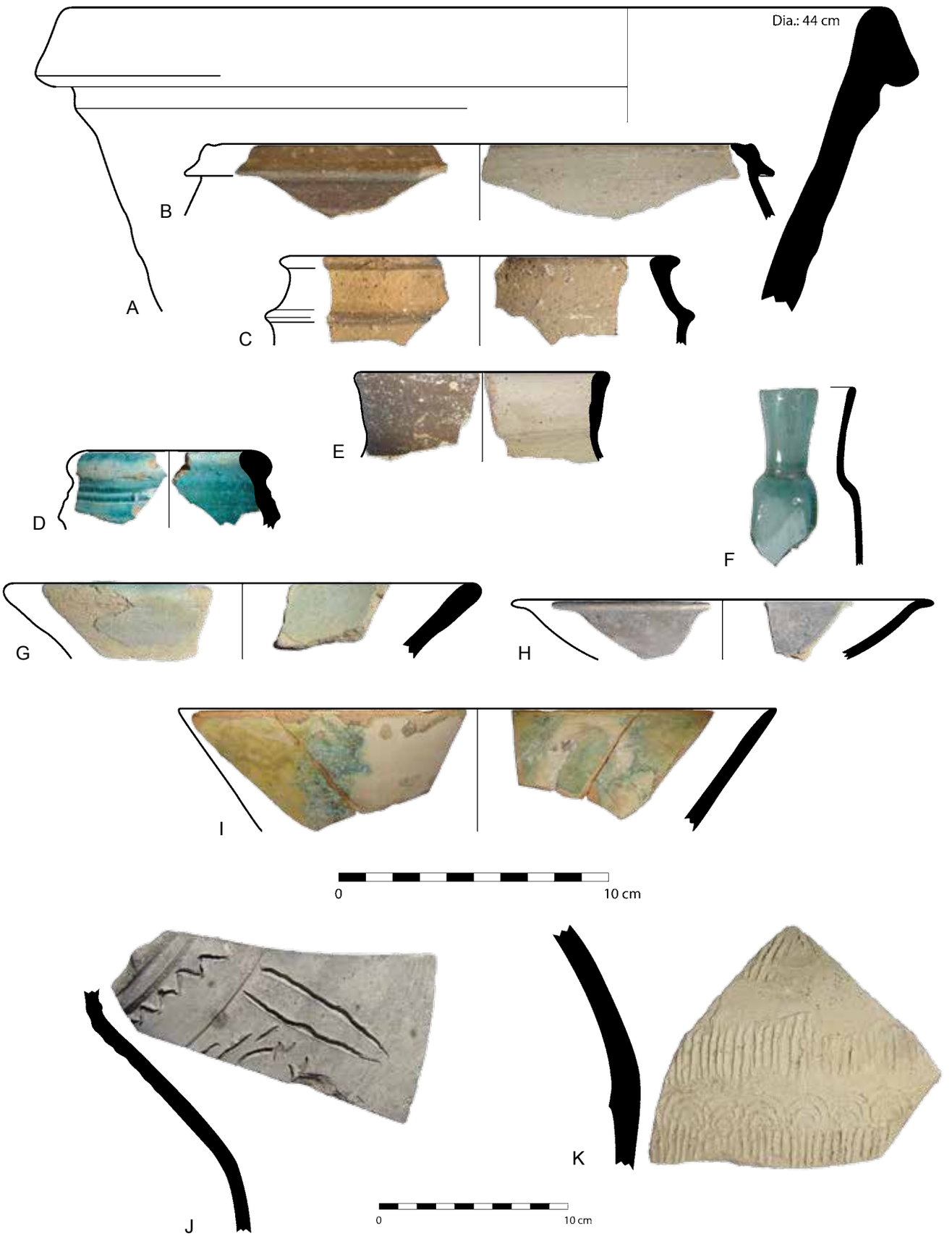
	Period	*Description*
A	Late Middle Susiana	Light brown ware, light gray core, no visible inclusion
B	Early Middle Susiana	Light brown ware, no visible inclusion, scratched line separating the lip band from below, brown paint, buff surface
C	Late Middle Susiana	Buff ware, no visible inclusion, brown paint
D	Late Middle Susiana	Buff ware, no visible inclusion, brown paint
E	Late Middle Susiana	Buff ware, no visible inclusion, greenish paint, greenish buff surface
F	Late Middle Susiana	Creamy buff ware, no visible inclusion, brown paint
G	Late Middle Susiana	Pale brown buff ware, no visible inclusion, yellowish buff slipped, brown paint
H	Late Middle Susiana	Buff ware, no visible inclusion, thick brown paint, neck separately made
I	Parthian	Bricky red ware, dense, no visible inclusion, reddish buff slip exterior *Comparanda:* Khuzestan (Wenke 1975–76, fig. 8:526)
J	Parthian	Bricky red ware, dense, no visible inclusion, buff slipped? *Comparanda:* Khuzestan (Wenke 1975–76, figs. 10:410, 11:505)
K	Parthian	Bricky red ware, dense, gray core, no visible inclusion, slipped
L	Parthian	Bricky red ware, dense, gray core, no visible inclusion, slipped *Comparanda:* Khuzestan (Wenke 1975–76, fig. 10:435)



Pottery from RH-047N (*cont.*)

Plate 111. Pottery from RH-047N (*cont.*)

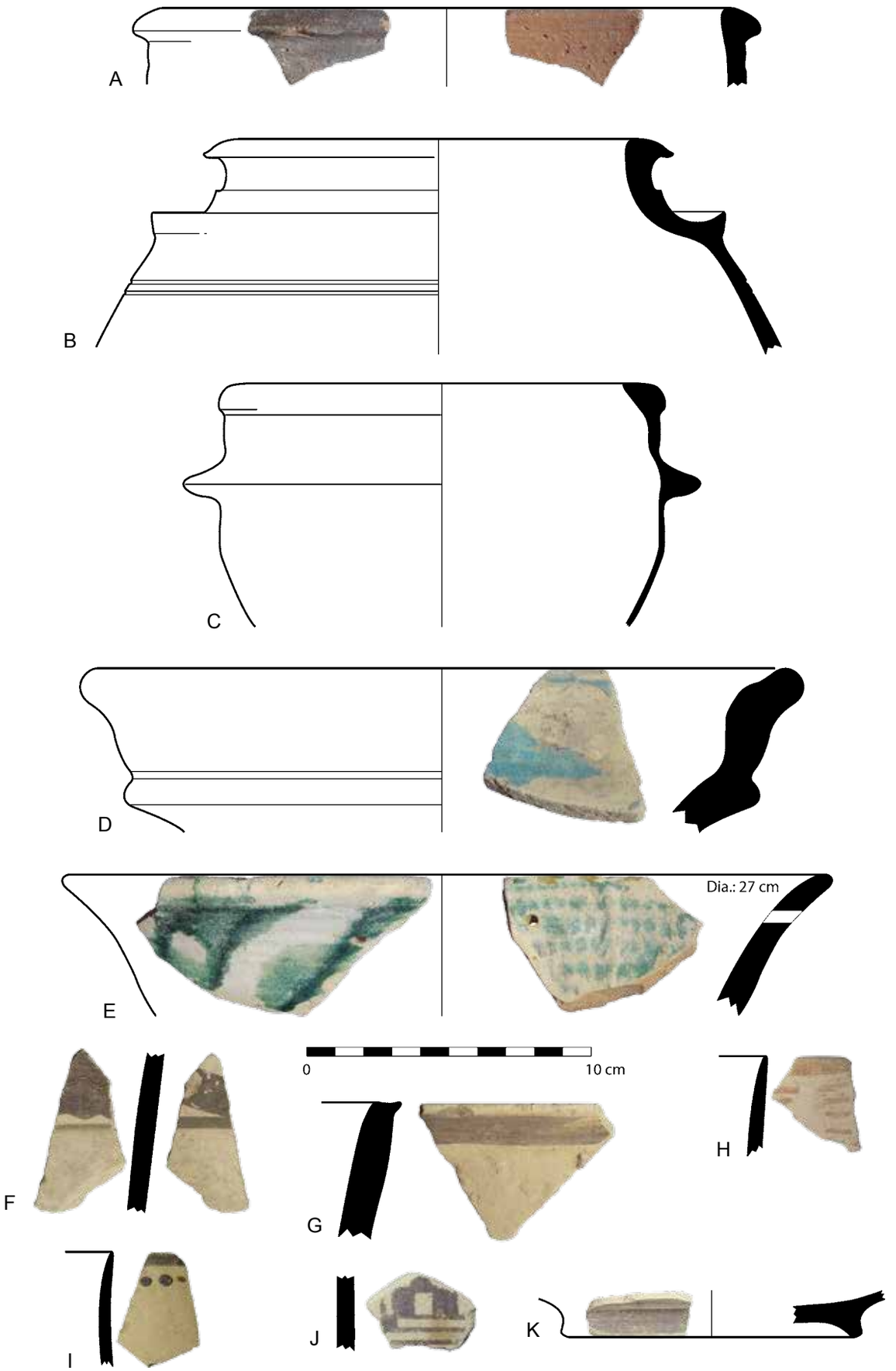
	Period	*Description*
A	Parthian	Buff ware, sandy paste, sandy face *Comparanda:* Khuzestan (Wenke 1975–76, figs. 11:526, 12:601)
B	Post-Sasanian	Light brown ware, grog and straw inclusion, grayish brown exterior, light gray interior
C	Post-Sasanian	Gray ware, grog and straw inclusion, grog and straw face, pinkish brown exterior
D	Seljuk	Buff ware, sandy paste, greenish blue glaze
E	Ilkhanid	Pinkish buff ware, grog and chaff inclusion, whitish gray surface, brown wash exterior
F	Post-Sasanian	Green glass
G	Sasanian	Buff ware, no visible inclusion, greenish blue glaze
H	Post-Sasanian	Yellowish buff ware, no visible inclusion, purple glaze
I	Post-Sasanian	Pinkish buff ware, no visible inclusion, incised pattern under white and green glaze, incised design under glaze *Comparanda:* Khuzestan (Wenke 1975–76, fig. 7:130); Susa Apadana, level II (Kervran 1977, fig. 34:2)
J	Seljuk	Pinkish buff ware, pale gray core, chaff and grog inclusion, brown wash exterior excised design
K	Post-Sasanian/ Seljuk?	Buff ware, some sand in paste, buff surface, molded pattern



Pottery from RH-047N (*cont.*)

Plate 112. Pottery from RH-047S

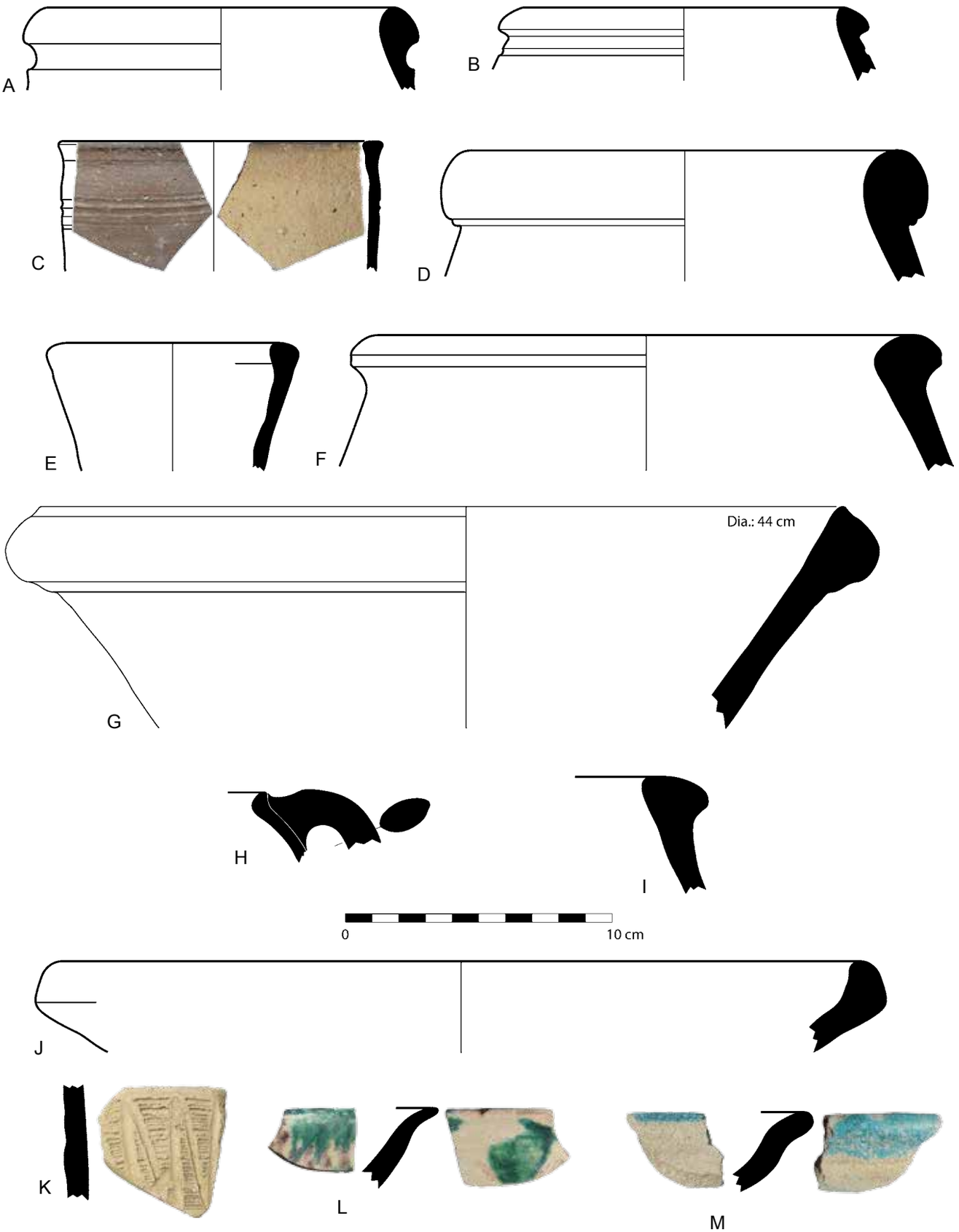
	Period	*Description*
A	Seljuk	Light brown ware, grog and chaff inclusion, brown wash exterior
B	—	Brown ware, some chaff inclusion, brown buff surface
C	—	Light gray brown ware, grog and chaff inclusion, light gray surface
D	Seljuk	Buff ware, slightly sandy paste, chaff inclusion, blue glaze *Comparanda:* Susa Apadana, level I (Kervran 1977, fig. 34:7–10)
E	Seljuk	Pink ware, occasional chaff, white and green glaze
F	Late Middle Susiana	Buff ware, no visible inclusion, dark green paint, scratched line separating paint
G	Late Middle Susiana	Buff ware, no visible inclusion, brown paint, greenish buff surface
H	Late Middle Susiana	Pink ware, no visible inclusion, brown paint, greenish buff surface
I	Late Middle Susiana	Pink ware, no visible inclusion, brown paint, greenish buff surface
J	Late Susiana 1	Buff ware, no visible inclusion, dark green paint, parallel-gram
K	Late Middle Susiana	Buff ware, no visible inclusion, dark brown paint, greenish buff surface



Pottery from RH-047S

Plate 113. Pottery from RH-047S (*cont.*)

	Period	*Description*
A	Post-Sasanian?	Light brown ware, chaff inclusion, buff surface
B	Post-Sasanian?	Light brown ware, chaff inclusion, buff surface
C	Post-Sasanian	Pinkish light brown ware, grog inclusion, brown exterior, yellowish buff interior
D	Post-Sasanian	Light brown, chaff inclusion, micaceous, chaff and mica face, buff exterior
E	Post-Sasanian	Brown ware, chaff inclusion
F	Post-Sasanian	Light brown, black core, chaff inclusion, chaff face, greenish buff exterior
G	Post-Sasanian	Light brown, chaff inclusion, micaceous, chaff and mica face *Comparanda:* Susa Sucrerie du Chaour (Kervran 1979, fig. 64:3, 5)
H	Post-Sasanian	Pinkish brown ware, pale gray core, scattered chaff, greenish buff exterior
I	—	Light brown, black core, chaff inclusion, micaceous, chaff and mica face
J	Post-Sasanian	Light brown, chaff inclusion, chaff face, greenish buff exterior *Comparanda:* Susa Apadana (Kervran 1977, fig. 33:1–4)
K	Seljuk	Buff ware, scattered chaff
L	Post-Sasanian	Pinkish buff ware, no visible inclusion, splashed green and purple glaze
M	Post-Sasanian	Buff ware, sandy paste, green glaze



Pottery from RH-047S (*cont.*)

Plate 114. Pottery from RH-048

	Period	*Description*
A	Parthian?	Light pinkish buff ware, no visible inclusion, a few small grits, buff surface
B	Parthian?	Buff ware, very pale gray core, scattered chaff, smoothed
C	Parthian?	Pale brownish buff, no visible inclusion, some small grits, buff surface
D	Parthian?	Pale pinkish buff ware, some chaff, dense, buff surface
E	Parthian?	Pale pinkish buff ware, some chaff, dense, buff surface

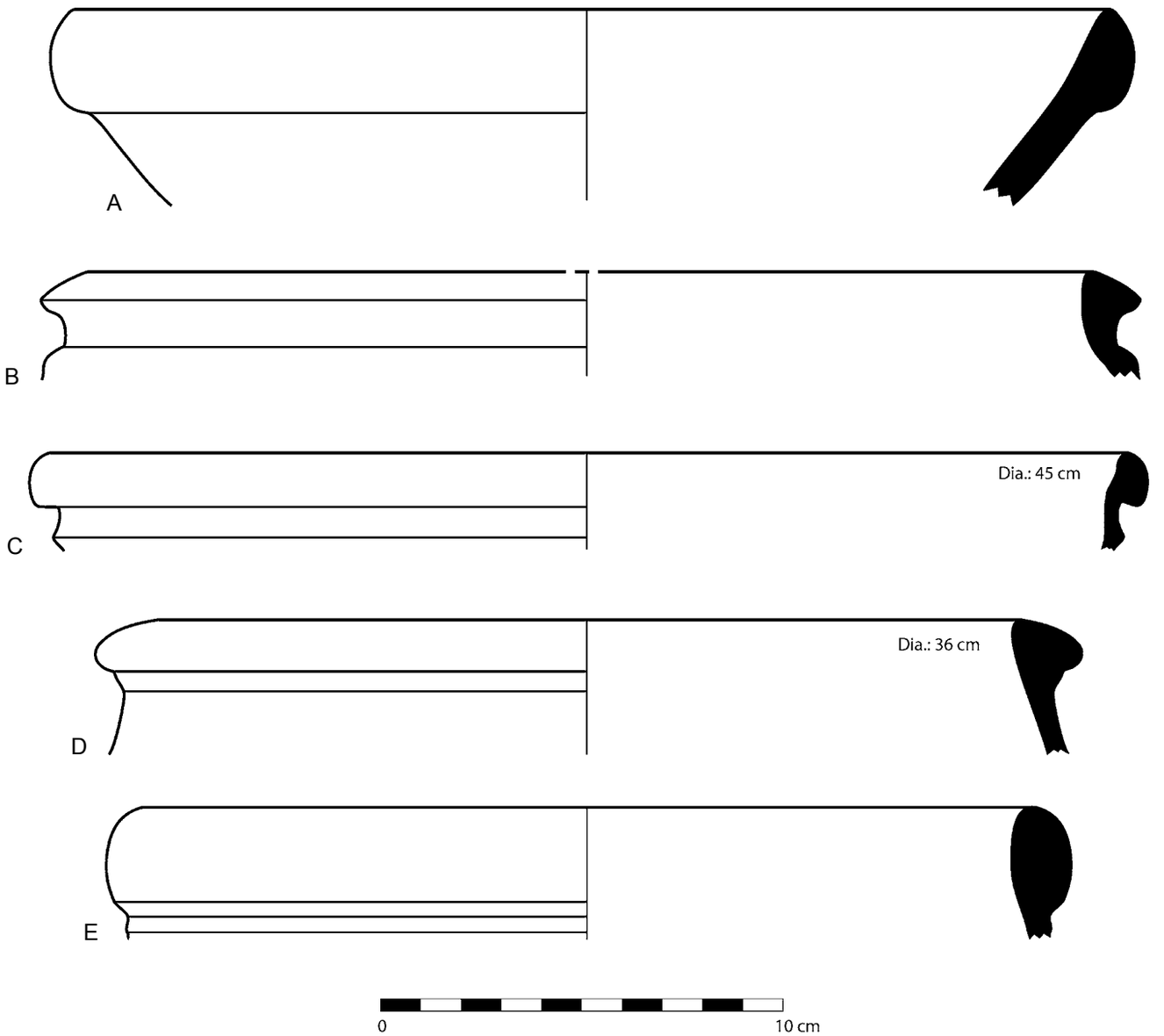
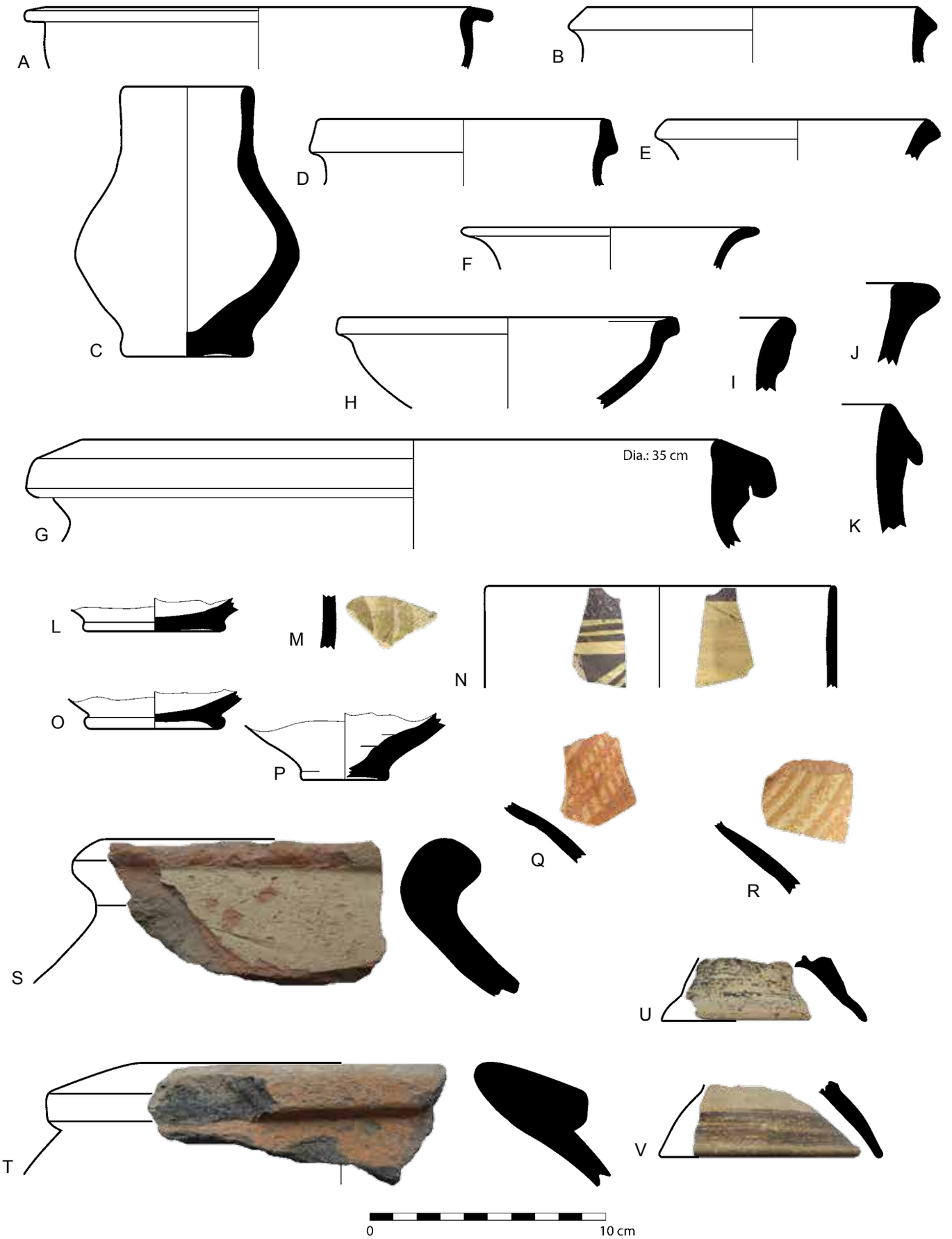


Plate 115. Pottery from RH-052

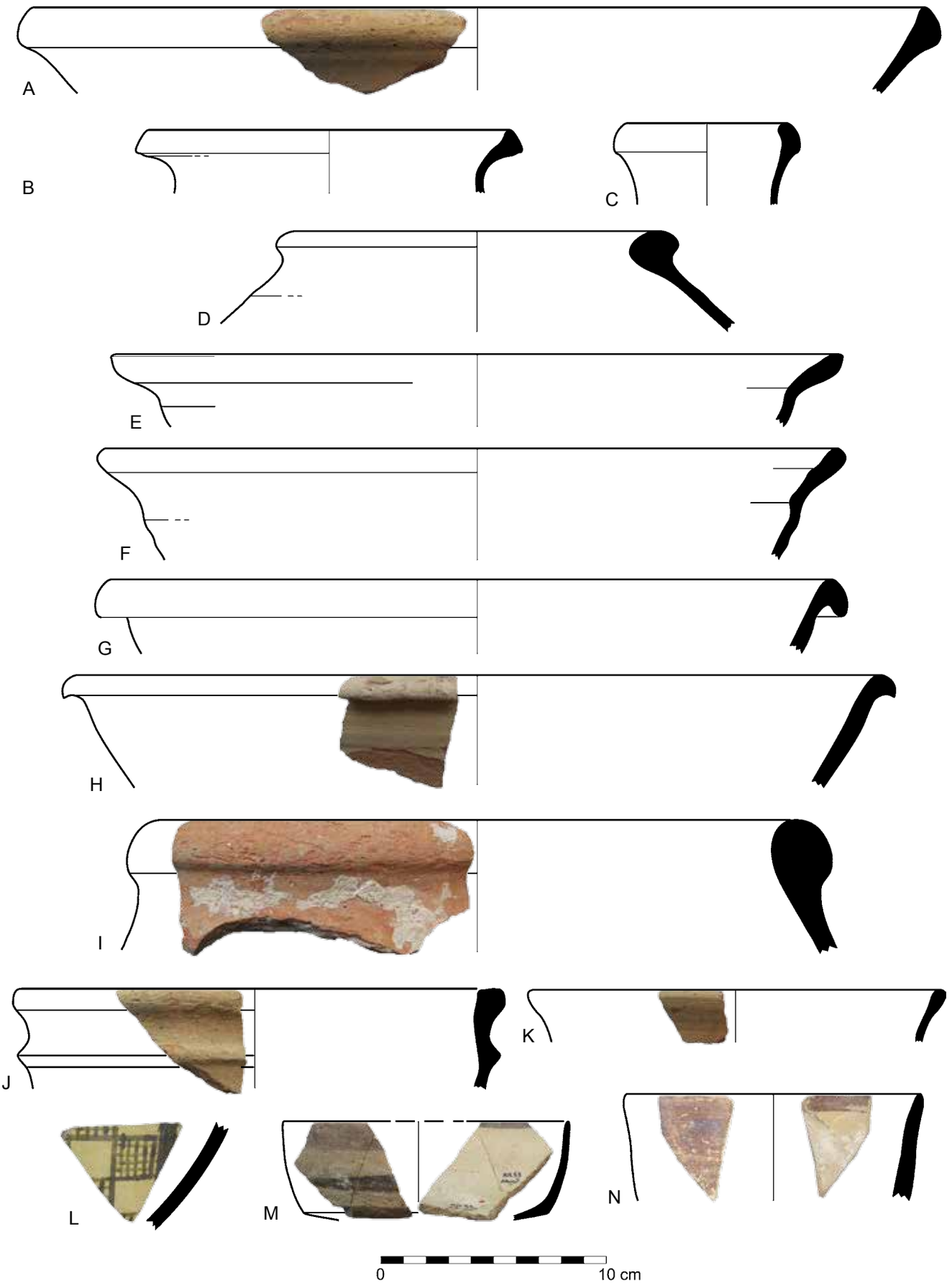
	Period	*Description*
A	Middle Elamite	Light brown ware, gray core, chaff inclusion, micaceous, chaff and mica face *Comparanda:* Susa Ville Royale II, level 10 (Miroschedji 1981a, fig. 11:15); Malyan, level IVA (Carter 1996, fig. 18:15)
B	Middle Elamite	Buff ware, chaff inclusion *Comparanda:* Susa Ville Royale II, level 8 (Miroschedji 1981a, fig. 20:5); Malyan, level IVA (Carter 1996, fig. 19:7)
C	Middle Elamite	Light brown ware, gray core, chaff inclusion, micaceous, chaff and mica face, buff brown surface
D	Middle Elamite	Light brown ware, gray core, chaff inclusion, micaceous, chaff and mica face, gray interior
E	Middle Elamite	Light brown ware, chaff inclusion, micaceous, chaff and mica face, pinkish brown surface
F	Middle Elamite	Light brown ware, chaff inclusion, micaceous, chaff and mica face, buff brown surface
G	Middle Elamite	Light brown ware, gray core, chaff inclusion, micaceous, chaff and mica face, greenish buff surface
H	Middle Elamite	Light brown ware, black core, chaff inclusion, micaceous, chaff and mica face
I	Middle Elamite	Light brown ware, black core, chaff inclusion, micaceous, chaff and mica face
J	Middle Elamite	Buff ware, grog inclusion, grog face, greenish buff exterior
K	Middle Elamite	Light brown ware, black core, chaff inclusion, micaceous, chaff and mica face, buff brown surface
L	Sukkalmah	No description available
M	Late Middle Susiana	Buff ware, no visible inclusion, green paint, greenish buff surface
N	Late Middle Susiana	Buff ware, no visible inclusion, green paint, greenish buff surface, over-fired
O	Sukkalmah	Light brown ware, black core, chaff inclusion, chaff face, pinkish brown surface
P	Sukkalmah	Light brown ware, black core, chaff inclusion, micaceous, chaff and mica face, brown buff surface
Q	Sukkalmah/ Transitional	Light brown ware, chaff inclusion, brown paint
R	Sukkalmah/ Transitional	Light brown ware, chaff inclusion, greenish buff surface, brown paint
S	Sukkalmah	Pale bricky red ware, thick light gray core, chaff inclusion, chaff face, yellowish buff slip/wash exterior
T	Sukkalmah	Pinkish buff ware, thick gray core sandwiched between two 1 mm layers, chaff inclusion, chaff face
U	Late Middle Susiana	Buff ware, no visible inclusion, brown paint
V	Late Middle Susiana	Buff ware, no visible inclusion, brown paint



Pottery from RH-052

Plate 116. Pottery from RH-053

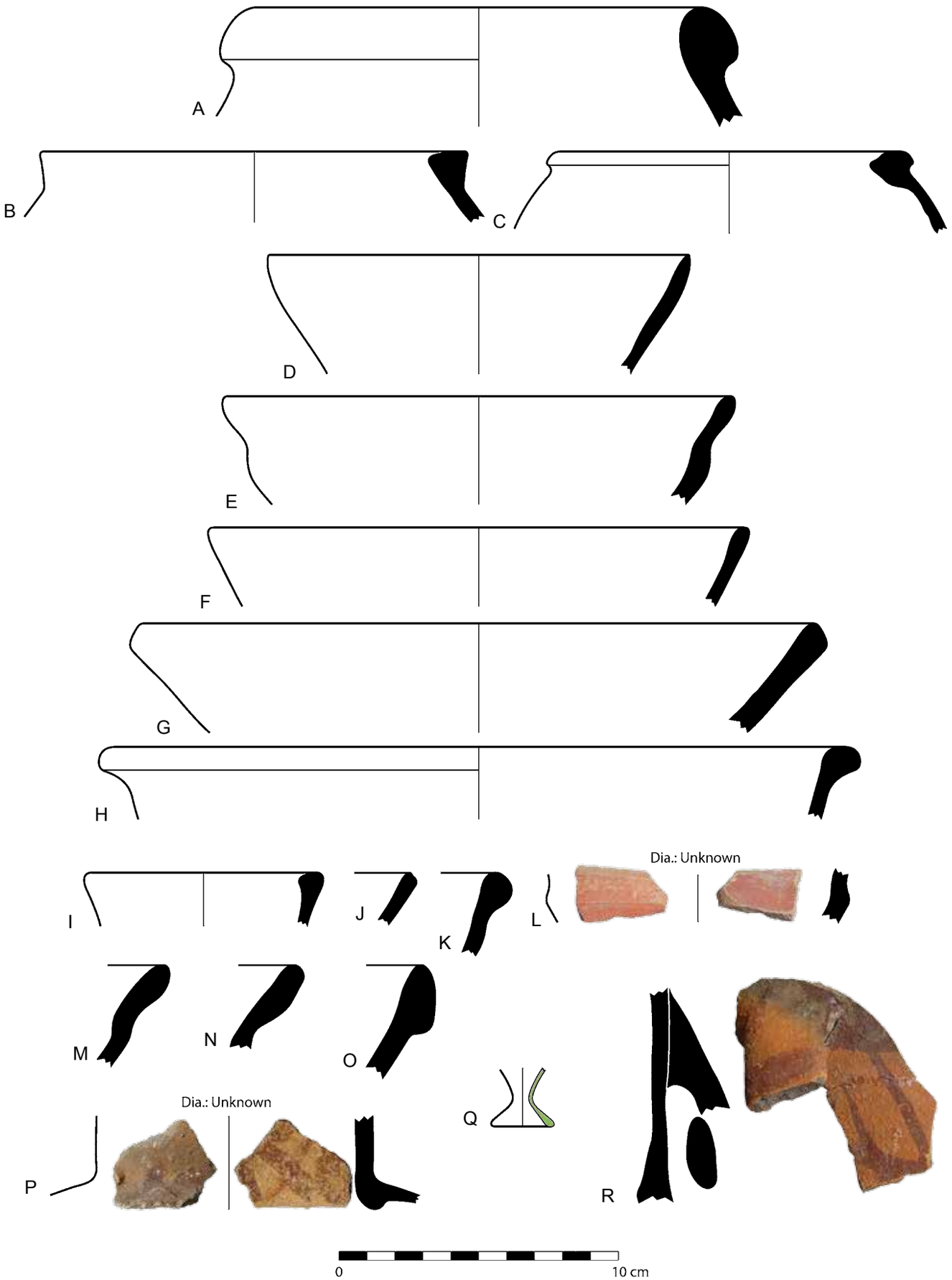
	Period	*Description*
A	Parthian	Light brown ware, no visible inclusion, dense, pale greenish buff slip exterior, inner rim *Comparanda:* Khuzestan (Wenke 1975–76, fig. 10:427)
B	—	Light brown ware, chaff inclusion, chaff face, greenish buff surface
C	—	Light brown ware, chaff inclusion, chaff face, greenish buff surface
D	Parthian	Light brown ware, gray core, chaff inclusion, micaceous, chaff and mica face, brown buff surface *Comparanda:* Khuzestan (Wenke 1975–76, fig. 11:500)
E	Late Parthian/Sasanian	Light pinkish brown ware, gray core, chaff inclusion, brown buff surface *Comparanda:* Khuzestan (Wenke 1975–76, fig. 8:329 [glazed])
F	Late Parthian/Sasanian	Light pinkish brown ware, gray core, chaff inclusion, greenish brown exterior *Comparanda:* Khuzestan (Wenke 1975–76, fig. 8:329 [glazed])
G	Parthian	Light brown ware, chaff inclusion, micaceous, chaff and mica face, greenish buff surface *Comparanda:* Khuzestan (Wenke 1975–76, fig. 12:629)
H	Parthian	Bricky red ware, chaff inclusion, yellowish buff slip exterior, interior
I	Parthian	Bricky red ware, gray core, grayish brown interior surface, chaff inclusion, chaff face, buff slip *Comparanda:* Khuzestan (Wenke 1975–76, fig. 11:503)
J	Parthian	Buff ware, chaff inclusion, chaff face, gray core, probably slipped *Comparanda:* Khuzestan (Wenke 1975–76, fig. 12:602, 626)
K	Parthian?	Light brown ware, no visible inclusion, dense, pale greenish buff slip exterior, inner rim
L	Late Middle Susiana	Buff ware, no visible inclusion, over-fired green, green paint
M	Late Middle Susiana	Buff ware, no visible inclusion, brown paint
N	Late Middle Susiana	Buff ware, no visible inclusion, red maroon paint



Pottery from RH-053

Plate 117. Pottery from RH-053 (*cont.*)

	Period	*Description*
A	Parthian	Light brown ware, gray core, chaff inclusion, chaff face, buff brown exterior *Comparanda:* Khuzestan (Wenke 1975–76, fig. 11:503)
B	Parthian?	Light brown ware, gray core, grog inclusion, red paint
C	Parthian?	Light brown ware, gray core, grog inclusion
D	Parthian	Light brown ware, gray core, scattered chaff and calcite particles in paste *Comparanda:* Khuzestan (Wenke 1975–76, fig. 10:429)
E	Parthian	Light brown ware, occasional chaff, grayish brown interior *Comparanda:* Khuzestan (Wenke 1975–76, fig. 11:532)
F	Parthian?	Light brown ware, no visible inclusion
G	Parthian	Light brown ware, chaff inclusion, chaff face, greenish buff exterior, buff brown interior *Comparanda:* Khuzestan (Wenke 1975–76, fig. 11:538)
H	Parthian?	Light brown ware, gray core, chaff inclusion, chaff face, buff brown surface
I	Parthian	Light brown ware, occasional chaff, buff brown exterior *Comparanda:* Khuzestan (Wenke 1975–76, fig. 13:727)
J	Achaemenid	Light brown ware, chaff inclusion, micaceous, chaff and mica face, reddish brown wash on exterior and interior
K	Parthian?	Light brown ware, occasional chaff, greenish buff exterior, buff brown interior
L	Parthian?	Light brown ware, gray core chaff inclusion, micaceous, chaff and mica face
M	Parthian	Light brown ware, gray core, chaff inclusion, chaff face, brown buff surface
N	Parthian?	Light brown ware, gray core, chaff inclusion, brown buff surface
O	Parthian	Light brown ware, occasional chaff, buff brown exterior *Comparanda:* Khuzestan (Wenke 1975–76, fig. 10:431)
P	11th–14th c. A.D.	Pinkish buff ware, gray core, grog inclusion, red paint, pseudo-prehistoric
Q	11th–14th c. A.D.	Glass
R	11th–14th c. A.D.	Orange brown ware, gray core, grog inclusion, red paint, pseudo-prehistoric



Pottery from RH-053 (*cont.*)

Plate 118. Pottery from RH-056

	Period	*Description*
A	Seljuk	Buff ware, occasional chaff, greenish buff surface
B	Seljuk	Buff ware, no visible inclusion, greenish buff surface
C	Seljuk	Buff ware, blue glaze
D	Seljuk	Buff ware, no visible inclusion, under-glaze paint
E	11th–14th c. A.D.	Buff ware, chaff inclusion, brown buff exterior, orange buff interior, red paint, pseudo-prehistoric
F	Timurid	Pinkish buff ware, no visible inclusion, under-glaze paint
G	Timurid	Buff ware, no visible inclusion, under-glaze paint
H	Safavid	Buff ware, blue glaze
I	Safavid	Buff ware, no visible, white glaze
J	Safavid	Pinkish brown ware, no visible inclusion, white glaze
K	11th–14th c. A.D.	Pinkish brown ware, gray core, grog inclusion, reddish brown paint, pseudo-prehistoric

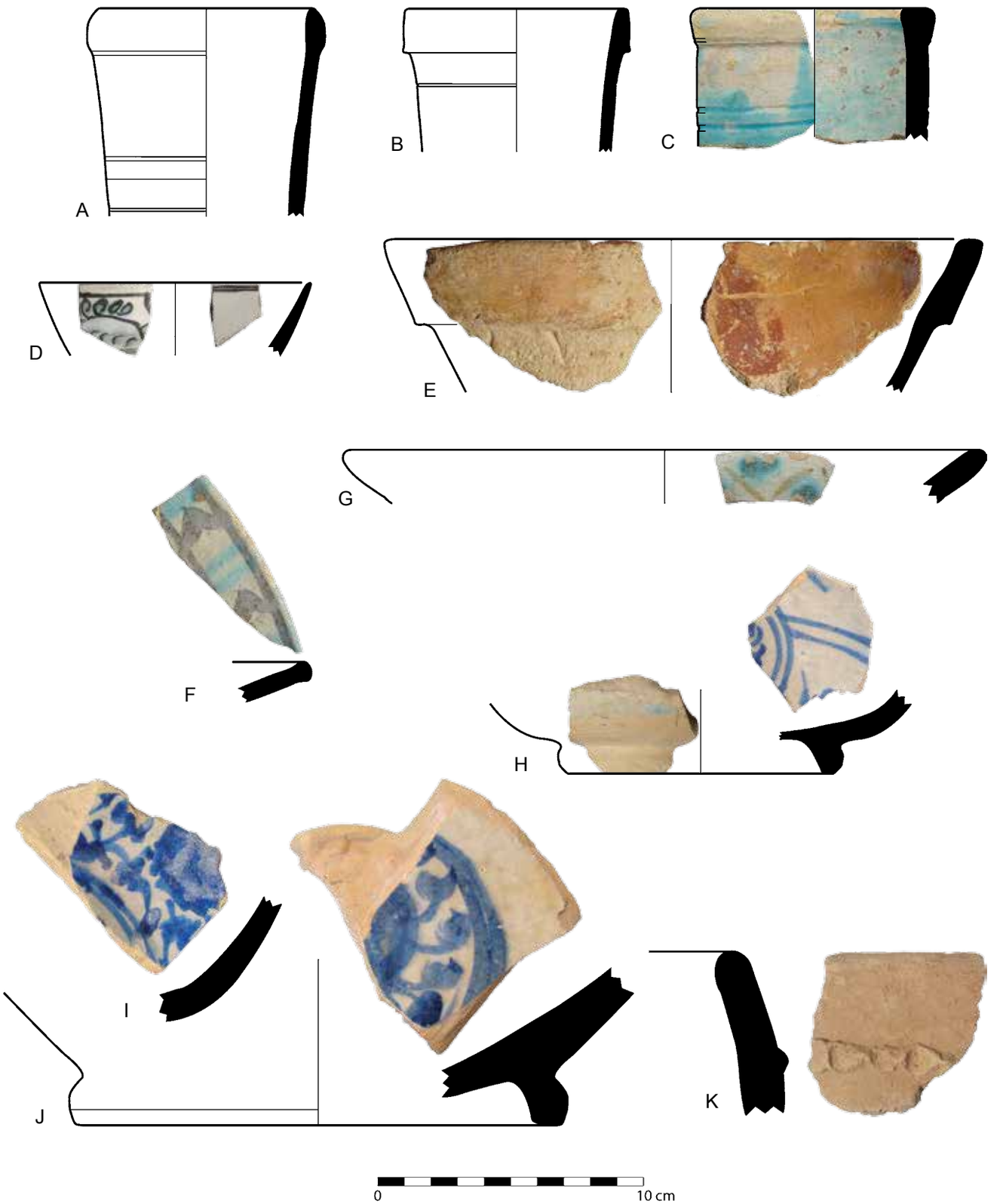
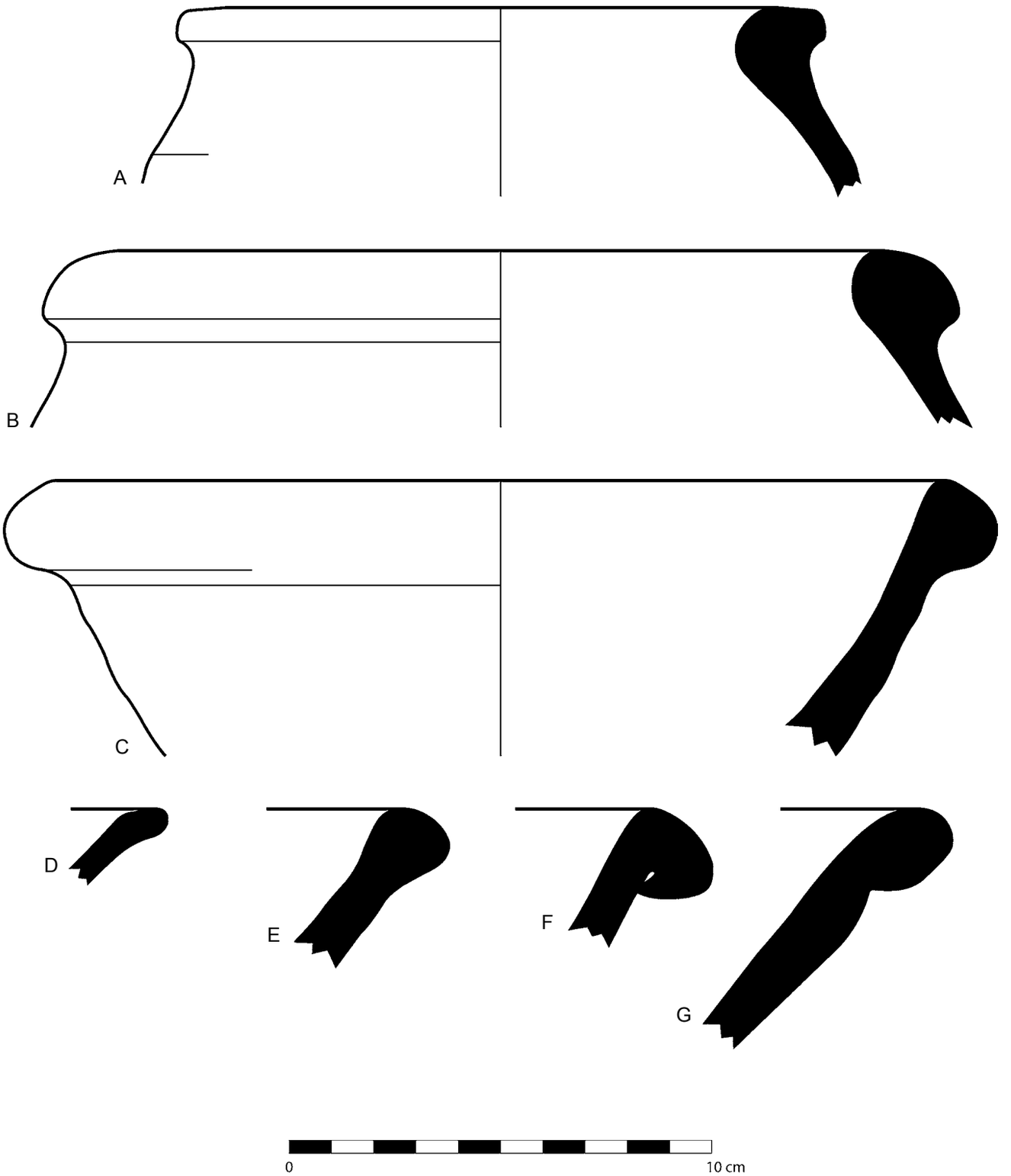


Plate 119. Pottery from RH-057

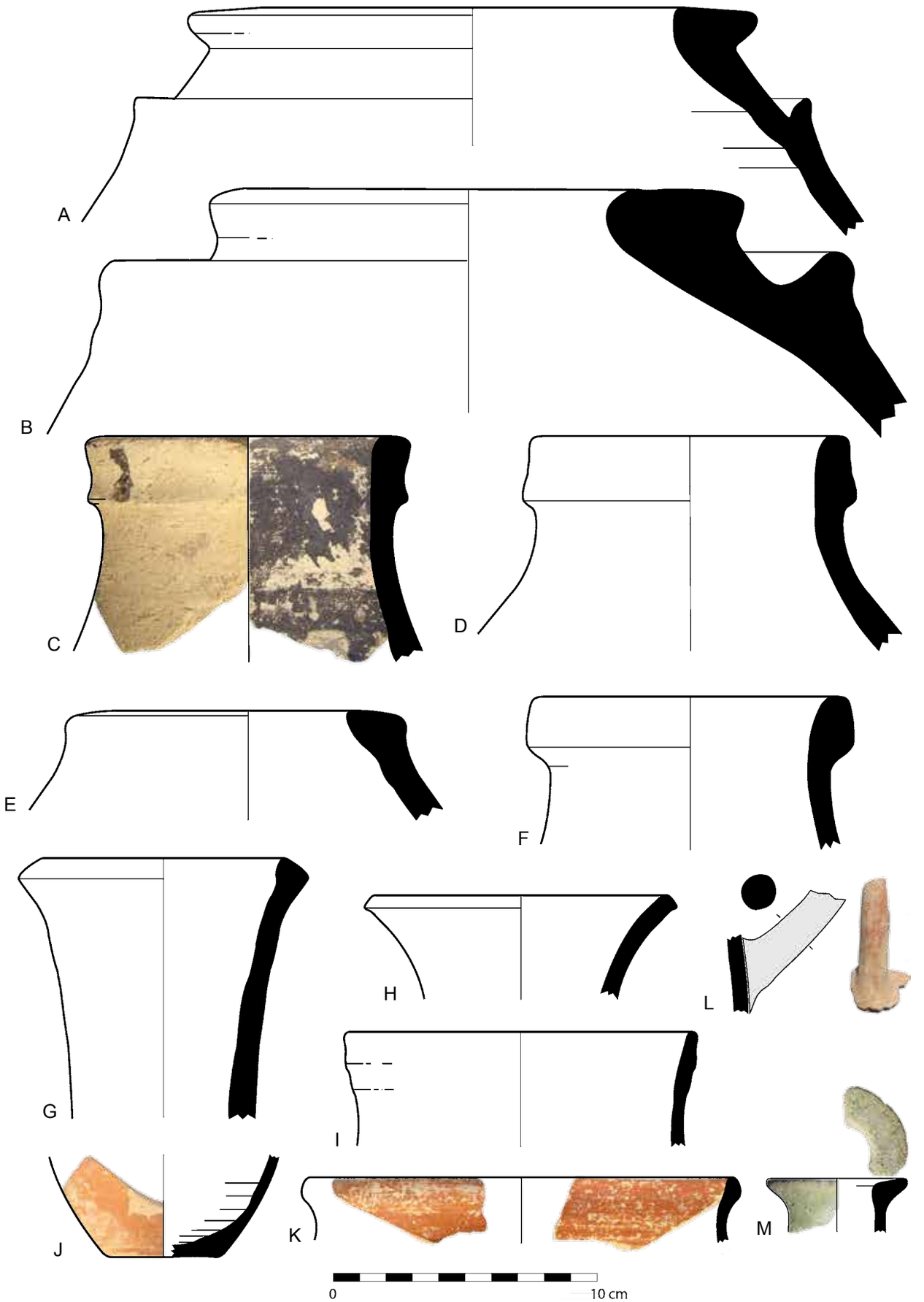
	Period	*Description*
A	18th–20th c. A.D.	Light brown ware, chaff inclusion, micaceous, chaff and mica face, greenish buff exterior
B	18th–20th c. A.D.	Light brown ware, chaff inclusion, micaceous, chaff and mica face, greenish buff exterior
C	18th–20th c. A.D.	Greenish buff ware, chaff inclusion
D	18th–20th c. A.D.	Buff ware, chaff inclusion, scattered sand, blue glaze interior and exterior
E	18th–20th c. A.D.	Buff ware, chaff inclusion
F	18th–20th c. A.D.	Buff ware, chaff inclusion
G	18th–20th c. A.D.	Pinkish buff ware, chaff inclusion, buff surfaces



Pottery from RH-057

Plate 120. Pottery from RH-058

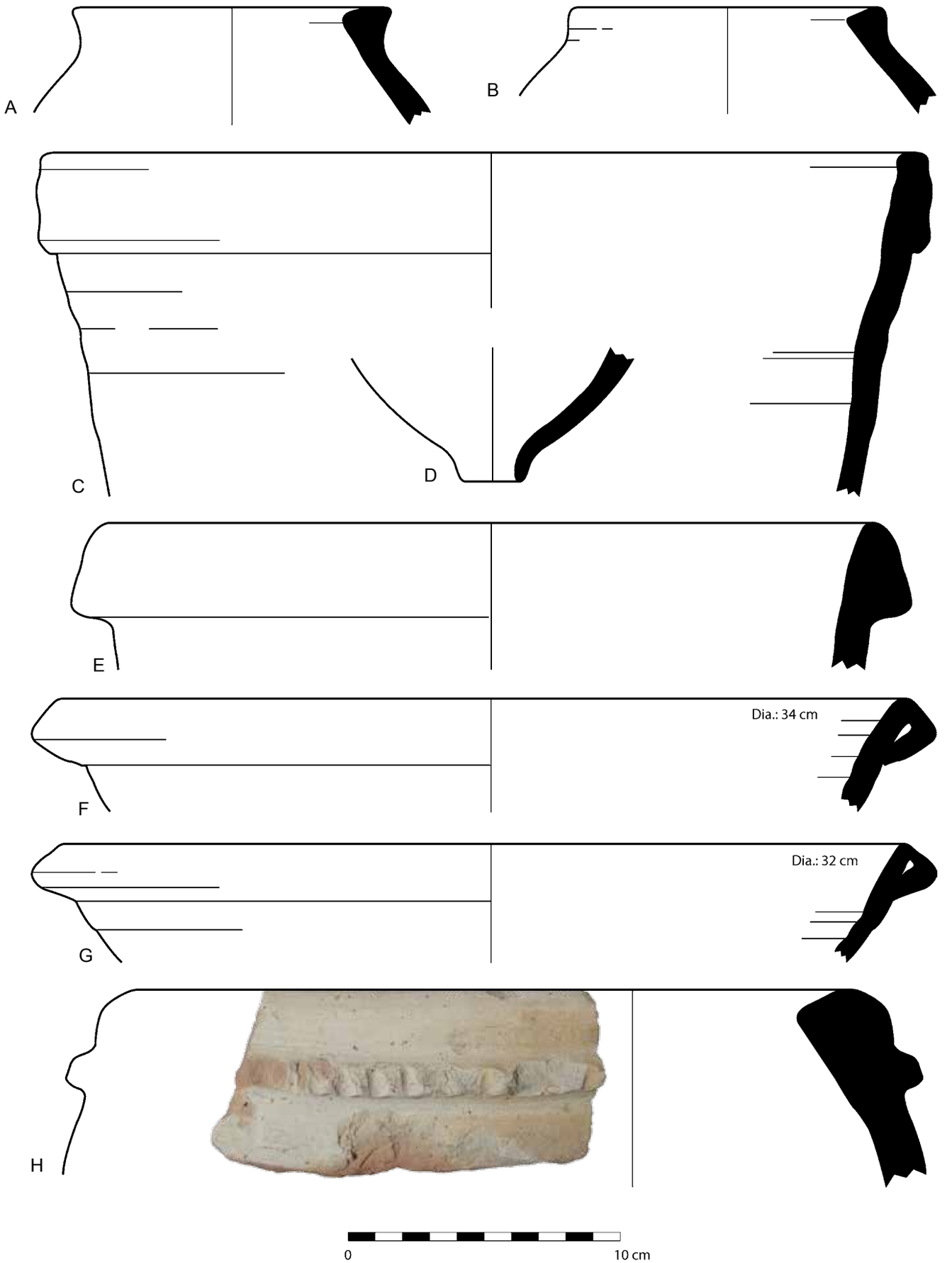
	Period	*Description*
A	Middle Elamite	Light brown ware, black core, chaff inclusion, micaceous, chaff and mica face
B	Middle Elamite	Light brown ware, chaff inclusion, micaceous, chaff and mica face
C	Middle Elamite	Buff ware, chaff inclusion, micaceous, chaff and mica face, bitumen-smeared interior *Comparanda:* Susa Ville Royale II, level 10 (Miroschedji 1981a, fig. 13:13)
D	Middle Elamite	Brown ware, chaff inclusion, micaceous, chaff and mica face, greenish buff exterior *Comparanda:* Susa Ville Royale II, level 10 (Miroschedji 1981a, fig. 13:13)
E	Middle Elamite	Buff ware, chaff inclusion, micaceous, chaff and mica face, pinkish brown exterior
F	Middle Elamite	Buff ware, chaff inclusion, calcite particles in paste, chaff and chalky face
G	Middle Elamite/ Neo-Elamite	Light brown ware, chaff inclusion, sandy paste, chaff and sandy face *Susa* Ville Royale II, level 7 B (Miroschedji 1981a, fig. 35:1–2; Miroschedji 1981b, fig. 58:4)
H	Achaemenid?	Light brown ware, chaff inclusion, brown wash
I	—	Buff ware, chaff inclusion, sandy paste, chaff and sandy face, pinkish brown interior
J	Achaemenid	Pinkish light brown ware, chaff inclusion, reddish brown wash
K	Achaemenid	Buff ware, chaff inclusion, reddish brown wash
L	Neo-Elamite	Pinkish buff ware, sandy paste, light green glaze interior and exterior
M	Achaemenid	Pinkish buff ware, chaff inclusion, dark red wash exterior



Pottery from RH-058

Plate 121. Pottery from RH-059

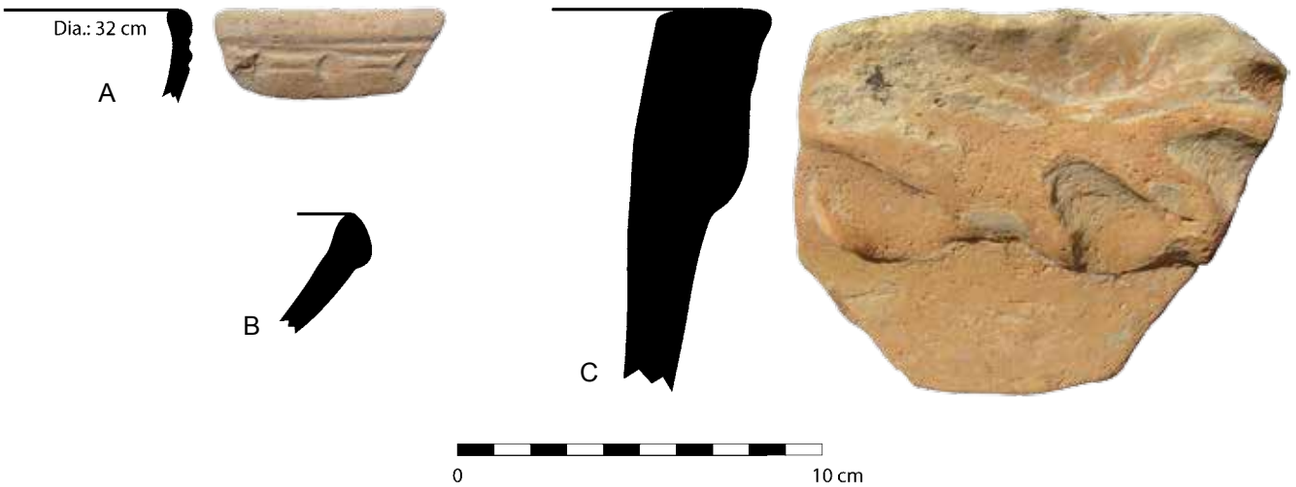
	Period	*Description*
A	11th–14th c. A.D.	Pinkish light brown ware, no visible inclusion, micaceous, mica face
B	11th–14th c. A.D.	Light brown ware, no visible inclusion, micaceous, mica face
C	11th–14th c. A.D.?	Buff ware, no visible inclusion
D	Possibly Middle Elamite?	Buff ware, no visible inclusion
E	11th–14th c. A.D.	Pinkish light brown ware, no visible inclusion, micaceous, mica face
F	11th–14th c. A.D.	Pinkish light buff ware, no visible inclusion, micaceous, mica face
G	11th–14th c. A.D.	Pinkish light buff ware, no visible inclusion, micaceous, mica face
H	11th–14th c. A.D.	Light brown ware, no visible inclusion, micaceous, mica face



Pottery from RH-059

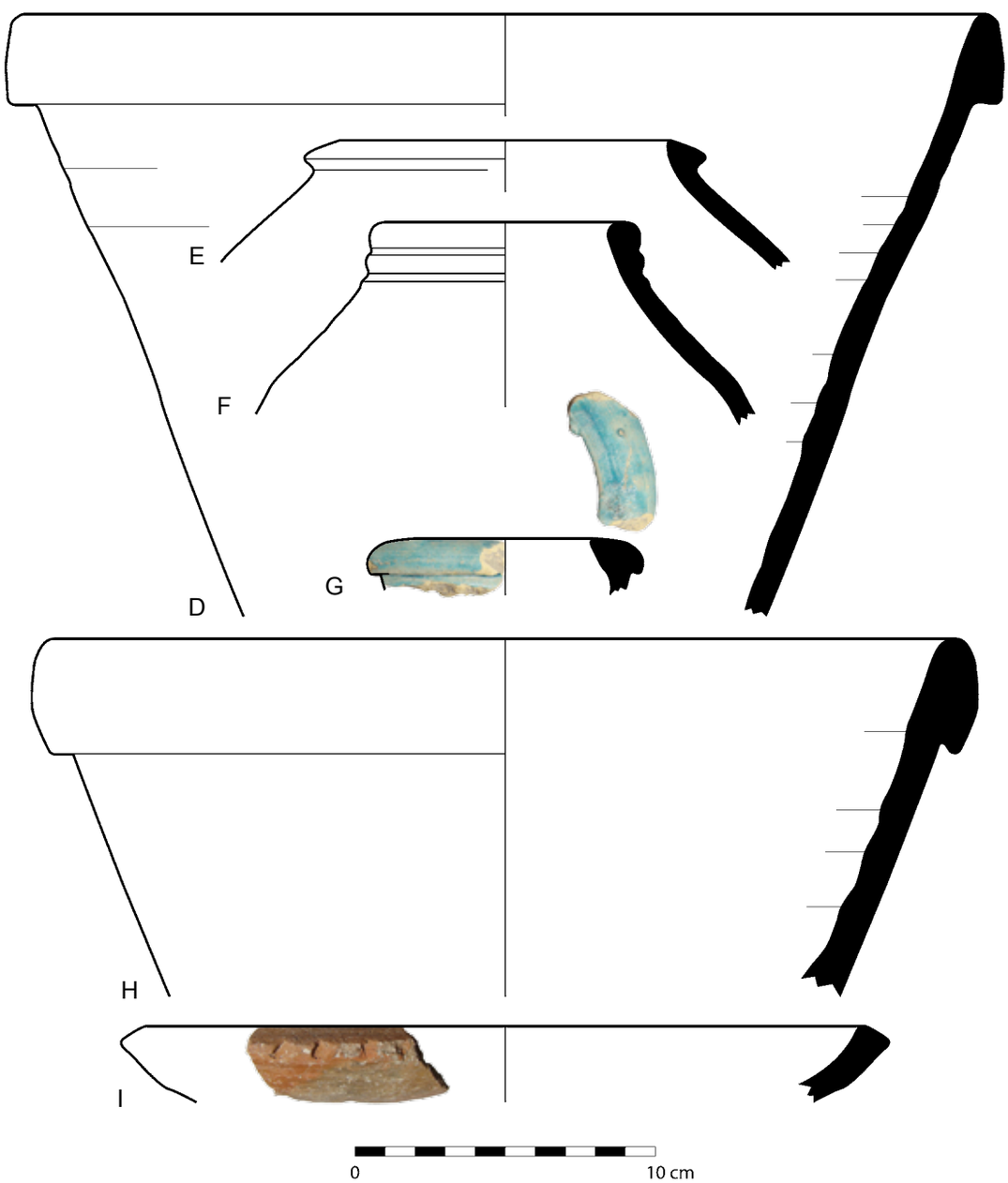
Plate 122. Pottery from RH-062 and RH-063

	Period	*Description*
RH-062		
A	Parthian/Sasanian?	Grayish brown ware, chaff inclusion, micaceous, calcite particles in paste, chaff, mica and chalky face
B	Parthian/Sasanian?	Buff ware, chaff inclusion, greenish buff surface
C	Parthian/Sasanian?	Light brown ware, chaff inclusion, micaceous, chaff and mica face
RH-063		
D	Post-Sasanian?	Buff ware, some chaff, greenish buff surface
E	—	Pinkish light brown ware, chaff inclusion, micaceous, chaff and mica face
F	Seljuk/Ilkhanid	Buff ware, chaff inclusion
G	Seljuk	Buff ware, no inclusion, turquoise blue glaze
H	Post-Sasanian?	Pinkish light brown ware, no visible inclusion, micaceous, mica face
I	Seljuk	Brown ware, gray core, grog inclusion



RH-062

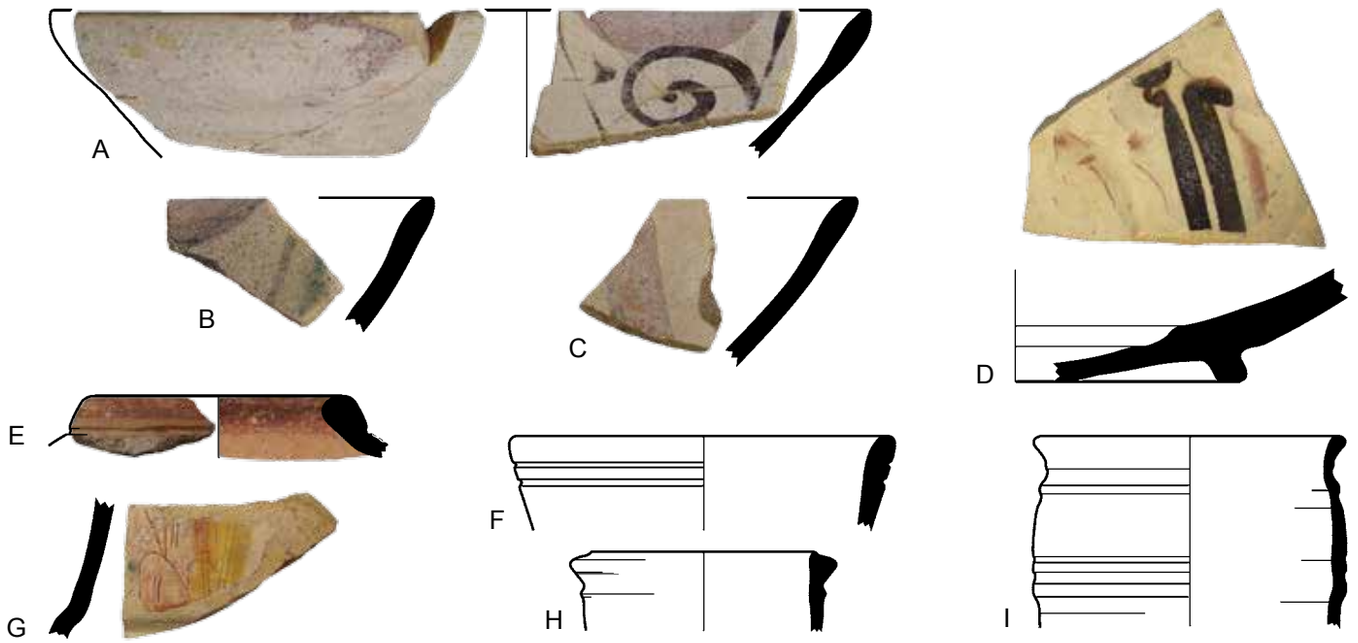
RH-063



Pottery from RH-062 and RH-063

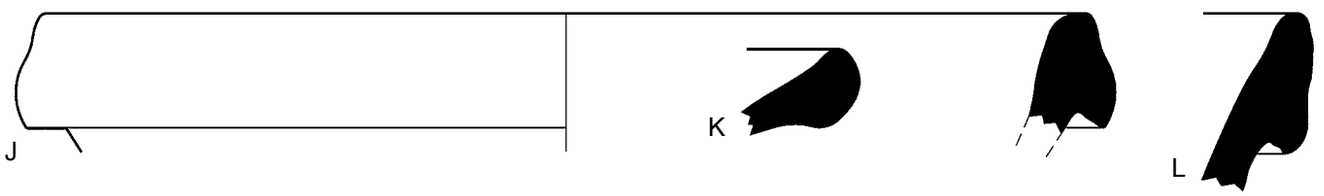
Plate 123. Pottery from RH-064, RH-065A–C

	Period	*Description*
RH-064		
A	Seljuk	Buff ware, no visible inclusion, under-glaze paint
B	Seljuk	Buff ware, no visible inclusion, under-glaze paint
C	Seljuk	Buff ware, chaff inclusion, under-glaze paint
D	Post-Sasanian	Buff ware, chaff inclusion, under-glaze paint
E	11th–14th c. A.D.	Brown ware, gray core, grog inclusion, reddish brown paint, pseudo-prehistoric
F	Ilkhanid?	Pinkish buff ware, chaff inclusion, buff surface
G	Post-Sasanian	Pinkish buff ware, no visible inclusion, incised design under glaze
H	—	Buff ware, no inclusion, greenish buff surface
I	—	Buff ware, no inclusion, greenish buff surface
RH-065A		
J	Parthian?	Light brown ware, no visible inclusion, pinkish brown surface
K	Parthian?	Light brown ware, chaff inclusion, grayish brown surface
L	Parthian?	Light brown ware, scattered chaff, calcite particles in paste, chalky face
RH-065B		
M	11th–14th c. A.D.	Light brown ware, gray core, grog inclusion, red paint, pseudo-prehistoric
N	11th–14th c. A.D.	Light brown ware, gray core, scattered chaff, brown wash, pseudo-prehistoric
O	11th–14th c. A.D.	Light brown ware, gray core, grog inclusion, pseudo-prehistoric
P	—	Pinkish brown ware, gray core, chaff inclusion, micaceous, chaff and mica face
RH-065C		
Q	Parthian	Buff ware, chaff inclusion, greenish buff surface *Comparanda:* Khuzestan (Wenke 1975–76, figs. 11:505, 12:633)
R	Parthian	Light brown ware, chaff inclusion, calcite particle in paste, chalky face, buff brown surface *Comparanda:* Khuzestan (Wenke 1975–76, fig. 13:714)

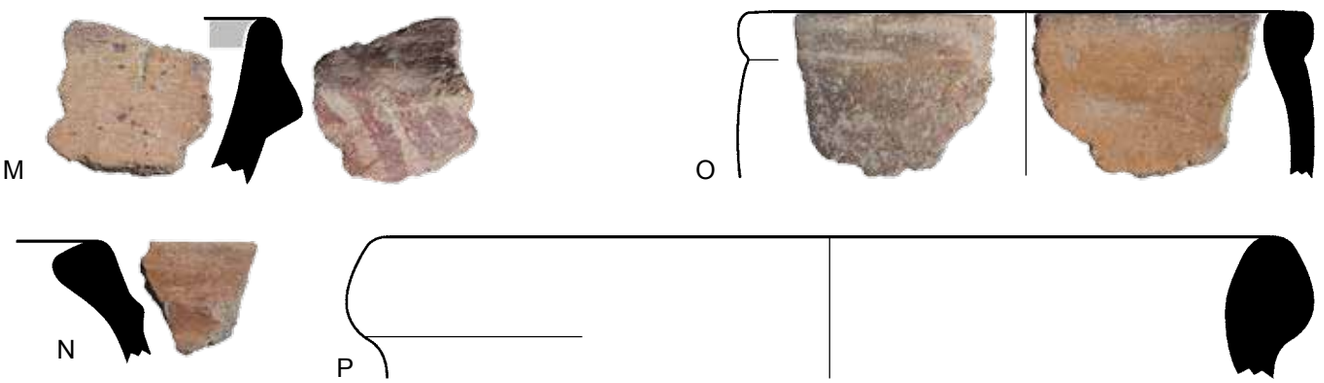


RH-064

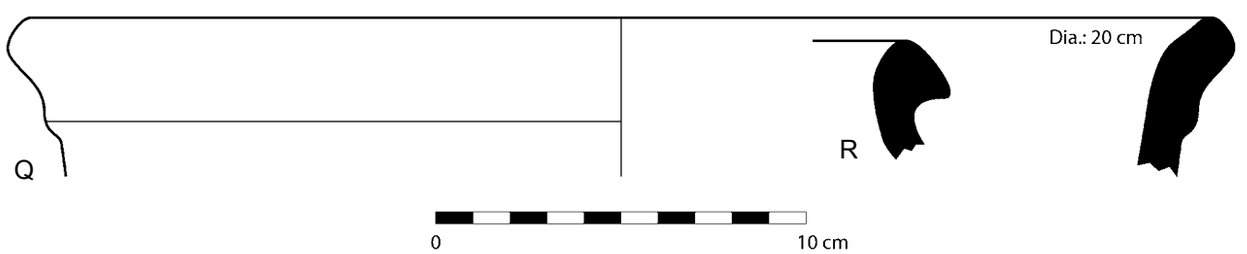
RH-065A



RH-065B



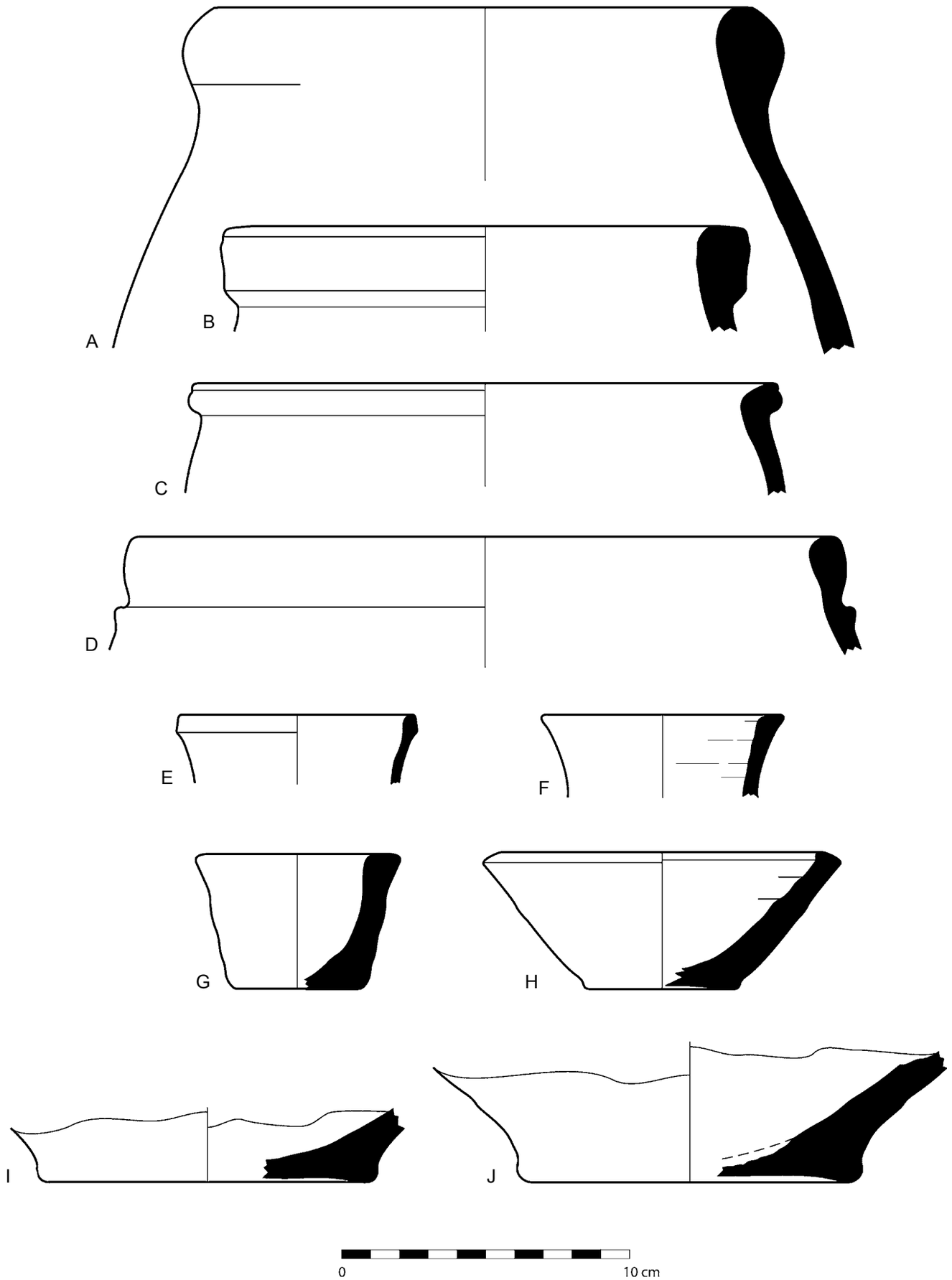
RH-065C



Pottery from RH-064 and RH-065A–C

Plate 124. Pottery from RH-066C

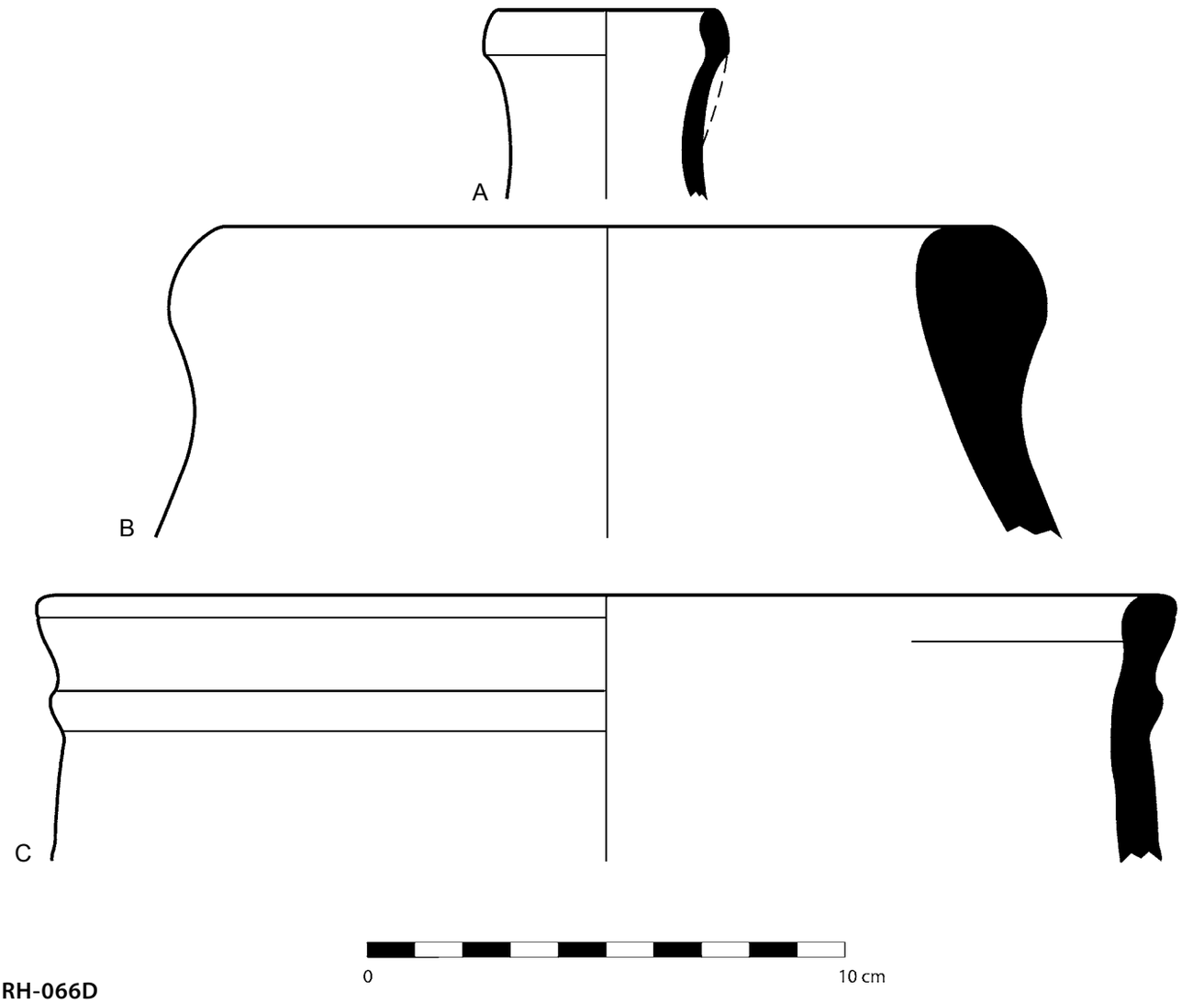
	Period	*Description*
A	Parthian/Sasanian	Light brown ware, gray core, chaff inclusion, micaceous, chaff and mica face, buff brown surface *Comparanda:* Khuzestan (Wenke 1975–76, fig. 9:301)
B	Parthian	Light brown ware, scattered chaff, calcite particle in paste, greenish buff surface
C	Parthian	Grayish light brown ware, chaff inclusion, greenish buff surface *Comparanda:* Khuzestan (Wenke 1975–76, fig. 11:511)
D	Parthian	Pinkish light brown ware, gray core, chaff inclusion, micaceous, chaff and mica face *Comparanda:* Khuzestan (Wenke 1975–76, fig. 11:504–05)
E	Parthian	Pinkish light brown ware, gray core, chaff inclusion, greenish buff surface
F	Parthian	Light brown ware, gray core, chaff inclusion, greenish buff surface
G	Parthian?	Greenish gray ware, chaff inclusion
H	Parthian?	Greenish ware, chaff inclusion
I	Parthian?	Light brown ware, gray core, chaff inclusion, micaceous, chaff and mica face
J	Parthian?	Light brown ware, chaff inclusion, buff brown surface



Pottery from RH-066C

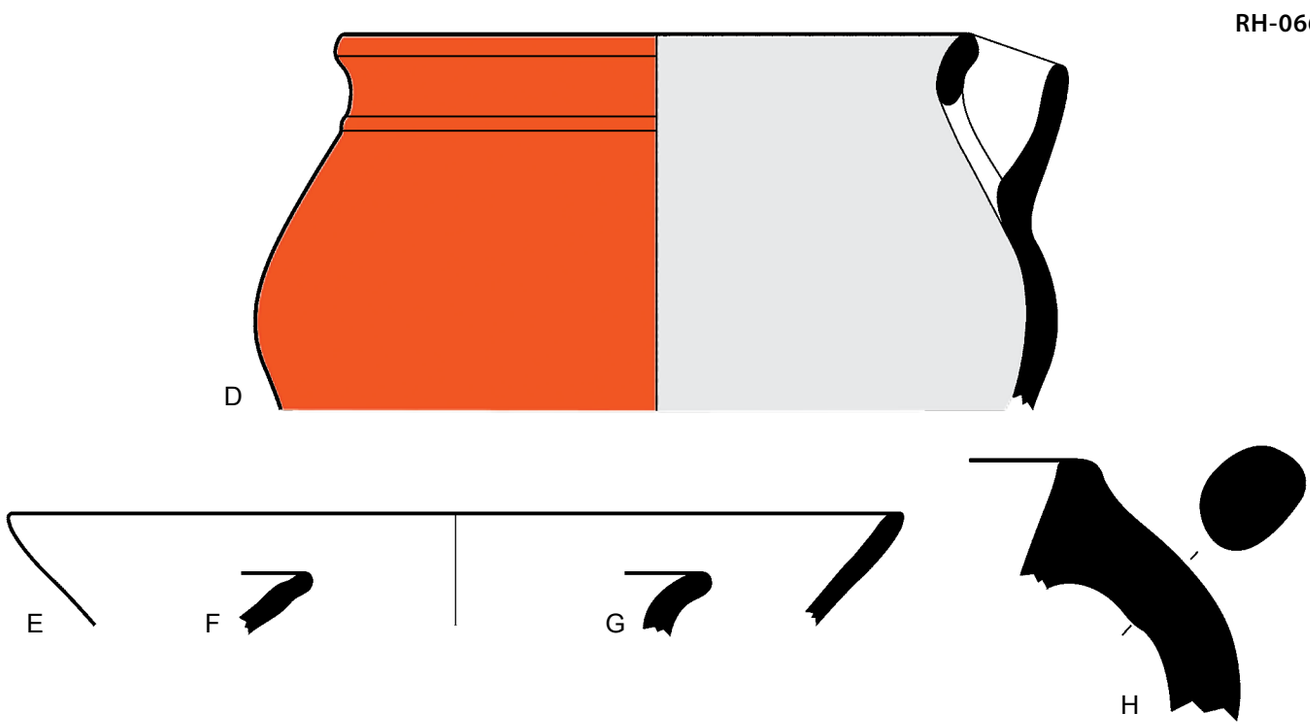
Plate 125. Pottery from RH-066D and RH-066E

	Period	*Description*
RH-066D		
A	Parthian?	Greenish buff ware, chaff inclusion
B	Parthian/Sasanian	Light brown ware, chaff inclusion, micaceous, chaff and mica face, gray brown interior *Comparanda:* Khuzestan (Wenke 1975–76, fig. 9:301)
C	Parthian	Light brown ware, gray core, chaff inclusion, micaceous, chaff and mica face *Comparanda:* Khuzestan (Wenke 1975–76, fig. 11:504–505)
RH-066E		
D	Neo-Elamite–Achaemenid?	Light reddish brown buff ware, gray core, chaff inclusion, brown wash *Comparanda:* Susa Ville Royale II, level 7B (Miroschedji 1981a, fig. 36:7–8); Chogha Mish, Achaemenid levels (Alizadeh 2008, fig. 22:M)
E	—	Light brown ware, some chaff, buff brown exterior
F	—	Light brown ware, gray core, chaff inclusion
G	Parthian?	Pinkish buff ware, traces of chaff, matte milky glaze
H	—	Light brown ware, chaff inclusion, micaceous, chaff and mica face



RH-066D

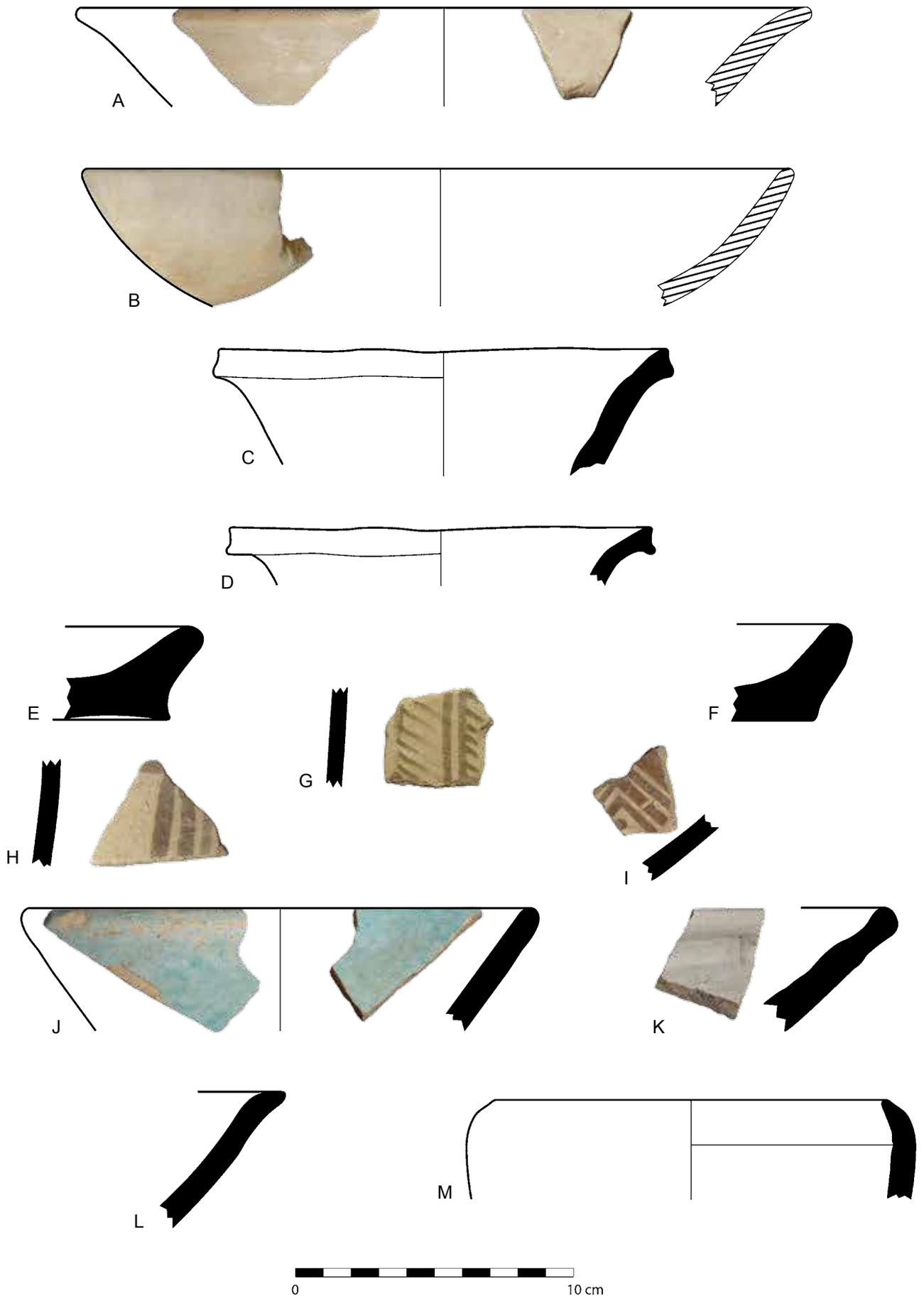
RH-066E



Pottery from RH-066D and RH-066E

Plate 126. Pottery from RH-067

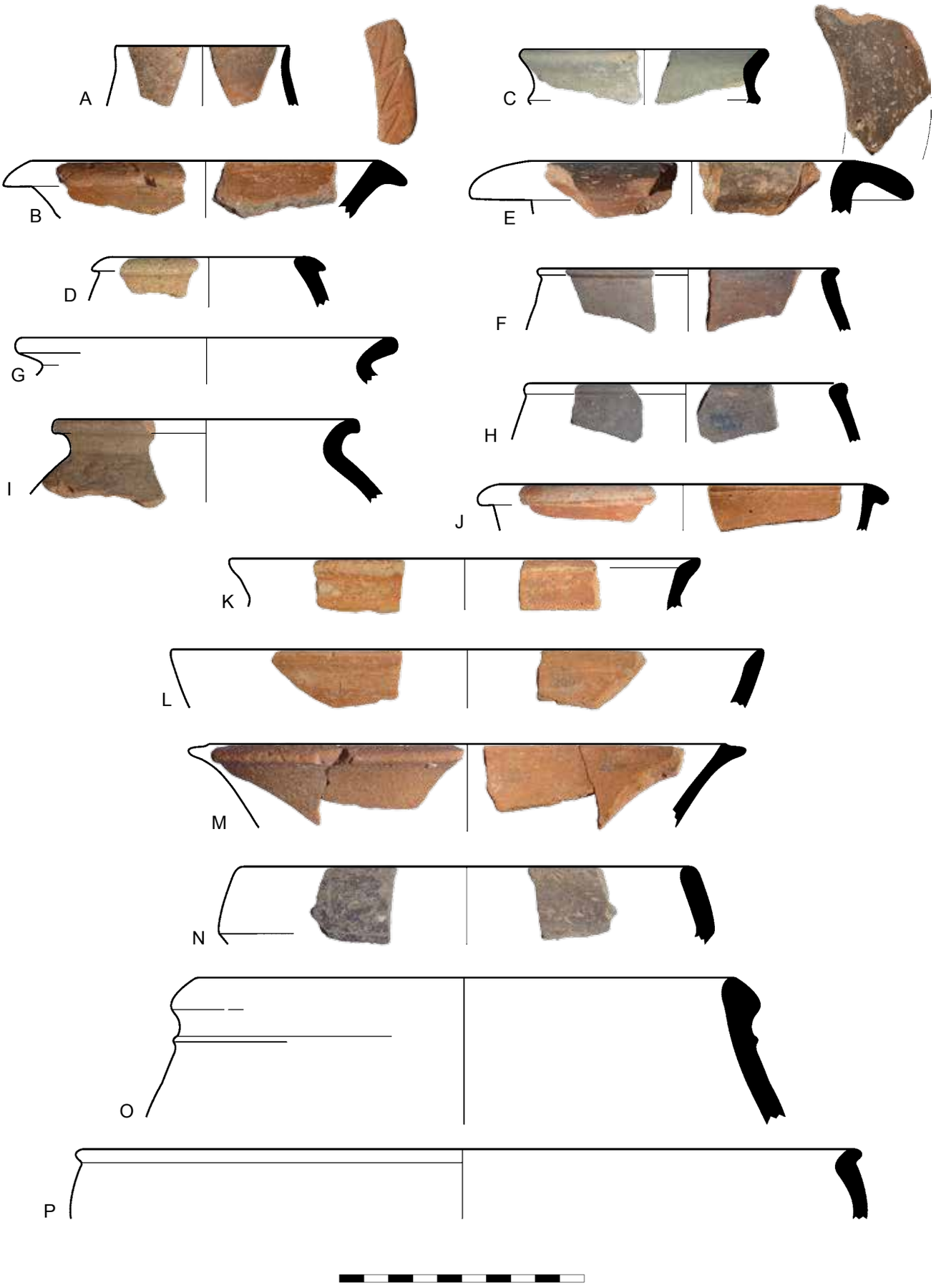
	Period	*Description*
A	Proto-Elamite?	Alabaster
B	Proto-Elamite?	Alabaster
C	Proto-Elamite	Buff ware, straw inclusion, micaceous, chaff and mica face, pinkish buff surface
D	Proto-Elamite	Buff ware, straw inclusion, micaceous, chaff and mica face
E	Proto-Elamite	Light brown ware, gray core, chaff inclusion, pinkish brown surface
F	Proto-Elamite	Light brown ware, chaff inclusion, micaceous, chaff and mica face, pinkish brown surface
G	Late Susiana 2	Buff ware, no visible inclusion, brown paint, greenish buff surface
H	Late Susiana 2	Buff ware, no visible inclusion, greenish paint
I	Late Susiana 2	Buff ware, no visible inclusion, brown paint, greenish buff surface
J	Seljuk	Pinkish buff ware, sandy paste, light blue glaze
K	Seljuk	Buff ware, no visible inclusion, milky white glaze
L	—	Light brown ware, chaff inclusion, buff surface
M	—	Pinkish buff ware, accidental chaff, buff surface



Pottery from RH-067

Plate 127. Pottery from RH-069A

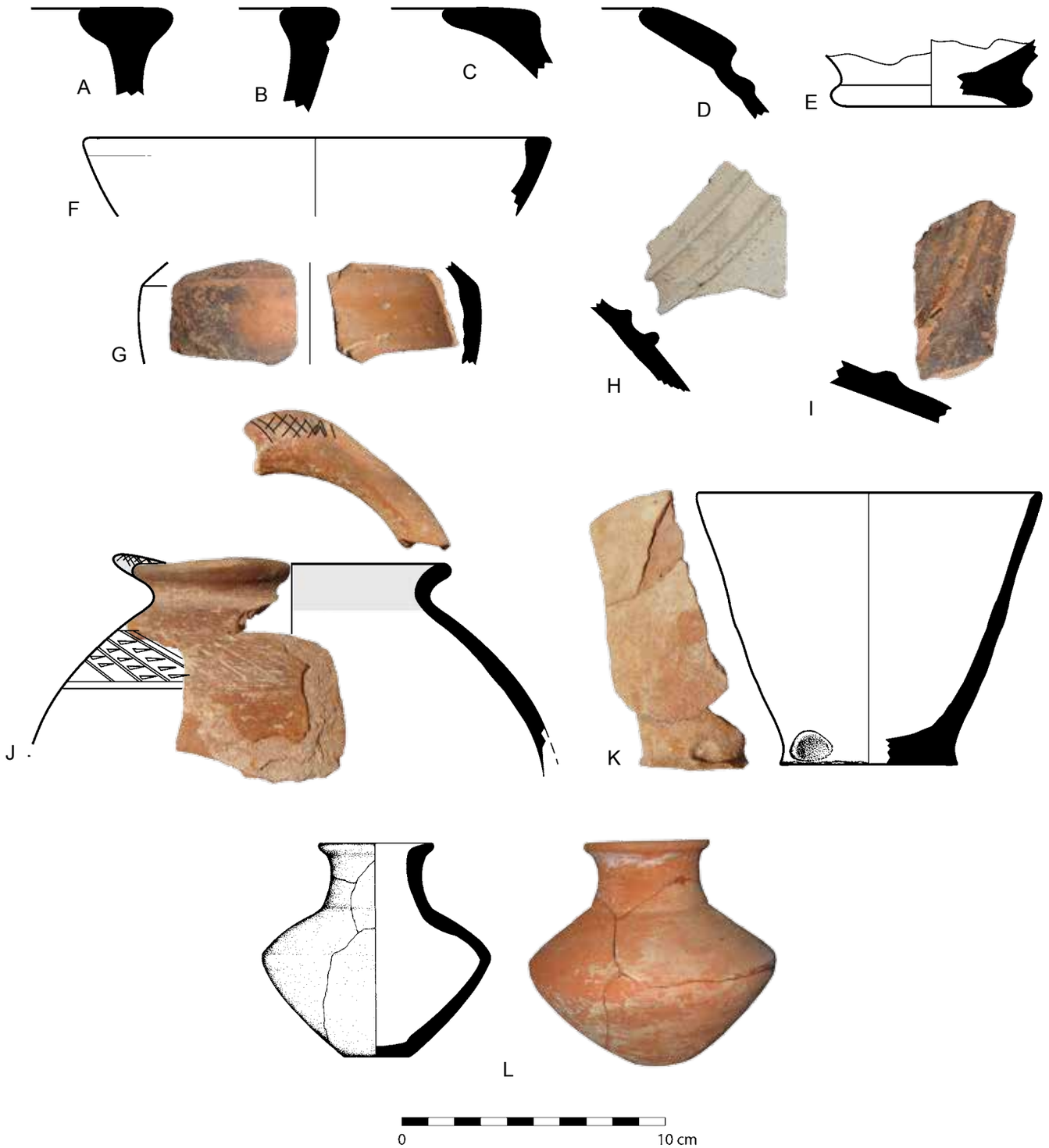
	Period	*Description*
A	Proto-Elamite	Brown ware, some chaff, dark brown wash exterior
B	Proto-Elamite	Light brown ware, gray core, chaff inclusion, reddish brown wash
C	Sasanian/ post-Sasanian	Buff ware, some accidental chaff, light blue glaze
D	Proto-Elamite	Pinkish buff ware, chaff inclusion, brown wash exterior, light greenish buff exterior
E	Proto-Elamite	Light brown ware, chaff inclusion, reddish brown wash
F	Proto-Elamite	Light brown ware, chaff inclusion, micaceous, chaff and mica face, dark brown wash
G	Proto-Elamite	Light brown ware, chaff inclusion, dark brown wash
H	Proto-Elamite	Gray ware, chaff inclusion, micaceous, chaff and mica face
I	Proto-Elamite	Light brown ware, chaff inclusion, dark brown exterior
J	Proto-Elamite	Light brown ware, chaff inclusion, reddish brown wash
K	Proto-Elamite	Light brown ware, light gray core, chaff inclusion, micaceous, chaff and mica face, dark reddish brown wash
L	Proto-Elamite	Light brown ware, chaff inclusion, reddish brown wash
M	Proto-Elamite	Light brown ware, chaff inclusion, reddish brown wash
N	Proto-Elamite?	Light brown ware, chaff inclusion, chaff face, dark brown wash
O	Sukkalmah	Light brown ware, light gray core, chaff inclusion, micaceous, chaff and mica face, buff brown exterior
P	Sukkalmah	Light brown ware, light gray core, chaff inclusion, micaceous, chaff and mica face



Pottery from RH-069A

Plate 128. Pottery from RH-069A (*cont.*)

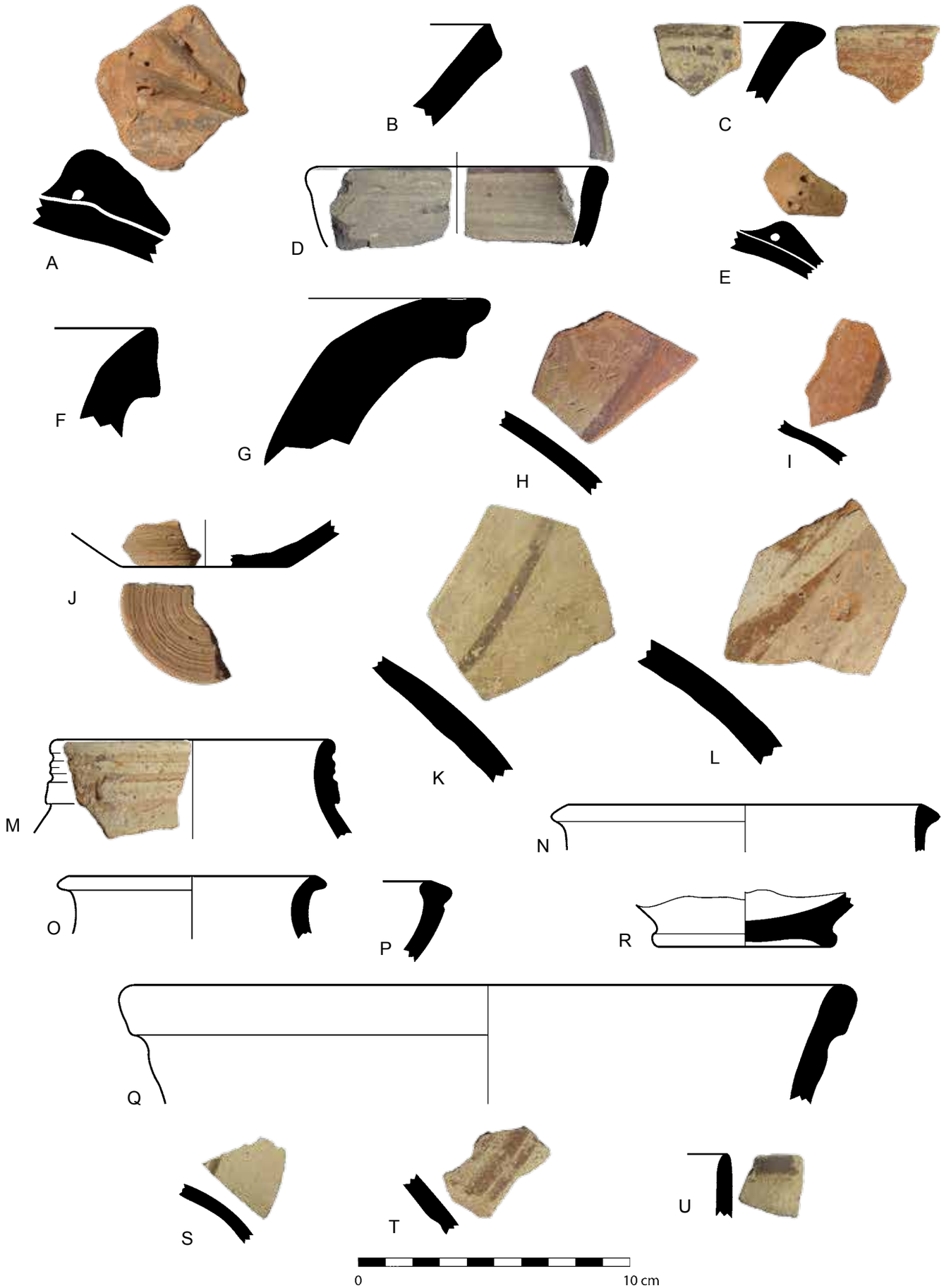
	Period	*Description*
A	Sukkalmah	Buff ware, gray core, chaff inclusion
B	Sukkalmah	Light brown buff ware, gray core, chaff inclusion
C	Sukkalmah	Pinkish brown ware, gray core, chaff inclusion, buff interior
D	Sukkalmah	Buff brown ware, black core, chaff inclusion, micaceous, mica face
E	Sukkalmah	Pinkish brown ware, chaff inclusion, buff brown surface
F	Sukkalmah	Buff brown ware, black core, chaff inclusion
G	Proto-Elamite	Brown ware, chaff inclusion, brown wash
H	Middle Elamite	Buff ware, chaff inclusion, pinkish buff interior, creamy buff exterior
I	Proto-Elamite	Light brown buff ware, gray core, chaff inclusion, dark brown wash
J	Proto-Elamite?	Light brown ware, chaff inclusion, reddish brown wash
K	Early Susa II	Light brown ware, light gray core, chaff inclusion, micaceous, chaff and mica face, buff brown exterior *Comparanda:* A similar vessel appears in Johnson 1973 (pl. 1:f) with a ring base, but it is not dated
L	Proto-Elamite	Light brown ware, chaff inclusion, micaceous, chaff and mica face, buff brown exterior. Found smashed in a robber's pit



Pottery from RH-069A (*cont.*)

Plate 129. Pottery from RH-069A (*cont.*)

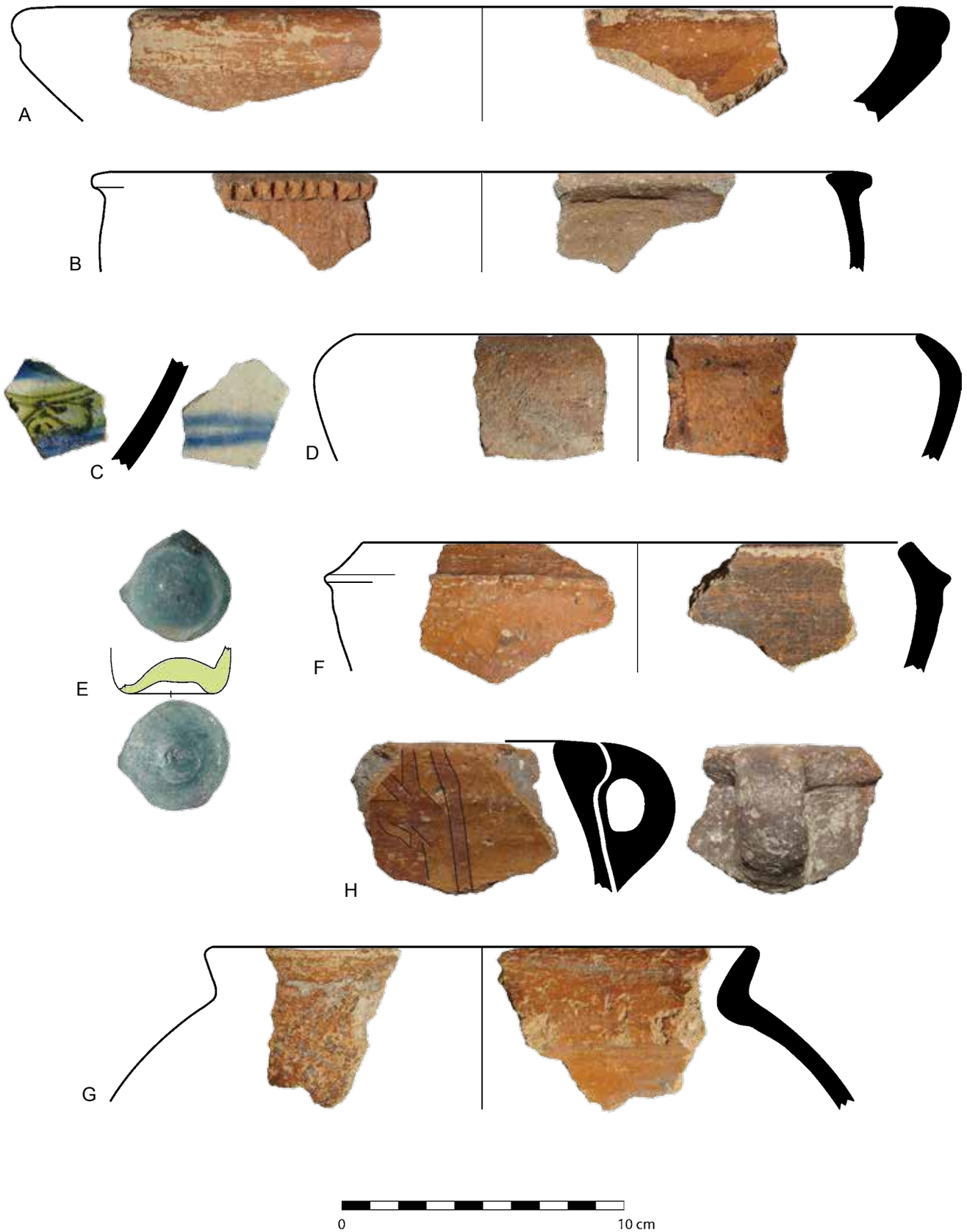
	Period	*Description*
A	Proto-Elamite	Light brown ware, gray core, chaff inclusion, brown wash
B	Proto-Elamite	Pinkish buff ware, straw inclusion, micaceous, chaff and mica face
C	Proto-Elamite	Light brown ware, chaff inclusion, brown wash interior, red wash exterior
D	Proto-Elamite?	Greenish buff ware, gray core, chaff inclusion, olive green paint
E	Proto-Elamite	Light brown ware, gray core, chaff inclusion, brown wash exterior, buff brown surface
F	Proto-Elamite	Light brown ware, gray core, chaff inclusion, buff brown surface
G	Proto-Elamite	Light brown ware, gray core, chaff inclusion, reddish brown wash exterior, buff brown interior
H	Proto-Elamite	Light brown ware, gray core, chaff inclusion, brown wash exterior, brown paint
I	Proto-Elamite	Light grayish brown ware, some chaff, micaceous, mica face, brown paint
J	Proto-Elamite	Light brown ware, gray core, chaff inclusion, string cut base
K	Proto-Elamite	Buff ware, chaff inclusion, olive green paint, greenish buff surface
L	Proto-Elamite	Light brown ware, gray core, chaff inclusion, brown wash exterior
M	Sukkalmah	Light brown ware, chaff inclusion, buff brown interior, creamy buff slip exterior, chaff face *Comparanda:* Similar to Farukhabad, levels B19, B18 (Wright 1981 fig. 84:h, j)
N	Sukkalmah	Pinkish buff ware, gray core, chaff inclusion *Comparanda:* Farukhabad, levels B15–17 (Wright 1981, fig. 84:m)
O	Sukkalmah	Pinkish buff ware, chaff inclusion, chaff face, buff surface
P	Sukkalmah	Light brown buff ware, black core, chaff inclusion, chaff face
Q	Sukkalmah	Light buff brown ware, chaff inclusion, micaceous, mica face, buff brown surface
R	Sukkalmah	Light brown buff ware, black core, chaff inclusion, chaff face
S	Sukkalmah/ Transitional	Buff ware, chaff inclusion, green paint, greenish buff surface
T	Sukkalmah/ Transitional	Light brown ware, chaff inclusion, brown paint, greenish buff surface
U	Sukkalmah?	Buff ware, no visible inclusion, olive green paint, greenish buff surface



Pottery from RH-069A (*cont.*)

Plate 130. Pottery from RH-070

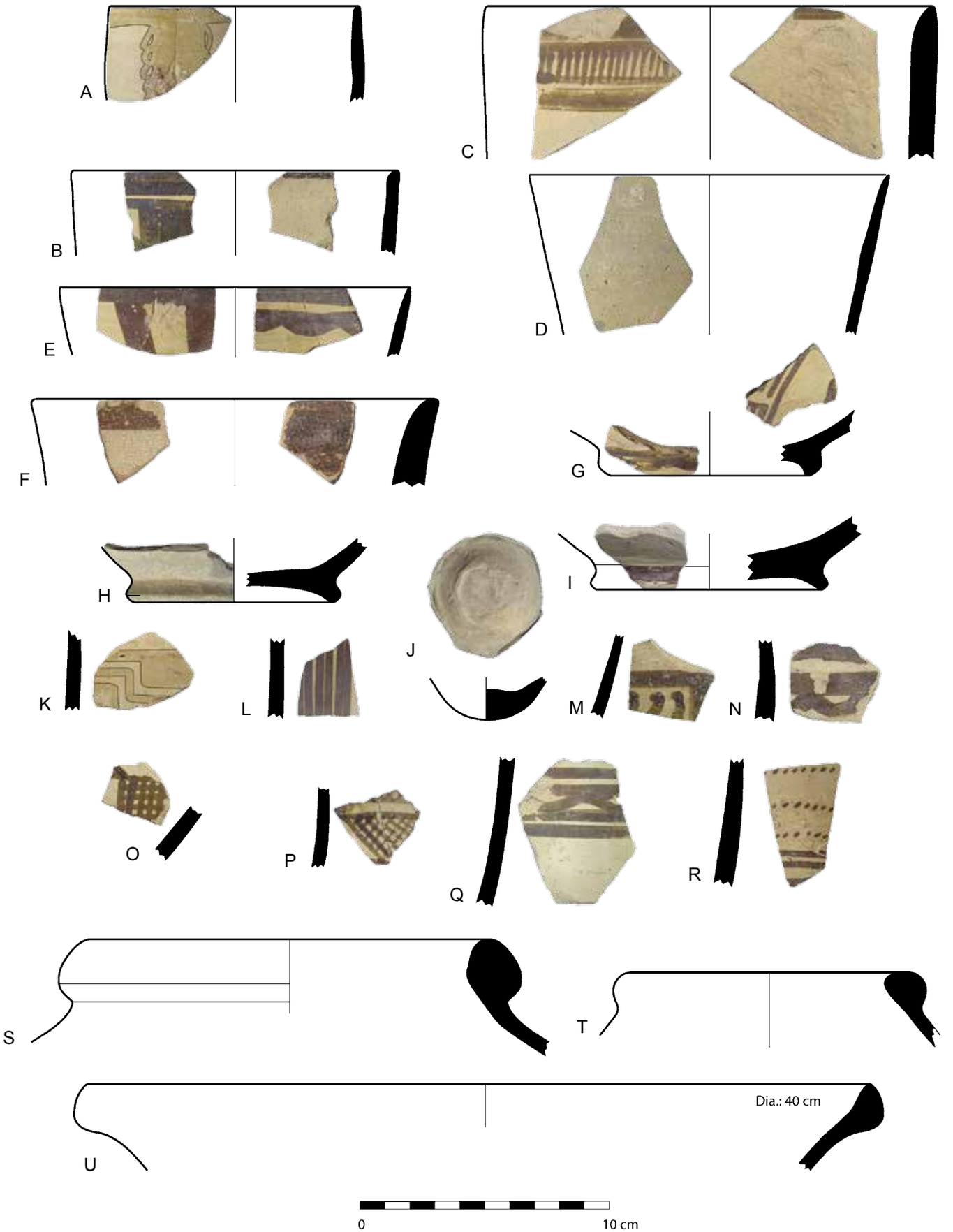
	Period	*Description*
A	Seljuk-Ilkhanid	Pinkish brown ware, grog inclusion, dark brown wash, brown paint
B	Seljuk-Ilkhanid	Gray brown ware, grog inclusion, light gray interior
C	Seljuk-Ilkhanid	Buff ware, no visible inclusion, some sand in paste, under-glaze paint
D	Seljuk-Ilkhanid	Gray brown ware, grog inclusion, light gray brown interior, brown paint, pseudo-prehistoric
E	Seljuk-Ilkhanid	Green glass
F	Seljuk-Ilkhanid	Pinkish buff ware, grog inclusion, reddish brown wash
G	Seljuk-Ilkhanid	Pinkish buff ware, grog inclusion, reddish brown wash
H	Seljuk-Ilkhanid	Light brown ware, gray core, grog inclusion, brown paint, pseudo-prehistoric



Pottery from RH-070

Plate 131. Pottery from RH-071

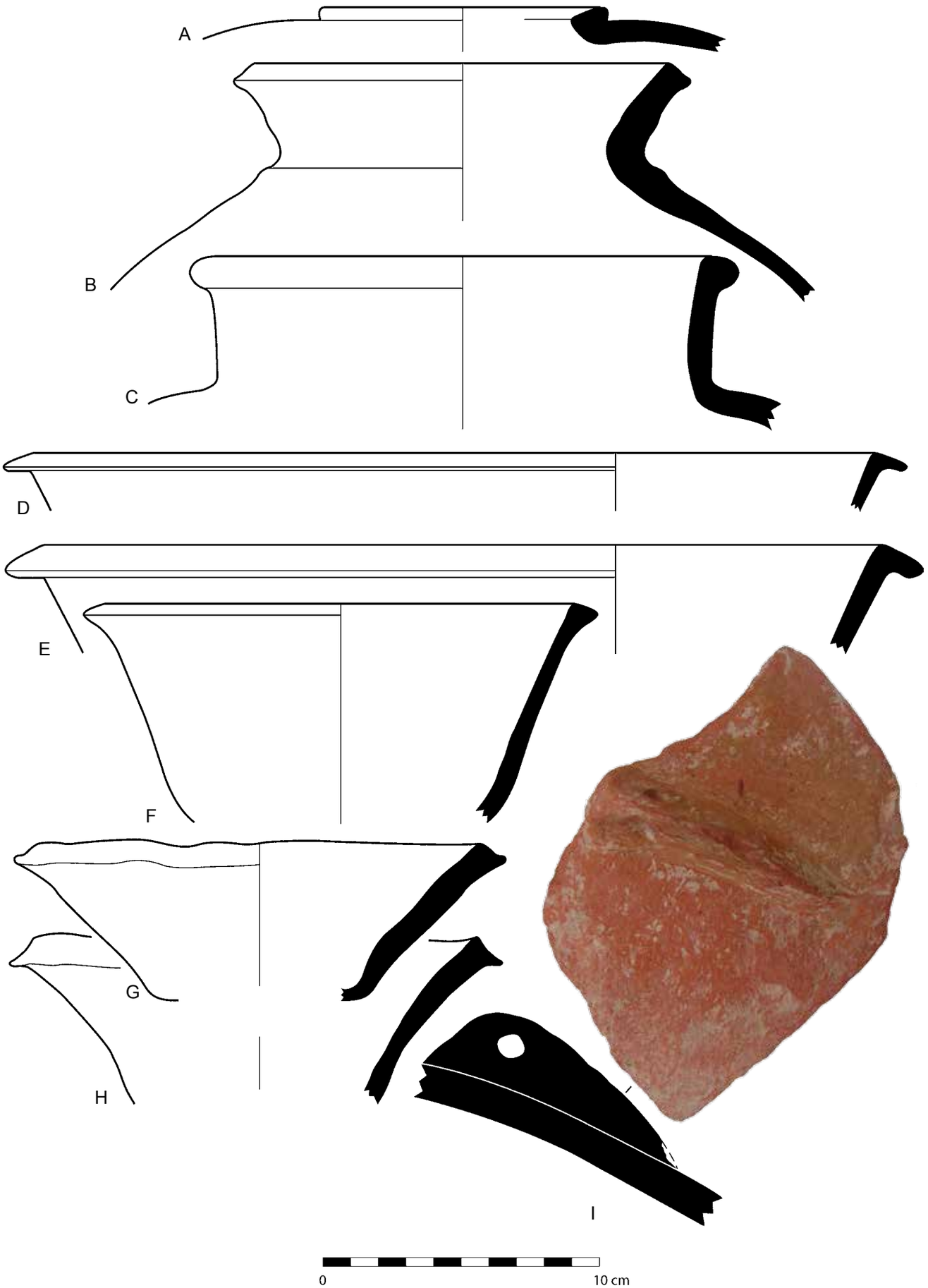
	Period	*Description*
A	Late Middle Susiana	Buff, no visible inclusion, greenish paint
B	Late Middle Susiana	Buff ware, no visible inclusion, greenish buff surface, greenish paint
C	Late Middle Susiana	Buff ware, no visible inclusion, greenish brown paint
D	Late Middle Susiana	Buff ware, no visible inclusion, green surface, over-fired
E	Late Middle Susiana	Buff ware, no visible inclusion, brown paint
F	Late Middle Susiana	Pinkish buff ware, no visible inclusion, buff exterior, brown paint, crackled surface
G	Late Middle Susiana	Buff ware, no visible inclusion, green surface, greenish paint, over-fired
H	Late Middle Susiana	Buff ware, no visible inclusion, green surface, greenish paint, over-fired
I	Late Middle Susiana	Buff ware, no visible inclusion, greenish buff surface, greenish brown paint
J	Late Susiana 1	Buff ware, no visible inclusion, green surface, over-fired
K	Late Susiana 1	Buff ware, no visible inclusion, brown paint
L	Late Middle Susiana	Buff ware, no visible inclusion, greenish brown paint
M	Late Middle Susiana	Buff ware, no visible inclusion, greenish buff surface, greenish paint
N	Late Middle Susiana	Buff ware, no visible inclusion, greenish buff surface, greenish paint
O	Late Middle Susiana	Buff ware, no visible inclusion, greenish buff surface, greenish paint
P	Late Middle Susiana	Buff ware, no visible inclusion, greenish buff surface, greenish paint
Q	Late Middle Susiana	Buff ware, no visible inclusion, greenish buff surface, greenish paint
R	Late Susiana 1	Buff ware, no visible inclusion, brown paint
S	Parthian	Light brown ware, chaff inclusion, greenish buff exterior, grayish brown interior *Comparanda:* Khuzestan (Wenke 1975–76, fig. 11:502, 512)
T	Parthian	Light brown ware, chaff inclusion, grayish brown interior *Comparanda:* Khuzestan (Wenke 1975–76, fig. 11:502, 512)
U	Parthian	Light brown ware, chaff inclusion, micaceous, chaff and mica face *Comparanda:* Khuzestan (Wenke 1975–76, fig. 11:526)



Pottery from RH-071

Plate 132. Pottery from RH-072

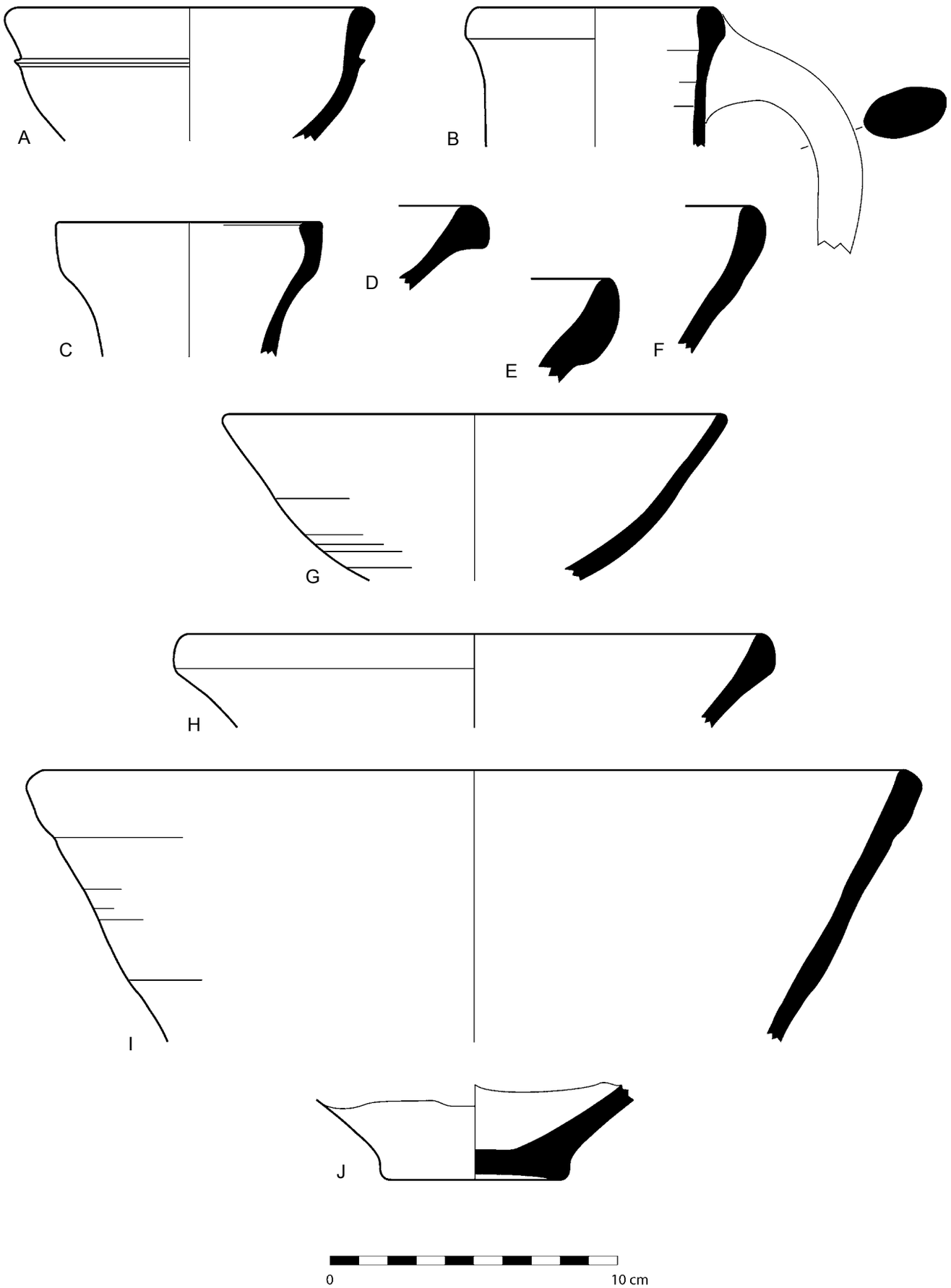
	Period	*Description*
A	Early Susa II	Light brown ware, chaff inclusion, micaceous, chaff and mica face *Comparanda:* Abu Fanduweh, KS-59, south mound, Early Susa II levels (Alizadeh unpublished)
B	Early Susa II	Pinkish brown ware, chaff inclusion, micaceous, chaff and mica face, probably slipped exterior and inner rim *Comparanda:* Susa Acropole, level 23 (Le Brun 1971, fig. 40:7)
C	Proto-Elamite	Reddish brown ware, gray core, chaff inclusion, micaceous, chaff and mica face, brown wash
D	Proto-Elamite	Brown ware, chaff inclusion, micaceous, chaff and mica face
E	Proto-Elamite	Reddish brown ware, gray core, chaff inclusion, micaceous, chaff and mica face, reddish brown wash
F	Proto-Elamite	Brown ware, gray core, chaff inclusion, micaceous, chaff and mica face, reddish brown wash *Comparanda:* Susa Acropole, level 15 (Le Brun 1971, fig. 61:14)
G	Proto-Elamite	Pinkish brown ware, chaff inclusion, micaceous, chaff and mica face
H	Proto-Elamite	Pinkish brown ware, chaff inclusion, micaceous, chaff and mica face
I	Proto-Elamite	Reddish brown ware, gray core, chaff inclusion, micaceous, chaff and mica face



Pottery from RH-072

Plate 133. Pottery from RH-072 (*cont.*)

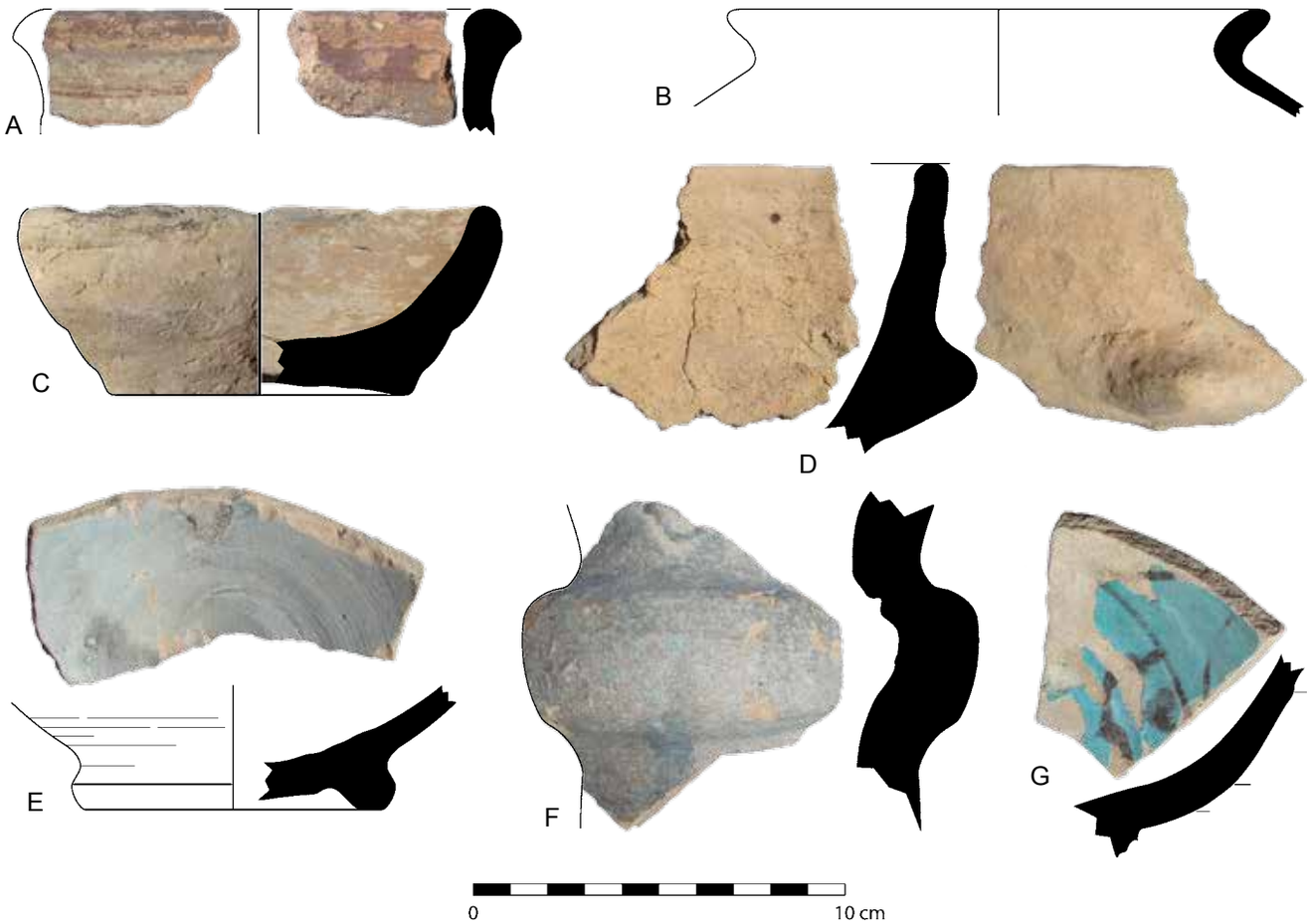
	Period	*Description*
A	Sasanian	Buff ware, chaff inclusion
B	Sasanian	Light brown ware, chaff inclusion, greenish buff exterior, brown buff interior
C	Parthian?	Pinkish brown ware, chaff inclusion, micaceous, chaff and mica face, greenish buff surface
D	Sasanian	Buff ware, chaff inclusion, greenish buff surface
E	Sasanian	Pinkish brown ware, chaff inclusion, micaceous, chaff and mica face
F	Sasanian	Pinkish buff ware, chaff inclusion, buff surface
G	Sasanian	Light brown ware, chaff inclusion, brown buff surface
H	Sasanian	Light brown ware, chaff inclusion, micaceous, chaff and mica face
I	Sasanian	Light brown ware, chaff inclusion, buff brown surface
J	Sasanian	Light brown ware, chaff inclusion, buff brown surface



Pottery from RH-072 (*cont.*)

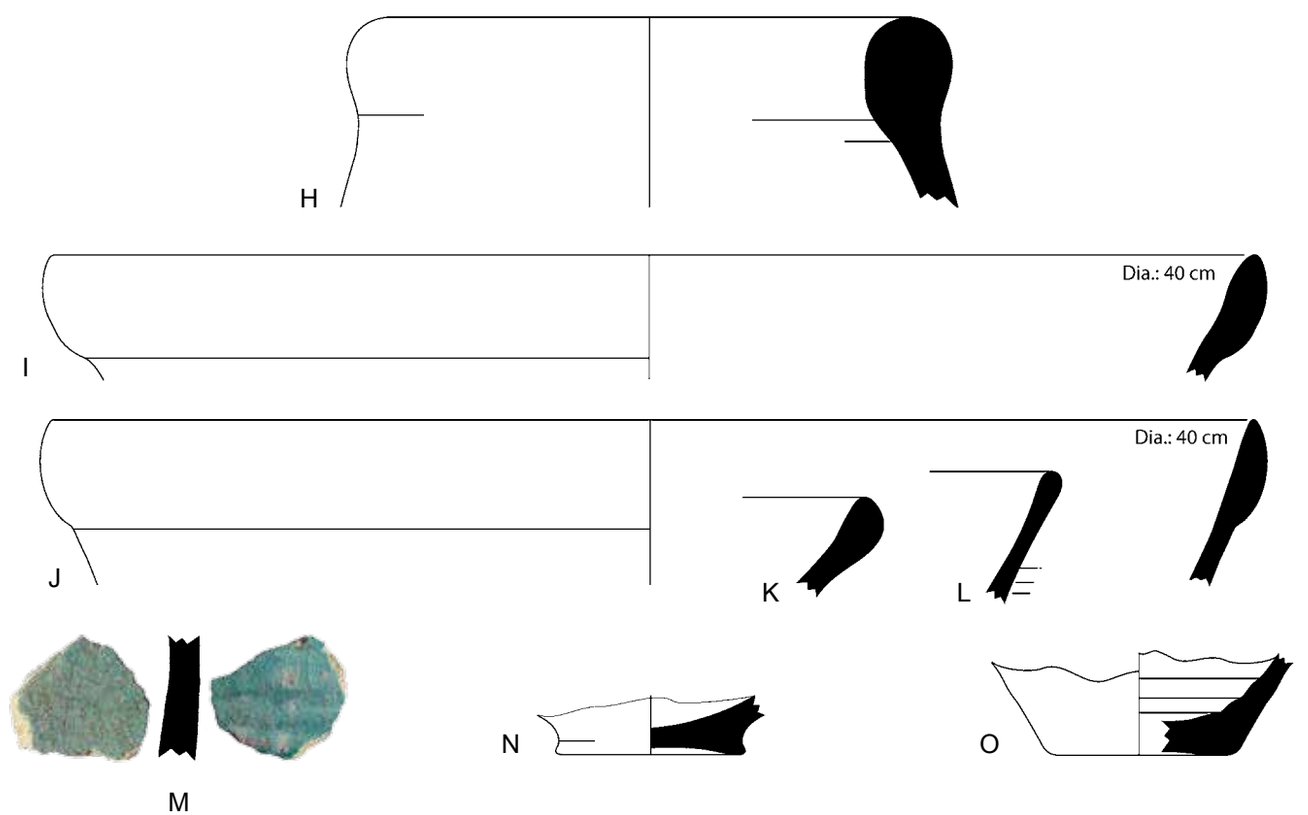
Plate 134. Pottery from RH-074 and RH-075

	Period	*Description*
RH-074		
A	Seljuk-Ilkhanid	Light brown ware, chaff inclusion, brown wash
B	Seljuk-Ilkhanid	Light brown ware, gray core, sandy paste, occasional chaff, brown wash
C	Seljuk-Ilkhanid	Pinkish brown ware, gray core, chaff inclusion, brown wash
D	Seljuk-Ilkhanid	Pinkish brown ware, gray core, chaff inclusion
E	Seljuk-Ilkhanid	Pinkish buff ware, no visible inclusion, light blue glaze
F	Seljuk?	Pinkish brown ware, no visible inclusion, purple glaze
G	Ilkhanid	Pinkish buff ware, no visible inclusion, black paint under greenish blue glaze
RH-075		
H	Seljuk-Ilkhanid	Light brown ware, gray core, chaff inclusion, greenish buff surface
I	Seljuk-Ilkhanid	Buff ware, chaff inclusion, gray buff interior
J	Seljuk-Ilkhanid	Light brown ware, chaff inclusion, micaceous, chaff and mica face, buff brown exterior
K	Seljuk	Buff ware, chaff inclusion, greenish blue glaze
L	Seljuk-Ilkhanid	Light brown ware, gray core, chaff inclusion, brown buff surface
M	Seljuk-Ilkhanid	Pinkish brown ware, chaff inclusion, brown buff surface
N	Seljuk-Ilkhanid	Light brown ware, chaff inclusion
O	Seljuk-Ilkhanid	Buff ware, chaff inclusion



RH-074

RH-075



Pottery from RH-074 and RH-075

Plate 135. Pottery from RH-076

	Period	*Description*
A	Post-Sasanian	Pinkish buff ware, chaff inclusion, greenish buff surface *Comparanda:* Susa Apadana, level 2 (Kervran 1977, fig. 33:1); Sirjan (Allan and Roberts 1987, figs. 59, 61)
B	Seljuk	Light brown ware, no visible inclusion, dark green glaze
C	Seljuk	Buff ware, occasional chaff, greenish buff surface
D	Ilkhanid	Pinkish buff ware, no visible inclusion, milky white glaze interior, green white glaze exterior
E	Seljuk-Ilkhanid	Brown ware, grog inclusion
F	Post-Sasanian	Buff ware, no visible inclusion, greenish buff surface *Comparanda:* Sirjan (Allan and Roberts 1987, fig. 58:26–28)
G	—	Pinkish brown ware, chaff inclusion, buff brown surface
H	—	Buff ware, occasional chaff, greenish buff surface
I	—	Warm buff ware, chaff inclusion, greenish buff surface

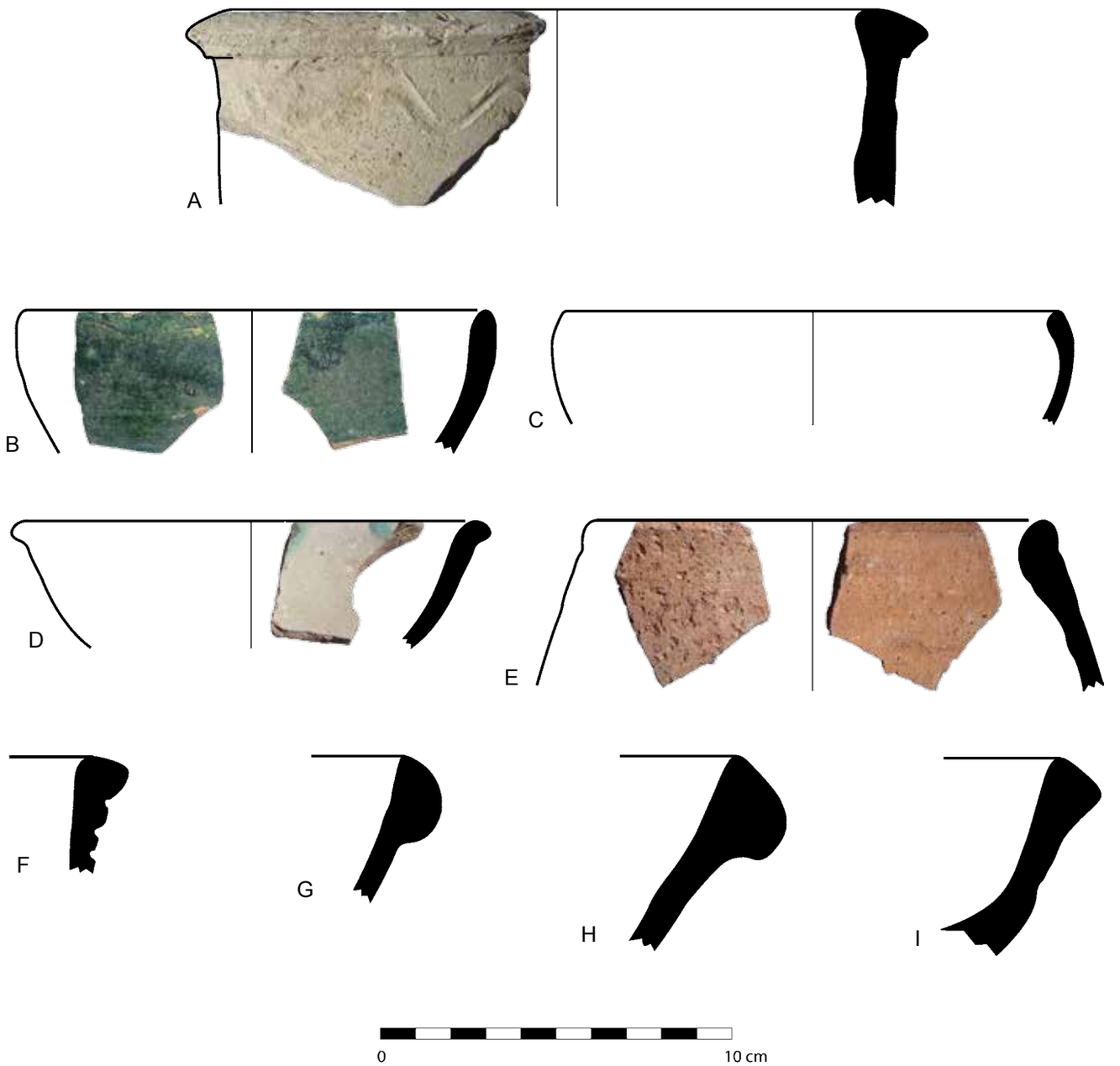
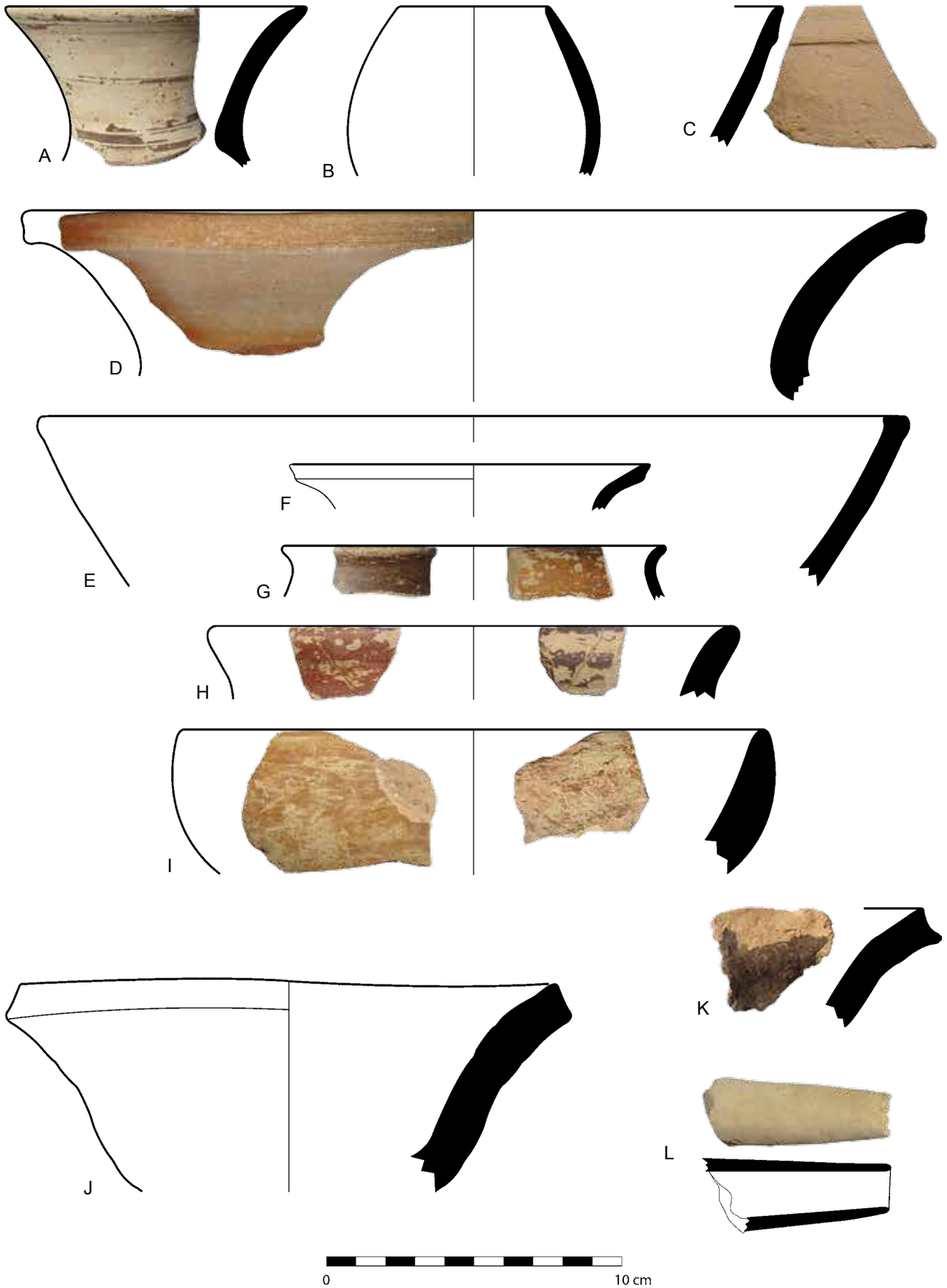


Plate 136. Pottery from RH-077A

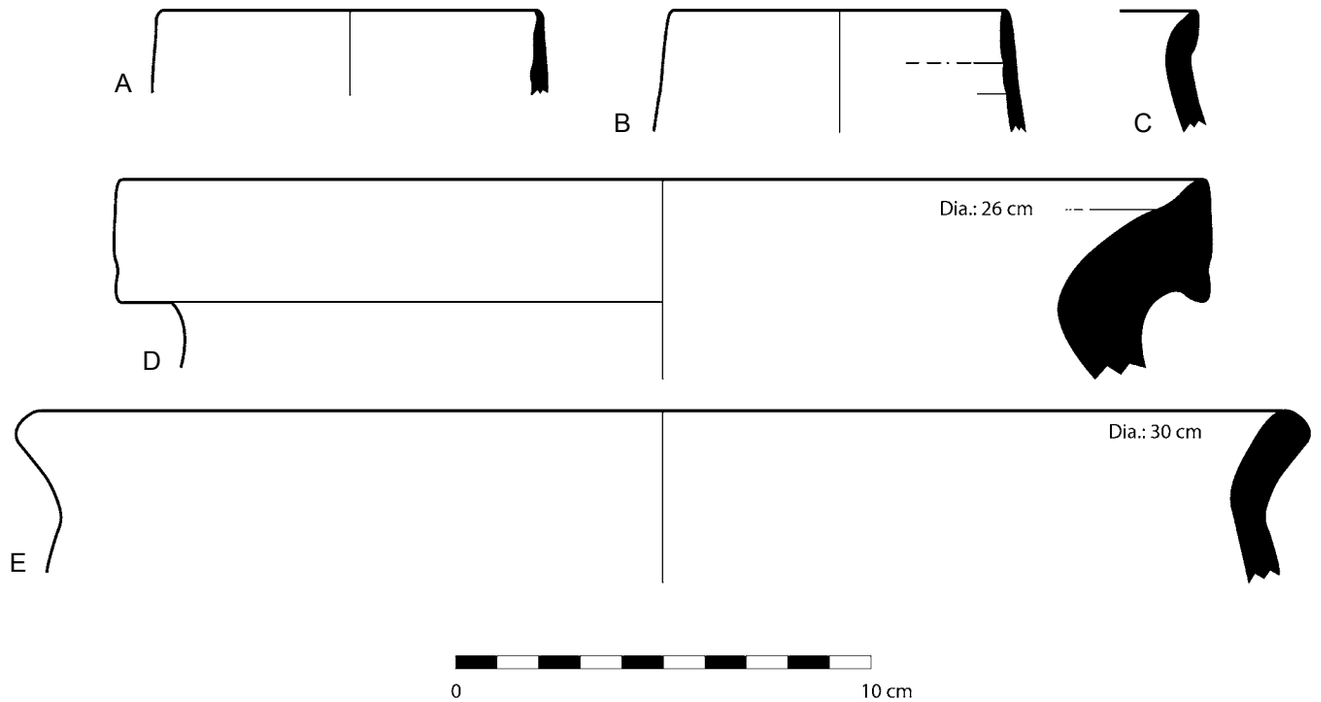
	Period	*Description*
A	Late Susiana 2	Buff ware, no visible inclusion, brown paint
B	Late Susa II	Buff ware, accidental chaff, greenish buff surface
C	Late Susa II	Brown ware, accidental chaff, micaceous, mica face
D	Terminal Susa/Susa II	Light pinkish brown, chaff inclusion *Comparanda:* Jafarabad, levels 2–3 (Dollfus 1971, fig. 19:1–2); Susa Acropole, level 23 (Le Brun 1971, fig. 40:9)
E	Late Middle Susiana	Brown ware, no visible inclusion, micaceous, mica face, probably grayish brown wash exterior
F	Terminal Susa/ Early Susa II	Light brown ware, no visible inclusion, buff brown surface
G	Proto-Elamite	Light brown ware, no visible inclusion, dark brown wash
H	Proto-Elamite	Light pinkish brown ware, no visible inclusion, dark brown wash
I	Late Middle Susiana	Light pinkish brown ware, light gray core, no visible inclusion, reddish brown wash interior and exterior
J	Early Susa II?	Buff ware, straw inclusion, micaceous, straw and mica face, greenish buff surface
K	Late Susa II	Pinkish light brown ware, straw inclusion, mica in paste, bitumen-smeared interior
L	Early Susa II?	Buff ware, chaff inclusion, greenish buff surface. With string grooves on the wide side. Fishing pole?



Pottery from RH-077A

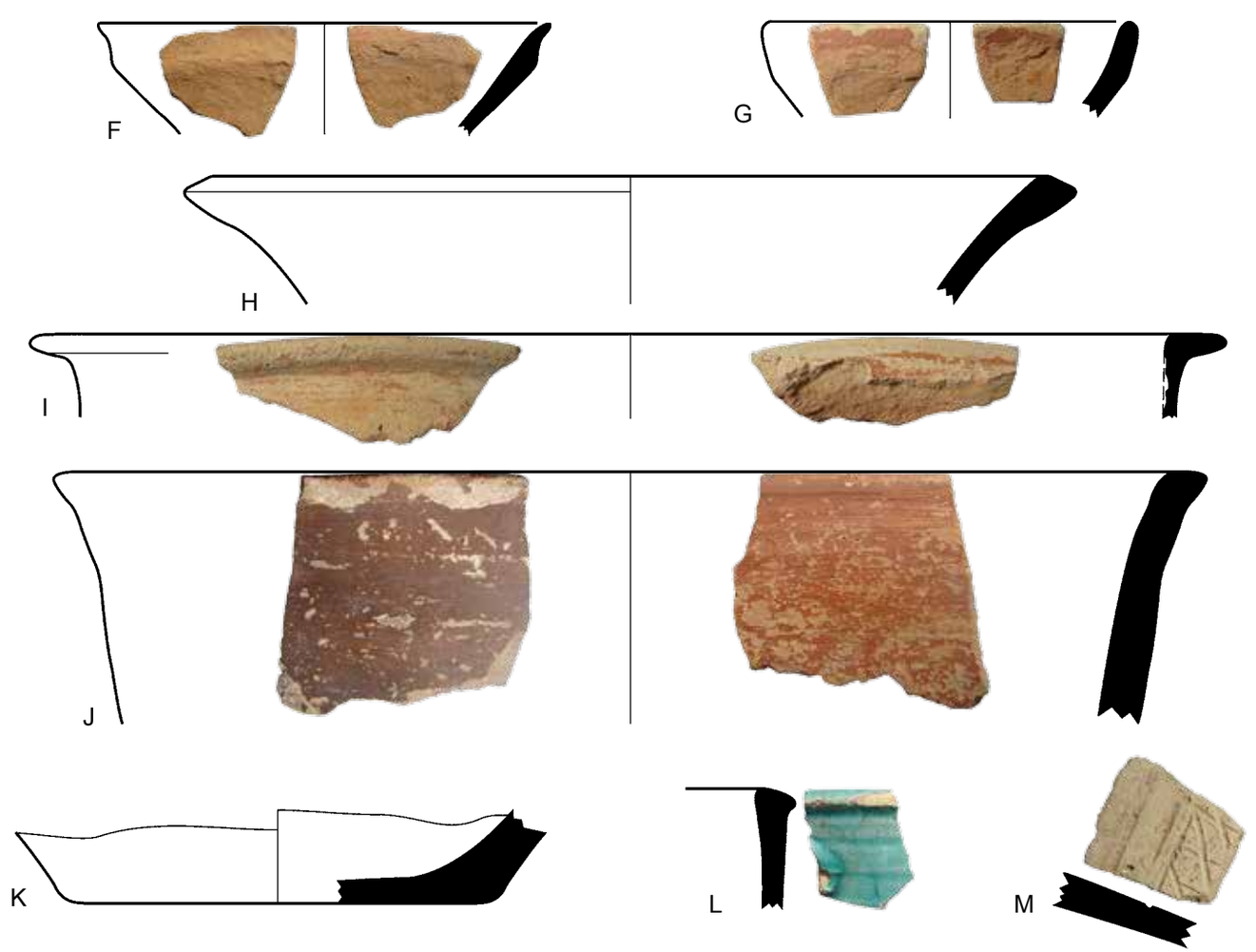
Plate 137. Pottery from RH-077B and RH-077C

	Period	*Description*
RH-077B		
A	Proto-Elamite	Pinkish buff ware, no visible inclusion, brown wash
B	Proto-Elamite	Light brown ware, chaff inclusion, micaceous, chaff and mica face
C	Proto-Elamite	Light pinkish brown ware, chaff inclusion, micaceous, chaff and mica face, brown wash
D	Proto-Elamite	Light brown ware, black core, chaff inclusion, micaceous, chaff and mica face
E	Proto-Elamite	Light brown ware, gray core, chaff inclusion, micaceous, chaff and mica face
RH-077C		
F	Achaemenid	Light brown ware, chaff inclusion, micaceous, chaff and mica face, red wash
G	Achaemenid	Light brown ware, chaff inclusion, micaceous, chaff and mica face, red wash
H	Proto-Elamite	Light pinkish brown ware, chaff inclusion, micaceous, calcite particles in paste, chaff, mica and chalky face
I	Achaemenid	Light brown ware, chaff inclusion, red wash
J	Achaemenid	Light brown ware, gray core, chaff inclusion, dark brown wash exterior, reddish brown wash interior
K	Proto-Elamite?	Light brown ware, chaff inclusion, probably brown wash
L	Seljuk-Ilkhanid	Buff ware, no visible inclusion, greenish blue glaze
M	Proto-Elamite	Buff ware, chaff inclusion, brown wash interior



RH-077B

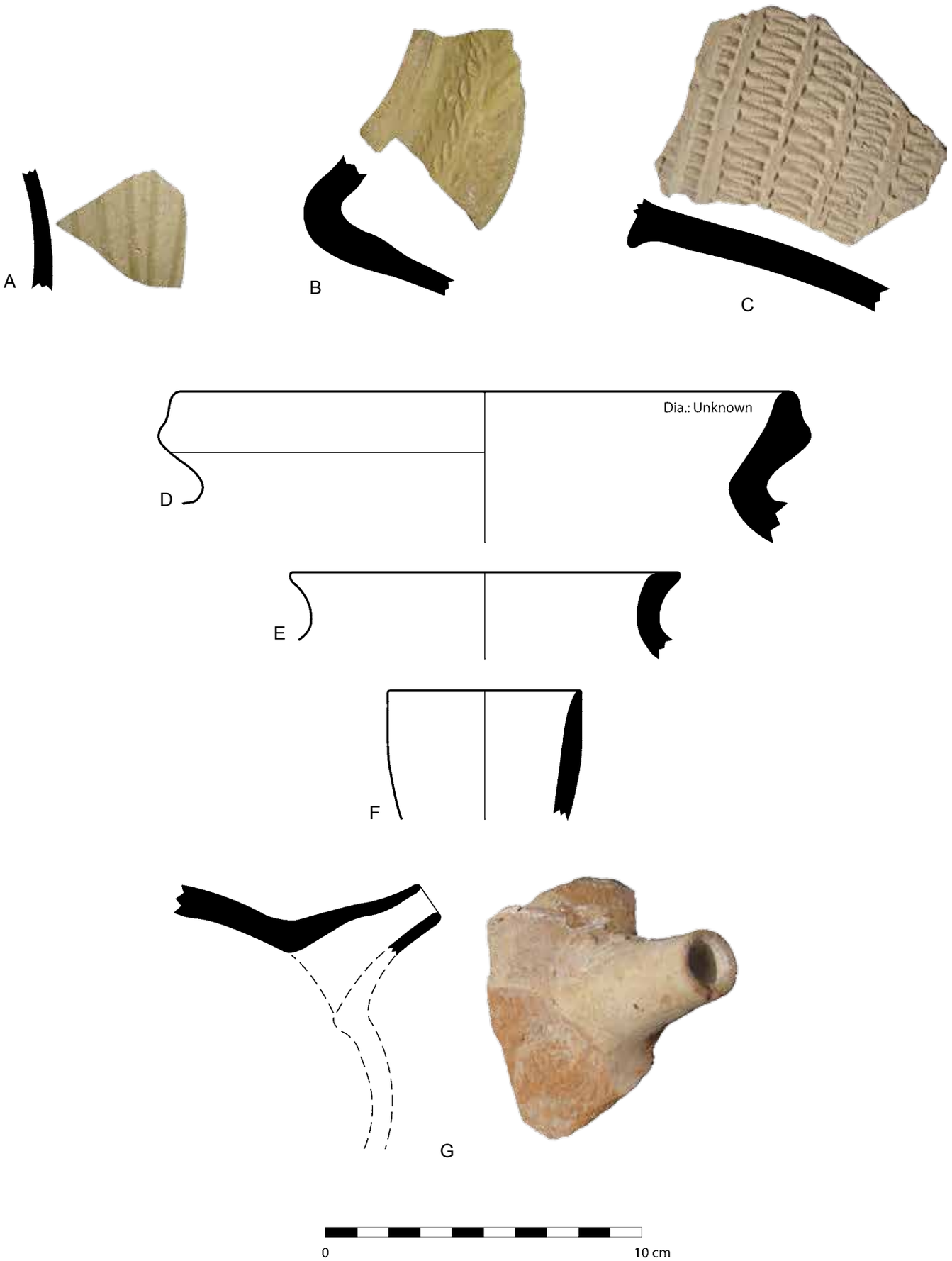
RH-077C



Pottery from RH-077B and RH-077C

Plate 138. Pottery from RH-077D

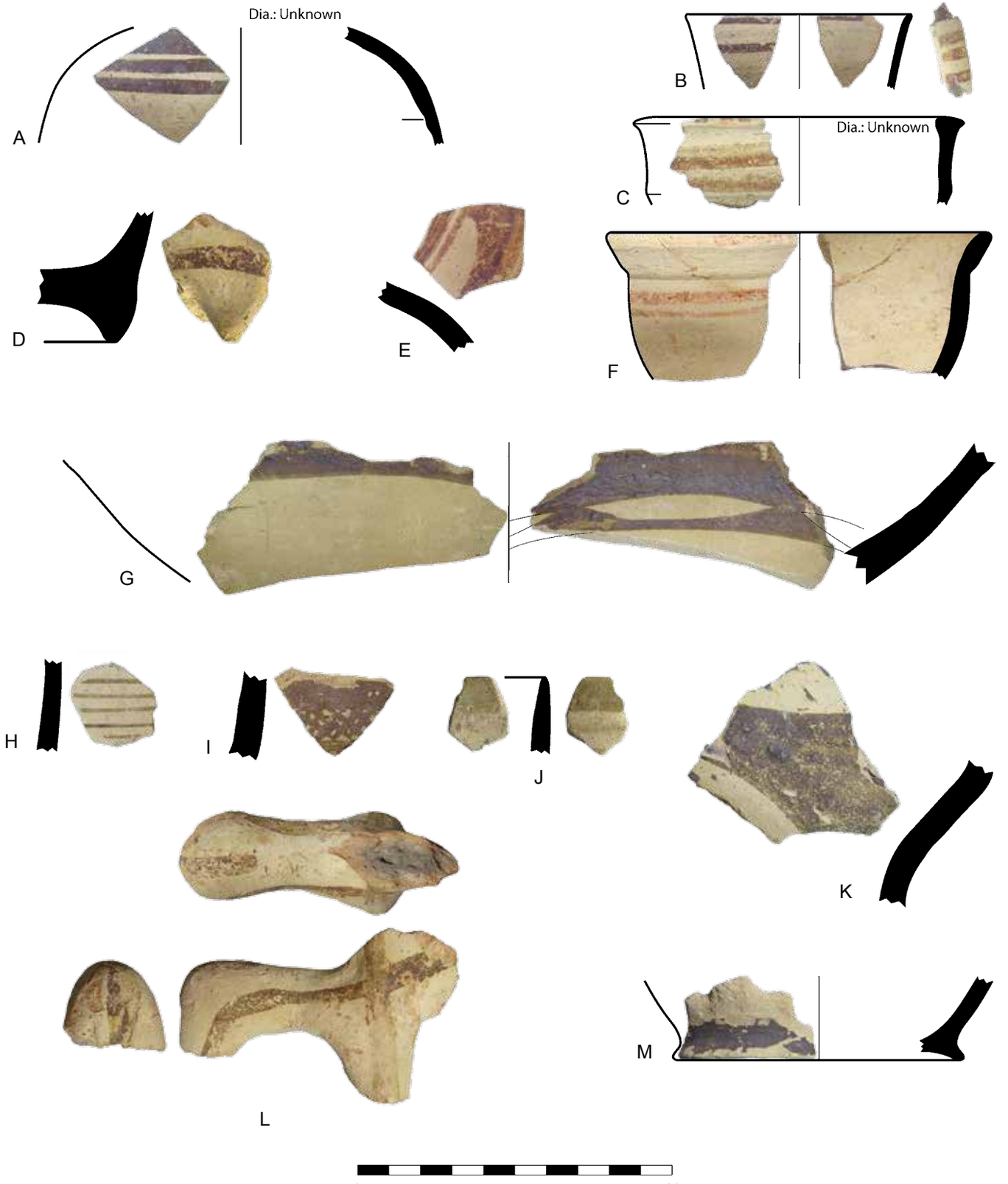
	Period	*Description*
A	Early Susa II/ Late Susa II	Buff ware, no visible inclusion, greenish surface, reserved slip
B	Early Susa II	Buff ware, no visible inclusion, greenish surface, reserved slip
C	Late Susa II	Light brown ware, scattered sand in paste, micaceous, mica face, buff brown surface
D	Late Susa II	Light brown ware, scattered sand and fine grits in paste, micaceous, mica face, buff brown surface
E	Late Susa II	Light brown ware, no visible inclusion, buff brown surface
F	Late Susa II?	Pinkish brown surface, no visible inclusion, micaceous, mica face, greenish buff surface
G	Late Susa II	Light brown surface, black core, chaff inclusion, grayish brown interior



Pottery from RH-077D

Plate 139. Pottery from RH-078A

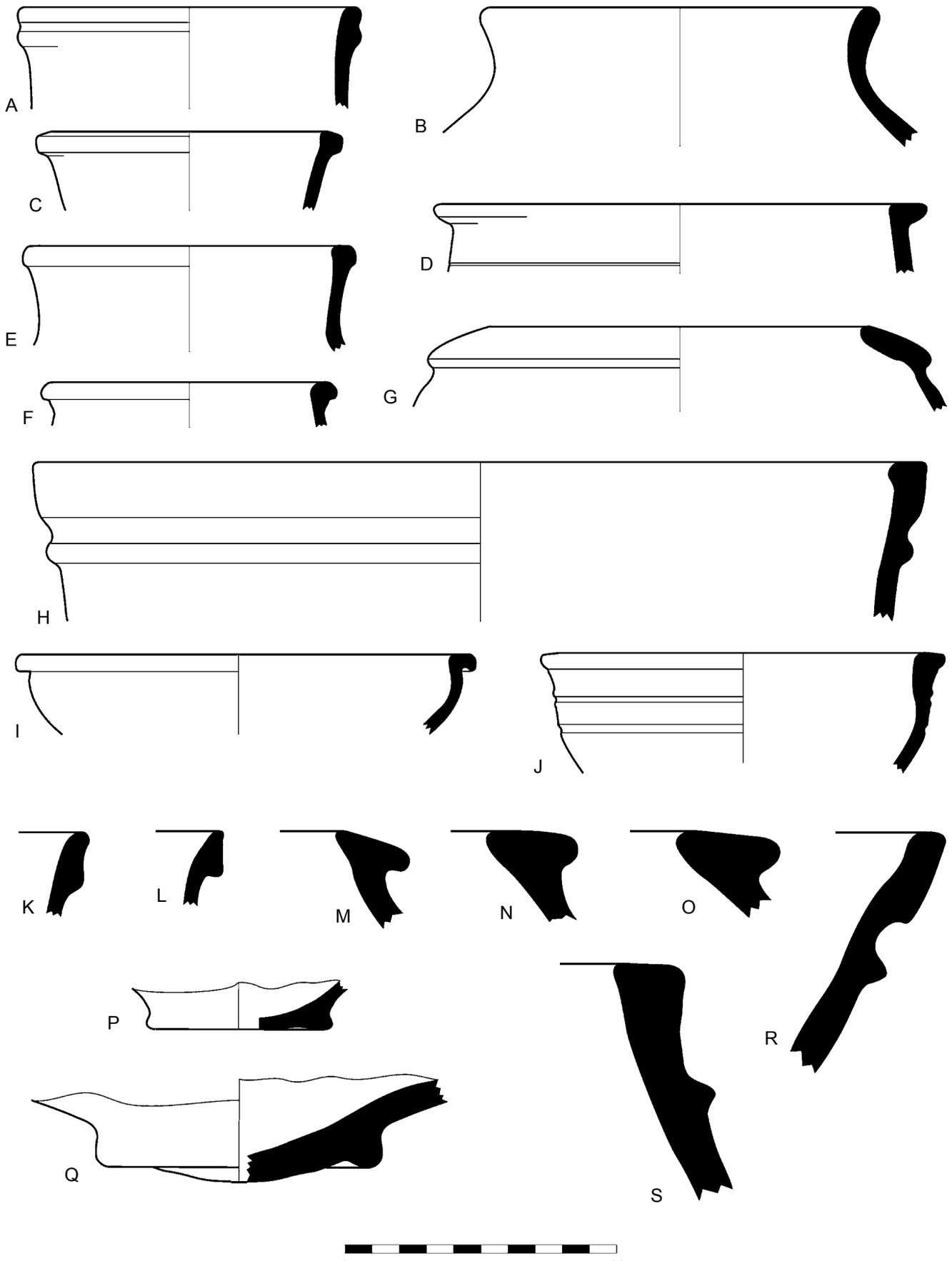
	Period	*Description*
A	Sukkalmah/ Transitional	Light gray ware, chaff inclusion, greenish buff exterior, brown paint
B	Sukkalmah/ Transitional	Warm buff ware, gray core, chaff inclusion, brown paint
C	Sukkalmah/ Transitional	Pinkish buff ware, gray core, chaff inclusion, brown paint
D	Sukkalmah/ Transitional	Greenish buff ware, chaff inclusion, brown paint
E	Sukkalmah/ Transitional	Pinkish buff ware, chaff inclusion, brown paint
F	Sukkalmah/ Transitional	Buff ware, gray core, chaff inclusion, red paint
G	Late Middle Susiana	Greenish buff ware, no visible inclusion, greenish paint (burnt)
H	Late Middle Susiana	Greenish buff ware, no visible inclusion, greenish paint
I	Late Middle Susiana	Grayish brown ware, no visible inclusion, greenish buff exterior, brown paint
J	Late Middle Susiana	Greenish buff ware, no visible inclusion, greenish paint
K	Late Middle Susiana	Greenish buff ware, no visible inclusion, greenish paint
L	Late Middle Susiana	Pinkish buff ware, gray core, no visible inclusion, greenish brown paint
M	Late Middle Susiana	Buff ware, no visible inclusion, brown paint, greenish buff surface



Pottery from RH-078A

Plate 140. Pottery from RH-078A (*cont.*)

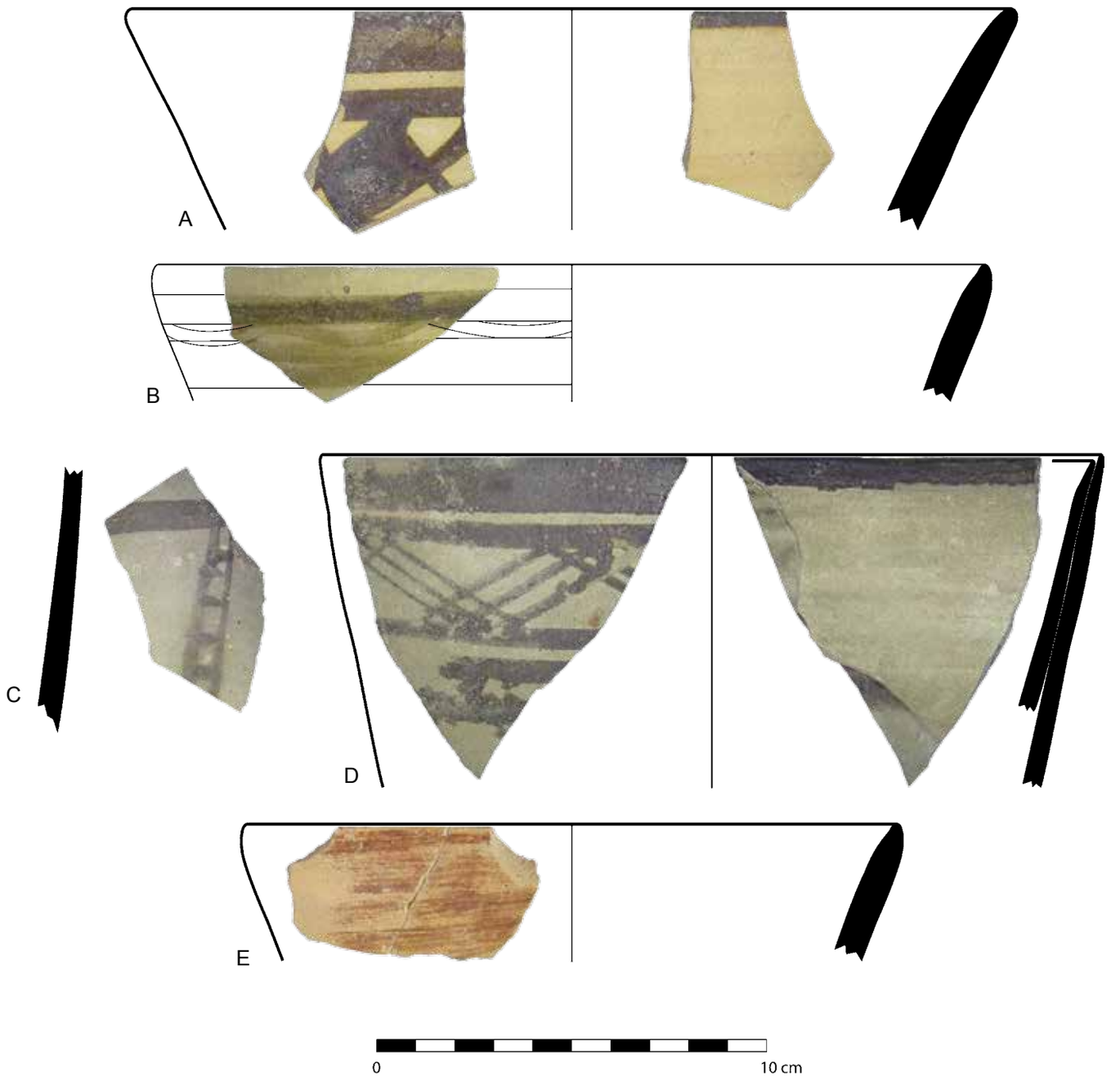
	Period	*Description*
A	Middle Elamite	Buff ware, gray core, chaff inclusion, green buff surface
B	Middle Elamite	Light brown ware, gray core, chaff inclusion, chaff face
C	Middle Elamite	Light brown ware, chaff inclusion, calcite particles in paste, greenish buff surface
D	Middle Elamite	Light brown ware, gray core, chaff inclusion, micaceous, chaff and mica face, brown buff surface
E	Middle Elamite	Buff ware, chaff inclusion, chaff face, over-fired green
F	Middle Elamite	Light brown ware, gray core, chaff inclusion
G	Middle Elamite	Light brown ware, gray core, chaff inclusion, micaceous, chaff and mica face
H	Middle Elamite	Light brown ware, gray core, chaff inclusion, micaceous, chaff and mica face, brown buff surface
I	Middle Elamite	Light brown ware, gray core, chaff inclusion, chaff face, brown buff surface
J	Middle Elamite	Light brown ware, gray core, chaff inclusion, micaceous, chaff and mica face, grayish brown interior
K	Middle Elamite	Buff ware, gray core, chaff inclusion, micaceous, chaff and mica face, greenish buff surface
L	Middle Elamite	Light brown ware, chaff inclusion, calcite particles in paste, grayish buff surface
M	Middle Elamite	Light brown ware, chaff inclusion, chaff face, buff brown exterior
N	Middle Elamite	Light brown ware, black core, chaff inclusion, micaceous, chaff and mica face
O	Middle Elamite	Light brown ware, gray core, chaff inclusion, buff surface
P	Middle Elamite	Light pinkish brown ware, chaff inclusion, buff brown surface
Q	Middle Elamite	Light pinkish brown ware, chaff inclusion, micaceous, chaff and mica face
R	Middle Elamite	Light brown ware, black core, chaff inclusion
S	Middle Elamite	Light pinkish brown ware, chaff inclusion, micaceous, chaff and mica face



Pottery from RH-078A (*cont.*)

Plate 141. Pottery from RH-078B

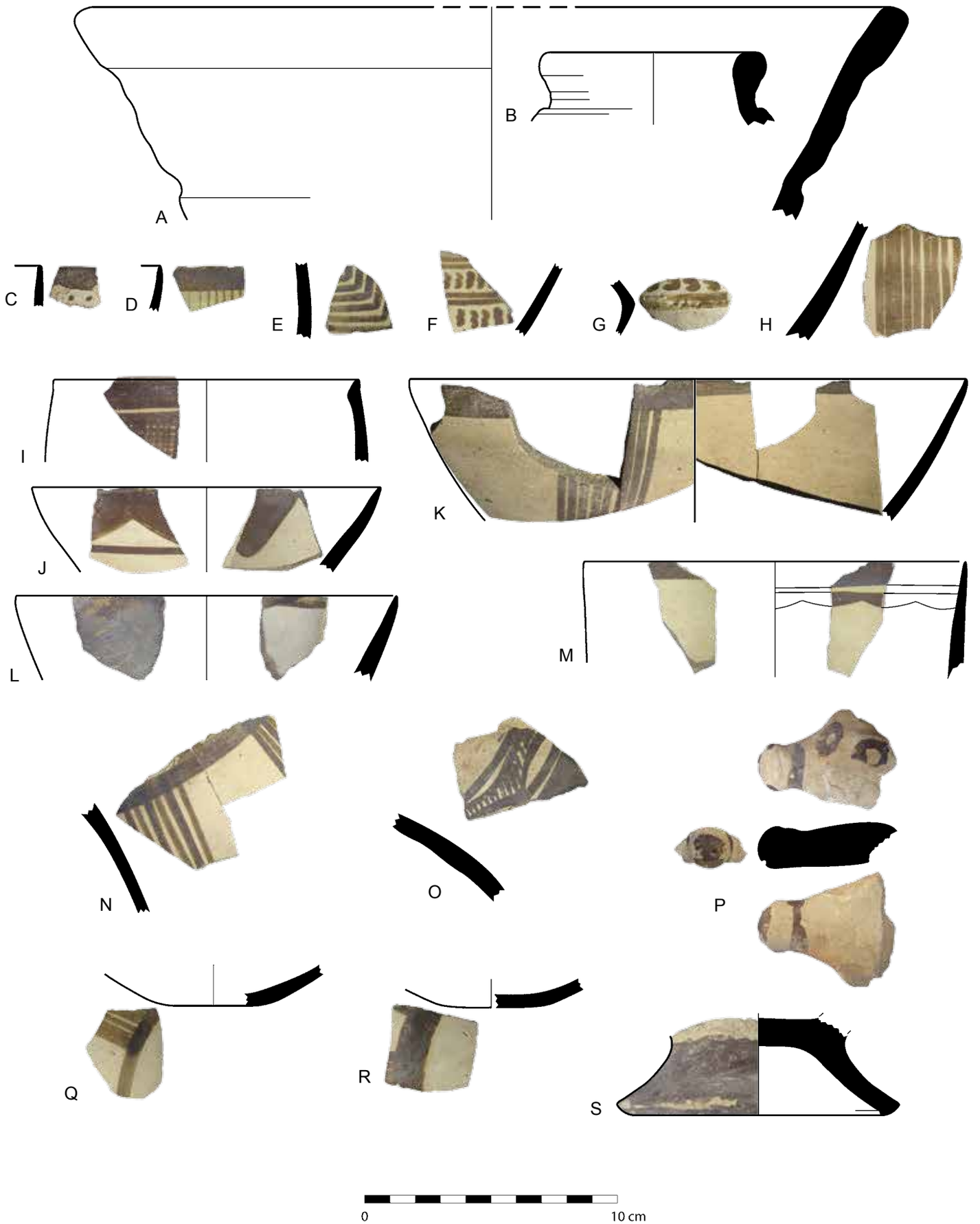
	Period	*Description*
A	Late Middle Susiana	Buff ware, no visible inclusion, brown paint, greenish buff surface
B	Late Middle Susiana	Buff ware, no visible inclusion, greenish paint, green buff surface
C	Late Middle Susiana	Buff ware, no visible inclusion, greenish paint, green buff surface
D	Late Middle Susiana	Buff ware, no visible inclusion, greenish paint, over-fired green surface; another vessel is fused to the outer one (waster?)
E	Late Middle Susiana	Buff ware, chaff inclusion, red wash



Pottery from RH-078B

Plate 142. Pottery from RH-080

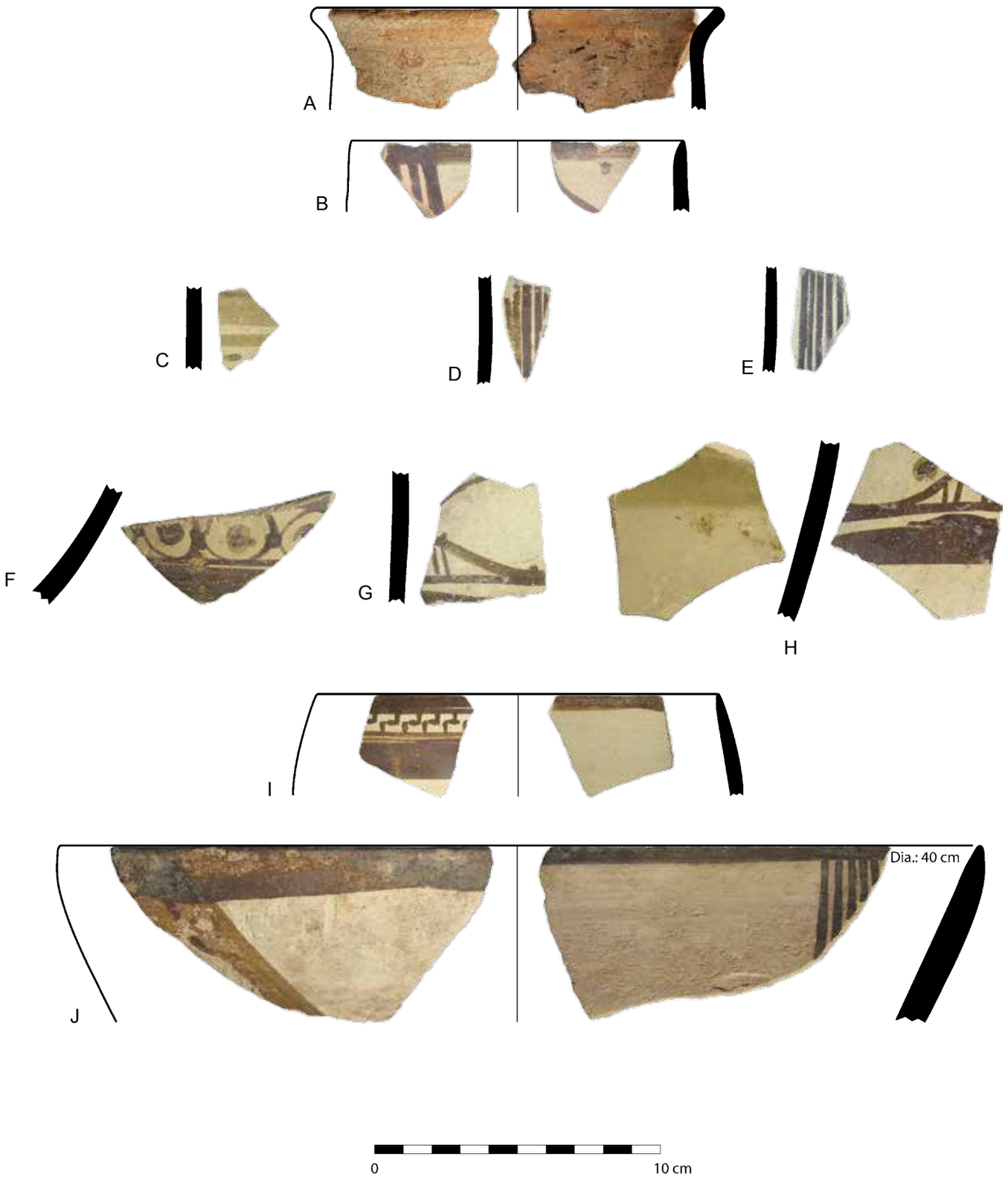
	Period	*Description*
A	Sasanian?	Warm buff ware, chaff inclusion, micaceous, chaff and mica face, greenish buff exterior
B	Sasanian?	Warm buff, occasional chaff, micaceous
C	Late Middle Susiana	Buff ware, scattered sand and small grits, whitish buff surface, brown paint
D	Late Middle Susiana	Buff ware, no visible inclusion, brown paint
E	Late Middle Susiana	Buff ware, granular paste, no visible inclusion, greenish buff surface, olive green paint
F	Late Middle Susiana	Buff ware, no visible inclusion, brown paint
G	Late Middle Susiana	Buff ware, no visible inclusion, whitish buff surface, greenish brown paint
H	Late Middle Susiana	Buff ware, no visible inclusion, whitish buff surface, greenish brown paint
I	Late Middle Susiana	Buff ware, granular paste, no visible inclusion, greenish buff surface, brown paint
J	Late Middle Susiana	Buff ware, no visible inclusion, whitish buff surface, brown paint
K	Late Middle Susiana	Buff ware, granular paste, no visible inclusion, brown paint
L	Late Middle Susiana	Buff ware, no visible inclusion, dark paint
M	Late Middle Susiana	Buff ware, no visible inclusion, greenish brown paint
N	Late Middle Susiana	Buff ware, no visible inclusion, brown paint
O	Late Middle Susiana	Buff ware, no visible inclusion, brown paint
P	Late Middle Susiana	Buff ware, no visible inclusion, brown paint
Q	Late Middle Susiana	Buff ware, no visible inclusion, greenish brown paint
R	Late Middle Susiana	Buff ware, no visible inclusion, brown paint
S	Late Middle Susiana	Buff ware, no visible inclusion, brown paint



Pottery from RH-080

Plate 143. Pottery from RH-081

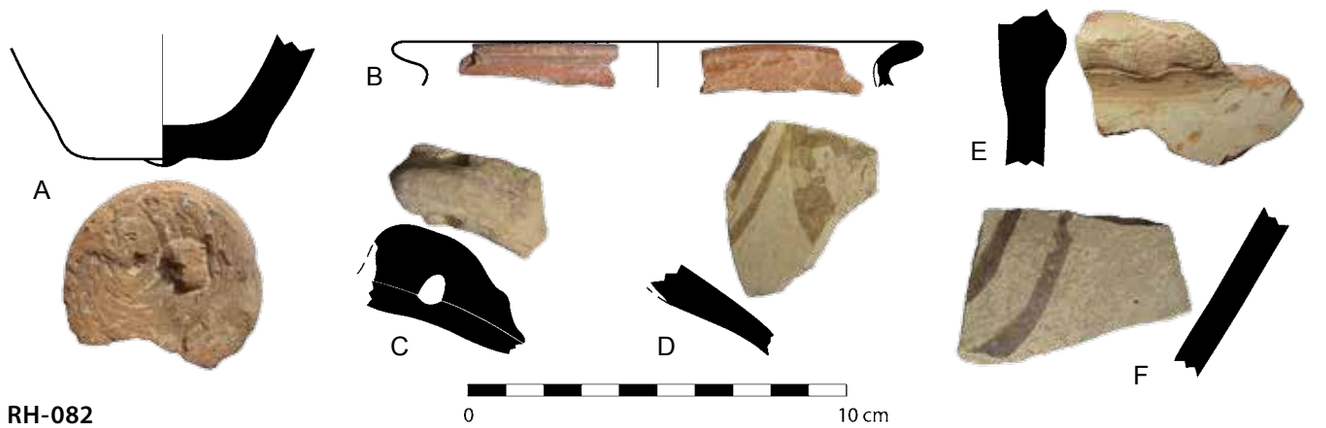
	Period	*Description*
A	Achaemenid	Light brown paint, chaff inclusion, brownish buff exterior, grayish brown interior
B	Late Middle Susiana	Buff ware, no visible inclusion, brown paint
C	Late Middle Susiana	Buff ware, no visible inclusion, over-fired green, green paint
D	Late Middle Susiana	Buff ware, no visible inclusion, brown paint
E	Late Middle Susiana	Buff ware, no visible inclusion, brown paint, greenish buff surface
F	Late Middle Susiana	Buff ware, no visible inclusion, brown
G	Late Middle Susiana	Buff ware, no visible inclusion, brown paint
H	Late Middle Susiana	Buff ware, no visible inclusion, brown paint
I	Late Middle Susiana	Buff ware, no visible inclusion, brown paint
J	Late Middle Susiana	Buff ware, no visible inclusion, brown paint

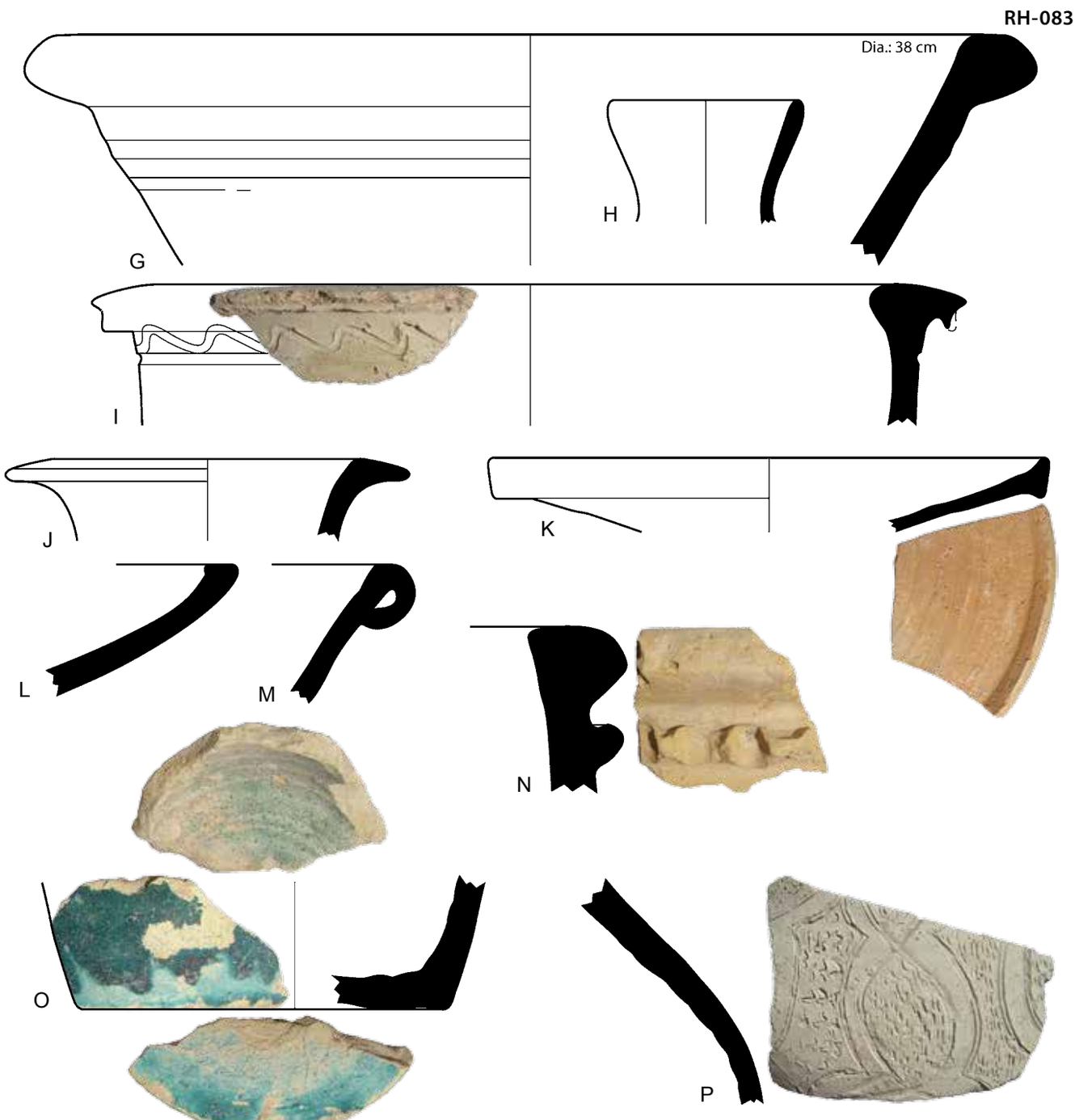


Pottery from RH-081

Plate 144. Pottery from RH-082 and RH-083

	Period	*Description*
RH-082		
A	—	Warm buff ware, gray core, chaff inclusion, string cut base
B	Proto-Elamite	Light brown ware, chaff inclusion, reddish brown wash
C	Proto-Elamite	Buff ware, chaff inclusion, grayish buff surface
D	Late Middle Susiana	Buff ware, no visible inclusion, brown paint
E	—	Light brown ware, chaff inclusion, light gray core, buff exterior
F	Late Middle Susiana	Grayish buff ware, no visible inclusion, greenish paint, greenish buff surface
RH-083		
G	Post-Sasanian	Buff ware, accidental chaff, greenish buff surface *Comparanda:* Susa Sucrerie (Kervran 1979, fig. 64:5)
H	Post-Sasanian	Warm buff, chaff inclusion
I	Post-Sasanian	Pinkish buff ware, chaff inclusion, greenish buff surface *Comparanda:* Susa Apadana, level 2 (Kervran 1977, fig. 33:11); Sirjan (Allan and Roberts 1987, figs. 59, 61)
J	Sasanian/ post-Sasanian	Warm buff ware, chaff inclusion, greenish buff surface *Comparanda:* Khuzestan (Wenke 1975–76, fig. 8:333)
K	Post-Sasanian?	Warm buff, chaff inclusion *Comparanda:* Khuzestan (Wenke 1975–76, fig. 8:131)
L	—	Warm buff, chaff inclusion
M	—	Pinkish buff ware, accidental chaff, buff surface
N	Post-Sasanian	Pinkish buff ware, chaff inclusion *Comparanda:* Susa Apadana, level II (Kervran 1977, fig. 33); Susa Sucrerie (Kervran 1979, fig. 63)
O	Seljuk-Ilkhanid	Buff ware, no visible inclusion, green blue glaze interior, light blue glaze exterior
P	Seljuk-Ilkhanid	Buff ware, some chaff, grayish buff surface

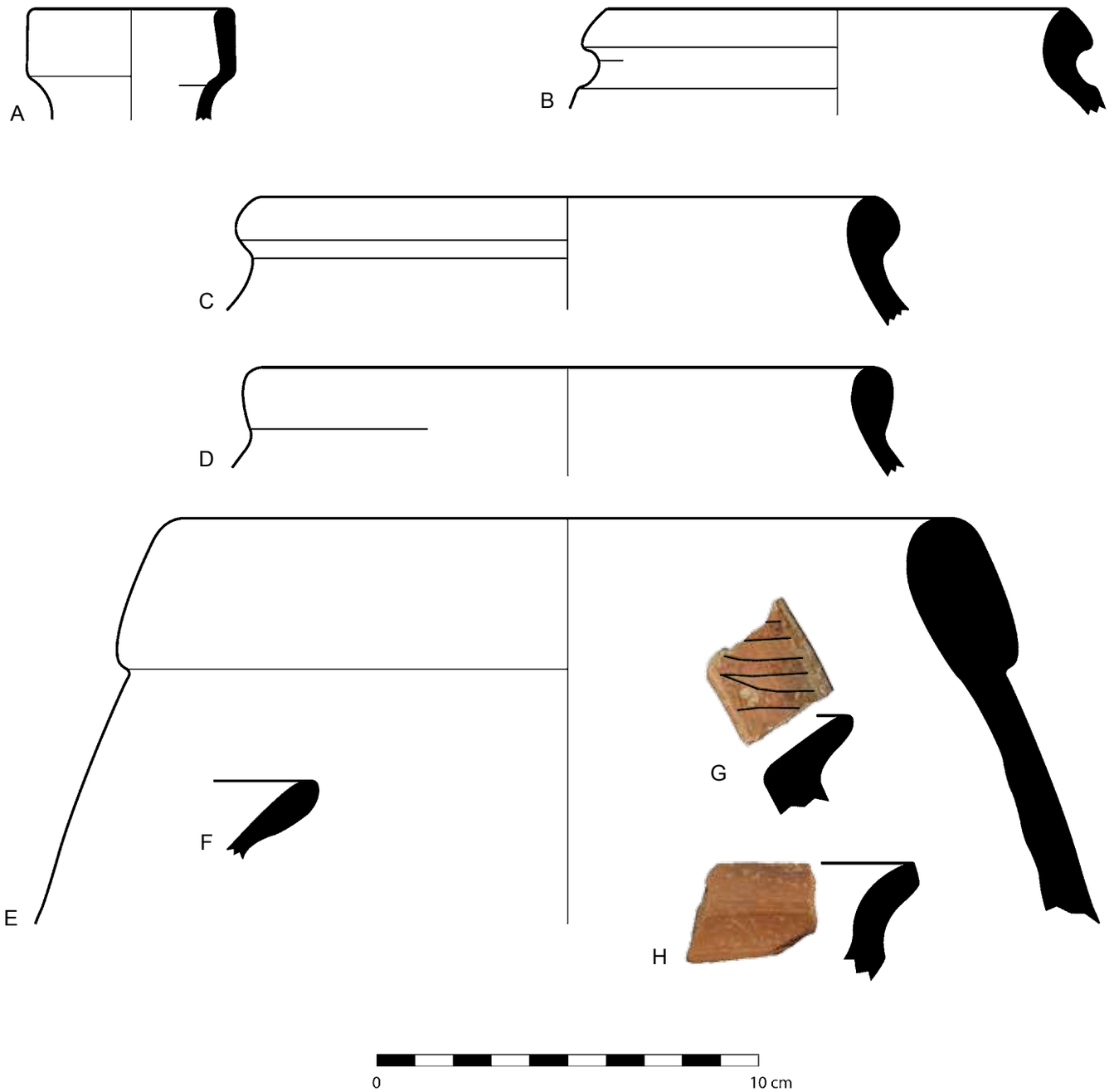




Pottery from RH-082 and RH-083

Plate 145. Pottery from RH-084A

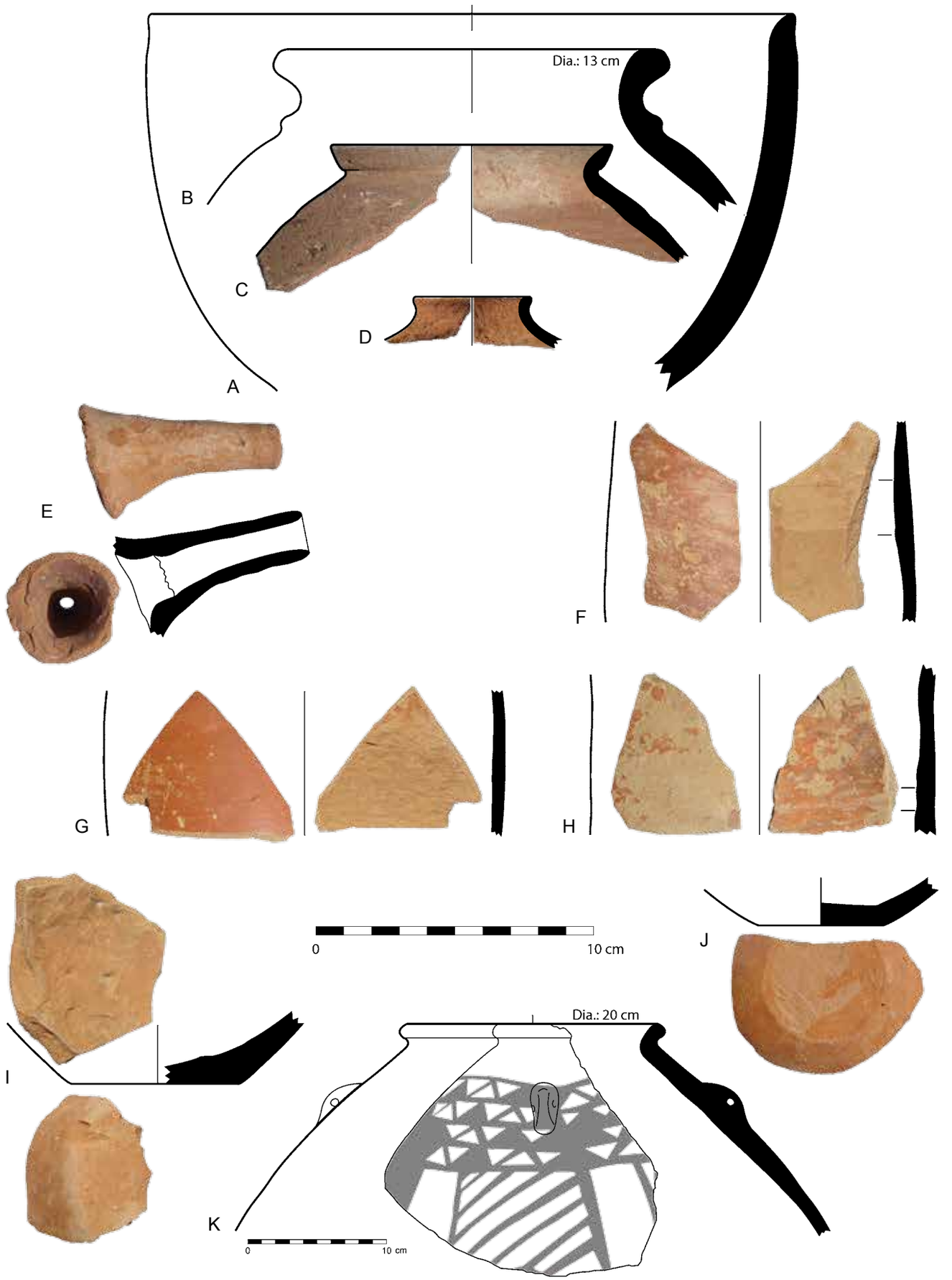
	Period	*Description*
A	Parthian?	Warm buff ware, chaff inclusion, greenish buff exterior *Comparanda:* Chogha Mish J14:302 (Delougaz and Kantor 1996, pl. 71:G), Susa (Haerinck 1983, fig. 6:9)
B	Parthian/Sasanian	Warm buff ware, chaff inclusion, micaceous, chaff and mica face
C	Parthian/Sasanian	Light brown ware, calcite particles in paste, chaff inclusion, micaceous, chaff and mica face *Comparanda:* Khuzestan (Wenke 1975–76, figs. 7:204, 11:503)
D	Parthian	Warm buff ware, chaff inclusion, micaceous, chaff and mica face *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pl. 72:K)
E	Parthian	Warm buff ware, chaff inclusion, micaceous, chaff and mica face *Comparanda:* Khuzestan (Wenke 1975–76, figs. 8:301, 10:410)
F	Parthian	Warm buff ware, gray core, chaff inclusion, grayish buff surface *Comparanda:* Khuzestan (Wenke 1975–76, fig. 11:538)
G	Achaemenid	Buff ware, no visible inclusion, brown wash, red paint
H	Achaemenid	Warm buff ware, no visible inclusion, brown wash interior *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pl. 74:M)



Pottery from RH-084A

Plate 146. Pottery from RH-084B

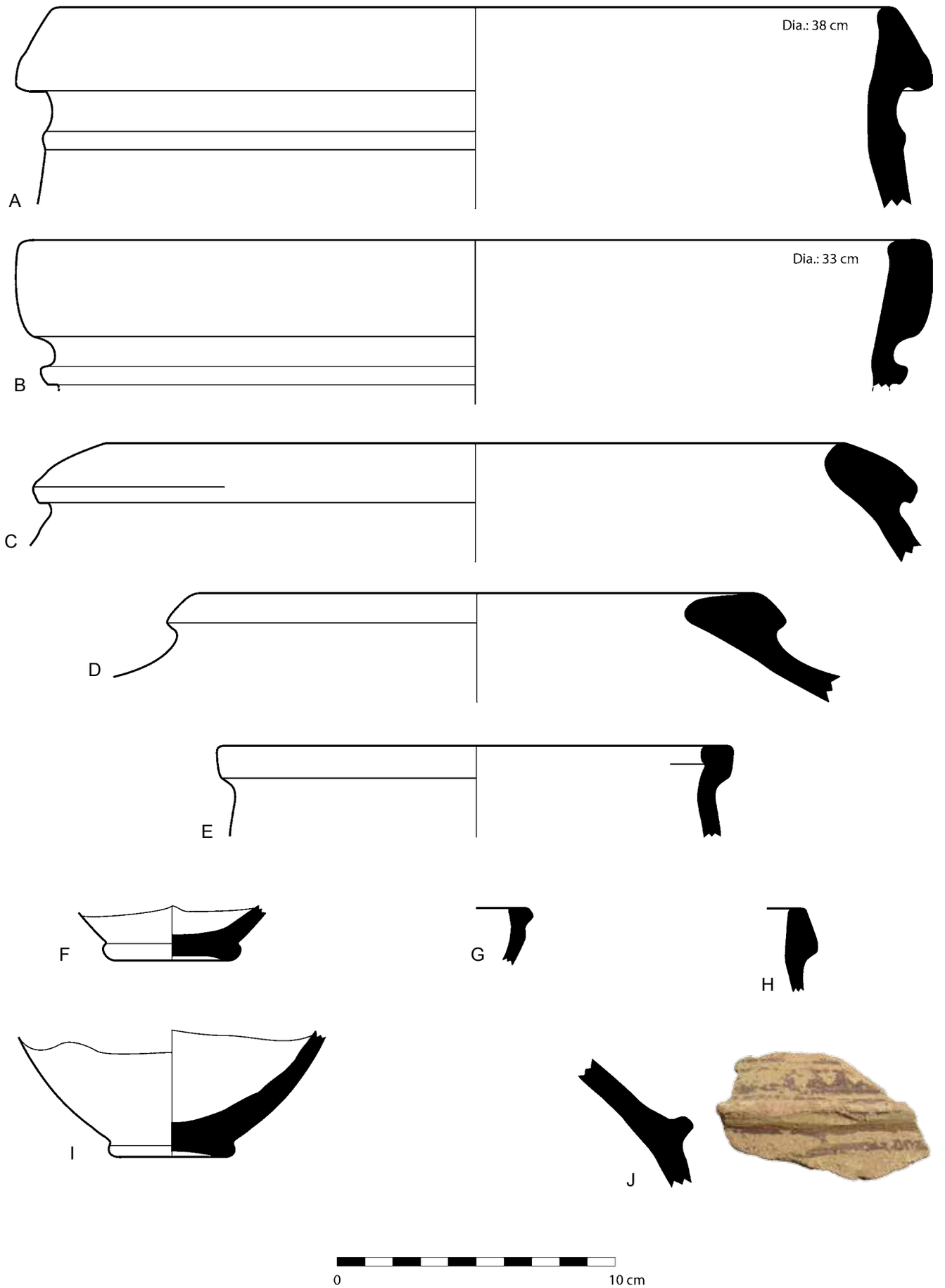
	Period	*Description*
A	Proto-Elamite	Warm buff ware, some chaff inclusion
B	Proto-Elamite	Warm buff ware, chaff inclusion, micaceous, chaff and mica face
C	Proto-Elamite	Brown ware, some chaff inclusion, grayish brown exterior
D	Proto-Elamite	Brown ware, gray core
E	Proto-Elamite	Brown ware, chaff inclusion, brown wash interior
F	Achaemenid	Pinkish warm buff ware, chaff inclusion, micaceous, chaff and mica face, reddish brown wash
G	Achaemenid	Pinkish warm buff ware, calcite particles in paste, chaff inclusion, micaceous, chaff and mica face, polished reddish brown wash
H	Achaemenid	Buff ware, chaff inclusion, micaceous, chaff and mica face, reddish brown wash
I	Achaemenid	Warm buff ware, chaff inclusion, micaceous, chaff and mica face, reddish brown wash
J	Proto-Elamite	Warm buff ware, chaff inclusion, micaceous, chaff and mica face, reddish brown wash
K	Proto-Elamite	Warm buff ware, chaff inclusion, chaff face, brown paint



Pottery from RH-084B

Plate 147. Pottery from RH-085

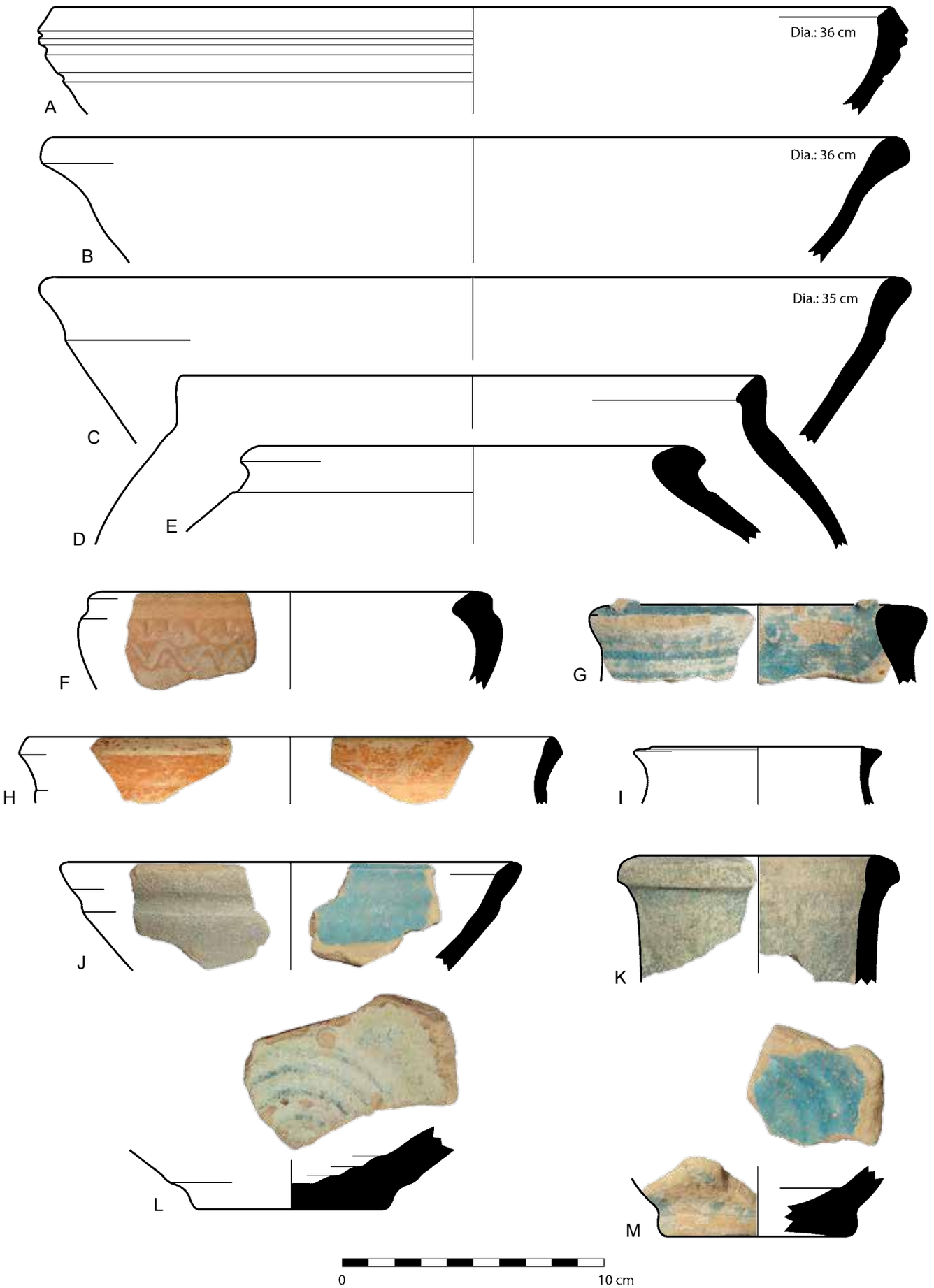
	Period	*Description*
A	Middle Elamite	Warm buff, gray core, chaff inclusion, micaceous, chaff and mica face
B	Middle Elamite	Warm buff, gray core, chaff inclusion, micaceous, chaff and mica face, greenish buff exterior
C	Middle Elamite	Warm buff, gray core, chaff inclusion, micaceous, chaff and mica face
D	Middle Elamite	Warm buff, chaff inclusion, micaceous, chaff and mica face
E	Middle Elamite	Warm buff, black core, chaff inclusion, micaceous, chaff and mica face
F	—	Warm buff, chaff inclusion, micaceous, chaff and mica face
G	Middle Elamite	Warm buff, black core, chaff inclusion, micaceous, chaff and mica face
H	Middle Elamite	Warm buff, black core, chaff inclusion, micaceous, chaff and mica face
I	—	Warm buff, black core, chaff inclusion, micaceous, chaff and mica face
J	Susa IVB?	Warm buff, chaff inclusion, greenish buff interior, brown paint



Pottery from RH-085

Plate 148. Pottery from RH-085 (*cont.*)

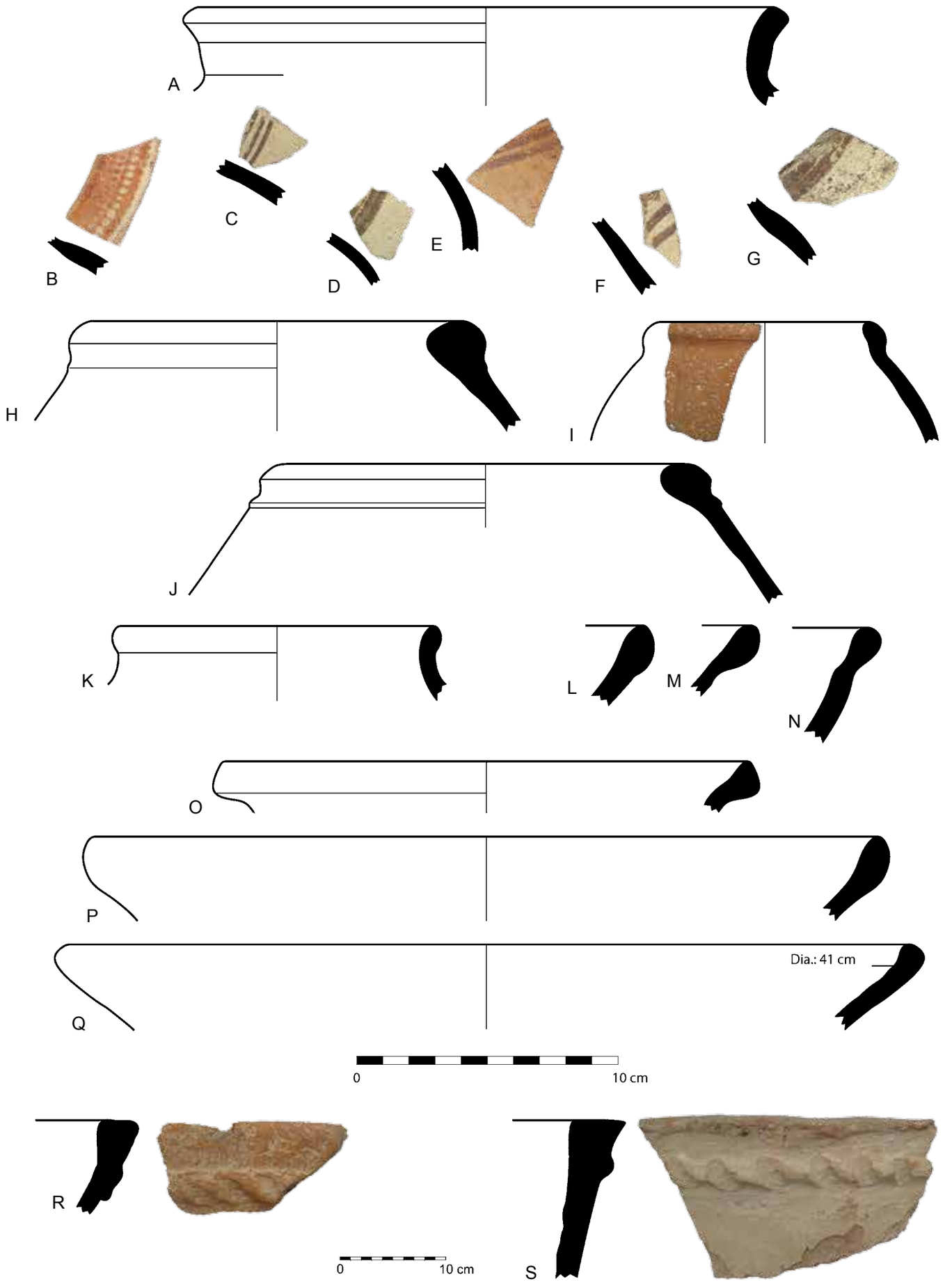
	Period	*Description*
A	Parthian-Sasanian	Warm buff ware, chaff inclusion, micaceous, chaff and mica face *Comparanda:* Khuzestan (Wenke 1975–76, figs. 8:300, 11:528); Sirjan (Allan and Roberts 1987, fig. 58:26–28); Susa (Haerinck 1983, fig. 8:4)
B	Parthian	Warm buff ware, gray core, chaff inclusion, micaceous, chaff and mica face *Comparanda:* Khuzestan (Wenke 1975–76, fig. 11:538)
C	Parthian	Warm buff ware, gray core, chaff inclusion, micaceous, chaff and mica face *Comparanda:* Susa (Haerinck 1983, fig. 5:5)
D	Parthian-Sasanian	Brown ware, gray paste included calcite particles, no visible inclusion *Comparanda:* Khuzestan (Wenke 1975–76, figs. 8:309–10, 10:404)
E	Parthian	Brown ware, black core, chaff inclusion, micaceous, chaff and mica face *Comparanda:* Khuzestan (Wenke 1975–76, fig. 11:500)
F	Sasanian?	Warm buff ware, chaff inclusion, micaceous, chaff and mica face
G	Sasanian	Pinkish buff ware, paste included dark and red grits, no visible inclusion, blue glaze on white
H	Sasanian	Warm buff ware, chaff inclusion, micaceous, chaff and mica face, reddish brown wash *Comparanda:* Khuzestan (Wenke 1975–76, fig. 8:306)
I	Sasanian	Warm buff ware, calcite particles in paste, no visible inclusion, grayish buff exterior, brown wash interior
J	Sasanian	Buff ware, scattered sand in paste, no visible inclusion, blue glaze
K	Sasanian	Buff ware, sandy paste, chaff inclusion, green glaze
L	Sasanian	Pinkish warm buff, sandy paste, blue glaze
M	Sasanian	Pinkish warm buff, no visible inclusion, blue glaze



Pottery from RH-085 (*cont.*)

Plate 149. Pottery from RH-085 (*cont.*)

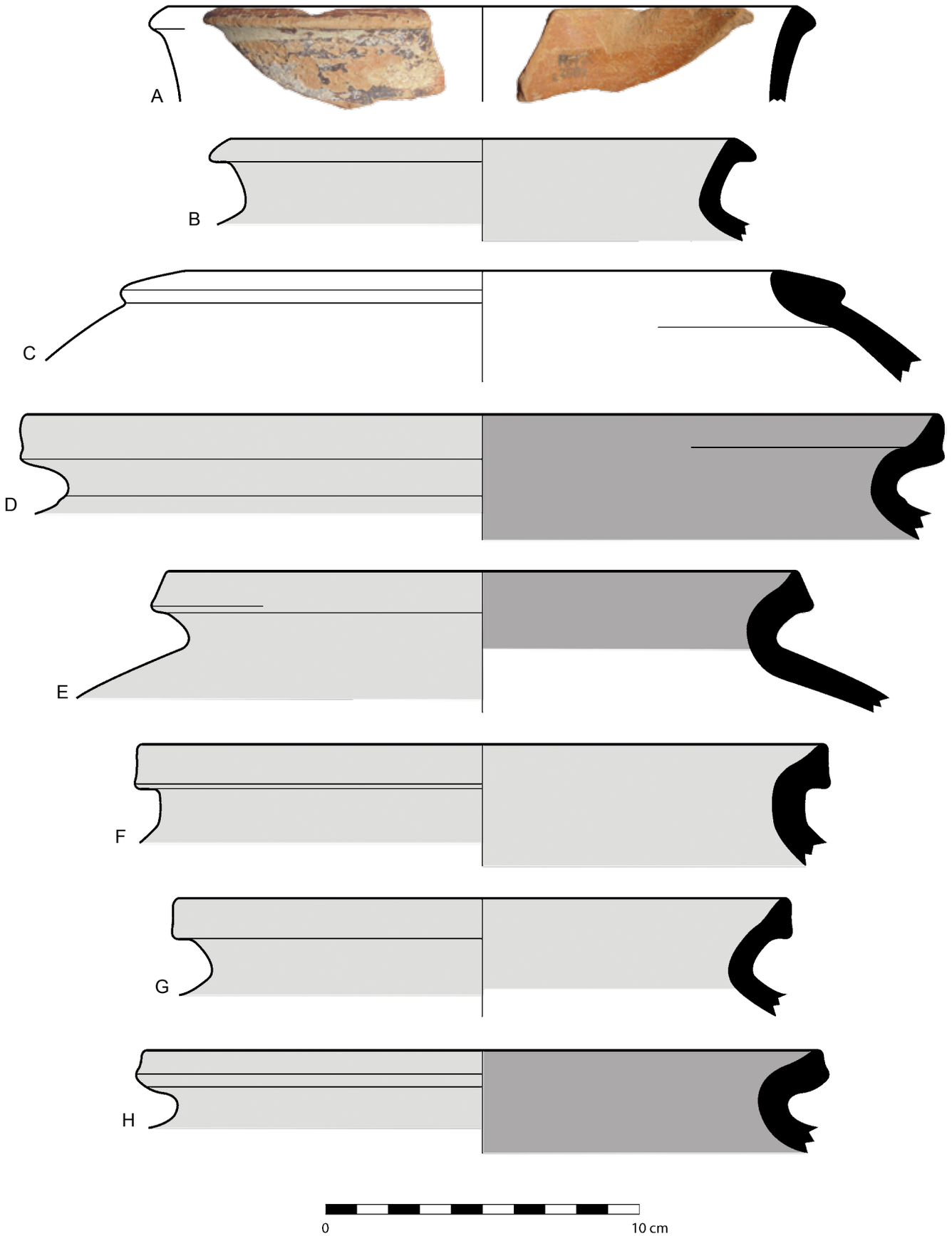
	Period	*Description*
A	—	Warm buff ware, black core, chaff inclusion, chaff face
B	Sukkalmah/ Transitional	Pinkish warm buff ware, gray core, accidental chaff, greenish buff exterior, brown paint
C	Sukkalmah/ Transitional	Buff ware, chaff inclusion, brown paint
D	Sukkalmah/ Transitional	Warm buff ware, black core, chaff inclusion, brown paint
E	Sukkalmah/ Transitional	Buff ware, chaff inclusion, brown paint
F	Sukkalmah/ Transitional	Buff ware, chaff inclusion, brown paint
G	Sukkalmah/ Transitional	Buff ware, chaff inclusion, brown paint
H	Parthian	Warm buff ware, black core, chaff inclusion, micaceous, chaff and mica face *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pl. 72:K)
I	—	Brown ware, black core, calcite particles in paste, no visible inclusion
J	Parthian	Pinkish warm buff ware, black core, chaff inclusion, micaceous, chaff and mica face *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pl. 72:K)
K	Parthian	Warm buff ware, chaff inclusion
L	Parthian	Warm buff ware, chaff inclusion, micaceous, chaff and mica face
M	Parthian	Warm buff ware, chaff inclusion, greenish buff exterior
N	Parthian	Pinkish warm buff ware, chaff inclusion, greenish buff surface
O	Parthian	Warm buff ware, chaff inclusion *Comparanda:* Khuzestan (Wenke 1975–76, fig. 12:636)
P	Parthian	Warm buff ware, chaff inclusion, greenish buff exterior
Q	Parthian	Buff ware, chaff inclusion, chaff face, greenish buff exterior
R	Post-Sasanian?	Warm buff ware, black core, chaff inclusion, chaff face *Comparanda:* Susa Apadana, level II (Kervran 1977, fig. 33:12–17)
S	Post-Sasanian?	Warm buff ware, black core, chaff inclusion, chaff face *Comparanda:* Susa Apadana, level II (Kervran 1977, fig. 33:12–17)



Pottery from RH-085 (*cont.*)

Plate 150. Pottery from RH-086

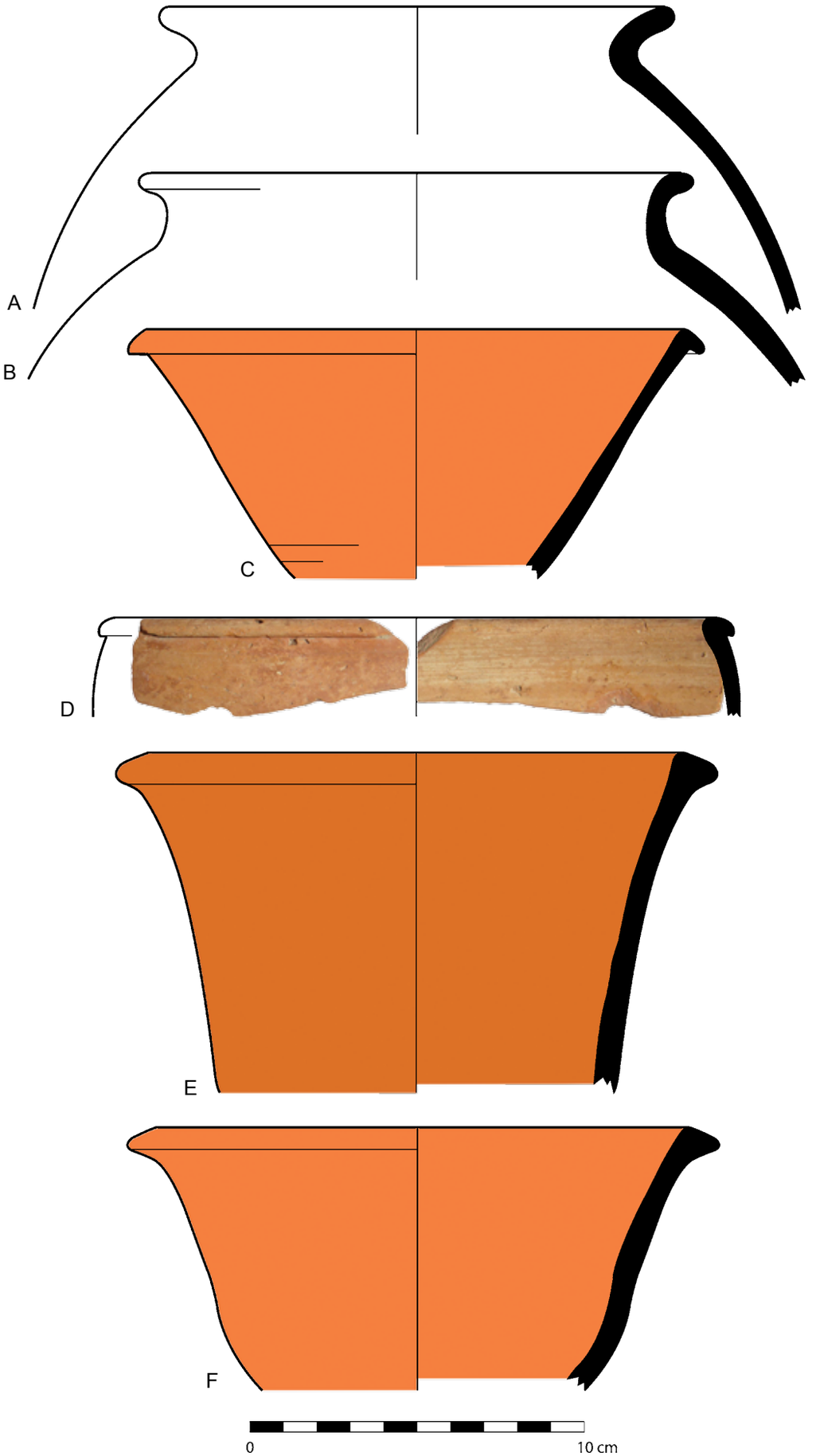
	Period	*Description*
A	Proto-Elamite	Warm buff ware, chaff inclusion, micaceous, chaff and mica face, reddish brown wash
B	Proto-Elamite	Warm buff ware, chaff inclusion, micaceous, chaff and mica face, reddish brown wash
C	Early Susa II	Warm buff ware, gray core, chaff inclusion, micaceous, chaff and mica face
D	Proto-Elamite	Warm buff ware, gray core, chaff inclusion, micaceous, chaff and mica face, reddish brown wash
E	Proto-Elamite	Warm buff ware, gray core, some calcite particles in paste, chaff inclusion, micaceous, chaff and mica face, reddish brown wash
F	Proto-Elamite	Warm buff ware, gray core, chaff inclusion, micaceous, chaff and mica face, reddish brown wash
G	Proto-Elamite	Warm buff ware, chaff inclusion, micaceous, chaff and mica face, reddish brown wash
H	Proto-Elamite	Warm buff ware, gray core, chaff inclusion, micaceous, chaff and mica face, reddish brown wash



Pottery from RH-086

Plate 151. Pottery from RH-086 (*cont.*)

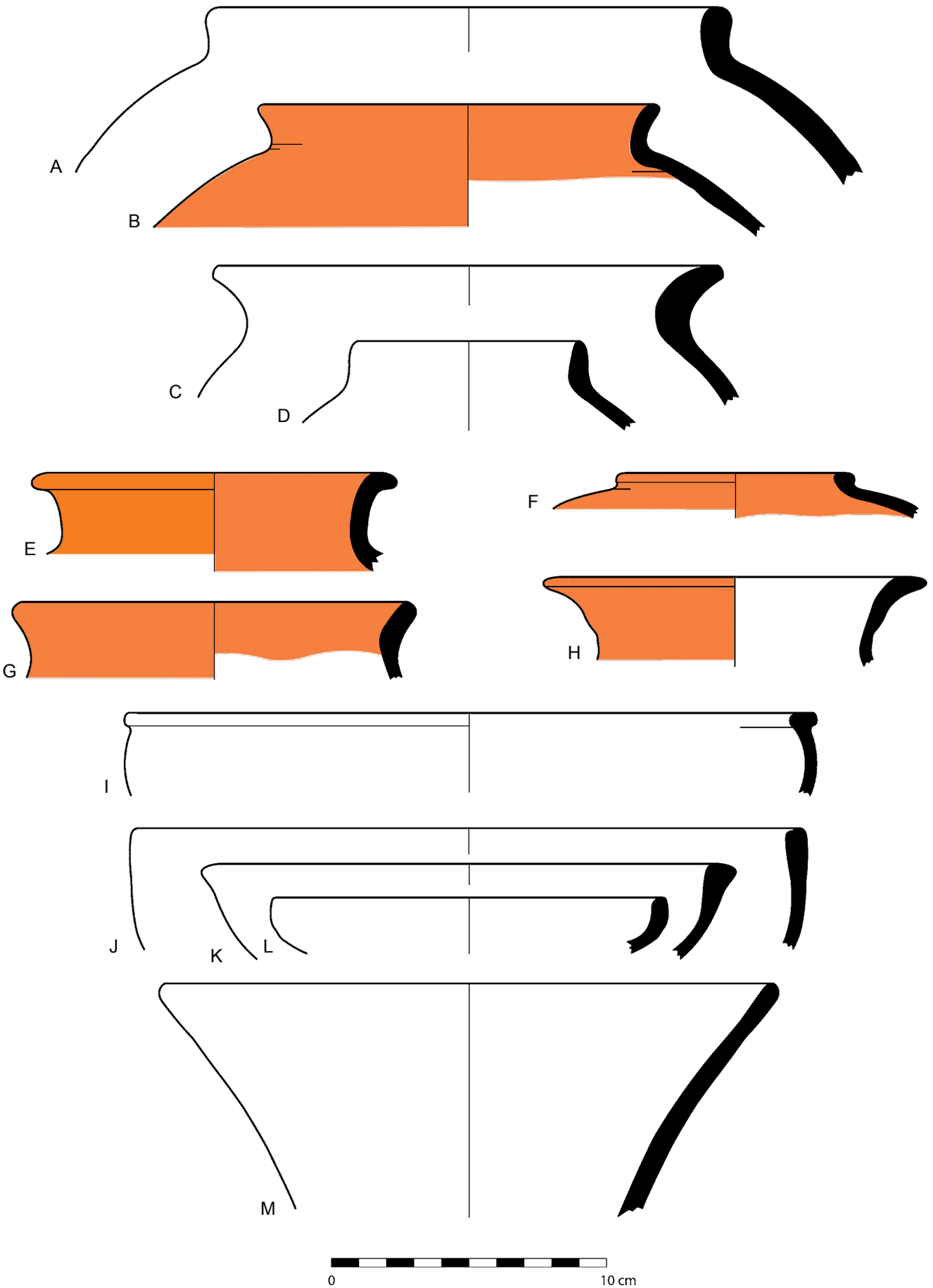
	Period	*Description*
A	Proto-Elamite	Warm buff ware, gray core, some calcite particles in paste, chaff inclusion, micaceous, chaff and mica face, reddish brown wash
B	Proto-Elamite	Grayish brown ware, chaff inclusion, micaceous, chaff and mica face
C	Proto-Elamite	Warm buff ware, some calcite particles in paste, chaff inclusion, micaceous, chaff and mica face, reddish brown wash
D	Proto-Elamite	Warm buff ware, some calcite particles in paste, chaff inclusion, micaceous, chaff and mica face, reddish brown wash
E	Proto-Elamite	Warm buff ware, some calcite particles in paste, chaff inclusion, micaceous, chaff and mica face, reddish brown wash
F	Proto-Elamite	Warm buff ware, some calcite particles in paste, chaff inclusion, micaceous, chaff and mica face, reddish brown wash



Pottery from RH-086 (*cont.*)

Plate 152. Pottery from RH-086 (*cont.*)

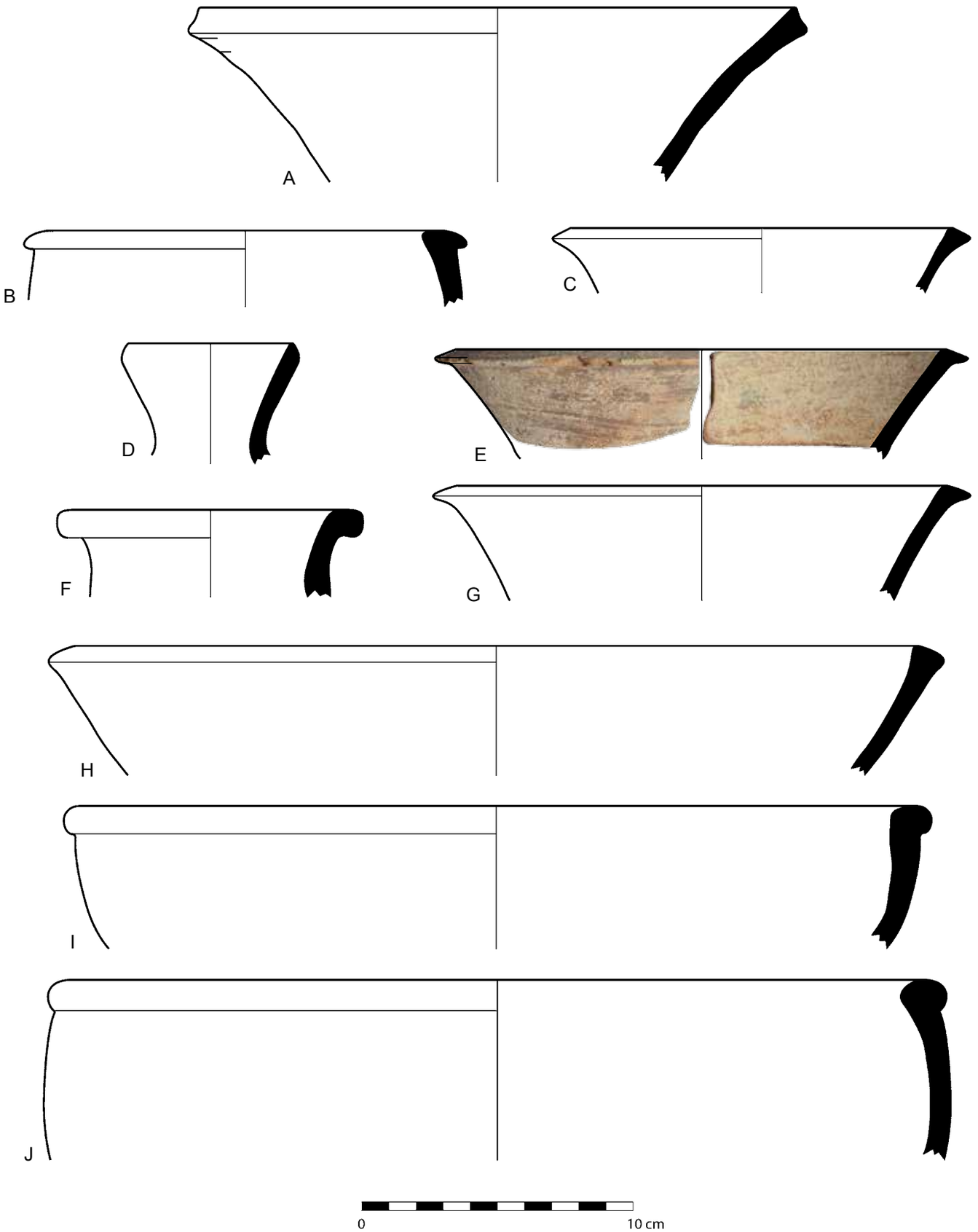
	Period	*Description*
A	Early Susa II?	Buff ware, light gray brown core, chaff and small grit inclusion, chaff face, light cream surface, greenish buff surface, sandy face
B	Proto-Elamite	Warm buff ware, chaff inclusion, reddish brown wash
C	Proto-Elamite	Brown ware, calcite particles in paste, grog and chaff inclusion, micaceous, chaff and mica face, grayish brown interior
D	Proto-Elamite	Warm buff ware, chaff inclusion, micaceous, chaff and mica face
E	Proto-Elamite	Warm buff ware, chaff inclusion, micaceous, chaff and mica face, reddish brown wash
F	Proto-Elamite	Warm buff ware, chaff inclusion, chaff face, reddish brown wash
G	Proto-Elamite	Warm buff ware, chaff inclusion, micaceous, chaff and mica face, reddish brown wash
H	Proto-Elamite	Warm buff ware, black core, chaff inclusion, micaceous, chaff and mica face, reddish brown wash
I	Proto-Elamite	Warm buff ware, chaff inclusion, chaff face, grayish brown surface
J	Proto-Elamite	Warm buff ware, chaff inclusion, micaceous, chaff and mica face
K	Proto-Elamite	Warm buff ware, gray core, chaff inclusion, micaceous, chaff and mica face
L	Proto-Elamite	Warm buff ware, chaff inclusion, micaceous, chaff and mica face
M	Proto-Elamite	Warm buff ware, black core, chaff inclusion, chaff face



Pottery from RH-086 (*cont.*)

Plate 153. Pottery from RH-086 (*cont.*)

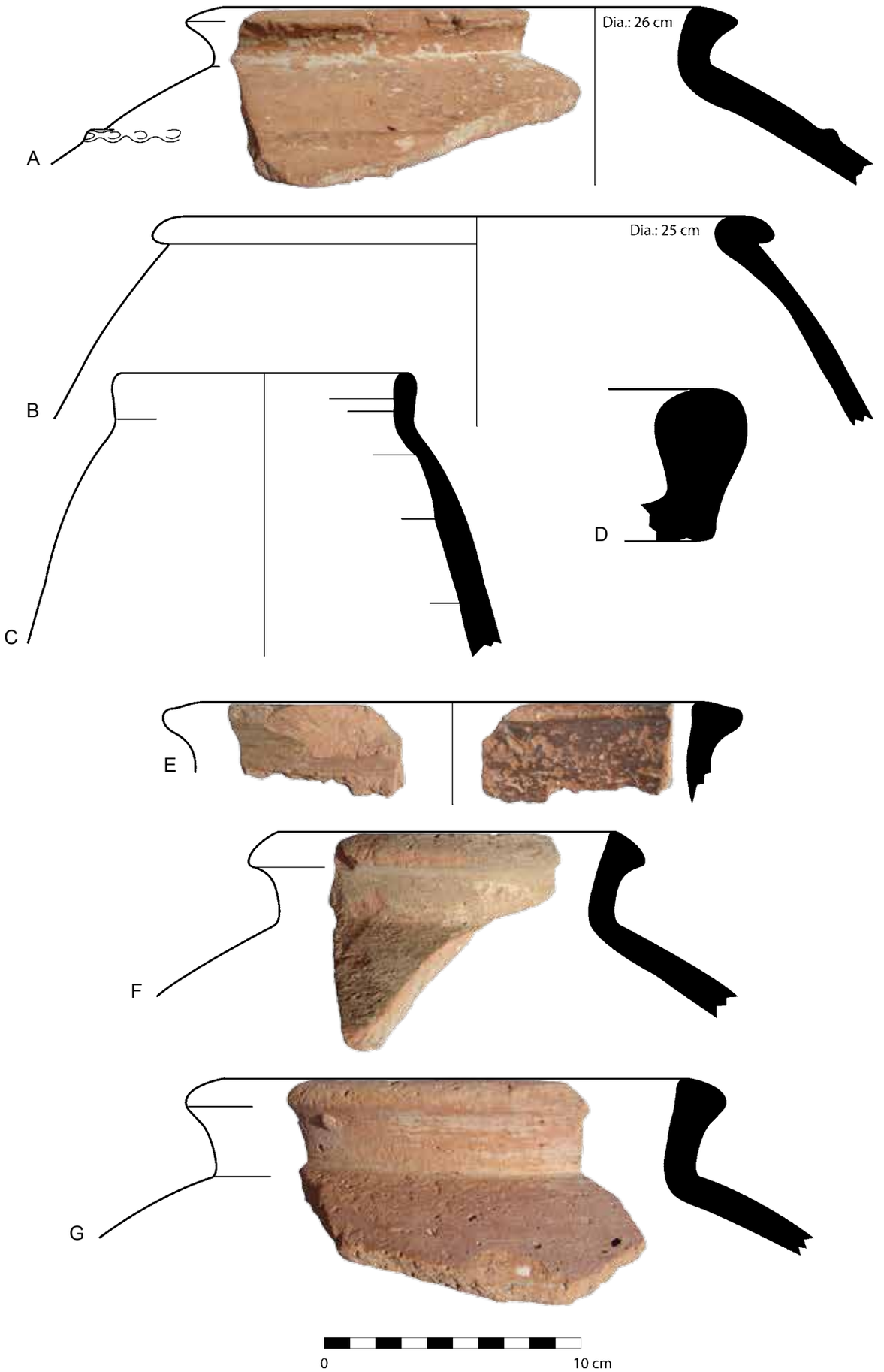
	Period	*Description*
A	Proto-Elamite	Warm buff ware, gray core, chaff inclusion, micaceous, chaff and mica face
B	Proto-Elamite	Warm buff ware, gray core, chaff inclusion, micaceous, chaff and mica face, reddish brown wash
C	Proto-Elamite	Warm buff ware, chaff inclusion, micaceous, chaff and mica face, reddish brown wash
D	Proto-Elamite	Buff ware, chaff inclusion, micaceous, chaff and mica face, pinkish buff surface
E	Proto-Elamite	Warm buff ware, gray core, chaff inclusion, micaceous, chaff and mica face, reddish brown wash
F	Proto-Elamite	Warm buff ware, chaff inclusion
G	Proto-Elamite	Warm buff ware, chaff inclusion, micaceous, chaff and mica face, reddish brown wash
H	Proto-Elamite	Warm buff ware, gray core, chaff inclusion, chaff face, reddish brown wash
I	Proto-Elamite	Warm buff ware, chaff inclusion, micaceous, chaff and mica face, reddish brown wash
J	Proto-Elamite	Warm buff ware, chaff inclusion, micaceous, chaff and mica face, reddish brown wash



Pottery from RH-086 (*cont.*)

Plate 154. Pottery from RH-086 (*cont.*)

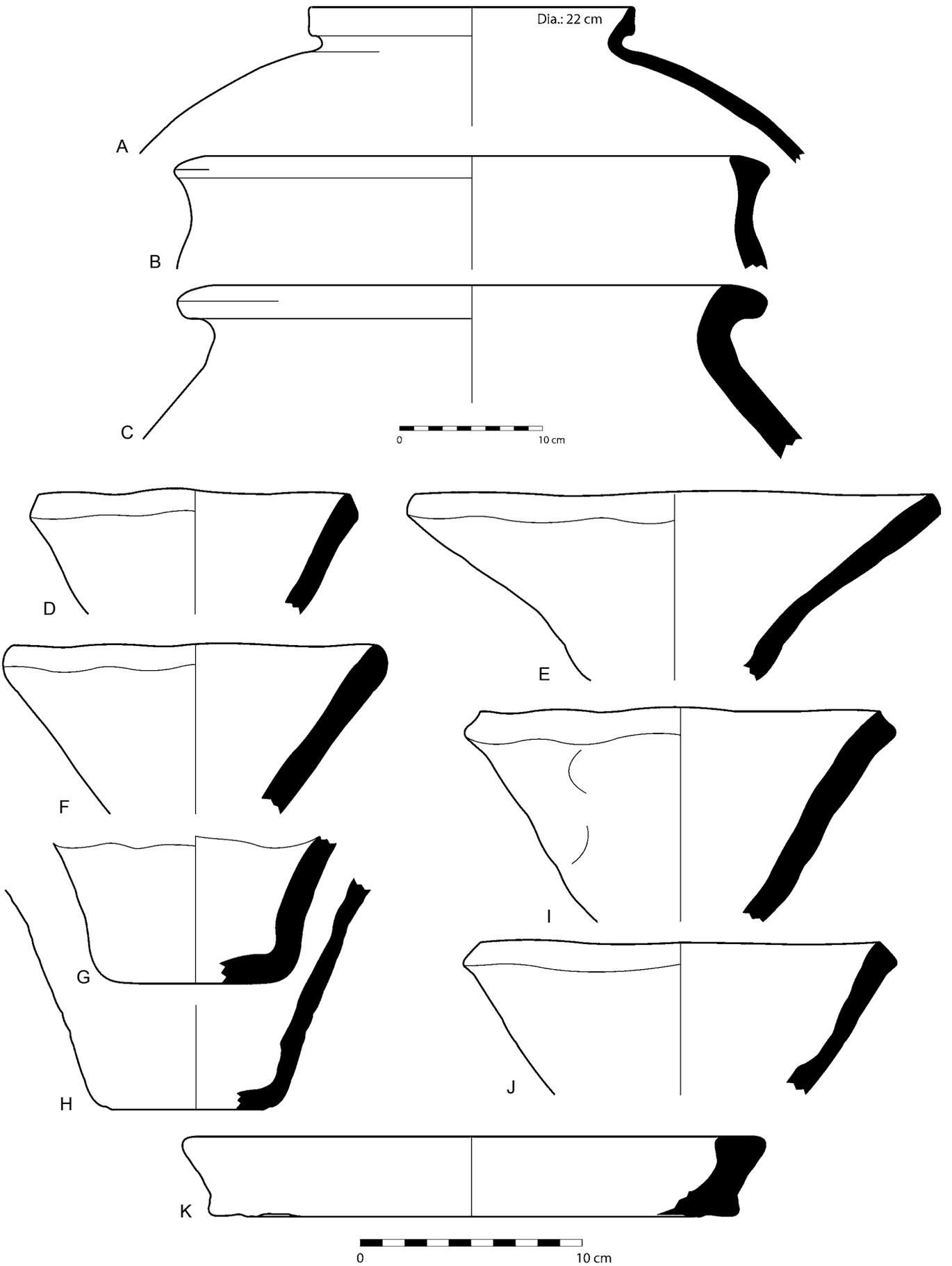
	Period	*Description*
A	Proto-Elamite	Warm buff ware, chaff inclusion, micaceous, chaff and mica face, brown wash
B	Proto-Elamite	Warm buff ware, gray core, chaff inclusion, chaff face
C	Proto-Elamite	Warm buff ware, black core, chaff inclusion, micaceous, chaff and mica face
D	Proto-Elamite	Warm buff ware, chaff inclusion, micaceous, chaff and mica face, greenish buff surface
E	Proto-Elamite	Warm buff ware, chaff inclusion, chaff face, brown wash
F	Proto-Elamite	Warm buff ware, gray core, chaff inclusion, micaceous, chaff and mica face, brown wash
G	Proto-Elamite	Warm buff ware, chaff inclusion, micaceous, chaff and mica face, brown wash



Pottery from RH-086 (*cont.*)

Plate 155. Pottery from RH-086 (*cont.*)

	Period	*Description*
A	Proto-Elamite	Warm buff ware, chaff inclusion, micaceous, chaff and mica face
B	Proto-Elamite	Warm buff ware, gray core, chaff inclusion, micaceous, chaff and mica face, reddish brown wash
C	Proto-Elamite	Warm buff ware, chaff inclusion, micaceous, chaff and mica face, pinkish buff surface
D	Early–Late Susa II	Pinkish light brown ware, chaff inclusion, micaceous, brownish buff interior
E	Early–Late Susa II	Pinkish light brown ware, chaff inclusion, micaceous, brownish buff interior
F	Early–Late Susa II	Pinkish light brown ware, light gray core, chaff inclusion, micaceous, brownish buff interior
G	Proto-Elamite	Pinkish buff ware, gray core, straw inclusion, micaceous, straw and mica face
H	Proto-Elamite	Pinkish buff ware, gray core, straw inclusion, micaceous, straw and mica face
I	Proto-Elamite	Pinkish buff ware, straw inclusion, micaceous, straw and mica face
J	Proto-Elamite	Pinkish light brown ware, light gray core, chaff inclusion, micaceous, brownish buff interior
K	Proto-Elamite	Pale brown buff ware, gray core, straw inclusion, straw face



Pottery from RH-086 (*cont.*)

Plate 156. Pottery from RH-086 (*cont.*)

	Period	*Description*
A	Proto-Elamite	Warm buff, chaff inclusion, grayish buff interior, whitish buff wash exterior
B	Proto-Elamite	Bricky red ware, chaff inclusion, chaff face, purple brown wash
C	Proto-Elamite	Bricky red ware, chaff inclusion, chaff face, purple brown wash
D	Proto-Elamite	Greenish buff ware, chaff inclusion, chaff face
E	Proto-Elamite	Pale red ware, chaff inclusion, brown wash ext, white band
F	Proto-Elamite	Bricky red ware, chaff inclusion, chaff face, brown wash exterior
G	Proto-Elamite	Light brown ware, chaff inclusion, white painted bands on light brown wash
H	Proto-Elamite	Light brown buff ware, chaff inclusion, chaff face, light brown wash, white bands
I	Proto-Elamite	Light brown ware, chaff inclusion, buff surfaces, brown paint
J	Proto-Elamite	Light brown ware, chaff inclusion, mica in paste, buff surfaces, brown paint
K	Proto-Elamite	Light brown ware, chaff inclusion, micaceous, reddish wash exterior, brown paint

Pottery from RH-086 (*cont.*)

Plate 157. Pottery from RH-087

	Period	*Description*
A	Neo-Elamite	Light brown ware, gray core, chaff inclusion, micaceous, chaff and mica face
B	Neo-Elamite	Light brown ware, gray core, chaff inclusion, micaceous, chaff and mica face
C	Neo-Elamite	Light brown ware, gray core, chaff inclusion, micaceous, chaff and mica face, string-cut base
D	Neo-Elamite	Light brown ware, gray core, chaff inclusion, micaceous, chaff and mica face

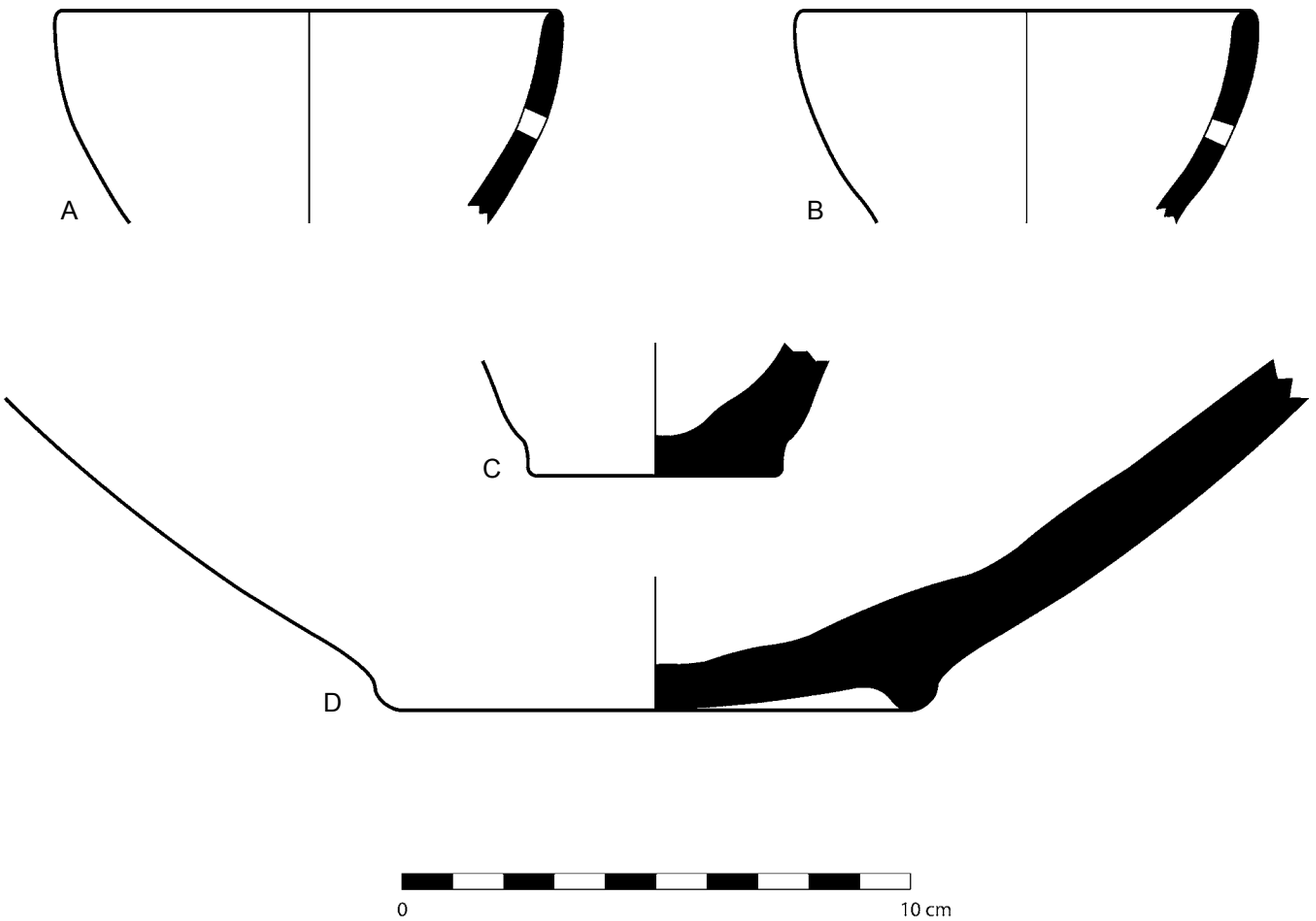
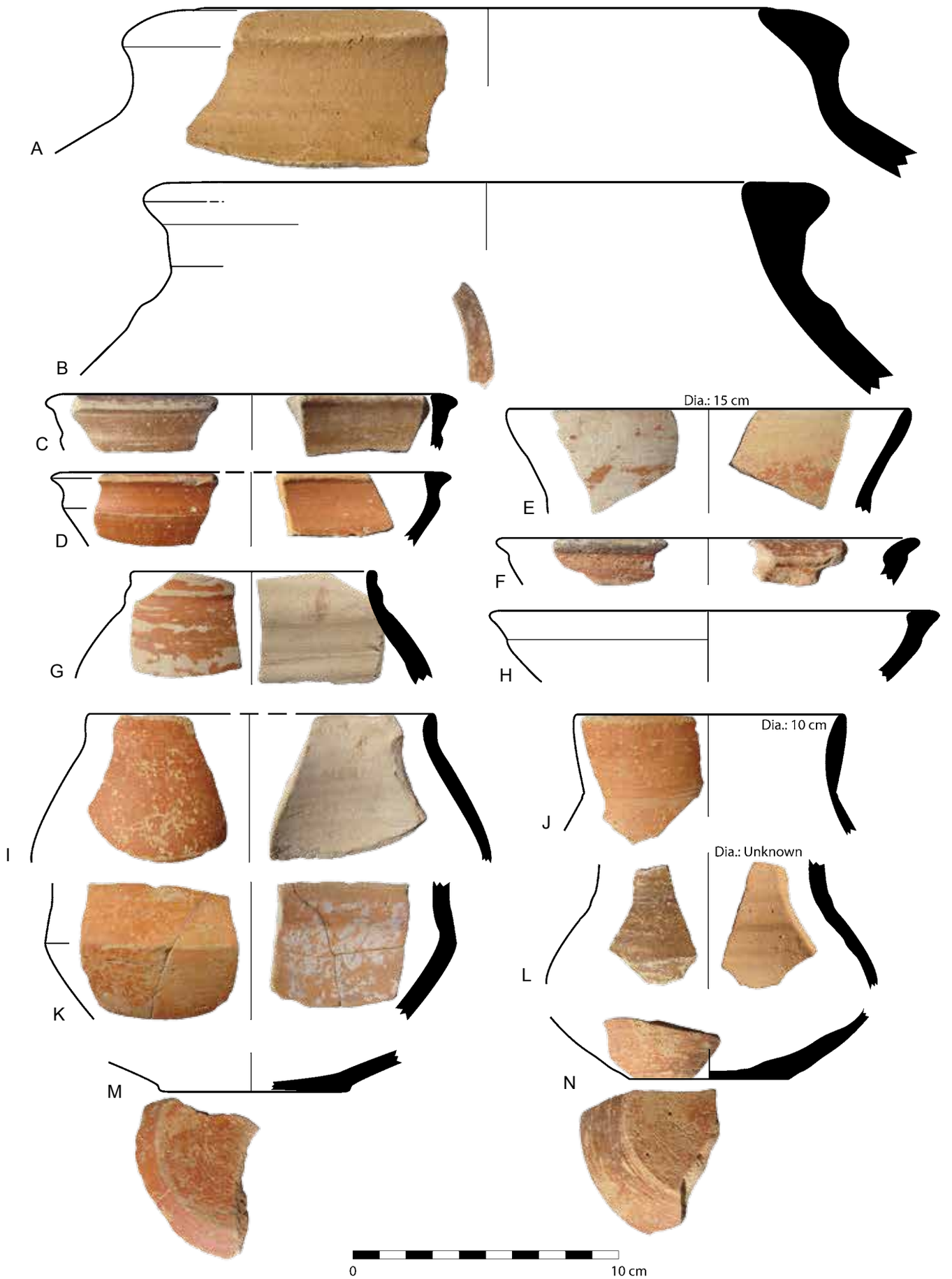


Plate 158. Pottery from RH-089

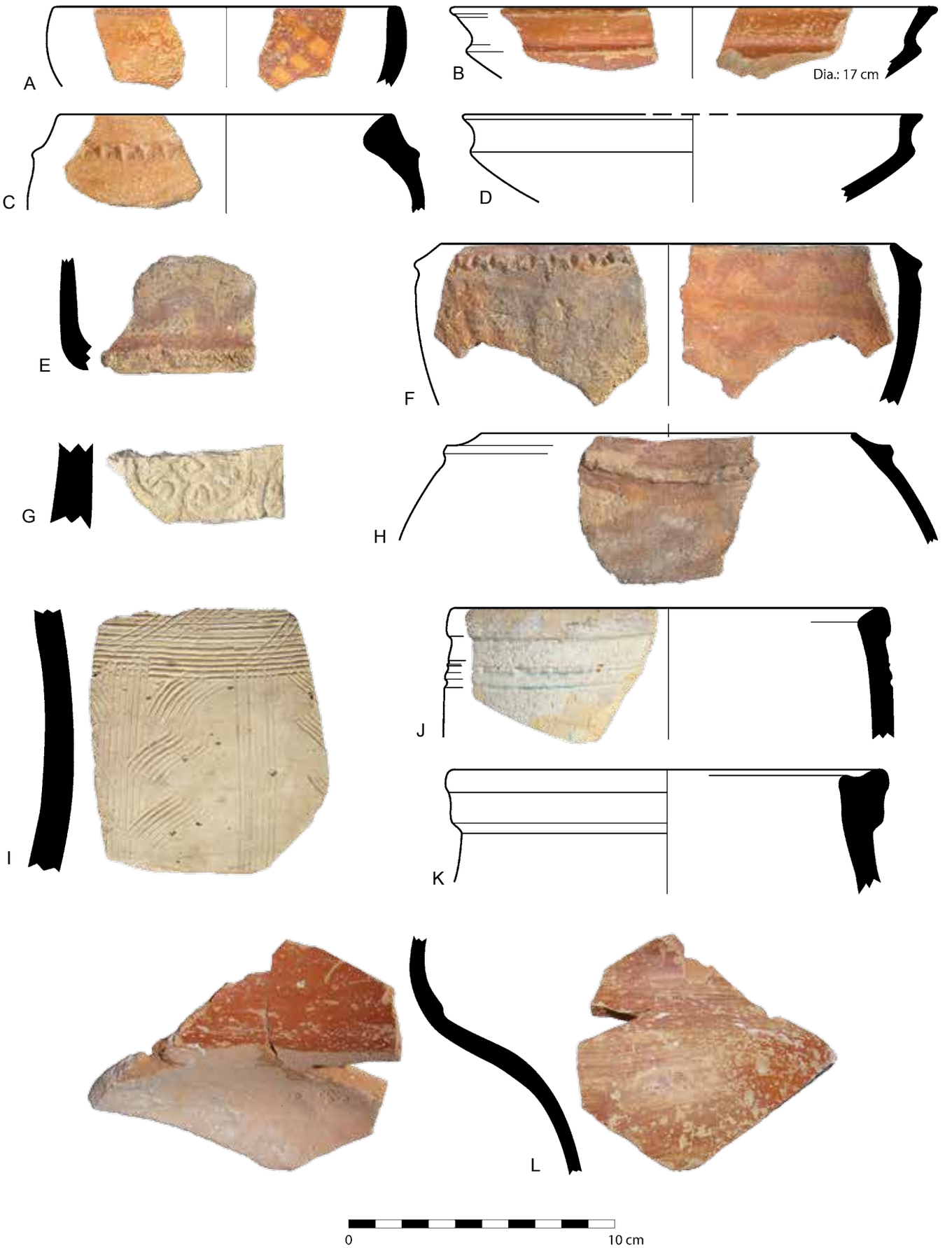
	Period	*Description*
A	Parthian?	Light brown ware, some sand in paste, micaceous, mica face
B	Parthian?	Light brown ware, traces of chaff, micaceous *Comparanda:* Khuzestan (Wenke 1975–76, fig. 13:702)
C	Achaemenid	Warm grayish buff ware, chaff inclusion, micaceous, chaff and mica face, brown wash
D	Achaemenid	Buff ware, chaff inclusion, micaceous, chaff and mica face, reddish brown wash, polished
E	Achaemenid	Pinkish light brown ware, some chaff, micaceous, reddish brown wash interior and exterior
F	Achaemenid	Light brown ware, black core, chaff inclusion, micaceous, chaff and mica face, reddish brown wash, polished
G	Achaemenid	Light brown ware, some calcite particles in paste, chaff inclusion, micaceous, chaff and mica face, reddish brown wash, polished
H	—	Buff ware, chaff inclusion, micaceous, chaff and mica face
I	Achaemenid	Light brown ware, chaff inclusion, micaceous, chaff and mica face, reddish brown wash, polished
J	Achaemenid	Light brown ware, some calcite particles in paste, chaff inclusion, micaceous, chaff and mica face, reddish brown wash, polished
K	Achaemenid	Light brown ware, some calcite particles in paste, chaff inclusion, micaceous, chaff and mica face, reddish brown wash, polished
L	Achaemenid	Light brown ware, chaff inclusion, micaceous, chaff and mica face, reddish brown wash
M	Achaemenid	Light brown ware, some calcite particles in paste, chaff inclusion, micaceous, chaff and mica face, reddish brown wash
N	Achaemenid	Light brown ware, chaff inclusion, micaceous, chaff and mica face, reddish brown wash, polished



Pottery from RH-089

Plate 159. Pottery from RH-091

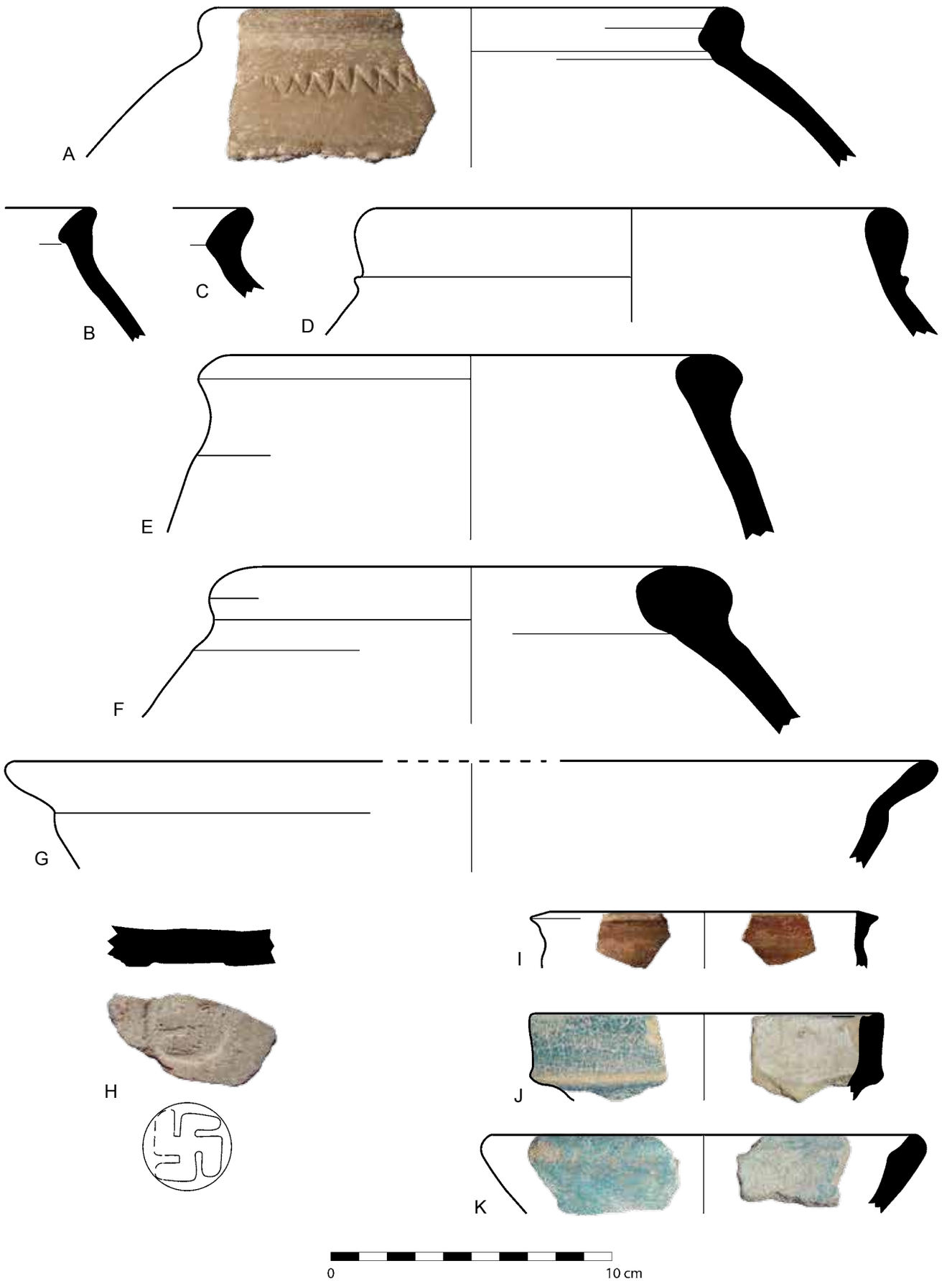
	Period	*Description*
A	Seljuk-Ilkhanid	Light brown ware, gray core, grog inclusion, orange wash interior, brown wash exterior, red paint, pseudo-prehistoric
B	Achaemenid	Light brown ware, no visible inclusion, reddish brown wash
C	Seljuk-Ilkhanid	Pinkish light brown ware, gray core, sandy paste, grog inclusion, grog and sandy face
D	Achaemenid	Pinkish light brown ware, chaff inclusion, micaceous, chaff and mica face, greenish buff interior
E	Seljuk-Ilkhanid	Light brown ware, gray core, grog inclusion, grog face, reddish brown paint, pseudo-prehistoric
F	Seljuk-Ilkhanid	Light brown ware, gray core, grog inclusion, grog face, reddish brown paint, pseudo-prehistoric
G	Seljuk?	Buff ware, no visible inclusion
H	Seljuk-Ilkhanid	Light brown ware, gray core, grog inclusion, micaceous, mica face, reddish brown paint, pseudo-prehistoric
I	Timurid	Light brown ware, no visible inclusion, micaceous, mica face, buff surface
J	Timurid	Buff ware, chaff inclusion, light blue glaze
K	—	Light brown stone ware, calcite particles and sand in paste, no visible inclusion
L	Achaemenid	Light brown ware, chaff inclusion, reddish brown wash



Pottery from RH-091

Plate 160. Pottery from RH-093A

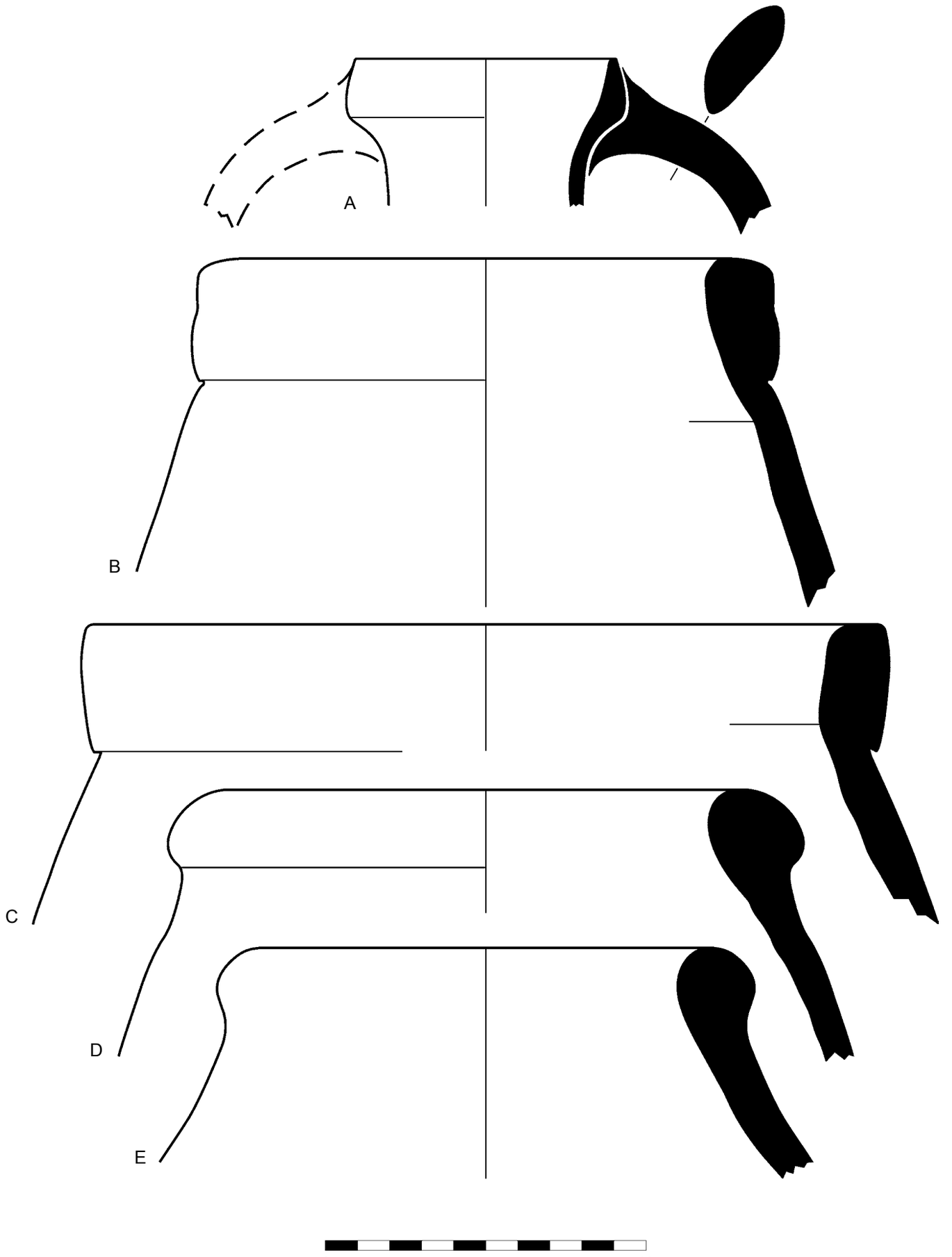
	Period	*Description*
A	Parthian-Sasanian	Grayish light brown ware, calcite particles in paste, no visible inclusion, dark gray interior
B	Parthian-Sasanian	Grayish light brown ware, calcite particles in paste, no visible inclusion, dark gray interior *Comparanda:* Khuzestan (Wenke 1975–76, figs. 8:309, 10:401)
C	Parthian-Sasanian	Grayish light brown ware, calcite particles and sand in paste, no visible inclusion, dark gray interior *Comparanda:* Khuzestan (Wenke 1975–76, figs. 8:309, 10:401)
D	Parthian	Pinkish light brown ware, chaff inclusion, micaceous, chaff and mica face *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pl. 72:J–K); Khuzestan (Wenke 1975–76, fig. 11:504)
E	Parthian	Light brown ware, black core, chaff inclusion, micaceous, chaff and mica face
F	Parthian	Light brown ware, gray core, chaff inclusion, micaceous, chaff and mica face
G	Parthian-Sasanian	Light brown ware, chaff inclusion, grayish buff interior *Comparanda:* Khuzestan (Wenke 1975–76, figs. 8:329, 11:532)
H	Parthian?	Brown ware, gray core, chaff inclusion, micaceous, chaff and mica face
I	Parthian?	Light brown ware, chaff inclusion, brown and reddish brown wash
J	Sasanian	Buff ware, occasional sand in paste, some chaff inclusion, turquoise blue glaze *Comparanda:* Susa Shaur Palace (Boucharlat and Labrousse 1979, fig. 34:13)
K	Parthian-Sasanian	Light brown ware, sandy paste, chaff inclusion, blue glaze *Comparanda:* Khuzestan (Wenke 1975–76, fig. 10:428)



Pottery from RH-093A

Plate 161. Pottery from RH-093B

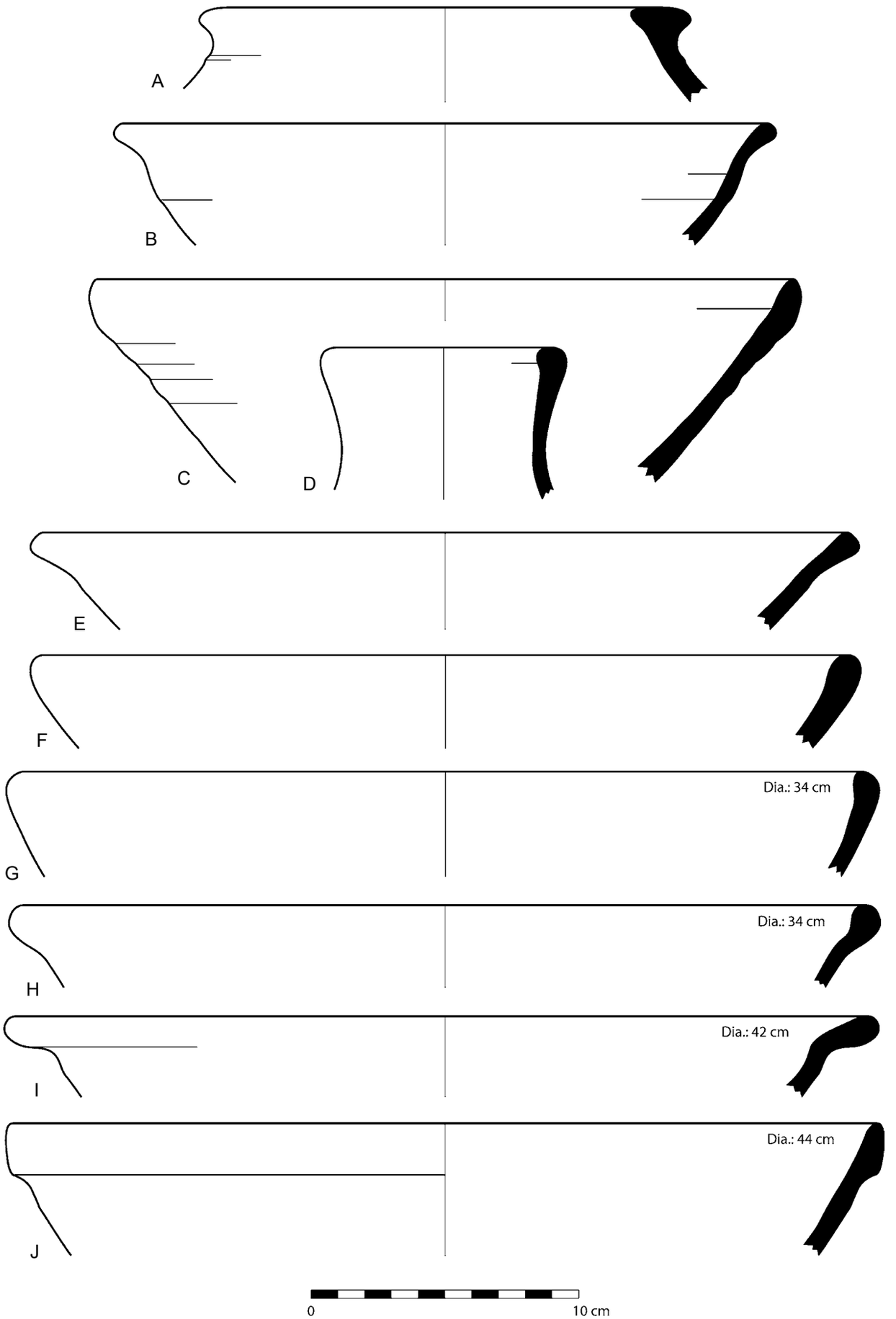
	Period	*Description*
A	Parthian	Buff ware, some chaff inclusion *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pl. 72:A)
B	Parthian	Light brown ware, chaff inclusion, greenish buff exterior, bitumen smeared interior *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pl. 72:J–K); Khuzestan (Wenke 1975–76, fig. 11:504)
C	Parthian	Light brown ware, chaff inclusion, greenish buff exterior, bitumen smeared *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pl. 72:J–K); Khuzestan (Wenke 1975–76, fig. 11:504)
D	Parthian	Light brown ware, chaff inclusion, micaceous, chaff and mica face, greenish buff exterior *Comparanda:* Khuzestan (Wenke 1975–76, fig. 11:503)
E	Parthian	Light brown ware, gray core, chaff inclusion, micaceous, chaff and mica face



Pottery from RH-093B

Plate 162. Pottery from RH-093B (*cont.*)

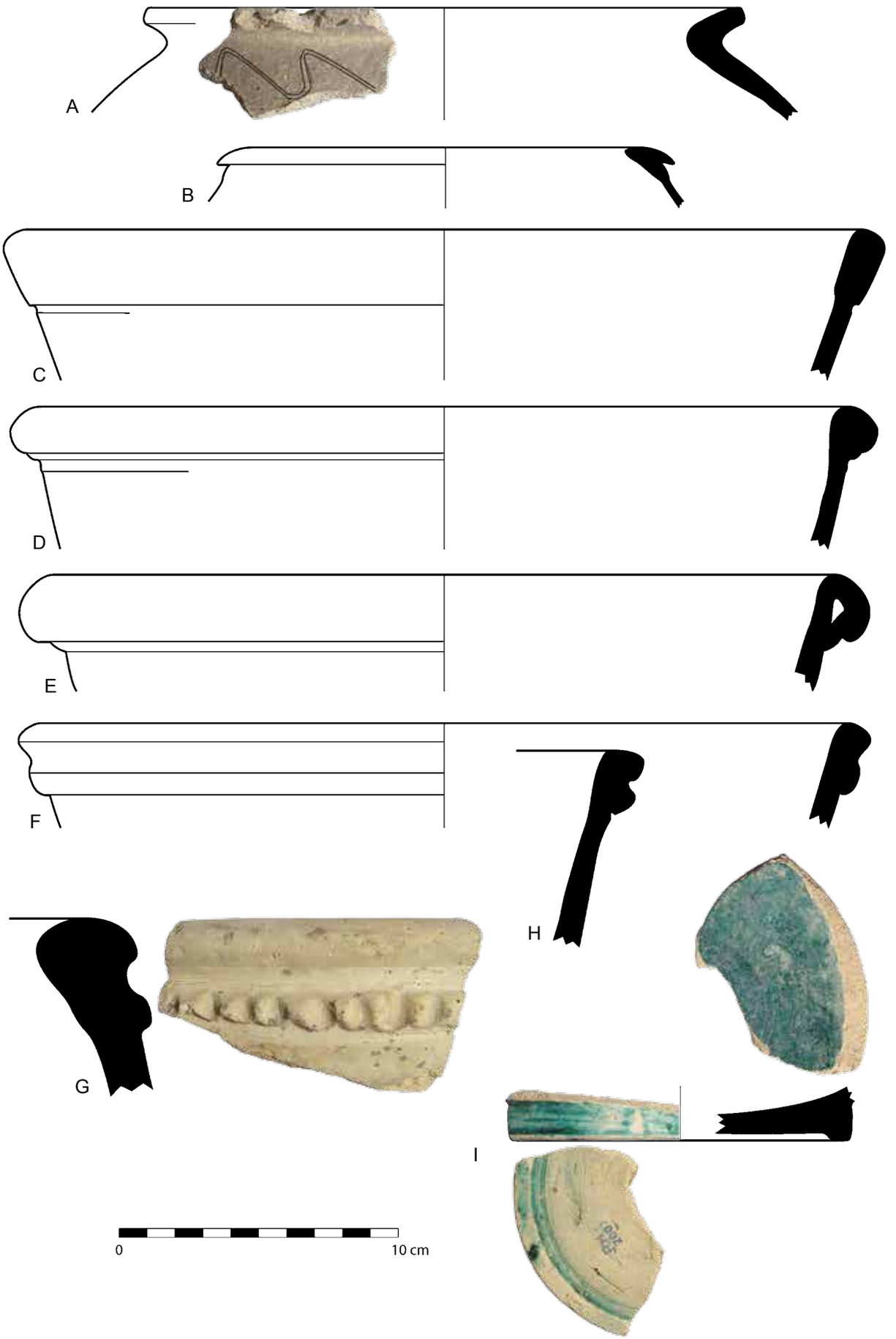
	Period	*Description*
A	Parthian	Light brown buff ware, black core, chaff inclusion, gray exterior *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pl. 72:L)
B	Parthian	Light brown ware, some chaff, micaceous, mica face *Comparanda:* Susa (Haerinck 1983, fig. 9:8)
C	Parthian	Light brown ware, some chaff, gray surface *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pl. 70:H)
D	—	Light brown ware, sandy paste, chaff inclusion, light gray brown interior
E	Parthian	Warm buff ware, chaff inclusion, light buff brown surface
F	Parthian-Sasanian	Warm buff ware, chaff inclusion, light buff brown surface *Comparanda:* Khuzestan (Wenke 1975–76, fig. 10:526)
G	Parthian-Sasanian	Warm buff ware, chaff inclusion, light buff brown surface *Comparanda:* Khuzestan (Wenke 1975–76, figs. 8:333, 11:538)
H	Sasanian	Warm buff ware, chaff inclusion *Comparanda:* Khuzestan (Wenke 1975–76, fig. 7:228)
I	Parthian-Sasanian	Warm buff ware, chaff inclusion *Comparanda:* Khuzestan (Wenke 1975–76, figs. 8:329, 532); Susa (Haerinck 1983, fig. 9:8)
J	Parthian-Sasanian	Buff ware, chaff inclusion, greenish buff surface *Comparanda:* Khuzestan (Wenke 1975–76, figs. 8:326, 10:431)



Pottery from RH-093B (*cont.*)

Plate 163. Pottery from RH-094

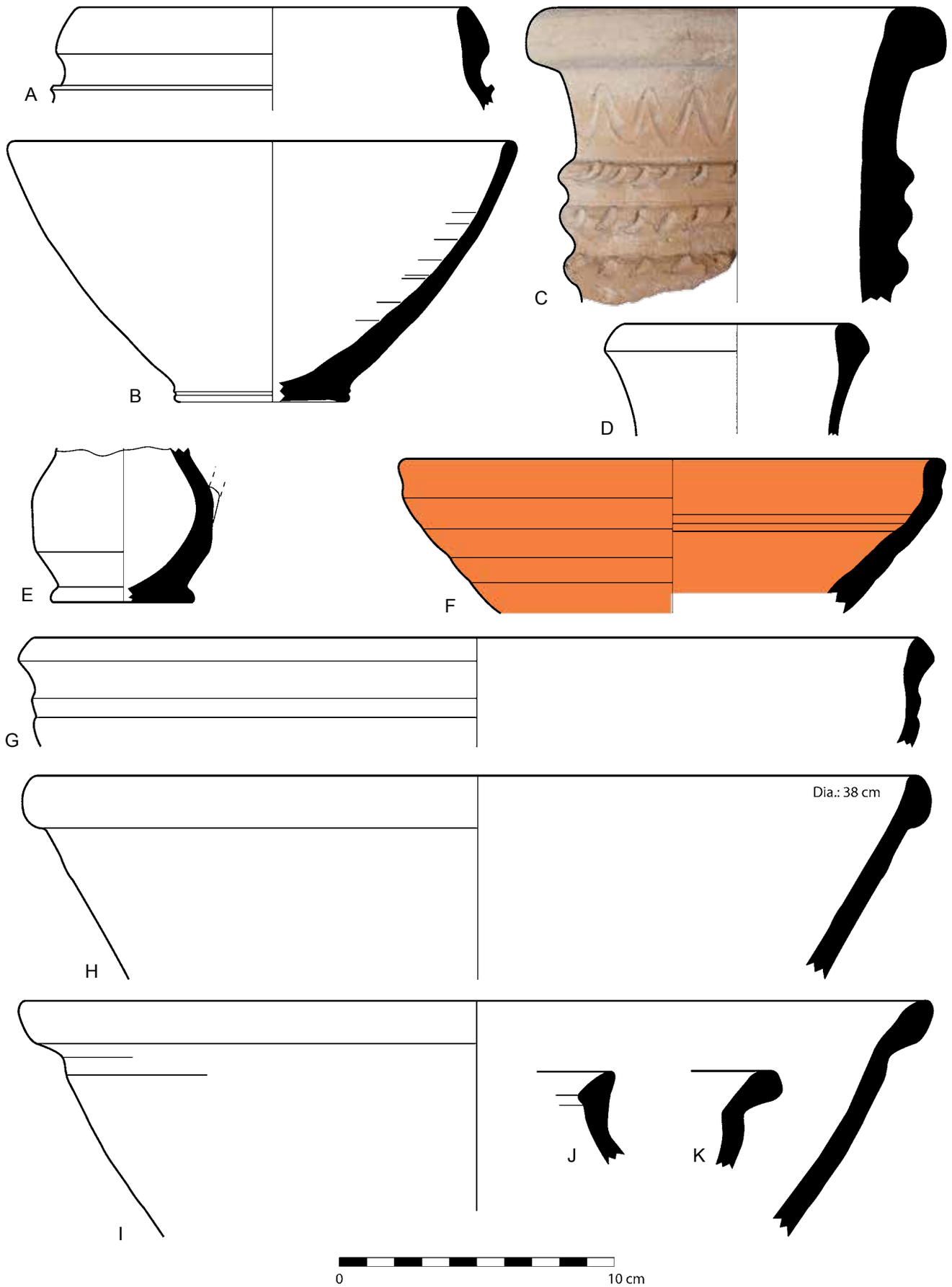
	Period	*Description*
A	Sasanian	Pinkish buff ware, gray core, grog inclusion, light gray exterior *Comparanda:* Khuzestan (Wenke 1975–76, fig. 8:307)
B	—	Gray ware, grog inclusion, light gray exterior
C	Sasanian	Buff ware, chaff inclusion, greenish buff surface
D	Sasanian	Light brown ware, chaff inclusion, buff exterior *Comparanda:* Khuzestan (Wenke 1975–76, fig. 8:326)
E	—	Buff ware, some chaff
F	Sasanian	Buff ware, some chaff, greenish buff surface
G	Sasanian–post-Sasanian	Buff ware, some chaff, greenish buff surface *Comparanda:* Susa Apadana, level III? (Kervran 1977, fig. 33:10)
H	Sasanian	Buff ware, some chaff, greenish buff surface
I	Sasanian	Light buff ware, no visible inclusion, turquoise blue glaze



Pottery from RH-094

Plate 164. Pottery from RH-095

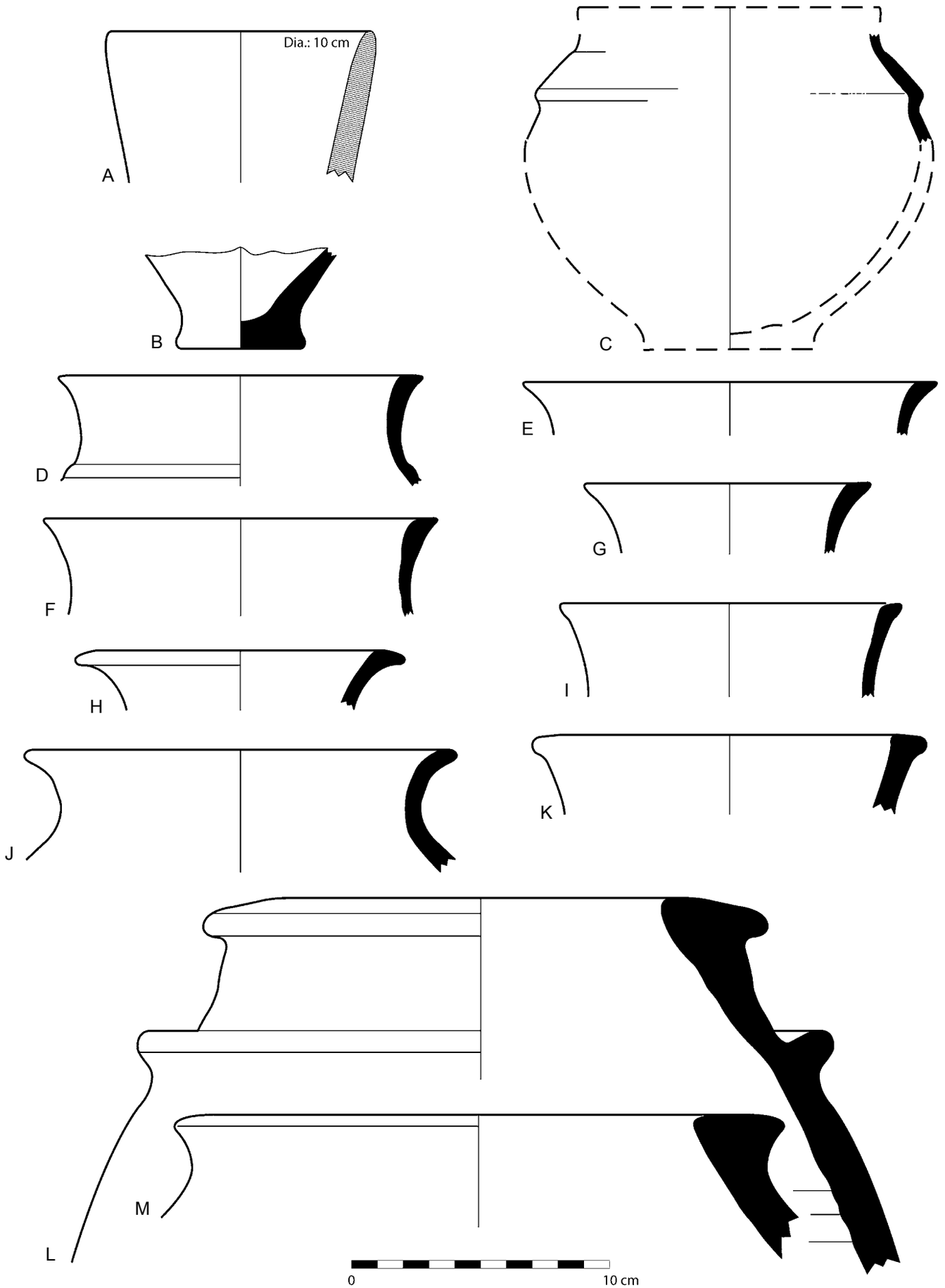
	Period	*Description*
A	Parthian	Pinkish warm buff ware, chaff inclusion, micaceous, chaff and mica face *Comparanda:* Khuzestan (Wenke 1975–76, fig. 13:7038)
B	Parthian-Sasanian	Buff ware, chaff inclusion, micaceous, chaff and mica face, greenish buff surface *Comparanda:* Khuzestan (Wenke 1975–76, fig. 10:429); Chogha Mish (Delougaz and Kantor 1996, pl. 70:G)
C	Sasanian	Warm buff ware, gray core, chaff inclusion, micaceous, chaff and mica face
D	Parthian	Buff ware, chaff inclusion, greenish buff surface *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pl. 72:A)
E	Parthian-Sasanian	Warm buff ware, chaff inclusion, micaceous, chaff and mica face *Comparanda:* Susa (Haerinck 1983, fig. 7:1)
F	Parthian-Sasanian	Cream buff ware, some sand in paste, chaff inclusion, milky glaze
G	Parthian	Warm buff ware, gray core, chaff inclusion, micaceous, chaff and mica face *Comparanda:* Khuzestan (Wenke 1975–76, figs. 8:326, 12:636); Susa (Haerinck 1983, fig. 1:3)
H	Parthian	Warm buff ware, gray core, chaff inclusion, micaceous, chaff and mica face, greenish buff surface *Comparanda:* Khuzestan (Wenke 1975–76, fig. 11:526)
I	Parthian	Brown ware, chaff inclusion, micaceous, chaff and mica face. Chogha Mish (Delougaz and Kantor 1996, pl. 70:I); Susa (Haerinck 1983, fig. 1:3)
J	Parthian-Sasanian	Brown ware, calcite particles in paste, no visible inclusion *Comparanda:* Khuzestan (Wenke 1975–76, figs. 8:309–10, 10:401, 404)
K	Parthian	Pinkish warm buff ware, chaff inclusion, micaceous, chaff and mica face



Pottery from RH-095

Plate 165. Pottery from RH-096

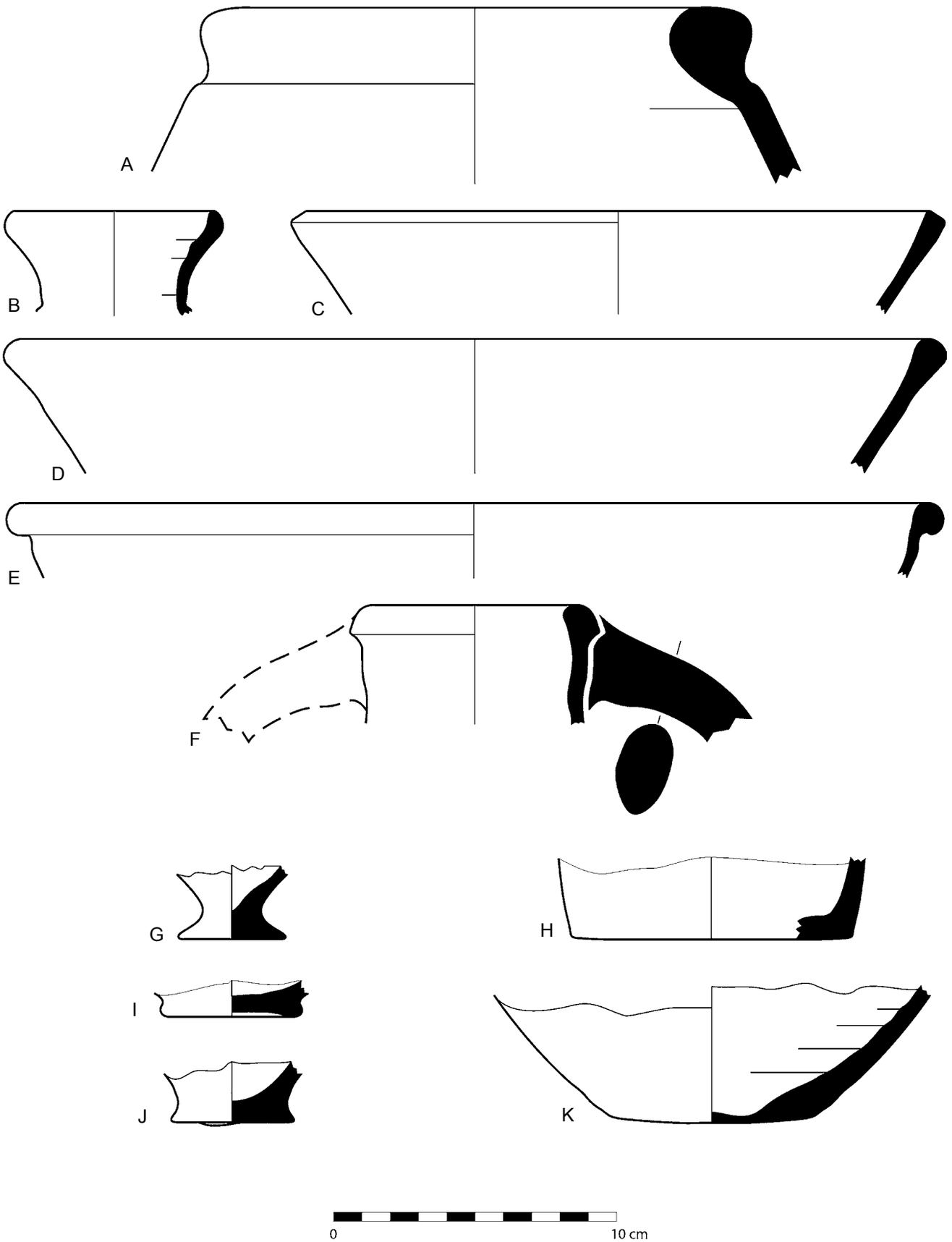
	Period	*Description*
A	—	Limestone cup
B	Middle-Elamite?	Pinkish warm buff ware, chaff inclusion, micaceous, chaff and mica face
C	Middle Elamite/ Neo-Elamite	Pinkish warm buff ware, chaff inclusion, micaceous, chaff and mica face *Comparanda:* Malyan, level IVA (Carter 1996, fig. 21); Susa Ville Royale II, levels 8–9 (Miroschedji 1981a, fig. 22)
D	Neo-Elamite?	Gray ware, chaff inclusion, wet smoothed
E	Middle Elamite	Gray ware, chaff inclusion, wet smoothed *Comparanda:* Susa Ville Royale II, levels 8–9 (Miroschedji 1981a, fig. 18:5, 7)
F	Neo-Elamite?	Brown ware, chaff inclusion, micaceous, chaff and mica face
G	Neo-Elamite?	Brown ware, chaff inclusion, micaceous, chaff and mica face
H	Neo-Elamite?	Brown ware, chaff inclusion, micaceous, chaff and mica face
I	Middle Elamite	Warm buff ware, chaff inclusion, micaceous, chaff and mica face
J	Middle Elamite	Brown ware, black core, calcite particles in paste, chaff inclusion, micaceous, chaff and mica face, reddish brown wash *Comparanda:* Malyan, level IVA (Carter 1996, fig. 22:2)
K	Middle Elamite	Warm buff ware, calcite particle in paste, chaff inclusion, micaceous, chaff and mica face, greenish buff surface
L	Middle Elamite/ Neo-Elamite	Pinkish buff ware, gray core, chaff inclusion, buff surface *Comparanda:* Malyan, level IVA (Carter 1996, fig. 24); Susa Ville Royale II, levels 8–9 (Miroschedji 1981a, fig. 26)
M	Middle Elamite	Buff ware, gray core, chaff inclusion, buff slip? *Comparanda:* Malyan, level IVA (Carter 1996, fig. 24); Susa Ville Royale II, levels 8–9 (Miroschedji 1981a, fig. 26)



Pottery from RH-096

Plate 166. Pottery from RH-096 (*cont.*)

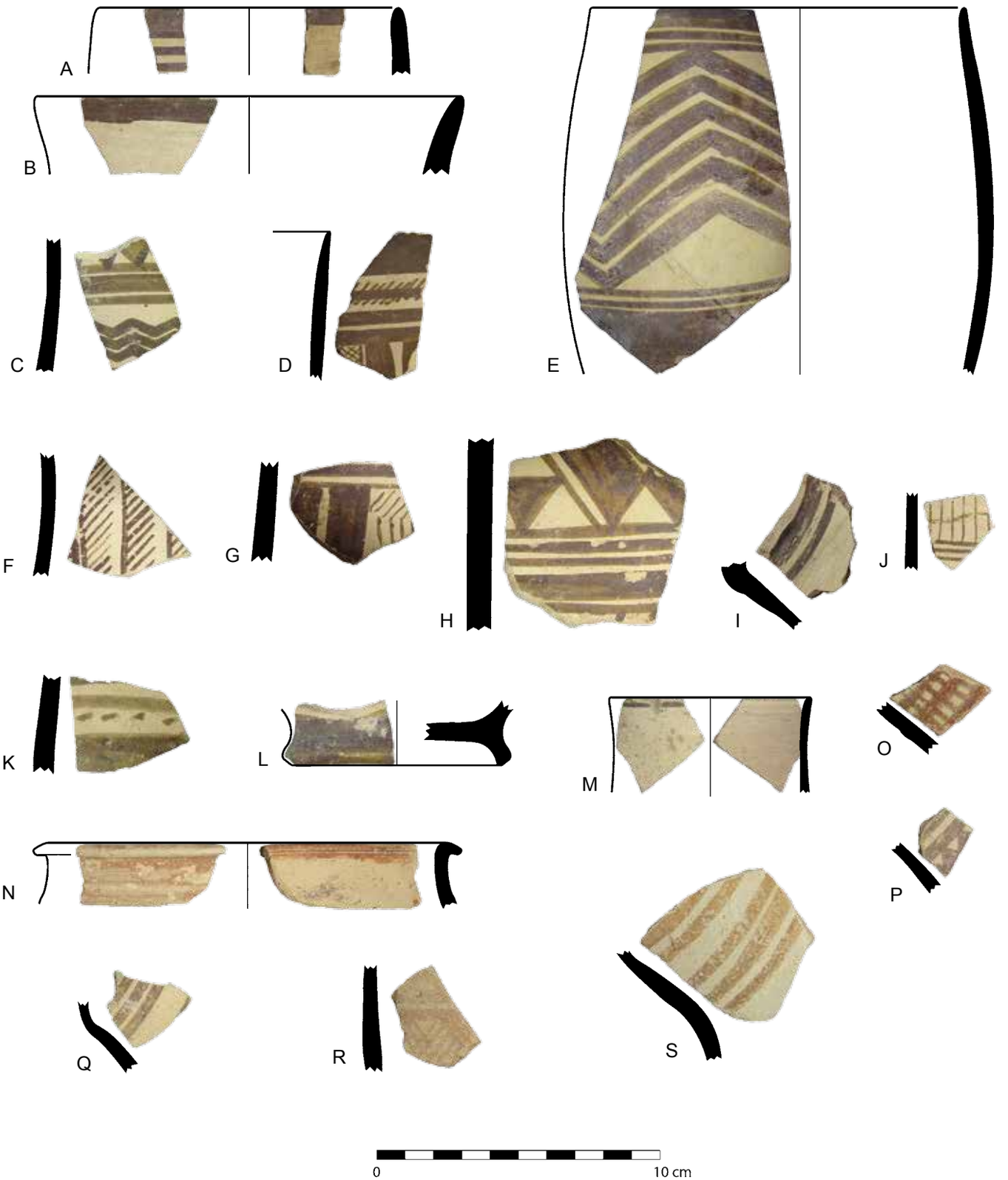
	Period	*Description*
A	Parthian	Warm buff ware, black core, chaff inclusion, micaceous, chaff and mica face *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pl. 72:K); Khuzestan (Wenke 1975–76, fig. 11:503)
B	Parthian	Grayish light brown ware, no visible inclusion, greenish buff surface *Chogha* Mish (Delougaz and Kantor 1996, pl. 72:A)
C	Parthian	Light gray ware, chaff inclusion, greenish buff surface *Comparanda:* Khuzestan (Wenke 1975–76, fig. 11:538)
D	Parthian	Warm buff ware, chaff inclusion, micaceous, chaff and mica face, greenish buff surface
E	Parthian	Pinkish light brown ware, chaff inclusion, micaceous, chaff and mica face
F	Parthian	Pinkish light brown ware, chaff inclusion, greenish buff exterior
G	Middle Elamite	Warm buff ware, chaff inclusion *Comparanda:* Susa Ville Royale II, level 10 (Miroschedji 1981a, fig. 12:5)
H	—	Pinkish buff ware, chaff inclusion, micaceous, chaff and mica face, greenish buff exterior
I	Middle Elamite?	Warm buff ware, black core, chaff inclusion, chaff face, greenish buff surface
J	Middle Elamite?	Warm buff ware, gray core, chaff inclusion, chaff face, greenish buff exterior
K	—	Brown ware, gray core, chaff inclusion, chaff face



Pottery from RH-096 (*cont.*)

Plate 167. Pottery from RH-097A

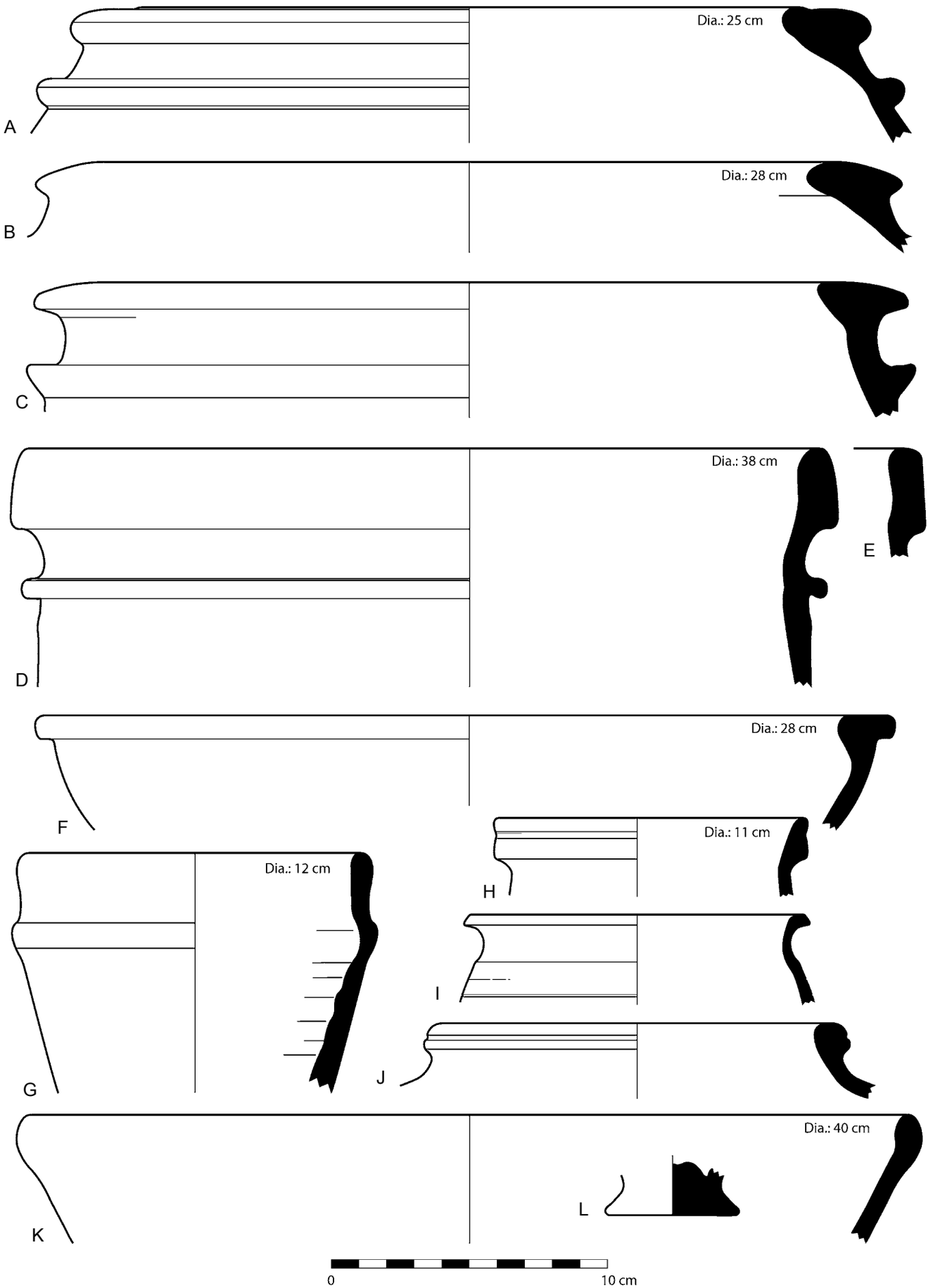
	Period	*Description*
A	Late Susiana 2	Buff ware, no visible inclusion, brown paint
B	Late Susiana 2	Buff ware, no visible inclusion, brown paint
C	Late Susiana 2	Buff ware, no visible inclusion, greenish buff surface, olive green paint
D	Late Susiana 2	Buff ware, no visible inclusion, brown paint
E	Late Susiana 2	Buff ware, no visible inclusion, light green buff surface, brown paint
F	Late Susiana 2	Buff ware, no visible inclusion, brown paint
G	Late Susiana 2	Buff ware, no visible inclusion, brown paint
H	Late Susiana 2	Buff ware, no visible inclusion, brown paint
I	Late Susiana 2	Light grayish brown ware, accidental chaff, greenish buff exterior, olive green paint
J	Late Susiana 2	Buff ware, no visible inclusion, brown paint
K	Late Susiana 2	Buff ware, no visible inclusion, greenish buff surface, olive green paint
L	Late Susiana 2	Buff ware, no visible inclusion, olive green paint
M	Sukkalmah/ Transitional	Buff ware, accidental chaff, greenish buff interior, olive green paint
N	Sukkalmah/ Transitional	Pinkish buff ware, chaff inclusion, buff exterior brown paint
O	Sukkalmah/ Transitional	Warm buff ware, chaff inclusion, brown paint
P	Sukkalmah/ Transitional	Buff ware, chaff inclusion, greenish buff surface, greenish brown paint
Q	Sukkalmah/ Transitional	Greenish buff ware, chaff inclusion, greenish brown paint
R	Sukkalmah/ Transitional	Pinkish light brown ware, chaff inclusion, greenish buff surface, brown paint
S	Sukkalmah/ Transitional	Pinkish light brown ware, chaff inclusion, greenish buff surface, brown paint



Pottery from RH-097A

Plate 168. Pottery from RH-097A (*cont.*)

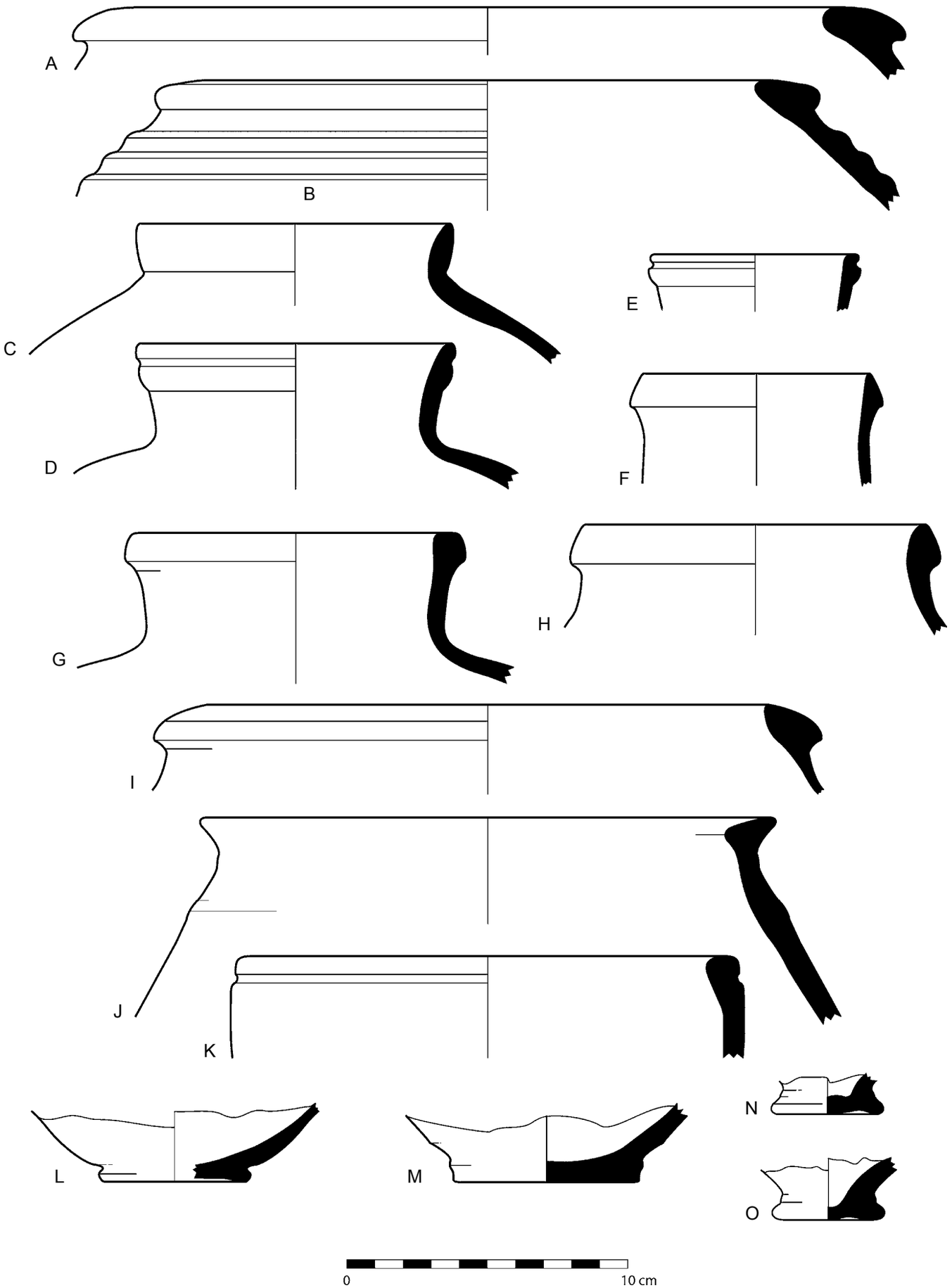
	Period	*Description*
A	Sukkalmah	Light brown ware, chaff inclusion, micaceous, chaff and mica face, buff exterior
B	Sukkalmah	Pinkish brown ware, gray core, chaff inclusion, micaceous, chaff and mica face, calcite particles in paste, light brown buff exterior
C	Sukkalmah	Warm buff ware, chaff inclusion, micaceous, chaff and mica face *Comparanda:* Farukhabad, levels B15–16 (Wright 1981, fig. 90:f, h)
D	Sukkalmah	Pinkish warm buff ware, gray core, calcite particles in paste, chaff inclusion, mica face, buff exterior *Comparanda:* Farukhabad, levels B11–13 (Wright 1981, fig. 86:o)
E	Sukkalmah	Pinkish brown ware, gray core, chaff inclusion, micaceous, chaff and mica face, calcite particles in paste, light brown buff exterior
F	Sukkalmah	Light brown ware, chaff inclusion
G	Parthian?	Pinkish brown ware, gray core, chaff inclusion, micaceous, chaff and mica face, calcite particles in paste, light brown buff exterior
H	Sukkalmah	Pinkish brown ware, gray core, chaff inclusion, micaceous, chaff and mica face, calcite particles in paste, light brown buff exterior
I	Sukkalmah	Light brown ware, chaff inclusion
J	Sukkalmah	Light brown ware, gray core, chaff inclusion, micaceous, chaff and mica face, calcite particles in paste, light brown buff exterior
K	Parthian	Light brown ware, chaff inclusion, buff surfaces
L	Middle Elamite	Light brown ware, chaff inclusion, chaff face



Pottery from RH-097A (*cont.*)

Plate 169. Pottery from RH-097B

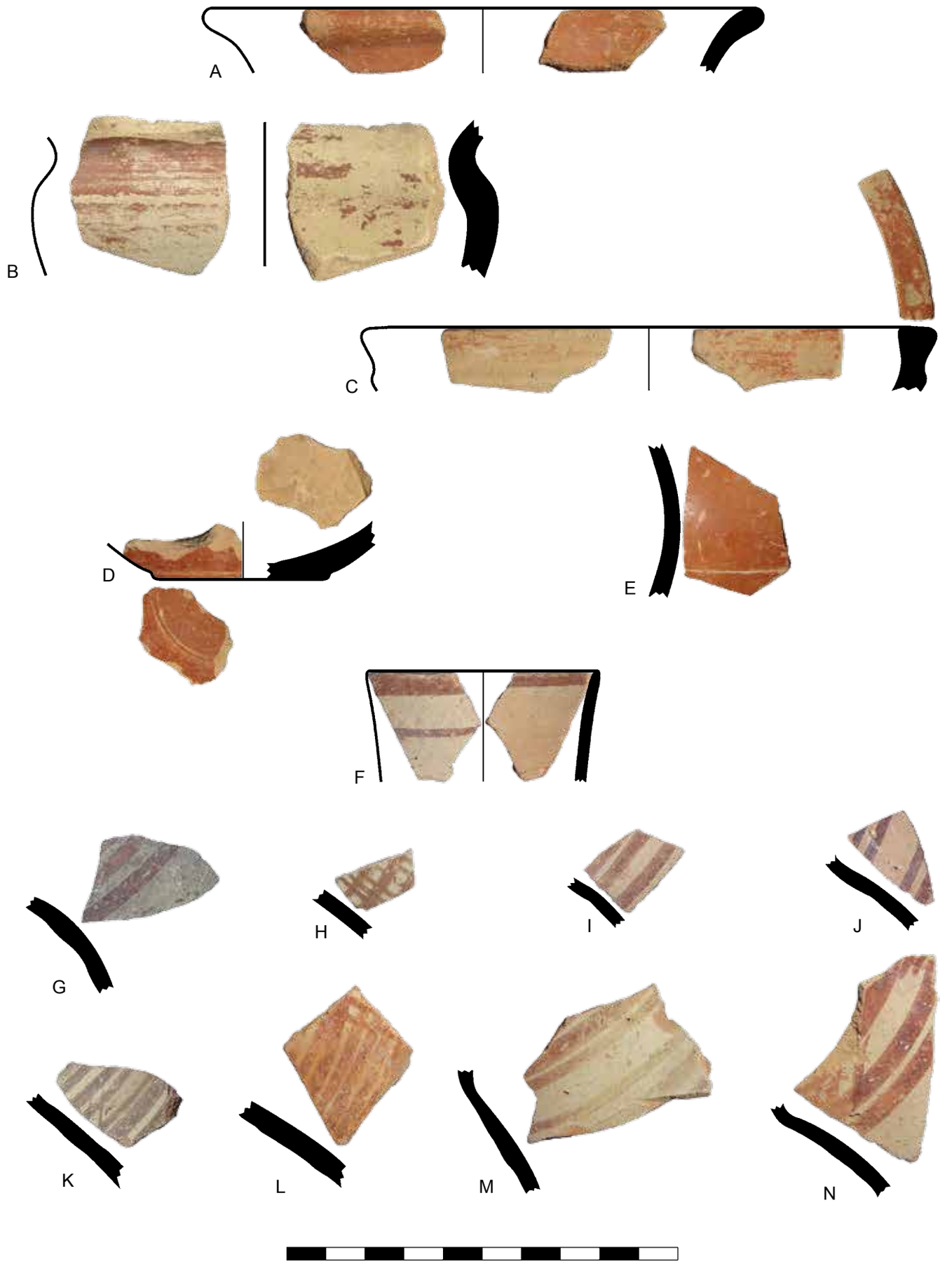
	Period	*Description*
A	Sukkalmah	Warm buff ware, black core, chaff inclusion, chaff face
B	Sukkalmah?	Pinkish warm buff ware, calcite particles in paste, chaff inclusion
C	Sukkalmah	Warm buff ware, gray core, chaff inclusion
D	Sukkalmah	Grayish brown ware, chaff inclusion, greenish buff exterior *Comparanda:* Farukhabad, level B18 (Wright 1981, fig. 84:i)
E	Sukkalmah	Warm buff ware, chaff inclusion, buff surface *Comparanda:* Farukhabad, level B18 (Wright 1981, fig. 84:i)
F	Sukkalmah	Buff ware, chaff inclusion, micaceous, chaff and mica face *Comparanda:* Farukhabad, level B16 (Wright 1981, fig. 84:l)
G	Sukkalmah	Buff ware, chaff inclusion, micaceous, chaff and mica face *Comparanda:* Farukhabad, level B11–12 (Wright 1981, fig. 86:a)
H	Sukkalmah	Buff ware, chaff inclusion, micaceous, chaff and mica face *Comparanda:* Farukhabad, levels B11–13 (Wright 1981, fig. 86:b)
I	Sukkalmah	Buff ware, black core, chaff inclusion, micaceous, chaff and mica face
J	Sukkalmah?	Grayish brown ware, calcite particles in paste, chaff inclusion, chaff face
K	Sukkalmah?	Warm buff ware, black core, chaff inclusion, micaceous, chaff and mica face
L	Sukkalmah	Warm buff ware, chaff inclusion, micaceous, chaff and mica face *Comparanda:* Farukhabad, level B12 (Wright 1981, fig. 87:j)
M	Sukkalmah	Warm buff ware, gray core, calcite particles in paste, chaff inclusion, chaff and mica face *Comparanda:* Farukhabad, level B12 (Wright 1981, fig. 88:c)
N	Middle Elamite	Pinkish warm buff ware, chaff inclusion, chaff face, warm buff surface *Comparanda:* Farukhabad, levels B11–13 (Wright 1981, fig. 87:e)
O	Middle Elamite	Warm buff ware, chaff inclusion *Comparanda:* Farukhabad, levels B11–13 (Wright 1981, fig. 87:d)



Pottery from RH-097B

Plate 170. Pottery from RH-097B (*cont.*)

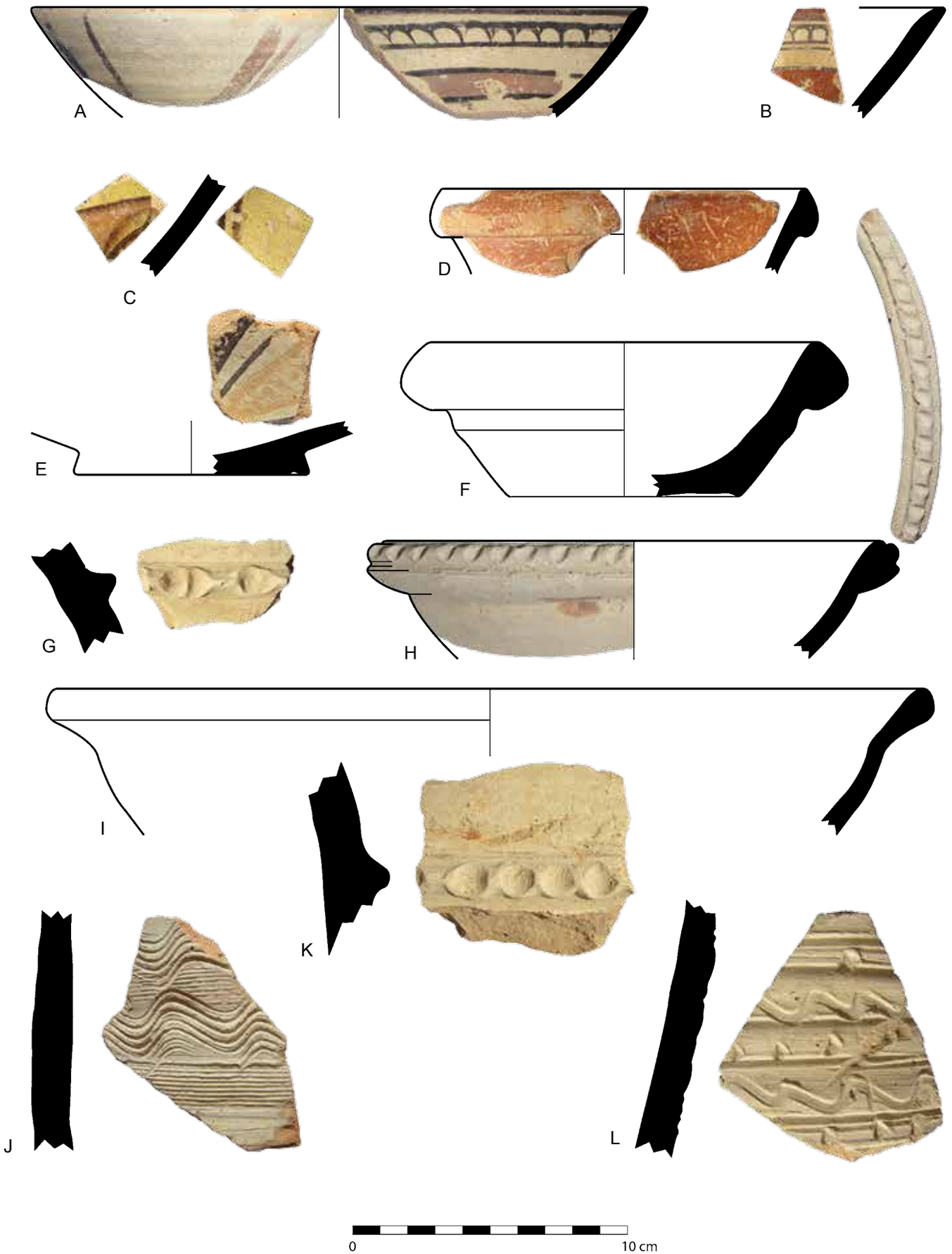
	Period	*Description*
A	Achaemenid	Light buff ware, chaff inclusion, reddish brown wash *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pl. 74:G, N)
B	Achaemenid	Buff ware, chaff inclusion, reddish brown wash, probably polished *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pl. 73:D)
C	Achaemenid	Pinkish brown ware, chaff inclusion, reddish brown wash, polished *Comparanda:* Chogha Mish (Delougaz and Kantor 1996, pl. 73:K–L)
D	Achaemenid	Pinkish warm buff ware, chaff inclusion, reddish brown wash, polished
E	Achaemenid	Pinkish warm buff ware, chaff inclusion, reddish brown wash, polished
F	Sukkalmah/ Transitional	Light brown ware, chaff inclusion, pinkish buff exterior, brown paint
G	Sukkalmah/ Transitional	Grayish buff ware, chaff inclusion, off white wash, brown paint
H	Sukkalmah/ Transitional	Light pinkish brown ware, chaff inclusion, brown paint
I	Sukkalmah/ Transitional	Light pinkish brown ware, chaff inclusion, brown paint
J	Sukkalmah/ Transitional	Light brown ware, chaff inclusion, pinkish buff exterior, brown paint
K	Sukkalmah/ Transitional	Grayish light brown ware, chaff inclusion, greenish buff surface, brown paint
L	Sukkalmah/ Transitional	Light brown ware, chaff inclusion, brown paint
M	Sukkalmah/ Transitional	Light pinkish brown ware, chaff inclusion, greenish buff exterior
N	Sukkalmah/ Transitional	Light brown ware, chaff inclusion, reddish brown paint



Pottery from RH-097B (*cont.*)

Plate 171. Pottery from RH-098

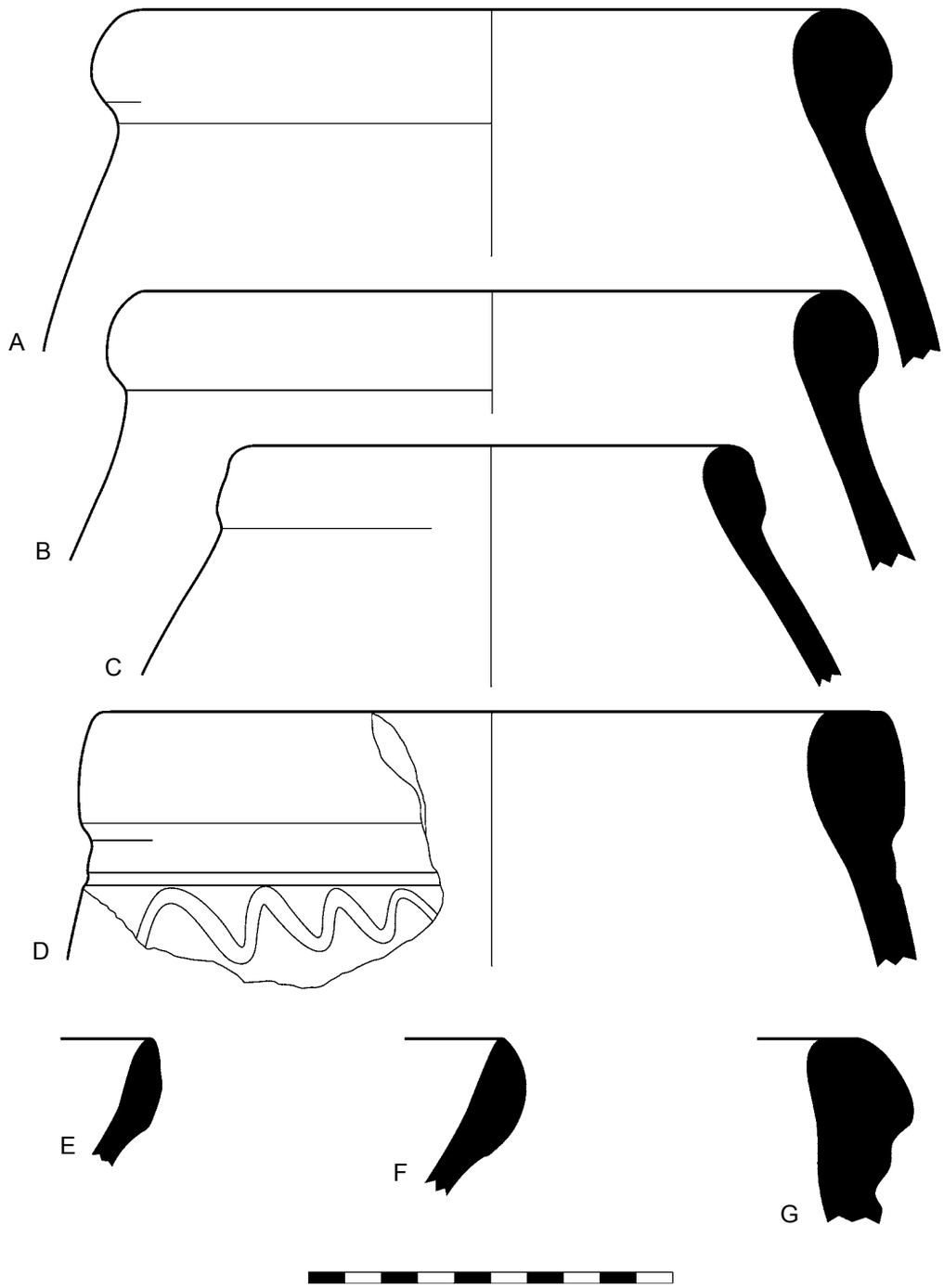
	Period	*Description*
A	Safavid	Pinkish light brown ware, scattered sand, under glaze paint
B	Safavid	Pinkish light brown ware, scattered sand, under glaze paint
C	Safavid	Pinkish light brown ware, scattered sand, under glaze paint
D	—	Pinkish light brown ware, no visible inclusion, reddish brown wash
E	Safavid	Pinkish light brown ware, scattered sand, under glaze paint interior, light green glaze exterior
F	Seljuk/Ilkhanid	Greenish buff ware, scattered chaff
G	Seljuk/Ilkhanid	Light brown ware, scattered sand
H	Safavid?	Bricky red ware, no visible inclusion, occasional chaff, grayish buff ware slip
I	Seljuk?	Greenish buff ware, no visible inclusion
J	Seljuk	Light brown ware, scattered sand, no visible inclusion, greenish buff surface
K	Seljuk	Light brown ware, no visible inclusion, yellowish buff slip
L	Seljuk	Pinkish brown ware, scattered sand, no visible inclusion, buff surface



Pottery from RH-098

Plate 172. Pottery from RH-099 and RH-101

	Period	*Description*
RH-099		
A	Parthian	Light brown ware, chaff inclusion, micaceous, chaff and mica face, greenish buff exterior
B	Parthian	Light brown ware, chaff inclusion, micaceous, chaff and mica face, greenish buff exterior
C	Parthian	Light brown ware, chaff inclusion, micaceous, chaff and mica face
D	Parthian	Light brown ware, gray core, chaff inclusion, micaceous, chaff and mica face, greenish buff exterior
E	Parthian	Light brown ware, chaff inclusion, micaceous, chaff and mica face, greenish buff exterior
F	Sasanian	Light brown ware, chaff inclusion, micaceous, chaff and mica face
G	Sasanian	Light gray ware, no visible inclusion, micaceous, mica face
RH-101		
H	Post-Sasanian	Light brown ware, no visible inclusion, greenish buff interior
I	Post-Sasanian	Buff ware, no visible inclusion
J	Post-Sasanian	Buff ware, no visible inclusion



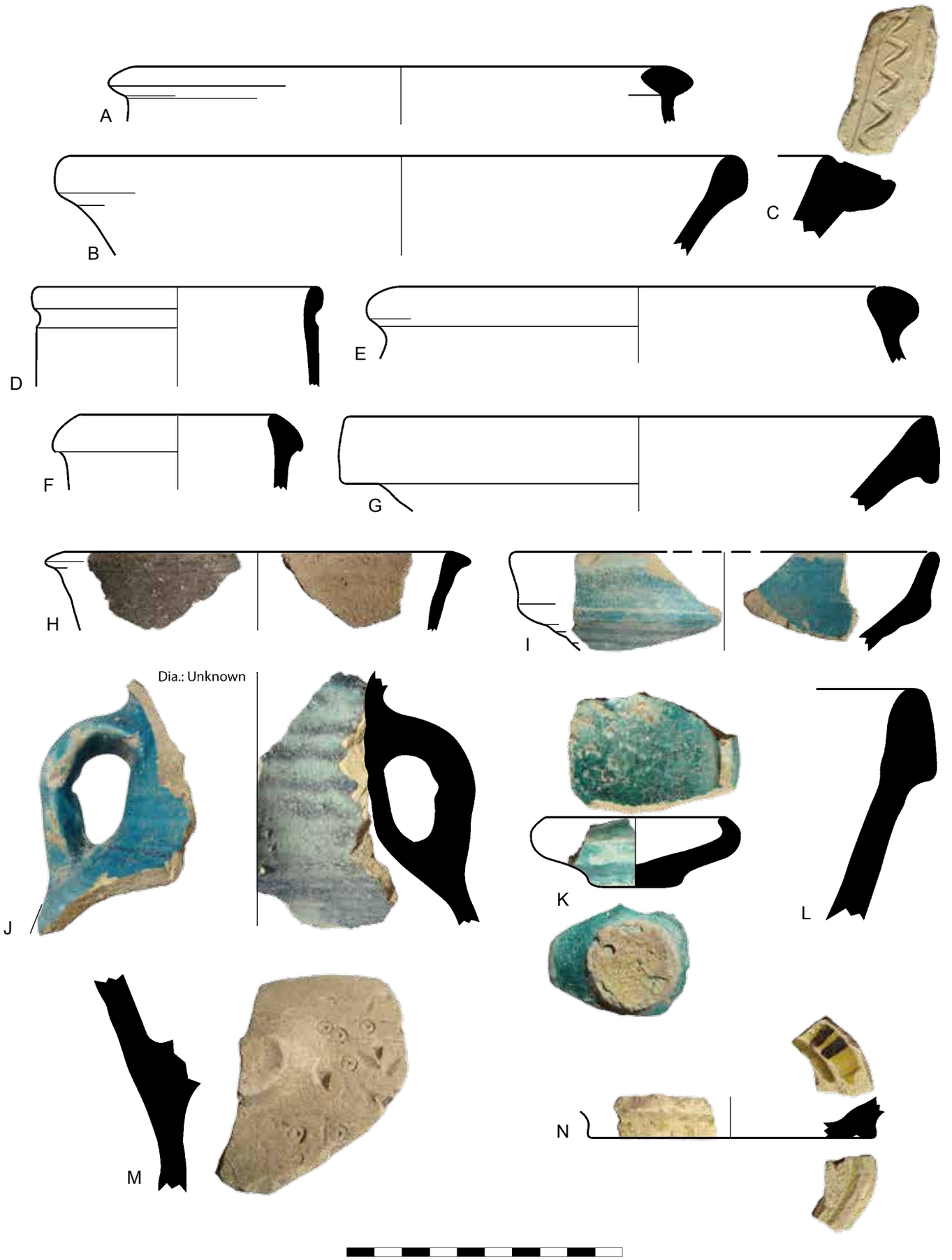
RH-099

RH-101

Pottery from RH-099 and RH-101

Plate 173. Pottery from RH-103

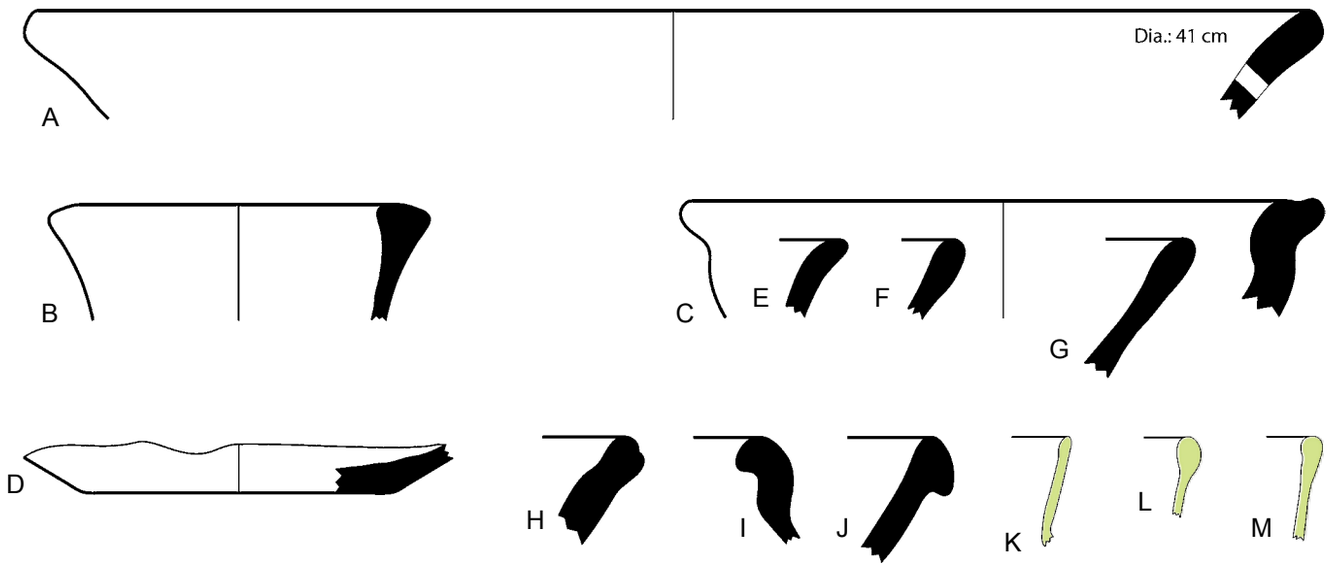
	Period	*Description*
A	—	Pinkish buff ware, scattered chaff, greenish blue glaze
B	—	Pinkish buff ware, scattered chaff
C	Seljuk	Greenish buff ware, chaff inclusion
D	—	Buff ware, scattered chaff
E	—	Light brown ware, chaff inclusion, warm buff exterior
F	—	Buff ware, occasional chaff, green glaze
G	—	Buff ware, occasional chaff, under glaze paint interior, glazed exterior
H	Seljuk	Light brown ware, chaff inclusion, micaceous, chaff and mica face, buff exterior
I	Seljuk-Ilkhanid	Grayish brown ware, grog inclusion, burnt exterior
J	Seljuk-Ilkhanid	Buff ware, occasional chaff, turquoise blue glaze exterior, purple blue glaze interior
K	Seljuk	Buff ware, chaff inclusion, greenish buff surface
L	—	Buff ware, occasional chaff
M	—	Buff ware, chaff inclusion, pinkish buff surface
N	Seljuk-Ilkhanid	Pinkish light brown ware, grog inclusion, grayish brown exterior



Pottery from RH-103

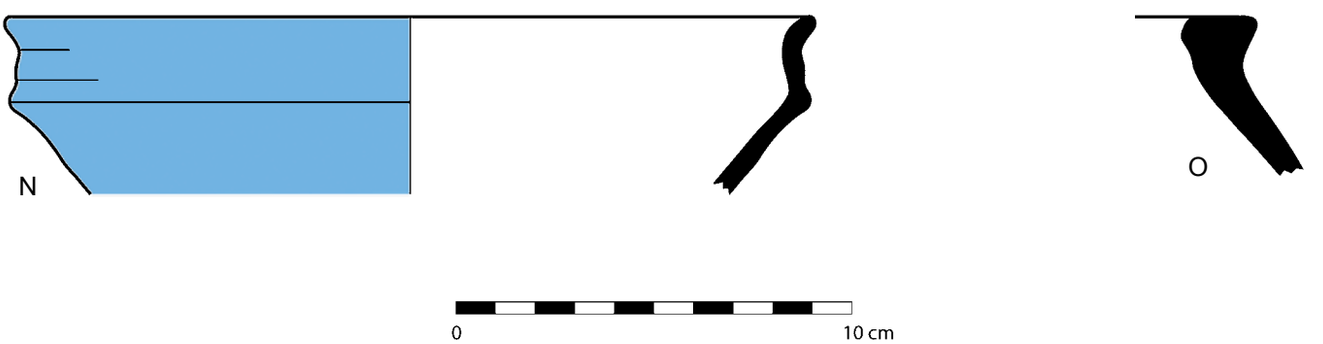
Plate 174. Pottery from RH-104 and RH-105

	Period	*Description*
RH-104		
A	—	Light brown ware, gray core, chaff inclusion, greenish buff surface
B	Sasanian	Light brown ware, chaff inclusion, micaceous, chaff and mica face, buff surface *Comparanda:* Khuzestan (Wenke 1975–76, fig. 8:337)
C	Sasanian	Pinkish buff ware, sandy paste, no visible inclusion, green blue glaze
D	—	Light brown ware, chaff inclusion, reddish brown wash
E	Parthian/Sasanian	Light brown ware, chaff inclusion
F	Parthian/Sasanian	Light brown ware, chaff inclusion, micaceous, mica face
G	Parthian/Sasanian	Pinkish light brown ware, chaff inclusion micaceous
H	Parthian/Sasanian	Light brown ware, gray core, chaff inclusion, micaceous, chaff and mica face, buff surface
I	Parthian-Sasanian	Brown ware, paste includes sodium crystals, burnt surface *Comparanda:* Khuzestan (Wenke 1975–76, figs. 8:309, 10:404)
J	Sasanian	Light brown ware, chaff inclusion, greenish buff surface *Comparanda:* Khuzestan (Wenke 1975–76, fig. 8:326)
K	Sasanian?	Green glass
L	Sasanian	Green glass
M	Sasanian	Green glass
RH-105		
N	Post-Sasanian	Buff ware, no visible inclusion, milky white glaze exterior, turquoise glaze on milky surface *Comparanda:* Susa Apadana, level II (Kervran 1988, fig. 34:6)
O	Post-Sasanian	Buff ware, gray core, chaff inclusion, micaceous, chaff and mica face



RH-104

RH-105



Pottery from RH-104 and RH-105

Plate 175. Pottery from RH-106

	Period	*Description*
A	Post-Sasanian?	Pale bricky red ware, calcite particle in paste, chaff inclusion, warm buff slip interior, dark gray wash/slip exterior
B	Post-Sasanian?	Pale bricky red ware, calcite particle in paste, chaff inclusion, dark gray wash/slip exterior and interior
C	Sasanian	Yellowish buff ware, no visible inclusion, light blue glaze
D	Sasanian	Light buff ware, no visible inclusion, blue glaze
E	Sasanian/ post-Sasanian	Buff ware, no visible inclusion *Comparanda:* Sirjan (Allan and Roberts 1987, fig. 60:4)
F	Sasanian	Buff ware, scattered sand in paste, no visible inclusion *Comparanda:* Khuzestan (Wenke 1975–76, fig. 8:326)
G	Sasanian	Buff ware, no visible inclusion, dark blue glaze exterior, grayish green glaze interior
H	—	Buff ware, scattered sand in paste, no visible inclusion
I	—	Buff ware, some chaff inclusion, pale buff exterior
J	Post-Sasanian	Green glass

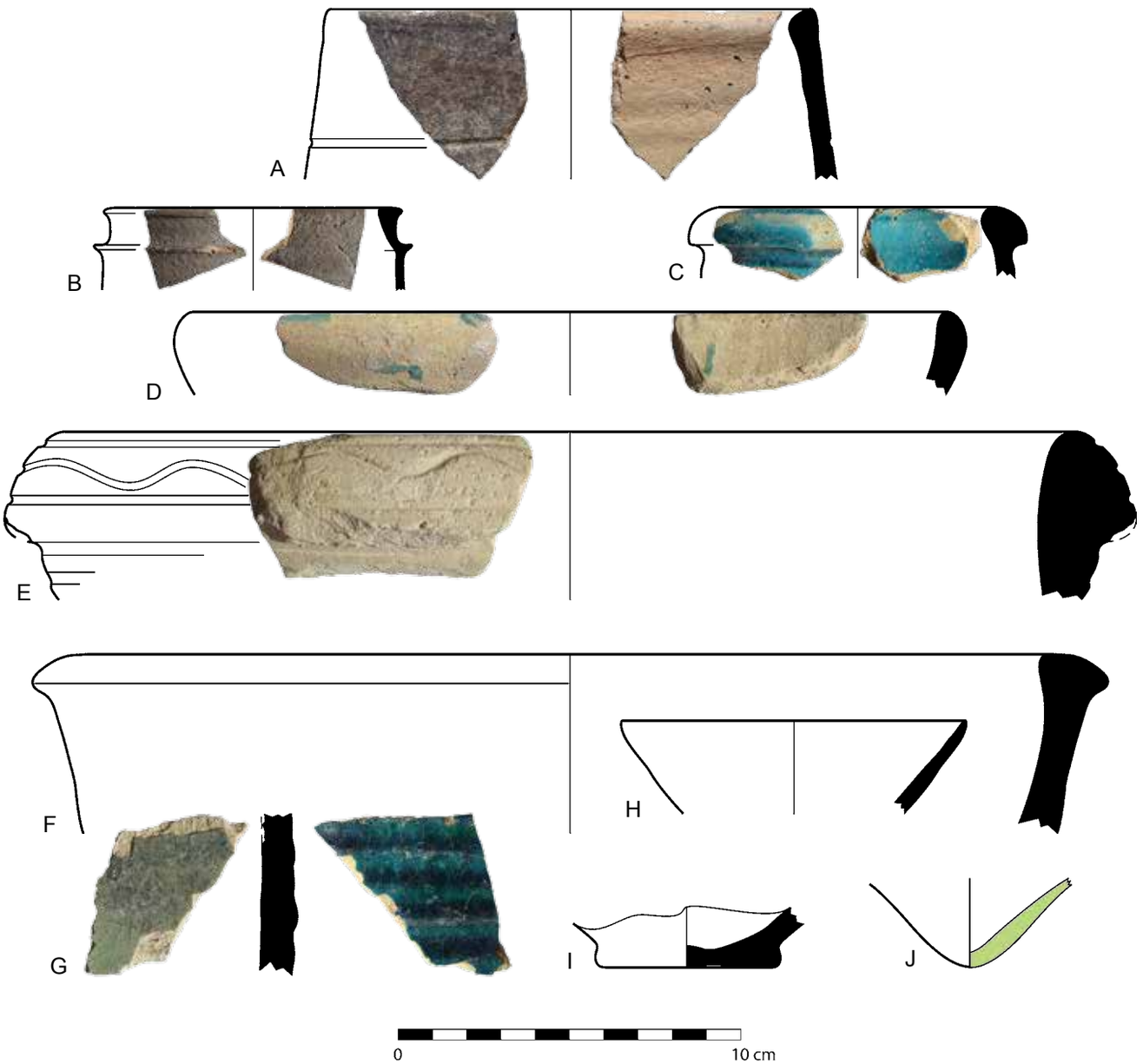
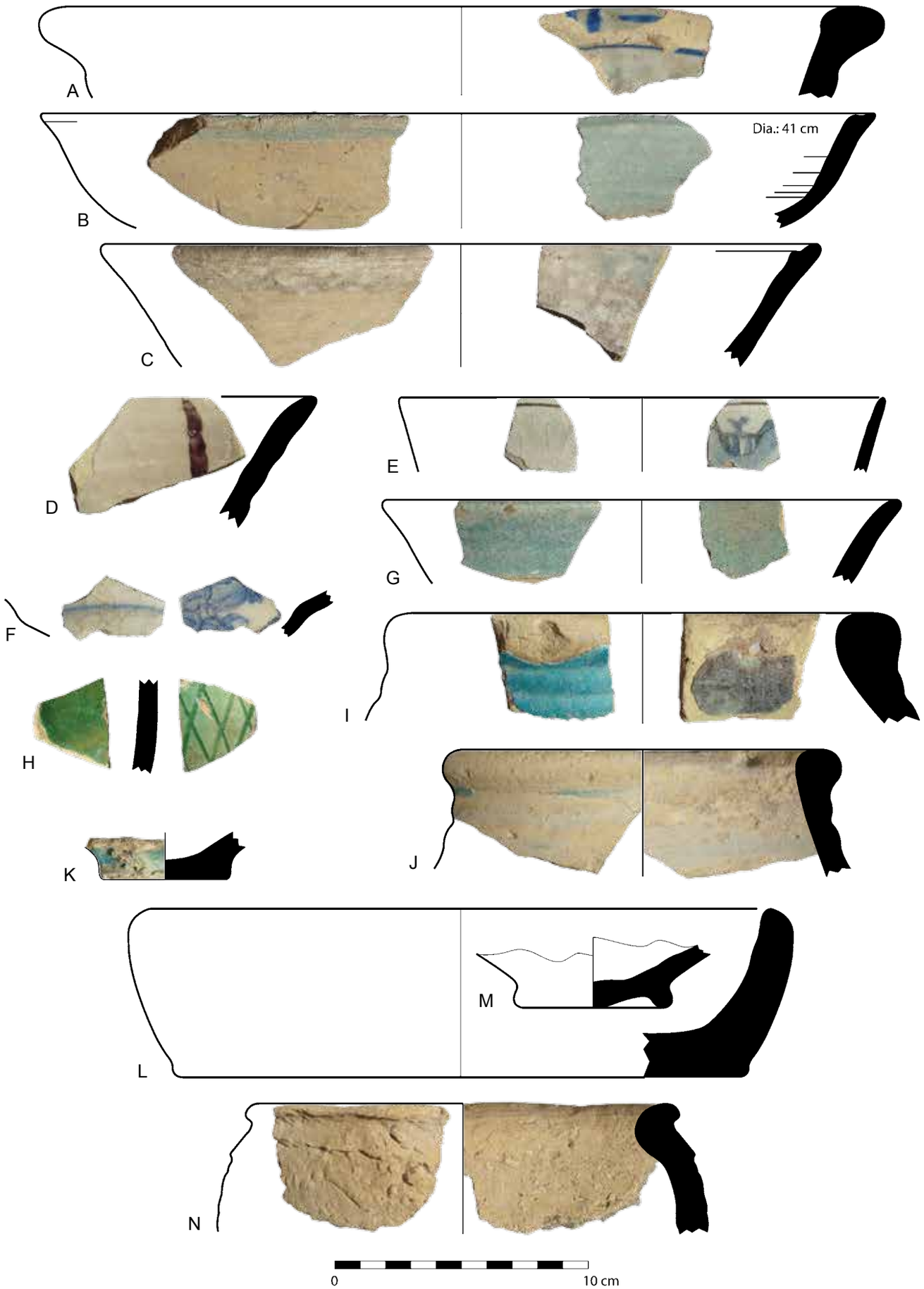


Plate 176. Pottery from RH-108

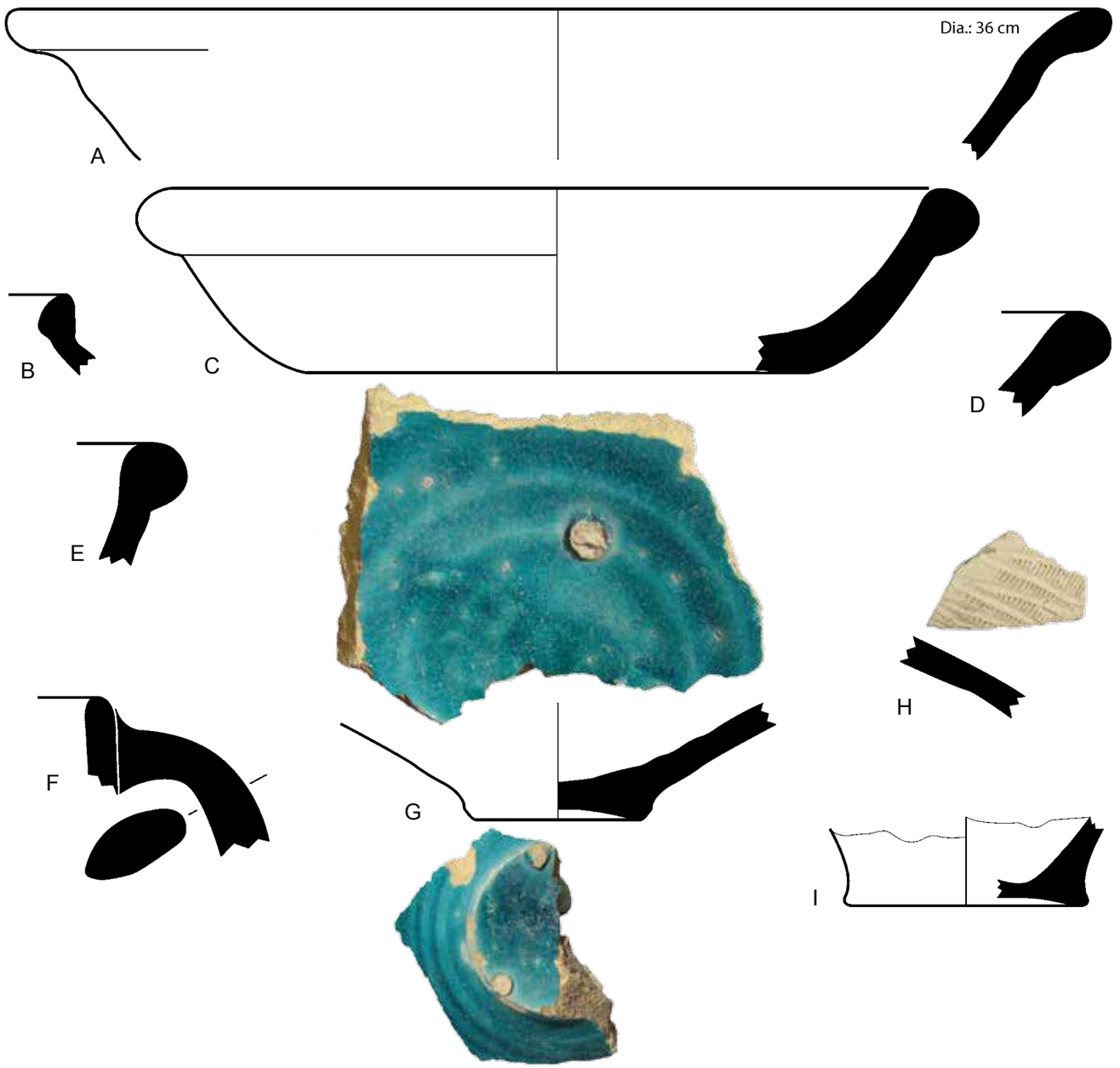
	Period	*Description*
A	Safavid	Buff ware, no visible inclusion, blue glaze
B	Seljuk-Ilkhanid	Buff ware, sandy paste, no visible inclusion, light blue glaze interior and over the exterior rim
C	Seljuk	Buff ware, some sand in paste, no visible inclusion, light blue glaze interior and over the exterior rim
D	Safavid?	Buff ware, no visible inclusion, deep purple paint under clear glaze
E	Safavid	Milky white ware, no visible inclusion, blue, white and black paint under glaze
F	Safavid	Milky white ware, no visible inclusion, blue and white paint under glaze
G	Seljuk	Buff ware, no visible inclusion, turquoise blue glaze
H	Seljuk	Buff ware, no visible inclusion, green glaze
I	Seljuk	Buff ware, no visible inclusion, turquoise blue glaze exterior, purple brown glaze interior
J	Seljuk-Ilkhanid	Buff ware, scattered chaff, turquoise blue glaze
K	Seljuk	Buff ware, no visible inclusion, green glaze
L	—	Pinkish light brown ware, black core, chaff inclusion
M	—	Buff ware, chaff inclusion
N	—	Warm buff, gray core, grog inclusion



Pottery from RH-108

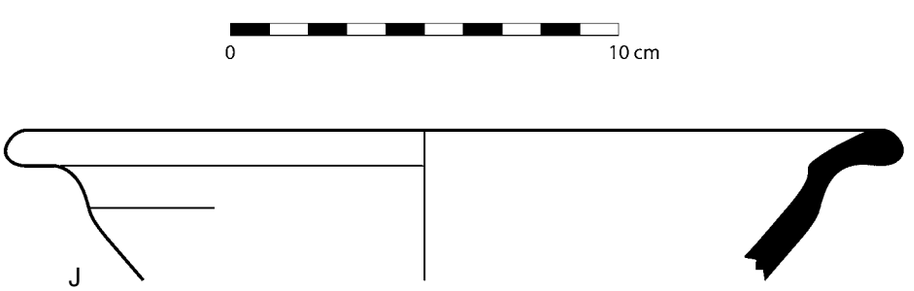
Plate 177. Pottery from RH-109 and RH-110

	Period	*Description*
RH-109		
A	Post-Sasanian	Light brown ware, chaff inclusion, micaceous, chaff and mica face, greenish buff surface
B	—	Light brown ware, black core, calcite particles in paste, chaff inclusion
C	Post-Sasanian	Light brown ware, black core, calcite particles in paste, chaff inclusion
D	Post-Sasanian	Pinkish light brown ware, chaff inclusion, buff surface
E	Post-Sasanian	Pinkish light brown ware, chaff inclusion, buff surface
F	—	Light brown ware, chaff inclusion, buff surface
G	Safavid	Buff ware, chaff inclusion, green glaze
H	Post-Sasanian	Buff ware, no visible inclusion
I	—	Buff ware, sandy paste, greenish buff surface
RH-110		
J	—	Light brown ware, gray core, chaff face, micaceous, chaff and mica face



RH-109

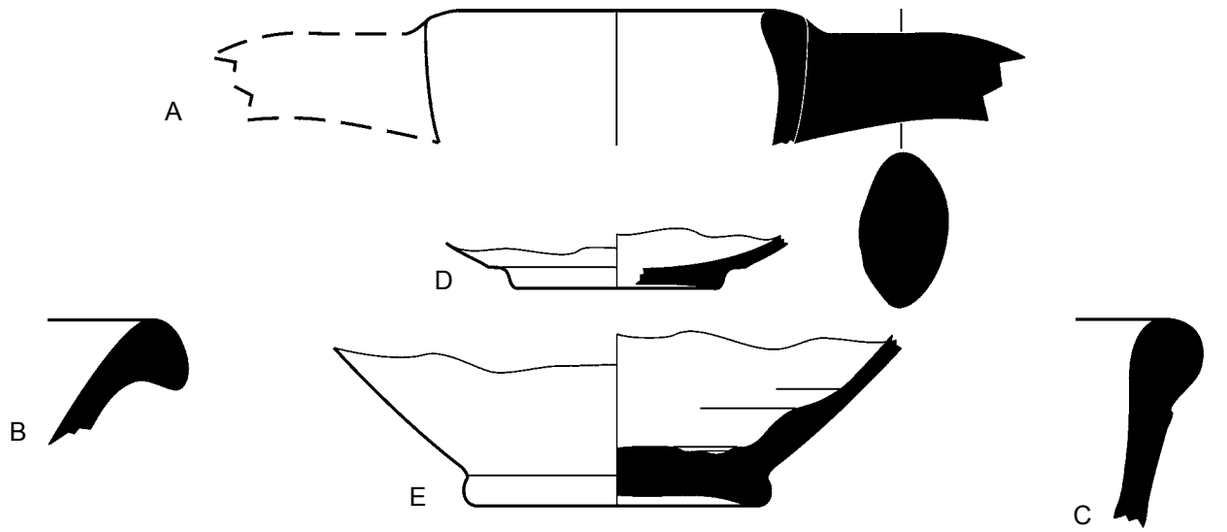
RH-110



Pottery from RH-109 and RH-110

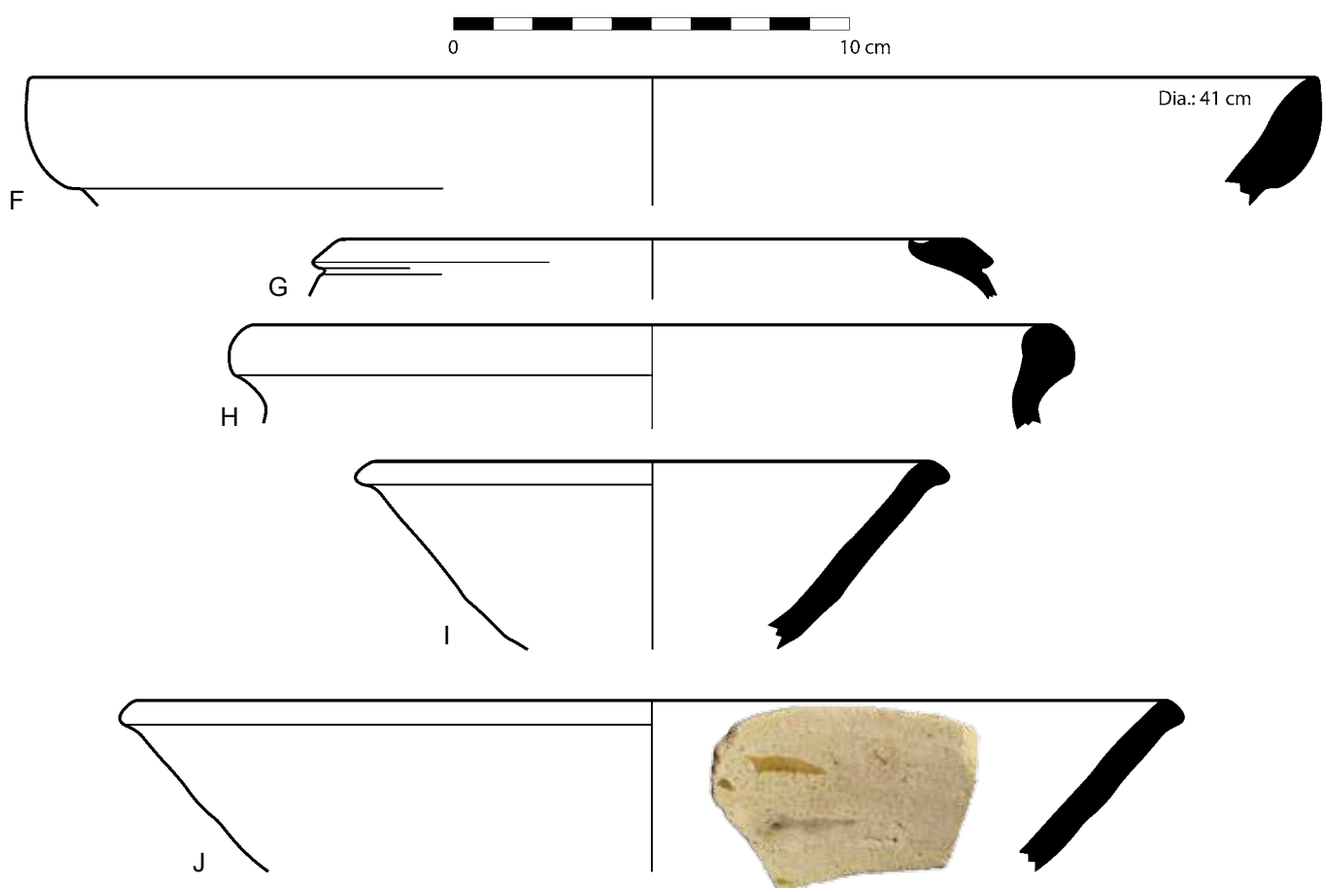
Plate 178. Pottery from RH-111A and RH-111C

	Period	*Description*
RH-111A		
A	Post-Sasanian?	Buff ware, scattered chaff
B	Post-Sasanian	Pinkish buff ware, chaff inclusion, greenish buff surface *Comparanda:* Khuzestan (Wenke 1975–76, fig. 7:129)
C	Post-Sasanian	Buff ware, scattered chaff and sand in paste, greenish buff surface *Comparanda:* Susa Sucrerie (Kervran 1979, fig. 64:5)
D	—	Buff ware, some chaff
E	—	Buff ware, some chaff, greenish buff surface
RH-111C		
F	—	Pinkish light brown ware, chaff inclusion, micaceous, chaff and mica face
G	—	Light gray ware, grog inclusion
H	Post-Sasanian	Light brown ware, gray core, chaff inclusion, micaceous, chaff and mica face *Comparanda:* Susa Apadana, level II (Kervran 1977, fig. 32:1)
I	Post-Sasanian	Buff ware, chaff inclusion *Comparanda:* Susa Apadana, level II (Kervran 1977, fig. 35:3 [glazed]); Khuzestan (Wenke 1975–76, fig. 7:129)
J	Post-Sasanian	Buff ware, chaff inclusion, matte yellow glaze



RH-111A

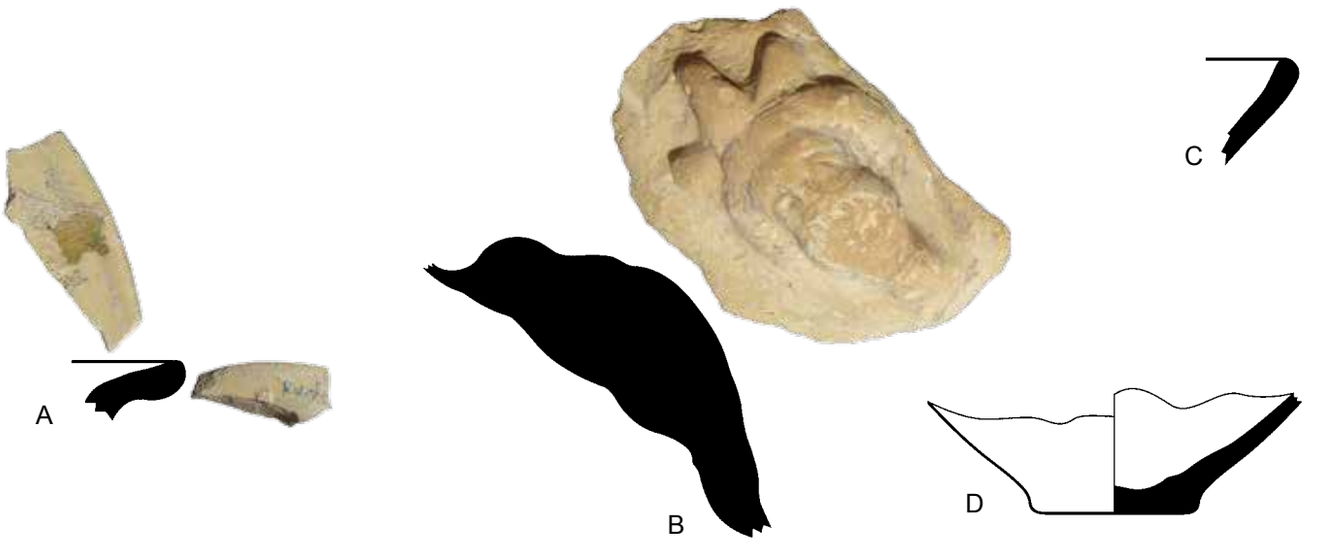
RH-111C



Pottery from RH-111A and RH-111C

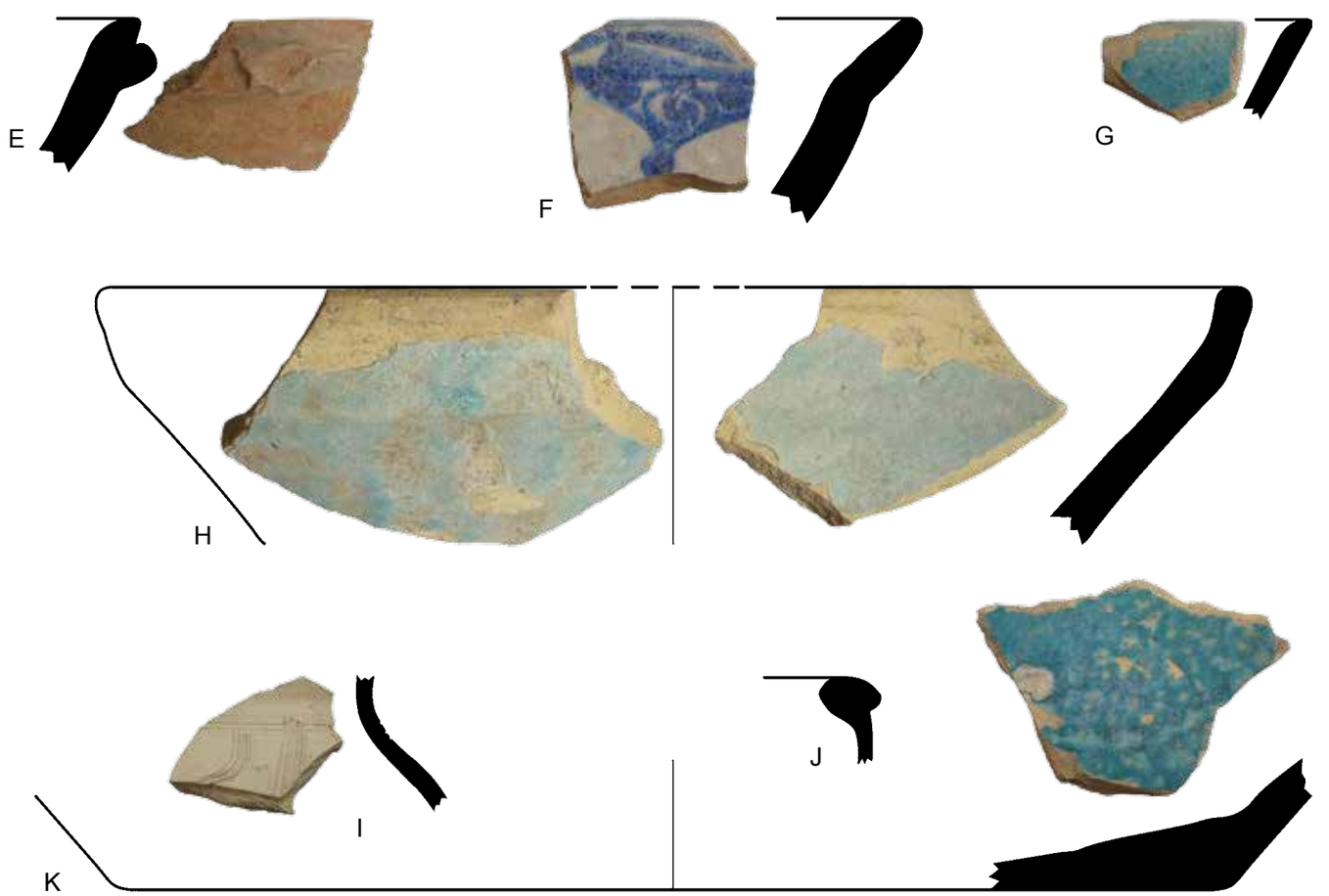
Plate 179. Pottery from RH-112 and RH-113

	Period	*Description*
RH-112		
A	Parthian	Light brown ware, chaff inclusion *Comparanda:* Khuzestan (Wenke 1975–76, fig. 11:532)
B	Parthian	Buff ware, chaff inclusion
C	Parthian?	Light brown ware, chaff inclusion, buff face *Comparanda:* Khuzestan (Wenke 1975–76, fig. 11:538)
D	—	Light brown ware, gray core, chaff inclusion, micaceous, chaff and mica face
RH-113		
E	—	Pinkish light brown ware, gray ware, grog inclusion, red wash
F	Safavid	Pinkish buff ware, no visible inclusion, blue glaze
G	Seljuk?	Pinkish buff ware, no visible inclusion, blue glaze
H	Seljuk-Ilkhanid	Buff ware, no visible inclusion, blue glaze
I	Seljuk	Buff ware, no visible inclusion, greenish buff surface, excised design
J	—	Brown ware, gray core, grog inclusion
K	Seljuk-Ilkhanid	Pinkish buff ware, no visible inclusion, blue glaze



RH-112

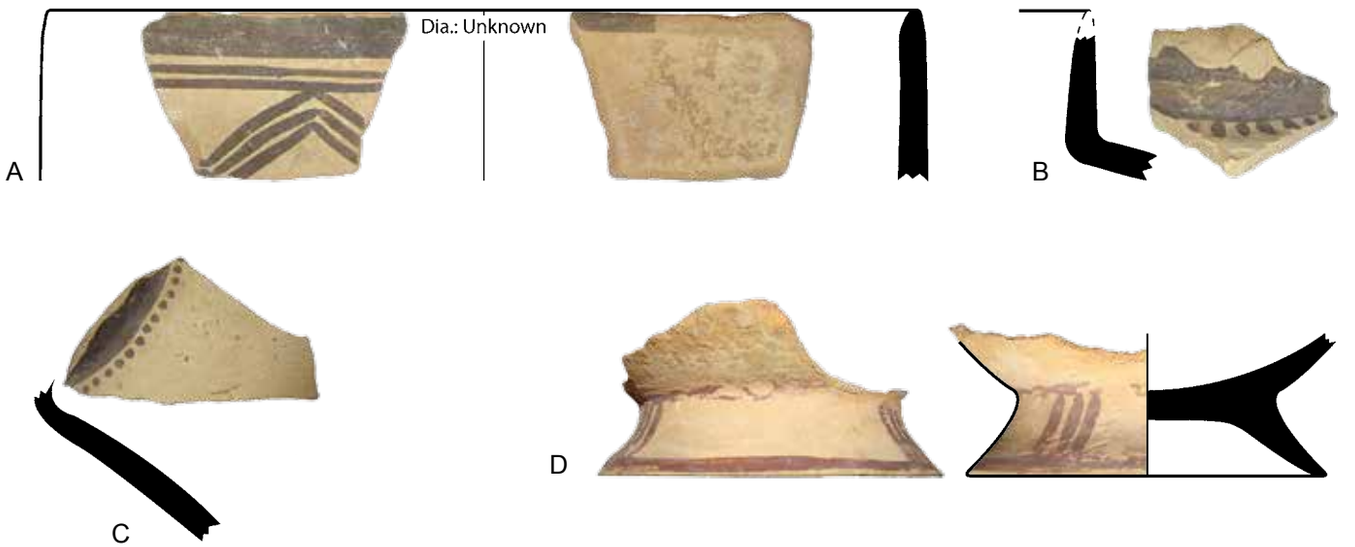
RH-113



Pottery from RH-112 and RH-113

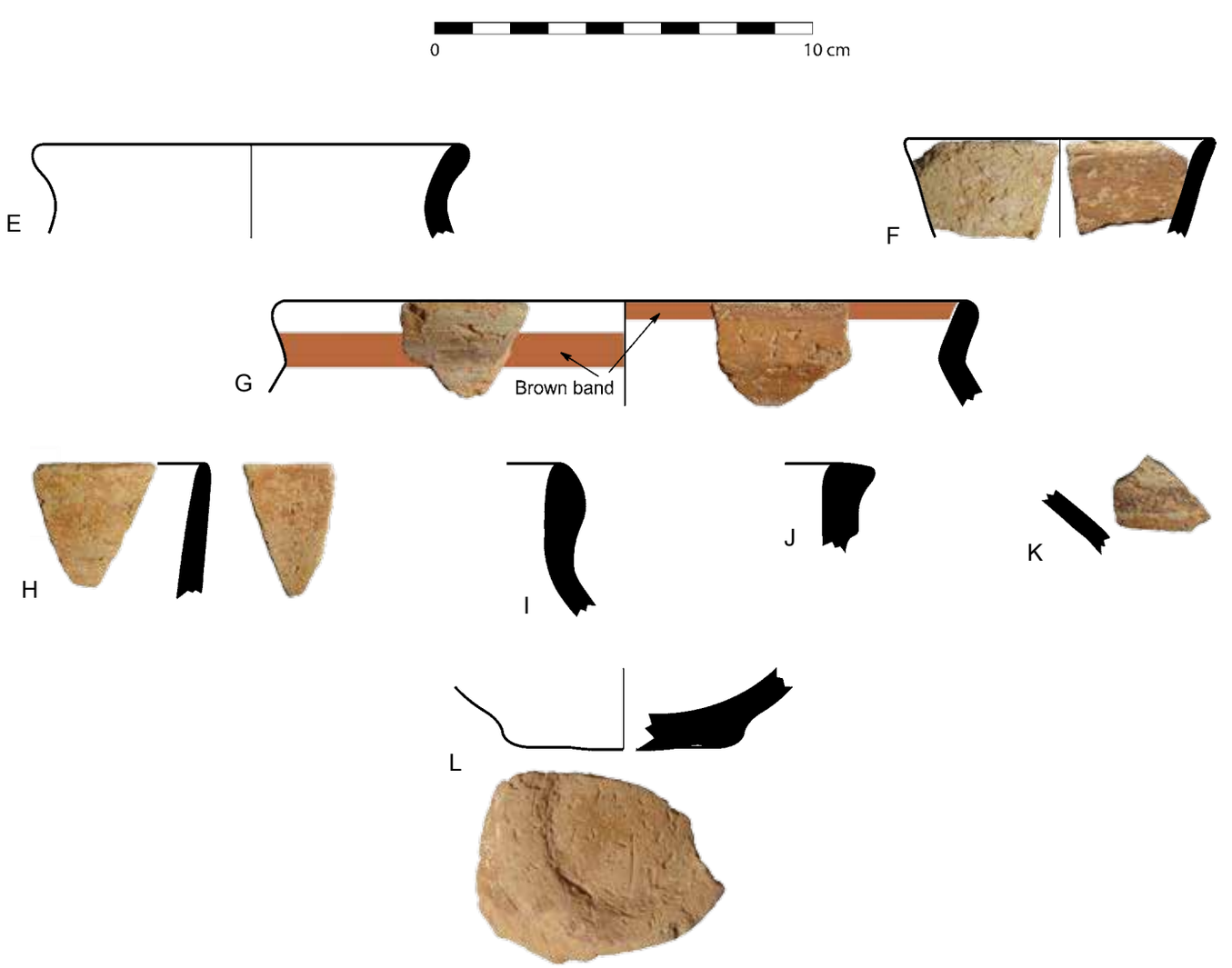
Plate 180. Pottery from RH-114 and RH-115

	Period	*Description*
RH-114		
A	Late Middle Susiana	Pinkish light buff ware, no visible inclusion, greenish brown paint
B	Late Middle Susiana	Buff ware, no visible inclusion, olive green paint
C	Late Middle Susiana	Grayish brown ware, no visible inclusion, brown paint
D	Late Middle Susiana	Light brown ware, no visible inclusion, pinkish buff surface, brown paint
RH-115		
E	Achaemenid	Light brown ware, chaff inclusion, buff brown surface
F	Achaemenid	Buff ware, chaff inclusion, brown wash
G	Achaemenid	Light brown ware, straw inclusion, straw face, light brown wash interior, brown band interior, pale grayish buff wash exterior, brown band exterior
H	Achaemenid	Pinkish light buff ware, chaff inclusion, chaff face, bricky red wash
I	Achaemenid?	Buff ware, chaff inclusion *Comparanda:* Chogha Mish (Alizadeh 2008, fig. 21:A)
J	Achaemenid	Light brown ware, gray core, chaff inclusion
K	Sukkalmah	Light brown ware, black core, chaff inclusion, brown band on light grayish wash
L	Achaemenid?	Light brown ware, straw inclusion, straw face



RH-114

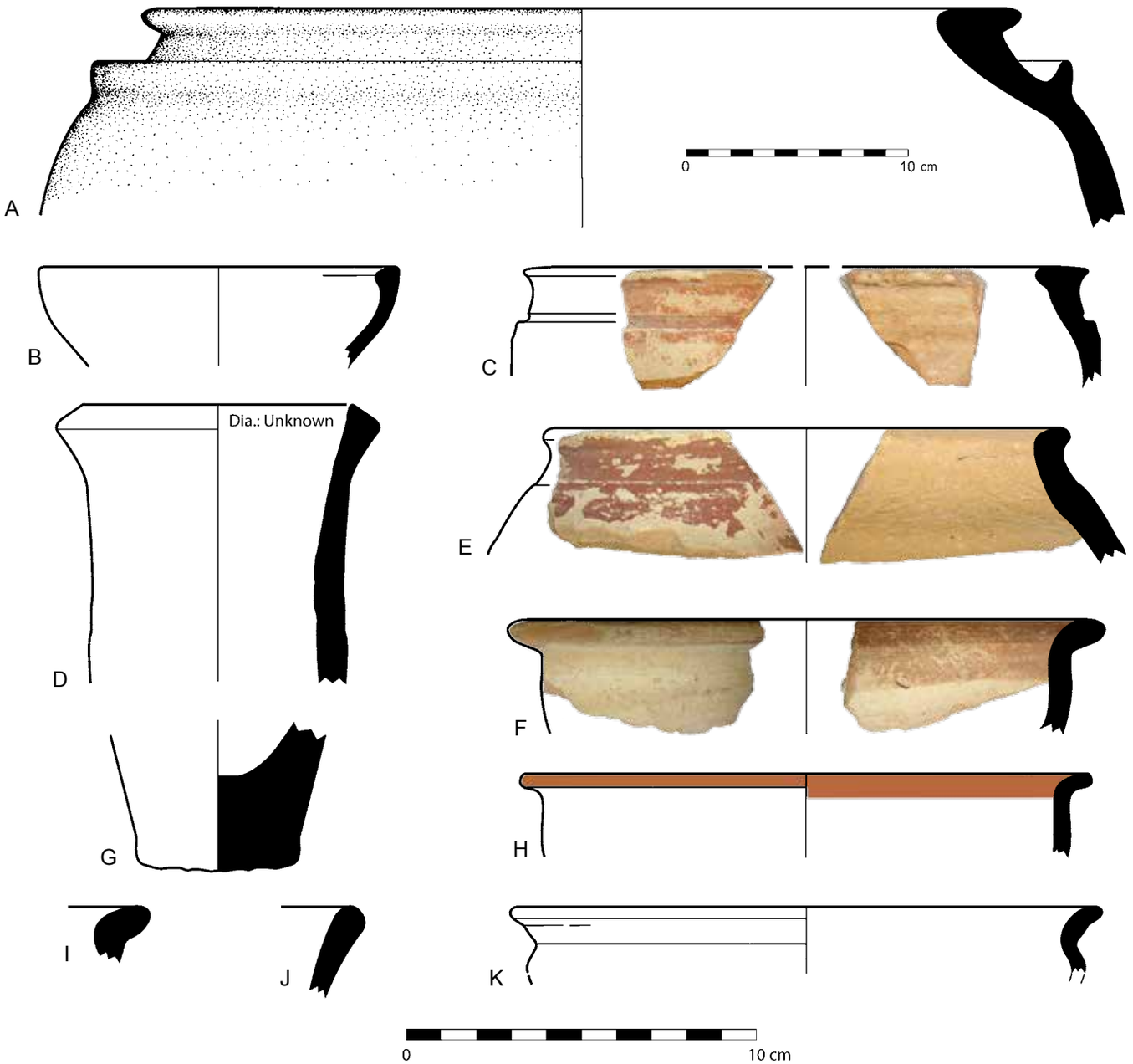
RH-115



Pottery from RH-114 and RH-115

Plate 181. Pottery from RH-116A and RH-116B

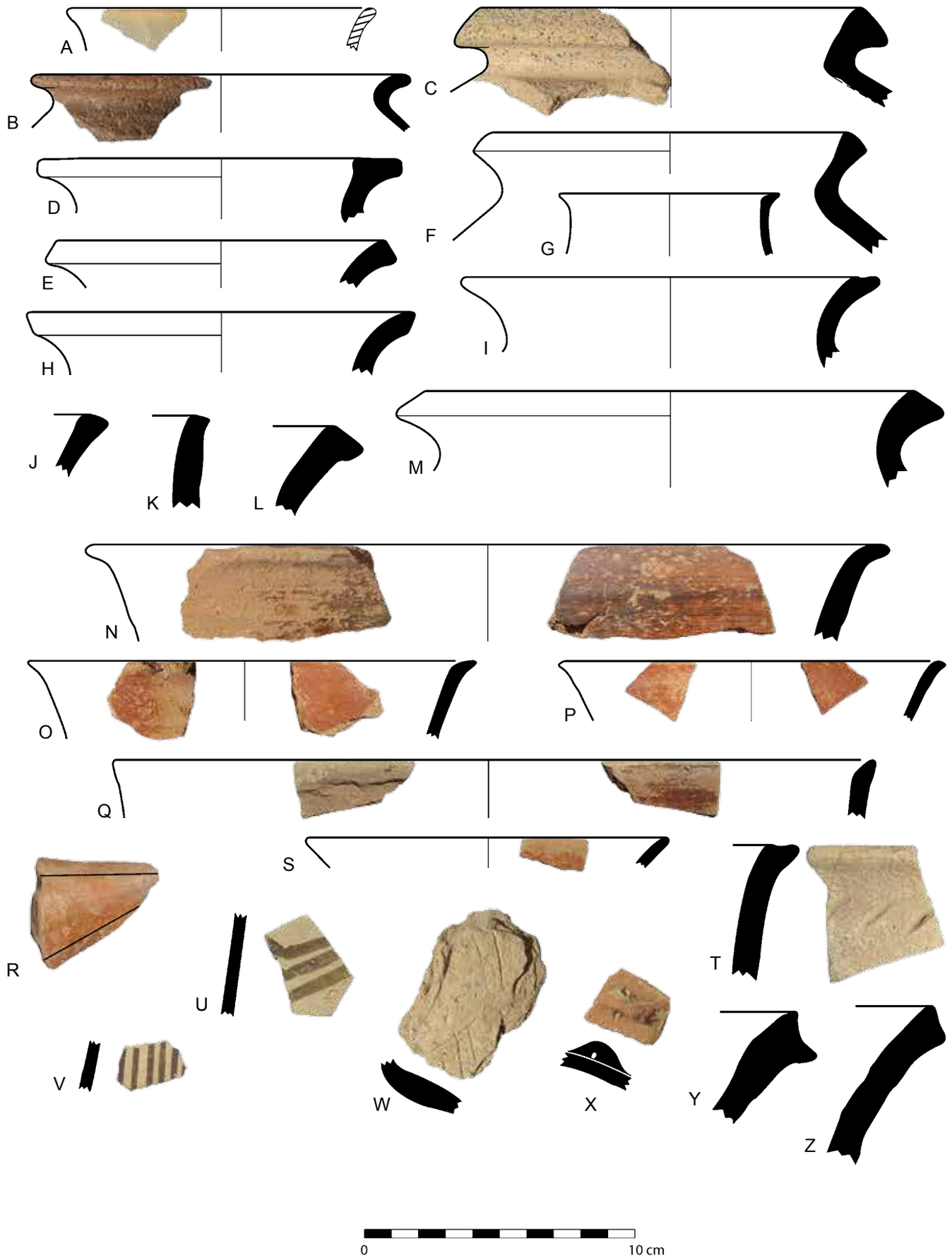
	Period	*Description*
A	Neo-Elamite	Light brown ware, gray core, chaff inclusion, micaceous, chaff and mica face. (A) *Comparanda:* Susa Ville Royale II, level 7B (Miroschedji 1981a, fig. 38:2)
B	Neo-Elamite?	Brown ware, chaff inclusion, buff brown surface. (A) *Comparanda:* Susa Ville Royale II, level 6 (Miroschedji 1981a, fig. 44:4)
C	Neo-Elamite	Light brown ware, chaff inclusion micaceous, mica face, buff surface, red wash *Comparanda:* Susa Ville Royale II, levels 8–9 (Miroschedji 1981a, fig. 26:5, 7), level 7B (ibid., fig. 37:4–5)
D	Neo-Elamite	Pinkish light brown ware, gray core, chaff inclusion, micaceous, chaff and mica face. (B) *Comparanda:* Susa Ville Royale II, level 7B (Miroschedji 1981a, fig. 35:1)
E	Achaemenid	Pinkish light brown ware, gray core, chaff inclusion, micaceous, chaff and mica face, polished. (A)
F	Achaemenid	Pinkish light brown ware, some chaff and sand in paste, buff surface, brown paint. (B)
G	Neo-Elamite?	Pinkish light brown ware, gray core, chaff inclusion, micaceous, chaff and mica face. (B)
H	Achaemenid	Pinkish light brown ware, gray core, chaff inclusion, micaceous, chaff and mica face, brown paint. (A)
I	—	Pinkish light brown ware, no visible inclusion, buff surface (116)
J	—	Buff ware, no visible inclusion, buff brown surface (116)
K	Achaemenid	Light brown ware, no visible inclusion (116)



Pottery from RH-116A and RH-116B

Plate 182. Pottery from RH-117

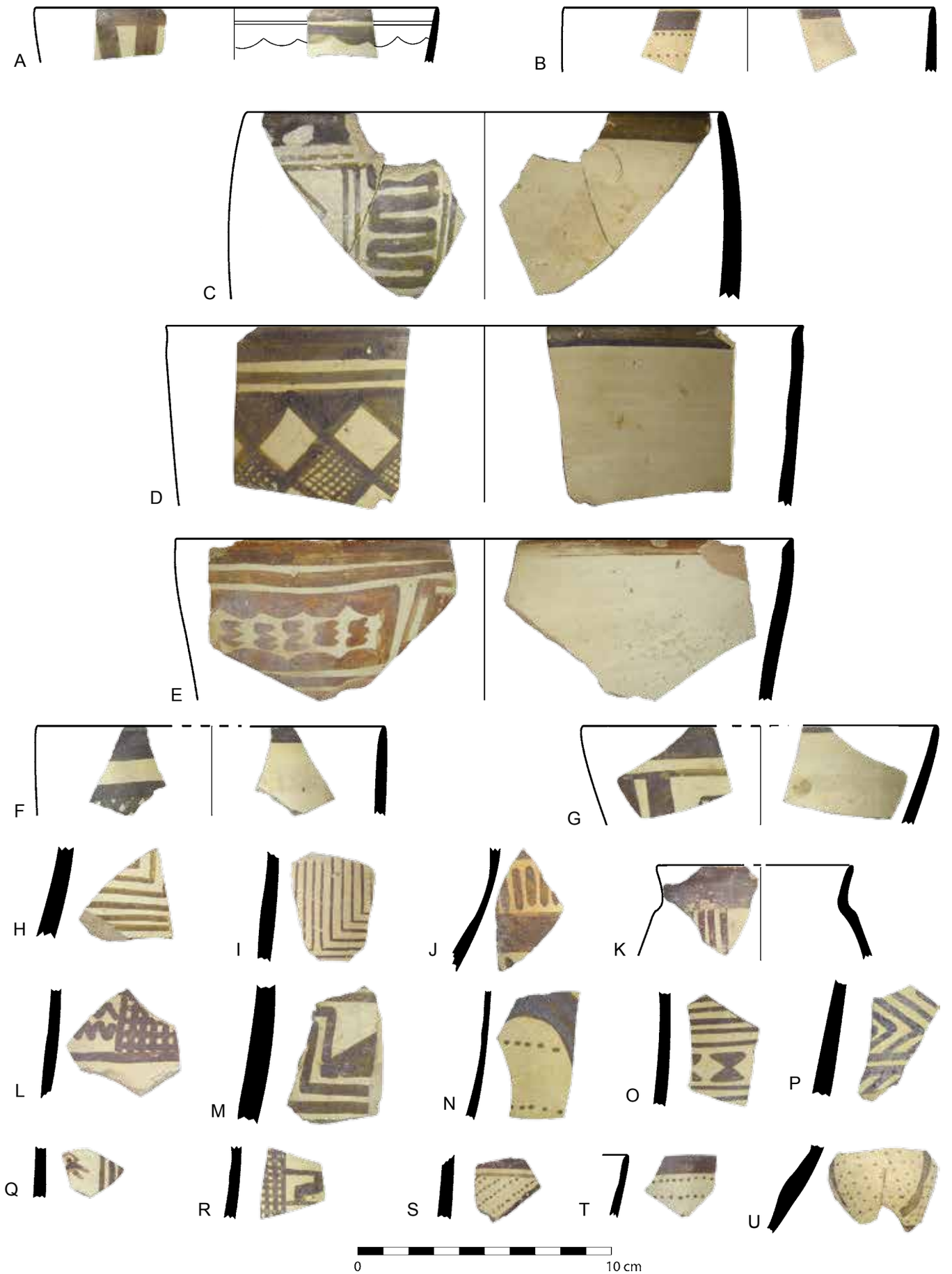
	Period	*Description*
A	Proto-Elamite	Alabaster
B	—	Brown ware, gray core, chaff inclusion, brown wash
C	Late Susa II	Pinkish buff ware, white and black grits in paste, chaff inclusion, gritty face
D	Late Susa II	Warm buff ware, chaff inclusion
E	Late Susa II	Buff ware, sandy paste, no visible inclusion, sandy face, greenish buff surface
F	Late Susa II	Pinkish buff ware, sandy paste, no visible inclusion
G	Late Susa II	Light brown ware, chaff inclusion micaceous, mica face
H	Late Susa II	Light brown ware, gray ware, chaff inclusion micaceous, mica face
I	Late Susa II	Pinkish light brown ware, gray core, chaff inclusion
J	Late Susa II	Pinkish light brown ware, sandy paste, scattered chaff, sandy face
K	—	Light buff ware, chaff inclusion, micaceous, chaff and mica face
L	Late Susa II	Light buff ware, chaff inclusion, chaff face
M	Late Susa II	Buff ware, sandy paste, no visible inclusion
N	Achaemenid	Light buff ware, chaff inclusion, micaceous, chaff and mica face, reddish brown wash
O	Achaemenid	Pinkish light brown ware, chaff inclusion, brown wash
P	Achaemenid	Pinkish light brown ware, chaff inclusion, reddish brown wash
Q	Achaemenid	Pinkish light brown ware, chaff inclusion, reddish brown wash
R	Achaemenid	Spout. Light buff ware, chaff inclusion, reddish brown wash
S	Achaemenid	Light brown ware, gray core, chaff inclusion micaceous, mica face
T	Early Susa II	Buff ware, gray core, chaff inclusion
U	Late Middle Susiana?	Buff ware, no visible inclusion, greenish buff surface, green paint
V	Late Middle Susiana?	Buff ware, no visible inclusion, greenish buff surface, brown paint
W	Early Susa II	Buff ware, chaff inclusion
X	Proto-Elamite	Brown ware, chaff inclusion, buff surface
Y	Late Susa II	Buff ware, chaff inclusion, pinkish buff surface
Z	Late Susa II	Buff ware, straw inclusion, straw face



Pottery from RH-117

Plate 183. Pottery from RH-118A

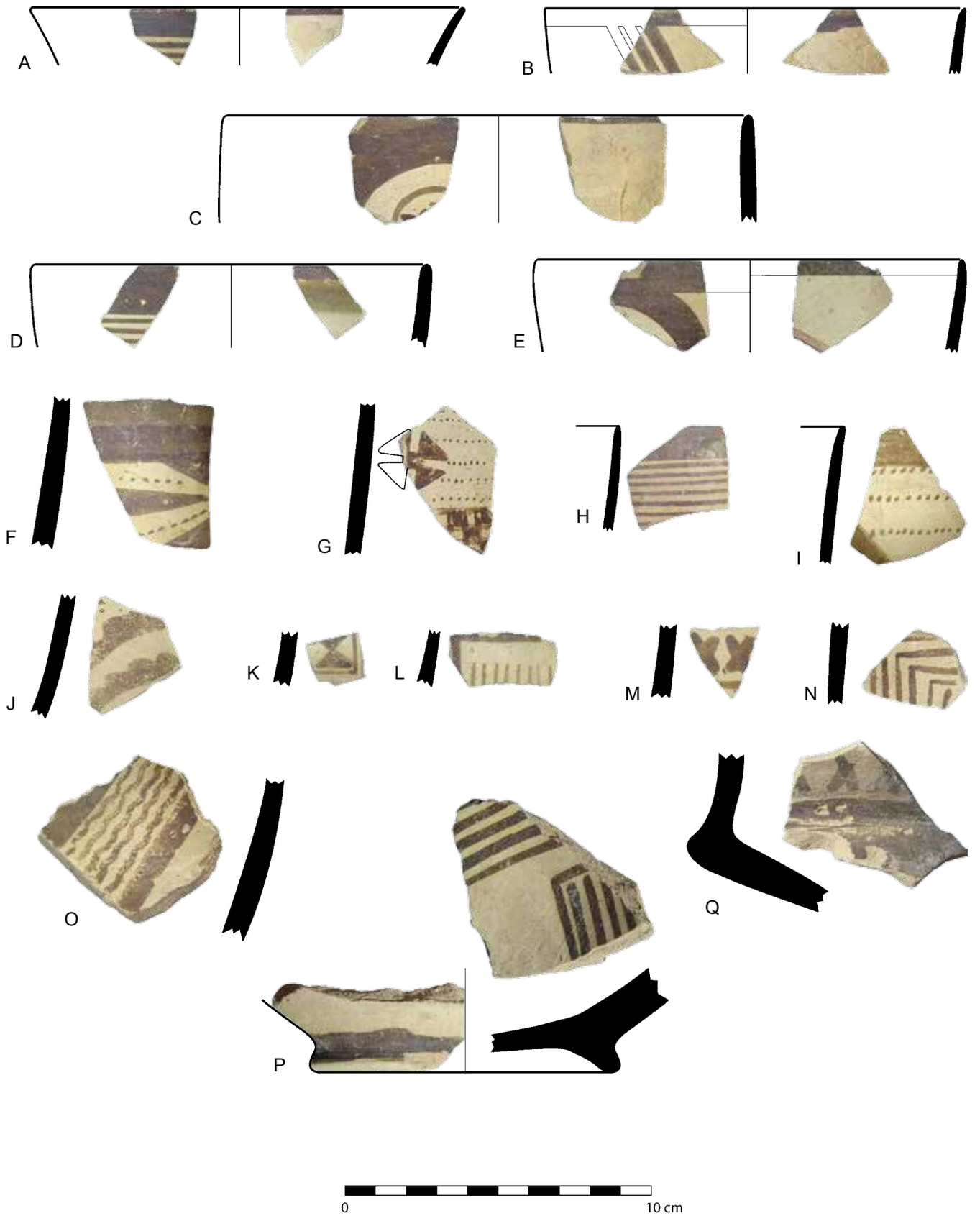
	Period	*Description*
A	Late Middle Susiana	Buff ware, no visible inclusion, greenish buff surface, greenish brown paint
B	Late Susiana 1	Buff ware, no visible inclusion, brown paint
C	Late Middle Susiana	Buff ware, no visible inclusion, brown paint
D	Late Middle Susiana	Buff ware, no visible inclusion, greenish buff surface, olive green paint
E	Late Middle Susiana	Warm buff, no visible inclusion, pinkish buff surface, olive green paint
F	Late Middle Susiana	Buff ware, no visible inclusion, greenish buff surface, olive green paint
G	Late Middle Susiana	Buff ware, some sand in paste, no visible inclusion, greenish buff surface, olive green paint
H	Late Susiana 1	Buff ware, no visible inclusion, brown paint
I	Late Susiana 1	Warm buff ware, no visible inclusion, brown paint
J	Late Middle Susiana	Buff ware, no visible inclusion, brown paint
K	Late Middle Susiana	Warm buff, no visible inclusion, micaceous, mica face, pinkish buff surface, brown paint
L	Late Middle Susiana	Creamy buff ware, no visible inclusion, brown paint
M	Late Middle Susiana	Buff ware, no visible inclusion, brown paint
N	Late Susiana 1	Buff ware, no visible inclusion, greenish buff surface, brown paint
O	Late Susiana 1	Buff ware, no visible inclusion, brown paint
P	Late Susiana 1	Buff ware, sandy paste, no visible inclusion, greenish buff surface, brown paint
Q	Late Susiana 1	Buff ware, no visible inclusion, brown paint
R	Late Susiana 1	Buff ware, sandy paste, no visible inclusion, olive green paint
S	Late Susiana 1	Buff ware, no visible inclusion, brown paint
T	Late Susiana 1	Buff ware, no visible inclusion, brown paint
U	Late Susiana 1	Buff ware, no visible inclusion, brown paint



Pottery from RH-118A

Plate 184. Pottery from RH-118B

	Period	*Description*
A	Late Middle Susiana	Buff ware, no visible inclusion, brown paint
B	Late Middle Susiana	Buff ware, no visible inclusion, olive green paint
C	Late Susiana 1	Buff ware, no visible inclusion, brown paint
D	Late Middle Susiana	Buff ware, no visible inclusion, olive green paint
E	Late Susiana 1	Buff ware, no visible inclusion, olive green paint
F	Late Susiana 1	Buff ware, no visible inclusion, olive green paint
G	Late Susiana 1	Buff ware, no visible inclusion, brown paint
H	Late Susiana 1	Creamy buff ware, no visible inclusion, brown paint
I	Late Susiana 1	Buff ware, no visible inclusion, olive green paint
J	Late Susiana 1	Buff ware, no visible inclusion, brown paint
K	Late Susiana 1	Buff ware, no visible inclusion, olive green paint
L	Late Susiana 1	Buff ware, no visible inclusion, olive green paint
M	Late Middle Susiana	Buff ware, no visible inclusion, brown paint
N	Late Susiana 1	Buff ware, no visible inclusion, brown paint
O	Late Middle Susiana	Buff ware, no visible inclusion, dark brown paint
P	Late Middle Susiana	Buff ware, no visible inclusion, olive green paint
Q	Late Middle Susiana	Buff ware, no visible inclusion, olive green paint



Pottery from RH-118B

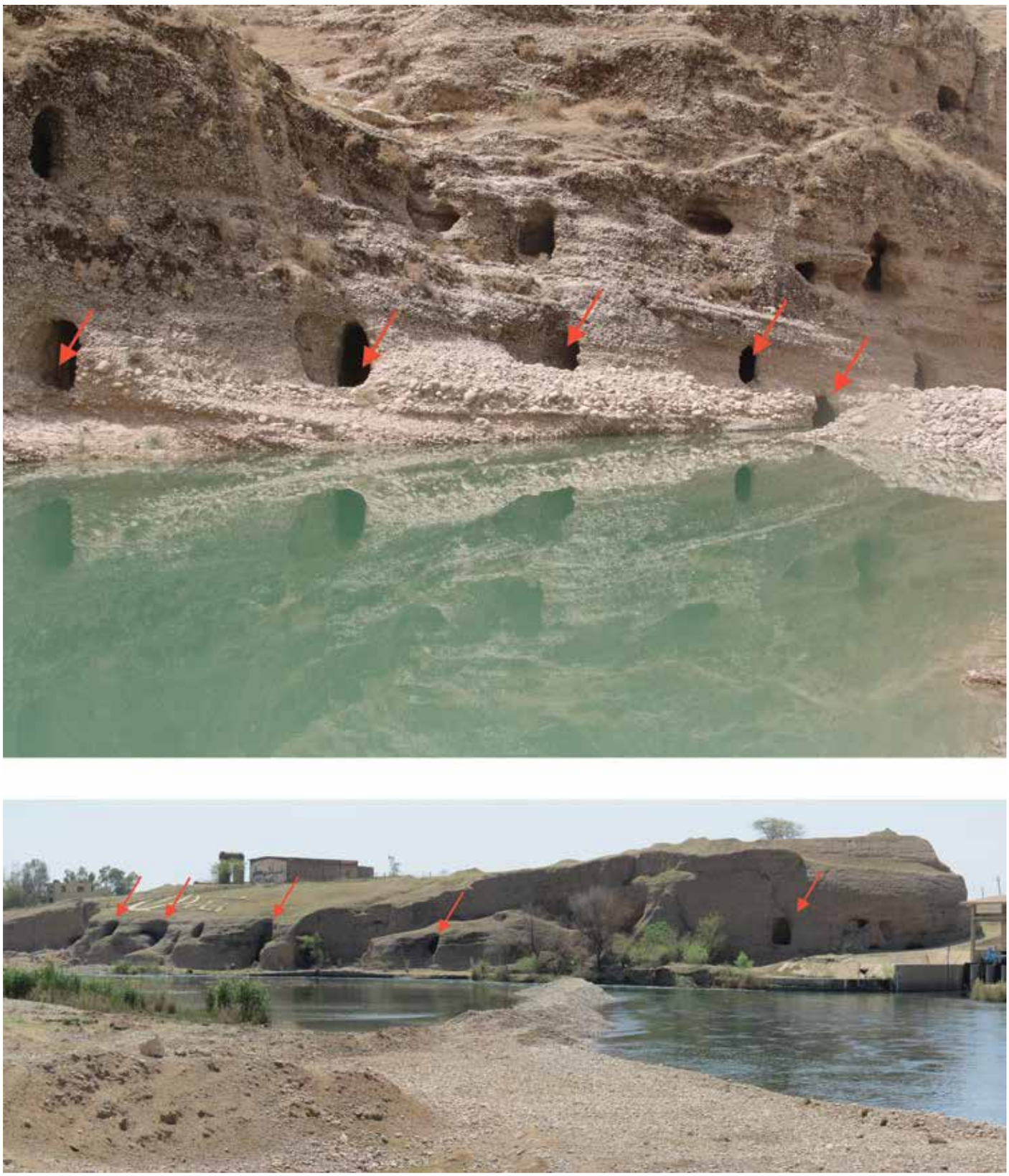
Plate 185. Flint blades from various sites in the Ram Hormuz region*

	Site Number	*Description*
A	RH-007N	Medium gray: This type varies from fine to coarse, usually with a medium granular or matte surface, banded or mottled. The source occurs in Pleistocene gravels north of the road from Andimeshk to Deh Luran. Large quarry pits are visible near the Karkheh. Bedrock sources must occur in the inner Zagros, but it does not seem to be carried in the gravels of the Dez or Karun. This is the preferred flaked stone raw material in southwest Iran, especially for sickle blades and large blade tools. When found in areas such as Ram Hormuz or Izeh, many days travel east of its sources, or in Lower Mesopotamia proper (for example, at Abu Salabikh), one can suggest some kind of medium-range exchange.
B	RH-117	Fine translucent tan: This rare type varies from brown to tan and often has a banding of translucent and opaque layers. This blade shows a typical white chalky cortex. Allen Zagarell found this type as a bedrock chert near Lali in the Andika area of the inner Zagros, and it is carried in limited quantities in Karun gravels. Henry Wright found blades of this type at Sharafabad in a pit that is dated as “Autumn layers” and suggests that they might have been brought from the inner Zagros by returning Uruk pastoralists en route from summer to winter camps. If so, these few items would represent embedded long-range exchange.
C	RH-018	Medium gray; see A
D	RH-052	Medium gray; see A
E	RH-077	No description available
F	RH-052	Medium gray; see A
G	RH-117	Medium gray; see A
H	RH-010	Medium gray; see A
I	RH-069A	Medium gray; see A
J	RH-117	Medium gray; see A
K	RH-078A	Medium gray; see A
L	RH-018	No description available
M	RH-118A	Fine translucent tan? See B
N	RH-067	Medium gray; see A
O	RH-117	Burnt? Difficult to identify
P	RH-067	Medium gray; see A
Q	RH-078A	No description available
R	RH-078A	Medium gray; see A
S	RH-117	Medium gray; see A
T	RH-118A	Burnt/heated, probably fine translucent tan; see B
U	RH-047	No description available
V	RH-007N	Medium gray; see A
W	RH-118A	Medium gray; see A
X	RH-069A	Medium gray; see A
Y	RH-069A	Fine banded brown and red; see B
Z	RH-018	Fine mottled gray: A fine gray to tan chert with fine mottles, sometime bands, often with distinctive bluish patina. It is rare in southwestern Iran
AA	RH-118A	Burnt?
BB	RH-117	Medium gray; see A
CC	RH-052	Medium gray?
DD	RH-069A	Fine translucent tan or medium gray; see A–B

* Henry Wright kindly provided the blade categories that he also used in his publication on Farukhabad (Wright ed. 1981).

Flint blades from various sites in the Ram Hormuz region

Two contemporary abandoned villages in the Ram Hormuz region



(*top*) Sasanian aqueducts on the ʿAla River;
(*bottom*) Sasanian aqueducts on the Karkheh, near Pāy-e Pul, northwest of Susa

Sasanian Jarreh Dam on the Zard River northeast of Ram Hormuz

A

B

C

Various natural springs in the Ram Hormuz region: (*A*) Cheshme Qaravol, (*B*) Mound B Spring, (*C*) Geser South Spring (photos by M. Karami)

Plate 190

A

B

C

Mamatian bitumen springs: (*A*) flaming gas seeping through rocks; (*B*) old bitumen processing installations; (*C*) Mehdi Omidfar at a bitumen spring

A

B

C

(*A*) Preparation of *Mallow* in a nomadic village; (*B*) *Malva* spp.;
(*C*) Halophyte bushes in a salt/gypsum-encrusted field near Tall-e Geser

Plate 192

Some semi-permanent mobile pastoralist camps in eastern Ram Hormuz

A

B

Geser Complex and its environs in 1948: (*A*) view from southwest, and (*B*) view from west (photos by Donald E. McCown)

A

B

C

D

(*A* and *B*) Geser environs in 1948; (*C*) 1949 excavations at the Step Trench;
(*D*) Garnet McCown and other expedition members (photos by Donald E. McCown)

A

B

C

(*A*) Geser Mound A, view from southeast; (*B*) Geser Mound A, view from southwest;
(*C*) Ein Saba natural spring, south of Mound A

A

B

C

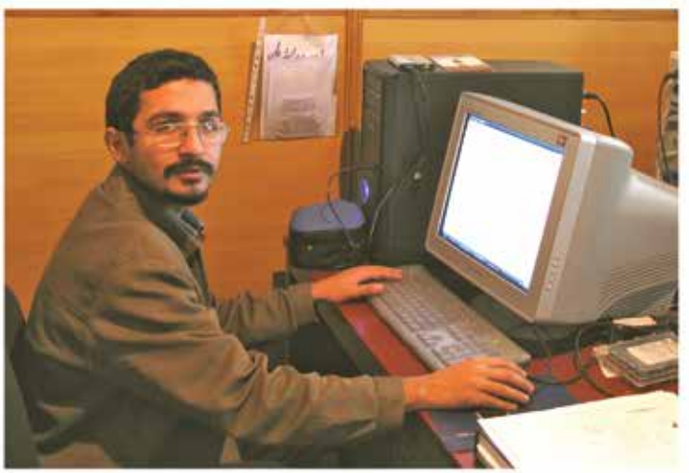
(*A*) Geser Mound A with the Step Trench in foreground; (*B*) Mound D; (*C*) Geser Village sign

The 2005–2006 Survey team at Geser (Mound A): Standing left to right: Ehsan Barani, Abbas Alizadeh, Mojdeh Lajmiri, Fatemeh Sarvi, Lily Niakan, Moniro Avaze, and Marzieh Zare-Khalili. Sitting: Mohammad Karami, Alireza Peimani, Fardin Bigdeli, Hasan Toloii (driver), Mr. Jalal Loghmani (student) taking the photograph

Plate 198

A

B



C

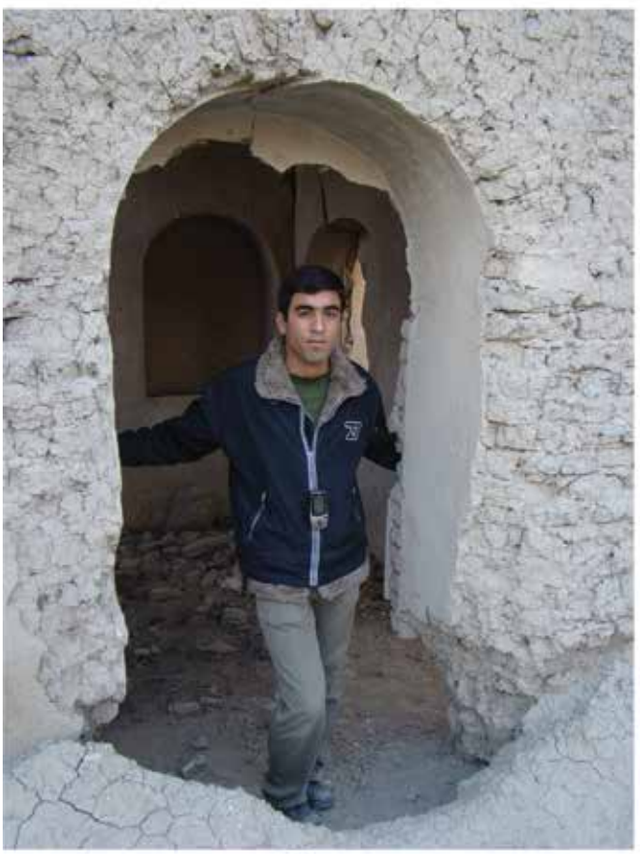
D

E

Various individuals involved in the project: (*A*) A. Khosrozadeh dating Parthian/Sasanian sherds; (*B*) Mrs. Leila Khamushi dating post-Sasanian sherds; (*C*) Mohammad Reza ("Em Ar") Rokni processing data; (*D*) Diana Olson-Rasche photographing Geser objects; (*E*) Janet Helman processing Geser sherds (photos: Nahid Ghafori and Abbas Alizadeh)

A

B



C

D

The 2007–2009 survey team: (*A*) Mehdi Omidfar and Loghman Ahmadzadeh in a mobile pastoralist camp, (*B*) Azam Malek Zeidabadi and Parivash Zahedi, (*C*) Mojtaba Shahryari, (*D*) Kiyumars Haji-Mohammadi and Mehdi Karamnejad

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98. *Old Babylonian Public Buildings in the Diyala Region*, Part 1: *Excavations at Ishchali;* Part 2: *Khafājah Mounds B, C, and D*. Harold D. Hill, Thorkild Jacobsen, and Pinhas Delougaz. 1990.
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108. *The Holmes Expeditions to Luristan*. Text and Plates. Erich F. Schmidt, Maurits N. van Loon, and Hans H. Curvers. 1989.
109. *Town and Country in Southeastern Anatolia* 1. *Settlement and Land Use at Kurban Höyük and Other Sites in the Lower Karababa Basin*. Tony J. Wilkinson et al. 1990.
110. *Town and Country in Southeastern Anatolia* 2. *The Stratigraphic Sequence at Kurban Höyük*. Text and Plates. Guillermo Algaze et al., eds. 1990.
111. *Nippur* 3. *Kassite Buildings in Area WC-1*. Richard L. Zettler. 1993.
112. *Reliefs and Inscriptions at Luxor Temple* 1. *The Festival Procession of Opet in the Colonnade Hall*. The Epigraphic Survey. 1994.
113. *The Oriental Institute Hawara Papyri: Demotic and Greek Texts from an Egyptian Family Archive in the Fayum (Fourth to Third Century B.C.)*. George R. Hughes and Richard Jasnow. 1997.
114. *Nippur* 4. *The Early Neo-Babylonian Governor's Archive from Nippur*. S. W. Cole. 1996.
115. *Cuneiform Texts from the Ur III Period in the Oriental Institute* 1. *Drehem Administrative Documents from the Reign of Šulgi*. Markus Hilgert. 1998.
116. *Reliefs and Inscriptions at Luxor Temple* 2. *The Facade, Portals, Upper Register Scenes, Columns, Marginalia, and Statuary in the Colonnade Hall*. The Epigraphic Survey. 1998.
117. *Seals on the Persepolis Fortification Tablets* 1. *Images of Heroic Encounter*. Text and Plates. Mark B. Garrison and Margaret Cool Root. 2001.
118. *Scarabs, Scaraboids, Seals, and Seal Impressions from Medinet Habu*. Emily Teeter. 2003.

119. *Theban Desert Road Survey in the Egyptian Western Desert* 1. *Gebel Tjauti Rock Inscriptions 1–45 and Wadi el-Ḥôl Rock Inscriptions 1–45*. John C. Darnell. 2002.
120. *Excavations at the Prehistoric Mound of Chogha Bonut, Khuzestan, Iran, Seasons 1976/77, 1977/78, and 1996*. Abbas Alizadeh. 2003.
121. *Cuneiform Texts from the Ur III Period in the Oriental Institute* 2. *Drehem Administrative Documents from the Reign of Amar-Suena*. Markus Hilgert. 2003.
122. *Neo-Babylonian Texts in the Oriental Institute Collection*. David B. Weisberg. 2003.
123. *Temple of Khonsu* 3. *The Graffiti on the Khonsu Temple Roof at Karnak: A Manifestation of Personal Piety*. Helen Jacquet-Gordon. 2003.
124. *Excavations at Tell es-Sweyhat, Syria* 1. *On the Margin of the Euphrates: Settlement and Land Use at Tell es-Sweyhat and in the Upper Lake Assad Area, Syria*. Tony J. Wilkinson. 2004.
125. *Excavations at Tell es-Sweyhat, Syria* 2. *Archaeology of the Bronze Age, Hellenistic, and Roman Remains at an Ancient Town on the Euphrates River*. Text and Plates. Thomas A. Holland. 2006.
126. *Taxes, Taxpayers, and Tax Receipts in Early Ptolemaic Thebes: Demotic and Greek Ostraca from the Oriental Institute Museum, Chicago*. Brian P. Muhs. 2005.
127. *Megiddo* 3. *Final Report on the Stratum VI Excavations*. Timothy P. Harrison. 2004.
128. *The Origins of State Organizations in Prehistoric Highland Fars, Southern Iran: Excavations at Tall-e Bakun*. Abbas Alizadeh. 2006.
129. *Nippur* 5. *The Early Dynastic to Akkadian Transition: The Area WF Sounding at Nippur*. Augusta McMahon. 2006.
130. *Chogha Mish* 2. *The Development of a Prehistoric Regional Center in Lowland Susiana, Southwestern Iran: Final Report on the Last Six Seasons of Excavations: 1972–1978*. Abbas Alizadeh. 2008.
131. *The Amuq Valley Regional Projects* 1. *Surveys in the Plain of Antioch and Orontes Delta, Turkey: 1995–2002*. Kutlu Aslıhan Yener. 2005.
132. *The Egyptian Coffin Texts* 8. *Middle Kingdom Copies of Pyramid Texts*. James P. Allen. 2006.
133. *Baked Clay Figurines and Votive Beds from Medinet Habu*. Emily Teeter. 2010.
134. *The Archaeology and Geography of Ancient Transcaucasian Societies* 1. *The Foundations of Research and Regional Survey in the Tsaghkahovit Plain, Armenia*. Adam T. Smith, Ruben S. Badalyan, and Pavel Avetisyan. 2009.
135. *Kerkenes Special Studies* 1. *Sculpture and Inscriptions from the Monumental Entrance to the Palatial Complex at Kerkenes Dağ, Turkey*. Catherine M. Draycott and Geoffrey D. Summers. 2008.
136. *Medinet Habu* 9. *The Eighteenth Dynasty Temple, Part 1: The Inner Sanctuaries with Translations of Texts, Commentary, and Glossary*. The Epigraphic Survey. 2009.
137. *Tell Hamoukar* 1. *Urbanism and Cultural Landscapes in Northeastern Syria: The Tell Hamoukar Survey 1999–2001*. Jason A. Ur. 2010.
138. *Bismaya: Recovering the Lost City of Adab*. Karen L. Wilson et al. 2012.
139. *Early Megiddo on the East Slope ("The Megiddo Stages"): A Report on the Early Occupation of the East Slope of Megiddo (Results of the Oriental Institutes's Excavations, 1925–1933)*. Eliot Braun. 2013.
140. *Ancient Settlement Systems and Cultures in the Ram Hormuz Plain, Southwestern Iran: Excavations at Tall-e Geser and Regional Survey of the Ram Hormuz Area*. Abbas Alizadeh, with contributions by Loghman Ahmadzadeh and Mehdi Omidfar, with appendices by John R. Alden, Leah Minc, Jacques Connan, John Zumberge, and Kendra Imbus. 2014.
141. *Bir Umm Fawakhir* 3. *Excavations 1999–2001*. Carol Meyer, with contributions by Lisa Heidorn, Salima Ikram, Richard L. Jaeschke, Thomas C. Roby, and Wendy Smith. 2014.