یک مهروموم در انبار از تپه جامه شوران سفلی، ماهیدشت، غرب زاگرس مرکزی

علی خایانی، سحر عبدالهی

چکیده

تپه جامه شوران سفلی در ادبیات باستان‌شناسی ایران به عنوان یک محوطه مهم دوره آهن در غرب زاگرس مرکزی شناخته شده است. این محوطه در سال ۱۳۵۷ خورشیدی در قالب «پروژه ماهیدشتِ» موزه سلطنتی اونتاریو توسط لوئیس لوین کاوش شد، اما گزارش نهایی آن هرگز منتشر نشده است. نگارندگانِ این مقاله زمانی که در حال مطالعه مجموعه گل‌مهرهای چغاماران به عنوان بخشی از آرشیو پروژه ماهیدشت در موزه ملی ایران بودند به دو دست‌ساخته برخورد کردند که شماره ۴۶۸ داشتند، شماره‌ای که در سیستم بررسی پروژه ماهیدشت به محوطه جامه شوران داده شده بود. این دست‌ساخته‌ها شامل یک سکه سیمین و یک گل‌مهر با اثر یک مهر استامپی بود که دو بز را نشان می‌داد. این مقاله کوتاه به مطالعه نگاره‌شناسی، سبک و کاربرد این گل مهر می‌پردازد. گل‌مهر جامه شوران به دوران مس و سنگ متاخر ۳ و ۴ تاریخ‌گذاری شده، از نظر کارکرد به عنوان مهروموم در انبار شناسایی شده، و به تحولات میانه هزاره چهارم پیش‌ازمیلادِ زاگرس مرکزی و پیش از پیدایش نهاد مدیریتی گودین ۶:۱ نسبت داده شده است. ارتباط هنر مهرسازیِ زاگرس مرکزی، دشت شوشان، شمال بین‌النهرین و غرب فلات مرکزی ایران، چنانکه در نگاره‌شناسی اثرمهر جامه شوران نیز دیده می‌شود، انگاره افزایش برهم‌کنش‌ها و جابه‌جایی‌های افراد، کالاها و ایده‌ها در این منطقه در دوران مس و سنگ متاخر، به‌ویژه بر کرانه شاه‌راه خراسان را تایید می‌کند.

واژگان کلیدی: جامه شوران سفلی؛ زاگرس مرکزی؛ مس و سنگ متاخر؛ گل‌مهر؛ فن مدیریت اداری.

https://doi.org/10.22034/JINM.2023.2006998.1075

A Door Sealing from Tape Jameh Shuran Sofla, the Mahidasht Plain, Western Central Zagros*

Ali Khayani [a], Sahar Abdolahi [b]

Abstract

Tape Jameh Shuran Sofla (JSS) is known in Iranian archaeology as a significant Iron Age site in western Central Zagros. The site was excavated by L. Levine in 1978 as part of the "Mahidasht Project" of the Royal Ontario Museum (ROM), but its report has never been fully published. While working on a corpus of clay sealings from the Chogha Maran archive of the Mahidasht Project in the National Museum of Iran (NMI), we came across two objects with the findspot number 468: a silver coin, and a clay sealing with a stamp seal impression depicting two quadrupeds. The number refers to the site of Jameh Shuran in the Mahidasht Project survey system. This paper studies the style, iconography and function of the clay sealing. The JSS sealing – which was identified as a door sealing - is dated to the LC 3-4 and is attributed to the mid-Fourth Millennium BC developments of the Central Zagros before the establishment of the Godin VI: I administrative institution. The glyptic connection between the Central Zagros, Susiana, northern Mesopotamia, and the west Central Iranian Plateau reflected in the imagery of the JSS seal impression, supports the intensification of interactions and the movement of people, goods, and ideas in the region during the LC, especially along the Khorasan High Road.

Keywords: Jameh Shuran Sofla; Central Zagros; Late Chalcolithic; Clay Sealing; Administrative Technology.

a. Master of Arts in archaeology, University of Tehran, Department of Archaeology Alikhayani@ut.ac.ir

b. PhD of Archaeology, University of Mazandaran, Department of Archaeology, Sahar.abdolahi491@gmail.com

*. We would like to dedicate this small paper to Dr. Hassan Talai who was the representative of the Iranian Center for Archaeological Research in the Mahidasht project, and actively contributed to it. Unfortunately, he passed away in 2020 aged 71.

Introduction

In 1975-1978, the ROM conducted the Mahidasht archaeological project in Kermanshah under the direction of L. Levine. Surveying ca. 50 per cent of the target area, he identified 950 sites from prehistory to the Islamic era in the plains of Kermanshah (Levine 1974; 1976a; 1976b; Levine and Young 1987; Henrickson 1983; Henrickson 1984, for a detailed history of archaeological research in the region see: Manhoubi 2012). Moreover, he excavated a few sites of these plains to establish the cultural sequence of the region and complement the survey results: Siahbid and Chogha Maran as Chalcolithic, and Gakia and JSS as Bronze and Iron Age sites. The 1978 revolution in Iran inevitably put an end to the "Mahidasht Project", and the final reports of the surveys and excavations were never published. However, the archives of the project in the ROM and NMI are being revisited and published by Iranian and Belgian archaeologists (Renette 2018; Khayani and Niknami 2020, 2023; Renette *et al.* 2021a; Renette *et al.* 2021b). The reassessment and publication of the archives of such mammoth projects in museums are of vital importance to pave the way for more elaborated analyses of the cultural and socioeconomic complexities of the ancient societies of the region. In this paper, we introduce a clay sealing from the site of JSS, which presents new insights into the development of late prehistoric bureaucratic institutions in the Central Zagros and the interactions of the region with other areas.

Tappeh Jameh Shuran Sofla

Two sites are called Jameh Shuran in the east of the Mereg River in the Mahidasht: Jameh Shuran Solfa (JSS) just south of Mahidasht town on the Khorasan High Road, 4.3 km northwest of Jameh Shuran village (see fig. 1, and the black circle on the left of the aerial photo in fig. 2), and Jameh Shuran Olya (JSO) just east of the village (see the small black circle on the right of the aerial photo in fig. 2). These sites were first visited by A. Stein in 1935-1936 who measured JSS at around 16 hectares and its height at about 7.5 m above the plain surface (1940: 414-415). He mentioned picking up painted sherds with simple geometric designs and red, burnished plain ware at JSS and also referred to Islamic glazed sherds on the surface of JSO. Later in 2008, M. Dehghan surveyed both sites and measured JSS at about 4 hectares (Dehghan 2008, table 2.1). This inconsistency is rooted in the fact that she did not include the two small mounds just north of JSS (see the white circles on the left of the aerial photo in fig. 2) in her measurement, while Stein had done so in 1940 (compare the red and black circles on the left of the aerial photo in fig. 2).

JSS is known in Iranian archaeology as one of the crucial Iron Age sites of western Central Zagros (Levine 1987: 234-236). In 1968, A. Sarfaraz, M. Saraf and E. Yaghmaie visited the site (Sarfaraz *et al.* 1968), and a year later it was registered as Jameh Shuran Sofla in the list of Iran's ancient sites. L. Levine surveyed JSS as site number 468 in 1975 and 1978 in the Mahidasht survey, and the small mounds north of it as 469 and 470 (S. Renette, pers. communication with A. Khayani). He excavated two trenches at the eastern slopes of JSS in 1978 and briefly reported the results while discussing the Iron Age of western Iran. He divided the pottery of JSS into three ceramic assemblages, dated from the Iron Age to the Parthian period (Levine 1987: 235-239). The assemblage I included Triangle Wares of the Achaemenid-Early Parthian period (Dyson 1999) and also fish plates, but it lacked Clinky Ware sherds, possibly locating it before the advent of this ceramic in the region (Levine 1987: 235). Two subphases of the assemblage II (a-b) were comparable to Baba Jan I-II and Godin II, and Nush-i Jan, representing Iron Age III. Finally, the assemblage III included "Kassite/Elamite goblets" of the Iron Age I. Although absent in the excavated trenches, Genre Luristan and Clinky Ware sherds were also found on the surface of the mound. However, the excavations were limited to two trenches and did not reach virgin soil. While Levine has not mentioned earlier materials of JSS, reassessing the survey data of the Mahidasht Project, S. Renette has listed the site amongst Godin III sites of the Mahidasht based on the presence of a few Godin painted sherds from the site in the survey

records (Renette *et al.* 2021b: 57, table. 2). Moreover, chaff-tempered sherds have been found on the surface of 469 and 470 (Renette, pers. communication with A. Khayani), which seem to be the northern extension of JSS, possibly LC in date. The authors could not find the 469 and 470 sherds in the archive of the Mahidasht project in the NMI, except for two fragments from 469 (fig. 6a-b). One of these sherds (fig. 6b) and a sherd from 468 (fig. 6c) are not adequately fired, have chaff temper, and could be dated to LC 3-4 based on their form. Similar vessels have been classified as collared-neck jars and serving trays at Godin VI (Rothman and Badler 2011, fig. 4.49, type IIc, fig. 4. 52, type Va).

JSS Clay Sealing: Iconography, Style, and Function

Together with a silver coin, JSS clay sealing 468, 145-1 (fig. 3) had ended up in a corpus of administrative artifacts from Chogha Maran in the NMI (for this assemblage see: Renette *et al.* 2021b). Based on our experience of working on Chogha Maran artifacts from the same archive, the clay sealing 545-1 should have come from lot 545 of trench 500 at JSS. Since Levine mentions only Iron Age to Parthian period materials excavated at JSS, the JSS clay sealing might have been found out of its original context, in later deposits of the mound. The clay sealing might have ended up in later contexts at JSS either from an earlier settlement at JSS or from a nearby LC site as a result of moving soil to make mudbrick. Similarly, at Godin Tappeh in Kangavar, a Godin VI seal ended up in a later Godin IV mudbrick, probably as a result of using the mound's soil containing earlier artifacts as construction materials for building activities (Rothman and Badler 2011: 104). This might have happened also as a result of construction activities involving digging through and levelling the mound as a foundation for new buildings, as happened at Chogha Maran where some LC and EBA seals and clay

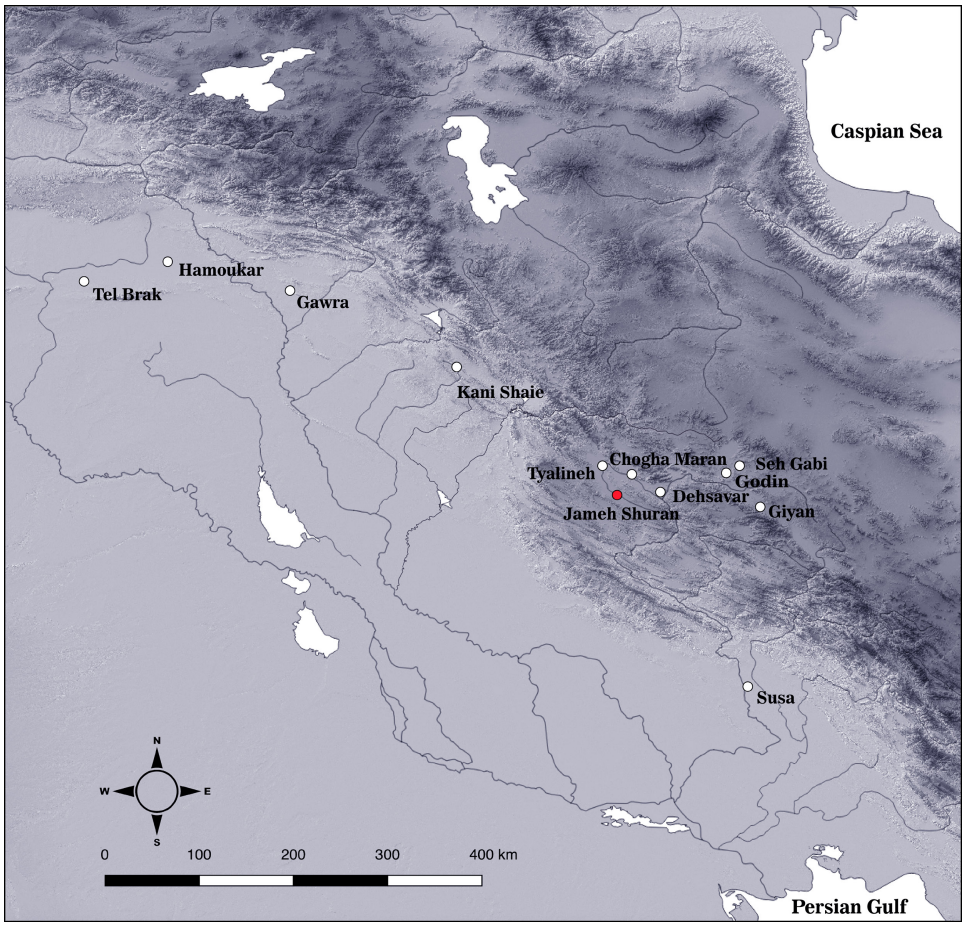

Fig. 1. Map of Late Chalcolithic (LC) and Early Bronze Age (EBA) sites of the Central Zagros and northern Mesopotamia mentioned in the text.

Fig. 2. Satellite image of Tepe Jameh Shuran Olya and Sofla (Google Earth, 2022).

sealings ended up in later deposits (Renette *et al.* 2021b: 13, 15, 31, 43, tables. 1, 17-18).

An alternative explanation might be that the JSS sealing was found on the surface of JSS by the Mahidasht project team. One may be curious how it is possible to find clay sealings on the surface of ancient sites. We refer them to a corpus of administrative artifacts recently found on the surface of Tappeh Tyalineh not far from JSS in Kermanshah, as a result of ploughing the site and moving its soil by the local villagers (Khosravi *et al.* 2023). Nevertheless, if our dating for the JSS clay sealing is correct (see below), then there may have been a LC administrative institution at Jameh Shuran or a nearby site, especially since the sealing was a door sealing that secured storage facilities at the site in which it was originally used (cf. Pittman 2001: 406).

The clay sealing is 3 cm long, 4.4 cm wide, and 1 cm thick. It bears the impression of a 2.3 × 1.7 cm oval stamp seal depicting two quadrupeds with rounded bodies shown in profile, and two dots (fig. 4a). The first animal is a goat with a short tail and a long-curve horn, and it is shown horizontally lain to the right of the scene looking to the right. There is a dot below its horn. The second one is a leaping goat depicted vertically back to the first one. It has a shorter horn and there is a dot below its body.

The shape of the seal is reminiscent of some Susa II, and LC 4-5 zoomorphic and kidney-shaped stamp amulets/seals from Tell Hamoukar and Tell Brak in northeastern Syria, and kidney designs on cylinder seal impressions from Susa and Chogha Mish in Susiana (Mallowan 1947: 39-40, pl. 27: 9-26; Reichel 2002: 41, fig. 11 (see fig. 4e); Amiet 1972, n. 714; Delougaz, Kantor 1996, pl. 138 I; Amiet 1980, pl. 8, nos. 169). The specific composition of the goats on the JSS seal impression can be closely compared to an earlier Susa I stamp seal at Susa (Acropole II: 9, see: Canal 1978, fig. 25, n. 5 (see fig. 4c)). The first goat finds close parallels amongst LC 3-4 stamp seals and seal impressions from Tell Brak and Hacinebi, and also an LC 3-4 stamp seal impression from Tappeh Alou in the Qazvin plain (cf. Mallowan 1947, pl. 27: 22 (see fig. 4b); Pittman 2001, fig. 11.13: e; Moghimi 2018: 403, pl. 6.60 (see fig. 4d); Moghimi and Davoudi 2020: 223). The horn of this animal with a dot below it resembles an LC 3-4 fragmentary seal impression from Dehsavar in the Mahidasht plain (Dehsavar phase) and an LC 5 seal from Tell Brak (Pollock *et al.* 2020: 380, fig. 3c (see fig. 4g); Mallowan 1947, pl. 27: 22 (see fig. 4b)). Furthermore, the stretching body and hands of the second goat can be compared to an LC 3-4 seal impression from Tappeh Alou, an LC 3-4 rectangular seal impression from Dehsavar, an LC 3 seal impression from Gawra VIII, and some LC 4 seals from Hamoukar (Moghimi 2018: 403, pl. 6.60 (see fig. 4d);

Fig. 3. Obverse and reverse of the JSS clay sealing (photo by Sara Fereydouni).

Moghimi and Davoudi 2020: 223; Pollock *et al.* 2020, fig. 3a (see fig. 4f); Rothman 2002, pl. 60, n. 2934; Reichel 2002: figs. 7a, 11, 16).

The negative imprints of a door peg and a s-twisted string of cord on the reverse of the JSS sealing identify its function as a door sealing (fig. 5c). The sealing worked as follows. A string of cord would have been knotted and passed through a hole in the door, twisted around a peg installed in the wall next to it and knotted, then a lump of clay would have been placed on the knot and sealed with the stamp seal (see fig. 5a-b).

Some researchers have highlighted the vital importance of door sealings an indicative of redistributive economies controlling the storage as well as redistribution of items stored behind sealed storage facilities, compared to container sealings functioned in reciprocal exchanges (Charvat 1998; 2005). In other words, sites with more door sealings would have had a more centralized administrative institution than those with more container sealings. A. Alizadeh has argued that there were some rules imposed by administrative authorities behind the door-sealing practices that guaranteed the safety of the contents behind the sealed doors of storerooms, otherwise, people would have easily broken the door sealing and taken the goods (Alizadeh 2020: 61-64). He suggests that they would have been punished according to the rules embedded in the society by elites to prevent illegal access to the stored items. If so, this sealing practice attests to the social complexities of these societies and alludes to the development of elites who would have organized social relations through the imposition of rules according to their authority over others.

Nevertheless, other researchers have proposed that the door-to-container sealing ratio depends on the type of items being stored and the frequency of their withdrawal in the administrative institution (Reichel 2001: 109). For example, imagine an institution in which barley has been stored in bulk as well as sealed jars containing ghee behind the sealed doors of storerooms. Barley and ghee may be consumed at least every week to make bread and to prepare food. Therefore, each entry to the storerooms would involve breaking the door sealing to withdraw some barley, and/or breaking a jar sealing to withdraw ghee. This administrative procedure would produce door sealings as much as jar sealings or even more than them (Khayani and Niknami 2020: 97). Now imagine an institution in which wine was stored in small sealed jars behind the sealed door of store rooms, and consumed only in feasts held once or twice a year. Thus, for the hypothetical feasting events, the sealings of hundreds of small jars would have been broken in each entry to the storage spaces, while only a few door sealings would have been broken. The procedure would have produced far more container sealings than door sealings.

Discussion

Based on the parallels mentioned above, the JSS clay sealing can be dated to the LC 3-4, equivalent to earlier Godin VI phases in the Kangavar, which is known in the Mahidasht as the Dehsavar phase (Levine and Young 1987: 39; Henrickson 1985: 74). This dating pinpoints the administrative institution producing this door sealing, along with Dehsavar, between the administrative institutions of Chogha Maran (LC 1-2, see: Renette *et al.* 2021b)

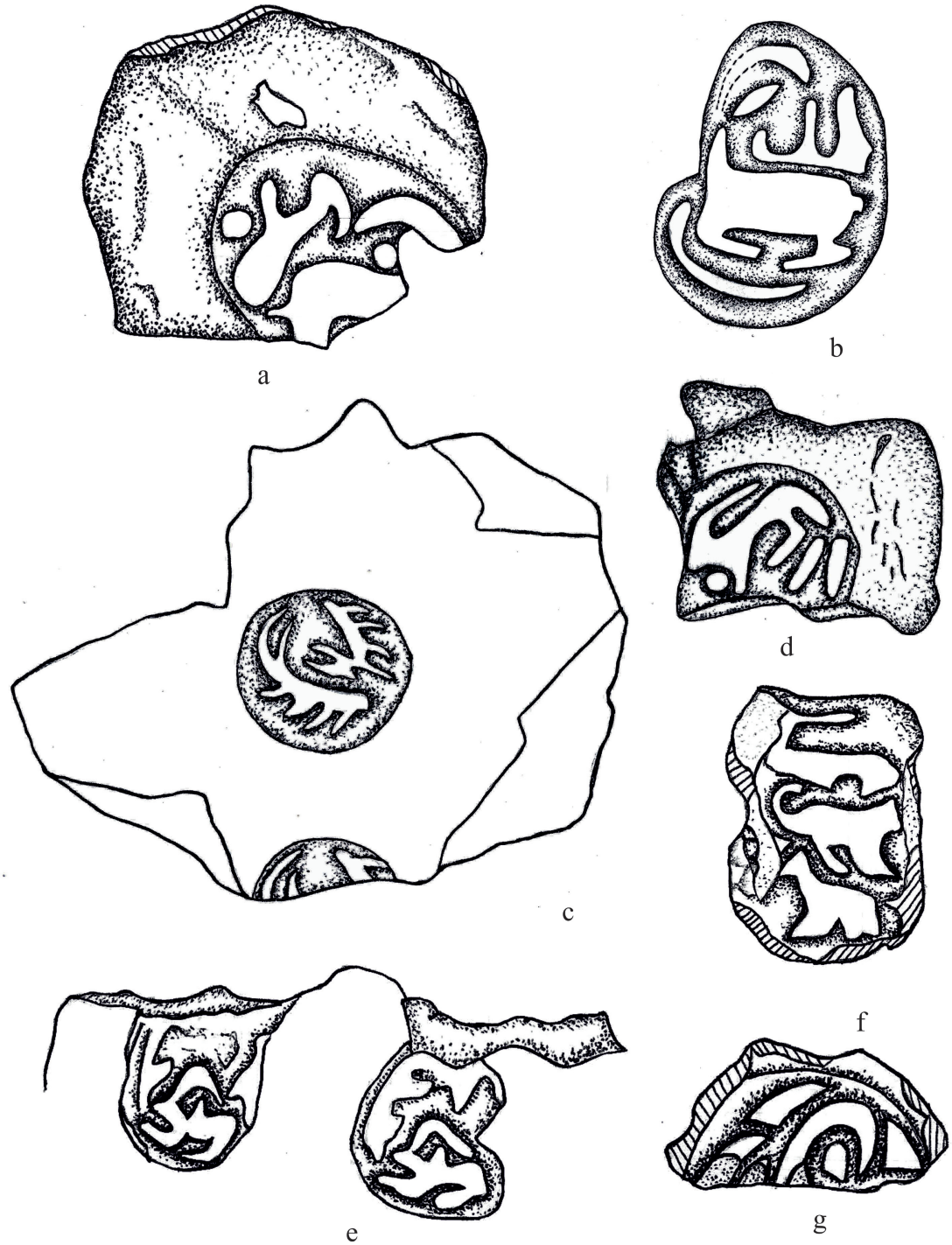

Fig. 4. JSS seal impression and some of the parallel seals and seal impressions mentioned in the text, not to scale (drawing by Sahar Abdolahi based on original drawings, sources of b-g: Mallowan 1947, pl. 27: 22; Canal 1978, fig. 25, n. 5; Moghimi 2018: 403, pl. 6.60; Reichel 2002: 41, fig. 11; Pollock *et al.* 2020, fig. 3a, 3c).

and Seh Gabi (LC1-3, see: Henrickson 1988), and those of Godin VI: I (LC 5, see: Weiss and Young 1975; Rothman and Badler 2011), Tyalineh (proto-Elamite/EBA I see: Khosravi *et al.* 2023), and Chogha Maran (EBA II, see: Renette *et al.* 2021b). In terms of ceramics, this period represents the integration of the Central Zagros region within the Central Iranian Plateau interaction sphere, and also the advent of the first Susa II-III ceramics in the region as a reflection of contacts with Khuzistan (Alizadeh 2021 5-6; Renette and Ghasrian 2021: 115-116).

Given the administrative corpora mentioned above, we now have evidence for the long-term development of administrative in-

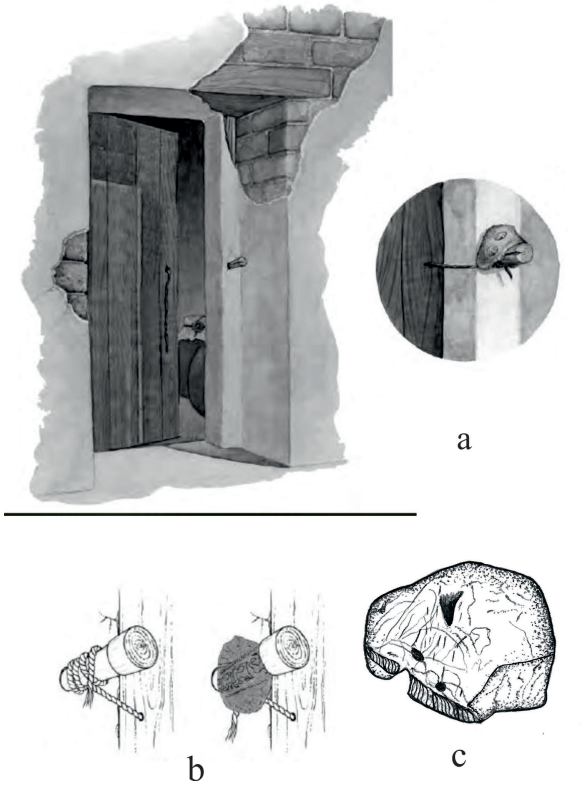

Fig. 5. Reconstruction of door sealing practices at Arslantepe (a-b; source: Frangipane *et al.* 2007, fig. 11.22), and the reverse of the JSS door sealing (c, drawing by Sahar Abdolahi).

stitutions in the Central Zagros from the mid-fifth through the mid-third millennium BCE. This, in turn, may attest to a continuous process of increasing socioeconomic complexities in the Central Zagros during the LC 1-5 – EBA I-II as suggested by S. Renette (2018). Whereas in traditional views the apparent decrease in the number of settlements in western areas of the region has been interpreted as a noticeable population decline and adoption of a more mobile way of life during the LC (cf. Abdi 2003: 431-432), he has suggested that this decline in the number of settlements was rooted in the concentration of populations in the emerging larger settlements as regional centres (Renette 2018: 135-136, 316-320), a process which can be interpreted as the centralization of settlements (Matthews and Fazeli Nashli 2022: 230).

Previous discussions of the fourth millennium BCE administrative institutions in the Central Zagros have often attempted to scrutinize the nature and function of the Godin VI: I bureaucratic institution, which included lowland-related (Late Uruk/Late Susa II) numerical/numero-ideographic tablets, seal imagery, and certain ceramic types, in the LC 5-EBA I interaction networks. The Godin VI: I phenomenon have been interpreted in three different ways (Renette and Ghasrian 2021: 112): the colonial presence of southern Mesopotamians to acquire highland items along the Khorasan High Road (Algaze 1993), the development of the proto-Elamite network at Susa and its expansion to the highlands (Weiss and Young 1975; Petrie 2014), and the adoption of lowland administrative technology by local elites engaging in regional and interregional interactions (Matthews 2013, Rothman 2013). The emerging picture of the development of administrative institutions in central western Iran in the LC and EBA, and the reinterpretation of the settlement systems of the region provide further support for the third interpretation, while glyptic studies have produced some convincing evidence for the second approach (Pittman 2001: 438-439; Pittman 2011: in Rothman and Badler 2011; Pittman 2013). Although further research is required to gain a better understanding of this phenomenon, especially on the Godin VI administrative artifacts, the development of local elites as well as

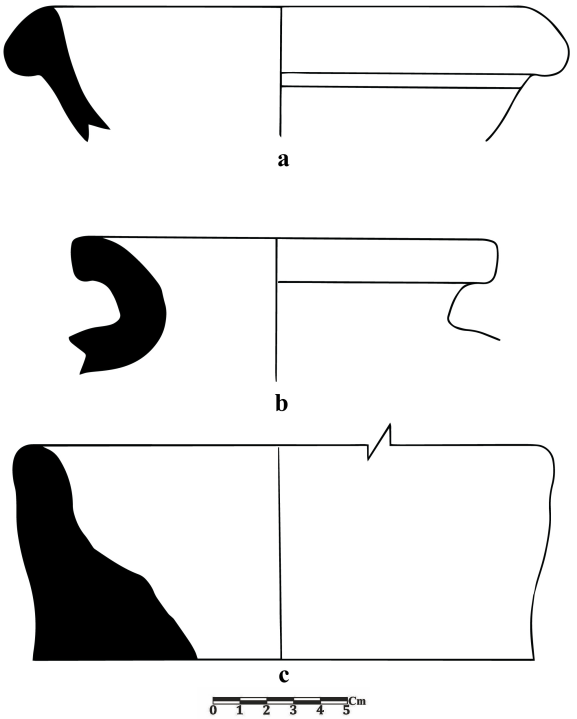

Fig 6. Ceramic sherds from Md 469 (a-b) and Md 468 (c) (drawing by Ali Khayani).

the contacts with the origins of proto-Elamite institutions might explain the cultural dynamics of the Central Zagros during the LC and EBA.

Earlier in the late fifth and early fourth millennium BCE, we have evidence for the development of administrative technology along the Khorasan High Road in both the west and the east Central Zagros at Chogha Maran, Dehsavar, Jameh Shuran, and Seh Gabi. At the latter site, there are architectural remains of a multi-room building with thick walls and evidence of a variety of craft activities as well as administrative mechanisms in the Godin VII period or LC 2 -3 (Rothman and Badler 2011: 80, fig. 4.7; Henrickson 1988). These institutions might represent the precursors of the later Godin VI oval compound (Weiss and Young 1975; Rothman and Badler 2011; Matthews 2013), except for the degree to which it was involved in interregional interactions. In fact, a seal impression from the Seh Gabi which depicts a squatting man and probably a bow has close parallels at Sharafabad and Susa, showing the initiation of the lowland-highland interactions already during Godin VI: II /Susa II/LC 3-4 (Henrickson 1988: 12, fig. 1, Gd 73-150). Moreover, JSS and Dehsavar seals and seal impressions find close parallels in the east Central Zagros, northern Mesopotamia, Kuzistan, Dehluran, and the west-central Iranian Plateau during LC 2-4 (Henrickson 1988; Pollock *et al.* 2020: table. 1). On the other hand, ceramic connections between Kangavar (Godin VI), the Mahidasht (Dehsavar phase), the west Central Iranian Plateau (Sialk III6-7), and Khuzistan (Susa II) all suggest the intensification of interactions and the movement of people, goods, and ideas in this region (Rothamn and Badler 2011, fig. 4.17; Renette and Ghasrian 2021: 115-116), which led to the development of proto-Elamite interaction network in the EBA in a wide geographic sphere.

Conclusion

As shown above, the paramount importance of the revision and publication of museum archives such as those of the Mahidasht Project of the ROM cannot be overestimated, as they can establish a solid foundation for further studies, and save fieldwork budgets for unexplored and underexplored areas of research. These artifacts have been discovered as a result of time-consuming and money-consuming fieldwork activities and have gone through meticulous and tedious documentation and maintenance. Therefore, every new study of the related materials should be started with the study of these artifacts. The JSS clay sealing is an exemplar of such artifacts. Being considered in the wider context of the socioeconomic complexities of the Central Zagros region and neighbouring areas in the LC, the JSS door sealing and its stamp seal impression are a crucial piece of evidence of the development of early administration and interaction spheres in the Central Zagros region in the late prehistoric period. It attests to contacts with northern Mesopotamia in the west and the Central Iranian Plateau in the east in the LC 3-4, probably along the northern branch of the Khorasan High Road. Related glyptic artifacts from Seh Gabi and Dehsavar complement this picture by adding Susiana to these interaction spheres.

Acknowledgement

We would like to express our warmest thanks to Dr. Jebrael Nokandeh, Fereidoun Biglari, Yousef Hassanzadeh, Fereshteh Zokaei, Reyhaneh Lessani, and Nahid Ghafoori, the general director and curators of the NMI for giving us access to the JSS clay sealing and the Mahidasht project ceramic sherds in the museum, and for permitting us to publish them. We also extend our sincere gratitude to Dr Louis Levine for giving Ali Khayani permission to study and publish the materials he excellently excavated but never got the opportunity to fully publish himself. We also thank Dr. Sajjad Alibaigi and Dr. Steve Renette for reading a draft of this paper and for their invaluable comments. The authors are responsible for any errors. We also thank Sara Fereydouni for taking photographs of the JSS clay sealing, and Kamal Asadi for preparing some of the drawings for publication.

References

Abdi, K.
2003 "The Early Development of Pastoralism in the Central Zagros Mountains". *Journal of World Prehistory* 17 (4): 395-448.

Alizadeh, A.
2020 *The Origin of Elamite State and Cultural and Political Developments of the West and Southwest of Iran from the Fifth to the First Millennium BC*, Tehran: Iran Negar.

2021 "The Impact of the Rise of the State in Southwestern Iran on the Region's Periphery and Buffer Zones", in *From Sherds to Landscapes: Studies on the Ancient Near East in Honor of McGuire Gibson*, Altaweel, M and Hritz, C. (eds.), 1-22, Chicago: The Oriental Institute.

Algaze, G.
1993 *The Uruk World System. The Dynamics of Expansion of Early Mesopotamian Civilization*, Chicago: University of Chicago.

Amiet, P.
1972 *Glyptique Susienne – des origines à l'époque des perses achéménides, cachets, sceaux-cylindres et empreintes antiques découverts à Suse de 1913 – 1967*, Paris: MDP 43.

1980 "La glyptique mésopotamienne archaïque, Paris". Azizi, GH., Arsalani, M., Achim, B., Ebrahimi, M. 2013. *Precipitation variations in the central Zagros Mountains (Iran) since A.D. 1840 based on oak tree rings, Palaeogeography, Palaeoclimatology, Palaeoecology*, Vol. 386, pp. 96-103.

Canal, D.
1978 "La Haute terrasse de l'Acropole de Suse". *Paléorient*, Vol. 4. pp. 169-176.

Charvát, P.
1988 "Archaeology and Social History: the Susa Sealings, Ca. 4000 - 2340 B.C.", *Paléorient*, Vol. 14, No. 1, pp. 57-63.

2005 "The Backs of Some Sealings from Nineveh 5", *Iraq*, Vol. 67, No. 1, pp. 391-397.

Dehghan, M.
2008 *The Analysis of the Chalcolithic Settlement Patterns of the Mahidasht*. Unpublished MA dissertation, University of Tehran.

Delougaz, P. and H. Kantor
1996 *Chogha Mish Volume I: The First Five Seasons of Excavations, 1961-1971*, OIP 101.

Dyson, R. H.
1999 "Triangle-Festoon Ware Reconsidered", *Iranica Antiqua* XXXIV: 115-144.

Frangipane, M. (ed)
2007 *Arslantepe Cretulae. An Early Centralised Administrative System before Writing* (Missione Archeologica Italiana nell'Anatolia Orientale, Arslantepe V), Rome: Università di Roma La Sapienza.

Henrickson, E. F.
1983 *Ceramic Styles and Cultural Interaction in the Early and Middle Chalcolithic of the Central Zagros*, Iran, Ph.D. diss, University of Toronto.

1985 "An updated chronology of the Early and Middle Chalcolithic of the central Zagros highlands, western Iran". *Iran* 23,1: 63-108.

1988 "Chalcolithic Seals and Sealings from She Gabi, Central Western Iran", *Iranica Antiqua*, Vol. 23, pp. 1-22.

Henrickson, R. C.
1984 *Godin III, Godin Tepe, and Central Western Iran*, Ph.D. diss, Department of Near Eastern Studies, University of Toronto.

Khayani, A. and K. Niknami
2020 "Early Bronze Age Clay Sealings from Chogha Maran, the West Central Zagros: Preliminary Analysis", *Journal of Near Eastern Studies* 79(1): 89–98.

2023 "More Early Bronze Age Seal Impressions from Choga Maran, Western Central Zagros", *IRAN* 61(1): 1-14.

Khosravi, Sh., S. Alibaigi, M. Doosti, H. Pittman, N. Aminikhah, and A. Khayani
2023 "Tape Tyalineh: A Proto-Elamite Administrative Institution on the Great Khorasan High Road, Kermanshah- Iran", *Journal of the Royal Asiatic Society*. doi:10.1017/S1356186322000803

Levine, L.
1974 "Archaeological Investigations in the Mahidasht, western Iran, 1975". *Paléorient*, Vol. 2, pp. 487-490.

1976a "The Mahidasht project". *Iran*, Vol. 14, pp. 160-161.

1976b "Survey in the province of Kermanshah, 1975: Mahidasht in the prehistoric and early historic periods". In F. Bagherzadeh (ed.) *Proceedings of the 4th Annual Symposium on Archaeological Research in Iran*, pp. 284-297, Tehran.

1987 "Iron Age", in *The Archaeology of Western Iran*, F. Hole (ed), 229-250, Washington: Smithsonian Institution Press.

Levine, L. Young, T. C.
1987 "A summary of the ceramic assemblages of the central western Zagros from the Middle Neolithic to the late 3rd millennium B.C". in J. Hout (ed.) *La préhistorie de la Mésopotamia*, pp. 15-54, Paris.

Manhoubi, S.
2012 "The Archaeology of the Mahidasht Region", *Eighty Years of Iranian Archaeology*, S. Miri and Y. Hassanzadeh (eds.) 361-376, Tehran: Pazineh Press.

Mallowan, M. E. L.
1947 "Excavations at Brak and Chagar Bazar", *Iraq*, Vol. 9, pp. 1-87+89-259+i-iv.

Matthews, R. J.
2013 "The power of writing: an administrative activity at Godin Tepe, Central Zagros, in the late fourth millennium BC", in C. Petrie (ed.), *Ancient Iran and Its Neighbors. Local developments and Long-range Interactions in the 4th Millennium BC*. British Institute of Persian Studies Archaeological Monographs Series III, Petrie, C.A. (ed), 337-351, Oxford: Oxbow Publications & David Brown Book Company.

Matthews, R. J. and H. Fazeli Nashli
2022 *The Archaeology of Iran from the Paleolithic to the Achaemenid Empire*. Routledge: London and New York.

Moghimi, N.
2018 *Re-identifying the Socioeconomic Organization of Human Societies of Takestan Region During the Fifth and Fourth Millennium B.C.*, Ph.D. thesis, University of Tehran.

Moghimi N. and H. Davoudi
2020 "Evidence of administrative technology during the fourth millennium BC in the Qazvin Plain, Iran". *Parseh Journal of Archaeological Studies* 12,1: 221-241 (in Persian).

Petrie, C.
2014 "Iran and Uruk Mesopotamia: Chronologies and connections in the fourth millennium BC". in *Preludes to urbanism: The Late Chalcolithic of Mesopotamia*, A. McMahon and H. Crawford (eds.), 137-155. Cambridge: McDonald Institute for Archaeological Research.

Pittman, H.
2001 "Mesopotamian intraregional relations reflected through Glyptic evidence in Late Chalcolithic 1-5 periods". in *Uruk Mesopotamia and its neighbors: Cross-cultural interactions in the era of state formation*, M. S. Rothman (ed.), 403-444. Santa Fe: School of American Research Press and Oxford: James Currey.

Pollock, S.; R. Bernbeck and C. Kainert
2020 "Seals and Sealings from Dehsavar, in Pathways through Arslantepe". *Essays in Honour of Marcella Frangipane*, Balossi Restelli, F., Cardarelli, A., Di Nocera, G.M., Manzanilla, L., Mori, L., Palumbi, G. & Pittman, H. (eds.), 379-389, Rome: Università Sapienza di Roma.

Reichel, C.
2001 "Seals and sealings at Tell Asmar—A new look at an Ur III to Isin/ Larsa Palace", in *Seals and Seal Impressions, Proceedings of the XLVe Rencontre Assyriologique Internationale*, v. II, W.W. Hallo and I. J. Winter (ed), 101-131, Cambridge, MA.

2002 "Administrative complexity in Syria during the 4th millennium B.C.—The seals and sealings from Tell Hamoukar," *Akkadica* 123: 35-56.

Renette, S.
2018 *Along the Mountain Passes: Tracing Indigenous Developments of Social Complexity in the Zagros Region During the Early Bronze Age (ca. 3500–2000 BCE)*, unpublished Ph.D. dissertation, University of Pennsylvania.

Renette, S. and S. Mohammadi Ghasrian
2020 "The Central and Northern Zagros During the Late Chalcolithic: An Updated Ceramic Chronology Based on Recent Fieldwork Results in Western Iran", *Paleorient* 46 (1-2): 109-132.

Renette, S.; O. Ghafoori, S. Mohammadi Ghasrian
2021a "The Mahidasht Survey Project Revisited: Initial report of new collaborative efforts to catalogue and publish legacy data at the National Museum of Iran". *Journal of Iran National Museum* 2(1): 43-58.

Renette, S.; A. Khayani and L.D. Levine
2021b "Chogha Maran: A Local Center of the Chalcolithic and Early Bronze Age in the Central Zagros", *Iranica Antiqua* 56: 1-169.

Rothman, M. S.
2002 *Tepe Gawra. the Evolution of a Small, Prehistoric Center in Northern Iraq*. Philadelphia: The University of Pennsylvania Museum Publications.

2013 "Interpreting the role of Godin Tepe in the Uruk expansion". in *Ancient Iran and Its Neighbors. Local developments and Long-range Interactions in the 4th Millennium BC*. British Institute of Persian Studies Archaeological Monographs Series III, Petrie, C.A. (ed), 75–92, Oxford: Oxbow Publications & David Brown Book Company.

Rothman, M. S. and V. Badler
2011 Contact and Development in Godin Period VI, On the High Road: *The History of Godin Tepe, Iran*. in H. Gopnik and M. Rothman (eds.), 67-137. Canada: Royal Ontario Museum.

Sarfaraz, A.; M. Saraf and S. Yaghmaei
1968 *The Report of Surveys in Kermanshah Province*, Tehran: ICHTO (Unpublished).

Stein, A.
1940 *Old Routes of Western Iran: Narrative of an Archaeological Journey*, London: Macmillan and Co.

Weiss, H. and Young T. C.
1975 "The Merchants of Susa: Godin V and Plateau-Lowland Relations in the Late Fourth Millennium B.C". *Iran*. Vol. 13, pp. 1-17.