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Manufacturing architecture, evidence of pottery production from Tappeh Graziani, Sistan, Iran

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Abstract: *In West Asia, at the end of the 4th and 3rd millennium BC, inter-regional exchanges and trades increased, and the southeastern region of Iran played a key role in these trades due to its geographical location. At this point in time, we witness the formation of the largest urban center, namely Shahr-i Sokhta, with countless satellite settlements and industrial sites. In order to educate the students of the university of Zabol and also to examine the cultural, social and economic characteristics of Hirmand's civilization area, the author excavated the three seasons of Tappeh Graziani, where archaeological evidences of residential architecture, industrial productions and administrative management were found. In this article, an attempt is made to examine evidence related to pottery production in this satellite settlement of Shahr-i Sokhta based on the first season excavations. The pottery kilns show that part of the economy of this site depended on pottery production. The above kiln is closed type with a semi-circular plan, and the reconstruction of the floor shows that this kiln has been used for a long time.*

Key words: Sistan, Bronze Age, Shahr-i Sokhta, Tappeh Graziani, Manufacturing Architecture, Pottery, Pottery Kiln

Introduction

In order to understand the past societies of technical specialization, some experts turn to production organization¹ and study the relationship between specialization and the complexity of societies² although critical these discussions have also been discussed, however, specialization is directly related to the social and economic development of societies and has been mentioned as a key factor in the political economy of a complex society.³ Archaeological findings related to administrative specialization

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¹ Shepard, 1965; Rice, 1981; 1987; Earle, 1987; Brumfiel & Earle, 1987; Blackman, Stein & Vandiver, 1993.

² Tosi, 1984; Clark & Parry, 1991; Cobb, 1996; Pollock, 1999.

³ Sabloff, 1972; Clark & Parry 1991; Peregrine, 1991; Stein, 1996.

and specialized production in the sites of the 4th and 3rd millennium BCE in different areas such as the Kur River basin⁴ and in the Hirmand civilization basin can be seen.⁵ According to the geographical location and archaeological finds from southeastern Iran, archaeologists always acknowledge the key and important position of this area in the Bronze Age as part of a large interregional trade and exchange network.⁶ Tosi compared the materials of cultures obtained from Southeast Iran and the Indus Valley⁷ and Lamberg-Karlovsky has studied the cultural and trade connections of this region with other regions.⁸

The archaeological activities carried out in this area include archaeological surveys⁹ and excavations in Shahr-i Sokhta,¹⁰ Graziani,¹¹ Taleb-Khan,¹² Rostam,¹³ Dasht,¹⁴ Sadegh¹⁵ and Yalda.¹⁶ It shows that in this region at the end of the 4th and 3rd millennium BCE, Shahr-i Sokhta was formed as a center and various sites were formed in it. Part-time or full-time industrial activities are carried out in these sites, and this region has played a key role in the cultural and trade relations of Central Asia and the Indus Valley with western regions such as Fars, Susa and Mesopotamia.¹⁷ Since pre-historic (Shahr-i Sokhta) so far, as well as specific climatic conditions, economic and social structure governing it, Sistan has led to the formation of unique kinds of architecture within.¹⁸

The archaeological surveys carried out in this area led to the identification of 700 sites from the Bronze Age in this area,¹⁹ the results show that these sites also played an essential role in the production of various artefacts, which are used to better understand the economic structures and society of this region in the 3rd millennium BCE. Graziani is one of the sites related to the Shahr-i Sokhta, which has been excavated by one of the authors, in this article it is attempted. In order to analyze the level of specialization in this area based on industrial architectures and other archaeological findings found from this site, according to the above objectives,

⁴ Alden, 2013; Khanipour, Naseri & Nouruzi, 2017.

⁵ Kavosh, 2024.

⁶ Lamberg-Karlovsky, 1972; Kohl, 1975; Alden, 1982; Potts, 1982; 1993; 2009; Aruz & Wallenfels, 2003; Mutin, 2013; Mutin & Lamberg-Karlovsky, 2013; Mutin *et al.*, 2017.

⁷ Tosi, 1977.

⁸ Lamberg-Karlovsky, 1972; Lamberg-Karlovsky & Beale, 1986; Lamberg-Karlovsky & Potts, 2001.

⁹ Mehrafarin & Haji, 2009.

¹⁰ Tosi, 1969; 1970a; 1973; 1983; Salvatori & Tosi, 2005; Sajjadi *et al.*, 2003; Sajjadi & Moradi, 2014; Sajjadi, 2019.

¹¹ Kavosh 2012; Kavosh, Vidale & Fazeli Nashli, 2019.

¹² Kavosh, 2022; Kavosh & Oveisi-Keikha, 2024.

¹³ Kavosh, 2020.

¹⁴ Mortazavi, Mishmast & Good, 2011.

¹⁵ Shirazi, 2019.

¹⁶ Oveisi-Keikha & Kavosh, 2023.

¹⁷ Lamberg-Karlovsky, 1972; Kavosh 2024.

¹⁸ Oveisi-Keikha & Kavosh, 2021.

¹⁹ Mehrafarin & Haji, 2009.

the questions of this research are: What are the evidences of pottery production obtained from Graziani? In what professions does the Graziani Bronze Age Society specialize? What was the function of this site during the settlement period based on the architectural evidence obtained? In order to answer the above question and achieve the goals of the research, while introducing the site and the findings of the excavation, the relative and absolute chronology of the site will be presented, and then based on the architectural remains and the findings, the evidence of specialized production and the level of social complexity will be analyzed.

Tappeh Graziani

Graziani is located on the southern plain of Sistan, 56.6 km south of Zabol city and 10 km east of Shahr-i Sokhta. The site dimensions are 220 x 160 m in an oval shape in north-west-south-east directions. Tappeh Graziani today emerges from the floodplain to a maximum height of 10 m, 4, 5 of which consist of artificial Bronze Age deposits. With an extension of c. 3 ha, it can be considered a large village or settlement core of the Bronze Age settlement network. This is peripheral to the main center. Tappeh Graziani is distinguished by a gentle slope on the southern side. However, the other edges of the mound present a steep profile, due to the intensity of the local wind erosion processes caused by the famous 120-day winds of Sistan [Figs. 1-2].²⁰

On the northern slope of the site, there are remains of heat-treated architecture, around which there is a high concentration of kiln welds, indicating the presence of a kiln in this part. This site was first identified during Italian archaeologists' surveys²¹ and then visited during the archaeological survey of Sistan province.²² The name of the site is derived from the name of one of the Italian archaeological team members that found this site. Its archaeological excavations have been carried out for three seasons by the first author with the aim of teaching field activities to archeology students of Zabol University, knowing the cultural and social characteristics of the Bronze Age of the Hirmand civilization area, investigating the functioning of satellite sites of Shahr-i Sokhta, relative and absolute chronology and examination of specialization and industrial production was carried out. Its eight hummocks, shaped by erosion, are continuously covered by either plain or (to a lesser extent) painted pottery fragments. Other cultural materials abundantly spread on the surface are over-fired potsherds, sherds of stone vessels, stone tools and implements, semiprecious stones and metal objects, stone seals, copper slag and furnace fragments [Fig. 3].²³

²⁰ Kavosh, 2012.

²¹ Lazzari, 2019.

²² Mehrafarin & Haji, 2009.

²³ Kavosh, Vidale & Fazeli Nashli, 2019: 26.



Fig. 1. Location of the Tappeh Graziani in southeast of Iran



Fig. 2. Overview of Tappeh Graziani (Photo by H.A. Kavosh)



Fig. 3. Pottery Kiln and distribution of furnace fragments on Tappeh Graziani surface (Photo by H.A. Kavosh)

Excavation at Garziani

During three excavation seasons, six trenches were excavated in different parts of the site. Trench 1 was created with the purpose of stratification on one of the ridges of the southwest part in a stepped manner, as a result of which 380 cm of cultural deposits including soil and ash deposits, kiln, wall and floor remains were identified. Its sequence can be divided into 6 building cycles. The second trench was also selected and excavated in the eastern part of the site. In this part, there were cultural deposits from the surface to a depth of 430 cm. This included layers of soil and ash, an oven, wall, platform and floor. Trench three with dimensions of 10 x 10 meters was created in the central part of the site, as a result of which different architectural spaces with rectangular clay walls were formed. Also, three other trenches were excavated in the second and third seasons in different parts of the site. Valuable results were obtained from architecture and archaeological data. At the end of Shahr-i Sokhta I, it continued until Shahr-i Sokhta IV. The oldest settlement evidence was obtained from Trench 1, whose pottery is comparable to Phase 7/8 of Shahr-i Sokhta, after that pottery similar to Phases 6, 5, 4 and 3, i.e. Shahr-i Sokhta II and III, was found. Also, from trench 3

and the surface layers, pottery similar to Shahr-i Sokhta IV was identified. Absolute dating shows 2860 to 2300 BCE for the cultural deposits of this site.²⁴

Trench I

The first stratigraphic trench was dug in one of the reliefs of the south-western part of the site. Excavation took the form of a step trench, 2 m wide and 12 m long, extending to the edge of the site. The excavation continued to a depth of 3.80 m until virgin soil (natural substrate with no cultural material) was encountered. A total of 64 stratigraphic contexts were identified, 35 of which had or were architectural structures. We have subdivided these contexts into six successive building cycles. The six building cycles are referred to the Shahr-i Sokhta sequence by means of ceramic comparisons. As a result, the ceramic evidence indicates that the earliest settlement corresponds to a late moment of Period I; the latest, at least on this spot, to Period III, phase 3. In this light, the early Period I settled surface on the virgin soil of the Eastern Residential Area of Shahr-i Sokhta is the oldest of prehistoric Sistan.²⁵

During the excavation, various objects made of metal, clay, and stone were found. These objects included human and animal figurines [Fig. 4], beads, tokens, and a piece of a knife, pin, and fishing hook [Fig. 5]. Similar to the above figurines, they were also obtained from the excavations of Shahr-i Sokhta, Tepe Yal and Talebkhan. This shows that figurine construction was common in this area in the Bronze Age. Tokens have always been used for accounting and recording from the Neolithic²⁶ to the Bronze Age,²⁷ and Tepeh Graziani's findings show that tokens were also used at this site.

²⁴ Kavosh, Vidale & Fazeli Nashli, 2019.

²⁵ Kavosh, 2012.

²⁶ Khanipour, Niknami & Abe, 2021; Khanipour, Zare Kordshooli & Karami, 2021.

²⁷ Schmandt Besserat, 1992; 1996.



Fig. 4. Human and animal figurine from Trench 1 (Photo by H.A. Kavosh)



Fig. 5. Small object from Tappeh Graziani (Photo by H.A. Kavosh)

Pottery kiln structure

During the excavation of trench 1, six building cycles were identified. From all building cycles, residential architectures including brick buildings with a rectangular plan were identified. As a result of the third phase, a heated structure was generated, which, according to the plan and structure, can be said to be a pottery kiln. The above kiln is a closed kiln with a semi-circular plan. The southern part is semi-circular and the northern part has angular corners. The fuel chamber is located in the southern part of the kiln. Its firing chamber diameter is 140 cm. The firing chamber of this kiln has two vertical mud-bricks in such a way that the mud-bricks are placed next to each other according to their thickness, and thus the outer wall, which is longer, is about 16 cm and the inner wall is 14 cm thick.²⁸

The excavation shows that this kiln has been used for a long time and its floor has been renovated many times. The floors are of two types. The first category is clay floors (contexts 1040, 1045) and the second category is pottery floors. The order in which broken pottery pieces are placed on the floor. Four pottery floors were identified at different levels. The first pottery floor (context 1036) is located only in the southern part of the firing chamber, while the second pottery floor (context 1030) is larger and covers a large part of the inner surface of the firing chamber. The third pottery floor (context 1043) has the largest area, located on the entire inner surface of the firing chamber. The fourth floor (context 1046), which is the oldest pottery floor, has a smaller area than the third floor [Fig. 6]. It is interesting to note that jar pieces are used to make pottery floors. At the lowest level, the firing chamber is divided into two parts by a thin wall, which is in the northern part of the ash. It seems that this kiln probably had a roof that was destroyed over time. The industrial spaces related to this kiln are located outside the trench. In future excavations, structures related to kilns and pottery production will be revealed [Figs. 7-8].

²⁸ Kavosh, 2012.

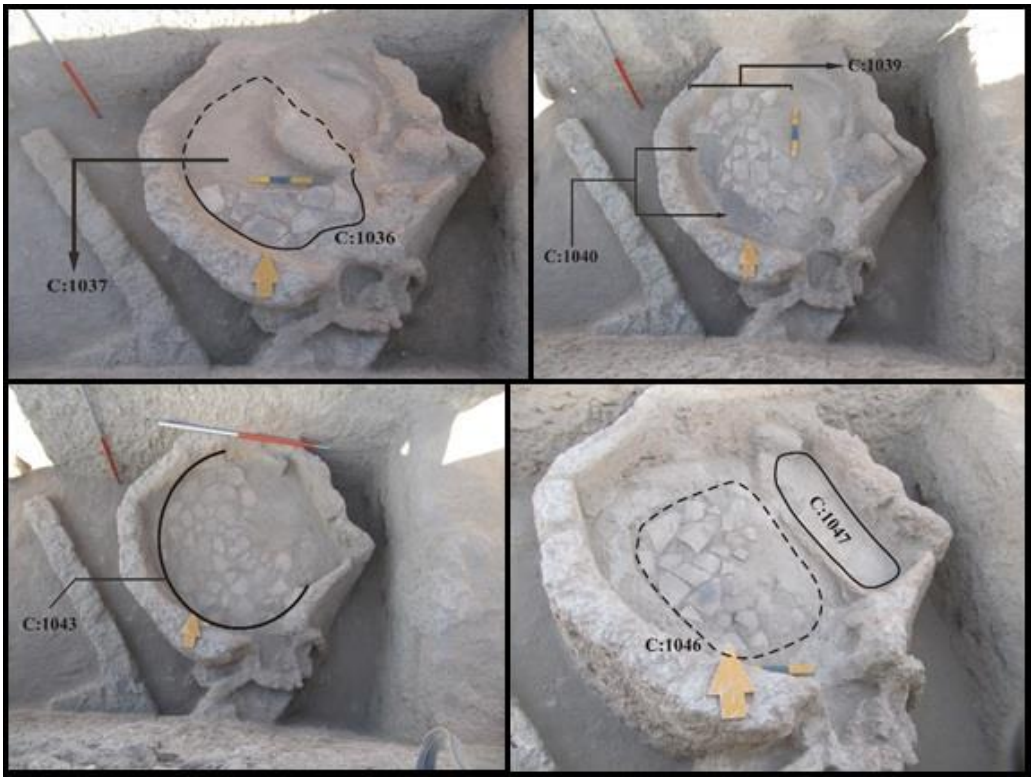


Fig. 6. Pottery floors of the pottery kiln (Photo by H.A. Kavosh)

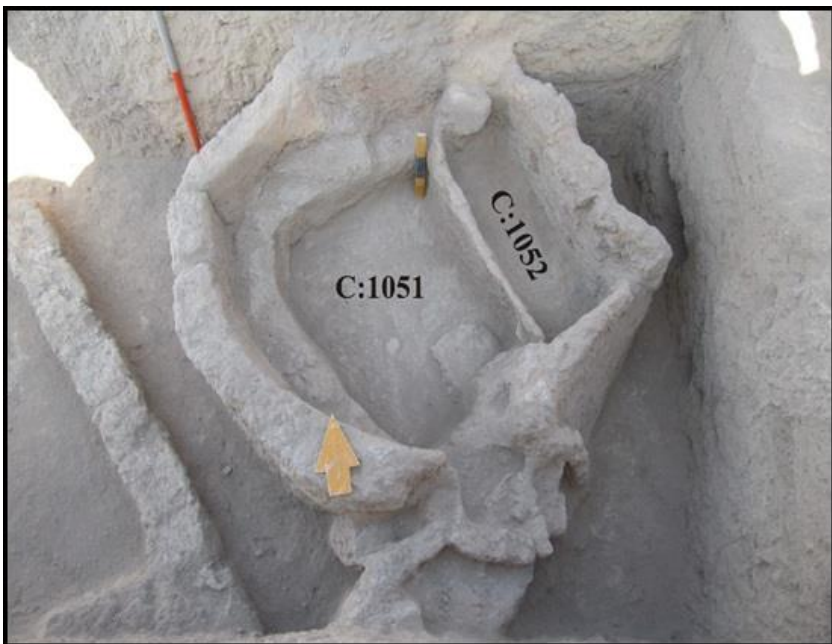


Fig. 7. Oldest phase of the pottery kiln (Photo by H.A. Kavosh)

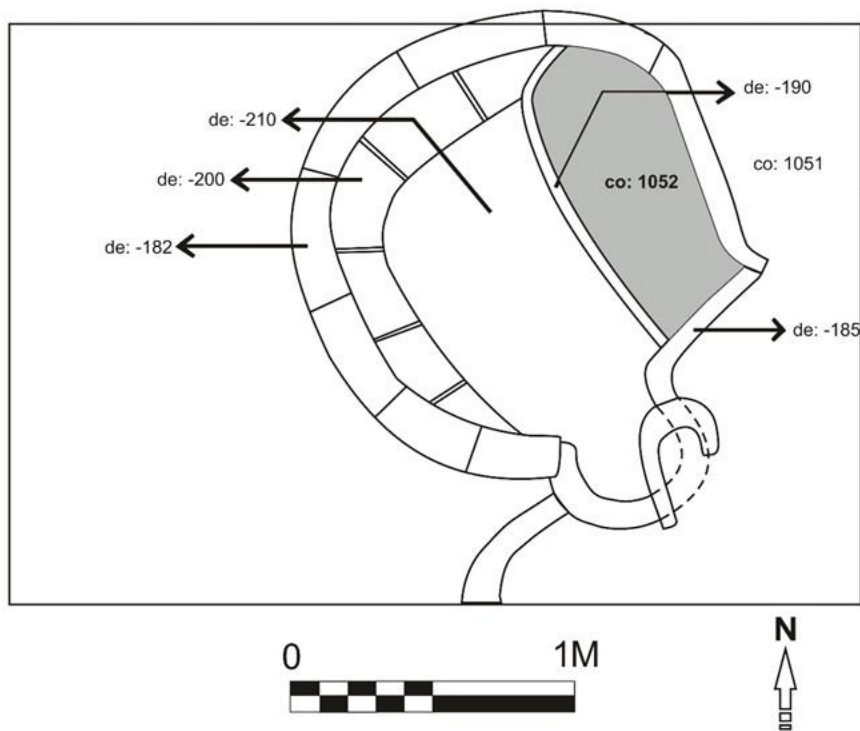


Fig. 8. The plan of the pottery kiln (Drawing by Z. Oveisi-Keikha)

Dating of the kiln

A portion of the pottery recovered from the micro-stratified levels excavated inside the kiln [Fig. 9], is related to Building cycle 3. Co. 1051 (near the bottom), Co. 1042, 1043, and 1047 are sedimentary deposits inside the kiln. The bowls, painted with the recurrent double spiral pattern, show the co-occurrence of truncated conelike to hemispherical forms that distinguish Shahr-i Sokhta II, phase 5A.²⁹ The fragments of pear-shaped beakers in figure 9, the motifs featured are closely similar to those featured in similar collections from phases 5A, but even more from phases 5B and 4 of the Central Quarters pottery sequence.³⁰ In the middle of the pyrotechnological infrastructure, all the pottery of this description could be found in conjunction with or below Co. 1040-1042, three heated floors or levels. The excavation data thus join the first part of the kiln filling to Building cycle 3, phase 5A (no older sherd is present) and – indirectly – the upper part of the same filling. Also, it connects the last period of kiln use to phase 5B and possibly to the transition to Period III, phase 4.³¹

²⁹ Salvatori & Vidale, 1997: Figs. 132-142.

³⁰ Salvatori & Vidale, 1997: Fig. 202.

³¹ Kavosh, Vidale & Fazeli Nashli, 2019.



Fig. 9. Pottery from the kiln (Photo by H.A. Kavosh)

Discussion

Pottery production research generally focuses on pottery typology and classification, and pottery production organization has not been addressed much. The existence of architectures related to industrial productions such as pottery production is useful for understanding past societies' economic and social structures. The oldest pottery kilns in Iran were found in Djaffarabad³² and Hormangan,³³ which date back to the 7th millennium BCE. Pottery kilns have also been discovered at Iblis,³⁴ Tepe Rudi-Biyaban³⁵ and Dasht³⁶ in the southeast of Iran. The existence of pottery kiln structure technology is a prerequisite for specialization and mass production.³⁷ From trench 1 of Graziani, a heated structure was discovered. This shows that the above structure was a clay kiln of the closed-kiln type. This type of kiln is an evolved type of kiln that allows the potter more control over firing pottery. It can also raise the temperature to more than 1000 degrees Celsius unlike an open kiln. Moreover, since most of the pottery obtained from this site has sufficient firing, closed kilns were used.

The existence of the kiln in the first trench, the surface of the site and the furnace fragments obtained from different layers show that pottery was one of the main occupations of the Graziani community. So far, various models have been proposed for society specialization,³⁸ The presence of architecture and findings related to specialized production show that the Graziani society produced on the scale of a nucleated work-

³² Majidzadeh, 1975; Dollfus & Hesse, 1977.

³³ Khanipour, Emadi & Akbari, 2018.

³⁴ Caldwell, 1967.

³⁵ Tosi 1970b; 1972.

³⁶ Mortazavi, Mishmast & Good, 2011.

³⁷ Streily, 2000: 69-70.

³⁸ Peacock, 1982: 8-10; Rice, 1987.

shop. Some experts consider workshop spaces and pottery production organizations as evidence of complex societies. They mention pottery kilns as an indicator of specialization and expertise that has led human societies to produce non-agricultural products and provided the necessary grounds for social and economic complications;³⁹ Tosi has specified several criteria for the specialized production,⁴⁰ among which four items are the facilities of different stages of production like the pottery kilns in Tepe Graziani, tools for making other tools such as molds for casting and melting metal, tool wastes such as metal slags,⁴¹ or deformed pottery have been discovered in Graziani so far. The presence of pottery kilns, warehouse [Fig. 10], evidence of metal object production,⁴² objects related to administrative such as seals and tokens [Fig. 5] shows that the Graziani society was a complex society and probably with a social hierarchy, where people specialized in the production of pottery and metal objects and the products have been monitored and controlled. It was obtained from Yal in Sistan, and Gilund in India,⁴³ similar to the Graziani warehouse architecture. They clearly show that they are warehouses with a rectangular plan and a small width.



Fig. 10. Warehouse architecture of Tappeh Graziani (Photo by H.A. Kavosh)

³⁹ Rice, 1987; Stark, 1995.

⁴⁰ Tosi, 1984.

⁴¹ Mortazavi *et al.*, 2022.

⁴² Kavosh, 2024.

⁴³ Shinde, Possehl & Ameri, 2005; Sarkar, 2014.

Conclusions

Tappeh Graziani is one of the key satellite sites of Shahr-i Sokhta. Archaeological excavations reveal that settlement at this site started at the same time as Shahr-i Sokhta II and ended at the same time as Shahr-i Sokhta IV. Graziani architecture can be classified into three categories of function: the first is residential architecture. The buildings have rectangular plans and are made of mud-brick, and most have round or square ovens. From the sixth trench, small spaces were discovered next to residential architecture, which appear to have been warehouse. The third group is industrial structures, the most prominent being the pottery kiln, which was obtained from trench 1. These architectural and various objects were obtained from this site. This shows that in addition to the settlement, semi-industrial activities were also carried out there, and probably a large part of the activities of the people of this village were based on the production of pottery and metal objects. The presence of pottery kilns shows that pottery was produced on this site. The kiln obtained is a closed kiln with a circular plan. The existence of multiple floors shows that this kiln has been used for a long time. Based on the pottery found, this kiln can be considered the same as Shahr-i Sokhta II. Tappeh Graziani archaeological excavations show clear evidence of industrial activities, administration tools. It is clear from these archaeological evidences that the settlements of the Bronze Age Hirmand Civilization area were not merely simple societies; they also had specialization and a social hierarchy. In addition to a large urban center such as Shahr-i Sokhta, there are numerous industrial villages such as Graziani.

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Bibliography

- Alden, J.R. (1982). Market Place Exchange as Indirect Disturbtion. An Iranian Example. In J.E. Ericson, T.K. Earle (Eds.), *Contexts for Prehistoric Exchange* (pp. 83–102). New York: Academic Press.
- Alden, J.R. (2013). The Kur River Basin in the Proto-Elamite era-surface Survey, Settlement Patterns, and the Appearance of full-time Transhumant Pastoral Nomadism. In C. Petrie (Ed.), *Ancient Iran and Its Neighbours: Local Developments and Long-range Interactions in the 4th Millennium BC* (Vol. 3, pp. 207–232). Oxford: Oxbow Books. <https://doi.org/10.2307/j.ctvh1dn46.16>
- Aruz, J., Wallenfels, R. (2003). *Art of the First Cities: The Third Millennium BC from the Mediterranean to the Indus*. New York: Metropolitan Museum of Art.
- Blackman, M.J, Stein, G.J., Vandiver, P.B. (1993). The Standardization Hypothesis and Ceramic Mass Production: Technological, Compositional, and Metric Indexes of Craft Specialization at Tell Leilan, Syria. *American Antiquity*, 58(1), 60–80. <https://doi.org/10.2307/281454>

- Brumfiel, E., Earle, T.K. (1987). Specialization, Exchange, and Complex Societies: An Introduction. In E. Brumfiel, T.K. Earle (Eds.), *Specialization, Exchange, and Complex Societies* (pp. 1–10). Cambridge: Cambridge University Press.
- Clark, J.E., Parry, W.J. (1991). Craft Specialization and Cultural Complexity. *Research in Economic Anthropology*, 12, 289–346.
- Cobb, C.R. (1996). Specialization, Exchange, and Power in Small-Scale Societies and Chiefdoms. *Research in Economic Anthropology*, 17, 251–294.
- Dollfus, G., Hesse, A. (1977). Les structures à combustion de Djaffarabad, périodes I à III. *Cahiers de la Délégation archéologique française en Iran*, 7, 11–47.
- Earle, T.K. (1987). Specialization and the Production of Wealth: Hawaiian Chiefdoms and the Inka Empire. In E. Brumfiel, T.K. Earle (Eds.), *Specialization, Exchange, and Complex Societies* (pp. 64–75). Cambridge: Cambridge University Press.
- Kavosh, H. (2012). *Dasht-e Jonoubi-e Sistan Dar Asr-e Mefragh [Southern Plain of Sistan During Bronze Age]*. PhD diss., Tehran University. (in Persian)
- Kavosh, H. (2020). *Gozarsh Nahaei Fasl-e aval Kavosh Tape Rostam dar Sistan [Final report of the first season of archaeological excavation at Rostam site in Sistan]*. ICAR archive. (in Persian)
- Kavosh, H. (2022). Gahnegari Tape Talebkhan bar asas carbon 14 [Chronology of Tape TalebKhan based on C14]. *Journal of Research on Archaeometry*, 8, 67–82. <https://doi.org/10.52547/jra.8.1.67> (in Persian)
- Kavosh, H. (2024). Felezhgari-e Kohan dar jonoubshargh Iran dar asr mefragh, shavahedi az Tappeh Graziani Sistan [Archaeometallurgy of southeast of Iran during bronze age: evidence from Tappeh Graziani, Sistan]. *Pazhoheshha-ye Bastan shenasi Iran*. <https://doi.org/10.22084/NB.2024.28318.2628> (in Persian)
- Kavosh, H., Oveisi-Keikha, Z. (2024). Modiriati edari dar dore mefragh sistan: shavahedi az Tepe Taleb Khan Sistan [Administrative Management in the Bronze Age of Southeast Iran: Evidence from Tepe Taleb Khan in Sistan]. *Pazhoheshha-ye Bastan shenasi Iran*, 13(39), 61–88. <https://doi.org/10.22084/nb.2023.27525.2569> (in Persian)
- Kavosh, H., Vidale, M., Fazeli Nashli, H. (2019). *Prehistoric Sistan 2: Tappeh Graziani, Sistan, Iran: Stratigraphy, Formation Processes and Chronology of A Suburban Site Of Shahr-I Sokhta*. Roma: ISMEO.
- Khanipour, M., Emadi, H., Akbari, A. (2018). Hormangan Site. New Evidence for Neolithic Occupations in the Southern Zagros, Iran. *Neo-lithic*, 18, 17–22.
- Khanipour, M., Naseri, R., Nouruzi, M. (2017). Stratified Sequence and Relative Chronology at Toll-e Gap Kenareh, Marvdasht plain, Iran. *Iranian Journal of Archaeological Studies*, 7(1), 85–106.
- Khanipour, M., Niknami, K., Abe, M. (2021). Challenges of The Fars Neolithic Chronology: An Appraisal. *Radiocarbon*, 63(2), 693–712. <https://doi.org/10.1017/RDC.2020.113>
- Khanipour, M., Zare Kordshooli, F., Karami, H. (2021). Archeological Excavations at Tol-e Sangi in Fars Province, Iran. *Persica Antiqua*, 1(1), 97–104. <https://doi.org/10.22034/PA.2021.134834>
- Kohl, P.L. (1975). Carved Chlorite Vessels, a Trade in Finished Commodities in the Mid-Third Millennium. *Expedition*, 18(1), 18–31.
- Lamberg-Karlovsky, C.C. (1972). Tepe Yahyā 1971: Mesopotamia and the Indo-Iranian Borderlands. *Iran*, 10, 89–100. <https://doi.org/10.2307/4300467>
- Lamberg-Karlovsky, C.C., Beale, T.W. (Eds.) (1986). *Excavations at Tepe Yahya, Iran, 1967-1975, Volume I: The Early Periods*. Cambridge, Mass.: Harvard University Press.
- Lamberg-Karlovsky, C.C., Potts, D.T. (Eds.) (2001). *Excavations at Tepe Yahya, Iran 1967-1975: The Third Millennium*. Cambridge, Mass.: Harvard University Press.
- Lazzari, A. (2019). Early survey by the Italian Archaeological Mission. In H.A. Kavosh, M. Vidale, H. Fazeli Nashli (Eds.), *Prehistoric Sistan 2: Tappeh Graziani, Sistan, Iran: stratigraphy, formation processes and chronology of a suburban site of Shahr-i Sokhta* (pp. 11–24). Roma: ISMEO.

- Majidzadeh, Y. (1975). The Development of the Pottery Kiln in Iran from Prehistoric to Historical Periods, *Paléorient*, 3, 207–221.
- Mehrafarin, R., Haji, M.S.R. (2009). *Baresie Bastanshenasi dar Sistan, phase 2, Jonoub Qale Rostam* [Archaeological Survey in Sistan, Phase 2, South of Qale Rostam]. ICAR archive. (in Persian)
- Mortazavi, M., Kavosh, H., Naghavi, S., Khanjari, R. (2022). Microstructural and Analytical Study of Uncommon Corrosion Features on Archaeological Cu-As Alloys from Tappeh Graziani in Southeastern Iran. *Microscopy and Microanalysis*, 28(2), 302–316.
- Mortazavi, M., Mishmast, M., Good, I. (2011). Bronze Age textiles: a preliminary analysis of fragments discovered at Tepe Dasht, Sistan. *Iranian Journal of Archaeological Studies*, 1, 61–68.
- Mutin, B. (2013). Ceramic Traditions and Interactions on the Southeastern Iranian Plateau during the fourth Millennium BC. In C.A. Petrie (Ed.), *Ancient Iran and Its Neighbours: Local Developments and Long-range Interactions in the 4th Millennium BC* (Vol. 3, pp. 253–276). Oxbow Books. <https://doi.org/10.2307/j.ctvh1dn46.18>.
- Mutin, B., Lamberg-Karlovsky, C.C. (Eds.) (2013). *The Proto-Elamite Settlement and Its Neighbors: Tepe Yahya, Period IVC*. Oxford: Oxbow books.
- Mutin, B., Minc, L.D., Lamberg-Karlovsky, C.C., Tosi, M. (2017). Regional and Long-Distance Exchange of an Emblematic Prestige Ceramic in the Indo-Iranian Borderlands. Results of Neutron Activation Analysis. *Paléorient*, 43(1), 141–162.
- Oveisi-Keikha, Z., Kavosh, H. (2023). The Investigation of residential architecture in the Bronze Age. Tape Yal (Yalda), Sistan and Baluchestan province, Iran. *Historia i Świat*, 12, 9–30. <https://doi.org/10.34739/his.2023.12.01>
- Oveisi-Keikha, Z., Kavosh, H. (2021). Evolution of patterns in architecture of Sistan, east of Iran. *Journal of Sistan and Baluchistan Studies*, 1(1), 87–93. <https://doi.org/10.22034/JSBS.2021.146219>
- Peacock, D.S. (1982). *Pottery in the Roman World: an Ethnoarchaeological Approach*. London & New York: Longman.
- Peregrine, P. (1991). Some Political Aspects of Craft Specialization. *World Archaeology*, 23(1), 1–11. <http://www.jstor.org/stable/124725>
- Pollock, S. (1999). *Ancient Mesopotamia. The Eden that Never Was*. Cambridge: Cambridge University Press.
- Potts, D.T. (1982). The Zagros Frontier and the Problem of Relations between the Iranian Plateau and Southern Mesopotamia in the Third Millennium BC. In H.J. Nissen, J. Renger (Eds.), *Mesopotamien und seine Nachbarn: politische und kulturelle Wechselbeziehungen im alten Vorderasien vom 4. bis 1. Jahrtausend v. Chr.* (pp. 33–55). Berlin: D. Reimer.
- Potts, D.T. (1993). Soft-Stone from Oman and Eastern Iran in Cuneiform Sources?. In R. Gyselen, M. Alram (Eds.), *Circulation des monnaies, des marchandises, et des biens* (pp. 9–13). Leuven: Peeters.
- Potts, D.T. (2009). The Archaeology and Early History of the Persian Gulf. In L.G. Potter (Ed.), *The Persian Gulf in History* (pp. 27–56). New York: Palgrave Macmillan.
- Rice, P.M. (1981). Evolution of Specialized Pottery Production: A trial Model. *Current Anthropology*, 22(3), 219–240. <http://www.jstor.org/stable/2742199>
- Rice, P.M. (1987). *Pottery Analysis: a Sourcebook*. Chicago: University of Chicago Press.
- Sabloff, J.A. (1972). Analysis of Stylistic Variation within and Between Communities. In K.V. Flannery (Ed.), *The Early Mesoamerican Village* (pp. 251–282). New York: Academic.
- Salvatori, S., Tosi, M. (2005). Shahr-I Sokhta Revised Sequence. In C. Jarrige, V. Lefèvre (Eds.), *South Asian Archaeology 2001. 1: Prehistory* (pp. 281–292). Paris: Editions Recherches sur les Civilisations.
- Salvatori, S., Vidale, M. (1997). *Shahr-I Sokhta 1975-1978: Central Quarters Excavations. Preliminary Report*. Rome: IsIAO.
- Sarkar, A. (2014). VII.7. Gilund. In D.K. Chakrabarti (Ed.), *History of Ancient India: Protohistoric Foundation. vol. 2* (pp. 691–699). New Delhi: Aryan Books International.

- Sajjadi, S.M.S. (2019). An excerpt from field research in 2014 in Shahr-i Sokhta. In S.M.S. Sajjadi, E. Ascalone (Eds.), *Proceedings of Shahr-i Sokhta 2* (pp. 23–116). Tehran: Pishpazhooch.
- Sajjadi, S.M.S., Foruzanfar, F., Shirazi, R., Baghestani, S. (2003). Excavations at Shahr-i Sokhta First Preliminary Report on the Excavations of the Graveyard, 1997–2000. *Iran*, 41(1), 21–97. <https://doi.org/10.1080/05786967.2003.11834625>
- Sajjadi, S.M.S., Moradi H. (2014). Excavation at Buildings Nos. 1 and 20 at Shahr-I Sokhta. *International Journal of the Society of Iranian Archaeologists*, 1(1), 77–90.
- Shepard, A.O. (1965). Rio Grande Glaze-Paint Pottery: A Test of Petrographic Analysis. In F.R. Matson (Ed.), *Ceramics and Man* (pp. 62–87). Chicago: Aldine.
- Shinde, V., Possehl, G.L., Ameri, M. (2005). Excavations at Gilund 2001-2003: The Seal Impressions and Other Finds, In U. Franke-Vogt, H.J. Weisshaar (Eds.), *South Asian Archaeology 2003: Proceedings of the Seventeenth International Conference of the European Association of South Asian Archaeologists, 7–11 July 2003, Bonn* (pp. 159–170). Aachen: Linden Soft Verlag.
- Shirazi, R. (2019). Kavoshhaie Bastanshenasi dar Tape Sadegh (Fasl 6 va 7: 1395 va 1396) [Archaeological excavations in Sadegh Site (Season 6 and 7: 2016 and 2017)]. In R. Shirazi (Ed.), *Proceedings of the 16th Annual Symposium on Iranian Archaeology* (pp 298–306). Tehran: ICAR. (in Persian)
- Stark, M.T. (1995). Economic Intensification and Ceramic Specialization in the Philippines: A View from Kalinga. *Research in Economic Anthropology*, 16, 179–226.
- Stein, G.J. (1996). Producers, Patrons, and Prestige: Craft Specialist and Emergent Elites in Mesopotamia from 5500-3100 BC. In B. Wailes (Ed.), *Craft Specialization and Social Evolution: In Memory of V. Gordon Childe* (pp. 25–38). Philadelphia: The University of Pennsylvania Museum.
- Streily, H.A. (2000). Early pottery kilns in the Middle East. *Paleorient*, 26 (2), 69–81.
- Tosi, M. (1969). Excavations at Shahr-i Sokhta Preliminary Report on the Second Campaign, September-December 1968. *East and West*, 19(3/4), 283–386. <http://www.jstor.org/stable/29755447>
- Tosi, M. (1970a). Shahr-i-Sokhta, *Iran*, 8, 188-189. <https://doi.org/10.2307/4299642>
- Tosi, M. (1970b). Tepe Rud-i Biyaban. *Iran*, 8, 189. <https://doi.org/10.2307/4299642>
- Tosi, M. (1972). Shahr-i-Sokhta Project: Tepe Rud-i-Biyaban 2. *Iran*, 10, 175. <https://doi.org/10.2307/4300478>
- Tosi, M. (1973). The cultural sequence of Shahr-i Sokhta. *Bulletin of the Asian Institute of the Pahlavi University*, 3, 64–80.
- Tosi, M. (1977). The Proto-Urban Cultures of Eastern Iran and the Indus Civilization. Notes and Suggestions for a Spatio-Temporal Frame to Study the Early Relations between India and Iran. *South Asian Archaeology*, 1, 149–171.
- Tosi, M. (1983). Development, Continuity and Cultural Change in the Stratigraphic Sequence of Shahr-I Sokhta. In M. Tosi (Ed.), *Prehistoric Sistan 1* (pp. 127–180). Roma: ISMEO.
- Tosi, M. (1984). The Notion of Craft Specialization and its Representation in the Archaeological Record of Early States in the Turanian Basin. In M. Spriggs (Ed.), *Marxist Perspectives in Archaeology* (pp. 22–52). Cambridge: Cambridge University Press.

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