Setareh Ebrahimiabareghi

Tepe Sadegh, a Bronze Age settlement on the Sistan Plain

Pottery, Chronology, and Interactions

7

OSPA
Open Series in Prehistoric Archaeology

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Foreword

Albert Hafner, Rouhollah Shirazi

Setareh Ebrahimiabareghi earned her bachelor's degree in archaeology in 2010 from University of Sistan and Baluchestan, located in Zahedan, eastern Iran, near the borders of Pakistan and Afghanistan. She pursued her master's degree at Deccan College in Pune, India, graduating in 2012. In 2017, she applied for the prestigious Swiss Government Excellence Scholarship. Her doctoral research was funded for three years by the Swiss State Secretariat for Education, Research and Innovation (SERI) of the Federal Department of Economic Affairs, Education and Research. The final phase of her dissertation received additional support from the Dr. Joséphine de Karman Foundation in Bern.

Setareh Ebrahimiabareghi began her doctoral studies on September 1, 2018, at the Institute of Archaeological Sciences, Department of Prehistoric Archaeology, University of Bern, Switzerland. She defended her thesis, titled "Tepe Sadegh – A Bronze Age Settlement on the Sistan Plain: Pottery, Chronology, and Interactions", on February 24, 2022. The successful completion of her dissertation during the COVID-19 pandemic and under the demanding timeline of the Swiss Government Excellence Scholarship deserves special recognition. This was only possible thanks to her commitment and impressive persistence. Her research provides an invaluable contribution to archaeology by presenting, for the first time, a comprehensive analysis of the extensive ceramic complex from the site of Tepe Sadegh, supported by radiocarbon data. Setareh Ebrahimiabareghi's study provides critical reference material for future research in Sistan and Baluchestan, as well as the broader Middle East. Particularly noteworthy is her meticulous documentation of numerous significant ceramic sherds and vessels. The detailed cataloging and data compilation involved in this achievement required exceptional dedication and effort. This work has established the first reliable chronology for the site, filling a significant gap in the archaeological understanding of the Sistan Plain.

Setareh Ebrahimiabareghi's research represents a major archaeological contribution to the study of the Sistan Basin, an area of great historical importance. By analyzing the pottery and developing a robust chronology for Tepe Sadegh, she has provided new insights into the settlement patterns, cultural interactions, and environmental challenges of this fascinating region. The Sistan Basin, which was a fertile and agriculturally productive area in the 3rd millennium BCE, supporting a dense population, has since become a desert-like landscape. Her work opens new avenues for investigating land use, water resource management, and the environmental history of this region. She is currently leading a project funded by the Gerda Henkel Foundation in Düsseldorf, Germany, that addresses these topics.

It was a pleasure to work with Setareh Ebrahimiabareghi and supervise her research. We wish her all the best and continued success in her future academic pursuits!

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In 2010, I had the privilege of acquainting myself with the Tepe Sadegh region as a member of the excavation team, alongside Prof. Dr. Shirazi and Dr. Tavasoli. This research project, marking my first experience in excavation, stands as one of the most arduous yet cherished memories of my academic journey. The opportunity to undertake my doctoral dissertation research at Tepe Sadegh has been a profound privilege.

I would like to extend my thanks to the Swiss Government Excellence Scholarships for Foreign Scholars and Artists (ESKAS) for their financial support, which made this project possible and facilitated my doctoral studies in Switzerland. Furthermore, I express my gratitude to University of Sistan and Baluchestan, Zahedan Museum, the Ministry of Cultural Heritage, Tourism and Handicrafts, Research in Iran, the Institute of Cultural Heritage and Tourism in Iran, and the Iranian Centre for Archaeological Research (ICAR) for their support and assistance during the course of my studies. Special recognition goes to the Graduate School of the Arts and Humanities (GSAH) at the University of Bern, particularly Dr. Michael Toggweiler, for providing me with an exceptional educational opportunity as a member of the global study programme.

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Open Series in Prehistoric Archaeology (OSPA) and Sidestone Press, including Prof. Dr. Albert Hafner, Dr. Caroline Heitz, Dr. Martin Hinz, Dr. Mirco Brunner, Dr. Julian Laabs, Corné Van Woerdekom, and Sarah Stinnissen, for accepting my doctoral research for publication in their series.

Deutsche Zusammenfassung

Im südöstlichen Teil des Iran gibt es im Vergleich zum westlichen Teil nicht so viele archäologische Forschungen. Abgesehen von einigen berühmten Stätten im Osten (wie Tepe Eblis, Shahdad, Tepe Yahya, Jiroft), die gut erforscht sind, blieb das restliche Gebiet weitgehend unerforscht. Selbst im südöstlichen Teil liegt das Hauptaugenmerk auf Stätten wie Bampur und Shahr-i Sokhta. Es gibt fast 900 Satellitenstandorte, die größtenteils unerforscht blieben. Geplante Forschungen in diesem Bereich können wichtige Informationen zu unserem Wissen über die prägenden kulturellen Prozesse im Nahen Osten liefern. Tepe Sadegh ist einer von ihnen, und das Hauptziel der Arbeit ist die Keramik und die Chronologie dieser Stätte, die bisher noch nicht bearbeitet wurde.

Sistan, eine historische Region im heutigen Südosten des Iran, in den Provinzen Sistan und Belutschistan und im Südwesten Afghanistans. Aufgrund des Flusses Helmand war es ein geeigneter Ort für den Aufenthalt von Menschen. Sistan ist der Name einer großen Region im Südosten der iranischen Hochebene, die politisch zwischen Iran und Afghanistan aufgeteilt ist. Der größere Teil liegt in Afghanistan und wird als Provinz Nimruz bezeichnet, ein kleinerer Teil gehört zu Iran und bildet zusammen mit Makran und Sarhad die Provinz Sistan und Belutschistan. In den letzten Jahren haben die Forscher den Satellitensiedlungen mehr Aufmerksamkeit geschenkt. Es wurden weitere Stätten wie Tepe Talebkhan, Tepe Dasht, Tepe Graziani und Tepe Sadegh ausgegraben.

Shahr-i Sokhta ist eine der größten bronzezeitlichen Stätten in diesem Gebiet mit vier Perioden, die eine Besiedlung von fast 1200 Jahren umfassen. Die Chronologie der Stätte lässt sich wie folgt einteilen:

- Periode I (Phasen 10 bis 8): In dieser Periode war Shahr-i Sokhta ein Knotenpunkt des wirtschaftlichen und kulturellen Austauschs, wie die Entdeckung von mesopotamischen und elamitischen Siegeln, einer proto-elamitischen Tafel (Amiet/Tosi 1978, 24–25), Namazga III, Mundigak III 5–6 und Nal-Keramik beweist (Sarianidi 1983).
- Periode II (Phasen 7 bis 5): Während der Periode II dehnt sich die Siedlung nach Osten aus, und es wird eine Zunahme der Besiedlung festgestellt, die mit dem Beginn der Urbanisierung im östlichen Teil des iranischen Plateaus in Verbindung gebracht werden kann.
- Periode III (Phasen 4 bis 2): Am Ende von Periode III beobachten wir in Shahr-i Sokhta einen Zusammenbruch der Urbanisierung, der in Periode IV (Ende des 3. und Anfang des 2. Jahrtausends v. Chr.) folgt.
- Periode IV (Phasen 1 und 0): Die Überreste dieser Periode befinden sich im südlichen und südwestlichen Teil der Stätte, in der Nähe des "Verbrannten Gebäudes". Nach dieser Periode wird die Stätte vollständig aufgegeben.

Auf den Hügeln befinden sich Millionen von Scherben und in der Umgebung Hunderte von Töpferöfen. Nach den bisher durchgeführten Studien wurden die meisten Töpferwaren außerhalb der Stadt in den umliegenden Dörfern (fast 900 Siedlungen auf 1-3 Hektar) wie Tepe Dasht oder Rud Biaban, Tepe Sadegh usw. Hergestellt (Sajjadi/Moradi 2016, 113).

Tepe Sadegh liegt im Süden von Ghale Rostam, 75 km vom Südosten der Stadt Zabol entfernt. Es ist eine der Satellitenstätten von Shahr-i Sokhta, die sich 13 km südwestlich davon befindet. Heute führt die Straße Zabol-Zahedan 5 km vom Südosten des Tepe Sadegh entfernt vorbei (135 km Straße Zabol-Zahedan). Dieser Hügel hat eine ovale Form mit einer Abmessung von 150 bis 200 m in Ost-West-Richtung mit einer Abweichung von 12 Grad in Richtung Nordwesten.

Töpferwaren sind das wirksamste Element im menschlichen Leben von der Jungsteinzeit bis in die letzten Jahrzehnte. Die Typologie und Chronologie der Töpferwaren vom Tepe Sadegh sowie die Bedeutung der Töpferwaren für das Verständnis kultureller Veränderungen sind bis heute unzureichend bekannt. Aufgrund ihrer großen Produktion und ihrer Langlebigkeit eignet sich die Keramik für die Klassifizierung und Typologie, dennoch sollten wir bedenken, dass die Keramik nur ein Teil der kulturellen Daten ist und die wichtigsten Schlussfolgerungen aus den gesamten Daten und nicht aus der Keramik selbst gezogen werden sollten (Sajjadi/Moradi 2016, 113). Für die Untersuchung und Analyse der Keramik vom Tepe Sadegh auf der Grundlage der Klassifizierungen wurden 1,959 Scherben aus verschiedenen Gräben des Tepe Sadegh ausgewählt. Diese Daten können unter drei allgemeinen Gesichtspunkten untersucht werden:

1. Technische Merkmale der Töpferwaren
2. Form und Gestalt der Töpferwaren
3. Verzierungen

Die Untersuchungen der Töpferwaren von Tepe Sadegh (1,959 Scherben) zeigen, dass wie bei Shahr-i Sokhta die meisten Töpferwaren buff sind. In dieser Studie sind 72,44% der Keramik buff, 19,15% dunkelrot, 5,52% rot, 2,25% grau und 0,64% schwarz. Von den Scherben, die nicht verglichen werden konnten, waren 566 nicht vergleichbar (hauptsächlich wegen der Unsicherheiten bei Form und Dekor). Wie bereits erwähnt, handelt es sich bei den Referenzproben um 1393 Stück: 1256 aus dem südöstlichen Teil des Iran, 95 aus Afghanistan und 42 aus Pakistan. Aus Zentralasien wurden keine vergleichbaren Scherben gefunden. Die Anzahl der zum Vergleich herangezogenen Fundstellen betrug 19, wobei Shahr-i Sokhta, Mundigak und Bampur die meisten Vergleichszahlen aufweisen und Miri Qalat, Tepe Yahya, Tepe Rud Biaban, Gardan-i Reg, Deh Morasi Ghundai, Gajranwala, Shahdad, Nurzai, Barra Kapoto, Domb Sadaat, Damin, Periano Gundai, Pathani Domb I, Nausharo, Quetta und Mobi Damb die anderen Vergleichsstellen in dieser Reihenfolge sind.

Aufgrund der klimatologischen Bedingungen (trockenes und heißes Klima) in Sistan ist es einfach, geeignete Proben für die absolute Chronologie zu finden. Daher wurde für die Datierung einiger Proben vom Tepe Sadegh die Radiokarbonmethode gewählt. Die Holzkohleproben wurden während der Ausgrabungen in archäologischen Ablagerungen gesammelt. Für die Auswahl der Radiocarbon-Proben wurden zwei Gräben im Zentrum des Tepe Sadegh ausgewählt und 11 Proben auf der Grundlage der Stratigraphie entnommen. Diese Tabellen und Abbildungen zeigen, dass die Zeitspanne des Tepe Sadegh von 2900 bis 2480 v. Chr. reicht und sich auf Phase 6, Periode II in Shahr-i Sokhta bis Phase 3, Periode III in Shahr-i Sokhta bezieht.

Daraus lässt sich schließen, dass die Siedlung am Tepe Sadegh in der Phase 6 als kleine Arbeitsstätte gegründet wurde und mit der Erweiterung von Shahr-i Sokhta (Periode II) zu einem halbindustriellen Zentrum wurde. Tepe Sadegh wurde zu Beginn der Periode III aufgegeben, als Shahr-i Sokhta noch im Zentrum des Tauschsystems stand und seine größte Ausdehnung 80 Hektar hatte. Der Grund für die Aufgabe von Tepe Sadegh ist nicht klar, wahrscheinlich verließen die Menschen den Ort, um sich den anderen Satellitendörfern oder dem Hauptort Shahr-i Sokhta anzuschließen. Wie bereits erwähnt, war Tepe Sadegh ein halbindustrieller Ort, so dass die Wahrscheinlichkeit hoch ist, dass sie sich den industriellen Orten wie Tepe Dasht und Tepe Rud Biaban anschlossen. Die Satellitenstandorte wie Tepe Dasht waren größer und verfügten über mehr Produktionsressourcen, so dass sie ein größeres Potenzial für die Keramikproduktion hatten. Daher ist die Notwendigkeit weiterer Radiokarbondatierungen und zukünftiger Ausgrabungen in Tepe Sadegh und anderen halbindustriellen Stätten wie Tepe Graziani unbestreitbar, um eine vernünftige Erklärung für den Niedergang oder Zusammenbruch von Tepe Sadegh und anderen Satellitenstätten zu finden.

English Summary

There are not many archaeological research projects in the southeastern part of Iran compared with the western part. Besides some famous sites in the east (such as Tepe Eblis, Shahdad, Tepe Yahya, and Jiroft) that are well studied, the rest of the area has remained mainly unstudied. Even in the southeastern part, the main focus is on sites such as Bampur and Shahr-i Sokhta. There are almost 900 satellite sites that remain mainly unstudied. Planned research in this area can bring important information to our knowledge of formative cultural processes in the Middle East. Tepe Sadegh is one of them, and the main aim of the thesis is to understand the pottery and chronology of this site, which no one has worked on until now.

Sistan (Persian سیستان) is a historical region in today's southeast Iran, in the provinces of Sistan and Baluchistan and southwest Afghanistan. It has been a suitable place for human residence due to the Hirmand River (or Helmand River, in Persian رود هیرمند). Sistan is a vast region to the southeast of the Iranian Plateau, politically divided between Iran and Afghanistan. The greater part is located inside Afghanistan and is called Nimruz Province, and a smaller part belongs to Iran, and, coupled with Makran and Sarhad, forms Sistan and Baluchistan Province. In recent years, researchers have paid more attention to the satellite settlements. Other sites, such as Tepe Talebkhan, Tepe Dasht, Tepe Graziani, and Tepe Sadegh, have been excavated.

Shahr-i Sokhta, one of the largest sites related to the Bronze Age in this area, comprises four periods covering an occupation of almost 1,200 years. The chronology of the site can be classified as follows:

- *Period I (phases 10 to 8):* In this period, Shahr-i Sokhta was a crossroads of economic and cultural exchange, as evidenced by the discovery of Mesopotamian and Elamite seals, a proto-Elamite tablet (Amiet/Tosi 1978, 24–25), and Namazga III, Mundigak III 5–6, and Nal ceramics (Sarianidi 1983).
- *Period II (phases 7 to 5)*: During period II, the settlement extended towards the east and an increase in occupation can be noted linked to the beginning of urbanisation in the eastern part of the Iranian Plateau.
- *Period III (phases 4 to 2):* At the end of period III, at Shahr-i Sokhta, a collapse of urbanisation followed during period IV (end of the 3rd and beginning of the 2nd millennium BCE).
- *Period IV (phases 1 and 0):* The remains of this period are found in the southern and southwestern part of the site, near the "Burnt Building". After this period, the site was completely abandoned.

There are millions of potsherds on its hills and hundreds of pottery furnaces around it. Based on the studies conducted so far, most of the pottery was produced outside of the city in the satellite villages (almost 900 settlements of 1–3 ha), such as Tepe Dasht or Rud Biaban, Tepe Sadegh, and so on (Sajjadi/Moradi 2016, 113).

Tepe Sadegh is located in the south of Ghale Rostam, 75 km southeast of the city of Zabol. It is one of the satellite sites of Shahr-i Sokhta, which is situated 13 km to its southwest. Today, Zabol-Zahedan Road passes 5 km from the southeast of Tepe Sadegh (135 km of Zabol-Zahedan Road). This mound is oval-shaped with dimensions of 150 by 200 m in the east-west direction and a 12-degree deviation towards the northwest.

Pottery has been one of the most essential elements in human life, from Neolithic times to recent decades. There has been a lack of knowledge about the typology and chronology of Tepe Sadegh's pottery up until now, as well as of the importance of pottery for understanding cultural changes, where classifying the similarities and differences of cultural findings such as pottery are the main characteristics. Due to its large production and its durability, pottery is suitable for classification and typology; in spite of this, pottery should be considered only one of the cultural data items, so that the main conclusion should be drawn from all of the data and not the pottery alone (Shepard 1956, 334). For the aim of the study to analyse the pottery of Tepe Sadegh based on its classifications, 1,959 potsherds from different trenches of Tepe Sadegh were chosen. These data can be examined from three general perspectives:

1. Technical characteristics of pottery
2. Form and shape of the pottery
3. Decorations

The studies conducted on Tepe Sadegh's pottery (1,959 potsherds) indicate that, like in Shahr-i Sokhta, the greatest amount of pottery is buff. In this study, buff ware represents 72.44%, dark red 19.15%, red 5.52%, grey 2.25%, and black 0.64%. The potsherds that could not be compared numbered 566 (mainly related to the uncertainty of their form and decoration). There are 1,393 reference samples: 1,256 from the southeastern part of Iran, 95 from Afghanistan, and 42 from Pakistan. No comparable potsherds have been found in Central Asia. Nineteen sites were referenced for comparison, of which Shahr-i Sokhta, Mundigak, and Bampur have the highest comparison numbers and Miri Qalat, Tepe Yahya, Tepe Rud Biaban, Gardan-i Reg, Deh Morasi Ghundai, Gajranwala, Shahdad, Nurzai, Barra Kapoto, Domb Sadaat, Damin, Periano Gundai, Pathani Domb I, Nausharo, Quetta, and Mobi Damb are the other comparable sites in order.

Because of the climatological conditions (dry and hot) at Sistan, finding suitable samples for absolute chronology is easy. Therefore, the radiocarbon method was chosen to date some samples from Tepe Sadegh. Charcoal samples were collected in archaeological deposits during the excavations. For the choice of radiocarbon samples, two trenches in the centre of Tepe were chosen and 11 samples based on the stratigraphy were collected. Based on the radiocarbon result, the tables and figures show that the time span of Tepe Sadegh ranges from 2900 to 2480 BCE, related to phase 6, period II, at Shahr-i Sokhta to phase 3, period III, at Shahr-i Sokhta.

Therefore, it can be concluded that the settlement was established at Tepe Sadegh as a small working location during phase 6, and with the extension of Shahr-i Sokhta (period III), it became a semi-industrial centre. Tepe Sadegh came to an end at the beginning of period III when Shahr-i Sokhta was still at the centre of the exchange system, and it was at its largest extension of 80 ha. The reason for the abandonment of Tepe Sadegh is not clear; however, most likely, people left it to join the other satellite villages or the main site, Shahr-i Sokhta. Tepe Sadegh was a semi-industrial site, so the probability of joining industrial sites such as Tepe Dasht and Tepe Rud Biaban was high. Satellite sites such as Tepe Dasht were greater in size and had more resources for production, so they had more potential for pottery production. Therefore, more radiocarbon dating and future excavations at Tepe Sadegh and other semi-industrial sites like Tepe Graziani would be crucial for determining a reasonable explanation for the decline or collapse of Tepe Sadegh and other satellite sites.

Persian Words Based on TAVO

Latin	Tavo	Persian
· Albourz	· *Ālburz*	البرز .
· Ali Kosh	· *ʿlī Kuš*	علی کش .
· Amu Darya	· *Āmudarīā*	آمودریا .
· Asiab	· *Āsīāb*	آسیاب .
· Atrak	· *Ātrak*	اترک .
· Avesta	· *Āvestā*	اوستا .
· Baft	· *Bāft*	بافت .
· Bahokalat	· *Bāhūkalāt*	باهوکلات .
· Bahr Asman	· *Bahār Āsmān*	بهار آسمان .
· Bam Posht	· *Bam Pušt*	بم پشت .
· Bampur	· *Bampūr*	بمپور .
· Bandebal	· *Bandbāl*	بندبال .
· Bazman	· *Bazmān*	بزمان .
· Behshahr	· *Behšahr*	بهشهر .
· Birak	· *Bīrak*	بیرک .
· Birjand	· *Bīrğand*	بیرجند .
· Buz Mordeh	· *Buz Murdeh*	بزمرده .
· Chah Husini	· *Čāh Ḥsīnī*	چاه حسینی .
· Chah-Nimeh	· *Čāh-Nīmh*	چاه نیمه .
· Chahar-Burjak	· *Čāhār-Burğak*	چهاربرجک .
· Chahbahr	· *Čāhbahār*	چابهار .
· Chehel Tan	· *Čehel Tan*	چهل تن .
· Chogha Mish	· *Čuġā Mīš*	چغامیش .
· Chogha Sefid	· *Čuġā Sefīd*	چغا سفید .
· Dahan-e Gholaman	· *Dahāne Ġulāmān*	دهانه غلامان .
· Dalma	· *Dālmā*	دالما .
· Damin	· *Dāmīn*	دامین .
· Darreh Gaz	· *Dareh Gaz*	دره گز .
· Dasht	· *Dāšt*	دشت .
· Dasht-i Kavir	· *Dāšte Kāvīr*	دشت کویر .
· Dasht-i Lut	· *Dāšte Lūt*	دشت لوت .
· Dehluran	· *Dehlurān*	دهلران .
· Dowlatabad	· *Dūlatābād*	دولت آباد .

Latin	Tavo	Persian
· Farah	· *Farāh*	. فراه
· Ganj Dareh	· *Ganğ Dareh*	. گنج دره
· Gavkosh	· *Gāvkūš*	. گاوکش
· Ghale Rostam	· *Qal'h Rustam*	. قلعه رستم
· Ghows	· *Qūs*	. قوس
· Godin Tepe	· *Gūdīn Tepe*	. گودین تپه
· Gorgan	· *Gurgān*	. گرگان
· Gud-e Zireh	· *Gūde Zīreh*	. گودزیره
· Gulistan	· *Gulestān*	. گلستان
· Haji Firouz	· *Ḥağī Fīrūz*	. حاجی فیروز
· Halil	· *Halīl*	. هلیل
· Hamun	· *Hāmūn*	. هامون
· Hamun Savaran	· *Hāmūne Savārān*	. هامون سواران
· Hamun-e Helmand	· *Hāmūne Hīrmand*	. هامون هیرمند
· Hamun-e Puzak	· *Hāmūne Pūzak*	. هامون پوزك
· Hamun-e Sabouri	· *Hāmūne Sābūrī*	. هامون سابوری
· Harirud	· *Harīrūd*	. هریرود
· Harut	· *Hārūt*	. هاروت
· Hirmand	· *Hīrmand*	. هیرمند
· Hormozgan	· *Hurmuzgān*	. هرمزگان
· Hottu	· *Hūtū*	. هوتو
· Iranshahr	· *Īrānšahr*	. ایرانشهر
· Jafar Abad	· *Ğ'far Ābād*	. جعفرآباد
· Jazmourian	· *Ğāzmūrīān*	. جازموریان
· Jebal Barez	· *Ğabāl Bārez*	. جبال بارز
· Jiroft	· *Ḫīruft*	. جیرفت
· Jowi	· *Ğūī*	. جوی
· Kahir	· *Kahīr*	. کهیر
· Kahnouj	· *Kahnūğ*	. کهنوج
· Kajo	· *Kağū*	. کاجو
· Kajud	· *Kāğūd*	. کاجود
· Kamarband	· *Kamarband*	. کمربند
· Kangavar	· *Kangāvar*	. کنگاور
· Kens Oyeh	· *Kens Āvīh*	. کنس اویه
· Kerman	· *Kermān*	. کرمان
· Kermanshah	· *Kermānšāh*	. کرمانشاه
· Khash	· *Ḫāš*	. خاش
· Khorasan	· *Ḫurāsān*	. خراسان
· Khurab	· *Ḫūrāb*	. خوراب
· Konar Sandal	· *Kunār Ṣandal*	. کنار صندل
· Kuh-e Hezar	· *Kūh Hezār*	. کوه هزار
· Kuh-e Pir Suran	· *Kūhe Pīr Sūrān*	. پیر سوران

Latin	Tavo	Persian
· Kuh-i Khan Neshin	· *Kūh Ḫān Nešān*	کوه خان نشان .
· Kuh-i Khwaja	· *Kūh Ḫvāğh*	کوه خواجه .
· Kur	· *Kūr*	کور .
· Ladiz	· *Lādīz*	لادیز .
· Lalehzar	· *Lālhzār*	لاله زار .
· Lavar	· *Lavār*	لوار .
· Mahidasht	· *Māhīdašt*	ماهیدشت .
· Makran	· *Makrān*	مکران .
· Malek Siah	· *Malek Sīāh*	ملک سیاه .
· Mashkid	· *Maškīd*	مشکید .
· Matoutabad	· *Mūtābād*	موت آباد .
· Nikshahr	· *Nīkšahr*	نیکشهر .
· Nimruz	· *Nīmruz*	نیمروز .
· Nishabour	· *Nīšābūr*	نیشابور .
· Palang Kuh	· *Palang Kūh*	پلنگ کوه .
· Panjak	· *Panğak*	پنجک .
· Parian Rud	· *Parīān Rūd*	پریان رود .
· Poshteab	· *Pušte Āb*	پشت آب .
· Qasemabad	· *Qāsem Ābād*	قاسم آباد .
· Ramrud	· *Rāmrūd*	رامرود .
· Rud-e Bandan	· *Rūde Bāndān*	رودبندان .
· Rud-e Biyaban	· *Rūd Bīābān*	رود بیابان .
· Sabzevaran	· *Sabzvārān*	سبزواران .
· Samalqan	· *Samalqān*	سملقان .
· Sang-i Chakhmaq	· *Sang Čaḫmāq*	سنگ چخماق .
· Saravan	· *Sarāvān*	سراوان .
· Sarbaz	· *Sarbāz*	سرباز .
· Sardouye	· *Sārdūīh*	ساردویه .
· Shahdad	· *Šahdād*	شهداد .
· Shahr-i Sokhta	· *Šahre Suḫth*	شهر سوخته .
· Shibeab	· *Šīb Āb*	شیب آب .
· Shour Rud	· *Šūr Rūd*	شور رود .
· Sistan	· *Sīstān*	سیستان .
· Soghun	· *Ṣūġān*	صوغان .
· Solduz	· *Sūldūz*	سولدوز .
· Soliman	· *Sulīmān*	سلیمان .
· Susa	· *Šūš*	شوش .
· Taftan	· *Taftān*	تفتان .
· Takab	· *Takāb*	تکاب .
· Tall-i Bakun	· *Tale Bākūn*	تل باکون .
· Tall-i Iblis	· *Tale Āblīs*	تل ابلیس .
· Tepe Borj	· *Tepe Burğ*	تپه برج .

Latin	Tavo	Persian
· Tepe Dasht	· *Tepe Dašt*	تپه دشت .
· Tepe Ghabrestan	· *Tepe Qabrestān*	تپه قبرستان .
· Tepe Gian	· *Tepe Gīān*	تپه گیان .
· Tepe Graziani	· *Tepe Grātzīānī*	تپه گراتزیانی .
· Tepe Hasanlu	· *Tepe Hasanlū*	تپه حسنلو .
· Tepe Hissar	· *Tepe Ḥeṣār*	تپه حصار .
· Tepe Qale Khan	· *Tepe Qalʿh Ḫān*	تپه قلعه خان .
· Tepe Sadegh	· *Tepe Ṣādeq*	تپه صادق .
· Tepe Sarab	· *Tepe Sarāb*	تپه سراب .
· Tepe Sialk	· *Tepe Sīalk*	تپه سیلک .
· Tepe Talebkhan	· *Tepe Ṭāleb Ḫān*	تپه طالب خان .
· Tepe Yahya	· *Tepe Īḥīī*	تپه یحیی .
· Tol-e Pir	· *Tule Pīr*	تل پیر .
· Tureng Tepe	· *Tūreng Tepe*	تورنگ تپه .
· Yarim Tepe	· *Īārīm Tepe*	یاریم تپه .
· Zabol	· *Zābul*	زابل .
· Zagros	· *Zāgrus*	زاگرس .
· Zahedan	· *Zāhedān*	زاهدان .
· *Zamyad Yasht*	· *Zāmīād Īāšt*	زامیاد یشت .

Chapter One: Introduction and Environmental Context

1.1 Introduction

Sistan, a historical region in today's southeast Iran, has been a suitable place for human residence due to the Helmand River (Hirmand River). Cultural events and evolutions associated with the Helmand River civilisation have ties to Afghanistan, Iran, Baluchistan, the Indus Plain, islands, and the south coast of the Persian Gulf, Makran Sea, and Central Asia. Archaeological excavations in the southern regions state that the Ramrud sedimentary terrace (geographical terrace feature in the Hamun area) was in existence in the 3rd millennium BCE. There is no doubt that this part of Sistan was prosperous and significant at different times in history (during the Bronze Age, the historical period, and the Islamic period). Sistan has had different names throughout history: the most ancient references are Avesta (Awesta) and the inscriptions of Achaemenid kings. Greek historians and geographers gave other names to Sistan and its surrounding cities. It is also possible to refer to Sassanid Pahlavi texts and early Islamic geographical texts (Mousavihaji 2004).

Before and after the Islamic Revolution, there have been continuous and detailed excavations related to the civilisation of the Sistan Plain. Worthwhile information and data have been collected, and useful knowledge has been acquired from excavations related to human settlement in the 3rd and 4th millennium BCE. The ancient area of Shahr-i Sokhta is one of the most important historical areas. Shahr-i Sokhta is part of a region covering Amu Darya in Central Asia to the Oman Peninsula (Seyyed Sajjadi 2016). The civilisation of Shahr-i Sokhta is connected and related to settlements and villages around it. The results from Shahr-i Sokhta have uncovered its profound role in trade, exchanges, and relations with surrounding areas (Madjidzadeh 1990).

In the past few years, Shahr-i Sokhta has been the focus of most of the research conducted in this area; however, researchers have paid less attention to information collected from Shahr-i Sokhta's satellite settlements. The number of satellite sites in Shahr-i Sokhta increased as its population and specialisation increased. With the prosperity of Shahr-i Sokhta due to commercial exchanges with surrounding areas, the role of satellite sites in this settlement became more important. The extent of Shahr-i Sokhta is related to the extent of the satellite sites. Increases and decreases in the extent are related to different aspects, such as environmental, economic, and social conditions. The important point is the role of satellite villages in the life of Shahr-i Sokhta.

Despite studies being conducted, no research has yet been conducted on the satellite sites of Shahr-i Sokhta and their function. One of the significant features of Shahr-i Sokhta is its abundant pottery. Because of its large population, it had a large amount of pottery production. The satellite villages and the daily need for earthenware dishes led to their sizeable output in the region. This claim is proven by the existence of millions of potsherds on the hills and hundreds of pottery kilns around them. Earthenware and pottery are among the essential topics in archaeological studies, and pottery is one of the most valuable cultural materials. Its wide variety, abundance, and low price make it a very valuable material for analysing archaeological findings. Archaeologists have conducted a number of important studies on pottery and its patterns, with chronology at ancient sites, the development of social organisation, and pottery design being among the most important. The abundance of pottery in Shahr-i Sokhta shows its large area and population, long life, commercial activities, relationships with neighbouring regions, and many satellite villages.

Since pottery is one of the most important and abundant cultural materials of Shahr-i Sokhta and its satellite sites, it is important and necessary to study it. In this study, the subject area was Tepe Sadegh, a satellite site of Shahr-i Sokhta, and this research aimed to typologically classify the pottery of Tepe Sadegh. This area also had specific intraregional and interregional communications with other regions. So, first, the pottery of this site was typologically classified to identify its relationship with other contemporary sites. Second, radiocarbon dating was used for the absolute dating of the site.

1.2 History of Research in Shahr-i Sokhta

A rich antiquity collection makes Sistan one of Iran's most important and wealthiest archaeological areas (Jozi/Mehrafarin 2014). One of the area's largest sites related to the Bronze Age is Shahr-i Sokhta, with four periods dating from 3200 BCE (period I) to 1800 BCE (period IV). Like most archaeological sites of Central Asia, Shahr-i Sokhta was first distinguished by Sir Marc Aurel Stein, the first archaeologist who visited Sistan and studied this region in 1916 (Seyyed Sajjadi 1995, 196). After him, Frederick Henry Andrews in 1925, and Walter Ashlin Fairservis in 1960–1961 studied the Sistan Plain. In 1967, the first excavations were conducted at Shahr-i Sokhta by Italian archaeologists from the IsMEO Institute under the supervision of Giuseppe Tucci. These excavations were continued by Maurizio Tosi for 11 years, from 1967 until 1978 (Tosi 1973, 68). After that, an Iranian team (ICAR) and an Italian team (IsMEO Institute) under the supervision of Dr. Seyyed Mansour Seyyed Sajjadi continued the excavations from 1997 until today. In relation to Shahr-i Sokhta, many types of research have been conducted and some of them have been based on studies done on the pottery of the site, including Biscione and Bulgarelli's 1974 archaeological discoveries and methodological problems in excavations of Shahr-i Sokhta, Sistan (Biscione *et al.* 1974), Victor Sarianidi's article about the communications of Shahr-i Sokhta in period I with the south of Turkmenistan (1983), Biscione's article about chronology and pottery consistencies between Shahr-i Sokhta and Afghanistan Mundigak (1974), and the classification and typological comparison of 3,000 buff pottery items of Shahr-i Sokhta by Nozar Heidari (2010). Moreover, there are a number of additional references not listed here that will be included in the bibliography.

The Bronze Age archaeology of Sistan and Baluchistan has been the subject of several research projects and studies, especially in the Shahr-i Sokhta and Bampur areas. However, there have been few studies about pottery typology at satellite sites of Shahr-i Sokhta, so this research study presents the typology and chronology of Tepe Sadegh in an essentially different manner than previous work.

1.3 Methodology

Despite the arid conditions that exist in the southern part of the Sistan Plain, archaeological evidence indicates that the area was densely populated during the Bronze Age. As a result of archaeological surveys conducted at Sistan, more than 1,665 archaeological sites have been discovered, of which more than 900 sites have been associated with the Bronze Age. Both small and large mounds are found in the area, ranging in size from 200 m^2 to 150 ha. Tepe Sadegh's excavations were conducted in six different seasons, making it possible to study plenty of pottery, figurines, bronze objects, alabaster, herbal, and charcoal samples. Multidisciplinary approaches were utilised to conduct the research, utilising a wide range of resources, including library and documentation sources. As part of the data collection and analysis process, a combination of library and documentation information, along with archaeological findings, was utilised. This comprehensive strategy facilitated an in-depth understanding of the natural geography and the legacy of prior archaeological endeavours in the region. Our meticulous curation involved the selection and compilation of notes, copies, scans, and photographic records. A meticulous curation process was undertaken that involved the selection and compilation of notes, copies, scans, and photographs. To analyse the findings, a number of steps were taken, including the classification of significant pottery, typological analysis, establishment of pottery chronology, comparisons with analogous sites, application of qualitative and quantitative research methods, and pivotal radiocarbon dating of the charcoal samples.

Using excavation data, the next step involved selecting pottery artefacts based on their typological significance; approximately 1,959 potsherds were analysed and classified according to their typology. The subsequent typological classification provided a foundation for identifying sites comparable to Tepe Sadegh. Mixed qualitative and quantitative methods were used to analyse the pottery comparison results. All typological comparisons were meticulously catalogued within an Excel database formatted as CSV files. To enhance analytical capabilities, the R Studio program was deployed, facilitating in-depth quantitative analyses and the generation of scientifically informed graphical representations.

The unique climatic conditions of Sistan, characterised by a persistently dry and hot climate, offer an ideal backdrop for the preservation of samples and the exploration of absolute chronology. Therefore, radiocarbon dating was selected to determine the site's chronology. The charcoal samples were securely housed in the Museum of Zahedan, and the samples were collected from different excavation seasons and based on the stratigraphy of different trenches. These samples were measured at the LARA, the Laboratory for the Analysis of Radiocarbon with AMS at the University of Bern, using the MICADAS AMS technology for especially small samples for radiocarbon. Calibration of the resultant data was carried out through the utilisation of the OxCal v. 4.4.2 software, incorporating calibration data sourced from IntCal 20.

1.3.1 Research objectives and hypotheses

The research objectives and hypotheses have been crafted to illuminate the rich historical narrative of Tepe Sadegh and its broader archaeological context. The primary objectives encompass an exploration of prior research and investigations pertaining to Tepe Sadegh's pottery, an elucidation of the prevailing pottery typologies within the Tepe Sadegh strata, and the establishment of a relative chronology based on these scholarly investigations. In tandem with these objectives, this study aspires to investigate the role of Tepe Sadegh as a satellite site in relation to the principal archaeological centre, Shahr-i Sokhta. This inquiry extends beyond a mere examination of Tepe Sadegh's function, delving into the intricate dynamics of its relationship with Shahr-i Sokhta as the main site.

This study aims to determine if this region had interregional or intraregional communications with other areas, with an overarching goal of constructing a comprehensive cultural framework that encompasses the entire region. Additionally, the application of radiocarbon dating at Tepe Sadegh serves as a critical tool for establishing a robust chronological framework.

Within this comprehensive framework, a set of hypotheses come to light. Notably, our findings suggest the pre-eminence of buff pottery within the pottery assemblages at Tepe Sadegh, indicative of a historical lineage dating back to the 3rd millennium BCE. Furthermore, Tepe Sadegh emerged as a pivotal pottery workshop that catered to the primary site, Shahr-i Sokhta. Chronologically, Tepe Sadegh is situated within periods II, III, and IV of the Shahr-i Sokhta archaeological sequence.

Tepe Sadegh had connections to different Bronze Age sites from southeast Iran, Pakistani Makran, Afghani Sistan and Mundigak, southern Turkmenistan, and Oman, as well as the southern coasts of the Persian Gulf. This reveals the site's regional and international affiliations. These comprehensive findings will serve to enrich the understanding of the intricate archaeological and historical context of the Sistan Plain, offering insights into its role as a hub of cultural and economic exchange during the Bronze Age.

1.4 Natural Environment and Geographical Conditions of Sistan and Baluchistan

Iran (Fig. 1.1) is a vast country, covering over 1,648,195 km² of the Middle East. To the north, the country borders Central Asia (Turkmenistan), the Caspian Sea, and the Caucasus (Armenia and Azerbaijan). In the east, it shares its border with Afghanistan and Pakistan. To the south, Iran is bordered by the Oman Sea and the Persian Gulf. To the west, it borders Iraq, and to the northwest, Anatolia (Turkey). Most of the Iranian territory is comprised of a high plateau resulting from the Alpine orogeny of Eurasia. It is bordered by several mountain chains (Alborz, Khorasan, and Kopet-Dagh to the north, and Zagros to the west), which rise to 5,610 m above sea level. A vast interior basin of 500 to 2,000 m in altitude lies between these two mountains, Alborz and Zagros, and two great deserts lie between them, Dasht-i Kavir and Dasht-i Lut (Oberländer 1968, 277).

Geographically, my research mainly concerns the southeastern part of the Iranian Plateau. Several main subregions form the eastern part of the Iranian Plateau: Sistan, Makran, Kerman Province, Halil Basin, and Jazmourian (Fisher 1968, 62–63). In addition to fertile plains, there are primarily high massifs with varying widths and altitudes. It also includes the Makran and Jazmourian basins on the edge of the Persian Gulf (Fisher 1968, 60–61). This part of the Iranian Plateau is distinguished by peaks, foothills, vast valleys, passes, plains, marshes, and large deserts. As a result of the geographical and climatic distribution of the population, the movement of people is essentially prevented.

1.4.1 Location and extent of Sistan and Baluchistan Province

Sistan (30° 5′ N – 31° 28′ N, 61° 15′ E – 61° 50′ E) is the name of a vast region to the southeast of the Iranian Plateau, politically divided between Iran and Afghanistan. The more significant part is located inside Afghanistan, called Nimruz Province. A smaller part belongs to Iran and, coupled with Makran and Sarhad, forms Sistan and Baluchistan Province. There has been no doubt throughout history that Sistan has been a cradle of agrarian and sedentary settlement along the Helmand River. As one of the most important water systems in the Sistan Basin, the Helmand River and its associated wetlands are vital to the survival of all life within the basin.

This province is one of the country's biggest provinces and has much diversity. In the past, Sistan and Baluchistan were part of the states of Kerman, but due to their extent and lack of sufficient communication, these became separate provinces. The size of Sistan and Baluchistan is 187,502 km^2 (Jahanbani 1960, 109), of which 179,385 km^2 is Baluchistan and 8,117 km^2 is Sistan (Azarniousheh 1996, 61) (Fig. 1.1).

According to ancient geographical texts, Sistan is bounded by the Sindh Plain in the east and by the province of Kerman in the west. The Hindu Kush Mountains (Baba and Suleiman Mountain ranges) are located north and northeast of this region. In the south and southwest, it conjoins the Makran region. A large region, 400 km long and 200 km wide, lies east of Dasht-e Lut (the Lut Desert) and is surrounded by mountains.

The Sistan Plain is a series of deltas formed by the Helmand River over centuries (Seyyed Sajjadi 1984, 9), and it has two parts, northern and southern; in the southwest is the Registan Desert, a mostly gravel-covered region, while in the northeast is Sistan, a sand-covered region (Fig. 1.2). From a geomorphological point of view, the Sistan Plain is characterised by four Quaternary terraces. The highest terrace (35 m high) is Chahar-Bur-

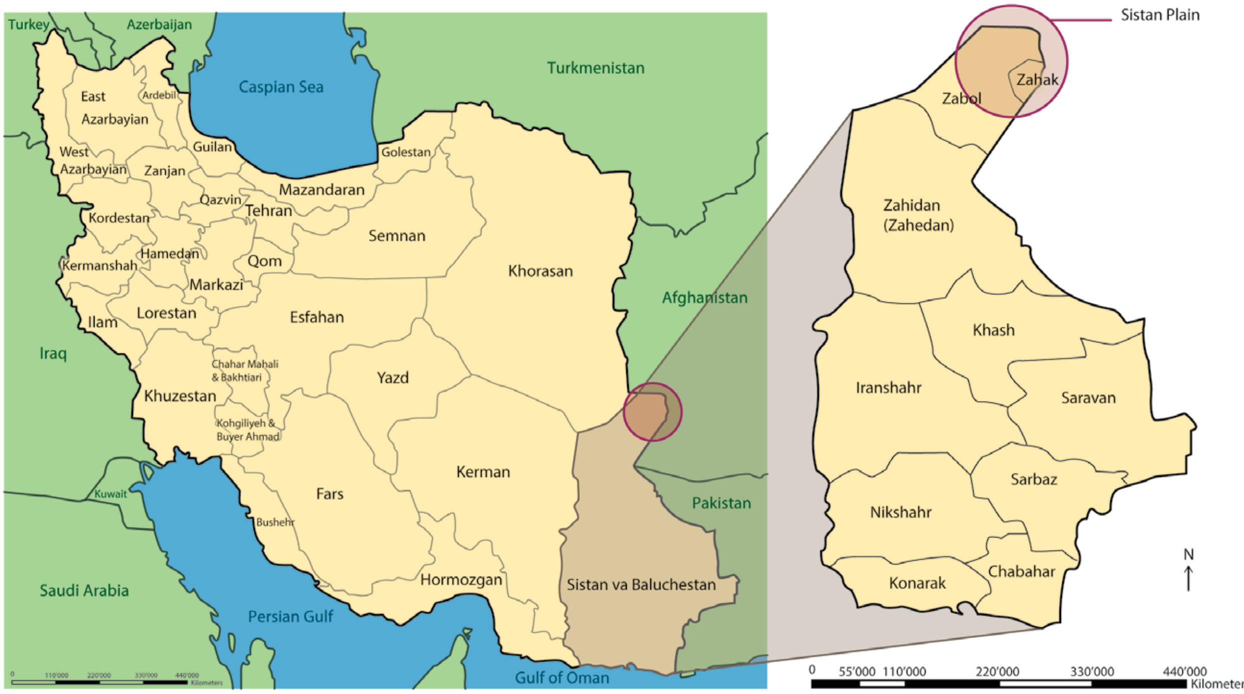


Figure 1. 1 Position of the Sistan Plain in the province and Iran (after Pešić *et al.* 2014; Esmaeili *et al.* 2016; modified by Andrea Bieri, University of Bern).

jak, which forms a delta near the modern Afghan city of the same name. The second terrace, Ramrud, reaches 8–12 m high and is cut by two ancient water resources: Gud-e Zireh and Rud-e Biyaban. The next terrace is the Nimruz terrace, which rises to 3–7 m and is located around Shahr-i Sokhta. Finally, the fourth is a low terrace of 3 m in the vicinity of the Achaemenid site of Dahan-e Gholaman and to the east of the present-day city of Zabol (Meder 1977, 61). The only tectonic indication in the Sistan region is the Kuh-i Khwaja basalt platform, a Pliocene formation formed about 8 million years ago. This trapezoidal relief (595 m high), located southwest of Zabol, is a sacred mountain for the region's inhabitants as well as the Zoroastrian community. There are a few deep depressions, commonly known as Chah-Nimeh, which are located in the southeastern part of the Iranian Sistan and serve as water reserves during times of drought and aridity.

1.4.2 Climate and weather

Among natural conditions, the climate and weather have the most crucial role in human life. These factors affect the formation of residential areas in urban and rural contexts (Ghalibaf 1997, 39). The climate of Sistan and Baluchistan is warm and dry; it is famous for its long and warm summers (Nuri 2008, 41–42). Aridity and high summer temperatures are two climatic problems in the region, and only the waters of Lake Hamun can counteract them.

This region is the nearest part of Iran to the equator, so it is the warmest province of Iran (Ebrahimzadeh 2010, 115). From a climatic point of view, Sistan is located in the Asian desert belt, with a subtropical temperature. Despite the neighbouring plateau, characterised by a steppe climate with wet winters and dry summers, this area has a semidesert climate, which becomes totally desert in the Registan Desert located further to the southeast. The average temperature of Sistan is 22 °C in June and 12 °C in January (Valaiati/Miri 2001, 105). The highest temperature has been recorded at 40 to 53 °C. The weather is mild in autumn, and the winters are cold, especially at night (Jux/Kempf 1983, 44). The average temperature in July exceeds 45 °C, while in January, it is 7.5 °C (Meder 1977, 61). The average annual temperature is 21.7 °C and relative humidity is 26% to 52%. The difference between night and day temperatures is high; the maximum difference is 33 °C (Afshar Sistani 1991, 40–41).

Figure 1.2 Sistan's map drawn by Henry McMahon in 1903–1905 (White *et al.* 1906).

In Sistan and Baluchistan, the precipitation is low and has uneven distribution. The region suffers terribly from the scarcity of rainfall. The rainclouds that are supposed to unload their water over Sistan originate from the eastern Mediterranean. On their long journey over mountainous regions (Zagros Mountains) and central Iran's hot deserts, these clouds lose a significant part of their humidity (Ganji 1968).

There are more dry months than rainy months, but rain is possible throughout the year. The annual average precipitation is about 110 mm (Adl 1961, 211; Ebrahimzadeh 2010, 115–117). According to a study carried out on precipitation in a period of 36 years (1962–1995), this region suffers from low precipitation (max. 128.7 mm/year and min. 8.7 mm/year), which generally falls from November to April (Sobhkhyzi *et al.* 2006, 22). The precipitation from the end of autumn until March is normally in the form of fast and stormy showers (Zomorodian/Purkermani 1989, 75). This low precipitation does not change the water volume of Sistan's lakes or groundwater; it merely moistens the dry soil of the area (Buson/Vidale 1983, 42). A dry farming method is not feasible, since the amount of rainfall that the area receives each year is less than 300 mm. Due to Lake Hamun, the humidity of Sistan is better than in the surrounding areas (Baluchistan), and its average humidity is 37.5% (Khosravi 1989: 176).

The southeast part of Iran is among the dry-weather areas of the world, and the amount of precipitation is low in proportion to the annual evaporation (Najarsaligheh 2007). The amount of evaporation is high in Sistan, and this high evaporation is due to two factors: high temperature and fast winds. These factors lead to a severe decrease in the water volume of Sistan's lakes. Of the 5 m annual evaporation, 3 m is due to hot weather and the 120-day wind during the four months from June to September (Ganji 1975, 256).

1.4.3 Wind

The wind is one of the most significant climatic and environmental features of Sistan and the Helmand Basin. Vigorous winds, sometimes reaching 150 km/h, originating from high subtropical pressure, play a significant role in the environmental conditions. Sir Arthur Henry McMahon wrote of Sistan's wind: "if we want to name one land as winds land, that land is Sistan" (Ahmadi 2000, 387). The possibility of strong, rough dust storms exists throughout the year. It strongly impacts the landscape, plant cover, and human life in the region. The wind is directly caused by the penetration of low-pressure systems from western Afghanistan, which gain momentum while passing over western Afghanistan and eastern Iran (Ganji 1968, 219–220).

Sistan's winds play a vital role in the movement of sand dunes across Sistan and their accumulation in the Registan Desert. Studies show a direct relationship between the dryness of Hamun and increases in the movement of sand (Rajabi *et al.* 2006). The stony plain (Dasht) of Sistan, a characteristic landscape of the eastern part of the Iranian Plateau, is the result of erosion by these winds (Jux/Kempf 1983, 42). Indeed, they release the light sedimentary earth while the pebbles remain on the surface of the plain. During periods of drought, the wind transfers an immense amount of sand from the bed of Lake Hamun and the Helmand River to the south, where the villages and fields are located. Entire villages may disappear under dunes. Sistan has various winds throughout the year, with the following being the most important:

120-day wind: The 120-day wind, or Lavar Wind, is one of the strongest winds in Iran, having a speed of 110–170 km/h and a temperature of 57 °C. From June until September, this wind blows for four months of the year. During this period, there are heavy dust storms and sandstorms in the area, which hinder all activities and disrupt the general quality of life. Due to global warming, the wind has become more powerful, as can be seen by the bare streams and dried agricultural land of the Sistan Plain, where the wind has become more powerful.

Seventh Wind or Gavkosh Wind: Sistan experiences another winter wind, which generally blows in January. It drastically decreases the temperature in winter. During the cold months of the year, the villagers of Sistan move their livestock to the lagoons and meadows of Lake Hamun due to a decrease in feed. It is important to note that when this wind blows, it causes waves and a rise in lake water levels. Gavkosh, a Persian term that means "cow killer" in English, refers to the combination of cold weather with wind that causes livestock to lose their lives (Riahi 2002, 24).

Ghows Wind: Another wind that blows on the Sistan Plain is the Ghows Wind. This wind blows from the end of December to the beginning of January. The wind blows from the north in a direction that causes local precipitation and a decrease in temperature (Mehrabi 2000, 37).

Panjak Wind: There is also the Panjak Wind, which blows in the winter months. Generally, it lasts for a week or so, and it typically comes from the north (Mehrabi 2000, 37).

1.4.4 Sistan hydrology

The location of Sistan and Baluchistan Province in a dry climate leads to low precipitation, high evaporation, high temperature, and a decrease in water sources (Ebrahimzadeh 2011, 127). Life in Sistan depends on the Helmand River due to the low precipitation in Sistan, of less than 50 mm annually (Papoli Yazdi/Jalali 1996, 112). Since alluvial sediments are small in size, the Sistan Plain is not capable of forming underground water, despite its vast extent and high groundwater level. Underground water cannot be reached due to its geological formation, which consists of a clay layer 850–1000 m deep beneath a coarse sandy layer 10 m deep. Therefore, there is no continuous or accurate underground water reservoir (Ghahrudi Tali 1992, 42).

There is, therefore, no reliable underground source of freshwater for the basin, and it relies exclusively on water from the Helmand River and a few other streams of the Helmand Basin, including the Khash, Harut, Farah, Gulistan, and Kajud Rivers, which are all located in the central highlands of Afghanistan.

1.4.5 Rivers

Several rivers flow through Sistan, but they are mostly small seasonal rivers; the longest and most notable of them is the Helmand. The Helmand River originates at Baba Yaghma in the Hindu Kush Mountains, flowing into Lake Hamun; the river basin is about 350,000 km^2 in area with a body of water more than 1,250 km long. The amount of precipitation over the Hindu Kush determines the annual river flows, which peak between April and May as the snow melts in the spring. During its journey through the Registan Desert, the river loses more than 25% of its water to evaporation. The rate of alluvium suspension in the waters (8 mg/l) of the Helmand is considerable. In addition to providing a significant volume of water each year, Sistan also receives a considerable amount of alluvial sediment, which fertilises the soil and allows its inhabitants to practice agriculture. The Helmand River is now a seasonal river, and its water level peaks between March and June and reaches its lowest between August and October. The Sistan Plain has had plenty of floods over the years because of precipitation in the mountainous part of Afghanistan; these floods are massively destructive (Ahmadi 2000, 21). One of the essential features of the Helmand River is its path changing in its delta. Although the path changing of a river is not usually extraordinary in a delta, these changes for the Helmand River are severe due to its flat topographic position, low slope, and the direction and speed of the wind in this area (Ziaa Tavana/Brimani 2001, 205–206). A major change of direction was seen in the Helmand River during the 3rd millennium BCE, when it moved towards the Ramrud/Rud-e Biyaban Delta. This change in direction certainly played a significant role in the distribution of human settlements (Seyyed Sajjadi 1998, 9).

As for the smaller rivers, primarily seasonal ones, the Farah Rud, Harirud, and Khash Rud all reach Lake Hamun from Afghan territory (Ahmadi 2007, 22), while the Rud-e Bandan and Shour Rud, which descend from the mountains of the southern Khorasan, originate from the northwest mountains of Birjand in the east of Iran and flow to Lake Hamun (Baiat 1989, 368) (Fig. 1.3). Including the Kajaki Dam and the irrigation systems based in Helmand, extractions have resulted in a significant reduction in the flow of the Helmand River in the lower reaches of the Sistan Basin and Hamun lakes. Since the Helmand River no longer has much water flowing through it, it is mostly dry for long periods, and almost no water reaches the basin or lakes. As a result of these factors, the area is becoming increasingly vulnerable to drought (Panahi/Khosravi 2005, 165). The Sarbaz River in Sarbaz, the Bampur River in Iranshahr, the Kajo and Kahir Rivers in Nikshahr, the Bahokalat River in Chahbahr, and the Mashkid River are the main rivers of Baluchistan (Ahmadi 2000, 20).

1.4.6 Lakes

The triple Hamun lakes are among the natural phenomena of the Sistan Plain to have most significantly affected human life. The Helmand River and Hamun Basin have been clearly described in Avesta. The name of Lake Hamun in *Zamyad Yasht* is Kens Oyeh (Seyyed Sajjadi 2010, 14–15) (Fig. 1.3).

Three lakes make up Lake Hamun, Iran's third largest lake, with an area of 3,200 km^2. It is the most crucial lake due to its geographical position, constant water, and freshwater used for agriculture in the Eastern Plateau of Iran (Mojtahedzadeh 1997, 33). In light of the fact that all of Sistan's rivers empty into Lake Hamun, the wetland there has a great deal of ecological significance and environmental value (Ebrahimzadeh 2011, 224).

The Helmand River and Lake Hamun are the most important reasons for ancient civilisations forming in the region and the development of the Shahr-i Sokhta, Dahan-e Gholaman, and Kuh-i Khwaja areas. During recent droughts, the water level of Lake Hamun decreased, and canebrakes turned into sandhills. During the drought period, this lake has been a source of sand extraction and transformed into another parts of the Sistan Plain (Negaresh/Latifi 2010, 50). At its maximum filling, it constitutes a single basin, but in autumn, when the waters decrease, three separate lakes stand out: Hamun-e Puzak or Hamun Savaran (480 km^2), Hamun-e Sabouri (800 km^2), and

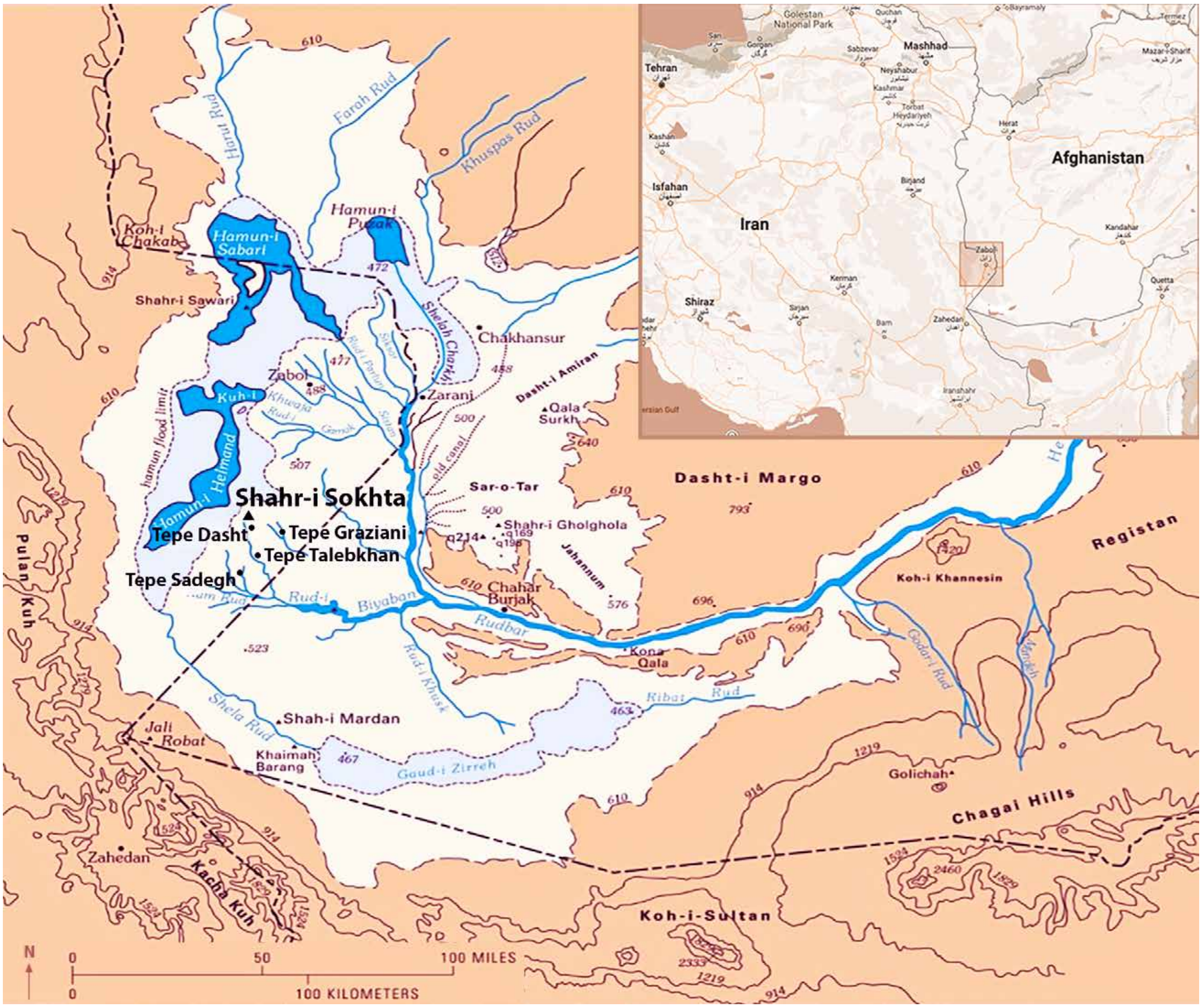


Figure 1.3 Hydrographic map of the Helmand River and Lake Hamun (after Whitney 2006; modified by Andrea Bieri, University of Bern).

Hamun-e Helmand (650 km²). These swamps occupy the lower part of this basin, but without going to the lowest point (Gud-e Zireh). The average water level of this lake is 471 m² above sea level (Jux/Kempf 1983, 33). The Helmand River supplies 80% of the water to the triple lakes during floods (Ziaa Tavana 1993, 194). Its deepest point is 10 m, while its average depth is 5 m (Lashkari Pur/Ghafori 1999, 246). The lakebed is filled with layers of clay, sand, and silt from alluvial sediments brought in by rivers. Upstream withdrawals and diversions have rendered the Helmand River unsuitable as a primary source of water for the Hamun-e Puzak, and the Khash River now serves as a primary source. In fact, during drought years, no water flows from the Helmand River into any of the three lakes or wetlands.

When the lake is full of water, a natural diaphragm leads the additional waters to another depression, Gud-e Zireh, in Afghanistan (Darvishzadeh 1991, 219). Previously, this lagoon was covered with reeds and other aquatic plants. It was home to more than 100 species of birds, including ducks, flamingos, herons, pelicans, and shorebirds, and several fish species. Thus, four types of environment can be distinguished in this region: delta, river, lake, and desert. These four areas provide the inhabitants with different sources of subsistence. During drought, the final areas to remain wet are the Chah-Nimeh reservoirs, the Gud-e Zireh depression, and sometimes, the Afghani part of Hamun-e Puzak (Panahi/Khosravi 2005, 16).

CLASSES	1990	1998	2003
Sand Dunes	778,098 ha	755,179 ha	853,896 ha
Agriculture	177,472 ha	186,215 ha	170,674 ha
Lake Surface	314,508 ha	368,402 ha	147,914 ha
Natural Plant Coverage	112,554 ha	81,733 ha	65,179 ha
Rangelands	724,277 ha	723,924 ha	701,236 ha
Salt Plains	424,523 ha	370,496 ha	460,948 ha
Others	556,278 ha	601,752 ha	687,851 ha
Total	3,089,700 ha	3,089,700 ha	3,089,700 ha

Table 1.1 Land-use changes in the Sistan Basin (Panahi/Khosravi 2005, 12, 16).

Lake Hamun is the reason for many economic activities in this basin. Such activities include hunting in the reed beds, fishing, shipping merchandise and travellers across the lakes, and handicrafts that use reeds as raw material. It also plays a pivotal role in the population of the area. As Lake Hamun has gradually dried out, almost all of its ecological and related economic activities have diminished, leading to a series of socioeconomic problems (Panahi/Khosravi 2005, 12). Somehow, thousands of people have migrated from small dried villages to other villages or cities. Agriculture used to be practised widely on the Sistan Plain, but with severe drought in recent years (Hasanalipur *et al.* 2014), a large part of this plain is not under cultivation anymore; the land-use changes in Panahi and Khosravi's work can be seen in Table 1.1.

1.4.7 Geomorphology and soils of Sistan

The sandy plains of eastern Iran have been mostly created through wind erosion. A notable example is the Sistan alluvial plain. The Helmand River's flooding creates dunes every year by depositing additional alluvium. In fact, after the receding of floodwaters on the delta of Helmand, many sickle-shaped dunes are formed as the result of water and wind erosion, especially south of Lake Hamun and near Gardan-i Rig. The sands of Gardan-i Rig move through Gud-e Zireh to the eastern parts of the Rigestan Desert and accumulate in the shape of massive hills (Seyyed Sajjadi 1998, 9).

No new geological folds have been reported in Sistan. The only evidence for tectonic activities is the presence of some basaltic mesas and Kegel karst from the Pliocene epoch, which were formed about 8 million years ago, such as Kuh-i Khwaja (Khwaja Mountain) and Kuh-i Khan Neshin, aged between 1.4 and 2.8 million years (Jux/Kempf 1983; Shareq 1977). Apart from that, the other geomorphological features of Sistan are the triple terraces, which are located at different elevations and indicate the layers of the Quaternary period. The first terrace is formed near Chahar-Burjak in Afghanistan. Its elevation from sea level is 600 m and it creates a relatively vast delta. The second terrace is the Ramrud Terrace, which is 10 m higher than the level of Lake Hamun during summer. Nimruz is the last terrace; its level is only 3 m above Lake Hamun's waters during summer. This terrace extends as far as Helmand's delta (near Nimruz Province, Afghanistan).

The oldest geological features encountered in Sistan go back to the Cenozoic era. Three different deposits from this era can be found in Sistan: deposits of clay sediments of the riverbed, deposits of conglomerates and mid-sized and bigger gravel, and fine sand caused by wind erosion. Conglomerates can be found in the Margo Desert, bigger-grained gravel is seen in the Registan Desert, and clay sediments are encountered around Zaranj and the Iranian border.

During the Tertiary period, the process of deposition continued in the region. This can be observed in the accumulation of sediment layers in the closed Sistan Basin. Aeromagnetic surveys show that the sediment layers over Precambrian blocks vary from 300 to 5,000 m. The thickness of the Neogene and Quaternary periods is estimated to be approximately 1,000 m, with the thickest parts in the west (Weippert 1973).

It has been reported by Jux and Kempf that ostracods have been discovered in the sediment layers of Lake Hamun in Sistan (Jux/Kempf 1983). It seems that the presence of these creatures, along with their peculiar environmental requirements, indicates that during that time, the region must have had a climate similar to today's. Fig. 1.4 provides more information on various geomorphological features.

After a short geoarchaeological survey of the region around Shahr-i Sokhta in 2006, Fouache and colleagues proposed two hypotheses explaining the positioning of the site in the 3rd millennium: first, there was a higher lake level, which provided a presence of permanent water at the foot of the site; second, the site was near a permanent branch of the river. Thus, they argued that if the lake has undoubtedly constituted a place of original resources both from the point of view of fauna and flora, to not forget that its almost total drying out is relatively frequent as it should have been in the Bronze Age, and that most of the agricultural land of the various societies established on its periphery since the Bronze Age could only be irrigated by gravity from the deltaic channels. They added that this implies that the delta formation of the Helmand River had a considerable impact on human societies" (Fouache *et al.* 2015, 27).

The soils of the Sistan region have a fine texture and owe their existence to the Helmand River and Lake Hamun. The soils around Lake Hamun are heavier. It should be pointed out that a significant amount of the soil in the Sistan region is salty and therefore does not have nutritional value for agriculture. Nowadays, favourable soils for growing plants are found around Zabol (Khosravi 2005, 33). Today, the salinisation of soils in Sistan is a frequent phenomenon, especially in the southern part of Sistan (where the Bronze Age sites are). This phenomenon shows a direct relationship between the irrigation of soils in the region and the amount of salinisation.

1.4.8 Mountains

Sistan and Baluchistan consist of two areas. The Sistan part is mainly plain, and the Baluchistan region, which is in the southern part, is mountainous and has a better situation because of the monsoon. Sistan's mountains are Palang Kuh and Kuh-i Khwaja; Palang Kuh, at 1,965 m, runs from north to south, leading to the Lut Desert in the west and the Sistan Plain in the east (N.G.O. 2007, 2). The other natural phenomenon on the Sistan Plain is Kuh-i Khwaja Mountain, with a height of 595 m and a diameter of 2 to 2.5 km (Zomorodian/Purkermani 1989, 80).

The mountains of Baluchistan are Bazman (3,497 m), Birak (2,740 m), Soliman (3,443 m), Bam Posht (1,800 m, between the cities of Saravan and Chahbahr), Kuh-e Pir Suran (2,225 m), and Malek Siah, which is a dormant volcano at 1,642 m above sea level. It is situated in the northern part of Zahedan on the border between Iran, Pakistan, and Afghanistan.

The most famous mountain of Baluchistan is Taftan (or Chehel Tan Mountain), which is 50 km northeast of the city of Khash. This mountain is one of the semi-active volcanos of Iran, and at 4,041 m above sea level, is the highest point of Sistan and Baluchistan Province. This volcano is semi-active, and sulphur gas and water vapour constantly come out from it; other features of this volcano are hot springs and mud geysers. Nomadic tribes existed in the mountain's foothills, making this area unique compared with the surrounding area.

1.4.9 Plains

The Sistan Plain, at 8,117 km^2, is a vast part of the Iran Plateau, which leads north and east to the Baba and Soliman Mountains (Afghanistan); in the south, the Malek Siah and Baluchistan Mountains, and in the west, the Lut Desert and Khorasan Province (Seyyed Sajjadi 2000). The Sistan Plain is a series of deltas formed by the Helmand River over thousands of years. The deepest part of this plain is Lake Hamun, with a depth of 10 m, and its highest part is Kuh-i Khwaja Mountain, with a height of 595 m above sea level. Today, the Sistan Plain is divided into three parts: sedimentary, lake, and desert. Each

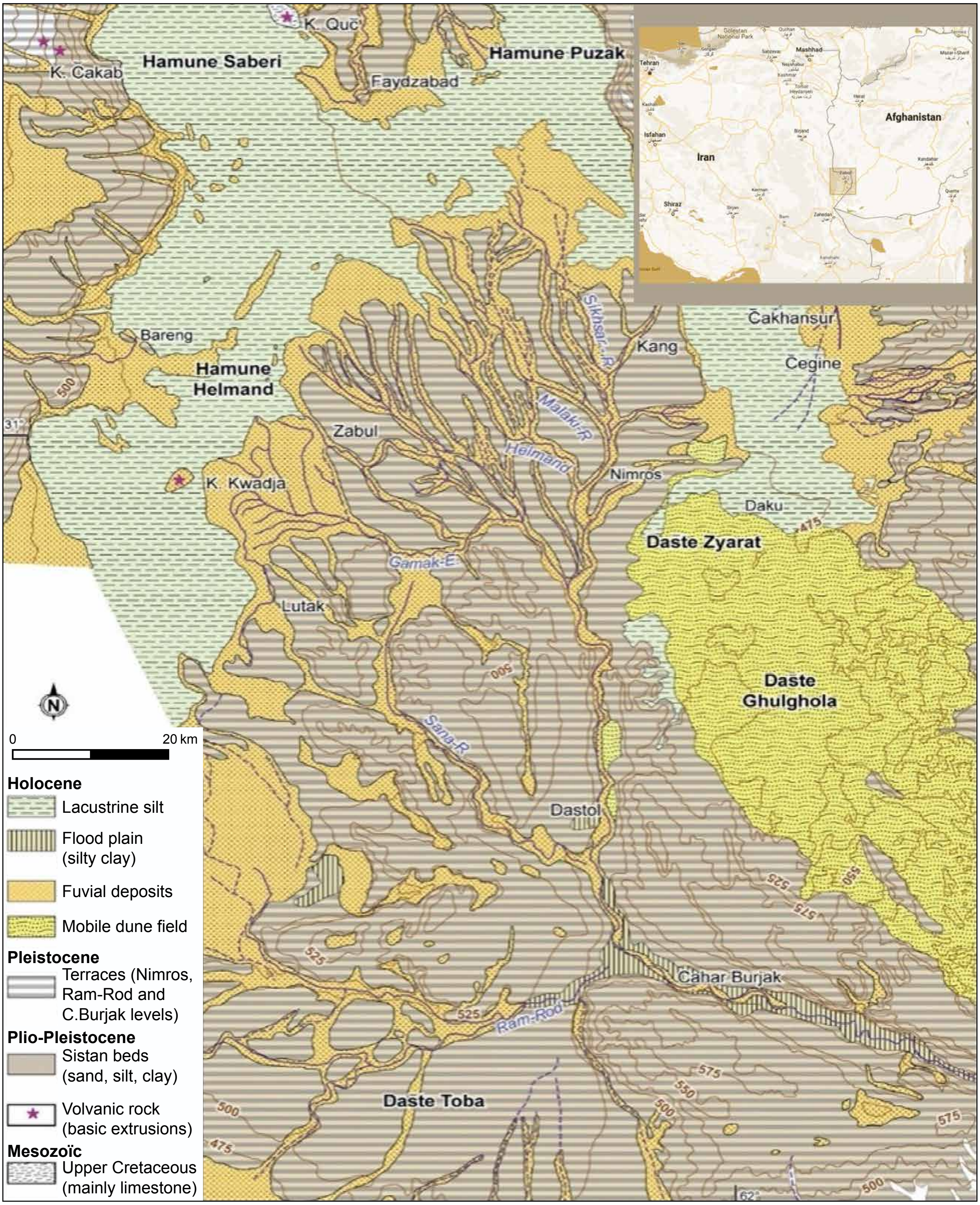


Figure 1.4 Geomorphologic map of Sistan (after Fouache *et al.* 2015; modified by Andrea Bieri, University of Bern).

Figure 1.5 Halophyte and xerophytic vegetation (*Tamarix* spp. and Chenopodiaceae) of Sistan, near Shahr-i Sokhta (© Rouhollah Shirazi).

part has specific geographical and natural features. The sedimentary part results from Helmand River sediments and includes the Poshteab, Shibeab, and Parian Rud deltas (Seyyed Sajjadi 2010, 16–18).

1.4.10 Animal diversity and plant coverage

The vegetation of the Sistan Plain is strongly influenced by precipitation, the humidity of Lake Hamun, the structure of the soil, the geomorphological conditions, the impacts of the 120-day wind, and successive periods of drought. These elements allow only the growth of plants that are resistant to dry climates and saline soils. Under these climatic conditions, dry agriculture is also impossible, and the cultivation of crops and fruit trees depends on artificial irrigation. In general, the plant coverage is more extensive in the northern and central parts of the plain (Mousavihaji 2004, 63).

In general, the present flora of Sistan is dominated by halophyte and xerophyte plants such as *Aeluropus littoralis*, *Aeluropus lagopoides*, *Alhagi camelorum*, *Haloxylon ammodendron*, *Salsola* spp., *Tamarix* spp., *Imperata cylindrica*, *Calligonum*, and *Prosopis stephaniana*. A few species, such as salt trees and tamarisks, are the only types of trees that can withstand the conditions – mainly the violent winds (Fig. 1.5) (Shirazi/Shirazi 2012, 29).

Hamun's vegetation is different from that of the plain and includes aquatic plants or hygrophilous taxa such as *Typha angustifolia*, *Phragmites australis*, *Cyperus longus*, *Butomus unbellatus*, *Juncus maritimus*, *Arundo donax*, *Alisma*, *Plantago*, *Cynodon dactylon*, *Cyperus rotundus*, and *Scirpus* spp. (Costantini/Tosi 1978, 179; Nuri *et al.* 2008, 88).

In the southern parts of the lake and to the west of the plain, the vegetation cover includes *Haloxylon* and *Calligonum*. At the edge and on the beds of dry rivers, there are tamarisk forests (*Tamarix* spp.). Here, denser vegetation is observed adapted to saline soils and growing along the irrigation canals, producing shade on the channels and consequently reducing evaporation (Costantini/Tosi 1978, 176–179; Khosravi 2005, 39; Sobhkhyzi *et al.* 2006, 49–50). *Tamarix* and *Saxaul* are the only species in the plain that can resist these conditions, especially the strong winds. A few years ago, these plants were used to stabilise dunes and prevent desertification.

The wetlands of Sistan provide habitat for a wide range of significant fauna and flora. For instance, the presence of 164 species of birds has been accounted for on the Sistan Plain, of which 11 species are endemic, and the other 153 species are migratory. Thousands of water birds use Hamun lakes as a wintering territory during cold season or as an stopover on their relocation course to and from the south. In the 1980s, more than 1,000,000 birds were recorded in the basin (Panahi/Khosravi 2005, 16).

The desert part of Sistan, which is covered with salt marsh plants, is the habitat of wild boar, wolf, gazelle, rabbit, jackal, fox, deer, Persian onager, otter, jerboa, porcupine, and other rodents (Ahmadi 2000, 52). Some birds, such as geese, cranes, herons, and ducks, live in the lakes and swamps (Ghahrudi Tali 1992, 36). In the Sistan rivers and Hamun Basin, there are many fish, such as common carp, Silurian fish, and small ajuk fish, including *Schizothorax zarudnyi*, which is specific to the region (Ghahrudi Tali 1992, 56). Reliable evaluation information exists for mammals; since severe dry seasons have influenced and broken food chains, a critical decrease in populaces is unavoidable.

Chapter Two: Chrono-Cultural Framework and Archaeological Sites

2.1 The Chronocultural Framework of the Iranian Plateau and the Neighbouring Regions

2.1.1 Introduction

The Iranian Plateau has been inhabited continuously since the Palaeolithic. The continuity of occupation over the entire Iranian Plateau is not a homogeneous phenomenon. Some parts have an uninterrupted cultural sequence, as is the case for the southwest and northwest. In contrast, this phenomenon is accompanied by prolonged gaps at intervals in other areas (notably in the centre and eastern parts). The following is a brief overview of the Iranian Plateau's cultural sequences; rather than giving the country's cultural evolution in detail with a comprehensive description, it offers a summary of the country's chronology and its main archaeological features.

Explorations on the Palaeolithic in Iran began in 1949 with the excavations (mainly considered to be studying subsistence economics) of C.P.P. Coon at the Hottu and Kamarband Caves (dated to the 9th millennium BCE), located near Behshahr on the Caspian coast (Coon 1951). In the valleys of central Zagros, archaeological excavations of sites such as Tepe Sarab and Asiab (near Kermanshah) by R. Braidwood revealed a rich Neolithic material culture (Braidwood 1961). In this same region is Tepe Ganj Dareh, another important Neolithic site that probably emerged in the middle of the 9th millennium BCE. There is little information from that period on the beginnings of agriculture and animal breeding in the area. But from the 8th millennium BCE, the cultural sequence is well represented at the level of the subsistence economy. Information on the domestication of cereals needs to be clarified. It is unknown whether these were cultivated or wild plants, but millstones and mud containers used for storage have been identified (Smith 1971). The inhabitants of the site cultivated *Hordeum vulgare* subsp. *distichum* and vegetables (lentils, peas, and vetch), and collected pistachios and almonds. According to zooarchaeological studies, it seems that the preferential slaughter of young male animals was carried out from level D (Smith 1978, 539–540; Smith 1990, 324; Talai 2007).

In the southwestern part of the Iranian Plateau (the Dehluran and Susiana Plains), due to the existence of all of the potentials necessary for the development of sedentary societies, the establishment of human occupations from the Neolithic (at least from the 8th millennium BCE) can be noted (Alizadeh 2003, 8). Their development in later times along permanent watercourses is a characteristic of the cultural sequence in the region. Here, the sites of Ali Kosh and Chogha Sefid, excavated in 1963 and 1969, brought to light the most extended cultural sequence of the Neolithic period (Hole 1966). In the Dehluran Plain, different periods can be distinguished, the oldest being the Buz Mordeh phase. According to Hole, no trace of local Neolithic phenomena has been found, and it seems that northern Mesopotamia influenced the Neolithisation of this region (Hole 1966). The Susiana Plain followed the same path as other Mesopotamian Neolithic and Chalcolithic centres. Archaeological surveys indicated a very long cultural sequence, marked during the 5th millennium BCE by the distribution of settlements on the plain and by spatial planning according to natural resources (Dollfus 1985).

In the northwest of Iran, in the province of Azerbaijan, excavations carried out at sites such as Haji Firouz and Dalma, located on the plain of Solduz in the south of Lake Urmia, have revealed a Neolithic sequence dating back to the 7th millennium BCE. The ceramics and other materials of the site bore similarities to those of the Hassuna culture in southern Mesopotamia (Voigt 1983).

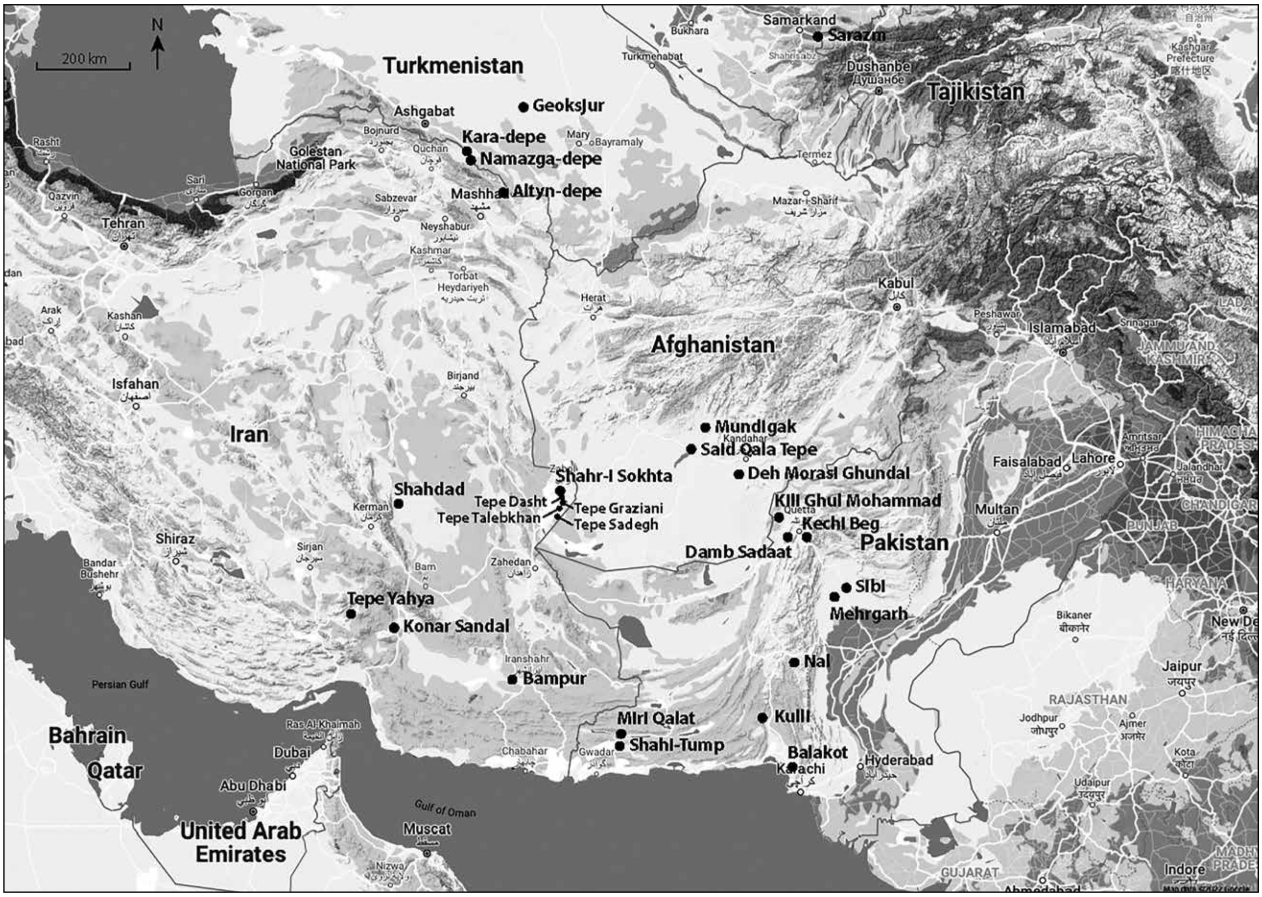
The eastern part of the Iranian Plateau is marked by a Neolithic sequence from the 7th millennium BCE called the Jeitun culture. The Jeitun site, excavated by Russian and American archaeologists, is located in southern Turkmenistan in the foothills of Kopet-Dagh, not far from the Iranian border. Archaeological excavations revealed an architecture composed of one-room houses with a central fireplace inside. The discovered materials include stone and bone tools, animal and anthropomorphic figurines, and handmade painted ceramics (Kohl 1976; Masson/Harris 1992). In northeastern Iran, Neolithic materials are also recorded at three major sites: Tureng Tepe and Yarim Tepe on the Gorgan Plain and Sang-i Chakhmaq near the present town of Bastam (Masuda 1976; Rezvani 1999).

The Neolithic archaeological assemblages of Khorasan come from a few archaeological sites in the Samalqan Plain, the Nishabour Plain, and the Darreh Gaz region (near the Turkmen border). An early Neolithic site on the Samalqan Plain, Tepe Qale Khan, yields materials (notably ceramic) showing the transition to the Chalcolithic (Garazhian *et al.* 2010). The pottery confirms analogies with Jeitun, Anau IA–B, and Namazga I materials, as well as other sites in Khorasan and surrounding areas of the Central Iranian Plateau, such as Sang-i Chakhmaq. Archaeological excavations carried out at Tepe Borj by Omran Garazhian revealed a cultural sequence from the Chalcolithic period with strong similarities to the contemporaneous materials found at Tepe Qale Khan (Garazhian 2008).

The Chalcolithic period in Iran began in the mid-5th millennium BCE. It ended at the beginning of the 3rd millennium BCE sites, with Chalcolithic materials found over much of the Iranian Plateau. This period can be divided into three phases: Early, Middle, and Late Chalcolithic. The significant sites with Chalcolithic remains are located in the northwest (Tepe Hasanlu, levels VIII and IX), to the west (Godin Tepe, levels VI and VII [Henrickson 2011] and Tepe Gian, level V [Contenau/Ghirshman 1935]), south (Tall-i Bakun, levels I–IV, Tepe Yahya, level VA, and Tall-i Iblis [Lamberg-Karlovsky/Magee 2004]), southwest (Susa, Chogha Mish, Jafar Abad, Bandebal, and Jowi), north (Tureng Tepe, level I [Deshayes 1969]), northeast (Tepe Hissar, levels I and II [Dyson/Tosi 1989; Schmidt 1973]), and on the central plateau (Tepe Ghabrestan, levels I–IV and Tepe Sialk, period III [Ghirshman 1938; Malek Shahmirzadi 2004]).

In the Early and Middle Chalcolithic, almost an identical material culture is observed over a large geographical area. From a technological point of view, well-fired pottery painted black on buff represents the ceramic of this period. At the beginning of this period, pottery was handmade, but at the end of the Early and beginning of the Middle Chalcolithic, the potter's wheel was invented. In addition to this innovation in the production of ceramics, progress in metallurgy can be seen. At this time, the production of copper and bronze objects became an essential part of the material culture (Hauptmann *et al.* 2003). The most remarkable example is at Tall-i Iblis, on the plain of Bard Sir, near Kerman. The archaeometallurgical remains found there bear witness to metallurgical activities at Iblis I and II (Chalcolithic [Caldwell 1966; 1967]). Tepe Sialk, another important site, also gives information on craft activities: metal objects (tools and ornaments) were discovered in several Chalcolithic levels, too (Ghirshman 1938).

According to archaeobotanical and geomorphological studies carried out on the Dehluran Plain, the Middle Chalcolithic is characterised by a subsistence economy based on agriculture (Hole *et al.* 1969; Hole 1977; Wright *et al.* 1975). The same situation can be seen in other regions of the Iranian Plateau, notably at sites located in the Zagros foothills, such as Mahidasht Plain (Levine 1974; Levine/Mcdonald 1977), the region of Kangavar (Young 2004), the Susiana Plain (Hole 1987; Zagarell 1982), and the valley of the Kur River (Sumner 1972).



According to Iranian chronology, the Bronze Age corresponds to a period ranging from 3000 to 1500 BCE, although these dates are not recognised throughout the Iranian Plateau. This period is characterised by the growth and dispersion of the populations on the plateau, successive changes in the use of raw materials for manufacturing metal tools, technological development in ceramic, metallurgical, and lithic craftsmanship, the sophistication of urban and administrative structures, and the development of long-distance exchange networks, especially the circulation of semiprecious and soft stones (Dyson/Voigte 1989). Another striking phenomenon of the Bronze Age is the appearance, at the end of the 4th millennium BCE, of an almost homogeneous culture called the "Proto-Elamite Horizon", distinguished by the presence of numeral tablets, cylinder seals (Jemdet Nasr type) and bevelled-rim bowls (Dahl 2009). As a means of providing an overview of the chronocultural history of the region (Sistan), a discussion of Bronze Age sites in eastern Iran will follow (Fig. 2.1).

Figure 2.1 Shahr-i Sokhta and surrounding Bronze Age settlements (after Cortesi *et al.* 2008; modified by Andrea Bieri, University of Bern).

2.2 Sistan

Iranian Sistan's Shahr-i Sokhta and Mundigak, another major Helmand Valley site in Afghanistan, formed the cultural ensemble of Helmand in the 3rd millennium BCE. A site known as Shahr-i Sokhta, literally "the burnt city", lies 55 km southwest of Zabol in Sistan and Baluchistan Province in southeastern Iran (Fig. 2.1). It is bordered to the north by southern Khorasan, to the east by Afghanistan and Pakistan, to the west by Kerman, and to the south by the Oman Sea. Sistan (with an area of 8,117 km^2) is located in the north of the province, while Baluchistan is situated in the southern part.

Besides observations and reports of visitors and amateurs (*i.e.,* Rahbari/Roshani 1986; Yate 1900), archaeological research began with Sir Stein's arrival in Sistan in 1916. During his short stay, he very briefly surveyed the sites already known in the region, such as Kuh-i Khwaja and Shahr-i Sokhta. From 1967 to 1979, an Italian team headed by Mr. Tosi, in collaboration with the Archaeological Service of Iran, extensively excavated Shahr-i Sokhta. The Italian excavations were focused mainly on the Eastern Residential Area, the Central Quarters, the southern zone called the "Burnt Building", and the necropolis. The excavations resumed in 1997, after a hiatus of 18 years, under the direction of Dr. Seyyed Mansour Seyyed Sajjadi of the Iranian Centre for Archaeological Research (ICAR). In the first step, excavations were conducted at the necropolis, with an enlargement towards the Monumental Zone and, more recently, towards the Eastern Residential Area; the sector is known as the "Artisanal Quarter".

2.2.1 Shahr-i Sokhta

Site description

The archaeological remains cover an area of more than 270 ha and are over 2,220 m long and 1,090 m wide, which makes it possible to consider Shahr-i Sokhta as one of the largest sites of the protohistoric period in the eastern part of the Iranian Plateau (Biscione *et al.* 1977, 104). Shahr-i Sokhta, at the end of the alluvial delta of Helmand, and Mundigak, the second primary site of the same basin, are two points of contact between the Iranian world and the Indus Valley. They form a homogeneous cultural unity in the southeastern part of Iran. Different functional parts have been distinguished, including the Eastern Residential Area, Central Quarter, Artisanal Quarter, Monumental Zone, and Necropolis (Fig. 2.2).

The Eastern Residential Area includes the entire eastern part of the city. It is located in Sector X and encompasses the "Burnt Building" to the south and the Central Quarter to the west. It covers an area of 16 ha and provides the most extended sequence of occupation (period I to III: 3200–2300 BCE [Tosi 1976]). Excavations conducted on the site have revealed a large residential area. During period II, it was densely populated, with complex alleyways connecting various residential buildings.

The Central Quarter, located in the central part of the site, is distinguished from the Eastern Residential Area by some small valleys (Abdi/Ganji 2015). It covers an area of 20 ha, including a space on the western side of the Burnt Building. In the 3rd millennium BCE, phase 7 and phase 4 (periods II and III) were most likely the time periods of development for this part. Archaeological surveys, as well as aerial photos, have revealed an architectural complex located 300 m from the Eastern Residential Area.

The semi-rectangular sector of the Artisanal Quarter is located in the northwestern corner of Shahr-i Sokhta. It is separated by three depressions from the Necropolis, the Central Quarter, and the Monumental Zone, extending over more than 6 ha. Excavations carried out in this part of the site in 1972 led to identifying an area for working semiprecious stones such as lapis lazuli and carnelian (Piperno 1979; Piperno/Tosi 1973, 18). Here, the Italian team discovered a group of pieces in the EWK Square dated to period II (phase 7) that contained several thousand scraps and unfinished beads, as well as finished products of lapis lazuli, carnelian, and turquoise. New archaeological research carried out in this area has also brought to light domestic rooms, inside which some anthropomorphic clay figurines have been found (Amit/Tosi 1978; Piperno/Salvatori 1983).

The Monumental Zone is located in the O sector, in the northwest of the site, between the areas of the Artisanal Quarter and the Eastern Residential Area. To the west, an alluvial cut separates it from the Artisanal Quarter, while to the south, it is bordered by the Necropolis. A large building was discovered in 1999, and further excavations

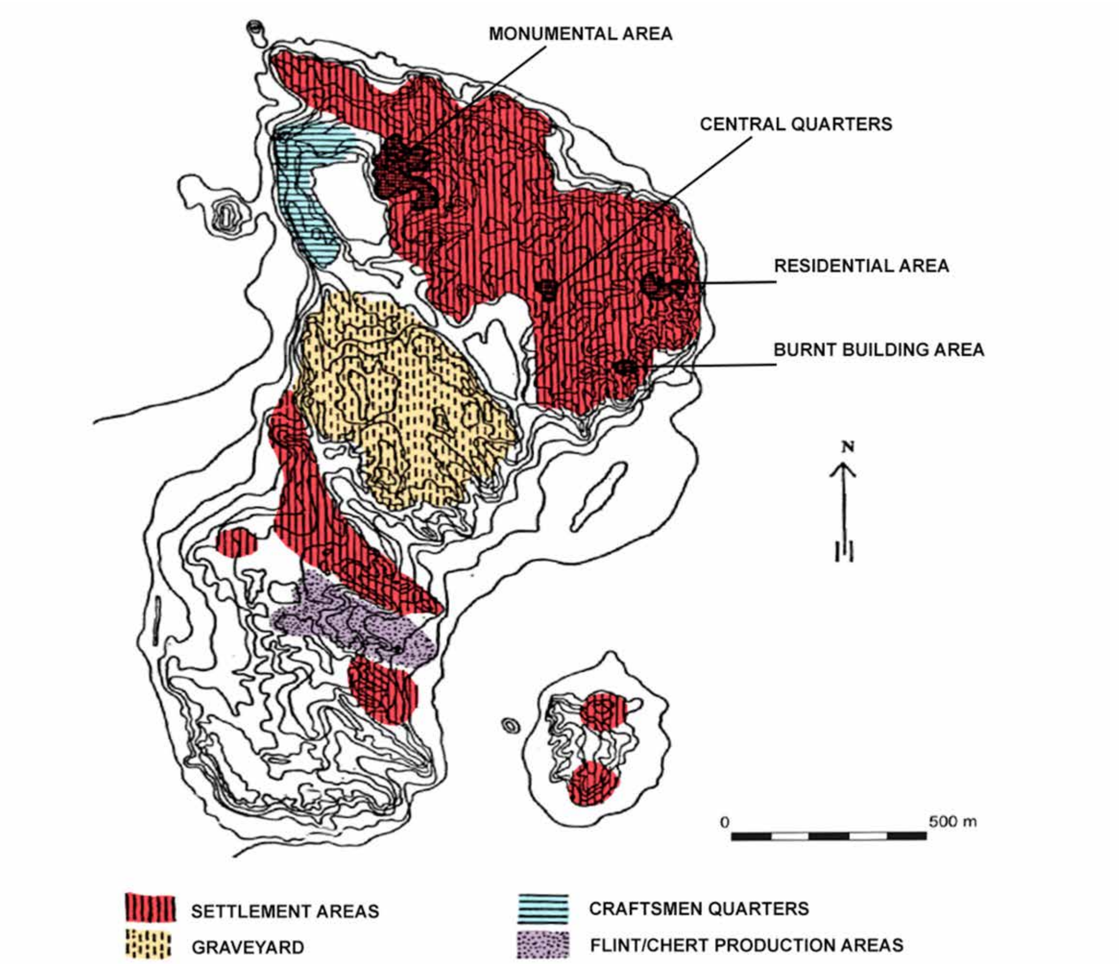


Figure 2.2 Shahr-i Sokhta (after Seyyed Sajjadi 2007, 23; modified by Andrea Bieri, University of Bern).

in 2000 and 2001 revealed new information. Currently, over 1,600 m² of architectural features as well as 93 rooms and open spaces were discovered (Seyyed Sajjadi 2004, 3). The central core of the building is approximately 180 m², with the largest room measuring 28 m² and the smallest 3.80 m².

The cemetery of Shahr-i Sokhta, discovered fortuitously in 1972, is located in the southern and southwestern part of the site and covers an area of approximately 25 ha. The Italian mission excavated an area of almost 3,000 m², uncovering 230 graves. From 1997 to 2019, the Iranian team continued excavating the cemetery, excavating more than 450 graves in an area of 2,500 m².

Chronology of Shahr-i Sokhta

The traditional chronological sequence of Shahr-i Sokhta (3200–1850 BCE) covers the end of the 4th millennium and the entire 3rd millennium BCE (Salvatori/Tosi 2005, 289). Today, four main periods are recognised at Shahr-i Sokhta, covering an occupation period of almost 1,200 years. A recent article by Salvatori and Tosi put forward revisions. They offered a more flexible framework for new dating, especially regarding the last period of the occupation (Salvatori/Tosi 2005, 289). Indeed, phase 1 (2200–2000 BCE), which coincides with the occupation of the "Burnt Building", shows strong links with the Bampur V–VI periods (Biscione *et al*. 1977, 105) and Umm al-Nar, located on the southern coast of the Oman Sea (Tosi 1976, 84–86). This dating has been confirmed by new excavations at Miri Qalat in period IIIC in the Pakistani Makran (Besenval 1997, 33). The chronology of the site based on Salvatori and Tosi is as described below.

Period I, 3200–2800 BCE (phases 10 to 8)

At this time, the city consisted of the Eastern Residential Area and the Central Quarter. Then, Shahr-i Sokhta was a crossroads of economic and cultural exchanges, as evidenced by the discovery of Mesopotamian and Elamite seals, a Proto-Elamite tablet, and Namazga III, Mundigak III 5–6, and Nal ceramics (Sarianidi 1983). The total area of occupation during this period was 16 ha (Biscione *et al.* 1977, 104). During period I, the material culture (in particular, the form and decoration of ceramics) presents analogies with materials from the piedmont of Kopet-Dagh in southern Turkmenistan (Namazga III period). The glyptic (especially cylinder seals) of this first period is comparable with that of sites located more to the west (such as Susa) or in Mesopotamia. The cylinder seals used during period I of Shahr-i Sokhta subsequently disappeared in favour of compartmented seals made of stone (mainly chlorite or alabaster), bone, and metal (copper alloy). Based on the Jemdet Nasr glyptic and a Proto-Elamite tablet from Shahr-i Sokhta, it seems that, during the first period of its occupation, the site could be considered the most eastern expansion of the Proto-Elamite culture (Uruk Expansion) (Amiet/Tosi 1978, 24–25).

Period II, 2800–2500 BCE (phases 7 to 5)

During period II, the settlement extended towards the east (Eastern Residential Area) and northwest, where the Monumental Zone and the Artisanal Quarter are located (Seyyed Sajjadi/Casanova 2006). At that time, the site was at its maximum extension, 20 ha. As already pointed out, during period II, an increase in occupation can be noted, which can be linked to the beginning of urbanisation in the eastern part of the Iranian Plateau.

Period III, 2500–2300 BCE (phases 4 to 2)

The archaeological remains of this period are found in the Central Quarter, the immense necropolis, and Tepe Rud-i Byaban 2 (Salvatori/Vidale 1977; Vidale/Tosi 1996). The total area of period III ruins is approximately 80 ha. The parts of the site mentioned above were inhabited until phase 3 (ca. 2300–2250 BCE) (Biscione *et al.* 1977, 105).

Periods II and III also saw the establishment of contacts with Baluchistan marked by ceramic similarities (Nal polychrome ceramic and fine grey ware of the Shahi-Tump type). At Shahr-i Sokhta, buff ware is very characteristic of periods II and III. The most frequent form during these two periods is the pear-shaped beakers, decorated on the upper part. Another essential feature of the site is the manufacture of alabaster vessels (bowls and cups), probably due to the proximity to alabaster deposits (Casanova 1991). On the other hand, metallurgical activities did not reach the level of complexity attested in other neighbouring sites in southeastern Iran (Artioli *et al.* 2005; Hauptman *et al.* 2003). Briefly, during periods II and III, Shahr-i Sokhta was integrated into a sphere of interactions encompassing the southeast of Iran, the southern coast of the Persian Gulf, the Oman Sea, and Pakistani Baluchistan. At the end of period III, at Shahr-i Sokhta, a collapse of urbanisation can be seen, followed during period IV (the end of the 3rd and beginning of the 2nd millennium BCE) by a decline noted in the material culture, including ceramics. Pottery period III is mainly buff or red ware with more keeled shapes and grey paste with incised decoration. It rarely presents painted motifs (Biscione 1990).

Period IV, 2300–1750 BCE (phases 1 and 0)

This period is from 2300 to 1750 with a gap around 2000 BCE; the remains of this period are found in the southern and southwestern part of the tepe, near the "Burnt Building". After this period, the site was abandoned entirely (Seyyed Sajjadi/Moradi 2014; 2016).

In recent years, based on new excavations and radiocarbon dating results, the chronological framework has been changed, and new chronologies for Shahr-i Sokhta and the area have been set up. In 2008, Cortesi, Tosi, Lazzari, and Vidale (Cortesi *et al.* 2008), and, in 2011, Jarrige, Didier, and Quivron (Jarrige *et al.* 2011), proposed new chronologies based on the recent excavations' finds in Shahr-i Sokhta, together with finds from the French excavation at Mundigak. They suggested that the urbanisation in Shahr-i Sokhta and

Absolute Chronology	**Shahr-i Sokhta Salvatori and Tosi**	**Shahr-i Sokhta Vidale**	**Shahr-i Sokhta (Sistan) Seyyed Sajjadi and Ascalone**	**Tepe Graziani Kavosh *et al.***
3300–3000 BCE	Period I, Phases 10, 9	Period I, Phase 10–8	Period II, Phase 7	
3000–2850 BCE	Period I, Phase 8/7		Period II, Phase 6 (Lower Hilmand 5)	Period II, Phase 6
2850–2600 BCE	Period II, Phases 6, 5 A/B	Period II, Phase 7–5	Period II, Phase 5 A/B (Lower Helmand 6)	Period II, Phase 5 A/B
2600–2450 BCE	Period III, Phases 4, 3	Period III, Phase 4–3	Period III, Phases 4, 3 (Lower Helmand 8)	Period III, Phases 4, 3
2450–2350 BCE	Period III, Phase 2	Period IV, Phase 2–1	Period III, Phase 2, and Period IV, Phase 1 (Lower Helmand 9)	Period III–IV, Phase 2–1/0
2350–2200 BCE	Period IV, Phase 1		(Lower Helmand 10)	
	Gap			
2200–2000 BCE	Period IV, Phase 0		Period IV, Phase 0 (Lower Helmand 11)	
2000–1800 BCE	Abandon		?	

Table 2.1 Different chronologies of Shahr-i Sokhta.

surrounding settlements did not go beyond 2350 BCE. Furthermore, in recent research by Kavosh and colleagues in Tepe Graziani (Kavosh *et al.* 2019, 151–153), and Seyyed Sajjadi and Ascalone in Area 33 of Shahr-i Sokhta (Seyyed Sajjadi/Ascalone 2019), revisions were put forward, and new chronologies were offered for Tepe Graziani and Shahr-i Sokhta that are similar to each other. Based on their chronological framework, period II was in 3300–2600 BCE, period III in 2600–2400 BCE, and period IV in 2400–2000 BCE with a gap in 2350–2200 BCE. All of the different chronologies can be seen in Table 2.1 (Salvatori/Tosi 2005; Cortesi *et al.* 2008; Jarrige *et al.* 2011; Seyyed Sajjadi/Ascalone 2019; Kavosh *et al.* 2019, 151–153; Vidale 2021).

There are different problems for these chronologies: for example, Salvatori and Tosi selected a limited number of radiocarbon dates that fit in their chronological framework of Shahr-i Sokhta; however, period III, phase 4, represents a break in their radiocarbon chronological framework. The Vidale chronology is based on the Italian and French chronologies, but the views are incompatible between the Italian and French teams, although both were partially right (Based on Vidale, period I is from 3200 to 2800 BCE, and period II is from 2800 to 2600 BCE; Vidale 2021). Tepe Graziani is one of the satellite sites of Shahr-i Sokhta, and seven radiocarbon dates are not enough from an immense site like Tepe Graziani to conduct its chronology and, consequently, Shahr-i Sokhta's. Seyyed Sajjadi and Ascalone's chronology is based on the new radiocarbon results but mainly from Area 33 at Shahr-i Sokhta (Seyyed Sajjadi/Ascalone 2019; Vidale 2021). Nevertheless, the traditional chronology cannot be relied upon anymore, and the new ones are more reliable. These new chronologies make apparent the necessity of more radiocarbon dating in different areas of Shahr-i Sokhta and its satellite sites. The result of Tepe Sadegh's radiocarbon dating should provide an insight into the chronology of Tepe Sadegh itself and the whole area.

2.2.2 Tepe Graziani

Site description

This site is 56.6 km from Zabol and 10 km southeast of Shahr-i Sokhta (Figs. 1.3 and 2.1). During the first excavations in Shahr-i Sokhta, the Italian team discovered this site, but because of the Islamic Revolution in 1979, the excavations could not proceed further (Salmanzadeh *et al.* 2015, 56). In 2007, this site was registered as number 277 during the systematic survey of the Sistan Plain by Mousavihaji and Mehrafarin (Mousavihaji/Mehrafarin 2007, 2290). As part of his Ph.D. thesis at the University of Tehran, Kavosh conducted some sounding at this site and published the results in his thesis in 2011 (Kavosh 2011, 50).

In current times, Tepe Graziani rises on top of the southern alluvial Plain of Sistan to a maximum height of 10 m, of which 4–5 m consist of archaeological deposits. It has been identified as an enormous Bronze Age settlement, with an extent of c. 3 ha. A gentle slope on the southern side distinguishes Tepe Graziani. Despite this, the edges of the hill present a precarious profile due to wind disintegration processes brought about by the well-known 120-day wind of Sistan.

A continuous layer of plain or painted pottery fragments covers its eight hummocks, formed by erosion (Gordon 1954/1955). Other abundant cultural materials on the surface are overfired potsherds, sherds of stone vessels, stone tools, and implements, semiprecious stones, metal objects, stone seals, copper slag, and furnace fragments (less abundant compared with ceramics and ceramic waste).

Maurizio Tosi and his team surveyed in 1972 in Tepe Graziani for the first time. In 1972, Grazia M. Bulgarelli and Marcello Piperno conducted grid-mapping on the site (Kavosh *et al.* 2019, 11). In 2010, excavation was started by Hossinali Kavosh and Massimo Vidale in Tepe Graziani. In the beginning, the excavators opened two-step trenches measuring 2 × 2 m, respectively, on the east and west side of the mound (trenches I and II), which were later enlarged to a length of 12 m, reaching, at the foot of the slope, the oldest layers of occupation. These trenches, at a depth of 3.80 m and 4.30 m, reached virgin soil.

Trench III, 10 × 10 m wide, was opened in the centre of the site to uncover the architectural remains of the latest phase of local occupation. The centre of the mound, which belonged to the latest phases of occupation of the settlement, was entirely formed by a deposit of ancient dung at points up to 1 m thick over an area of 8 m^2 (Kavosh *et al.* 2019, 74).

Stratigraphy and contexts: Trench I

The first stratigraphic trench was dug in the southwestern part of the site. The excavation took the form of a step trench, 2 m wide and 12 m long. The excavation continued to a depth of 3.80 m until virgin soil was encountered. A total of 64 stratigraphic contexts were identified, of which 35 were architectural structures. Based on the pottery, the earliest settlement corresponds to the late phase of period I, and the latest to period III, phase 3 (Kavosh *et al.* 2019, 29).

The potsherds on the surface of this mound are simple and painted pottery with a diversity of clay colours. Other surface findings are slags, wasters, small bronze objects, and stone blades and dishes (Mousavihaji/Mehrafarin 2007, 2290). Based on the pottery paintings, this site was from the beginning of the 3rd millennium BCE to the beginning of the 2nd millennium BCE (Salmanzadeh 2014, 98). During Kavosh's work in this mound, evidence of kiln pottery was found, as well as many deformed potsherds, wasters, and a stockpile of animal manure covering 8 m^2, probably used as kiln fuel (Salmanzadeh *et al.* 2015, 58). Javad Salmanzadeh chose 13 pieces of pottery from three tranches for the petrography examination. Based on this study and the ecological map of the region, it seems that the pottery from Graziani Tepe was a local product and the existence of calcite in some examined potsherd sections shows that the temperature of the kiln was mainly 800 °C; in a few potsherds without calcite, it increased above 800 °C (Salmanzadeh 2014, 356).

Stratigraphy and contexts: Trench II

The excavation and stratigraphic recording of trench II were carried out in a 2 × 2 m step trench on the eastern side of the mound. At the end of the fieldwork, trench II was dug in four steps for a total length of c. 12 m; the entire depth of archaeological layers was 4.30 m, with a sequence of not less than 78 contexts (Kavosh *et al.* 2019, 46).

Stratigraphy and contexts: Trench III

To explore a sample area of the architectural remains of the site, a horizontal trench measuring 10 × 10 m was excavated from the top, in the centre of the mound.

All walls in the southern and southwestern parts of the trench, where the incline becomes exceptionally steep, were profoundly disintegrated, and practically deleted.

The excavation was restricted to the highest degrees of occupation and their erosive interfaces; however, it somewhat uncovered a significant engineering complex (Kavosh *et al.* 2019, 74).

2.2.3 Tepe Dasht

Site description

One of the satellite sites of Shahr-i Sokhta, it is 5.5 ha in extent and situated 3 km southwest of Shahr-i Sokhta (Figs. 1.3 and 2.1). This site's extent shows its importance as a pottery manufacturing centre for Shahr-i Sokhta, and even nowadays, some pottery kilns are still visible on the surface of this mound. When the site was first identified by Maurizio Tosi, he did not conduct any excavations of the mound. Dr. Mehdi Mortazavi excavated Tepe Dasht for the first time in 2008 for two seasons for the purpose of educating archaeology students from University of Sistan and Baluchestan (Mortazavi 2004). In 2016, Dr. Mehdi Mortazavi conducted the third season of excavation of this prehistoric site.

Tepe Dasht consists of six mounds that are connected to each other. This site is 485 m above sea level and 10–11 m above the surrounding plain. The pottery of Tepe Dasht belongs to periods II, III, and IV of Shahr-i Sokhta. The existence of potsherds, zebu figurines, animal manure, burnt soil, and kilns construction show that this was a pottery manufacturing site during the 3rd millennium BCE (Moradgholi/Mortazavi/Shafiai Afarani, 2019). According to Dr. Mortazavi, four factors were crucial to the operation of a pottery manufacturing site like Tepe Dasht: wind, fuel, clay, and water. The excavations revealed an ancient lakebed that must have served as a source of water, as well as evidence of animal manure used for the kiln's fuel (Mortazavi 2014). During the 3rd millennium BCE, clay and water were readily available as basic materials for pottery and figurine production, while wind was used to feed the fire.

2.2.4 Tepe Talebkhan

Site description

Among the archaeological activities that have taken place continuously in Sistan is the excavation of the prehistoric site of Tepe Talebkhan. This Tepe is near Shahr-i Sokhta (12 km south), on the right side of the 135 km Zabol-Zahedan road (Figs. 1.3 and 2.1). Nowadays, there is no permanent or seasonal river in the area; therefore, the area is quite dry and without vegetation cover. However, in the Bronze Age, the Biaban River was the reason for habitation. Initially, the excavation in this tepe took place to educate students of University of Zabol in 2003 under the supervision of Dr. Seyyed Sajjadi, head of the excavation group of Shahr-i Sokhta, and Mahmoud Miri, faculty member of the archaeology department of University of Zabol. The mound, measuring 60 m by 80 m and standing 8.2 m in height, has two periods (I and II), in which the potsherds of period I are painted and similar to the pottery of Shahr-i Sokhta II and III, and the potsherds of period II are mainly simple and similar to the pottery of period IV of Shahr-i Sokhta. In 2010, during excavations, another tepe was excavated in the northeast of this region, with the name of "Tepe Talebkhan 2" (Kavosh *et al.* 2020).

2.3 Baluchistan

Historically, Baluchistan has been considered an obscure region from the perspective of archaeology, seen as *terra incognita*. Early travellers provided some information on the region's antiquity (Bellew 1874; Floyer 1882; Mockler 1877; Pottinger 2002), but it was Sir Marc Aurel Stein who produced the first reliable archaeological data on Baluchistan, during the early 1930s. He focused his explorations on the Bampur Valley, where he recorded numerous sites and excavated a few, such as Bampur, Khurab, and Damin (Stein 1937). In prehistoric times, the region was inhabited by people with cultural affiliations with Iran, which was confirmed by his research (Shaffer 1978; 1988). The most ancient cultural remains of the area go back to the Palaeolithic. In 1966–1976, Hume and Marucheck surveyed the Sarhad Plateau (northern Baluchistan), looking for Palaeolithic and prehistoric sites (Hume 1976; Marucheck 1972). According to Hume's research, Baluchistan may have been inhabited during the Pleistocene, based on Palaeolithic sites found in the Ladiz Valley. In 1966, de Cardi, from the British Institute of Persian Studies, carried out limited excavations at Bampur to establish a chronological framework for the region, revealing a cultural sequence that became the essential reference for the prehistory of Iranian Baluchistan.

Tepe Bampur and the necropolises of Damin and Khurab (dated to the 3rd millennium BCE) are the three main sites in Iranian Baluchistan. In Bampur, de Cardi reported a red and grey ceramic with buff slip, sometimes painted, and decorated with geometric or animal motifs (de Cardi 1968). Excavations carried out in graves at Damin (Stein 1937; Tosi 1970) and Khurab (Stein 1937) yielded ceramics similar to those already found at Bampur. Thus, the ceramics of Iranian Baluchistan in the Bronze Age show obvious similarities with those of Shahr-i Sokhta, Tepe Yahya IVB, the Umm al-Nar culture on the eastern coast of the Arabian Peninsula in Oman, and Miri Qalat and Shahi-Tump in the Pakistani Makran (Didier 2007).

The Pakistani Makran is located in the southern part of Baluchistan, in Pakistan. In the late 1920s (Stein 1931), Stein explored it, and he briefly visited it in the 1950s and 1960s (Dales/Lipo 1992; Field 1959). An actual archaeological research programme in the region started in the mid-1980s, directed by Besenval from the French Archaeological Mission at Makran (MAFM). Several surveys and excavations in Makran, such as Miri Qalat and Shahi-Tump (Kech Valley), revealed the existence of original and rich cultures from the 5th to the end of the 3rd millennium BCE (Besenval 2005, 8). The protohistoric material assemblages of Makran also testify relations with the Indus, Iranian Plateau, and Persian Gulf, facilitated by its intermediate geographical position between these regions (Didier/Mutin 2013, 462; Mutin 2012).

2.3.1 Bampur

Bampur is one of the key sites in the southeast of Iran and Iranian Baluchistan (Fig. 2.1). It is located near the Bampur River and the modern city of Iranshahr. On the main mound, a fort was built during the historical period. The research and excavation at Bampur provided valuable information about the settlement and cultural evolution in the Bampur Valley during the 3rd millennium BCE. Like many other archaeological sites of Baluchistan, the area was first discovered and introduced by Sir Aurel Stein (Seyyed Sajjadi 2005; Stein/1937, 104–111). He performed soundings at Bampur, revealing the remains of prehistoric occupation and a fine ceramic assemblage. In 1966, de Cardi conducted further excavations to establish a chronological sequence for the region. Her excavations produced a cultural sequence within six successive occupational periods, from I to VI (de Cardi 1970).

2.4 Kerman Province

2.4.1 Jiroft

In Jiroft, most of the archaeological information comes from a few excavation campaigns carried out on the Konar Sandal North and South sites and the necropolis of Matoutabad. Konar Sandal's chronology shows a homogeneous cultural sequence throughout the 3rd millennium BCE. The discovered material assemblage includes various objects, such as ceramic and chlorite vessels, stone and metal stamps, cylinder seals, and monumental architecture. The ceramics show analogies with neighbouring regions, such as Tepe Yahya, Shahdad, Makran, and the southern coasts of the Persian Gulf.

History of archaeological research in Jiroft

As a result of the overflows of the Halil Rud in 2001–2002, spectacular artefacts, particularly chlorite vessels, were uncovered from graves dating back to the 3rd millennium BCE. This fortuitous discovery triggered a vast looting of the necropolises located on the plain before the Iranian authorities managed to control the situation. The installation of a preventive archaeological mission in the region, under the direction of Choubak, allowed for the excavation of some tombs in the necropolises of Rig Anbar and Matoutabad. The results of this mission revealed the existence, in the valley irrigated by the Halil Rud, of a brilliant culture dating from the 4th millennium BCE to the 2nd millennium BCE ("culture of Halil Rud"). The recent discovery of this culture makes its interpretation difficult, but it could, in the future, change the view of ancient history in this part of the Iranian Plateau.

As early as 2002, a research programme was established by ICAR under the direction of Madjidzadeh. According to archaeological surveys carried out by the Iranian team, the protohistoric settlements are concentrated on the right bank of the Halil Rud. Of these sites, the Tepes Konar Sandal South and North (located at a distance of 1.4 km from each other) are the most notable. The archaeological material shows a strong analogy with other sites on the Indo-Iranian borders. Five excavation campaigns were carried out in Konar Sandal South and Konar Sandal North between 2003 and 2007. The mission began its work by opening 16 trenches on the south hill and 26 trenches on the north hill in order to better understand the nature and positioning of the archaeological strata and establish a fine stratigraphy (Madjidzadeh 2008, 70).

Konar Sandal Complex

The archaeological complex of Konar Sandal, made up of three main sites (Konar Sandal South, Konar Sandal North, and the cemetery of Matoutabad), is located on the Jiroft Plain, about 30 km south of the current city of the same name (the ancient town of Sabzevaran), in the province of Kerman (Fig. 2.1). This plain, 60 km long and 10 to 15 km wide, is located at an average altitude of 650 m above sea level. It is bordered by high mountains to the northeast, where the Jebal Barez rises to 3,741 m, Sardouye (nearly 3,000 m) to the west, and Kuh-e Hezar (4,420 m) further north. Vast plains of inclined gravel transition between the mountain ranges and the plain (Fouache *et al.* 2005, 109). The Jiroft Plain, challenging to access from the north, has a natural route to the west, connecting it to the Strait of Hormuz, from where one reaches by sea, in a few days, the coasts of the Persian Gulf. To the west, Susiana and Mesopotamia lie at a distance of about 1,000 km (Perrot/Madjidzadeh 2003, 1087).

Passing the plain is the Halil Rud, a river which has its source in the mountains of Baft, Hezar, Lalehzar, and Bahr Asman in the north, and flows for nearly 400 km towards the southeast before being lost in a marshy area in the centre of the vast endorheic basin of Jazmourian (13,000 km^2), located south of the Jiroft Plain. The regime of Halil Rud is variable according to the seasons and the years, with periods of solid flow during the snowmelt in spring and the rainy periods in winter, in contrast to the drier summer period. Alluvial soil and the Halil Rud, the two fertilising elements on the Jiroft Plain, allow for irrigation of the numerous palm groves and fields and make the Jiroft Plain one of the most important centres of agricultural production in the region (Dunn Vaturi/Schädler 2006).

Konar Sandal South

Konar Sandal South is located 28 km south of Jiroft, along the Jiroft-Kahnouj road, and 1.5 km from the present village of Konar Sandal. The tepe is oval in shape, rising 21 m above the alluvial plain. The Halil Rud currently flows 800 m east of the site (Madjidzadeh 2008, 75). Two crucial parts of the occupation in Konar Sandal South can be distinguished: a citadel and a lower town.

Citadel

In Konar Sandal South, four phases of occupation have been identified. The citadel, an architectural complex built on a platform whose dimensions exceed 300 × 400 m, corresponds to the last three phases (trenches III, VI, VII, XII, XIII, and the step trench, at the top of the tepe comprise 11 m of deposits).

The first phase of occupation (revealed in some trenches, for example, IX) can be dated to the end of the 4th millennium BCE. The remains of this phase are located below the citadel. The second phase corresponds to the first period of the citadel's construction. To this phase belongs the monumental entrance to the citadel towards the west, flanked by a semicircular tower (5 m in diameter). Finally, the third phase is contemporaneous with the destruction of the old citadel. The architectural elements corresponding to this phase are a semicircular tower (trench III), the constructions on the flattened levels, and room 518 (a rectangular room about 10 m long), having a niche with a painted clay statue in relief. The excavation of the upper layers again indicated a significant restoration of the citadel.

The platform on which the citadel rests was built on the top of the mound. It consists of a deposit of a layered edge by a mudbrick wall (4–5 m thick) located on the western side of the tepe (Perrot/Madjidzadeh 2004, 1116). According to the step trench excavations, the citadel was built with bricks of a standardised format (60 × 30 × 12 cm). Three radiocarbon dates carried out on samples from the step trench suggest the second half of the 3rd millennium BCE (2490–2140 BCE) for this monumental building. The architectural complex that rises on the platform seems to give access, to the west, to a wide passage between two rounded corners reinforced by stones and pebbles (Madjidzadeh 2008a, 76–83).

All of the archaeological and architectural remains showed that the site was a significant settlement during the 3rd millennium BCE and, at that time, was located along the lapis lazuli route stretching from Afghanistan to the Persian Gulf coasts from the Arabian Peninsula and even to the upper part of Egypt (Perrot/Madjidzadeh 2004, 1117).

In total, in five seasons of excavations, fourteen trenches were opened at Konar Sandal South in the mound (trenches II, III, VI, VII, XII, and XIII) and around the site (I, IV, V, VIII–XI, and XIV) (Madjidzadeh 2008, 78). The seal impressions from the living quarters near the citadel entrance indicated an important iconographic and stylistic diversity and links with the glyptics of other sites in southeastern Iran, the Indus Valley, and Mesopotamia (Mughal 1970; Madjidzadeh/Pittman 2008, 97).

The lower town

Based on the archaeological data, it is clear that the citadel was surrounded by a lower town 800 m long in all directions, especially to the east of Halil Rud and the west of the old riverbed. To the north, this town probably extended as far as Konar Sandal North (1,400 m). The remains of the lower town can be distinguished in trenches I, II, IV, V, VIII, IX, X, XI, and XIV. Trenches I, IV, VIII, XI, and XIV discovered the remains of domestic complexes comprising small rooms and buildings constructed of mudbrick (Madjidzadeh 2008, 83).

The domestic architecture of the lower town consists of small rooms with thin walls (about 40 cm thick). Buildings are not surrounded by yards, and the rooms are 2 × 2.5 m in size. In trench IV, the remains of a large private building (house) were brought to light, surrounded by a quadrangular wall (1.3 m thick), 11.5 m on each side.

Trench V is located 140 m to the east of the citadel. It contains a massive structure made of mudbrick (60 × 30 × 10–12 cm); it was perhaps a platform or part of the perimeter wall. These mud bricks' size is comparable to that of the citadel wall bricks. Besides the mud bricks, archaeological remains from the two buildings, such as ceramics and glyptics, also show similarities, indicating that these two structures are concomitant. Trench VIII includes two complete but poorly preserved houses.

Trench IX was opened 550 m to the southeast of the citadel and uncovered another platform-type structure. This part of the site seems to be an artisanal area because there are metallurgical kilns, copper and bronze slag, metallic objects, and lithic tools (Madjidzadeh 2008, 86). In trench XI, according to radiocarbon dating from room 325, the oldest levels (2880–2580 BCE) were identified (Madjidzadeh 2008, 90).

Konar Sandal North

The Konar Sandal North tepe, square in shape (approximately 300 × 300 m), is lower than Konar Sandal South, and its maximum height does not exceed 17 m above the plain. It is bordered to the west, north, and south by fields and palm groves and to the east by the eponymous village of Konar Sandal, whose development has caused significant damage to the site (Madjidzadeh 2008a, 34).

Extensive excavations at Konar Sandal North have revealed two superimposed massifs of mudbrick exposed on the surface, covering over 3,500 m^2. The first is a terrace 10.50 m high and about 132 m wide, resting on a mudbrick platform, 6.50 m high and 280 m wide (Madjidzadeh 2008, 88–89). The base of the platform was built on previous constructions of which little is known but can be dated to the first half of the 3rd millennium BCE. This type of high-step terrace from the second half of the 3rd millennium BCE is seen at several sites in eastern Iran, in Pakistani Baluchistan, on the Gorgan Plain (Tureng Tepe), and in Central Asia. However, the function of these buildings remains poorly understood (Perrot/Madjidzadeh 2004, 1108 and 1114).

Chronology of the Jiroft Plain

The relative chronology of the Konar Sandal complex is based on archaeological data (pottery, soft stone artefacts, metal objects), but absolute dating is essential. According to radiocarbon dating recently carried out on charcoal samples from Konar Sandal South (trench XI, depth 85 cm), the southern hill can be dated to the second half of the 3rd millennium BCE (cal 2470–2210 BCE). It should be pointed out that a sample (Beta 207292 KSSO508) proposes an older date of 2880–2580 (cal BCE), which would go back in the site's chronology to the middle of the first half of the 3rd millennium BCE.

It is worth noting that no periodisation of the site based on pottery and other archaeological finds has been proposed. However, according to the architectural remains, especially those of the citadel of Konar Sandal South, at least two phases can be distinguished (Madjidzadeh 2008, 77).

Even more, the dating of the northern tepe, where two platforms were built on an older tepe, is problematic. According to Azarnoush and Helwing (Azarnoush/Helwing 2005, 211), the upper construction dates to the 2nd millennium BCE; meanwhile, Frankfurt and Tremblay offer a more precise dating, to the middle of the 2nd millennium BCE (Frankfurt/Tremblay 2010, 99). Nevertheless, according to the radiocarbon dating carried out by Mashkour on animal bone remains (equid and camelid) and charred grains from the northern tepe, a date ranging from the end of the 2nd millennium to the middle of the 1st millennium BCE can be proposed (Mashkour *et al.* 2013). In conclusion, it is possible that the lower levels of the Iron Age are contemporary with those of the southern tepe.

2.4.2 Tepe Yahya

In the Soghun Valley, which is 50 km long and 35 km wide, apart from Tepe Yahya, there are no archaeological sites, but many chlorite mines have been found (Fig. 2.1). Chlorite is a soft, black mineral found in soapstone. In the 3rd millennium BCE, chlorite was used broadly, from the Indus Valley to Mesopotamia (Potts 2001, 278). Tepe Yahya is located in the Soghan Valley near the current city of Dowlatabad. The site was excavated in the late 1960s by an American team led by C.C. Lamberg-Karlovski. The tepe's height is 19.8 m from the plain's existing surface, and it has an incomplete cone shape. According to archaeological material, it dates from the early Chalcolithic to the late Iron Age. The first period of Tepe Yahya dates back to the 5th millennium BCE (Yahya VI). In period IV (notably

Yahya IVC), the discovered material testifies to close connections with Susa and Mesopotamia. A total of six periods can be identified at Tepe Yahya:

- Period I–III: 850–500 BCE
- Gap: 1800–850 BCE
- Period IVa: 2200–1800 BCE
- Period IVb: 3000–2200 BCE
- Period IVc: 3400–3000 BCE
- Period Va: 3800–3400 BCE
- Period VI: 4500–3800 BCE

2.4.3 Shahdad

In the Takab Plain (Xabis), an important Bronze Age necropolis and some artisanal and domestic architecture were excavated by an Iranian team led by Hakemi, from 1968 onwards. After the Revolution, Kaboli excavated Shahdad for four seasons (Kaboli 1989). This magnificent site covers 170 ha; Hiebert and Lamberg-Karlovsky identified it as an economic and political centre of the area (Heibert/Lamberg-Karlovsky 1992) (Fig. 2.1). According to these excavations, the main occupation corresponded to the second half of the 3rd and the beginning of the 2nd millennium BCE. Typologically, Shahdad's pottery is similar to that of Yahya IVB/IVA and the ceramics from Bampur, Damin, and Shahr-i Sokhta, as well as those found in the Halil Rud Basin. The tombs of Shahdad record a crucial local production of chlorite containers and a wide variety of seals (Hakemi 1997; Vidale *et al.* 2012). Metallurgy in Shahdad also reached a significant level of complexity (vases, pins/needles, mirrors, rings, bracelets, axes, lead beads, silver, copper, and gold).

About 200 chlorite objects have so far been found in Shahdad, while only less than half of them have been published and introduced. Chlorite vessels have been found in a wide geographical range, from Mesopotamia to Central Asia and Pakistan. Most scholars consider southeastern Iran as one of the main chlorite production centres during the Bronze Age. Based on the variability in the quality and colour of Shahdad chlorite vessels, it can be said that various chlorite mines were used during the Bronze Age in southeastern Iran. Although no chlorite production workshops have been found yet in Shahdad, due to the discovery of these vessels in vast numbers in Shahdad, as well as their variety in colour and quality and the presence of some forms such as compartmented boxes and house models in abundance (unlike other areas), it can be said that at least some of these vessels were produced in Shahdad (Eskandari 2019, 72).

2.5 Afghanistan

Mountains are a prominent feature of Afghanistan; one of the highest mountain ranges in Asia, the Hindu Kush, is located there. Baba Mountain, a Hindu Kush mountain of 5,100 m in height, is the source of many rivers in Afghanistan, such as the Kabul, Hari, Aral, Indus, and Helmand. The Tugay lagoon and arable land can be seen along the Helmand River, which divides the southwestern desert of Afghanistan into two parts.

Afghanistan underwent a significant transformation over the Neolithic period in the Bronze Age, a crucial period in its prehistory. The 3rd millennium BCE was an essential milestone in the history of the cultural development of the Iranian Plateau, Afghanistan, and the Indian subcontinent. Apart from Shahr-i Sokhta, in the Helmand Basin, four other important archaeological sites can be mentioned, such as Mundigak, Said Qala Tepe, Deh Morasi, Ghundai, and Shahr-i Sokhta, where archaeological excavations have been carried out, and valuable information has been obtained (Tosi/Wardak 1972, 12). The major archaeological information about the south of Afghanistan is from excavations of Mundigak, Deh Morasi Ghundai, and Said Qala Tepe, which have many similarities to Shahr-i Sokhta, leading researchers to identify this area as Helmand culture, which can be separated from Harappa culture (Srivastava/Shrivastva 1981, 635). The chronology of Mundigak, like Tepe Yahya and Shahr-i Sokhta, is essential for Afghanistan and other lands from the east of Iran to the west of the Indus River.

2.5.1 Mundigak

Archaeological excavations in Mundigak were carried out from 1951 to 1958 under the supervision of French archaeologist Jean-Marie Casal. This area is located 55 km northwest of Kandahar and in the Shah Maghsoud area near the Khoshki Nakhod River (Fig. 2.1). Casal proposed five cultural periods for Mundigak, from the beginning of the 4th millennium BCE to the end of the 2nd millennium BCE. The first three periods of Mundigak (I–III) indicate a rural farming settlement, and the following two periods (Mundigak IV–V) indicate the existence of a thriving urban centre (Casal 1961, 22).

The lowest layers at Mundigak correspond to period I, probably dating back to the 5th millennium BCE. This period was divided into five phases according to changes in ceramic tradition. The first evidence of sedentary settlement started from phase 3 of the first period. In this phase, the houses were composed of rectangular residential units constructed of mudbrick consisting of one to three small rooms. In this period, painted pottery was characterised by open forms and geometric motifs as well as rare animal motifs. During period II (subdivided into subphases II.1, II.2, II.3a, and II.3b), the site saw higher population density in mound A, where various multiroom houses were found (Casal 1961, 33–36). The remains of the following period (period III) are also known from mound A. The architectural elements of period III were smaller houses with two or three rooms, and the ceramics of period III were brown on buff ware decorated with geometric motifs. The primary forms were cylindrical and conical beakers and deep bowls and containers. Stamp seals with geometric patterns also started to appear during this period.

During period IV, Mundigak was transformed into a fully developed urban centre with a palace, a temple, and a residential quarter. According to Casal, this period could be subdivided into three phases: periods IV.1, IV.2, and IV.3 (Casal 1961). Period V was poorly preserved, and only a large building (Monument Massif) was built on the central mound. A monumental ramp leading to a platform was excavated in the central mound. According to archaeological evidence, Mundigak remained a critical urban centre during period V; however, the city eventually ceased to be occupied after 2500 BCE.

2.5.2 Said Qala Tepe

Said Qala Tepe is located about 96 km southeast of Mundigak near Deh Morasi Ghundai, which is very close to the current city of Kandahar (Fig. 2.1). Shaffer conducted the major excavations twenty years after the first study by Fairservis. Said Qala was the site of four prehistoric occupations, all of which were contemporaneous with Mundigak III.5 to IV.1. Information about the initial occupation can only be found in the lowest 3 m of the deposit. The first three occupations were characterised by small, rectangular mudbrick houses similar to those at Mundigak (Shaffer 1988; Tosi *et al.* 1992, 210).

The ceramics of Said Qala do not contain zoomorphic motifs; according to Casal, they reflect phases III.5 through IV.1 of Mundigak. Handmade pottery can be found in two varieties, both of which are tempered with chaff and have the same vessel forms as Mundigak pottery. Rare Quetta ware sherds have been discovered at Said Qala. Sherds of black-on-red slipped pottery from Kili Gul Muhammad were also found, as well as Faiz Muhammad grey ware. Floral motifs are common in Said Qala pottery, but no zoomorphic designs are present.

Among the cattle figurines found at Said Qala, which belong to periods I–IV, there is a similarity to those found at Mundigak. Among the functional artefacts, sickles, blades, lozenge-tanged points, and punches were identified (Tosi *et al.* 1992, 211). The majority of the bronze artefacts found are from periods II to IV.

2.5.3 Deh Morasi Ghundai

This mound is another famous Bronze Age settlement of Afghanistan, which is located 16 km southwest of Said Qala Tepe. The Deh Morsai Ghundai mound is younger than Said Qala Tepe and can be associated with Mundigak IV (Tosi 1983, 293) (Fig. 2.1). This mound is 140 m long and 80 m wide, and it was discovered in a survey in December 1950 by a group of Afghan archaeologists. During June 1951, three soundings were conducted but this led to an uncertain chronology (Dupree 1963, 65). A fourth sounding conducted on the top of the mound indicated that Deh Morasi Ghundai was occupied for four periods, with period II as the main settlement. The pottery of this mound is similar to the pottery of Mundigak IV; the patterns are only geometric and similar to those of Mundigak IV.1 to IV.3. Bowls and glasses are the dominant types of vessels, and in period IIb, animal patterns similar to those of Quetta pottery can be seen (Tosi 1983, 296.). The excavation was too small to discover the structures of this site beyond the few mudbrick remains that exist at the surface, with later Sassanian burials and Early Islamic disturbances (Dupree 1963, 66). Deh Morasi Ghundai and Mundigak seem to be different from one another; whereas Deh Morasi represents a small semisedentary village with a transitional economic base of wheat-barley agriculture and sheep, goat, and cattle transhumance, Mundigak slowly developed from a small agricultural village to a town with a granary and possible connections with the Indus Valley civilisation (Dupree 1963, 80).

2.6 Pakistan

Pakistan, in southwest Asia, has a latitude from 23° to 36°, and a longitude from 61° to 75°. The country is divided into three main geographical regions: the northern highland, the Indus River Plateau, and Baluchistan (Farzin-Nia 1998, 1–3). Baluchistan is a flat and uncultivable area with 349,650 km^2 of low mountains, Makran and Sulaiman (Asa'di 1991, 122). From a geographical point of view, Baluchistan is a continuation of the Baluchistan of Iran towards the east. The natural features of the Baluchistan of Iran and Pakistan are cold winters, hot summers, unexpected rainfalls, desolated deserts, and rigid seacoasts (Kulke/Rothermund 1998, 25). In general, the Iran and Pakistan Baluchistans have the same culture and geographical environment; only the political borders separate them into two parts. The rivers of Baluchistan, like Iran's rivers, are not permanent. The most important river in Pakistan is the Zhob River (Lang 1974, 33–35). One of the critical aspects of relations between Iran and Pakistan is connecting roads that connected civilisation centres in prehistoric times. Archaeological activities in the Baluchistan of Pakistan have been undertaken for a long time; in fact, the history of archaeological discoveries in Pakistan goes back to before the division of the subcontinent into Pakistan and India. After Stein's initial surveys, there were further ones in Quetta, Chagai, Kalāt, Zhob, and Loralai, and, in recent years, Shahi-Tump and Miri Qalat in Makran. In theoretical, historical, and chronological works, Jorge Delis, Jim Sheffer, Tosi, and Stuart Pigott also focused on the civilisations of the Indian subcontinent and east of Iran (Masson 1992, 236). Baluchistan has different archaeological cultures, of which the most important ones will be briefly mentioned. It is important to note that one of the most distinctive characteristics of these cultures is their specific style of pottery.

Balakot culture

The artefacts of this period were found in most of the prehistoric sites of Baluchistan; some researchers believe that this culture belonged to 4000–3500 BCE, and others to 3200–3000 BCE. One of the important aspects of Balakot is the appearance and prevalence of wheel-made pottery in those layers. In fact, from this period, the shape and decorations of the pottery became unique and identical. Therefore, these characteristics have been used for the chronology of sites, recognition of the sites, and their connections. The decorations are mainly executed in black and brown, with occasional use of red and green on white background (Kulke/Rothermund 1998, 18).

Nal culture

Most of the settlements in which Nal ware have been found were situated in the southern part of Baluchistan in Pakistan, in settlements such as Surab III–IV, Sur Damb, Nindori, and Niai Buti, but Nal ware has also been seen in Afghanistan and Iran sites, such as Shahr-i Sokhta I and Tepe Yahya IVa. Most of the information about this culture has been collected from colourful pottery with geometric drawings and animal figurines (Malek Shahmirzadi 1997, 11). Nal pottery is characterised by various polychrome motifs in red, yellow, green, or blue, and the motifs are geometric, naturalistic, and animal figurines. Nal pottery, assumed to have been used in daily life and for inhumation as a burial good, was made in a specific way of pre-firing and post-firing with a coiling method or slow wheel (Shudai *et al.* 2015, 91).

Kulli culture

The Kulli culture was found in Sur Damb, Nindori, Niai Buti II, and the entire south and southeast of Baluchistan. The proposed period for this culture is 2500–2000 BCE, which is newer than Nal. However, in Niai Buti II, these two kinds of pottery were found in the same layer, which indicates that the time interval between these two was not long. Kulli pottery is wheel-made and a red-buff colour (Malek Shahmirzadi 1997, 13).

2.6.1 Miri Qalat

Located in Pakistani Makran in the Kech Valley, Miri Qalat measures 300 × 125 m. It is located alongside the Dasht River, next to the city of Turbat (Fig. 2.1). A fort was built during the medieval period on the top of the main mound covering the remains of earlier periods. Due to the long chronological sequence from the 5th millennium BCE to the mid-Islamic period, this site was selected and excavated by a French team headed by Roland Besenval in the early 1990s (Biscione 1979). The spectacular results of archaeological excavation permitted the identification of twelve cultural phases, starting from the 5th millennium BCE (period I). The six early phases (I, II, IIIa, IIIb, IIIc, and IV) belong to the protohistoric period, and the six later phases (V, VI, VII, VIIIa, VIIIb, and VIIIc) are related to the Hellenistic-Parthian, Zangian, and Early and Middle to Late Islamic periods (Didier 2013, 43).

Ceramics have not been found at Miri Qalat's oldest levels of occupation (period I, 5th millennium BCE) (Besenval 2005, 1–2). There are no indications of settlements or ceramics in the coastal zones of the Iranian province of Sistan and Baluchistan to the west or Pakistani Sind to the east before the 4th millennium BCE in the Indo-Iranian borderlands, which is not unprecedented.

However, compared with many regions of Middle Asia, where pottery dates back to the 7th millennium BCE, it shows itself to be original, notably at Tall-i Bakun in the Iranian province of Fars, at Mehrgarh in the northeast of Pakistani Baluchistan, and, from the 5th millennium BCE, at Tepe Yahya in Kerman and Tol-e Pir, not far from the coast in Fars (Didier/Mutin 2013). At Miri Qalat, pottery appears from the first half of the 4th millennium (period II). The production is dominated by painted vessels with fine paste, exclusively found in residential contexts. These vessels include various shapes, mostly decorated with geometric and animal motifs (an ibex motif is frequently observed). The vessels were formed by clay strips, very likely shaped using a rotating device. This type of production has been reported at several other Makran sites, in Iran, and in the Bampur Valley at Qasemabad and Chah Husini (Didier/Mutin 2013, 463). Period IIIa covers the second half of the 4th millennium, and the first centuries of the 3rd millennium correspond to the "culture of Shahi-Tump Cemetery". Rich funeral deposits were unearthed at Shahi-Tump by the French mission, and at Miri Qalat, in superior layers higher than those of period II (Biscione 1974, 135). The ceramic assemblage of the first phase of period IIIa corresponds mainly to the funerary furniture discovered by the French mission at Shahi-Tump and Miri Qalat. It is also dominated by cups with truncated shapes.

The basket decoration is still present, as are a few vessels related to the Togau style from the eastern part of Pakistani Baluchistan. Period IIIb corresponds to the Early Bronze Age in the Pakistani Makran. Studies conducted in the western part of Kech-Makran revealed high occupation density (Biscione 1990; Besenval 1997, 20–22). The Dasht Plain, located southwest of the Kech Valley, was one of the most heavily populated areas of the region, with a wide network of potters' workshops surrounding small settlements and isolated cemeteries. Based on the homogeneity of these materials and the monoproduction of the sites, the term "culture of the Dasht Plain" can be used to define the occupation levels of Miri Qalat IIIb at Makran.

The ceramic assemblage of period IIIb is part of the artisanal tradition developed in the previous periods. However, it is characterised by a higher degree of specialisation, more frequent use of rotation, and a general intensification of production. The produced vases testify to an exceptional quality and a great stylistic richness underlined by the appearance of new forms and new decoration techniques. In addition to basket decorations and coarse ceramics with domestic uses, several major fine or intermediate production types exist (Didier/Mutin 2013, 470). Another category of ceramics affirming close links between Makran and southeastern Iran is grey incised ware, whose technology is identical to finely painted pottery (Méry 2000, 215–216) attested in assemblages dating from the middle and second half of the 3rd millennium BCE, such as in the Bampur Valley, Kerman (Lamberg-Karlovsky 1970), and Shahr-i Sokhta IV (Lamberg-Karlovsky/Tosi 1973, Figures 147–150). The polychrome ceramics of period IIIb, attested only in funerary contexts, undoubtedly constitute one of the most noteworthy categories of tableware. Their decorative style, very individualised and not devoid of symbolism, includes a majority of geometric patterns, most often highlighted in black and filled in red, yellow, or white. According to microscopic analysis, these were applied after firing the vessels, a technique attested in central Baluchistan at Sohr-Damb/Nal and in Iranian Sistan in the first half of the 3rd millennium BCE (Franke-Vogt 2005; Mugavero/Vidale 2003). However, the polychrome production of Makran shows specific features not shared with its neighbours, in terms of both its forms and iconography.

The last category of pottery that was developed simultaneously in a large part of the south of the Indo-Iranian borderlands is redware pottery incised with a comb. This, small in number, is challenging to characterise because it forms a technically and morphologically homogeneous group (Didier/Mutin 2013, 473). Its presence throughout the 3rd millennium in the Pakistani Makran excludes any possibility of precise chronological attribution; nevertheless, it shows certain affinities with Bampur (periods II–VI), Tepe Yahya (period IVB), and central Baluchistan (Anjira, Nindowari, and Niai Buthi).

At Miri Qalat, period IIIc is documented by a pottery dump beneath the first levels of the Indus occupation, in a continuous stratigraphic sequence. The collected pottery underlines the logical development of the new technical possibilities invented in period IIIb. Few innovations appear, but the manufacturing processes were better controlled, particularly in the case of grey-painted ware. Likewise, the introduction and generalisation of forms with a carination in the body, the shaping of new morpho-functional types, and the standardisation of production reflect a definite change in mentalities and socioeconomic conditions. Stylistically, the transition between periods IIIb and IIIc was marked by the development of new decoration techniques, such as slip and burnished ware. Other techniques are already known to have continued without specific improvements or evolutions, such as relief decoration, incision, basket moulding, and fingerprints. The technique of painting a more homogeneous colour remained the most commonly used technique for pottery from the mid-3rd millennium, and it shows a strong cultural continuity with the previous period. New decorative themes enriched the IIIc repertoire, but the trend also involved a simplification of geometric decorations and a reduction in zoomorphic compositions. One of the most striking phenomena (and widespread throughout the Indo-Iranian borderlands) is the disappearance of the polychrome that was particularly in vogue during periods IIIa–b (Didier 2013).

Although the morpho-stylistic and technical connections with the north of the Indo-Iranian borderlands (Mundigak IV.2–IV.3 [Casal 1961], Shahr-i Sokhta III–IV [Tosi 1968]) and eastern Baluchistan (Mehrgarh VIIC, Nausharo IC–ID [Jarrige 1995]) persist, the transition between periods IIIb and IIIc shows stronger affinities with regions around the Persian Gulf and the Bampur Valley (Bampur, periods IV.2–V.1 [de Cardi 1967]). In the latter, ceramic craftsmanship followed the same technological and iconographic developments as in Makran, once again demonstrating the existence of a cultural horizon common to these two regions. Ceramics with relief decoration, characterised by more significant variability in the shapes of the vases and a more extraordinary richness of the painted decorations, are, for example, a development similar to that seen at Bampur IV.2–V.1 (Didier/Mutin 2013, 475).

The presence of ceramics with relief decoration throughout the 3rd millennium in the Pakistani Makran excludes any possibility of precise chronological attribution. The ceramics show certain affinities with Bampur (periods II–VI [de Cardi 1970, 281, Figures 1830–1834]), Tepe Yahya (period IVB [Lamberg-Karlovsky/Tosi 1973, Figure 128; Potts 2001, Figure 613G]), and central Baluchistan. These strong analogies underline the existence of a shared cultural horizon, which one could describe as a tradition of "southeast Iran", and in which fine grey ceramics with precise decorations seem to play a significant role. However, local stylistic variations are undeniable, as indicated by the very rich but sometimes dissimilar iconographies of the Bampur and Dasht traditions. These indeed reflect the expression of tastes, artistic choices, and perhaps an ideology specific to these two regions (Didier/Mutin 2013, 472).

As a consequence of these excavations, the date of this culture, considered initially to be post-Indus (Besenval 1997, 14.), was altered, and pottery was collected with different morphological and decorative characteristics (as opposed to the majority of those represented by Stein). The combination of stylistic and stratigraphic indicators, as well as transregional analogies, suggest two main chronological phases for this period; one at the beginning (around the middle of the 4th millennium BCE), and another during the last third of the 4th millennium BCE (Didier/Mutin 2013, 465).

2.6.2 Shahi-Tump

The site of Shahi-Tump is located on the left bank of the Kech River, 10 km from Turbat city (Fig. 2.1). Stein reported the site first (Stein 1931), but a French team headed by Roland Besenval carried out extensive excavations. The deepest levels at Shahi-Tump revealed an aceramic Neolithic with a subsistence economy based on a limited number of domesticated animals and plants (Desse *et al.* 2008). The main objective of the field campaigns was to gain more information on the Chalcolithic occupation (5th–4th millennium BCE) in Makran. A circular hut dated to period I (5th millennium BCE) was excavated in trench I, while from period II (first half of the 4th millennium BCE), architectural levels with quadrangular rooms built of stone and mudbrick were unearthed in trench II on the top of the site. Period II occupation is also characterised by the discovery of burials, which form the "oldest cemetery of Shahi-Tump". Additionally, a later cemetery, dated to period IIIa (second half of the 4th millennium/beginning of the 3rd millennium BCE), provided the remains of 120 individuals buried with rich funerary deposits consisting of numerous painted pottery and highly elaborated craft products, such as metal objects (seals, tools, and mirrors), beads, and stone vessels (Besenval 2000; Besenval *et al.* 2005).

2.6.3 Mehrgarh

Mehrgarh is situated in the northern part of the Kachi Plain (Fig. 2.1), in the foothills of Bolan. Mehrgarh Tepe, Baluchistan's most important ancient tepe, was explored by Catherine Jarrige, the French archaeologist. The significance of this tepe lies in its complete chronology and information about the Neolithic era. Based on the finds of this site, it can be dated between the 7th millennium BCE and the first part of the 2nd millennium BCE (Kulke/Rothermund 1998, 19). According to the chronology established by the

French Archaeological Mission, an initial aceramic Neolithic period I and Neolithic period II were followed by a Chalcolithic occupation (periods III–VII) (Jarrige 1995, 2).

2.6.4 Kili Gul Muhammad (KGM)

At the Kili Gul Muhammad site in the Quetta Valley, Islamic graves occupy the upper layer of the mound (Fig. 2.1). A sondage was opened for the first time by Fairservis, of 3.5 × 3.5 m, to record the cultural profile of the site. This pre-pottery sondage is estimated to be the oldest chronocultural stratum in Baluchistan and all of South Asia (Fairservis 1959). KGM pottery can be recognised as the oldest painted pottery in Baluchistan. This black-on-red slip was made with a coiling method or slow wheel (Shudai *et al.* 2015, 88). The culture belonged to 3500–3300 BCE and has been found at many sites, including Kili Gul Muhammad II and III, Mehrgrah IIB and III, Surab I and II, and Sur Jangal I and II. The essential feature of this culture is its handmade pottery being of better quality than that of the previous period, Kechi (Kulke/Rothermund 1998, 20; Moulherat *et al.* 2009).

2.6.5 Kechi Beg

The site is also located in the Quetta Valley (Fig. 2.1), and Fairservis conducted the first excavation there. Like KGM, the surface of the mound was disturbed by Islamic burials. Kechi Beg revealed a single cultural horizon, the Kechi Beg ware/culture (Fairservis 1952). Kechi Beg pottery is mainly white on black slip and a few buff ware made by coiling or a slow wheel. Complicated geometric motifs characterise Kechi Beg pottery; besides these, there is no evidence of animal or naturalistic motifs (Shudai *et al.* 2015, 89). These artefacts were found on ancient Baluchistan sites such as KGM IV, Surab III, and Sur Jangal, and the culture can be dated to 3500–3000 BCE (Kulke/Rothermund 1998, 21).

2.6.6 Damb Sadaat

This site was permanently residential; its dominant pottery, Quetta, is different from Kechi Beg's pottery but similar to that of Shahr-i Sokhta I, Mundigak III5/6–IV, and Deh Morasi Ghundai I–III (Dani 1989, 96). The site was also excavated by Fairservis during his survey of the Quetta Valley in 1956 (Fig. 2.1). The earliest period is Kechi Beg (absence of KGM), the second is Quetta, and the last is Sadaat ware/culture (Fairservis 1992). Damb Sadaat was found in Damb Sadaat II–III and Mehrgrah VI–VII; some researchers have dated this culture to 3000–2500 or 2300 BCE, and others to 2500–2000 BCE.

2.6.7 Sibi

At the Sibi mound, situated east of the Mehrgrah site (Fig. 2.1), the archaeological deposit is not more than 1 to 1.5 m deep. The artefacts of this culture can be found in the southern cometary of Mehrgrah and Tepe Sibi itself. This culture's pottery is wheel-made and has an vegetal temper, whereas another kind of Sibi culture is very coarse but in various shapes. In general, Sibi pottery is similar to Harappa (Malek Shahmirzadi 1997, 57).

2.7 Central Asia

2.7.1 Turkmenistan

The first scientific explorations of Turkmenistan's archaeological and historical heritage date back to 1895. Following Russian colonisation, the heritage of western Turkestan attracted the attention of the new conquerors with its mysterious and unknown aspects. Russian generals such as General Komarov carried out the first archaeological excavations in southern Turkmenistan, using their soldiers as labourers for excavations, notably at the Anau (Bridey 2006). However, the actual scientific effort concerning the archaeological study in the region began with the work of the American geologist Pumpelly in 1903.

He took over the Komarov trench at Anau and explored mainly the levels of the Bronze Age, based on the study of pottery. His research was then used as a reference for the Kopet-Dagh piedmont until the 1950s (Pumpelly 1908).

The Second World War led to the cessation of archaeological activities in Turkmenistan. In 1946, the golden age of archaeological research in the country began with the creation of the "Multidisciplinary Archaeological Expedition of Southern Turkmenistan", YuTAKE, with V.M. Masson at the head. His work was well published with the creation of the Trudy YuTAKE editorial collection. This expedition began to explore archaeological and historical remains in three areas:

- Sites dating from the 6th TO 3rd millennium BCE, to understand the development of sedentary populations in the Kopet-Dagh foothills.
- Ancient Merv.
- Archaeological and historical remains from the Parthian period.

Several sections were created, each dedicated to studying a particular issue. The 14th section, directed by V.M. Masson, I.N. Khlopin, B.A. Kuftin, and V.I. Sarianidi, was devoted to studying the sites of Kopet-Dagh (Altyn Dépé, Taichanak-Depe, Yangi-Kala, Namazga-Depe, and Tekkem-Depe) and prospecting the Margiana region, where several Iron Age (Yaz-Depe) and Bronze Age sites were identified (Shirazi 2008; Talebian/Shirazi 2014).

Among these explorations, the excavations at Altyn-Depe are the most interesting and enriching for studying the Bronze Age. Excavated by Masson from 1965 to 1978, Altyn-Depe is an example of Soviet archaeological success during the 1960s and 1970s. With 60 archaeologists, the excavation team succeeded in opening 13 trenches and excavated more than 20,000 m² of the site (Bridey 2006, 77).

The archaeological expedition of Margiana, created in 1972 and entrusted to V.I. Sarianidi, was an essential event in the history of archaeological research in Turkmenistan; before that date, only six sites were known in the region. Up until 1985, the expedition identified 100 sites. At the same time, another mission, headed by I.P.S. Masimov,[1] concentrated work in the western part of the Murghab Delta, in the oases of Kelleli, Adam-Bassan, and Adzhi-Kui. In parallel with surveying and some limited archaeological sounding, the excavations of Gonur-Depe were started in 1978 (Shirazi 2008, 37).

From the end of the 1970s, western archaeologists became aware of the importance of archaeological discoveries in Central Asia, which were little known because of political and linguistic barriers. The first field collaborations between Westerners and Soviets in southern Turkmenistan began with a joint mission from Harvard University and the Margiana archaeological expedition.

After the fall of the Iron Curtain, the doors were opened to enthusiastic researchers from Western countries. In the absence of YuTAKE, the Western missions, collaborating with the Turkmen, resumed archaeological investigations in Turkmenistan, and in 1992, an Italian expedition from the Centro Studi Ricerche Ligabue, led by P.P. Salvatori and G. Rossi-Osmida, began the excavation of the necropolis of Gonur-Depe in collaboration with V.I. Sarianidi. In 2001, they expanded the work to the Adji-Kui Oasis, where they explored the two Adji-Kui sites, 1 and 9, and a necropolis. In 1994, a French team led by O. Lecomte began excavations at Geoktchik-Depe in the Dehistan region (former Hyrcania). In 2001, the same team, led by O. Lecomte, took over the work started by V. I. Sarianidi on Ulug-Depe, carrying out several excavation campaigns. In the Kopet-Dagh piedmont, from 1997, F. Hiebert continued the work of R. Pumpelly in Anau (Shirazi 2008, 38).

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2.7.2 Bactria

Unlike southern Turkmenistan, Bactria, despite its importance and enormous potential, did not gain the attention of researchers and archaeologists until very late. Archaeological investigations in Bactria began at the end of the 1960s. In the northern part of Bactria, south of Uzbek territory, archaeological surveys carried out by Al'baum led to identifying several sites of the Bronze Age, including Sapalli-Depe and Dzharkutan. Askarov began excavating Sapalli-Depe in 1969, continuing until 1973. It was also Askarov who excavated the Bronze Age settlement of Dzharkutan near Sherabad. In southern Bactria, in northern Afghan territory, archaeological research began with the investigations of Sarianidi. His research led to the discovery of Bronze Age remains in the oasis of Dashly, south of Amu-Darya, notably Dashly 1 and Dashly 3. Notable among the work carried out over more recent periods (Iron Age) in the region is the excavation of Tillia-Depe, carried out by Sarianidi (Shirazi 2008, 38). At the same time, during the 1970s, a French team from the Centre National de la Recherche Scientifique (CNRS) also carried out an archaeological survey in eastern Bactria under the direction of Gardin. As a result of this survey, hundreds of sites dating from the Chalcolithic to the end of the Sassanid period were discovered (Lyonnet 1989). Shortughaï, a significant protohistoric site, was identified based on this survey. The site was excavated by H.-P. Frankfurt in the 1970s to better understand the interactions between Bactria and the Indus Valley (Francfort 1989). French Uzbek archaeologists resumed excavating at Dzharkutan in 2006.

2.7.3 Soghdiana

The history of archaeological research in Sogdiana dates back to the 19th century. In 1873, Russian archaeologists began excavations at Afrasiab in Uzbekistan, covering 219 ha, that were continued by the Soviets. In 1976, an archaeological survey at Zerafshan Valley, headed by A.I. Isakov,[2] led to the discovery of Sarazm, a key site for understanding relations between Central Asia, the Iranian Plateau, and Baluchistan. A comprehensive excavation of the site by Askarov was conducted in 1979, and the final results were published. An excavation of Sarazm was started by a team from the CNRS led by Besenval in 1984 as part of a collaboration between French and Tajik archaeologists (Francfort *et al.* 1989). As a result of the creation of MAFOUZ in 1989 under Grenet's direction, archaeological investigations developed, and French archaeologists collaborated with Uzbek and Russian archaeologists to examine sites such as Kok-Tepe and Derbent, as well as continue excavations at Afrasiab, focusing on more recent periods.

Chronological framework

People have occupied Central Asian territory since the Palaeolithic period. This occupation has continued uninterrupted to the present day. Although archaeological research began at the beginning of the 20th century, there is still not a very clear picture of the chrono-cultural sequences and periods in western and southern Central Asia. Considering the study region is in southern Turkmenistan and Bactria, the main focus is on chronology in these regions of Central Asia. According to existing information, sedentary farmers settled in the Neolithic period on the fringes of the Kopet-Dagh foothills. In fact, in parallel with the other Neolithic cultures of the Near East, the Kopet-Dagh piedmonts experienced the same Neolithisation process (the transformation of nomadic hunter-gatherer groups into settled populations cultivating cereals and domesticating animals) as other regions of the Near East (Masson 1965, 205).

Two essential reference sites in southern Central Asia are Anau and Namazga-Depe. The first has a long chronocultural sequence, ranging from the Proto-Chalcolithic period to the Iron Age, while archaeological excavations at the second site have established a chronology from the Early Chalcolithic to the Late Bronze Age; however, the latter site has

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been considered as the reference for the entire Kopet-Dagh piedmont region. Therefore, from periods recognised at this site, Soviet archaeologists numbered a chronological sequence used for sites in the piedmont and beyond, beginning from the Namazga I (early Chalcolithic) period to the Namazga VI period (Late Bronze Age) (Shirazi 2008, 42).

Neolithic

The complete sequence of the Neolithic period (in southern Turkmenistan and northern Iran) is based on archaeological material from Jeitun, located 30 km northwest of Ashkhabad. Soviet archaeologists subdivided this period into three parts, according to changes in forms and decorations of ceramics (Kohl 1992, 180–181): Early (6200–5800 BCE), Middle (5800–5400 BCE), and Late (5400–5000 BCE). Heibert then proposed a dating based on new radiocarbon dates, ranging from 6200 to 4500 BCE, and offered a new denomination for the Jeitun period (Heibert 2002): Kopet-Dagh 1 (6200–5500 BCE), Kopet-Dagh 2 (5500–5100 BCE), and Kopet-Dagh 3 (5100–4500 BCE). The economy of Jeitun in southern Turkmenistan was a subsistence economy based on the cultivation of barley and wheat and the domestication of sheep. The architecture of the Jeitun period consisted of rectangular, one-room houses in the early phase and multiroom houses in the two later phases.

Transition from the Neolithic to the Chalcolithic

The transition from the Neolithic to the Chalcolithic is represented by the short Anau 1A period. It is difficult to date this period with certainty because of a lack of radiocarbon dating or dendrochronological corrections. For a long time, information on this period was limited to the excavations of Pumpelly, carried out in 1904. The excavations later carried out by Heibert, however, revealed radiocarbon dates from the second half of the 5th millennium BCE. All of the sites with material from Anau IA are concentrated in the Kopet-Dagh foothills. Archaeobotanical remains from Anau IA layers prove the presence of Triticum aestivum, with animal bone remains from domesticated and wild animals. The early phases of this period probably developed on the northeastern part of the Iranian Plateau, as parallels with Susa I and Sialk II were noted (Heibert 2002, 32).

Chalcolithic

This period is mainly known in Turkmenistan (Namazga I to Namazga III), on the sites of Kara-Depe, Geoksjur I, Yalangach, Altyn-Depe, Namazga Depe, Ilgynly-Depe, and Parkhaï II. Sites of this period exist in the valley of Zerafshan (Sarazm) in the Late Chalcolithic around 3500 BCE (Lyonnet 1996), in Bactria (Taluqan), in Margiana (Kelleli), and southern Afghanistan (Mundigak). It is marked by a concentration of populations from the 4th millennium BCE. The settlements were organised in close constructions, divided by narrow streets, courtyards, or open domestic spaces. The ancient levels of Sarazm (Sarazm I and II) architecture consisted of dwellings with two to three rooms and storerooms, and the houses had hearths and clay benches. The economy was based on irrigated or non-irrigated agriculture, coupled with sheep, goats, and zebus breeding (Luneau 2010, 78–79).

The pottery was generally handmade in monochrome (mainly red, and sometimes with black spots due to irregular firing) or grey and black on a light background, differing according to the decoration. There was a polychrome painted decoration (chevrons, triangles, parallel horizontal lines, and hatched geometric figures with mesh filling). Amulets seals appeared in the Late Chalcolithic. Discoveries of female and animal figurines in terracotta from this period are numerous. The first stone statues appeared in the Middle Chalcolithic at Ilgynly (Seyyed Sajjadi *et al.* 2009; Solovyova 2005). There were also tools or ornaments made of stone, metal, or bone and shells showing long-distance relations with the Persian Gulf. In general, all of the cultural material of this period shows close affinities with the different sites of the Zerafshan Valley, southern Turkmenistan, Iran, and Baluchistan.

Several types of burials reflect funeral practices:

- Burials in jars, especially of children without funeral material.
- Burials of adults and adolescents inside houses in simple pits, in a flexed position with the head mainly facing south.
- Individual burials, but mostly collective, in brick burial chambers, round or rectangular with or without cover, containing one to twelve individuals. The deceased were in a lateral decubitus position, with their heads generally turned towards the south.

Clay or stone vessels, copper metal pins, arrowheads in flint, and beads were the primary funerary goods of this period (based on the discoveries of Sarazm) (Luneau 2010, 79). A round funeral complex surrounded by a small stone wall contained five burials (two individual burials, two double inhumations, and one with three deceased), with rich funeral material. The triple burial in the centre of the tomb appears to be the most exceptional, with the main female individual, described as the “lady” or “princess” of Sarazm, being buried with unique funeral offerings (Keshavarz/Sanadgol 2015; Isakov 1996).

Bronze Age

In Central Asia, three subperiods are considered for the Bronze Age: Early, Middle, and Late. The Early Bronze Age is known in the foothills of the Kopet-Dagh Mountains (southern Turkmenistan) with period Namazga IV (Kohl 1984), in northern Tajikistan with the site of Sarazm (occupied until around 2700–2600 BCE), in eastern Bactria, where surveys, especially in the region of Taluqan, have revealed the presence of materials related to Baluchistan and the Indus Basin (Lyonnet 1977; 1996), as well as in southern Afghanistan, in Mundigak (Casal 1961). The first sites appeared in Margiana (the Murghab Delta) during this period, which is evidenced by the cultural affinities between the ceramics of the oasis of Kelleli and those of the end of NZG IV and the beginning of NZG V in the foothills of Kopet-Dagh (Masimov 1979; 1981). These sites appear to be integrated into a vast cultural sphere, although varying according to geographical areas, by the presence of polychrome painted handmade ceramics with a very characteristic geometric decoration, such as a Maltese cross (Luneau 2010, 80).

Early Bronze Age

The Early Bronze Age corresponded to a period of proto-urban development, with the appearance of specialised mudbrick buildings. On the site of Sarazm (levels Sarazm III and IV), the occupied surface reached its maximum extension. Different types of architecture characterise this period: multiroom houses with courtyards, equipped with fireplaces and ceramic and metallurgical workshops (with the development of slow potter wheels and kilns and an increase in metallurgical production), as well as monumental structures (storerooms, defensive walls,). Three fragments and two intact vessels attributed to the cultures of northern Central Asia were discovered in a layer belonging to period III at Sarazm. The quantity and variety of metal, stone, or bone objects increased. A vast network of exchanges was set up during this period, particularly due to the Proto-Elamite expansion (Francfort 2003; Francfort/Tremblay 2010). Funeral practices corresponded mainly with collective burials made in rectangular tombs on the outskirts of the villages. The orientation of these burials became predominantly northwards during this period (Kircho 1982, 34). This period of urbanisation development is considered the formative phase in the rise of the Greater Khorasan civilisation (the Bactrian-Margiana archaeological complex (BMAC); Oxus civilisation, Namazga V culture, Middle Bronze Age).

Middle Bronze Age (Namazga V)

This period was the most thriving not only in southern Turkmenistan but also in the northeastern part of the Iranian Plateau, southern and northern Bactria, and even as far as the Zerafshan Valley. In the piedmont region of Kopet-Dagh, the sites delivering Namazga V materials are Namazga-Depe, Altyn-Depe, Ulug-Depe, Khapuz-Depe, Toichanak-Depe, Kosha, Shor-Depe, and Anau. Recent excavations carried out on sites located in Margiana brought new information on this period. These are the oasis sites of Gonur, Kelleli, Adam Bassan, Adzhi-Kui, Togolok, Zaman-Baba, and Takhirbaj. The entire Namazga V period forms the Greater Khorasan/Oxus civilisation, or BMAC. The territory across which this civilisation spreads, currently dated between 2300 AND 1700 BCE, is today between Kopet-Dagh and the Pamirs. This dating is based on a series of radiocarbon dates in the Zerafshan Valley (Shirazi 2008, 45).

Late Bronze Age (Namazga VI)

The Late Bronze Age represented an increase in land occupation in areas such as Margiana (the oasis of Gonur, Adji-Kui, Togolok, and Kelleli) and northern Bactria (Djarkutan). Knowledge of Margiana has increased considerably thanks to new archaeological excavations at the oasis. According to this research, most of the Margiana sites were long-lasting settlements characterised by having only one period of occupation; meanwhile, recent research has revealed a more complex stratigraphy. The peculiarities are a buff or red/orange unpainted wheel-made ceramic, sometimes decorated with incised patterns, the appearance of handmade ceramics, a more significant presence of "steppe" ceramics, and the occurrence of potter's marks on the vessels. Comparing material from Gonur, northern Bactria (Sapalli-Dépé and Djarkutan), northwestern Afghanistan, and Tajikistan (the Beshkent region, Vakhsh, and the Hissar Valley) allow us to identify strong analogies (Luneau 2010).

In general, a continuity of the tradition of Gonur in the following period can be observed, with the persistence of unpainted ceramics (goblets, deep bowls), stone amulet-stamps, and arrowheads in a leaf shape. Regarding architecture, the disappearance of buildings of a monumental type can be noted. As for burials, there was a decrease in the number of funeral offerings and diversification of funeral practices (cremation, dismemberment, fictitious burials, *etc.*) (Luneau 2010).

Iron Age (Yaz I, II, III/1400–329 BCE)

In the Murghab Delta, Yaz-Depe is referred to as the Iron Age, the period after the Late Bronze Age (Namazga VI). There is no attempt here to describe this chronological sequence, because it does not correspond to the study period.

2.7.4 Altyn-Depe

Located in the piedmont of Kopet-Dagh, Altyn-Depe (Golden Hill) is one of the significant sites of southern Central Asia (Fig. 2.1). It is now located near the village of Meana (Meyhana) in Kakhka County, and its area is approximately 25 to 26 ha. It stretches over a flat area not far from the Akmazar (or Meana-Chay) River and south of the Chaacha-Chay River. The abundance of water in the region allowed human settlements from the end of the Neolithic (Namazga I).

Russian archaeologist A.A. Semenov discovered the site in 1929 as part of the Khaveran expedition. It was frequently excavated by archaeologists up until 1967. That year, Vadim Mikhailovich Masson was appointed director of excavations at Altyn-Depe, as part of the work of the Interdisciplinary Archaeological Expedition of Southern Turkmenistan of the Academy of Sciences of the Soviet Socialist Republic of Turkmenistan. Different parts with different functions have been identified at Altyn-Depe (Masson 1988, 1).

Defensive wall

The nature and location of the Bronze Age surrounding wall at Altyn-Depe are not well known. The ovoid shape of the hill (heavily eroded by gullies) suggests the absence of a perimeter wall. Nevertheless, the site's excavator indicated the presence of a wall in the eastern part of the hill, which seems to be associated with the function of fortification of the site. In addition, archaeological material found in other excavations at Altyn-Depe shows that the inhabitants of the settlements tried to fortify their neighbourhoods. Indeed, it seems that they fortified the habitat according to the topography of the hill by building walls on the parts that were easily accessible. However, complete information about the fortification comes from the southern part of the tepe, where the main entrance to the city was located in the Bronze Age. It is important to note here the discovery of a surrounding wall, reinforced by towers (6 m thick) built of mudbrick, that widened over time during different periods (Masson 1988, 26–27).

Residential quarters

Behind the perimeter wall of the site's upper part was arranged living quarters with densely organised houses. Extensive excavations carried out on this part of the hill have brought to light new information about the residential area of the Middle Bronze Age (Namazga V).

Excavation 1 includes three horizons (horizon 1, 2, and 3), all dated from Namazga V. Here, among the remains of horizon 1, structures built of mudbrick (measuring 46 × 28 × 12 cm) were revealed, next to which was a potter's oven from which only part of the room has been cleared. Apart from these architectural testimonies, several burials (children and adults) were discovered on this horizon, which belongs to a period of abandonment of the site. The next horizon (horizon 2) provides additional information on the architecture. Here, there was a difference between the northern part and the southern part. While the south part presents layers of dump (probably a sign of the presence of a courtyard), the other part delivers the testimonies of the installations built of mudbrick. Finally, on the third level, the division between the courtyard and the living quarters became more distinct, and the houses were separated by a wall 50 cm thick. The remains of three pottery kilns were unearthed on this horizon, one of which contained around 100 ceramic vessels ready for firing.

The area of excavation 10 is 400 m². It revealed poorly preserved buildings surrounded by a wall and with a courtyard. In the courtyard, several potter's kilns and graves (children and adults) were excavated. Very close to this courtyard were eight buildings divided into two by a street. All of the constructions found in this excavation were mudbrick (39–42 × 20–25 × 9–13 cm) (Masson 1988, 29). The extension of the excavation brought to light an area of 1,400 m² of the residential area. Here, all of the houses were divided into several complexes by double walls (1.50 to 2 m wide), and four had an artisanal function. Of particular interest is one of these complexes, called the "central complex". It is an architectural ensemble consisting of 13 small rooms with an inner courtyard of 14 m². Close to one of these walls was a semicircular room in which archaeologists found a central platform and two ovoid hearths. In the courtyard of this complex, three millstones were found. According to the excavator, these indications testify to domestic use for this complex. Another structure with a particular function was in room 10. This structure had a small bench facing the western wall. Among the finds in this room, a considerable number of anthropomorphic and animal figurines were discovered. Some collective and individual burials were also excavated in room 10 (Masson 1988, 32–33).

Ritual centre

Excavation 7 at Altyn-Depe, which began in May 1967, identified a series of monumental buildings. Further work in 1968 and 1969 revealed the existence of a monumental complex belonging to the Namazga IV period. Two phases fit perfectly into the general stratigraphy of Altyn-Depe, presenting three successive phases in the Namazga V period: Altyn 3, 2, and 1. In phase 3, a building stood directly on an artificial low platform belonging to the Namazga IV period. The first level, well preserved, was 2 m high, while its base was paved with clay. The second level, 1.5 m high, had pilasters (as suggested by the two samples attested on the eastern and northern facades). It is possible that a whole row of pilasters decorated the wall of the building, as proposed by Masson in the restitution of the building. Three meters behind, on the second level, was the third level of the religious building, preserved up to a height of 1 m, and then 2.5 m further back, there was a fourth floor, the total height of which remains unknown but least 1.5 m of elevation is still preserved. No staircase leading to the top of the building was found during the excavations, but access from the west can be seen, where the fourth floor was at the same height as the rest of the building. Behind this building existed a series of structures with a domestic function, described as a "funeral complex".

The next phase, Altyn 2, differs from the previous one by the colour of the mudbrick as well as its maximum extension. Its façade measured 26 m long; thanks to the addition of a new building, the "parapet house", further information on the architectural elements of the site has been attested. Finally, the last phase, Altyn 1, presented only a few restorations and partial modifications to the "cult building", such as the thickening of the façade of the first floor; however, these operations did not prevent the gradual decay of the building (Masson 1988, 59).

Regarding the archaeological material found in this building, the presence of a rich cult collection unearthed in room 7, near an altar at the back of the room, should be noted. This includes a stone plaque bearing different patterns (crescent, band, and cross), an alabaster handle weight, a marble column, a considerable number of semiprecious stone beads, a gold wolf's head, and a bull's head in solid gold (Masson 1988, 68).

2.7.5 Namazga-Depe

Namazga-Depe, a famous name in the chronological terminology of the piedmont region of the Kopet-Dagh, is one of the largest Chalcolithic sites in the Tejen Delta, with an area of 50 ha (Fig. 2.1). Archaeological investigation at the site was started as early as 1949 by YuTAKE, and the chronological and cultural sequence was established thanks to the excavations of B.A. Kuftin in 1952. The Namazga-Depe stratigraphic sequence was used to describe the entire stratichronological sequence of the Kopet-Dagh piedmont region. The site's chronology includes a period ranging from Anau IB (transitional Neolithic) until the Namazga VI period (Middle Bronze Age). Six test trenches were excavated in different parts of the site, confirming this dating (Kuftin 1956).

The results of the work carried out on these six trenches can be summarised as follows:

- Trench 1 – The excavation was carried out in the lower layers of the mound. More than 17 m of remains were revealed, of which the first 7 m belong to the Namazga I period, the next 2 m to the Namazga II period, the next 2.5 m to the Namazga III period, the next 4 m to the Namazga IV period, and the last 2 m to the Namazga V period.
- Trench 2 – This trench was opened in the southwestern part of the site, and excavation continued to a depth of 18 m, more than 11.5 m below the surface of the current plain. Respectively, from top to bottom, layers I–V represent vestiges of the Namazga V period; layers VI–XVIII, period IV; and layers XIX–XXXVI, the Namazga III period. No material corresponding to the Namazga II and Namazga I periods was found in this trench.
- Trench 3 – It was excavated on the upper part of the tower to a depth of 10 m, bringing to light only material related to the Namazga VI, V, and IV periods. Subsequent work (1975) identified mixed remains from the Namazga III and II periods, but no evidence from the Namazga I period. The thickness of the cultural layer in this trench was estimated to exceed 24 m.
- Trench 4 – This trench was located at the tower's base and dug to a depth of 5.5 m. Some vestiges of the Namazga III period were found in this trench. Layers V and VI corresponded to the Namazga IV period.
- Trench 5 – It was opened in a circular depression (probably an old reservoir) located at the same level as the surface of the current plain. The excavation in this trench reached a depth of 12 m below the surface of the plain. The upper 6 m yielded a mixed material comprising Namazga IV and V ceramics and ceramics from the 10th and 11th centuries AD. Remains of the Namazga II and Namazga I periods were brought to light in the deepest layers (Kohl 1984, 74–75).

2.7.6 Geoksjur 1

The Geoksjur 1 site is located 20 km east of Tejen, Turkmenistan. The mound has an area of 20 ha and a height of 10 m. The archaeological material found on the surface of the site consists of Geoksjur-type ceramics, terracotta human and animal figurines, and stone and copper tools. It is a significant site of the Geoksjur Oasis (Fig. 2.1).

The site has been excavated several times by Soviet archaeologists, including A.A. Marushenko (1939), P.P.A. Ershov (1950), and B.A. Kuftin (1952). However, most knowledge of the site is owed to V.I. Sarianidi, thanks to his excavations carried out during the 1950s and 1960s (1956, 1957, 1960, 1962, and 1963). The excavations were conducted by the Muzej Istorii AN Turkmenskoj SSR (Ashkhabad), the Leningradskoe Otdelenie IA AN SSSR (Leningrad), and the Institut Arkheologii AN SSSR Institute (Moscow). V.I. Sarianidi excavated two trenches; the first was located in the centre of the site, and the second, opened in 1962, in the southeastern part of the settlement. In the latter, archaeologists brought to light several graves. Thanks to the excavation area of 900 m², critical data are available on architecture and other aspects of cultural material. Five independent houses with several rooms were identified. Streets and alleys separated them (the most remarkable of which is 50 m long and 2 m wide). The appearance of houses with several rooms testifies to the existence of autonomous residential complexes, each of which had its own southeastern sanctuary and a workshop for manufacturing ceramics. Some buildings in Geoksjur 1 had stone foundations filled with animal bones and large ceramic sherds. The walls of the houses were plastered, and the main building material was mudbrick. Architectural complex no. 1 had a sanctuary (room no. 3) with a thick wall and the angles oriented towards the cardinal points. The remains of a potter's kiln were found in another room (room 12) belonging to the same complex. Complex IV had its own sanctuary, located south of the main street. The remains of burnt human bones were found in the room where the altar was located (Sarianidi 1965, 7).

Nine individual graves were excavated in abandoned buildings. However, complete information concerning funeral practices at Geoksjur 1 comes from four collective graves (tholos) that were unearthed in a partially walled cemetery in the southeastern part of the site. Three of these collective tombs had a circular plan, while the fourth was rectangular. They were built of mudbrick, and a wall separated different parts of the interior. As has been already noted, the cemetery was isolated from the residential area by a pilaster wall (Kohl 1984, 97).

According to Sarianidi, the chronology of the settlement covers a period from the end of the Namazga II period until the end of Namazga V. The ceramics of the site in the Namazga III period are represented by painted bowls (monochrome, rarely polychrome) with geometric and animal motifs such as ibexes and leopards. In addition to ceramics, stone (flint blade) and metal tools were found on the site's surface and in the excavation. However, in Geoksjur, anthropomorphic figurines (and, to a lesser extent, zoomorphic ones) are numerous. These are complete or fragmentary terracotta figurines, which Sarianidi has already published (Sarianidi 1965).

2.7.7 Kara-Depe

Kara-Depe, with an area of 15 ha, is located at the piedmont of Kopet-Dagh near Namazga-Depe and the modern city of Artyk (Fig. 2.1). It is one of southern Turkmenistan's most important Chalcolithic sites. According to the excavations conducted in trench 1 in the northeastern part of the site and in an area of 20 × 20 m, material from the Namazga II period was found at Kara-Depe. Six settlement levels were revealed; Kara phases 1–6 and Kara phases 2–6 belong to the Namazga II period, but the upper level (Kara 1) corresponds only to the remains of Namazga III. During the Namazga II period, the emergence of polychrome ceramics and the evolution of animal motifs in monochrome ceramics, an evolution that continued until the following period, can be seen. Furthermore, after establishing the stratigraphy based on the discovered levels, the Namazga II period was subdivided into two subperiods (Namazga II recent and ancient). The old phase is represented by levels 4, 5, and 6, consisting of houses built of mudbrick, traces of ceramic production, and evidence of the use of a potter's kiln (Masson/Sarianidi 1973, 62).

Regarding ceramics, polychrome decoration was observed in more than 62% of ceramics, while only 10% of ceramics from this period had monochrome decoration. Unpainted ceramics included hemispherical bowls with an often very smooth red slip (burnished), and coarse ceramics were represented by large shapes as well as round bowls.

In the next level, Kara 3 (the recent phase of the Namazga II period), rooms of household use with plastered walls and floors were uncovered. In some rooms, the floors were paved with mudbrick. Stone sockets near the threshold were a common feature of the living rooms on this level, and in storage rooms, jars were planted in the ground. The architectural remains unearthed in trench 1 are little known. Still, for the most part, the architecture of the Namazga II period and the following period was identical (houses with several rooms, separated by long walls and alleys, forming complexes and quarters) (Kohl 1984, 89).

In level 2, the houses built of mudbrick, like the lower levels, were grouped into two or three complexes and separated by thick walls. The polychrome decoration disappeared in favour of monochrome decoration. Painted friezes, divided into several elements, were widespread and included animal motifs (ibex). Apart from painted ceramics, grey ceramics and smoothed red ceramics were present. The only metallurgical evidence was a few pins with pyramidal heads. In addition, a few rare metal tools were collected from the site. According to Masson and Sarianidi, the scarcity of metal objects may be explained by the objects being recycled due to difficult access to ore sources. Stone tools and flint blades were scarce, too (Masson/Sarianidi 1973, 65).

The graves unearthed at Kara-Depe included burials in the contracted and flexed position, facing south. The excavators were able to discover the necropolis of the settlement, and it seems that the inhabitants of Kara-Depe were burying their dead in abandoned areas. In later periods, these empty and abandoned areas were used to build new houses, which is why the old tombs are located under the houses of the later period. For example, the burials excavated in Kara level 2 were found in the occupational layers of Kara level 3. Mud bricks sometimes underline the outline of the tomb, and it seems that the dead were wrapped in mats or reeds and covered in ochre. Thirty-five graves were discovered in the layers of level 2 at Kara-Depe, with the dead on their right side and their right arm often splayed and the other in front of their face. Funeral offerings were semiprecious stone beads (necklaces and bracelets), especially in children's graves (Masson/Sarianidi 1973, 64).

Level Kara 1, identified in excavation 1, has been divided into two sublevels: Kara 1A and Kara 1B. The Kara 1A level corresponds only to 20–25 cm from the upper layers of the site, and no architectural remains have been found there. This level represents a final occupation period or an occupation without architectural construction. The following period (Kara 2) delivered some architectural elements but is best known for its burials. The complete information about the architecture comes from excavations 3 and 4. Here, the architectural remains represent residential complexes separated by alleys, streets, and walls. Some rooms were paved with ceramic sherds (particularly rooms with a storage function). Room III, 27, was burnt and delivered a significant quantity of charcoal. Based on radiocarbon analyses carried out on the charcoal samples collected in this room, a dating of 3730–3240 BCE was obtained. Among the remains unearthed in excavations 3 and 4, it is necessary to notice the presence of stone handles and small columns with grooves. These finds are the only ancient attestations of these objects, which were widespread in the Namazga IV and V periods (Kohl 1984, 100).

Twenty-six graves were excavated in the layers of Kara 1B. The structure of these tombs was formed by a simple pit containing human remains deposited in a flexed position. According to Soviet archaeologists, the Namazga III period is known for intercultural relations with the Iranian world. Archaeological material (especially ceramics) unearthed from sites in the piedmont and dating from the Namazga III period (*e.g.*, Kara-Depe and Geoksjur 1) shows analogies with material from Iranian sites such as Hissar IB–IIA, Sialk III, Mundigak III, and Shahr-i Sokhta I (Kohl 1984, 101).

2.7.8 Sarazm

The Sarazm site, with an area of 90 ha, is located in Tajik territory, on the left bank of the Zarafshan River, on the Samarkand Plain. It is located 15 km west of Punjikent and 60 km east of Samarkand. This site was discovered in 1976 and excavated by an archaeological mission from the Academy of Sciences of the Tajik SSR, led by A. Isakov. It is one of the critical sites for understanding and reconstructing relations between Central Asia, northeast Iran, Sistan, and Baluchistan. Unlike the southern Turkmenistan and Bactria sites, the Sarazm site (at an altitude of 900 m) is not an alluvial plain or piedmont site. It sits on a terrace in the narrow valley of Zarafshan. It is made up of ten hillocks of different altitudes and five depressions. According to the site's topography, the agglomeration does not have a defined shape (Besenval 1987, 441).

The Tajik mission opened several construction sites, including twenty boreholes and seven excavation sites in different parts of the settlement. From these excavations, it is clear that the occupation has known four periods of occupation (Sarazm I, II, III, and IV; period I the oldest), three of which revealed architectural remains (rooms, hearths, and domestic pits). It should be taken into account that, until now, it has been possible to identify the remains of period I only at site I (partially excavated) and the remains of period IV, probably destroyed by human activities.

The excavation of site I identified a mudbrick dwelling made up of three rooms and a courtyard to the west.

Site II, more than 1,000 m^2 (30 × 36 m), delivered a large residential complex with four small courtyards, several streets and alleys, and 48 rooms (most with a central cavity hearth). These foci form a habitat feature in Sarazm and many sites in southern Central Asia and the Iranian Plateau in the 4th and 3rd millennia BCE.

At site III, the work allowed the release of a 14 × 15 m building, built on a 75 cm-high plinth. This building had two rows of four rooms each, interconnected by passages and bordered on the west by two pairs of two long parallel rooms. The construction was mudbrick and the façade of the walls was plastered. As for its function, A. Isakov interpreted it as a silo or public warehouse belonging to period III.

Chapter Three: Excavations at Tepe Sadegh

3.1 Tepe Sadegh

3.1.1 Topographical Description of Tepe Sadegh

Tepe Sadegh is located in the south of Ghale Rostam, 75 km southeast of the city of Zabol (30.49762 latitude, 61.23836 longitude). It is one of the satellite sites of Shahr-i Sokhta, which is situated 13 km southwest (Fig. 1.3, Fig. 2.1). Today, the 135 km Zabol-Zahedan road passes 5 km from the southeast of Tepe Sadegh. This mound has an oval shape, with dimensions of 150 × 200 m in the east-west direction and a 12-degree deviation towards the northwest (Fig. 3.1).

This mound is large, with a maximum height of the mound is 6 m (Shirazi/Tavasoli 2009, 9–10.). Like other archaeological sites in Sistan, the site is exposed to natural erosive factors, such as wind and water. Due to these factors, its foothills have numerous gullies and cuts. These cuts are more intense on the western and northwestern sides of the site, in such a way that, over time, parts of the mound have been separated; today, they are in the form of small, irregular bumps. The southeastern and eastern sides of the mound have been less exposed to Sistan's severe winds (especially the 120-day wind) and are more intact with a gentle slope. There is a dark buff topsoil formed by sedimentary rocks. Different views of Tepe Sadegh can also be seen in Fig. 3.2–5.

The cultural materials on the surface of the Tepe Sadegh mound include pottery, stone tools, waste flakes, figurine fragments, slag, and oxidised bronze fragments. The pottery of the surface is mainly simple, painted, and incised, which can be seen in Fig. 3.6.

3.1.2 History of Research in Tepe Sadegh

To date, surveys and excavations about Sistan's Bronze Age have led to the production of valuable information and data. In recent years, researchers have paid more attention to satellite settlements, and sites such as Tepe Talebkhan, Tepe Dasht, Tepe Graziani, and Tepe Sadegh have been excavated. Tepe Sadegh was identified, explored, and registered for the first time during the archaeological survey programme of Sistan in 2007 under the supervision of Mousavihaji and Mehrafarin. In their reports, the site was registered as a prehistoric site in the south of Ghale Rostam, with the number 489–012 (Mousavihaji/Mehrafarin 2007). Studies of the pottery on the site's surface indicated that the site is a satellite settlement of Shahr-i Sokhta, dating back to the 3rd millennium BCE.

The first season of archaeological excavations at Tepe Sadegh was started by Shirazi and Tavasoli and ran from November 16, 2009, to December 22, 2009, in the framework of practical courses and fieldwork for students at the University of Sistan and Baluchistan (Shirazi/Tavasoli 2009).

The second excavation of Tepe Sadegh was conducted by Mortazavi from the University of Sistan and Baluchistan in 2010 in the framework of practical courses and fieldwork. The third season of excavation at this site was done by Saremi Naeini, Tavasoli, and Khosrojerdi in 2011 in the framework of the same courses. The data from the second and third seasons are not included in the present work.

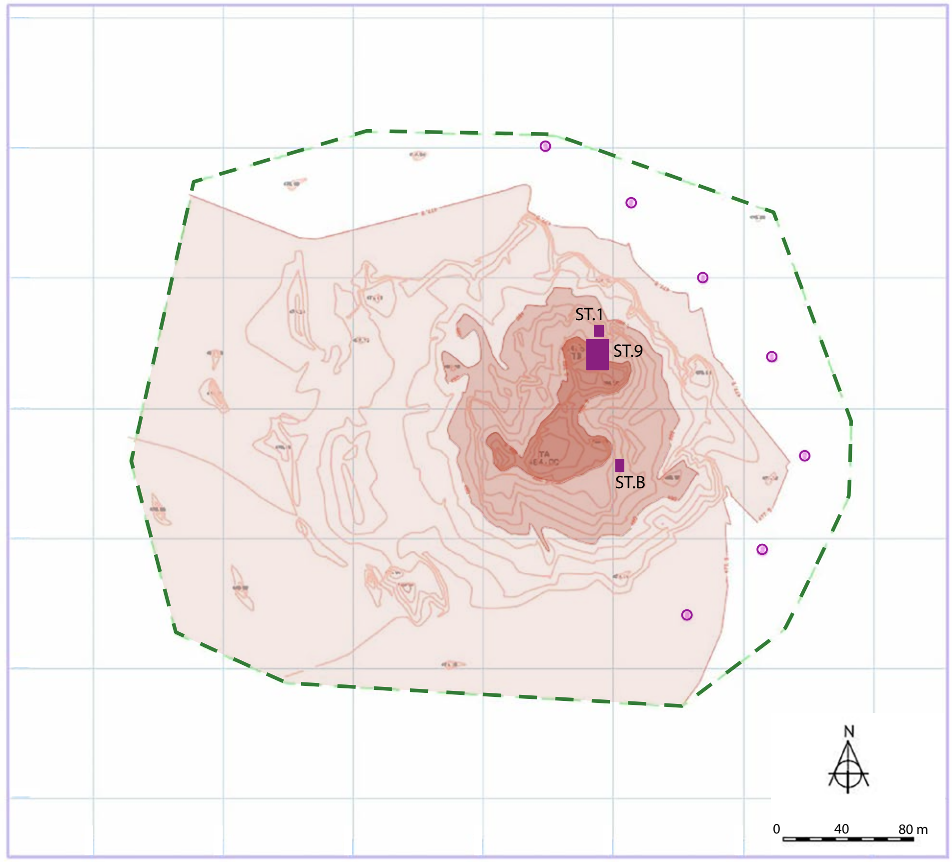


Figure 3.1 Topographical view of Tepe Sadegh (After Shirazi 2016, 7; modified by Andrea Bieri, University of Bern).

Figure 3.2 Eastern view of Tepe Sadegh (© Rouhollah Shirazi).

Figure 3.3 Western view of Tepe Sadegh (© Rouhollah Shirazi).

Figure 3.4 Northern view of Tepe Sadegh (© Rouhollah Shirazi).

Figure 3.5 Southern view of Tepe Sadegh (© Rouhollah Shirazi).

Figure 3.6 Tepe Sadegh, cultural material on the surface (© Rouhollah Shirazi).

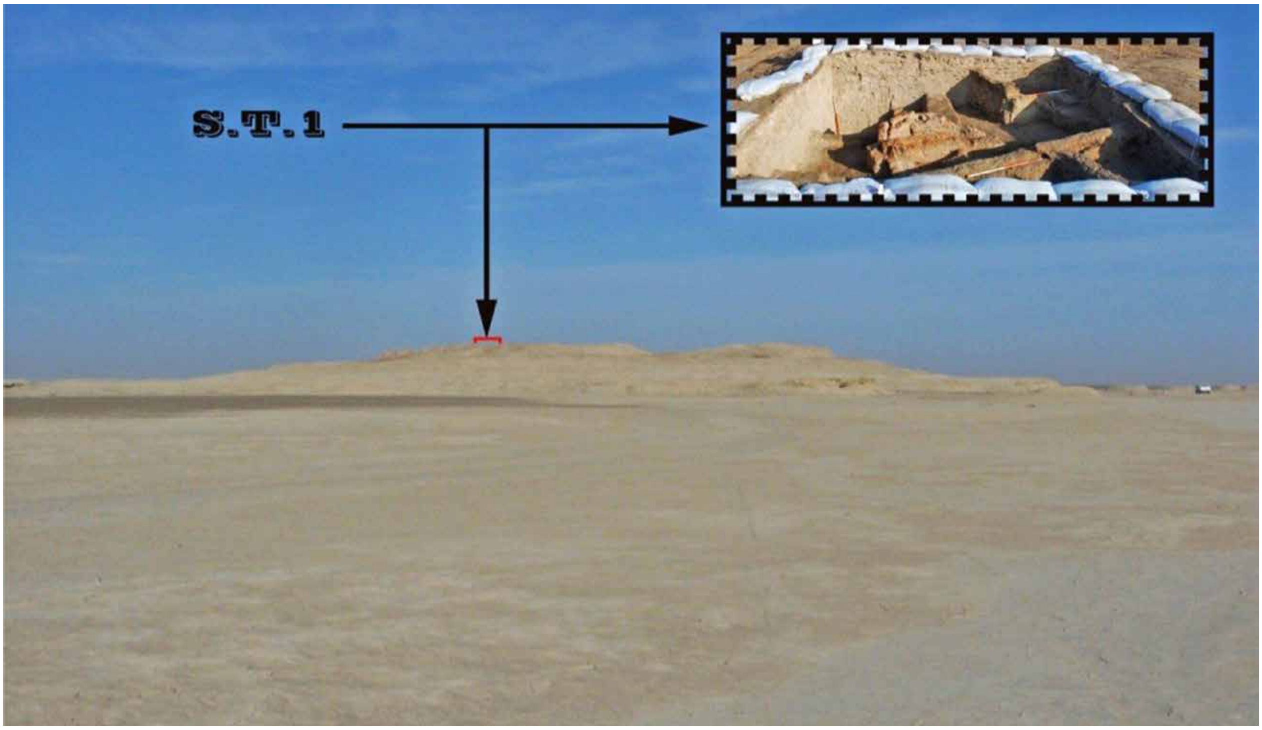


Figure 3.7 Tepe Sadegh, position of S.T.1 in the mound (© Rouhollah Shirazi).

The fourth, fifth, and sixth excavations were done in 2012, 2013, and 2016 by Shirazi from the University of Sistan and Baluchistan, again in the framework of the same courses (Shirazi 2012; 2013; 2016). Before the fourth excavation, in some parts of Tepe Sadegh, geomagnetic scans were done by Mohammadkhani. All of the data used for this thesis are from the first, fourth, fifth, and sixth excavations.

3.2 Method of Excavation

The choice of survey and excavation methods is determined by various factors, including the size and configuration of the site, the density of surface artefacts, and the cultural and environmental context of the region under investigation. The excavation at Tepe Sadegh was done systematically by following these activities: mapping, excavating, collecting data, sampling, and documentation. The findings, mainly potsherds, were cleaned, recorded, and registered. In the next step, significant potsherds were chosen for drawing and then photographed.

The method of excavation in Tepe Sadegh was based on stratigraphic units. In this method, features and other stratigraphic findings were considered a unit. At the end, a Harris diagram showing the position of all layers was created for each trench. Based on this method, the mound's surface was divided into a net of squares of 50 × 50 m and smaller squares of 10 × 10 m.

3.2.1 Trench S.T.1

This trench (5 × 5 m) is situated in the southwestern part of square VIII (10 × 10 m) and in square D4 (Fig. 3.7). The trench is located in the central hump of the mound, with the highest density of potsherds on the surface. After collecting potsherds and other cultural materials on the surface, the excavation was started and continued to a depth of 3 m. Based on the stratigraphic method, 36 stratigraphic units were identified and divided into two groups: structural and deposit. Of the seventeen cumulative units, three were doubted, and there were nineteen structural units, including walls, floors, and kilns. The stratigraphic units can be seen in Table 3.1, and the Harris matrix in Fig. 3.11.

Number of the stratigraphic unit	Subunit (S.U.)	Number of the stratigraphic unit	Subunit (S.U.)
1	Surface layer	19	The potsherd floor of kiln 2
2	Surface layer	20	Deposit layer in the southern part of kiln
3	Debris	21	Debris
4	Floor?	22	Deposit of ash layer
5	Northern wall L	23	Deposit
6	Southern wall	24	Connection wall of kiln
7	Connection wall	25	The eastern platform
8	A deposit layer in a room	26	Debris (Fig. 3.10)
9	A deposit layer in a room	27	Deposit
10	Floor (Fig. 3.8)	28	Potsherd pile
11	Deposit layer (salty)	29	Floor
12	Wall and debris	30	The northwestern wall
13	Kiln (Fig. 3.9)	31	Deposit
14	Deposit layer in the northern part of kiln	32	Deposit
15	Thin clay floor of kiln	33	Mudbrick floor (?)
16	Thin clay floor of kiln 2	34	Deposit
17	A deposit layer in the northern room	35	Deposit
18	The potsherd floor of kiln	36	Deposit

Table 3.1 Tepe Sadegh, stratigraphic units of trench S.T.1 (Shirazi/Tavasoli 2008, 51).

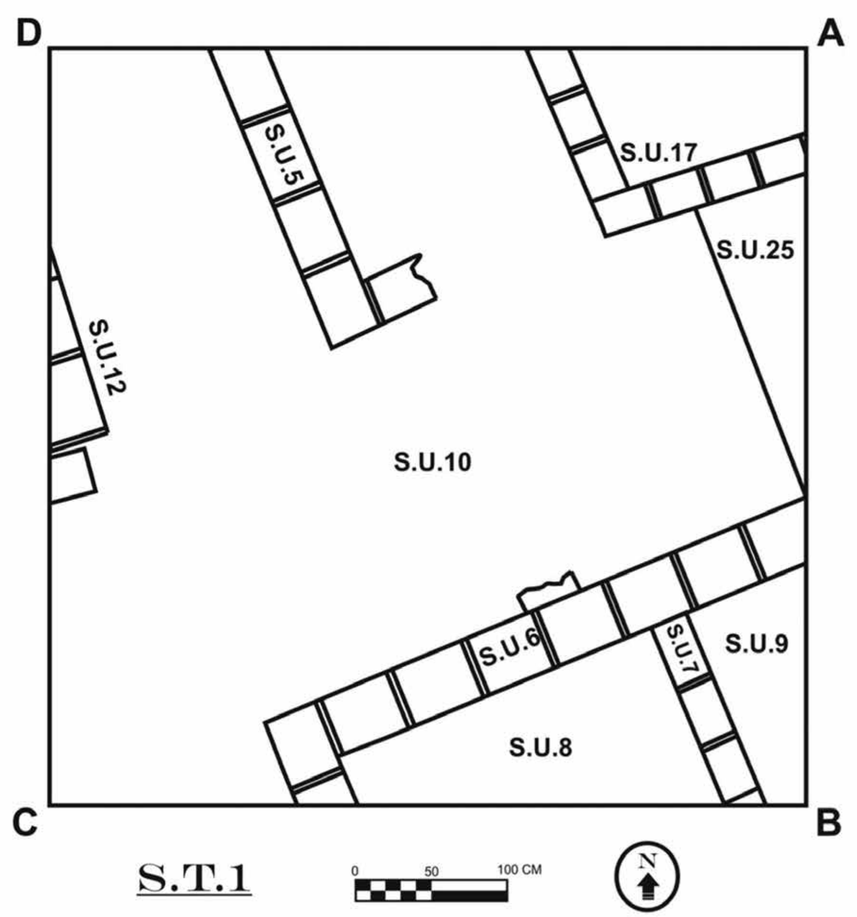


Figure 3.8 Tepe Sadegh, architectural remains of trench S.T.1 (© Rouhollah Shirazi).

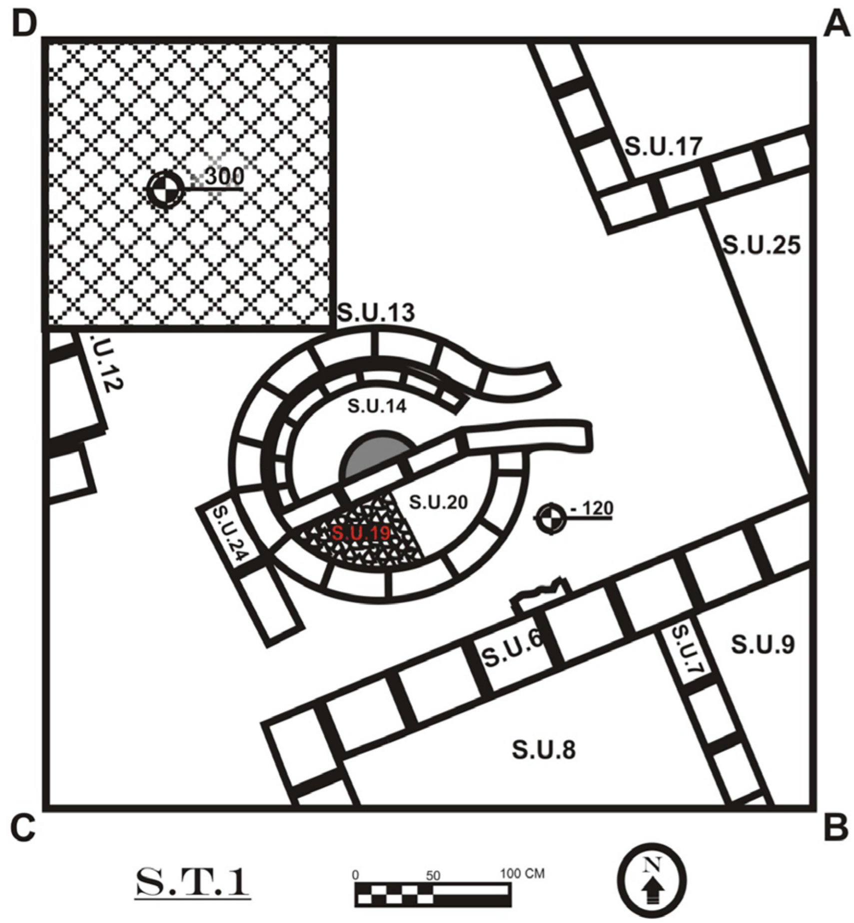


Figure 3.9 Tepe Sadegh, kiln remains in trench S.T.1 (© Rouhollah Shirazi).

Figure 3.10 Tepe Sadegh, kiln remains and S.U.26 in trench S.T.1 (© Rouhollah Shirazi).

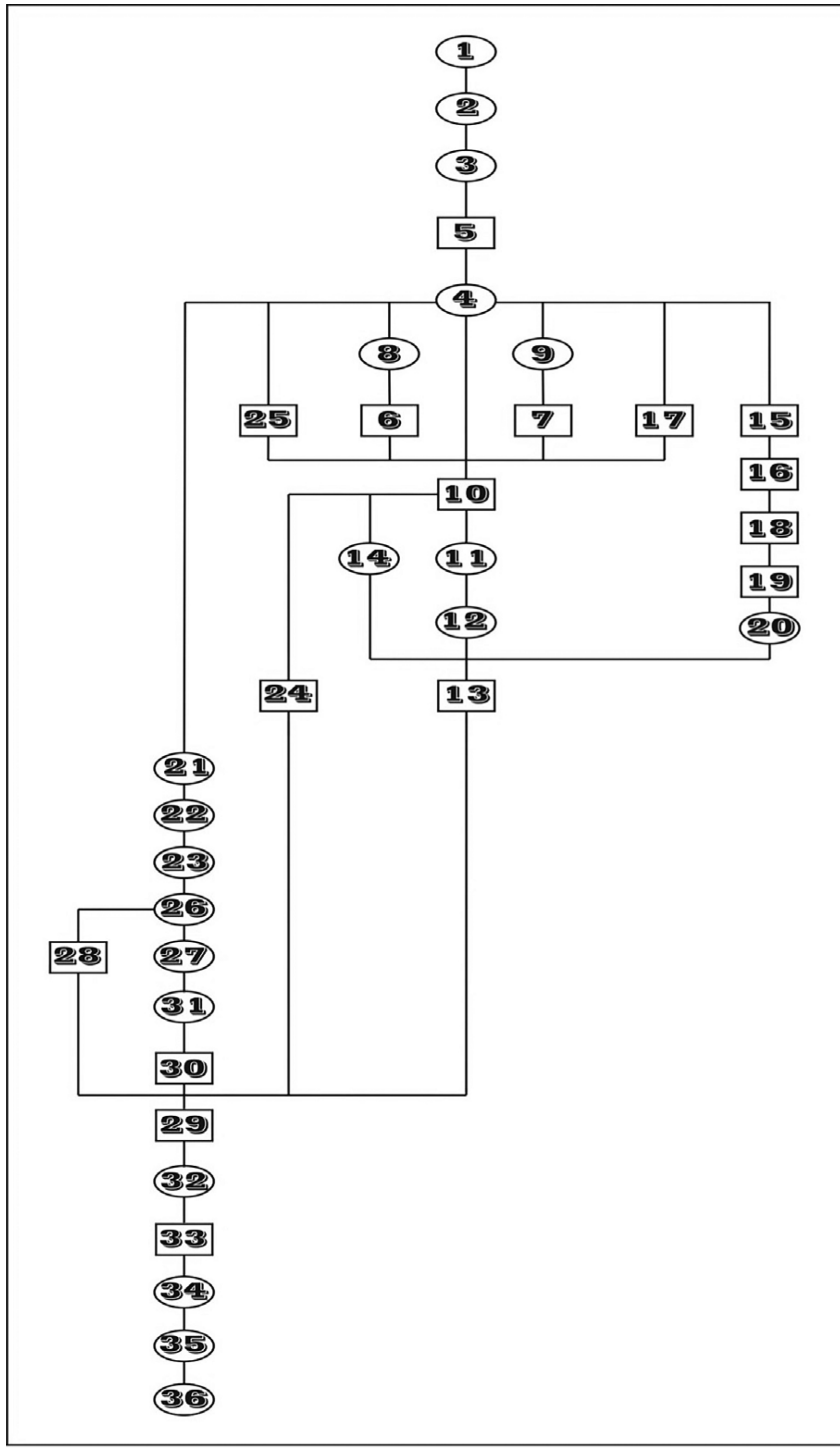


Figure 3.11 Tepe Sadegh, Harris matrix of trench S.T.1 (© Rouhollah Shirazi).

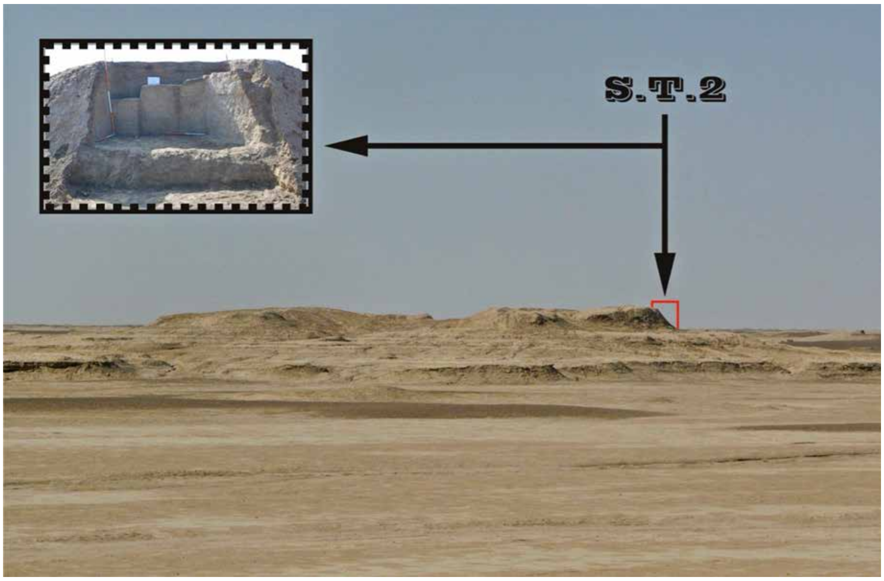


Figure 3.12 Tepe Sadegh, position of trench S.T.2 in the mound (© Rouhollah Shirazi).

Number of the strati-graphic unit	Subunit (S.U.)	Number of the strati-graphic unit	Subunit (S.U.)
1	Surface layer	10	Deposit
2	Surface layer	11	Deposit
3	Deposit	12	Deposit
4	Mudbrick wall	13	Debris
5	Mudbrick wall in an L shape	14	Floor
6	Small hearth (Fig. 3.13)	15	Deposit (Fig. 3.14)
7	Deposit layer in the hearth	16	Deposit (Fig. 3.14)
8	Floor	17	Deposit (Fig. 3.14)
9	Connection wall	18	Virgin soil

Table 3.2 Tepe Sadegh, stratigraphic units of trench S.T.2 (Shirazi/Tavasoli 2008, 56).

3.2.2 Trench S.T.2

This rectangular trench (4 × 3 m) is situated in squares IX and C4 (square of 50 × 50 m) (Fig. 3.12). Its slope is more than 45 degrees from the mound's surface to its northern foothill. The goal of excavation in this trench was to examine the cultural layers of the foothill and the destruction processes caused by natural destructive factors. The surface of the trench, due to the severe slope, has many inflated sediments with densities of cultural materials compared to the centre of the mound. After collecting the cultural material on the surface, the excavation was done to a depth of 250 cm, identifying 18 stratigraphic units. The details of these stratigraphic units and the Harris matrix can be seen in Table 3.2 and Figs. 3.13–15.

3.2.3 Trench S.T.3

This trench, which measures 4 × 2.5 m and runs north-south, is located in square X of block D4 (50 × 50 m) (Fig. 3.16). Its slope is more than 55 degrees from the mound's surface to its northern foothill. The surface of the trench, due to the severe slope, has a lot of sediment and a low density of cultural materials compared with the centre of the mound. After collecting the cultural material on the surface, the excavation continued to a depth of 2 m, resulting in the identification of eight stratigraphic units, of which three are natural units and five contain cultural materials (Fig. 3.17).

Figure 3.13 Tepe Sadegh, S.U.6 and S.U.7 of trench S.T.2 (© Rouhollah Shirazi).

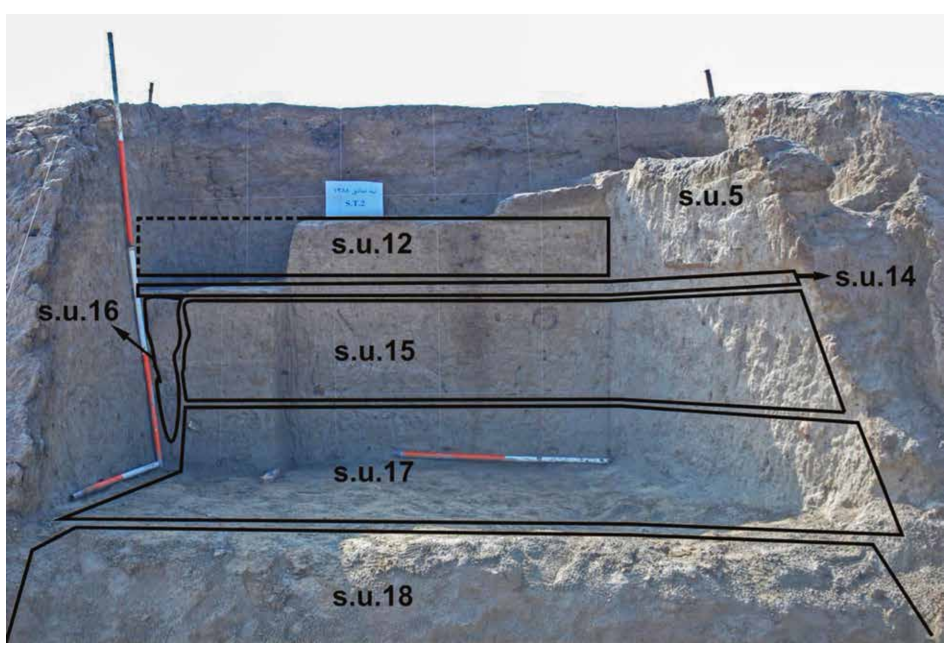


Figure 3.14 Tepe Sadegh, profile of trench S.T.2 (© Rouhollah Shirazi).

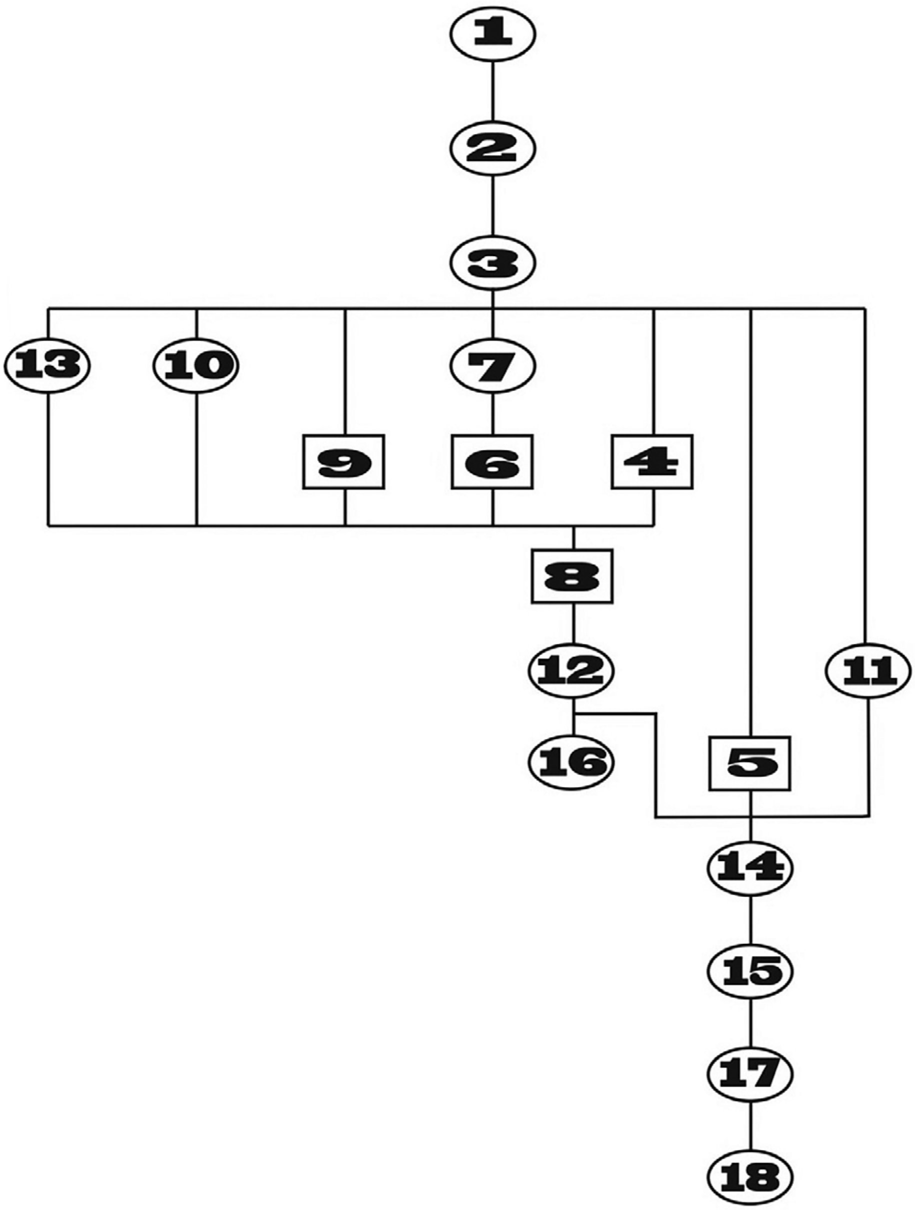


Figure 3.15 Tepe Sadegh, Harris matrix of trench S.T.2 (© Rouhollah Shirazi).

3.2.4 Trench S.T.4

This trench (4 × 4 m) is situated in square VIII of square D4 in the western part of the mound (N 30 29 022°, E 061 15131°). To locate burials at Tepe Sadegh, a geomagnetic survey was conducted during the fourth season of excavations; trench S.T.4 was opened due to the geomagnetic survey, but no burials were located. Furthermore, previous excavations focused on the centre of the mound, and the foothills remained mostly intact. Therefore, this trench was selected to understand the cultural layers of the foothill. Besides all of these reasons, from far away, the Tepe Sadegh mound has two visible colours: the lower natural layers are a light colour, and the archaeological layers are a darker colour. There is a significant line between these layers, and the trench is situated on this line. The soil surface of the trench was sand with low density; potsherds covered the surface of the trench, mainly in the centre and western part and less in the eastern part. After collecting the cultural material on the surface, the excavation was done to a 1.45 m depth, and eight stratigraphic units were identified. The first and second layers

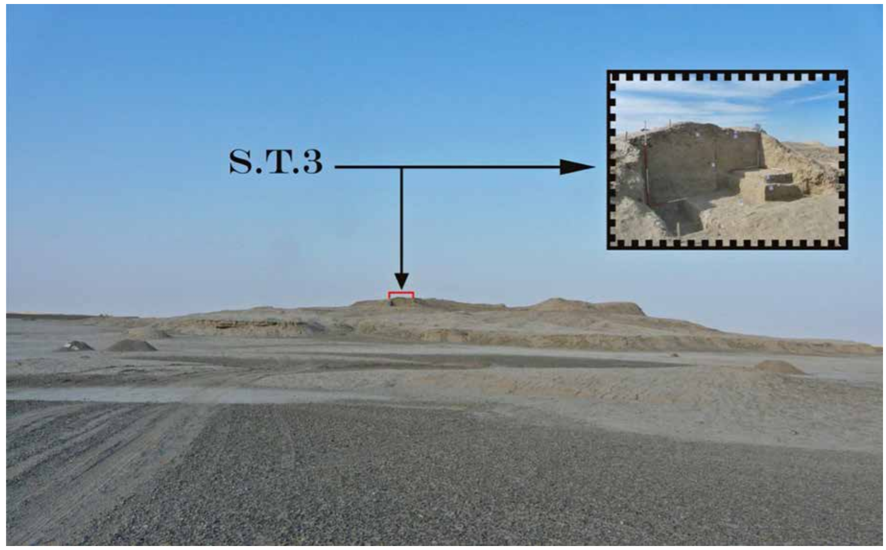


Figure 3.16 Tepe Sadegh, position of trench S.T.3 in the mound (© Rouhollah Shirazi).

Figure 3.17 Tepe Sadegh, profile of trench S.T.3 (© Rouhollah Shirazi).

were surface layers with different cultural findings, the third layer was a deposit, and the fourth layer was an oval-shaped floor with burnt traces in some parts. The fifth layer was a salty deposit layer that can be seen in most of the trenches and was considered virgin soil. For assurance, the excavation was continued in the northwestern corner of this trench, and the following two layers did not contain cultural findings (Figs. 3.18–19).

3.2.5 Trench S.T.5

This trench, which was excavated in 2012 (4 × 4 m) and was in the central part of the mound, had a lower height than the other parts in the centre and an elevation of 478 m, N 30 29 022°, and E 061 15131°. The geomagnetic scan of Tepe Sadegh and the topography of the mound were both taken into account when selecting this trench for excavation.

The trench surface was covered with low-density sand and potsherds, most abundant in the northwestern, southeastern, and central parts, and least abundant in the southwestern corner. The excavation was done to a depth of 0.84 m after collecting the cultural materials on the surface, and two stratigraphic units that contained potsherd deposits were identified. As there were fewer cultural finds in layer 2's lower part, the decision

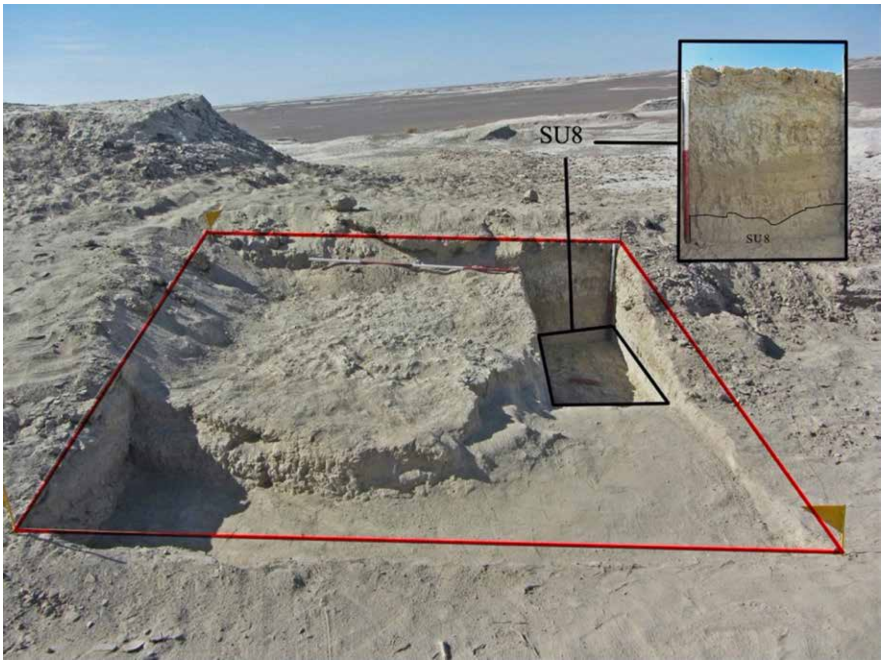


Figure 3.18 Tepe Sadegh, profile of trench S.T.4 (© Rouhollah Shirazi).

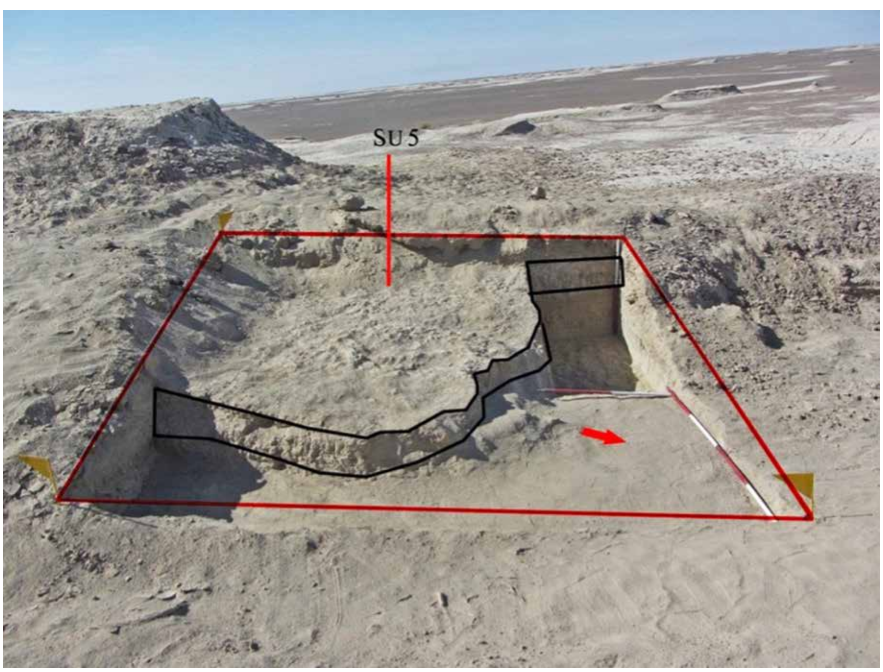


Figure 3.19 Tepe Sadegh, S.U.5 of trench S.T.4 (© Rouhollah Shirazi).

was made to excavate the southwest portion at a depth of 2 × 1 m to 1.55 m. From layer three, just one potsherd, with red paste, a buff colour, and mineral temper, was found; the potsherd was wheel-made and simple. This layer seemed to be a natural layer, and cultural findings had collected there due to the slope of the mound. The natural stratigraphic layer, situated horizontally, shows that the mound was a big terrace with a flat surface. The trench did not contain any residential evidence, but in a previous excavation of the northern part of the trench, residential evidence was found. Consequently, the mound area was likely not entirely a residential area; only parts higher in the mound and at the foot of the slope seemed to be used as such. At the foot of the slope, there was evidence of residential estates that had been demolished by erosion (Fig. 3.20).

Figure 3.20 Tepe Sadegh, position of trench S.T.5 in the mound (© Rouhollah Shirazi).

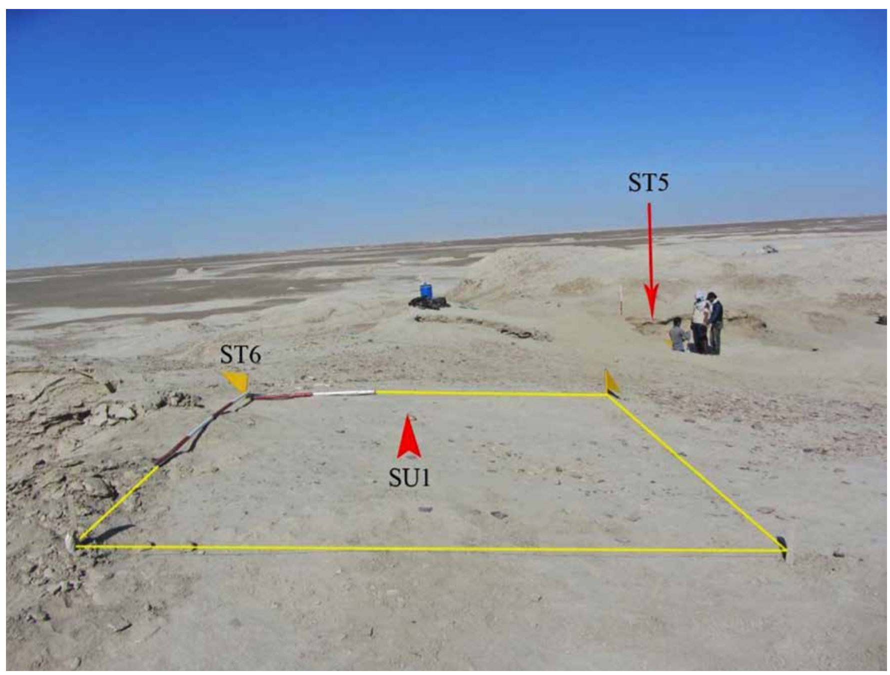


Figure 3.21 Tepe Sadegh, position of trench S.T.6 in the mound (© Rouhollah Shirazi).

3.2.6 Trench S.T.6

This trench, excavated in 2012, is in the centre of the mound (square of 3 × 3 m), which is precisely situated in the eastern part of trench S.T.1 on the highest part of the mound. The elevation of the trench is 485 m, N 30 29 015°, and E 061 15153° (Fig. 3.21). This trench was selected for excavation based on the topography of Tepe Sadegh; specifically, the thickness of layers in this part of the mound made for a better stratigraphic profile. Also, based on the results from trench S.T.1 in the first season, this trench was selected to get more information about the residential structures found in trench S.T.1 in the first season and continuity in trench S.T.6. The soil surface of the trench was clay and covered with potsherds. After collecting the cultural material on the surface, excavation was done to a 2.10 m depth, and 17 stratigraphic units were identified. Information on these stratigraphic units can be seen in Table 3.3 and Figs. 3.22–23.

Number of the stratigraphic unit	Subunit (S.U.)
1	Surface layer
2	Deposit
3	Deposit
4	Wall
5	Deposit layer with mudbrick heated in some parts
6	Wall
7	Deposit
8	Deposit layer with mudbrick heated in some parts
9	Wall/platform (?)
10	Deposit layer with two mud bricks
11	Deposit layer with mudbrick heated in some parts; also, one bronze object from -97 cm
12	Deposit layer with mudbrick heated in some parts; high density of charcoal and baked mud (Fig. 3.22)
13	Hearth
14	Deposit in the hearth
15	Wall
16	Deposit layer with a high percentage of ash and charcoal
17	Floor (?)

Table 3.3 Tepe Sadegh, stratigraphic units of trench S.T.6 (Shirazi 2012, 58).

In trench S.T.6, three spaces can be recognised in the architectural remains. Space 1 is in the southern part of trench S.T.6 to a depth of 93 cm and can be seen in stratigraphic layers 1, 2, 3, 4, 5, 6, and 11. Potsherds, bone, charcoal, and mud bricks are the cultural materials of this space. Space 2 is in the centre and eastern part of trench S.T.6 to a depth of 116 cm and can be seen in stratigraphic layers 1, 2, 3, 4, 6, 8, 9, 12, 13, 14, and 15. Potsherds, bone, charcoal, and mud bricks are the cultural materials of this space. Space 3 is in the western part of trench S.T.6 to a depth of 97 cm and can be seen in stratigraphic layers 1, 2, 3, 6, 8, 9, 12, 15, and 17. Potsherds, bone, charcoal, and mud bricks are the cultural materials of this space. Samples were collected from three spaces; soil samples for flotation analysis and charcoal samples for radiocarbon dating.

In summary, these three spaces are the continuity of spaces and architectural remains of trench S.T.1. Space 2 contained a large amount of ash and small pieces of charcoal in different stratigraphic units, especially units 7 and 12. In the northern part of trench S.T.6, some mudbrick was found that had collapsed towards the north wall of the trench; since this was not like the walls, it seems it was a platform. Unlike the other parts of the trench, space 1 had compressed and even layers. The architectural data and ash traces indicate that spaces 2 and 3 were roofed, but space 1 was open air. The ash traces, charcoal, figurine, potsherds, and hearth in space 2 show daily activities comparable with those of the spaces in the residential part of Shahr-i Sokhta, so space 2 can be identified as a residential area of Tepe Sadegh in trench S.T.6.

3.2.7 Trench S.T.7

This trench, excavated in 2013, is in the central part of the mound (square of 3 × 5 m), which is precisely situated in the southern part of trench S.T.6 in the highest part of the mound (Fig. 3.24). The elevation of the trench is 485 m, N 30 29 015°, and E 061 15153°. Based on the topography of Tepe Sadegh, this trench was selected for excavation due to the thickness of layers in this part of the mound for a better stratigraphic profile. Also, based on the results from trench S.T.1 in the first season and trench S.T.6 in the fourth season, this trench was selected to get more information about the residential structures in trench S.T.1 and trench S.T.6 and its continuity in trench S.T.7. Since the

Figure 3.22 Tepe Sadegh, S.U.12 of trench S.T.6 (© Rouhollah Shirazi).

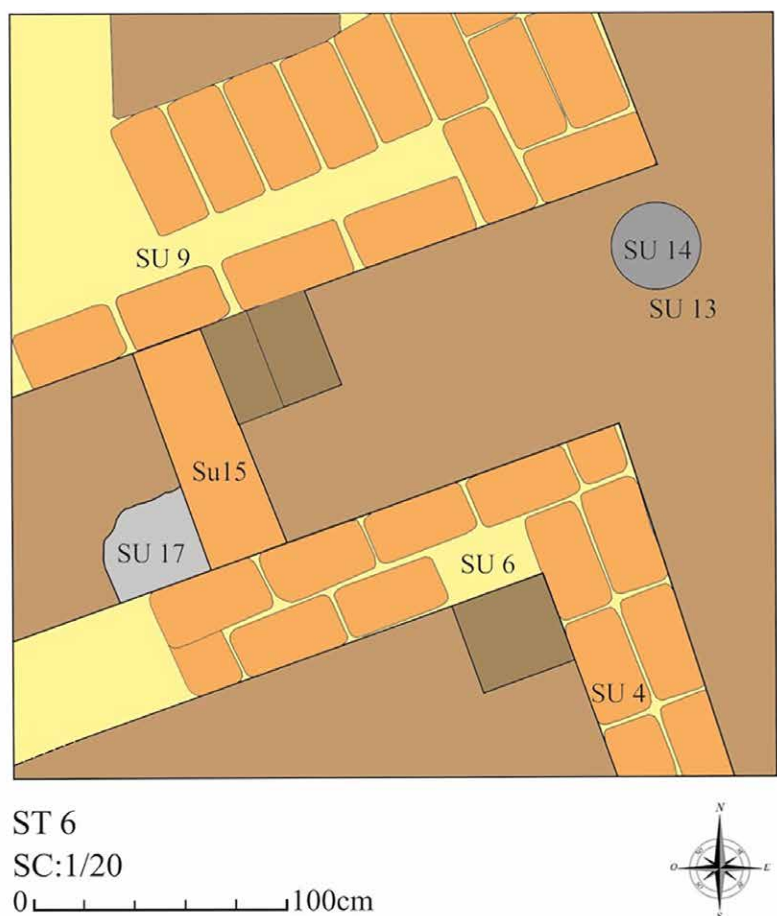


Figure 3.23 Tepe Sadegh, different spaces in trench S.T.6 (© Rouhollah Shirazi).

Number of the stratigraphic unit	Subunit (S.U.)	Number of the stratigraphic unit	Subunit (S.U.)
1	Surface layer with marble rim, stone tool, and bronze object	24	Northern wall (Fig. 3.27)
2	Surface layer with low density	25	Deposit (Fig. 3.27)
3	Sand deposit layer with high density and with bones, stone tool, and slags	26	Deposit (Fig. 3.27)
4	Oval-shaped kiln	27	Eastern wall
5	Deposit from kiln 4	28	Round kiln
6	Pounded floor	29	Deposit
7	Northeastern wall (Fig. 3.25)	30	Southeastern wall
8	Sand deposit layer with figurine, bones, stone dish, marble rim and spindle (Fig. 3.25)	31	Debris of southern wall
9	Deposit layer with stone dish, bones, stone tool, polished stone, and grinding stone (Fig. 3.25)	32	Deposit layer with low density with bones, stone object, charcoal, and sling
10	Northwestern wall (Fig. 3.25)	33	Deposit
11	Square mudbrick platform (66 × 66cm) with round kiln	34	Debris of mud bricks in eastern part
12	Round kiln	35	Debris of mud bricks in southwestern part with fragments of sling
13	Deposit from kiln 11	36	Pounded floor
14	Southern wall	37	Virgin soil
15	Deposit	38	Deposit from kiln 28
16	Eastern wall	39	Deposit
17	Sand deposit layer with high density with bones, turquoise bead, round bead, and piece of ore	40	Deposit
18	Sand deposit layer with medium density	41	Deposit with low density
19	Northern wall	42	Eastern wall
20	Deposit layer of ash and soil with slags	43	Kiln
21	Round kiln with a piece of mudbrick (Fig. 3.26)	44	Deposit from kiln 43
22	Pounded floor (?) with charcoal	45	Southeastern wall
23	Sand deposit layer with low density with bones and grinding stone		

Table 3.4 Tepe Sadegh, stratigraphic units of trench S.T.7 (Shirazi 2013, 19).

excavation team was unable to reach the virgin soil in trench S.T.6, and some residential parts of the mound were found, trench S.T.7 was chosen to uncover more evidence of Tepe Sadegh's residential structures. The soil surface of the trench was sand with low density and it was covered by potsherds (more in the southern part of the trench because of the slope of the mound and water erosion). After collecting the cultural material on the surface, the excavation was done to a 1.28 m depth, and 45 stratigraphic units were identified. Information on these stratigraphic units can be seen in Table 3.4 and Figs. 3.25–28.

In trench S.T.7, three spaces can be recognised in the architectural remains, along with the excavated areas in trench S.T.6. Three periods of architecture can be recognised in trench S.T.7; the first period can be seen in the kiln in units 4, 5, and 21, and the pounded floor. The second period can be seen in mudbrick walls in units 14, 16, 19, and 30, and the kiln with the square platform in units 11, 12, and 13; the three spaces also belonged to this period. The third period can be seen in the mudbrick walls in units 24, 27, 42, 43, and 45 and in kilns in units 28 and 43. As a result of the preservation of the architecture of the second period and a lack of time, the architecture of the third period was not investigated. Based on the findings in trench S.T.7, soil samples were collected for flotation from units 3, 5, 6, 18, 20, 22, 23, 32, 33, 38, and 44. The mudbrick walls had clay mortar in 2 or 3 rows, and the bricks contained vegetal temper and were 10 × 22 × 42 cm in size.

Figure 3.24 Tepe Sadegh, position of trench S.T.7 in the mound (© Rouhollah Shirazi).

Figure 3.25 Tepe Sadegh, S.U.7–S.U.10 of trench S.T.7 (© Rouhollah Shirazi).

Tepe Sadegh's residential structure can be seen in this trench through the architecture and several kilns over three periods. After each period, the inhabitants unified the surface and built new structures. For this reason, many potsherds and other cultural findings were found between the architectural units.

3.2.8 Trench S.T.8

This trench, excavated in 2013 (square of 2 × 5 m), is in the central part of the mound, which is precisely situated in the southern part of trench S.T.1 and trench S.T.7, in the highest part of the mound (Fig. 3.29). The elevation of the trench is 485 m, N 30 29 015°, and E 061 15153°. This trench was selected for excavation based on the topography of Tepe Sadegh

Figure 3.26 Tepe Sadegh, S.U.21 of trench S.T.7 (© Rouhollah Shirazi).

Figure 3.27 Tepe Sadegh, S.U.24–S.U.26 of trench S.T.7 (© Rouhollah Shirazi).

and the thickness of layers in this part of the mound, which make for a better stratigraphic profile. Also, this trench was selected based on the results from trench S.T.1 in the first season to obtain more information about the residential structures in trench S.T.1 and continuity in trenches S.T.6 and S.T.7. The soil surface of the trench was sandy soil with low density, and it was covered with potsherds and thatch. After collecting the cultural material on the surface, the excavation was done to a 1.57 m depth, and 27 stratigraphic units were identified. The information on these stratigraphic units can be seen in Table 3.5 and Figs. 3.30–31.

In trench S.T.8, three spaces can be recognised in the architectural remains, along with the excavated areas in trenches S.T.1 and S.T.7, which can also be recognised in the archi-

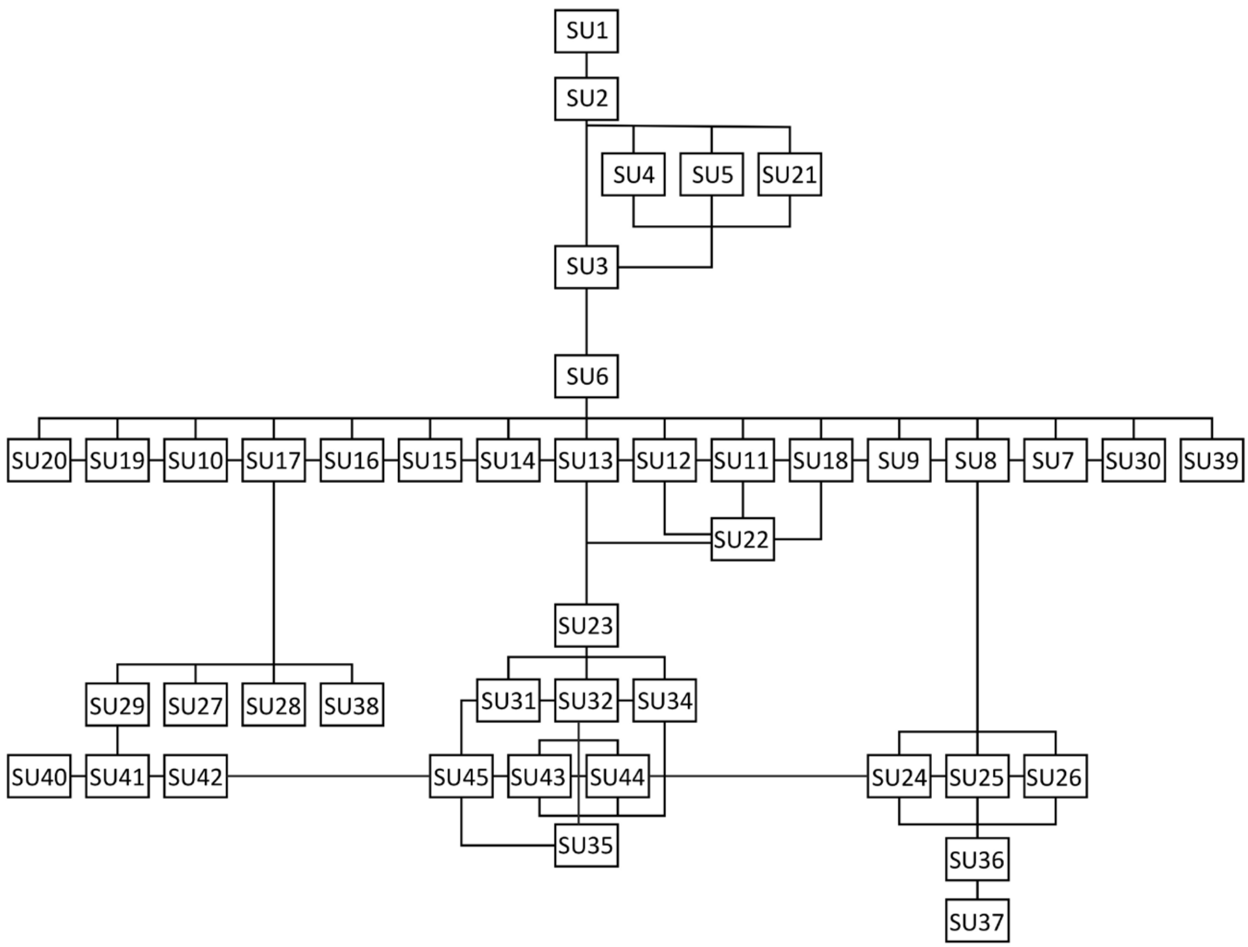


Figure 3.28 Tepe Sadegh, Harris matrix of trench S.T.7 (© Rouhollah Shirazi).

tectural remains of trench S.T.6. Two periods of architecture can be identified in trench S.T.8; the first period can be seen in the kiln in units 7 and 8 and mudbrick walls in units 4, 16, 18, 19, and 26. The three spaces belonged to this period; it seems that this period is contemporaneous with period 2 of trench S.T.7.

The second period can be seen in the mudbrick wall in unit 23 and the floor (?) in unit 21. Due to the preservation of the first period's architecture and lack of time, the architecture of the second period was not investigated. Based on the findings in trench S.T.8, soil samples were collected for flotation from units 3, 8, 9, 10, 11, 12, 13, 14, 20, 22, 24, and 25. The mudbrick wall, like trench S.T.7, had clay mortar in 2 or 3 rows, and the bricks had vegetal and sand temper and were 10 × 22 × 42 cm in size.

3.2.9 Trench S.T.9

This trench, which was excavated in 2016, is in the central part of the mound (square of 5 × 5 m), situated in the southern part of trench S.T.1 along with trench S.T.7 and S.T.8 in the highest part of the mound. The elevation of the trench is 485 m, N 30 29 015°, and E 061 15153°. Based on the topography of Tepe Sadegh, this trench was selected for excavation due to the thickness of layers in this part of the mound for a better stratigraphic profile. Also, based on the results from trench S.T.1 in the first season, this trench was selected to get more information about the residential structures in trench S.T.1 and its continuity in trench S.T.7, S.T.8, and S.T.9. Also, another purpose of the excavation in this trench was to identify the workshop sections based on the findings of ore, chipped stones, and stone dish fragments in the previous excavations. The soil surface of the trench was clay and

Figure 3.29 Tepe Sadegh, position of trench S.T.8 in the mound (© Rouhollah Shirazi).

Figure 3.30 Tepe Sadegh, S.U.15 of trench S.T.8 (© Rouhollah Shirazi).

clod, relatively dense, and was covered with potsherds. After collecting the cultural material on the surface, the excavation was done to 2.43 m depth, and 69 stratigraphic units were identified. This trench was expanded twice in the southern part by 2 m and in the eastern part to understand the wall construction. The information on these stratigraphic units can be seen in Table 3.6 and Figs. 3.32–39.

Three phases can be recognised in this trench; as the mudbrick structures of phase 1 are in the centre of the mound, they were severely eroded. The walls, in one row and, rarely, in two rows (walls 9, 13, 18, and 28), have been built purposely, with the bricks in a side-to-side direction. The mudbrick walls have clay mortar, and the bricks had an vegetal temper and were 10 × 22 × 42 cm in size. In general, five spaces can be recognised in phase 1; their

Number of the stratigraphic unit	Subunit (S.U.)	Number of the stratigraphic unit	Subunit (S.U.)
1	Surface layer with grinding stone, spindle, two stone and bronze beads, and slag	15	Floor (?) with fossilised shell (Fig. 3.30)
2	Sand deposit layer with low density and with thatch	16	Northeastern wall
3	Sand deposit layer with high density, grinding stones, and slags	17	Sand deposit layer with medium density
4	Northwestern wall	18	Central wall
5	Deposit	19	Northwestern wall
6	Deposit layer with grinding stone fragments and chipped stones	20	Sand deposit layer with high density
7	Kiln	21	Platform (?)
8	Deposit from the kiln	22	Sand deposit layer with high density, grinding stone fragment, figurine, sling, marble dish pieces, marble bead, and clay bead
9	Pounded floor	23	Eastern wall
10	Deposit layer with fine and abundant pieces of charcoal	24	Sand deposit unit with medium density with fine and abundant pieces of charcoal and one stone bead
11	Deposit layer with grinding stone fragments and sling fragments	25	Sand deposit layer with medium density
12	Ash and charcoal pit	26	Semicircular wall
13	Deposit from the pit	27	Virgin soil
14	Sand deposit unit with medium density, fine and abundant pieces of charcoal, and one stone bead		

Table 3.5 Tepe Sadegh, stratigraphic units of trench S.T.8 (Shirazi 2013, 168).

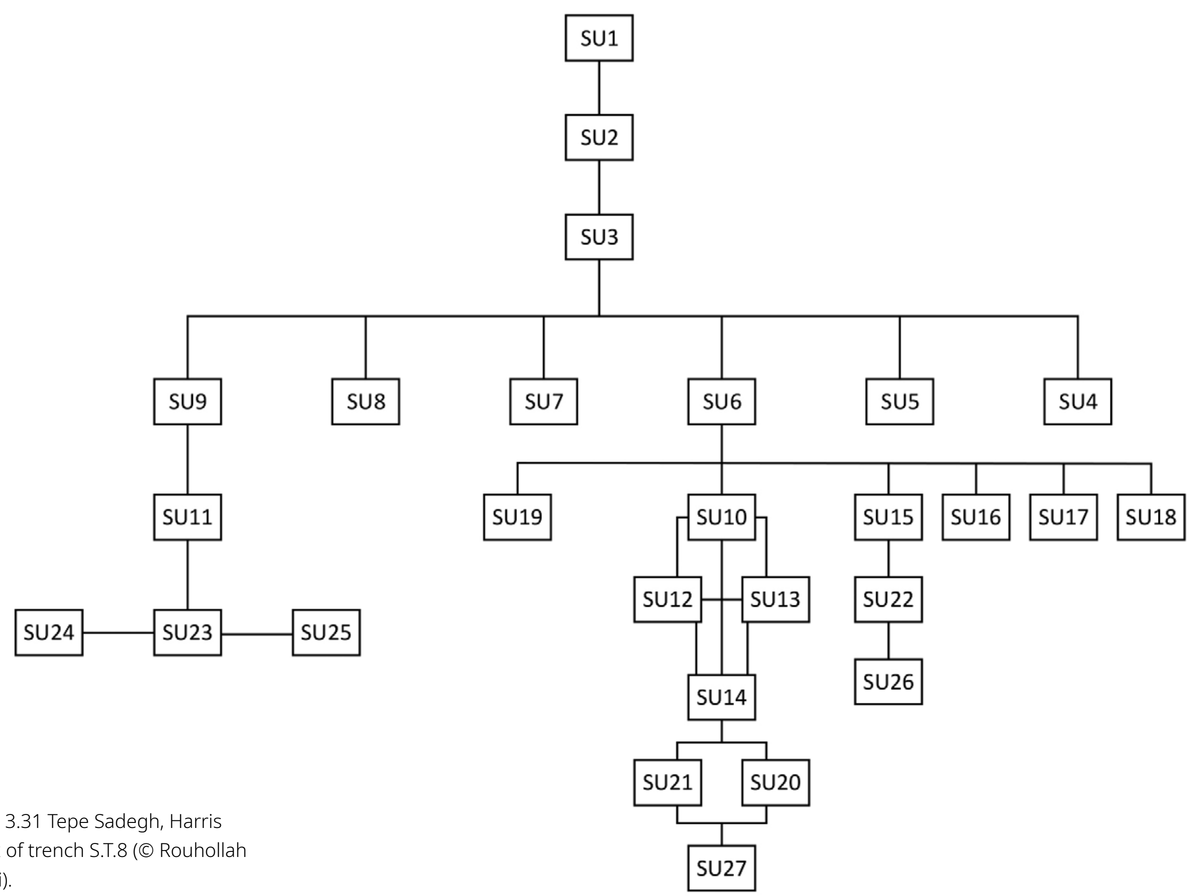


Figure 3.31 Tepe Sadegh, Harris matrix of trench S.T.8 (© Rouhollah Shirazi).

Number of the stratigraphic unit	Subunit (S.U.)	Number of the stratigraphic unit	Subunit (S.U.)
1	Surface layer with clod	36	Kiln (Fig. 3.35)
2	Deposit layer with low density, charcoal, and lime pieces (Fig. 3.32)	37	Deposit of ashes
3	Filing of charcoal, ash, and lime pieces in a room (Fig. 3.32)	38	Debris
4	Floor (Fig. 3.32)	39	Deposit layer with medium density
5	Wall	40	Floor
6	Deposit of pebbles	41	Wall (Fig. 3.36)
7	Debris	42	Wall (Fig. 3.36)
8	Wall	43	Deposit layer with medium density
9	Wall	44	Wall
10	Pise-wall	45	Debris of mudbrick fragments
11	Debris	46	Deposit layer with medium density and clods
12	Deposit of ashes	47	Deposit layer with low density and clods, charcoals and lime pieces
13	Wall	48	Debris of mudbrick fragments
14	Deposit (Fig. 3.33)	49	Kiln (Fig. 3.37)
15	Deposit layer with low density	50	Wall
16	Debris with high density	51	Wall
17	Debris with medium density	52	Kiln
18	Wall	53	Heated soil
19	Debris of clay and big clods	54	Fire pit
20	Debris of mudbrick fragments	55	Wall
21	Deposit layer with medium density	56	Deposit of ashes
22	Debris of clay and small clods with charcoal and lime pieces	57	Deposit layer of clay with high density
23	Deposit layer with low density	58	Deposit layer with mudbrick fragments/debris (?)
24	Platform (?)	59	Deposit layer of clay with charcoal, lime pieces and low density
25	Debris of mud bricks	60	Deposit layer
26	Wall	61	Deposit layer
27	Wall	62	Deposit layer
28	Wall	63	Debris of mud bricks (Fig. 3.38)
29	Heated soil	64	Wall
30	Floor	65	Deposit layer of clay with low density and lime pieces
31	Floor	66	Deposit layer of clay and sand with low density
32	Floor	67	Kiln
33	Deposit layer of ashes	68	Floor
34	Floor	69	Wall
35	Wall (Fig. 3.34)		

Table 3.6 Tepe Sadegh, stratigraphic units of trench S.T.9 (Shirazi 2016, 13).

functions are unclear except for in space 1 (Fig. 3.40). Space 1 is a filling used as a dump area for the village. Animal bones, figurines, bone tool fragments, stone tool fragments, and countless numbers of plain and painted potsherds of grey, buff, and red ware were found in the filling. The architectural structures of phase 2 are in a better condition than those of phase 1. From this phase, two rooms can be recognised, with kilns and one mudbrick platform that is partially situated in trench S.T.9. Two spaces are recognisable, and most parts are outside of the trench (Fig. 3.41). In this trench, phase 3 represents the last architectural phase, and its structures were built on virgin soil. In this phase, just

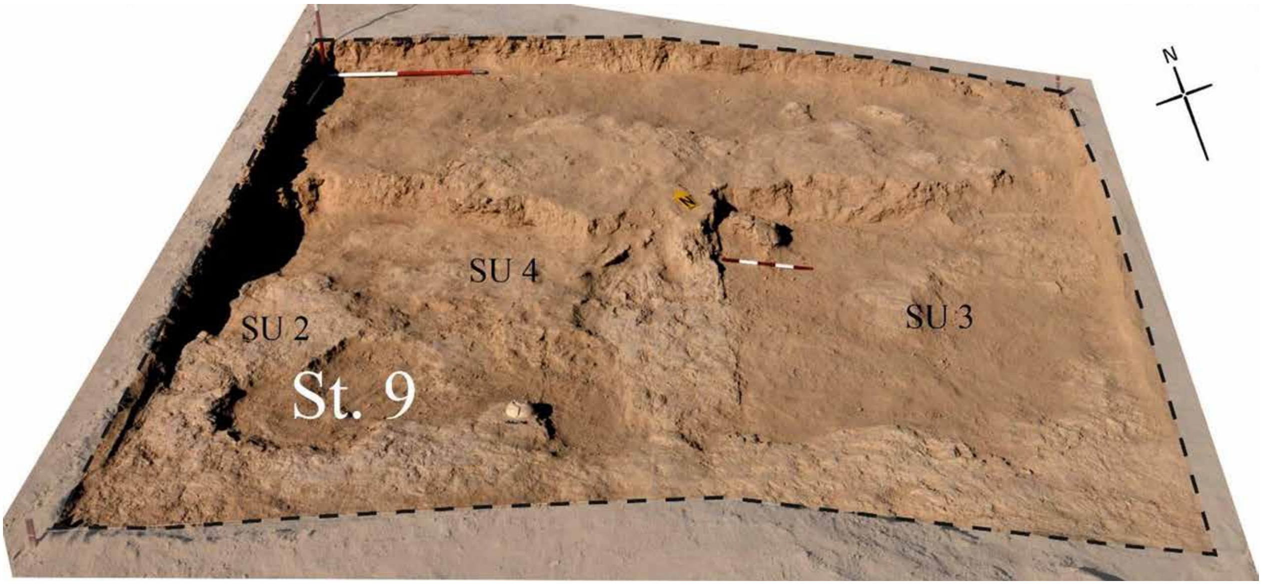


Figure 3.32 Tepe Sadegh, S.U.2–S.U.4 of trench S.T.9 (© Rouhollah Shirazi).

Figure 3.33 Tepe Sadegh, S.U.14 of trench S.T.9 (© Rouhollah Shirazi).

one space surrounded by walls was identified (Fig. 3.42). Based on the findings in trench S.T.9, soil samples were collected for flotation from different units. The mud bricks, like in previous phases, are 10 × 22 × 42 cm in size, showing the usage continuity of this mudbrick in all phases (Fig. 3.43).

In work by Mousavihaji and colleagues (Mousavihaji 2015, 5–8), based on their survey in 2009 and 2010 of the Sistan Plain (Mousavihaji/Mehrafarin 2009; 2010), and also based on excavated sites such as Tepe Sadegh, Tepe Dasht, and Tepe Graziani, 900 Bronze Age settlements were divided into three groups: industrial, semi-industrial, and residential sites. Industrial sites include areas where more than 80% of the cultural materials are related to industrial activity (*i.e.*, kiln wasters, slags, deformed pottery, and melting tools). Semi-industrial sites include areas with an acceptable density of cultural materials related to industrial activities. In other words, these are residential settlements in which some of the residents engaged in small-scale industrial activities. Residential sites include places where no evidence of slag and waster can be seen on the surface and whose surface cultural materials do not show any industrial activity related to kilns.

Figure 3.34 Tepe Sadegh, S.U.35 of trench S.T.9 (© Rouhollah Shirazi).

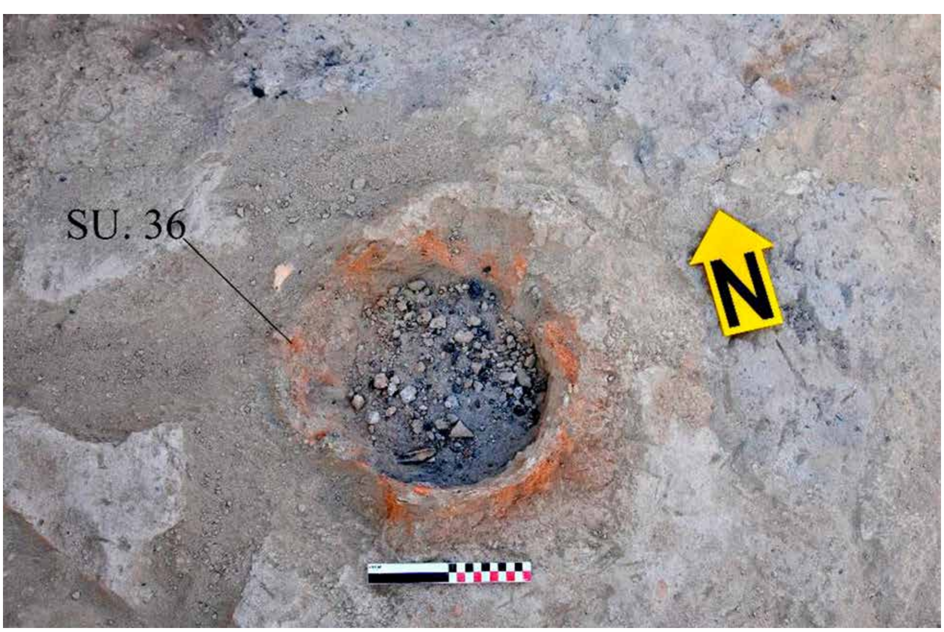


Figure 3.35 Tepe Sadegh, S.U.36 of trench S.T.9 (© Rouhollah Shirazi).

Figure 3.36 Tepe Sadegh, S.U.41 and S.U.42 of trench S.T.9 (© Rouhollah Shirazi).

Figure 3.37 Tepe Sadegh, S.U.49 of trench S.T.9 (© Rouhollah Shirazi).

Based on Mousavihaji and colleagues' research, 15% of the 900 Bronze Age settlements were industrial sites; their surface is covered with heated soil and cultural materials related to industrial activities. The extent of these sites, such as Tepe Dasht and Tepe Rud Biaban, varies from 500 m^2 to 5 ha. Another 33% are semi-industrial sites of various extents, from 1 to 30 ha. These settlements were residential sites that were partially engaged with industrial activities, such as Tepe Sadegh and Tepe Graziani. Based on the research, 52% of the 900 Bronze Age settlements were residential sites, and no trace of industrial activities was seen on the surface of these sites. These settlements, such as Tepe Talebkhan and Tepe Talebkhan 2, are mainly 1–3 ha in size.

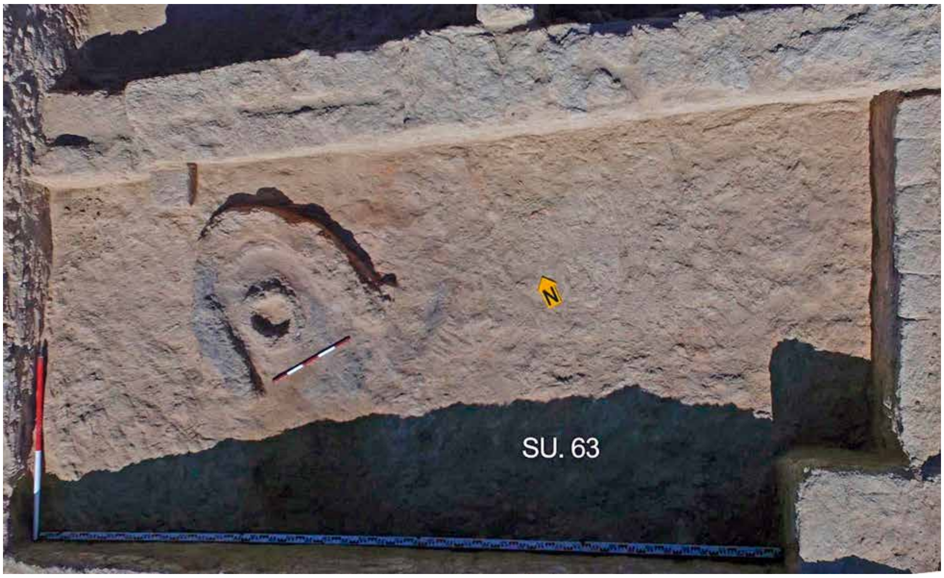


Figure 3.38 Tepe Sadegh, S.U.63 of trench S.T.9 (© Rouhollah Shirazi).

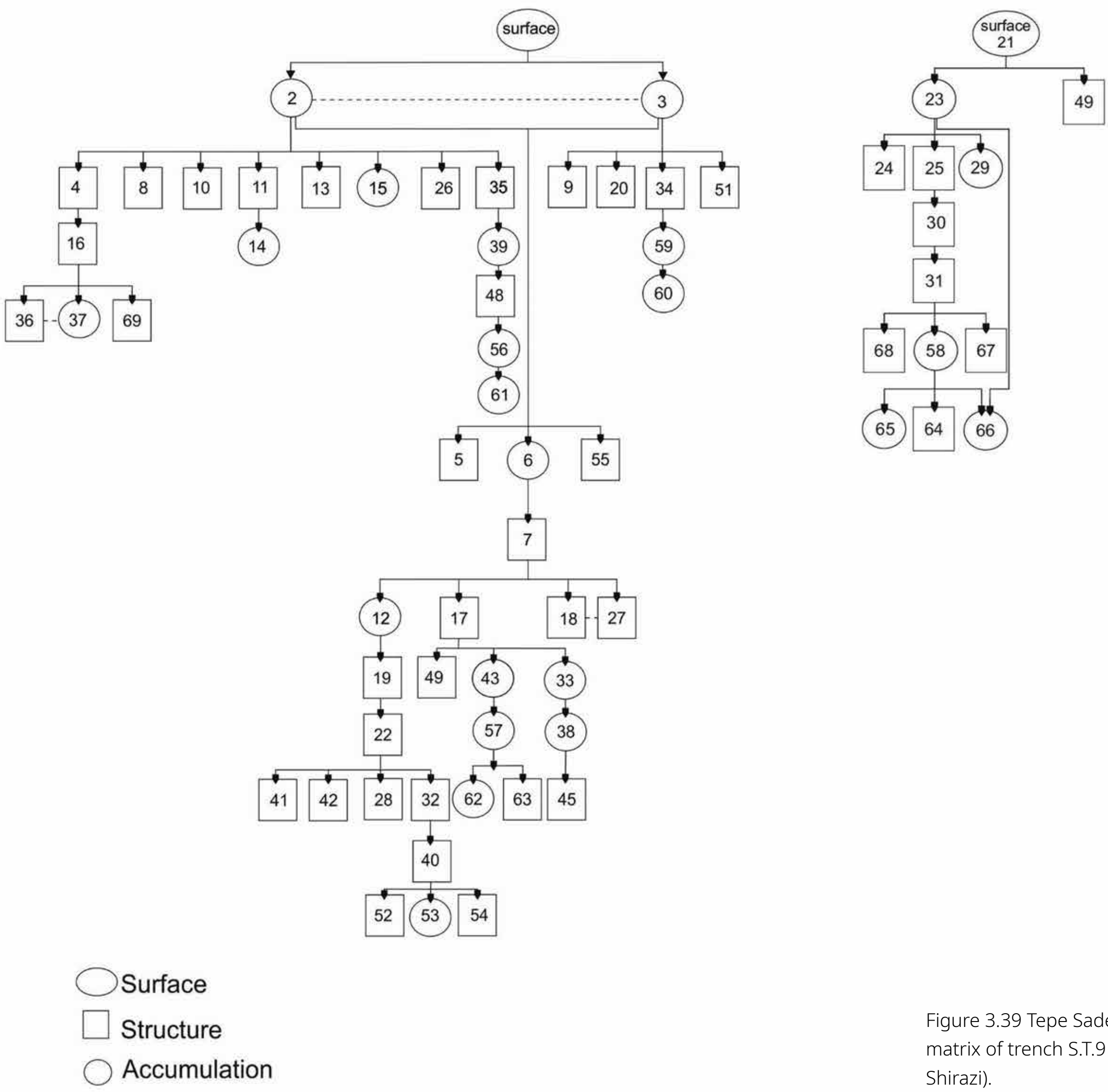


Figure 3.39 Tepe Sadegh, Harris matrix of trench S.T.9 (© Rouhollah Shirazi).

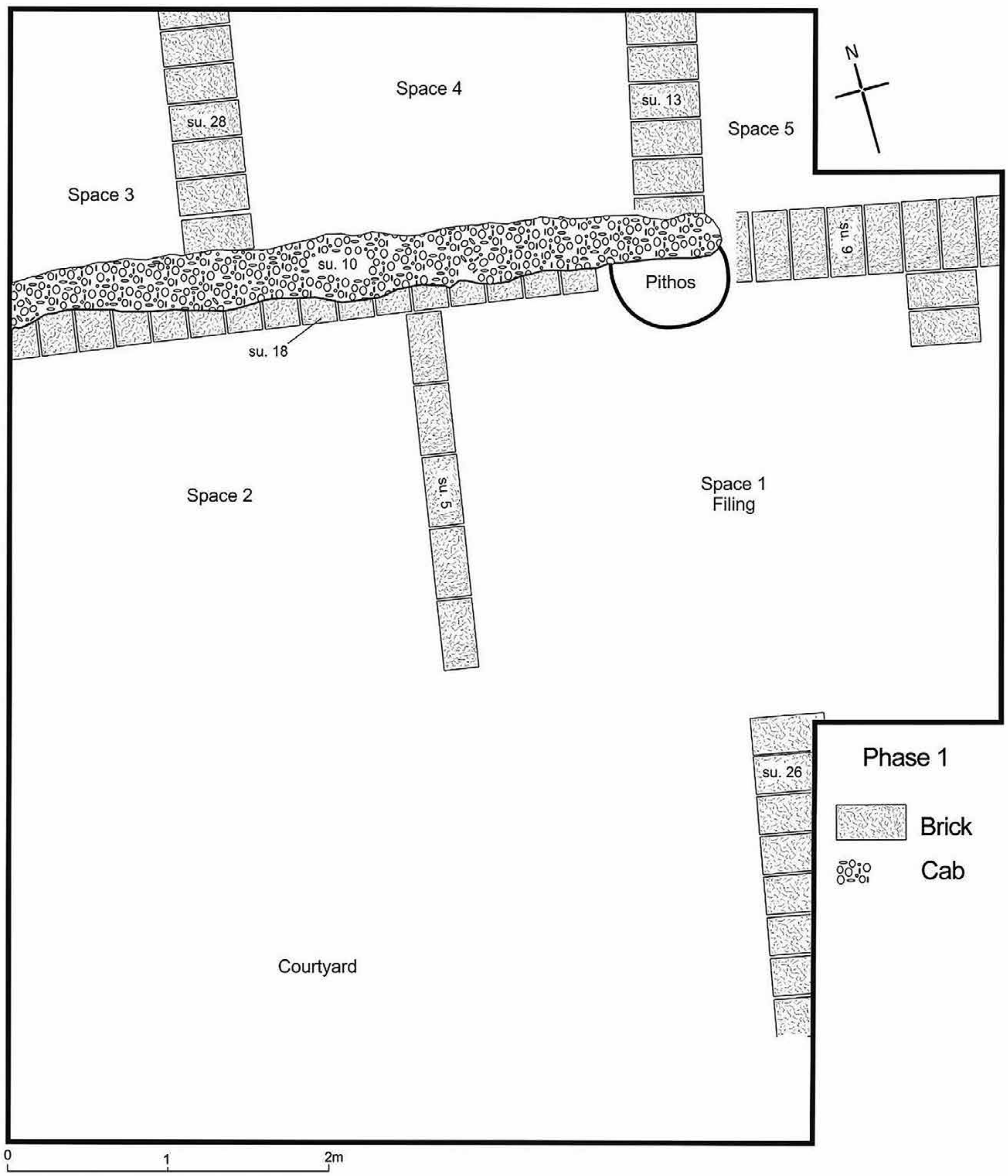


Figure 3.40 Tepe Sadegh, phase 1, trench S.T.9 (© Rouhollah Shirazi).

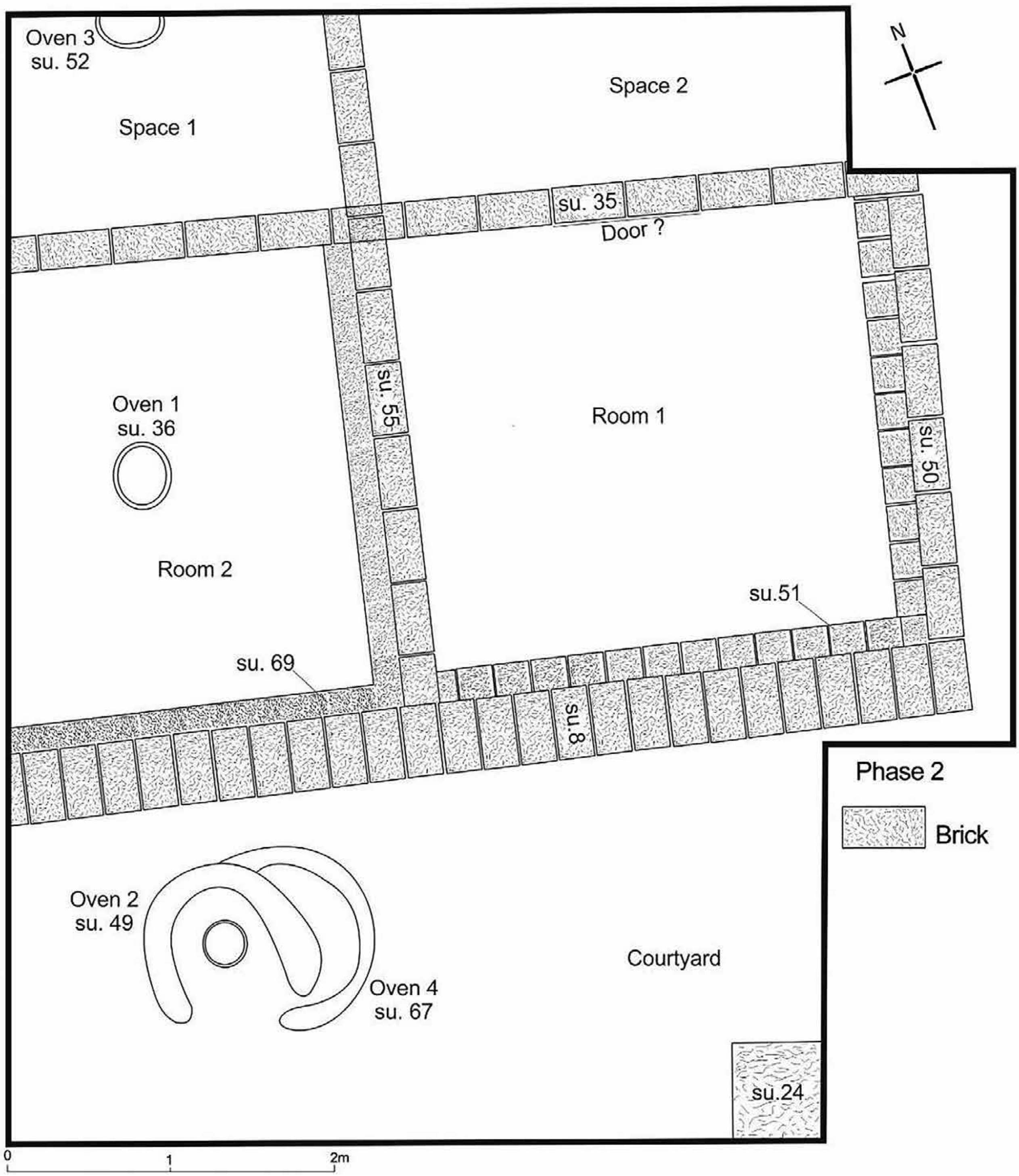


Figure 3.41 Tepe Sadegh, phase 2, trench S.T.9 (© Rouhollah Shirazi).

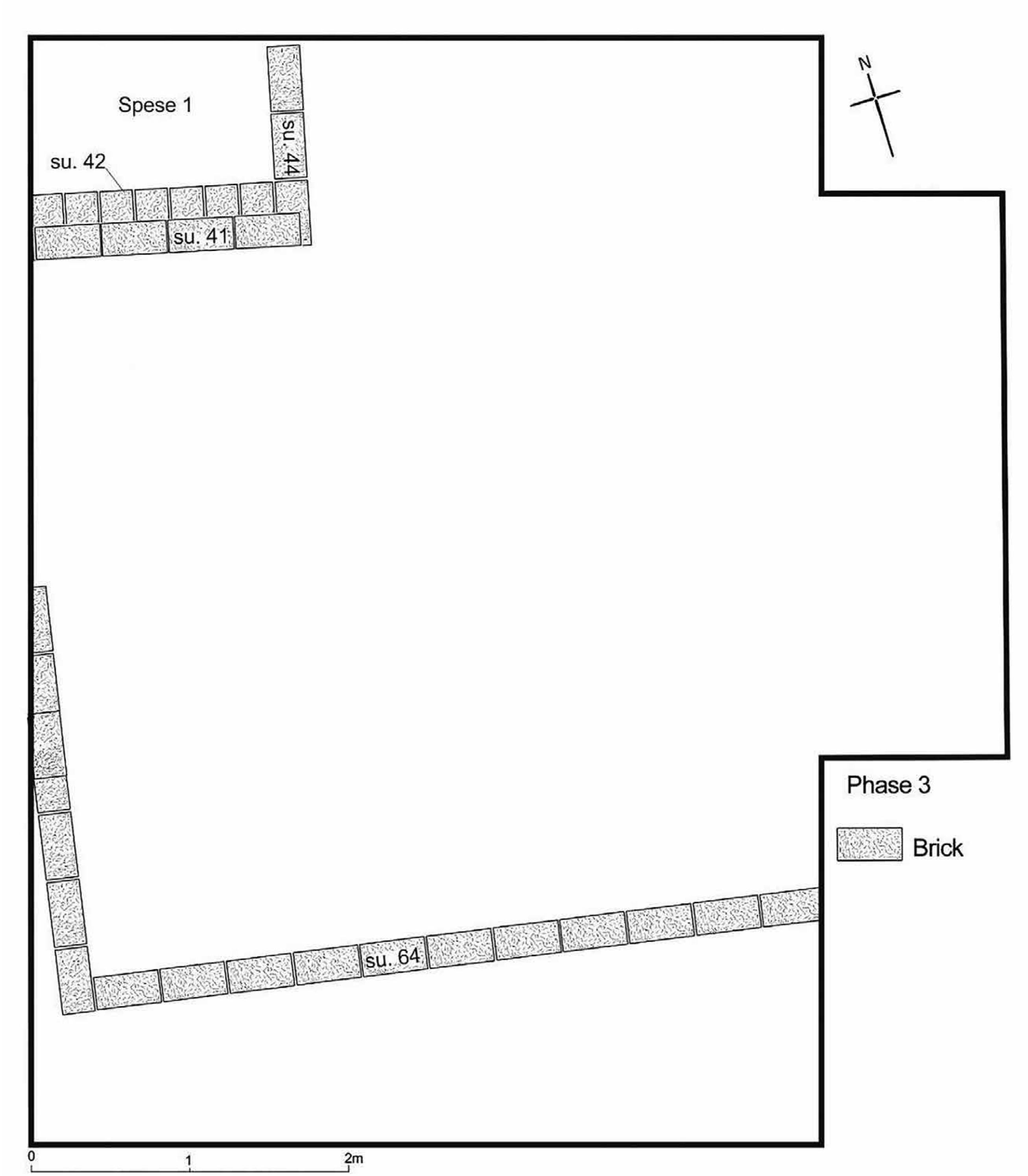


Figure 3.42 Tepe Sadegh, phase 3, trench S.T.9 (© Rouhollah Shirazi).

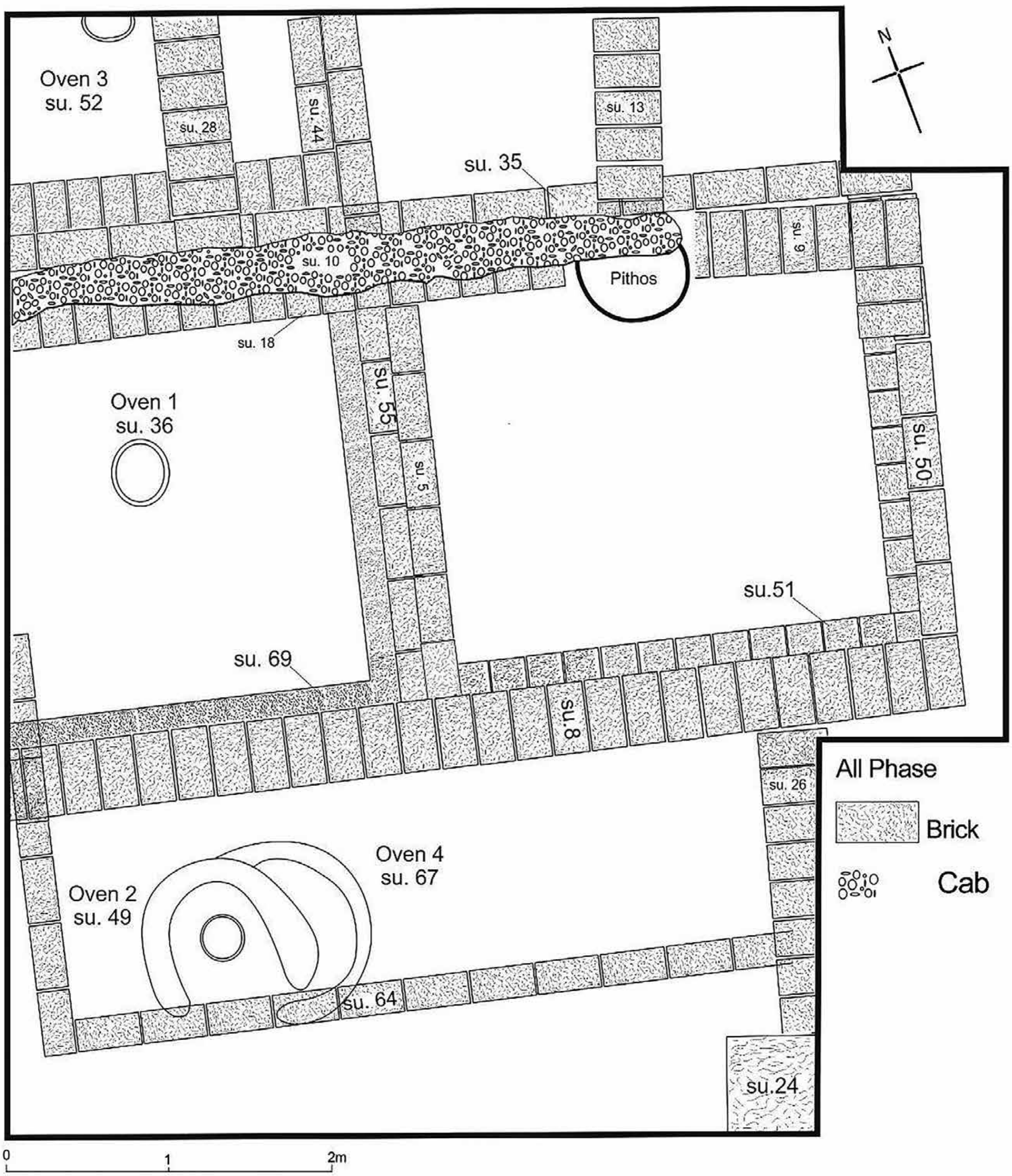


Figure 3.43 Tepe Sadegh, trench S.T.9 (© Rouhollah Shirazi).

Chapter Four: Pottery Analysis of Tepe Sadegh

4.1 Pottery of Tepe Sadegh

4.1.1 Introduction

There is no doubt that pottery is one of the earliest and most refined arts in the world, especially in the Near East. In the Neolithic period, when humans learned about weaving baskets and coating them with clay, they accidentally discovered pottery by placing them near fire (Tohidi 1999, 5). Due to its widespread use and fragility, and therefore its large production, during later periods, pottery became the most abundant cultural item in ancient sites.

Pottery has been one of the most essential elements of human life, from Neolithic times to recent decades. Therefore, it is the most suitable object for understanding thoughts, art, beliefs, economics, and connections between nations. Consequently, studying pottery in different periods helps researchers learn about various aspects of society.

The lack of knowledge of the typology and chronology of Tepe Sadegh's pottery up until now and the importance of pottery for understanding the cultural changes of ancient societies made it necessary to obtain a stratigraphic sequence. The stratigraphic sequence can be used to work out a typological sequence of the pottery and to reconstruct the settlement with the help of archaeological excavations. Consequently, the nature of the cultural relations between Tepe Sadegh and its hinterland and other regions can be explored.

Pottery classification is one of the basic techniques of archaeological research. It requires precision, and it is crucial to the understanding of archaeological chronology (Kiani/Karimi 1985). The different typologies of artefacts allow us to classify them according to their hidden and prominent features. Typology, the result of the classification of artefacts based on their physical characteristics, helps archaeologists differentiate between artefacts. Therefore, classification both describes and interprets, and it provides archaeologists with a method for conducting research and sorting data. The classification method depends on the research questions; archaeologists should modify and revise their classifications accordingly.

Similarities and differences are the main characteristics of classifying cultural findings such as pottery. Due to its large production and durability, pottery is suitable for classification and typology. Nevertheless, it should be emphasized that pottery represents only one category of cultural evidence, and the main conclusion must be drawn from the totality of data rather than from ceramics alone (Shepard 1956, 334). The first researcher to propose a method for classifying ancient artefacts was Christian Jürgensen Thomsen, a Danish antiquarian, in 1819. He classified objects into three groups: stone, bronze, and iron. In 1877, Lewis Henry Morgan, a pioneering American anthropologist, paid particular attention to pottery. He identified pottery as the fourth stage of the seventh stages of human evolution in his famous book *Ancient Society*, describing the invention of pottery as the border between savagery and barbarism (Malek Shahmirzadi 2004, 109–111).

There are different types of classification; some are still widely used, and some have been forgotten. Arbitrary classification is chosen mainly by historians and archaeologists. Its basis is the archaeologist's specialities and their questions. Processual archaeologists mostly choose case classification; British archaeologist David Leonard Clarke applied this method for the first time in 1965 to classify ancient glass (Clarke 1971). Cladistic classification then began in the 1970s and 1980s. This method is based on mathematics and classifying unique features without extensive mathematical knowledge. Some researchers believe that cladistic classification indicates the sequence in history, but others say that this method relates the groups to each other (Abdi 2000, 99–104). In contrast, period-based classification focuses on determining the initial appearance and eventual disappearance of artefact types (Abdi 2000, 99–104).

The aims of classification (Rice 1987, 309–329):

- Preliminary stages of data processing include organising data into accessible units and sorting artefacts based on raw materials.
- Description, the second step, is concerned with the general characteristics of the types.
- Continuity and relation between types are determined by explanation and description.
- The variability of archaeological records and documents is studied, generally in conjunction with dynamic cultural systems.

Classification has no fixed principles or regulations; every individual performs classification according to their questions and purposes. Therefore, it is necessary to specify the factors determining the classification method, and different variables should be considered; however, selecting between them requires some effort.

Since the aim of this thesis is typology and the typological comparison of pottery, classification is based on the pottery's variables. These variables include the clay paste, the application and color of the slip (whether watery or thick), the position of the slip, the type of temper, the overall quality, the firing rate, and the decoration. This comprehensive classification is needed to study the majority of the variable criteria of potsherds. Throughout this research, all classifications are based on the pottery from the first, fourth, fifth, and sixth excavations at Tepe Sadegh.

Typology

Typology is a classification system that relies on the comparison and combination of types. It depends on the variables of artefacts, and it is one of the basics for most archaeological research and analyses in identifying artefacts' similarities and differences from diverse periods and regions (Hole 1984, 326). In other words, typology is a method derived from the natural science to determine and distinguish the relationship between different living creatures and their revolution. Archaeologists use this method to analyse and study ancient objects and artefacts. Typology in archaeology is based on the transformation and continuity of ancient artefacts, especially pottery (Alizadeh 2007, 132).

Time is perceived by humans as an interconnected series of events (Bahrol Olomi 1999, 3). To study the past, it is necessary for archaeologists to know about the period of settlements. Therefore, dating is crucial in archaeology; in other words, the classification and study of artefacts and events would be impossible without knowing the date (Alizadeh 2007, 131). In fact, the chronology and absolute dating of prehistoric cultures are among the most critical issues for archaeology (Lamberg-Karlovsky 1971). The function of classification is not just limited to dating; in other words, chronology includes concepts and methods that are used in the classification (Abdi 2000, 79).

4.1.2 Pottery classification

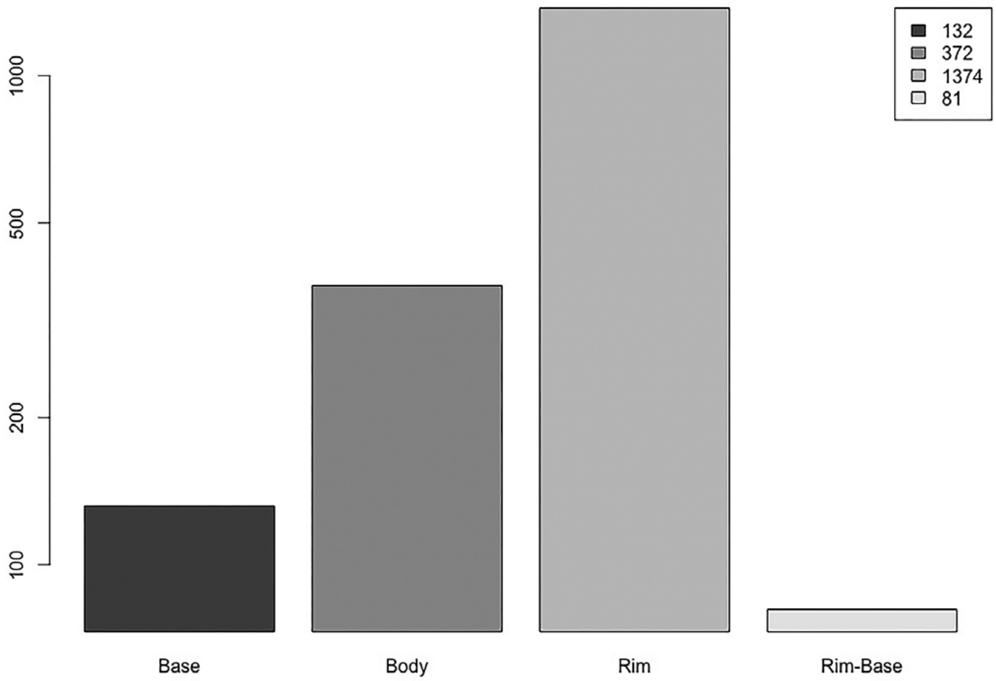


Figure 4.1 Classification based on morphology (the scale is logarithmic).

Morphology

There are different parts to pottery vessels, such as the rim, the body, the base, and the handle, and excavations typically uncover potsherds rather than intact vessels. Most of the potsherds of Tepe Sadegh are rim, body, and base pieces. Some intact vessels and some partially broken vessels have also been found. However, there is no trace of handles, caps, or spouted fragments (Fig. 4.1). Rims are numerous and have more diversity; bases can also be divided into different groups (Figs. 4.2 and 4.3; Allahpur 2012, 56).

Classification is based on the production quality, production method, and temper

Pottery can be classified according to the quality of its production. A fine vessel differs from a coarse or medium-quality one; these diversities cannot be studied without consideration of other characteristics of the pottery (Madjidzadeh 1992, 4). Therefore, in this classification, each pottery group should be compared. Pottery vessels exhibit different qualities depending on their function. Vessels with wide openings—where the interior is visible—are typically of higher quality than larger vessels intended for storage. The pottery of Tepe Sadegh has been classified as fine, medium, and coarse categories (Table 4.1).

Pottery is produced either by hand or by wheel; in each group, there are two steps to form and bake the clay. The handmade method can be divided into integrated and coiling. The coiling technique produced big vessels that could not be placed on a rotating surface, and because production is not on a rotating surface, the base of the pottery is flat (Tohidi 1999, 19–20). Based on finger traces on the surface of the pottery, this method can

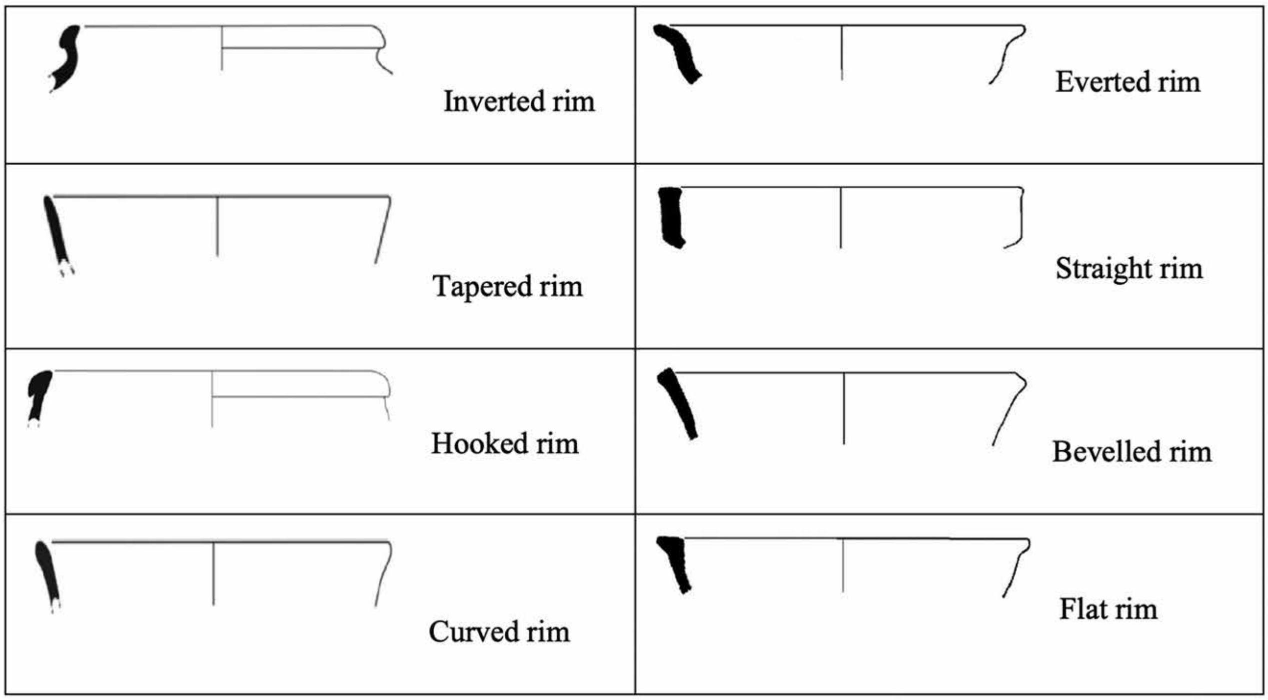


Figure 4.2 Tepe Sadegh, different kinds of rims (after Allahpur 2012, 56; modified by Andrea Bieri, University of Bern).

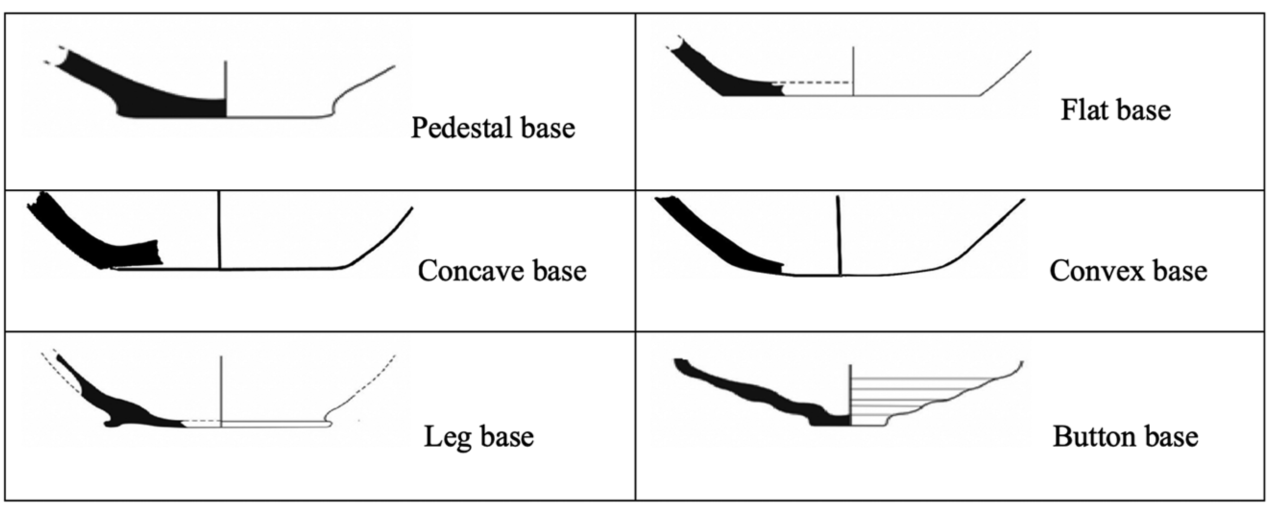


Figure 4.3 Tepe Sadegh, different kinds of bases (after Allahpur 2012, 56; modified by Andrea Bieri, University of Bern).

be distinguished easily from wheel-made pottery. A study of the pottery of Tepe Sadegh indicates that all of the pottery was wheel-made.

To prevent cracking, potters added tempering materials to the clay. Three types of material were used as temper: mineral, vegetal, and mixed—as observed in the cross-sections of potsherds. The most common vegetal temper was chaff, while sand was the predominant mineral temper. Mineral temper can be classified based on size into five groups: very fine, fine, medium, coarse, and very coarse. In Tepe Sadegh's pottery, all of the pieces had mineral temper of varying sizes (Table 4.2 and Fig. 4.4).

Quality	No.	Percentage
Fine	533	27.2%
Medium	1,356	69.2%
Coarse	70	3.60%

Table 4.1 Classification of the pottery based on quality.

Temper size	No.	Percentage
Very fine	130	6.63%
Fine	666	34.07%
Medium	1,106	56.45%
Coarse	56	2.8%
Very coarse	1	0.05%

Table 4.2 Classification based on temper size.

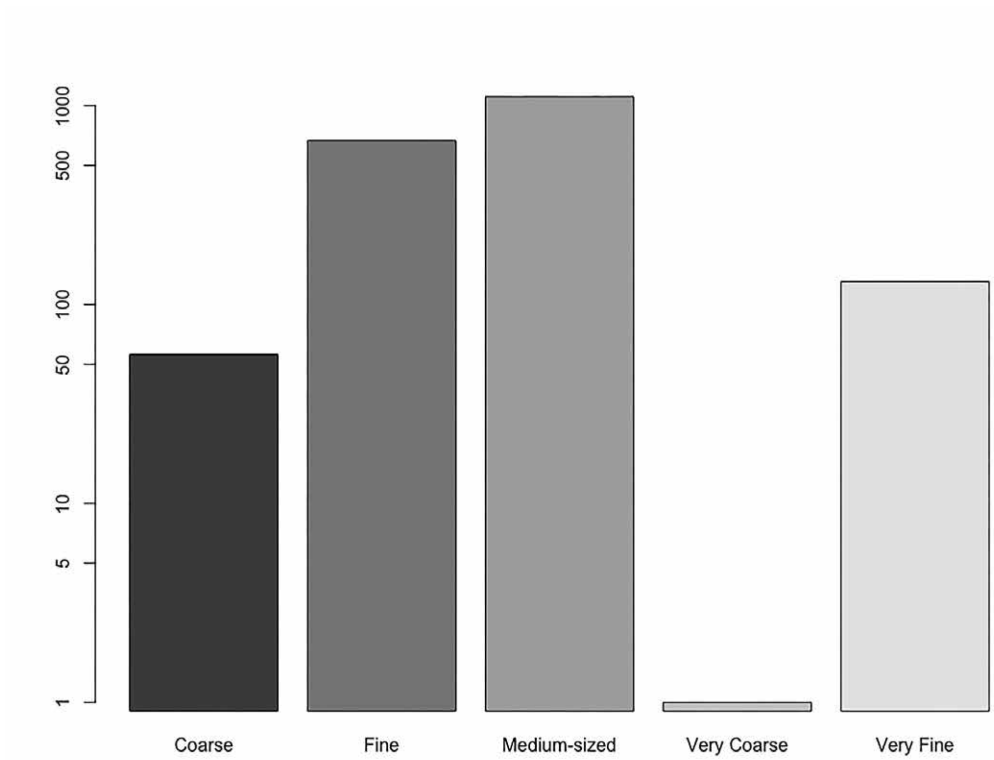


Figure 4.4 Classification based on temper size (the scale is logarithmic).

Firing rate

It is possible to understand firing rate by breaking a potsherd and analysing its cut section (Madjidzadeh 1992, 3). Two types of firing have been considered: sufficient and deficient. Deficiently fired potsherds have a smoky black paste, which is found in small quantities in Tepe Sadegh's pottery (Table 4.3).

Colour of potsherds

It is also possible for pottery to have different colours due to other factors. As long as the carbon in the paste does not oxidise completely, it will be buff, brown, or brownish in colour during firing. The presence of iron oxide causes the body to appear glassy in dark colours. In this case, brighter colours such as buff and red are changed into brownish colours such as dark red, brown, and grey (Madjidzadeh 1992, 7). Clay colour is influenced by diverse factors such as temperature, oxygen, clay paste, and firing time.

Table 4.3 Classification based on firing rate.

Firing rate	No.	Percentage
Sufficient	1,892	96.58%
Deficient	67	3.42%

Table 4.4 Classification based on clay colour.

Clay colour	Buff	Red	Dark red	Grey	Black
No.	1,419	108	375	44	13
Percentage	72.44%	5.52%	19.15%	2.25%	0.64%

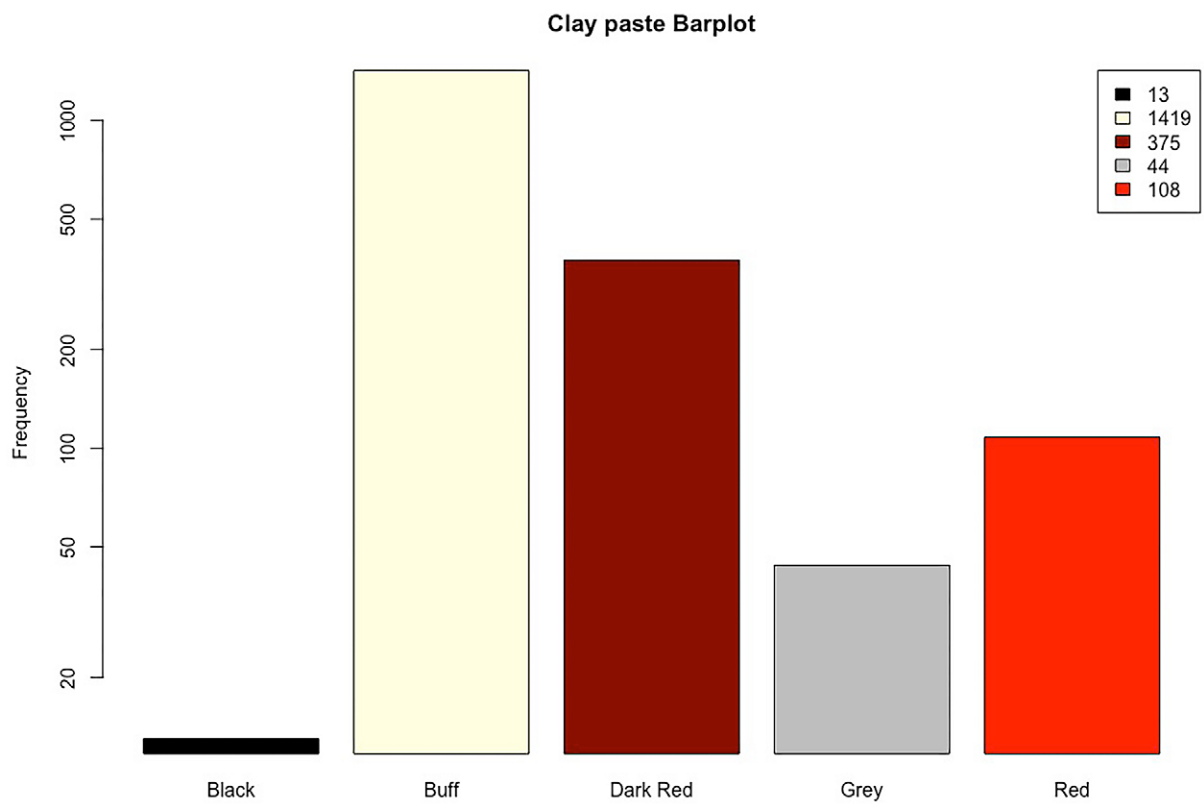


Figure 4.5 Classification based on clay paste colour (the scale is logarithmic).

A study of the pottery of Tepe Sadegh indicates that the paste and surface's colour can be classified into four colours: buff, red, dark red, and grey (Table 4.4 and Fig. 4.5).

Slip and colour of slip

Slip was frequent in the shape of watery slip, thick slip, or glaze in different periods. The prehistoric pottery in Iran was either with or without watery slip or thick slip; this procedure continued until the historical and Islamic periods. However, in the historical period, and especially in the Islamic period, most of the pottery was glazed. Based on the study of the pottery of Tepe Sadegh, potsherds can be divided into three groups: watery slip, thick slip, and without slip (Table 4.5).

Overlay	No.	Percentage
Without slip	28	1.43%
Watery slip	173	8.83%
Thick slip	1,758	89.74%

Table 4.5 Classification based on slip.

Clay colour	Buff	Red	Dark red	Grey	Black	Without slip
No.	1,737	68	75	43	7	29
Percentage	88.66%	3.47%	3.83%	2.19%	0.36%	1.49%

Table 4.6 Classification based on slip colour.

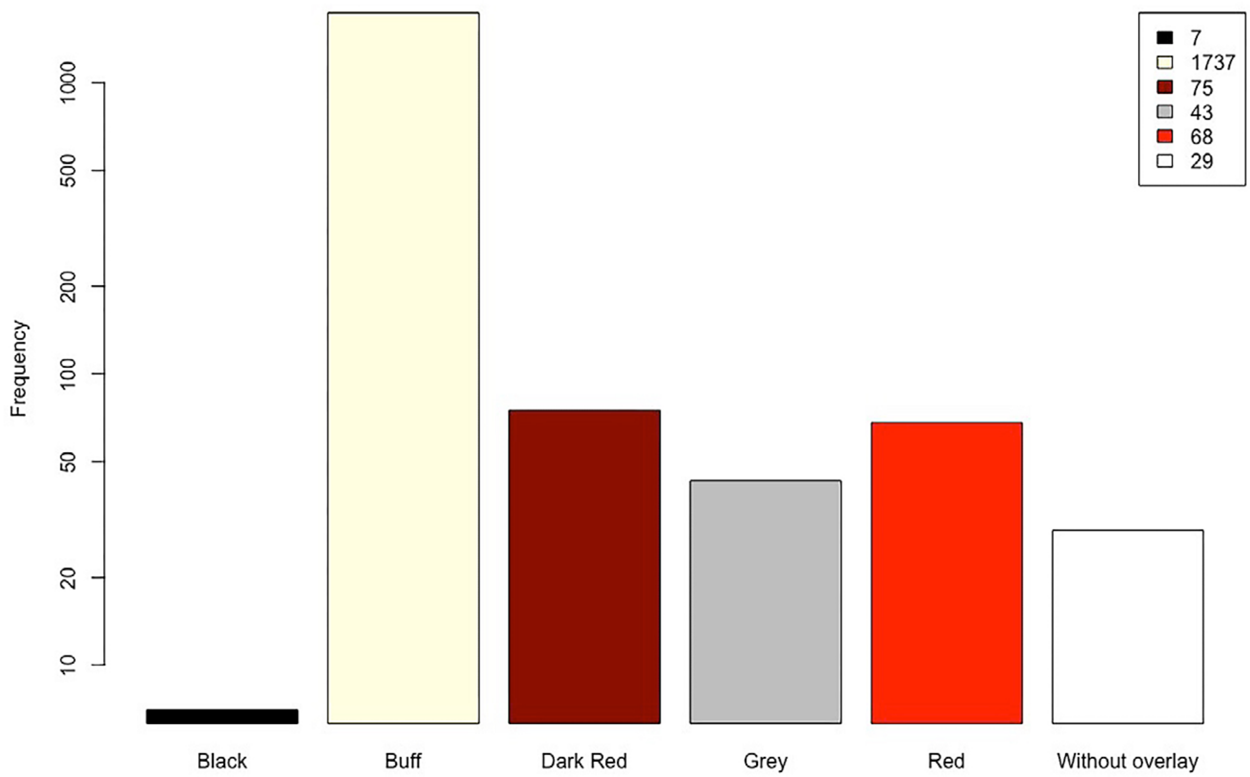


Figure 4.6 Classification based on slip colour (the scale is logarithmic).

It is necessary to mention that the current pottery colour may not be its original colour and is based on the slip. In general, pottery was generally produced in three primary colours, buff, red, and grey, and its slip colour depended on different factors of clay combination, heating degree, and time. For classification based on slip colour, two factors should be considered: the inside and outside colour. In Tepe Sadegh, four major slip colours were selected: buff, red, dark red, and grey. Because there is a difference between dark red and red, and a wide range of potsherds with this colour were found, this name was chosen for this group (Table 4.6 and Fig. 4.6).

Table 4.7 Classification based on function.

Function	Ordinary vessels	Kitchen vessels	Storage vessels
No.	1,667	147	145
Percentage	85.1%	7.5%	7.4%

Table 4.8 Classification based on shape.

Shape	Goblet	Bowl	Jug	Plate	Pot	Jar	Unclear
No.	22	199	923	51	145	130	489
Percentage	1.12%	10.16%	47.12%	2.6%	7.4%	6.6%	25%

Function

For morphological analysis of the potsherds, the thickness, their form, and trace of fire can be helpful. The vessel's thickness is closely related to its function; vessels with storing and preserving functions are thicker than vessels such as plates, bowls, or beakers. Storage vessels are heavy and generally not moved in daily use, whereas lighter vessels such as bowls were frequently employed in everyday activities. Based on the study of Tepe Sadegh's pottery, its function can be divided into three variables (Table 4.7):

- Ordinary vessels (beakers, plates, and bowls are routinely used, and appear most often).
- Kitchen vessels (exposed to fire and smoke, such as pots).
- Storage vessels (large containers with the highest thickness).

Shape

One field activity is analysing archaeological data after or during excavation. Most archaeological analysis focuses on potsherds, since they are the most common finds. One of these analyses is identifying the actual shape of pottery based on the potsherds. The dominant method is identification by a rim, which can be challenging. The names assigned to the vessels do not necessarily show their actual function; however, the names are necessary for better understanding and classification. The main shapes at Tepe Sadegh are as follows (Table 4.8):

- *Goblets and beakers:* Similar in shape. The mouth's diameter is larger than its bottom (nearly two times).
- *Bowls:* Can be divided into deep bowls, medium bowls, and narrow bowls.
- *Plates:* Shallow dishes that are very different from bowls.
- *Jugs:* Long vessels with a narrow mouth and long neck, mainly used as liquid containers. Jugs were the highest in number compared with other vessels at Tepe Sadegh.
- *Pots:* Big vessels in round shapes and low height, mainly used for cooking.
- *Jars:* The storage of food and liquid often requires large vessels such as jars.

Decoration and location of decoration

Since the earliest pottery was made for urgent needs, the practical aspect was more important than the aesthetic aspect (Madjidzadeh 1992, 5). Over time, the use of pottery increased in diverse objects with diverse functions. When humans started to paint and decorate pottery, its function was no longer limited to serving as a vessel; it was used to show their beliefs and thoughts. The painted symbols on pottery before the invention of writing were necessary as a part of exchanging interactions (Kambakhsh'fard 2001, 10). Generally, pottery could be divided into two categories: plain/unpainted and painted, as seen in Table 4.9 for Tepe Sadegh's pottery. These potsherds are mainly plain, some have painting, and fewer have engraving, which can be seen in Table 4.10.

A potter's creativity is crucial to the creation of pottery art. First, it was produced in diverse shapes and then decorated in diverse colours and motifs. Gradually, with pottery thriving, the art became more critical, and potters paid more attention to decoration

Decoration	Plain	Decorated
No.	1,192	767
Percentage	60.8%	39.2%

Table 4.9 Classification based on decoration.

Kind of decoration	Painted	Engraved
No.	704	63
Percentage	91.79%	8.21%

Table 4.10 Classification based on kind of decoration.

Location of decoration	No.	Percentage
Inside	75	9.8%
Outside	497	64.8%
Both sides	195	25.4%

Table 4.11 Classification based on location of decoration.

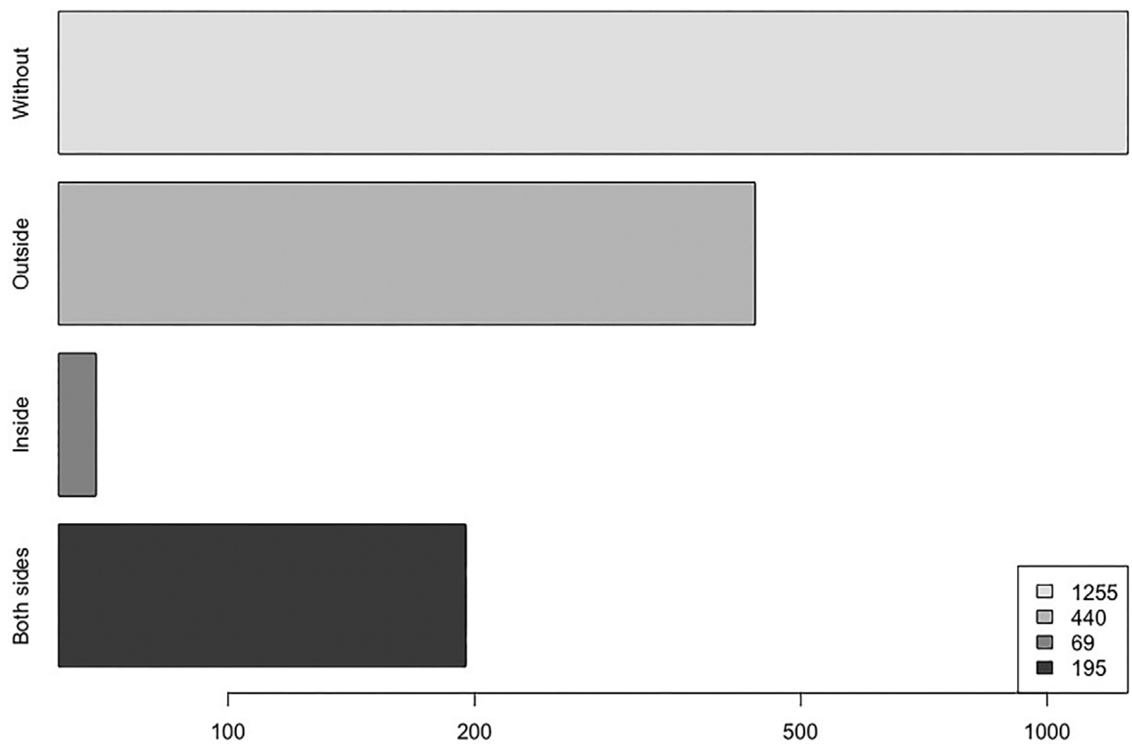


Figure 4.7 Classification based on painting (the scale is logarithmic).

(Tohidi 1999, 23). Initially, paintings on pottery were naturalistic and, later, geometric, herbal, and animal motifs appeared. It is common to see decorations on the outside and inside of vessels; the pottery's base is usually unadorned or bears the potter's mark.

In general, the location of decoration depends on the vessel's function and the potter's style. Three variables have been selected for this classification: inside, outside, and both sides of vessels (Table 4.11 and Figs. 4.7–8).

Painting colour

Generally, based on painting colour, pottery is divided into three groups: monochrome, polychrome, and bicolour. At Shahr-i Sokhta, all three kinds of pottery were produced; bicolour vessels were typically beakers with a flat base and geometrical drawings decorated in orange, black, or brown, and polychrome vessels were usually cylindrical

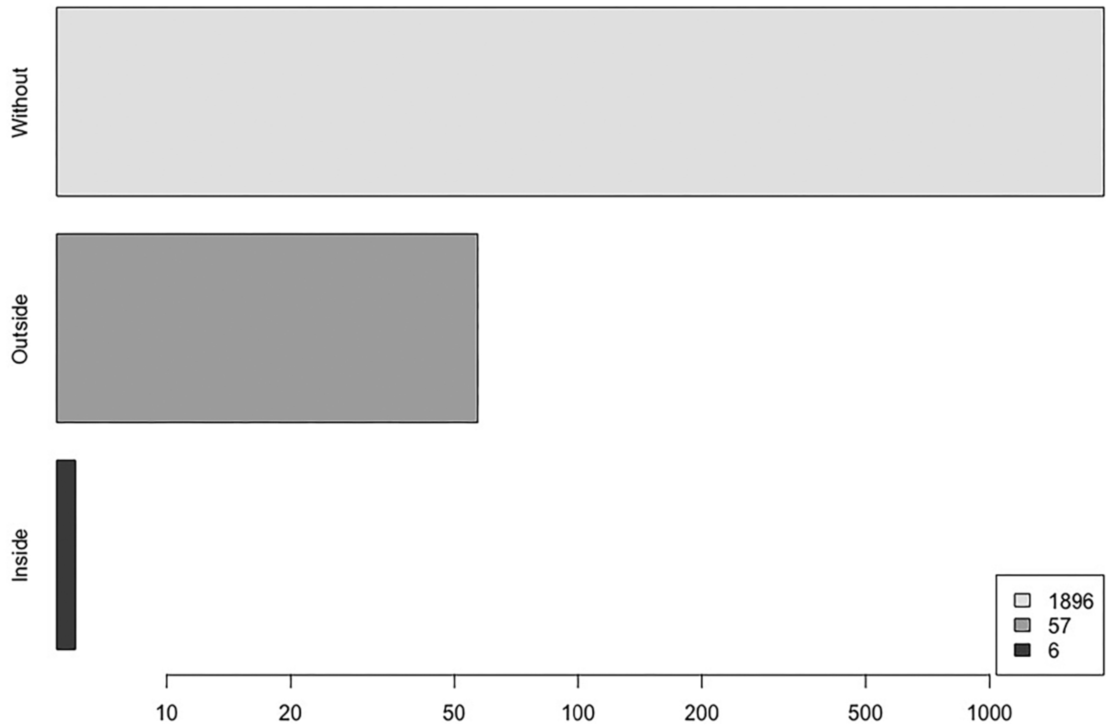


Figure 4.8 Classification based on engraving (the scale is logarithmic).

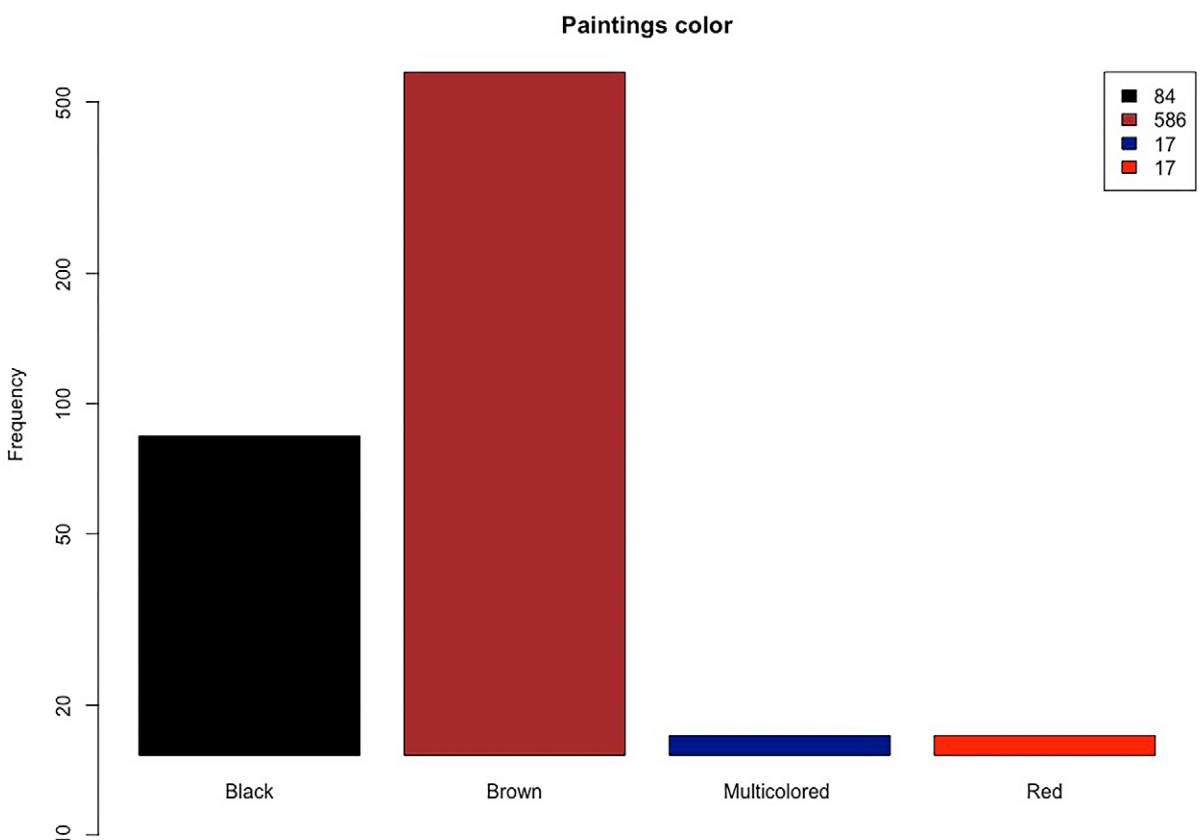


Figure 4.9 Classification based on painting colour (the scale is logarithmic).

Colour	No.	Percentage
Black	84	12%
Red	17	2.4%
Brown	586	83.2%
Multicoloured	17	2.4%

Table 4.12 Classification based on colour.

Motifs	No.	Percentage
Geometric	493	70%
Vegetal	47	6.68%
Animal	3	0.45%
Combined	161	22.87%

Table 4.13 Classification based on motifs.

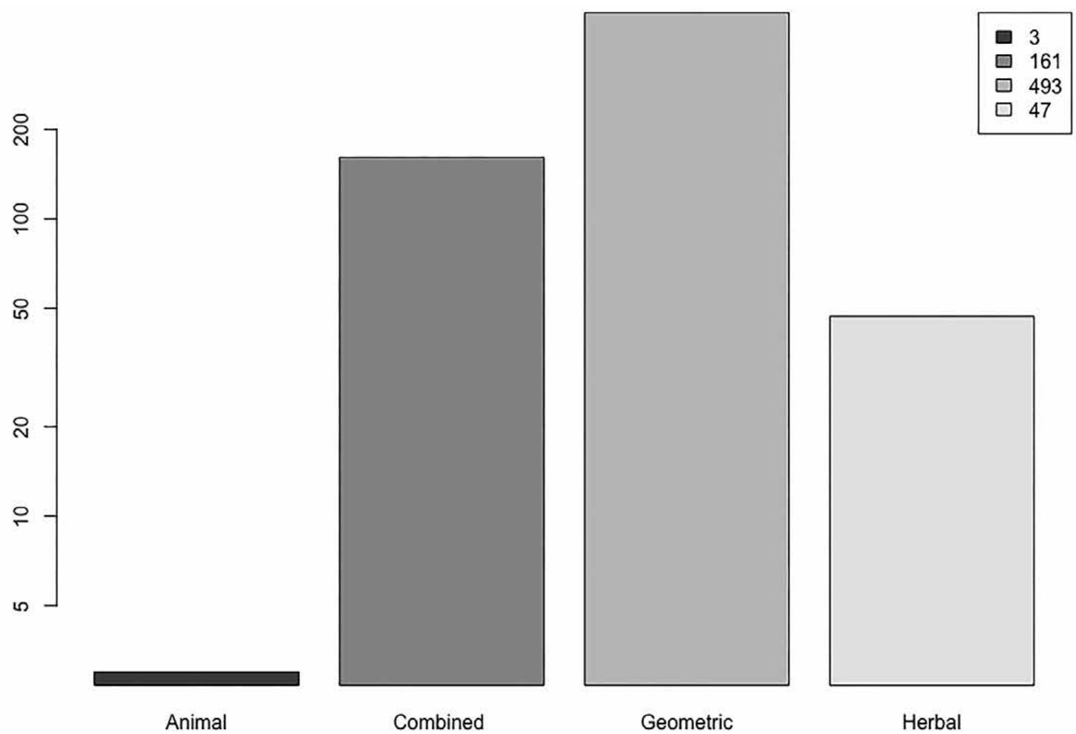


Figure 4.10 Classification based on motifs (the scale is logarithmic).

jars, with fading colours of yellow, red, black, orange, and brown (Seyyed Sajjadi 2010, 193). At Tepe Sadegh, most potsherds were monochrome, and the rarer polychromes were the same colours as Shahr-i Sokhta's polychromes.

The oldest material that humans used for colouring was ochre. This mineral is frequently found in nature, and after firing, it turns into oxidised colours. Potters produced different colours by using copper, iron, zinc, and aluminium (Laneri/Vidale 1988; Tohidi 1999, 23–24). Pottery's colour will change over time due to its type of colour (mineral, organic or chemical), physiological conditions, position, and exposure to sunlight and rain. Therefore, due to the impossibility of identifying the original colour, classification has been done based on the current colour of Tepe Sadegh's pottery (Table 4.12 and Fig. 4.9).

Decoration's motifs

The history of painting goes back to the Palaeolithic period's cave paintings. According to archaeological studies and art historians, humans were familiar with colours and used them for magical aspects in ceremonies. Natural motifs were the first patterns on pottery;

later, geometric, vegetal, animal, human, symbolic motifs, and combined figures were used (Tohidi 1999, 23).

As potsherds are the most archaeologically significant finds rather than intact vessels, their drawings and motifs are incomplete, making it difficult to identify the original pattern and classify them. At Tepe Sadegh, potsherds with geometric motifs were the most numerous, followed by vegetal and animal patterns. No human motifs on Tepe Sadegh's pottery have been found, but some potsherds with combined geometric and vegetal motifs are recognised as combined motifs (Table 4.13 and Fig 4.10).

4.2 Typology

Creating a classification of geometric, herbal, and animal motifs is an important part of typology. It is very important to understand each motif on the pottery in order to gain more insight into potters' thoughts, as well as old settlements and cities.

4.2.1 Motifs

Geometric motifs

Geometric motifs have various forms; in some cases, they are used in addition to herbal and animal motifs. Geometric motifs are the most prevalent and oldest decorative patterns (Seyyed Sajjadi *et al.* 2007, 150). In this research, geometric motifs evolved as follows: straight or parallel lines, zigzags, triangles, wavy and curved lines, jagged and stepped lines, wedges, rhombuses, ladders, combs, and swastikas.

- *Straight or parallel lines*: These are the simplest and most prevalent decorative patterns on pottery in different periods, used as both painting and engraving motifs (Allahpur 2012, 73-80). The lines have different dimensions and thicknesses in horizontal and vertical directions and may be in the form of one line, two parallel lines/stripes, three parallel lines/stripes, *etc.* These lines are seen on different parts of dishes, but generally on the rim or around the neck and body. These motifs are the simplest decorations and, therefore, the most prevalent (Fig. 4.11, No. 1).
- *Zigzags*: Normally, these were drawn between friezes but, in some cases, drawn in a group of three or four lines without a frieze. The term "frieze" has been used to indicate any two horizontal parallel bands (Allahpur 2012, 73-80). Friezes were used in almost all decorations. This motif has often been used for rims' inner part, towards the bottom (Tosi 1983, 211). The zigzag structures were not always identical; sometimes they crossed each other, and sometimes they were single or in a group (Fig. 4.11, No. 2).
- *Wavy and curved lines*: Rare decorative elements that appear in other motifs, these were typically on the outside of the vessels, drawn diagonally from the rim to the bottom (Fig. 4.11, No. 3).
- *Jagged and stepped lines*: Often drawn diagonally from the rim to the bottom, especially on polychrome pottery of Shahr-i Sokhta (Fig. 4.11, No. 4) (Tosi 1983, 214).
- *Triangles*: The most prevalent motif after a straight line, triangles appeared in different forms and sizes. Triangular motifs were drawn as a single decorative element as well as in friezes, and sometimes diagonally in a row of triangles from the rim to the bottom (Allahpur 2012, 73-80). In combined motifs, triangles were usually in harmony with other motifs. Hatching triangles, the main characteristics of Shahr-i Sokhta's buff pottery, created bichrome effects (Fig. 4.11, No. 5) (Tosi 1983, 220).
- *Wedges*: Rarely seen on buff pottery, wedges are a series of small solid triangles that are equilateral. Wedges are solid but without any hatching, generally in both horizontal and vertical directions on the body of the pottery (Fig. 4.11, No. 6) (Tosi 1983, 220).

- *Swastikas*: The most commonly applied motif on Shahr-i Sokhta's pottery, swastikas are different forms of crosses connected with jagged, stepped, and comb patterns; the most popular were Maltese crosses. Frequently, these were applied on the neck of globular jars in Shahr-i Sokhta, and sometimes inserted as the central element in a frieze (Fig. 4.11, No. 7) (Allahpur 2012, 73-80; Tosi 1983, 220).
- *Rhomboids*: They are geometrical motifs (Fig. 4.11, No. 8) that are prevalent in Shahr-i Sokhta's pottery. Rhomboids typically have hatchings or parallel lines that are always inside friezes. The rhomboid motifs used to decorate Shahr-i Sokhta's pottery can be divided into five groups (Allahpur 2012, 73-80; Tosi 1983, 218):

1. Hollow single rhombus
2. A pair of rhombuses
3. Chain of rhomboids
4. Rhomboid with diagonal hachures
5. Rhomboid with jagged sides

- *Ladder motifs*: This decorative motif is mainly horizontal or diagonal on the pear-shaped beakers of Shahr-i Sokhta (Allahpur 2012, 73-80). It appears on the body of the pottery both alone and combined with other geometric patterns (Fig. 4.11, No. 9).
- *Comb motifs*: Named because of its similarity to a comb, in Iran, this motif is the main characteristic of the pottery in Gian, Susa, Sialk II, Bampur, and Shahr-i Sokhta, mainly inside bowls. It appears with and without friezes, sometimes single and sometimes combined with triangles (Fig. 4.11, No. 10) (Allahpur 2012, 73-80; Tosi 1983, 221).

Animal motifs

Animal motifs on Shahr-i Sokhta's pottery are not diverse and are less common. They are limited to birds, snakes, fish, ibex, deer, and butterflies. The most prevalent animal motifs are ibex and deer, which are usually seen on goblets and beakers, but in period III, the main motifs seen on plates were fish in Shahr-i Sokhta (Allahpur 2012, 73-80; Seyyed Sajjadi *et al.* 2007, 150).

- *Butterfly*: This simple motif, a combination of two triangles with jagging, usually appears alone on the shoulder or on the body of a vessel with parallel lines on the rim (Fig. 4.11, No. 11) (Allahpur 2012, 73-80; Tosi 1983, 224).
- *Ibex*: Ibex and deer are the most frequent animal motifs on Shahr-i Sokhta's pottery. Though they occasionally appear on their own, ibexes are usually part of more complex decorative contexts. The motif is inserted into metopes in nearly all cases, alternating with geometrical motifs (Fig. 4.11, No. 12) (Allahpur 2012, 73-80; Tosi 1983, 224). The motif can also be seen frequently in Sistan carpet, suggesting that the animal could be found abundantly in this area and had an essential role in people's lives. It remains a symbol of life for people.

Vegetal motifs

Since prehistoric times, vegetal motifs have been one of the most popular on pottery in different regions. In Shahr-i Sokhta's pottery, it can be seen in limited quantities, and only in the form of leaves. In some cases, the leaves are in linear, stylised, chain, and hachure forms; in other cases, they are realistic (Allahpur 2012, 73-80; Shirazi 1996, 30).

- *Leaf*: This is a naturalistic motif that can be seen in single form and also in friezes, sometimes alone and sometimes combined with geometric elements. Leaves come in different shapes and forms; the most popular forms are spear-shaped, laurel-shaped, hatched with parallel lines, triangle-shaped, and pipal. Spear-shaped leaves are typically combined with geometric patterns in friezes (Fig. 4.11, No. 13) (Allahpur 2012, 73-80; Tosi, 1983, 223).

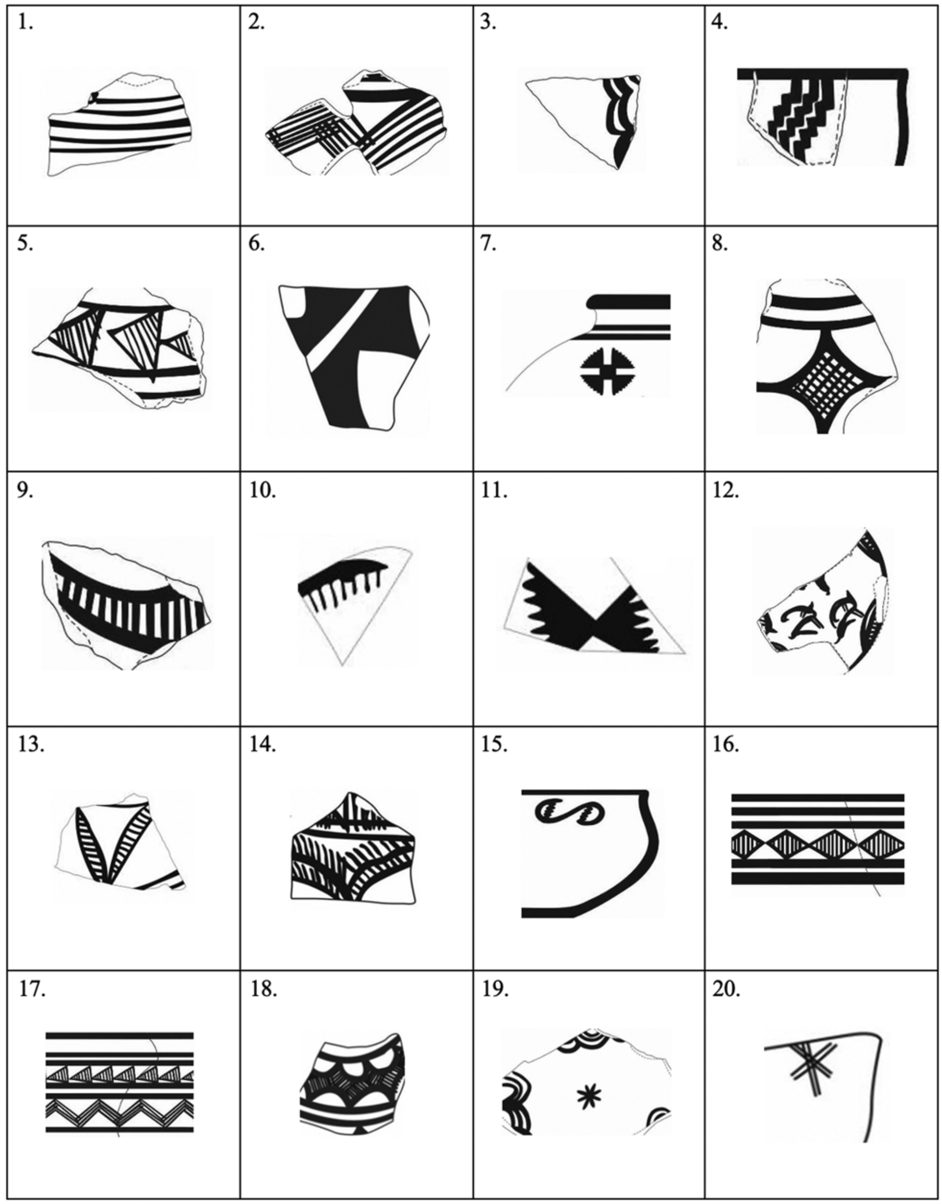


Figure 4.11 Different motifs on Tepe Sadegh's pottery.

- *Bush*: Among the naturalistic themes, this motif can be seen both on its own and in combination with other designs (Fig. 4.11, No. 14).

Combined motifs

In some cases, potters used different motifs to decorate the pottery. These motifs combined geometric, vegetal, or animal elements, or sometimes a variety of several geometric forms. In general, combined motifs are a combination of simple designs that were frequently used in Shahr-i Sokhta's pottery (Allahpur 2012, 73-80; Tosi, 1983, 226).

- *S-shaped lines*: These motifs are a distinctive feature of Shahr-i Sokhta pottery and are uniquely associated with the Helmand civilisation. They comprise wavy lines, usually in a single triskelion arrangement, inside bowls or in a frieze (Fig. 4.11, No. 15) (Allahpur 2012, 73-80; Tosi, 1983, 224–225).
- *Friezes with a chain of hatched rhomboids:* A chain of rhomboids (with crossing hachure) between two horizontal lines (Fig. 4.11, No. 16) (Tosi 1983, 226).

- *Friezes with zigzags:* Triple zigzags surrounded by two horizontal lines (Fig. 4.11, No. 17) (Allahpur 2012, 73-80; Tosi 1983, 226).
- *Hatched curved lines:* These motifs are typically associated with friezes (Fig. 4.11, No. 18).
- *Sun*: This motif is a naturalistic motif that is always combined with other motifs. It is made up of a circle with or without rays and has been reconstructed on only a few sherds in Shahr-i Sokhta and one sherd at Tepe Sadegh (Fig. 4.11, No. 19) (Allahpur 2012, 73-80; Tosi 1983, 223).

Potter's marks

Different marks and symbols have been seen on different parts of the pottery (Fig. 4.11, No. 20). The presence of these marks on the pottery has remained undeciphered. These have been found in Shahr-i Sokhta and other ancient settlements in the eastern part of the Iranian Plateau, such as Shahdad (Hakemi/Mousavi 2006), Tepe Yahya (Lamberg-Karlovsky/Magee 2004; Potts 2001), and Bampur (de Cardi 1983), and in surrounding settlements such as Damb Sadat (Fairservis 1958), Amri (Casal 1961) in Pakistan, and the Quetta area (Fairservis 1967), and in Mundigak (Casal 1961) in Afghanistan. Potter's marks can also be seen on the pottery from some Central Asia and Indian sites but are less prevalent outside Indo-Iranian borders. At Shahr-i Sokhta, they can be seen all over the pottery; however, they are mainly on the bottom of bowls and beakers and the body or neck of jars (Seyyed Sajjadi 2014, 15–16). At Shahr-i Sokhta, there is a group of pottery pieces that are new and unused. These vessels were wide-mouth pots, cylindrical jars, and mainly unpainted buff ware bowls (Seyyed Sajjadi 2014, 13). They were mostly found in the graveyard, in catacombs; it seems that they were produced specifically for inhumation. The 444 signs found in Shahr-i Sokhta can be divided into three major groups: scratched, engraved, or painted marks. The presence of a potter's mark on the surface of the pottery indicates that the symbols were meaningful (although they remain undeciphered), or potters used potter's marks to identify themselves.

At Tepe Sadegh, 66 engraved potsherds have been found, of which 47 are decorated with engraved geometric patterns, and 19 with engraved symbols (which can be considered potter's marks; it is worth mentioning that one potter's mark is painted) (Fig. 4.12). The potter's marks at Tepe Sadegh are mainly on the body of the pottery, generally coarse and engraved. According to Hakemi, in Shahdad, due to the presence of different signs on the pottery, it should be considered that these are pictograms and not potter's marks (Hakemi 1997); nevertheless, at Tepe Sadegh, they can be considered potter's marks. Twenty potter's marks were found on pear-shaped beakers at Tepe Sadegh, of which seven are on the body, nine on the body close to the base, and four on the bottom. At Shahr-i Sokhta, most of the marks on pear-shaped beakers are also either on the body or the bottom. Like at Shahr-i Sokhta, the potter's marks at Tepe Sadegh can be divided into groups: scratched, engraved, or painted. Eight are scratched, eleven are engraved, and one is painted (Fig. 4.13–14).

4.2.2 Typological Comparison

In the typological comparison of pottery, the selected data are compared with those in databases of other regions based on their shape, decorations, and general similarities. These comparisons are made to achieve information on a relative chronology and the relations between the areas. However, a typological comparison is a challenging task. The most crucial difficulty is the mass production of the same ware in different periods, which can be a phenomenon known as typological stasis.

Typological stasis is the continued production of an artefact without any changes in the form. For example, in the 18th century, French coins were used in French Arabic colonies in North Africa. The use of this coin continued for an extended period. Therefore, people became accustomed to this coin's symbol. Even after the production of this coin ceased, people continued to produce coins with the same pattern until recent times in former French colonies in North Africa (Dark 1995, 87). This example indicates that typological

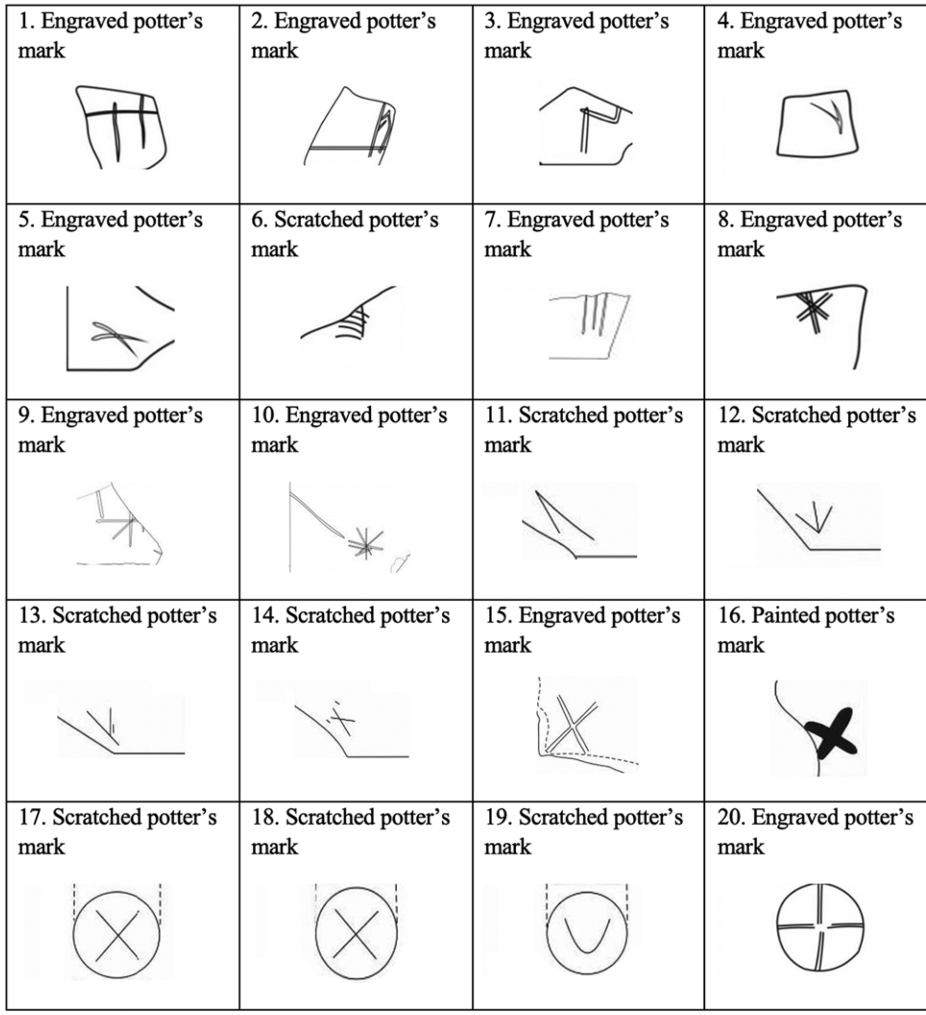


Figure 4.12 Tepe Sadegh, potter's marks.

stasis causes problems for chronology based on classification. So, before relative dating, the probability of typological stasis should be considered (Aatai 2004, 21). Typological stasis can be seen more during the comparison of pottery. It can be expected that the same form of pottery continues repeatedly. To solve this problem, absolute dating has been recommended.

Comparison method

In the typological study of the pottery, the potsherds with decorations were first compared based on their shape and decoration; then, simple plain potsherds were compared typologically based on their shape. The similarity was significant, so the referred samples with 90% similarity were selected for comparison. In addition, some potsherds were similar to several referred pieces, and all of them were selected. Some were not suitable for typology due to their incomplete shapes or drawings, so these were classified as unrecognisable.

As Tepe Sadegh is one of the satellite sites of Shahr-i Sokhta and the typology is based on the periodisation of Shahr-i Sokhta, the regions and settlements with the most connection with Shahr-i Sokhta were selected for the typology. Shahr-i Sokhta is situated in an area that cannot be separated from Iranian Baluchistan, Afghanistan, Pakistan, the Indus Plain, the Persian Gulf's coast and islands, the Makran Sea, or Central Asia. Shahr-i Sokhta served as a metropole of the region in prehistoric times. So, based on these connections, the following areas were selected for the typological comparison: the southeastern part

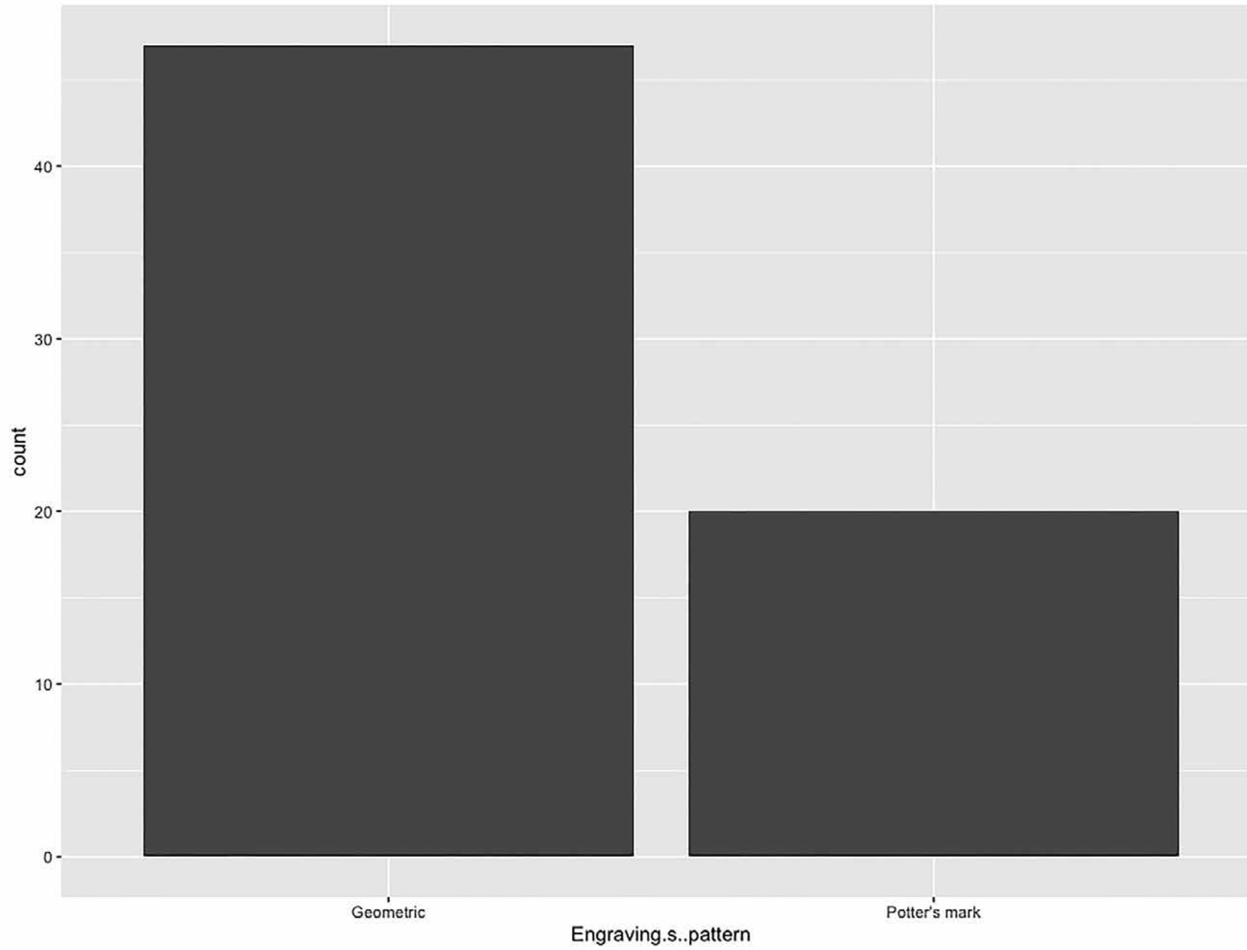


Figure 4.13 Classification based on engraved pattern.

of Iran (Shahr-i Sokhta, Shahdad, Tepe Yahya, and Bampur), Afghanistan, Pakistan (Baluchistan), Turkmenistan, and the Oman Peninsula.

A typological study of potsherds collected from different trenches at Tepe Sadegh was carried out based on those collected during the first, fourth, fifth, and sixth excavation seasons. Since all potsherds in this study are wheel-made and have a mineral temper, these two factors are not included in the catalogues. All pottery drawings and pictures are from reports of excavations from the first, fourth, fifth, and sixth seasons (Shirazi/Tavasoli 2009; Shirazi 2012; 2013; 2016).

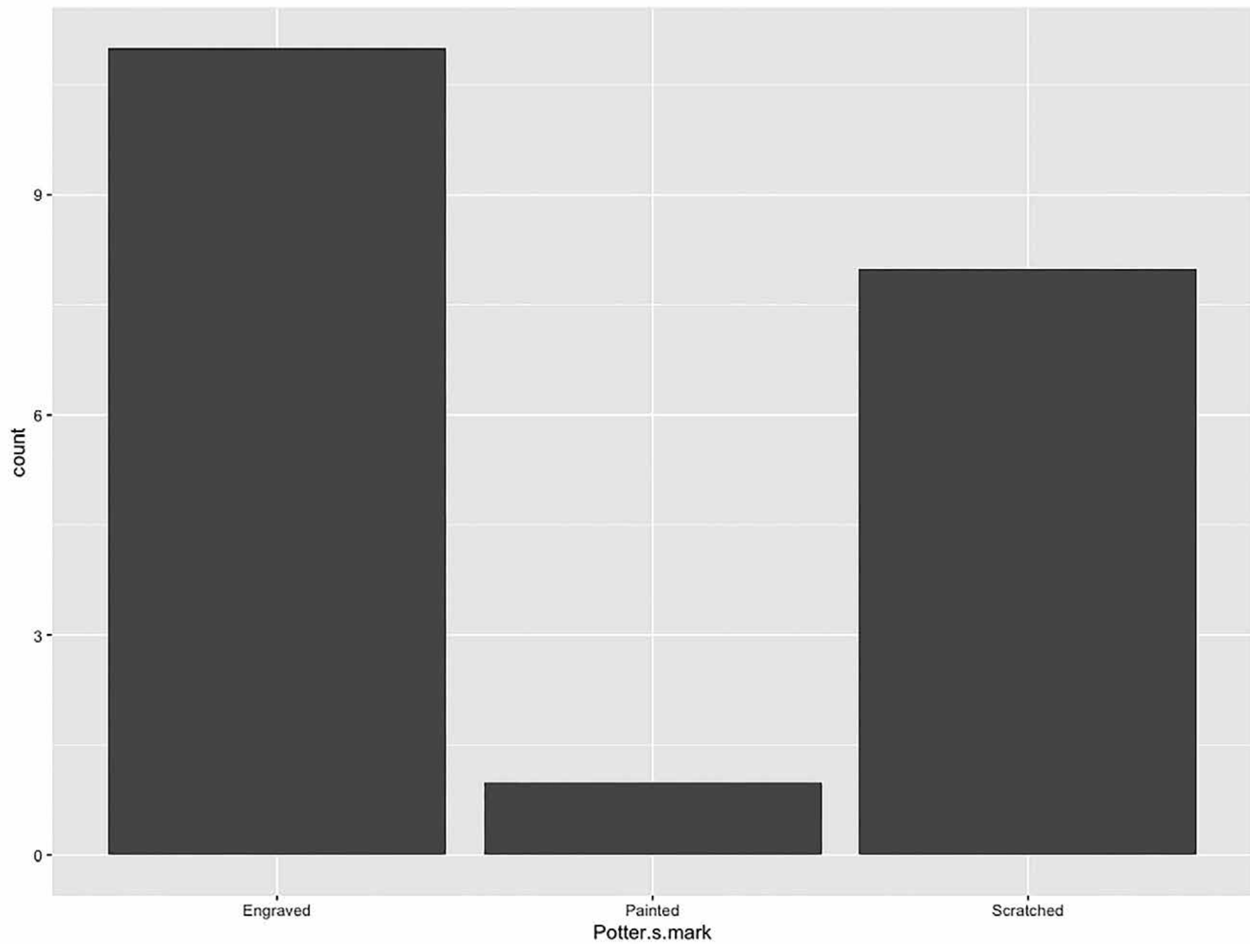


Figure 4.14 Classification of potter's marks.

Chapter Five: Chronology and Dating

5.1 Chronology

Establishing the chronology of a site is the primary goal of archaeological research. To date, no absolute chronology has been proposed for the cultural sequence at Tepe Sadegh. Based on the typological comparison of the pottery and other cultural materials, a relative sequence has been considered for the site according to the cultural sequence of the main site on the Sistan Plain: Shahr-i Sokhta. It seems that the site was inhabited for the first time at the end of period I, and during the following periods (Shahr-i Sokhta II and III), it saw its climax and cultural development. In this regard, 1,959 pottery samples were used for analysis and study.

One of the main aims of this study is to provide an absolute chronological framework for Tepe Sadegh by using radiocarbon dating. For this reason, 11 charcoal samples obtained from different archaeological layers were sent to the LARA, the Laboratory for the Analysis of Radiocarbon with AMS at the University of Bern, to get reliable dating results and information. Moreover, in addition to providing radiocarbon dating, the 1,959 potsherds were the subject of typological studies.

5.1.1 Tepe Sadegh's Relative Chronology

Up until now, there have been extensive studies on the pottery of the Sistan regions during the Bronze Age. Tepe Sadegh delivered a considerable quantity of pottery that was very useful for the chronological study of the site. Based on 1,959 potsherd samples, a comprehensive typological study was conducted by comparing the samples on both interregional and intraregional scales. For this aim, different sites from southeast Iran, Pakistani Makran, Afghani Sistan and Mundigak, southern Turkmenistan, Oman, and the southern coasts of the Persian Gulf were compared. As indicated in Chapter Four, different dates have been proposed for some comparison sites, perhaps due to disagreement among researchers regarding the chronology of the sites. Another reason is chronological differences between various sites despite the same culture influencing them. Moreover, for some sites, a general date with a long chronological period is proposed. Therefore, the present work has tried to compare these problematic potsherds with those of several sites and offer a flexible chronological framework.

As Tepe Sadegh is a satellite settlement of Shahr-i Sokhta, this was expected to be considered the first typological reference. The comparison was then enlarged to neighbouring regions.

From a statistical point of view, of the 1,959 samples, 1,257 were compared with those of sites in southeastern Iran, 95 with those of Afghani Sistan and Mundigak in Afghanistan, and 41 with Pakistani Makran's sites, and 566 fragments could not be classified typologically (Table 5.1 and Figs. 5.1–2). No samples were found to relate to sites in southern Turkmenistan (such as Altyn-Depe or Namazga), Oman, or the southern coasts of the Persian Gulf.

Table 5.1 Classification based on comparable regions.

Comparable regions	No.	Percentage
Iranian Plateau	1,257	64.16%
Afghani Sistan/Mundigak	95	4.85%
Pakistani Makran	41	2.09%
Unrecognised	566	28.90%

Table 5.2 Classification based on comparison sites in Iran.

Comparable sites in Iran	No.	Percentage
Shahr-i Sokhta	1,171	93.16%
Bampur	53	4.21%
Tepe Yahya	23	1.83%
Tepe Rud Biaban	7	0.56%
Shahdad	2	0.16%
Damin	1	0.08%

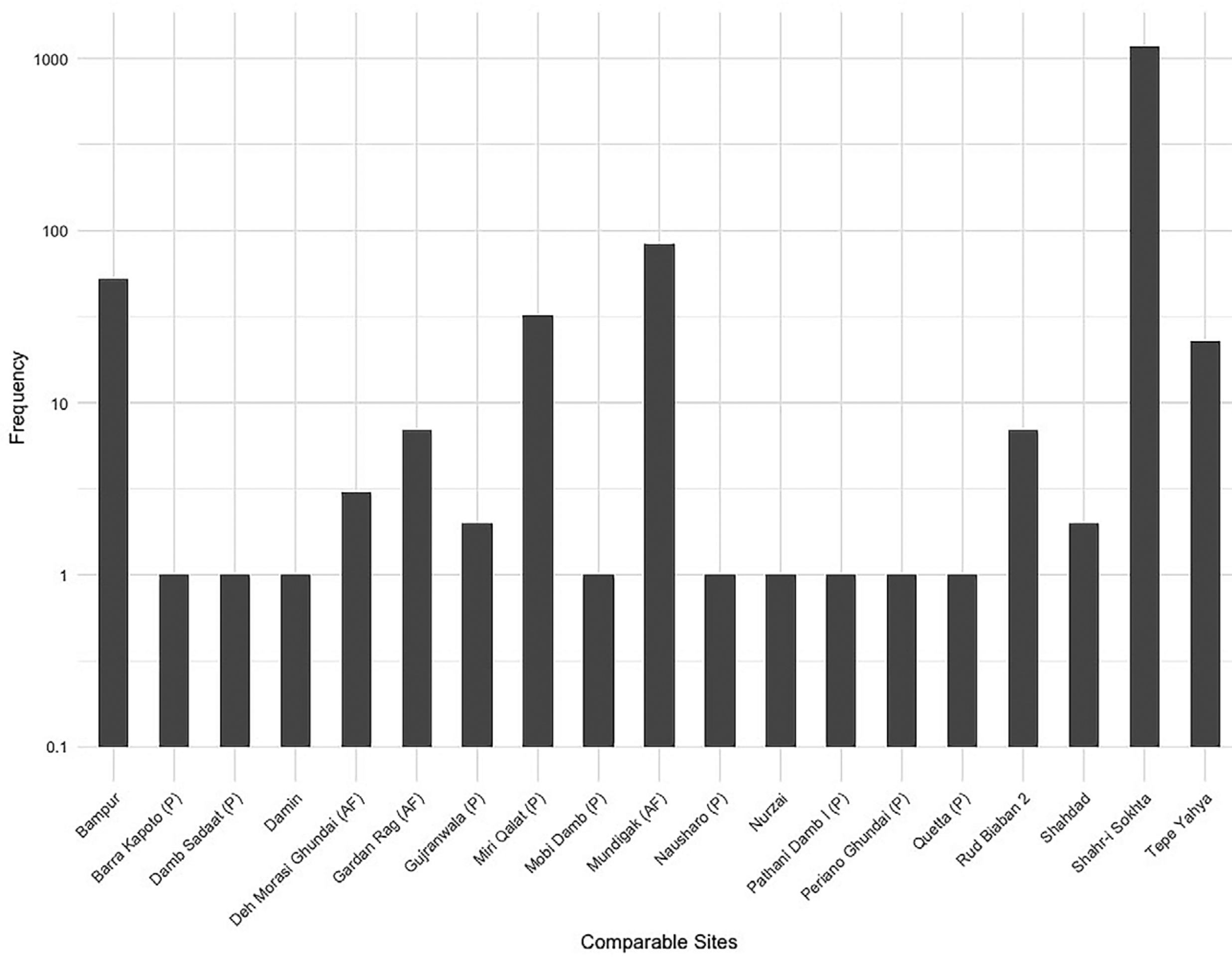


Figure 5.1 Classification based on comparable sites (the scale is logarithmic).

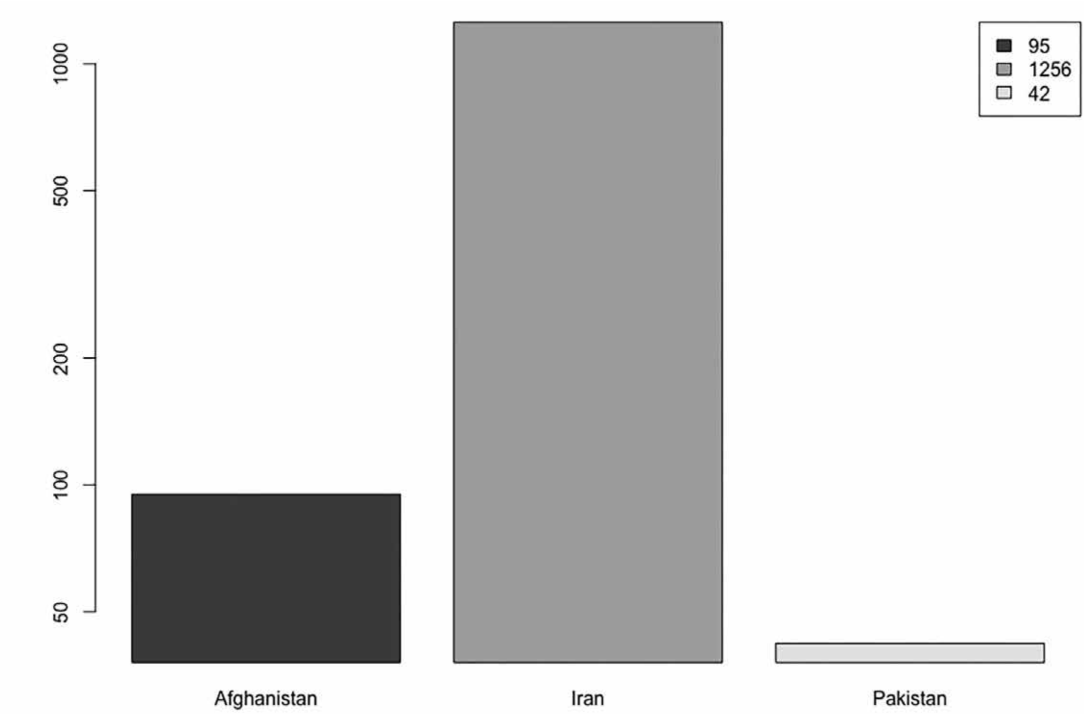


Figure 5.2 Classification based on comparable regions (the scale is logarithmic).

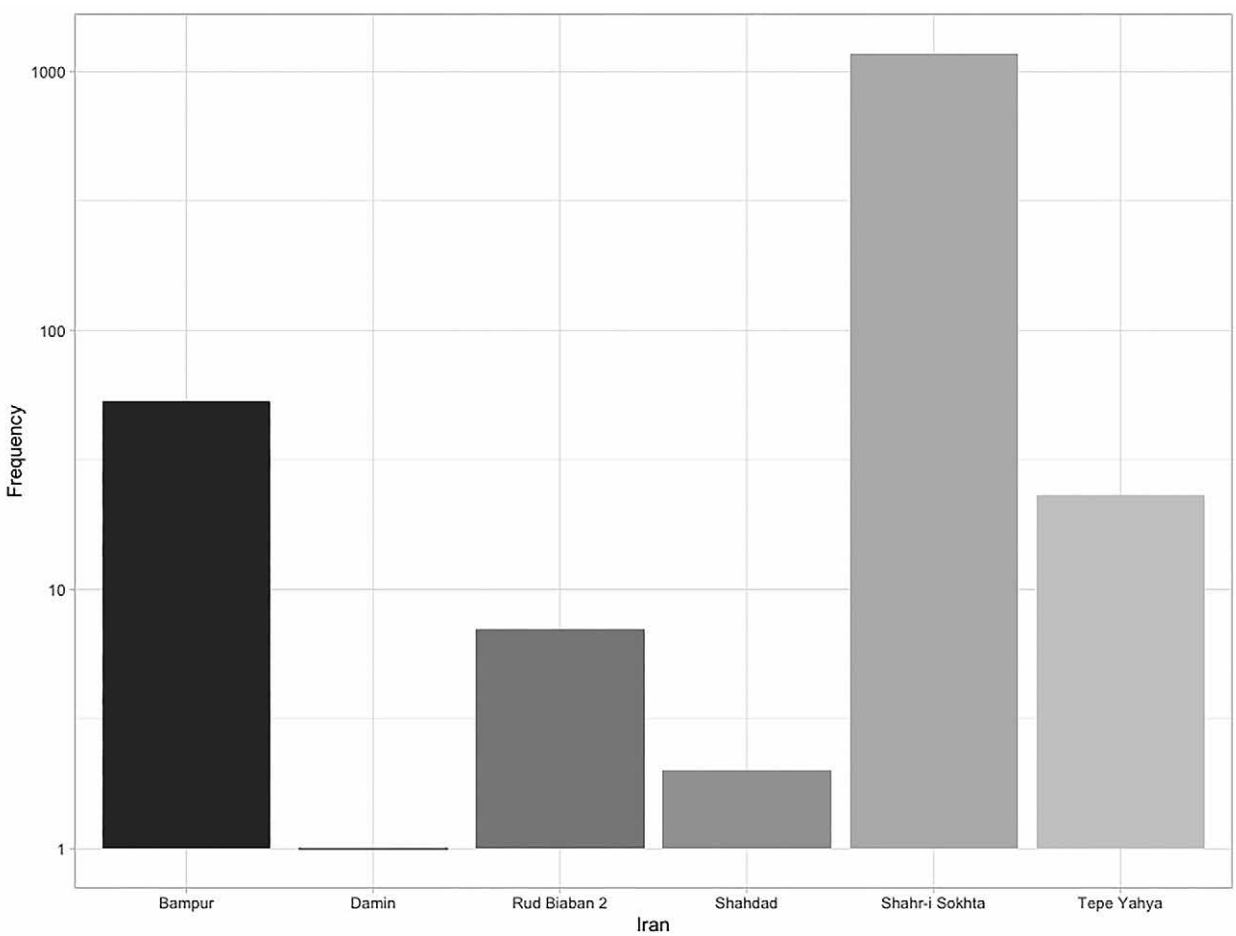


Figure 5.3 Classification based on comparable sites in Iran (the scale is logarithmic).

Table 5.3 Classification based on comparable sites in Afghanistan.

Comparable sites in Afghanistan	No.	Percentage
Mundigak	84	88.42%
Gardan-i Rig	7	7.37%
Deh Morasi Ghundai	3	3.16%
Nurzai	1	1.05%

Table 5.4 Classification based on comparable sites in Pakistan.

Comparable sites in Pakistan	No.	Percentage
Miri Qalat	32	78.05%
Gujranwala	2	4.87%
Barra Kapoto	1	2.44%
Domb Sadaat	1	2.44%
Periano Gundai	1	2.44%
Pathani Domb I	1	2.44%
Nausharo	1	2.44%
Quetta	1	2.44%
Mobi Damb	1	2.44%

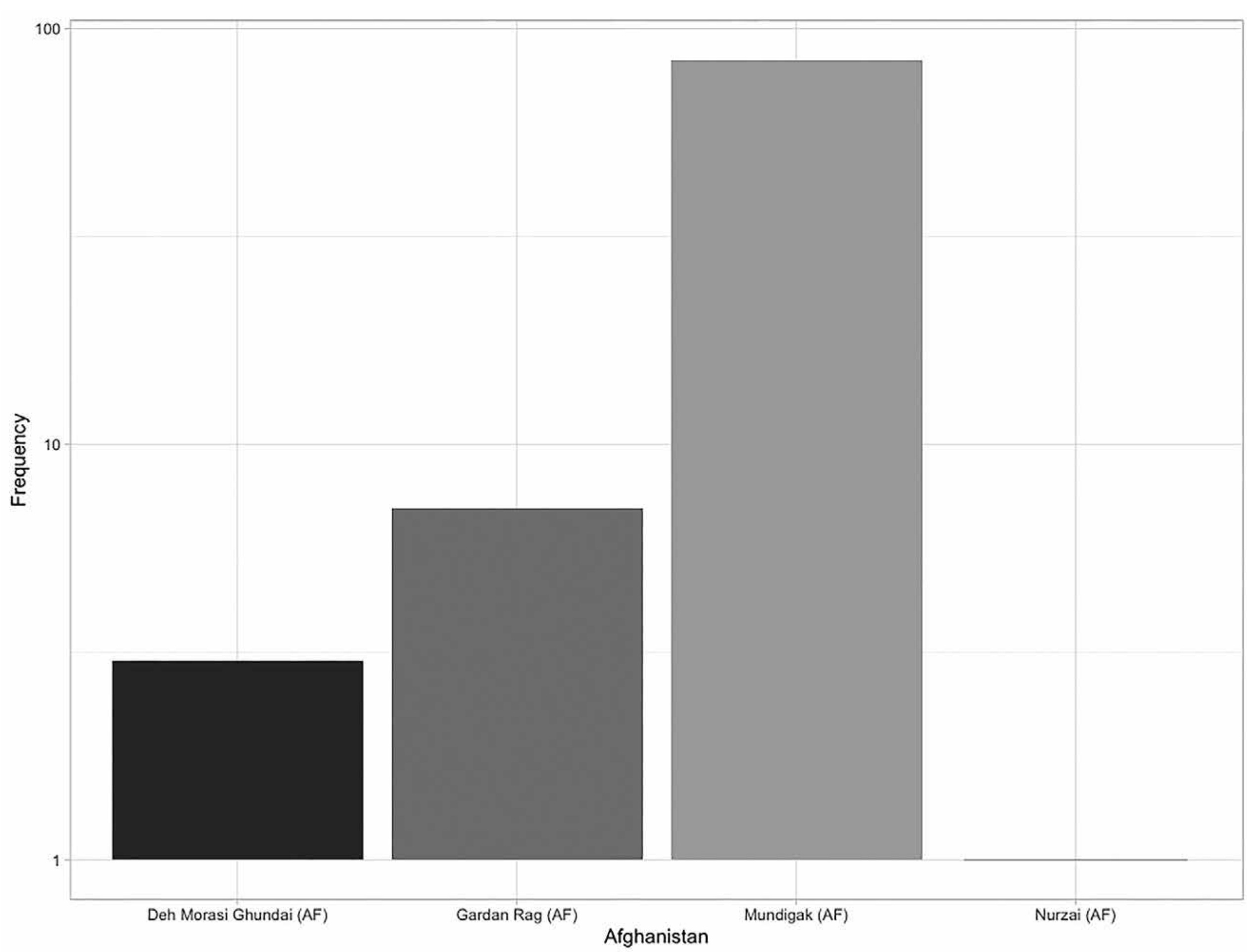


Figure 5.4 Classification based on comparable sites in Afghanistan (the scale is logarithmic).

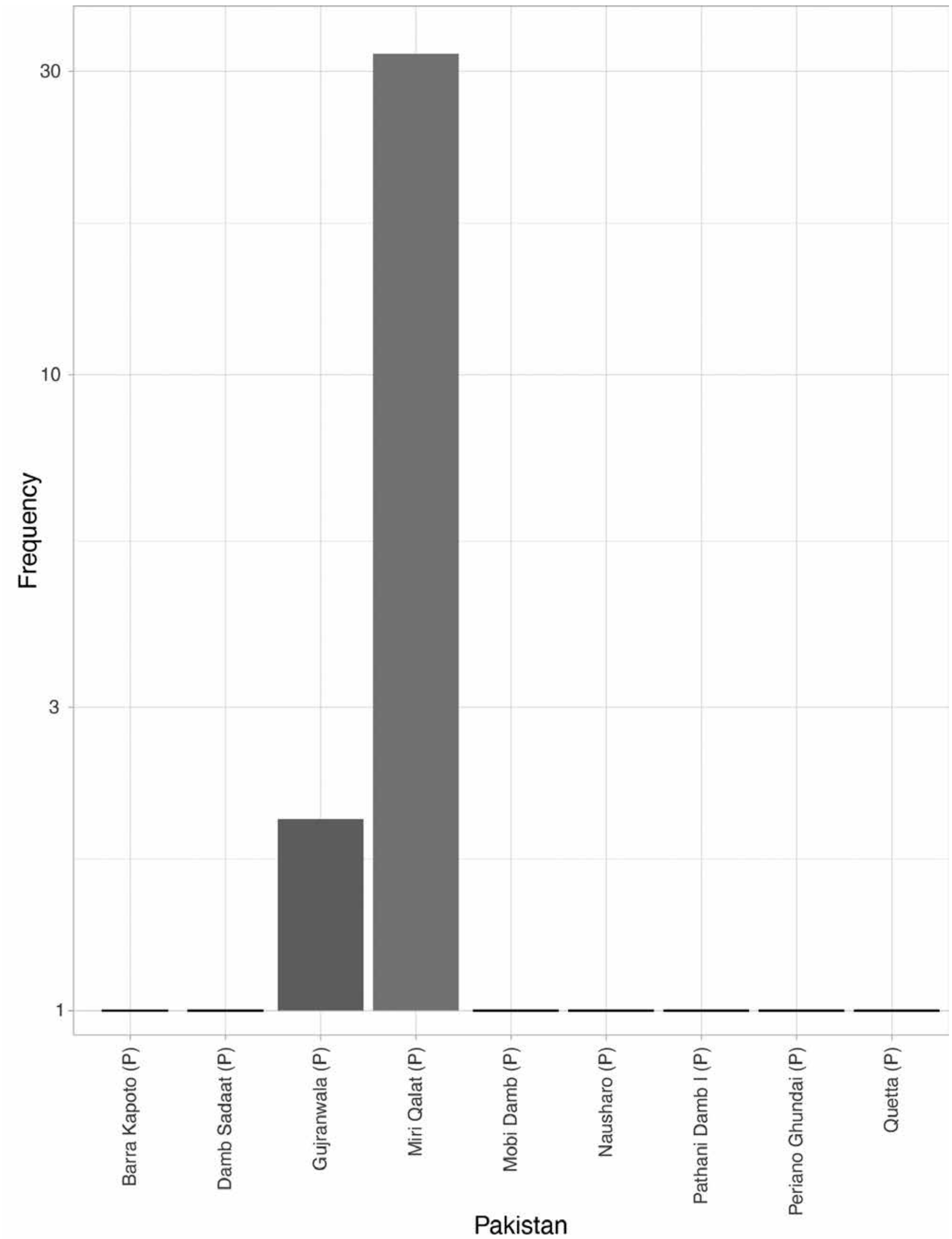


Figure 5.5 Classification based on comparable sites in Pakistan (the scale is logarithmic).

Among the Iranian sites, Shahr-i Sokhta, with 1,171 typological comparisons, was the leading reference site, followed by Tepe Rud Biaban, Bampur, Damin, Tepe Yahya, and Shahdad. Mundigak, with 84 typological comparisons, was the key site in Afghanistan, and then Gardan-i Rig, Deh Morasi Ghundai, and Nurzai. In Pakistani Makran, Miri Qalat was the leading reference site, with 32 comparisons, and then Barra Kapoto, Domb Sadaat, Gujranwala, Periano Gundai, Pathani Domb I, Nausharo, Quetta, and Mobi Damb. All of the statistical information regarding the sites and the numbers of typological comparisons can be seen in Tables 5.2–4 and Figs. 5.3–5.

According to the corpora, the pottery samples from Tepe Sadegh could be attributed to all of the cultural sequences of Shahr-i Sokhta (period I, II, III, IV) with different frequencies. Most belong to phases 3, 4, 5, and 6 of Shahr-i Sokhta periods II and III. The comparable pottery fragments from Bampur show that they mainly belong to period IV, contemporaneous with period II and the beginning of period III at Shahr-i

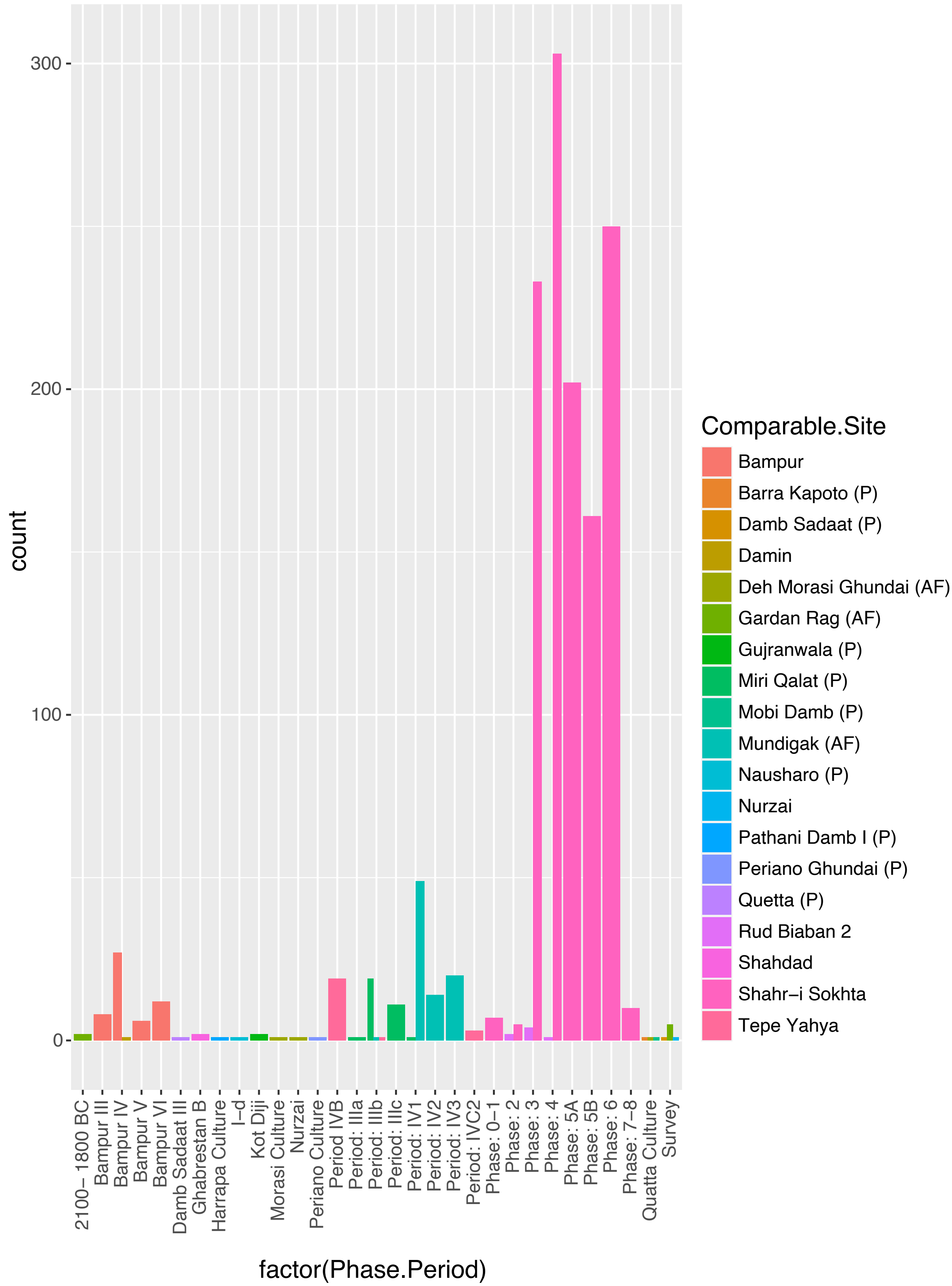


Figure 5.6 Classification based on periods and comparable sites.

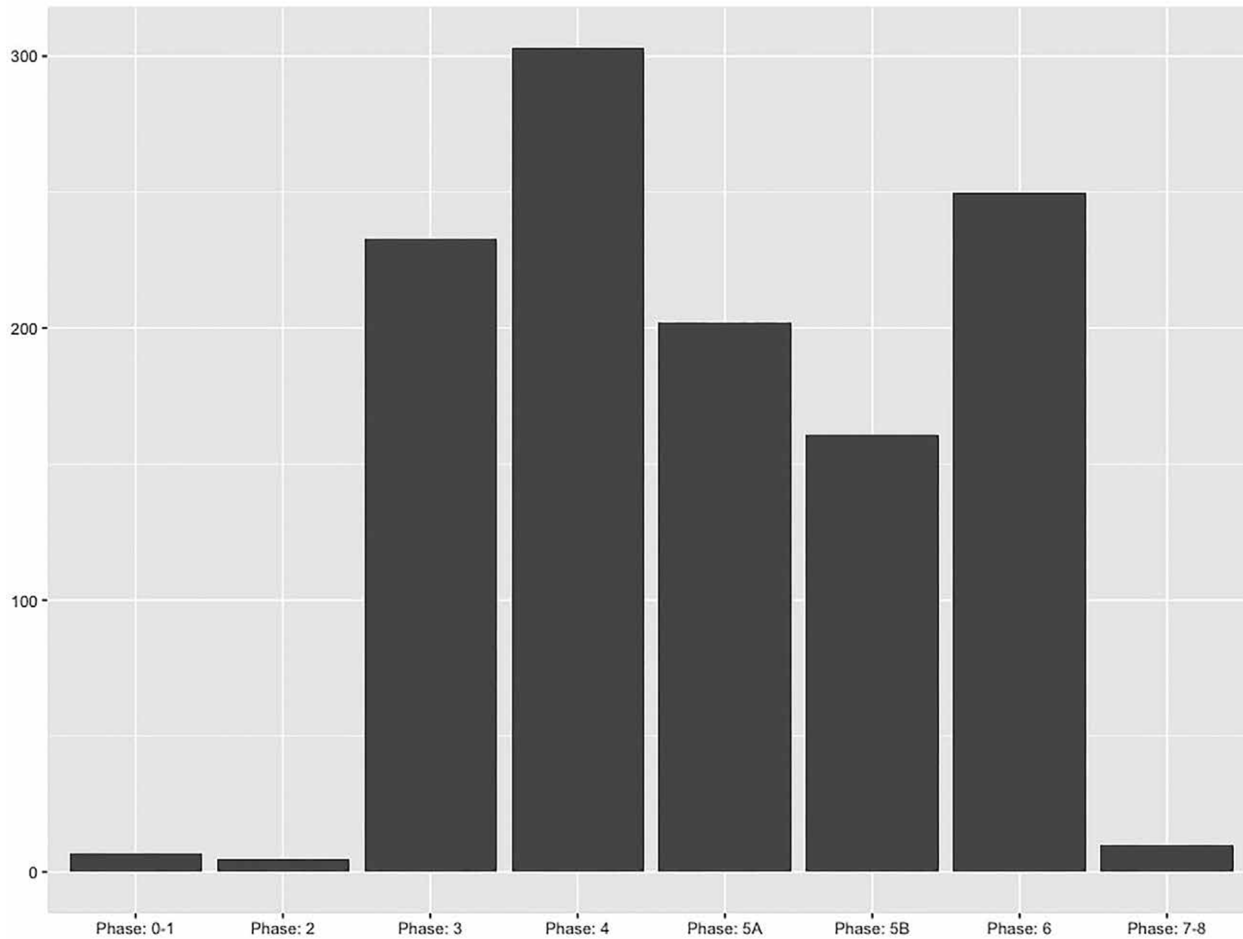


Figure 5.7 Classification based on different phases at Shahr-i Sokhta.

Sokhta. Identical pottery is also found at Tepe Yahya, associated with period IVb and concomitant with periods II and III at Shahr-i Sokhta. Similar pottery from Mundigak mainly belongs to periods IV1, IV2, and IV3, comparable to that of Shahr-i Sokhta II and III. Parallel samples from Miri Qalat are mostly related to periods IIIb and IIIc, equal to Shahr-i Sokhta periods II and III.

Considering the relatively low frequency of potsherds dating from periods I and IV and the difficulties of relative chronology associated with typological stasis, it can be concluded that Tepe Sadegh was inhabited during periods II and III of Shahr-i Sokhta. All of the information regarding the phases and periods can be seen in Figs. 5.6–12.

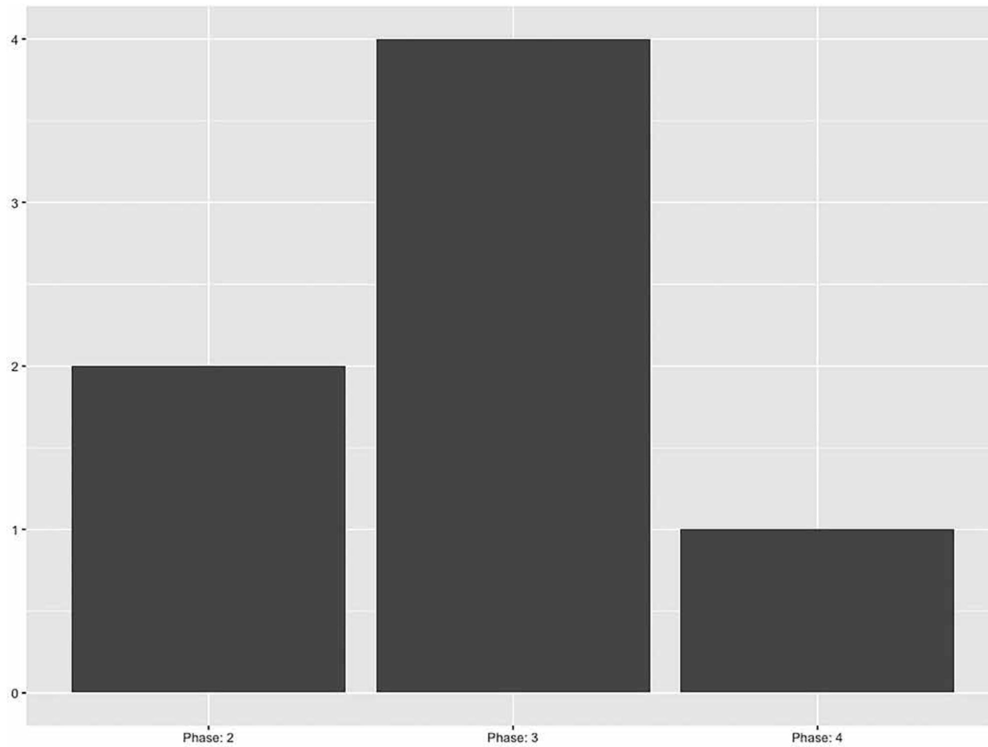


Figure 5.8 Classification based on different phases at Rud Biaban 2.

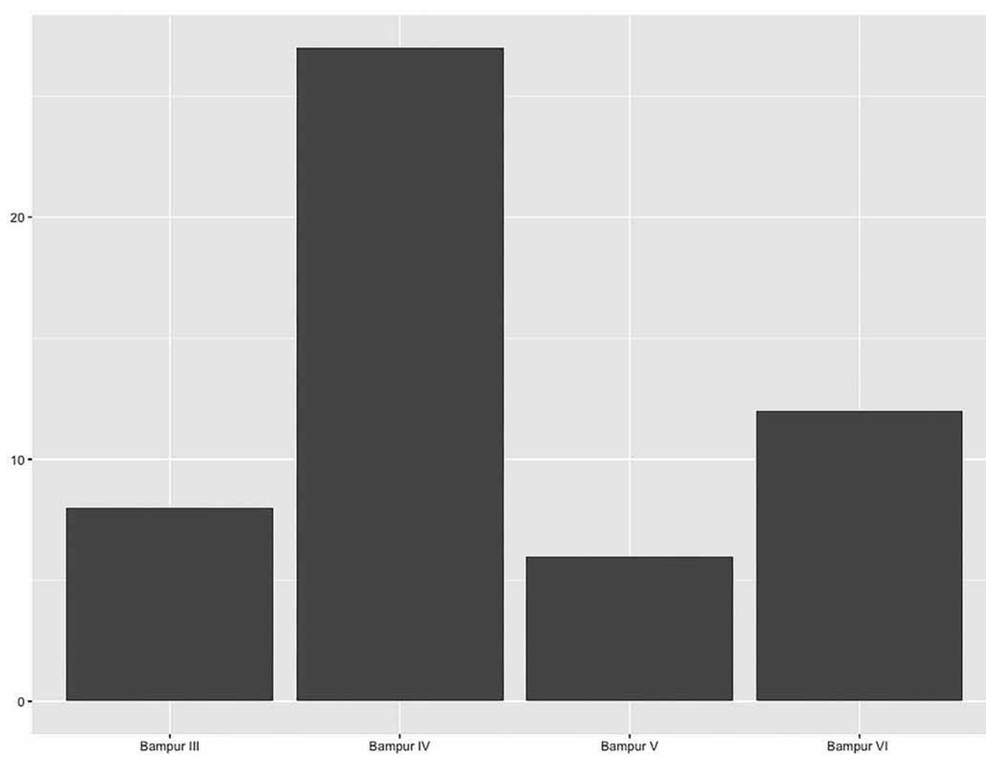


Figure 5.9 Classification based on different periods at Bampur.

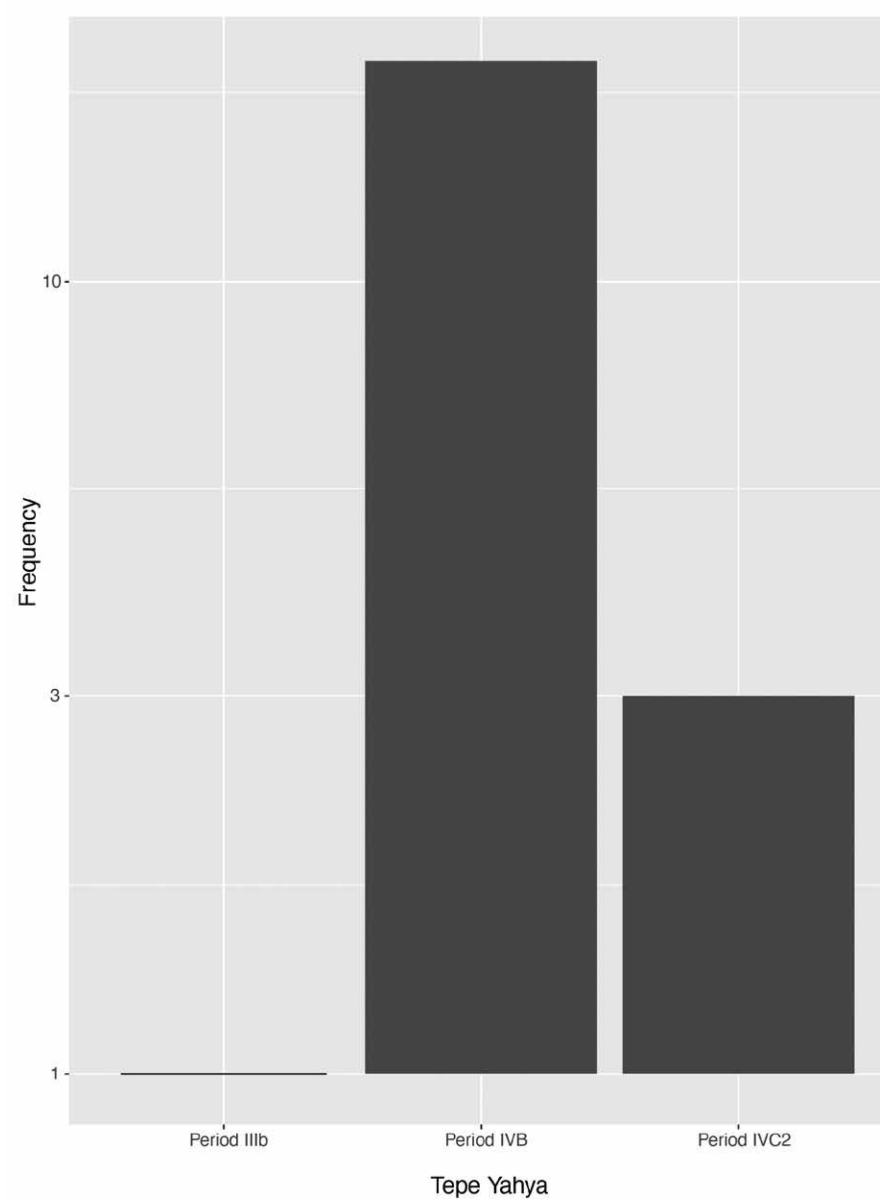


Figure 5.10 Classification based on different periods at Tepe Yahya (the scale is logarithmic).

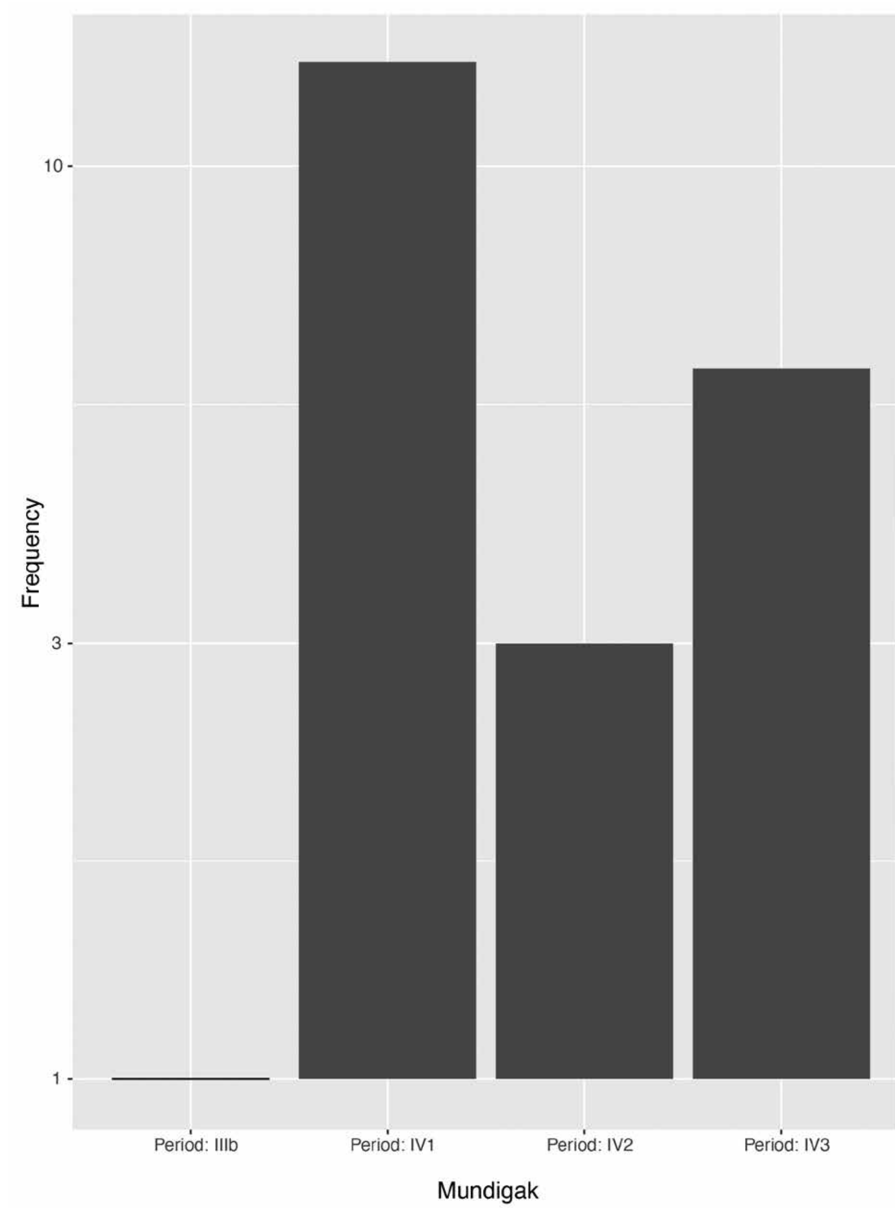


Figure 5.11 Classification based on different periods at Mundigak (the scale is logarithmic).

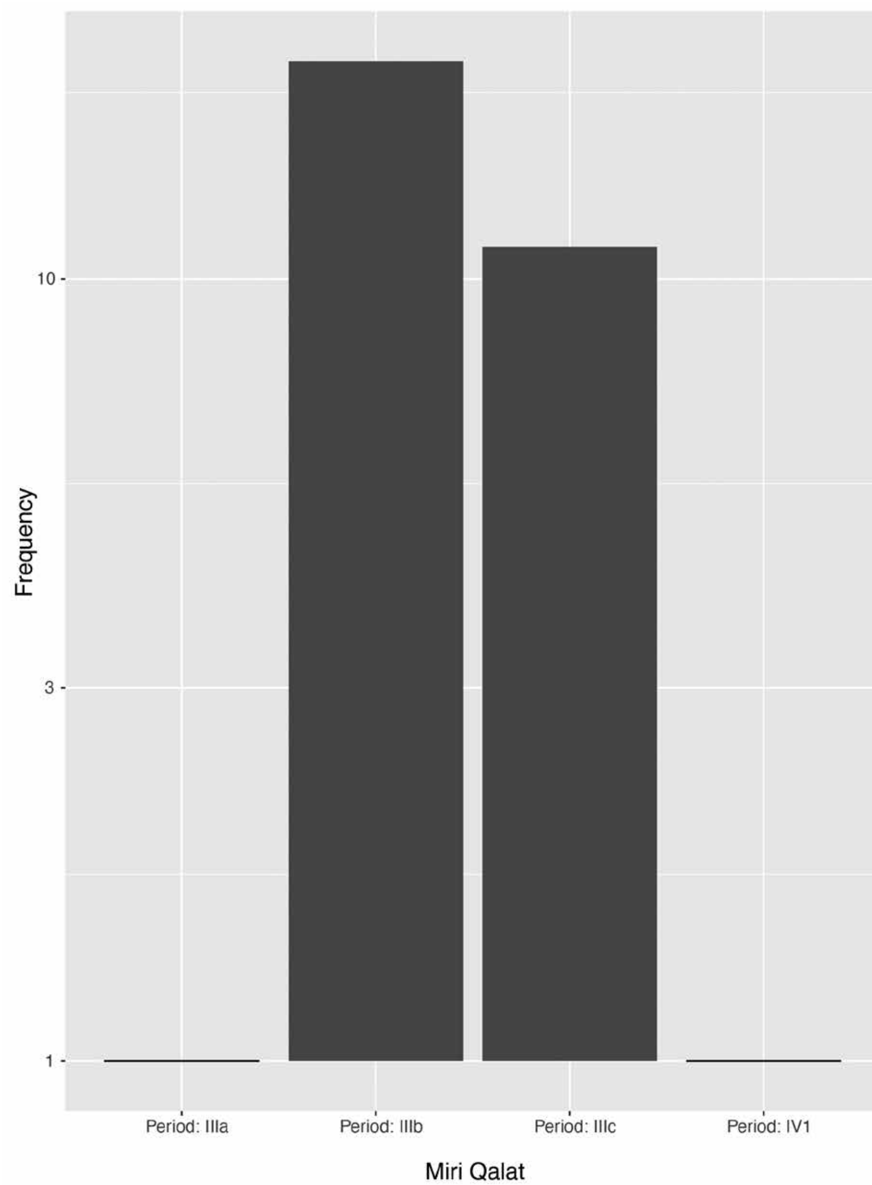


Figure 5.12 Classification based on different periods at Miri Qalat (the scale is logarithmic).

5.1.2 Tepe Sadegh's Absolute Chronology

Nowadays, the southern Plain of Sistan is an arid and deserted area. However, archaeological evidence indicates that the area was densely populated during the Bronze Age. Based on archaeological surveys conducted at Sistan's 1,665 archaeological sites, more than 900 of them belong to the Bronze Age (Mousavihaji/Mehrafarin 2008; 2009; Shirazi 2022). They consist of small and large mounds of varying sizes and functions (between 200 m^2 and 150 ha) (Fig. 5.13).

Besides these new sites, Shahr-i Sokhta, and the 900 satellite sites such as Tepe Sadegh, Tepe Talebkhan, Tepe Graziani, and Tepe Dasht, make the Sistan Plain a crucial area between the Indus Valley and Mesopotamia during the Bronze Age. Besides the regular excavations and research at Shahr-i Sokhta, the main site on the Sistan Plain, there have also been regular excavations at Tepe Sadegh (Shirazi/Tavasoli 2009; Shirazi 2012; 2013; 2016), Tepe Talebkhan (Kavosh 2009; Miri 2006; 2007), Tepe Graziani (Kavosh/Fazeli Nashli 2010), and Tepe Dasht (Mortazavi 2014). Most of the other sites have remained unexcavated and knowledge of them is based solely on archaeological surveys (Mousavihaji/Mehrafarin 2008; 2009).

There is widespread use of relative chronology in the area, but as buff pottery is the predominant ware at most sites across different periods, making it challenging to establish a coherent chronology. Unfortunately, a low number of absolute chronologies has been suggested for Bronze Age sites such as Tepe Graziani and Tepe Dasht in Shahr-i Sokhta. Consequently, proposing an absolute chronology for Tepe Sadegh is essential in discovering the exact date of the site and its connection to the metropolis (Shahr-i Sokhta) and other neighbouring sites.

Radiocarbon samples

The climatological conditions (dry and hot) at Sistan make finding appropriate samples for absolute chronology easy. Therefore, the radiocarbon method was chosen to date some samples from Tepe Sadegh. Charcoal samples were collected from archaeological deposits during the excavations. Two trenches in the centre of Tepe Sadegh were chosen for the radiocarbon samples.

In the present research, 11 charcoal samples from different layers were analysed to establish a reliable absolute chronology. Two samples from trench S.T.6 were excavated in 2012 (the fourth excavation season) and nine samples from trench S.T.9 were excavated in 2016 (the sixth excavation season). It is necessary to mention that from S.U.59 in trench S.T.6, one charcoal sample was found; however, the sample from S.U.49 was chosen for radiocarbon dating due to its large size. It is essential to give some information about the context in which these samples have been found.

Sample No. 9 from S.T.6, S.U.14

S.U.14: This stratigraphic unit is related to the deposited soil of a hearth with high density in the northeastern part of trench S.T.6. It ranges from -72 cm to -80 cm (from the benchmark), and it is a mixture of ash, sand, soil, and some charcoal. Potsherds, animal bones, and vegetal remains were found in this layer.

Sample No. 10 from S.T.6, S.U.16

S.U.16: This stratigraphic unit is a compact layer with a high percentage of ash and charcoal. S.U.16 is situated in the central part of trench S.T.6, and 43 potsherds were found there (35 buff ware, two red ware, and six grey ware).

Sample No. 1 from S.T.9, S.U.2

S.U.2: This stratigraphic unit is a mixture of clods and low-density clay, charcoal, and lime pieces ranging from +35 cm above the benchmark in the northern part of the trench to -5 cm below the benchmark in the southeastern part of the trench. Findings from this layer consist of 241 buff, red, and grey potsherds, animal bones, one marble bead, and one perforated earthenware piece (Fig. 5.14, No. 4 and 6).

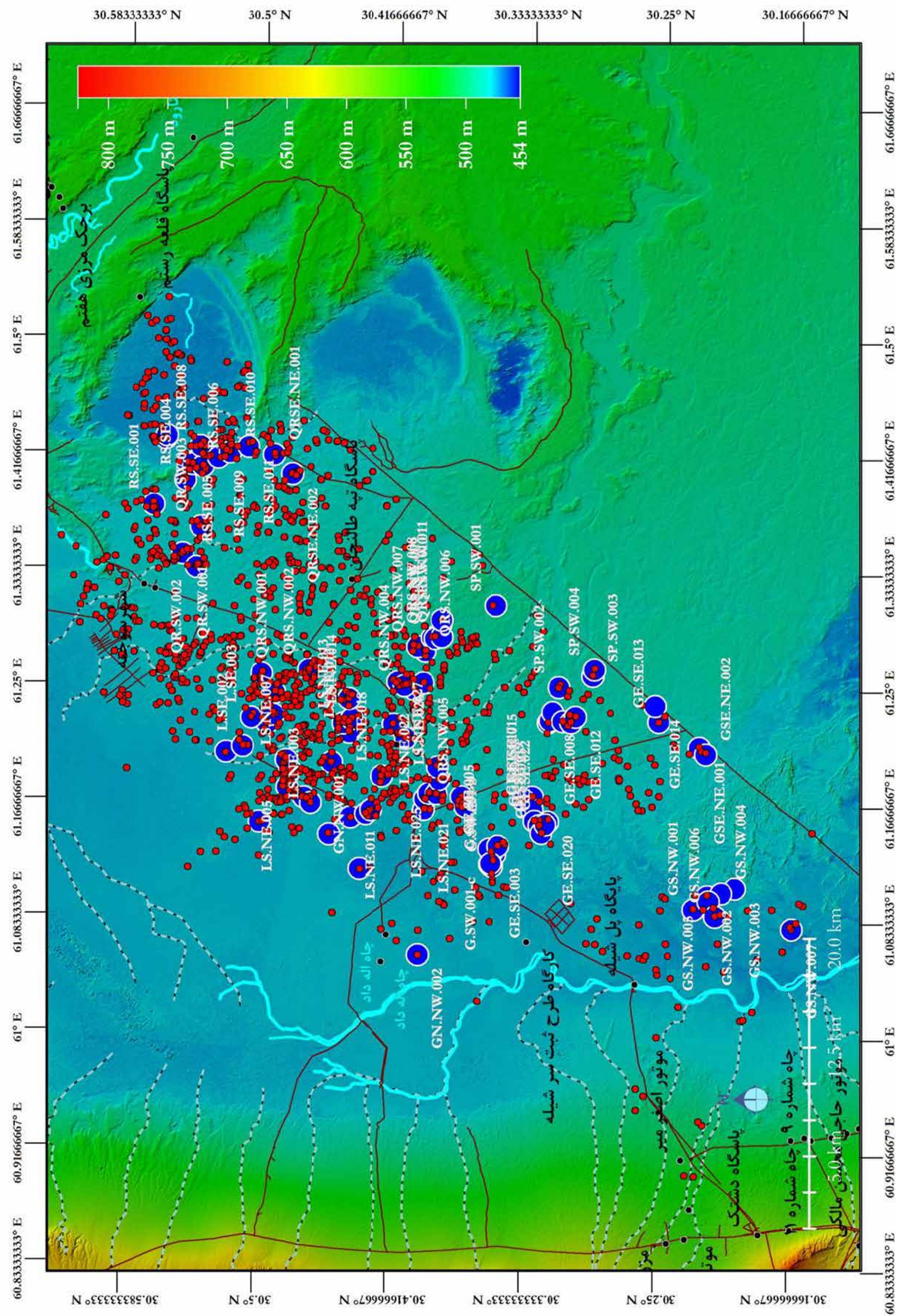


Figure 5.13 Distribution of Bronze Age settlements in the southern part of the Sistan Plain (© Rouhollah Shirazi).

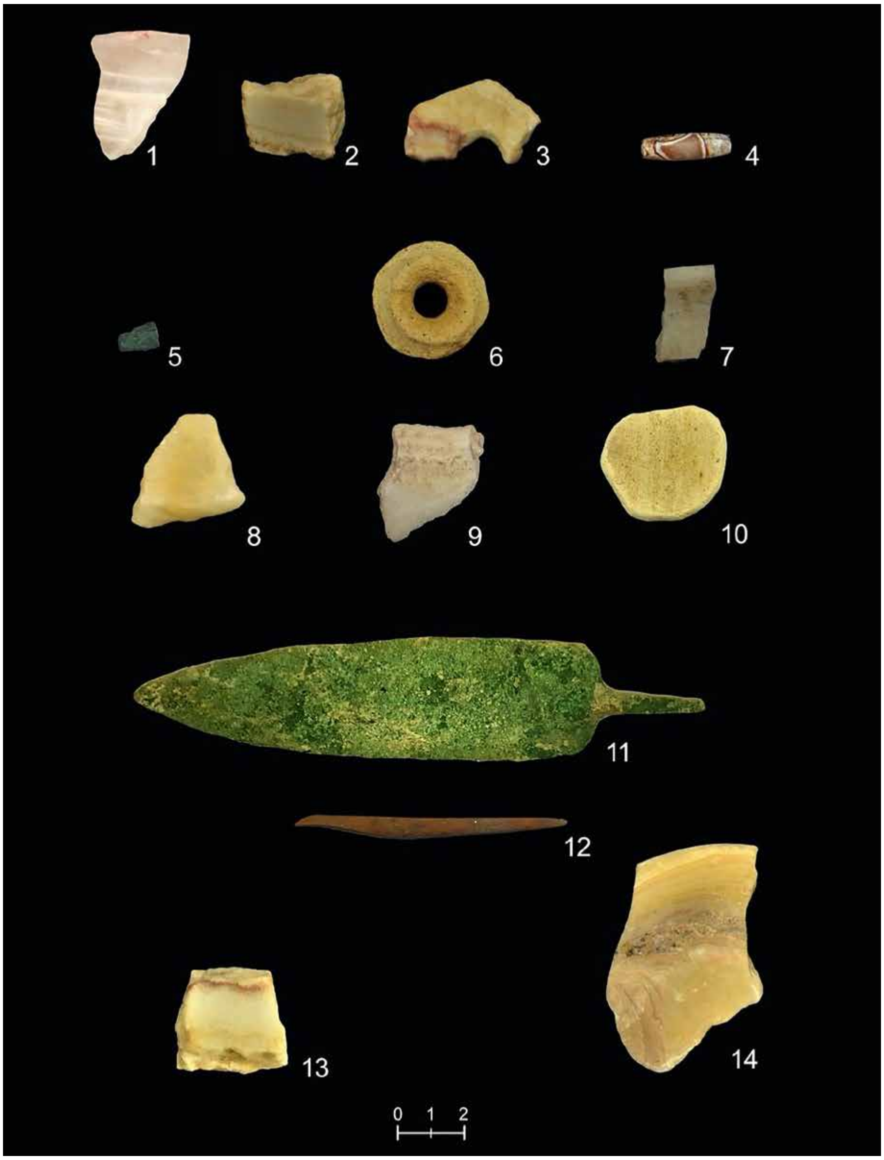


Figure 5.14 Tepe Sadegh, marble bead, perforated earthenware, and arrowhead (© Rouhollah Shirazi).

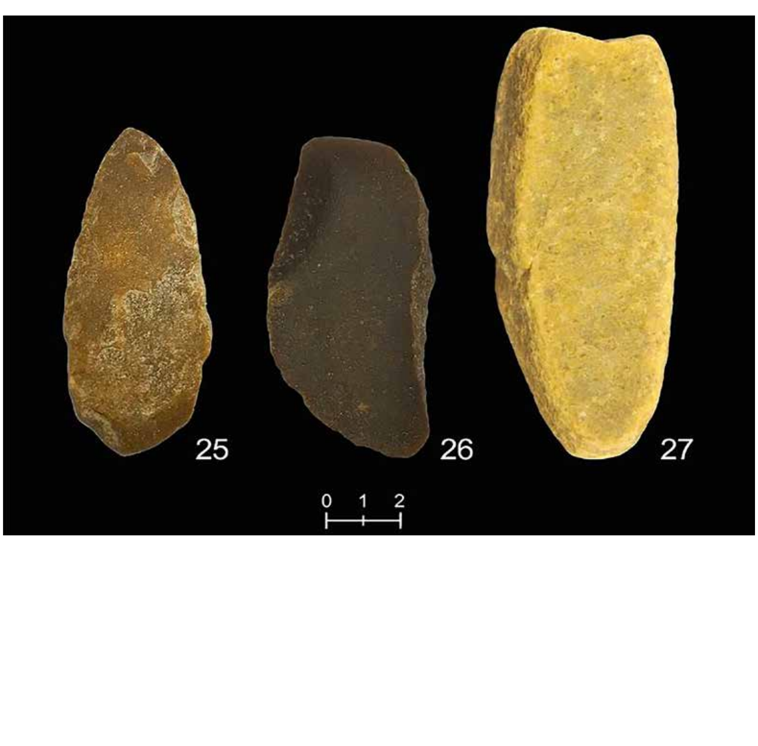


Figure 5.15 Tepe Sadegh, stone tools of S.U.22 (© Rouhollah Shirazi).

Samples No. 2 and 8 from S.T.9, S.U.3

S.U.3: This stratigraphic unit is a room-filling composed of charcoal, ash, and lime pieces located 220 cm in the eastern part of the trench. A large jar (80 cm in height) was also found in the northern part of this unit. In the southern part of this unit, there was one mudbrick platform, upon which several pear-shaped beakers and two medium jars were deposited. Some heated mud bricks and stone were also found in the southeastern trench. Other findings included a considerable number of animal bones, stone object fragments, 370 potsherds in buff, red, and grey colours, and one arrowhead. Because of its importance, two charcoal samples were chosen for dating from this debris layer (Fig. 5.14, No. 11).

Sample No. 10 from S.T.9, S.U.12

S.U.12: This stratigraphic unit (from -9 cm to -15 cm from the benchmark) is a deposit unit of ashes and burnt soil (red and black in colour) located in the northwestern corner of trench S.T.9. Charcoal fragments, ash deposits, 41 potsherds, one stone object, and a potsherd reused as a spindle were among the finds in S.U.12.

Sample No. 11 from S.T.9, S.U.16

S.U.16: This stratigraphic unit (2 × 2 m) is debris of high density, from -32 cm to -55 cm from the benchmark in the western part of the trench. Charcoal fragments, one pear-shaped beaker, and 56 buff, red, and grey ware potsherds were collected.

Sample No. 14 from S.T.9, S.U.17

S.U.17: This stratigraphic unit, containing debris of medium density composed of clods, was from -32 cm to -79 cm from the benchmark in the northern part of S.T.9. A clay spindle, charcoal fragments, animal bones, one pear-shaped beaker, and 100 potsherds were found in S.U.17.

Sample No. 18 from S.T.9, S.U.22

S.U.22: This stratigraphic unit (100 × 170 cm) contained small clay clods with charcoal fragments and lime pieces (from -30 cm to -60 cm in depth from the benchmark) and was located in the northwestern corner of S.T.9. Charcoal fragments, animal bones, and 56 potsherds of buff, red, and grey ware were found in this layer. Other significant findings of this layer were one small bronze object and two stone tools (Fig. 5.15).

Sample No. 19 from S.T.9 S.U.29

S.U.29: This stratigraphic unit (170 × 200 cm) is a deposit lens of heated soil and ashes (from -48 cm to -67 cm in depth from the benchmark) situated in the southwestern corner of the trench. Animal bones, charcoal fragments, and 25 potsherds in three colours were found.

Sample No. 22 from S.T.9, S.U.49

S.U.49: This stratigraphic unit (from -63 cm to -74 cm in depth from the benchmark) is a hearth (25 cm diameter, 5–7 cm thickness, and 11 cm depth) situated in the southern part of trench S.T.9. Around it, a heated pisé structure was found. The entire content of the soil was collected to extract plant remains by flotation (Fig. 5.16).

It is important to examine the chronological results of these units based on the pottery, separately from the other layers and units. The significant potsherds from S.U.2 and S.U.3 typologically belong to phases 3, 4, 5A, and 6, while based on radiocarbon dating, S.U.2 belonged to period III (phases 4 and 3) and unit S.U.3 belonged to period II and III (phases 5 and 4). A relatively small number of samples for relative chronology were available for units S.U.12, 16, and 29.

S.U.17, based on the relative chronological study, belongs to phases 3, 4, and 6. However, based on radiocarbon results, unit S.U.17 belongs to period II (phase 5) and unit S.U.22 belongs to period II (phases 6 and 5) but is comparable to phases 3, 4, 5B, and 6. In units S.U.14 and S.U.16 from S.T.6 and unit U.S.49 from S.T.9, there was no significant pottery to study typologically. The significant pottery from these units is in Figs. 5.17–28 **(**Shirazi 2016, 91–113).

Figure 5.16 Tepe Sadegh, S.T.9, S.U.49, structure of the kiln (© Rouhollah Shirazi).

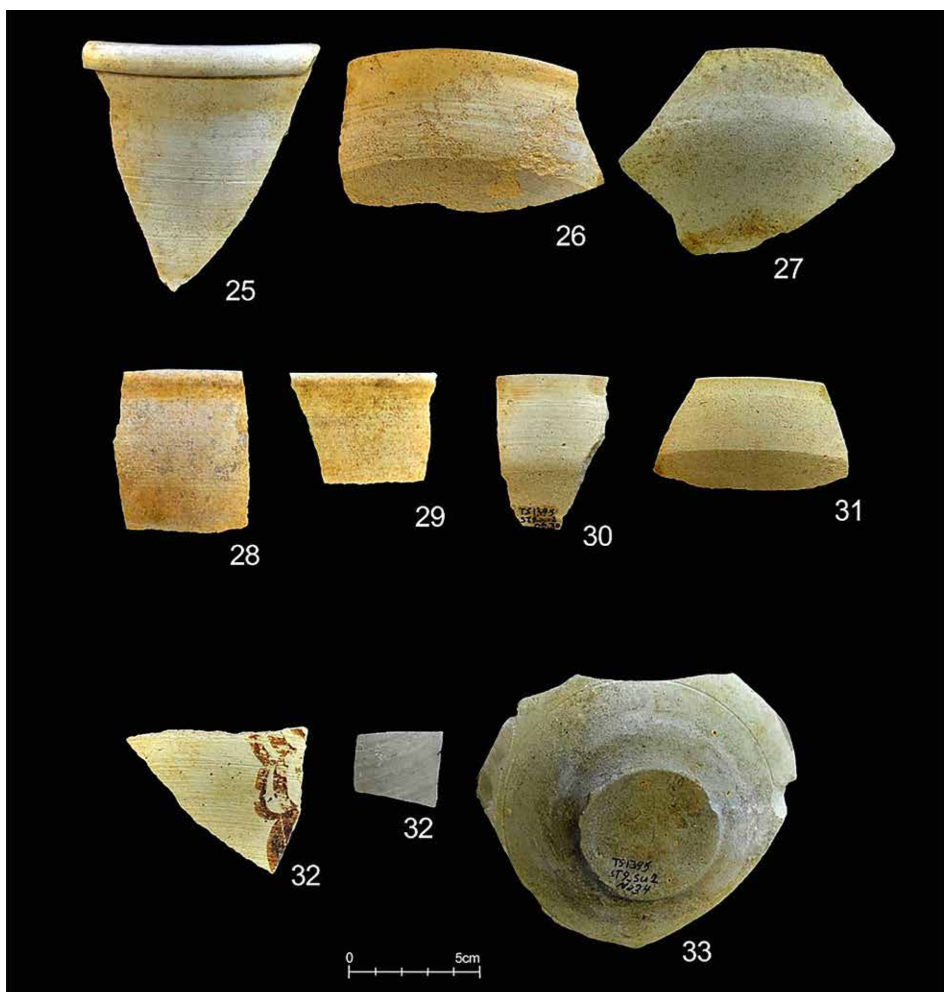


Figure 5.17 Tepe Sadegh, significant pottery from S.T.9, S.U.2 (© Rouhollah Shirazi).

Figure 5.18 Tepe Sadegh, significant pottery from S.T.9, S.U.3 (© Rouhollah Shirazi).

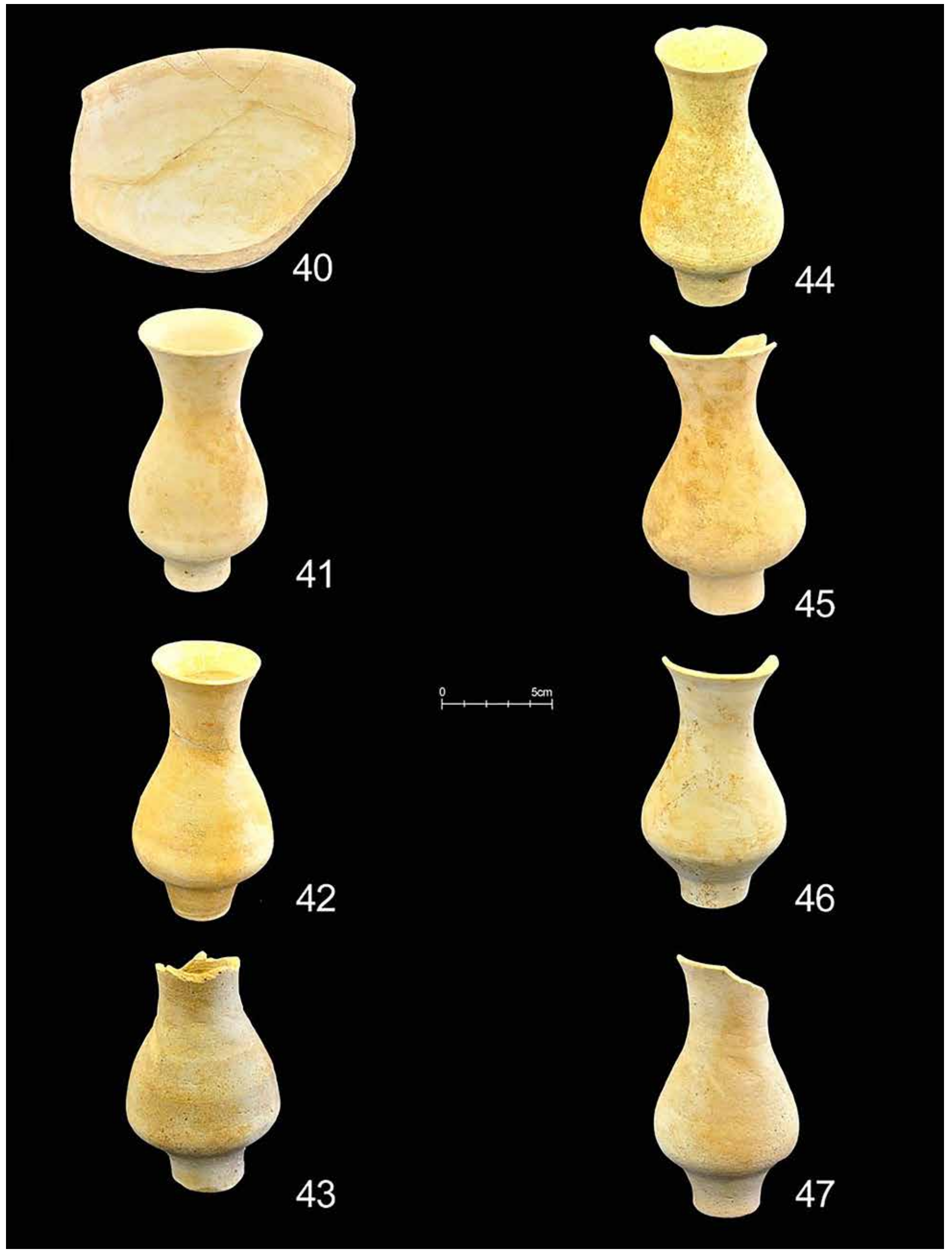


Figure 5.19 Tepe Sadegh, significant pottery from S.T.9, S.U.3 (© Rouhollah Shirazi).

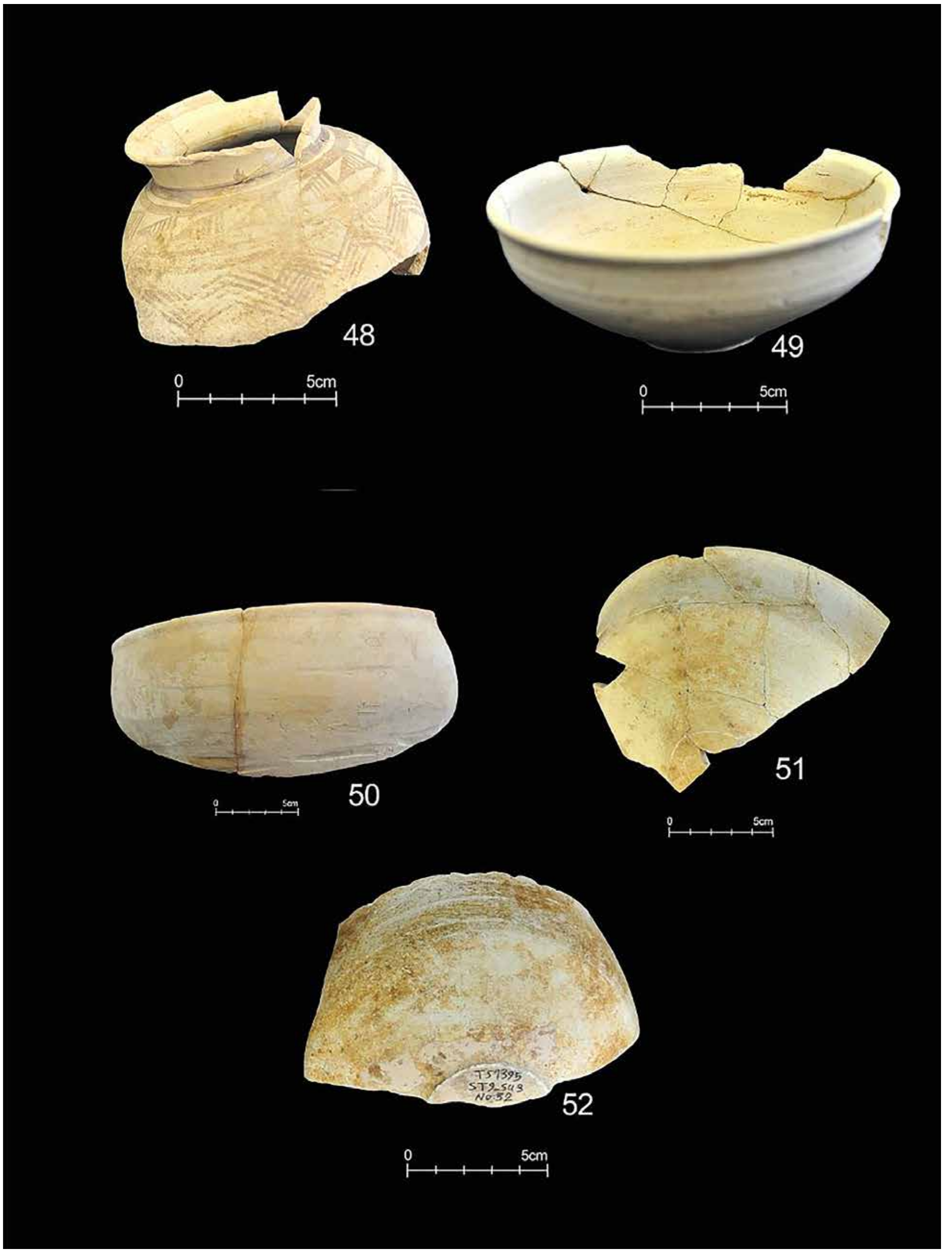


Figure 5.20 Tepe Sadegh, significant pottery from S.T.9, S.U.3 (© Rouhollah Shirazi).

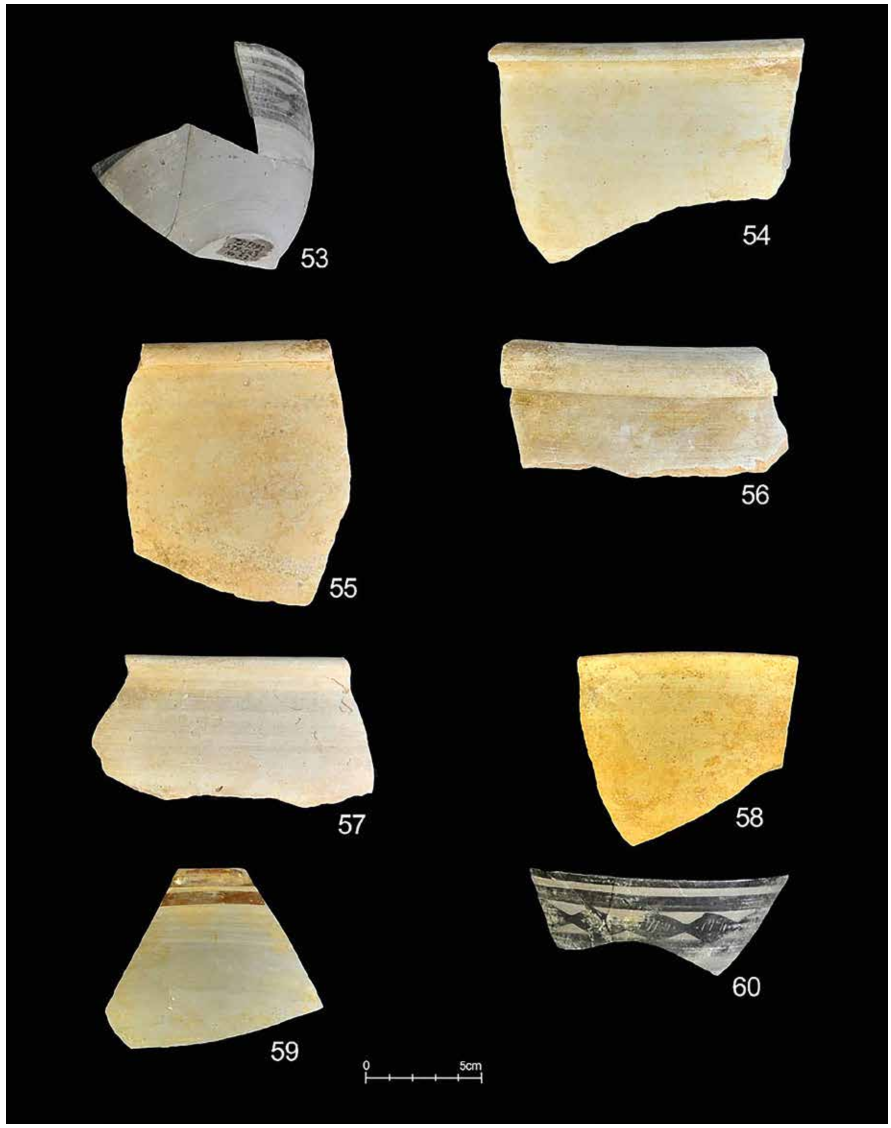


Figure 5.21 Tepe Sadegh, significant pottery from S.T.9, S.U.3 (© Rouhollah Shirazi).

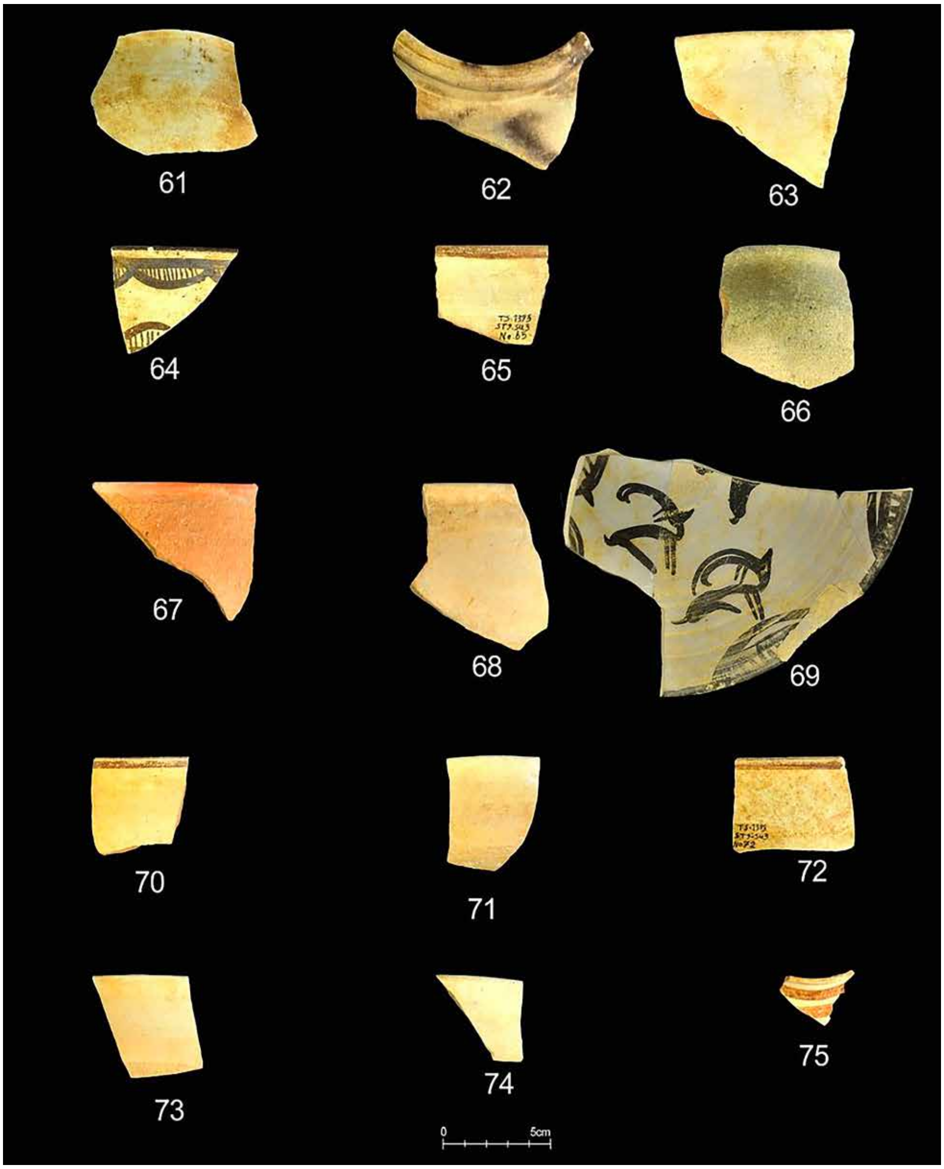


Figure 5.22 Tepe Sadegh, significant pottery from S.T.9, S.U.3 (© Rouhollah Shirazi).

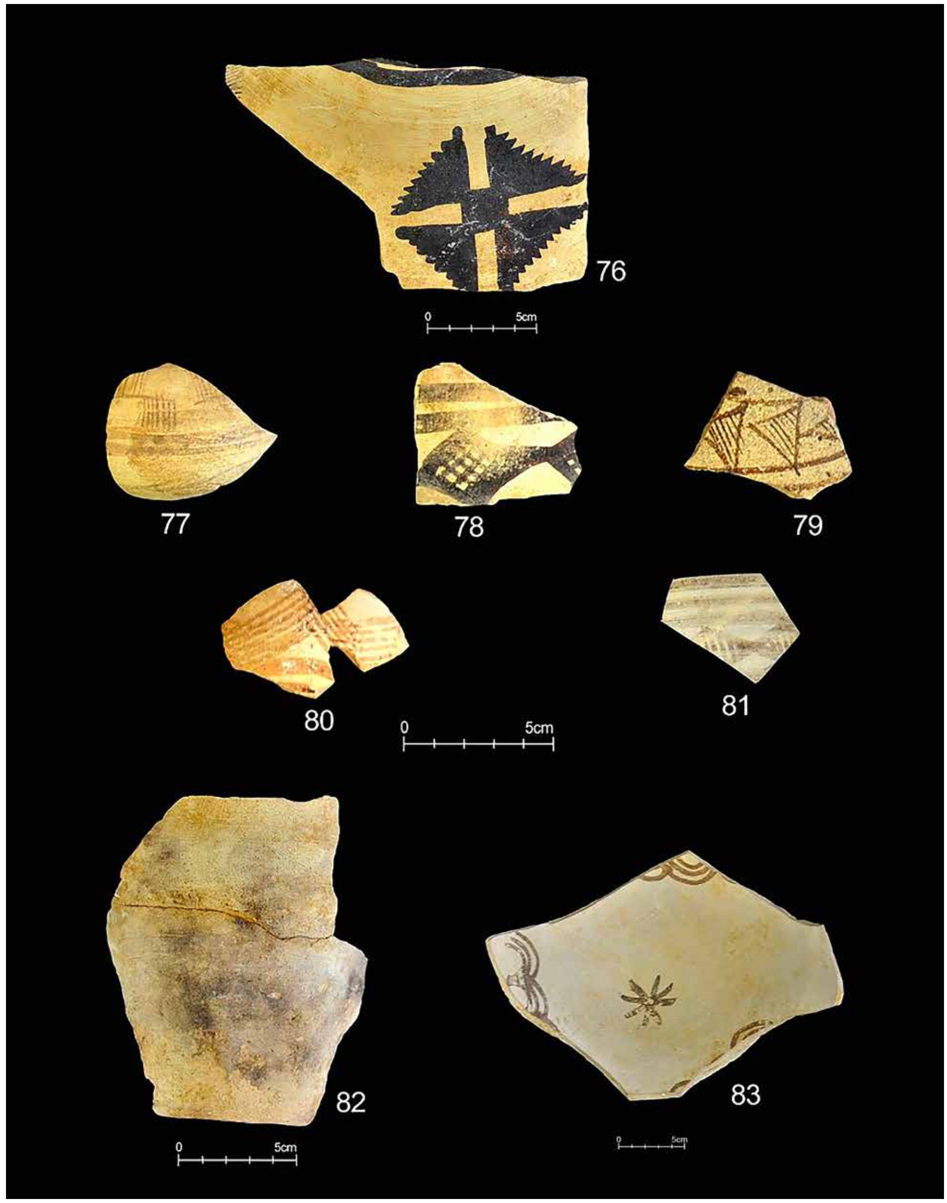


Figure 5.23 Tepe Sadegh, significant pottery from S.T.9, S.U.3 (© Rouhollah Shirazi).

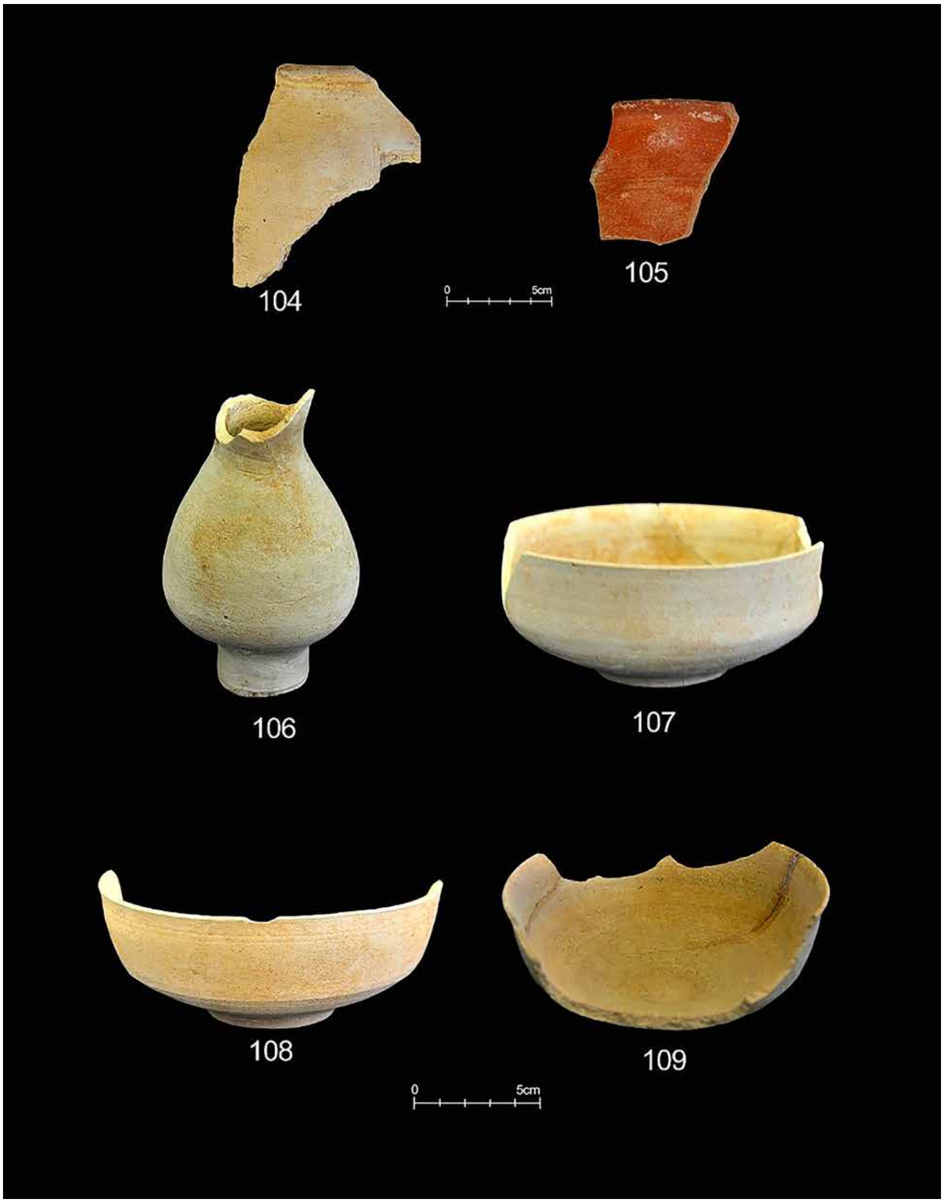


Figure 5.24 Tepe Sadegh, significant pottery from S.T.9, S.U.12, S.U.15 (© Rouhollah Shirazi).

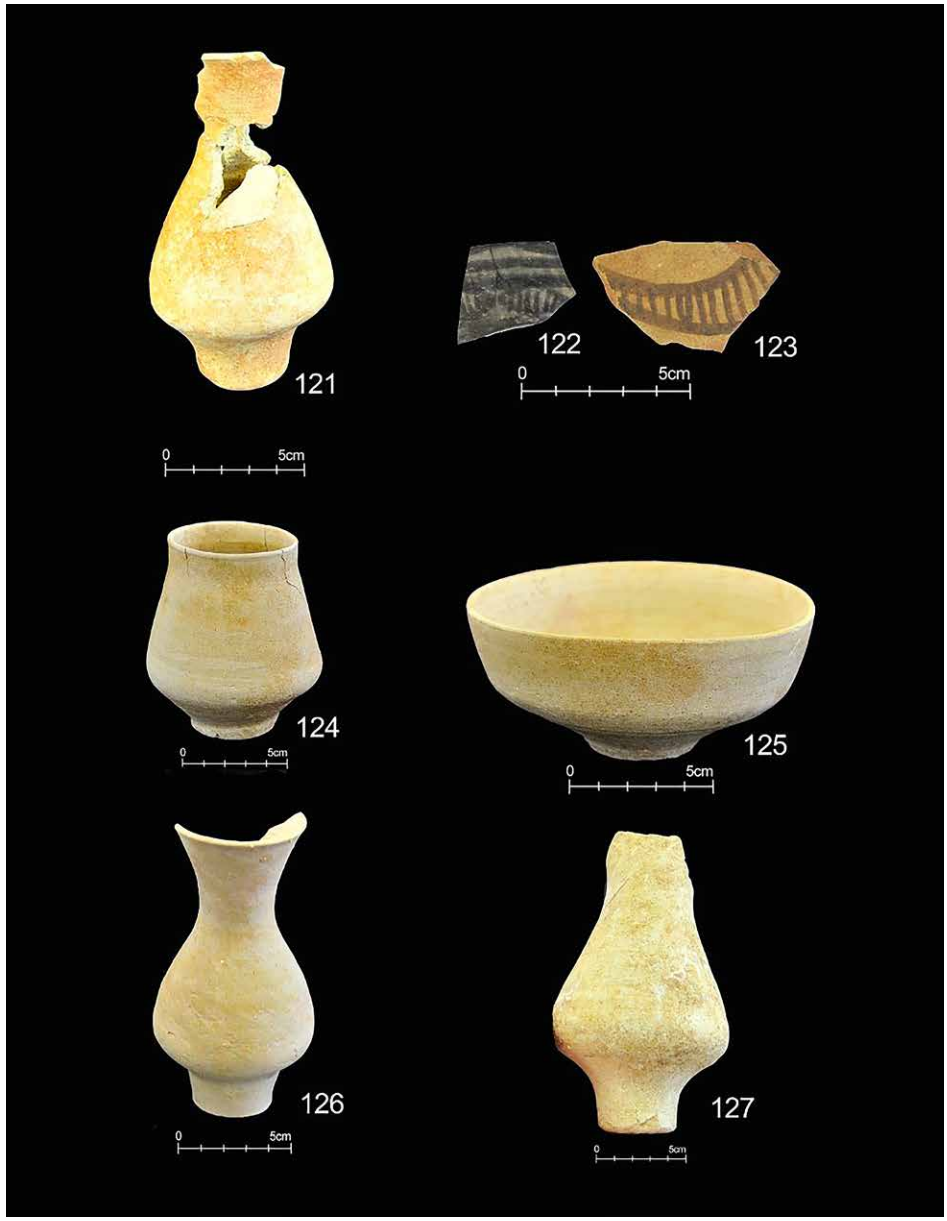


Figure 5.25 Tepe Sadegh, significant pottery from S.T.9, S.U.16, S.U.17 (© Rouhollah Shirazi).

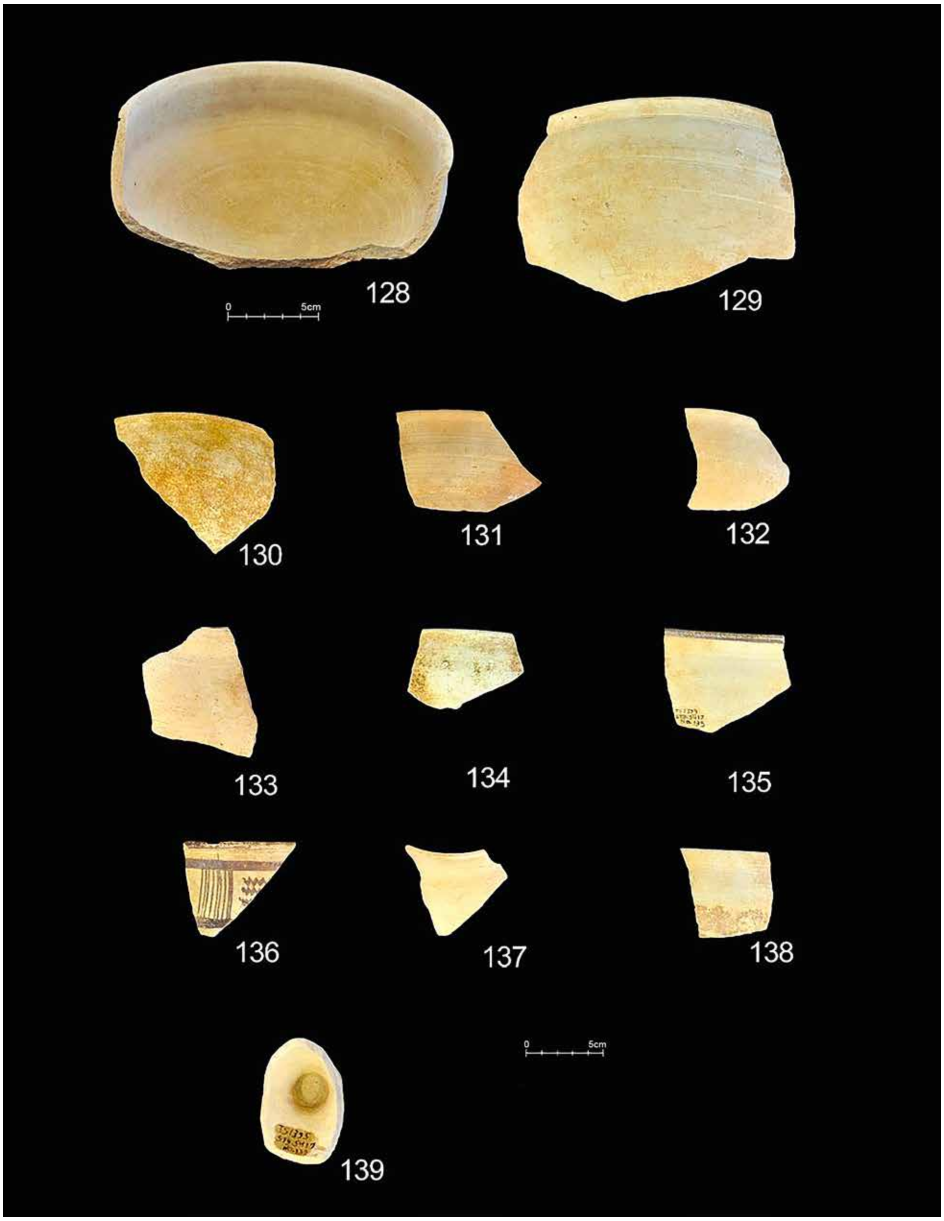


Figure 5.26 Tepe Sadegh, significant pottery from S.T.9, S.U.17 (© Rouhollah Shirazi).

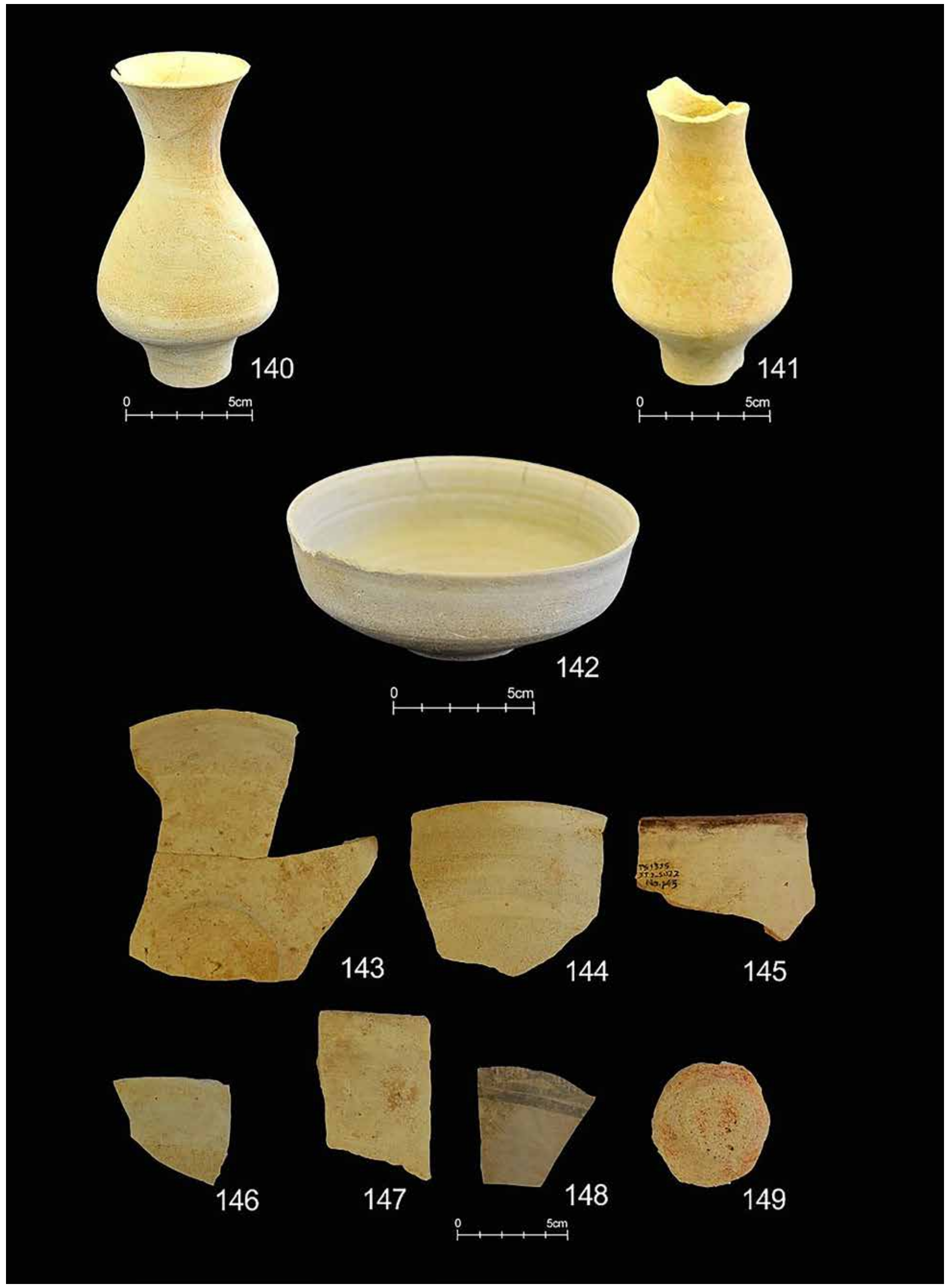


Figure 5.27 Tepe Sadegh, significant pottery from S.T.9, S.U.22 (© Rouhollah Shirazi).

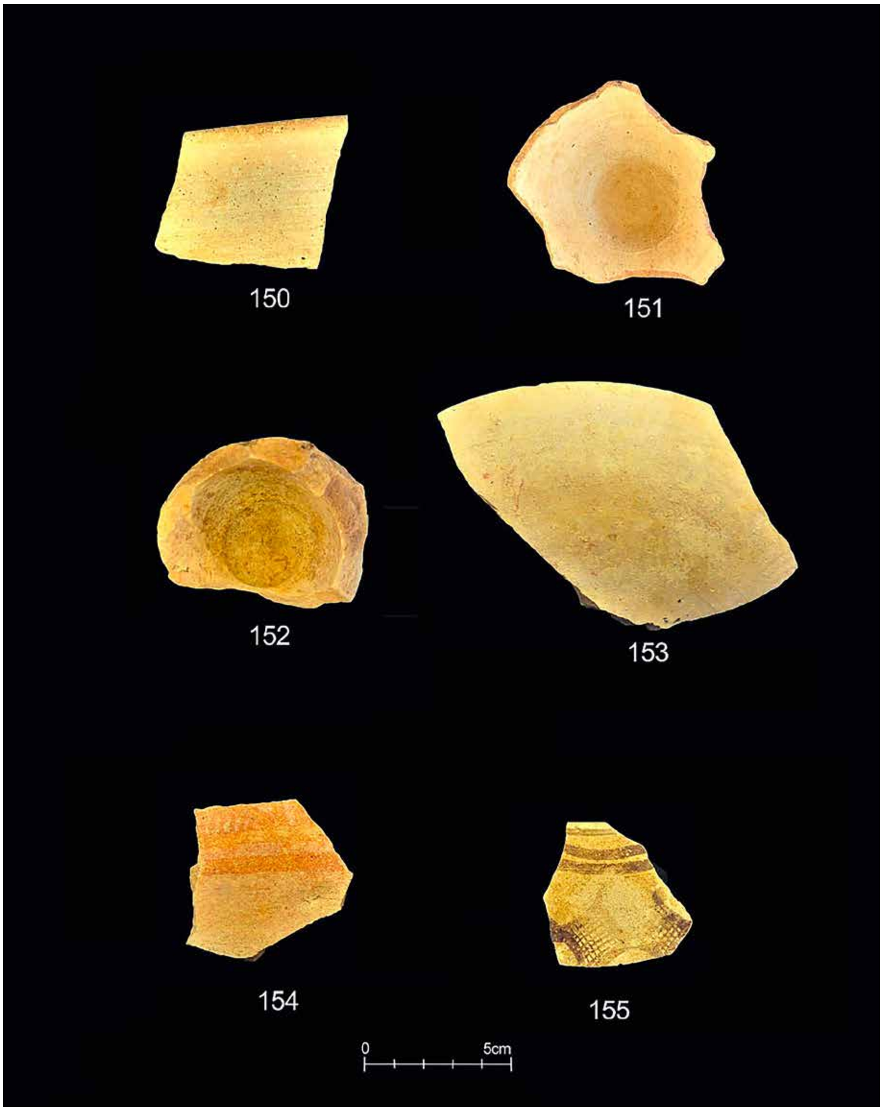


Figure 5.28 Tepe Sadegh, significant pottery from S.T.9, S.U.25, S.U.29 (© Rouhollah Shirazi).

5.2 Radiocarbon Dating

These eleven samples were measured at the LARA, the Laboratory for the Analysis of Radiocarbon with AMS at the University of Bern. OxCal v. 4.4.2[1] was used for this research with calibration data from IntCal 20, and the calibrated BCE values were used to model the dates at 2σ (95% confidence) (Ramsey 2009, 337–360). The result of the radiocarbon dating and all of the information regarding the samples can be seen in Tables 5.5–6 and Fig. 5.29.

These figures show that Tepe Sadegh ranges from 2880–2480 cal BCE corresponding to phase 8/7, period I, at Shahr-i Sokhta to phase 4/3, period III, at Shahr-i Sokhta based on Salvatori and Tosi's chronology. Based on Seyyed Sajjadi and Ascalone's chronology, Tepe Sadegh ranges from phase 6, period II, at Shahr-i Sokhta to phase 4/3, period III, at Shahr-i Sokhta.

1 Ramsey, https://c14.arch.ox.ac.uk/oxcal.html.

Sample label	Lab code	Trench	Stratigraphic unit	Context	Material	Date (uncal BP)	±1s (y)
TS 1395–No. 18	BE–12111.1.1	S.T.9	S.U.22	Charcoal and lime clod layer	Charcoal	4125	20
TS 1395–No. 22	BE–12113.1.1	S.T.9	S.U.49	Hearth	Charcoal	4076	20
TS 1395–No. 14	BE–12110.1.1	S.T.9	S.U.17	Debris	Charcoal	4094	20
TS 1395–No. 10	BE–12108.1.1	S.T.9	S.U.12	Ash and burnt soil deposit	Charcoal	4121	20
TS 1395–No. 19	BE–12112.1.1	S.T.9	S.U.29	Ash lens	Charcoal	4104	21
TS 1395–No. 11	BE–12109.1.1	S.T.9	S.U.16	Debris	Charcoal	4086	20
TS 1395–No. 8	BE–12107.1.1	S.T.9	S.U.3	Room-filling	Charcoal	4102	20
TS 1395–No. 2	BE–12106.1.1	S.T.9	S.U.3	Room-filling	Charcoal	4046	20
TS 1395–No. 1	BE–12105.1.1	S.T.9	S.U.2	Charcoal and lime clod layer	Charcoal	3994	20
TS 1392–No. 10	BE–12104.1.1	S.T.6	S.U.16	Ash and char-coal-rich layer	Charcoal	4048	20
TS 1392–No. 9	BE–12103.1.1	S.T.6	S.U.14	Hearth	Charcoal	4047	20

Table 5.5 Radiocarbon dates from Tepe Sadegh.

Lab code	Unmodelled (BC)		Modelled (BC)	
Tepe Sadegh	from	to	from	to
BE-12111.1.1	2866	2581	2874	2663
BE-12113.1.1	2845	2496	2851	2641
BE-12110.1.1	2850	2505	2840	2617
BE-12108.1.1	2864	2580	2826	2595
BE-12112.1.1	2857	2574	2697	2584
BE-12109.1.1	2847	2500	2658	2577
Combine Su 3	2830	2500	2621	2571
BE-12107.1.1	2853	2575	2621	2571
BE-12106.1.1	2626	2476	2621	2571
BE-12105.1.1	2571	2467	2574	2520
BE-12104.1.1	2628	2476	2555	2494
BE-12103.1.1	2627	2476	2526	2476

Table 5.6 Calibrated and modelled dates with 95.4% confidence from Tepe Sadegh.

5.3 Absolute Chronology of Comparable Sites

5.3.1 Shahr-i Sokhta

Absolute dating from Tepe Sadegh can be compared with absolute dates from Shahr-i Sokhta and neighbouring sites such as Miri Qalat, Damb Sadaat, Nausharo, and Mundigak. Salvatori and Tosi published uncalibrated dates from different phases of Shahr-i Sokhta (Table 5.7) (Salvatori/Tosi 2005, 291). Based on these data, an absolute chronology of Shahr-i Sokhta has been calculated by OxCal v. 4.3.2 for the present work with calibration data from IntCal 20, and the cal BCE produced the modelled dates at 2σ (95% confidence) (Ramsey 2009, 337–360). The result in Figs. 5.30–31 show that Shahr-i Sokhta was inhabited between 3500 BCE to 1500 BCE

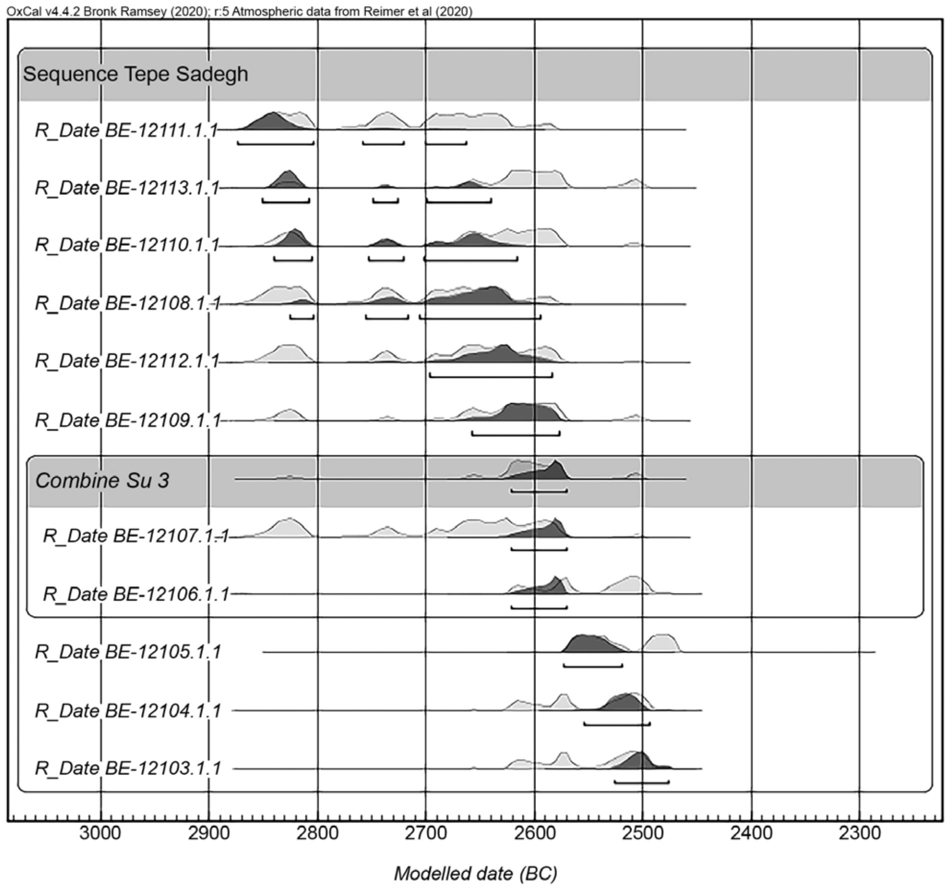


Figure 5.29 Calibrated and modelled sequence from Tepe Sadegh.

5.3.2 Miri Qalat

Comparing the radiocarbon dates from Tepe Sadegh and Shahr-i Sokhta to those obtained from neighbouring sites such as Miri Qalat, Nausharo, Damb Sadaat, and Mundigak is necessary to evaluate the relative chronology of these sites with the absolute dates. Available radiocarbon dates from Miri Qalat are from periods IIIa, IIIb, and IV, which can be compared to periods I–IV at Shahr-i Sokhta (Tables 5.8 and 5.14). Based on this, the absolute chronology of Miri Qalat has been calculated by OxCal v. 4.4.4 for this work with calibration data from IntCal 20. The cal BCE produced the modelled dates at 2σ (95% confidence) (Fig. 5.32) (Ramsey 2009, 337–360). It is necessary to mention that the sample Gif-8501, with a date 3050 ±100 BP, is not compatible with the rest of the data; therefore, this date was rejected from the program.

The earliest evidence of settlement at Miri Qalat relates to the 5th millennium BCE. Except for a gap in the 2nd millennium BCE, the site was continuously occupied until the late Islamic period. Fig. 5.32 shows Miri Qalat IIIa–b is parallel to Shahr-i Sokhta I, and Miri Qalat IV is contemporary with Shahr-i Sokhta II, III, and IV, which is different according to the relative chronology. Based on the relative chronology, Miri Qalat IV can be compared to periods III and IV at Shahr-i Sokhta. The discrepancy between relative and absolute chronology data could be due to the limited amount of radiocarbon dating and the relative chronology available for the Miri Qalat site.

Lab code	Phase	Period	Date (uncal BP)	±1s (y)
TUNC 61	Pre-10	I	4480	100
P–2543	10	I	4200	60
R–629	10	I	4200	50
e Beta 25899	9	I	4150	80
R–633a	7	II	4170	50
P–2546	7	II	4170	70
P–2076	7	II	4160	60
P–2081b	7	II	4150	70
R–638	7	II	4150	50
P–2541	7	II	4080	70
P–2076a	7	II	4080	60
P–2086	7	II	4080	60
P–2070	6	II	4070	60
P–2079	6	II	4060	70
R–623	6	II	4050	50
P–2544	5	II	4060	70
R–627	5	II	4020	50
R–628	5	II	4000	50
R–641	5	II	4000	50
R–637a	5	II	4000	50
P–2542	5	II	3990	60
Tunc 24	4	III	3943	70
R–626	4	III	3890	50
Tunc 27	3	III	3890	90
Tunc 22	2	IV	3829	61
R–900	1	IV	3730	50
R–898	1	IV	3680	50
R–901a	0	IV	3540	50
Tunc 63	0	IV	3430	70

Table 5.7 Radiocarbon dates from Shahr-i Sokhta (Salvatori/Tosi 2005, 291).

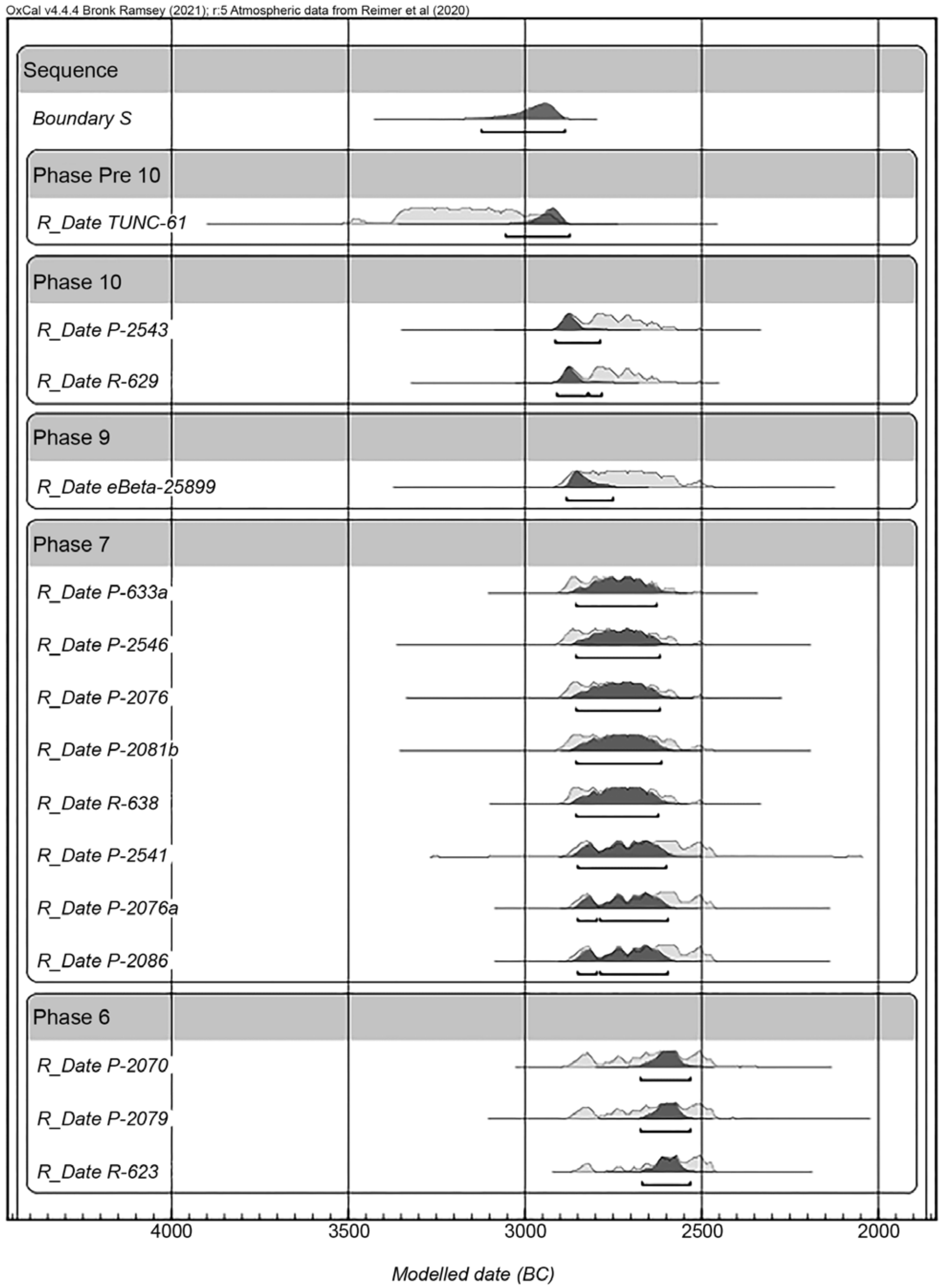


Figure 5.30 Calibrated and modelled sequence from Shahr-i Sokhta.

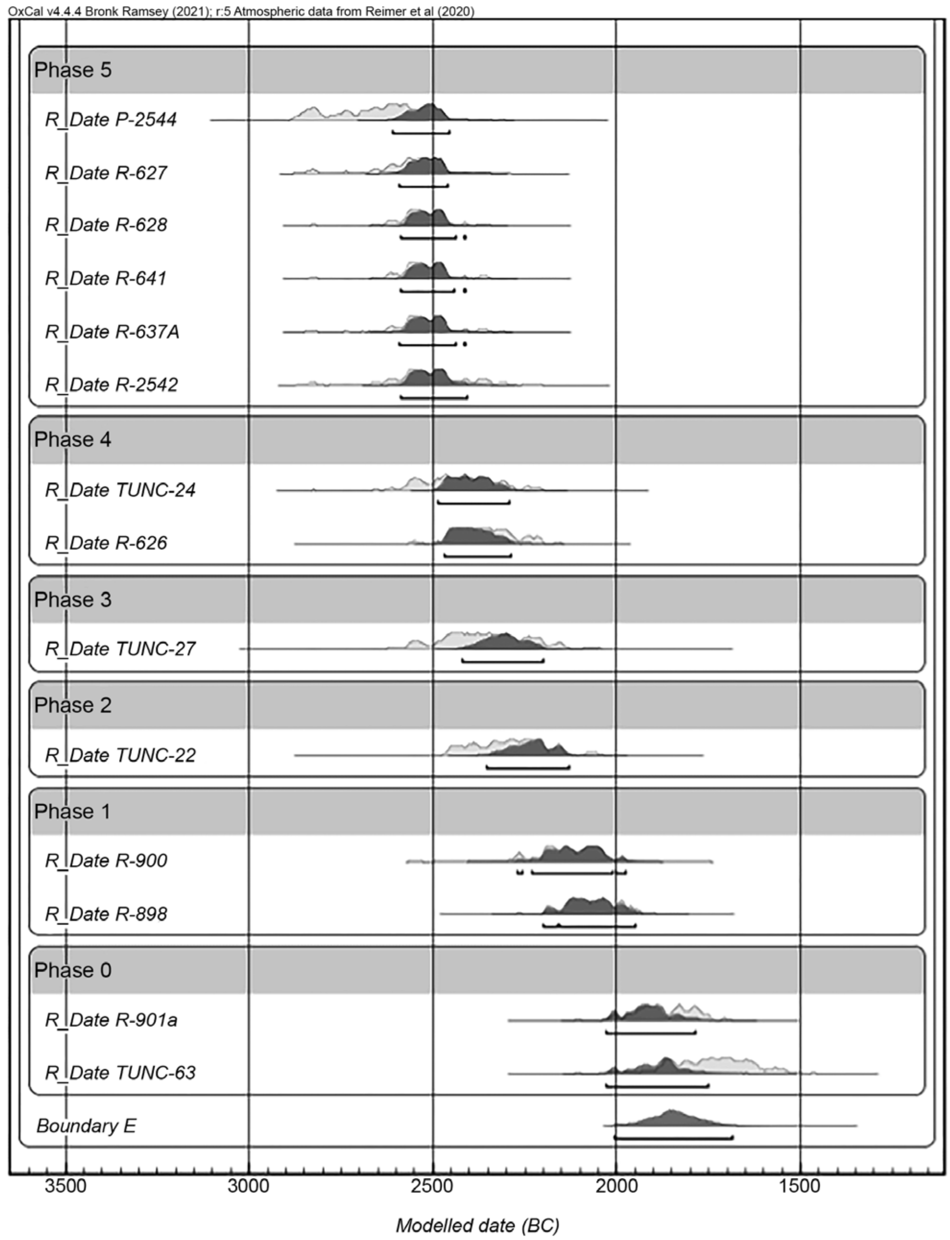


Figure 5.31 Calibrated and modelled sequence from Shahr-i Sokhta.

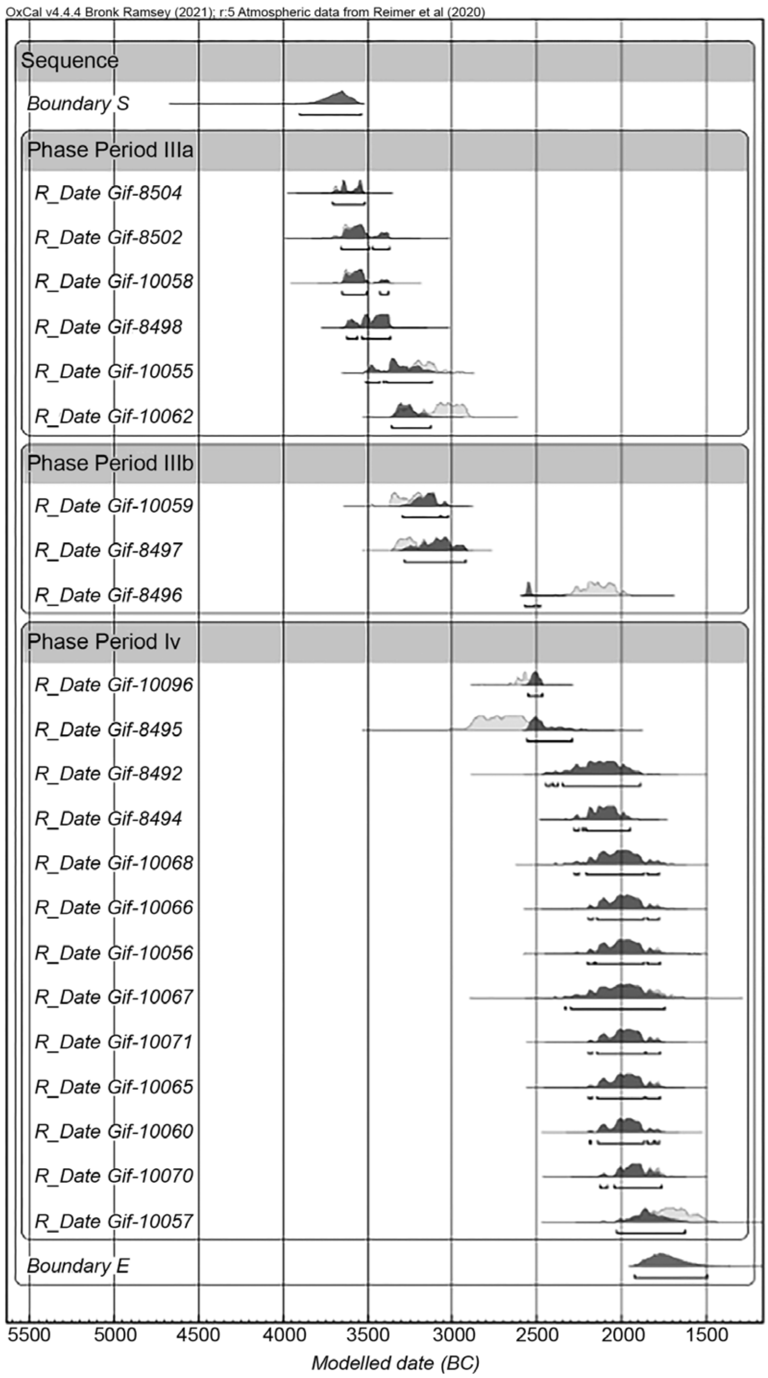


Figure 5.32 Calibrated and modelled sequence from Miri Qalat.

Table 5.8 Radiocarbon dates from Miri Qalat (Salvatori/Tosi 2005, 291).

Lab code	Period	Date (uncal BP)	±1s (y)
Gif–8504	IIIa	4860	50
Gif–8502	IIIa	4800	70
Gif–10058	IIIa	4795	50
Gif–8498	IIIa	4700	50
Gif–10055	IIIa	4560	60
Gif–10062	IIIa	4410	60
Gif–8501	IIIa	3050	100
Gif–10059	IIIb	4530	50
Gif–8497	IIIb	4450	50
Gif–8496	IIIb	3740	60
Gif–8495	IV	4110	110
Gif–10096	IV	4040	30
Gif–8492	IV	3720	90
Gif–8494	IV	3710	50
Gif–10068	IV	3640	80
Gif–10067	IV	3620	110
Gif–10066	IV	3620	70
Gif–10056	IV	3620	75
Gif–10071	IV	3610	70
Gif–10065	IV	3610	70
Gif–10060	IV	3610	60
Gif–10070	IV	3570	60
Gif–10057	IV	3420	95

Table 5.9 Radiocarbon date from Mundigak (Salvatori/Tosi 2005, 291).

Lab code	Period	Date (uncal BP)	±1s (y)
GSY–53	III	4185	150

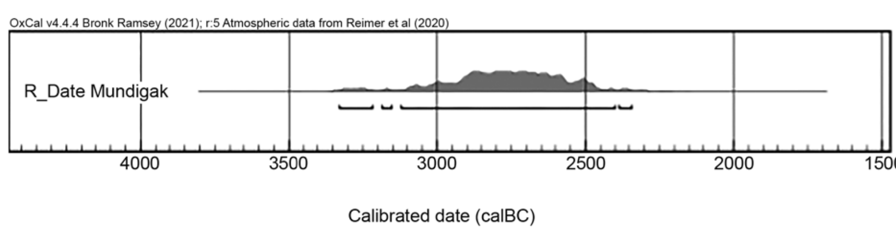


Figure 5.33 Calibrated and modelled date from Mundigak.

5.3.3 Mundigak

One available radiocarbon date from Mundigak is based on samples from period III of the site concomitant with periods I and II at Shahr-i Sokhta (Tables 5.9 and 5.14). Based on this, the absolute chronology of Mundigak was calculated by OxCal v. 4.4.4 for this study with calibration data from IntCal 20, and the cal BCE produced the modelled dates at 2σ (95% confidence) (Ramsey 2009, 337–360). As shown in Fig. 5.33, Mundigak III is comparable to Shahr-i Sokhta I and II, phases 9, 8, and 7.

Lab code	Period	Date (uncal BP)	±1s (y)
Beta–18842	Ic	4030	70
Beta–18843	Ic	4070	70
Beta–18844	Ic	4010	80

Table 5.10 Radiocarbon dates from Nausharo (Salvatori/Tosi 2005, 291).

Lab code	Period	Date (uncal BP)	±1s (y)
P–522	II	4379	186
P–523	II	4029	74
L–180c	II	4375	412
L–180e	II	4375	361

Table 5.11 Radiocarbon dates from Damb Sadaat (Salvatori/Tosi 2005, 291).

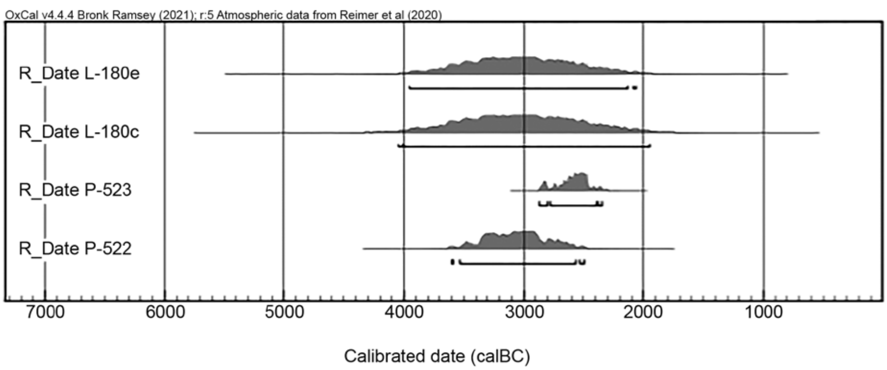


Figure 5.34 Calibrated and modelled sequence from Nausharo.

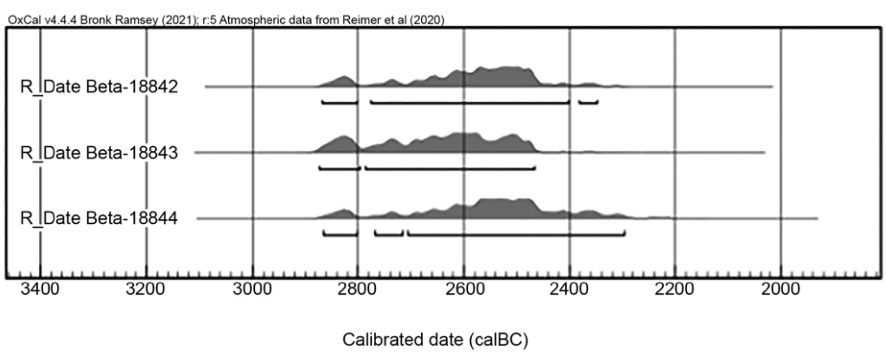


Figure 5.35 Calibrated and modelled sequence from Damb Sadaat.

5.3.4 Nausharo

Available radiocarbon dates from Nausharo are from period Ic, which can be compared to period IV–II at Shahr-i Sokhta (Tables 5.10 and 5.14). The absolute chronology of Nausharo (Fig. 5.34) was done by OxCal v. 4.4.4 for the present work with calibration data from IntCal 20, and the cal BCE produced the modelled dates at 2σ (95% confidence) (Ramsey 2009, 337–360). As shown in Table 5.14, Nausharo Ic and Shahr-i Sokhta I–II, phases 9, 8, and 7 are contemporary.

5.3.5 Damb Sadaat

Available radiocarbon dates from Damb Sadaat are from period II, which can be compared to period I and II at Shahr-i Sokhta (Tables 5.11 and 5.14). Based on it, the absolute chronology of Damb Sadaat was done by OxCal v. 4.4.4 for this work with calibration data from IntCal 20, and the modelled dates were calculated by the cal BCE at 2σ (95% confidence) (Fig. 5.35) (Ramsey 2009, 337–360). According to Table 5.14 Damb Sadaat II is contemporaneous with Shahr-i Sokhta I and II phases 10–6.

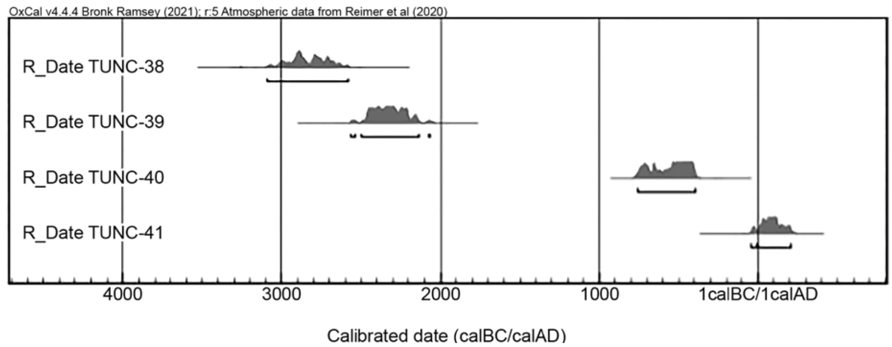


Figure 5.36 Calibrated and modelled sequence from Tepe Yahya.

Table 5.12 Radiocarbon dates from Tepe Yahya (Open Access Database for absolute chronological archaeological information, XRONOS).

Lab code	Period	Date (uncal BP)	±1s (y)
TUNC–38	IV	4254	85
TUNC–39	IV	3859	71
TUNC–40	IV	2415	65
TUNC–41	III	1943	49

Table 5.13 Calibrated dates from Tepe Graziani (Kavosh *et al.* 2019, 151).

Lab ID	Material	Context	Calibration
MAMS–30029	Charcoal	Tr. II, C. 2004, RN. 2024, D: 57cm	Cal 1-sigma BCE 2565–2478, Cal 2-sigma BCE 2572–2471
MAMS–30030	Charcoal	Tr. II, C. 2007, RN.2032, D: 66cm	Cal 1-sigma BCE 2617–2494, Cal 2-sigma BCE 2828–2481
MAMS–30031	Charcoal	Tr. II, C. 2021, RN.2076, D:152cm	Cal 1-sigma BCE 2577–2491, Cal 2-sigma BCE 2619–2476
MAMS–30032	Charcoal	Tr. II, C. 2042, RN.2135, D: 244cm	Cal 1-sigma BCE 2852–2624, Cal 2-sigma BCE 2863–2580
MAMS–30033	Animal bone	Tr. II, C. 2058, RN.2174	Cal 1-sigma BCE 2848–2584, Cal 2-sigma BCE 2860–2576
MAMS–30034	Charcoal	Tr. III, C. 3018, RN.3159	Cal 1-sigma BCE 2456–2344, Cal 2-sigma BCE 2464–2296

5.3.6 Tepe Yahya

The few available radiocarbon dates from Tepe Yahya are from periods III and IV, with a gap that can be compared to all periods at Shahr-i Sokhta (Tables 5.12 and 5.14). The absolute chronology of Tepe Yahya was done by OxCal v. 4.4.4 for this work with calibration data from IntCal 20, and the cal BCE calculated the modelled dates at 2σ (95% confidence) (Fig. 5.36) (Ramsey 2009, 337–360). As shown in Table 5.14, Tepe Yahya III and IV is contemporaneous with all of the phases and periods at Shahr-i Sokhta.

5.3.7 Tepe Graziani

In recent excavations at this site, seven radiocarbon samples were selected based on the stratigraphic context from trench II and III, Radiocarbon dating was done at Curt-Engelhorn-Zentrum Archaeom in Manheim Germany (Table 5.13) (Kavosh *et al.* 2019, 151–153). The chronological framework based on these data appears to be similar to that proposed by Seyyed Sajjadi and Ascalone:

- Period II, phase 6, ? –2850 BCE
- Period II, phase 5, 2850–2600 BCE
- Period III, phase 4, 2600–2550 BCE
- Period III, phase 3, 2550–2350 BCE

BCE	Afghanistan	Pakistan			Archaeological sites of Southeast Iran				
	Mundigak	**Damb Sadaat**	**Nausharo**	**Miri Qalat**	**Tepe Yahya**	**Tepe Sadegh**	**Shahr-i Sokhta (Tosi)**	**Shahr-i Sokhta (Seyyed Sajjadi and Ascalone)**	**Tepe Talebkhan**
1500					?				
1600	V								
1700				IV					
1800					IVa		IV		
1900								?	II
2000	IV3								
2100	IV2							IV	
2200	IV1		III				III		
2300					IVb				I
2400			II			III		III	
2500		III	ID			II			
2600			IC IB			I	II	II	
2700			IA	IIIC					
2800	III	II		IIIB			I		
2900									
3000				IIIA	IVc				
3100									
3200	II	I							
3300									
3400	I				Va				

Table 5.14 Chronology of archaeological sites of southeastern Iran and neighbouring countries during the Bronze Age (Kavosh *et al.* 2020, 140; Lamberg-Karlovsky/Tosi 1973, 44; Salvatori/Tosi 2005, 290; Naseer/Jan 2018, 51).

Based on these data, Tepe Sadegh's timeline aligns with the beginning of Miri Qalat IV, Mundigak III, Nausharo Ic, Damb Sadaat II, and the end of period IVc at Tepe Yahya until the middle of period IVb. With earlier abandonment in Tepe Sadegh, it was almost from the same period as Tepe Graziani. In terms of chronology, Miri Qalat's radiocarbon dating holds greater reliability due to the larger number of samples available for analysis. However, it is crucial to note that dating for Nausharo, Damb Sadaat, Tepe Yahya, and particularly Mundigak (which has only one sample) is based on a limited number of radiocarbon samples. Therefore, conducting additional radiocarbon dating would be advisable for greater accuracy. Based on these radiocarbon dates, Tepe Sadegh can be associated with the early phases of Miri Qalat IV, as well as phases 9 to 4 of period I, II, and III in Tosi's chronology, and phases 6 to 4/3 of period II and III in Seyyed Sajjadi and Ascalone's chronology. For a comprehensive overview of chronological comparisons, please refer to Table 5.14.

Chapter Six: Synthesis and Conclusion

6.1 Synthesis

The proto-urban site of Shahr-i Sokhta dates back to the end of the 4th millennium BCE, making it one of the most significant in Iran. It is situated in the southern part of the Sistan Plain. Originally, this settlement started as a small and sparsely populated village. As the site developed, it expanded significantly, covering an area of up to 80 ha in its second and third phases.

During these later phases, there was a notable increase in pottery production, not only within Shahr-i Sokhta itself but also in surrounding satellite settlements. These satellite settlements became centres for pottery production, leading to the mass manufacturing of ceramics. This surge in pottery production created a substantial demand for kilns, and while there is limited evidence of kilns within Shahr-i Sokhta itself, the primary pottery workshops were established in these satellite centres. Among them, Tepe Rud Biaban 1 and 2 gained particular renown, as Tosi reported the presence of several pottery kilns and pottery workshops there.

Furthermore, the presence of a significant quantity of potsherds in Shahr-i Sokhta, coupled with the scarcity of evidence for pottery kilns, suggests that the local production capacity was insufficient to meet the growing demand. As a result, these satellite sites played a crucial role in supplementing the pottery production needs of the main site.

Tepe Sadegh, one of the satellite settlements associated with Shahr-i Sokhta, is noteworthy for its thick layer of potsherds. This settlement functioned as a residential village with various artisanal activities, including bead making, the production of stone vessels (using materials such as marble and alabaster), and metallurgical activities, though on a limited scale. Notably, Tepe Sadegh's period of occupation coincided with a period of expansion at Shahr-i Sokhta, specifically during phases II and III, spanning from 3000/2800 to 2300 BCE.

6.1.1 Pottery Classification Results

Pottery plays a crucial role in analysing archaeological discoveries. Through the examination of pottery, various aspects of a site can be understood, including its chronological sequence, the evolution of social structures, the distinctive styles of pottery decoration, and insights into cultural and commercial relationships. In the context of Shahr-i Sokhta, the pottery can be broadly categorised into four main groups: buff, grey, red, and polychrome. Throughout all periods at Shahr-i Sokhta, buff pottery stands out as the most prevalent, constituting between 89% and 99% of the total pottery discovered.

To investigate and analyse the pottery found at Tepe Sadegh, it was classified and studied from three overarching perspectives:

1. Technical characteristics: Examining the pottery's composition, construction, and firing techniques involves examining its physical properties.
2. Decorations: In this aspect, decorative elements and designs used on pottery provide insight into the artistic and aesthetic preferences of the pottery makers and users.
3. Form and shape: The study includes an evaluation of the various shapes and forms of pottery containers, shedding light on their intended functions and utilitarian purposes.

By examining the pottery at Tepe Sadegh through these lenses of classification, a comprehensive understanding of the site's material culture and its place within the broader archaeological context can be gained.

Technical characteristics of pottery

The studies conducted on Tepe Sadegh's pottery (1,959 pieces) indicate that, like at Shahr-i Sokhta, the most significant amount of pottery is buff and the temper used in the pottery's paste is mineral (fine to coarse sand), which is expected considering the dry climatic conditions of this region. In this study, buff ware represents 72.44%, dark red 19.15%, red 5.52%, grey 2.25%, and black 0.64%. The majority of Tepe Sadegh's pottery is buff ware, followed by dark red ware. Dark red ware falls between buff and red in tone and texture; the difference is in the darkness and brightness of the clay paste and the watery/thick slip colour. It is possible to include those with brighter clay paste in the buff ware group and those with darker clay paste in the red ware group. Pottery in red, grey, and black was the least abundant. Based on the statistics presented in the previous chapters, it can be concluded that the main pottery of Tepe Sadegh was buff ware.

Several factors affect pottery quality, such as the clay preparation process, firing, burnishing quality, soil quality, and minerals. Among these, firing and burnishing quality are the most important. As mentioned before, mineral temper (fine to coarse sand) was used in the pottery paste at Tepe Sadegh. All of the pottery is wheel-made and is coated with either a watery or a thick slip. Approximately 90% of the potsherds have a watery slip that does not completely cover the surface pores of the pottery. The rest are covered in thick slip or without slip, resulting in rough and coarse surfaces.

The quality of potsherds is also an important technical feature. Most potsherds are of medium quality, which is evident on their surfaces; however, the temper size also affects the quality. Another essential factor of technical quality is the firing rate. Controlled firing directly affects the final quality of the pottery. According to the study, about 97% of the potsherds were sufficiently baked, and only 3.42% were deficiently baked.

Decorations

Throughout history, Near Eastern cultures have demonstrated their artistic abilities and taste in pottery from the beginning of pottery production (around the 9th millennium BCE). The colourful pottery in Halaf, Susa, and Bakun were masterpieces of pottery art. During the late 4th millennium BCE, with the advent of urbanisation (social-economic complexity in the Near East), the tradition of painting pottery faded and was replaced by functional pottery, which was used in a variety of contexts during different periods.

Of the 1,959 studied potsherds, 767 (39.2%) had decoration. Of them, 704 (91.79%) had painted decorations, and 63 (8.21%) were engraved. The colours used for painting on the pottery were brown, red, and black. Brown was the most popular (83.2%,) and red and multicolour had minor scope (2.4%). The most frequent decorative patterns were geometric motifs (70%). They were used in single or combined forms; for example, parallel and straight lines, triangles, chain lines, rhomboids, and triangle lines. In general, straight and oblique lines can be seen more. They are in the form of single or double stripes on the edges or necks of the vessels. Fewer than 1% of them were decorated with animal motifs, in the form of two triangles that resemble butterflies. There is a low frequency of vegetal motifs, which are typically leaves (6.68%). There were no potsherds with evident motifs related to humans on them. About 22.87% of the paintings were combined patterns, mainly geometric and vegetal together.

The most prominent motif is an 'S'-shaped decoration, which cannot be seen outside of the Sistan civilisation. It is necessary to mention that similar motifs were found in Gardan-i Rig in Afghanistan. Still, due to the proximity to Shahr-i Sokhta (50 km), this may be attributed to the imagery of Sistan culture. There are decorative motifs on all pottery vessels regardless of their form; in other words, there is no specific type of pottery vessel on which the decorative motifs can be seen, and they are not restricted to one particular type.

Form and shape of containers

In archaeological analysis, the identification of vessel shapes is a complex process. Due to the many potsherds and their fragmentary state, it is challenging to identify their exact form. Another problem is that the naming of the vessels based on their shapes can vary. In addition, most potsherds are from the bodies of vessels, but the most prevalent method for finding the shape of vessels is by using their rims. In some cases, by measuring the thickness, the general shape can be identified; for example, bowls and goblets are less thick than food storage jars.

Bowls and goblets were extensively used. They have a similar general shape, with their opening diameter two times their bottom diameter. These vessels have diverse shapes of openings and body shapes. These vessels represent 11.28% of the potsherds. This study identified different rims in Tepe Sadegh's pottery, including direct, platter, bevelled, round, and inverted rims.

Tall jars with long necks and tight openings were used for storing liquids. Typically, such vessels feature a handle and a spout. However, at Tepe Sadegh, these features are not present. In this research, jars were the most frequent shape. Statistically, jars make up 47.12% of the potsherds, but they have the least decoration among the vessels (1.87%).

Due to their heavy weight, large jars were immobile and were mainly used to store food. Their frequency in this research is 6.6%. Their body shape can be divided into two types: with or without shoulders. Large jars with shoulders make up 38.7% and those without shoulders 43.6%. The other 18.7% of the large jars have no specific form. Decoration on these large jars is rare (only 0.7%).

6.1.2 Typological Comparisons Results

Among 1,959 significant potsherds, 1,393 could be compared typologically. Some potsherds were comparable with a single site, and some with multiple sites. There were 566 potsherds that could not be compared (mainly related to the uncertainty of form and decoration). As mentioned, there are 1,393 referred samples: 1,256 in southeastern parts of Iran, 95 in Afghanistan, and 42 in Pakistan. No comparable potsherds were found in Central Asia. There were 19 sites referred to for comparison, of which Shahr-i Sokhta, Mundigak, and Bampur had the highest comparison numbers. Miri Qalat, Tepe Yahya, Tepe Rud Biaban, Gardan-i Rig, Deh Morasi Ghundai, Gujranwala, Shahdad, Nurzai, Barra Kapoto, Domb Sadaat, Damin, Periano Gundai, Pathani Domb I, Nausharo, Quetta, and Mobi Damb are the other comparable sites in order.

The discussion of relationships is extensive, with many complexities. As a process of exchange, a relationship has many aspects, including commercial, social, and cultural. Relationships of this type can take place at any time and in any place. Urbanisation and civilisation cannot exist without cooperation between individuals (Bouquillon *et al.* 1996). Relationships were only sometimes direct, and sometimes through a mediator. Based on studies conducted on Shahr-i Sokhta, it had a relationship with many regions. This can be understood from several cultural data. The most crucial cultural data are pottery items. Based on these arguments, Shahr-i Sokhta had a relationship with regions in Afghanistan, Pakistan (Indian subcontinent), Central Asia, the southern coasts of the Persian Gulf, and many other areas. However, some of these sites were part of one culture but were divided into different countries as a result of modern political divisions.

It seems that Shahr-i Sokhta's satellite settlements formed during the thriving of Shahr-i Sokhta in period II; these satellite settlements had cultural relationships with other regions. However, most probably, these relationships were indirect through Shahr-i Sokhta. Based on typological references, the site showed similarities with the southeast of Iran (with 1,257 references) with the following sites: Shahr-i Sokhta, Bampur, Tepe Yahya, Tepe Rud-i Biaban, Shahdad, and Damin.

Shahr-i Sokhta, with 1,171 typological references, and Shahdad, with only two references, had the most and least similarities to Tepe Sadegh. It is possible to use this method to identify transregional similarities. Based on the references, Afghanistan has 95 references (Mundigak, Gardan-i Rig, Deh Morasi Ghundai, Nurzai), and Pakistan 41 references (Miri Qalat, Gujranwala, Barra Kapoto, Domb Sadaat, Periano Gundai, Pathani Domb I, Nausharo, Quetta, and Mobi Damb).

6.1.3 Cultural Relations

One significant way to understand ancient societies' cultural interactions and relationships is to analyse and compare cultural materials. Archaeologists can use various methods to study the cultural materials discovered from archaeological research. This helps reconstruct cultural, economic, and political interactions between human settlements.

Cultural relations and interactions between Iran (especially the southeastern part of the Iranian Plateau) and the Makran region (Baluchistan part of Pakistan) have a long history. The history of southeastern Iran in the 3rd millennium BCE coincides with developments such as the beginning of urbanisation, population growth, increasing transregional exchanges, and economic and social complexity. Extensive exchange networks connected the most important urban centres of the Iranian Plateau through trade routes. The best example of these trade routes is the lapis lazuli exchange route, which led to Susa and Mesopotamia with a focus on eastern Iran (Lamberg-Karlovsky/Tosi 1973, 27). Raw materials such as lapis lazuli, turquoise, and agate were exchanged on this active commercial route due to the significant needs of Mesopotamian cities in the 3rd millennium BCE.

Pottery

There is a similarity and correlation between the pottery found at Shahr-i Sokhta during the first period and the pottery found in southern Turkmenistan during the Bronze Age (Sarianidi 1983, 186). Regarding relations with southern Turkmenistan, according to anthropological studies, migration from Central Asia to Shahr-i Sokhta can be mentioned apart from cultural relations. Anthropological studies in Shahr-i Sokhta show some human skeletons from southern Turkmenistan (Sarianidi 1983, 186). In addition, some evidence from Shahr-i Sokhta points to a relationship between the southeastern and western parts of Iran. The evidence, such as a Proto-Elamite tablet, seals, and Proto-Elamite signs on pottery, show the relationship of Shahr-i Sokhta with Elamite territory in the first period (Meriggi 1977; Seyyed Sajjadi 2006, 162).

In the second period, more information has been obtained due to the very high number of cultural materials. The pottery shows similarities with eastern regions such as the Indus Valley and Afghanistan, and the figurines also show a connection with figurines from Central Asia (Namazga III and IV), especially periods III and IV in Mundigak, Afghanistan (Sarianidi 1983, 191). The relation of Shahr-i Sokhta (or in other words, Sistan) with the Proto-Elamite sites decreased in period II. There is also evidence of a connection with the eastern neighbours in period III, although this evidence diminishes over time. At the end of this period, Shahr-i Sokhta was transformed from a large city into a village with an area of almost 5 ha (although upcoming excavations may change this). As a result of this theory, it can be said that this period represents the decline of urbanisation in Sistan (Seyyed Sajjadi 2006, 164). Period IV was a different era in the Bronze Age civilisation of Sistan. It is during this period that, despite the fact that the process of collapse of the settlement continued, a number of obvious differences began to appear in comparison to the previous period; the most important one is the formation of unique pottery (incised grey ware) with decoration comparable to that of Baluchistan (Bampur) and Makran (Miri Qalat IIIc and IV) (Seyyed Sajjadi 2010, 246).

The Bronze Age civilisation of Sistan was a tremendous and dynamic civilisation of its time, significant both in terms of the growth of urban society and the expansion of the settlement. The formation of this civilisation is one of the most critical issues and, of course, has many hidden angles; according to archaeological research, there is no evidence of the establishment of the Neolithic and Chalcolithic periods in this region, indicating a migration to this region in the late 4th millennium BCE (beginning of the Bronze Age). Perhaps one of the most critical factors in the growth of Shahr-i Sokhta during period II was its significant role in the trade with the east and west (Indus, Baluchistan, Afghanistan, Mesopotamia, and Elam). This role probably lasted until the end of period III and disappeared in the early fourth period, which led to the gradual abandonment of the sites alongside climatic changes and drought in the area. At the end of period IV, including Shahr-i Sokhta, many sites in the eastern and northern parts of Iran were abandoned; the climate and weather changed during this period, causing Lake Hamun and the Helmand River to become dry. Besides trading, Shahr-i Sokhta depended on agriculture and water to survive. As a result, people may have been forced to relocate to another part of the Helmand Basin, though this is unclear and requires further research. Nowadays, due to the political situation between Iran and Afghanistan, there is no water in the Helmand River anymore. In consequence, Lake Hamun has dried up, and many people, whose livelihood and occupation once depended on it, have moved to other villages or big cities.

Potter's marks

At sites such as Shahr-i Sokhta, Shahdad, and Tepe Yahya, numerous potter's marks have been found. According to some researchers, potter's marks have different functions: they could be interpreted as a potter's sign, a workshop or family sign, a measurement sign, or an abbreviation sign for trade (Seyyed Sajjadi 2014, 33). At Tepe Sadegh, twenty potter's marks have been found so far. Potter's marks must be studied from a variety of perspectives.

These signs can be seen only in some vessels, such as buff, pear-shaped beakers in Shahr-i Sokhta and red ware jars in Shahdad.

Similar marks can be seen at different sites; these could be considered trademarks, and similarities between the marks at other sites indicate a trade connection. The use of similar marks at different sites suggests an association between them and a systematic network.

The marks are thought to have been made specifically for burial goods and are associated with inhumation because they were discovered in some graves of Shahr-i Sokhta, which were not used, and specifically were made for burials and inhumation. However, pottery with these marks and symbols has been found in Tepe Sadegh and the residential area of Shahr-i Sokhta.

According to some researchers (Potts 1981, 117; Seyyed Sajjadi 2014, 17), potter's marks have similarities to Sumerian cuneiform, Proto-Elamite, and Pre-Harappan writing systems. These similarities could be considered evidence of a primary writing system.

The function of the potter's marks at Tepe Sadegh is not clear (Fig. 4.12). By comparing them with those at Shahr-i Sokhta, Shahdad, and Tepe Yahya, it is clear that all of the potter's marks at Tepe Sadegh are similar to Shahr-i Sokhta's, except marks 1 and 2 (it is worth mentioning that potter's mark no. 1 has also been identified at Tepe Yahya) (Potts 1981, 118). It is not possible to conduct an analysis of the function of these potter's marks; however, their similarities between the Tepe Sadegh and Shahr-i Sokht marks indicate that they served the same purpose.

In Shahdad, these signs were engraved or stamped only on redware jars (graveyard A). On the other hand, the potter's marks at Tepe Yahya were mainly on handmade and coarse ware fragments (Potts 1981). Based on Seyyed Sajjadi's work, of 444 marks at Shahr-i Sokhta, eleven marks are common at Shahr-i Sokhta, Tepe Yahya, and Shahdad, nine marks are common only at Shahr-i Sokhta, and Shahdad and twelve are common only at Shahr-i Sokhta and Tepe Yahya; these similarities are not meaningless (Seyyed Sajjadi 2014, 25). The common marks among the three sites are shown in Fig. 6.1, which six of them observed on the potsherds from Tepe Sadegh: marks 4, 7, 8, 9, 10, 11, 12, 14, 15, 16, 17, 18, and 20 (Fig. 4.12). Some of these common marks have been found at other sites, such as Balakot (mark 16) (Dales 1979), Sohr Damb/Nal (marks 17 and 18) (Cortesi/Franke 2015, 175), Mundigak (marks 10, 12, 13, 14, and 15) (Casal 1961, Figures 93 and 105), Central Asia (marks 7, 10, 15, and 17) (Masson/Sarianidi 1972), and in the Quetta Valley, such as Mehrgarah (marks 3, 11, 12, 13, and 17) (Quivron 1980, 270–273).

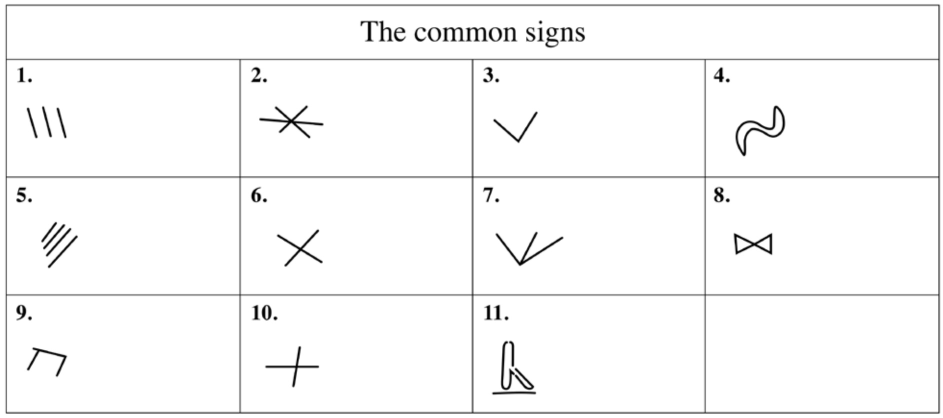


Figure 6.1 Common marks between Tepe Yahya, Shahdad, and Shahr-i Sokhta (after Seyyed Sajjadi 2014; modified by Andrea Bieri, University of Bern).

Although compared with other sites, the marks at Tepe Sadegh are simple, these potter's marks and the similarities with other sites indicate that Tepe Sadegh also participated in cultural exchanges in the area; nevertheless, it was likely indirectly, through Shahr-i Sokhta. For instance, the sign X, which is the second most common mark among Shahr-i Sokhta, Shahdad, and Tepe Yahya, is visible on Tepe Sadegh's pottery as well. This sign can be seen at other sites, such as Mundigak, Quetta Valley, Bacteria (Sarianidi 1977), Afghani Sistan (Fairservis 1961, Figure 19), and the southern part of India (Lal 1962). This indicates that some of Tepe Sadegh's pottery has been used in the trade exchange system between Shahr-i Sokhta and other sites, such as Mundigak, Shahdad, and Tepe Yahya.

Figurines

At Shahr-i Sokhta, many unbaked and baked human and zoomorphological figurines were found from all periods. The production of more animal figurines is associated with the way of life of ancient people. Human figurines have been found mainly in monumental and industrial areas. Until now, no figurines have been found in the graveyard except a tiny clay figurine in grave No. 6513, which belonged to a newborn (Seyyed Sajjadi/Casanova 2006, 354). Human figurines have more diversity than animal figurines on the site. Most of them were found in monumental and industrial areas; most of the time, they have been found in the filling of rooms, and some on the floor. Most of the human figurines found in the centre of the monumental area in X room and the industrial zone in room 1 were broken or defective. Female figurines are sitting or standing with large bellies and breasts and long legs. Typically, male figurines hold up their hands or surrender their hands to the sky and wear long cloaks. The figurines are mostly made of clay, but some are made of stone and bronze. The human figurines can be divided into cross-shaped, seated, and cylindrical figurines (Shirazi 2007, 152).

Cross-shaped figurines, at 2–4 cm in size, are the most common at Shahr-i Sokhta. These standing figurines generally have no facial features, but sometimes have decorations and clothes. These figurines with closed legs can be seen mainly in Iran, Pakistan (Mehrgarh), and Turkmenistan in the 3rd millennium BCE (periods II and III at Shahr-i Sokhta). This provides another example of the connection between these Bronze Age settlements in the 3rd millennium BCE. Cross-shaped figurines have been found in Iran (Shahdad, Tepe Hissar, and Turang Tepe), southern Turkmenistan (Namzga III and IV, Geoksjur), Afghanistan (Mundigak III), and Pakistan (Damb Sadaat II and III) (Tosi 1976, 195; Tosi 1983, 306). According to anthropological immigration theory, various beliefs, customs, and art from Turkmenistan are attributed to Turkmen immigrants in Shahr-i Sokhta. Therefore, when studying these figurines, they should not be seen as representing a distinct local identity, but rather as manifestations of a migrated identity that is challenging to trace. Most of the female figurines at Shahr-i Sokhta are in a sitting position (period I). Almost all of the female figurines have no head, which is a continuity of tradition from

Figure 6.2 Tepe Sadegh's cross figurine (© Rouhollah Shirazi).

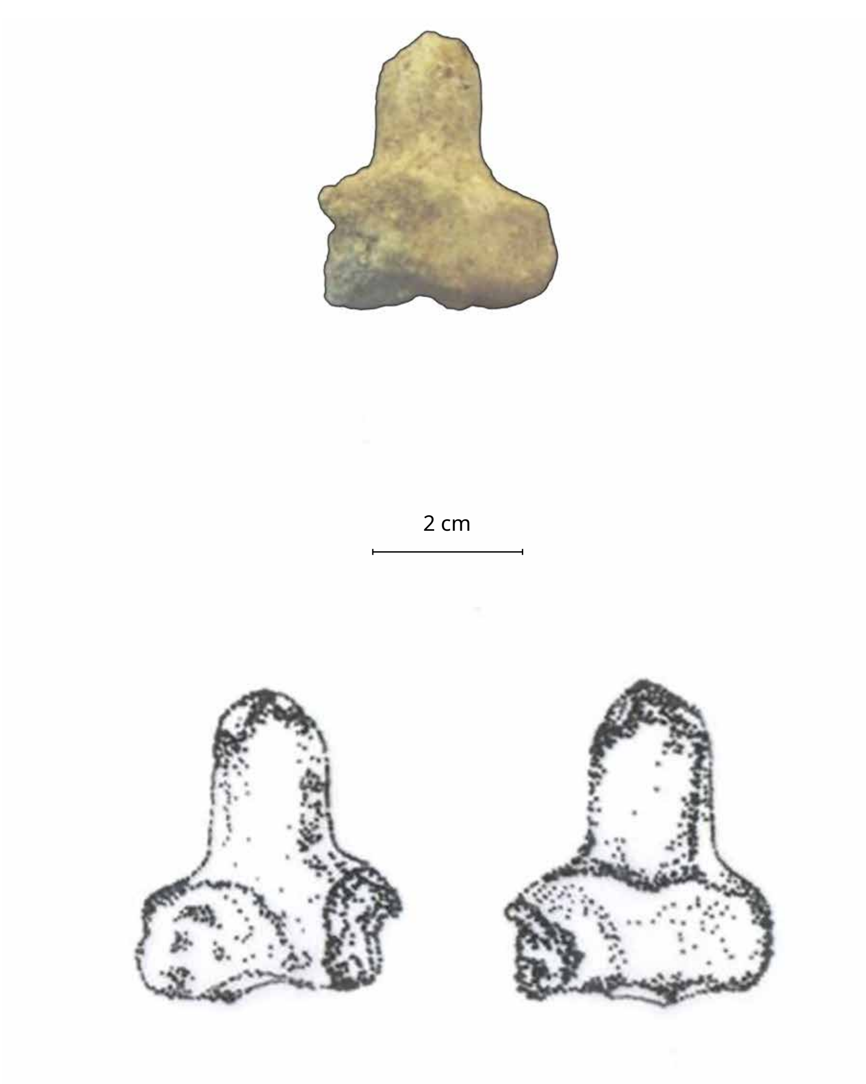


Figure 6.3 Tepe Sadegh's broken figurine (© Rouhollah Shirazi).

Neolithic times. In Baluchistan, female figurines with open arms and legs and big breasts are referred to as "Zhob-style" (the goddess of Zhob).

Some clay human and animal figurines were found at Tepe Sadegh, and most were broken. Human figurines are mainly in a torso shape and schematic. The zoomorphological figurines (also largely broken) have been elaborated more than human figurines. A majority of the animal figurines on the Sistan Plain are depictions of bulls (zebu figurines), illustrating this animal's important role in the Bronze Age subsistence economy of the region.

At Tepe Sadegh, a cross-shaped female figurine (6.4 cm in height and 1.5 cm thick) with clay decoration on the neck and no facial features was found during the fifth season of excavation in S.T.7, S.U.8 (Fig. 6.2). Another example is a broken figurine (3.5 cm × 2.7 cm and 1.5 cm thick) from the fifth season from S.T.8, S.U.22 (Fig. 6.3). In comparison with those found at Shahr-i Sokhta, this broken figurine can be dated to periods I–II of the Shahr-i Sokhta sequence and the cross-shaped figurine can be dated to periods II–III of Shahr-i Sokhta. Twenty-six figurines (including three anthropomorphic figurines) were found at Tepe Dasht, another satellite settlement of Shahr-i Sokhta, in contrast to numerous figurines found at Shahr-i Sokhta. Another point is that most of them were made of unbaked clay, schematic, and without decorations, while Baluchistan figurines (at Mehrgarh) were made with many decorations and details in a professional style. Therefore, it can be concluded that two coroplastic conventions developed in the Indo-Iranian borderlands: a schematic style in Sistan and a professional style in northern Baluchistan. The Sistan's figurines seem to be influenced by the Turkmen coroplastic tradition developed in the Tedjen Delta (Shirazi 2007; 2008).

6.2 Chronology

Based on the pottery, 1,394 potsherds out of 1,959 could be compared with surrounding Bronze Age settlements. Most similarities were with southeast Iran, followed by Pakistan and Afghanistan. Shahr-i Sokhta (with 1,171 comparable potsherds), Bampur (with 53), and Tepe Yahya (with 23) were the main comparable sites in Iran. Mundigak (with 84), and Miri Qalat (with 32) were the main comparable sites in Pakistan and Afghanistan, respectively (Fig. 6.4). These potsherds are mainly comparable with those of Miri Qalat III, Mundigak IV, Tepe Yahya IVB, Bampur IV, Rud Biaban III, and Shahr-i Sokhta II and III. As can be seen in Fig. 6.5, most of these comparable potsherds are from 2700 BCE to 2300 BCE, which, based on all old and new chronologies, belong to periods II and III of Shahr-i Sokhta. Based on the pottery typology and comparisons that have been made, Tepe Sadegh can be dated as being part of the second and third periods of Shahr-i Sokhta.

A settlement at Tepe Sadegh was established during periods II and III of Shahr-i Sokhta, as discussed in Chapter Five. Most of the potsherds belong to phases 6, 5, 4, and 3 (periods II and III of the Shahr-i Sokhta sequence). Based on the radiocarbon results, Tepe Sadegh is dated from 2880 to 2480 cal BCE, which means phase 9/end of period I, period II, and III based on Tosi's chronology and phase 6, period II at Shahr-i Sokhta until phase 4 and 3, period III at Shahr-i Sokhta based on Seyyed Sajjadi and Ascalone's chronology (Table 6.1).

As discussed in Chapter Three, Tepe Sadegh was a semi-industrial site, so it can be concluded that this settlement was established as a small working place during phase 6. Tepe Sadegh developed into a semi-industrial centre as Shahr-i Sokhta grew and urbanised, and ceramic production reached its climax due to increased demand from the metropolis.

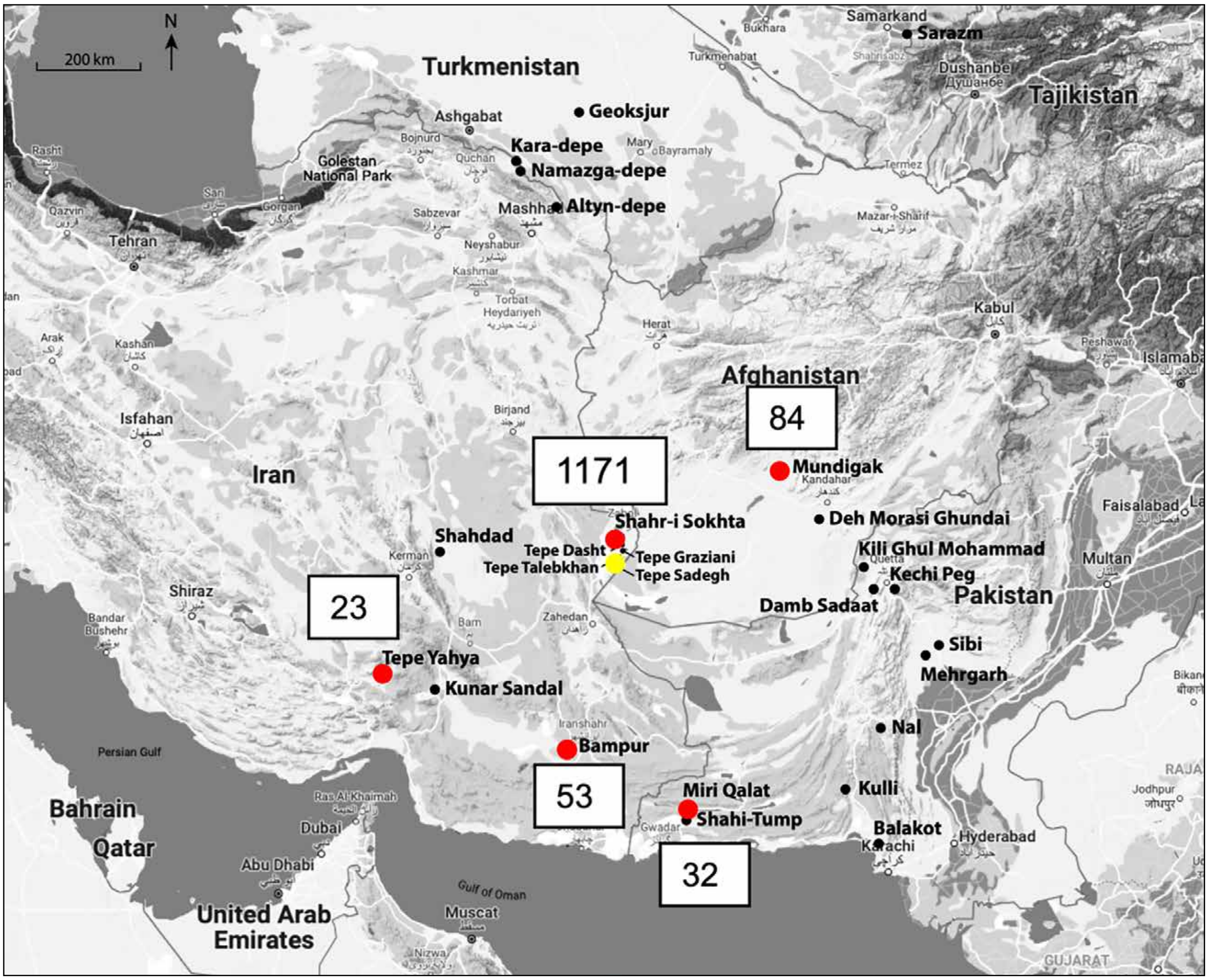


Figure 6.4 Main sites comparable with Tepe Sadegh (after Cortesi *et al.* 2008; modified by Andrea Bieri, University of Bern).

Absolute chronology	Shahr-i Sokhta Salvatori and Tosi (2005)	Shahr-i Sokhta (Area 33) Seyyed Sajjadi and Ascalone (2019)	Tepe Graziani Kavosh *et al.* (2019, 151–153)	Tepe Sadegh
3300–3000 BCE	Period I, Phases 10, 9	Period II, Phase 7		
3000–2850 BCE	Period I, Phase 8/7	Period II, Phase 6	Period II, Phase 6	Tepe Sadegh I
2850–2600 BCE	Period II, Phases 6, 5	Period II, Phase 5	Period II, Phase 5	Tepe Sadegh II
2600–2450 BCE	Period III, Phases 4, 3	Period III, Phases 4,3	Period III, Phases 4, 3	Tepe Sadegh III
2450–2350 BCE	Period III, Phase 2	Period III, Phase 2, and Period IV, Phase 1	Period III–IV, Phase 2–1/0	
2350–2200 BCE	Period IV, Phase 1 Gap	Gap		
2200–2000 BCE	Period IV, Phase 0	Period IV, Phase 0		
2000–1800 BCE	Abandon	?		

Table 6.1 Different chronologies of Shahr-i Sokhta and Tepe Sadegh.

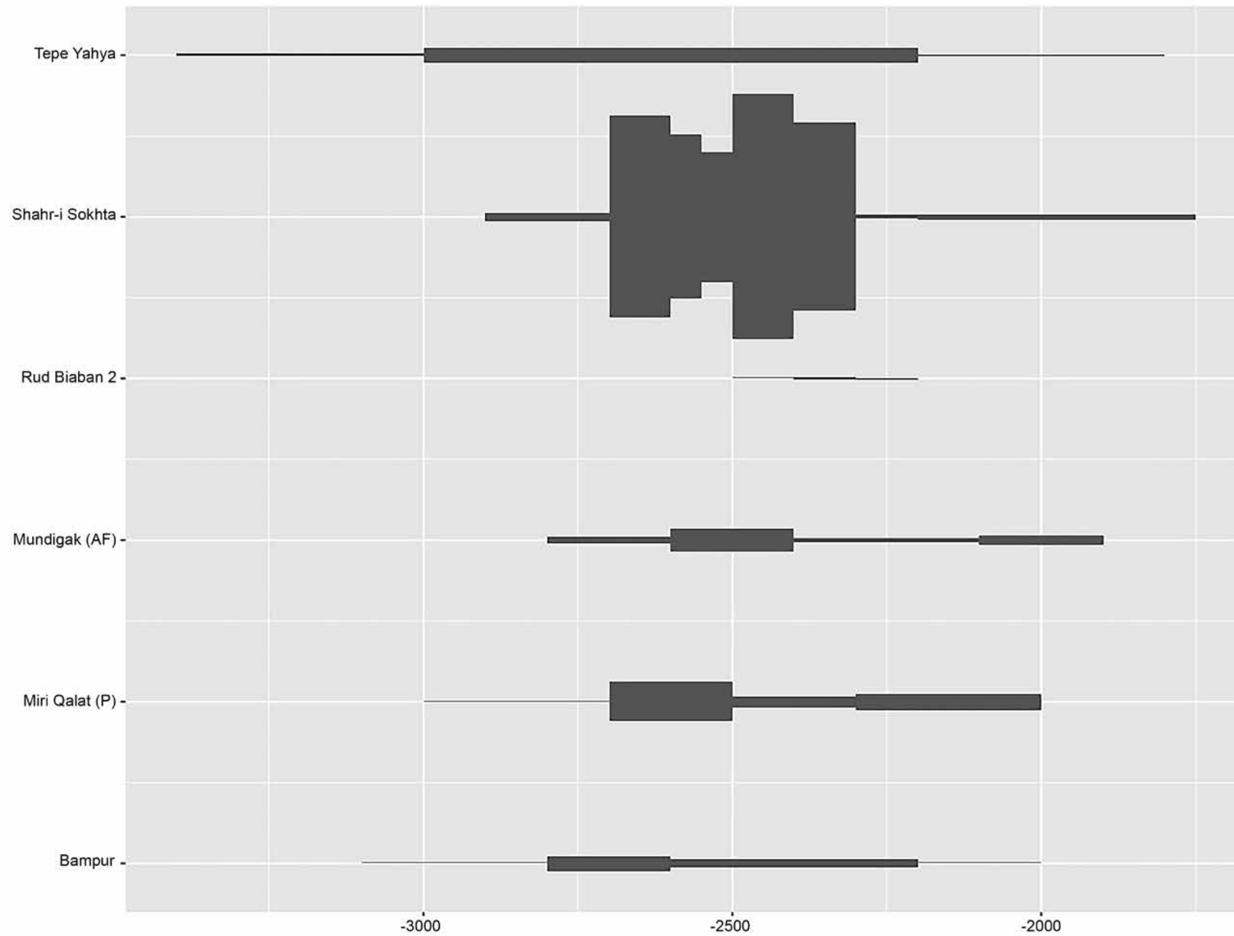


Figure 6.5 Timescale for the comparison of potsherds from the main comparable sites.

6.3 Conclusion

Iran has always been active in trading activities and relations between the East and West and has acted as a bridge to connect the East to the West geographically and politically. As a result, it would be expected to observe cultural, trading, architectural, and artistic interactions across long distances and the reflections of these interactions in the archaeological evidence. During the proto-urban period, metallurgical developments (the invention of new alloys such as bronze), specialisation, social division of labour, urbanisation, and the rise of social hierarchies built a connection between Iranian urban centres and contemporaneous settlements in the Near East, Central Asia, and the Indus Valley. Increasing urbanisation and population growth created a constant need for more production to meet the needs: however, some problems, such as resource limitations, occurred. The relations with raw material-providing centres intensified to overcome this limitation. The outcome of this situation was the emergence of interregional and transregional exchanges. Due to the specific climatic, political, and cultural characteristics of Sistan, and especially Shahr-i Sokhta, this region was a crossroads of cultures during the proto-urban period, connecting Mesopotamia, India, and Central Asia. The archaeological evidence confirms that Shahr-i Sokhta was an important commercial centre in southeastern Iran during the Bronze Age.

With the decline of Shahr-i Sokhta in the fourth period, the number of its satellite villages also decreased. However, more explorations and studies in the satellite sites of Shahr-i Sokhta are necessary. Tepe Sadegh's pottery (as a satellite village) clearly illustrates how its formation, development, and decline were affected by the same processes as Shahr-i Sokhta.

The grey ware pottery of Shahr-i Sokhta can be divided into two types: black on grey ware and red on grey ware. Both can be compared with the samples found at Bampur in Iran and the Quetta Plain in Pakistan. By studying these potsherds, the relationship of Shahr-i Sokhta with Bampur, Khurab, and Pakistan can be discovered. On the other hand, finding the burnished pottery of Shahr-i Sokhta shows its connection with Tepe Yahya, that of Nal pottery with Pakistan, and that of Namzaga III type pottery with Turkmenistan, indicating the commercial, economic, and cultural relationship of Shahr-i Sokhta with other regions. In addition, similarities between residential areas of southeastern sites in Iran with neighbouring regions in the 3rd millennium BCE indicate cultural exchanges between them.

Buff ware pottery, the main pottery type at Tepe Sadegh, is mostly plain and sufficiently baked and has a mineral temper and watery slip. According to the statistics of this study, southeast Iran had the most similarities (79%), followed by Afghanistan (14.8%) and Pakistan (6.2%). Typologically, the samples (708 potsherds) were mainly from the second period of Shahr-i Sokhta (52.6%), the third period of Shahr-i Sokhta (44.4%), and the fourth period of Shahr-i Sokhta (28%). The statistics show that Tepe Sadegh developed during the second period of Shahr-i Sokhta. However, pottery typology is complex and subject to conservatism, and the probability of making mistakes is high. Therefore, the absolute chronology of Tepe Sadegh based on the absolute dating of 11 charcoal samples is more reliable.

Based on the radiocarbon results, Tepe Sadegh is related to phase 9, period I, of Shahr-i Sokhta until phase 4, early period III, of Shahr-i Sokhta based on Tosi's chronology, and phase 6, period II, at Shahr-i Sokhta until phases 4 and 3, period III, at Shahr-i Sokhta based on Seyyed Sajjadi and Ascalone's chronology. Both chronologies show that Tepe Sadegh was inhabited during the whole of period II and the beginning of period III of Shahr-i Sokhta. Based on the architectural phases that have been found in different trenches in the site (for example, from S.T.7, three architectural phases, and from S.T.8, two architectural phases) and radiocarbon results, the absolute chronology of Tepe Sadegh can be described as follows:

- Tepe Sadegh, period I, from 2880 BCE until 2650 cal BCE
- Tepe Sadegh, period II, from 2650 BCE until 2570 cal BCE
- Tepe Sadegh, period III, from 2570 BCE until 2480 cal BCE

The chronology of Seyyed Sajjadi and Ascalone is based on the new radiocarbon results obtained at Shahr-i Sokhta, mainly from area 33. It becomes very clear from these new chronologies that more radiocarbon dating is needed in many areas of Shahr-i Sokhta and its satellite sites, such as Tepe Sadegh and Tepe Graziani. However, the latest results from area 33, Tepe Graziani, and Tepe Sadegh and their similarities show that the old chronology is unreliable, and the new chronological framework is more acceptable. Therefore, based on the new chronology and radiocarbon dating, Tepe Sadegh was inhabited from phase 6, period II, until phase 3, period III, of Shahr-i Sokhta.

Tepe Sadegh's occupation came to an end during phase 3 of period III in Shahr-i Sokhta. Simultaneously, the other semi-industrial site, Tepe Graziani, was still inhabited, and Shahr-i Sokhta was still at the centre of the exchange system and had its greatest extent, of 80 ha.

The reasons behind the abandonment of Tepe Sadegh are unclear. It is likely that its inhabitants chose to relocate to other satellite villages (such as Tepe Dasht) or the main site, Shahr-i Sokhta. Considering Tepe Sadegh's semi-industrial nature, the probability of its residents joining industrial sites such as Tepe Dasht and Tepe Rud Biaban is high. These satellite villages, particularly Tepe Dasht, offered greater potential for pottery production due to their larger size and abundant resources, which may have replaced Tepe Sadegh's function.

Shahr-i Sokhta's decline can also be attributed to changes in the riverbed and prolonged drought. Alterations in the riverbed of the Helmand River caused shifts in human settlements, including Shahr-i Sokhta. However, the acceptability of this theory is debatable for several reasons. Typically, riverbed changes do not obliterate existing settlements but rather relocate them; an example worth mentioning here is the relocation of the city of Achaemenid, Dahaneh Gholaman, in later periods (Seyyed Sajjadi 1987). During the period between 2100 BCE and 550 BCE following the destruction of Shahr-i Sokhta, there is no evidence of displacement or the beginnings of urbanisation. To determine whether drought was widespread in the region and whether people had to leave entirely or simply migrate to the plains near new water sources, further investigation is needed. Tepe Sadegh's distance from other satellite villages may have made it more susceptible to drought and climatic conditions, prompting it to be abandoned earlier than its counterparts.

To determine the reason for Tepe Sadegh's decline or collapse, it would be essential to perform more radiocarbon dating at Tepe Sadegh and other semi-industrial sites (such as Tepe Graziani), as well as conduct further excavations and geological studies to obtain evidence that can provide a realistic explanation.

Appendix

Repository, Data Collection

The database of this research is stored under the "Creative Commons Attribution 4.0 (International) License" on the Zenodo Repository and contains a citable DOI (digital object identifier):
Tepe Sadegh's database:
DOI: 10.5281/zenodo.7528678
https://zenodo.org/record/7528678#.Y8Ur1ezMJBx

All drawings were modified by Andrea Bieri of the University of Bern (After Shirazi 2012; 2013; 2016, Shirazi/Tavsoli 2009).

Drawings of Significant Potsherds of Tepe Sadeg

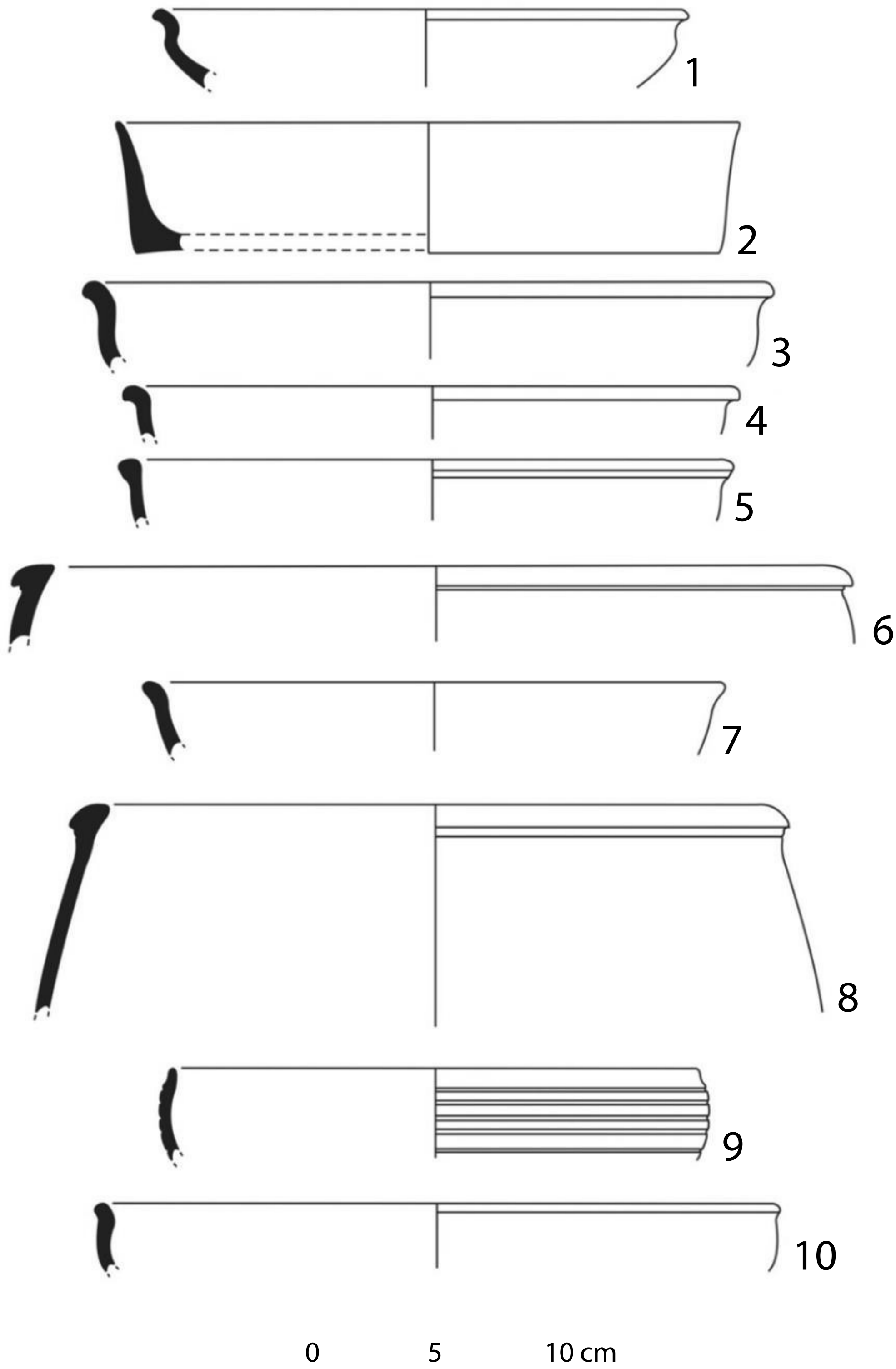


Figure A.1 Significant potsherds No. 1–10 from S.T.1, S.U.1, Tepe Sadegh.

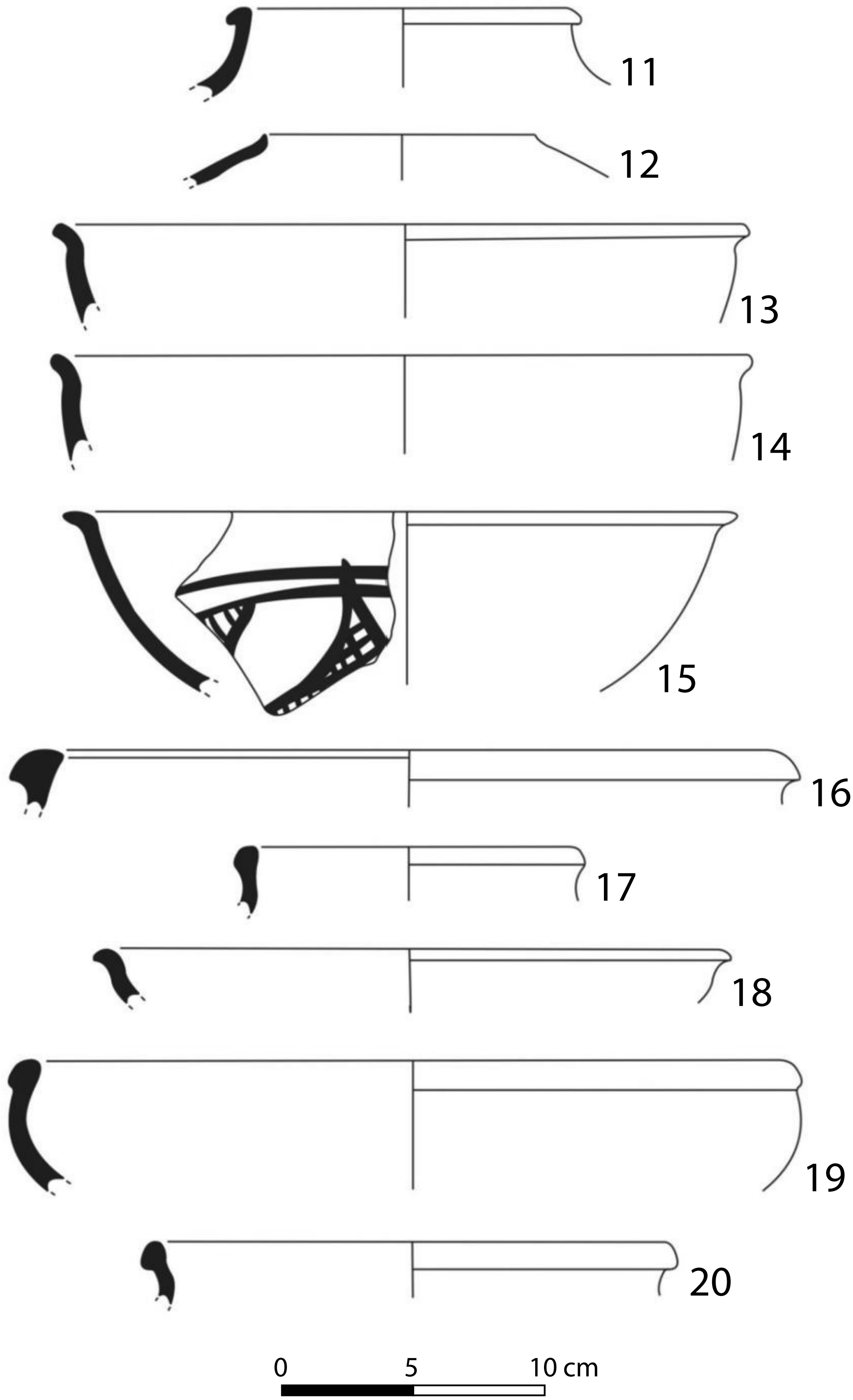


Figure A.2 Significant potsherds No. 11–20 from S.T.1, S.U.1, Tepe Sadegh.

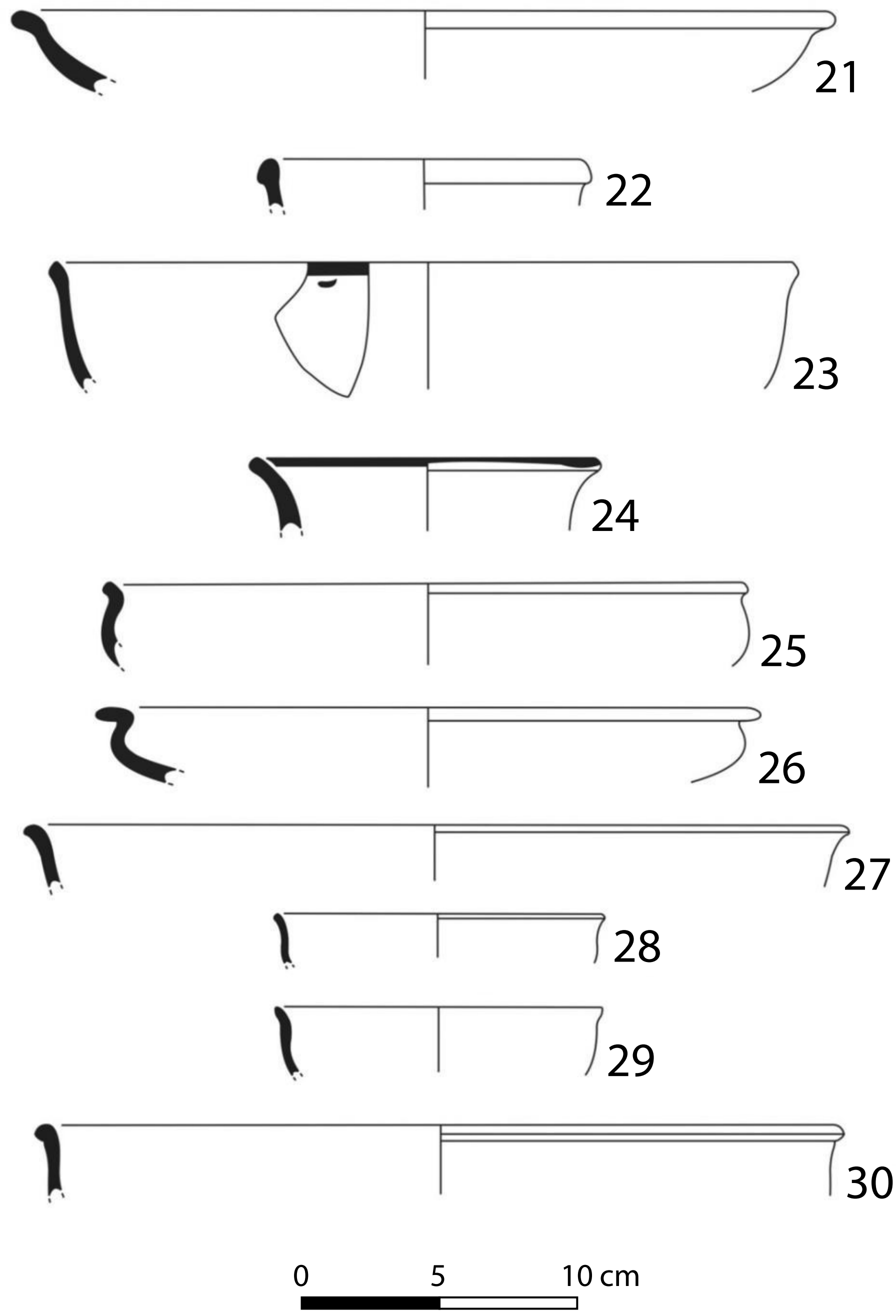


Figure A.3 Significant potsherds No. 21–30 from S.T.1, S.U.1, Tepe Sadegh.

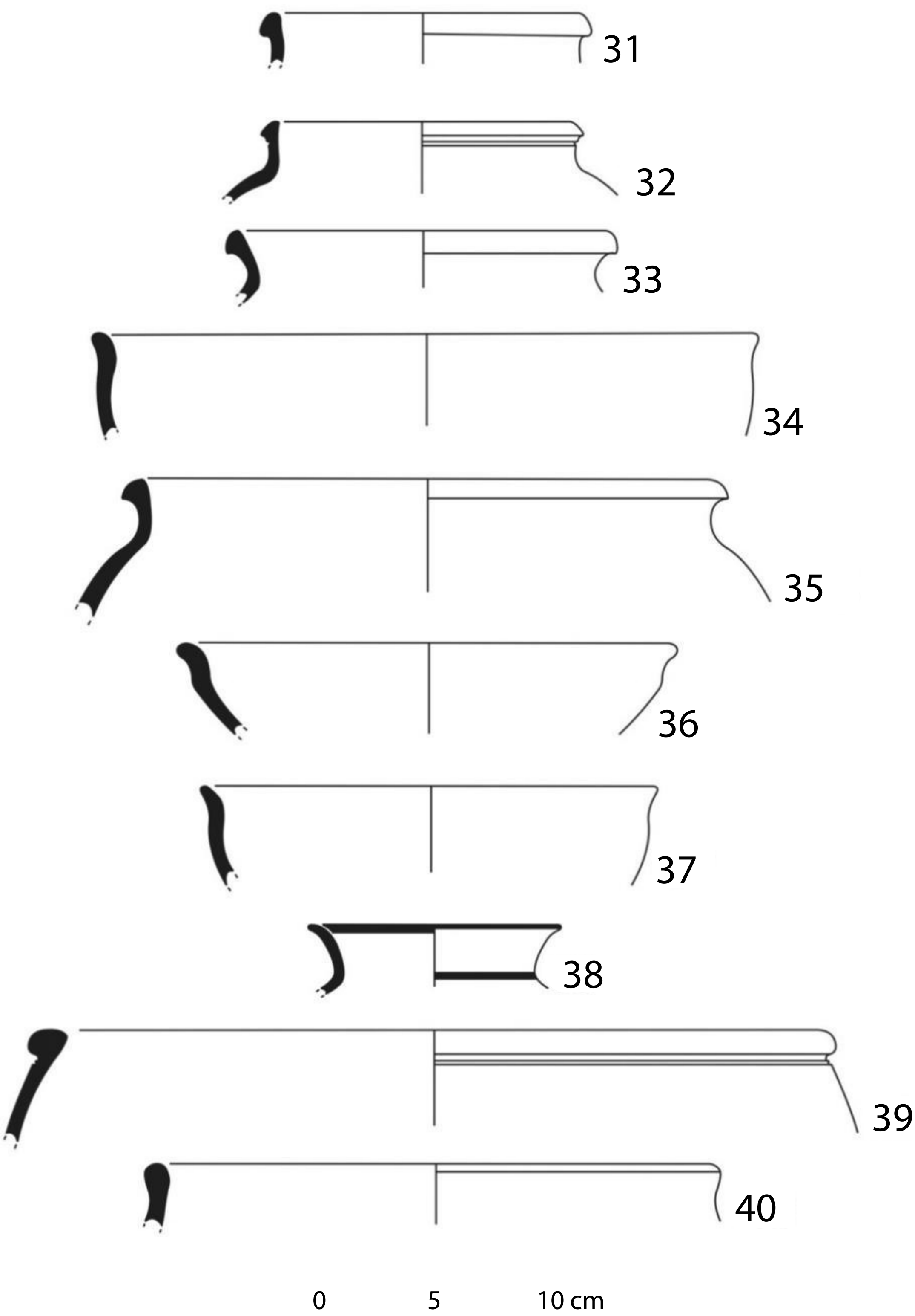


Figure A.4 Significant potsherds No. 31–40 from S.T.1, S.U.1, Tepe Sadegh.

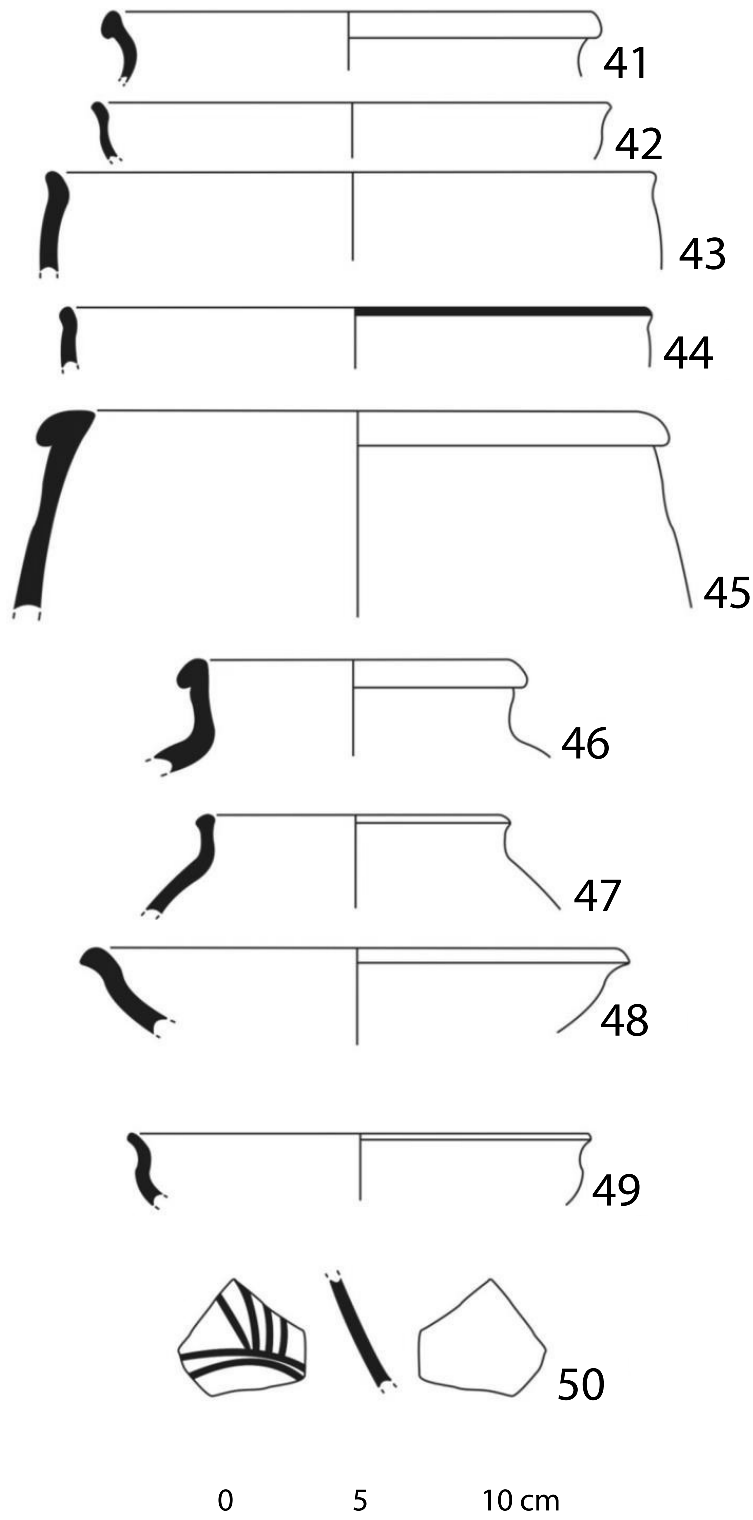


Figure A.5 Significant potsherds No. 41–50 from S.T.1, S.U.1, Tepe Sadegh.

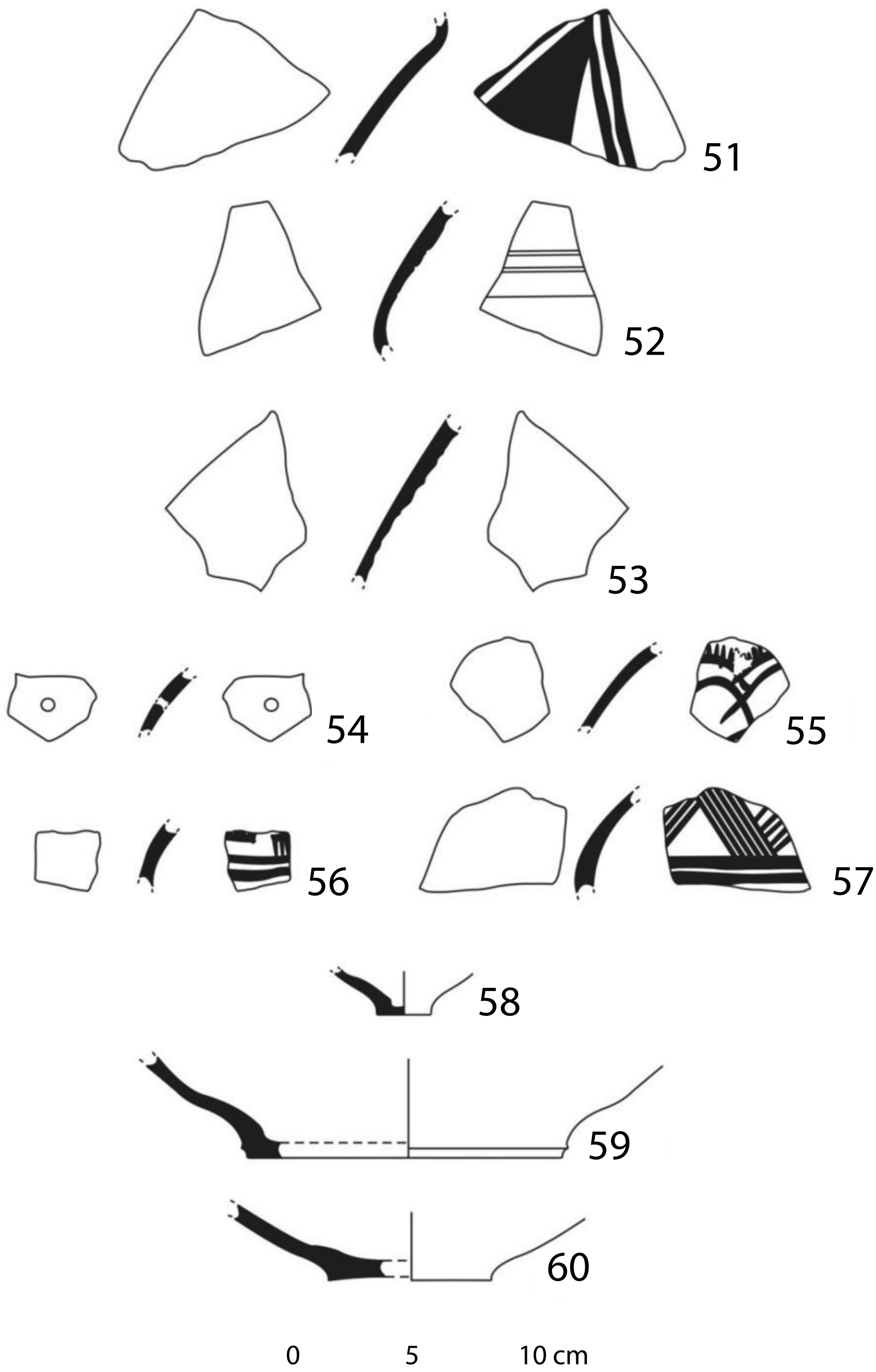


Figure A.6 Significant potsherds No. 51–60 from S.T.1, S.U.1, Tepe Sadegh.

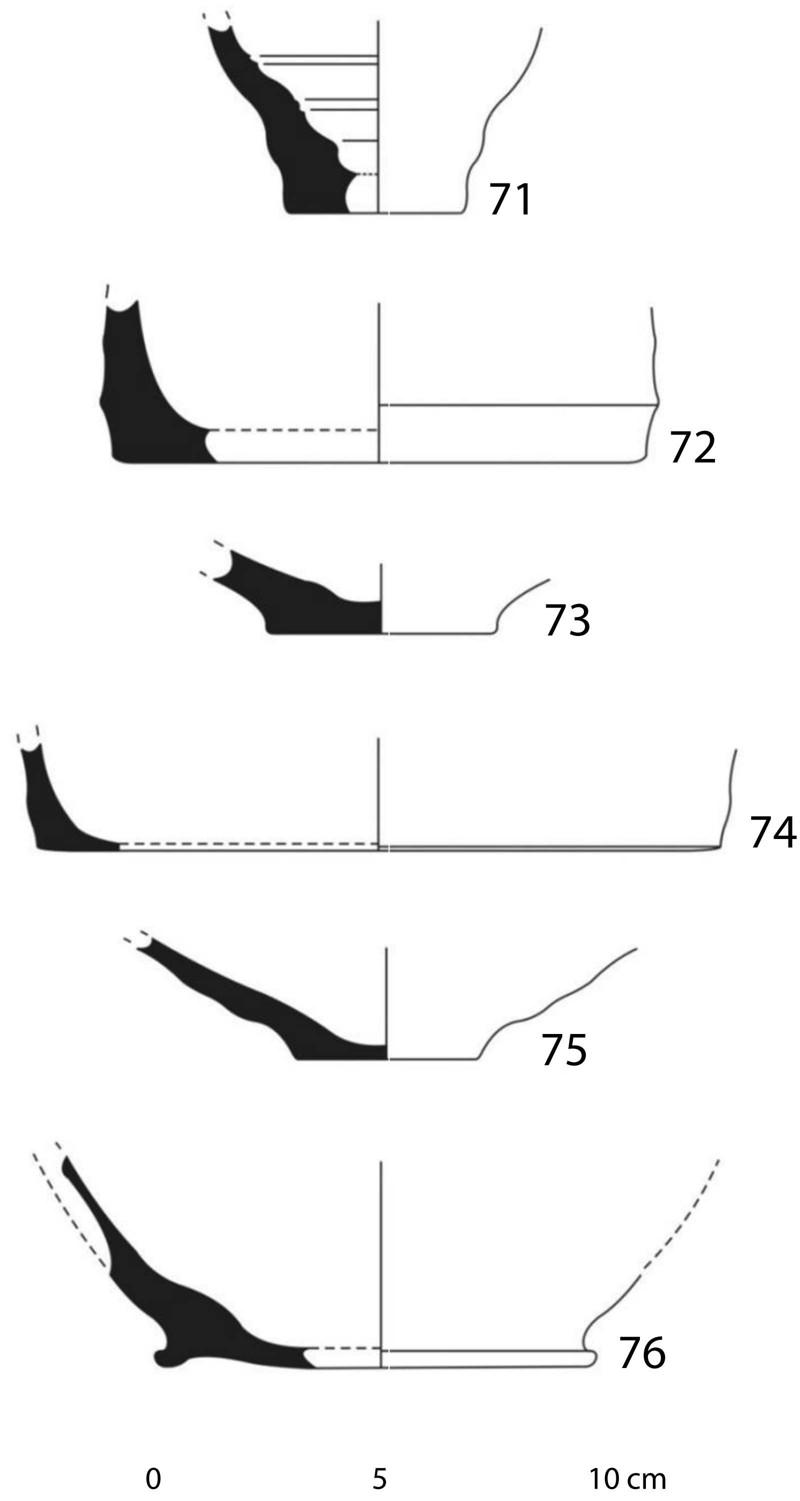


Figure A.7 Significant potsherds No. 61–66 from S.T.1, S.U.1, Tepe Sadegh.

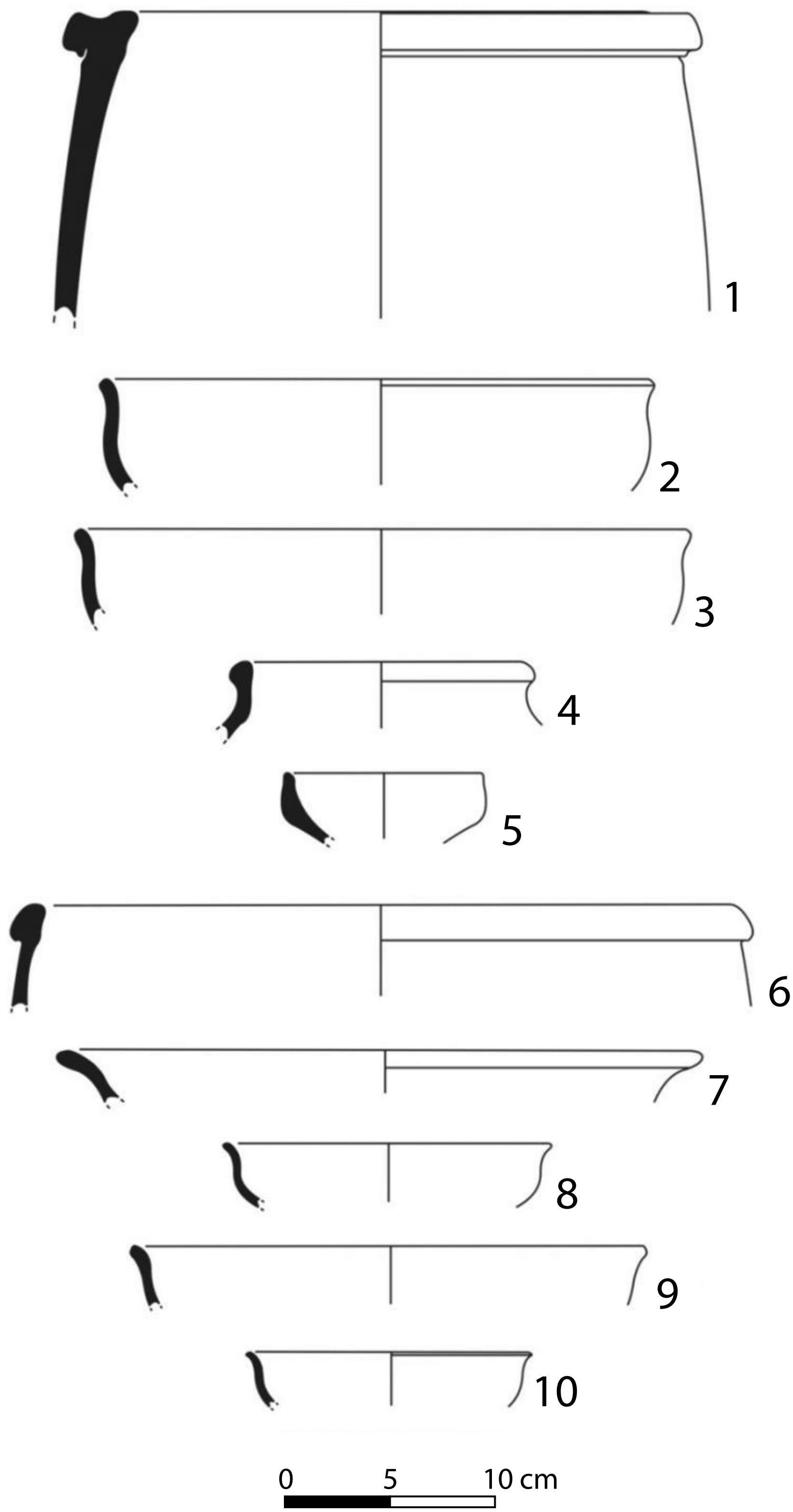


Figure A.8 Significant potsherds No. 1–10 from S.T.1, S.U.2, Tepe Sadegh.

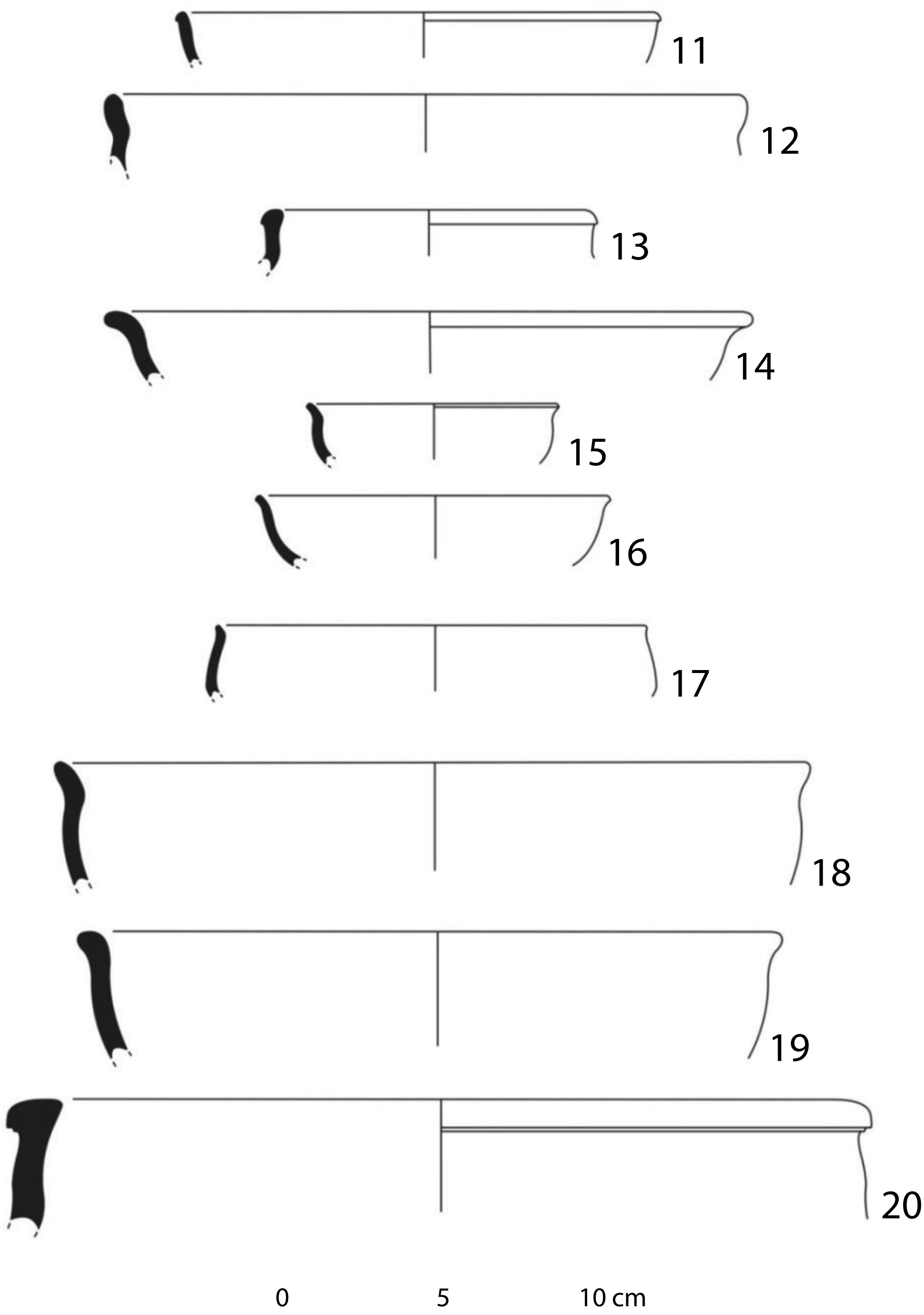


Figure A.9 Significant potsherds No. 11–20 from S.T.1, S.U.2, Tepe Sadegh.

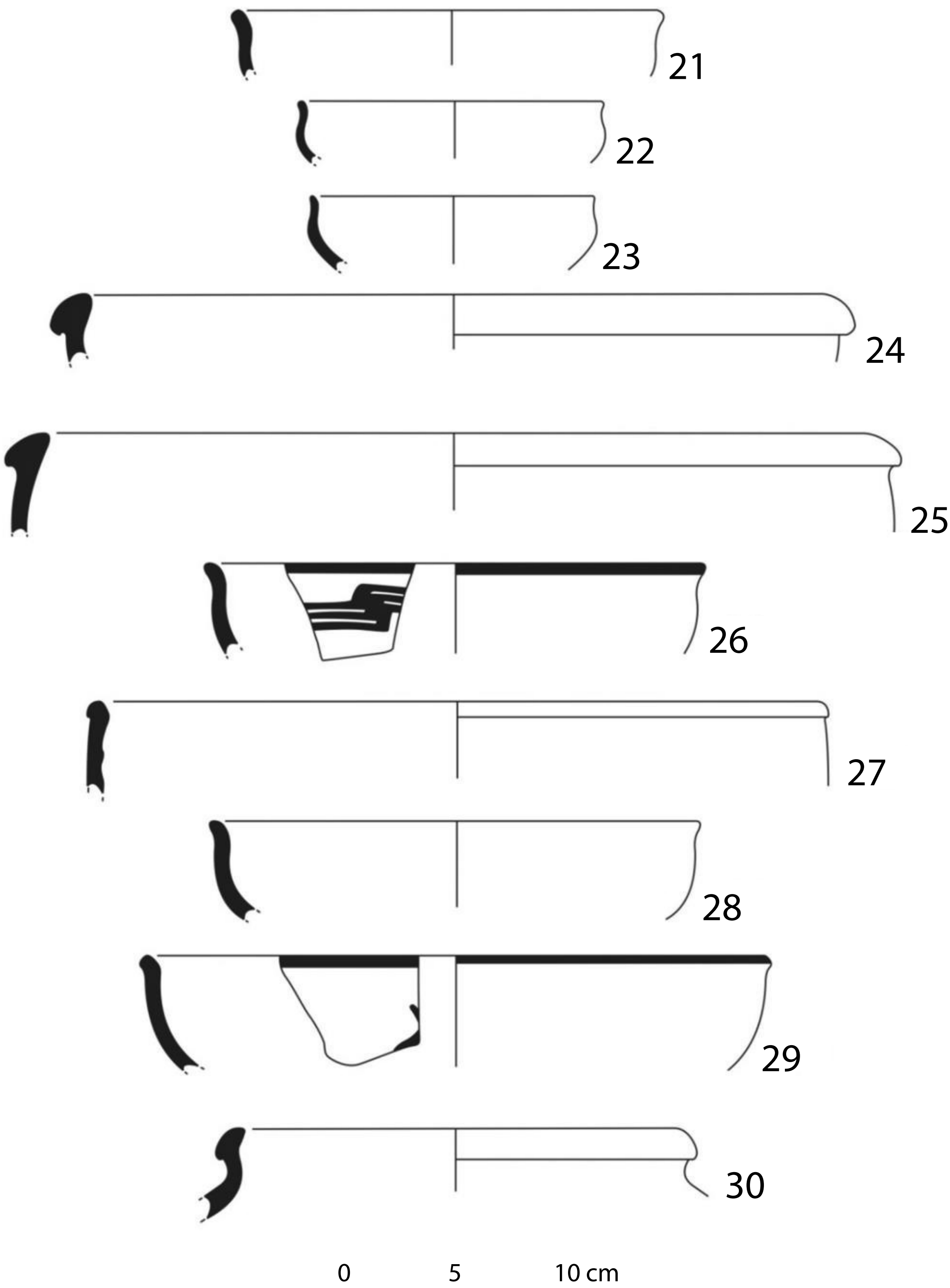


Figure A.10 Significant potsherds No. 21–30 from S.T.1, S.U.2, Tepe Sadegh.

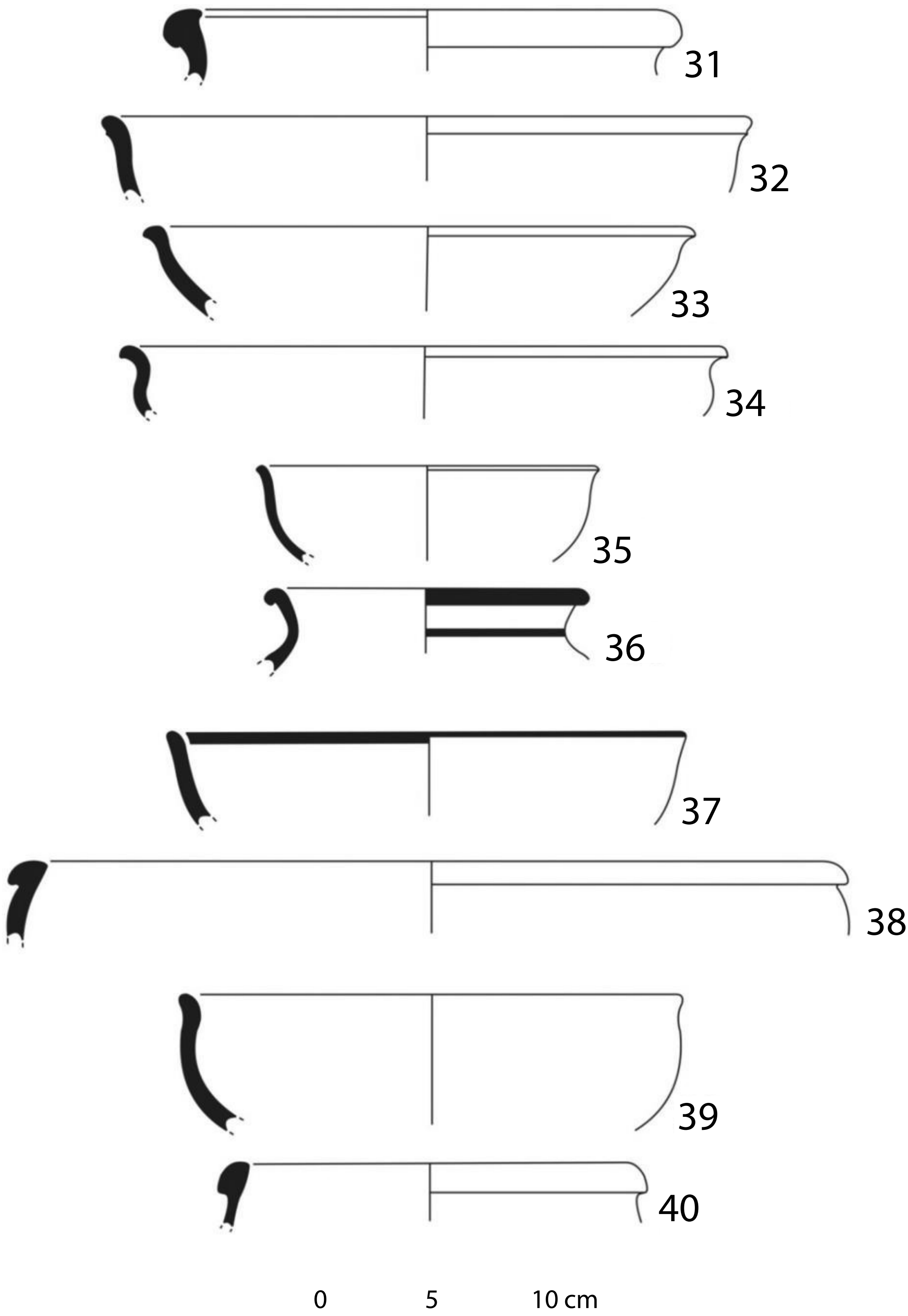


Figure A.11 Significant potsherds No. 31–40 from S.T.1, S.U.2, Tepe Sadegh.

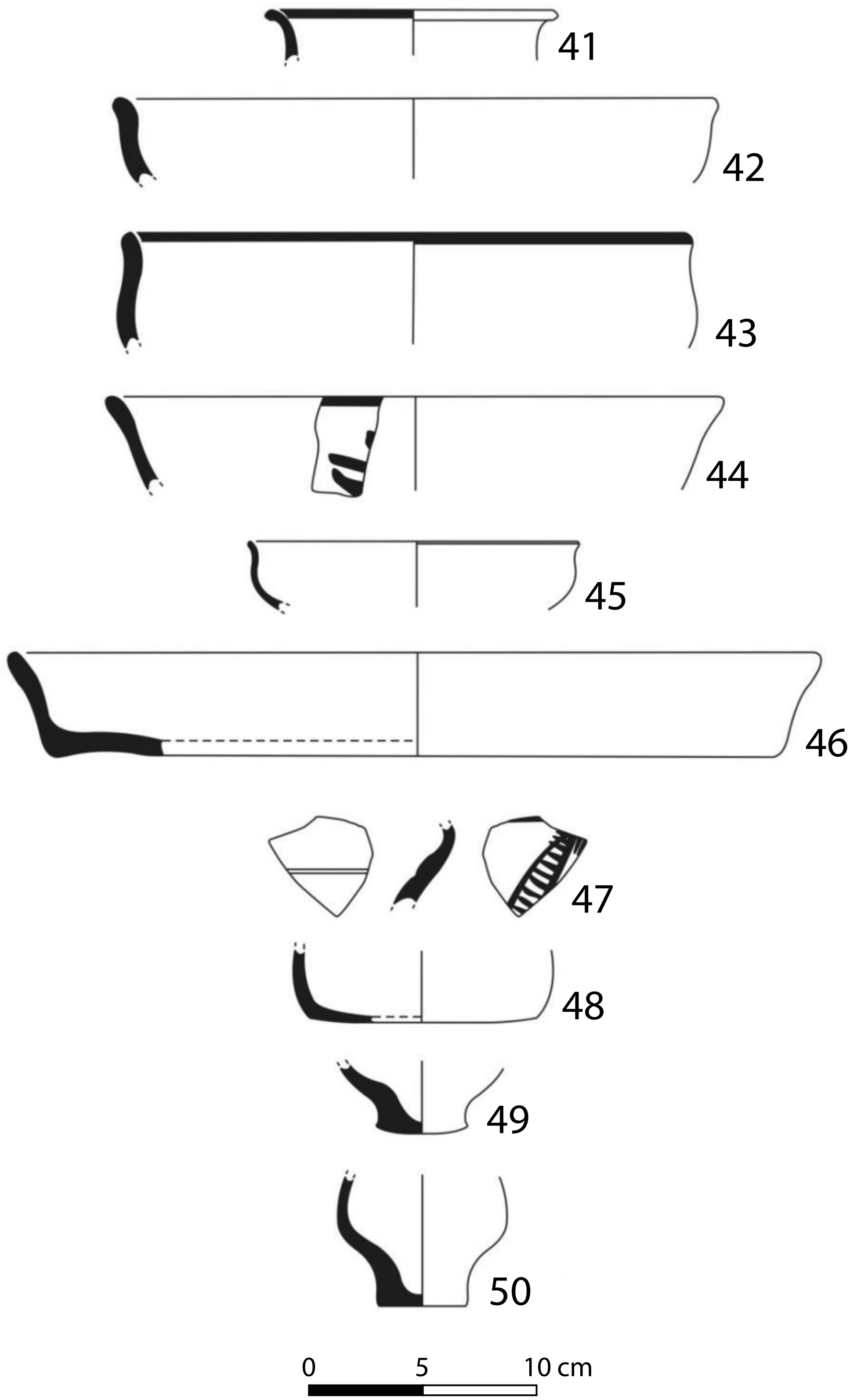


Figure A.12 Significant potsherds No. 41–50 from S.T.1, S.U.2, Tepe Sadegh.

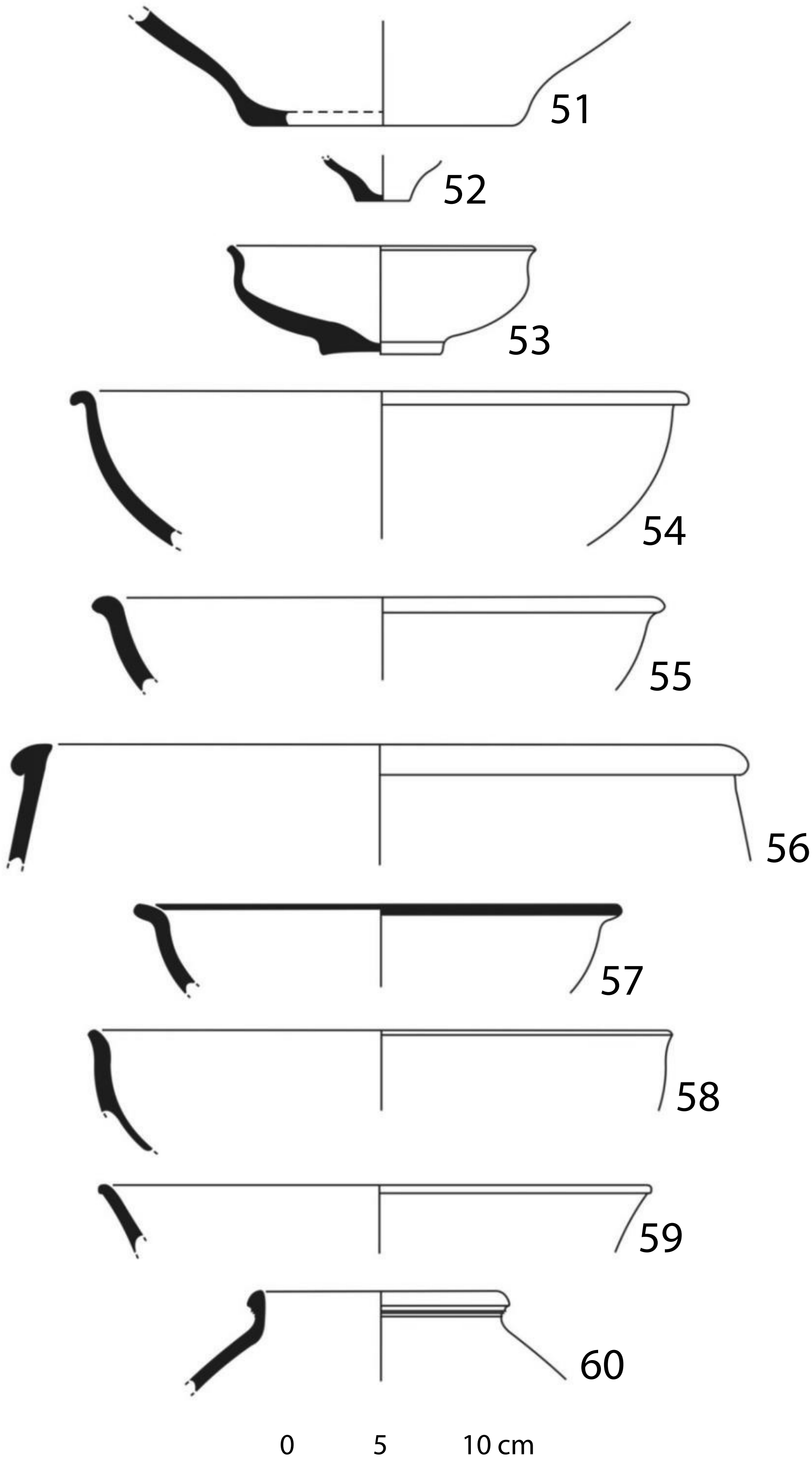


Figure A.13 Significant potsherds No. 51–60 from S.T.1, S.U.2, Tepe Sadegh.

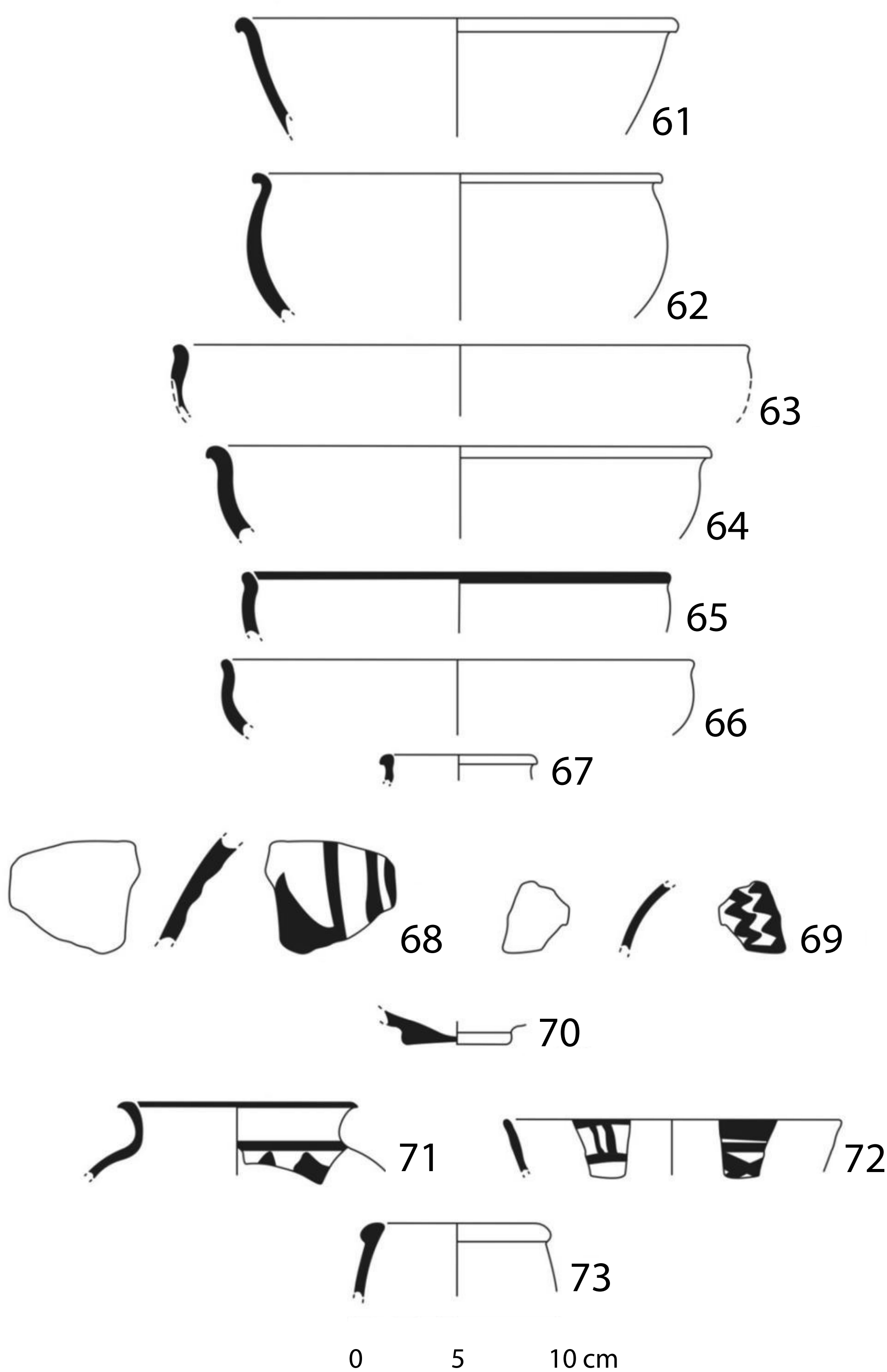


Figure A.14 Significant potsherds No. 61–72 from S.T.1, S.U.2, Tepe Sadegh.

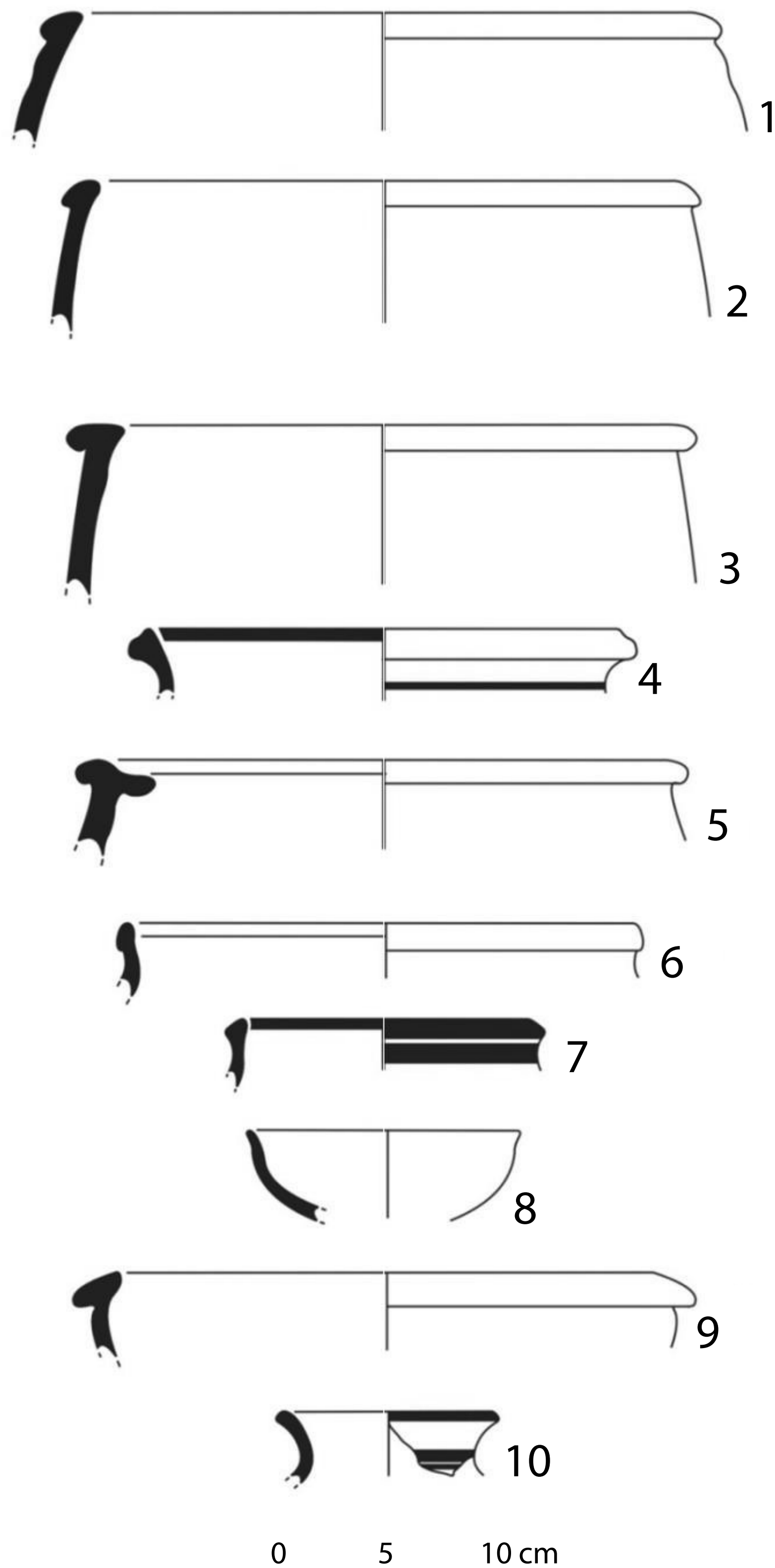


Figure A.15 Significant potsherds No. 1–10 from S.T.1, S.U.3, Tepe Sadegh.

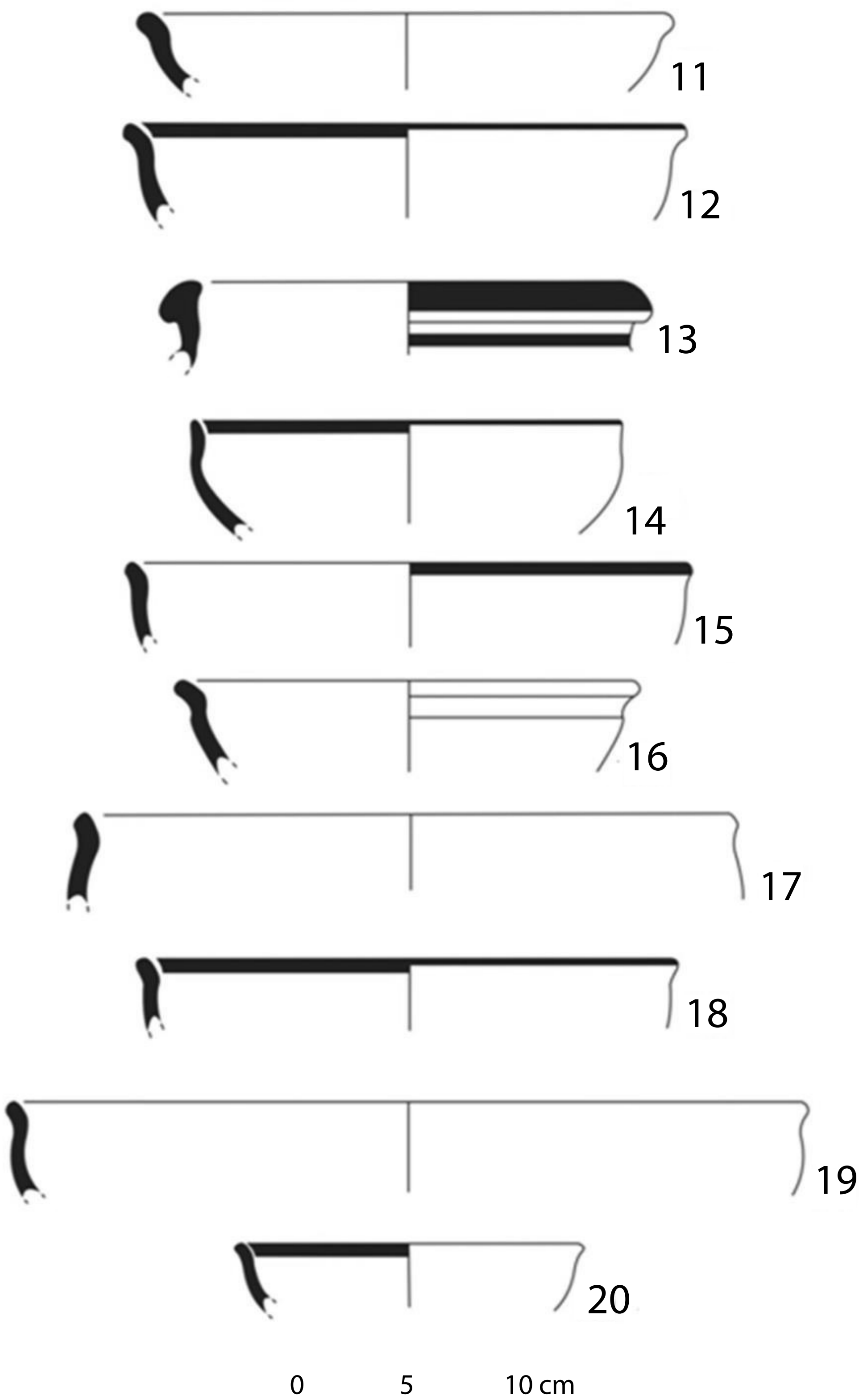


Figure A.16 Significant potsherds No. 11–20 from S.T.1, S.U.3, Tepe Sadegh.

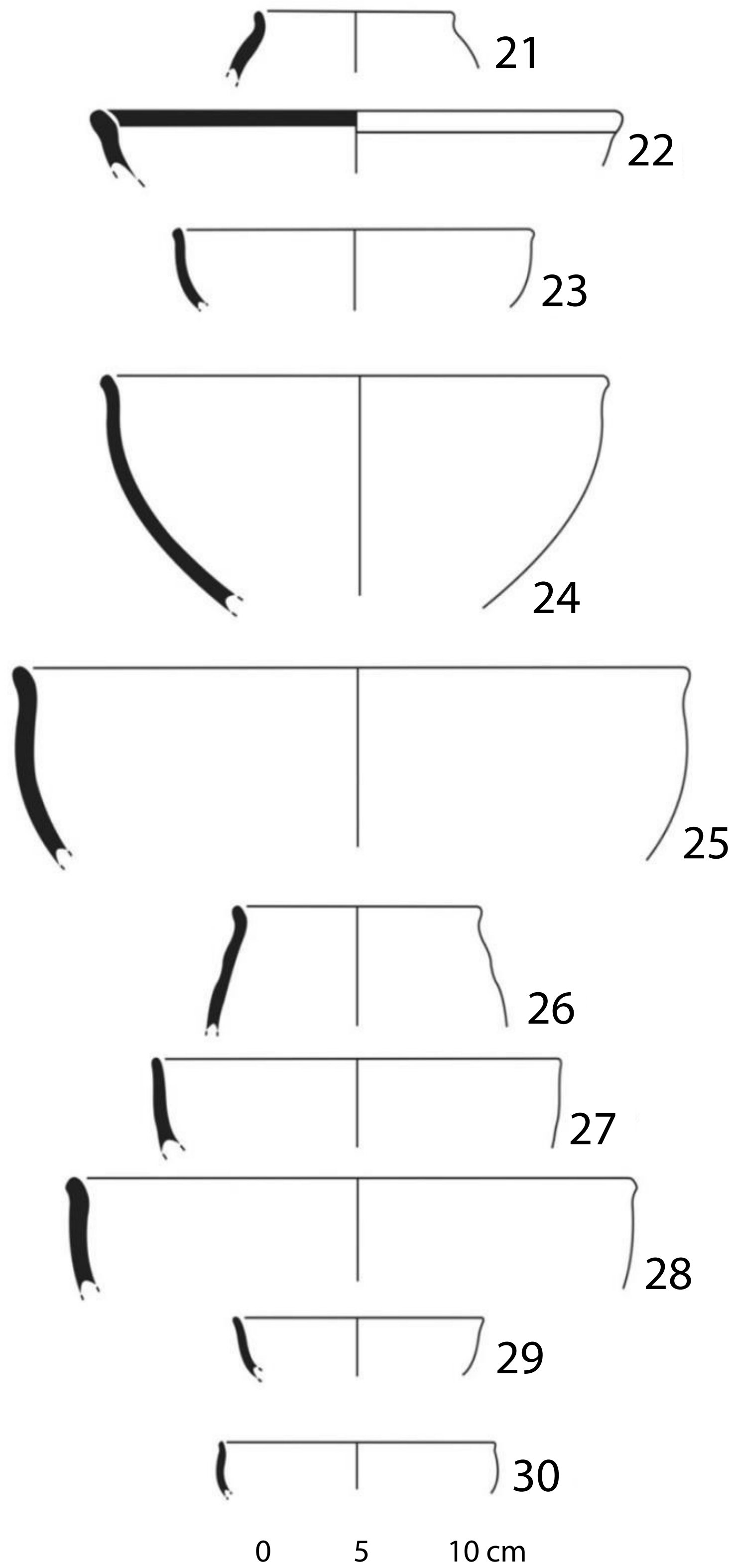


Figure A.17 Significant potsherds No. 21–30 from S.T.1, S.U.3, Tepe Sadegh.

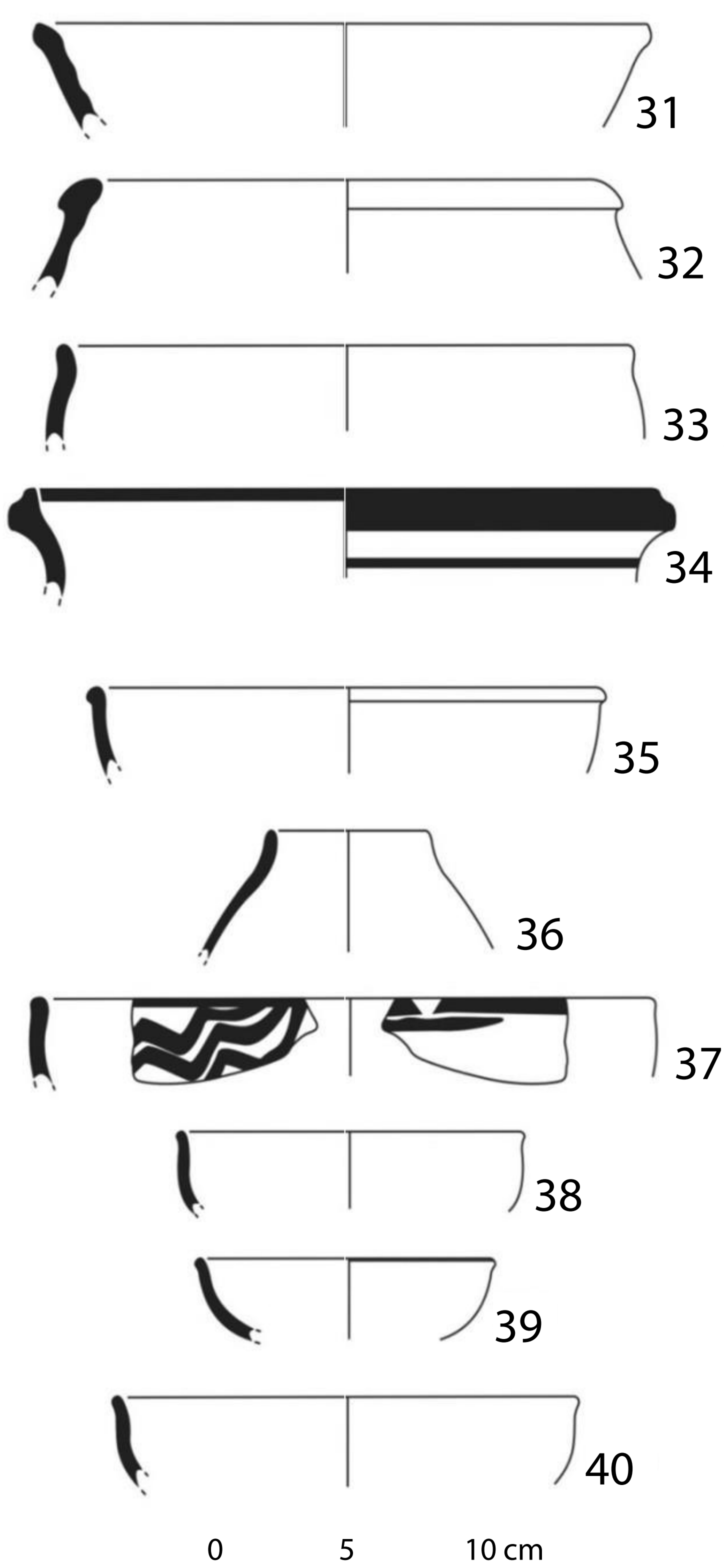


Figure A.18 Significant potsherds No. 31–40 from S.T.1, S.U.3, Tepe Sadegh.

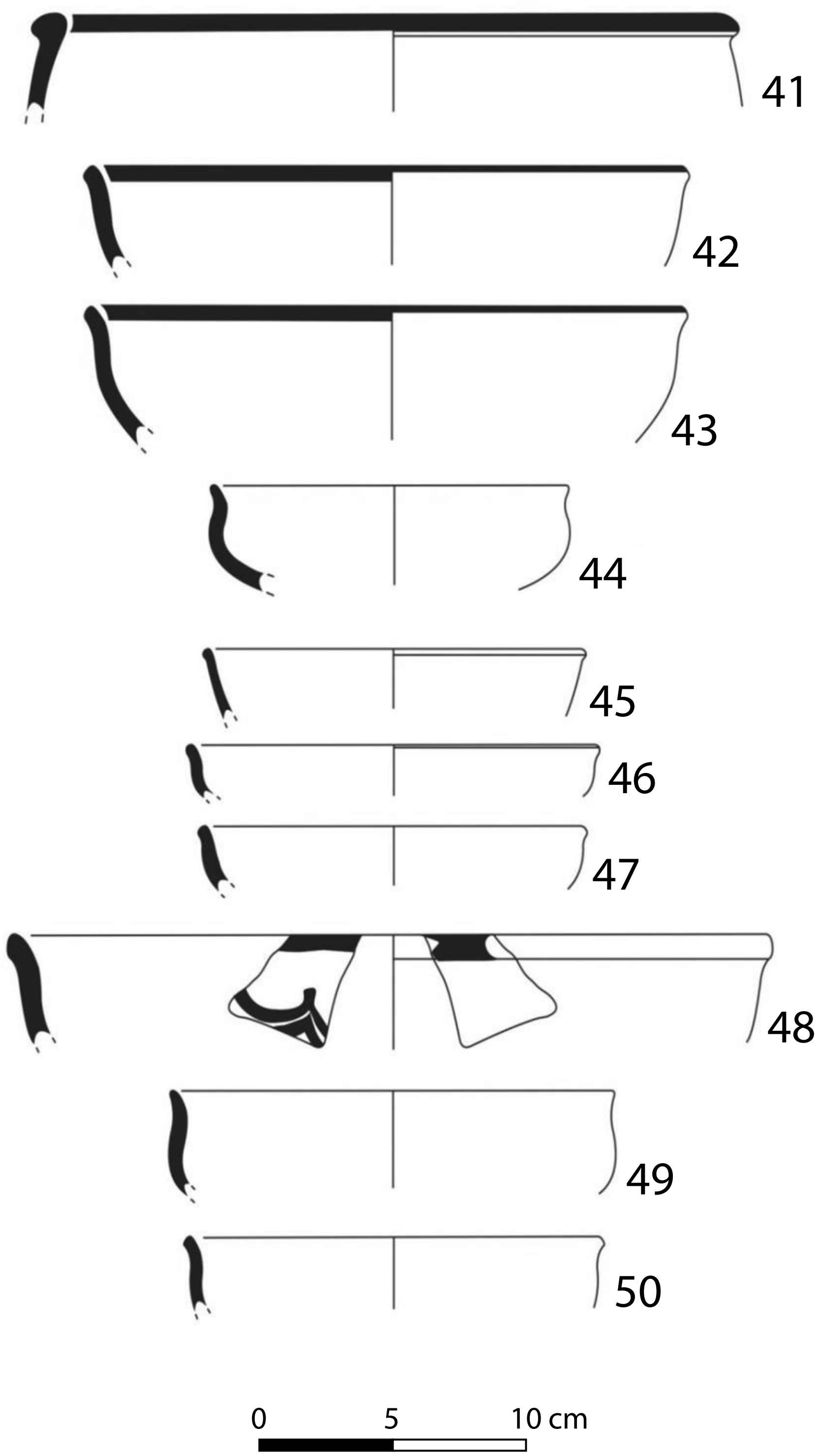


Figure A.19 Significant potsherds No. 41–50 from S.T.1, S.U.3, Tepe Sadegh.

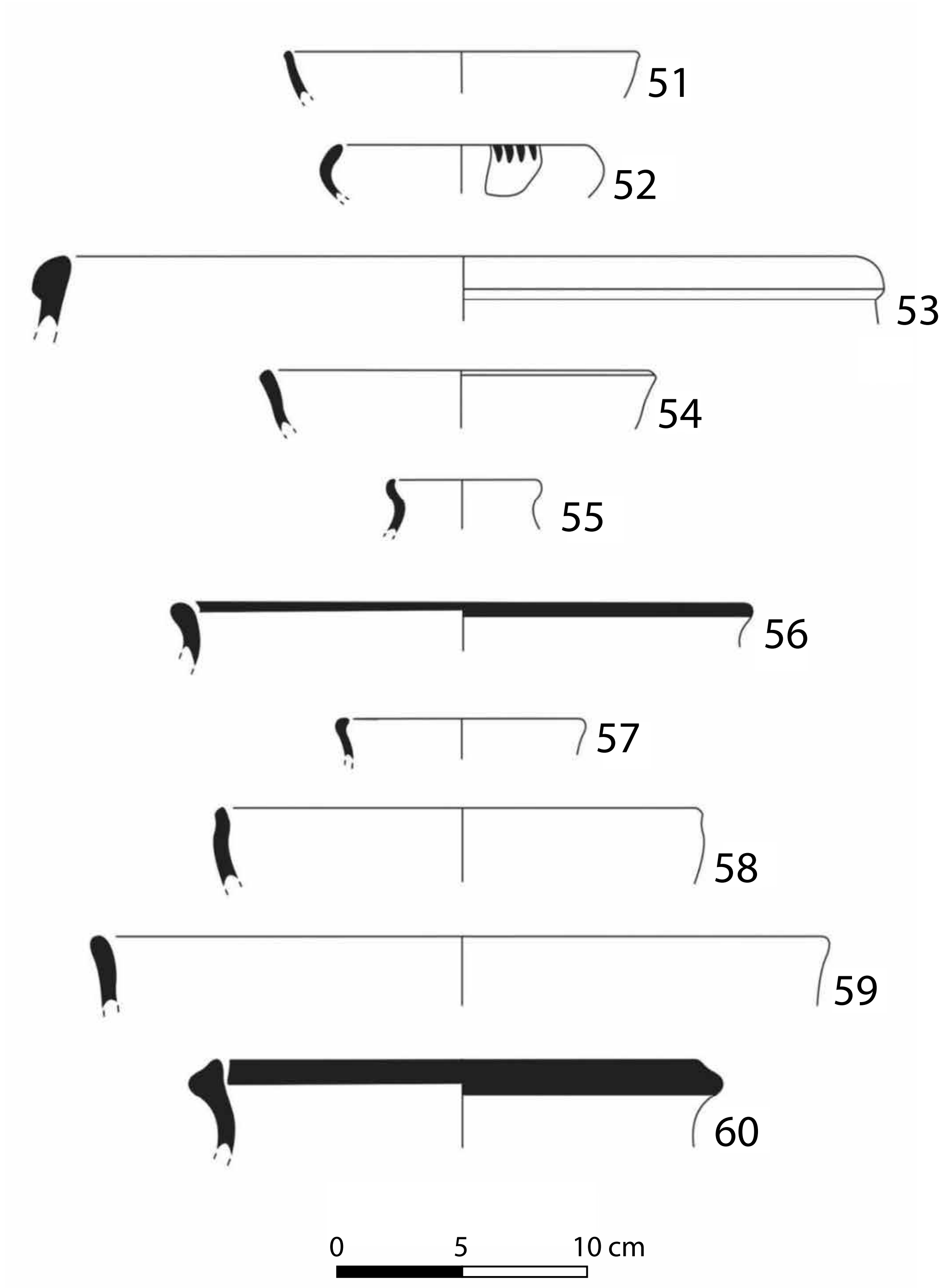


Figure A.20 Significant potsherds No. 51–60 from S.T.1, S.U.3, Tepe Sadegh.

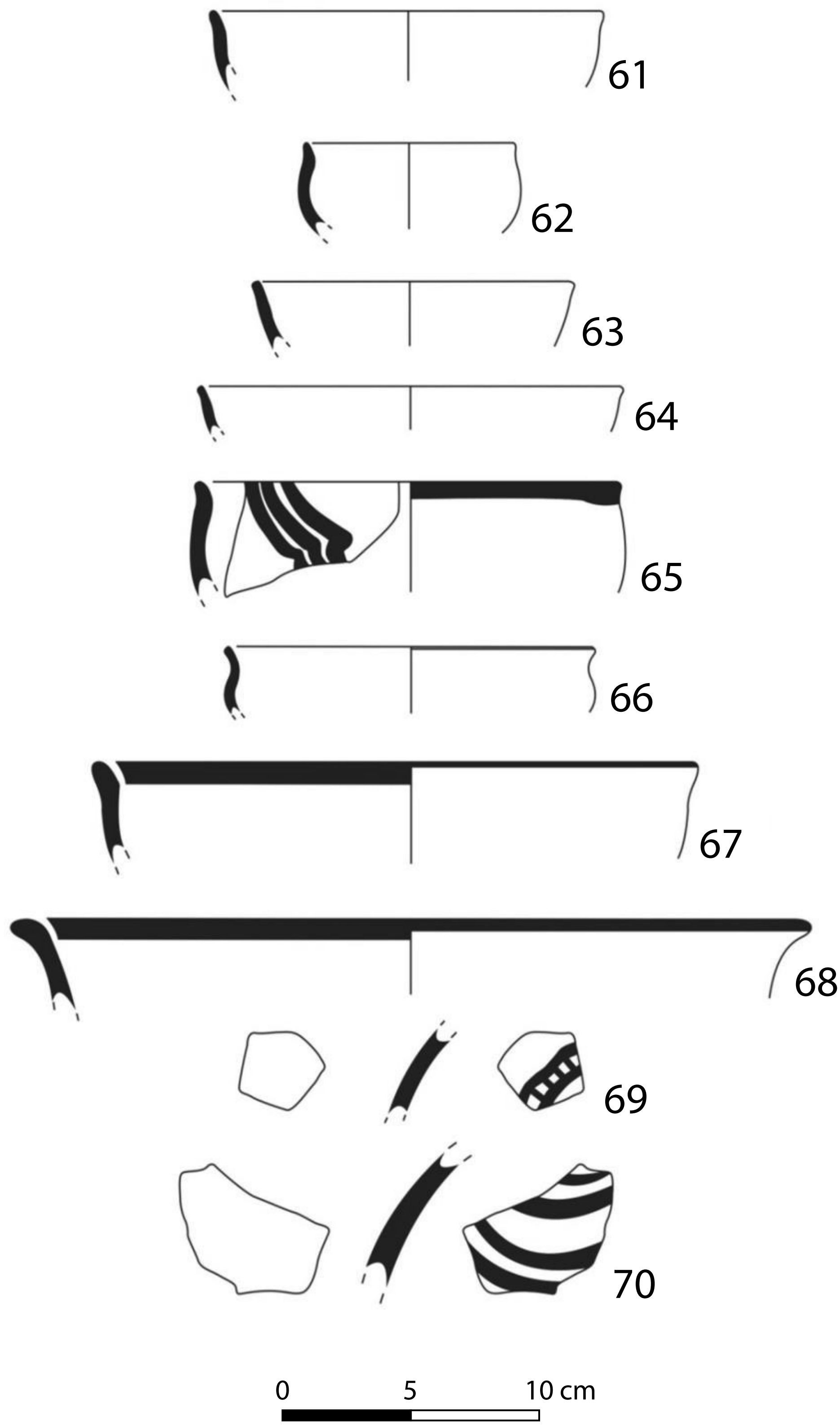


Figure A.21 Significant potsherds No. 61–70 from S.T.1, S.U.3, Tepe Sadegh.

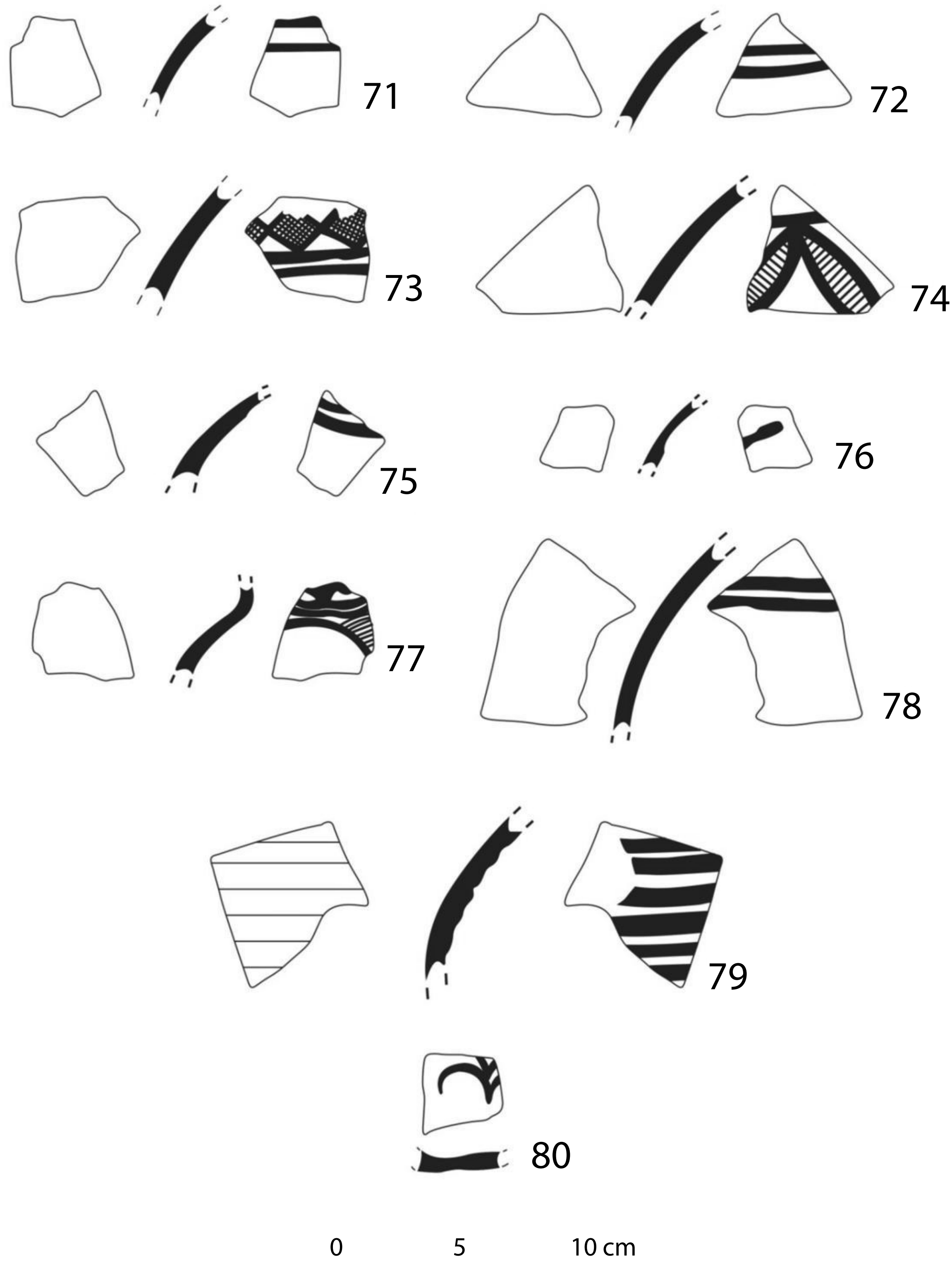


Figure A.22 Significant potsherds No. 71–80 from S.T.1, S.U.3, Tepe Sadegh.

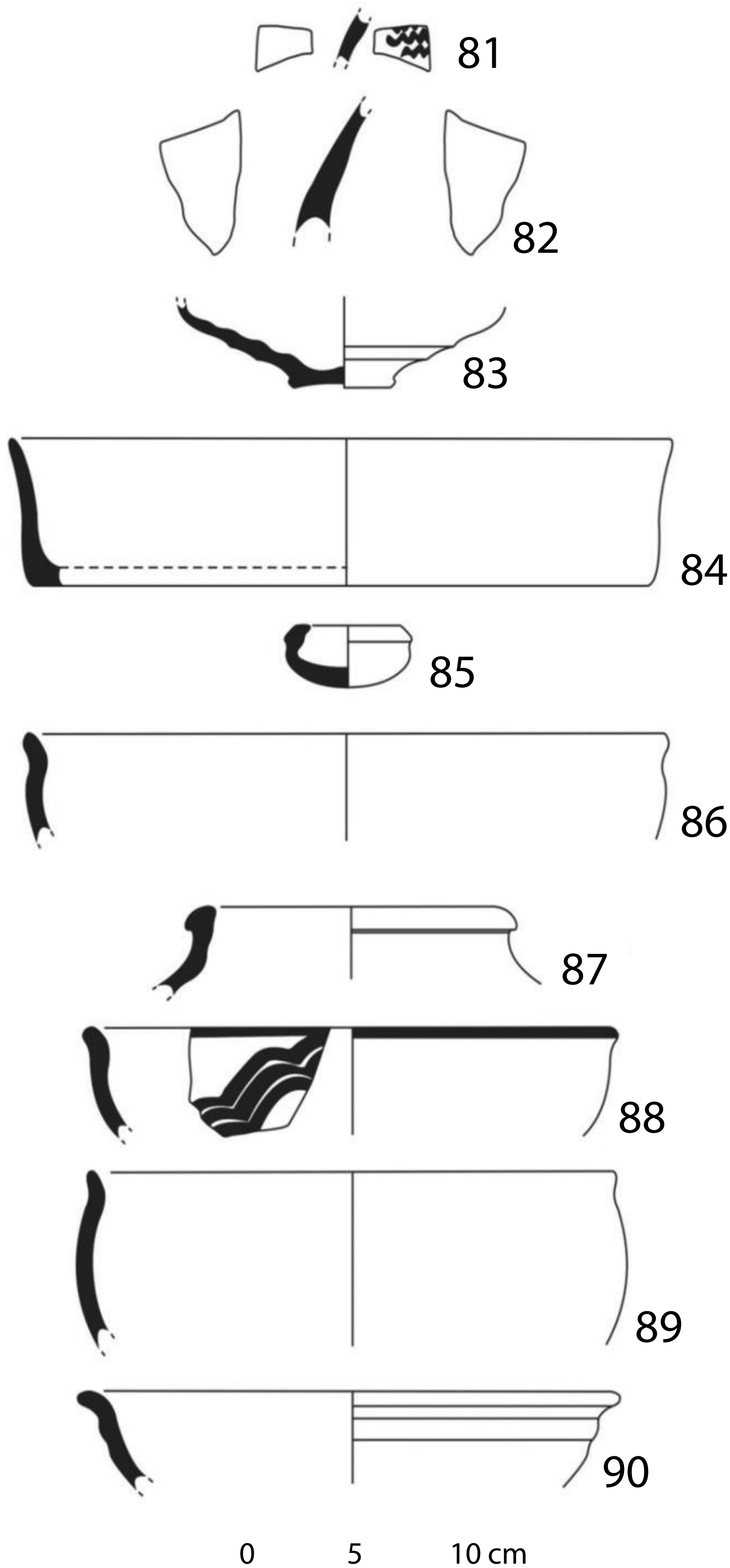


Figure A.23 Significant potsherds No. 81–90 from S.T.1, S.U.3, Tepe Sadegh.

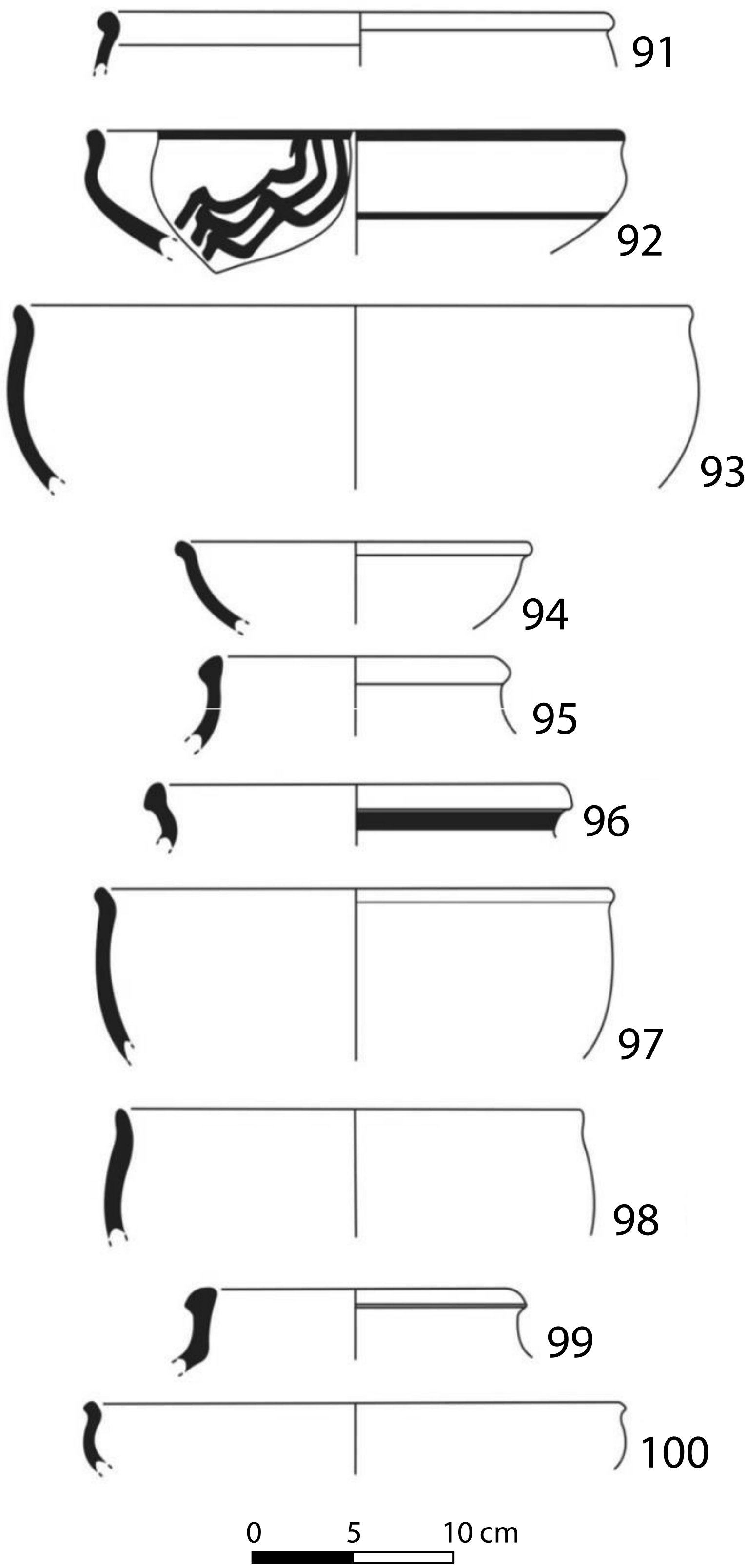


Figure A.24 Significant potsherds No. 91–100 from S.T.1, S.U.3, Tepe Sadegh.

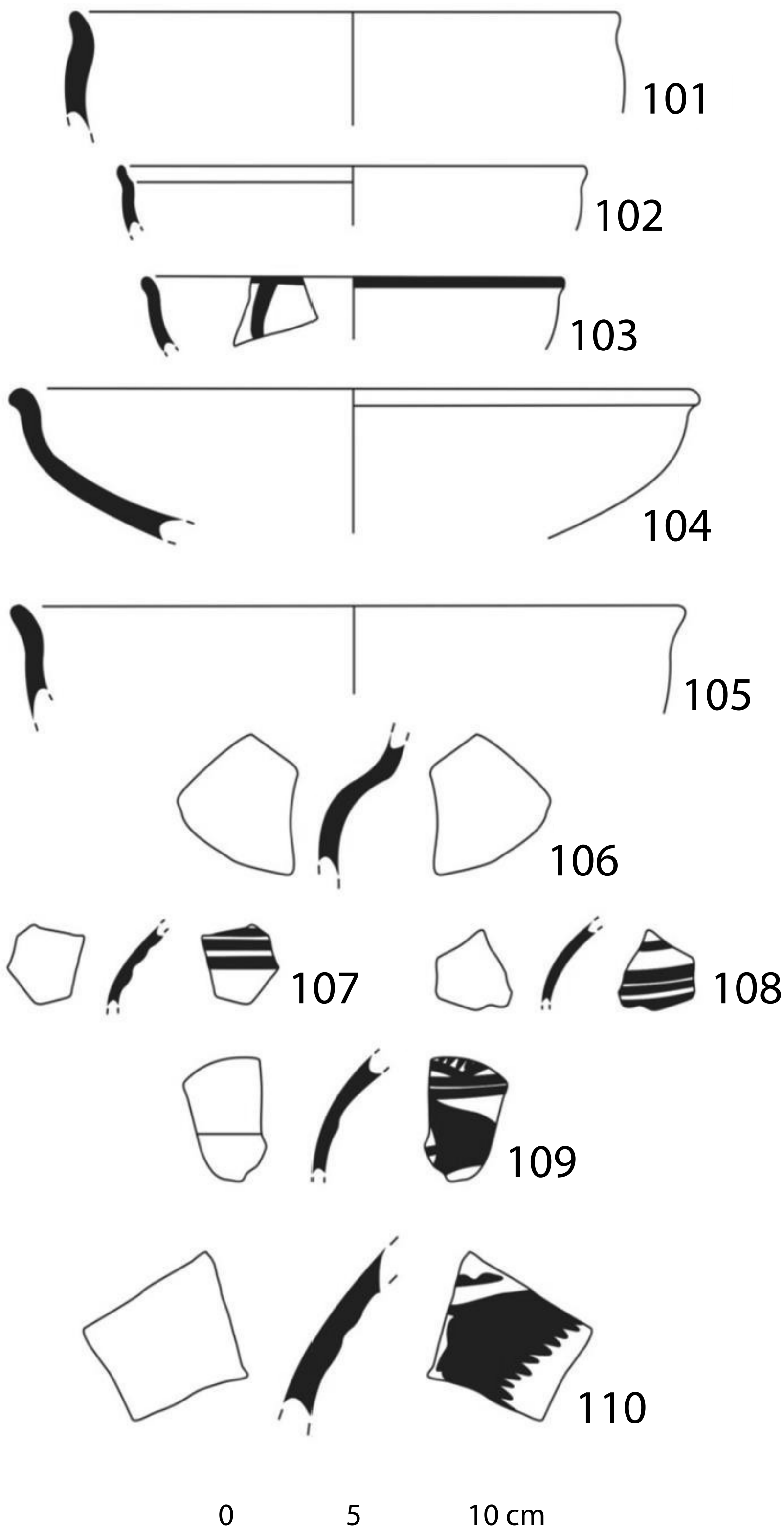


Figure A.25 Significant potsherds No. 101–110 from S.T.1, S.U.3, Tepe Sadegh.

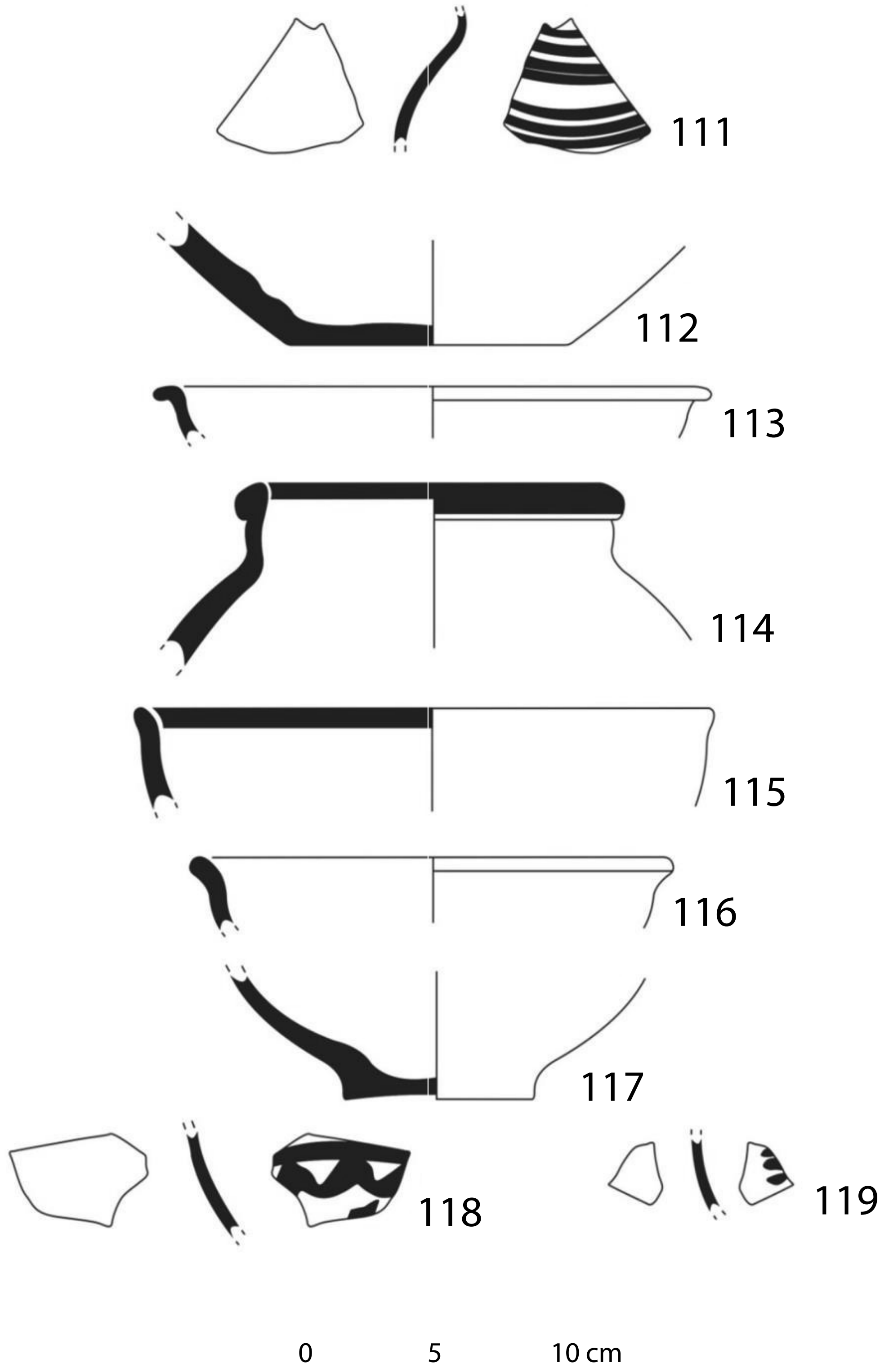


Figure A.26 Significant potsherds No. 111–119 from S.T.1, S.U.3, Tepe Sadegh.

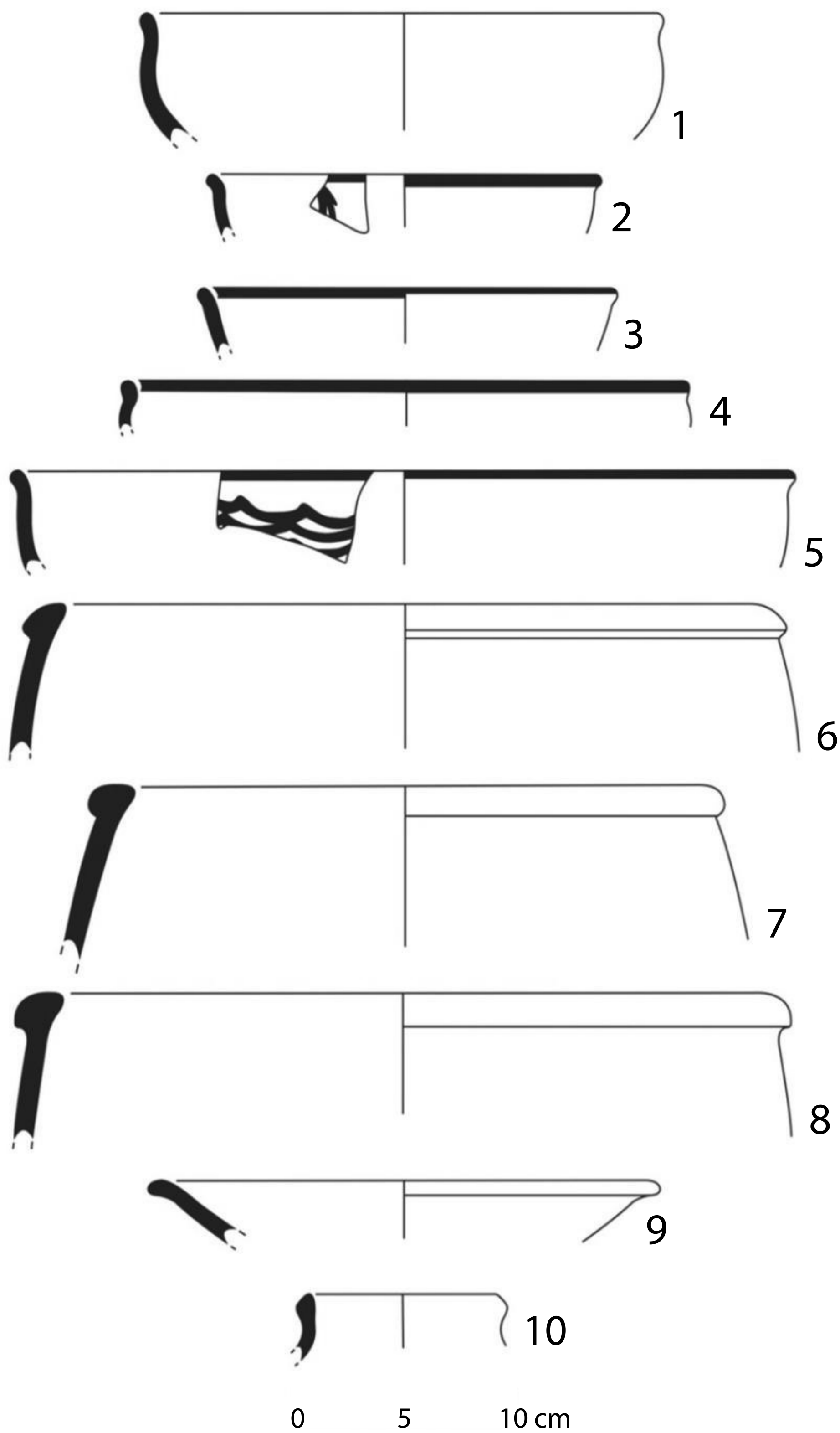


Figure A.27 Significant potsherds No. 1–10 from S.T.1, S.U.4, Tepe Sadegh.

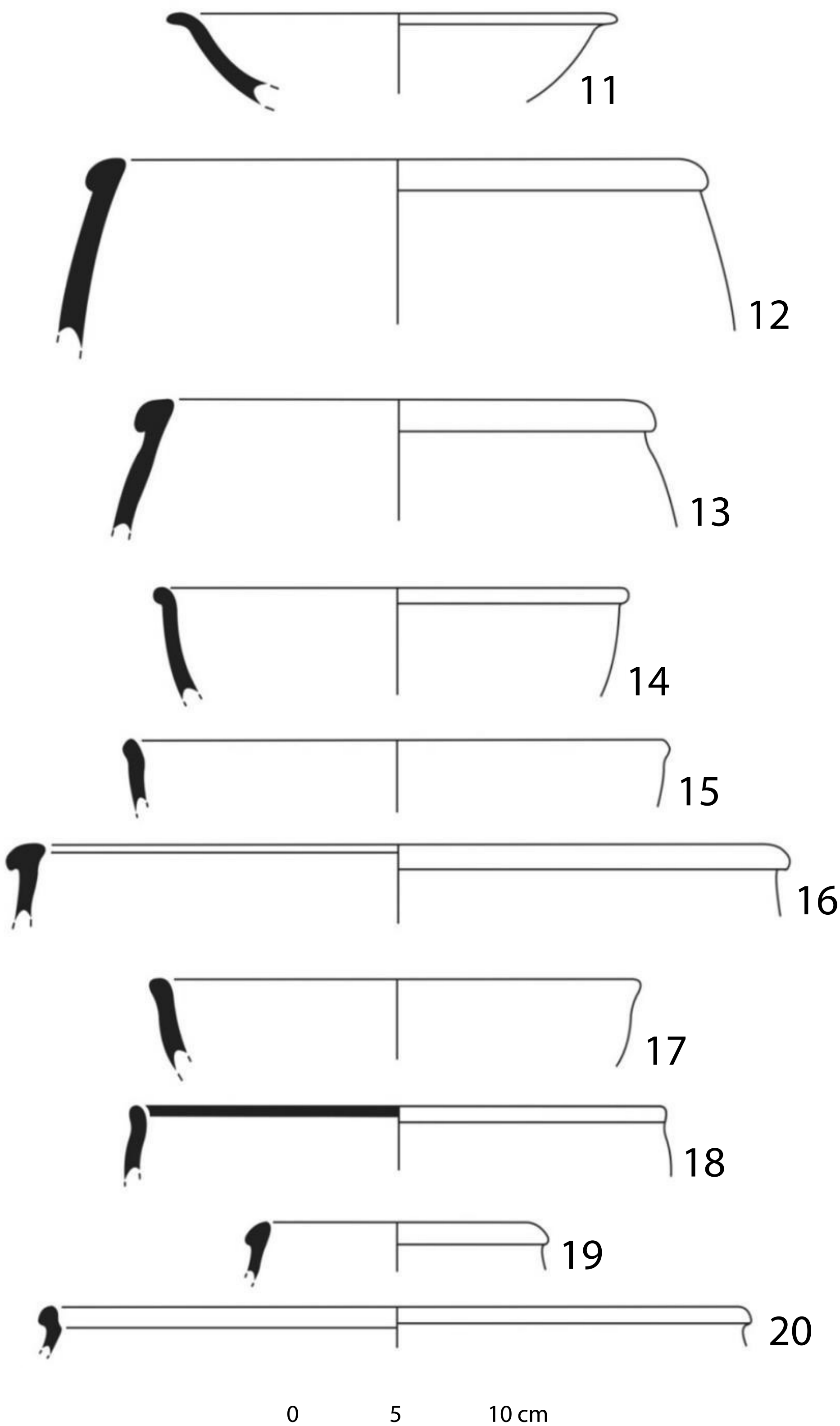


Figure A.28 Significant potsherds No. 11–20 from S.T.1, S.U.4, Tepe Sadegh.

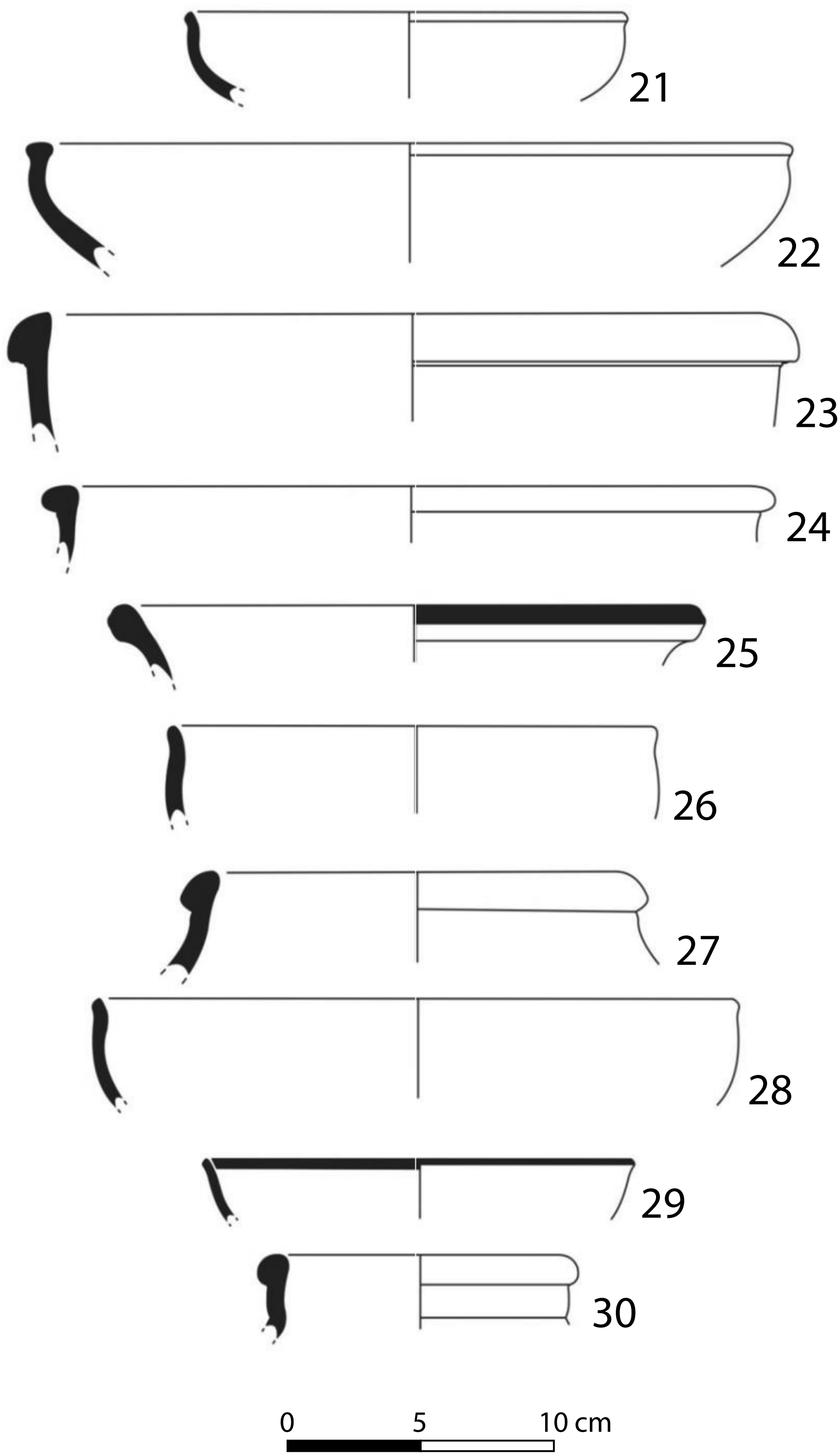


Figure A.29 Significant potsherds No. 21–30 from S.T.1, S.U.4, Tepe Sadegh.

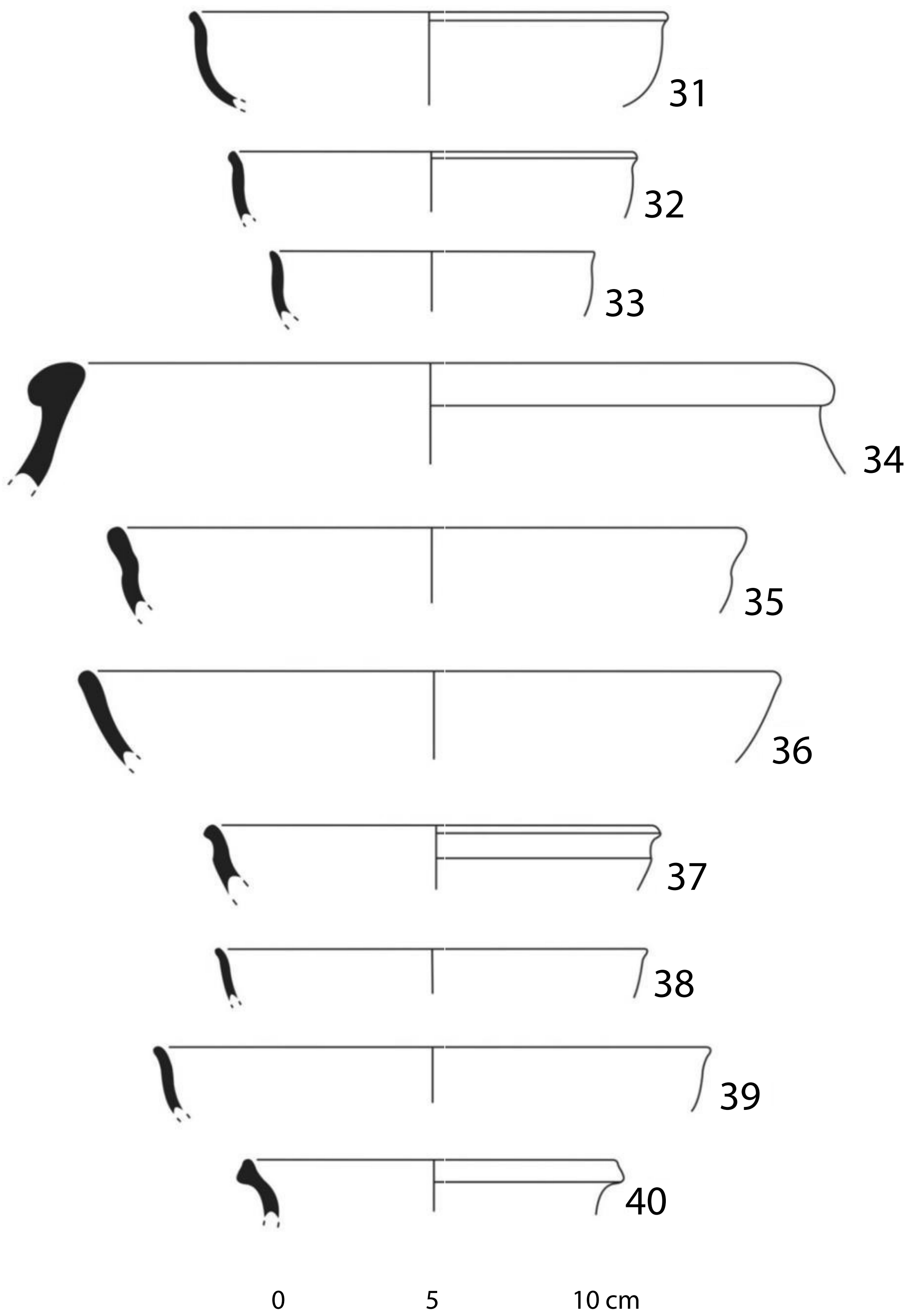


Figure A.30 Significant potsherds No. 31–40 from S.T.1, S.U.4, Tepe Sadegh.

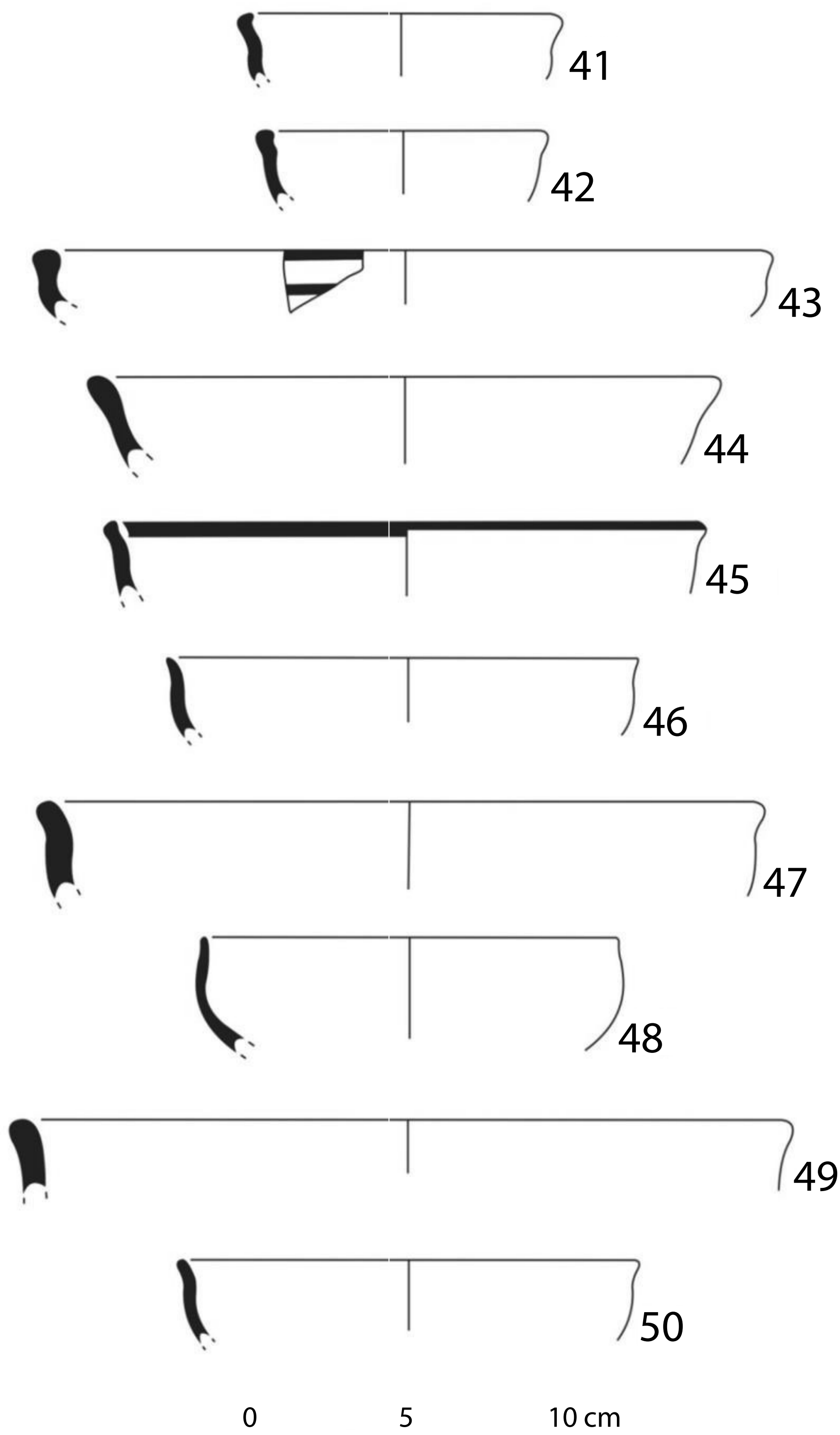


Figure A.31 Significant potsherds No. 41–50 from S.T.1, S.U.4, Tepe Sadegh.

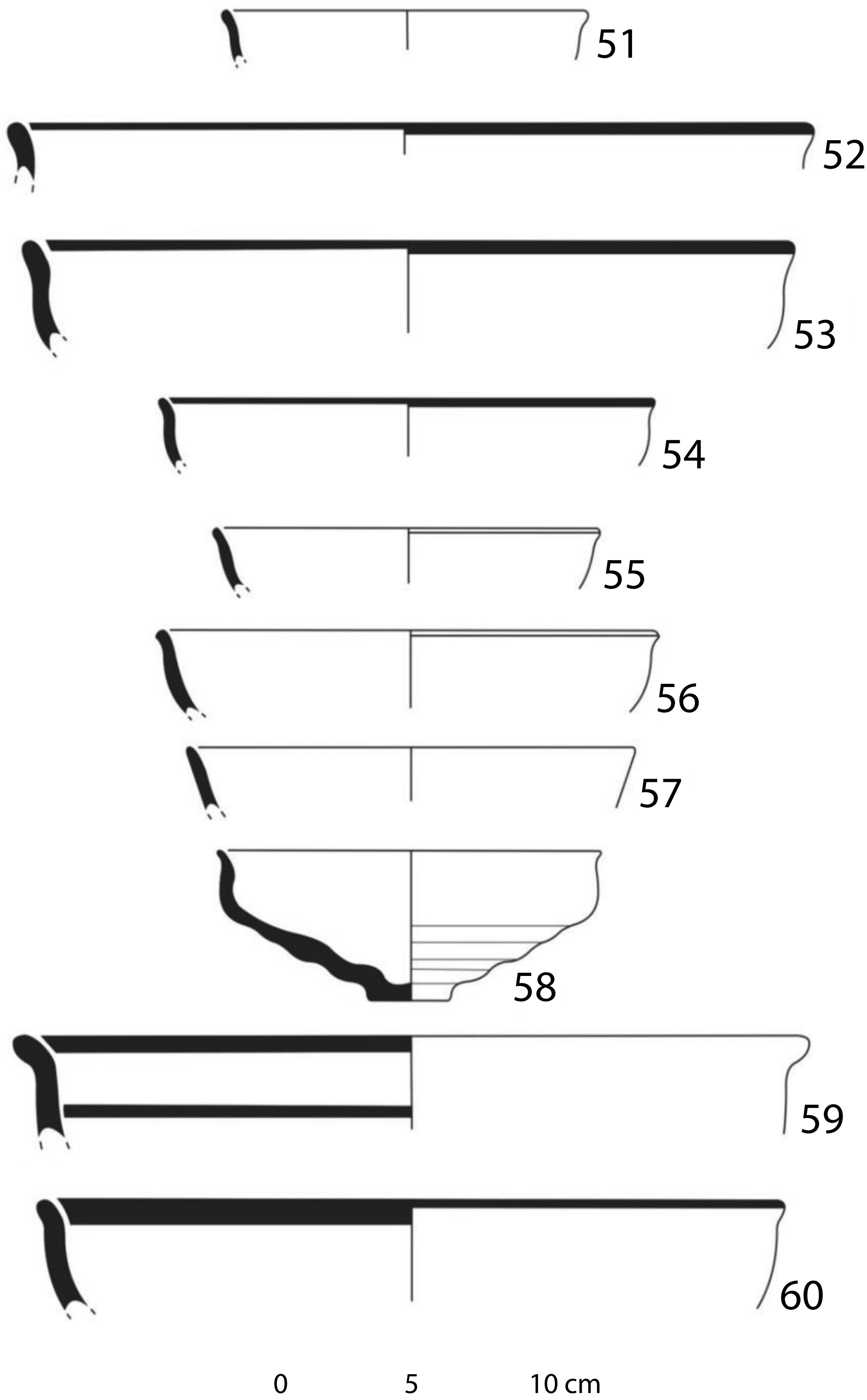


Figure A.32 Significant potsherds No. 51–60 from S.T.1, S.U.4, Tepe Sadegh.

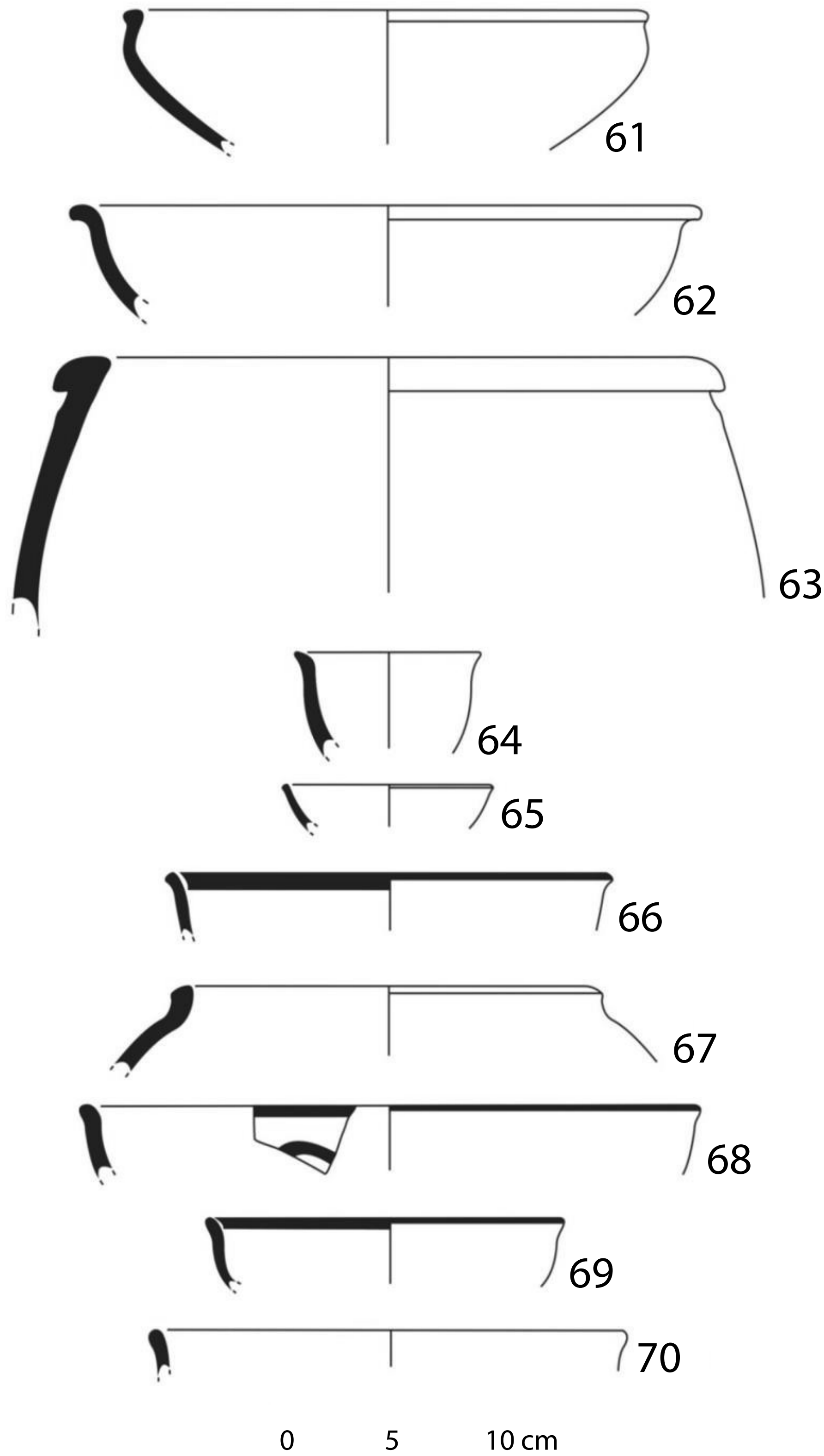


Figure A.33 Significant potsherds No. 61–70 from S.T.1, S.U.4, Tepe Sadegh.

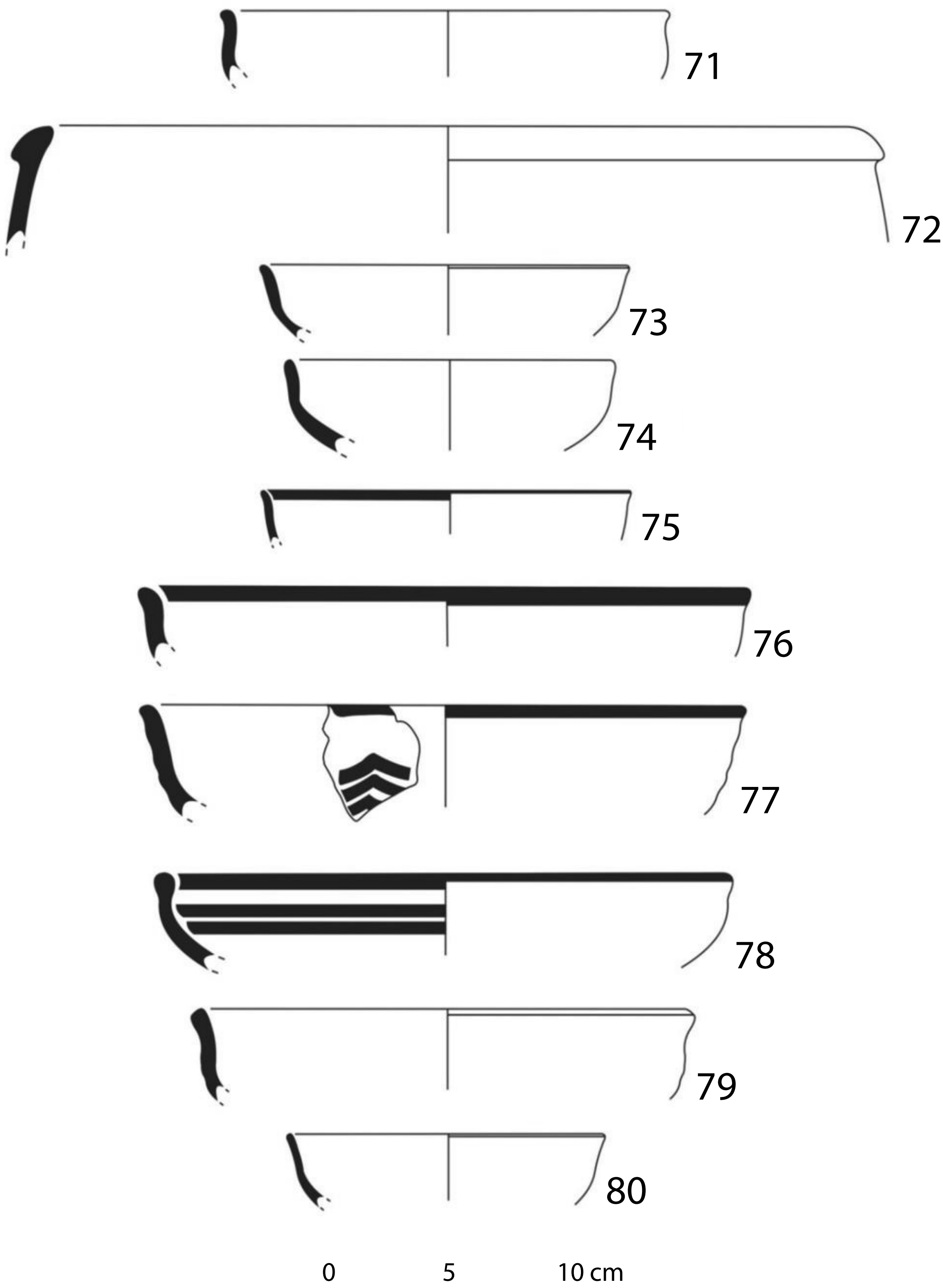


Figure A.34 Significant potsherds No. 71–80 from S.T.1, S.U.4, Tepe Sadegh.

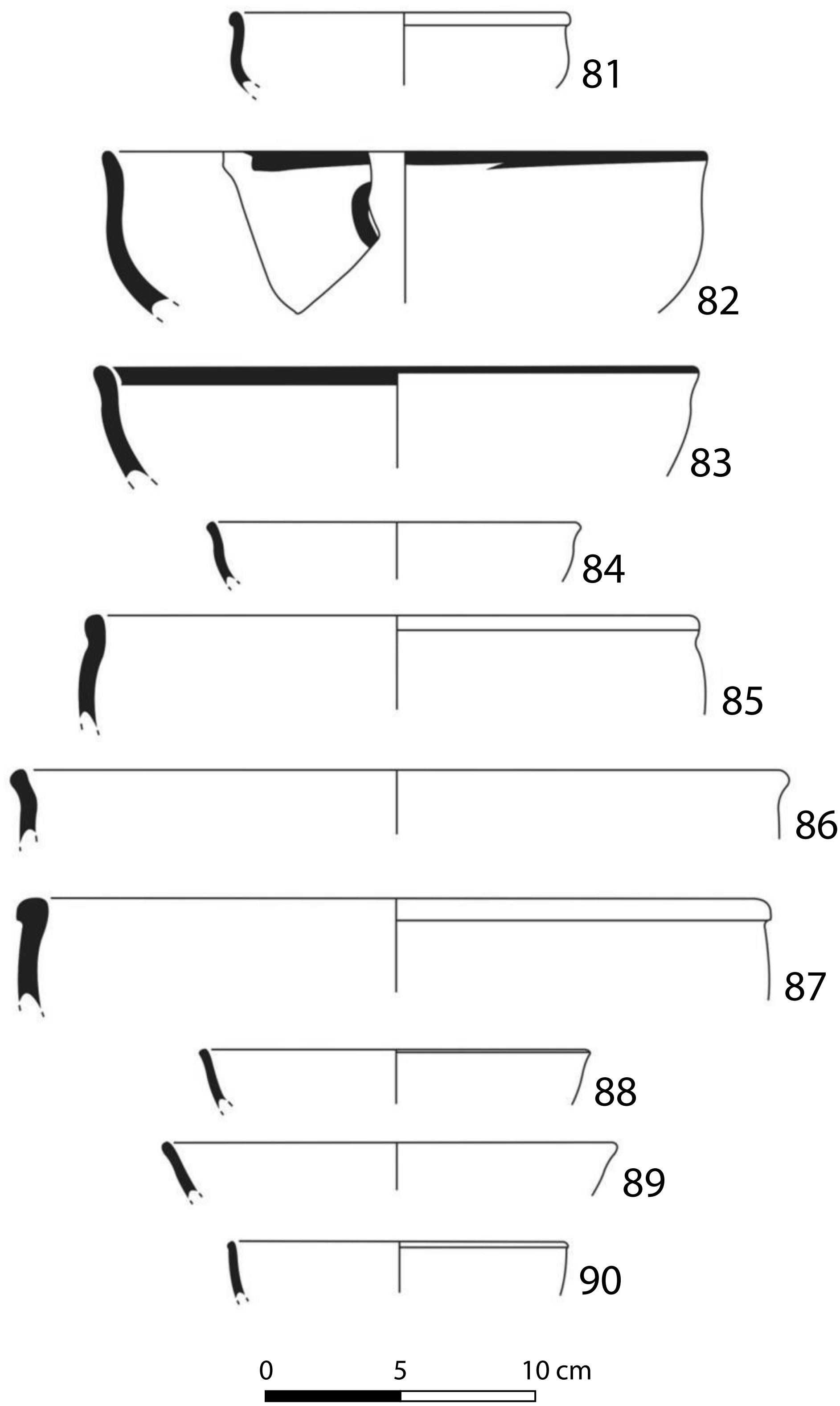


Figure A.35 Significant potsherds No. 81–90 from S.T.1, S.U.4, Tepe Sadegh.

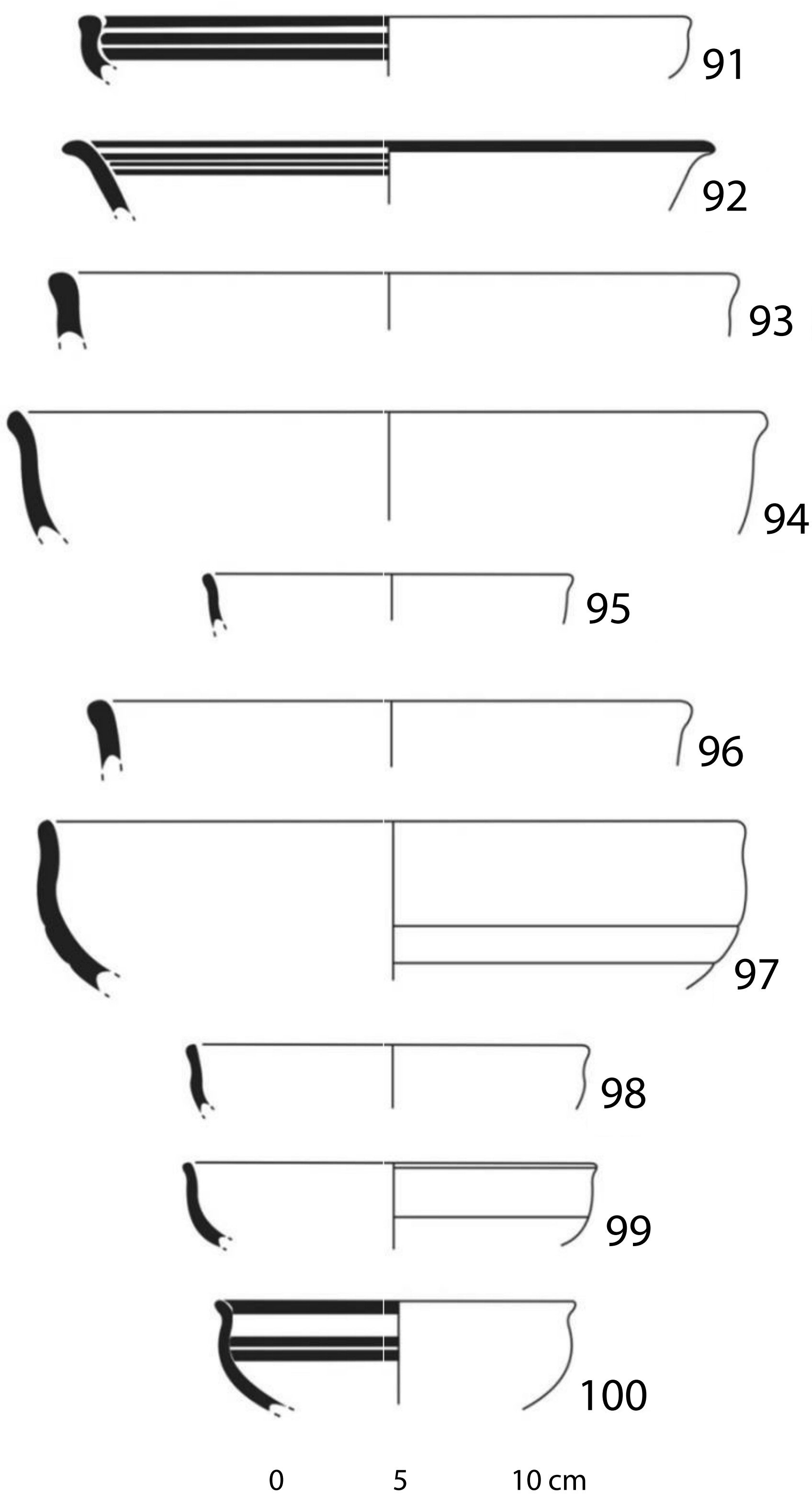


Figure A.36 Significant potsherds No. 91–100 from S.T.1, S.U.4, Tepe Sadegh.

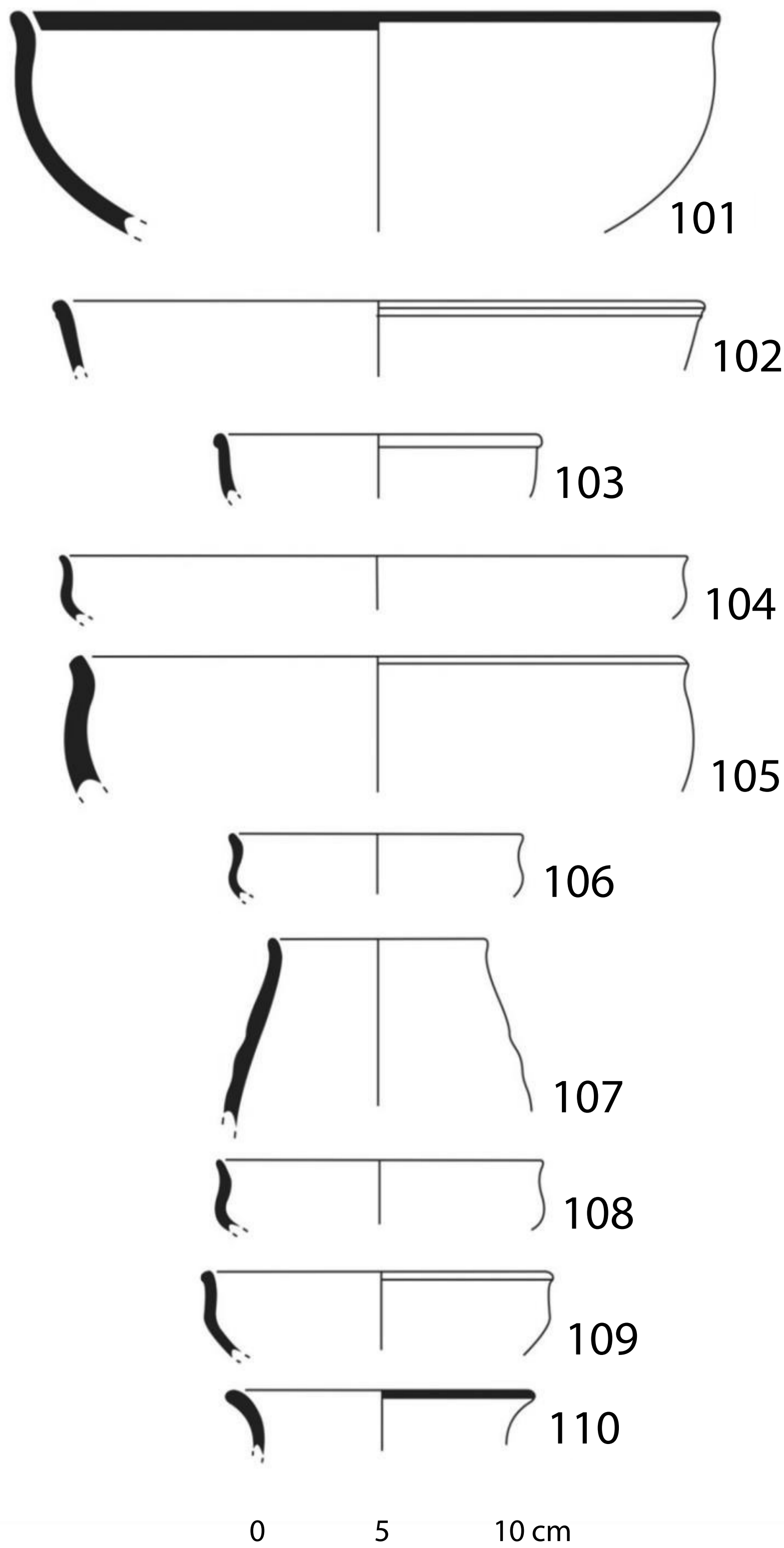


Figure A.37 Significant potsherds No. 101–110 from S.T.1, S.U.4, Tepe Sadegh.

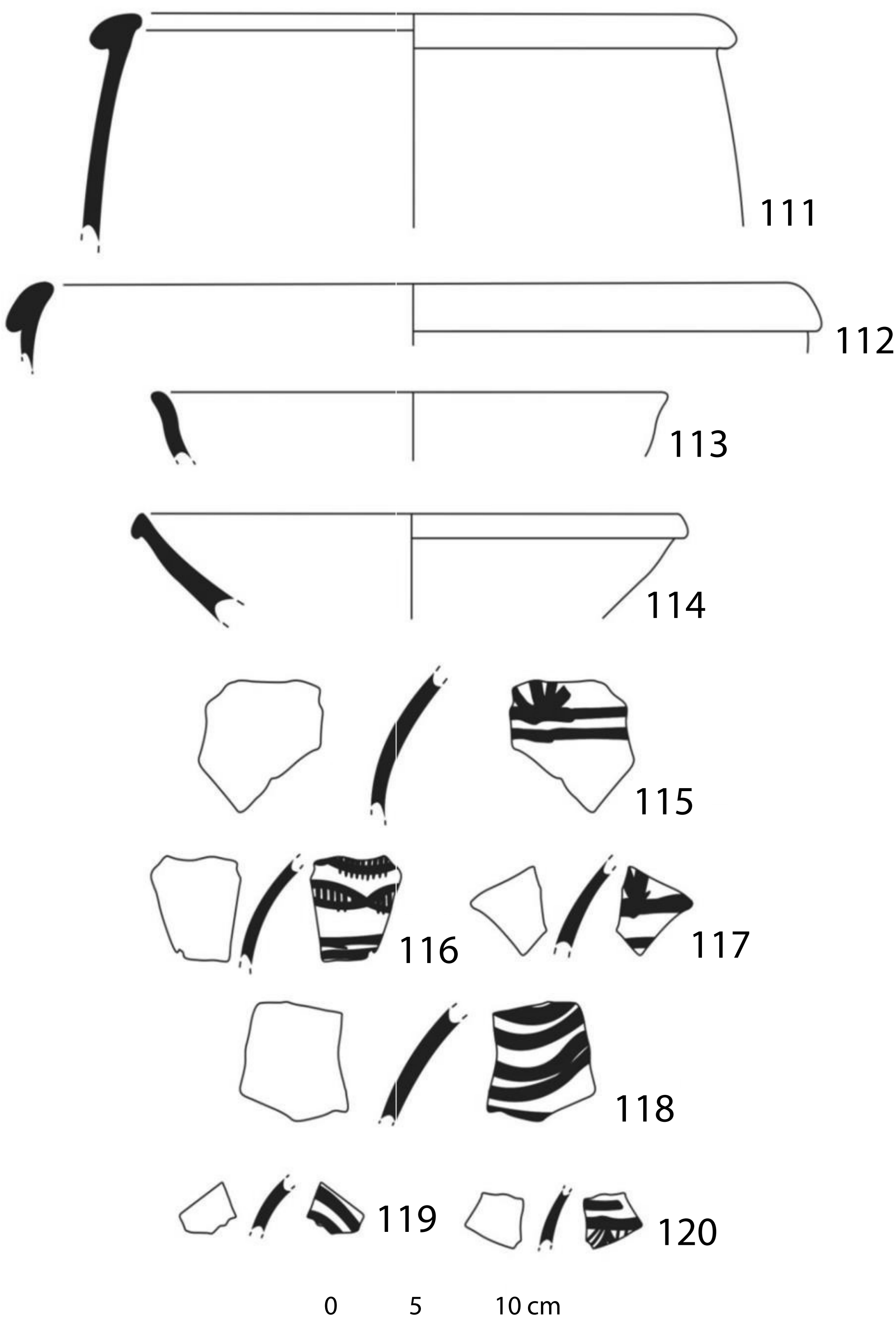


Figure A.38 Significant potsherds No. 111–120 from S.T.1, S.U.4, Tepe Sadegh.

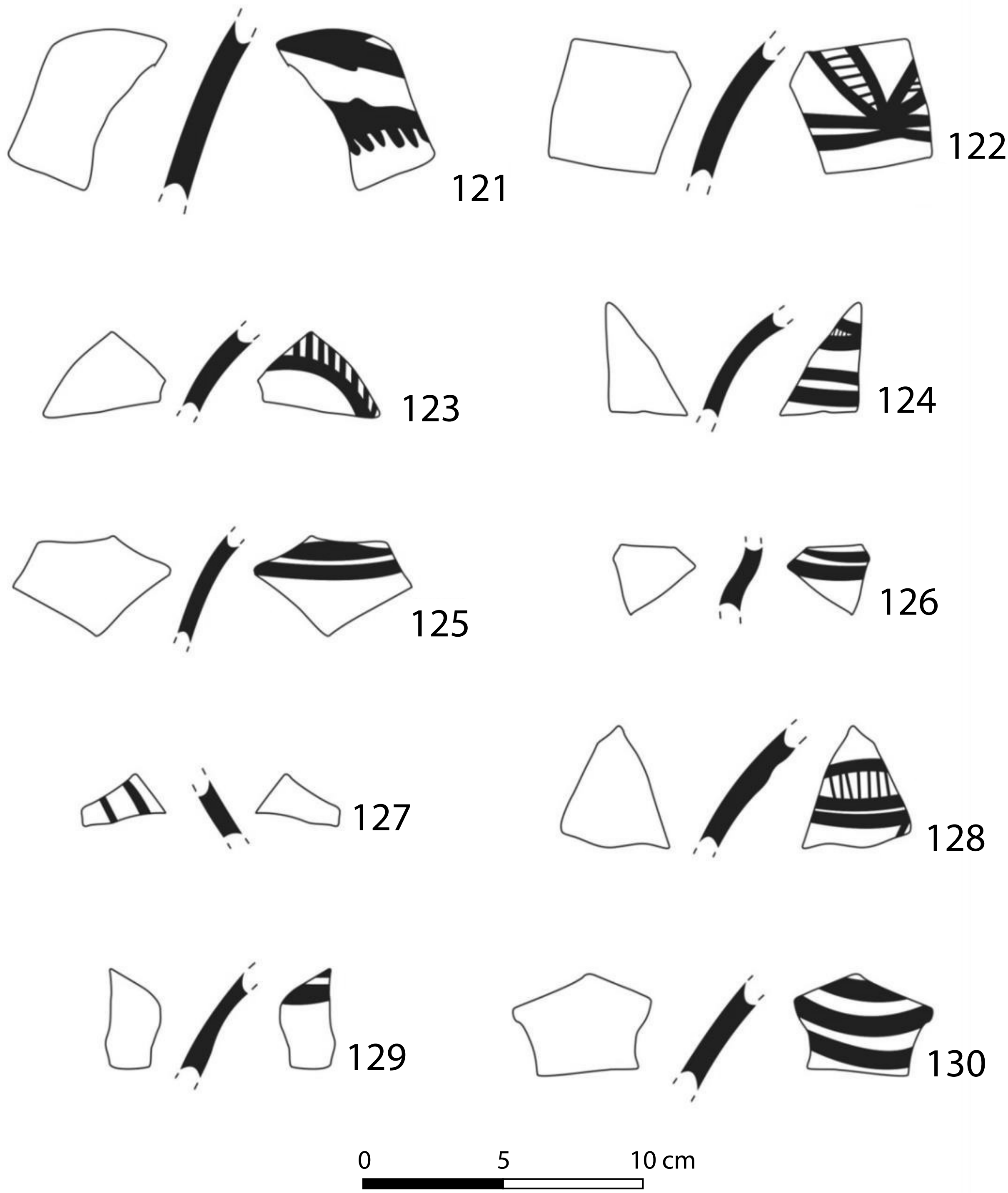


Figure A.39 Significant potsherds No. 121–130 from S.T.1, S.U.4, Tepe Sadegh.

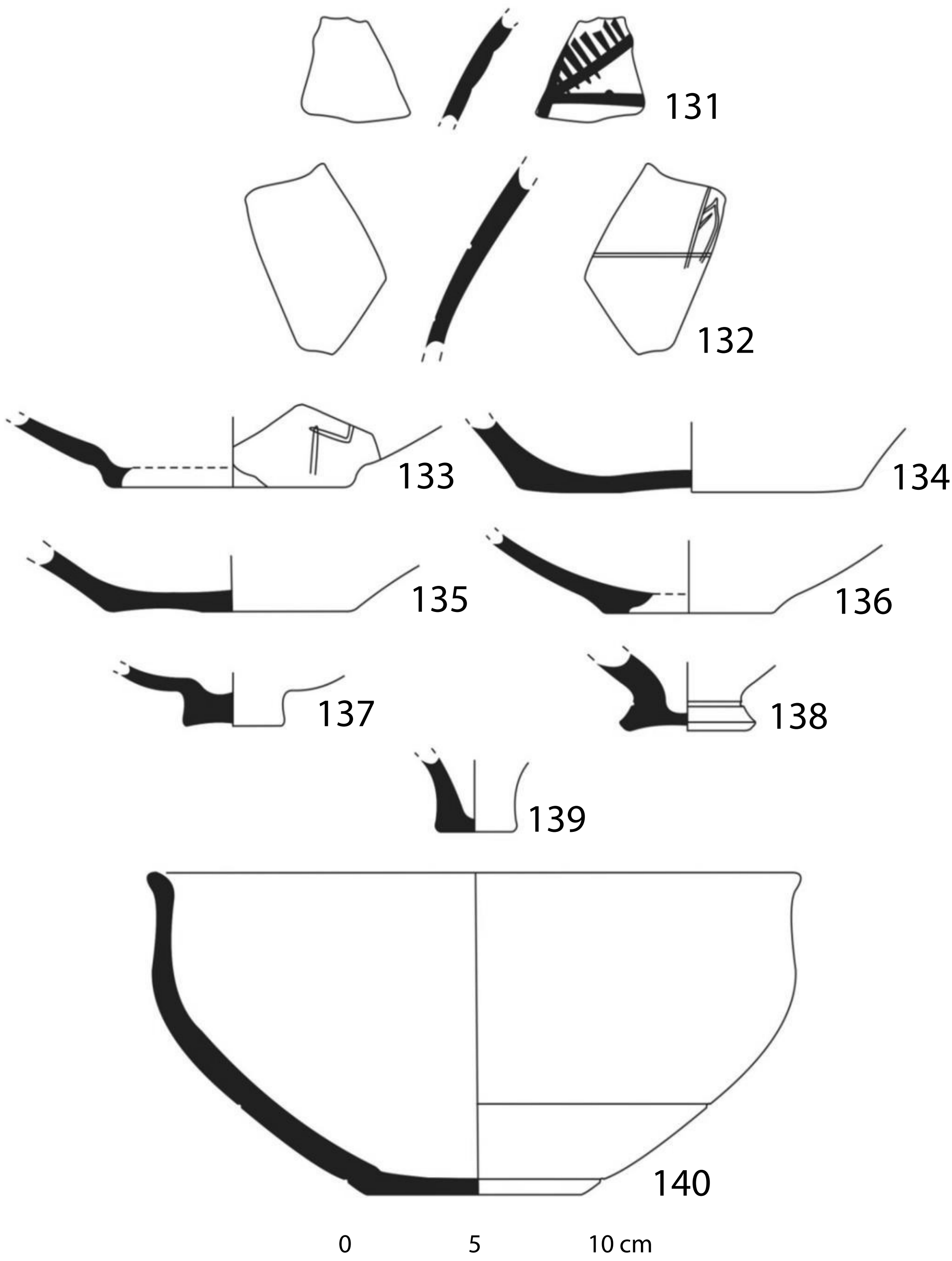


Figure A.40 Significant potsherds No. 131–140 from S.T.1, S.U.4, Tepe Sadegh.

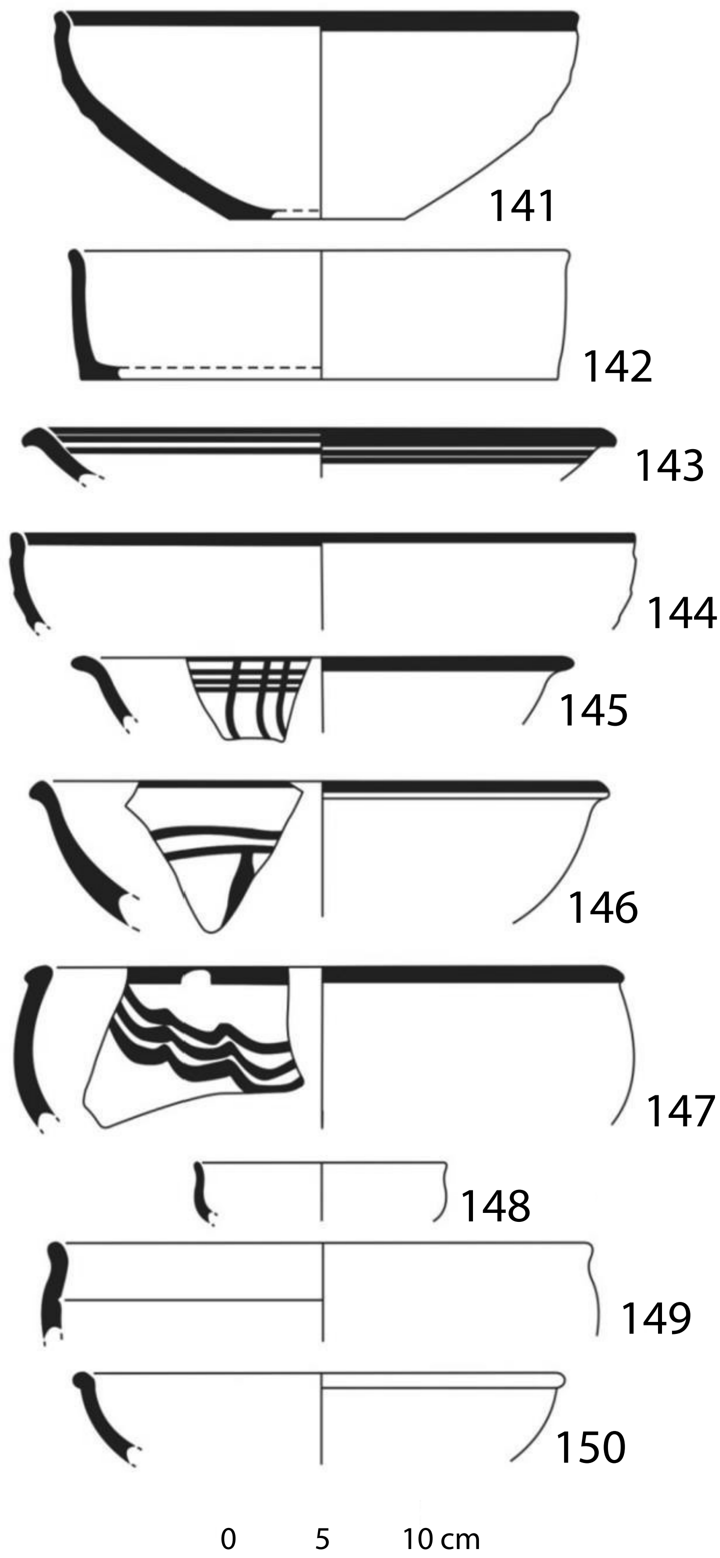


Figure A.41 Significant potsherds No. 141–150 from S.T.1, S.U.4, Tepe Sadegh.

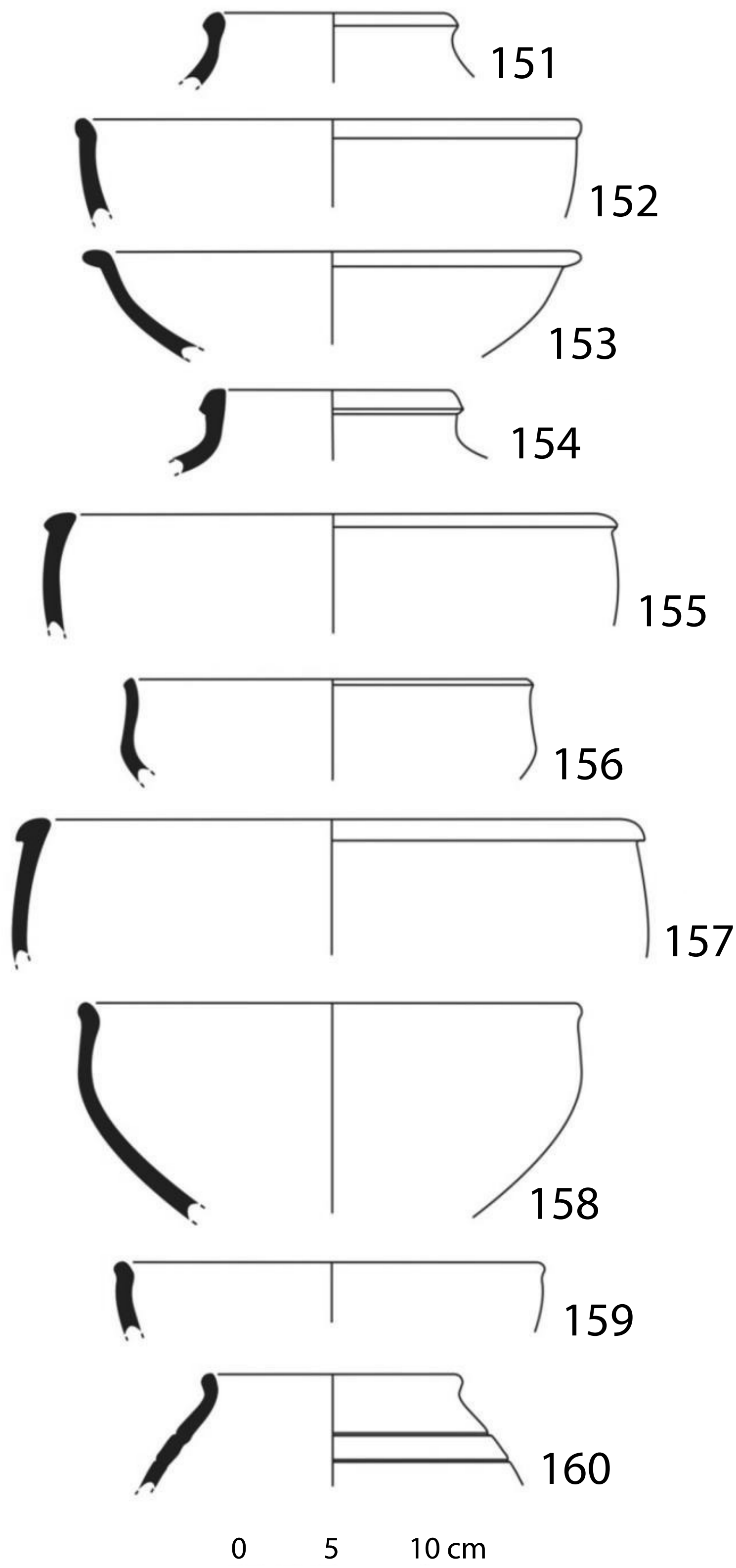


Figure A.42 Significant potsherds No. 151–160 from S.T.1, S.U.4, Tepe Sadegh.

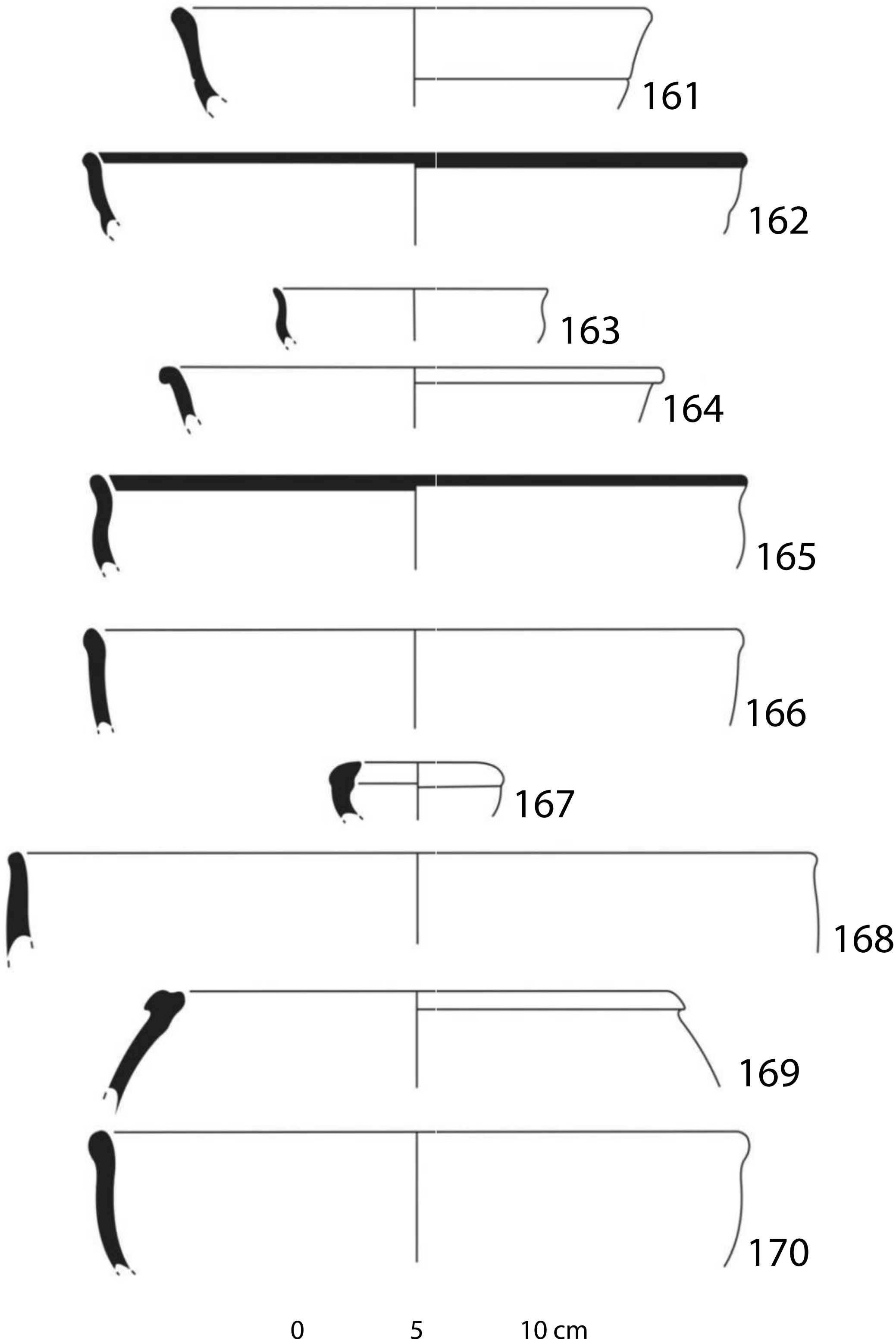


Figure A.43 Significant potsherds No. 161–170 from S.T.1, S.U.4, Tepe Sadegh.

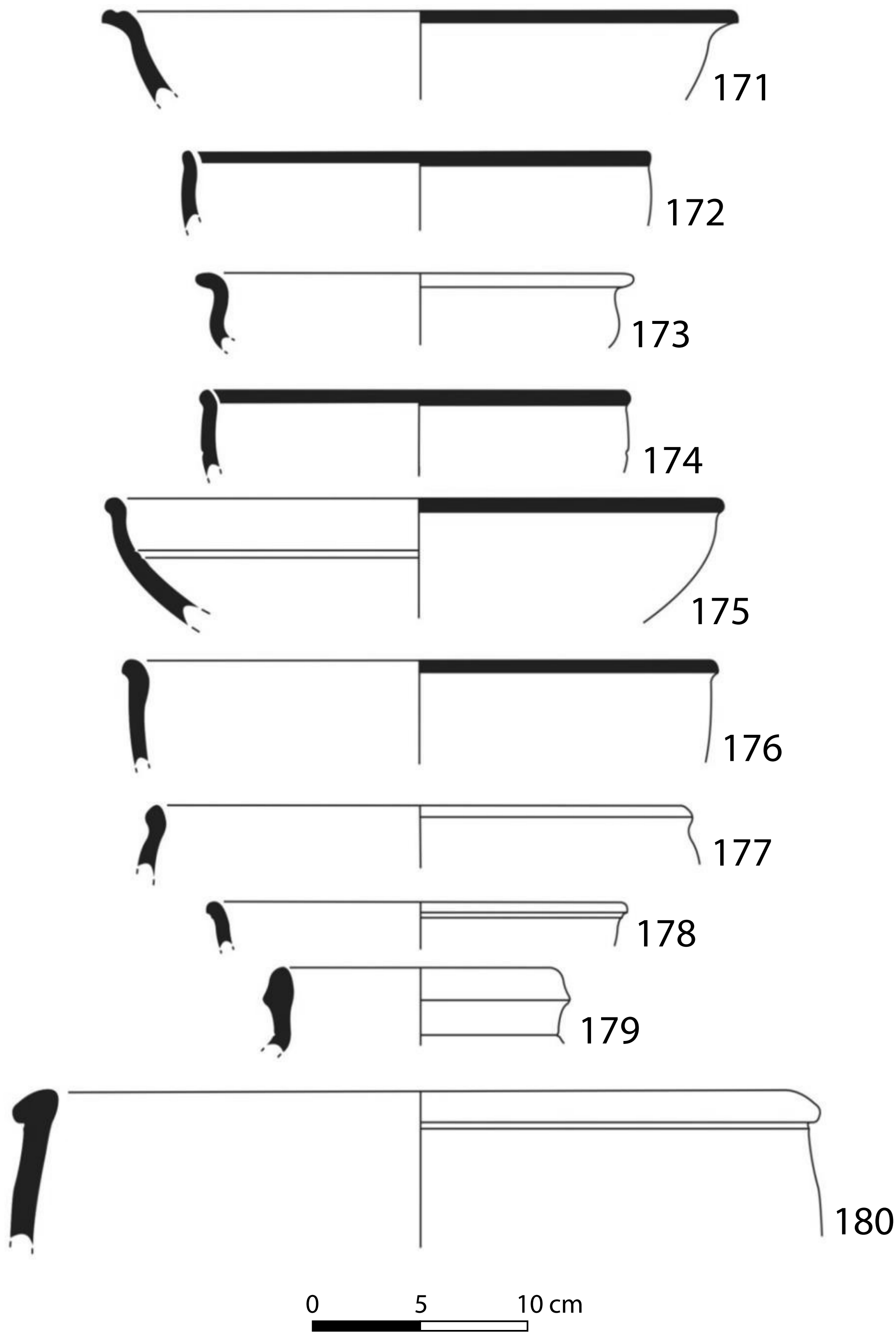


Figure A.44 Significant potsherds No. 171–180 from S.T.1, S.U.4, Tepe Sadegh.

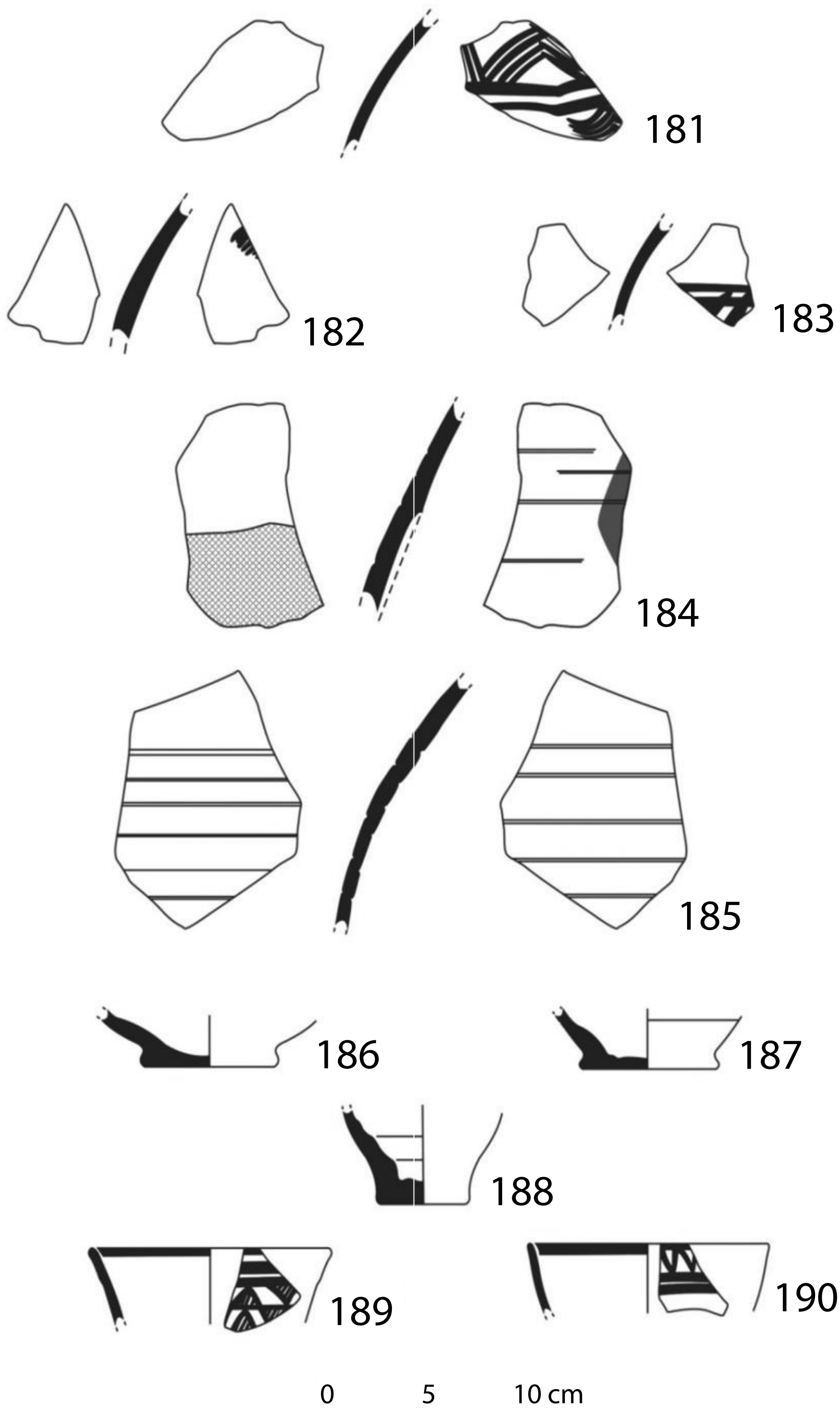


Figure A.45 Significant potsherds No. 181–190 from S.T.1, S.U.4, Tepe Sadegh.

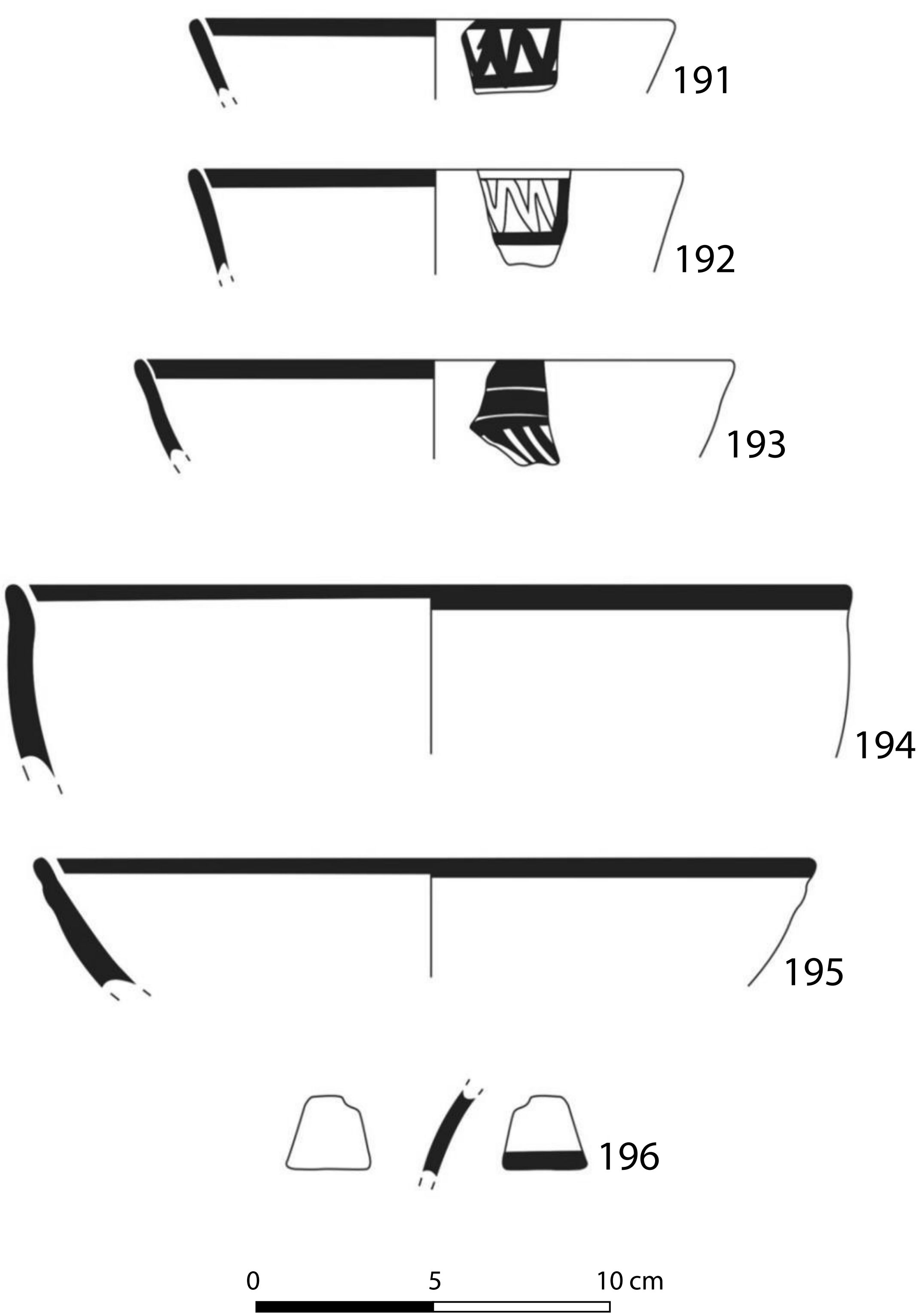


Figure A.46 Significant potsherds No. 191–196 from S.T.1, S.U.4, Tepe Sadegh.

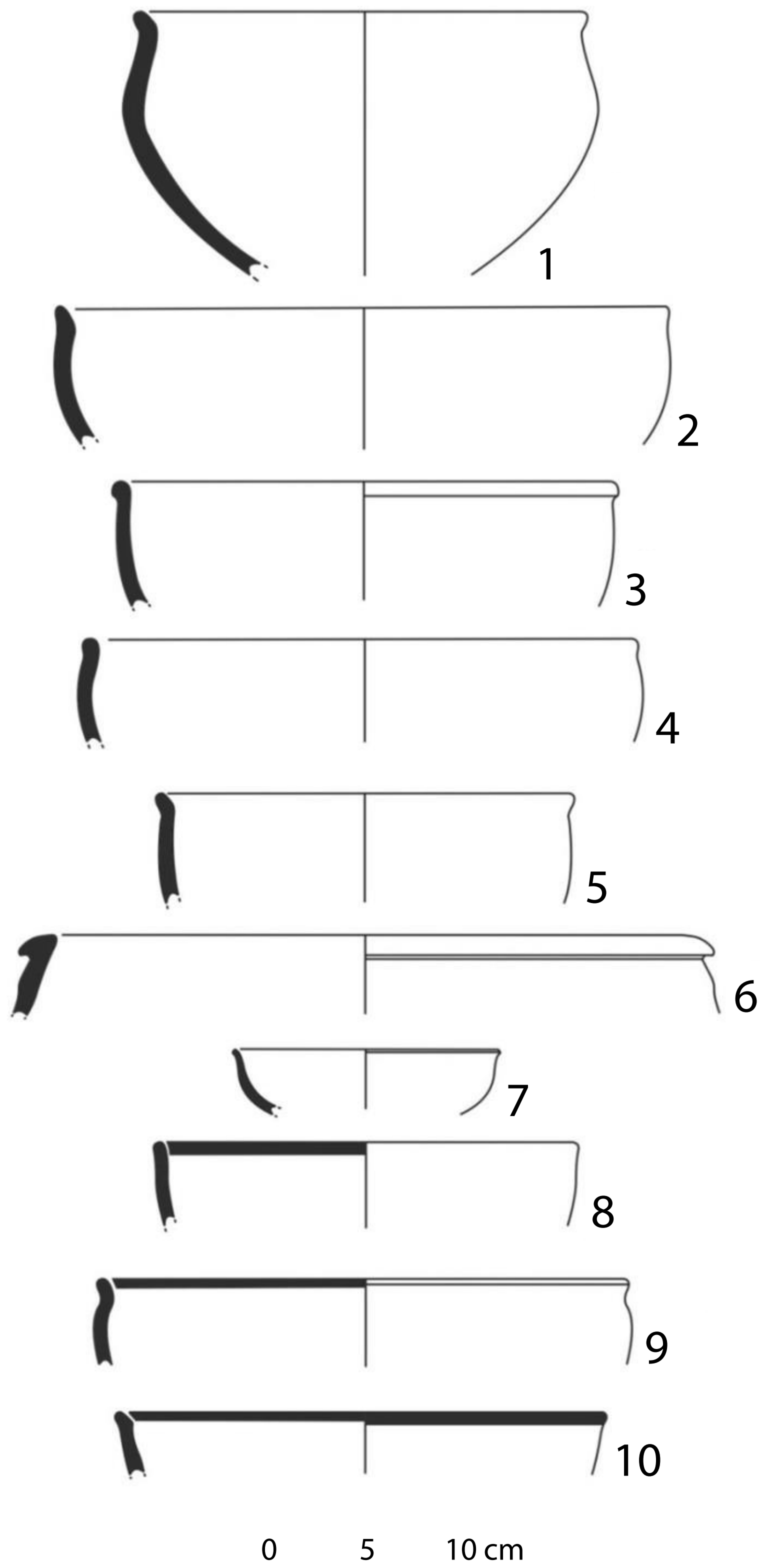


Figure A.47 Significant potsherds No. 1–10 from S.T.1, S.U.9, Tepe Sadegh.

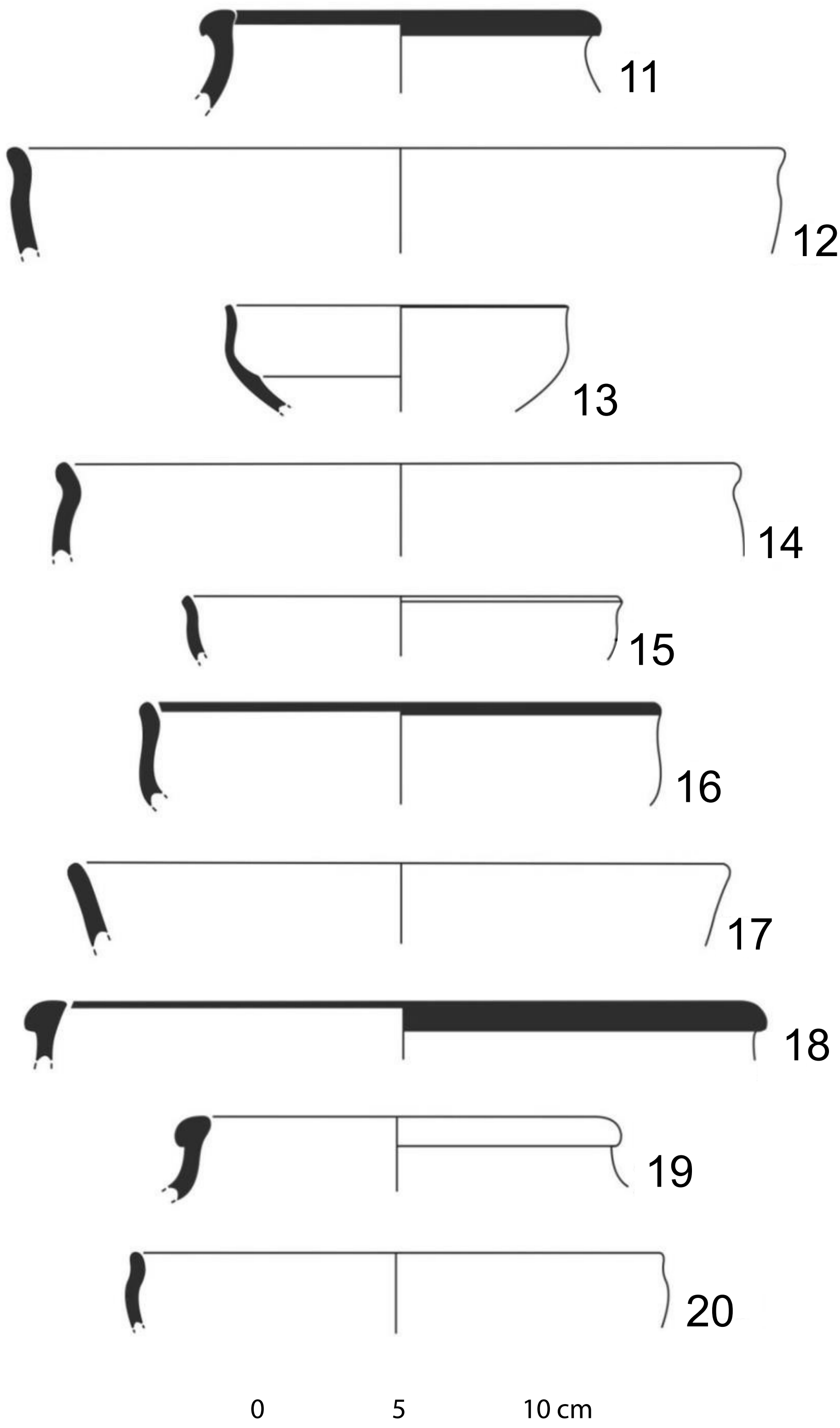


Figure A.48 Significant potsherds No. 11–20 from S.T.1, S.U.9, Tepe Sadegh.

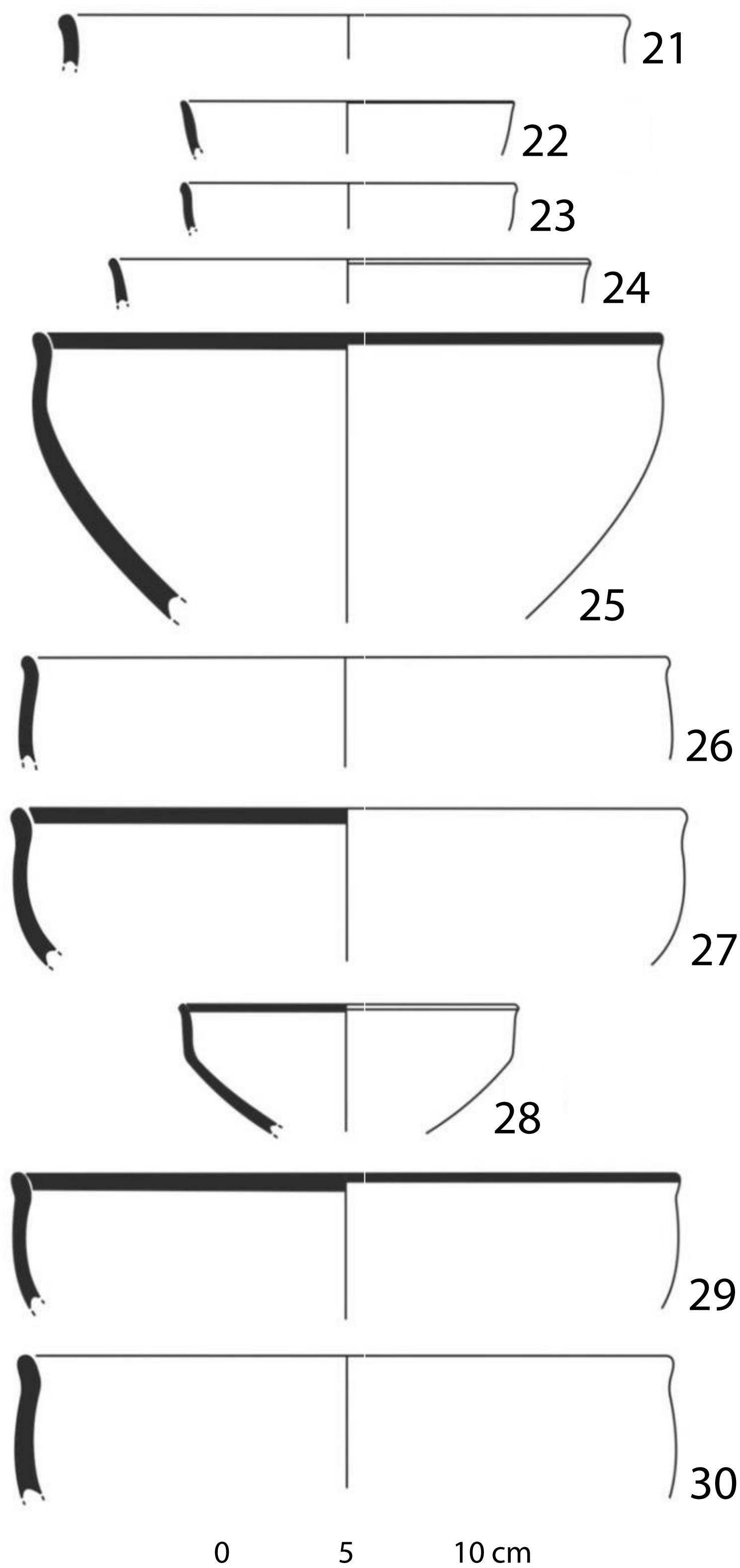


Figure A.49 Significant potsherds No. 21–30 from S.T.1, S.U.9, Tepe Sadegh.

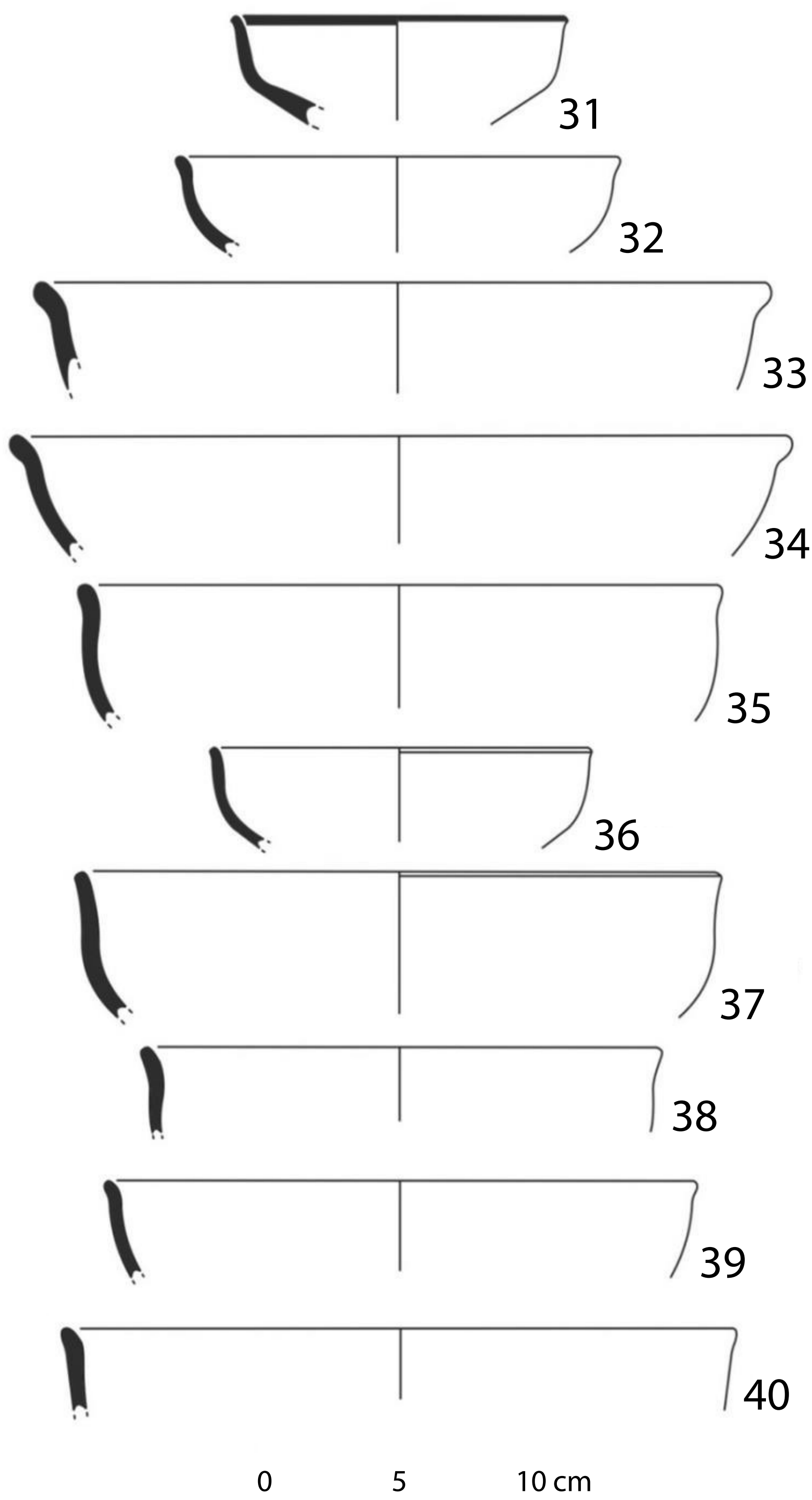


Figure A.50 Significant potsherds No. 31–40 from S.T.1, S.U.9, Tepe Sadegh.

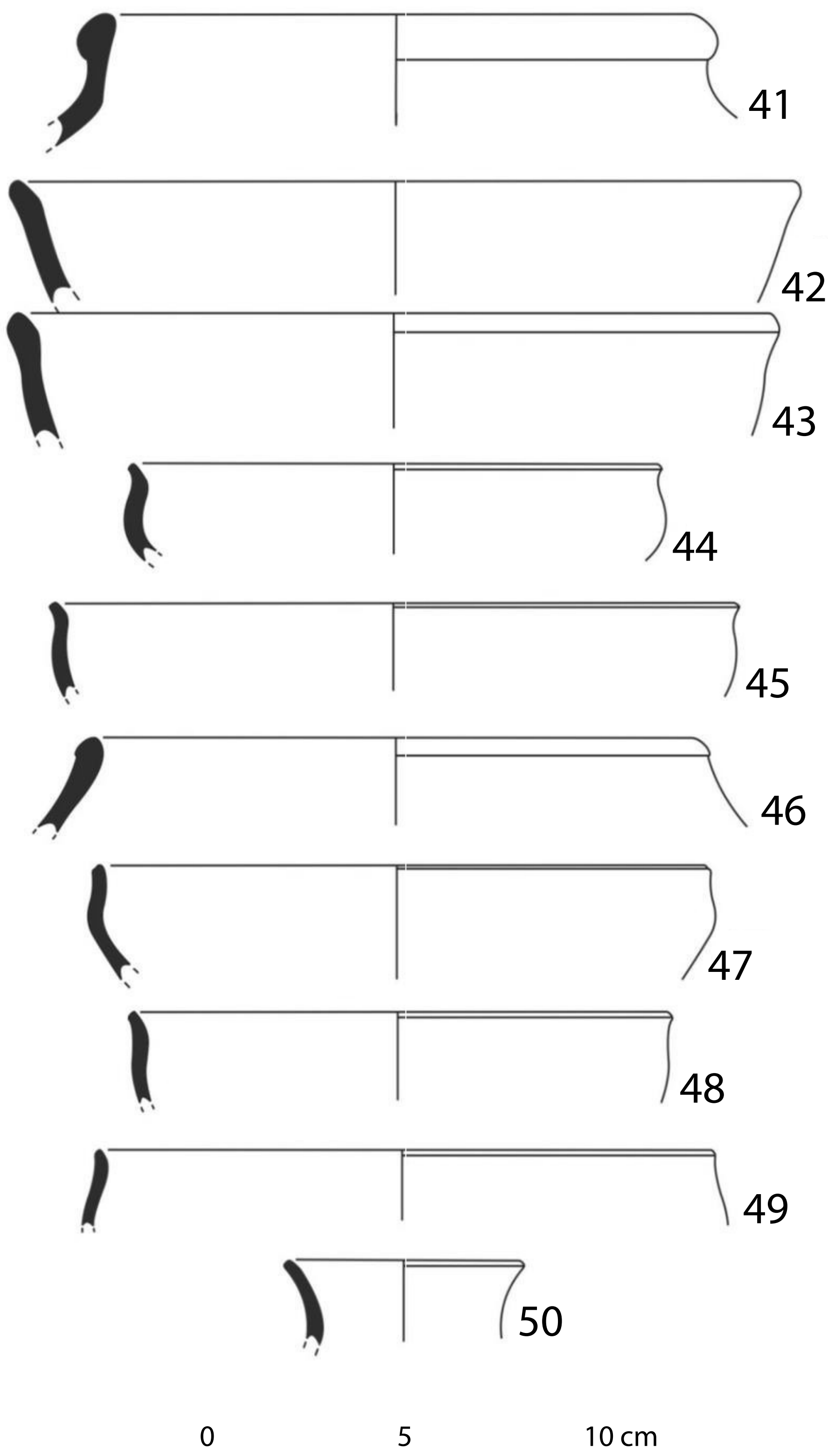


Figure A.51 Significant potsherds No. 41–50 from S.T.1, S.U.9, Tepe Sadegh.

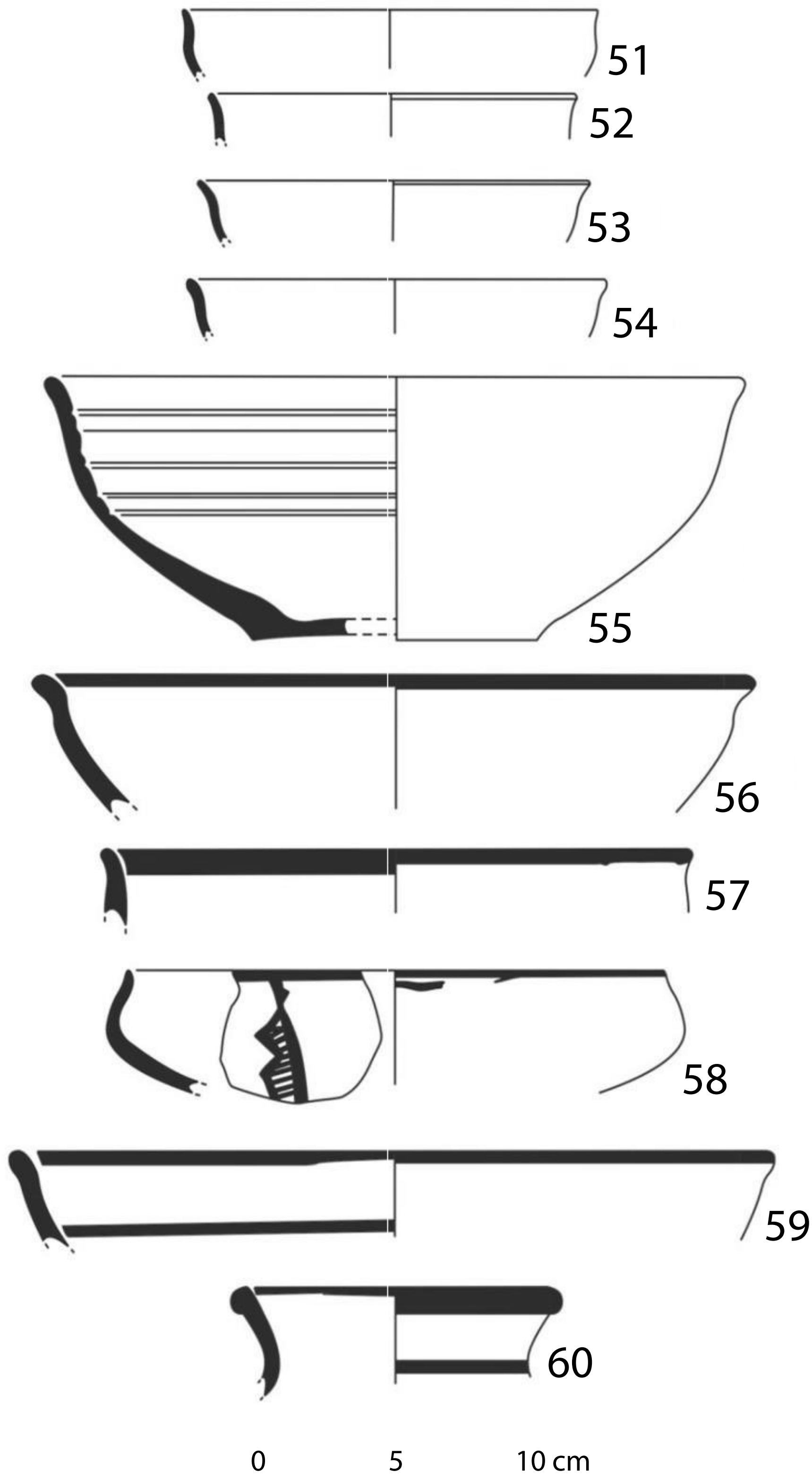


Figure A.52 Significant potsherds No. 51–60 from S.T.1, S.U.9, Tepe Sadegh.

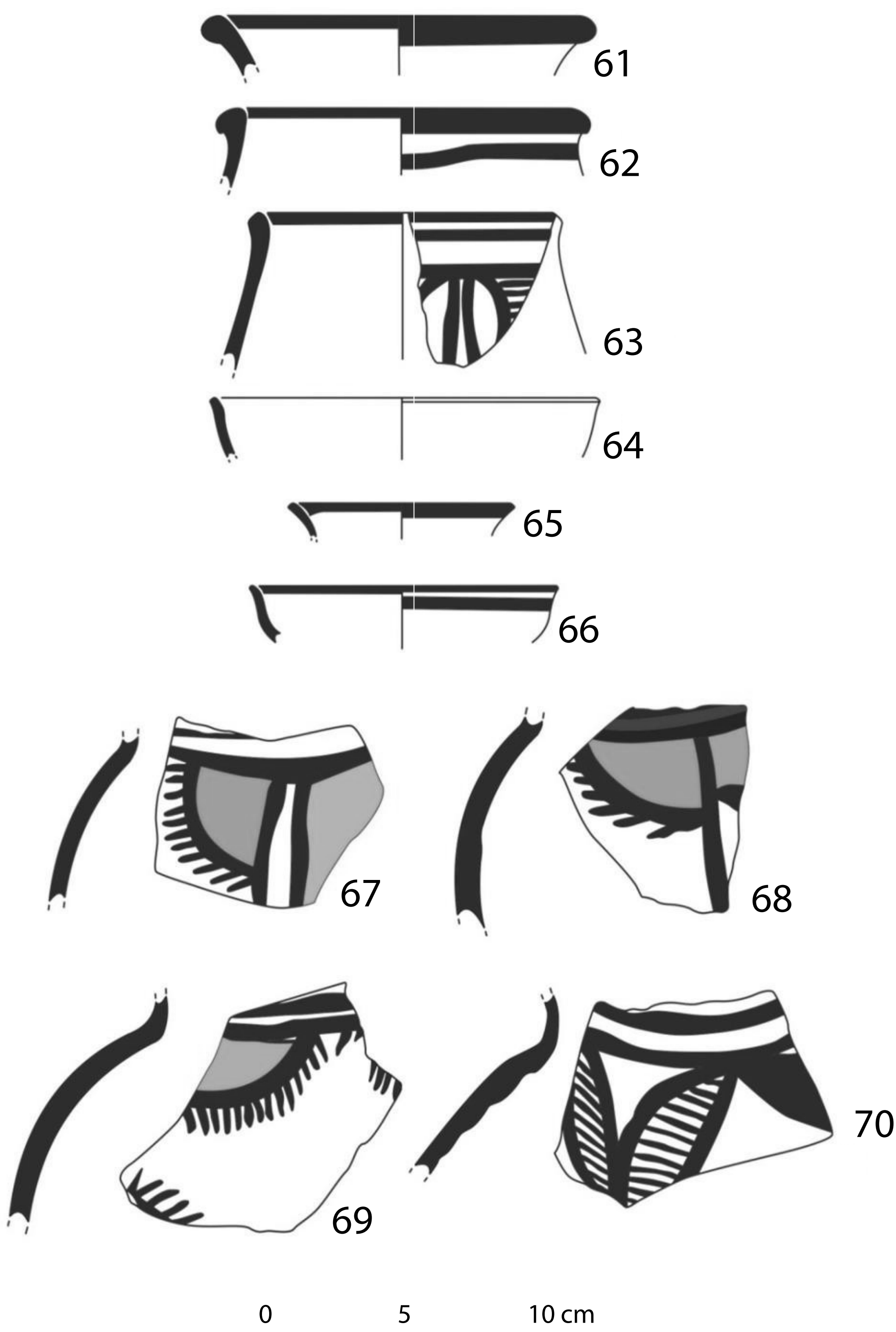


Figure A.53 Significant potsherds No. 61–70 from S.T.1, S.U.9, Tepe Sadegh.

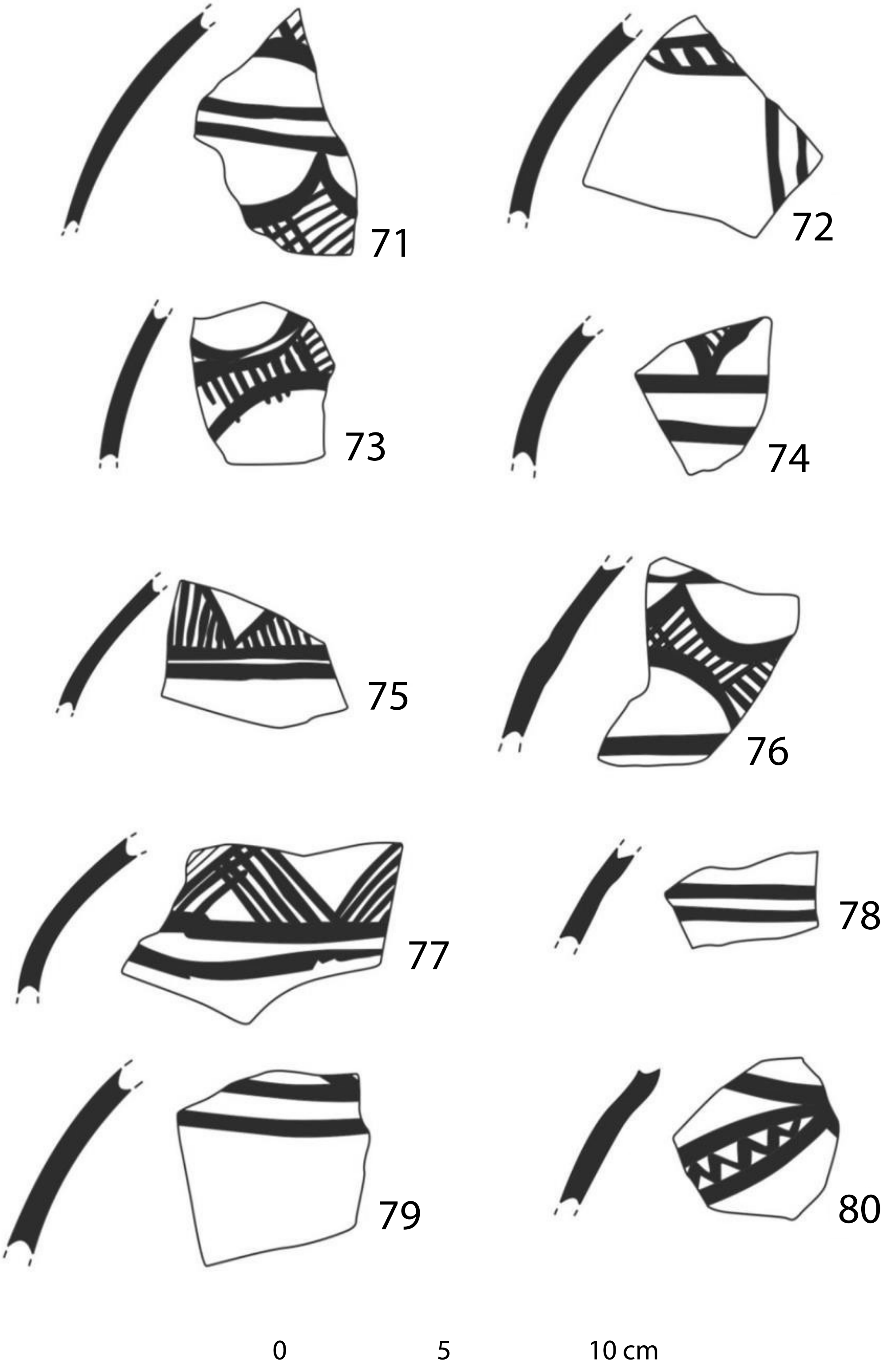


Figure A.54 Significant potsherds No. 71–80 from S.T.1, S.U.9, Tepe Sadegh.

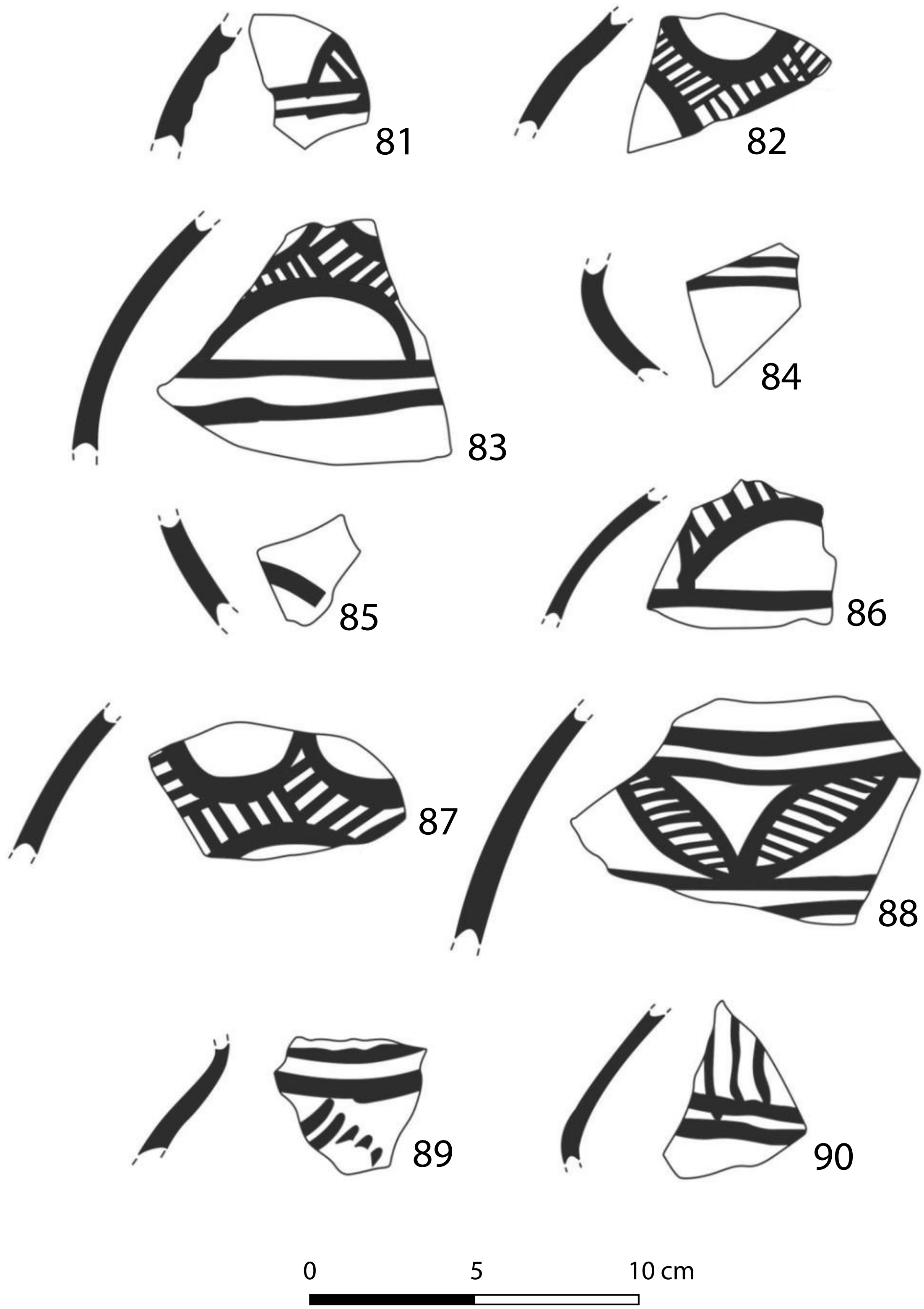


Figure A.55 Significant potsherds No. 81–90 from S.T.1, S.U.9, Tepe Sadegh.

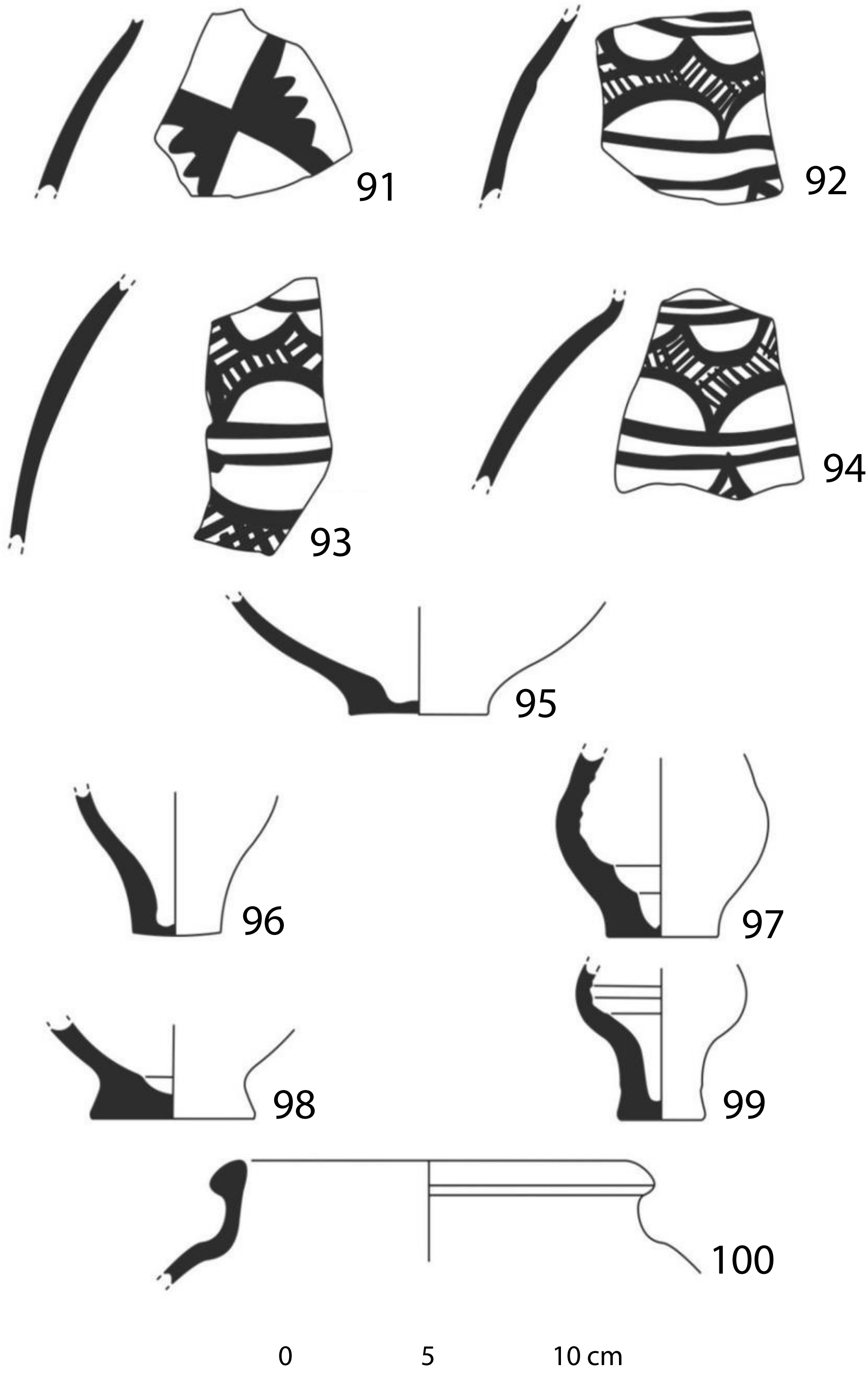


Figure A.56 Significant potsherds No. 91–100 from S.T.1, S.U.9, Tepe Sadegh.

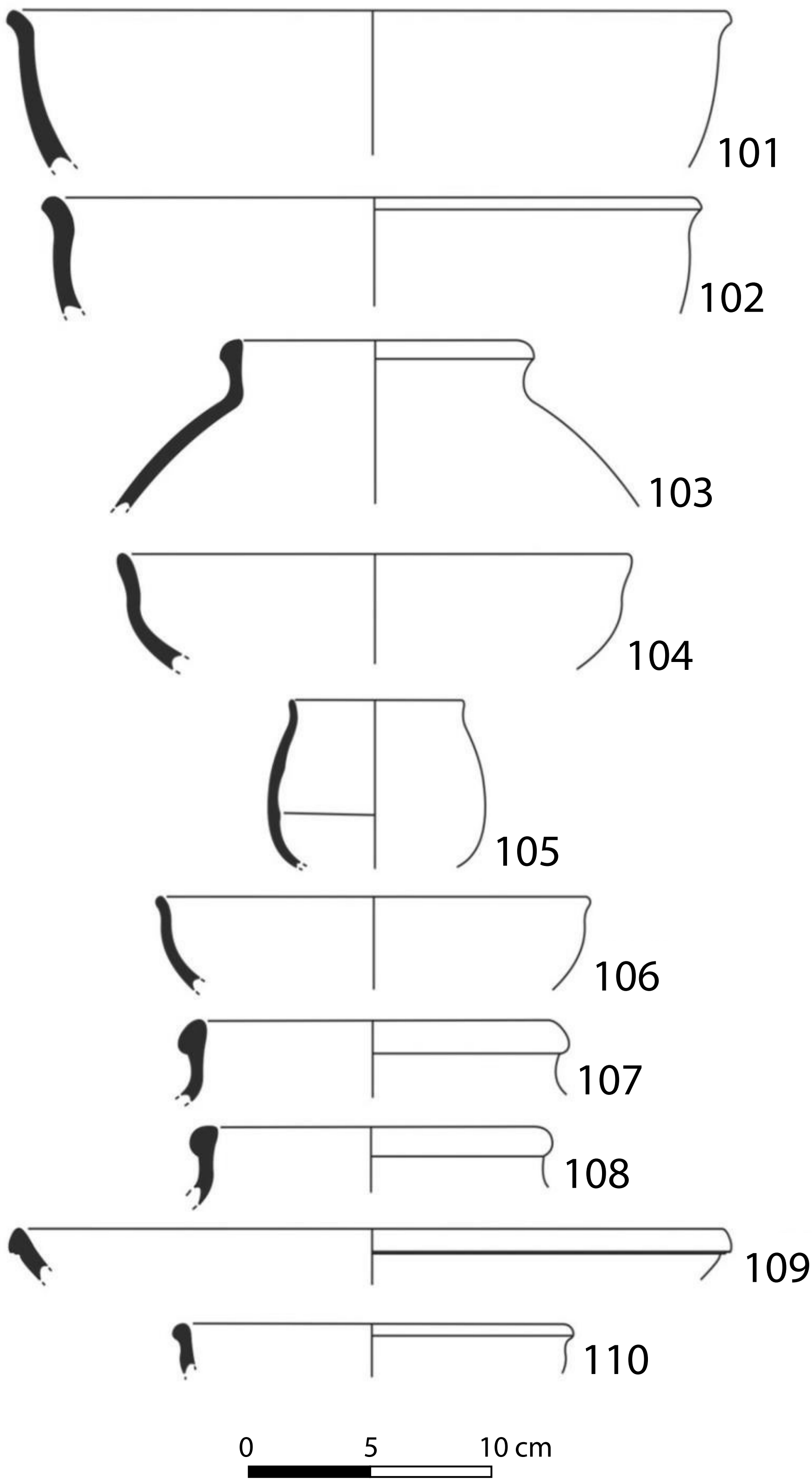


Figure A.57 Significant potsherds No. 101–110 from S.T.1, S.U.9, Tepe Sadegh.

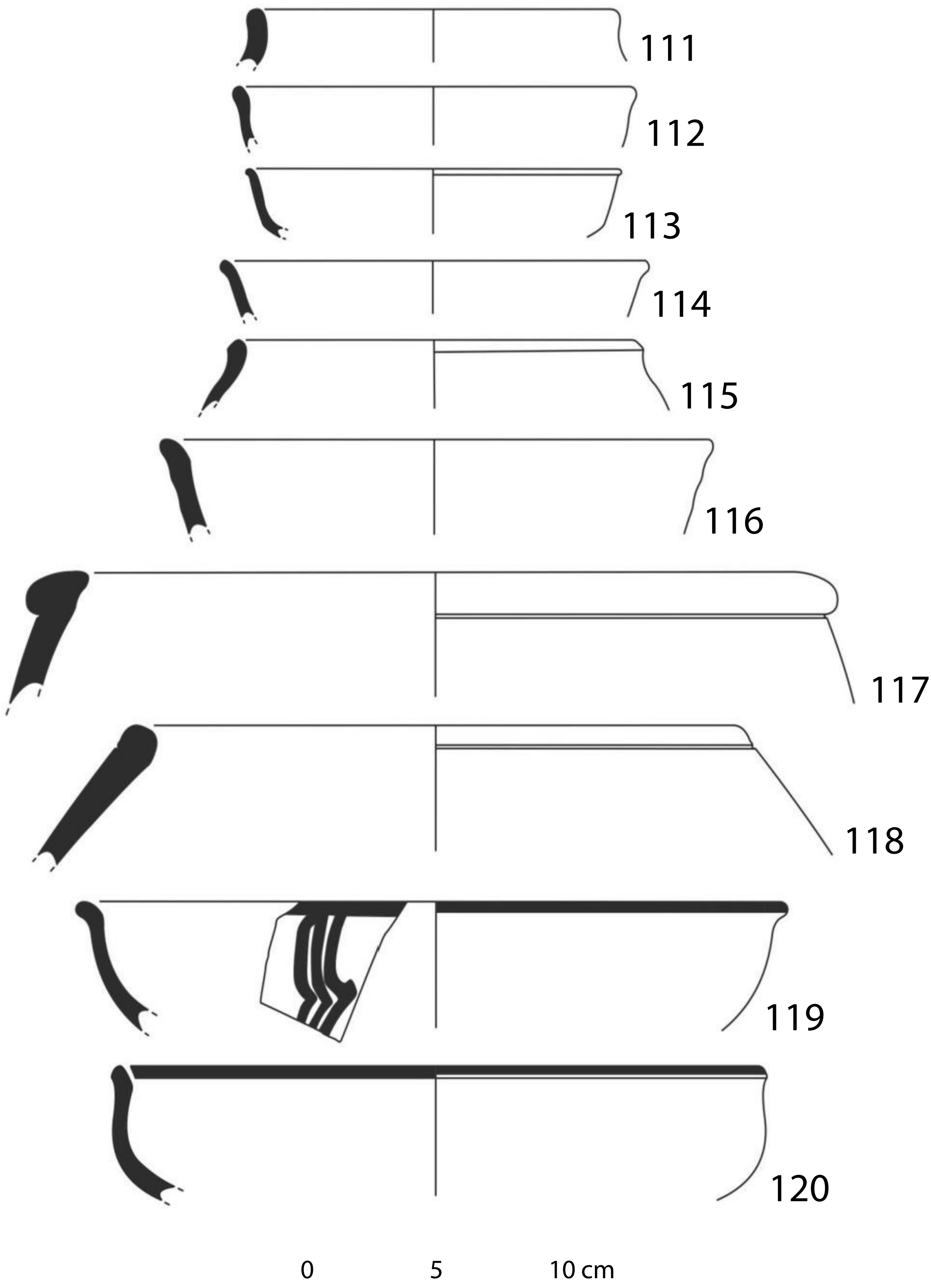


Figure A.58 Significant potsherds No. 111–120 from S.T.1, S.U.9, Tepe Sadegh.

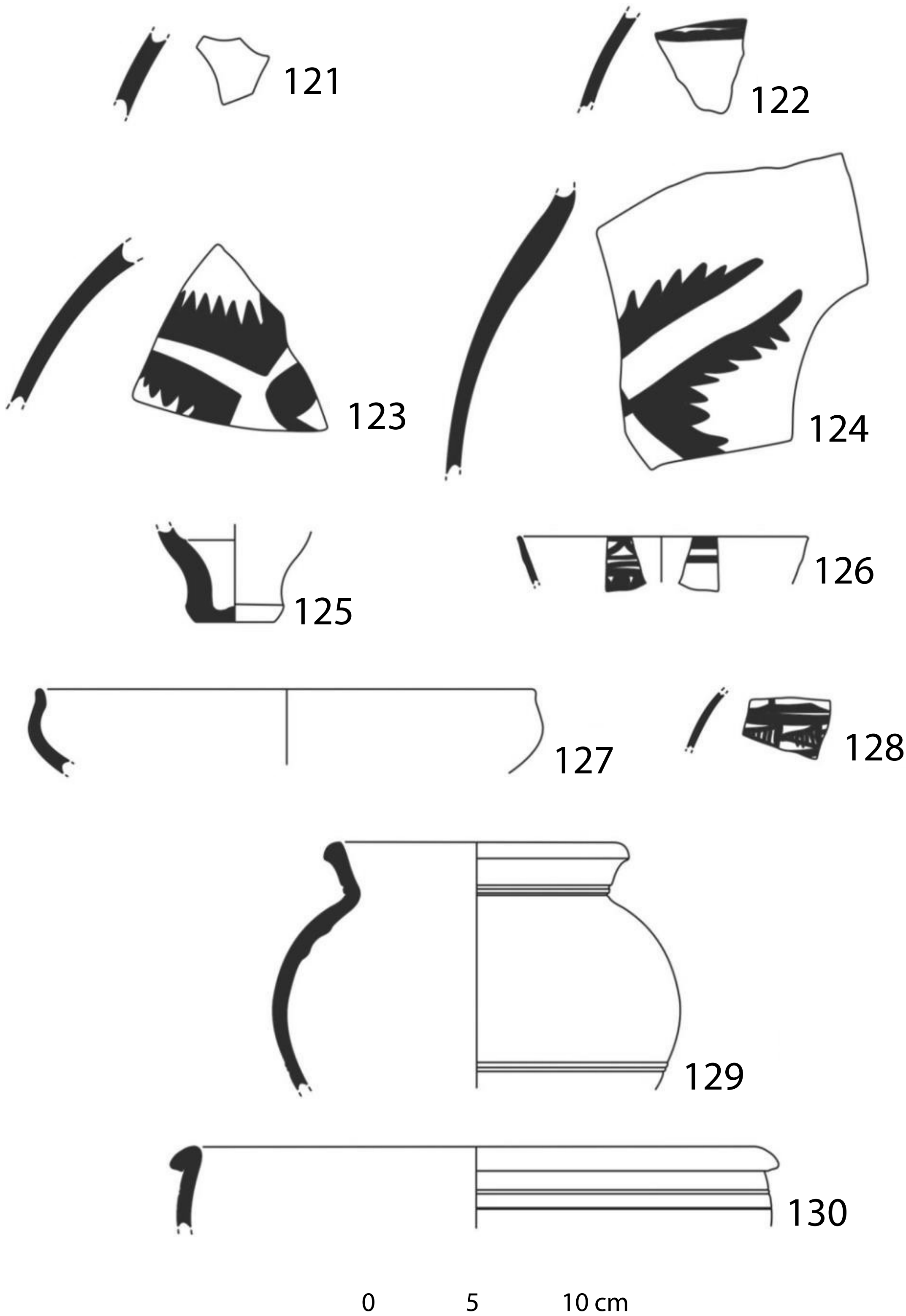


Figure A.59 Significant potsherds No. 121–130 from S.T.1, S.U.9, Tepe Sadegh.

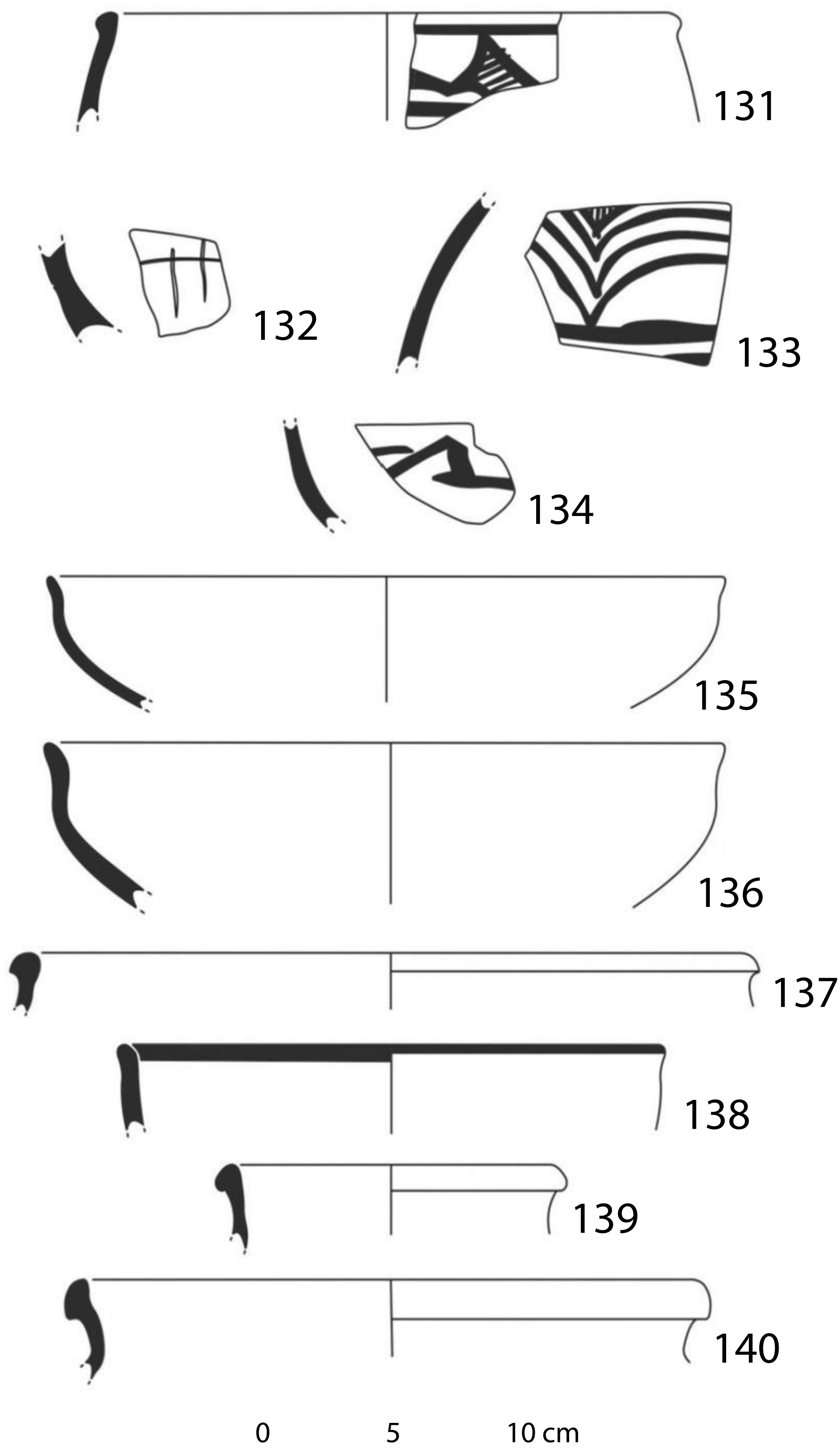


Figure A.60 Significant potsherds No. 131–140 from S.T.1, S.U.9, Tepe Sadegh.

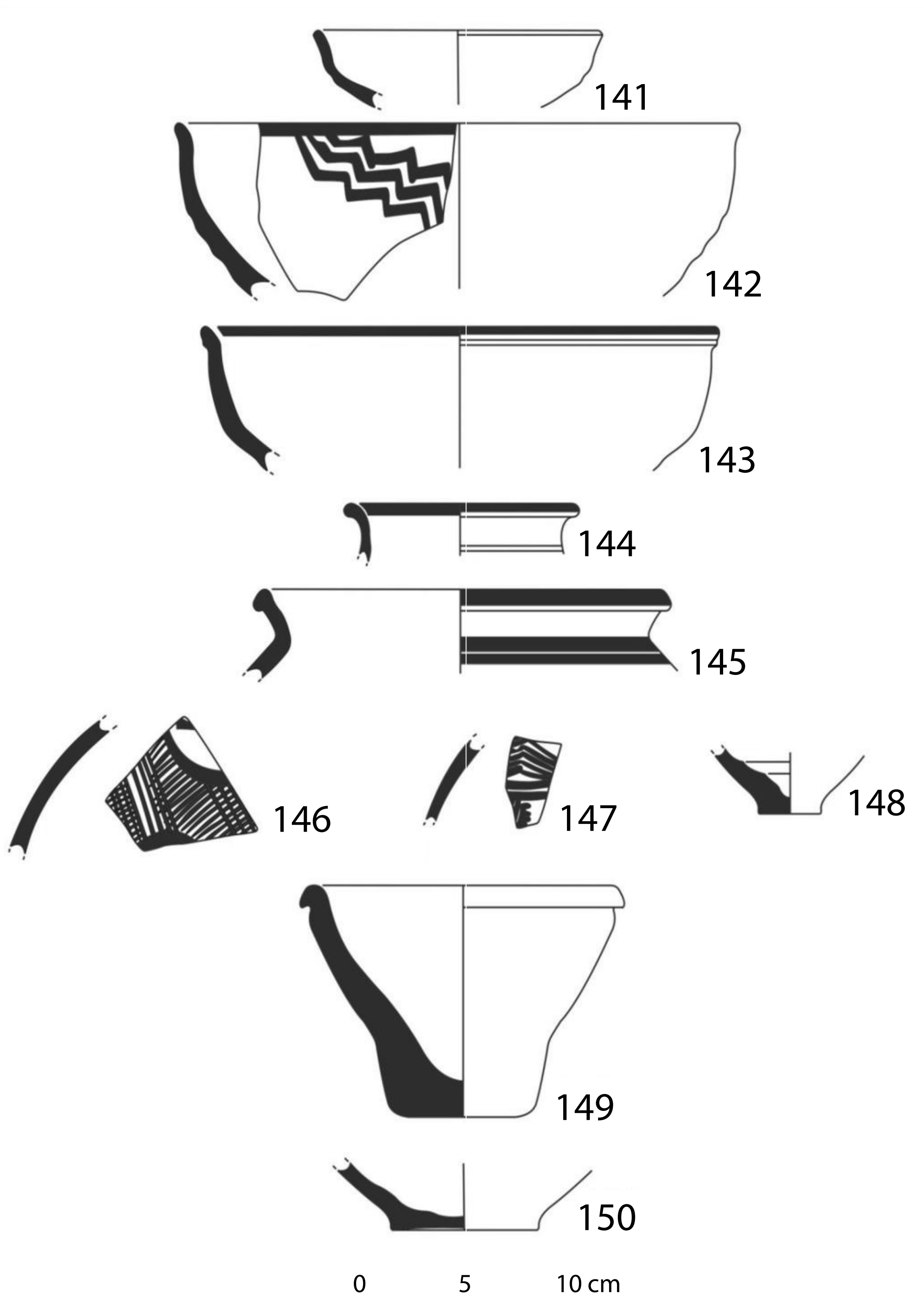


Figure A.61 Significant potsherds No. 141–150 from S.T.1, S.U.9, Tepe Sadegh.

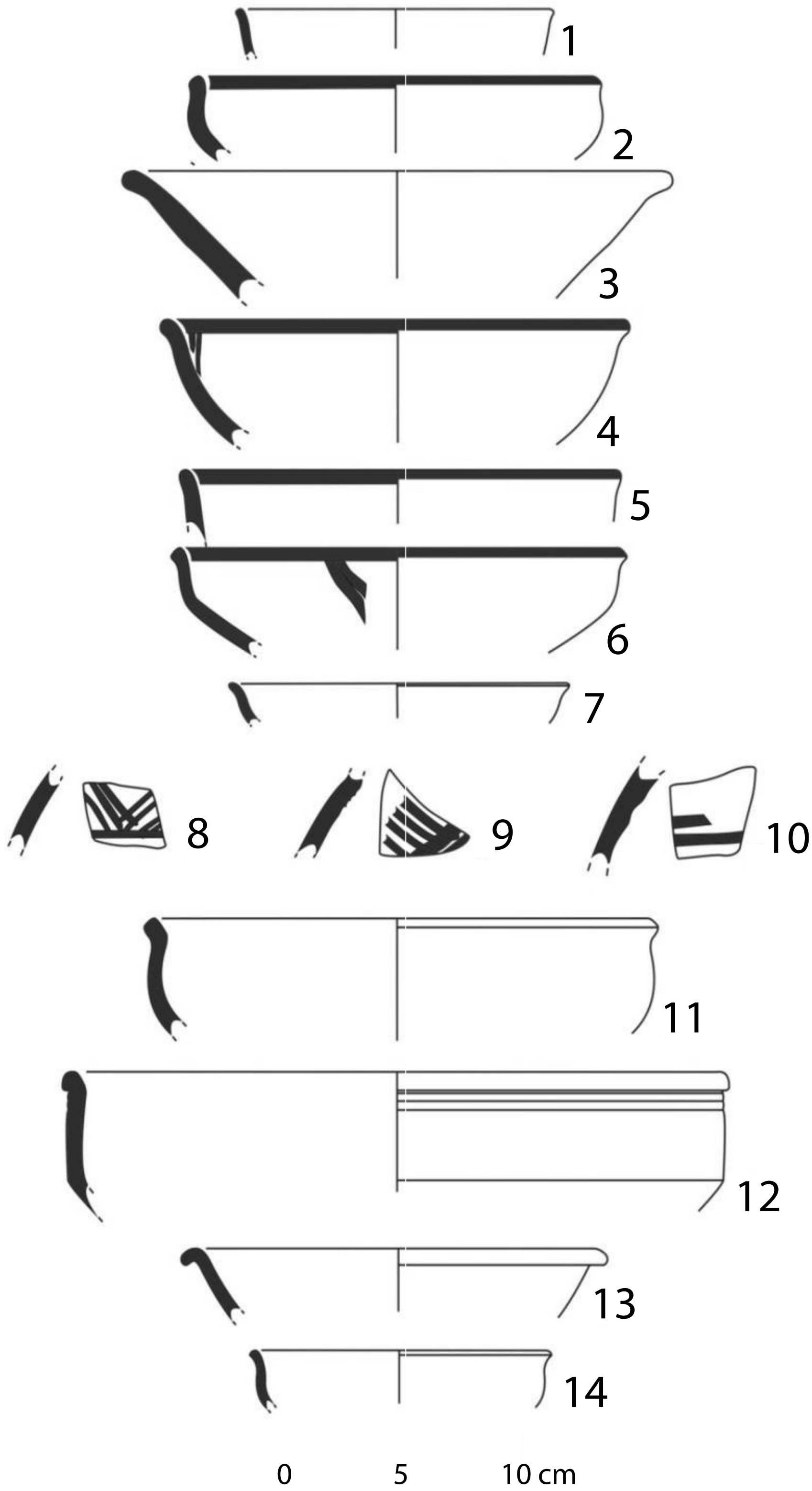


Figure A.62 Significant potsherds No. 1–13 from S.T.1, S.U.12, Tepe Sadegh.

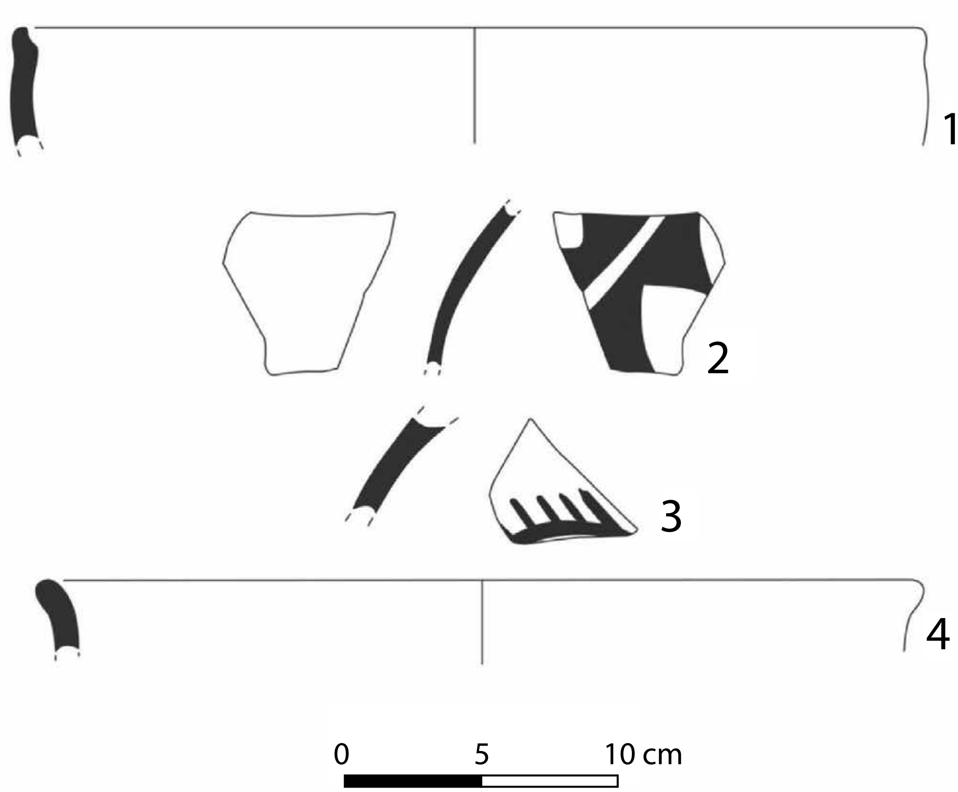


Figure A.63 Significant potsherds No. 1–4 from S.T.1, S.U.13, Tepe Sadegh.

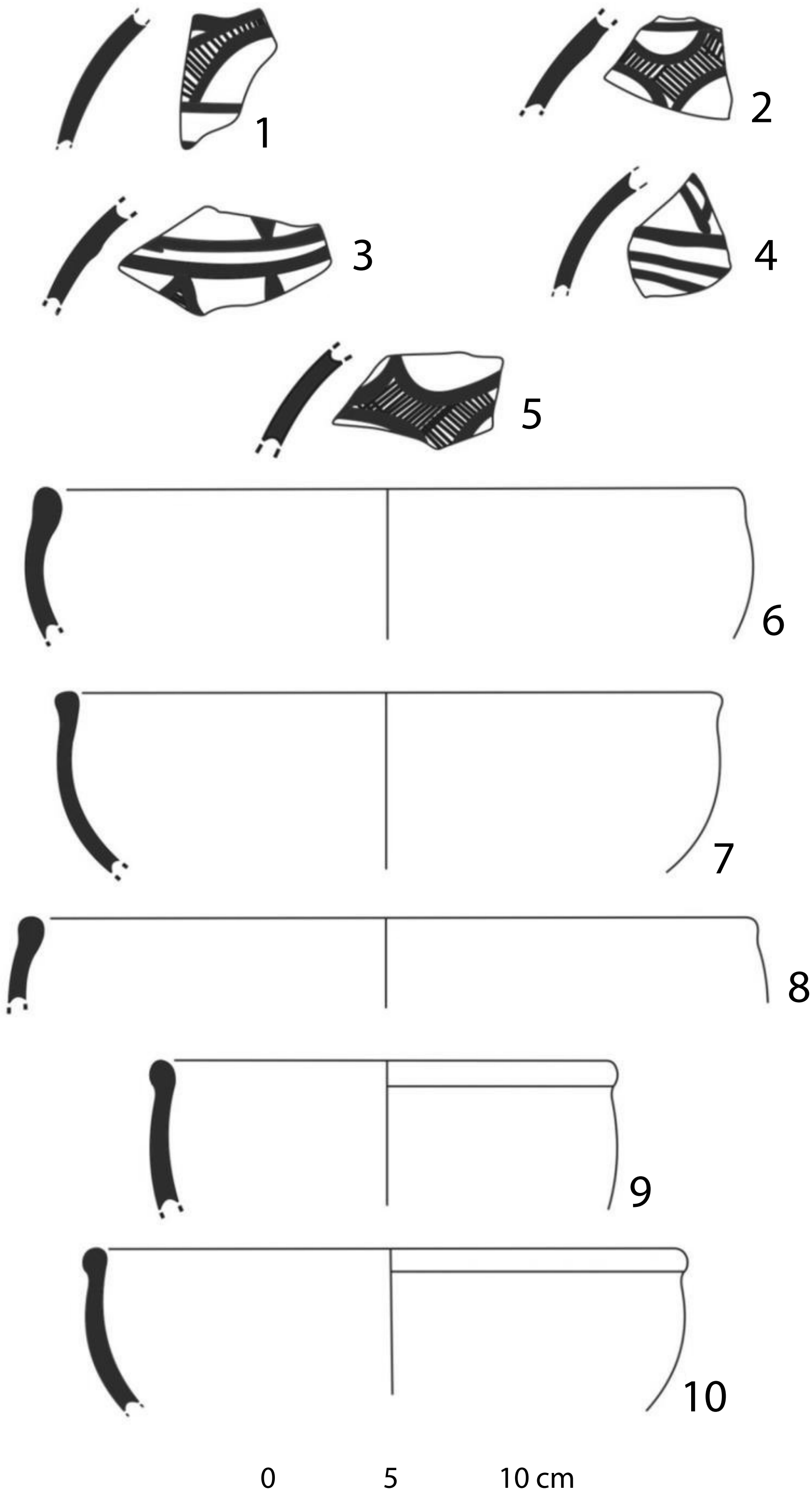


Figure A.64 Significant potsherds No. 1–10 from S.T.1, S.U.17, Tepe Sadegh.

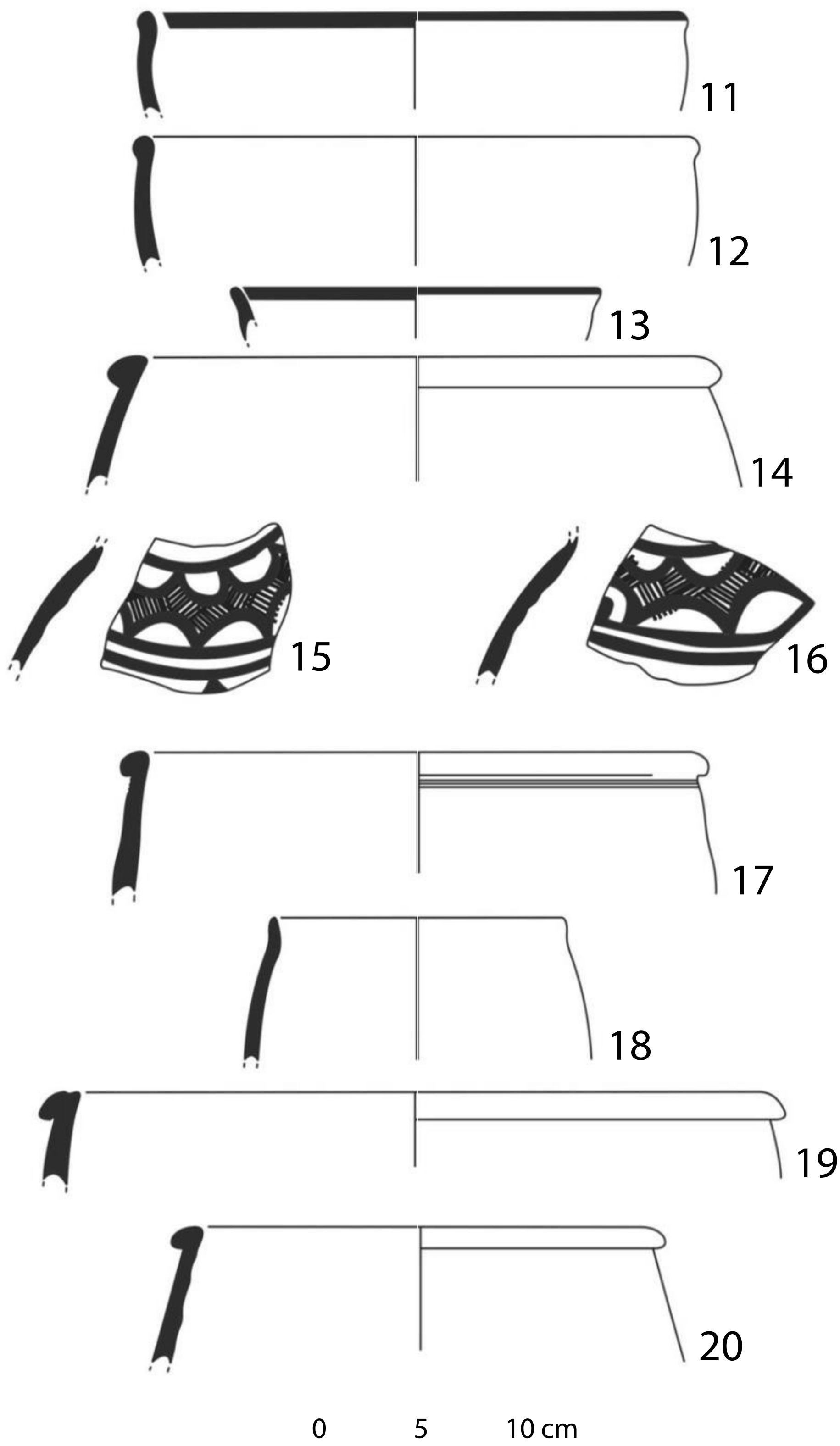


Figure A.65 Significant potsherds No. 11–20 from S.T.1, S.U.17, Tepe Sadegh.

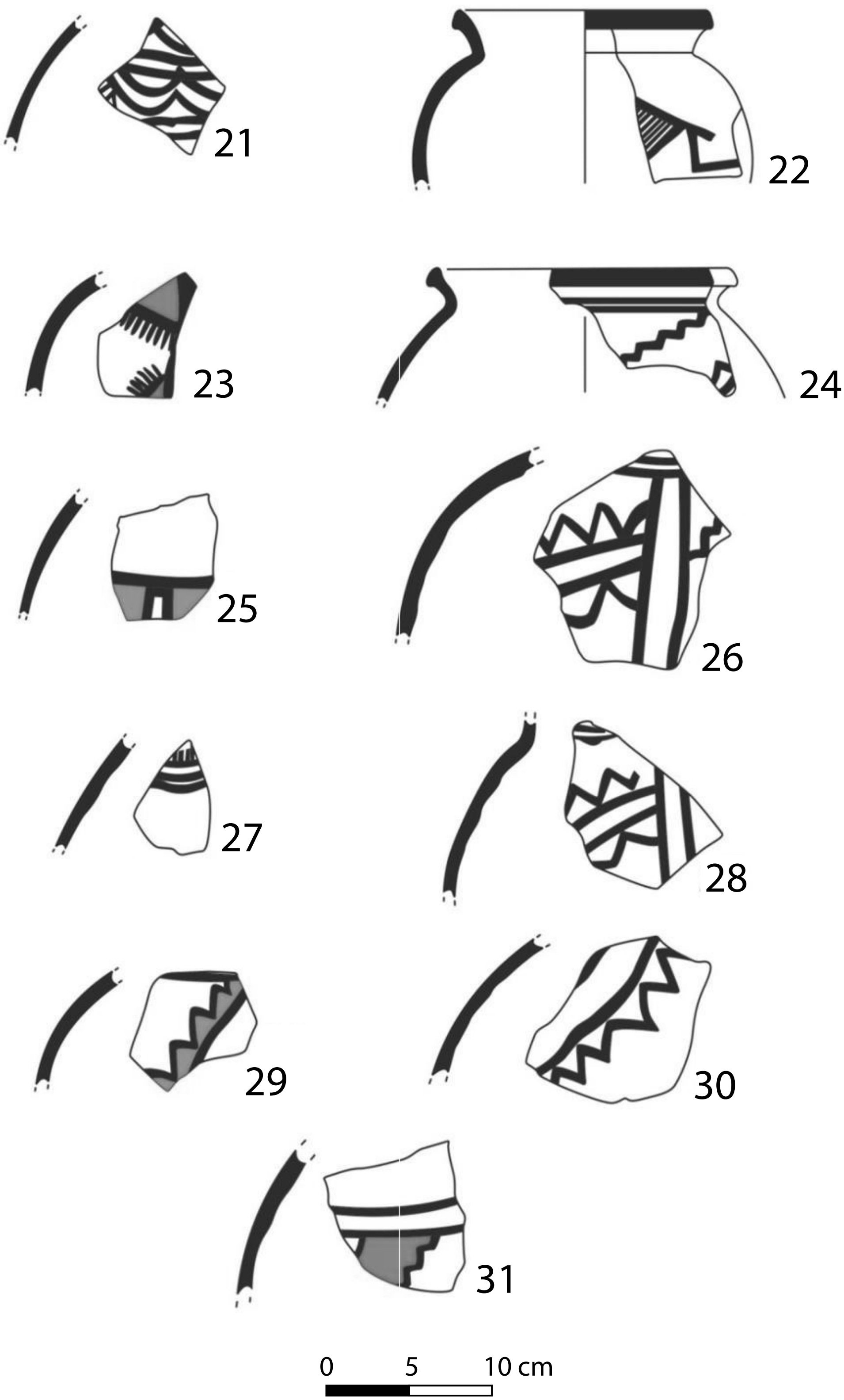


Figure A.66 Significant potsherds No. 21–31 from S.T.1, S.U.17, Tepe Sadegh.

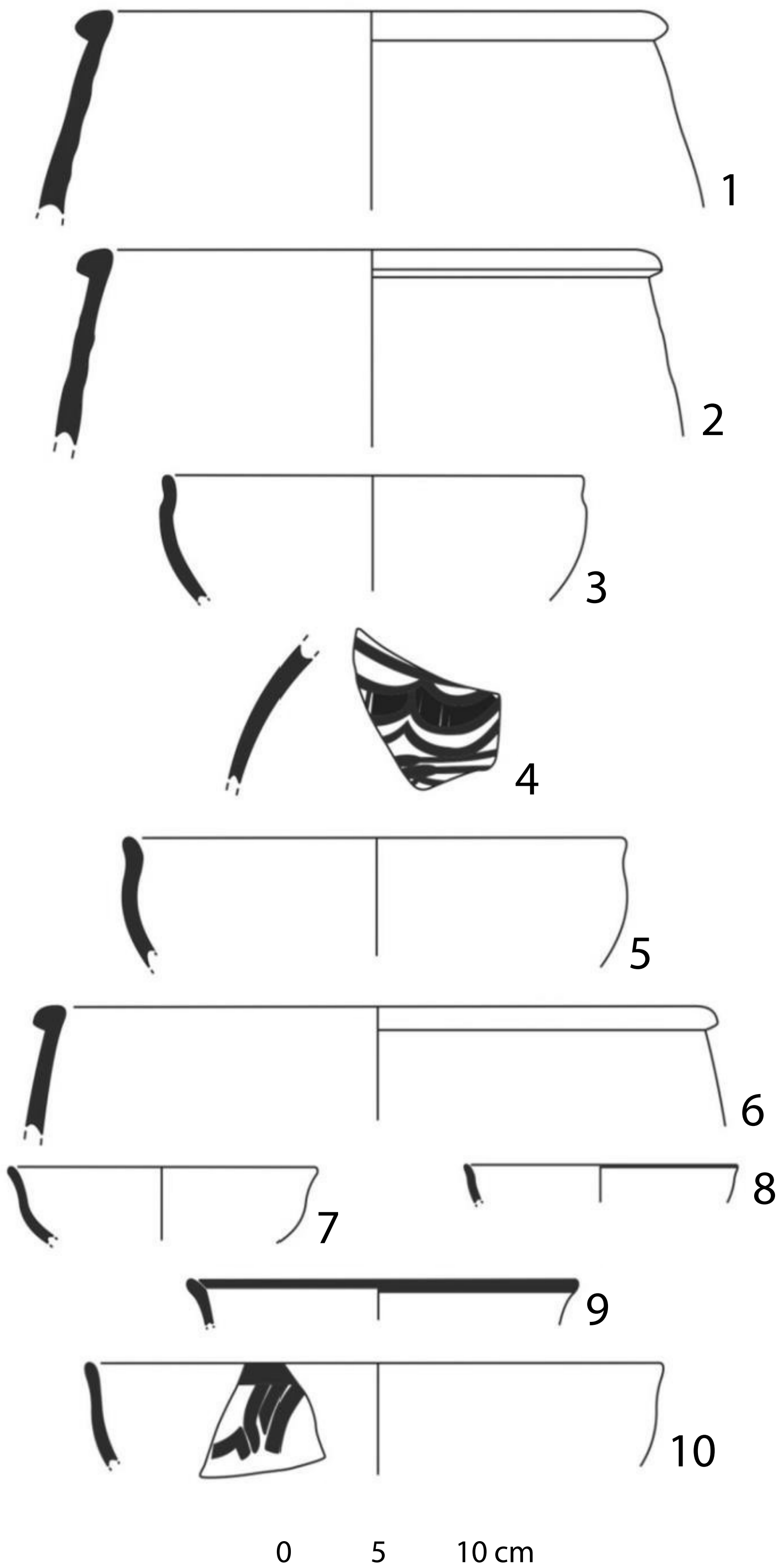


Figure A.67 Significant potsherds No. 1–10 from S.T.1, S.U.18, Tepe Sadegh.

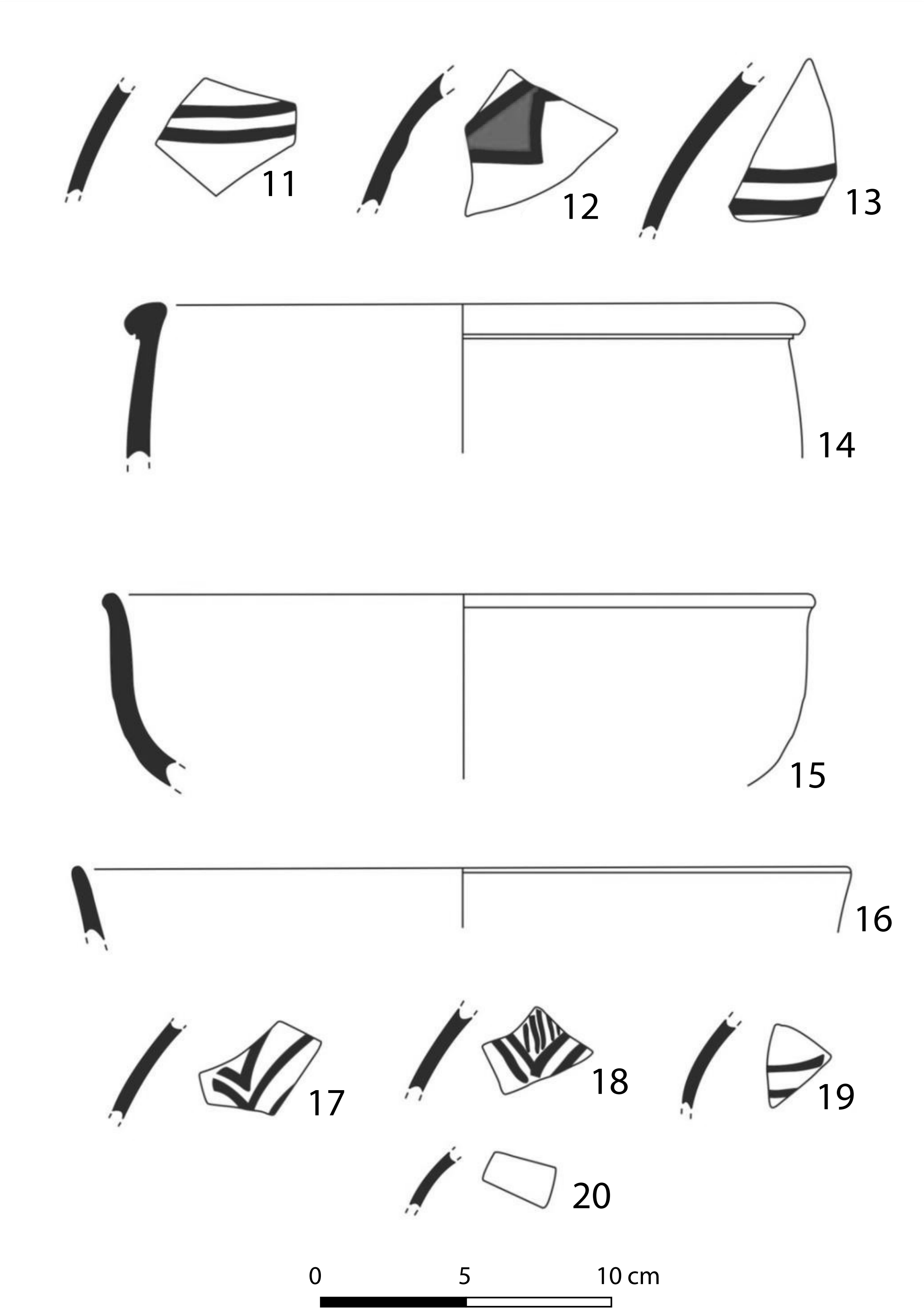


Figure A.68 Significant potsherds No. 11–20 from S.T.1, S.U.18, Tepe Sadegh.

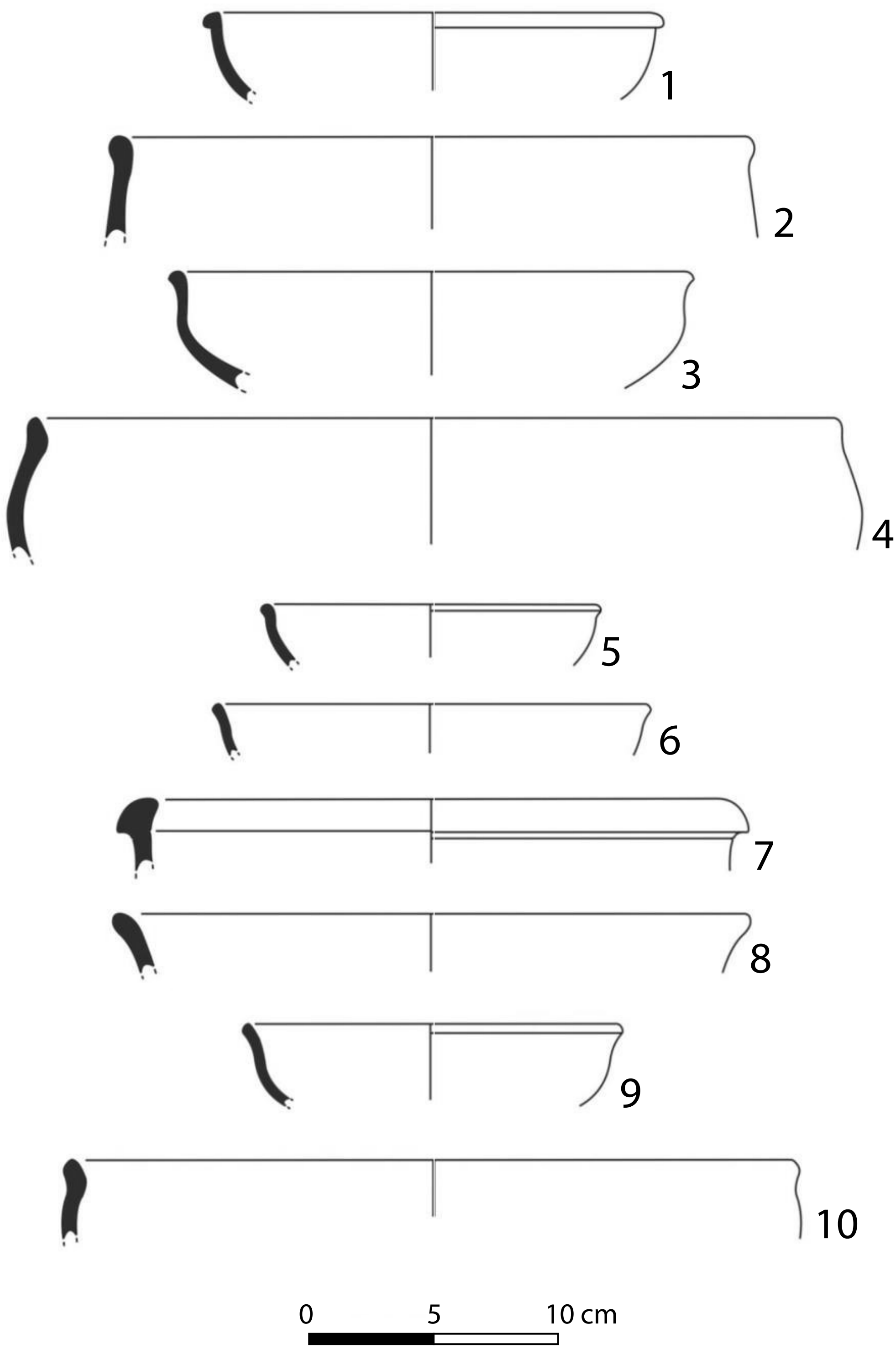


Figure A.69 Significant potsherds No. 1–10 from S.T.1, S.U.22, Tepe Sadegh.

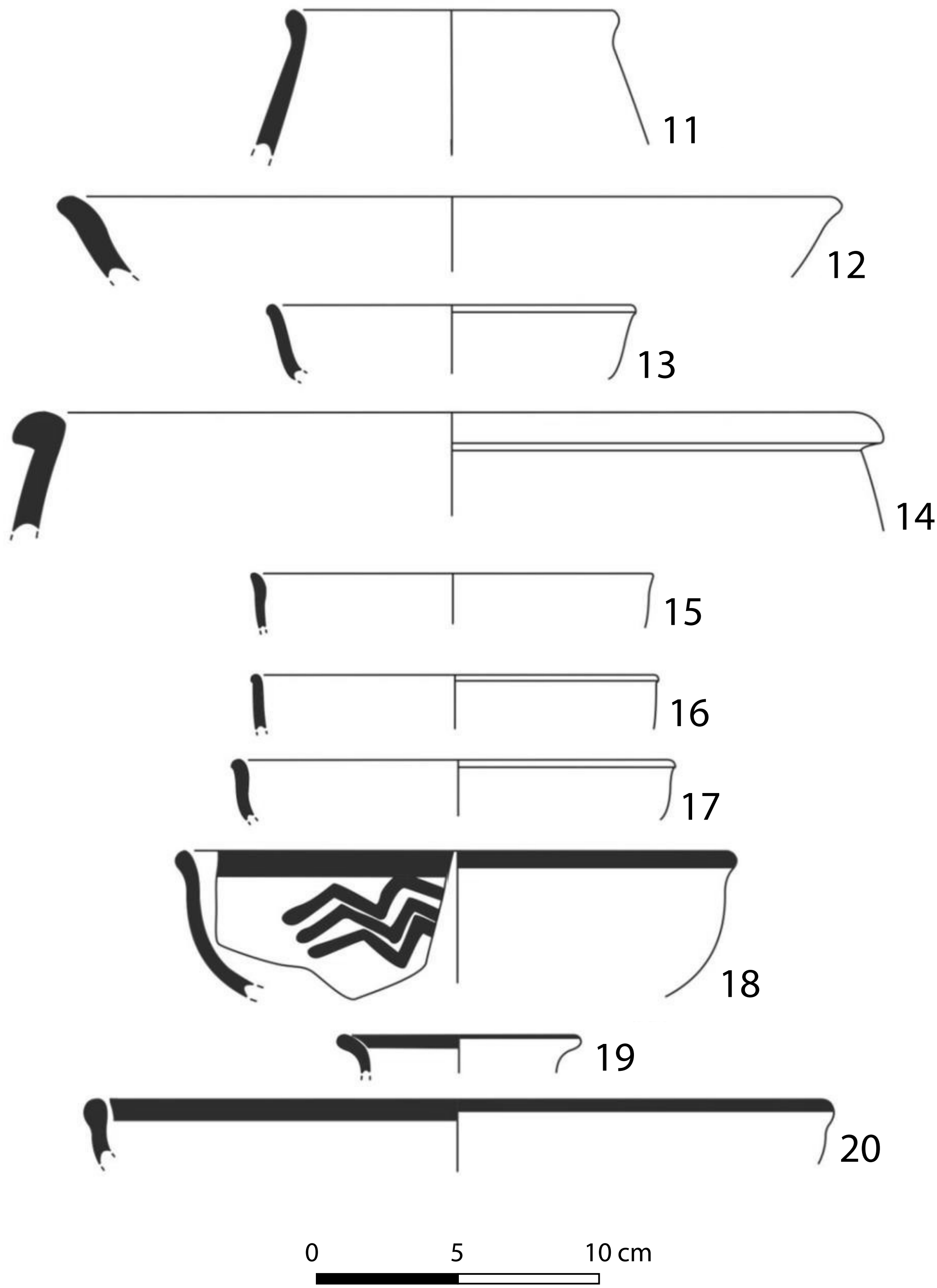


Figure A.70 Significant potsherds No. 11–20 from S.T.1, S.U.22, Tepe Sadegh.

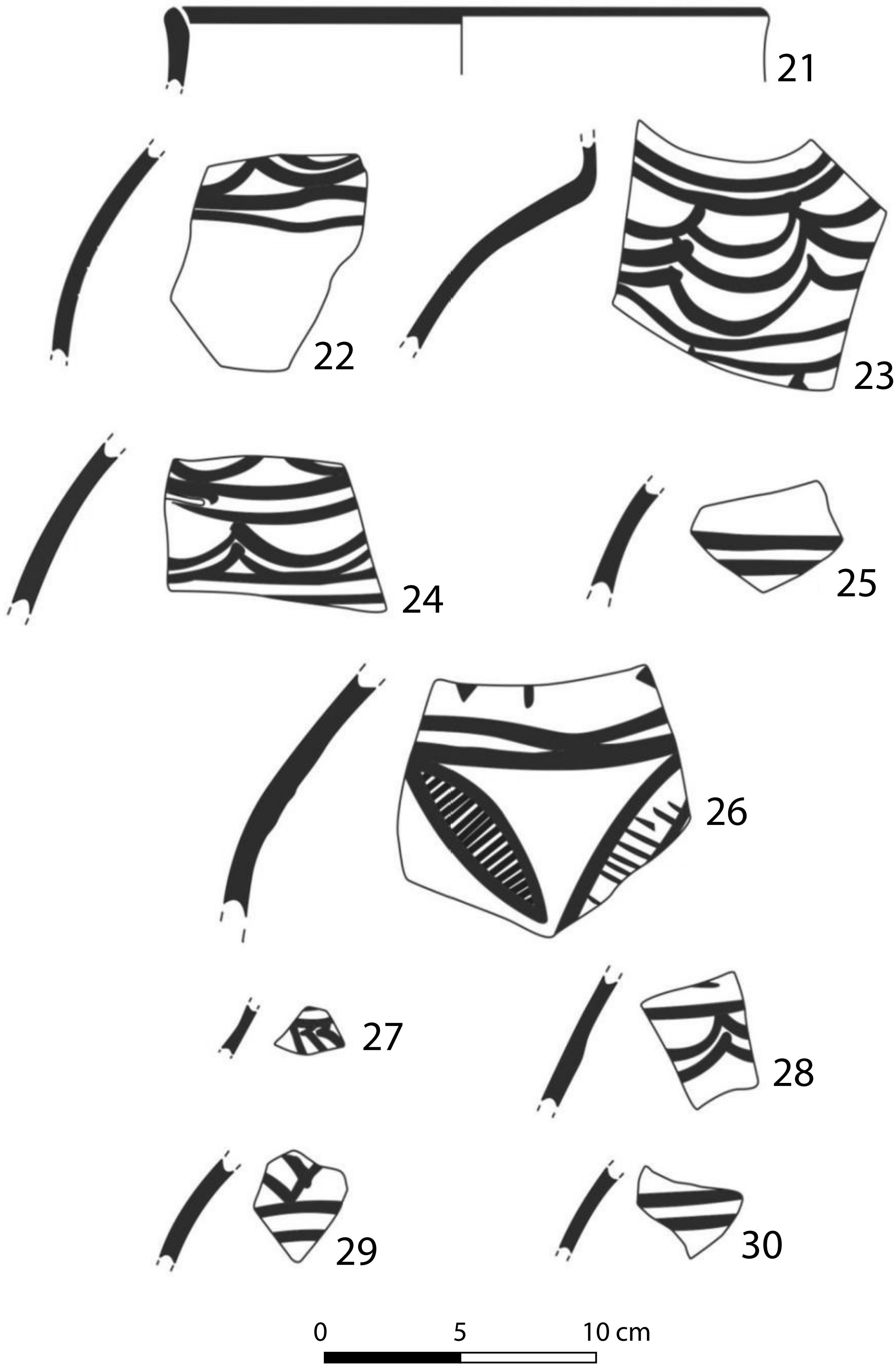


Figure A.71 Significant potsherds No. 21–30 from S.T.1, S.U.22, Tepe Sadegh.

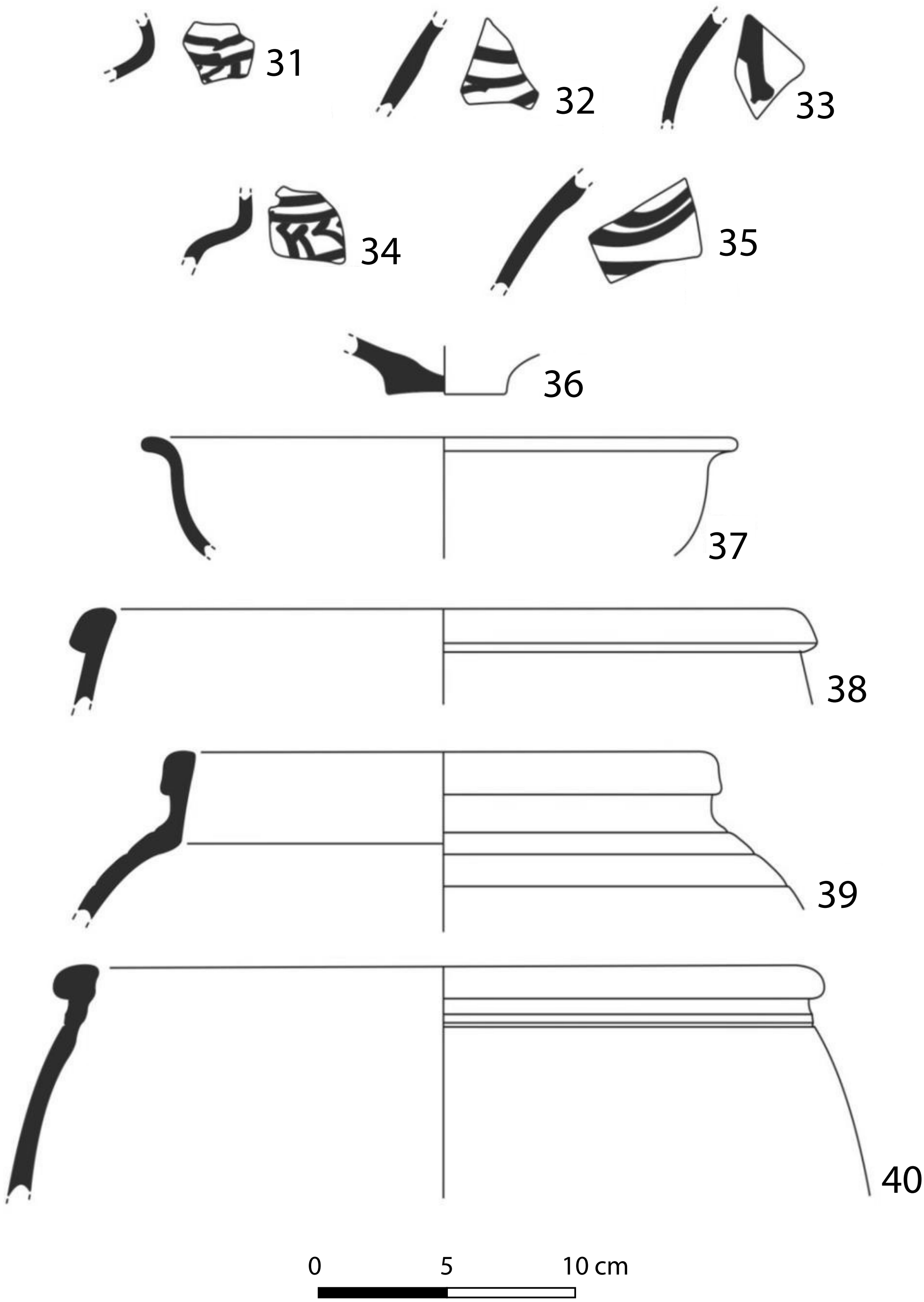


Figure A.72 Significant potsherds No. 31–40 from S.T.1, S.U.22, Tepe Sadegh.

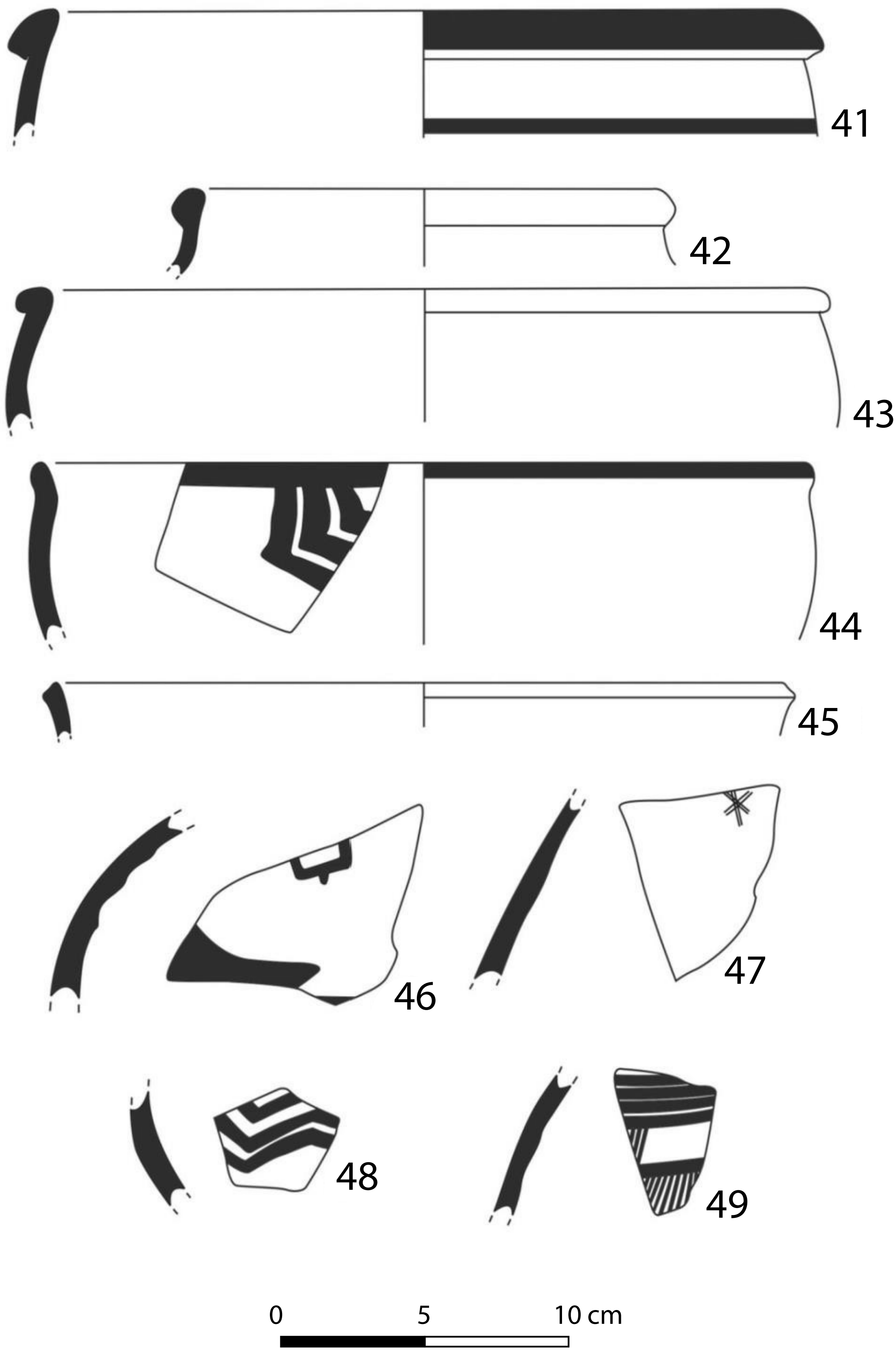


Figure A.73 Significant potsherds No. 41–49 from S.T.1, S.U.22, Tepe Sadegh.

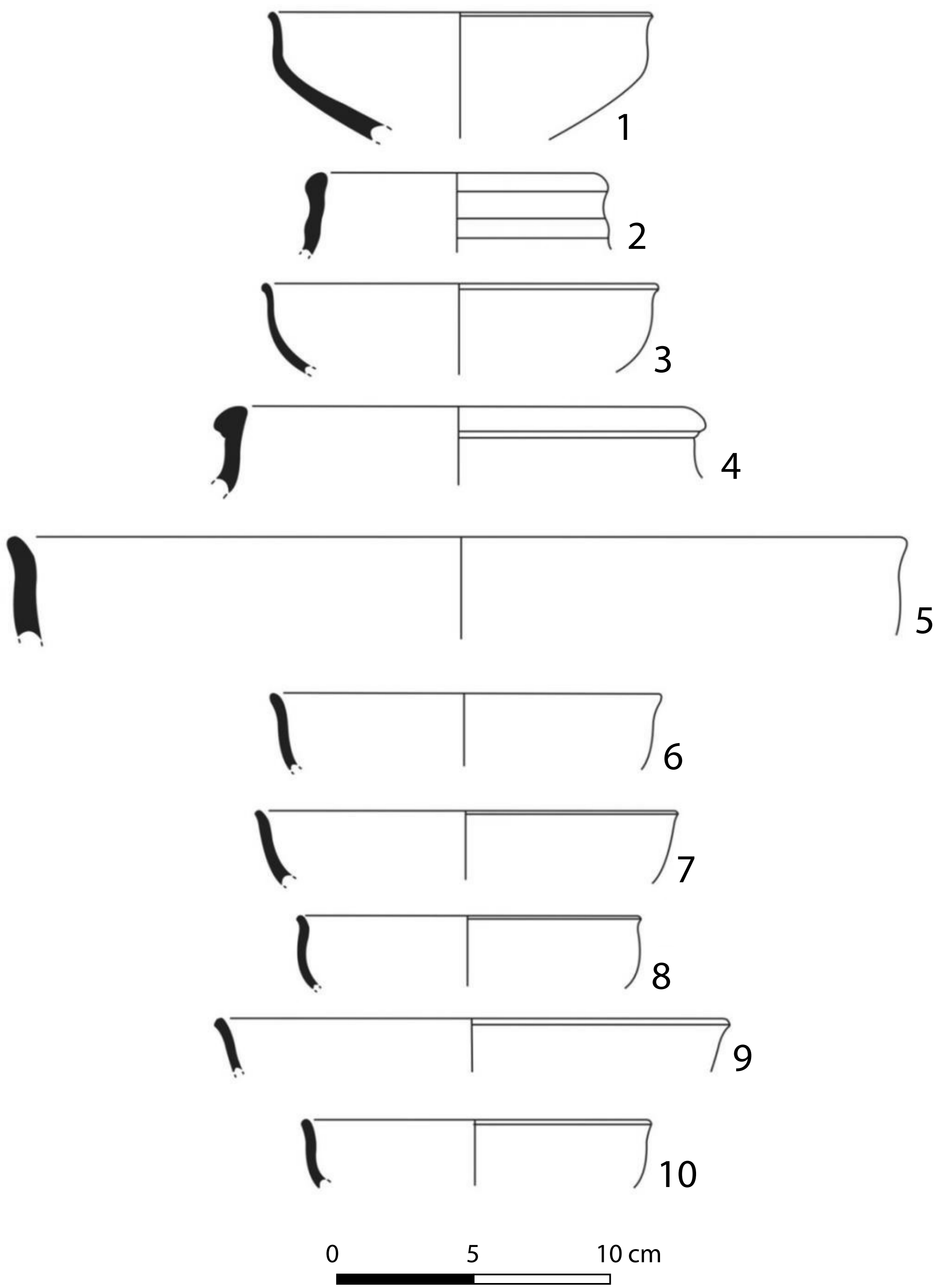


Figure A.74 Significant potsherds No. 1–10 from S.T.1, S.U.25, Tepe Sadegh.

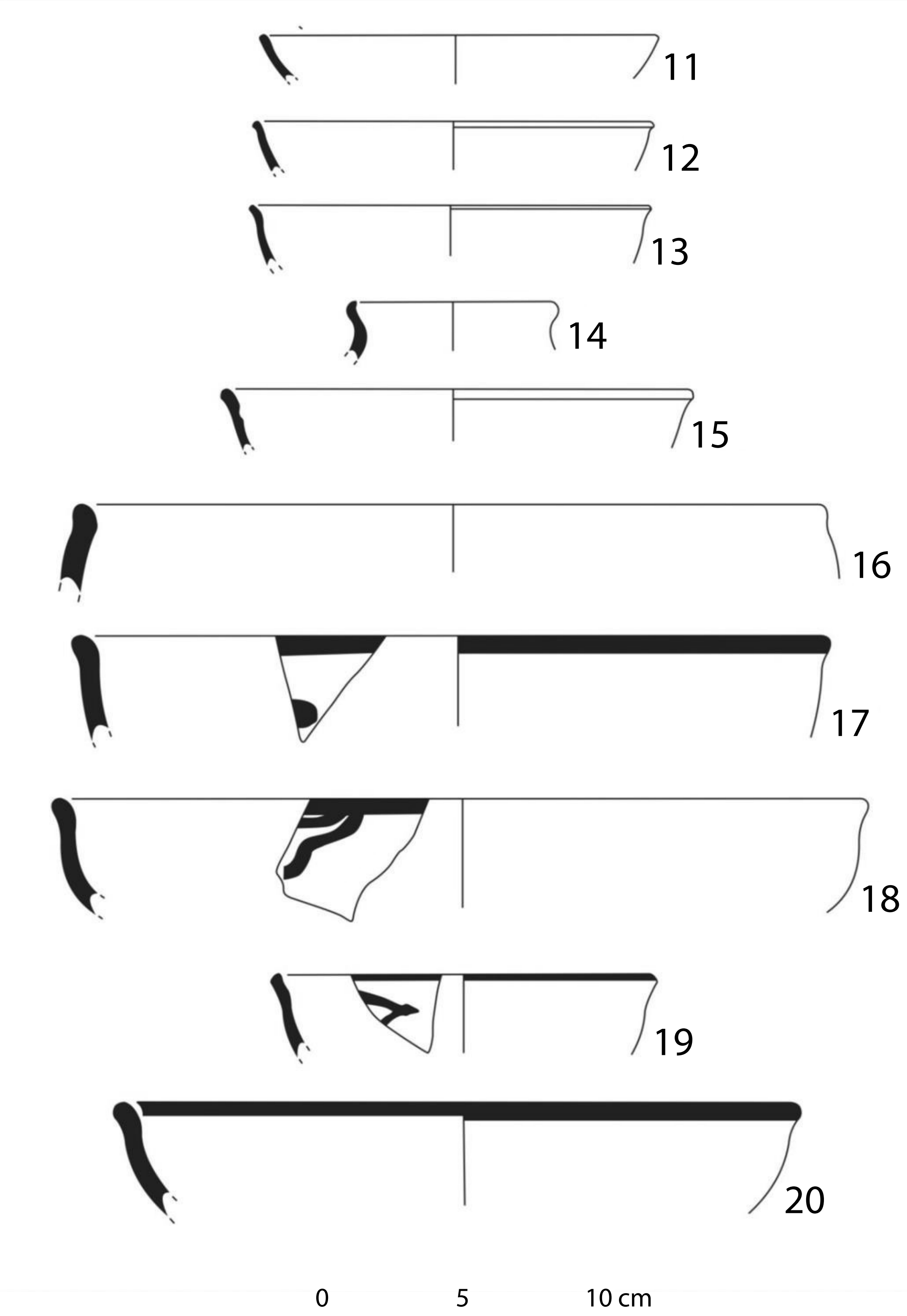


Figure A.75 Significant potsherds No. 11–20 from S.T.1, S.U.25, Tepe Sadegh.

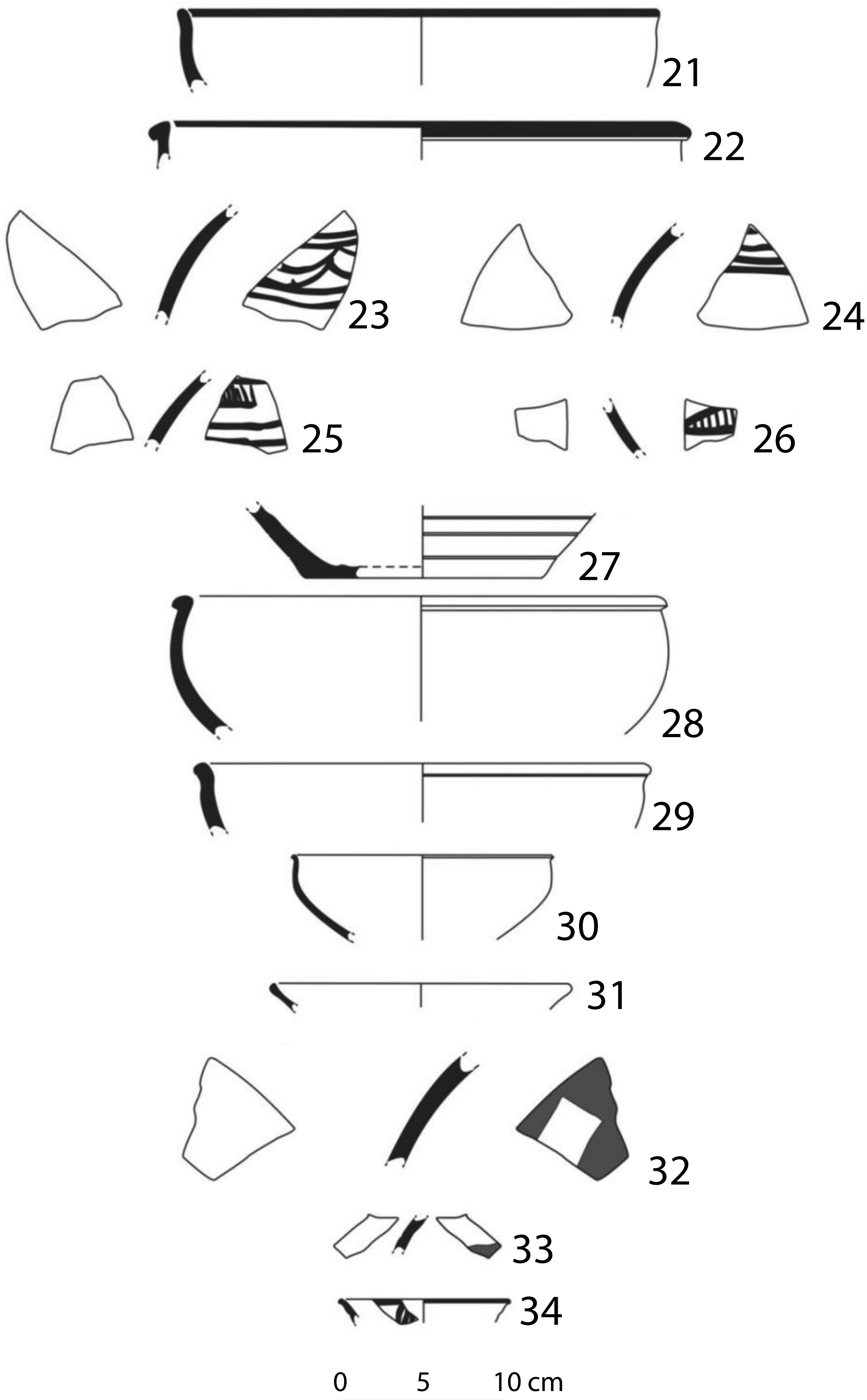


Figure A.76 Significant potsherds No. 21–33 from S.T.1, S.U.25, Tepe Sadegh.

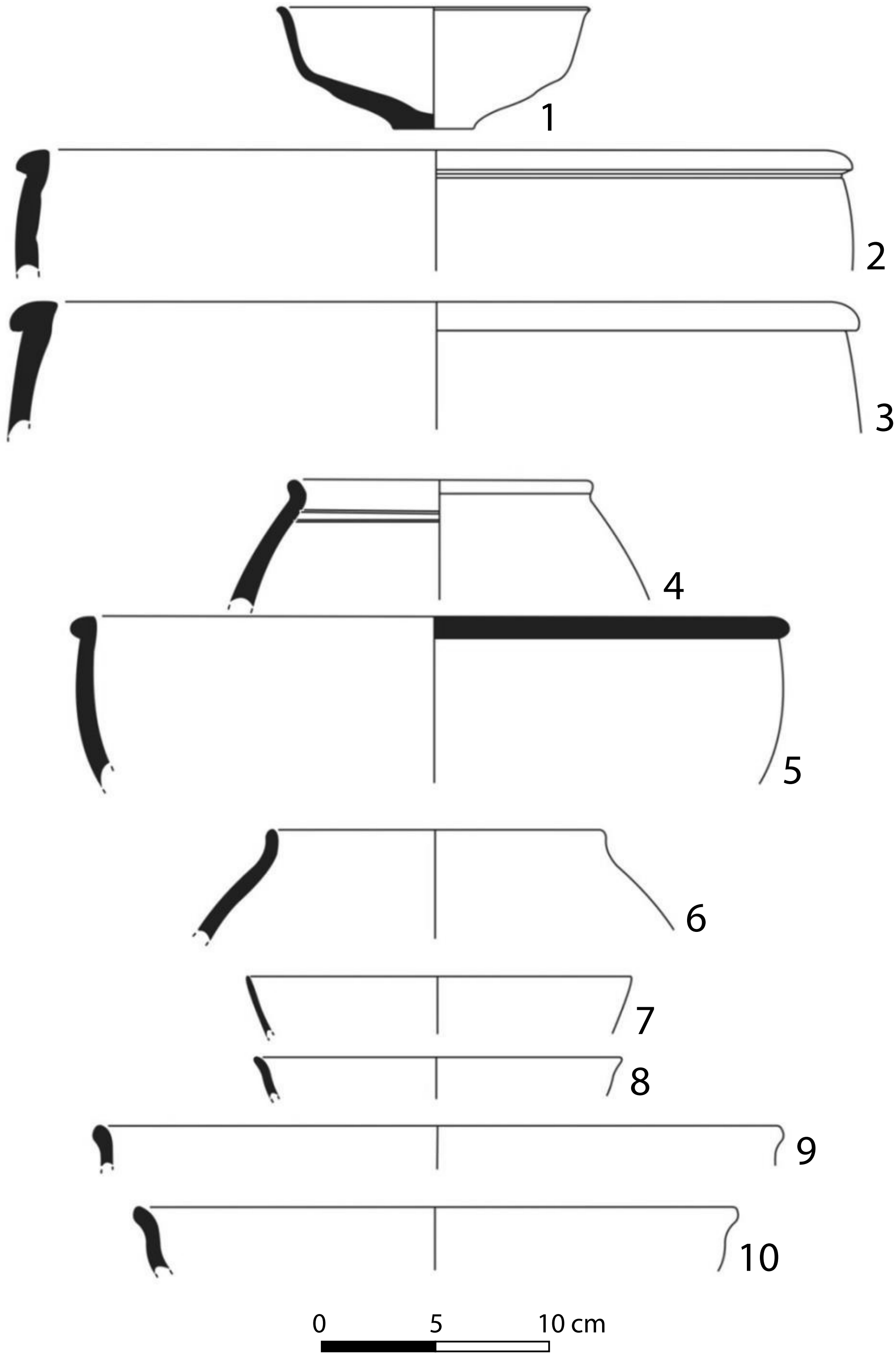


Figure A.77 Significant potsherds No. 1–10 from S.T.1, S.U.26, Tepe Sadegh.

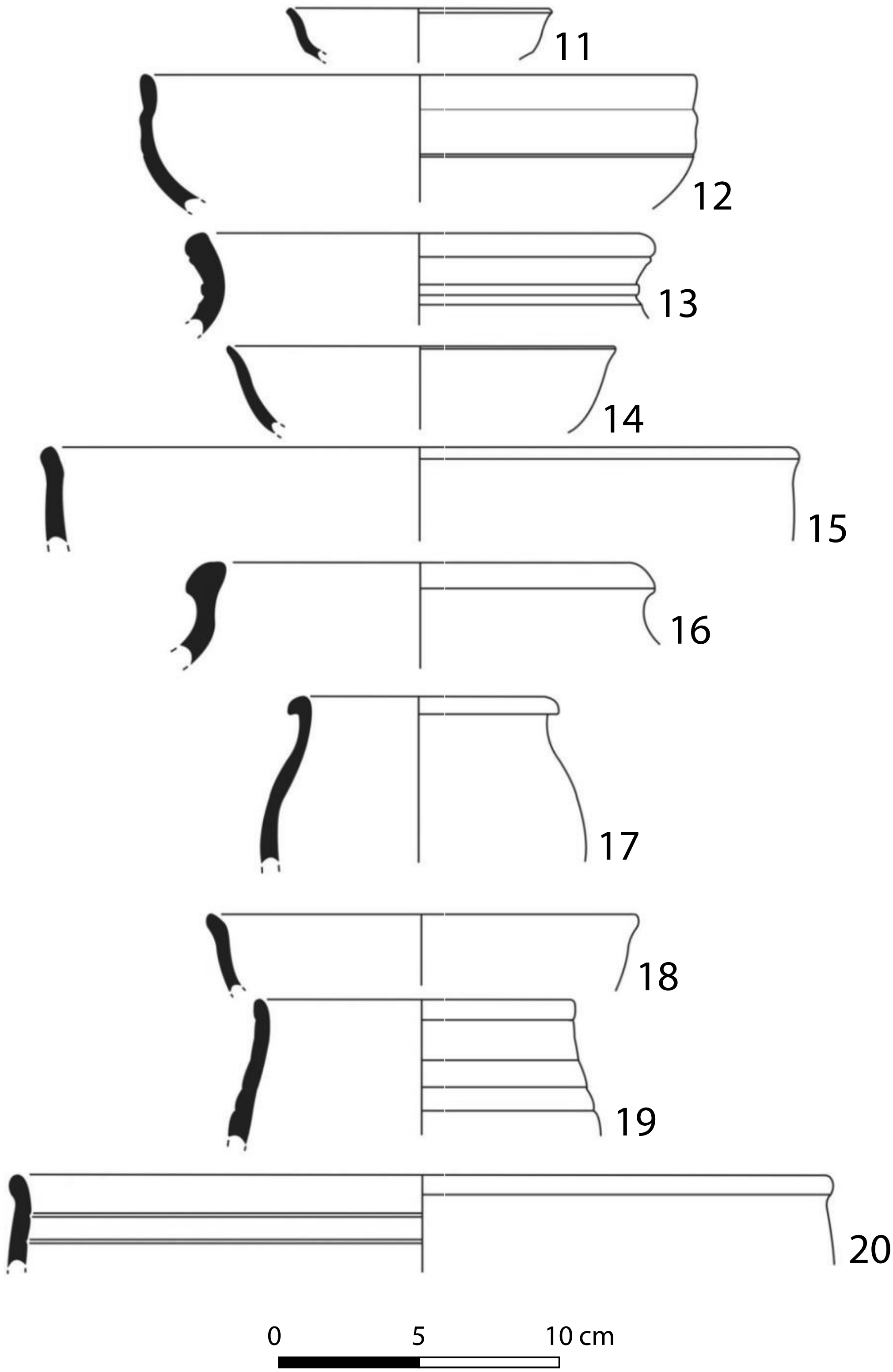


Figure A.78 Significant potsherds No. 11–20 from S.T.1, S.U.26, Tepe Sadegh.

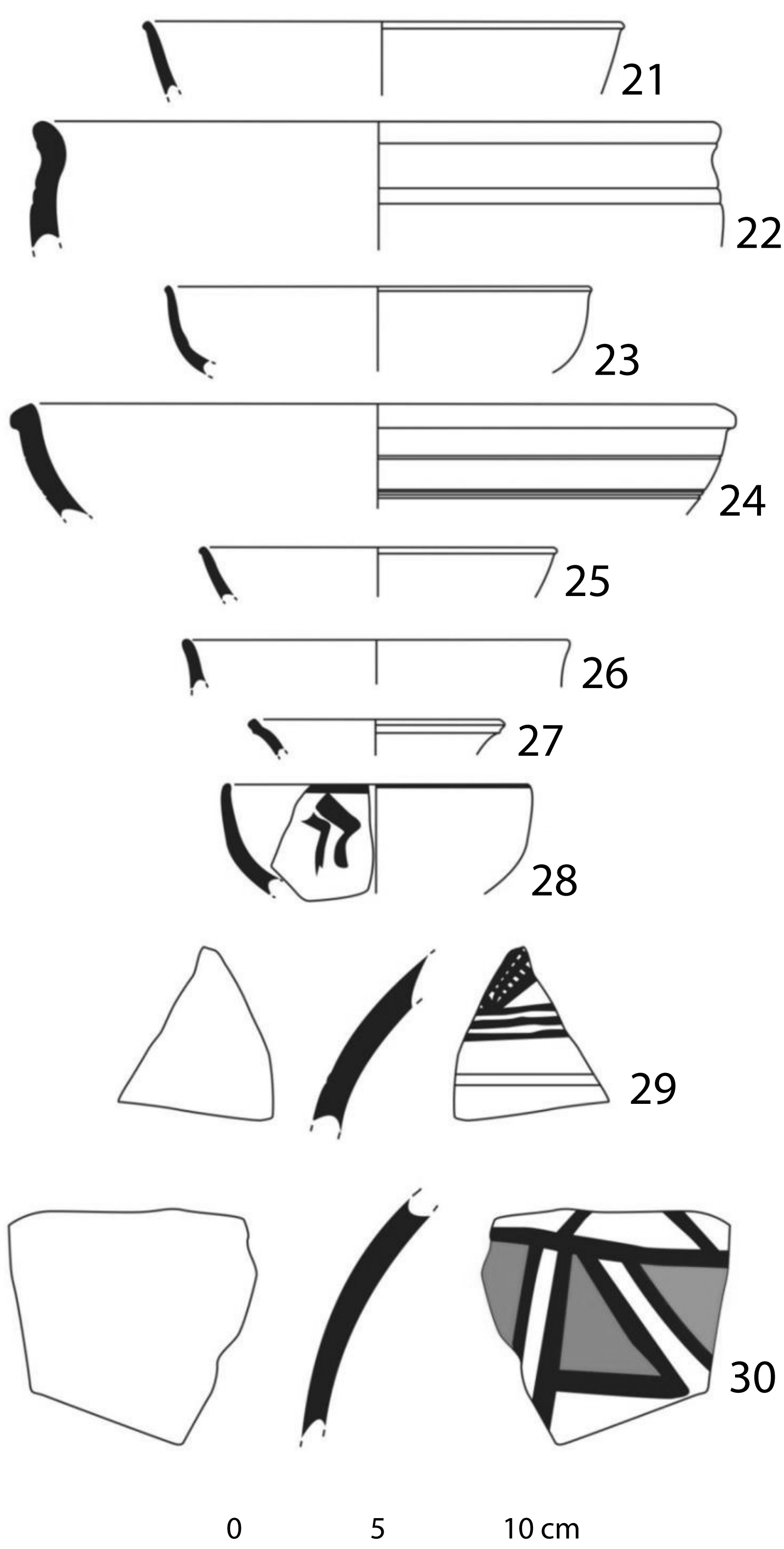


Figure A.79 Significant potsherds No. 21–30 from S.T.1, S.U.26, Tepe Sadegh.

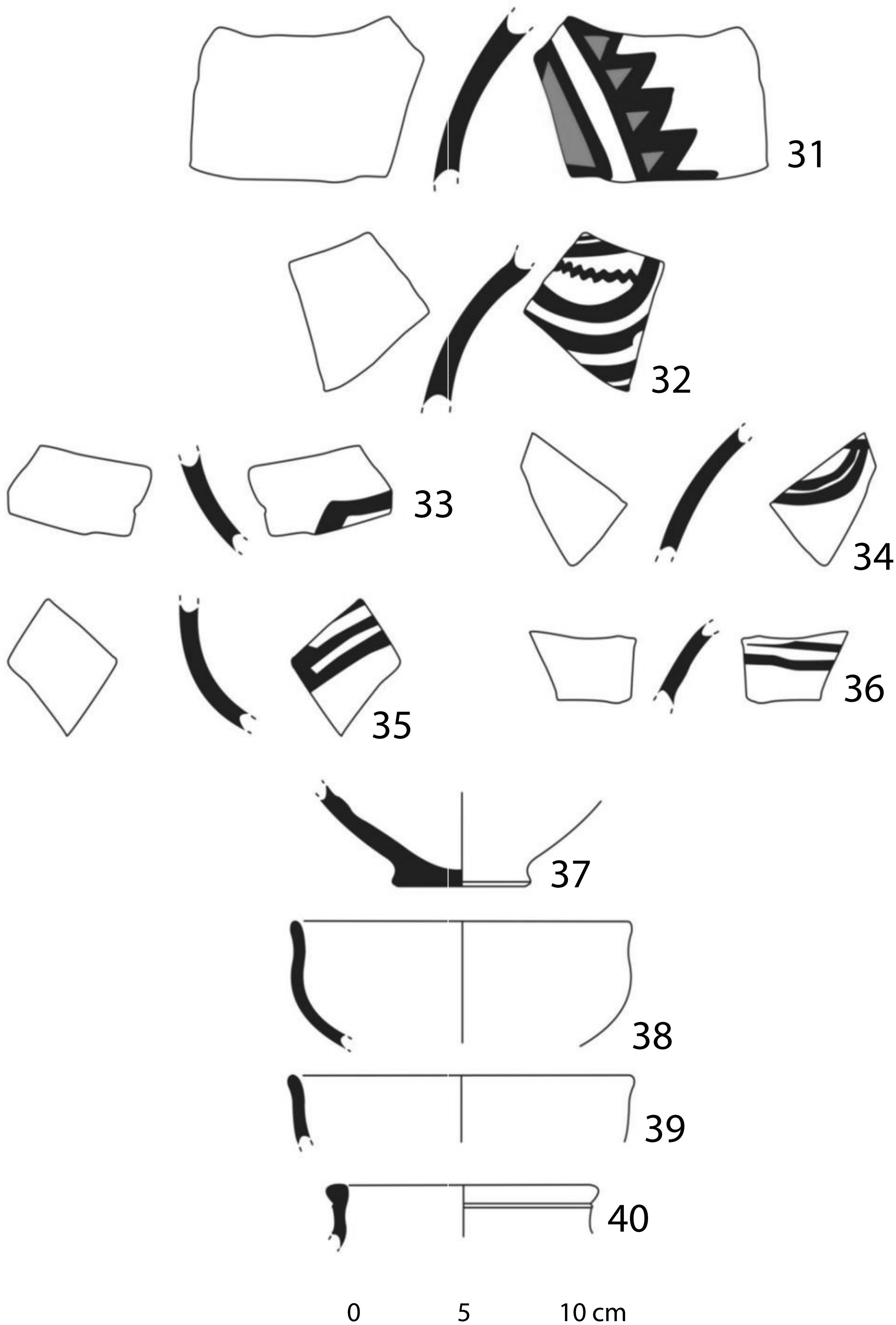


Figure A.80 Significant potsherds No. 31–40 from S.T.1, S.U.26, Tepe Sadegh.

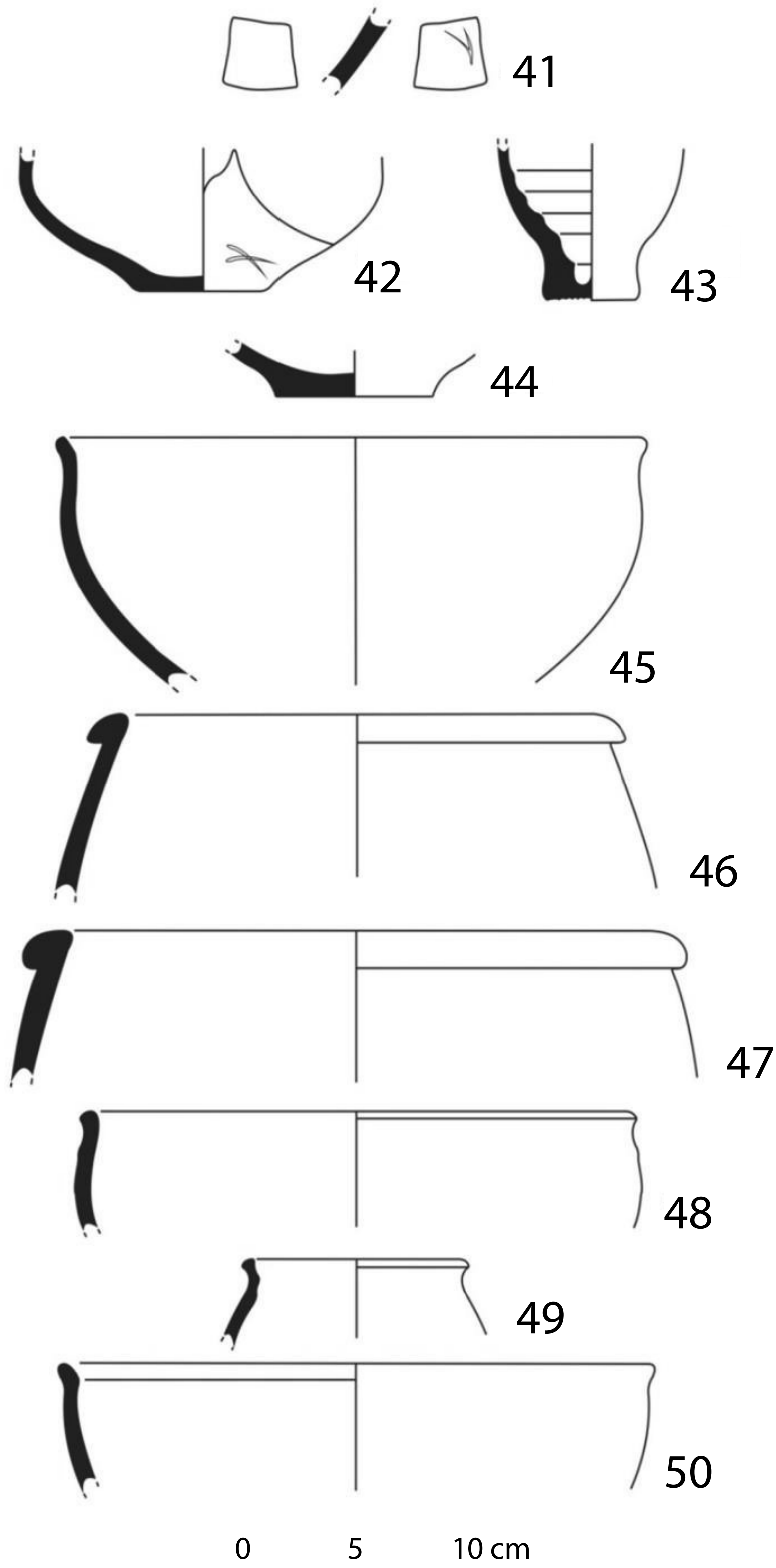


Figure A.81 Significant potsherds No. 41–50 from S.T.1, S.U.26, Tepe Sadegh.

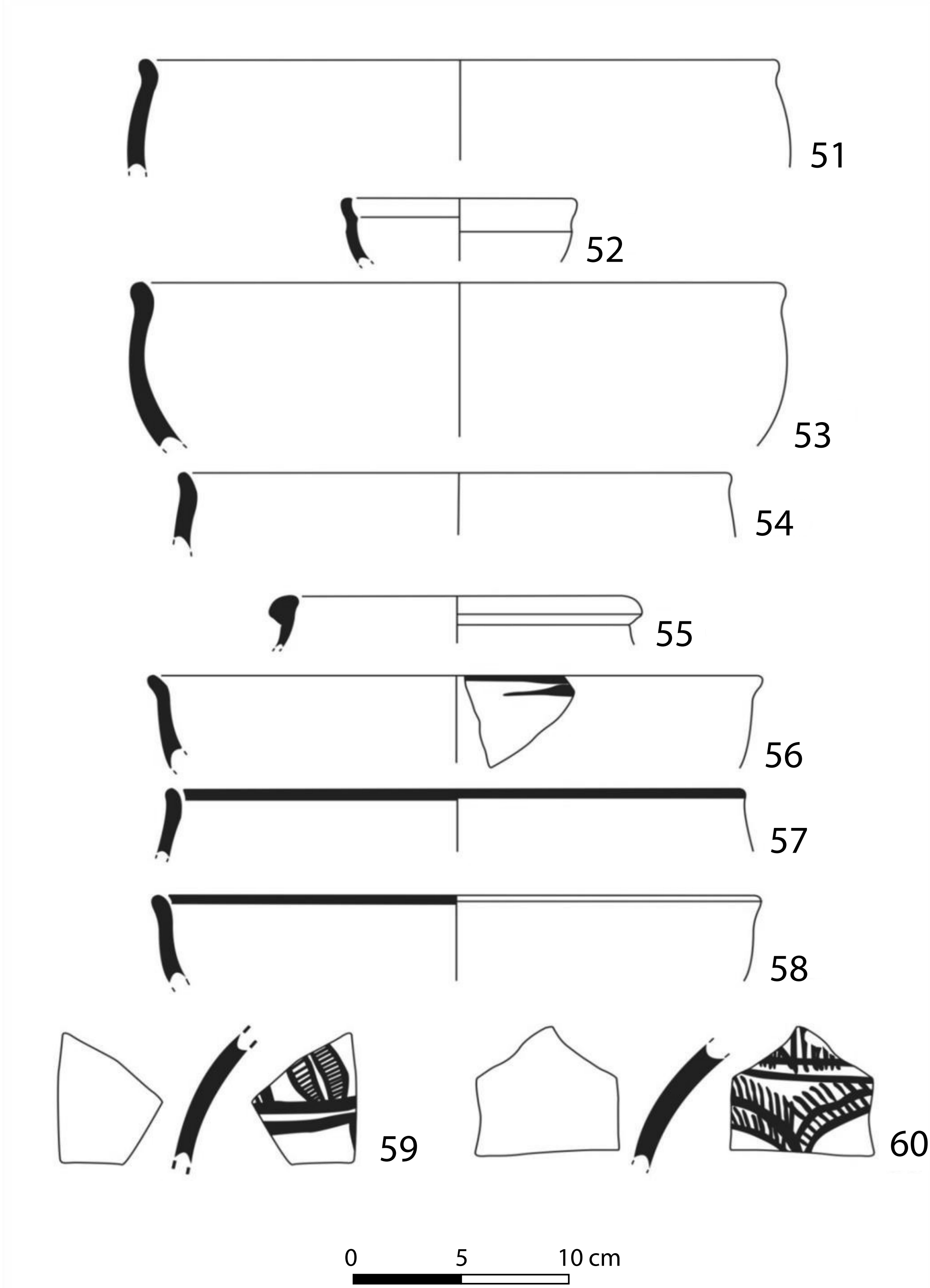


Figure A.82 Significant potsherds No. 51–60 from S.T.1, S.U.26, Tepe Sadegh.

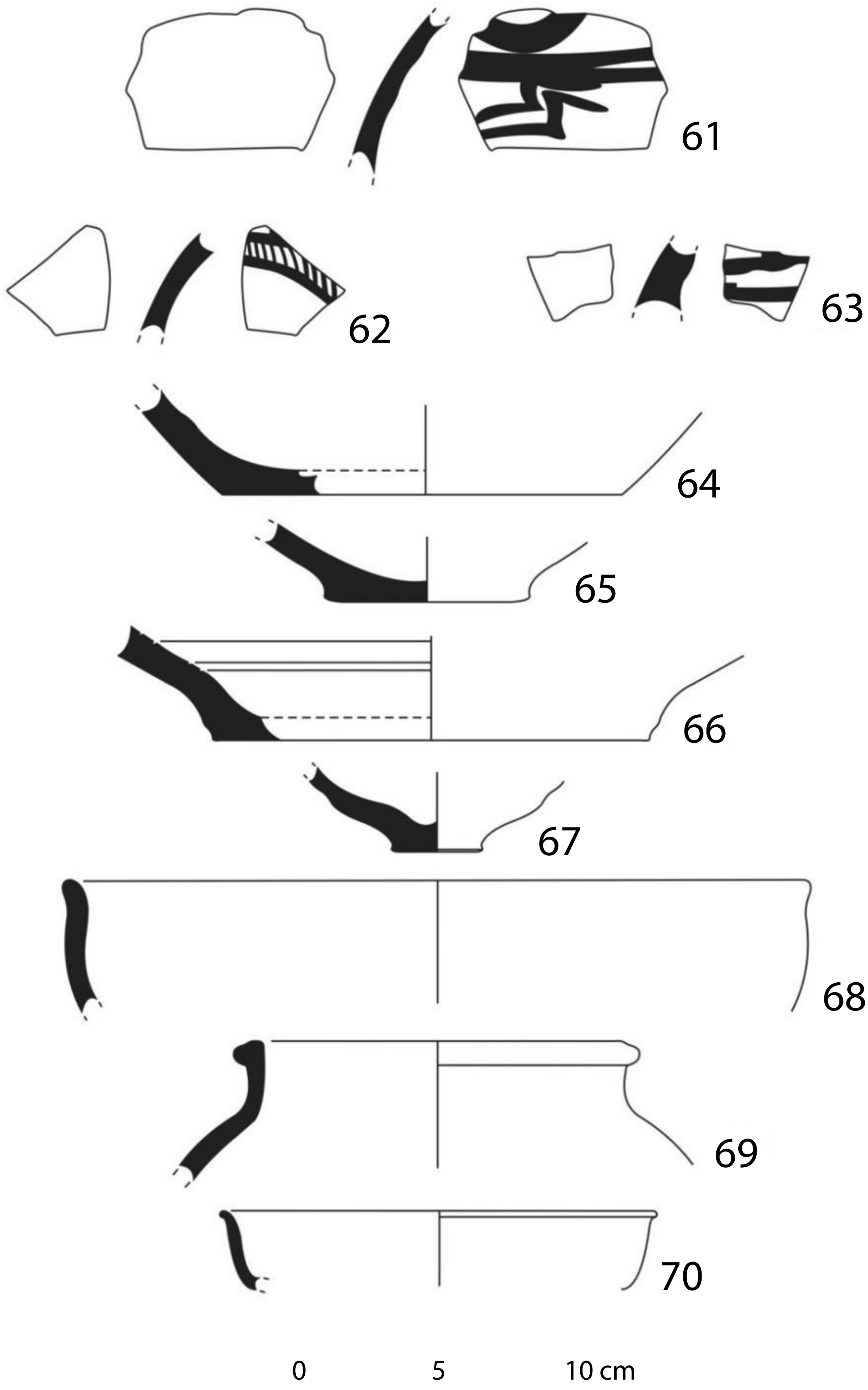


Figure A.83 Significant potsherds No. 61–70 from S.T.1, S.U.26, Tepe Sadegh.

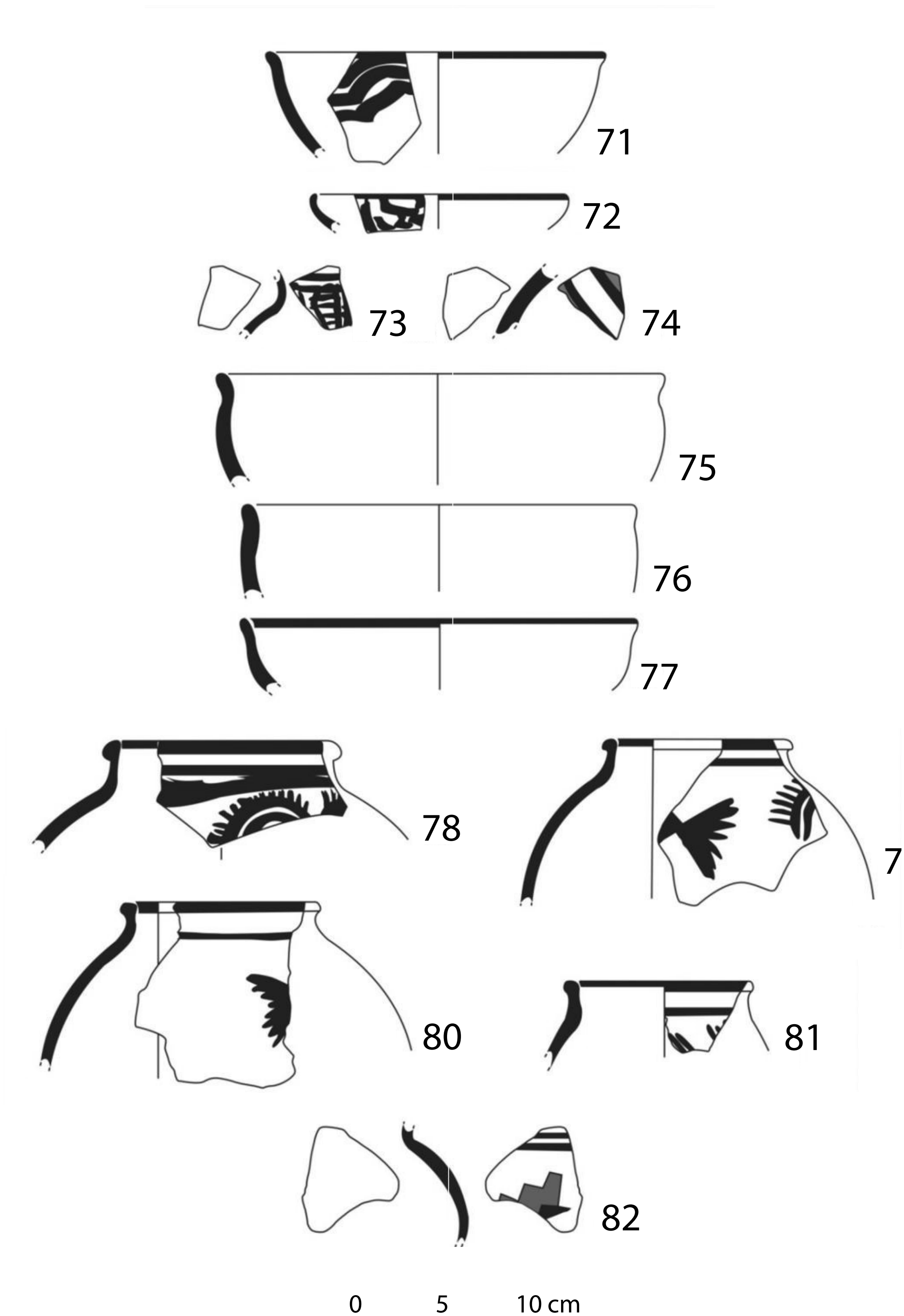


Figure A.84 Significant potsherds No. 71–82 from S.T.1, S.U.26, Tepe Sadegh.

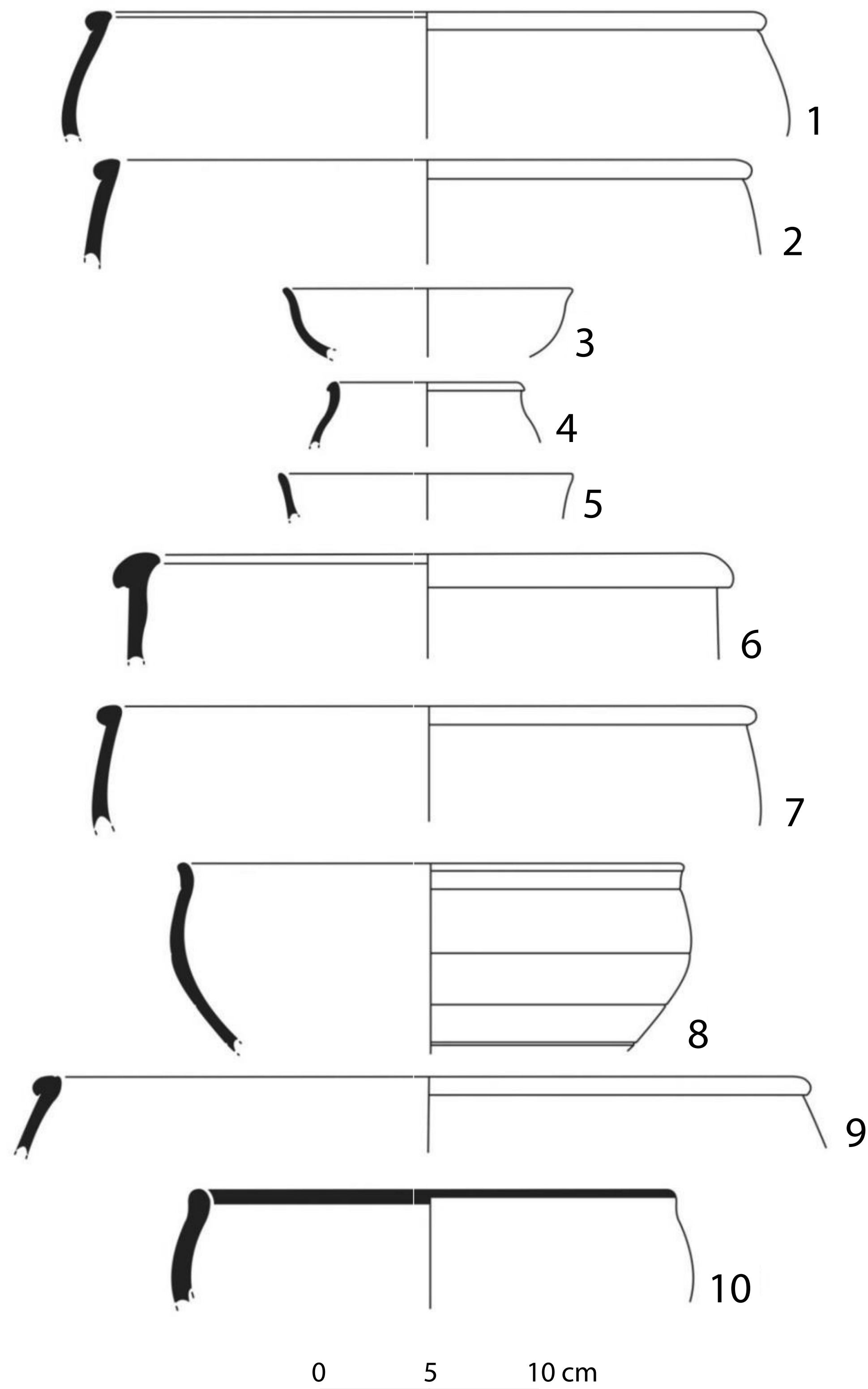


Figure A.85 Significant potsherds No. 1–10 from S.T.1, S.U.27, Tepe Sadegh.

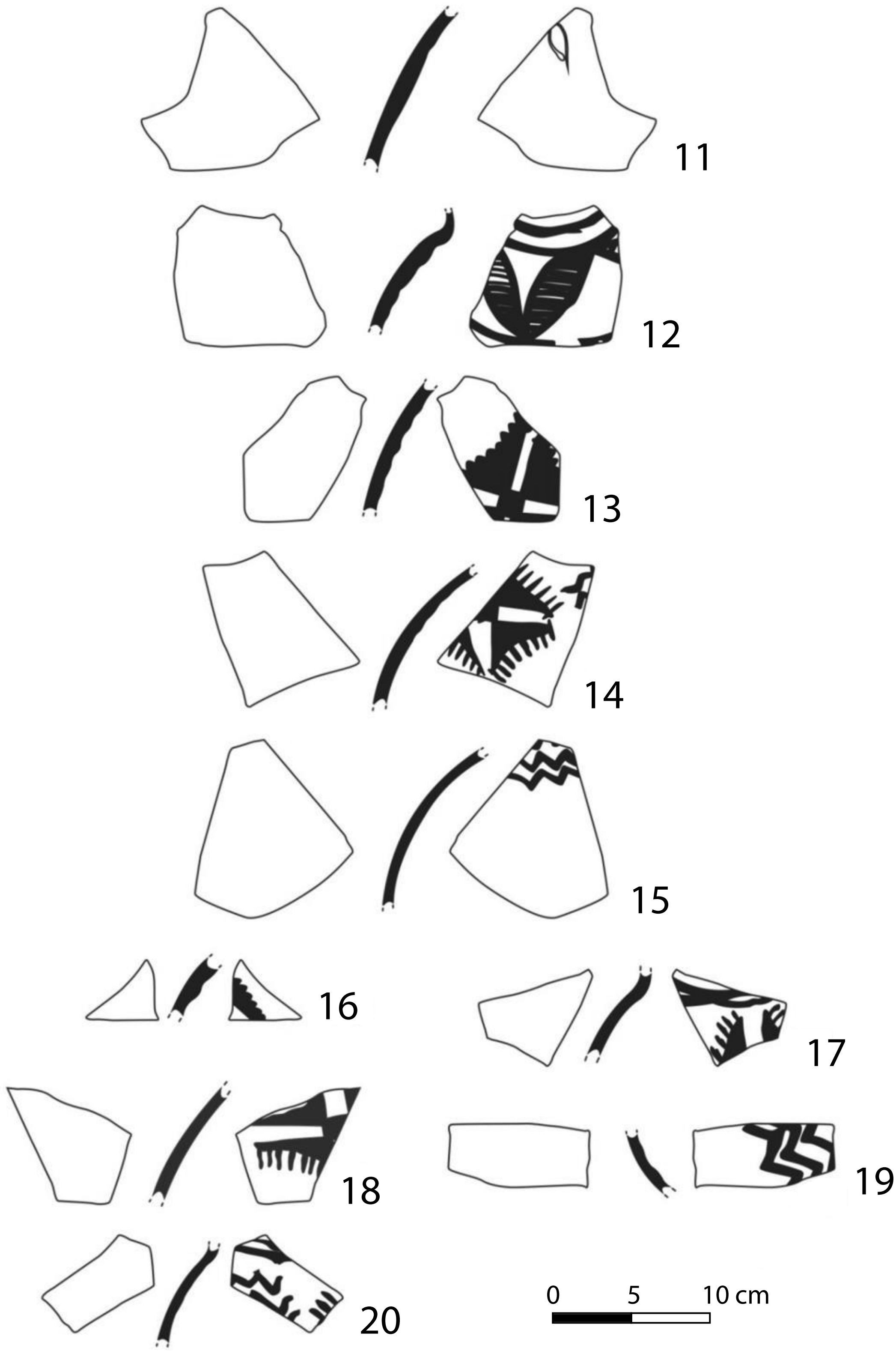


Figure A.86 Significant potsherds No. 11–20 from S.T.1, S.U.27, Tepe Sadegh.

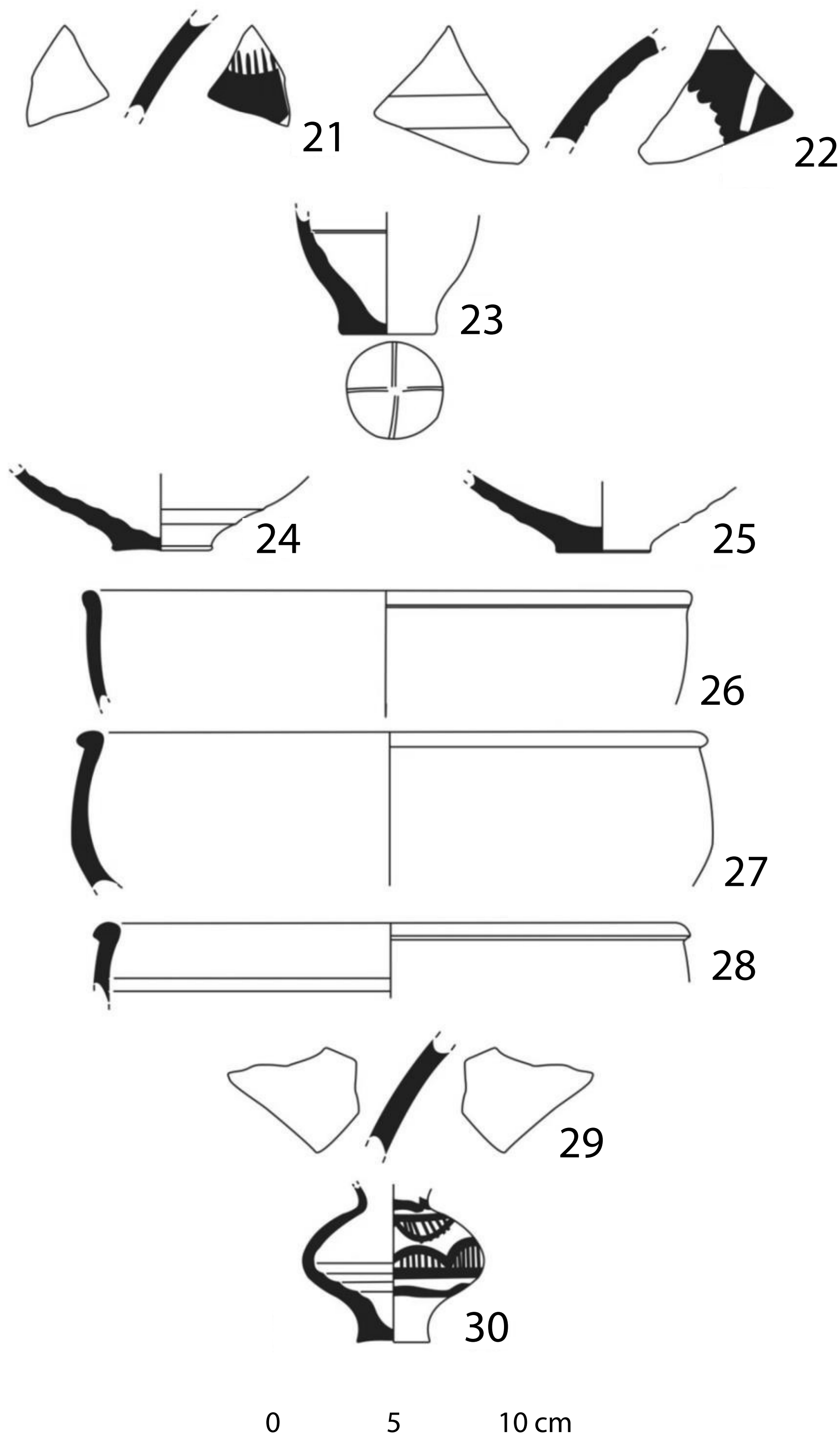


Figure A.87 Significant potsherds No. 21–30 from S.T.1, S.U.27, Tepe Sadegh.

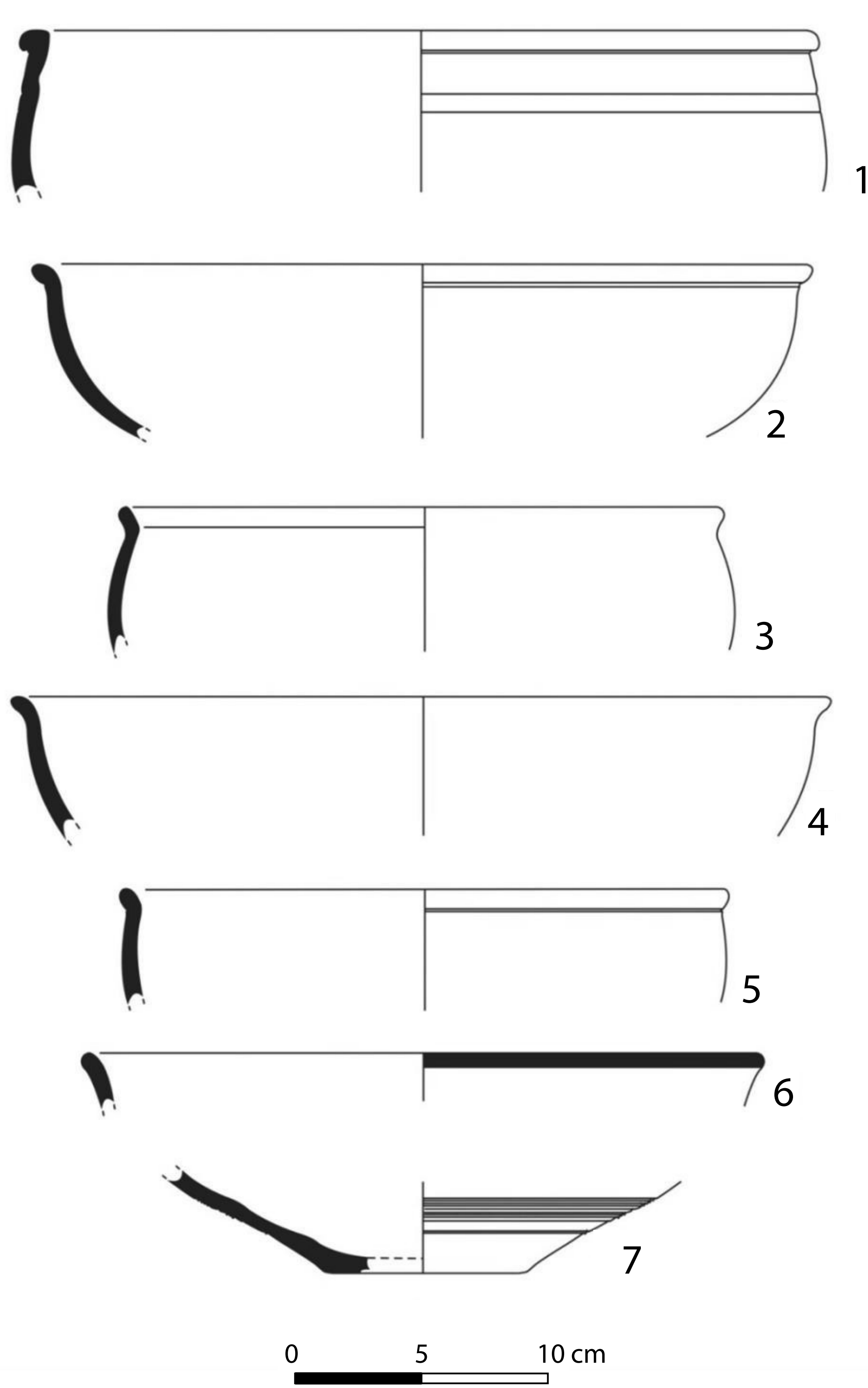


Figure A.88 Significant potsherds No. 1–7 from S.T.1, S.U.28, Tepe Sadegh.

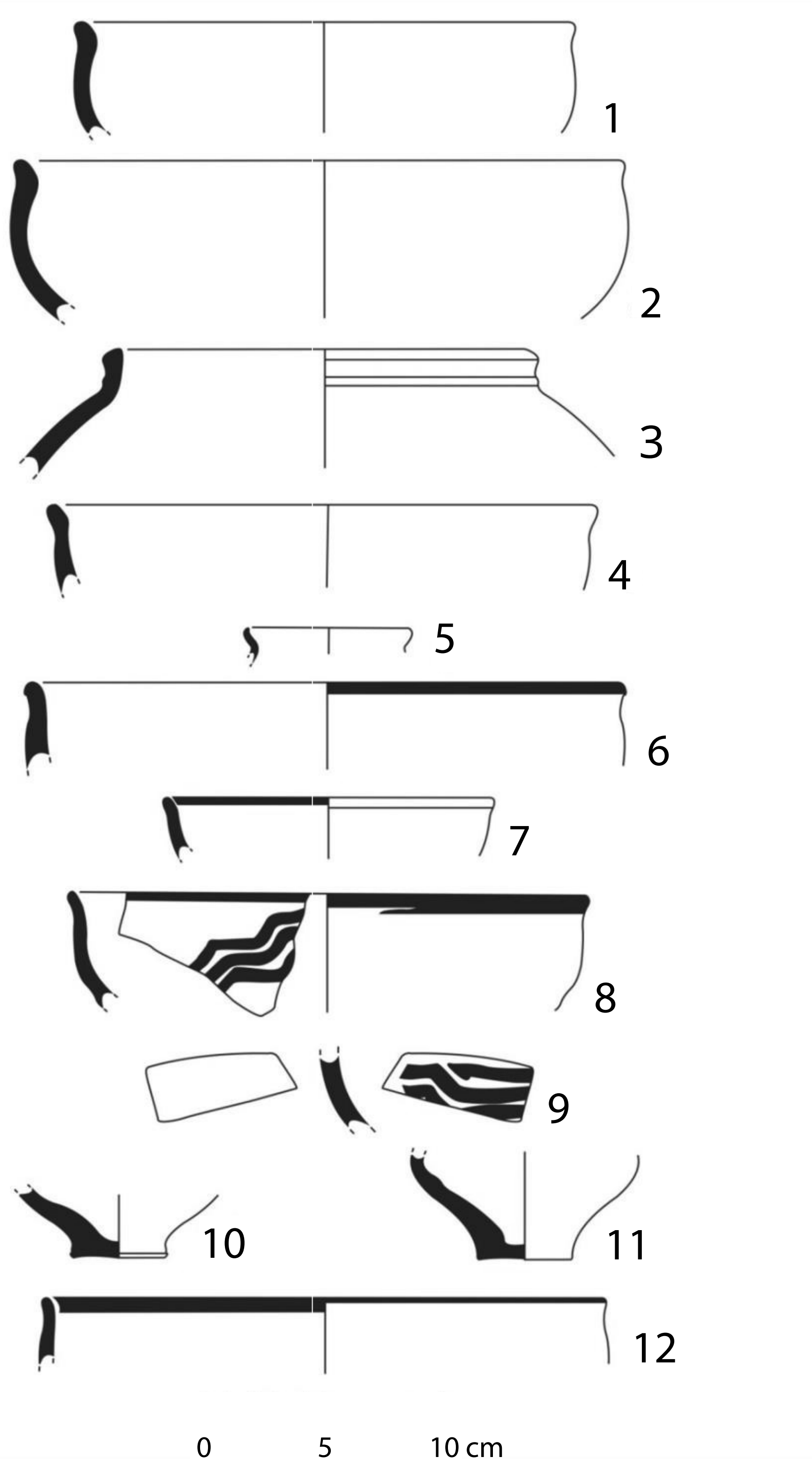


Figure A.89 Significant potsherds No. 1–12 from S.T.1, S.U.31, Tepe Sadegh.

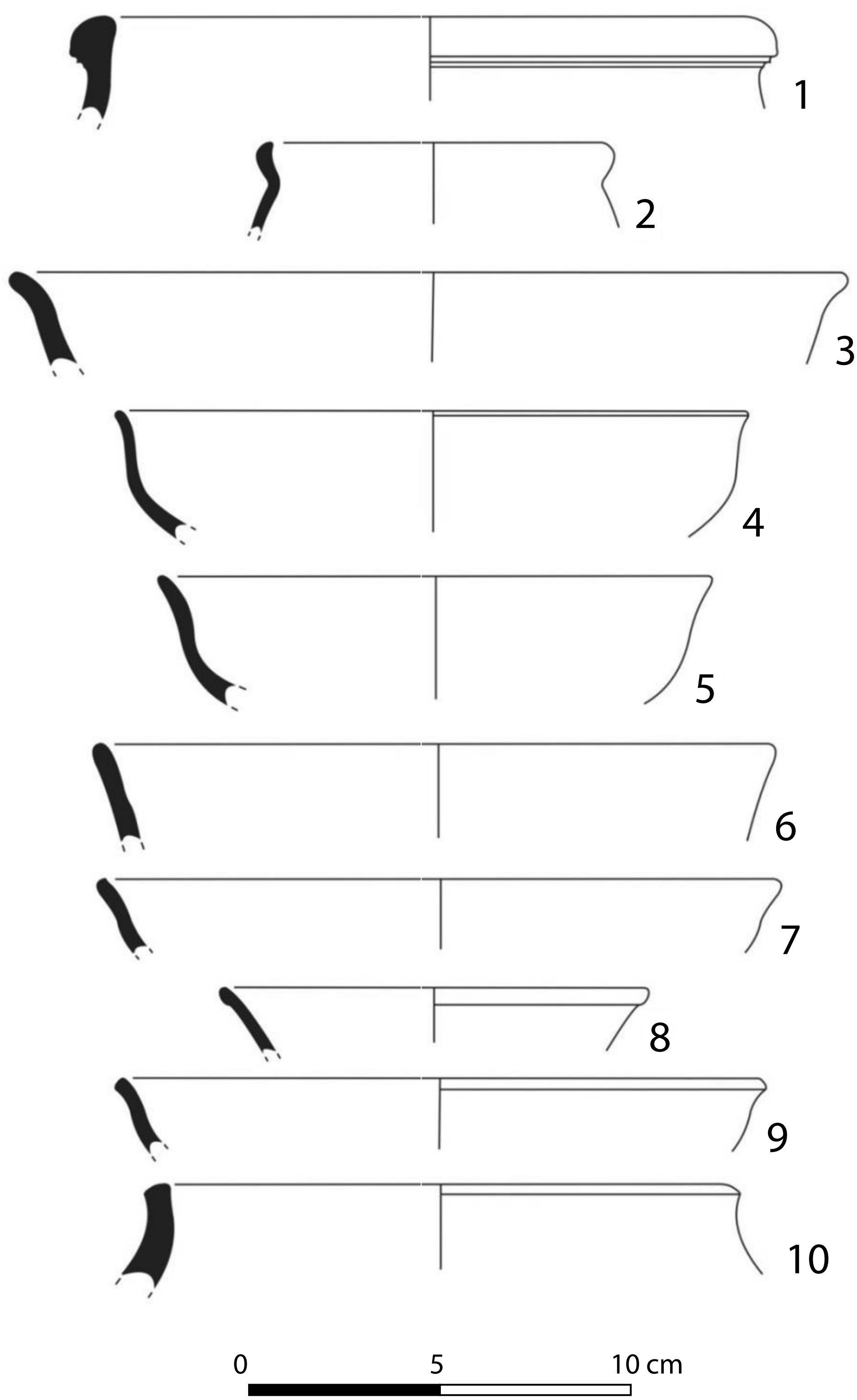


Figure A.90 Significant potsherds No. 1–10 from S.T.1, S.U.33, Tepe Sadegh.

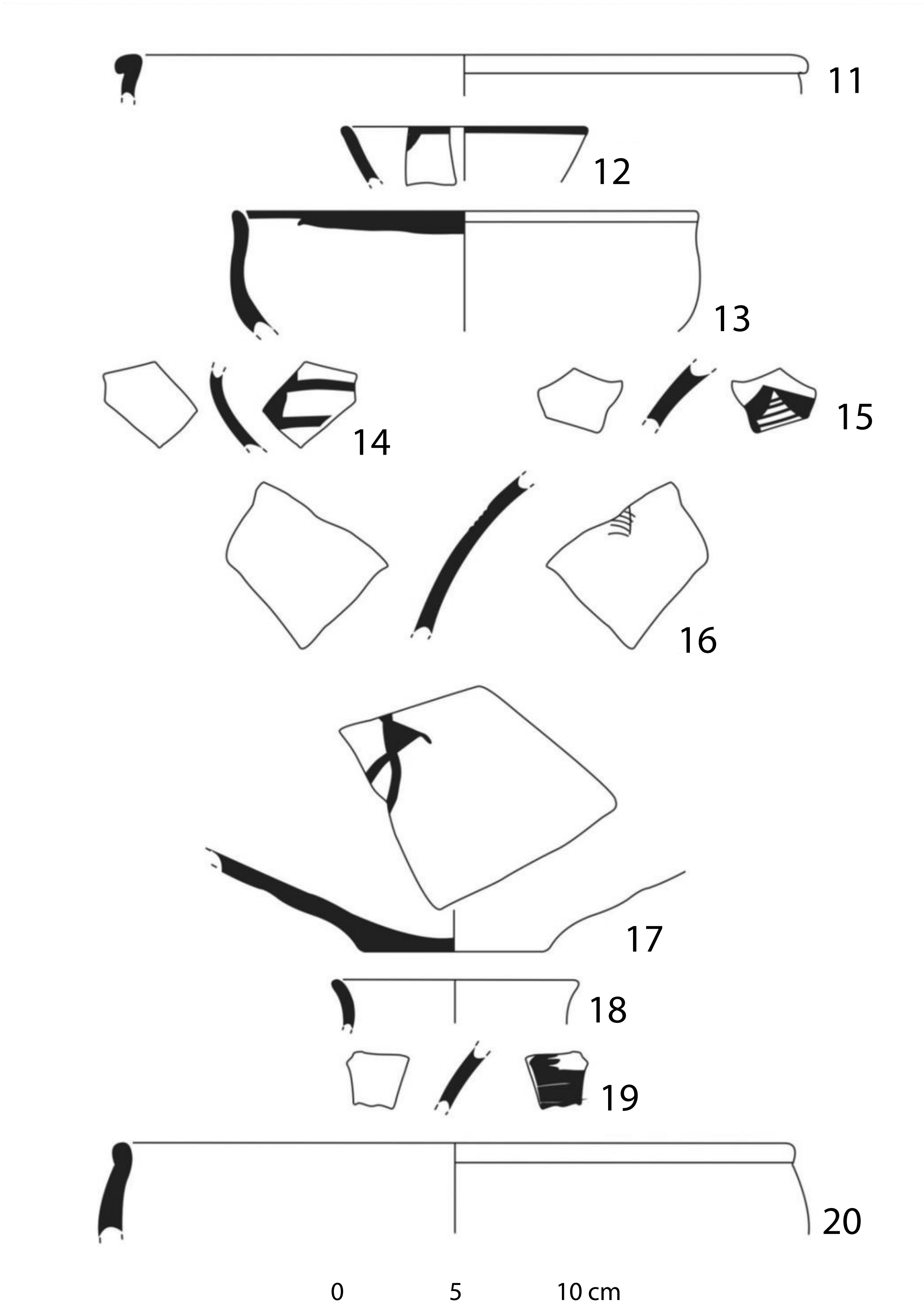


Figure A.91 Significant potsherds No. 11–20 from S.T.1, S.U.33, Tepe Sadegh.

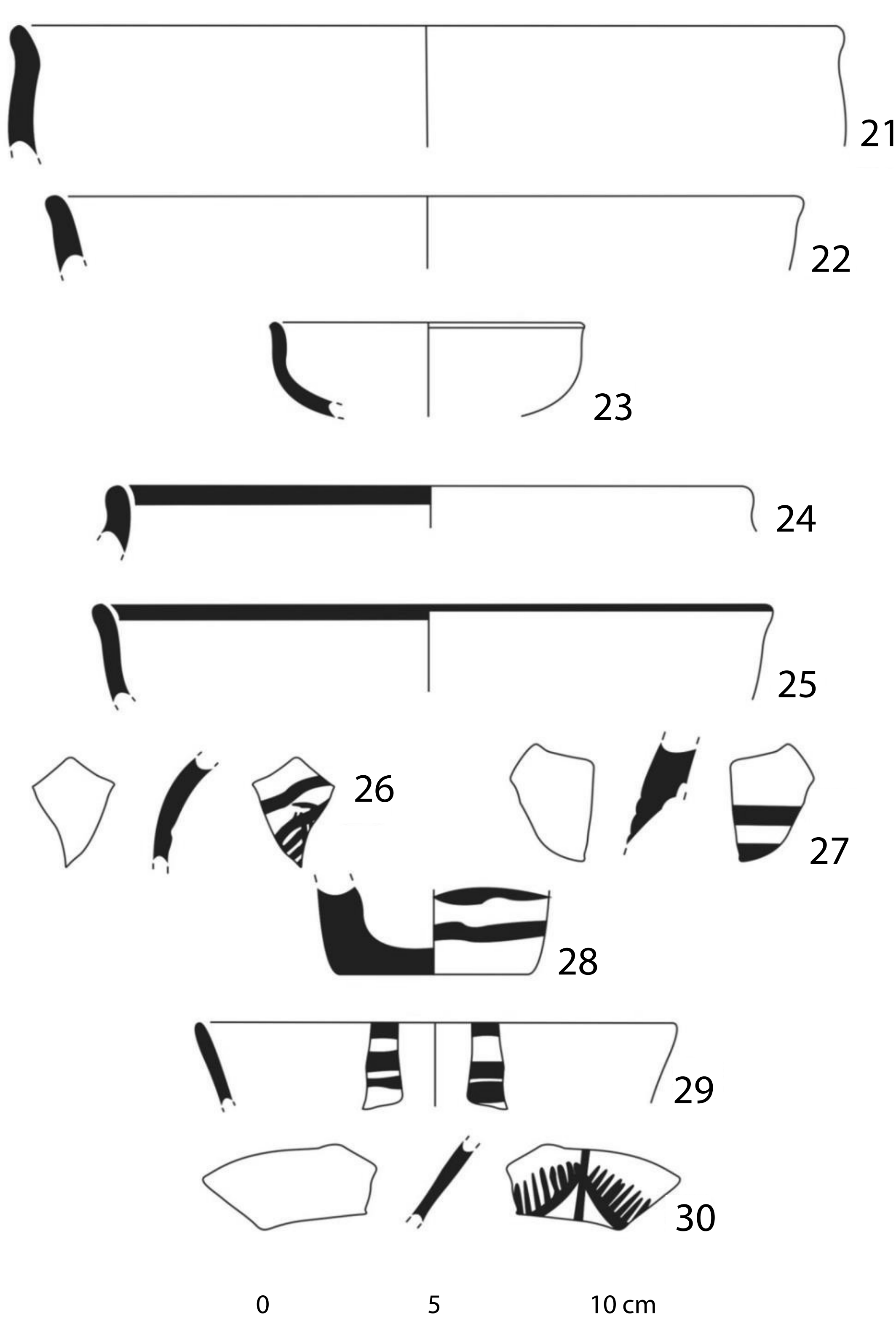


Figure A.92 Significant potsherds No. 21–30 from S.T.1, S.U.33, Tepe Sadegh.

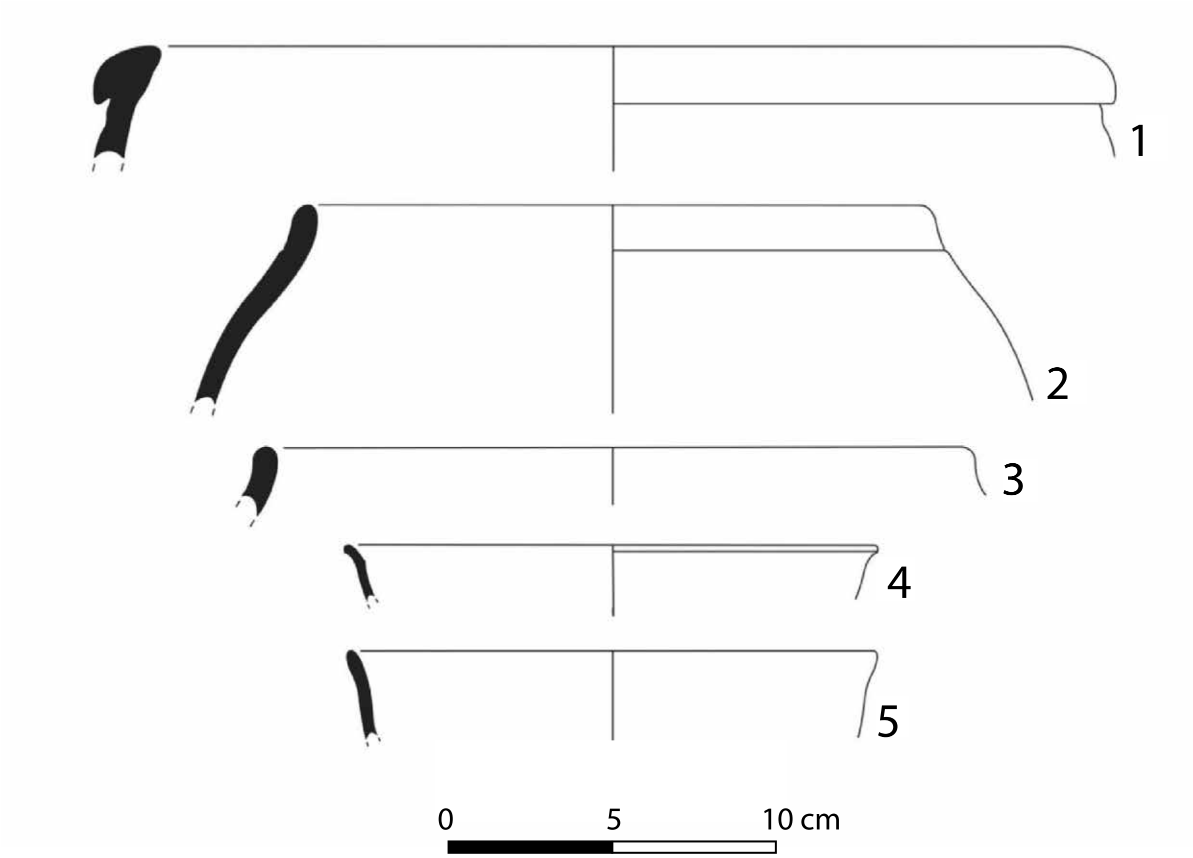


Figure A.93 Significant potsherds No. 1–5 from S.T.1, S.U.34, Tepe Sadegh.

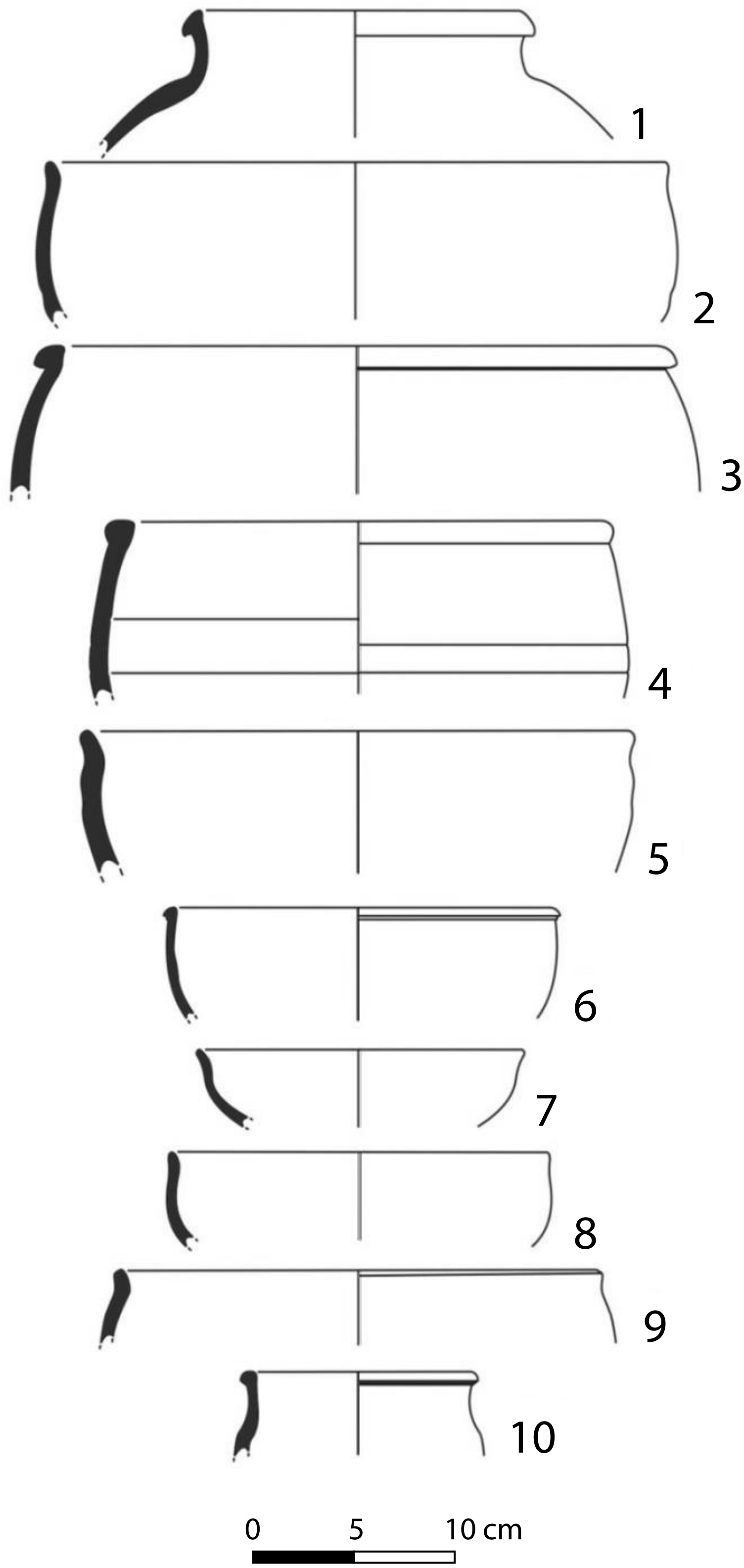


Figure A.94 Significant potsherds No. 1–10 from S.T.2, S.U.1, Tepe Sadegh.

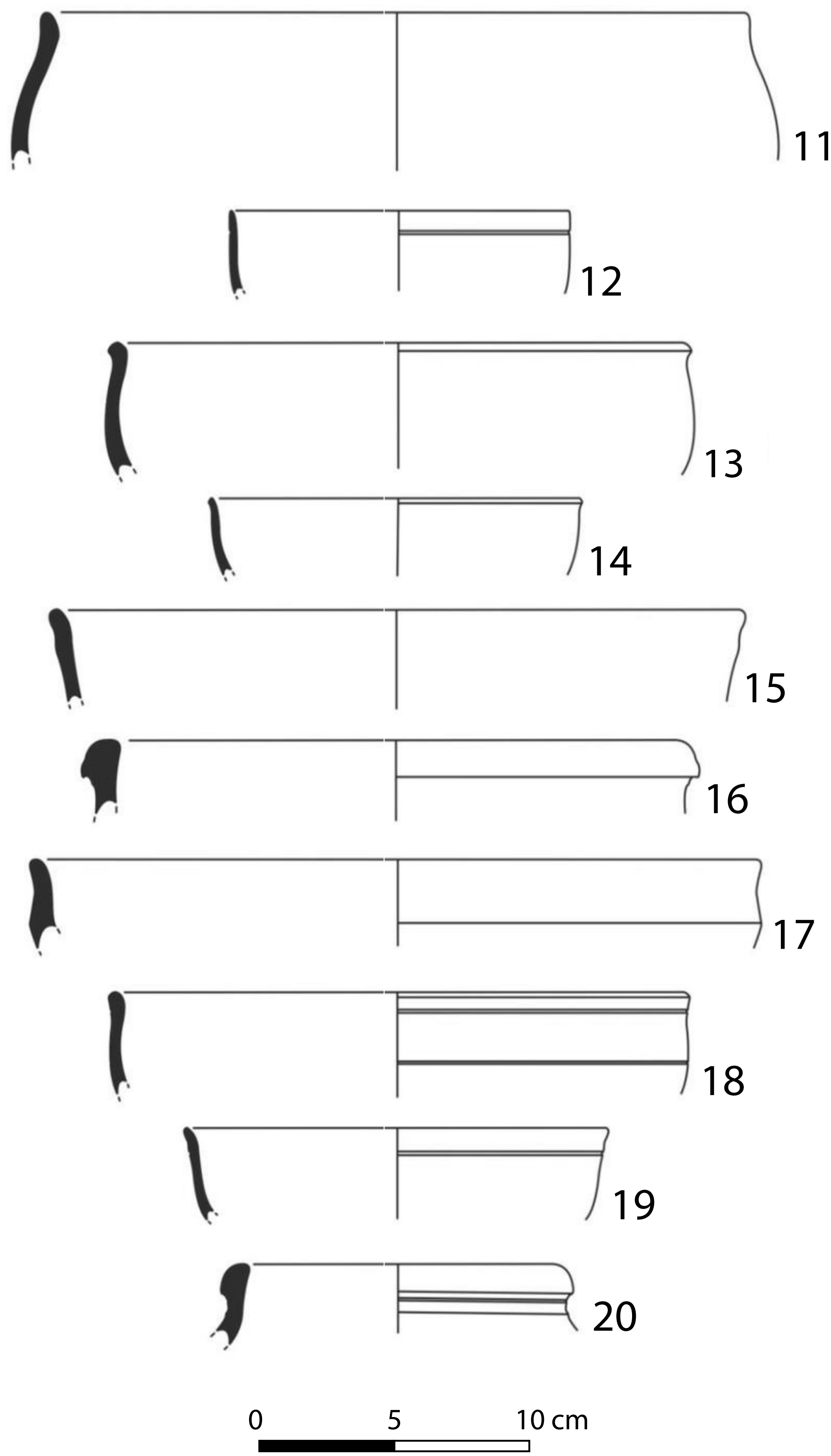


Figure A.95 Significant potsherds No. 11–20 from S.T.2, S.U.1, Tepe Sadegh.

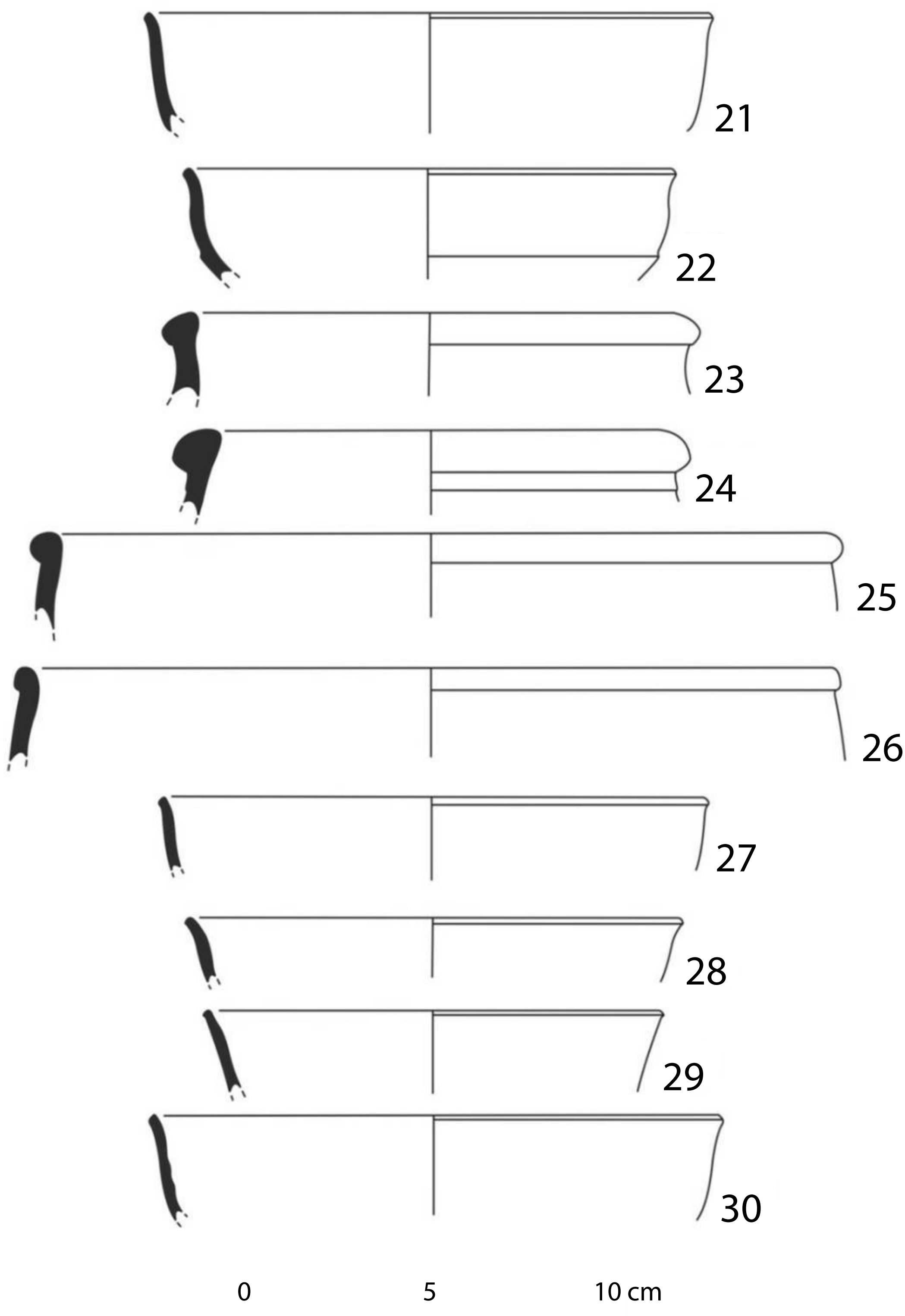


Figure A.96 Significant potsherds No. 21–30 from S.T.2, S.U.1, Tepe Sadegh.

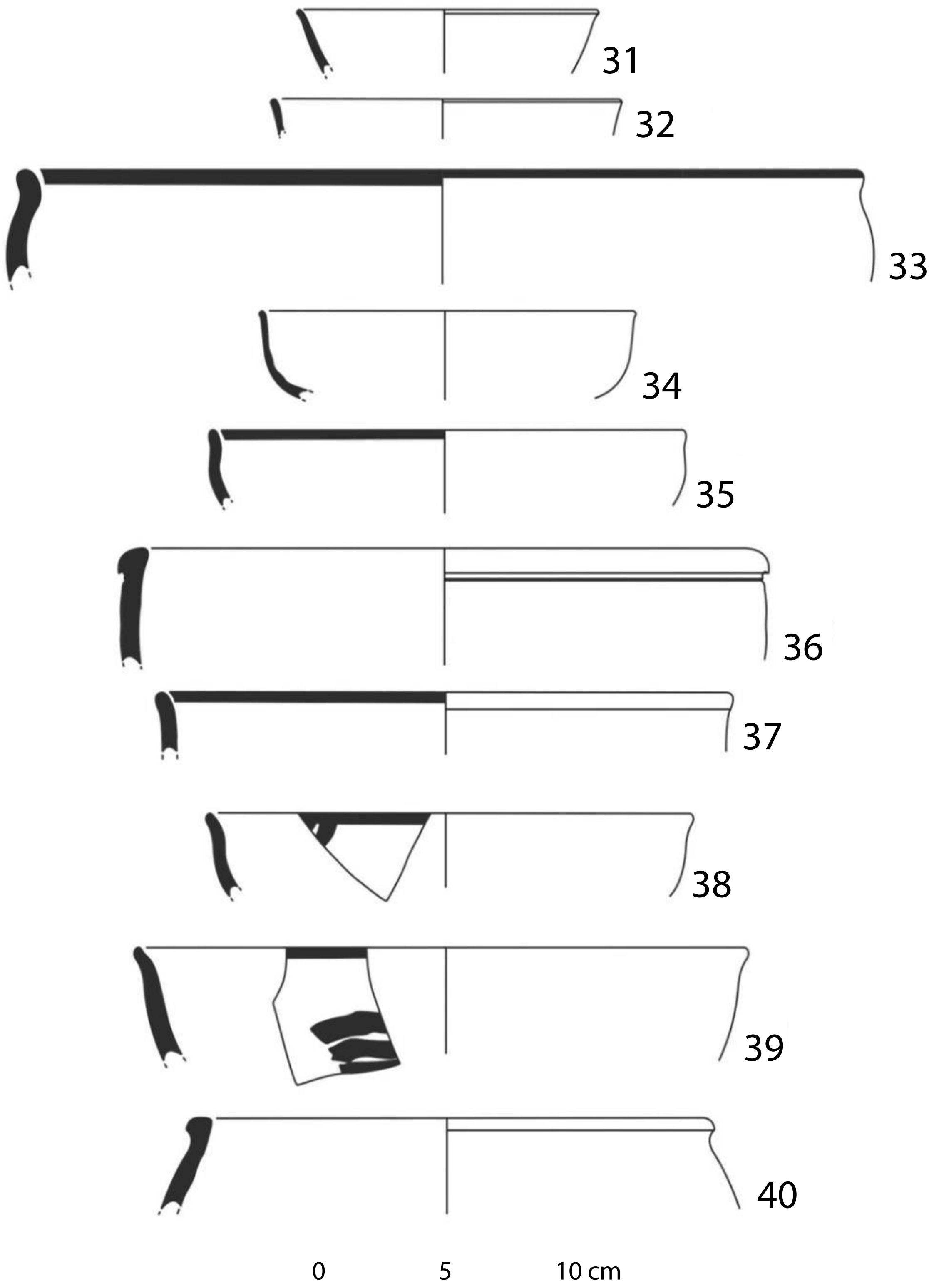


Figure A.97 Significant potsherds No. 31–40 from S.T.2, S.U.1, Tepe Sadegh.

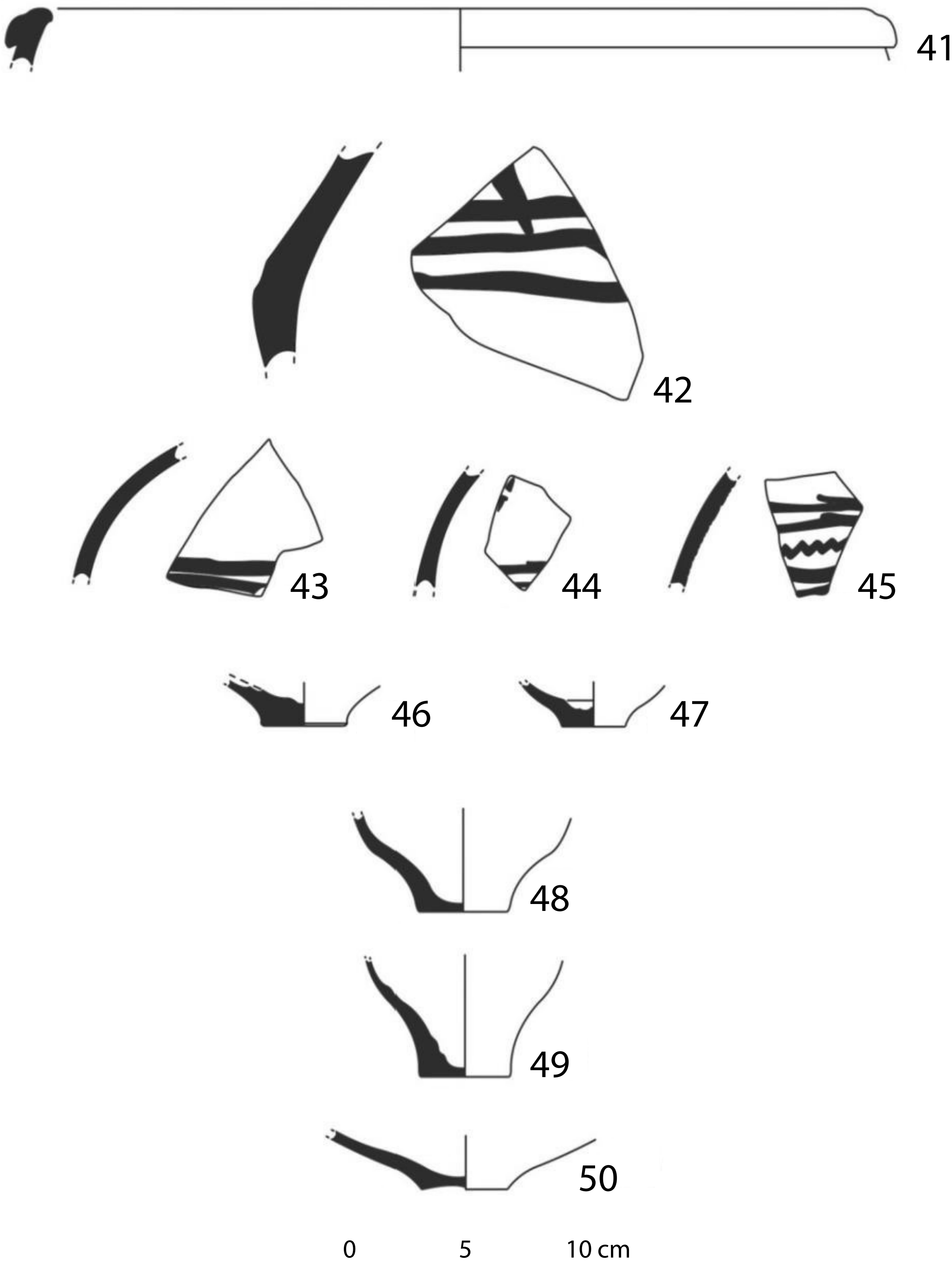


Figure A.98 Significant potsherds No. 41–50 from S.T.2, S.U.1, Tepe Sadegh.

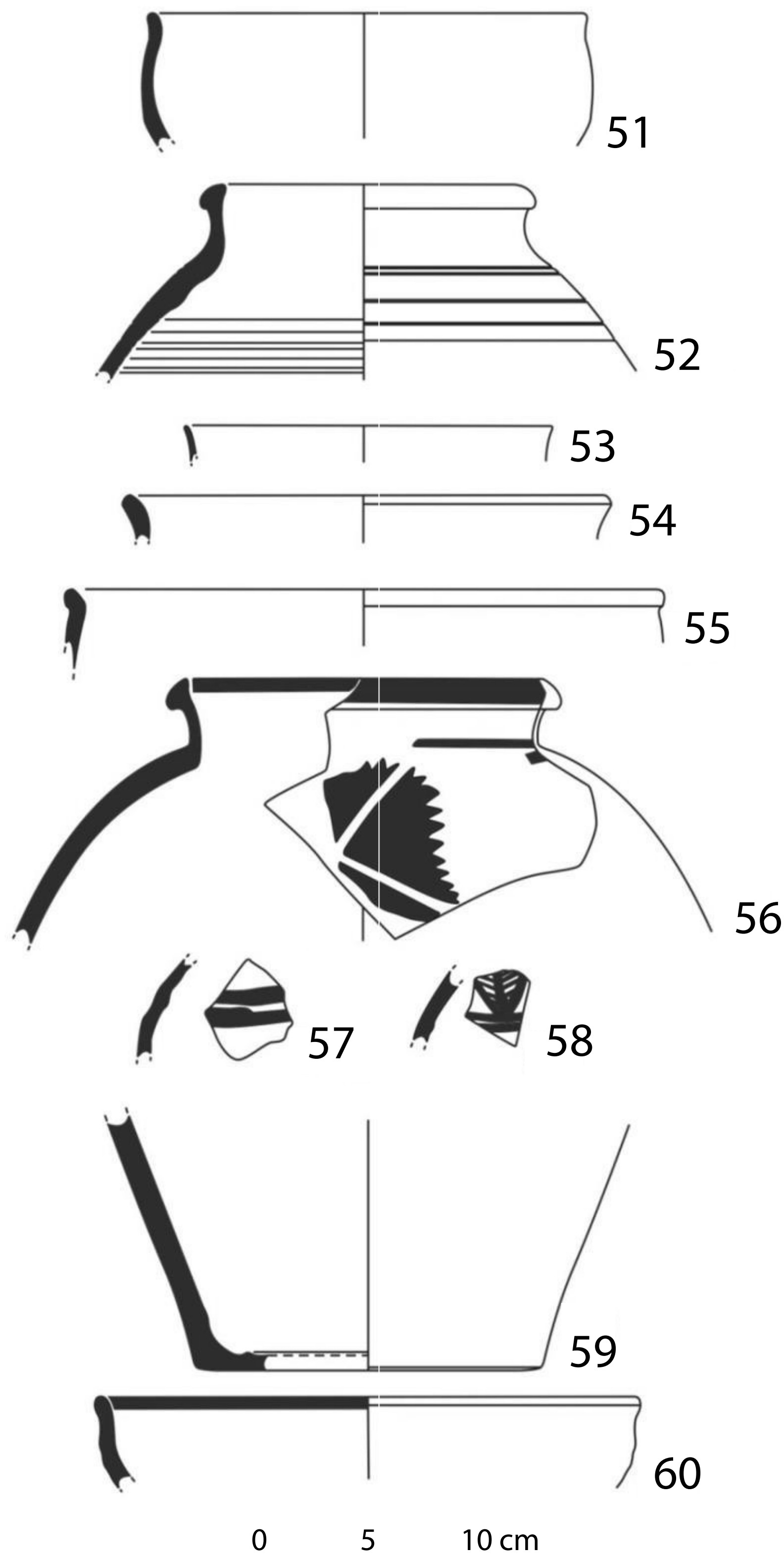


Figure A.99 Significant potsherds No. 51–60 from S.T.2, S.U.1, Tepe Sadegh.

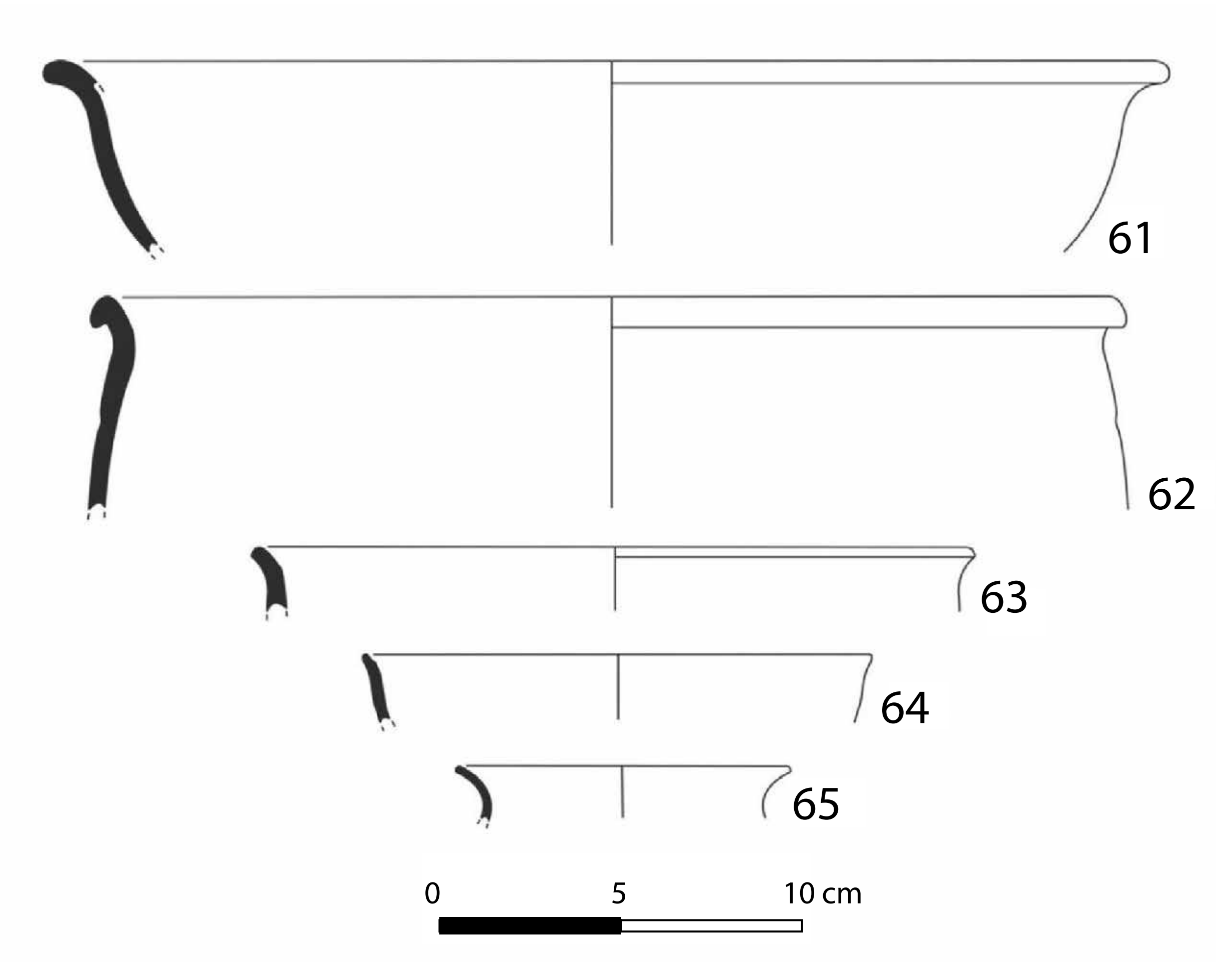


Figure A.100 Significant potsherds No. 61–65 from S.T.2, S.U.1, Tepe Sadegh.

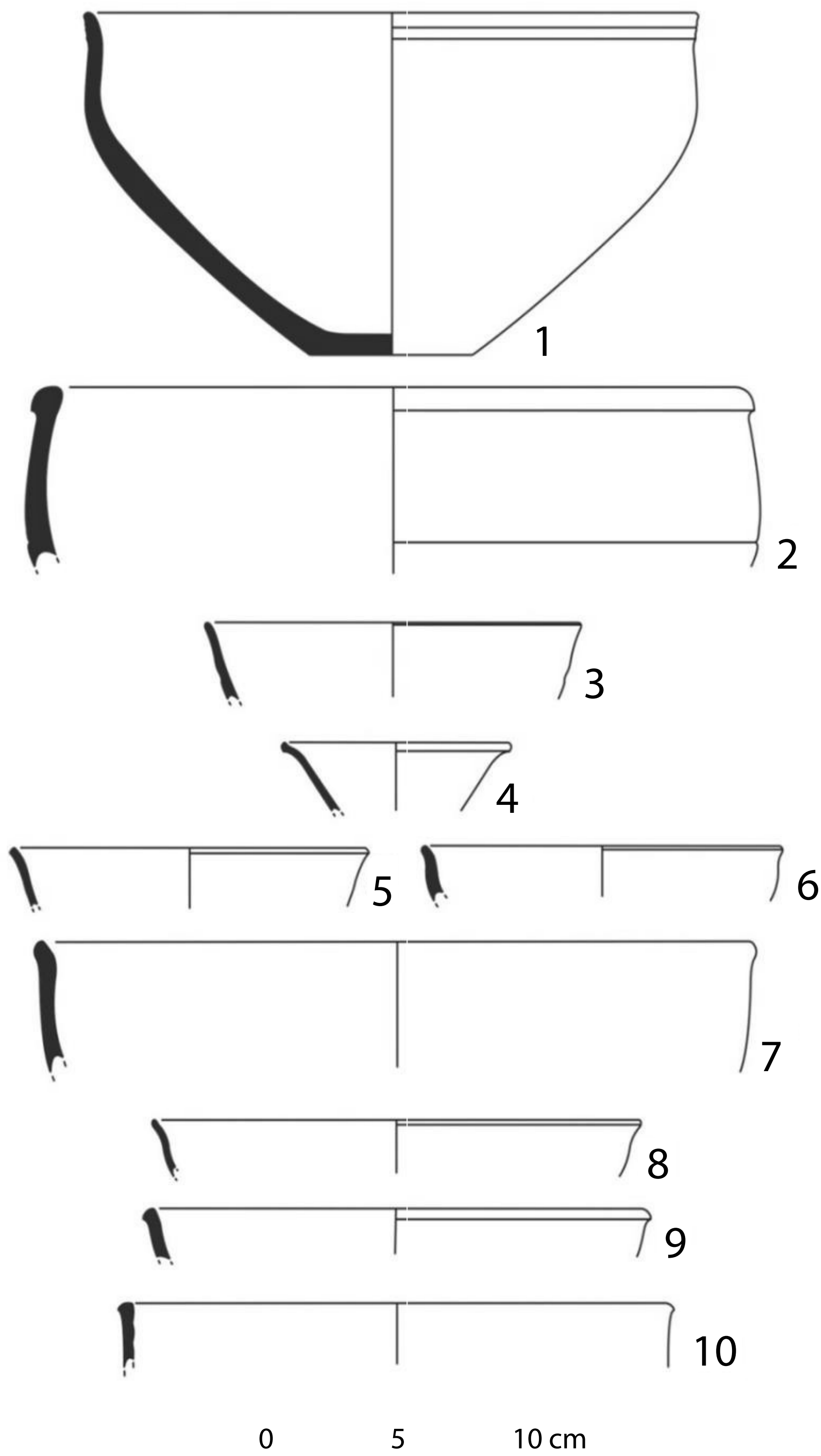


Figure A.101 Significant potsherds No. 1–10 from S.T.2, S.U.2, Tepe Sadegh.

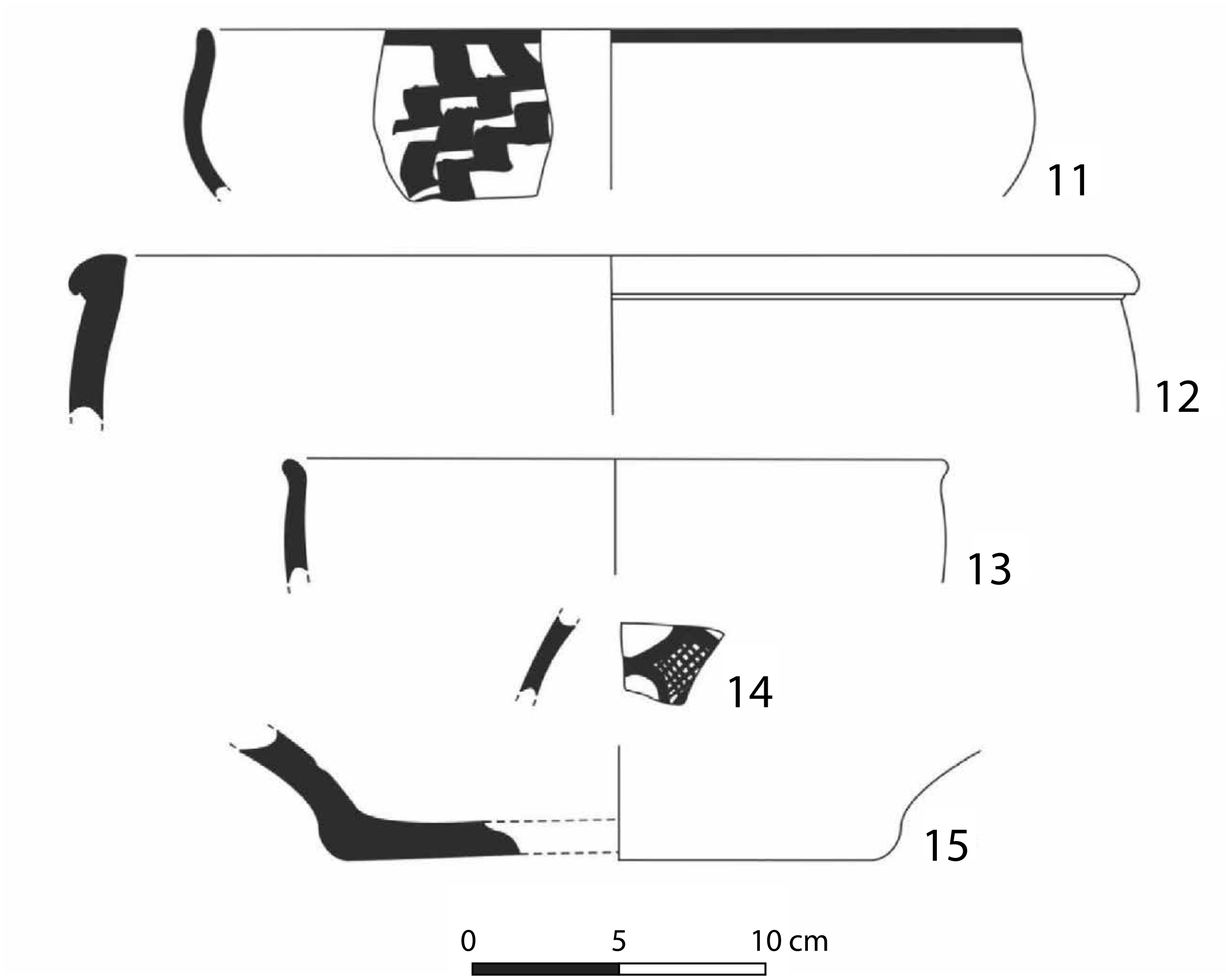


Figure A.102 Significant potsherds No. 11–15 from S.T.2, S.U.2, Tepe Sadegh.

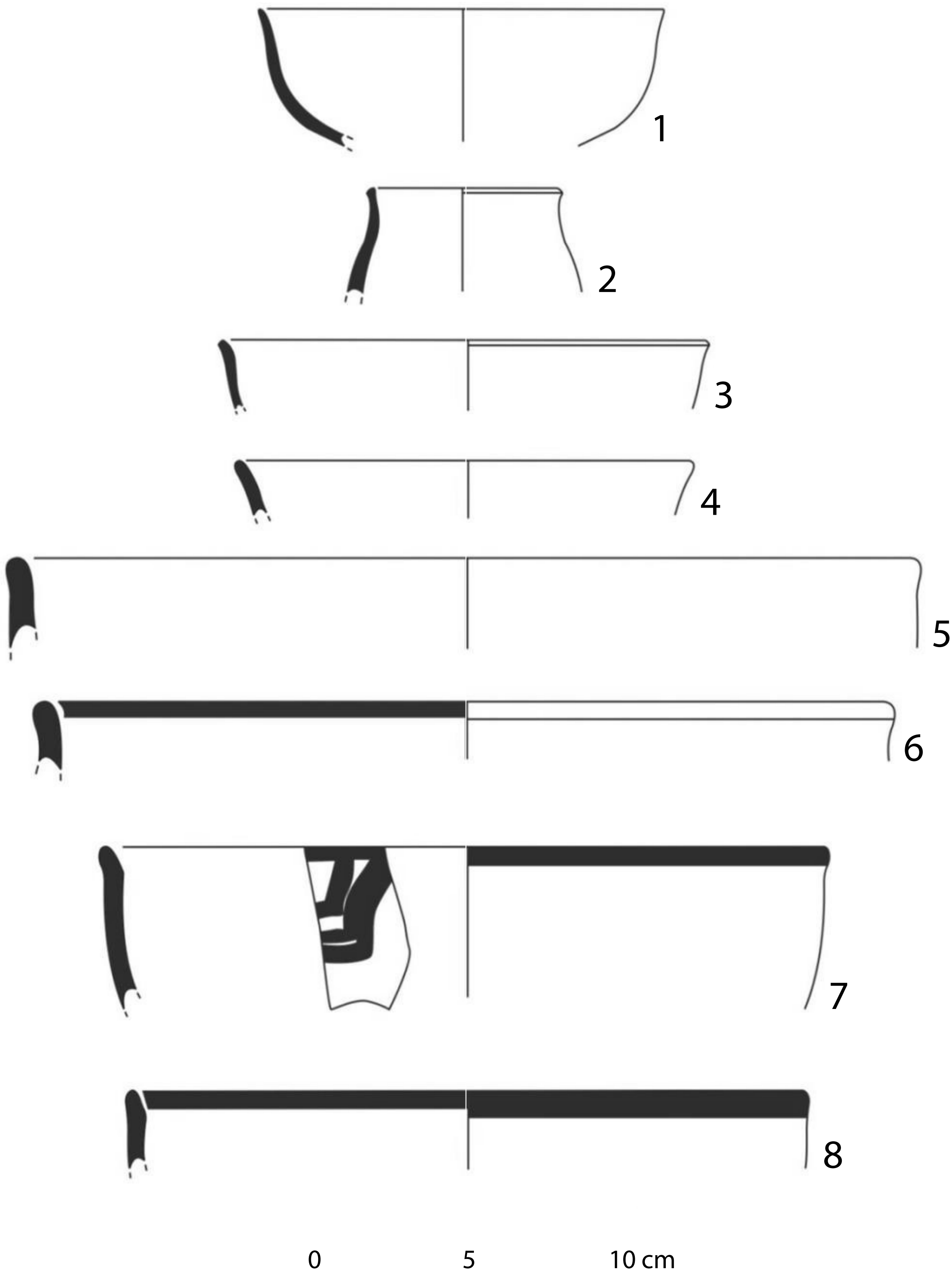


Figure A.103 Significant potsherds No. 1–8 from S.T.2, S.U.3, Tepe Sadegh.

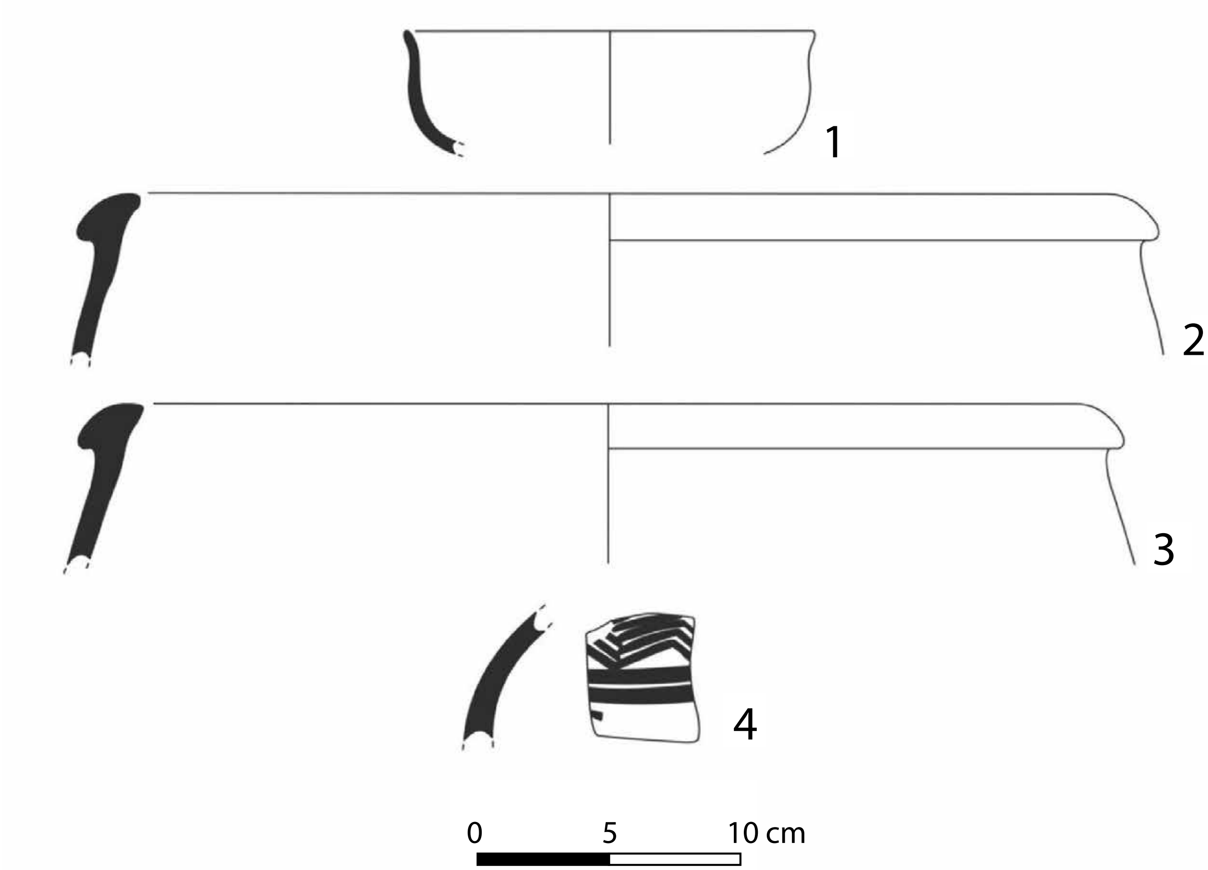


Figure A.104 Significant potsherds No. 1–3 from S.T.2, S.U.4, Tepe Sadegh.

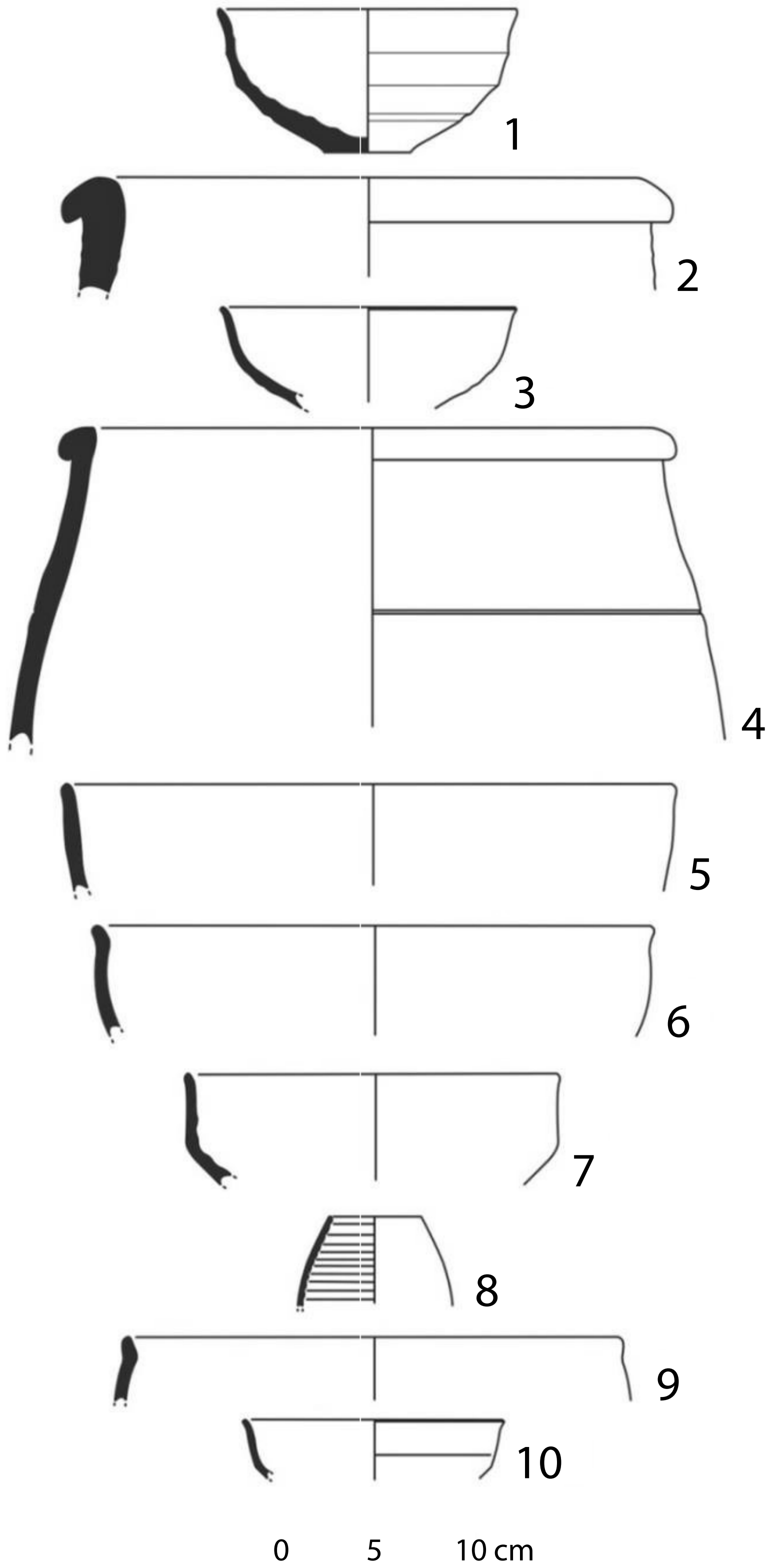


Figure A.105 Significant potsherds No. 1–10 from S.T.2, S.U.7, Tepe Sadegh.

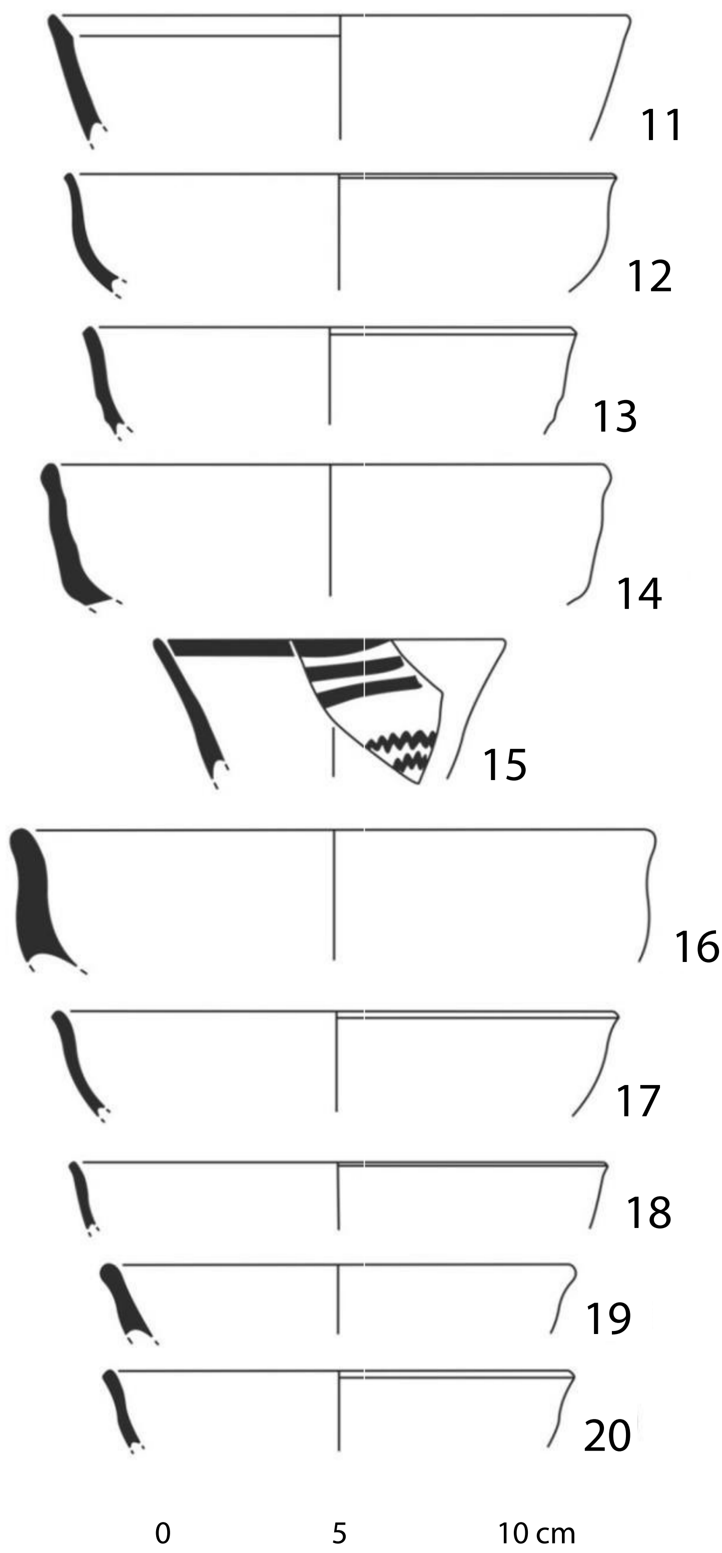


Figure A.106 Significant potsherds No. 11–20 from S.T.2, S.U.7, Tepe Sadegh.

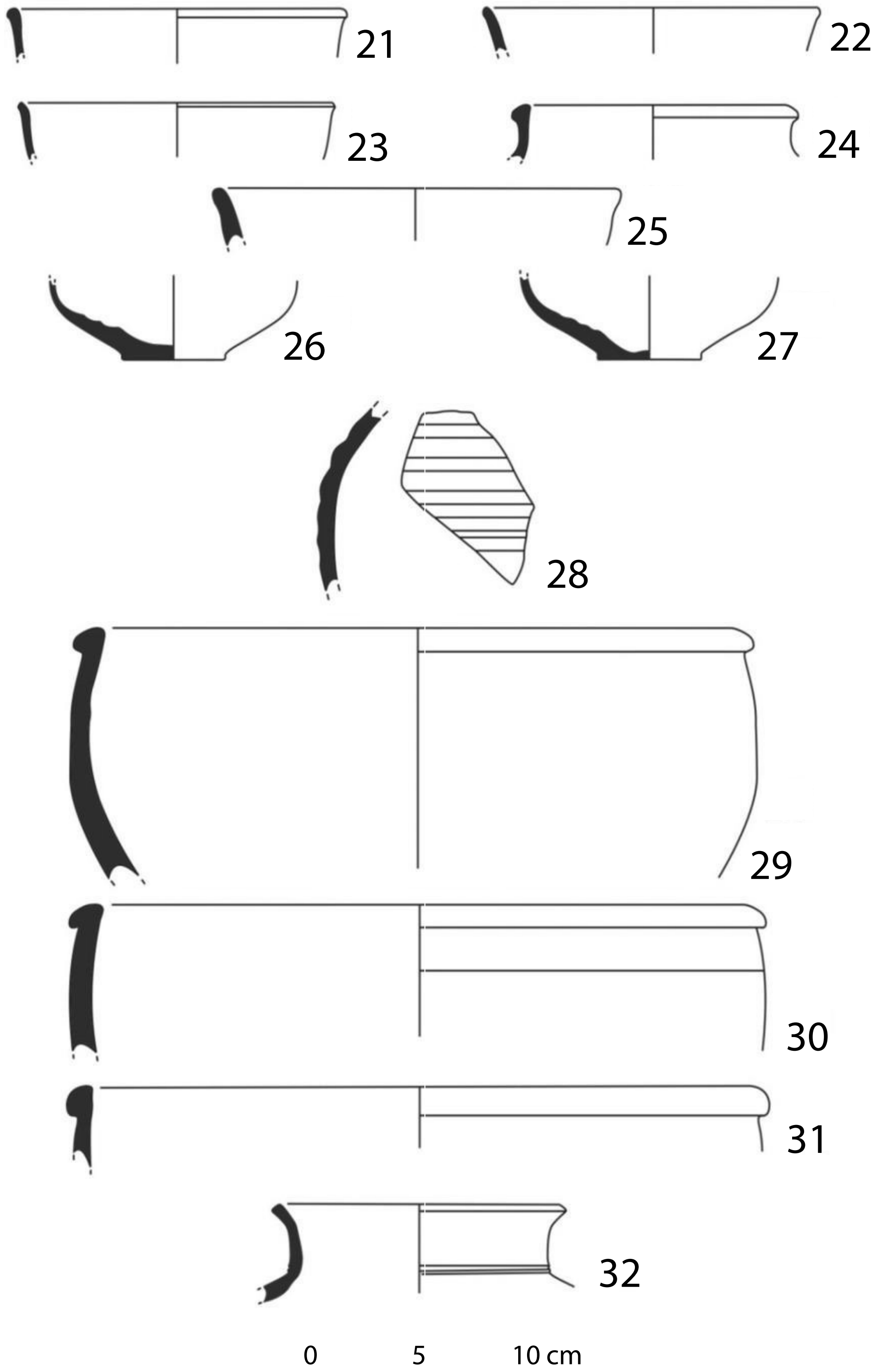


Figure A.107 Significant potsherds No. 21–32 from S.T.2, S.U.7, Tepe Sadegh.

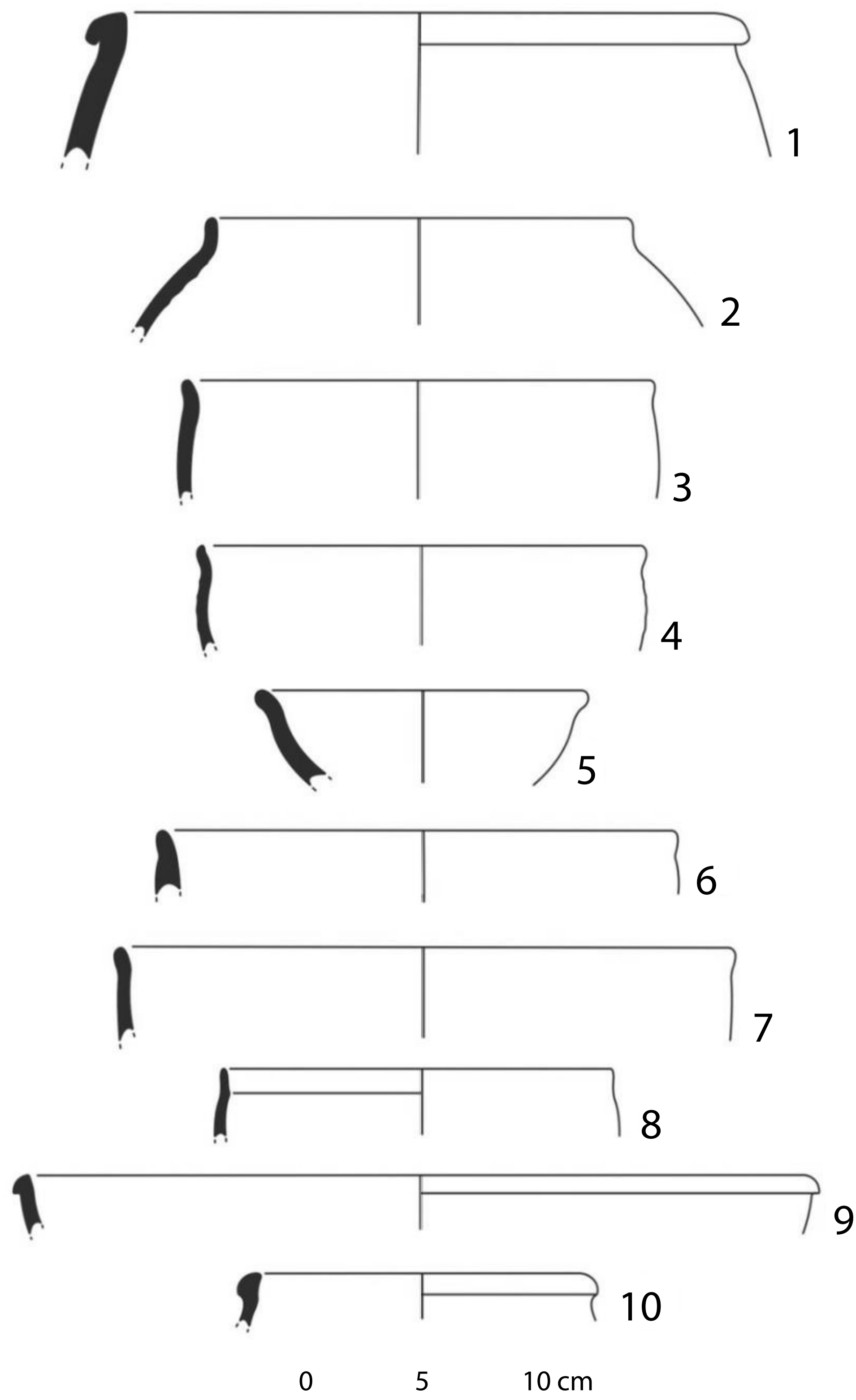


Figure A.108 Significant potsherds No. 1–10 from S.T.2, S.U.10, Tepe Sadegh.

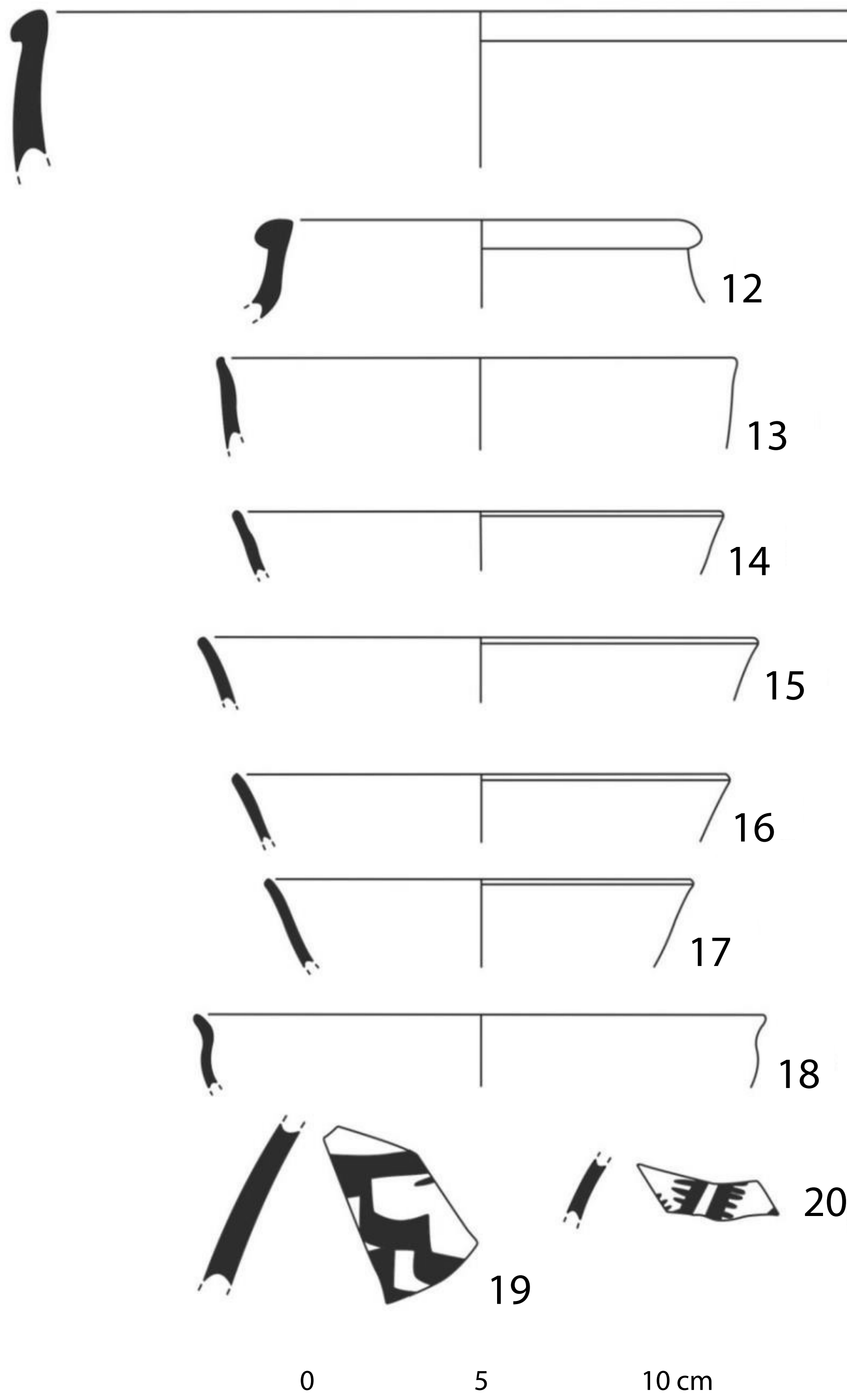


Figure A.109 Significant potsherds No. 11–20 from S.T.2, S.U.10, Tepe Sadegh.

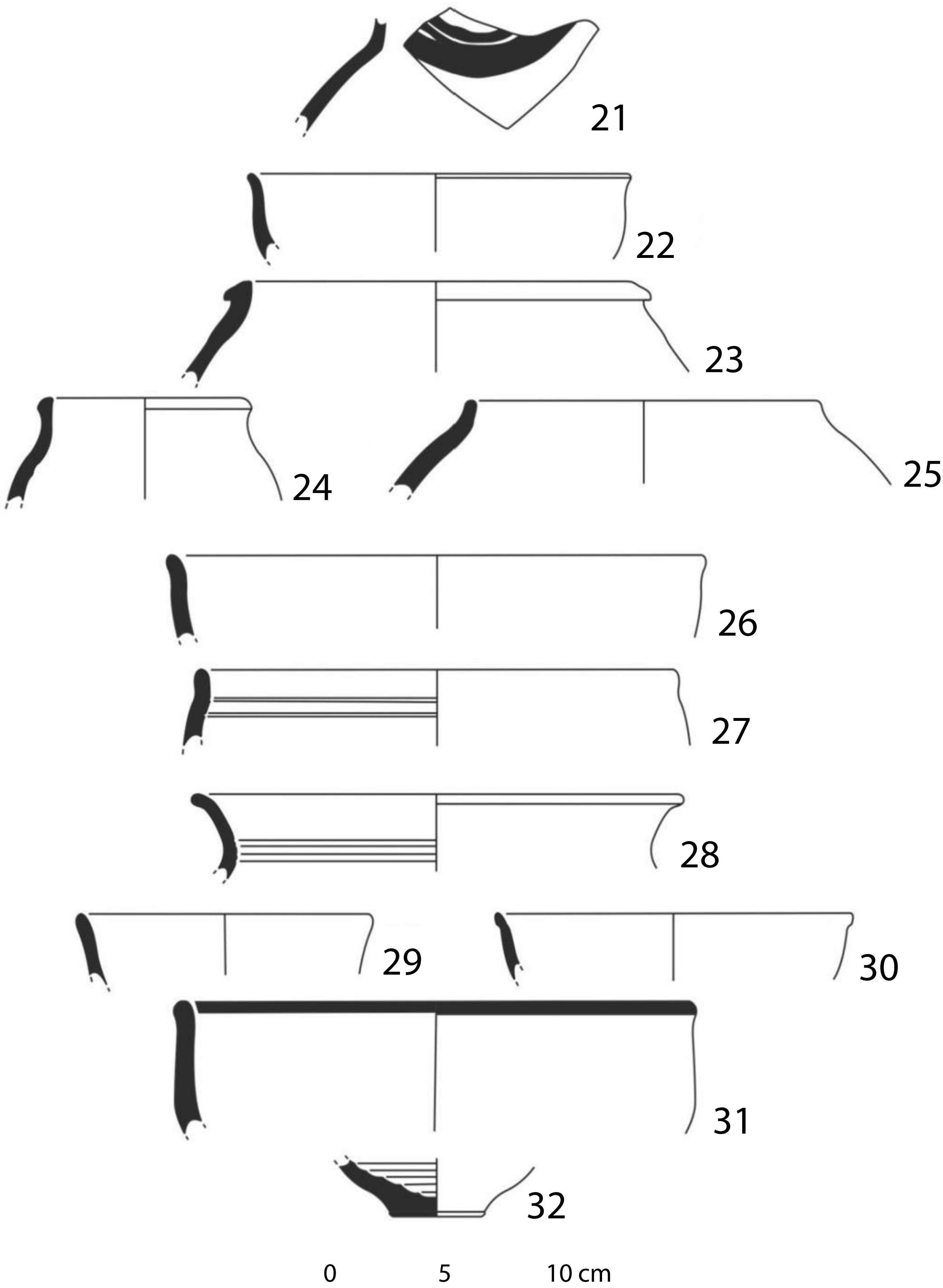


Figure A.110 Significant potsherds No. 21–32 from S.T.2, S.U.10, Tepe Sadegh.

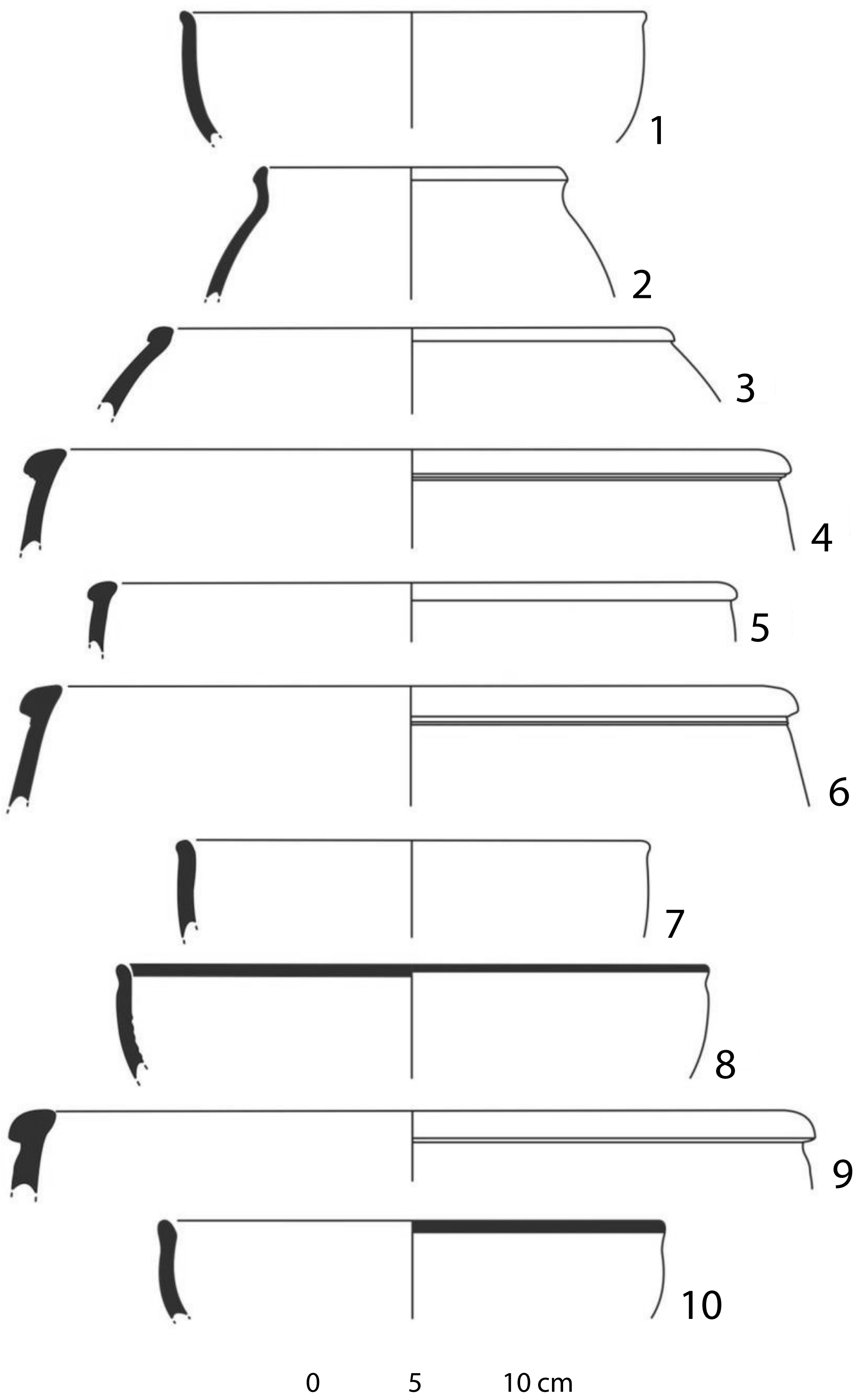


Figure A.111 Significant potsherds No. 1–10 from S.T.3, S.U.1, Tepe Sadegh.

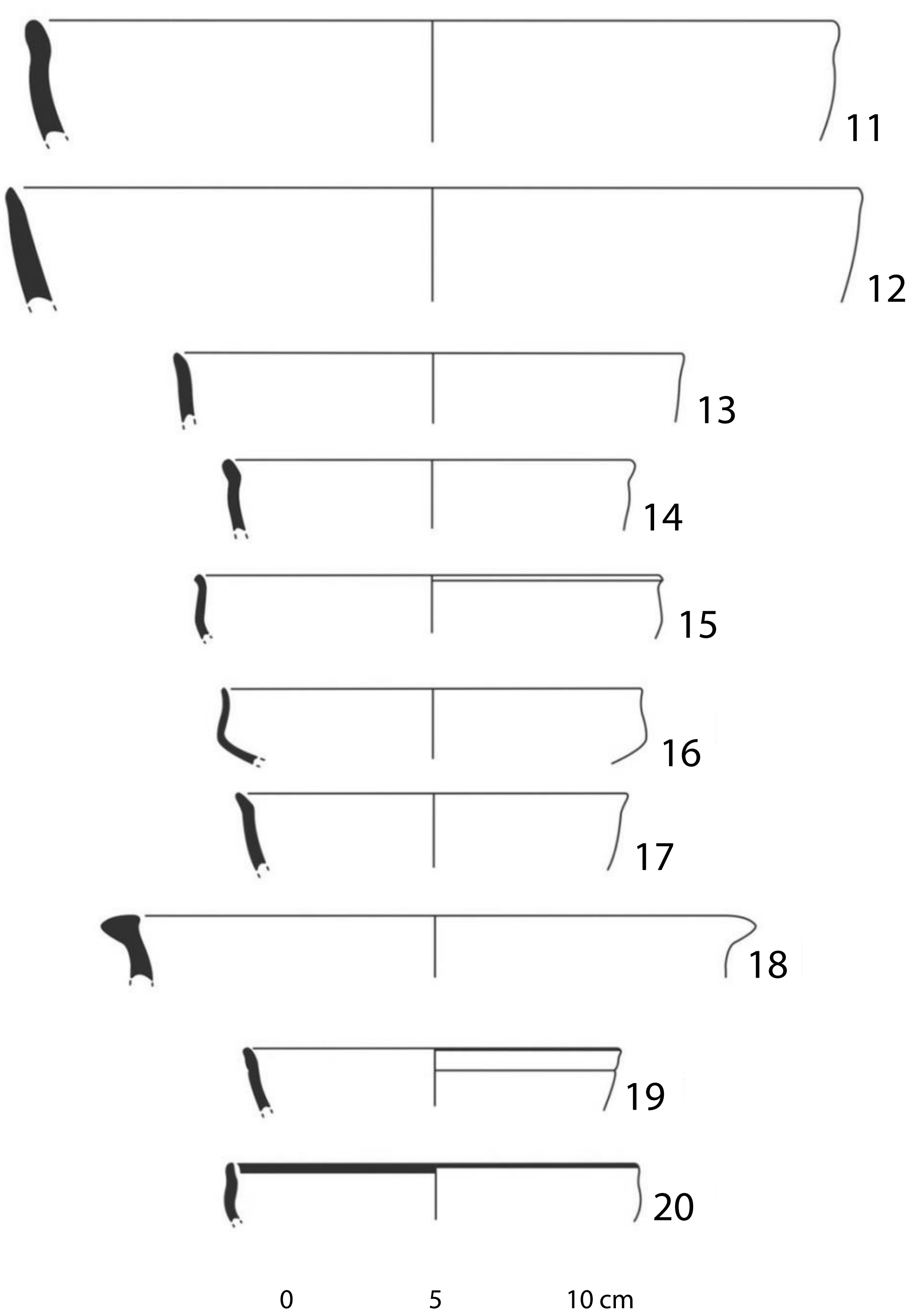


Figure A.112 Significant potsherds No. 11–20 from S.T.3, S.U.1, Tepe Sadegh.

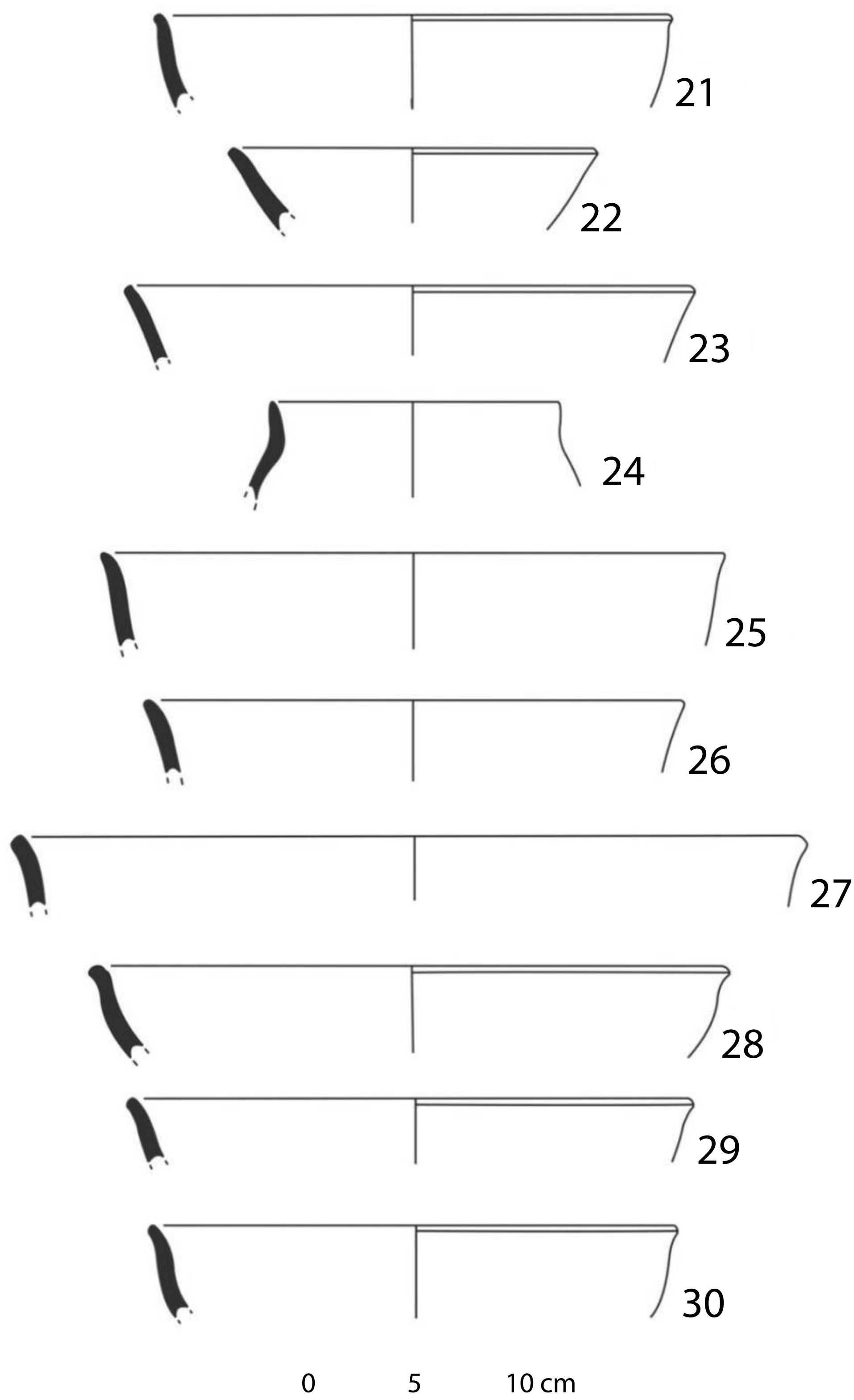


Figure A.113 Significant potsherds No. 21–30 from S.T.3, S.U.1, Tepe Sadegh.

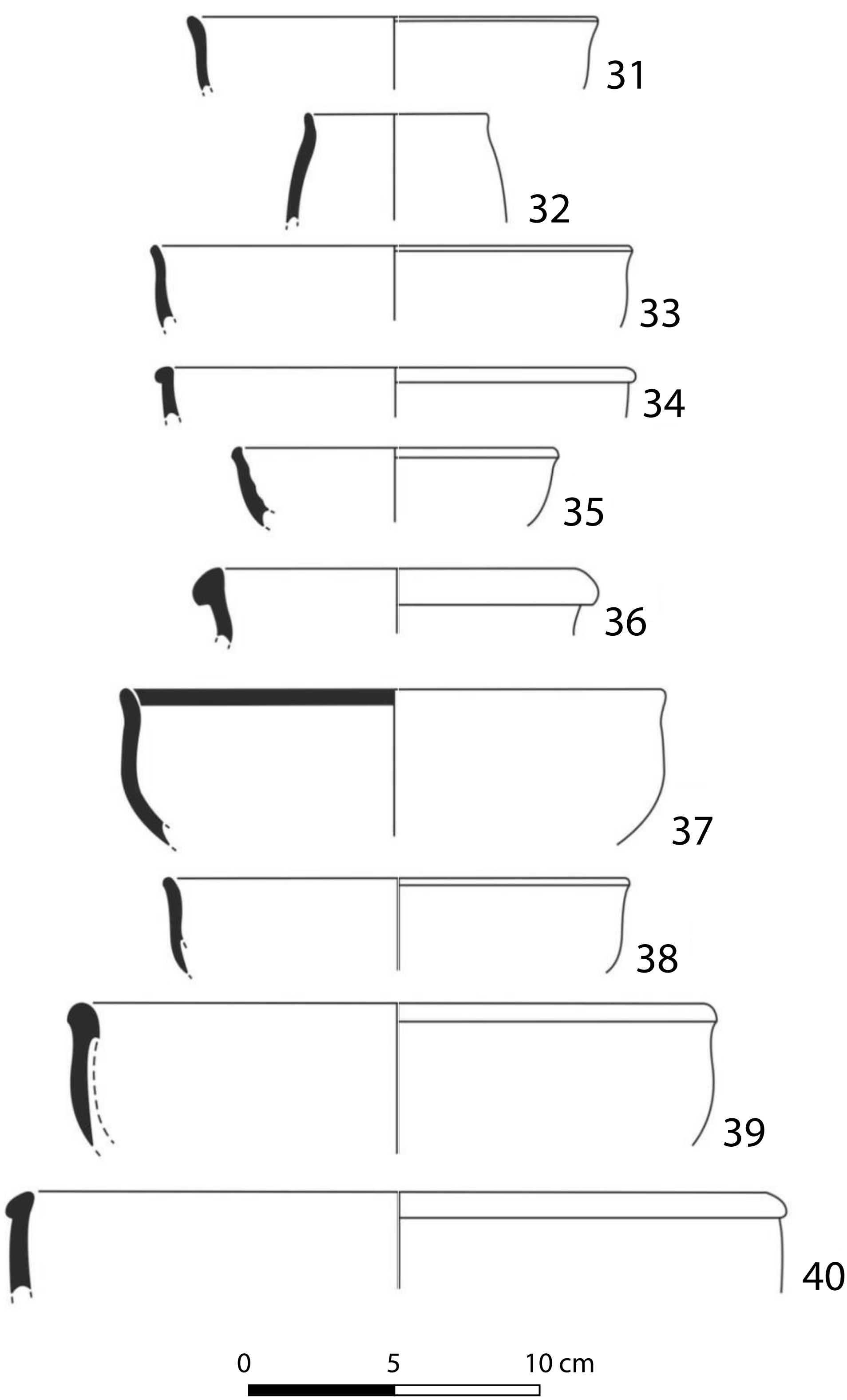


Figure A.114 Significant potsherds No. 31–40 from S.T.3, S.U.1, Tepe Sadegh.

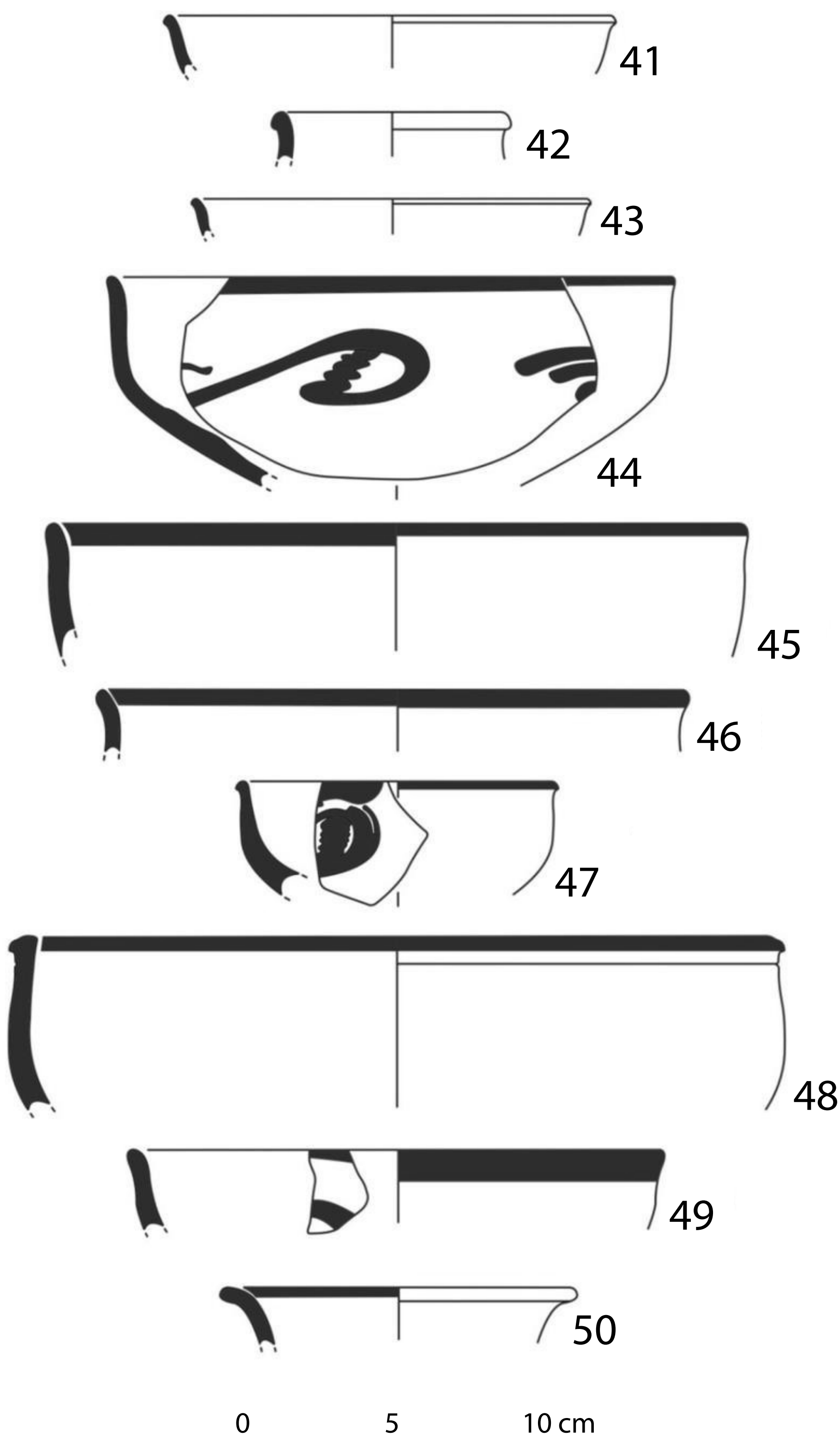


Figure A.115 Significant potsherds No. 41–50 from S.T.3, S.U.1, Tepe Sadegh.

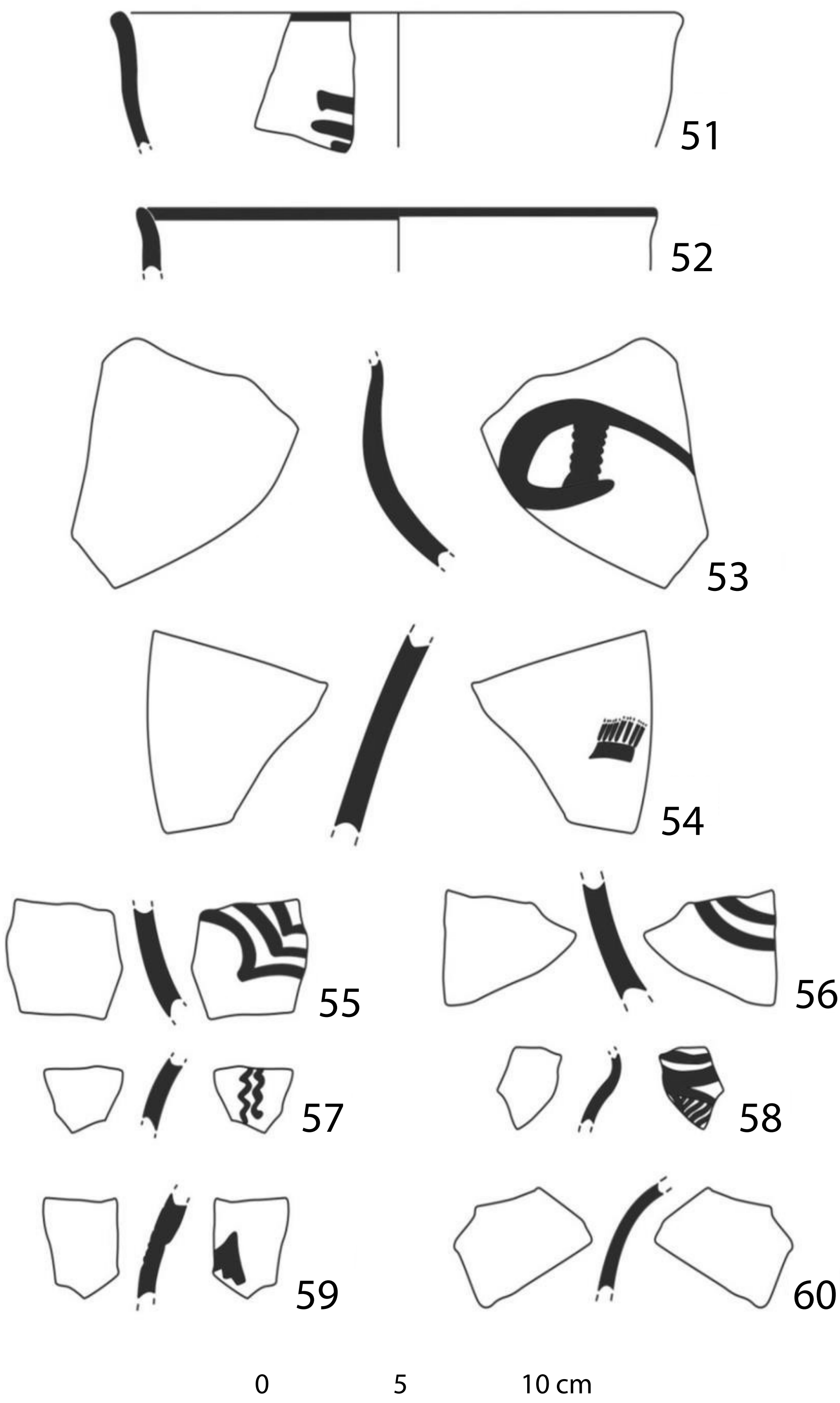


Figure A.116 Significant potsherds No. 51–60 from S.T.3, S.U.1, Tepe Sadegh.

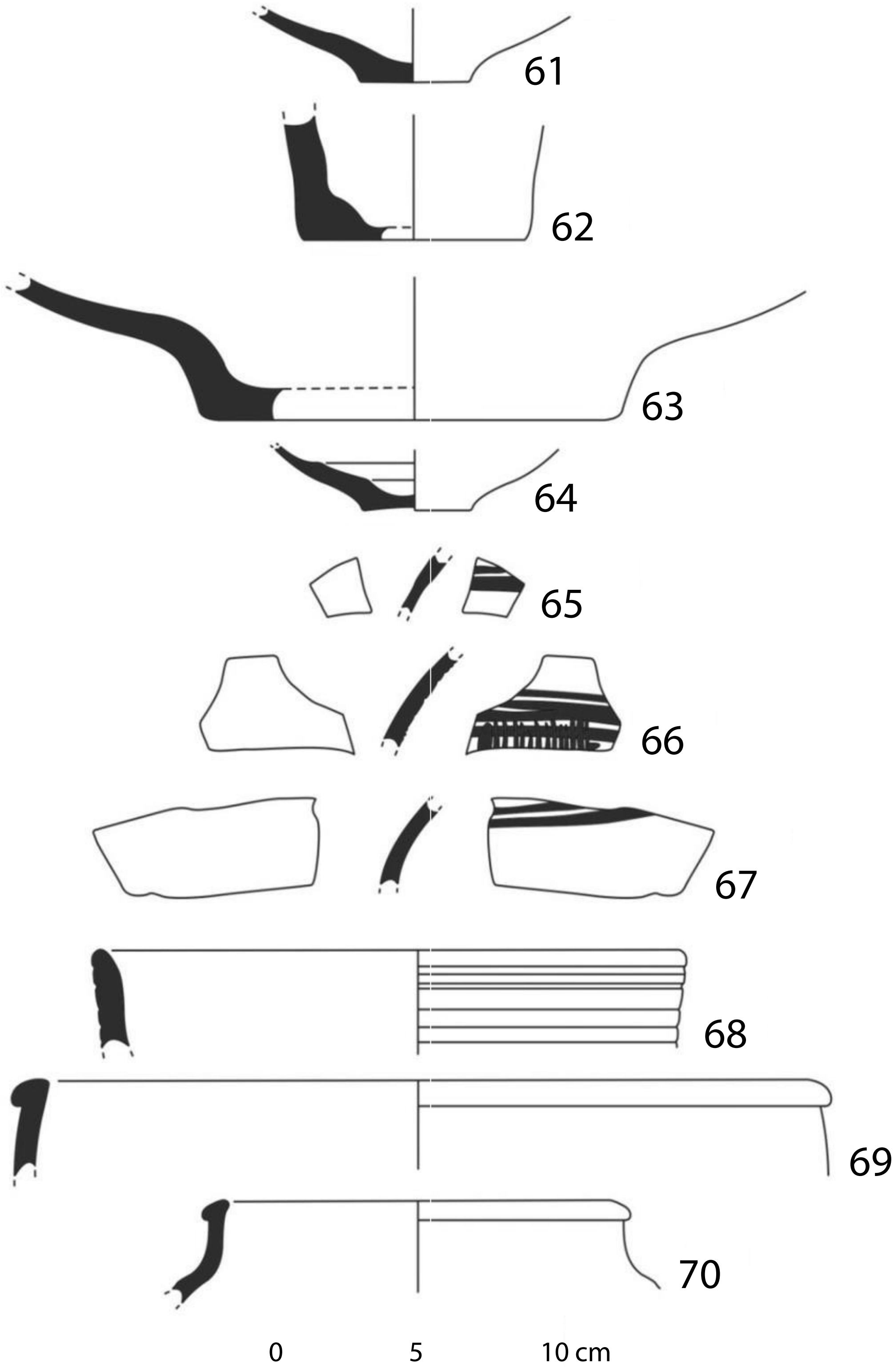


Figure A.117 Significant potsherds No. 61–70 from S.T.3, S.U.1, Tepe Sadegh.

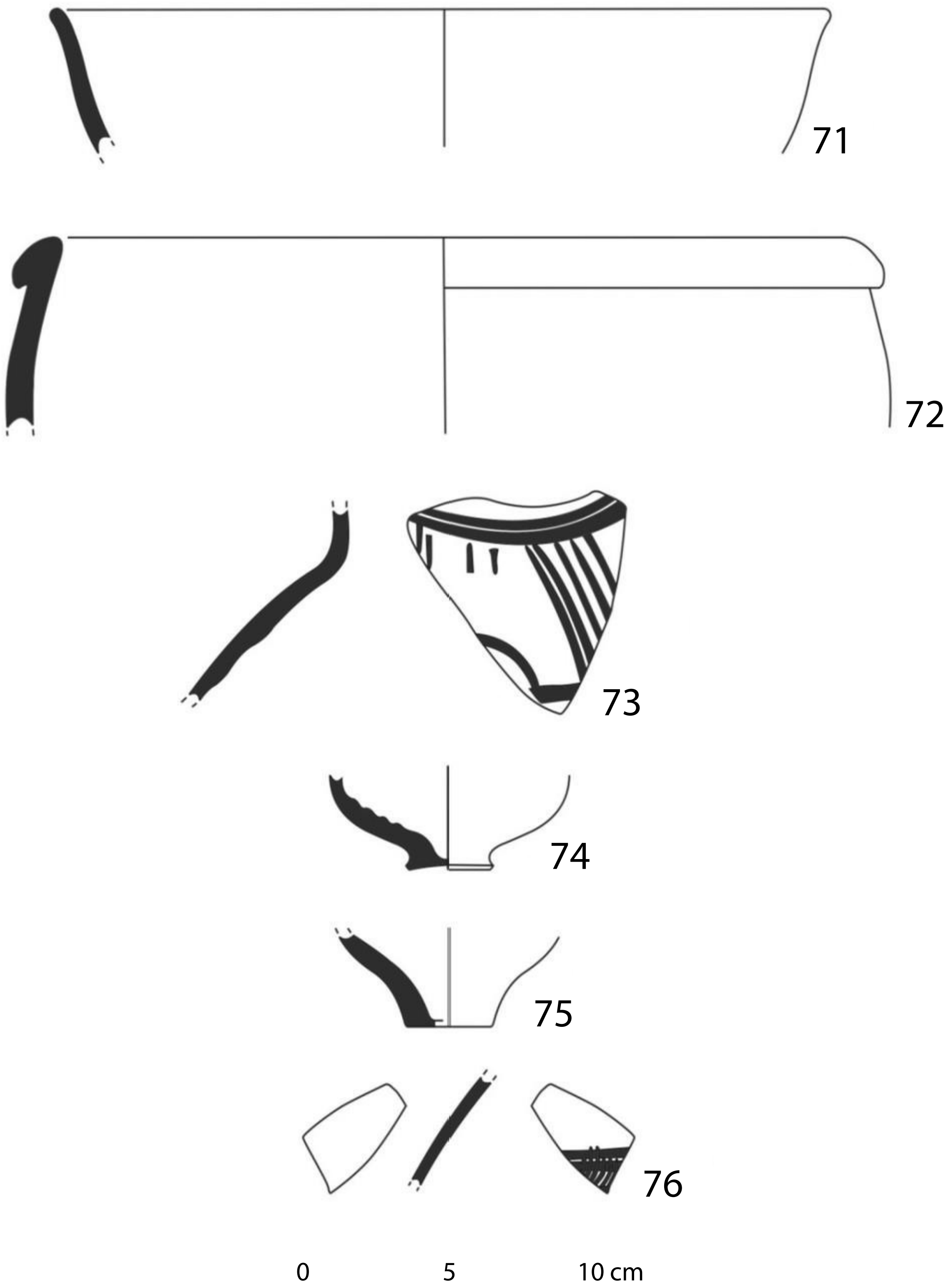


Figure A.118 Significant potsherds No. 71–76 from S.T.3, S.U.1, Tepe Sadegh.

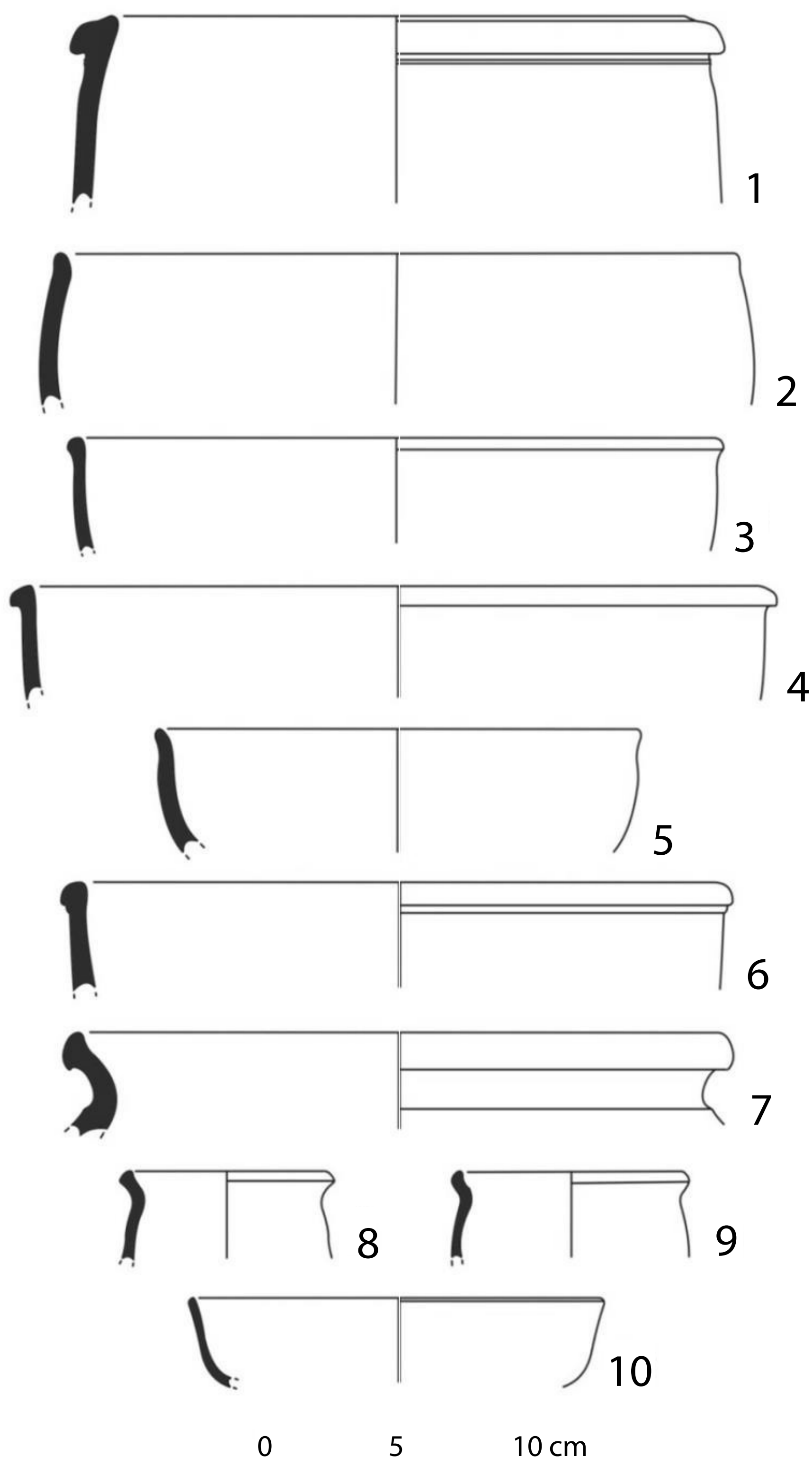


Figure A.119 Significant potsherds No. 1–10 from S.T.3, S.U.2, Tepe Sadegh.

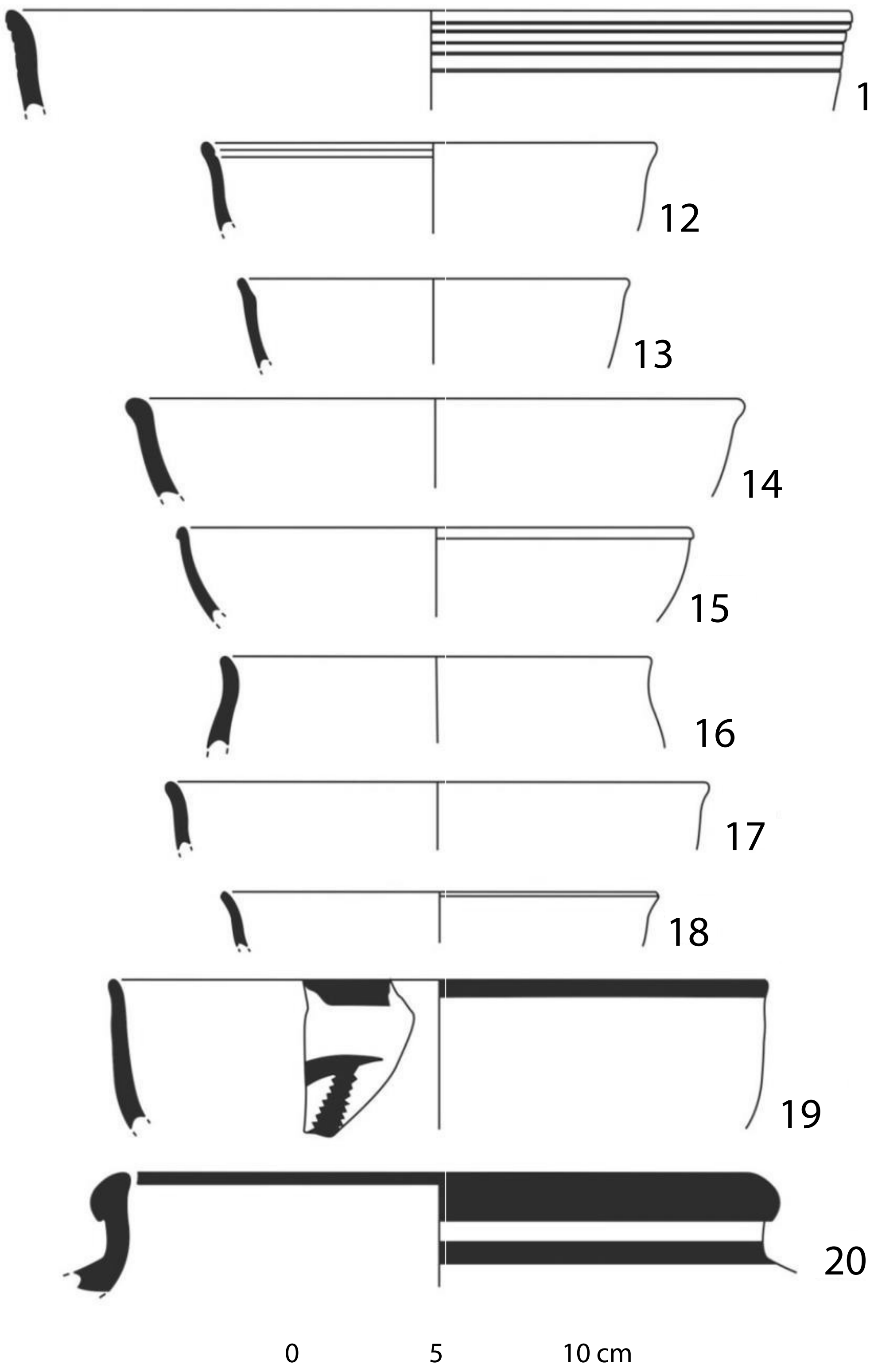


Figure A.120 Significant potsherds No. 11–20 from S.T.3, S.U.2, Tepe Sadegh.

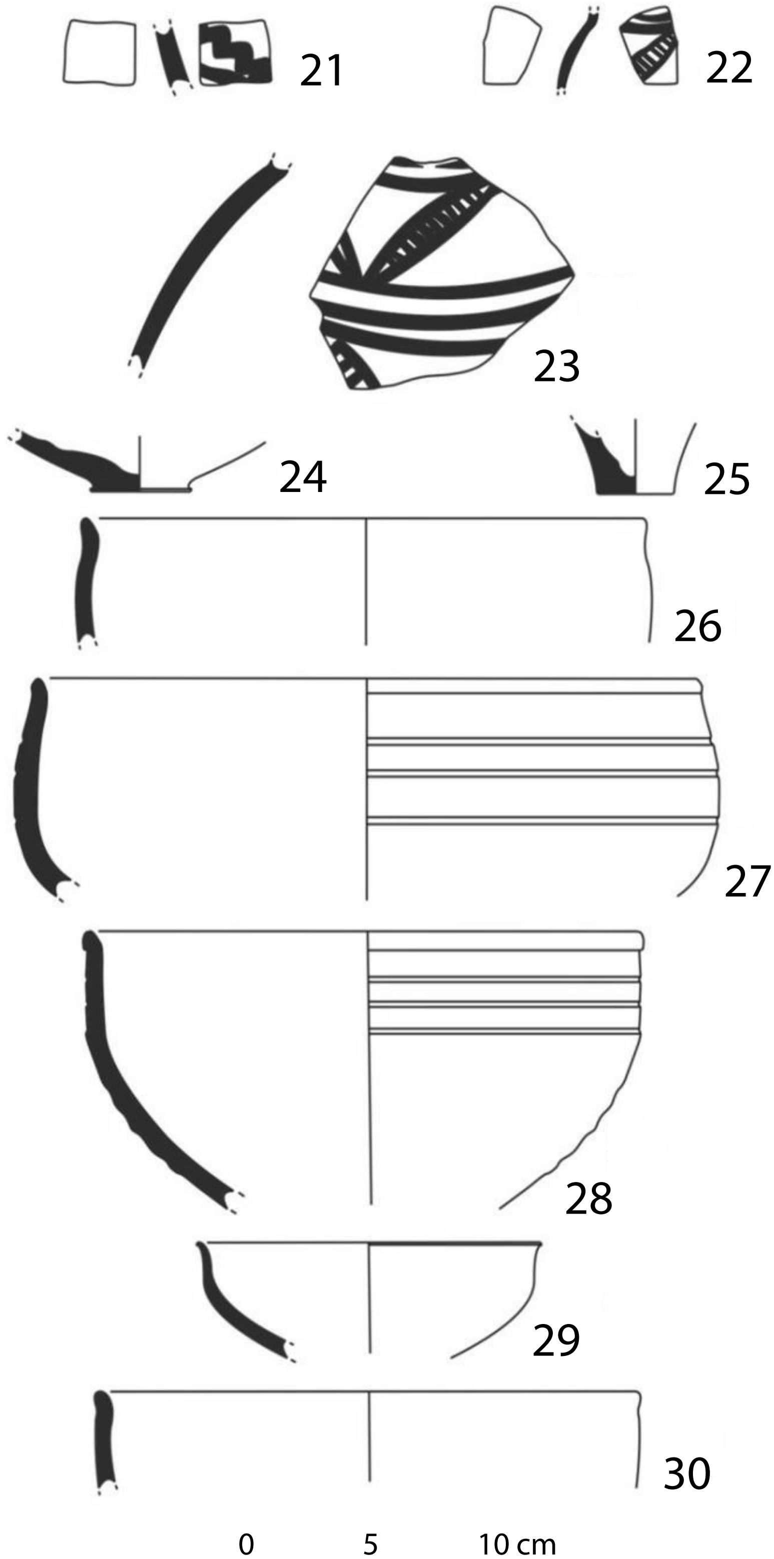


Figure A.121 Significant potsherds No. 21–30 from S.T.3, S.U.2, Tepe Sadegh.

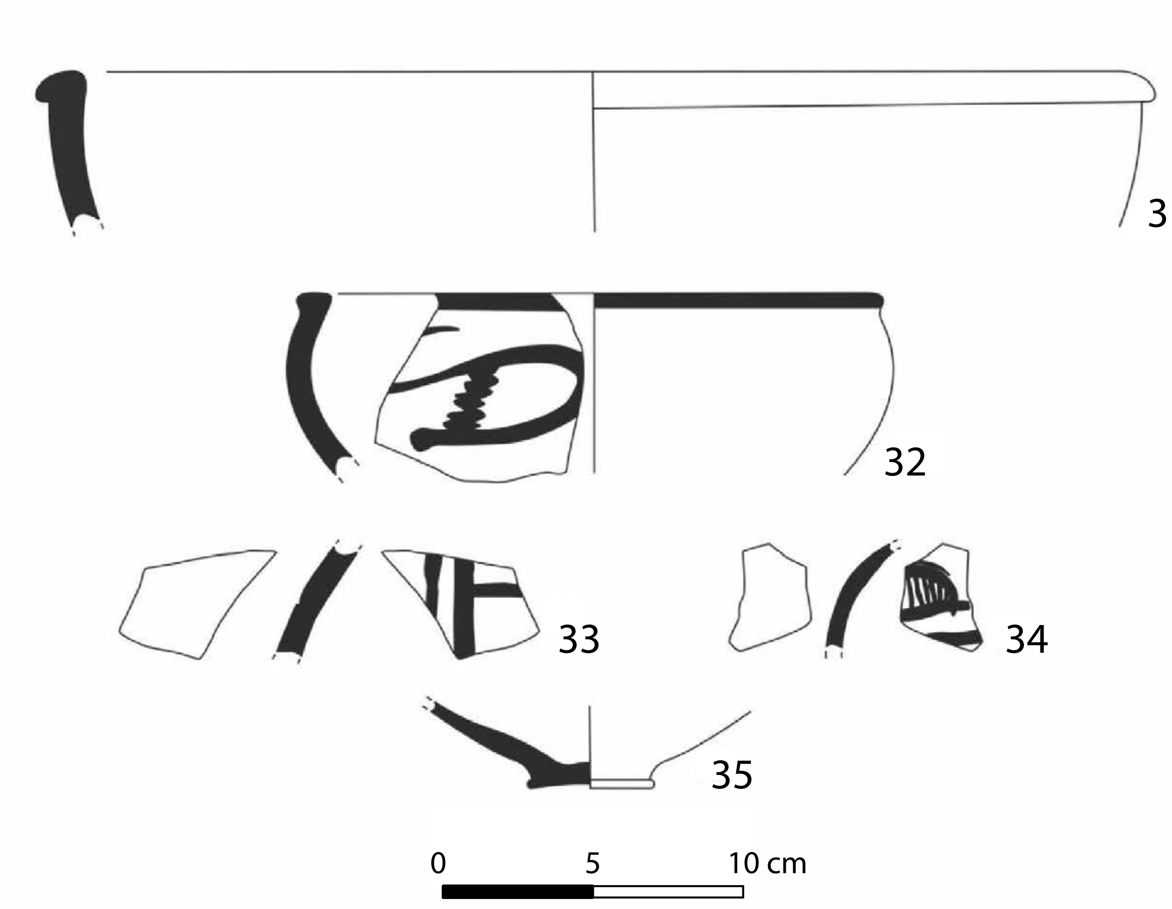


Figure A.122 Significant potsherds No. 31–35 from S.T.3, S.U.2, Tepe Sadegh.

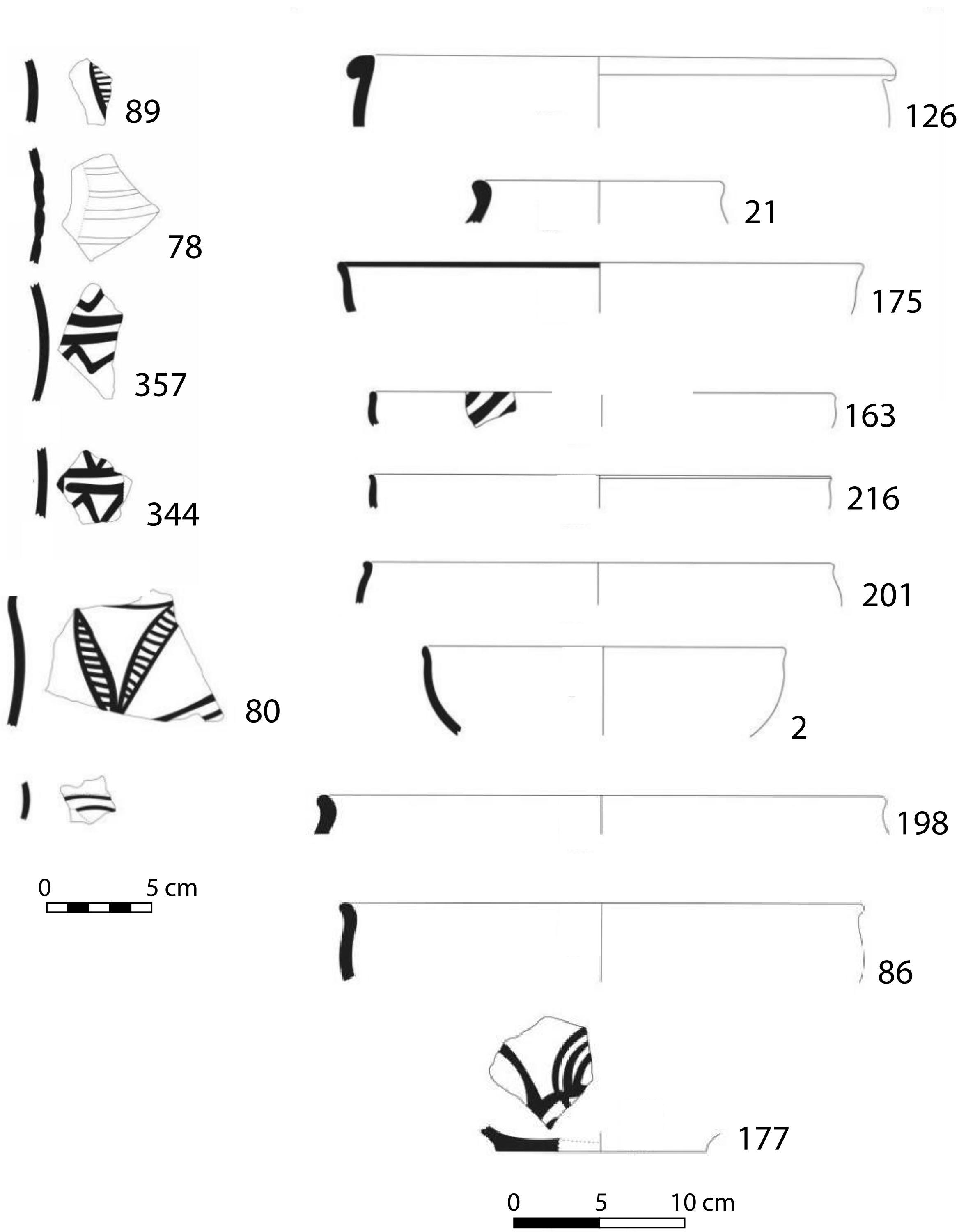


Figure A.123 Significant potsherds from S.T.7, S.U.1, Tepe Sadegh.

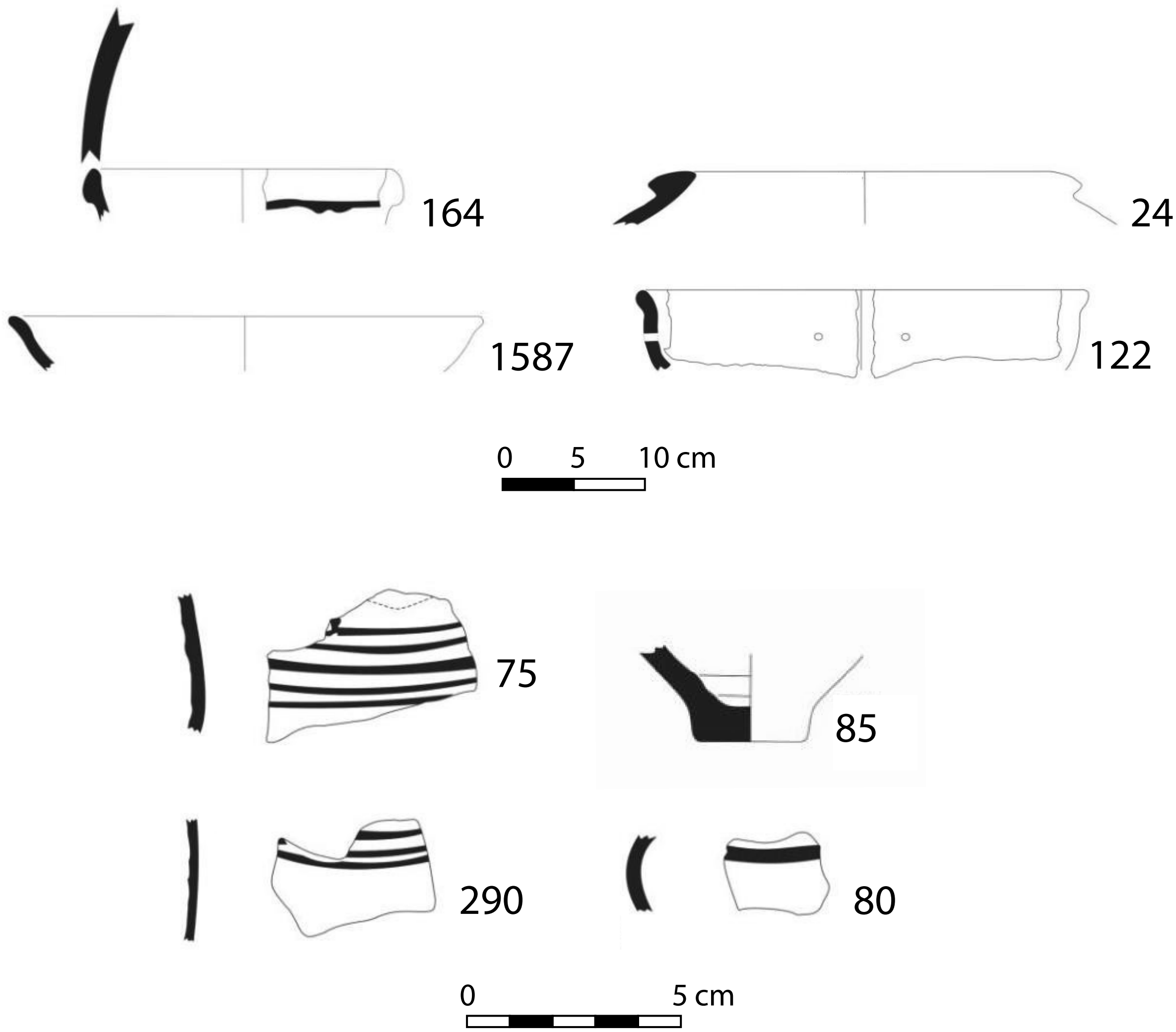


Figure A.124 Significant potsherds from S.T.7, S.U.1, Tepe Sadegh.

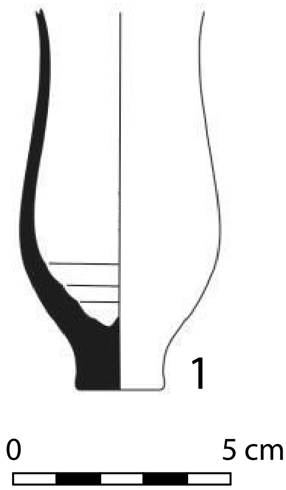


Figure A.125 Significant potsherds from S.T.7, S.U.2, Tepe Sadegh.

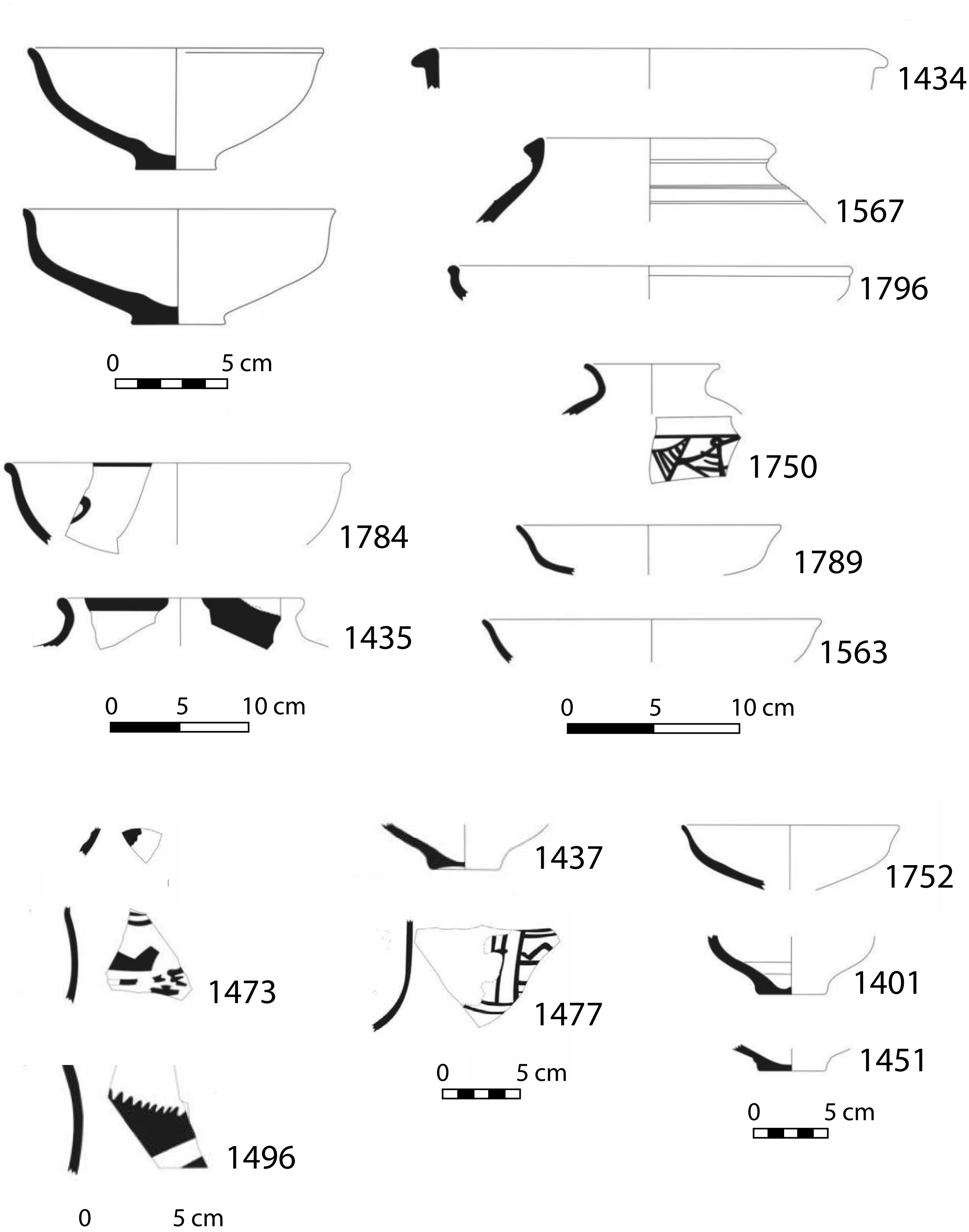


Figure A.126 Significant potsherds from S.T.7, S.U.3, Tepe Sadegh.

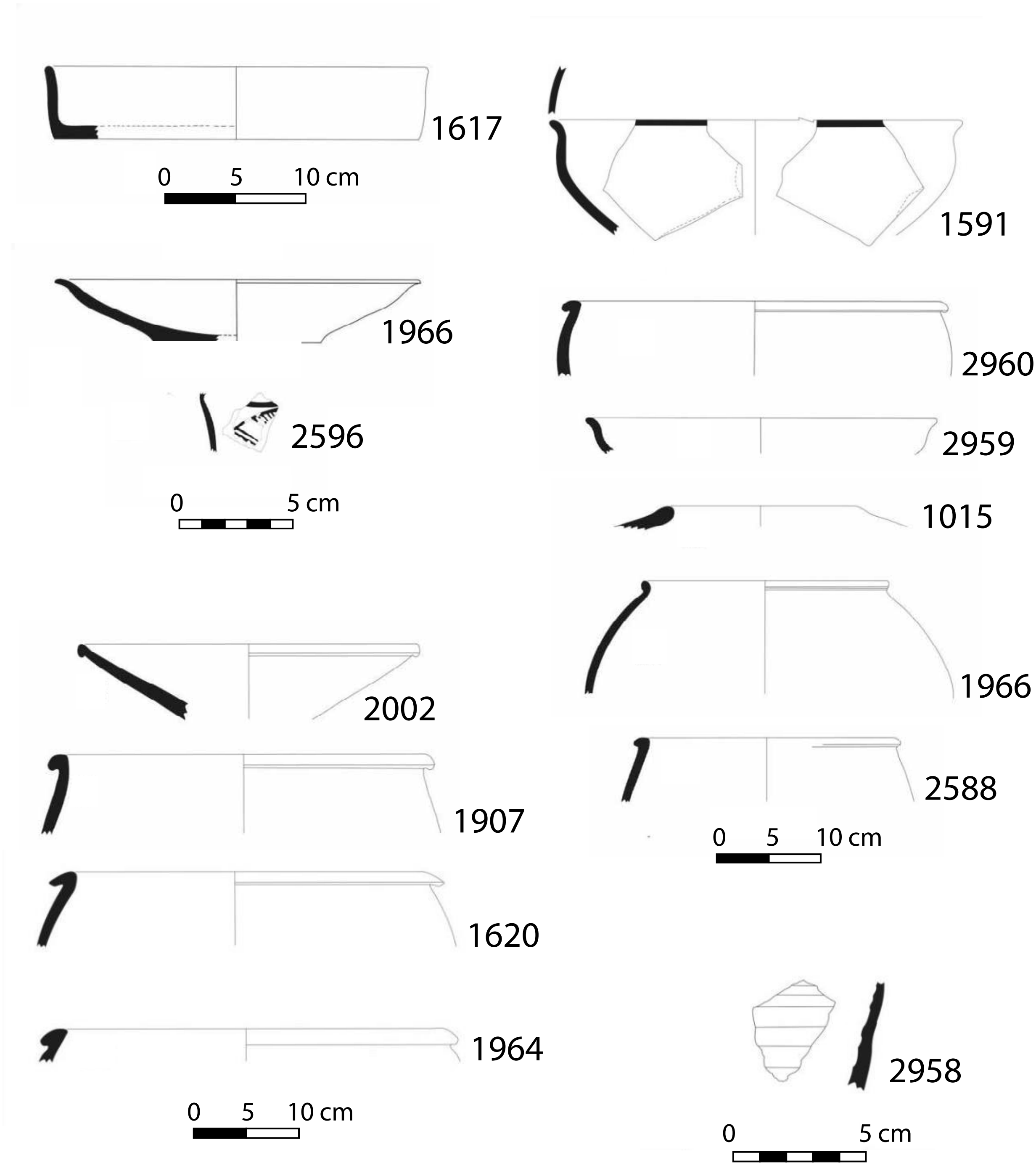


Figure A.127 Significant potsherds from S.T.7, S.U.6, Tepe Sadegh.

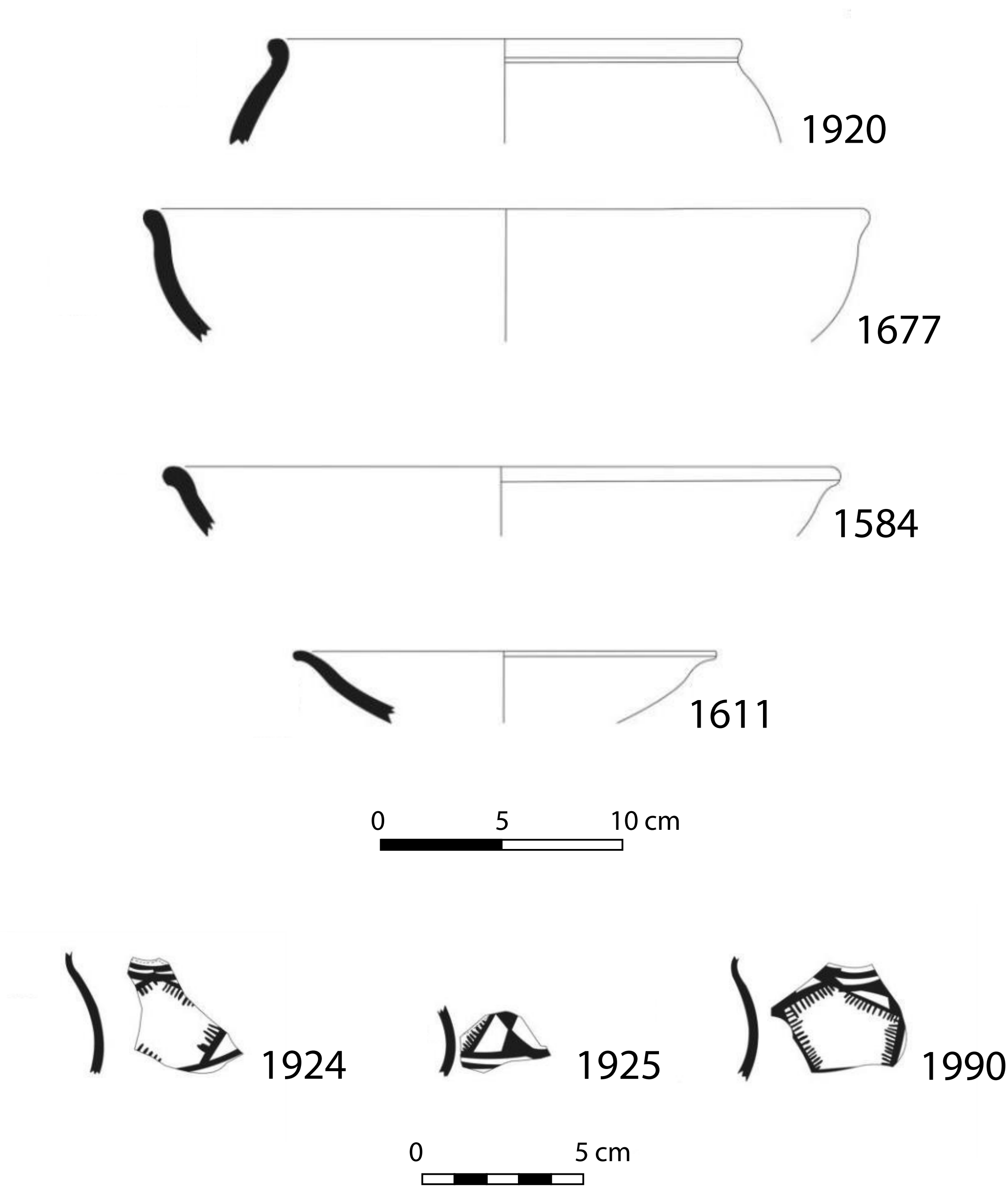


Figure A.128 Significant potsherds from S.T.7, S.U.6, Tepe Sadegh.

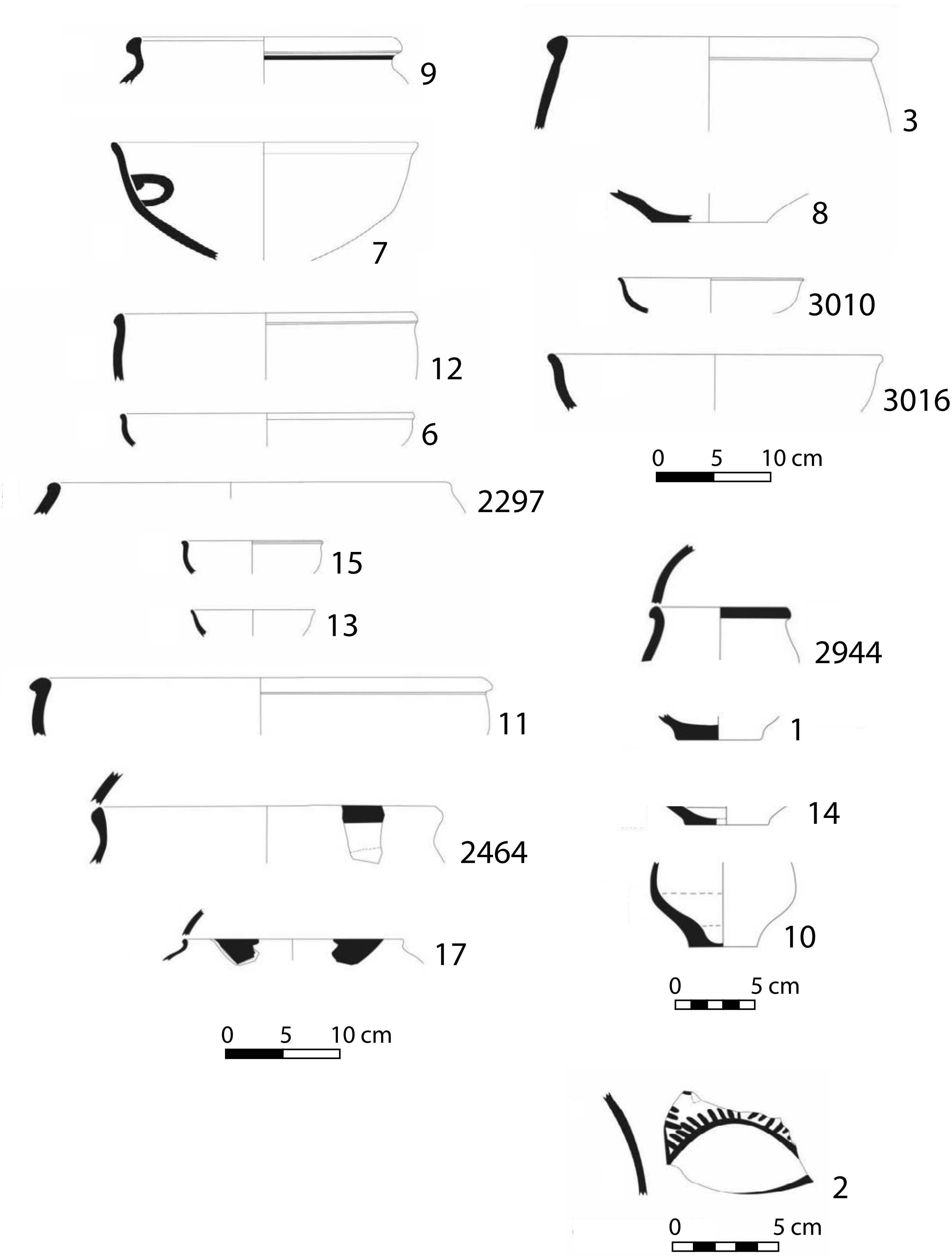


Figure A.129 Significant potsherds from S.T.7, S.U.8, Tepe Sadegh.

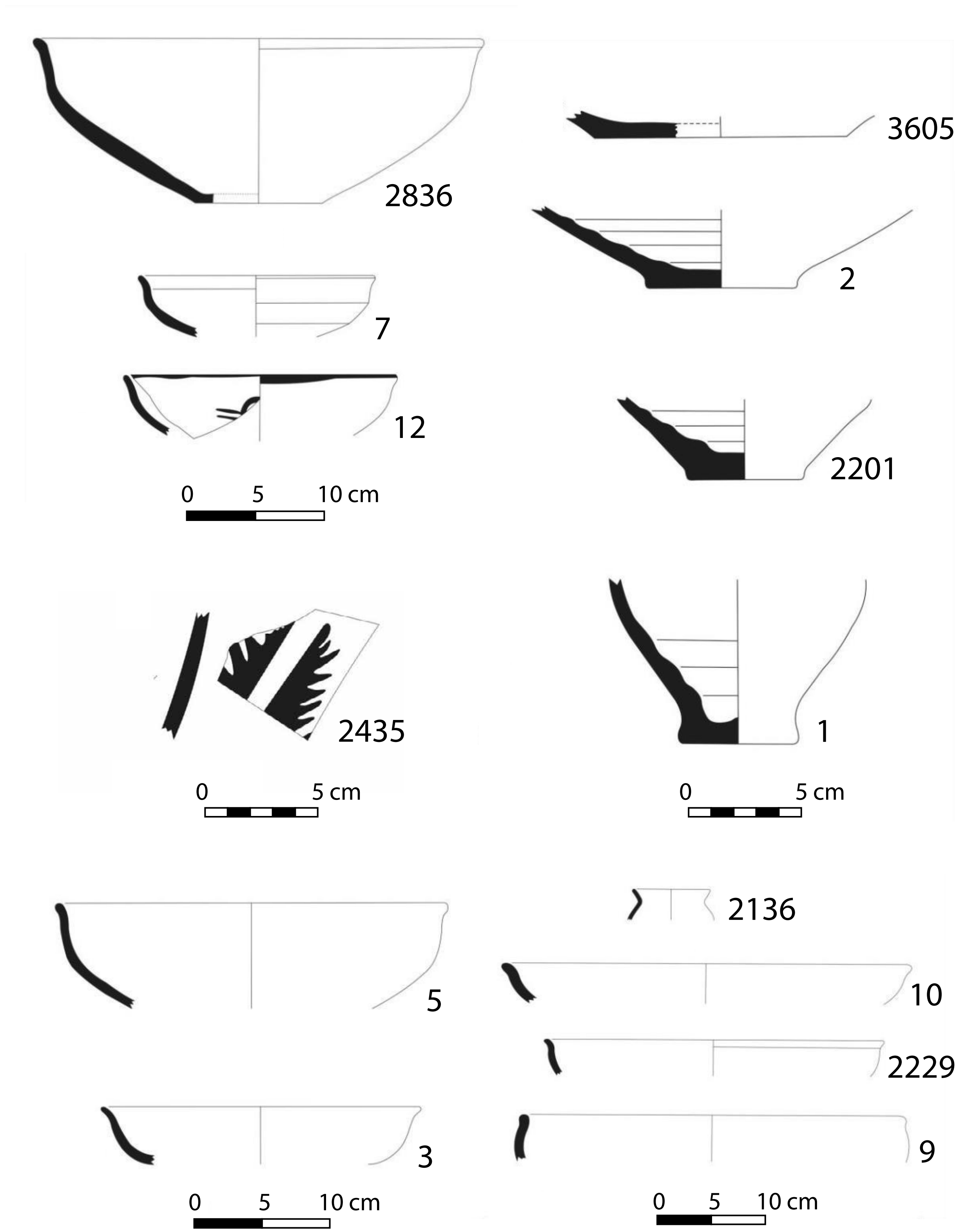
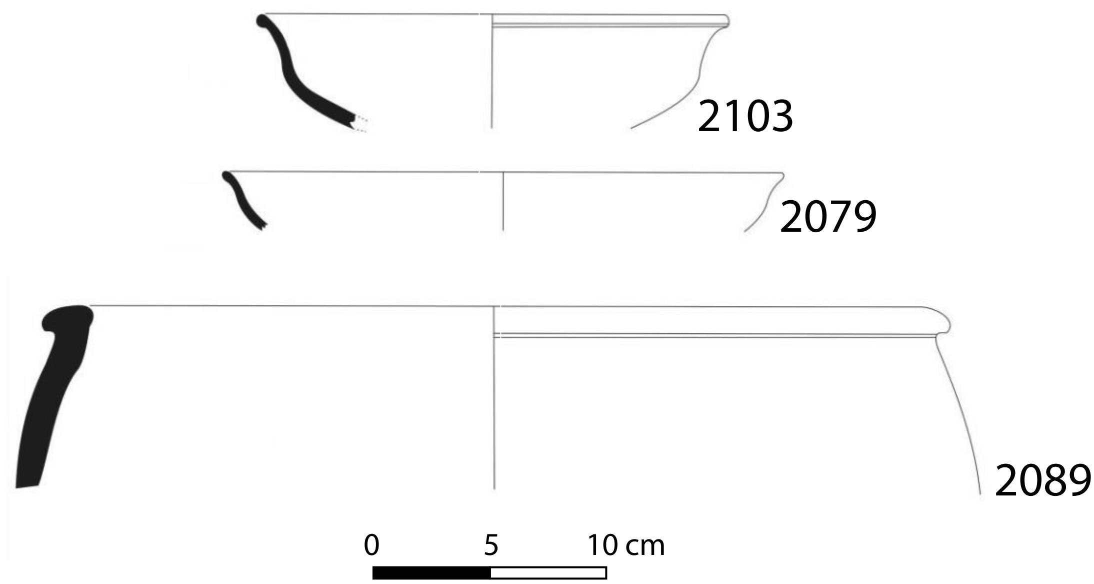


Figure A.130 Significant potsherds from S.T.7, S.U.9, Tepe Sadegh.



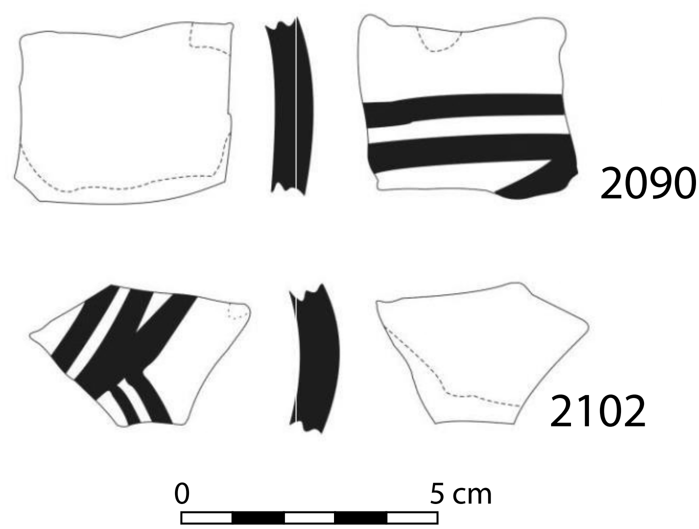


Figure A.131 Significant potsherds from S.T.7, S.U.15, Tepe Sadegh.

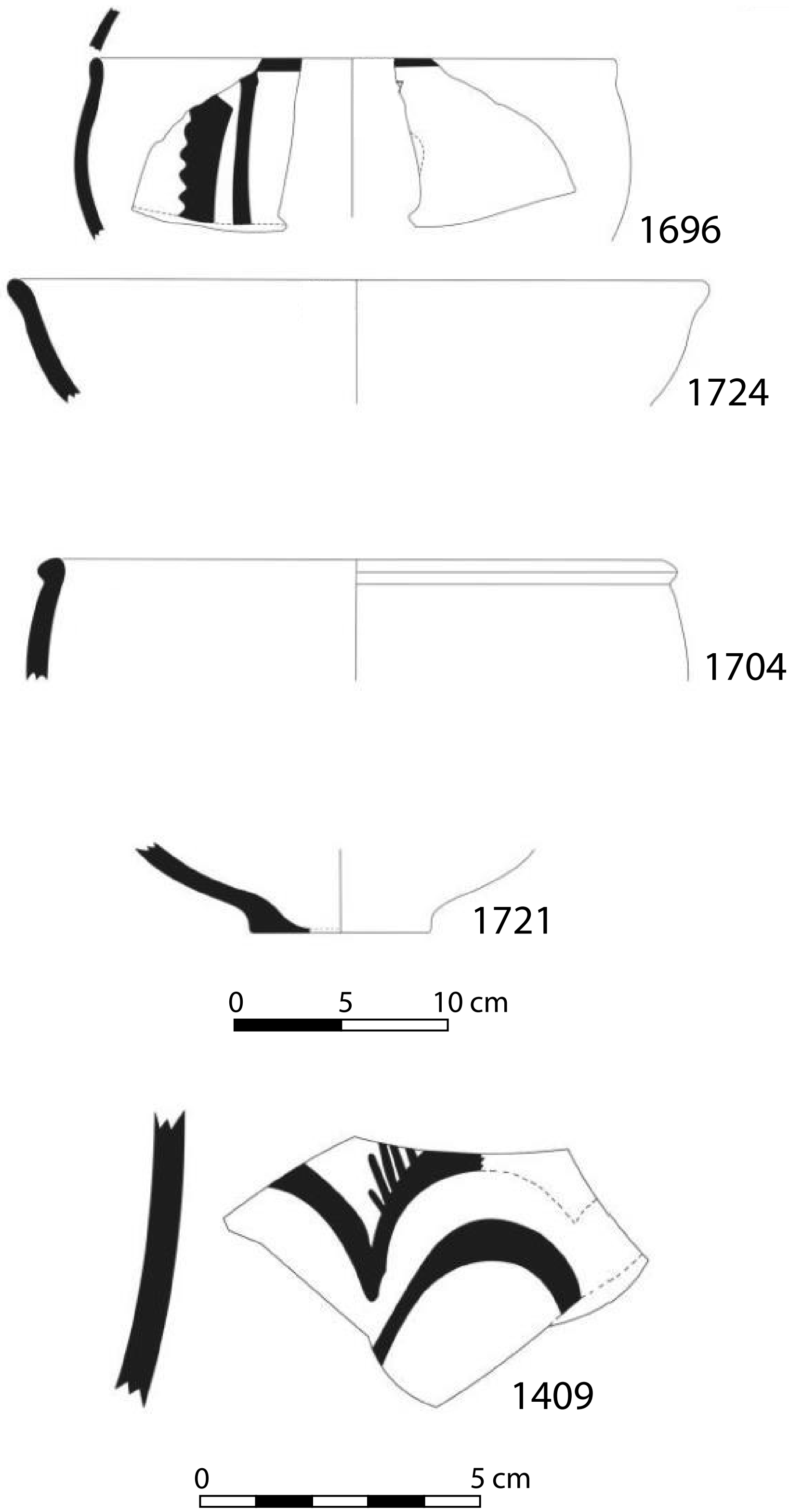


Figure A.132 Significant potsherds from S.T.7, S.U.17, Tepe Sadegh.

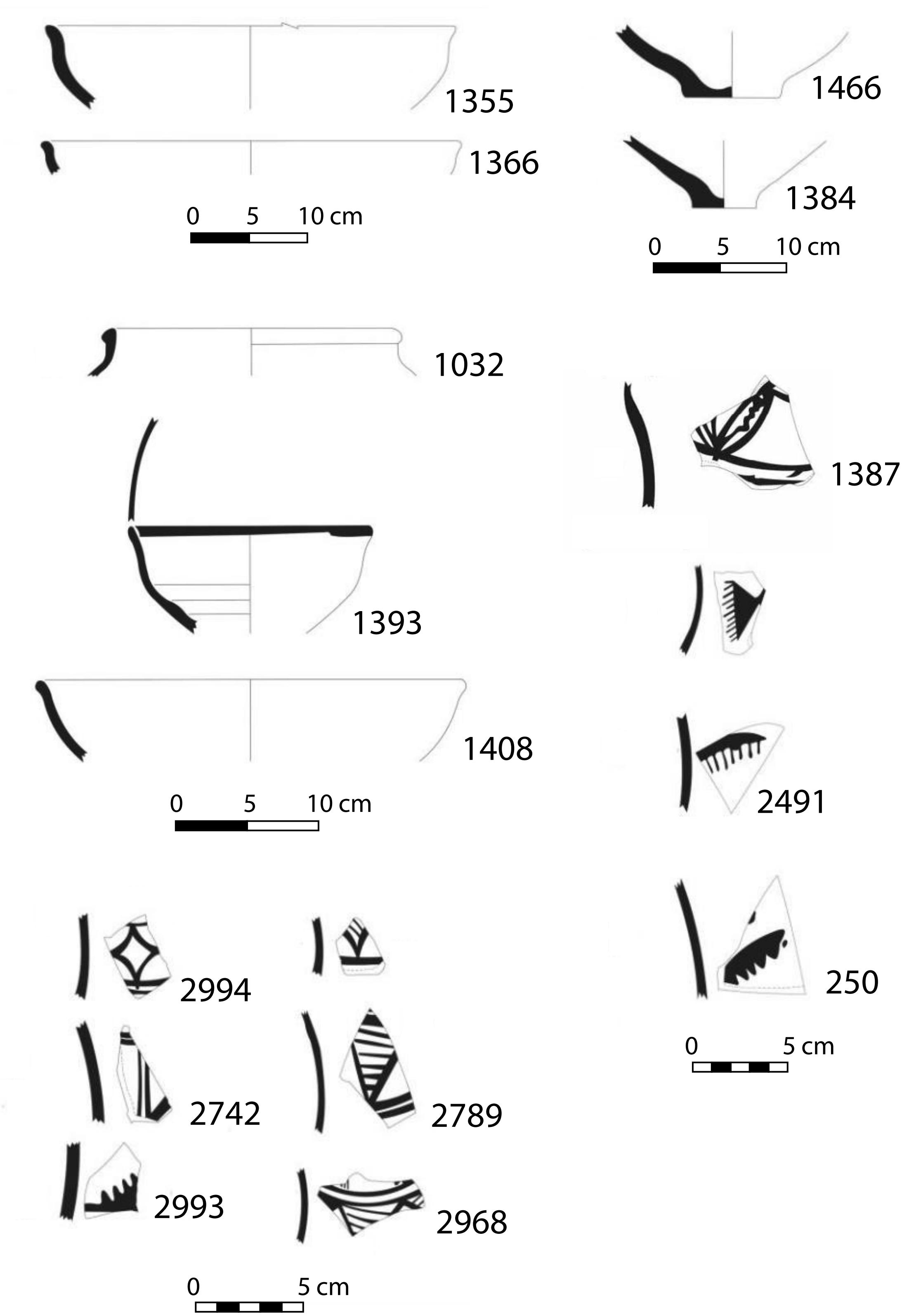


Figure A.133 Significant potsherds from S.T.7, S.U.18, Tepe Sadegh.

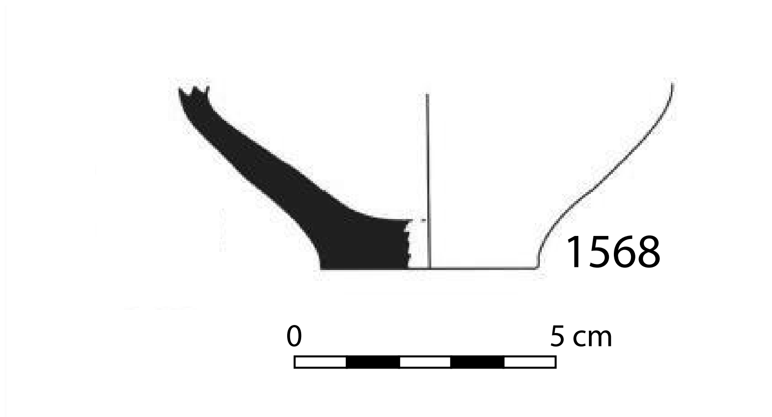


Figure A.134 Significant potsherds from S.T.7, S.U.20, Tepe Sadegh.

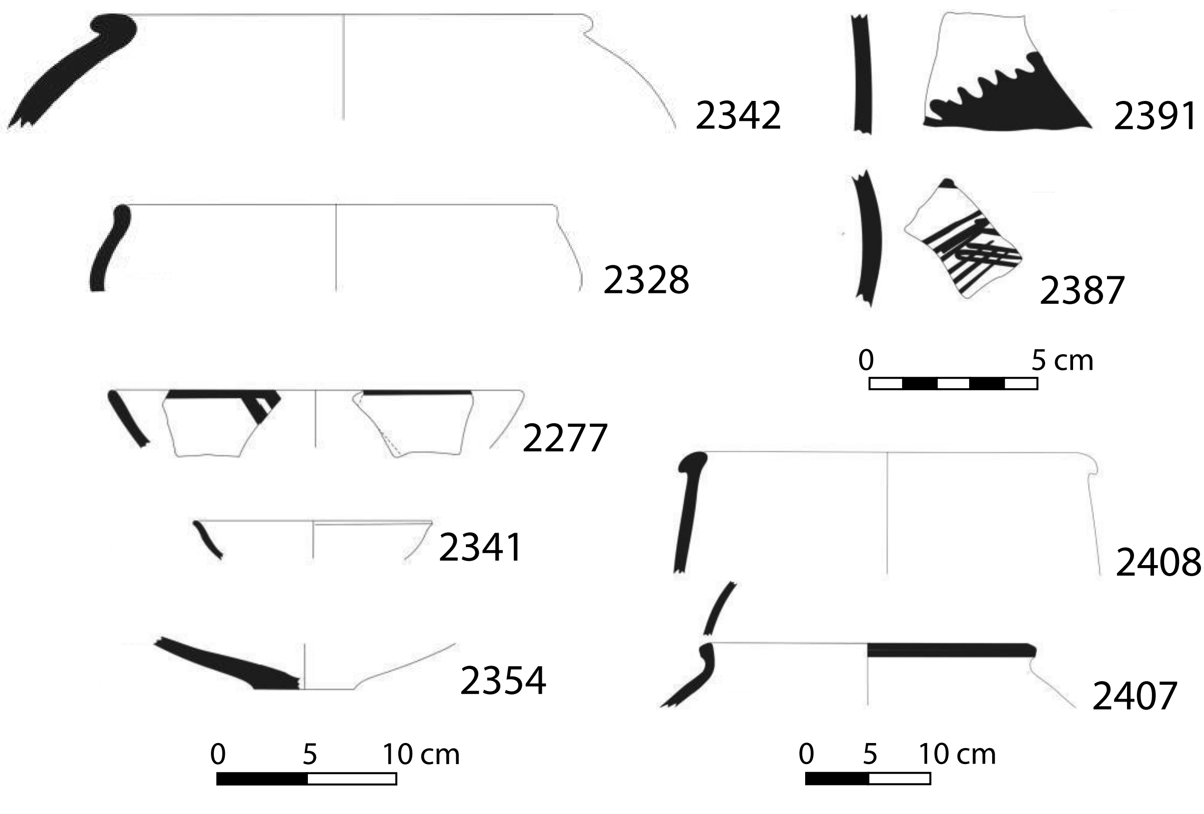


Figure A.135 Significant potsherds from S.T.7, S.U.23, Tepe Sadegh.

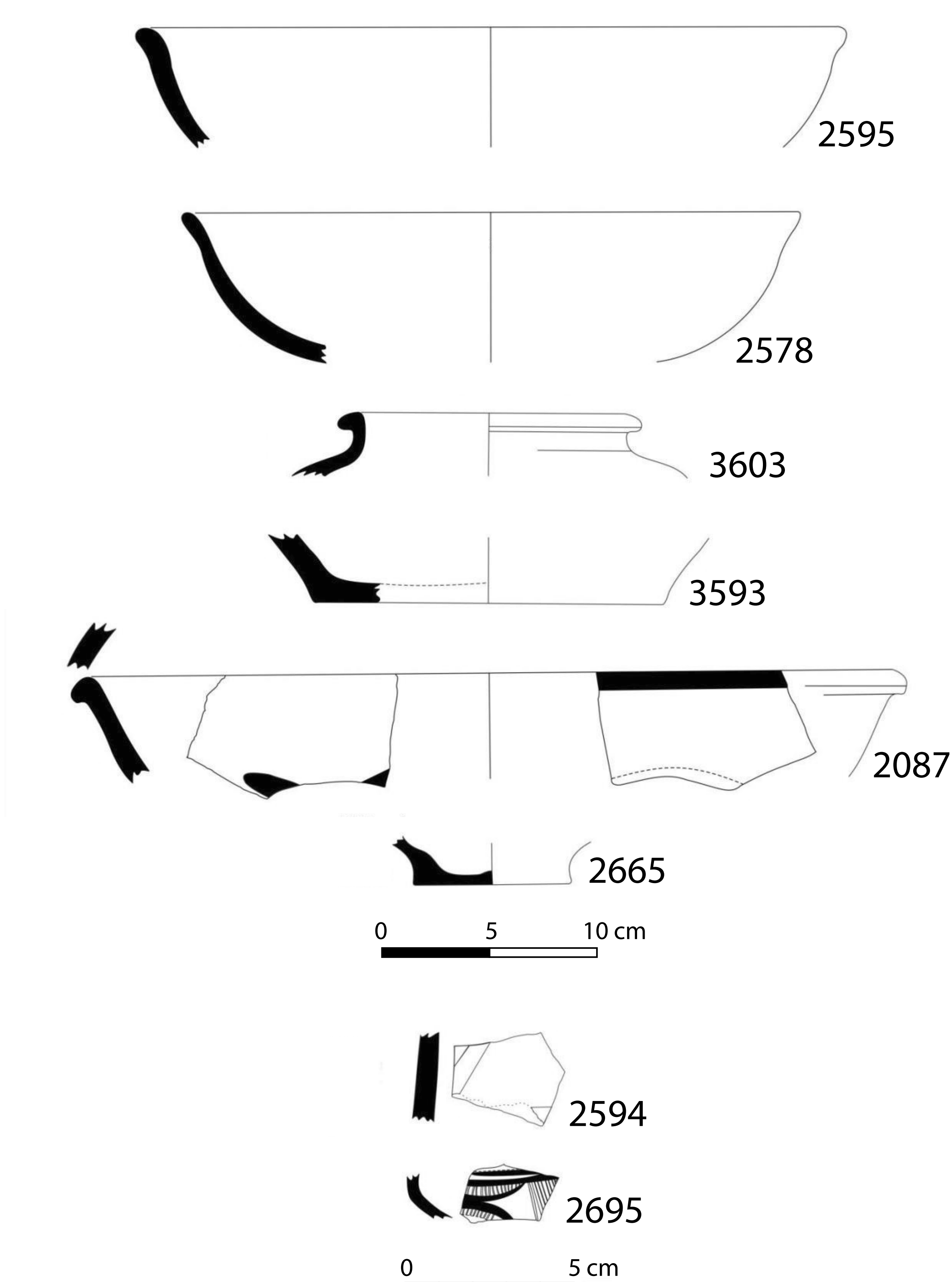


Figure A.136 Significant potsherds from S.T.7, S.U.25, Tepe Sadegh.

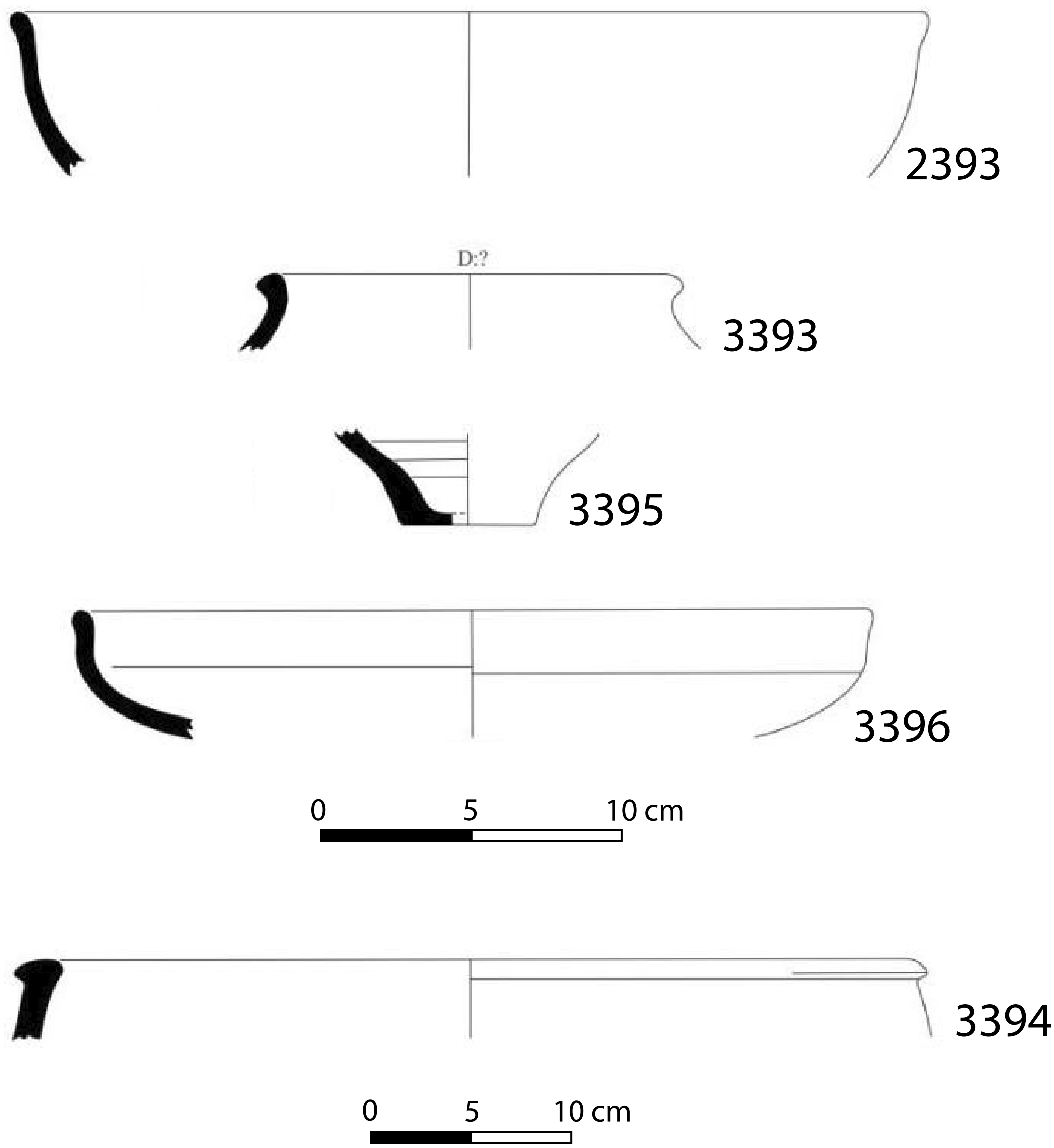


Figure A.137 Significant potsherds from S.T.7, S.U.26, Tepe Sadegh.

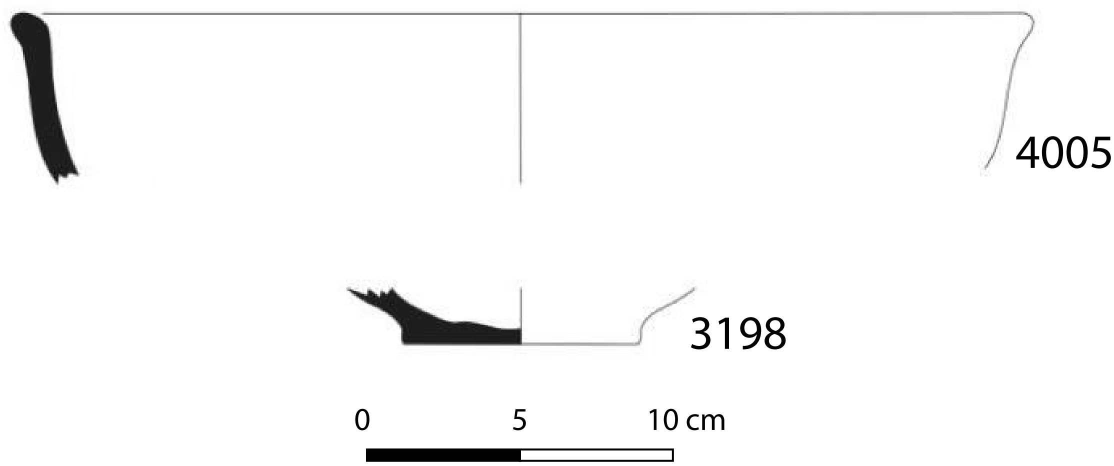


Figure A.138 Significant potsherds from S.T.7, S.U.29, Tepe Sadegh.

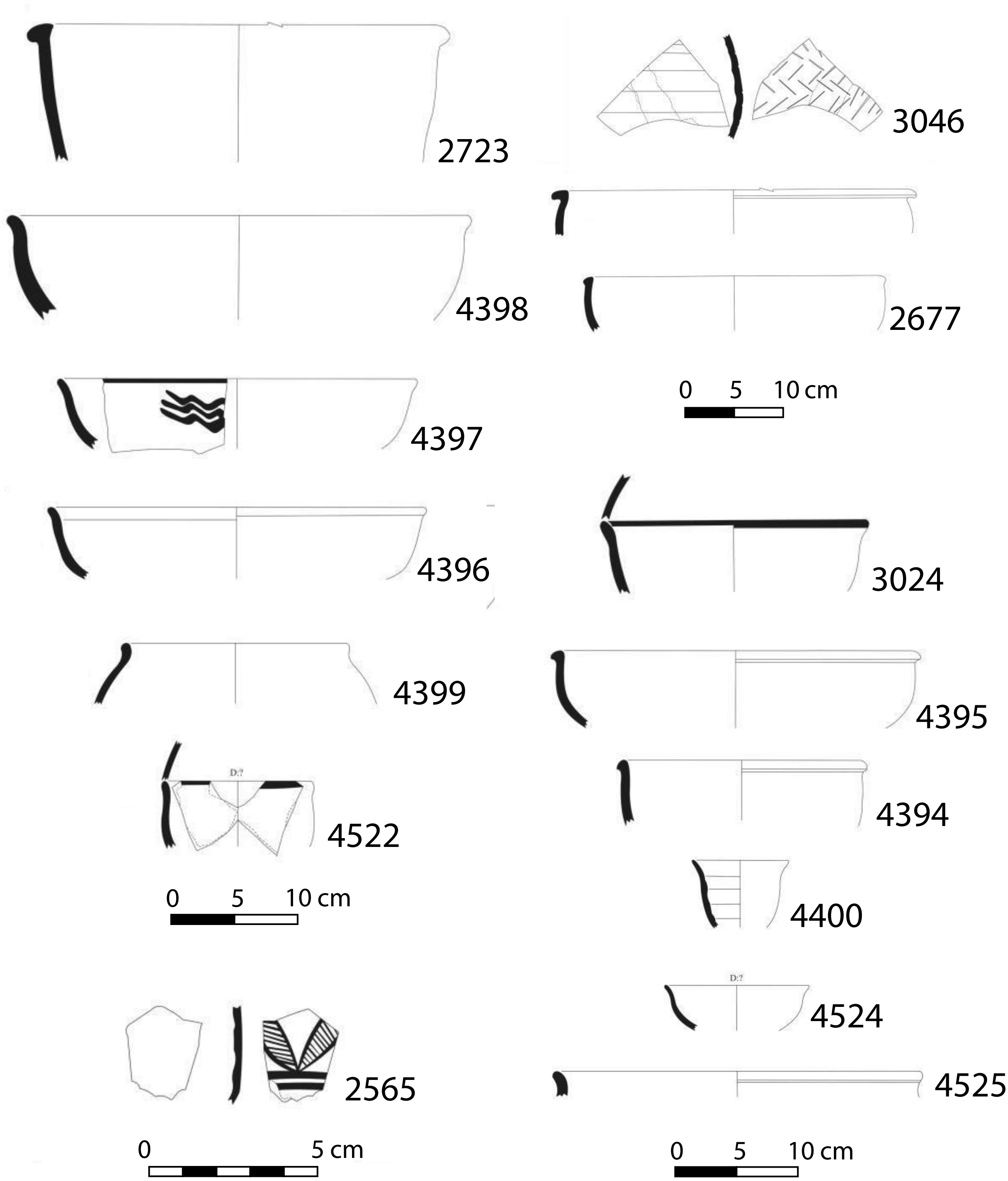


Figure A.139 Significant potsherds from S.T.7, S.U.32, Tepe Sadegh.

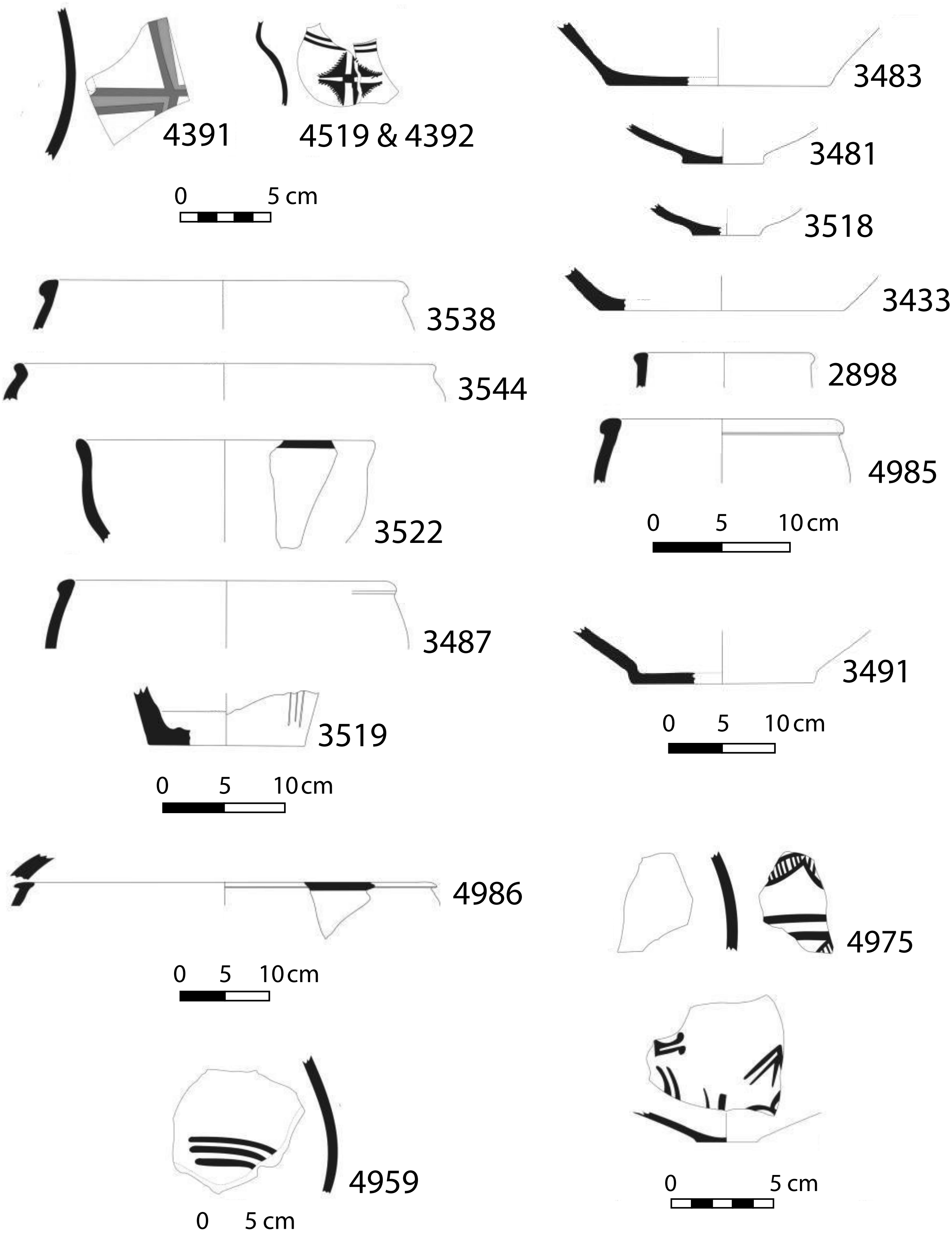


Figure A.140 Significant potsherds from S.T.7, S.U.32, Tepe Sadegh.

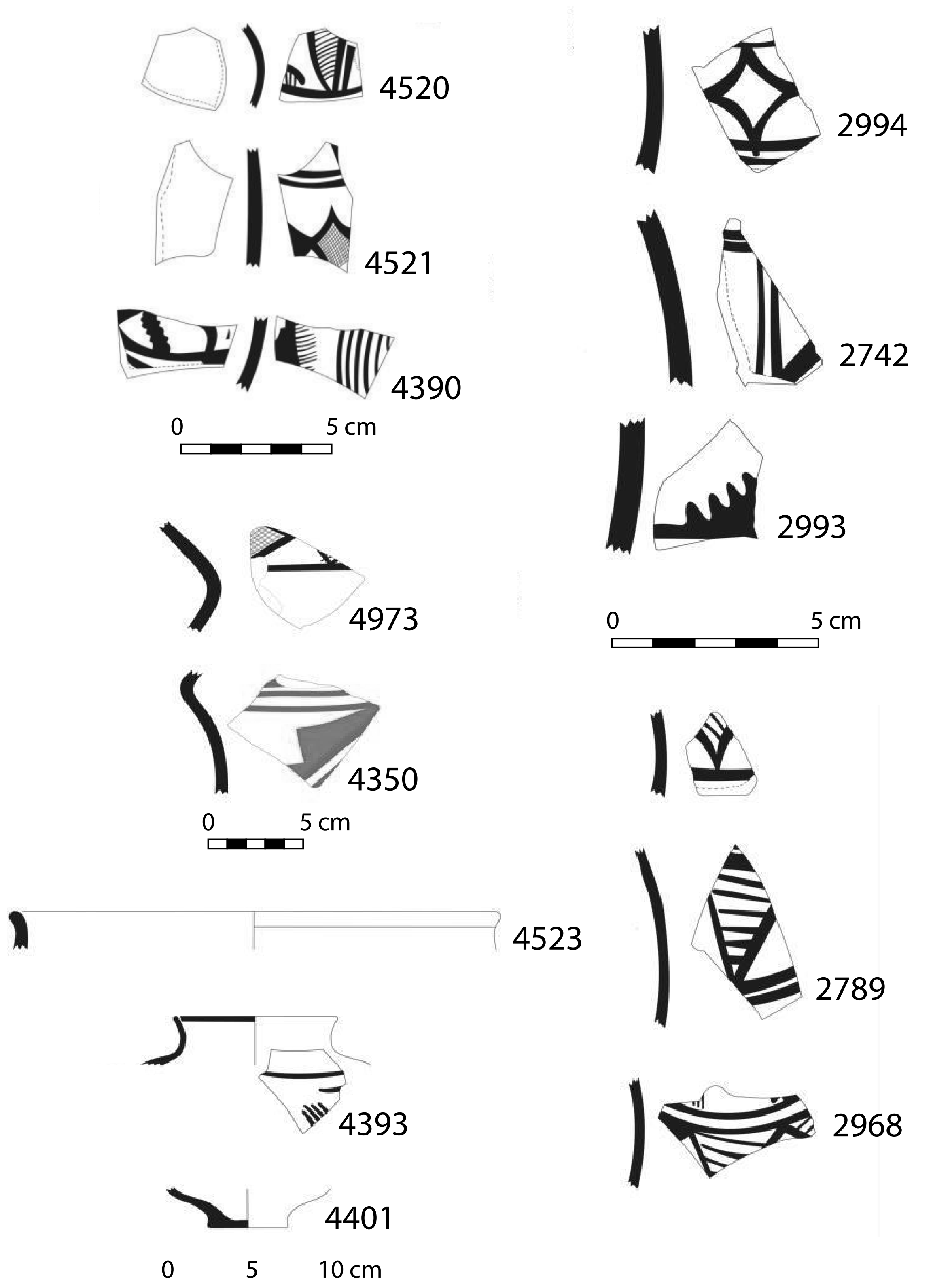


Figure A.141 Significant potsherds from S.T.7, S.U.32, Tepe Sadegh.

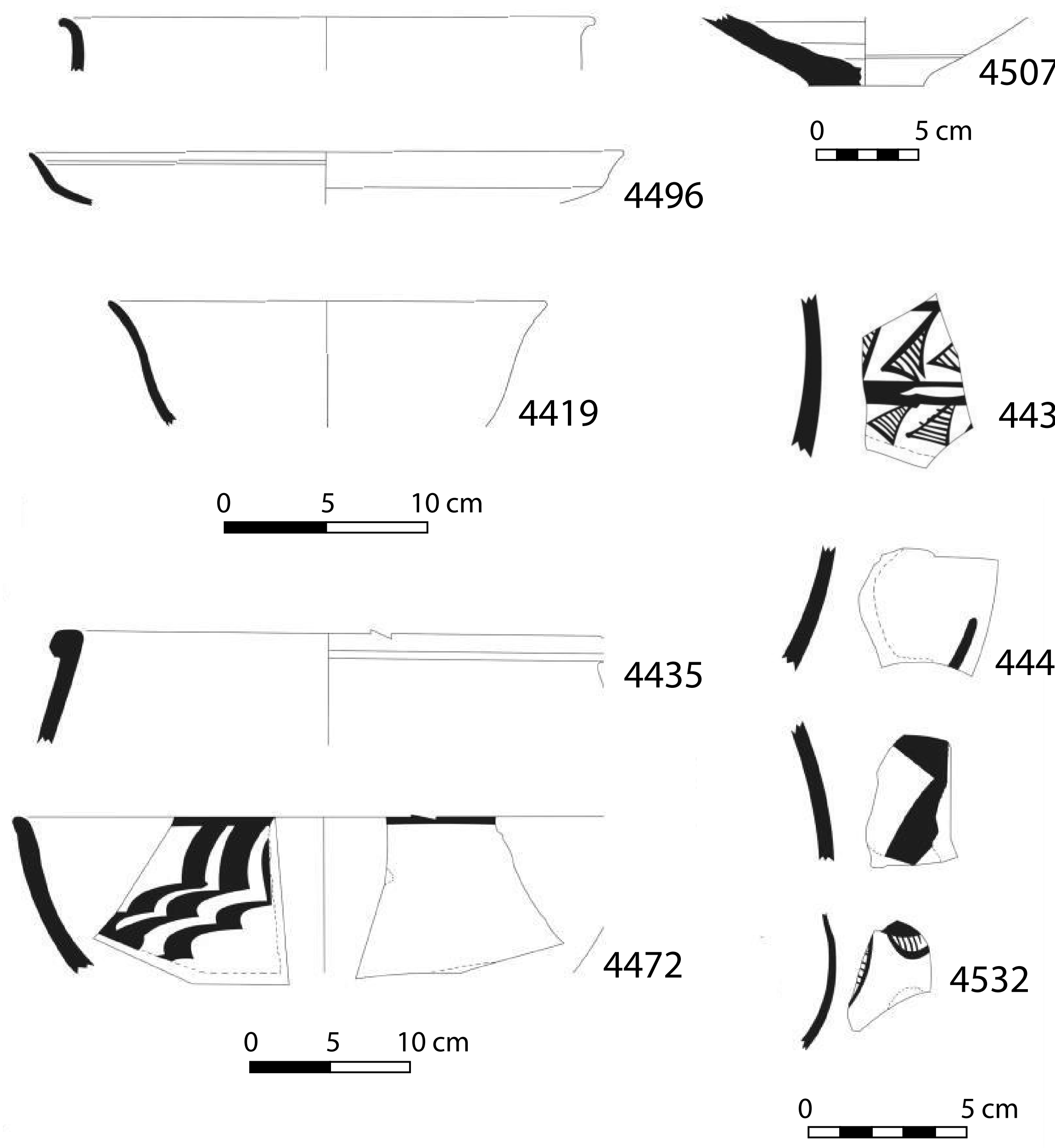


Figure A.142 Significant potsherds from S.T.7, S.U.35, Tepe Sadegh.

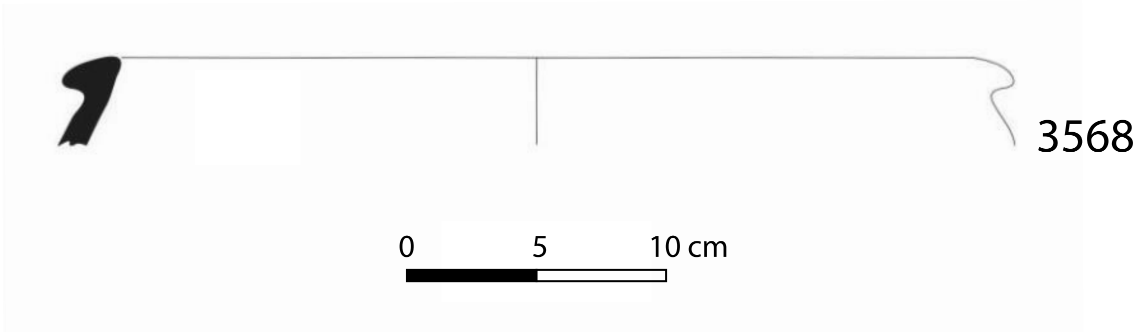


Figure A.143 Significant potsherds from S.T.7, S.U.40, Tepe Sadegh.

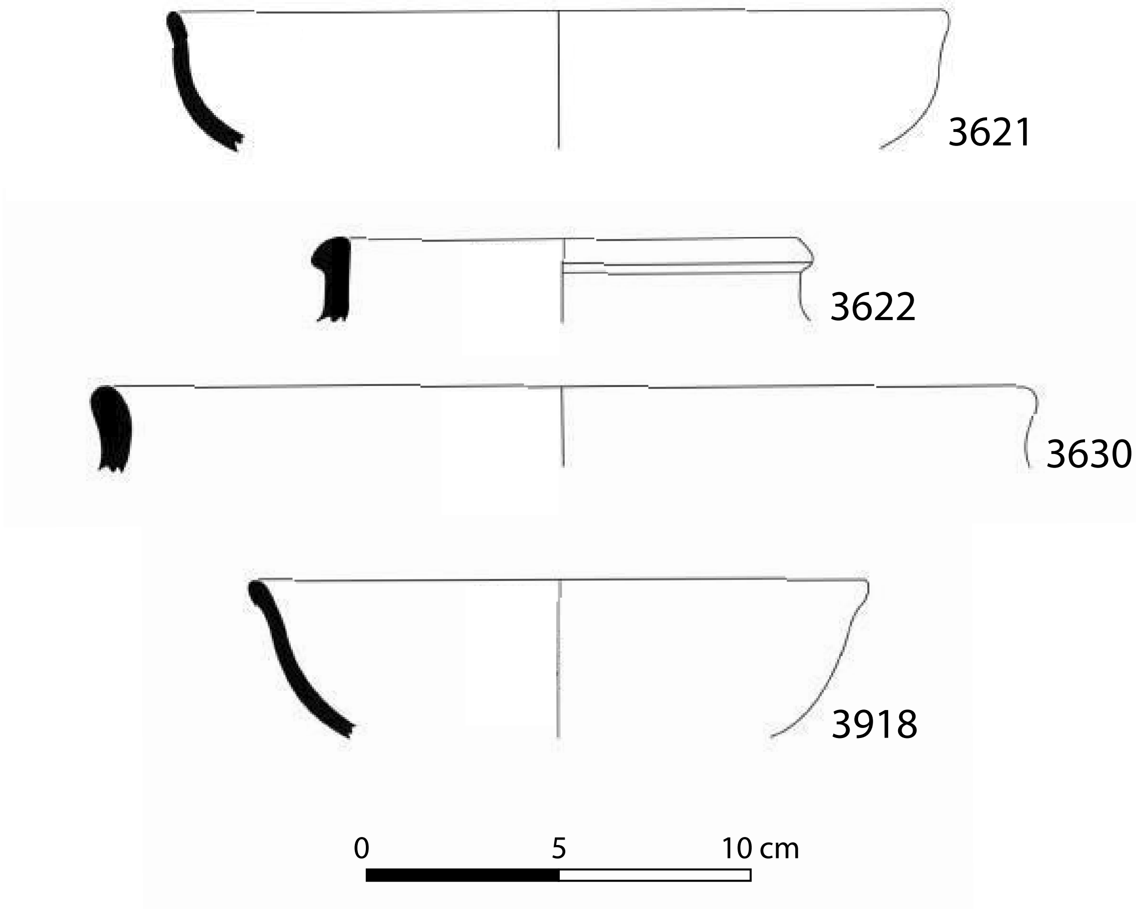


Figure A.144 Significant potsherds from S.T.7, S.U.41, Tepe Sadegh.

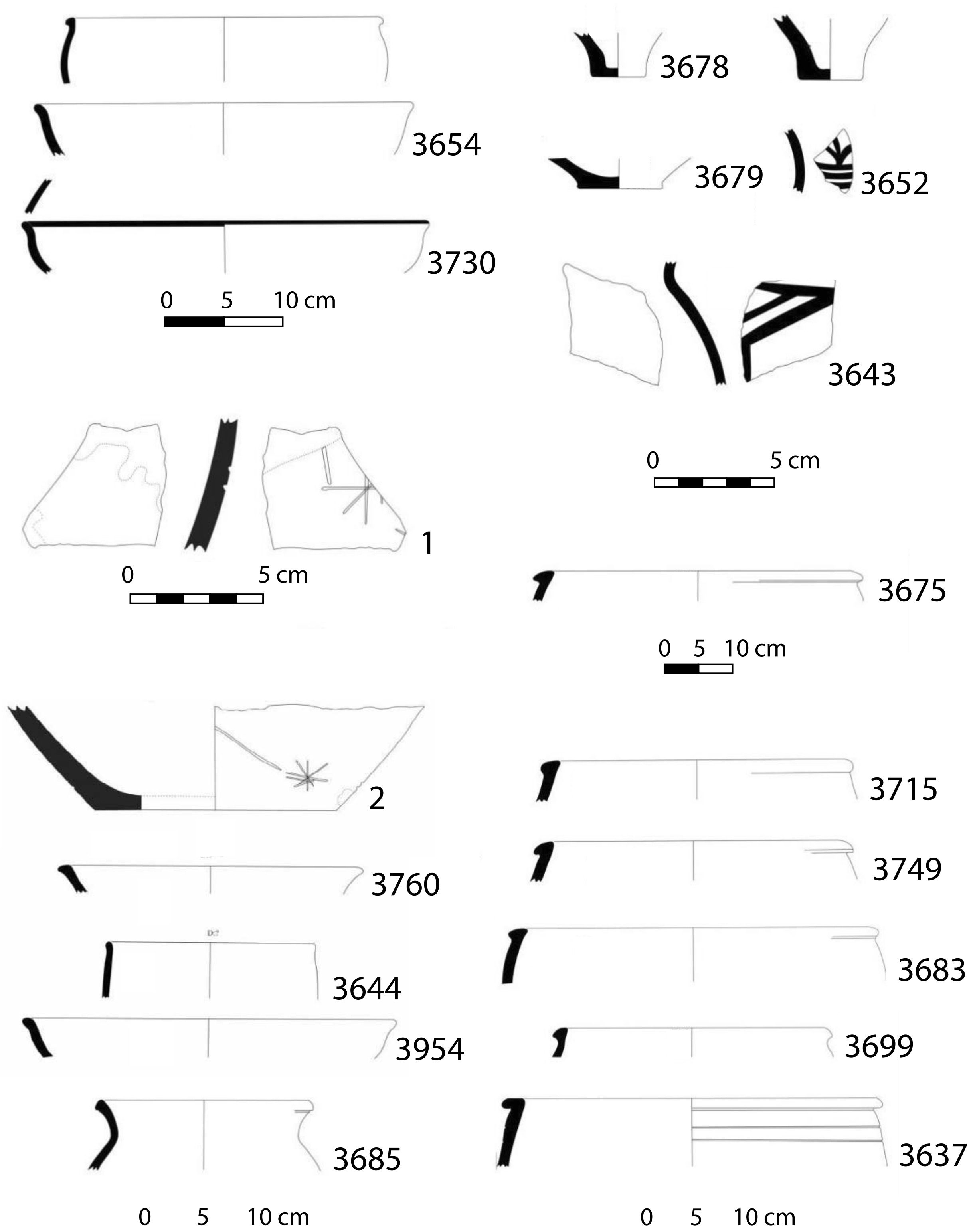


Figure A.145 Significant potsherds from S.T.8, S.U.1, Tepe Sadegh.

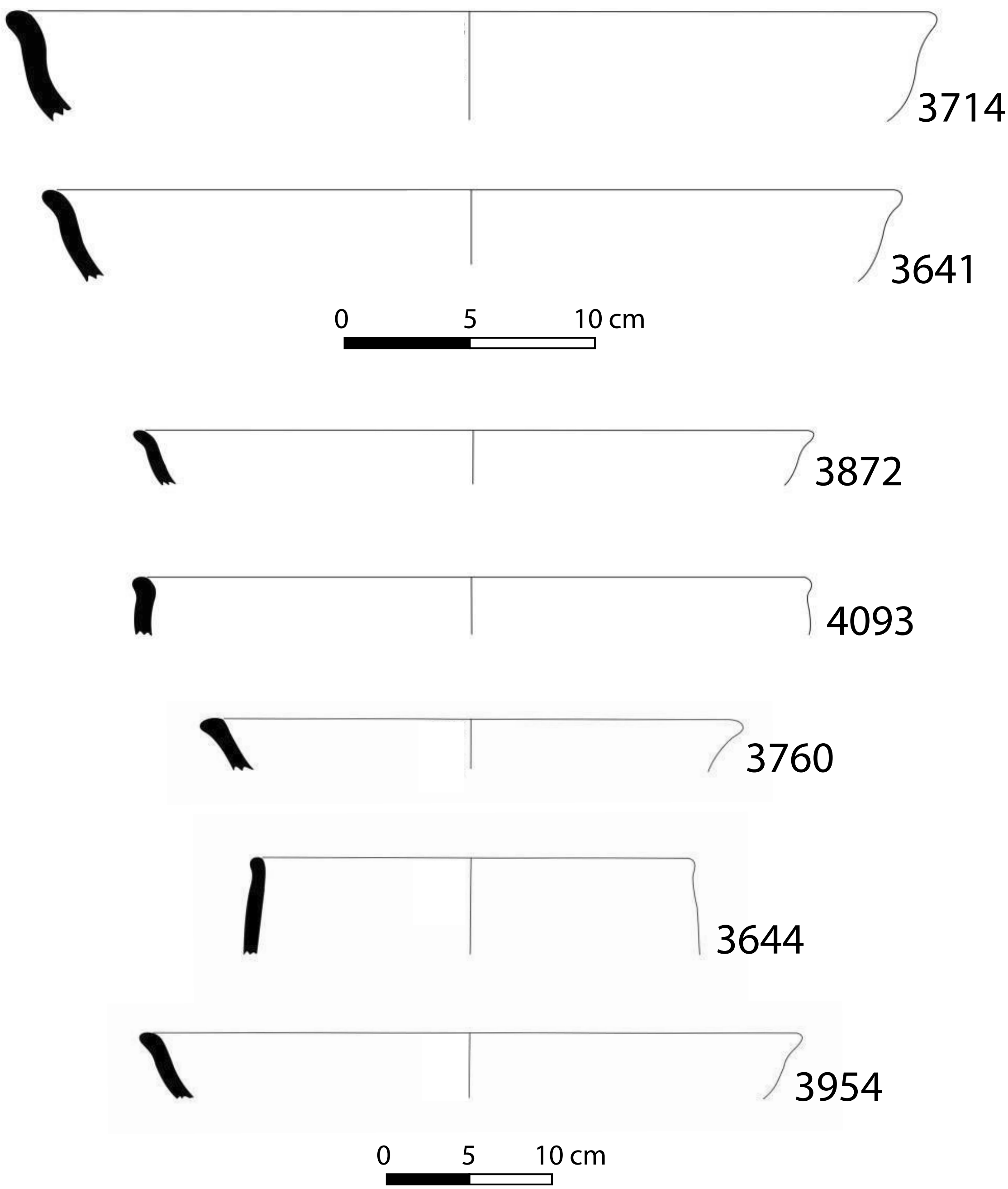


Figure A.146 Significant potsherds from S.T.8, S.U.1, Tepe Sadegh.

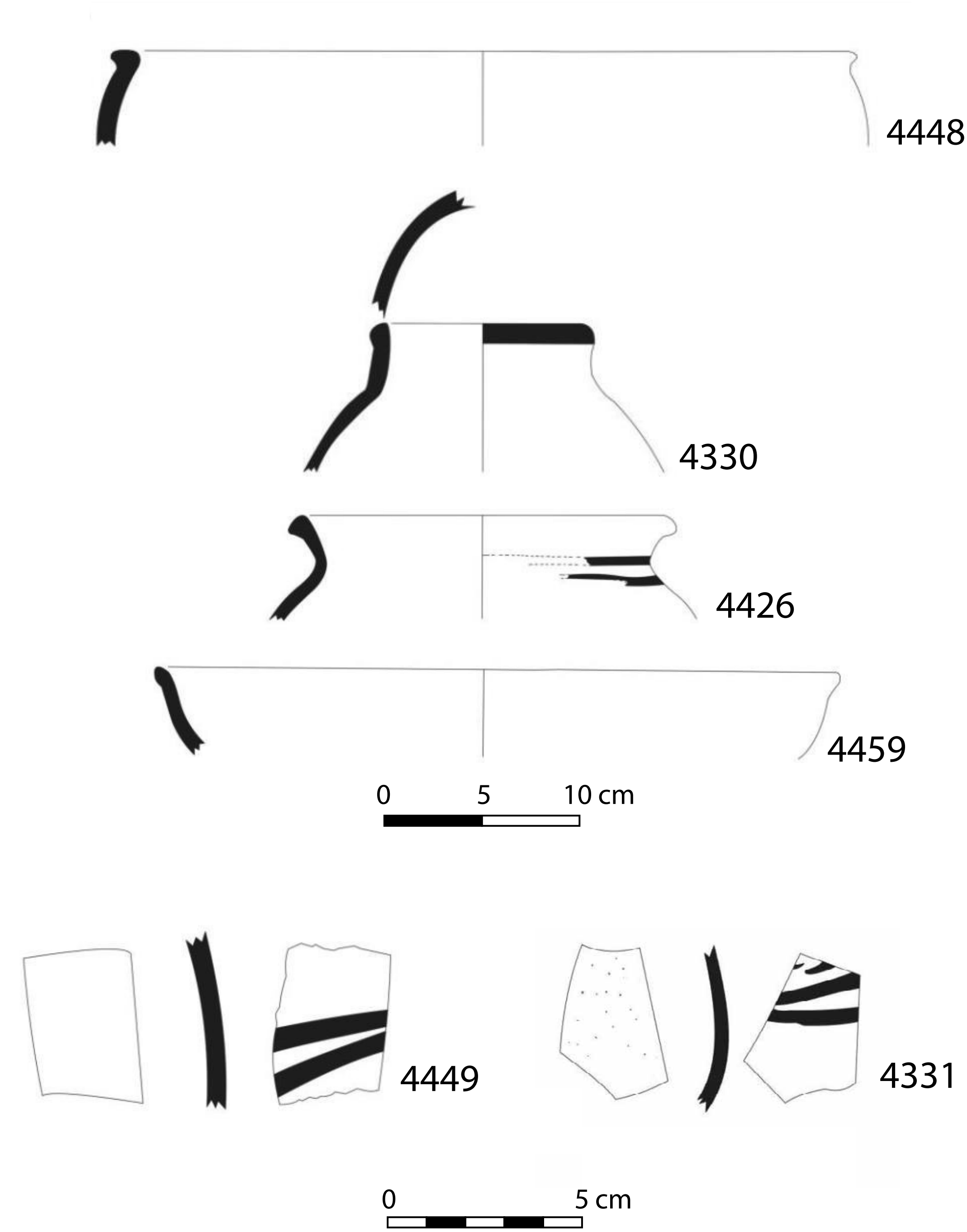


Figure A.147 Significant potsherds from S.T.8, S.U.2, Tepe Sadegh.

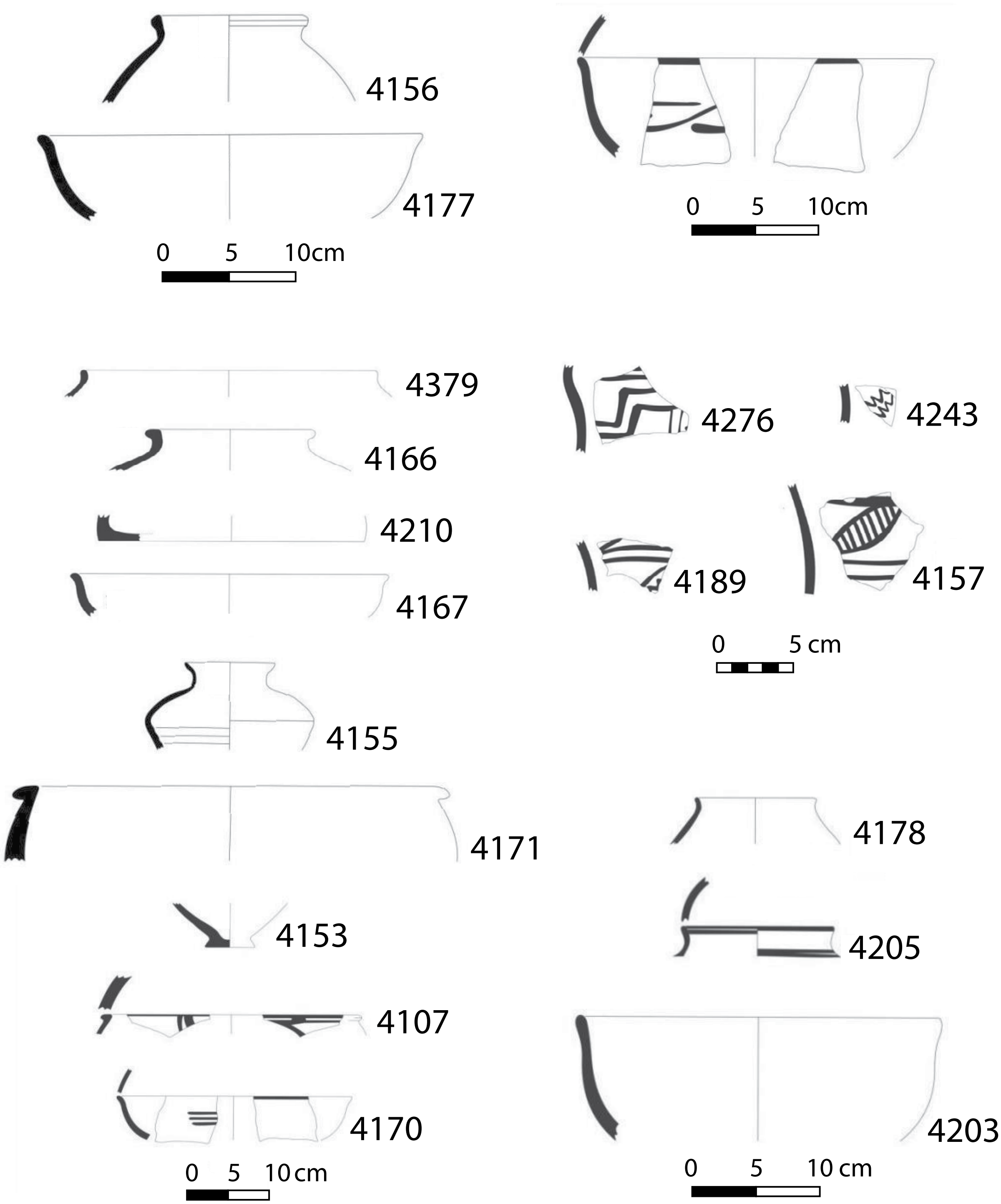


Figure A.148 Significant potsherds from S.T.8, S.U.3, Tepe Sadegh.

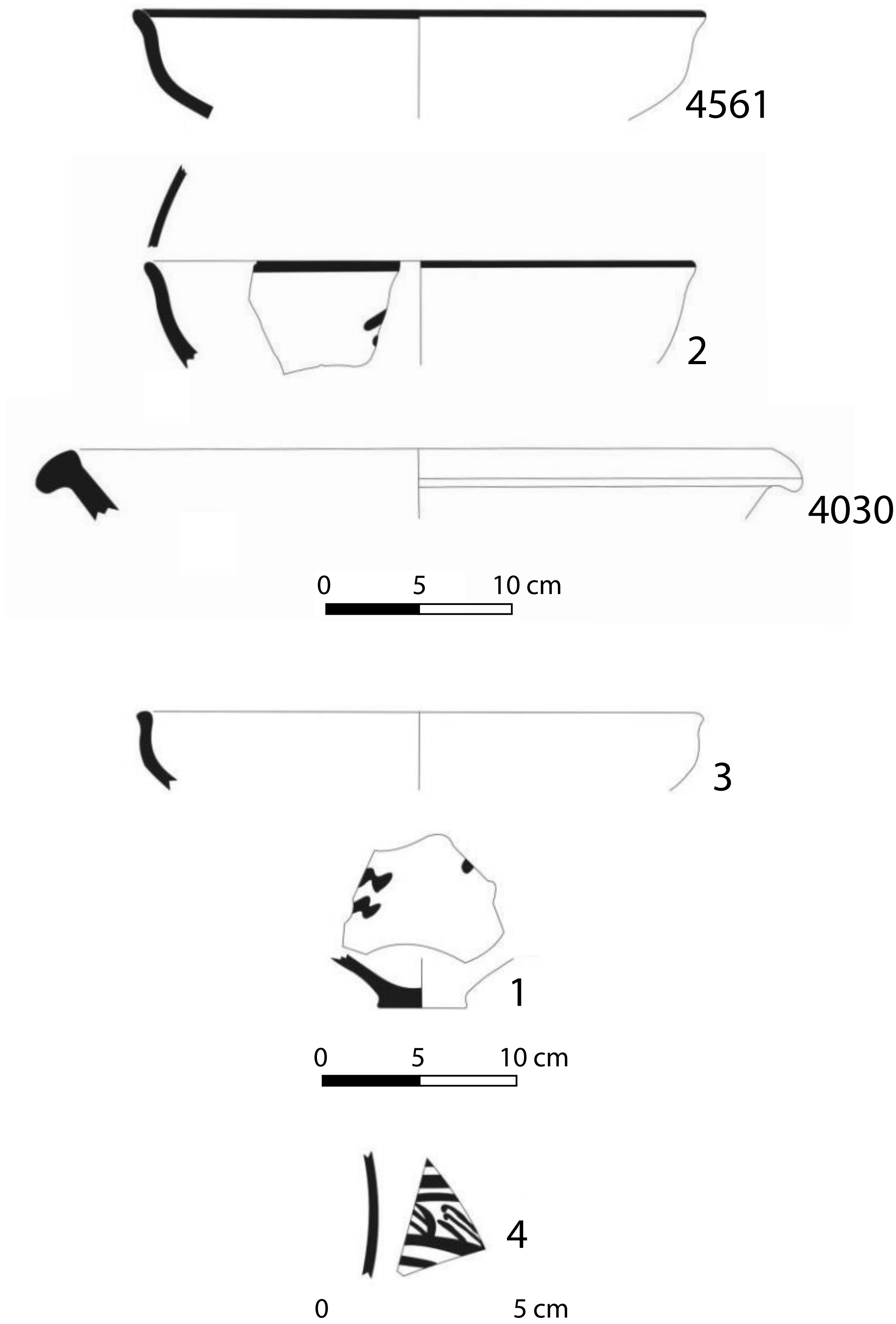


Figure A.149 Significant potsherds from S.T.8, S.U.5, Tepe Sadegh.

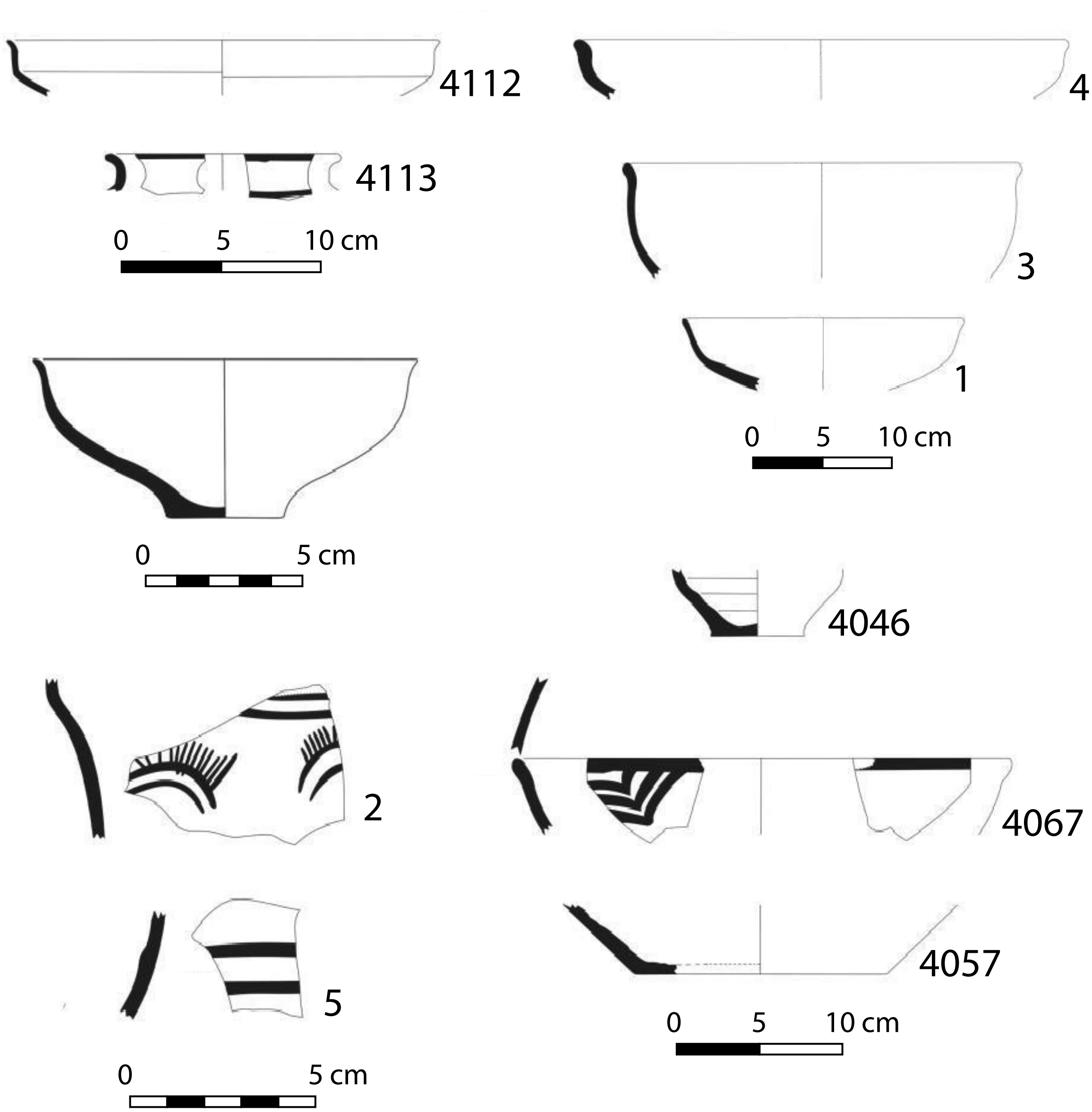


Figure A.150 Significant potsherds from S.T.8, S.U.6, Tepe Sadegh.

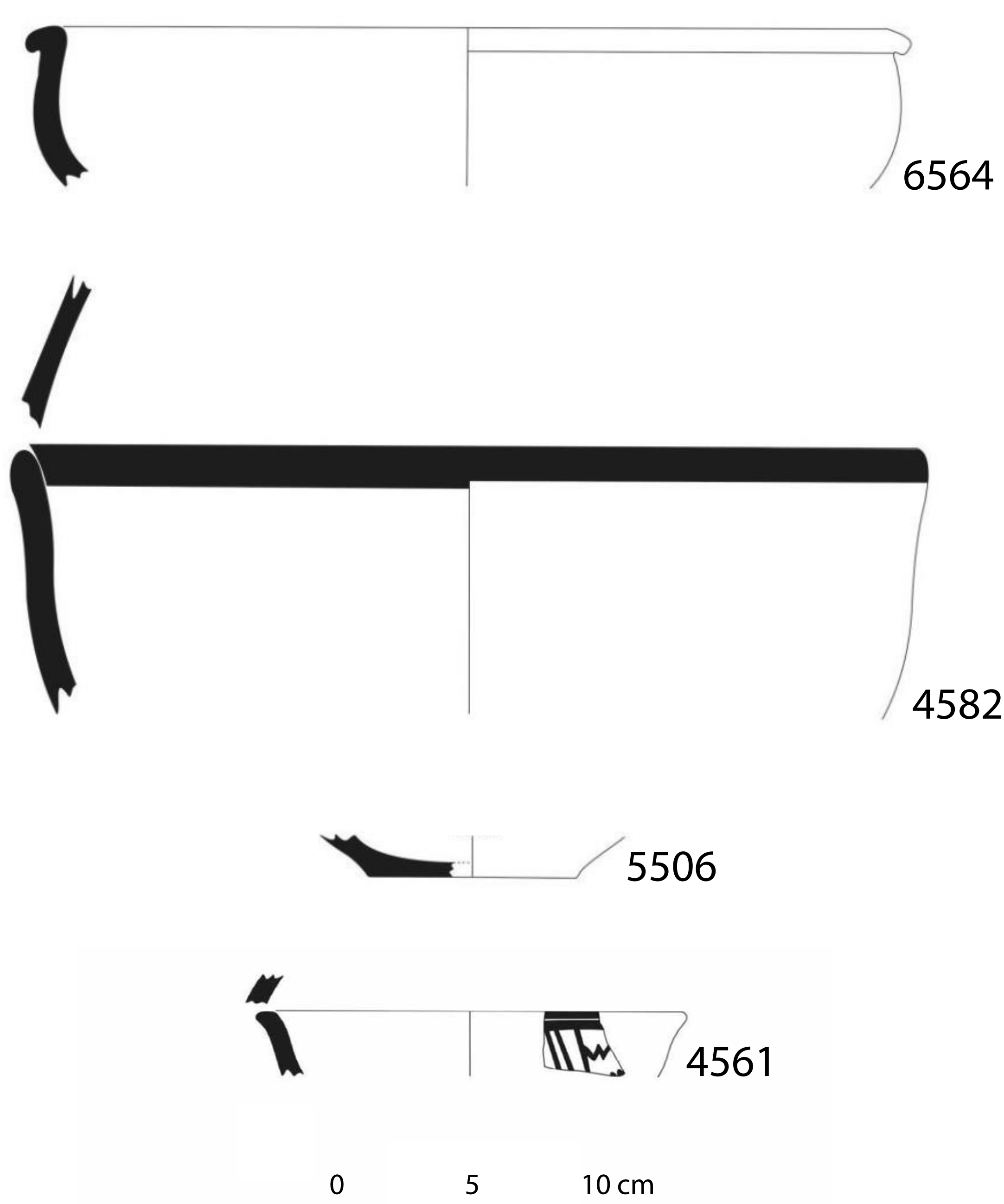


Figure A.151 Significant potsherds from S.T.8, S.U.10, Tepe Sadegh.

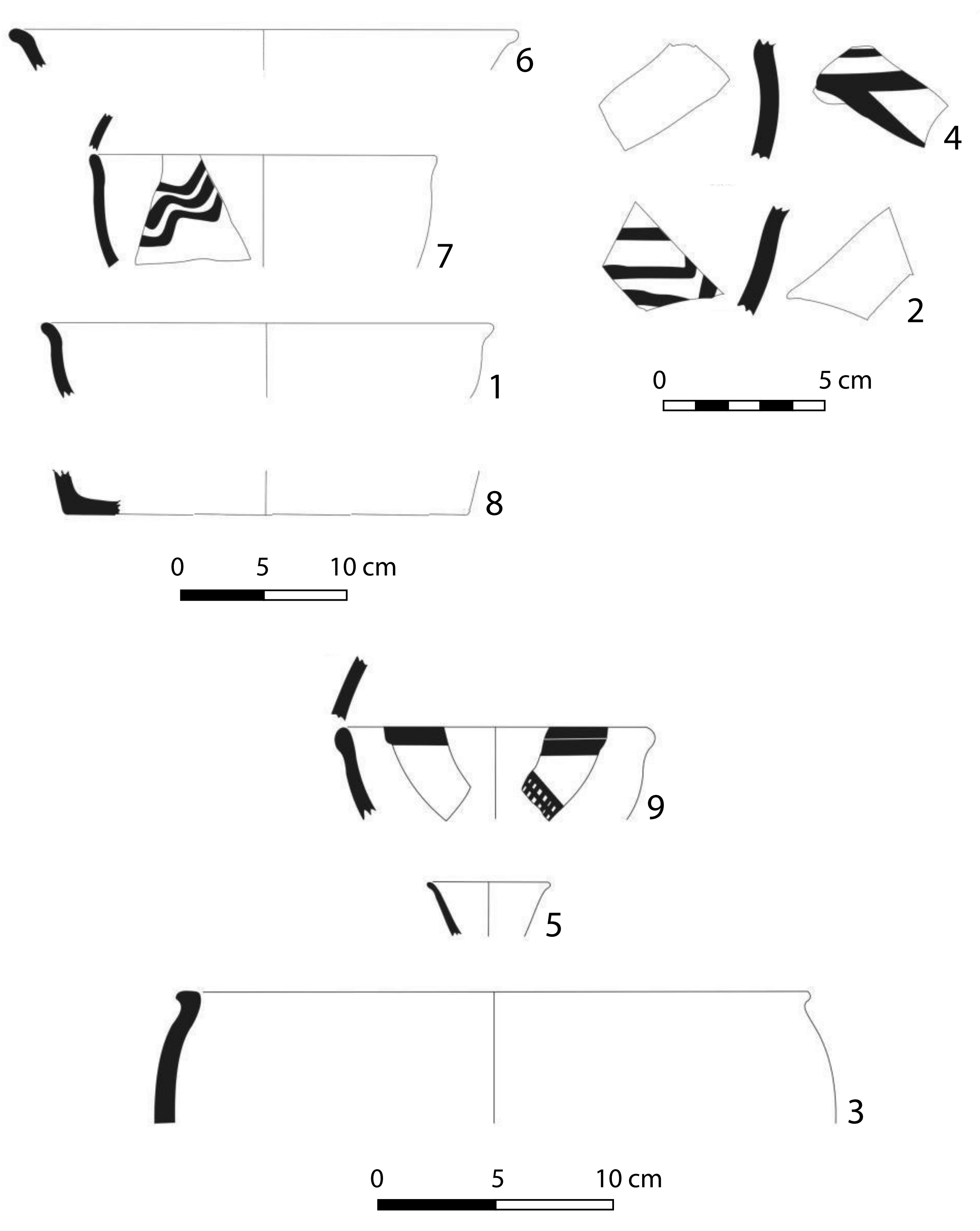


Figure A.152 Significant potsherds from S.T.8, S.U.11, Tepe Sadegh.

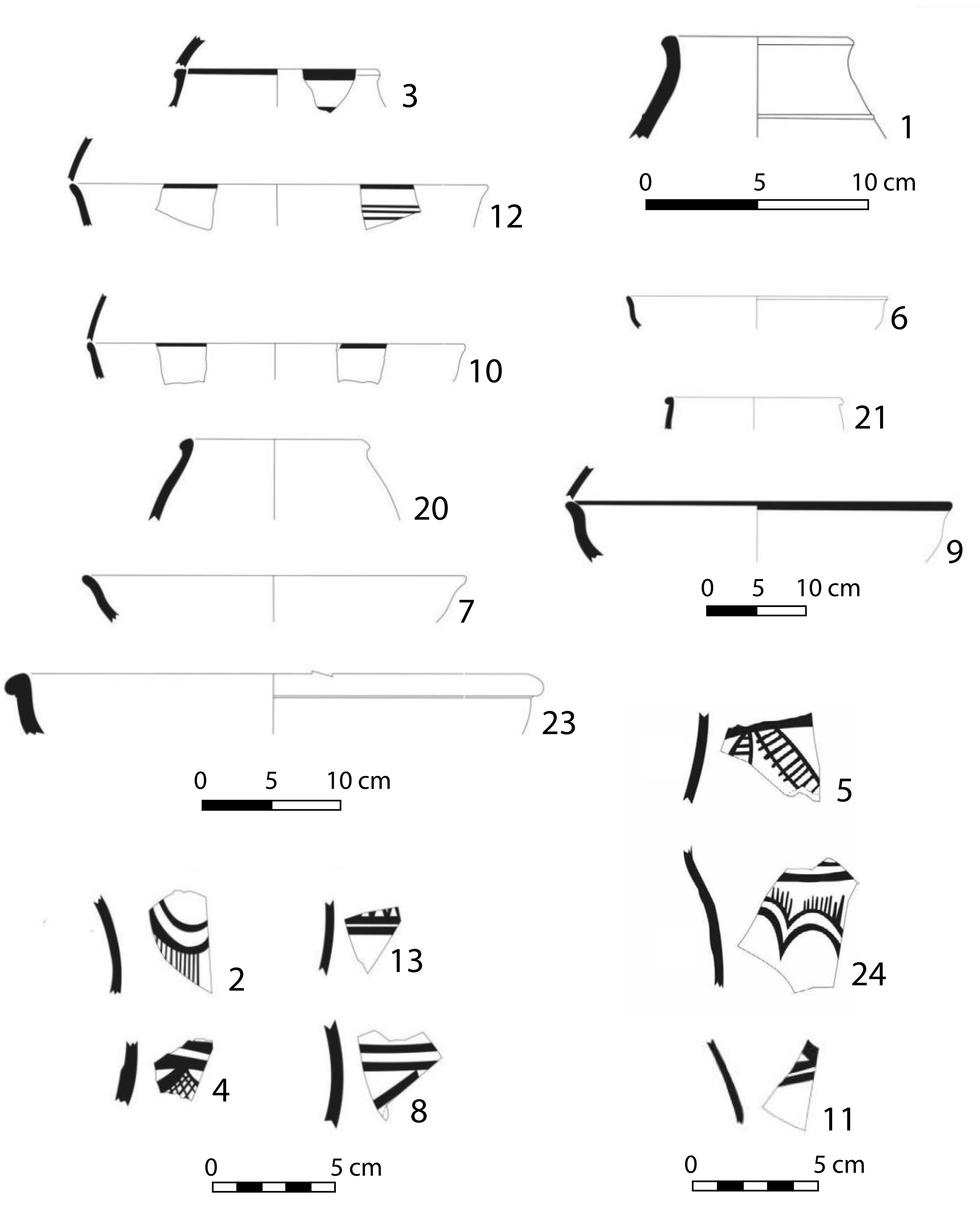


Figure A.153 Significant potsherds from S.T.8, S.U.14, Tepe Sadegh.

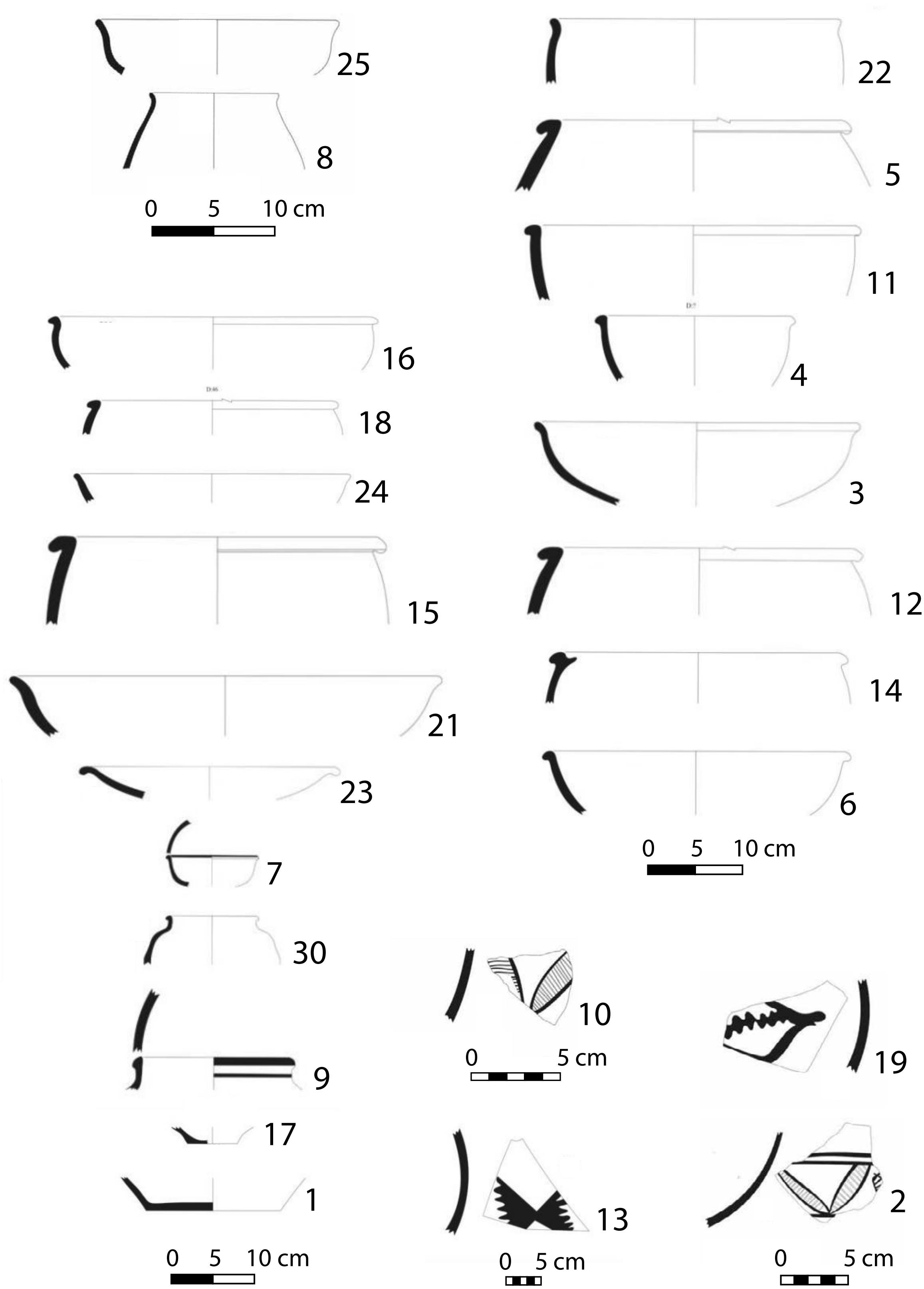


Figure A.154 Significant potsherds from S.T.8, S.U.22, Tepe Sadegh.

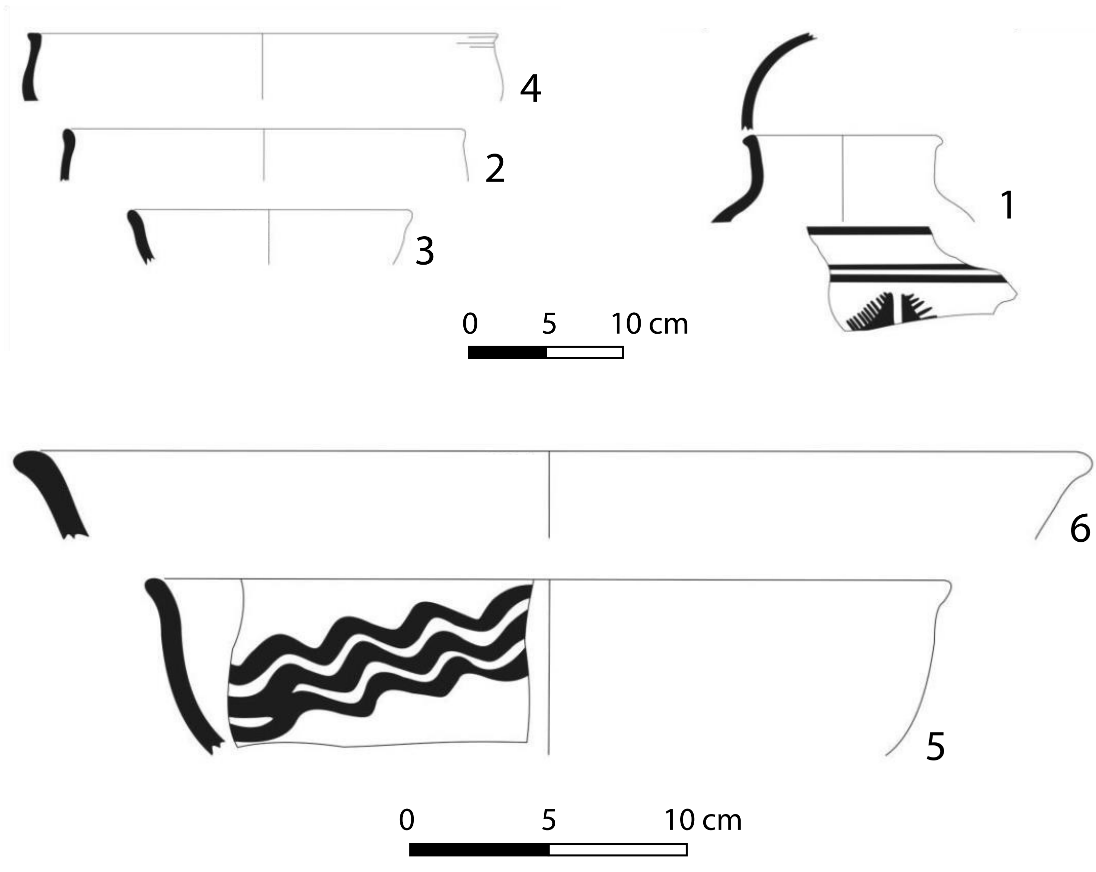


Figure A.155 Significant potsherds from S.T.8, S.U.24, Tepe Sadegh.

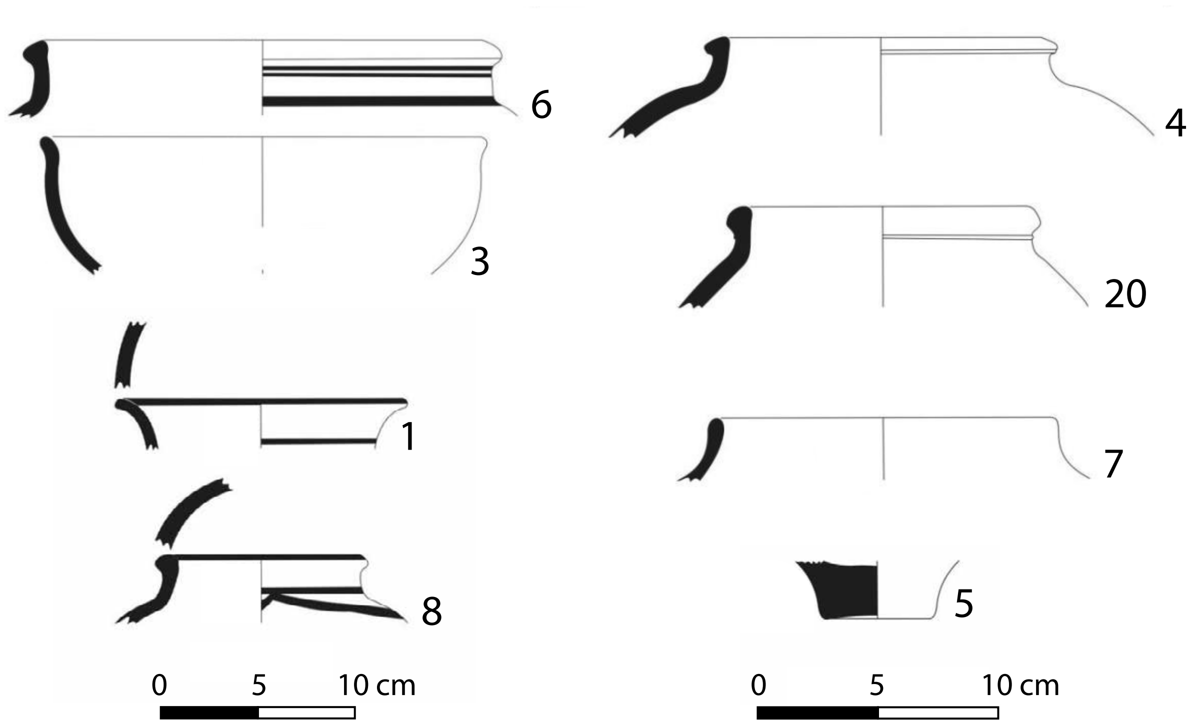


Figure A.156 Significant potsherds from S.T.8, S.U.25, Tepe Sadegh.

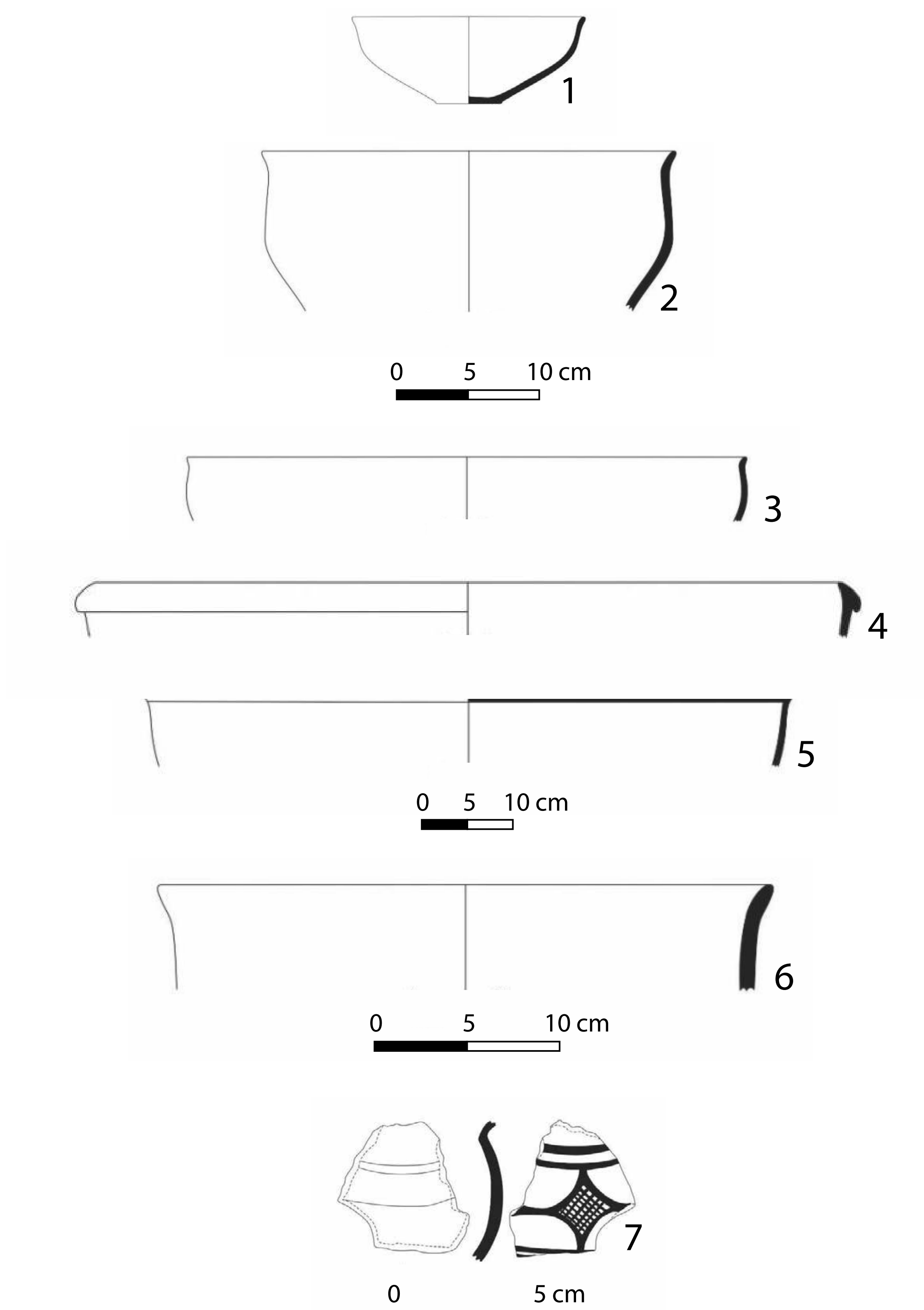


Figure A.157 Significant potsherds No. 1–7 from S.T.9, S.U.1, Tepe Sadegh.

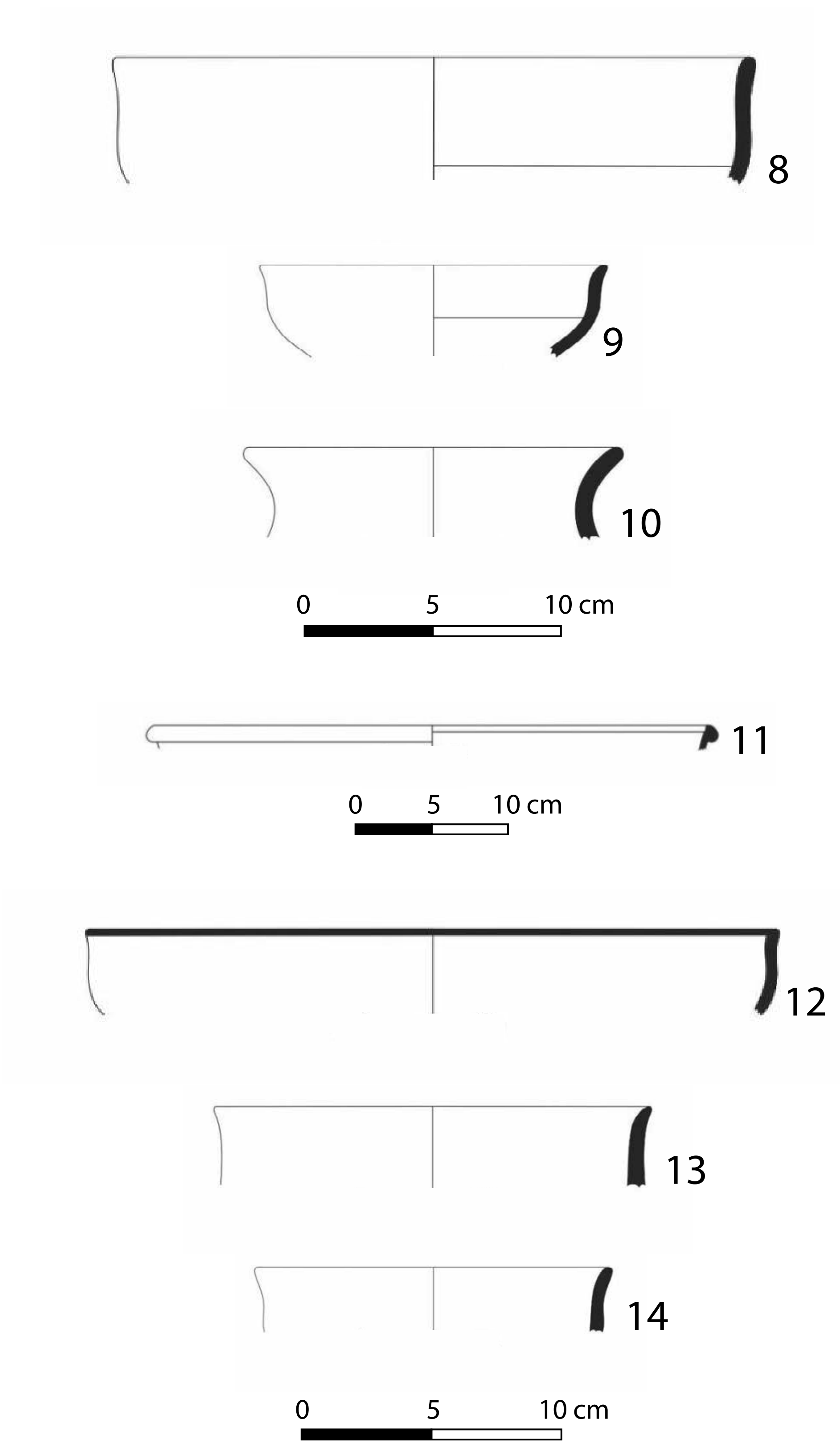


Figure A.158 Significant potsherds No. 8–14 from S.T.9, S.U.1, Tepe Sadegh.

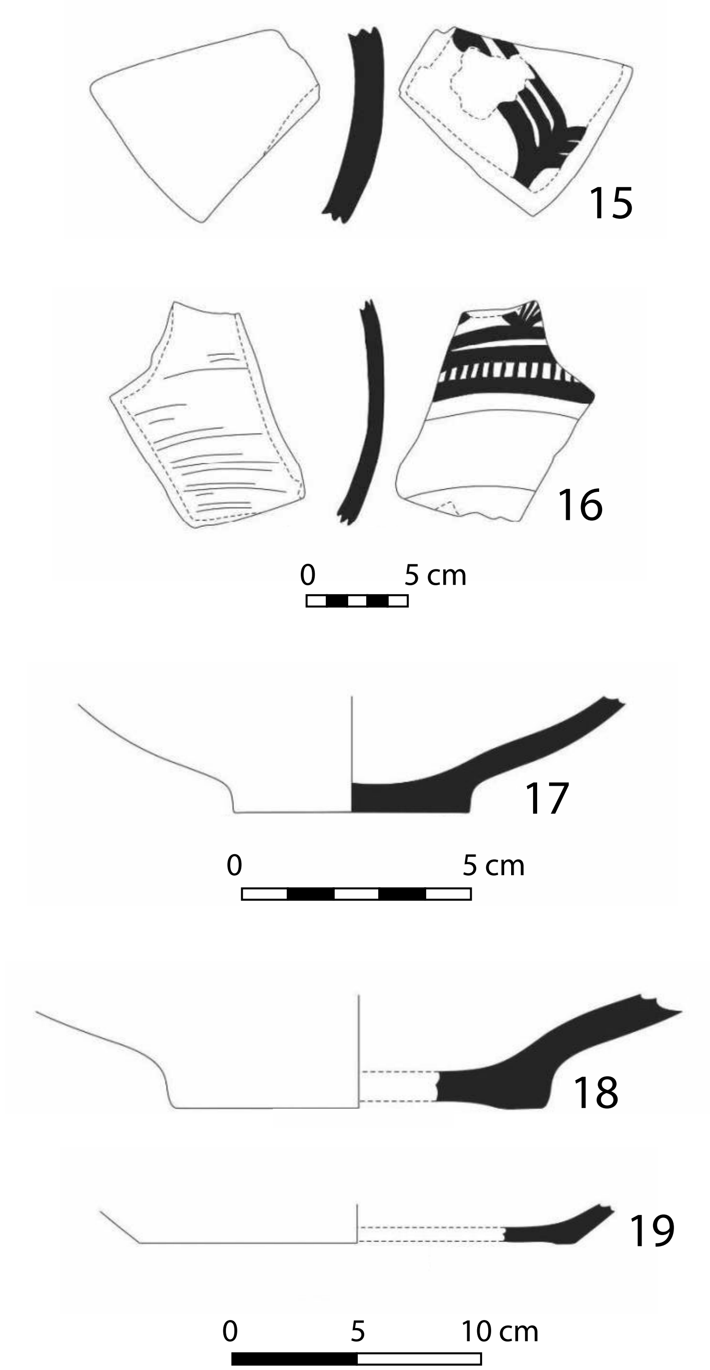


Figure A.159 Significant potsherds No. 14–19 from S.T.9, S.U.1, Tepe Sadegh.

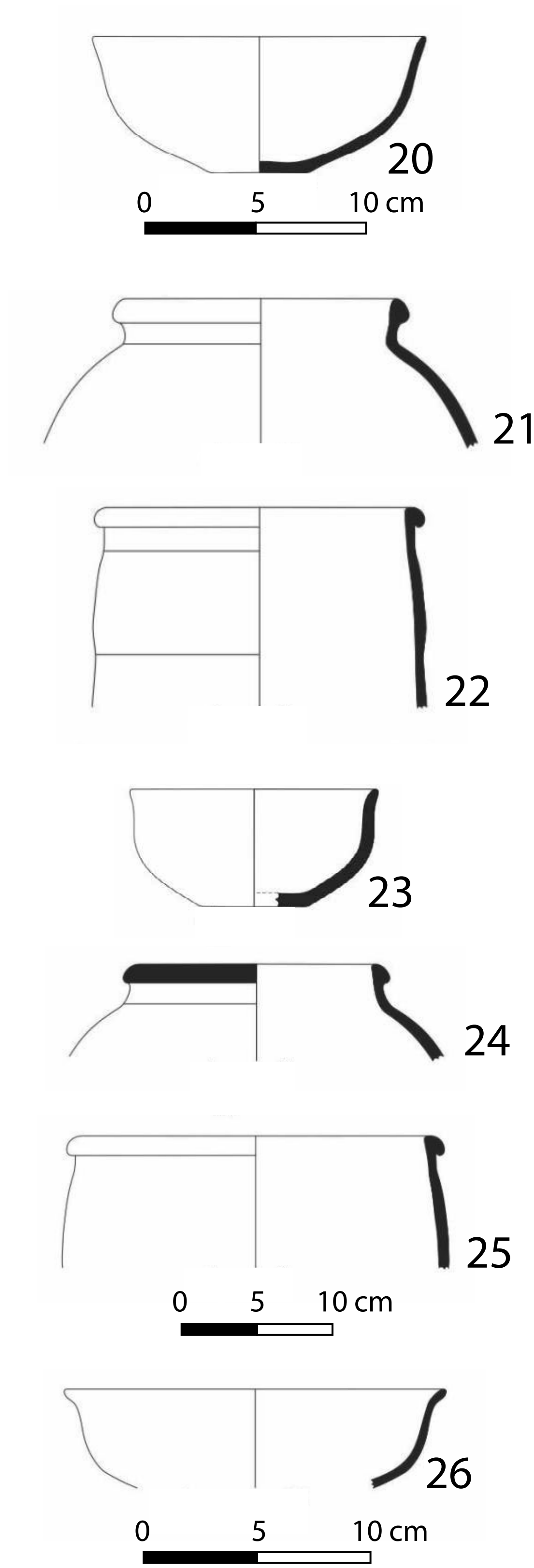


Figure A.160 Significant potsherds No. 20–26 from S.T.9, S.U.2, Tepe Sadegh.

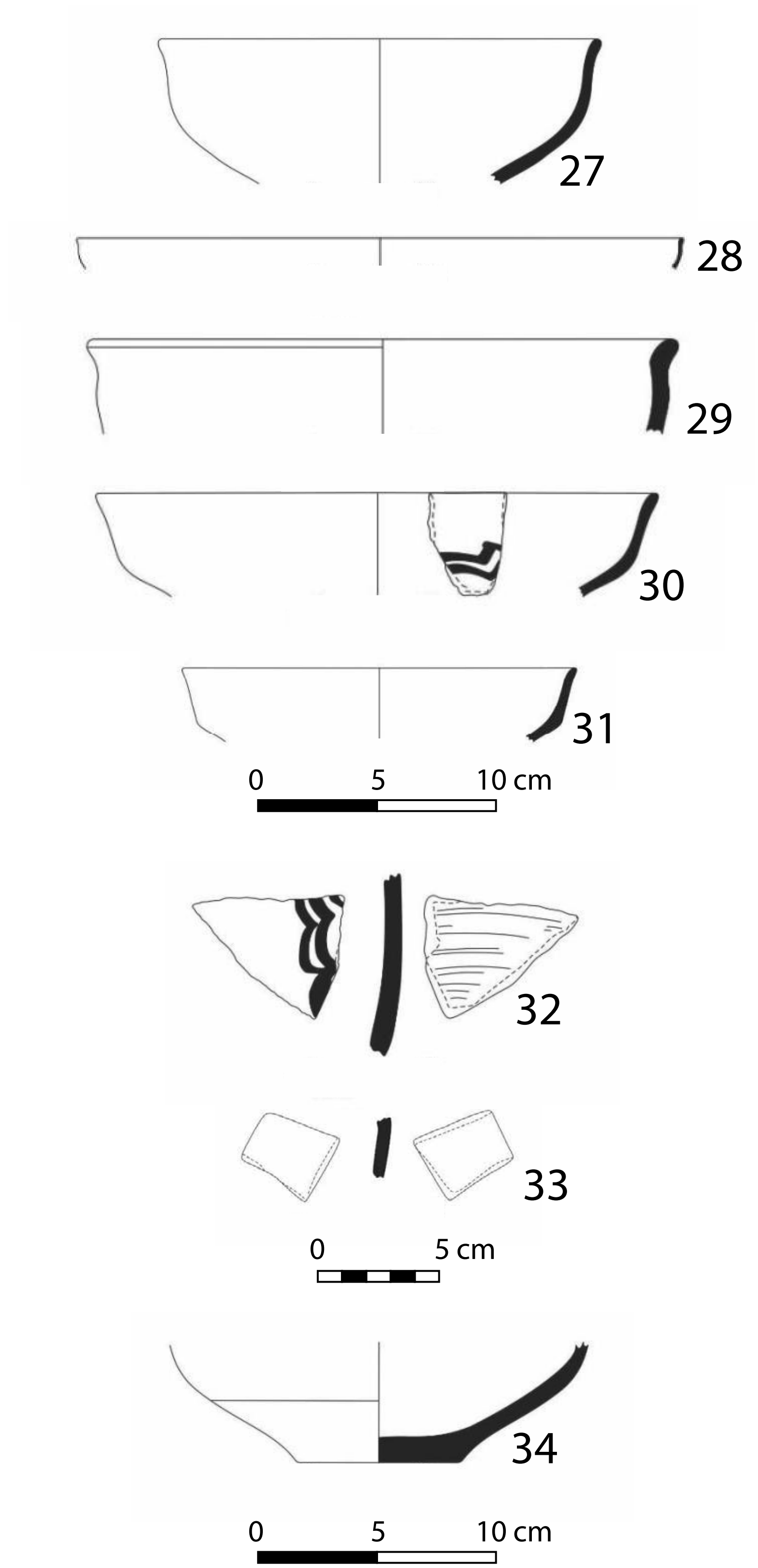


Figure A.161 Significant potsherds No. 27–34 from S.T.9, S.U.2, Tepe Sadegh.

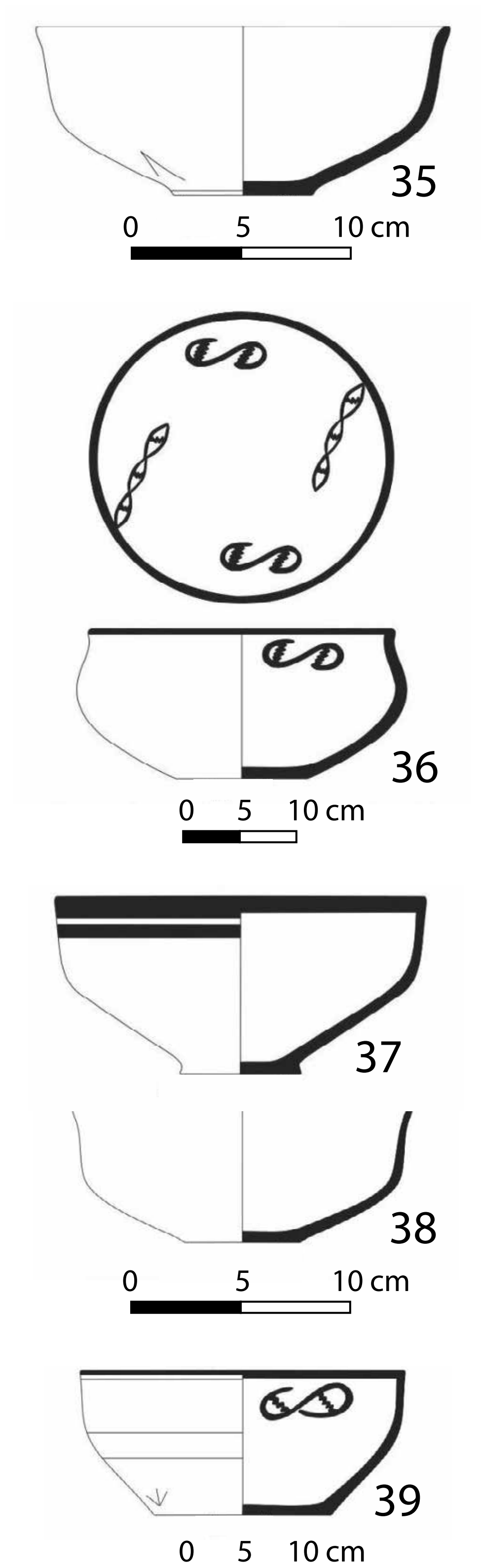


Figure A.162 Significant potsherds No. 39–35 from S.T.9, S.U.3, Tepe Sadegh.

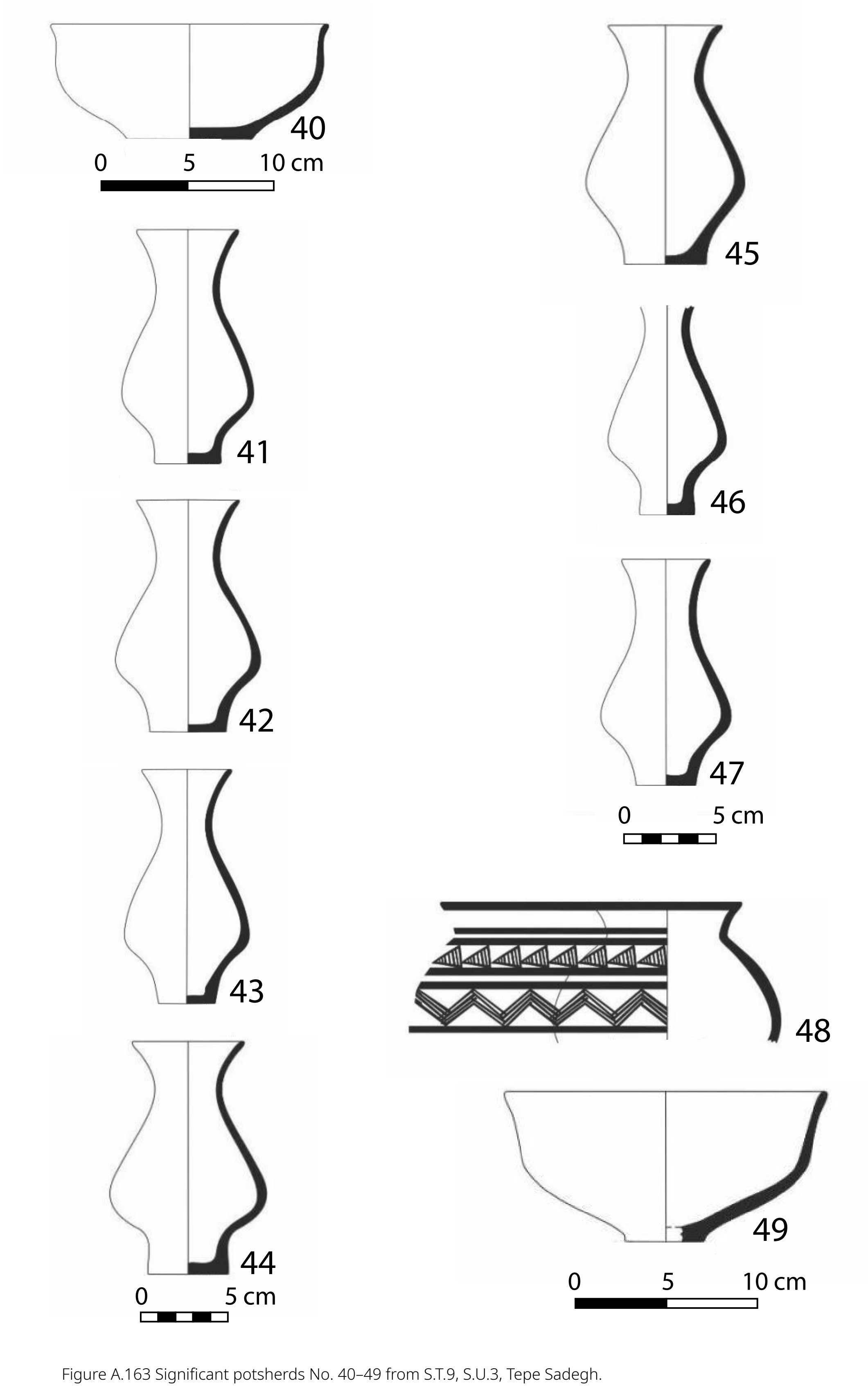


Figure A.163 Significant potsherds No. 40–49 from S.T.9, S.U.3, Tepe Sadegh.

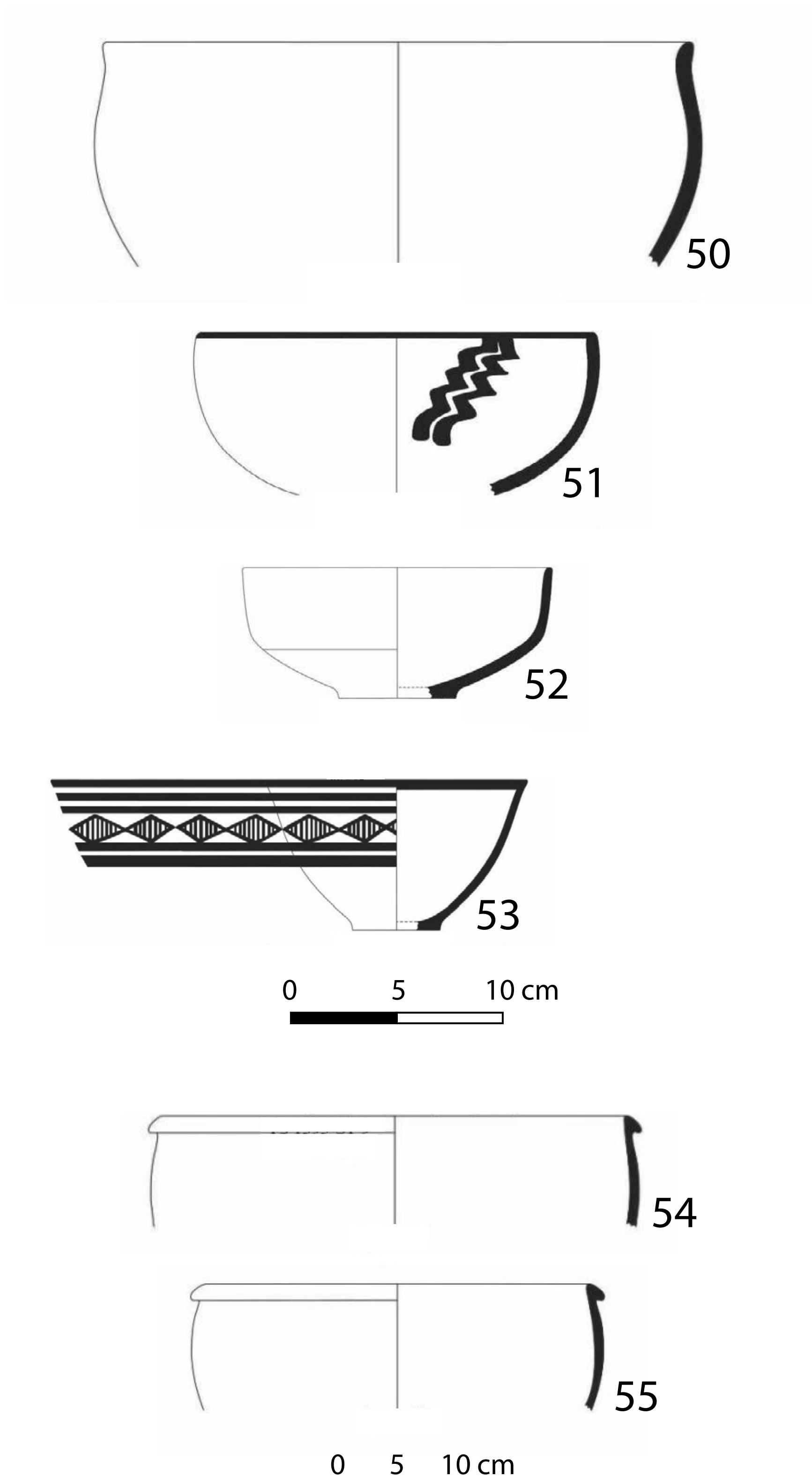


Figure A.164 Significant potsherds No. 50–54 from S.T.9, S.U.3, Tepe Sadegh.

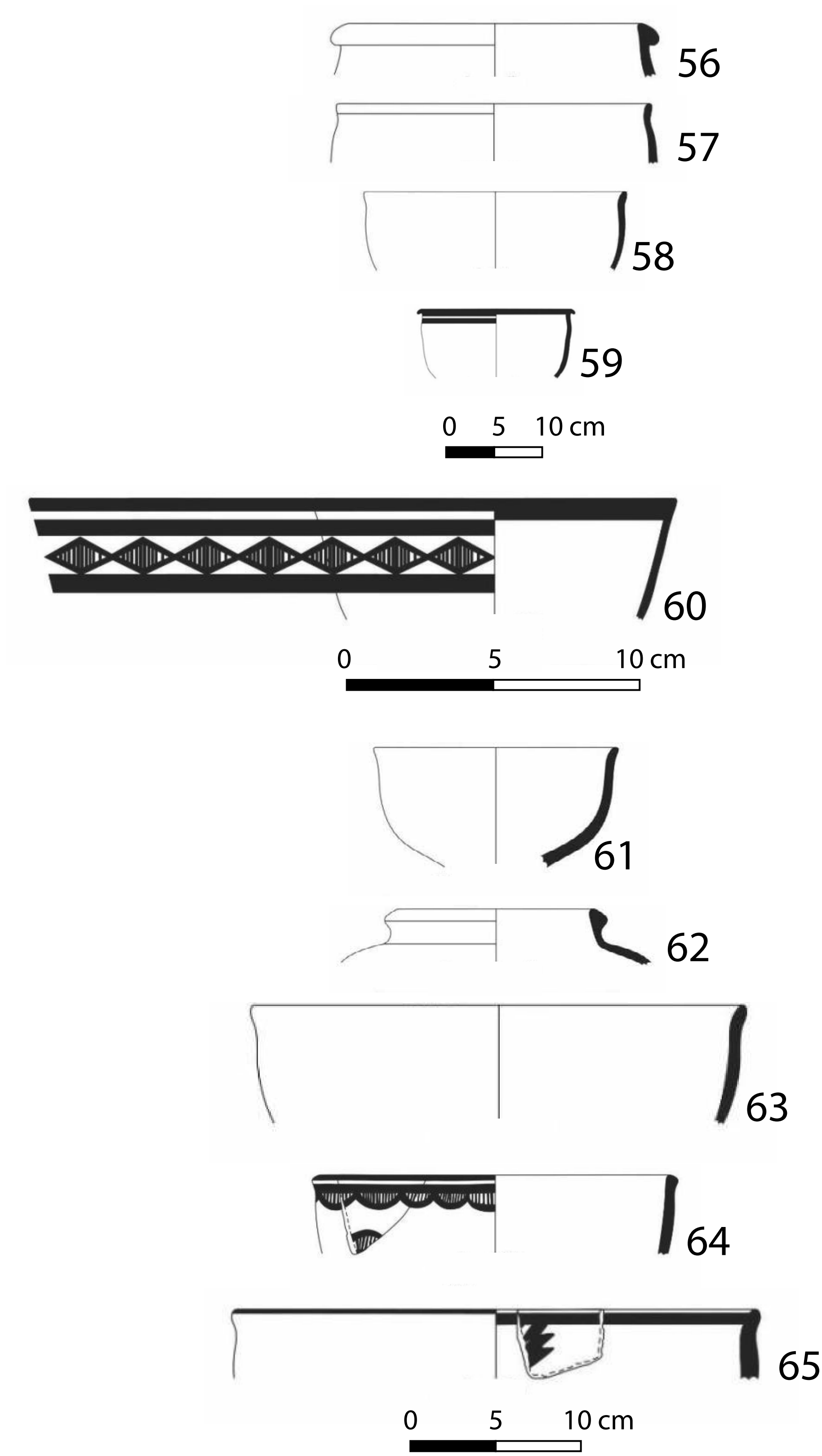


Figure A.165 Significant potsherds No. 55–65 from S.T.9, S.U.3, Tepe Sadegh.

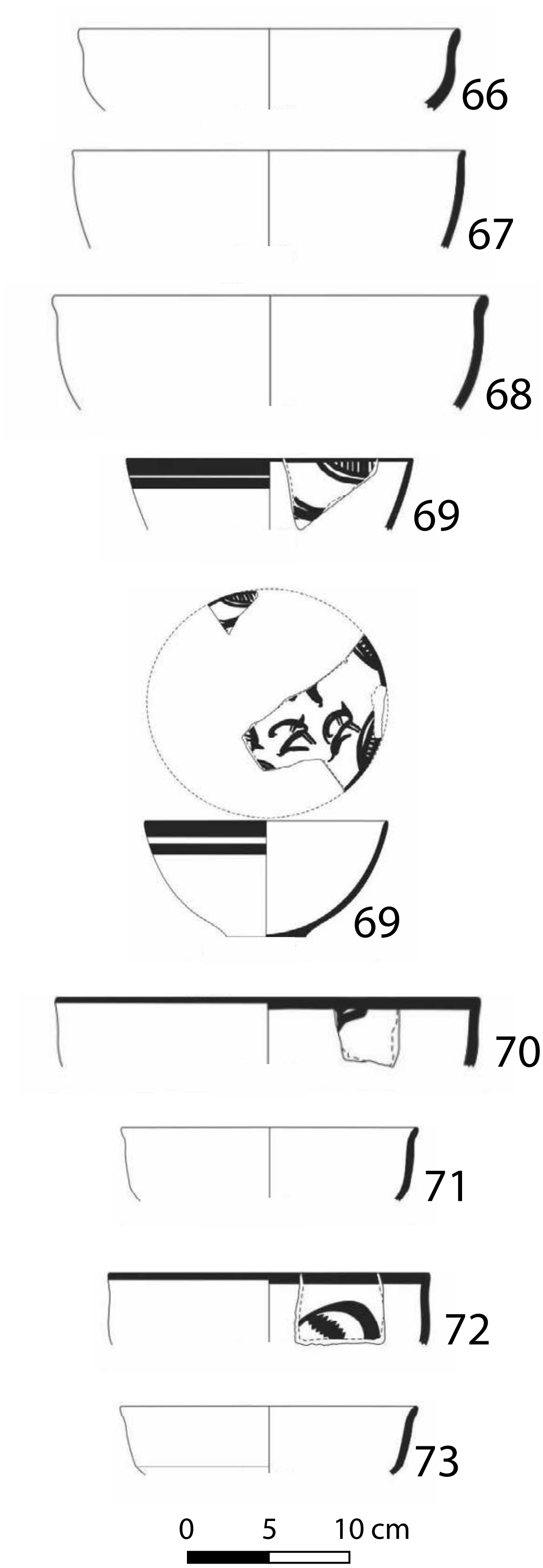


Figure A.166 Significant potsherds No. 66–73 from S.T.9, S.U.3, Tepe Sadegh.

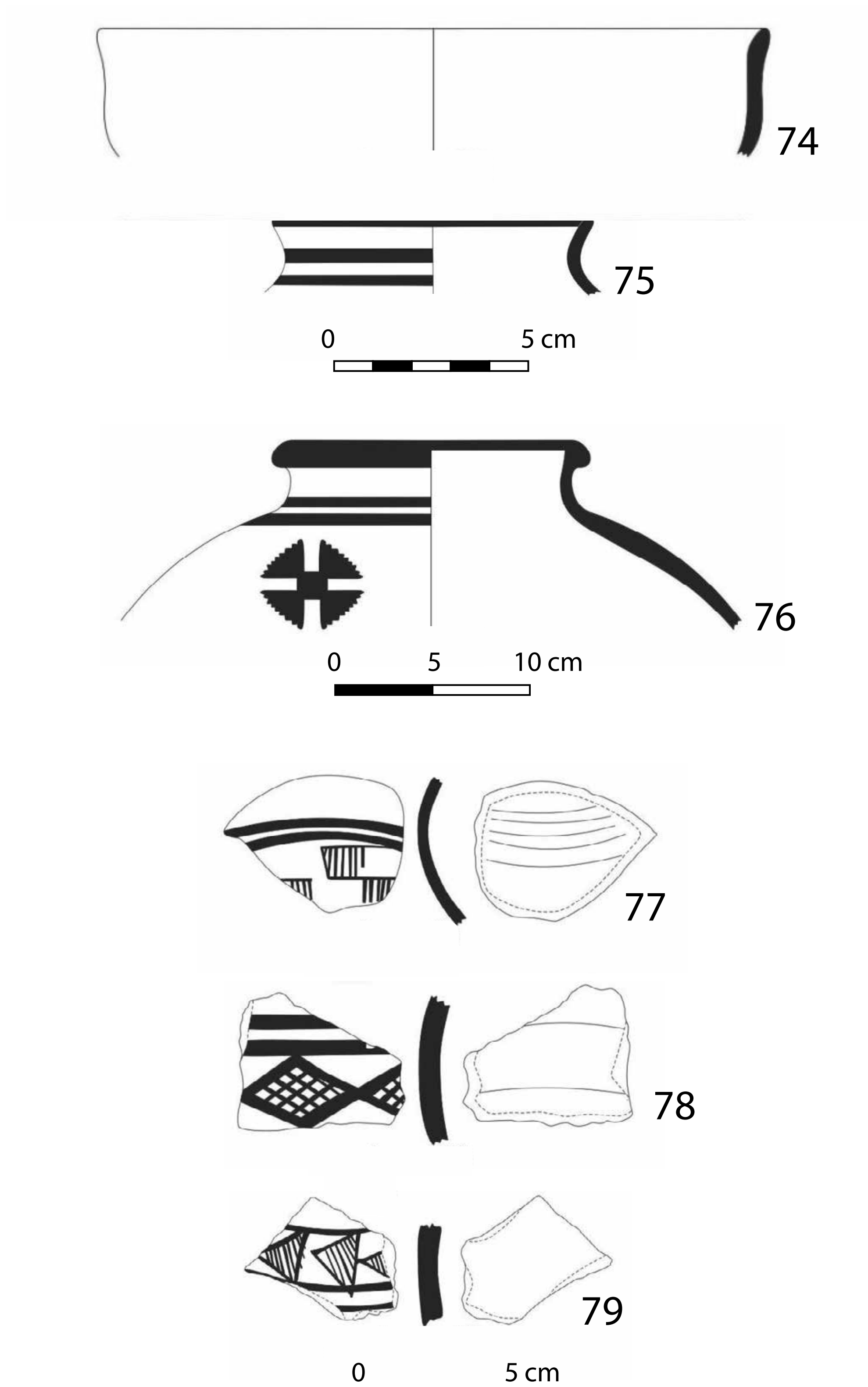


Figure A.167 Significant potsherds No. 74–79 from S.T.9, S.U.3, Tepe Sadegh.

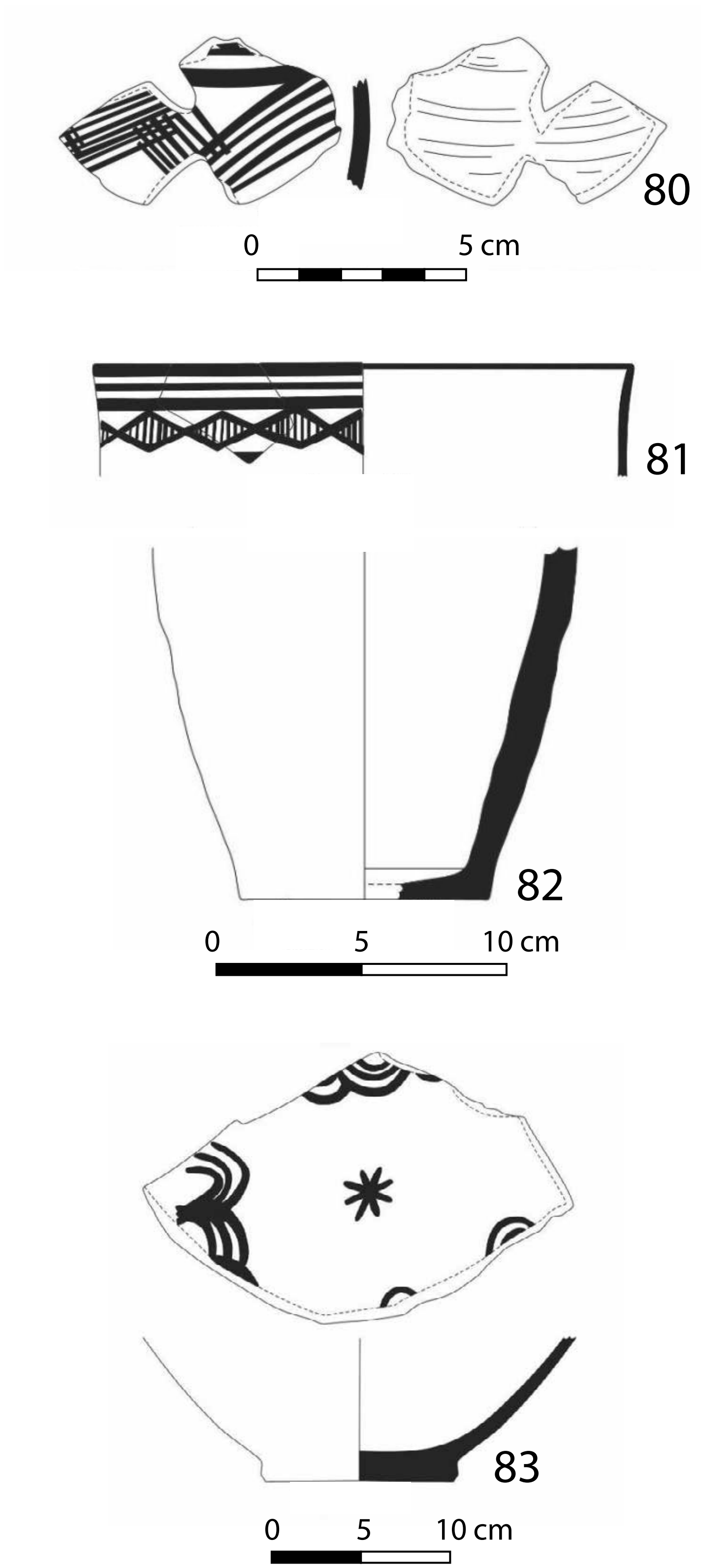


Figure A.168 Significant potsherds No. 80–83 from S.T.9, S.U.3, Tepe Sadegh.

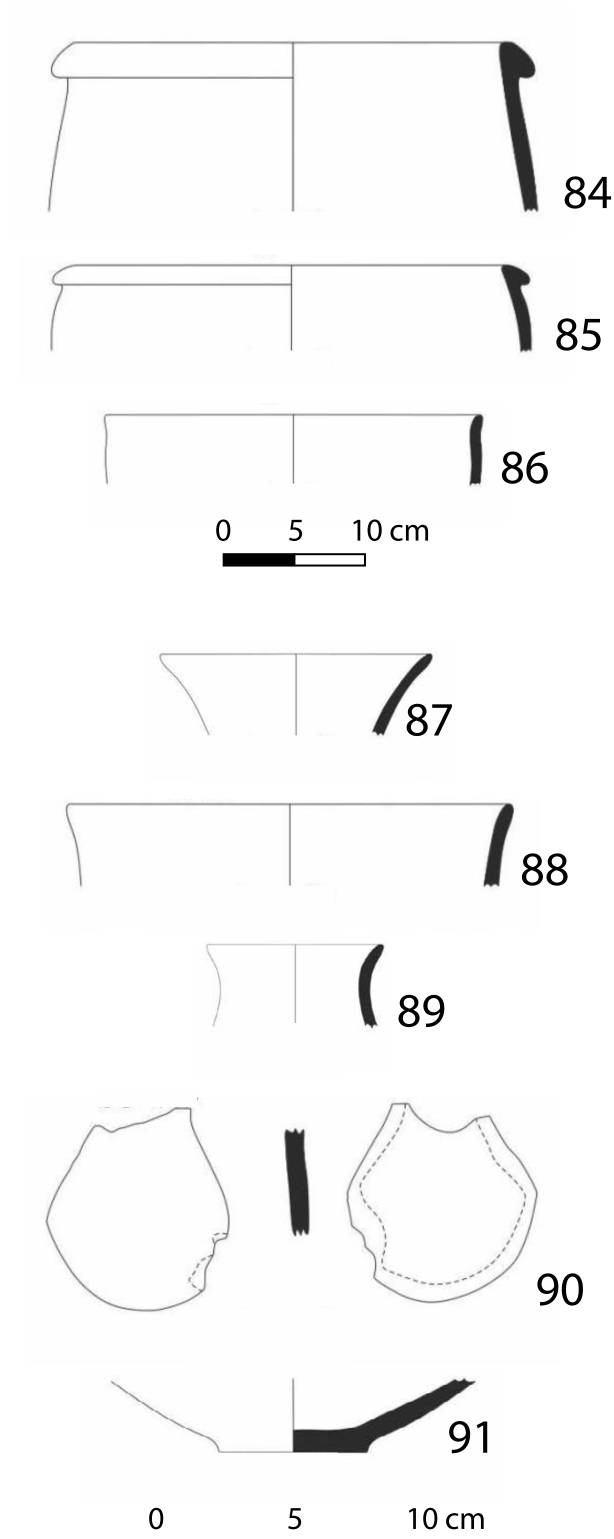


Figure A.169 Significant potsherds No. 84–91 from S.T.9, S.U.4, Tepe Sadegh.

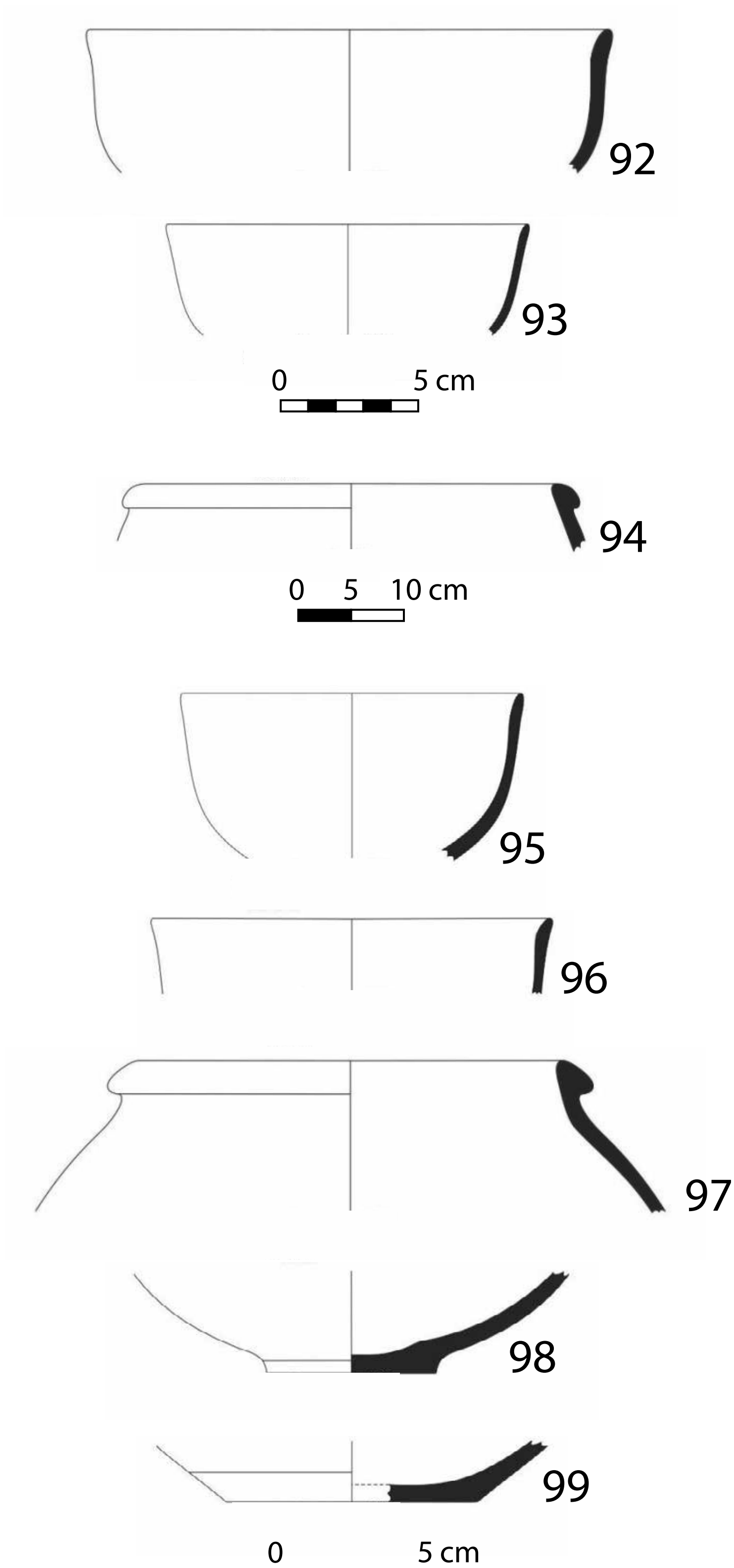


Figure A.170 Significant potsherds No. 92–99 from S.T.9, S.U.6, Tepe Sadegh.

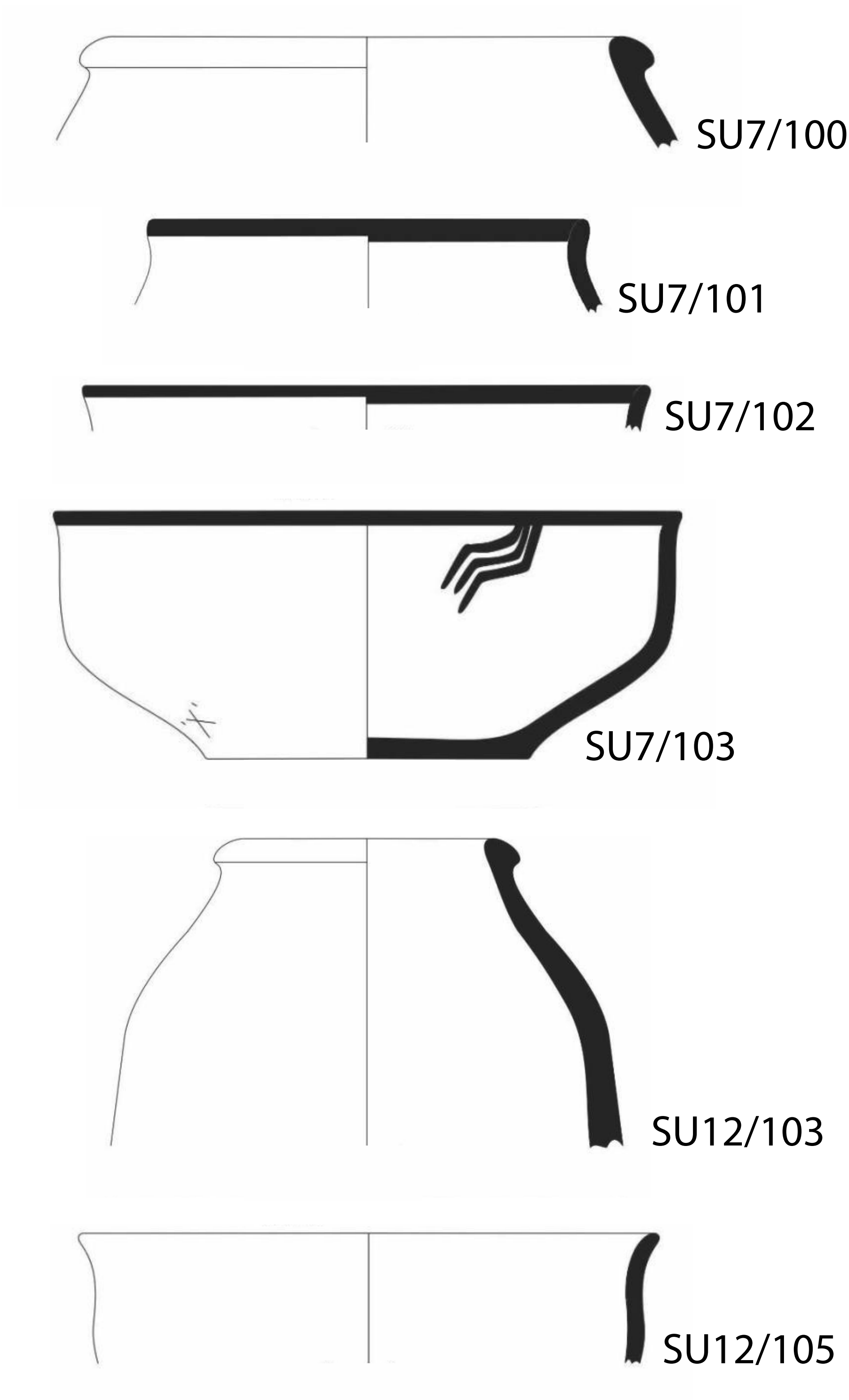


Figure A.171 Significant potsherds No. 100–105 from S.T.9, S.U.7, S.U.12, Tepe Sadegh.

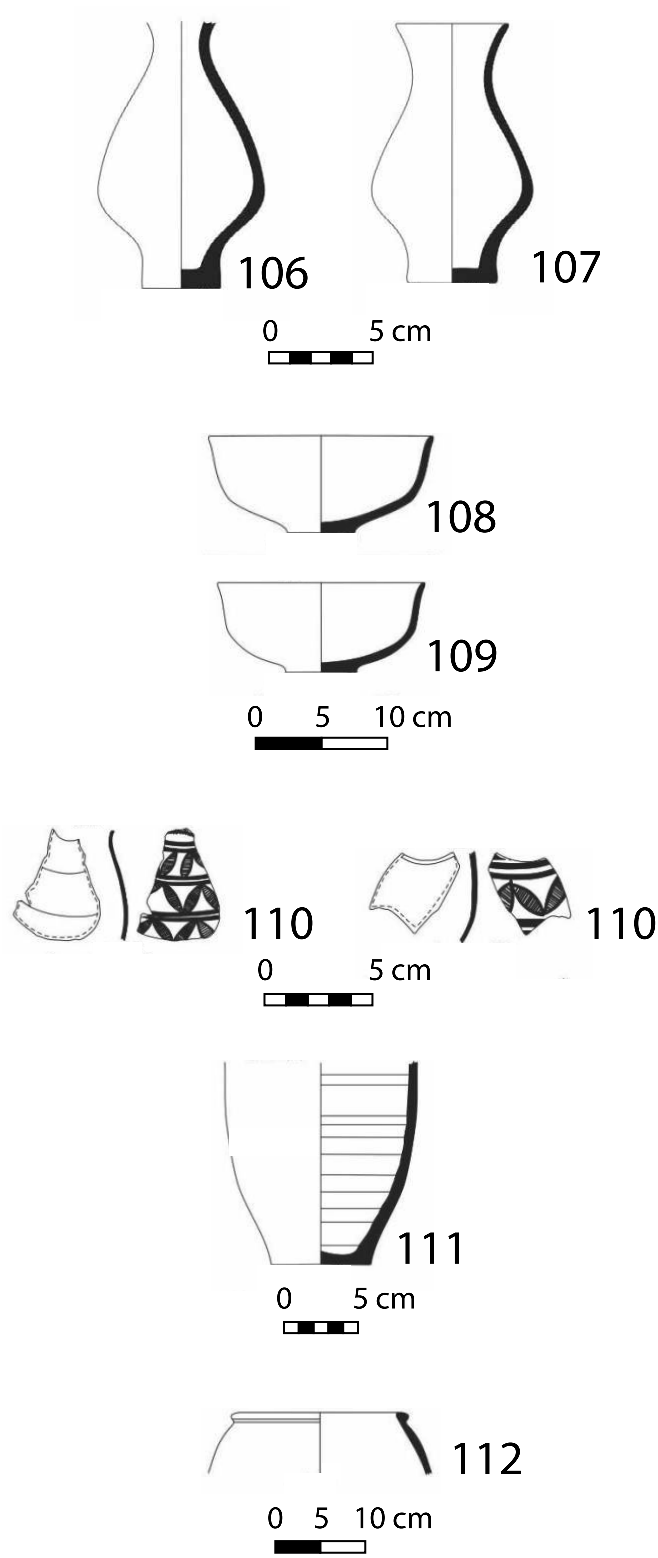


Figure A.172 Significant potsherds No. 106–112 from S.T.9, S.U.15, Tepe Sadegh.

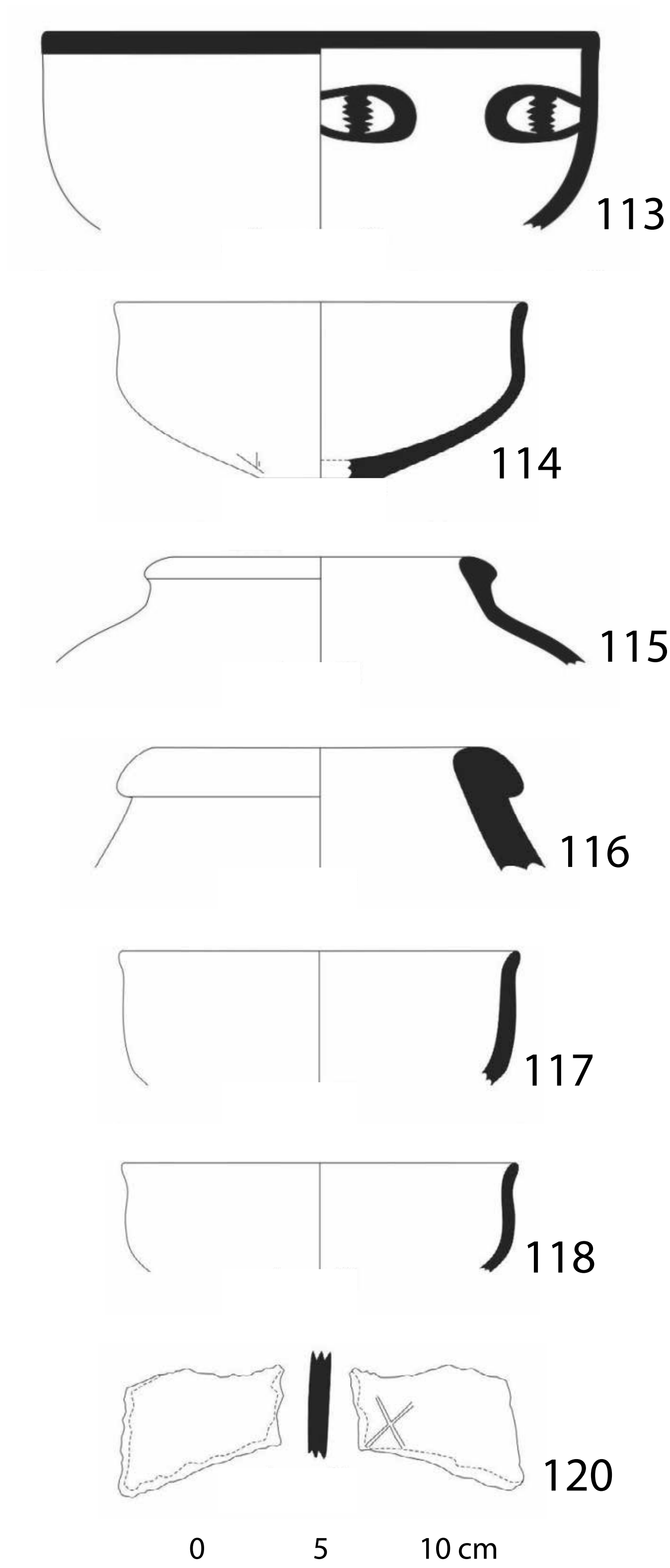
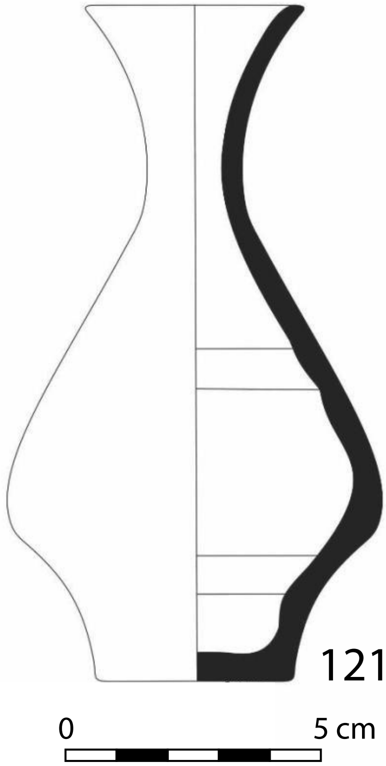
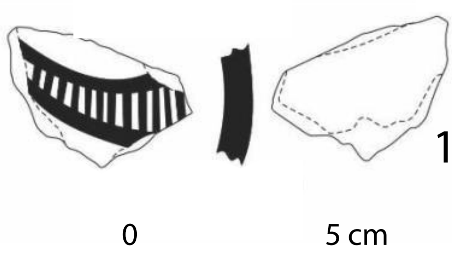


Figure A.173 Significant potsherds No. 113–120 from S.T.9, S.U.15, Tepe Sadegh.



121

122



123

Figure A.174 Significant potsherds No. 121–123 from S.T.9, S.U.16, Tepe Sadegh.

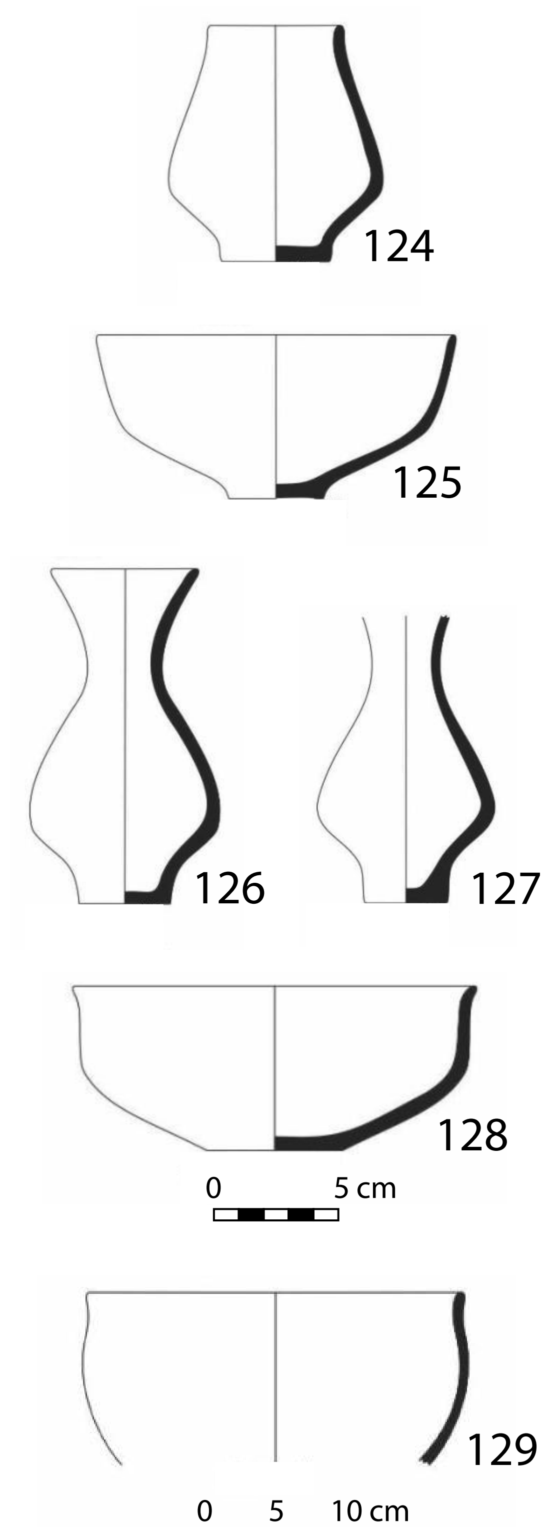


Figure A.175 Significant potsherds No. 124–129 from S.T.9, S.U.17, Tepe Sadegh.

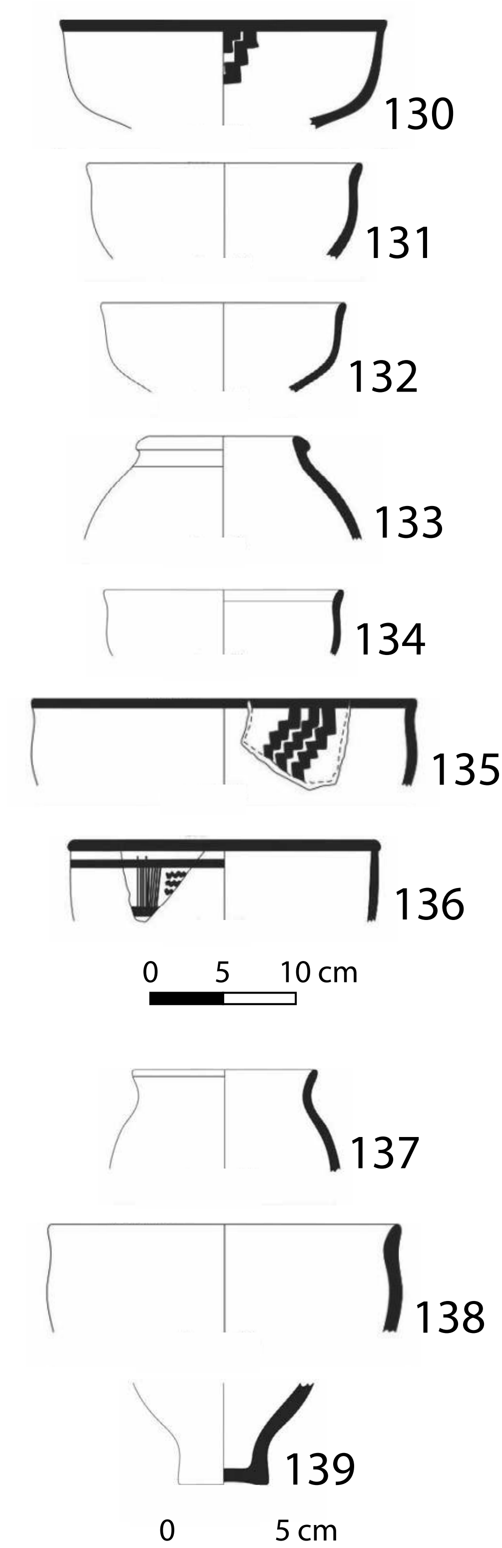


Figure A.176 Significant potsherds No. 130–139 from S.T.9, S.U.17, Tepe Sadegh.

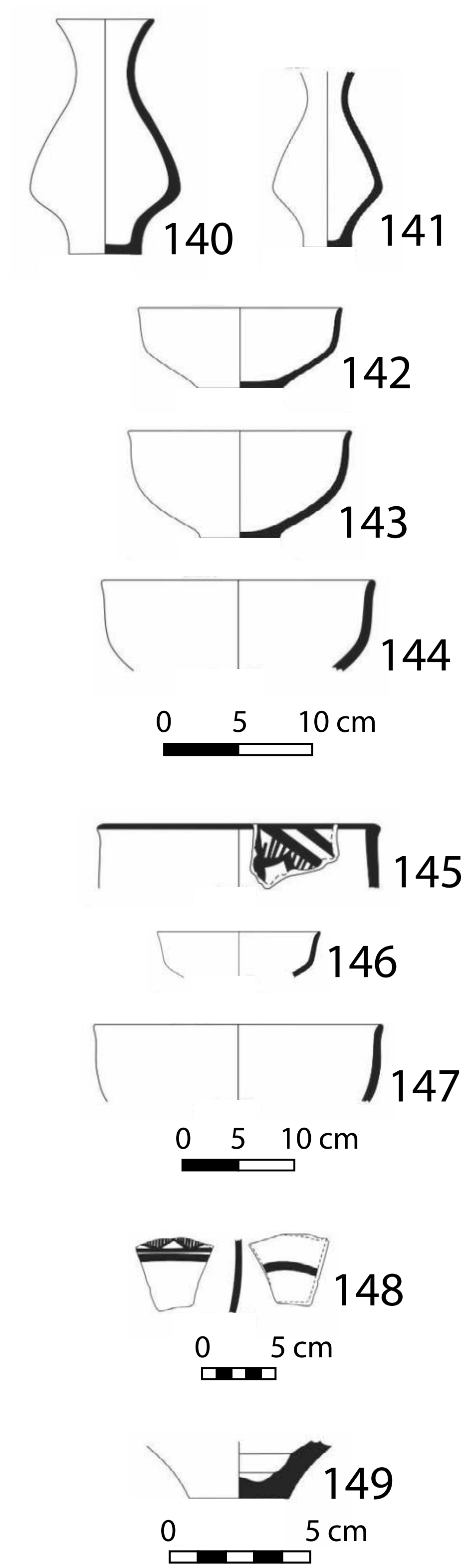


Figure A.177 Significant potsherds No. 140–149 from S.T.9, S.U.22, Tepe Sadegh.

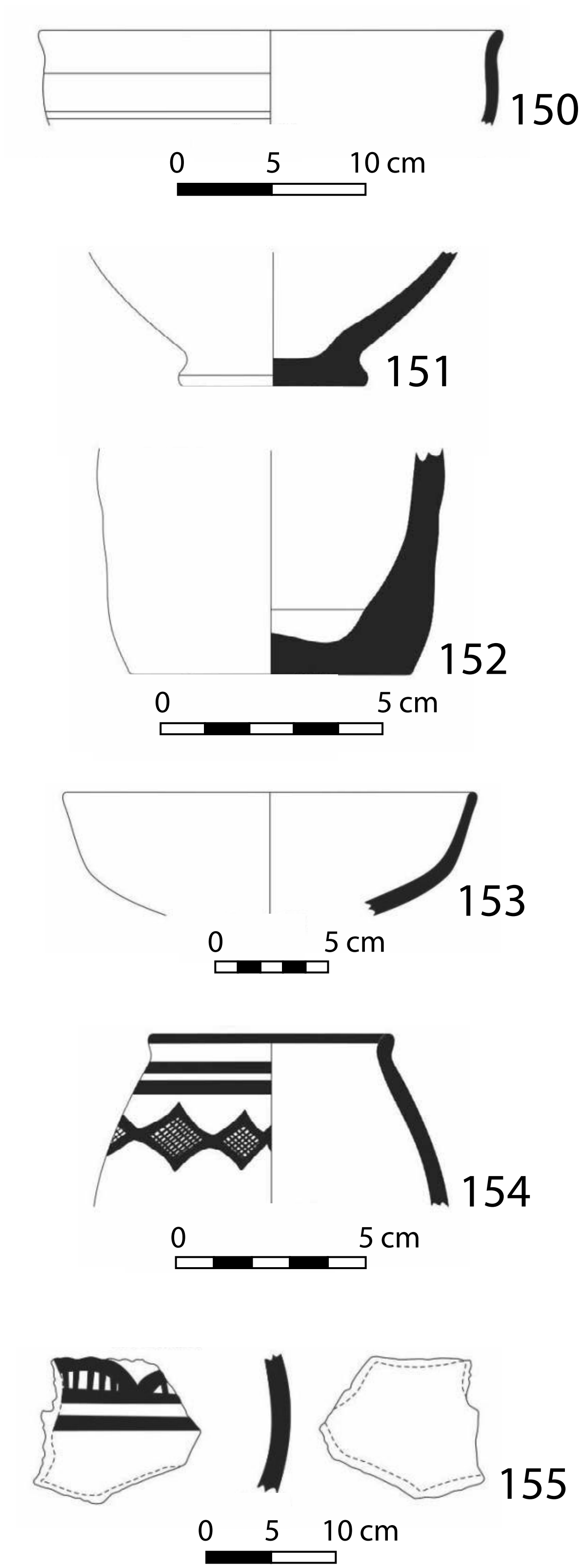


Figure A.178 Significant potsherds No. 150–155 from S.T.9, S.U.25, S.U.29, Tepe Sadegh.

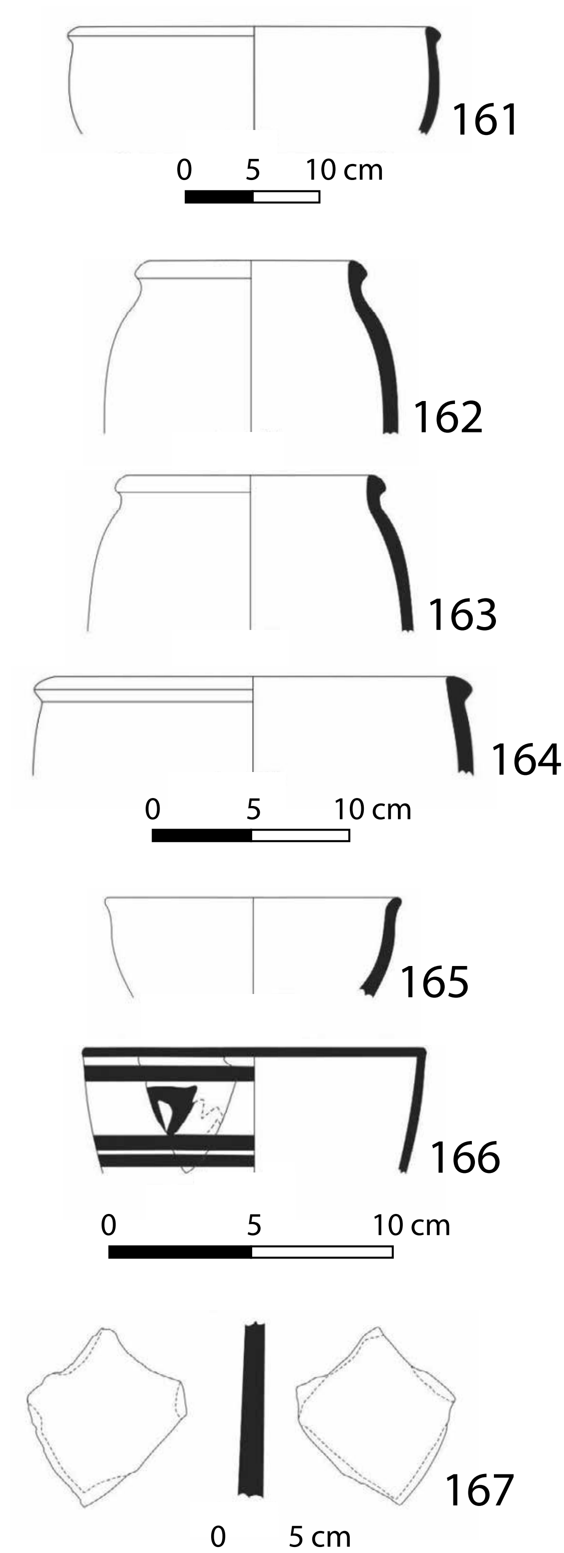


Figure A.179 Significant potsherds No. 161–166 from S.T.9, S.U.31, Tepe Sadegh.

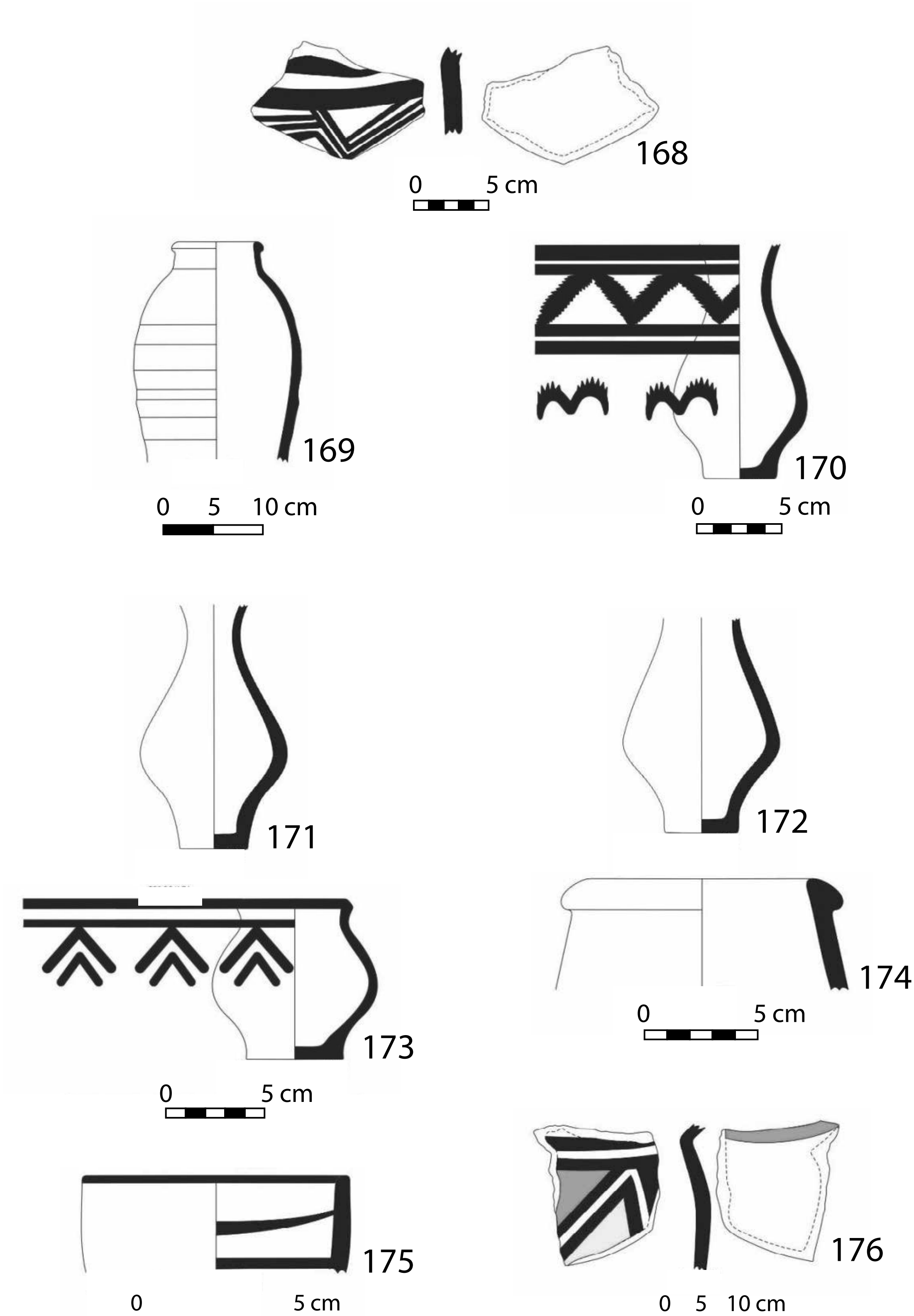


Figure A.180 Significant potsherds No. 168–176 from S.T.9, S.U.31, S.U.39, Tepe Sadegh.

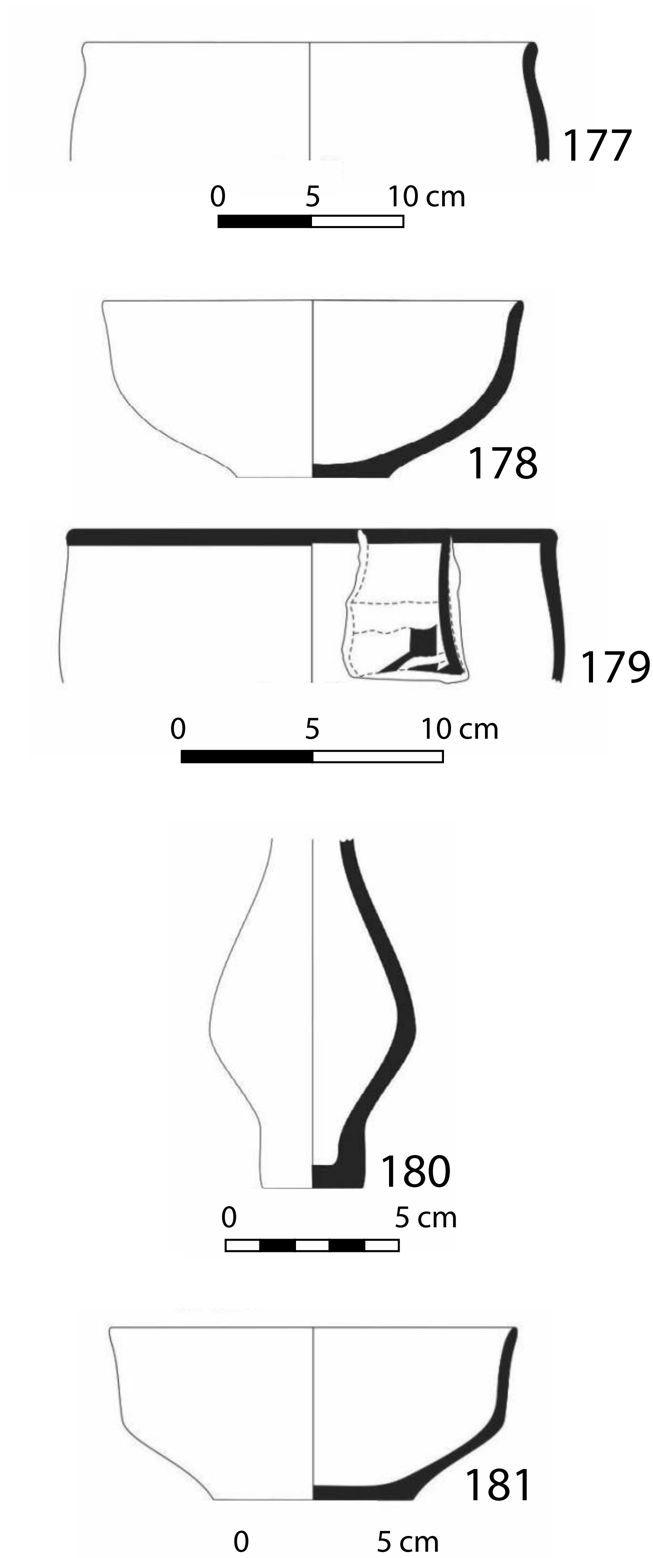


Figure A.181 Significant potsherds No. 177–181 from S.T.9, S.U.40, and S.U.45, Tepe Sadegh.

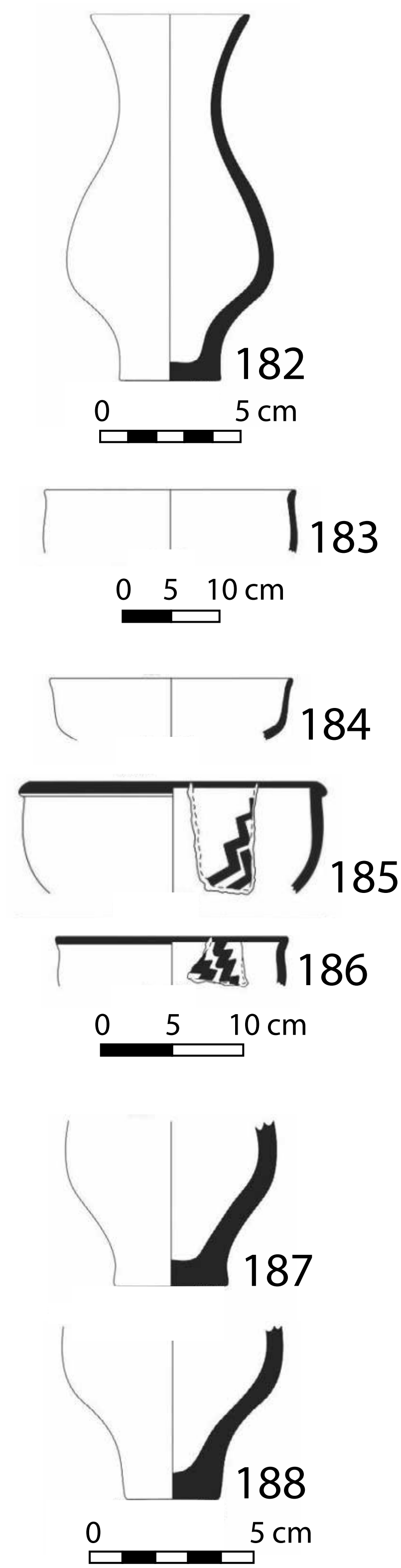


Figure A.182 Significant potsherds No. 182–188 from S.T.9, S.U.48, Tepe Sadegh.

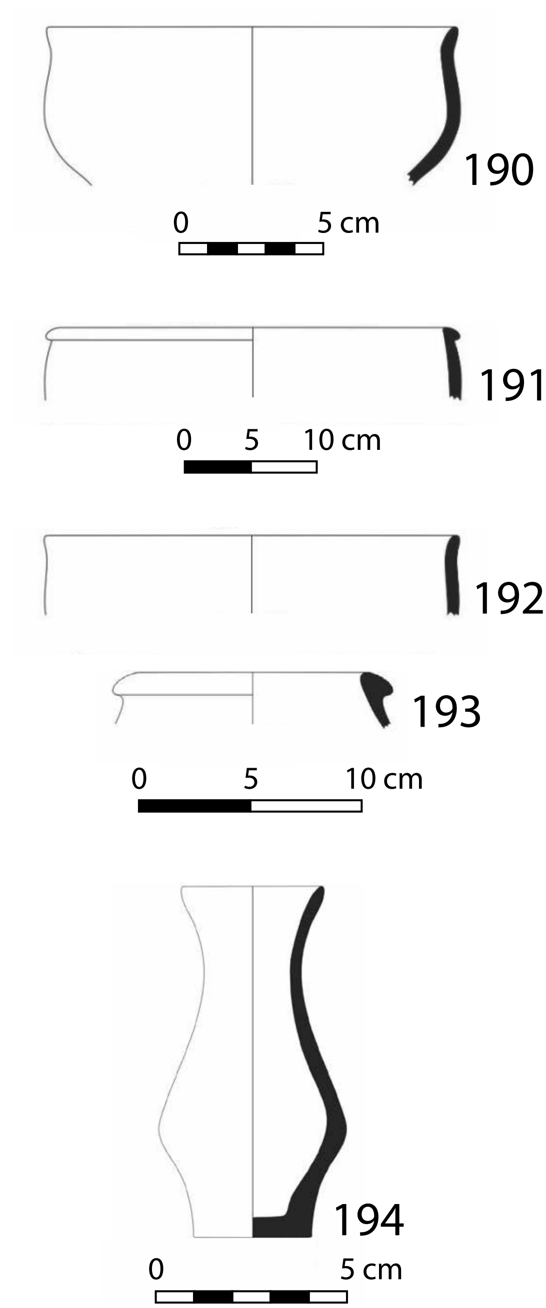


Figure A.183 Significant potsherds No. 190–194 from S.T.9, S.U.56, Tepe Sadegh.

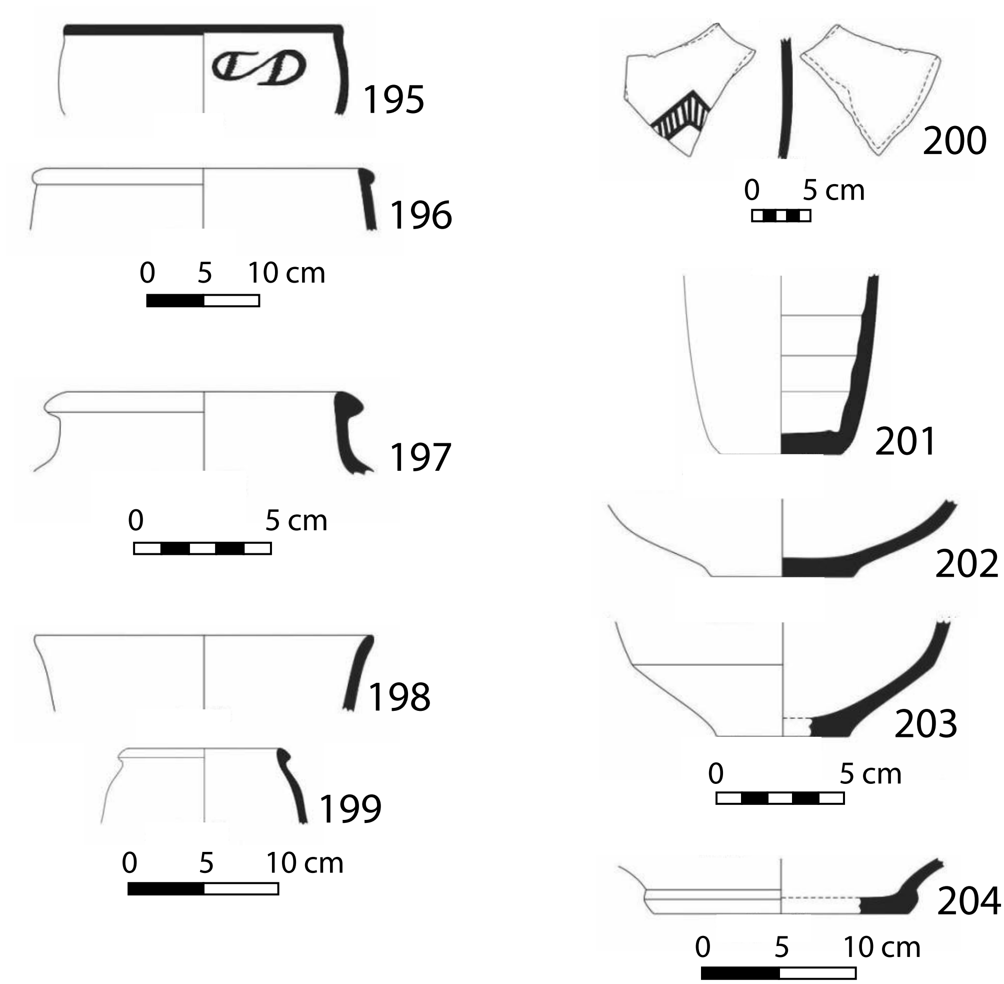


Figure A.184 Significant potsherds No. 195–204 from S.T.9, S.U.58, Tepe Sadegh.

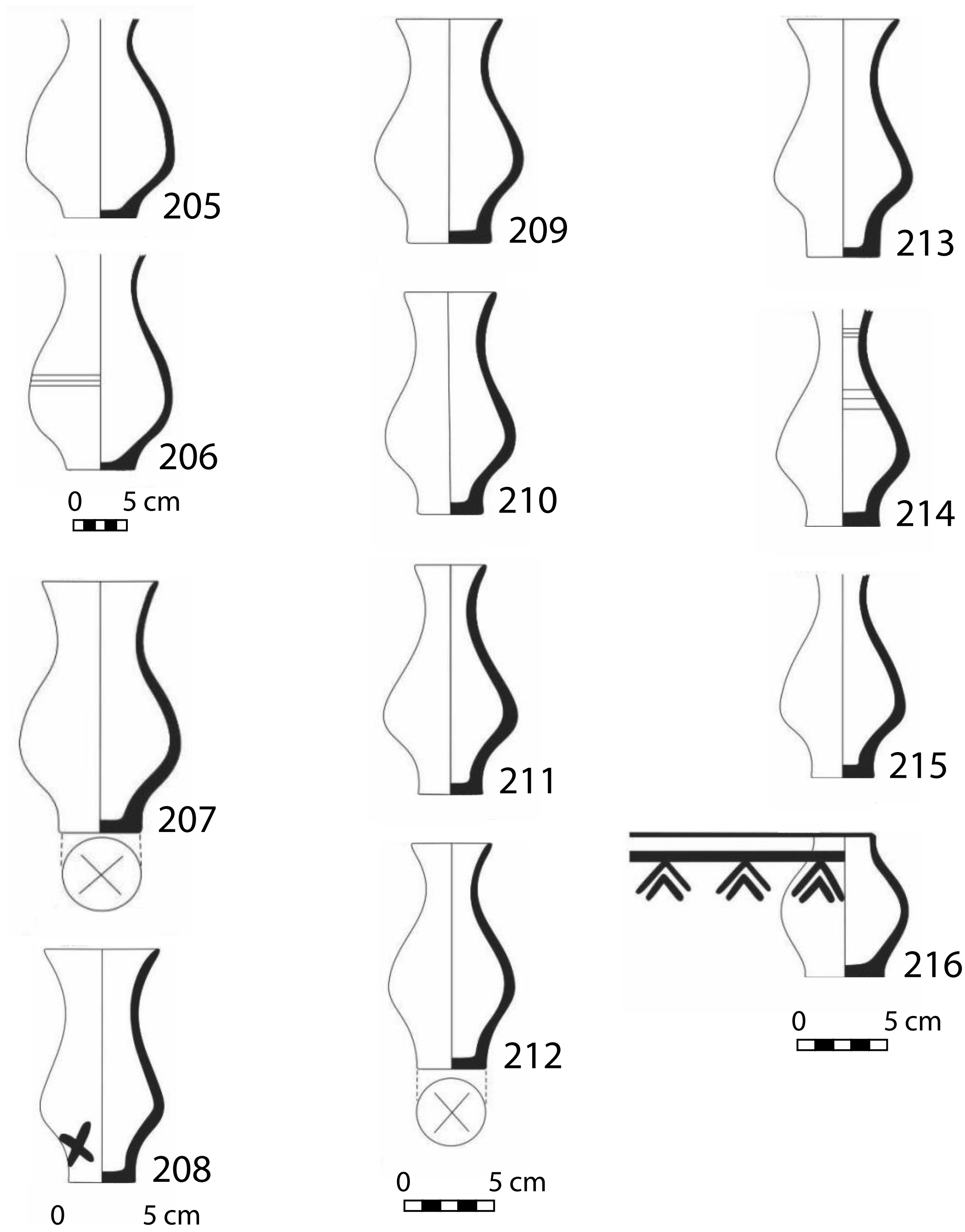


Figure A.185 Significant potsherds No. 205–216 from S.T.9, S.U.59, Tepe Sadegh.

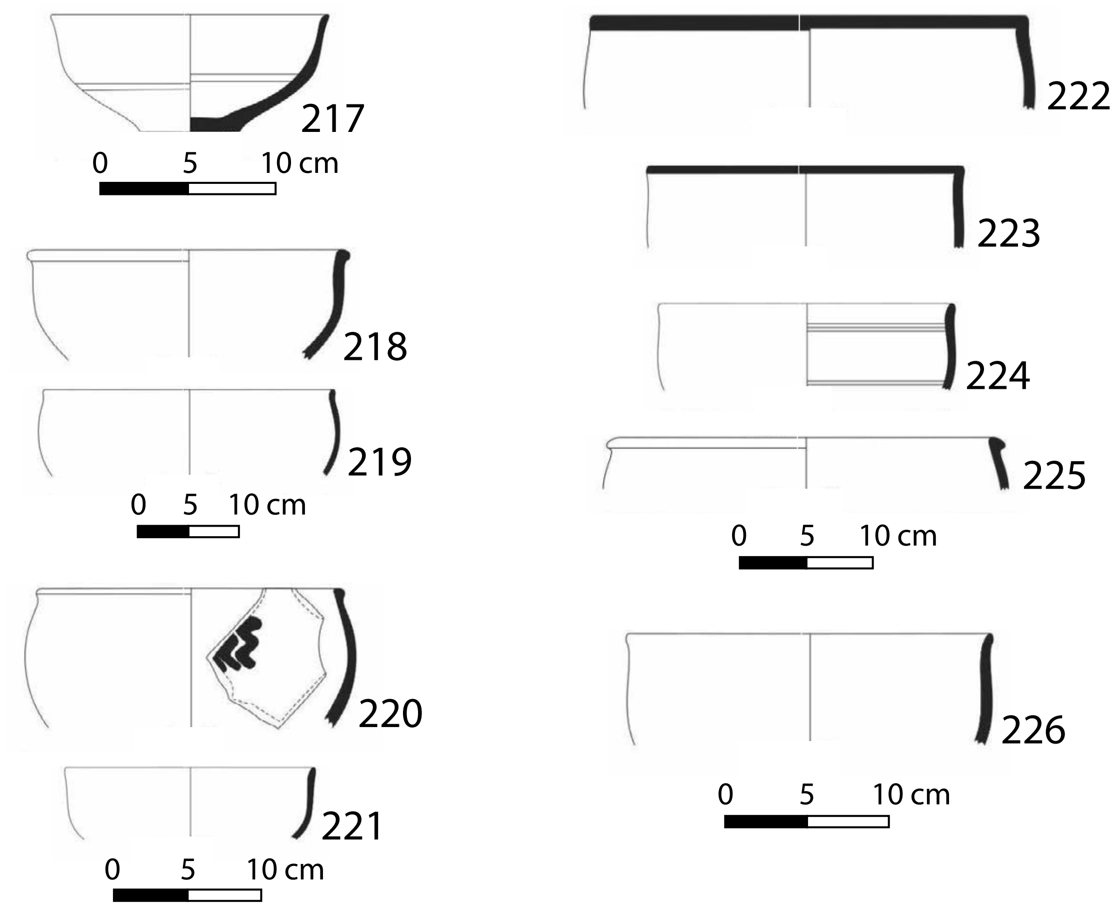


Figure A.186 Significant potsherds No. 217–226 from S.T.9, S.U.59, Tepe Sadegh.

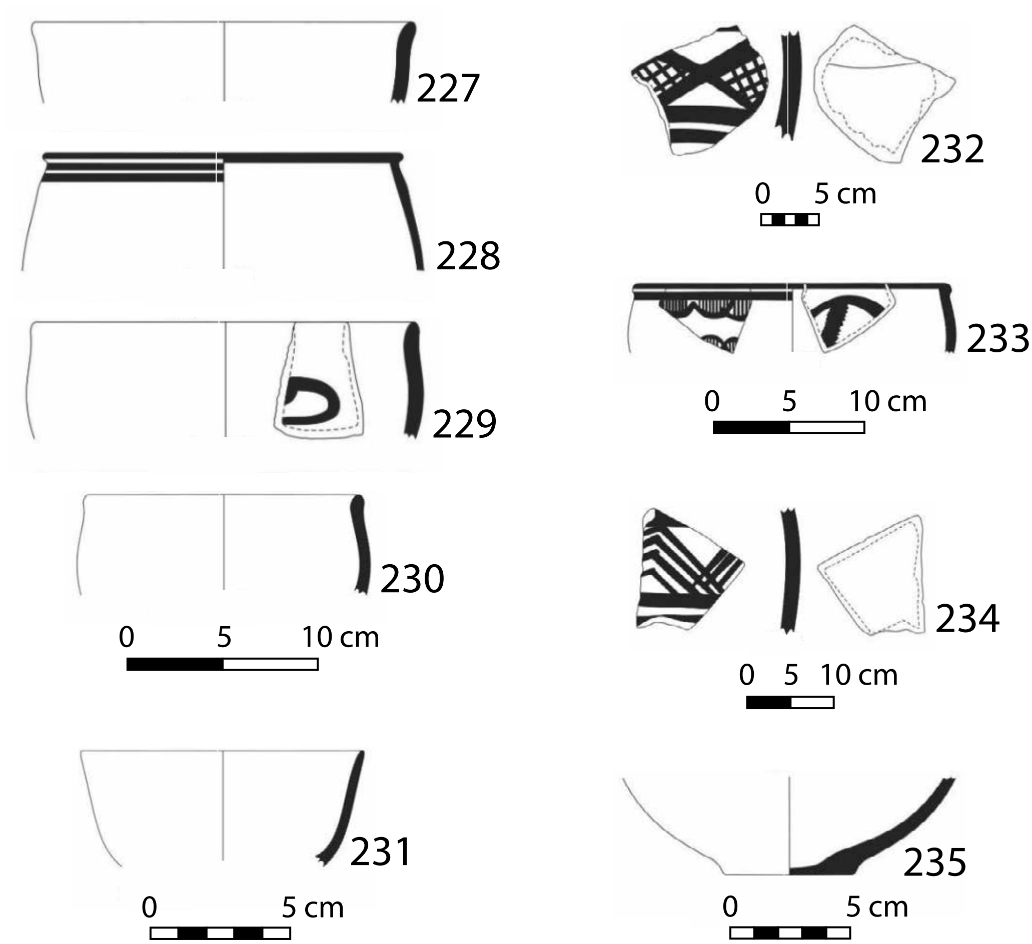


Figure A.187 Significant potsherds No. 227–235 from S.T.9, S.U.59, Tepe Sadegh.

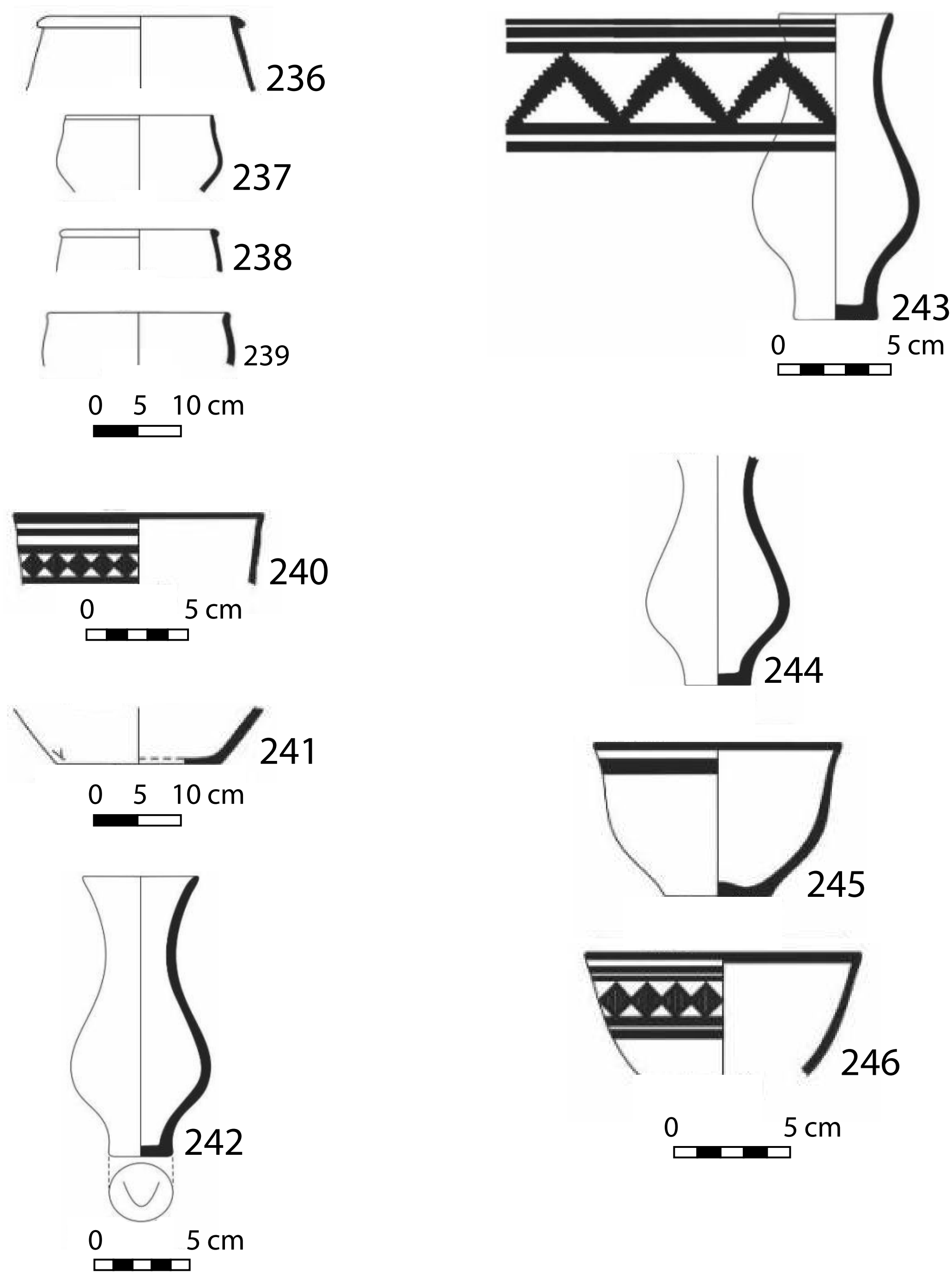


Figure A.188 Significant potsherds No. 236–246 from S.T.9, S.U.59, Tepe Sadegh.

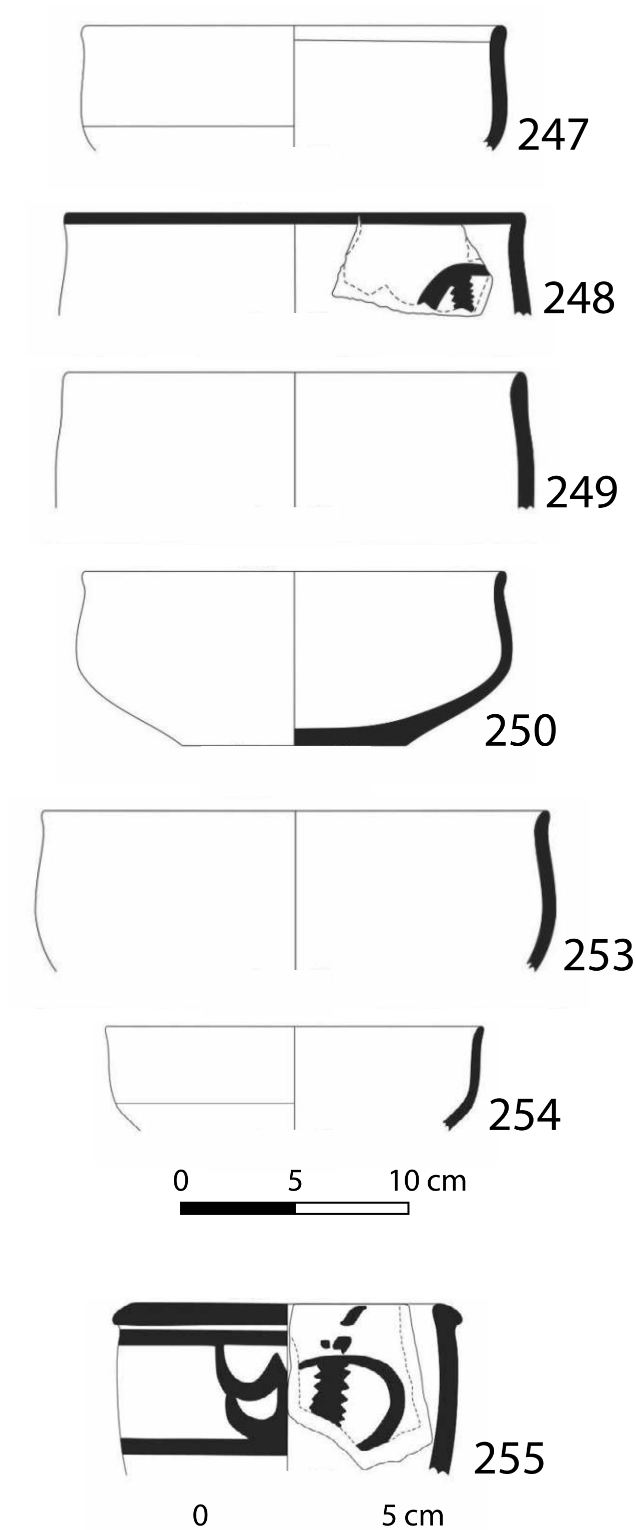


Figure A.189 Significant potsherds No. 247–255 from S.T.9, S.U.60, and S.U.65, Tepe Sadegh.

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Tepe Sadegh, a Bronze Age settlement on the Sistan Plain

This book offers the first comprehensive analysis of the typology and chronology of pottery from Tepe Sadegh, located on the Sistan Plain of southeastern Iran. Tepe Sadegh, a suburban settlement situated 75 km southeast of Zabol and 13 km southwest of the prominent Bronze Age site Shahr-i Sokhta, serves as one of its satellite settlements. Shahr-i Sokhta, a UNESCO World Heritage site and one of the largest Bronze Age urban centres in the region, spans four distinct periods of occupation over nearly 1,200 years. The hot, arid climate of Sistan has been particularly favourable for preserving organic and ceramic samples, enabling detailed studies of chronology.

Pottery, a cornerstone of human culture from the Neolithic era to the present, is a critical tool in archaeological research. The classification of ceramic styles and their similarities or differences provides insights into cultural change and interactions. Before this study, the pottery of Tepe Sadegh was poorly documented, and limited research had been conducted on the satellite sites of Shahr-i Sokhta. By addressing this gap, the study not only enhances understanding of Tepe Sadegh's cultural evolution but also contributes valuable data to the broader understanding of the Bronze Age in Eastern Iran.

By analysing materials such as pottery and radiocarbon-dated charcoal from Tepe Sadegh, this research establishes both a relative and absolute chronological framework. Absolute dating is complemented by comparative analysis with other Indo-Iranian Bronze Age sites, yielding a revised chronology for the period. These findings illuminate the cultural sequences of the region, the process of urbanization, and the increasing socio-cultural complexity of the Sistan Plain during the Bronze Age.

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