University of Tehran Press

Journal of Archaeological Studies

P. ISSN: 2251-9297 - **E. ISSN:** 2676-4288

Vol. 17, No. 2, Serial No. 37 / Summer-Autumn, 2025

https://jarcs.ut.ac.ir/

Bridging the Gap: Godin Tepe and the Origins of Proto-Elamite Communities

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Article Info

Pp: 97-125

Article Type:
Research Article

Article History:

Received:
2025/04/02

Revised:
2025/04/30

Accepted:
2025/06/03

Published Online:
2025/07/23

Keywords:
Godin Tepe, Numerical Tablet, Proto Elamite, Administration, Marketing Hub.

Abstract

Based on archaeological evidence, during the mid and late fourth millennium BCE, Godin Tepe lacked hallmark Uruk material culture (such as distinctive pottery, specific architecture, or administrative technologies), and thus cannot be identified as a purely Uruk trading outpost. The discovery of tablets with layouts and structures closely resembling Proto-Elamite texts indicates the existence of a local administrative system linked to the management of highland community resources, integrating Godin Tepe into the wider Proto-Elamite economic network. The complementary functions of pastoral nomadism (livestock products and transport services) and sedentary agriculture (agricultural produce and handicrafts) suggest that Godin Tepe acted as a conduit for regional exchange and a seasonal gathering place for nomadic groups. Findings such as the coexistence of Susa II economic tablets and formative Proto-Elamite types, the presence of pottery from the highlands and the central plateau, and the application of standard Proto-Elamite architecture reinforce the site's role as a multi-cultural commercial hub and a meeting point for administrative technologies (including economic tablets and sealings). Additionally, storage facilities and large jars underline Godin's function in warehousing and distribution. Chronologically, the material culture of Godin VI:1 bridges the gap between Susa II and Susa III and documents the initial stage of Proto-Elamite formation (ca. 3500–3200 BCE), marking the transformation from purely numerical tablets to fully developed Proto-Elamite texts. This "Formative Proto-Elamite" phase is defined by administrative innovations, cultural diversity, and expanded regional interaction, occurring in parallel with the ongoing Uruk/Susa II culture. Collectively, the evidence positions Godin Tepe not as a peripheral Uruk outpost, but as an active commercial center for Proto-Elamite pastoral nomads, with a central role in the development of administrative systems.

Cite this The Author(s): Yousefi, R., Afshari Salaki, H. & Etemadifar, D., (2025). "Bridging the Gap: Godin Tepe and the Origins of Proto-Elamite Communities". *Journal of Archaeological Studies,* 17(2): 97-125.
DOI: **https://doi.org/10.22059/jarcs.2025.392835.143343**

Publisher: University of Tehran.

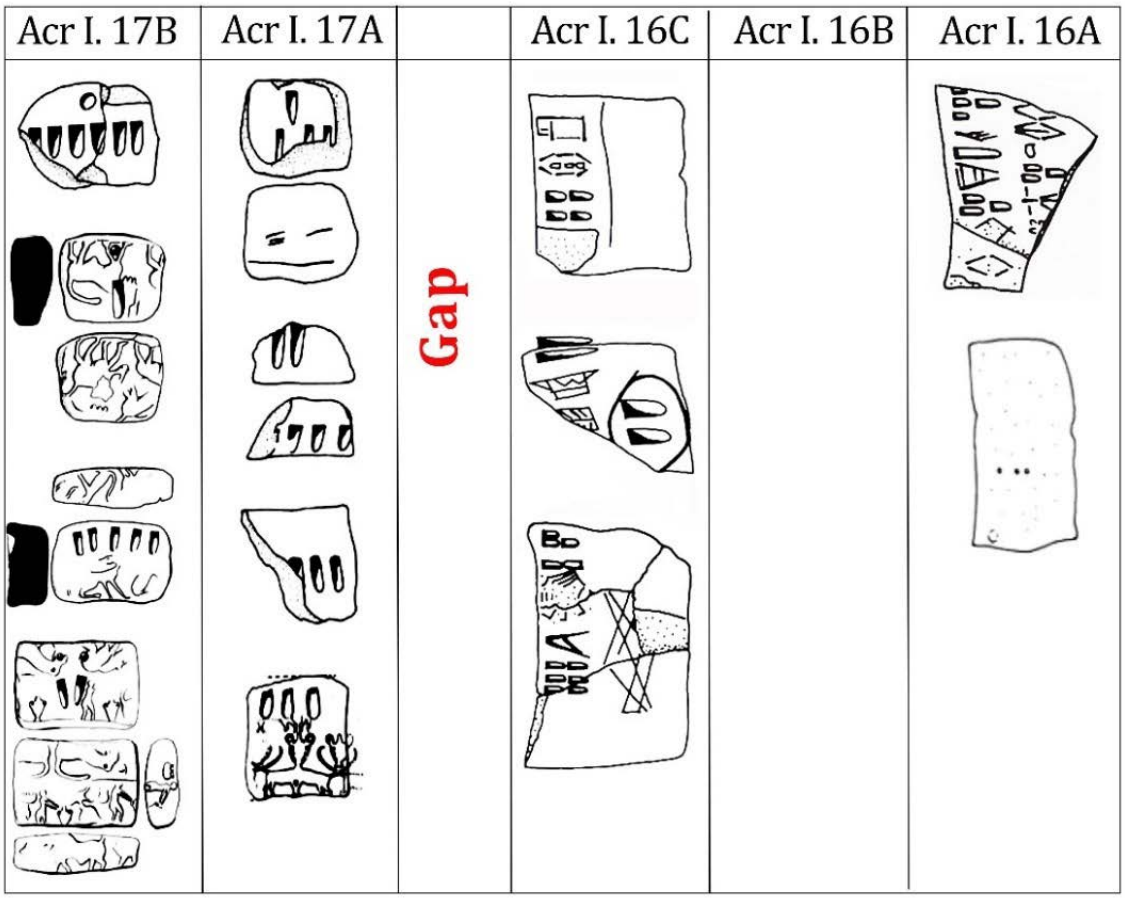
Homepage of this Article: https://jarcs.ut.ac.ir/article_102974.html?lang=en

1. Introduction

The late fourth millennium BCE in the Susiana plain witnessed a transformative period marked by the Susa II (Late Uruk related) and Susa III (Proto-Elamite) phases, representing important junctures in the development of complex administrative systems that laid the groundwork for subsequent Elamite civilizations (Amiet, 1972; Potts, 1999). Susa II, characterized by increasing proto-urbanism and societal complexity, demonstrates a significant influence from the Uruk culture (Algaze, 2008; Pollock, 1999), evidenced by the emergence and local adaptation of administrative technologies such as cylinder seals and early numerical tablets (Schmandt-Besserat, 1992; Englund, 1998). This period reflects an initial phase of centralized control, with clear indications of resource management and distribution, establishing a foundation for more sophisticated administrative practices. Conversely, the Susa III (Proto-Elamite) period exhibits a notable advancement in administrative sophistication (Damerow & Englund, 1989; Dahl *et al.,* 2018). The emergence of the Proto-Elamite complex tablets, while still largely undeciphered, signifies a distinct and indigenous system of book-keeping, diverging significantly from Susa II practices (Table 1). This period saw an expansion of administrative functions beyond basic accounting, potentially encompassing intricate forms of economic and social governance. The widespread distribution of standardized Proto-Elamite administrative artifacts underscores a degree of inter-regional connectivity and semi-centralized organization, demonstrating the development of a unique Iranian administrative tradition that transcended mere emulation of Mesopotamian models. However, the transition between Susa II and Susa III remains a subject of scholarly contention (Dyson, 1987: 648; Le Brun, 1978). The observed occupation gap in Susa Acropole I, specifically between layers 17 and 16, presents a significant discontinuity in our understanding of this evolution, particularly concerning administrative practices (Canal, 1978: 173). Layer 17, indicative of Susa II, reveals a well-established administrative system with numerical tablets and seal impressions, reflecting continuity with preceding levels (22-18) and Mesopotamian influences (Schmandt-Besserat, 1992; Englund, 1998). In contrast, Layer 16, marking the Proto-Elamite period, presents a fully developed and distinct administrative system, complete with the complex Proto-Elamite tablets and a divergent repertoire of seal impressions (Damerow & Englund, 1989; Amiet, 1972). The critical absence of transitional materials between these layers constitutes a substantial lacuna in our comprehension of the Proto-Elamite emergence (Stolper, 1985: 5).

Although the most visible evidence of discontinuity between Susa II and Susa III phases derives from the stratigraphy of trench Acropolis I, where levels 17 and 16 show a marked break, this observation should be contextualized within the broader material and administrative changes at Susa, while acknowledging that this gap may not reflect uniform conditions across the entire site (Table 1). This gap highlights the abrupt nature of the cultural shift, prompting questions about the mechanisms and origins of the Proto-Elamite administrative system (Alden *et al.,* 1982: 624). The sudden appearance of a fully formed administration system, without clear precursors within the immediate Susa II context, suggests either a rapid internal development or, more likely, a significant external influence (Amiet, 1992).

Table 1: Semantic and Lexical Gap Between Tablets in Susa Acropol 1, layers 17 and 16 (Authors, 2024).



Drawing upon Dittmann's concept of discontinuity, this gap is not merely a stratigraphic anomaly but a profound break in the cultural and potentially political continuity of Susa. Dittmann's framework posits that such discontinuities often signify significant shifts in population, administrative structures, or socio-economic organization (Dittmann, 1986). Applying this to the Susa gap, we must consider that the Proto-Elamite administration may not have evolved organically within Susa, but rather appeared fully formed, suggesting an external origin or rapid transformation (Amiet, 1992; Dyson, 1987: 648). The abrupt appearance of Proto-Elamite culture, devoid of local developmental antecedents, implies potential population replacement or substantial influence from an external cultural sphere (Algaze, 2008).

In light of this perplexing occupational gap, Godin Tepe, situated in the Zagros Highlands, emerges as an extremely important site for investigation. Its strategic location, facilitating interaction between Susiana and the Iranian plateau, positions it as a potential nexus of cultural and administrative exchange (Weiss & Young, 1975). The site's stratigraphy, particularly Godin VI1 (mid-fourth millennium BCE), has yielded administrative materials offering a novel perspective on the Proto-Elamite phenomenon (Weiss & Young, 1975; Schmandt-Besserat, 1992). Godin Tepe's role as a marketing hub further suggests potential multi-cultural influences on administrative development (Lamberg-Karlovsky, 1978). Specifically, some of administrative artifacts, including tablets and seal impressions beside architecture and pottery assemblages,

from Godin Tepe exhibit hybrid characteristics, blending elements of initiative administration system and early Proto-Elamite traditions (Elendari, 2024). The discovery of numerical tablets with Proto-Elamite decimal numerical system and semantic and lexical layout indicates a gradual evolutionary process outside Susa, challenging the conventional lowland-centric view (Damerow & Englund, 1989). This hypothesis is further supported by the potential association of Proto-Elamite culture with pastoral nomadism, a subsistence strategy typically associated with highland regions (Alden, 1982a).

This paper addresses the critical occupation gap in Susa Acropole I by examining the discontinuity between Susa II and Proto-Elamite levels, which obscures the evolution of early administration. We begin by establishing the significance of these periods and the problem of the gap, then introduce Godin Tepe as a crucial highland site. We will detail the administrative systems of Susa II and Proto-Elamite, highlighting the discontinuity at Susa. Subsequently, we present a thorough analysis of administrative artifacts from Godin Tepe, focusing on tablets that blend early numerical tablets and Proto-Elamite standard characteristics. We then interpret these findings, arguing for a highland genesis of Proto-Elamite administration, potentially linked to pastoral nomadism, and offer an explanation for the Susa gap. Finally, we conclude by summarizing our findings and suggesting future research directions.

2. Proto-historic Chronology of Susa

Archaeological data regarding the Susa can be obtained from various sources, spanning different periods (Le Brun, 1985). This is because, in addition to the excavations by Dieulafoy, de Morgan, and de Mecquenem, which were primarily focused on the discovery of artifacts and antiquities across all periods without any attention to contextual distribution, subsequent excavations have been principally based on scientific and controlled investigations, aligned with established cultural horizons. These periods encompass the prehistoric era, including the Susa A culture; the protohistoric periods, the Uruk period corresponds to the Susa II and the Proto-Elamite culture or Susa III respectively, followed by the historical periods related to the Awan and Old, Middle, and Neo-Elamite dynasties, the Achaemenid, Parthian, and Sasanian empires, starting from Susa IV and continuing to Susa XI.

The foundation of Susa is uncertain, but the oldest radiocarbon dates from the Susa A layer on the Acropolis fall between 4395 and 3955 BCE (Carter & Stolper, 1984). Although excavations in Acropole I project, Layers 19 to 24 are not yet fully understood, and the available documentation for some layers is insufficient, the analysis and examination of the recovered artifacts allow for the identification of three Susa periods in the following sequence (Le Brun, 1990) as Period I: Layers 27 to 23, Period II: Layers 22 to 17 and Period III: Layers 16 to 14B. Period I, represents the initial occupation and settlement of Susa and is known as the Susa A phase, as its ceramic materials correspond to those recovered by Le Brun from Jafarabad and Susa (Le Brun, 1971; Le Brun, 1978). These ceramic materials, particularly in Layers 27 to 25, are characterized by a distinctive black on buff wares, which continue with variations through Layers 24 and 23. These

variations, marked by the emergence of smaller bricks in buildings and the prevalence of Uruk-type pottery, continue up to Layer 17. Johnson considers Layer 24 to be the late Susa A phase, followed by Layers 23 and 22 as the Early Uruk period, Layers 21 to 19 as the Middle Uruk period, and Layers 18 and 17 as contemporaneous with the Late Uruk period (Johnson, 1973, 60). Within Layer 16 at Susa, there is a clear shift in the material culture; specifically, the tablets, cylinder seals, seal impressions, and the architectural orientation show a sharp contrast between what came before and what came after (Amiet, 1972; Dittmann, 1986; Le Brun, 1978).

3. Susa II Cultural Horizon

The Susa II period (c. 3800-3100 BCE) in Susiana, as defined by significant shifts in architecture, brick size, and ceramic styles in Susa Acropole I levels 22–18 (Steve & Gasche, 1990: 27), mirrors the contemporaneous Uruk period in Mesopotamia. While scholarly debate persists regarding the precise subdivisions of Uruk (Johnson, 1973: 54–8; Wright & Johnson, 1985: 26–9; Nissen, 1993), the ceramic evidence undeniably demonstrates a strong Mesopotamian influence, with Uruk-style ceramics replacing local traditions of painted pottery of Susa A. This period witnessed notable social and economic transformations, including population growth, centralized ceramic production, and a hierarchical settlement pattern, suggesting increased societal complexity (Wright & Johnson, 1985). Interpretations of this Mesopotamian influence vary, with some arguing for a "Mesopotamian" population dominance or even full-scale colonization (Algaze, 1993: 15–17), while others emphasize complex interregional interactions and challenge the feasibility of large-scale colonization (Steinkeller, 1993: 109). Regardless, the striking ceramic similarities underscore a clear cultural connection, raising questions about the nature of political and economic relations between Susiana and Mesopotamia (Amiet, 1979a; 1979b; 1992). The Susa II period represents a distinct break from both the preceding Susa I and the succeeding Susa III periods, highlighting a period of intense cultural exchange and transformation in the region. Steinkeller supports an Uruk colonization of Susiana, citing the Sumerian origin of Inshushinak, Susa's patron god, as evidence (Steinkeller, 1993). The Uruk expansion, traditionally Late Uruk, now shows Middle Uruk presence in Syria (Oates & Oates, 1994: 168) and earlier Uruk types in Susiana. The close parallelism of Susa II ceramics with Mesopotamian Uruk is difficult to explain by a simple ascendancy of a pre-existing Mesopotamian population element. The introduction of potters and people from outside Susiana seems more likely. However, while Uruk ceramics suggest potential colonists, the distinct writing systems in Susiana and Mesopotamia argue against a complete subjugation. Nissen emphasizes the size disparity between Uruk and Susian sites. Uruk's vast expansion and extensive exposed architecture dwarf Susian settlements (Nissen, 1985; 1993). Uruk's proto-cuneiform writing system, with its complex numerical systems and hierarchical organization, reflects a bureaucratic need unique to Uruk (Nissen *et al.*, 1990). The spread of Uruk numerical systems to Susa indicates diffusion, not independent invention, further suggesting Uruk's influence rather than Susian parity. Numerical tablets, bearing cylinder seal impressions, appear in Susa Acropole I Level 18 (LeBrun, 1985; 1990: 61; LeBrun & Vallat, 1978:

31) and continue in Level 17 (Vallat, 1986a), mirroring similar finds in Uruk and other sites across Mesopotamia and surrounding regions (Friberg, 1979; Schmandt-Besserat, 1981: 323). While Uruk employed thirteen numerical systems (Damerow & Englund, 1985), Susa adopted only three (Friberg, 1994: 485), suggesting selective borrowing. These systems were nearly identical between Uruk and Susa, indicating a shared book-keeping practice. Although numerical tablets precede proto-cuneiform texts, both occur together in Uruk (Nissen, 1986: 326; Englund, 1994: 16), challenging a simple developmental sequence. The absence of complex proto-cuneiform texts in Susa, despite the presence of numerical tablets, suggests a limited Uruk influence, likely due to a few scribes rather than a full administrative takeover. The physical arrangement and shapes of Susa tablets differ from those of Uruk, further indicating a degree of independence. The presence of bullae and tokens in Susa (Amiet, 1987; Friberg, 1994: 492–5), predating tablets, supports a shared administration system tradition. The text argues for an infiltration of Mesopotamians into Susiana, rather than a political conquest. The limited adoption of Uruk accounting practices and distinct tablet features suggest local agency. The "priest-king" imagery found in Uruk, Susa, and Choga Mish (Amiet, 1986: 64; 1985; Harper *et al.*, 1992: 52) raises questions about political and religious connections. While interpretations vary, the author suggests a more complex relationship than a simple diffusion of a shared institution (Fig. 1).

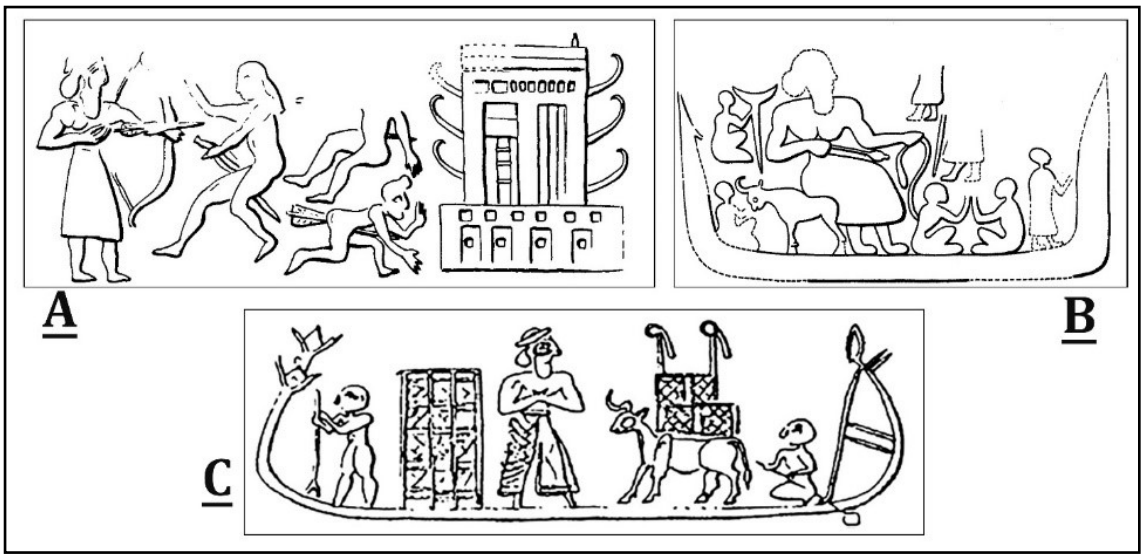


Fig. 1: The "Priest-King" Imagery Found in Susa (A), (Amiet, 1957), Choga Mish (B), (Alizadeh, 2008) and Uruk (C), (Mathews 1993) Respectively.

4. Susa III Cultural Horizon

The Susa III period, characterized by the emergence of distinctive complex tablets and sealings, has been a subject of scholarly debate. De Morgan's excavations at Susa yielded two tablets, briefly published by V. Scheil in 1900 (Scheil, 1900). Later, Scheil presented a larger group of similar texts, terming them 'Proto-Elamite' (Scheil, 1905), many bearing cylinder seal impressions that differed from Susa II/Late Uruk precedents (Amiet, 1972; 1986). Despite the poor stratigraphic context of early finds, Le Brun's work in Acropole I Levels 16-14b confirmed their Susa III dating.

The term 'Proto-Elamite' is problematic, implying a link to later Elamite texts without sufficient linguistic or graphic evidence. Therefore, these tablets are referred to as Susa III texts based on Daniel Potts label. Approximately 1550 Susa III texts have been found at Susa (Damerow & Englund, 1989). Understanding these texts necessitates examining their relationship to earlier Late Uruk/Susa II economic tablets and later Elamite texts.

The Susa III tablets differ significantly from Jamdat Nasr/Uruk III counterparts, primarily due to their more abstracted signs (Damerow & Englund, 1989). Early editors recognized limited signs borrowing between Mesopotamian and Iranian systems. Graphic parallels are considered insignificant, as similar features appear in disparate cultures (Damerow & Englund, 1989). Despite graphic divergences, structural similarities between Susa III and Uruk III texts are evident, thanks to the work of Friberg, R, Englund, and Damerow. Friberg suggested the Proto-Elamite SˇE-system was a copy of the Proto-Sumerian SˇE-system (Friberg, 1978). Damerow and Englund's research revealed that most Susa III numerical systems, except for the decimal and bisexagesimal B# systems, were identical or derived from Uruk proto-cuneiform systems.

Damerow and Englund's research revealed that most Susa III numerical systems, except for the decimal and bisexagesimal B# systems, were either identical to or derived from Uruk proto-cuneiform systems; however, this diffusionist view has been challenged by Desset, who proposes the independent development of the Proto-Elamite script within the highlands, reflecting a more localized trajectory of writing innovation (Desset, 2016).

The SˇE-system's presence in Susa II suggests some Susa III numerical techniques stemmed from earlier local systems. The Susa III writing system's creators were proficient in Mesopotamian numerical systems, but their sign list's divergence indicates a separate system. The Susa III texts remain largely undeciphered, unlike Mesopotamian proto-cuneiform, which benefited from comparisons with later cuneiform (Damerow & Englund, 1989).

5. Susa Acropole 1 stratigraphy and the question of Susa III origin

The shift from Susa II to Susa III reveals a profound cultural discontinuity, demanding a re-evaluation of the region's trajectory and prompting a search for external origins. Amiet's characterization of Susa as "diminished" during this phase (Amiet, 1992: 81) is not merely a quantitative observation; it signifies a qualitative shift in settlement patterns, with occupation contracting to the Acropole, implying a significant societal restructuring or decline. This spatial contraction serves as the initial indicator of a larger cultural upheaval. More critically, the material culture, particularly tablets, cylinder seals and seal impressions, presents a stark contrast between the preceding and succeeding periods. Le Brun's analysis of the Acropole I stratigraphy reveals a "complete disjunction" between Levels 17 and 16 (Le Brun, 1978). This is not a gradual evolution of styles but a sudden introduction of distinct fabrics and shapes, signaling a fundamental break with the established ceramic traditions of Susa II. Such a radical change in material culture suggests the influx of new populations or the adoption of entirely new cultural practices, pointing towards an external influence rather than internal development.

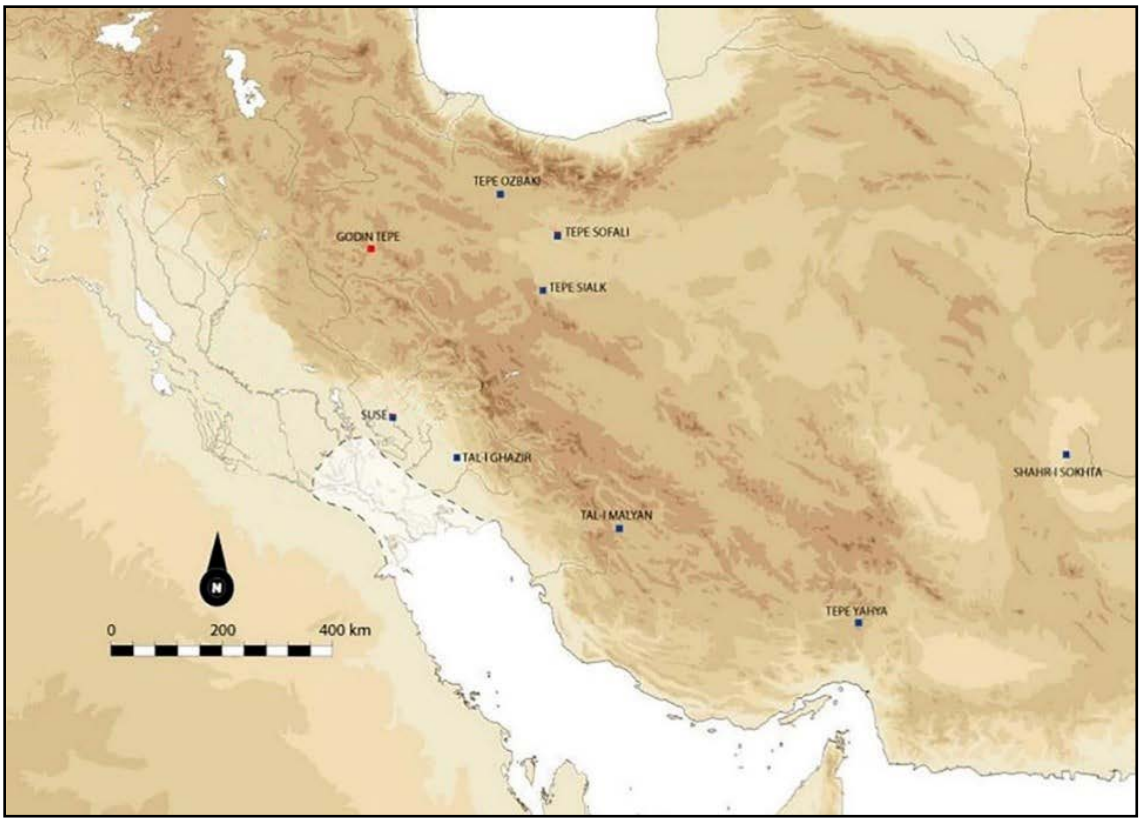
The stratigraphic evidence further substantiates this cultural rupture. Dyson highlights the "discontinuity" evident in the Acropole I section (Dyson, 1987: 648). The walls of Level 17B, once integral to the Susa II settlement, are found covered by "sloping strata of secondary trash termed 17A," indicating a period of abandonment or neglect. Subsequently, the "levelling activity" preceding the construction of Level 16 structures, which exhibit a "different orientation" from those of 17B, signifies a deliberate break with the past. This stratigraphic sequence reveals not only a temporal gap but also a fundamental change in architectural practices and spatial organization, further solidifying the notion of a cultural discontinuity.

The abandonment of the haute terrasse at the end of Level 17 (Canal, 1978: 173) reinforces the idea of a widespread disruption. This abandonment, coupled with the dramatic changes observed on the Acropole, suggests a systematic shift in settlement patterns and a potential abandonment of previously vital areas of the site. The combined weight of these indicators, a diminished settlement, a radical shift in material culture specifically tablets and seal impressions, a clear stratigraphic break, and the abandonment of a significant area, renders the existence of a substantial cultural gap between Levels 17 and 16 undeniable.

As Dyson concludes, "there is a discontinuity in the stratigraphy of unknown duration which must be taken into consideration" (Dyson, 1987: 648). This "discontinuity" is not merely a temporal gap but a cultural chasm that necessitates the exploration of external origins for the Susa III culture. The abrupt changes in administration materials, architecture, and settlement patterns strongly suggest that the Susa III culture did not evolve seamlessly from the preceding Susa II context but was likely introduced or influenced by external forces. Therefore, to understand the origins of Susa III, we must look beyond the immediate stratigraphic sequence at Susa and investigate potential sources of cultural influence from neighboring regions.

The distribution and interpretation of Susa III (Proto-Elamite) texts across Iran, have sparked debates about the origins and nature of this cultural horizon. While tablets of the Susa III type are found at multiple sites particularly at sites like Malyan, Tepe Ozbaki, Tepe Sialk, Tepe Yahya and Tepe Sofalin (Lamberg-Karlovsky, 1978; Damerow & Englund, 1989; Dahl *et al.,* 2018), their close uniformity with those from Susa is evident. The structural and graphic consistencies, including numerical systems and text layouts, suggest a shared administrative system throughout the Iranian Plateau (Damerow & Englund, 1989) contemporary where they cannot be the origin for Proto Elamite culture (Map 1).

Alden's hypothesis of a "highland script" originating at Malyan (Alden *et al.,* 1982: 624) has been challenged by stratigraphic and epigraphic evidence. The observed discontinuity at Susa between periods II and III prompted discussions about the origin of the Susa III assemblage (Dyson, 1987: 649). some scholars, like Amiet (1992), suggested a highland annexation of Susa, and others, like Alden (Alden et al., 1982), proposed Susa as a "port-of-trade." Damerow and Englund's analysis demonstrates that the numerical systems used in Susa III texts derive from the Uruk IV and III tradition (Damerow & Englund, 1989), and numerical systems were already present in Susa II (Stolper, 1985: 5). The large-scale economic activity recorded in Susa III texts,



Map 1: The Distribution of Proto Elamite Tablets Across Iran (After: Desset 2016).

with substantial animal and grain accounts (Damerow & Englund, 1989), further challenges the notion of Susa as a minor outpost. Therefore, the available evidence suggests that all known Proto-Elamite sites across Iran, with their Proto-Elamite tablets, represent the final stage of this writing system's development. It is difficult to attribute any of these sites as the sole origin of Proto-Elamite culture. Rather, the uniformity of the texts indicates a widespread and well-established administrative system.

6. Godin Tepe: Bridging the Gap

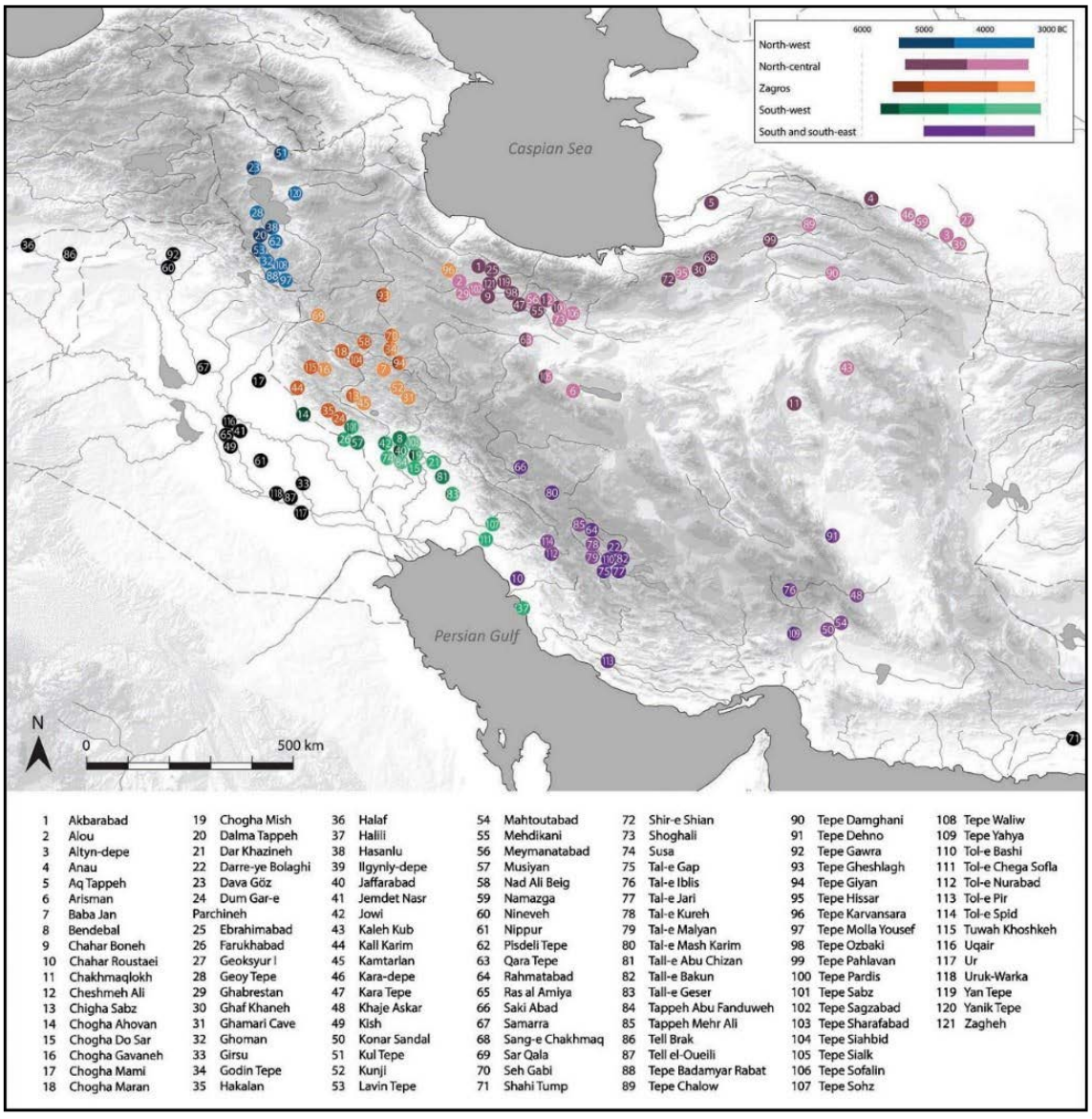
Godin Tepe, with its evidence of early bookkeeping practices and its location in a highland valley in central Zagros, stands as a strong candidate for the region of origin. It is important to note that the presence of Susa II and Susa III administration materials that are "like (but not identical to) those from Susa in Level 17 and 16 further supports this highland origin, however, the site of Godin Tepe itself has not yielded any standard Proto-Elamite texts. The discovery of 38 economic tablets during a 1973 excavation at Godin Tepe can shed lights into the origin of Proto Elamite community (Map 2).

The tablets from Godin Tepe were inscribed with a variety of numerical notations, including circles, triangles, crescent and squares. These signs are thought to represent numbers, and the tablets were likely used for accounting or bookkeeping purposes. The tablets unearthed at Godin Tepe originate from Level VI1, within oval architecture complex (Fig. 1) which archaeological

investigations have placed within the approximate timeframe of 3500 to 3200 BCE, (Rothman & Badler, 2011), (Table 2).

This dating positions these Godin Tepe artifacts as either contemporaneous with or possibly predating the earliest written records discovered at the Mesopotamian site of Uruk, specifically those from its Level IVa. Uruk's Level IVa is currently estimated to date from around 3200 to 3100 BCE, a chronology that has been, in part, refined through comparisons with the Godin Tepe findings (Rothman, 2013).

However, the Uruk materials present certain challenges for establishing precise comparative dating. As noted by van Driel, there's a lack of published tablets from layers definitively earlier than Uruk IVa. This situation creates a potential circularity in dating, where the tablets themselves become the primary markers for dating the archaeological context, rather than being dated by it.



Map 2: Map Showing the location of Godin Tepe and other Fourth-Millennium BC Sites in Iran (After: Matthews and Fazeli, 2022).

Van Driel raises concerns that the use of writing may have been present before the construction of what are considered Uruk IVa-period buildings. Thus, while Uruk lends its name to the broader cultural period, its suitability for detailed comparative dating is limited due to these stratigraphic ambiguities.

Despite these challenges, the tablets from Godin Tepe are not isolated discoveries. Evidence of similar tablets has emerged from a broad geographical range, encompassing various sites across the Near East and even extending beyond this region. This widespread distribution suggests a more extensive and interconnected use of early recording systems than previously thought. A brief survey of these comparable findings will provide a broader context for understanding the significance of the Godin Tepe tablets in the development of early writing and the emergence numerical notation within Proto-Elamite context.

The Godin Tepe tablets, characterized by their exclusive use of numerical signs except one, find parallels in various sites, offering a glimpse into the broader context of early numerical notation. In Uruk itself, despite the chronological challenges posed by its Level IVa, a few tablets resembling the Godin type have been discovered. These include examples noted by van Driel (Driel, 1982:18, n. 6) and Schmandt-Besserat (Schmandt-Besserat, 1992: 130, nn. 25-31). Notably, the numerical signs within the more developed proto-cuneiform script of Uruk IVa exhibit striking similarities to those utilized at Godin. The extensive accounting texts from Uruk, where numerals play a vital role, have benefited from significant interpretive advances, particularly through the work of Nissen *et al.,* (1990, 1993), building upon earlier efforts by Falkenstein (1936) and Vaiman (1976).

In Iran, the comparative landscape expands considerably. Choga Mish has revealed clay balls and numerical tablets, mirroring the Godin findings to some extend (Nissen, 1977:19). Susa itself presents a rich sequence, beginning with bullae and Godin-type tablets. Other Iranian sites with archaic tablets include Tepe Sialk (Ghirshman, 1938: 65-68 & pls. xciif.), Tepe Meymanatabad (Yosefi et al., 2018) with its numerical tablet examples, and Tall-i-Ghazir (Weiss & Young, 1975:91 and n. 20). Northern Mesopotamia also contributes to this picture, with finds from Nineveh (Collon & Reade, 1983: 33f.), Tel Brak (Oates, 1982: 65; Matthews & Eidem, 1993; Oates *et al.,* 2001), Habuba Kabira (Strommenger, 1977; 1981), Jebel Aruda (Van der Leeuw, 1974: fac. p. 83; Van Driel, 1982), Mari (Parrot, 1965: 12), and Khafaje (Weiss and Young, 1975: 88 n. 16). These sites have yielded numerical tablets and bullae (Matthews, 1997: Nos. 117, 164, 201), indicating a widespread use of similar recording techniques.

7. The Godin Tablets

The Godin Tepe tablets exhibit a notable consistency in size. Excluding broken pieces, the tablets' height ranges from 2.7 cm to 5.0 cm, with the majority falling between 3.4 cm and 4.9 cm. In terms of width, they vary from 3.9 cm to 5.95 cm, most measuring between 4.7 cm and 5.75 cm. Thickness measurements spans from 1.3 cm to 2.7 cm, with the majority registering between 1.5 cm and 2.6 cm. The majority of the Godin Tepe tablets are unsealed. Among the seven tablets that

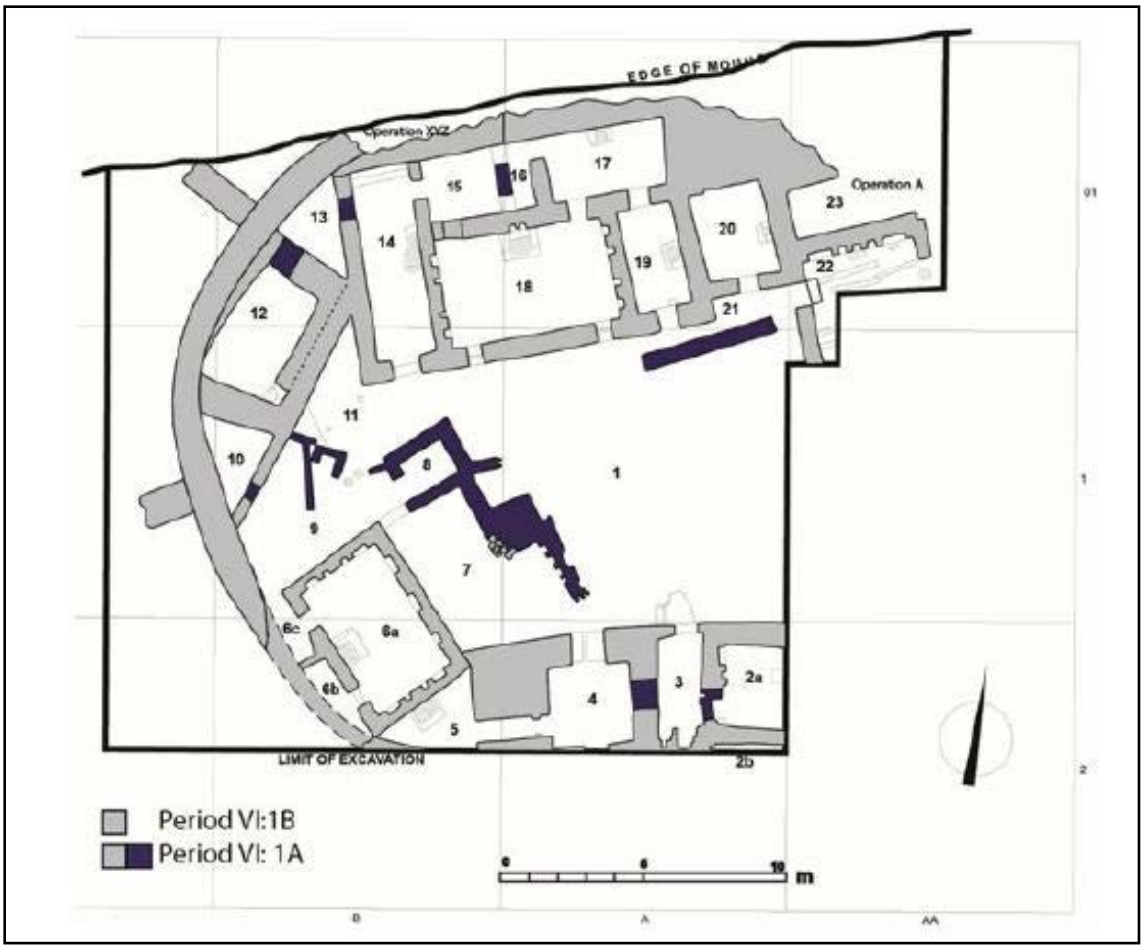


Fig. 2: The Oval Architecture of Godin VI1 (After: Rothman and Badler 2011).

are definitively sealed, three have corresponding unsealed duplicates. This observation sheds light on the sequence of seal impressions and inscribed numerical notations. The seals were applied first, as the numerical signs appear to be positioned to minimize disruption to the seal design. In some instances, the placement of signs in the center of the top line seems influenced by the pre-existing seal impression, a practice also noted in examples from Uruk.

One may read all the Godin tablets according to the only tablet with a vessel pictogram as if it was to be held with the top of the vessel pictogram at the top of the tablet. Their signs thus begin at the top of the tablet and either begin at the right end or are placed in the middle. If a second line is needed, it either follows immediately after the first line or, more rarely, is placed at the bottom of the tablet. With all these conventions, they may be compared to the earliest tablets from Susa, but there are deviations from these patterns, perhaps for the seal impressions (e.g. Amiet, 1972: 491, 642).

The arrangement of signs on the tablets reveals a strong emphasis on symmetry. This symmetry influences their placement, often positioned in the tablet's center, and extends to the alignment of signs on lower lines directly beneath those on higher lines. Examples of this can be observed in tablets from Godin and Uruk. In some instances, the arrangement creates an almost pictorial effect,

as seen in tablets from Brak, Habuba Kabira, and Jebel Aruda. The symmetrical arrangement supports the interpretation that the lines should be read from top to bottom rather than left to right. When a single line cannot accommodate all the signs of a particular magnitude, the remaining signs are moved to a second line.

The Mesopotamian convention of flattening the obverse to create what may be called the "plano-convex" tablet developed early. But this convention had not yet been fully adopted in the time of the Godin tablets, most of which are still slightly convex on both sides; two are flat on both sides and only four are plano-convex (Weiss & Young, 1975: 88). Except for the last, there are thus no easy criteria for distinguishing between obverse and reverse.

The direction of writing on the Godin tablets varies. Some tablets maintain the same writing direction on both sides (Susa II style), while others follow the later Proto-Elamite convention of opposite directions (Five tablets adhere to the later Proto-Elamite rule of opposite writing directions). This mirrors the variability seen in Proto-Cuneiform and Proto-Elamite scripts. Several tablets utilize both sides for inscription, with one tablet featuring additional margins. The writing direction is less clear on three tablets inscribed on the obverse and edge.

While most tablets use the obverse and reverse sides for writing, some employ the long edges or surfaces on the short edge. On one tablet, it is uncertain whether the deep impressions on the short edge are intentional signs. Like later proto-Elamite convention, two tablets have indentations encircling both sides, creating a frame or margin for the signs. One tablet has a frame only on the "obverse" side, and another features a dividing line that creates the effect of two distinct sections as the later Susa III text.

8. Interpretation of the Godin Tablets

The interpretation of the Godin Tepe tablets builds upon the foundational work of Weiss and Young (1975) and Schmandt-Besserat (1992). This analysis aims to provide a comprehensive view by examination of numerical tablets from Godin Tepe. These texts are categorized into two groups: 1 tablet with both a pictographic sign and numerical notations, 25 tablets with numerical signs only.

The tablet featuring a pictographic sign displays what is almost certainly a depiction of a pitcher or pottery vessel. This vessel is characterized by a pointed base and a neck that appears to have been added to the body following the rule of logogram or sign-object followed by numerical notations in standard Proto-Elamite texts (Fig. 3). This type of vessel is well-documented in archaeological finds and early sign forms. For instance, a limestone "crouching figure with vessel" from Susa, dated to the proto-Elamite period (Fig. 4), provides a comparative example consistent with the Godin Tepe tablet's period and origin. Furthermore, the pictographic sign resembles early sign forms, particularly the forerunner of the later M260 sign. This sign, a ligature of a vessel, is attested at many of later Proto-Elamite Tablets in Susa, Yahya, Malyan and Sofalin. The pictographic sign on this tablet is interpreted as a vessel standing on its pointed bottom. The three elongated signs to its left are described as notch. These verticals are topped by three circular signs

Table 2: Comparative Chronology of Godin tepe and Adjacent Regions (After: Elendari 2024).

Godin Levels	Estimated Date (BC)	N. Mesopotamia	S. Mesopotamia	Central Plateau	Susiana
XI-X	5500-4800	Late Neolithic / E Chalcolithic	Halaf / Ubaid 1-3	Sialk I.3-5 / L Neolithic II / E Trans Chalcolithic	Early and Middle Susiana
IX	4800-4200	E /M Chalcolithic	Ubaid 3-4	L Trans Chalcolithic	Late Susiana / Susa 1-2
VIII	4200-4000	LC 1	Terminal Ubaid Uruk XIV-XV	E Chalcolithic	Terminal Susiana / Susa A (23-27)
VII & VI:3	4000-3800	LC 2	Early Uruk / Uruk X-XII	Sialk III.4-5 / M Chalcolithic	Susa 20-hiatus
VI:2 (VI in old sequence)	4800 - 3300	LC 3/ 4	Middle Uruk / Uruk VI-IX	M / L Chalcolithic / Sialk III. 4-5 & Sialk III. 6-7	Susa II (earlier) / Susa 18 / 19
VI:1 (V in old sequence)	3300 - 3000	LC 5	Late Uruk / Uruk IVA/B-V /Jemdet Nasr	Sialk IV.1-IV.2	Susa II (later) Susa III / Susa 17 / Proto Elamite
IV	3050-2700	Bronze Age/ETC	Early Dynastic II	Sialk IV.2 / E Bronze I	Susa 13-15

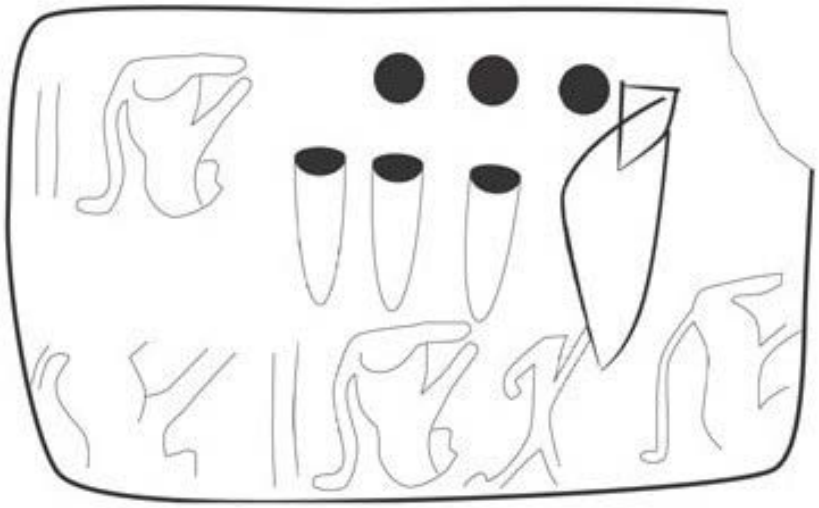


Fig. 3: Formative Proto Elamite Tablet Featuring a Pictographic Sign Modified by Numeric (Taken from: Elendari, 2024: 126, Fig. 62-T295).

above them, but in such a fashion that the first circular sign is to the right of the first vertical and the last vertical is to the left of the last circle. The sequence of writing on this tablet is as follows: the pictographic sign was written first, the circles next, and the verticals last.

This sequence provides an important clue to the meaning of the "numerical" signs, since it seems likely if not incontrovertible that the higher magnitude was written before the lower. On the analogy of later texts from the standard Proto Elamite text, we may tentatively assign to the circles the meanings "10" and to the verticals the meaning "1" within decimal system. We thus arrive at the sense "tablet containing 33 vessels of unknown substance."

The circles and verticals were impressed into the wet clay by means of tokens or of a stylus, while the pictographic sign was definitely drawn on it with some kind of stylus or other writing instrument. It seems more reasonable to attribute the resort to a drawing of the vessel to the fact that the tablet represents a step in the transition from impressed tokens to incised pictograms. The Godin Tepe tablets with impressed signs, devoid of pictograms, offer insights into an early decimal system. Among the 25 well-preserved tablets analyzed, numerical values are represented by large and small verticals, circles, crescents, and pairs of joined dots. The analysis suggests a hierarchical structure: large verticals ( ) potentially represent "100," circles ( ) represent "10," and small verticals ( ) represent "1." Fractions of "1" are indicated by crescents ( ), (hypothetically 1/5) and pairs of joined dots ( ), (hypothetically 1/10). For example, the tablet below (Fig. 5), with its arrangement of two large notches, four circles, and six small verticals, is interpreted as '246,' providing crucial evidence for the existence of a decimal-based numerical system in the region, a significant departure from Mesopotamian sexagesimal practices.

Fig. 4: A Proto Elamite limestone "crouching figure with vessel" from Susa (Taken from Near Eastern Antiquities in Dialogue Catalog, Louvre Museum 2025).

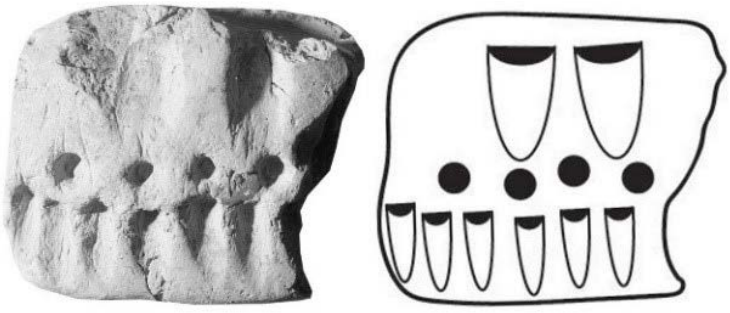


Fig. 5: Formative Proto Elamite Tablet from Godin Tepe with Possible Decimal Numerical System (Drawn by: Authors, 2024).

The next tablet (Fig. 6), with nine circles, is interpreted as "90." The arrangement of these signs, their alignment, and the presence of margins or seal impressions further contribute to the understanding of the numerical system employed in these early records. While most tablets feature a maximum of nine circles, exceptions exist.

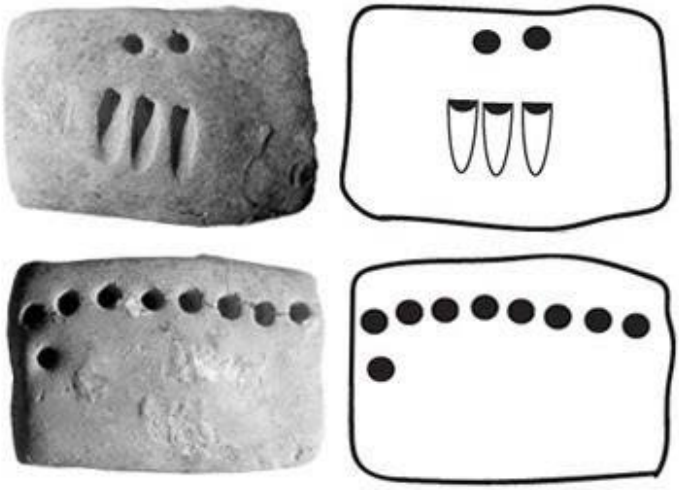


Fig. 6: Formative Proto Elamite Tablet from Godin Tepe (Drawn by: Authors, 2024).

At Jebel Aruda, one small tablet displays two rows of five circles, and a larger tablet shows two rows of eleven. Similarly, at Sialk, a tablet exhibits two rows of ten circles followed by a third row of three, deviating further by starting subsequent rows before the previous one is completed, a feature also seen at Susa and Godin.

These anomalies do not necessarily invalidate the theory of an initial decimal counting system. However, it is clear that a sexagesimal system soon superseded the decimal one in proto-Cuneiform texts, while the decimal system persisted within later Proto-Elamite tablets at Susa, Malyan, Yahya and Tepe Sofalin.

The next tablet (Fig. 7), a particularly significant artifact, stands unique as the earliest known practice of decimal system fractions inscribed along its edge. This tablet not only presents seal impressions depicting animals, indicative of ownership or administrative control, but also features a complex numerical notation: on one edge, a single circle is accompanied by four crescent-shaped impressions and a pair of joined dots, suggesting a fractional value within the decimal system.

The front side displays four distinct circular impressions, while the other main side reveals a series of additional circles, each uniquely marked with a dot in its center, potentially representing another set of numerical values or a distinct category of recorded information. This multifaceted tablet offers invaluable insights into the evolving numerical and administrative practices of the period, demonstrating an early understanding and application of fractional notation within a decimal framework.

This tablet (Fig. 8), exhibiting several features that prefigure standard Proto-Elamite tablets, include meticulously drawn margin lines, which likely served to delineate the recording space and enhance readability. Notably, this tablet also features a distinct dividing line running down

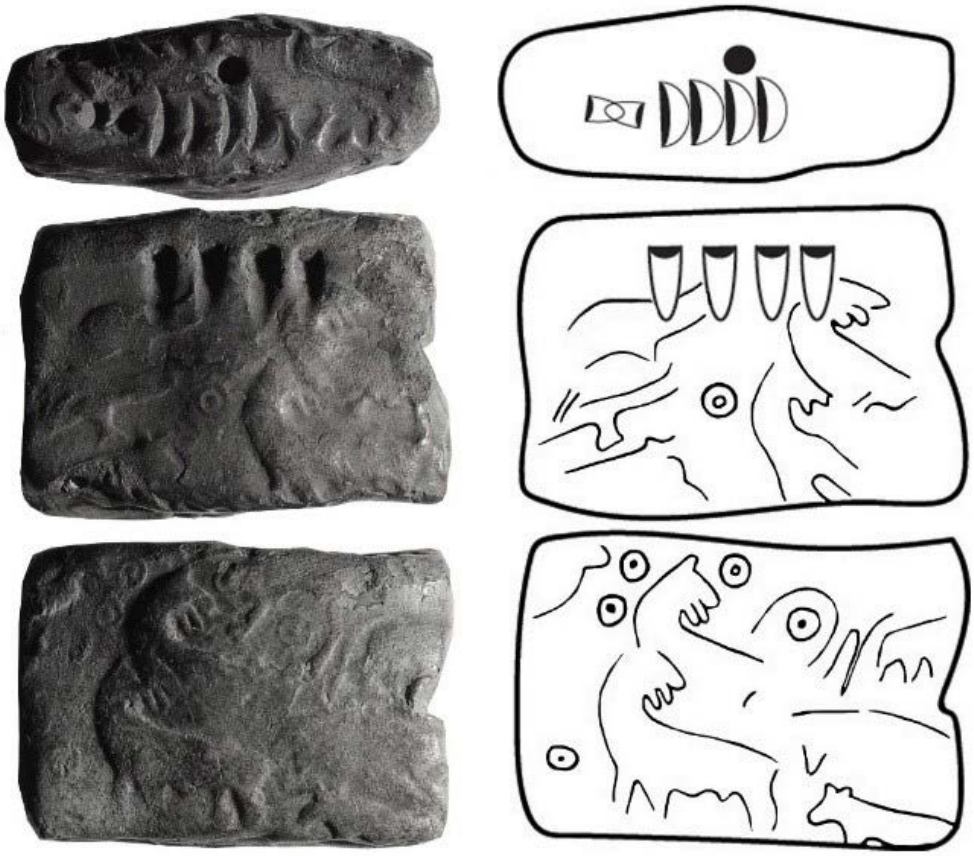


Fig. 7: The Earliest Known Practice of Decimal System Fractions from Godin Tepe(Drawn by: Authors, 2024).

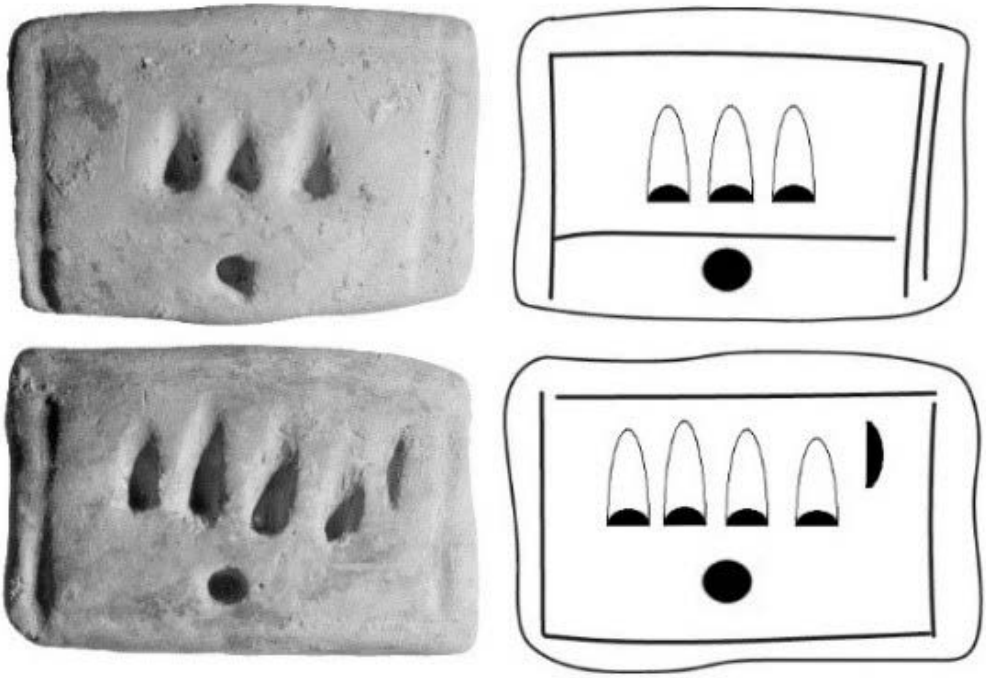


Fig. 8: Formative Proto-Elamite tablets, include meticulously drawn margin lines from Godin Tepe (Drawn by: Authors, 2024).

the middle of its obverse, potentially indicating a division of recorded information or a specific organizational structure. This technique of using a dividing line on the obverse is unique to Proto-Elamite tablet layouts, setting them apart from other contemporary recording systems. The tablet further displays horizontal dashes, which bear a resemblance to numerical signs, suggesting an early form of numerical notation or a related symbolic system. The obverse side of this tablet is intentionally reserved, acting as a surface for seal impressions depicting cross-tailed animals, possibly representing ownership, administrative authority, or the types of goods being recorded. On the bottom side, the tablet features additional numerical signs, indicating a multi-faceted recording system that integrated both numerical and symbolic elements, offering a glimpse into the evolving administrative practices of the period.

The architectural comparison between the Godin Tepe Oval Enclosure and the Malyan ABC/TUV and Susa (Desset, 2014) provides valuable insights into the possible connections between these sites and their role in the broader Proto-Elamite cultural sphere. Desset's work suggests that the architectural features of these sites share common traits, particularly in terms of their circular or oval-shaped structures, which could indicate similar administrative function. The Oval Enclosure at Godin Tepe, with its large, centrally located spaces and distinct architectural planning, has parallels with Malyan and Susa, where similar structural designs are found in contexts related to early urban organization and administration.

These architectural similarities might reflect a broader regional style or planning principle that was shared by multiple centers in the Proto Elamite period. This could suggest that the development of proto-Elamite writing and administrative systems was not only a cultural or technological diffusion from Uruk but also an indigenous evolution of urban and architectural practices in the Zagros highlands and surrounding regions.

The architectural evidence provides an additional layer to understanding the spread of Proto-Elamite culture, potentially supporting the theory that these sites, like Godin, were part of an interconnected highland culture that shared both architectural and administrative innovations. However, Desset's hypothesis also challenges the notion that Proto-Elamite was entirely derived from Urukian influences, offering instead the possibility of local, independent developments.

The relationship between the Godin Tepe tablets and proto-Elamite warrants a more thorough investigation. While the occupation of Godin's Oval Enclosure could have been by Urukian merchants, as Young suggests, the distribution of Godin-type number tablets across several sites southwards, within the region later known as Elam, prompts a deeper inquiry into their potential connection to proto-Elamite tablets from Sialk, Shahr-e Sokhta, and notably, Susa and Chogha Mish. Traditionally, proto-Elamite's emergence in Susa Acropol I Level 16-14B, contemporaneous with Uruk III, is attributed to a derivation from Uruk IV's fully developed script. However, alternative theories posit an independent origin and development for proto-Elamite, dating back to the mid-fourth millennium in highland central Zagros (Elendari, 2024).

Several points of comparison between Godin formative Proto Elamite tablets and early proto-Elamite tablets, absent in Uruk's archaic tablets, suggest a closer link. First, the placement of

numerical signs starting from the top right corner, as seen in Godin, contrasts with the symmetrical, central placement common in early Uruk tablet (Fig. 9).

Moreover, the placement of the commodity pictogram preceding the numerical signs, as in Godin tablets is mirrored in proto-Elamite tablets. Second, the prevalence of the "growing crescent" numerical sign in proto-Elamite, similar to Godin, differs from the "waning crescent" used at Uruk. Third, the apparent decimal numbering system in proto-Elamite, aligning with Godin, contrasts with Uruk's sexagesimal system (Fig. 10).

Fig. 9: Numerical Tablet from Uruk (After: ©CDLI).

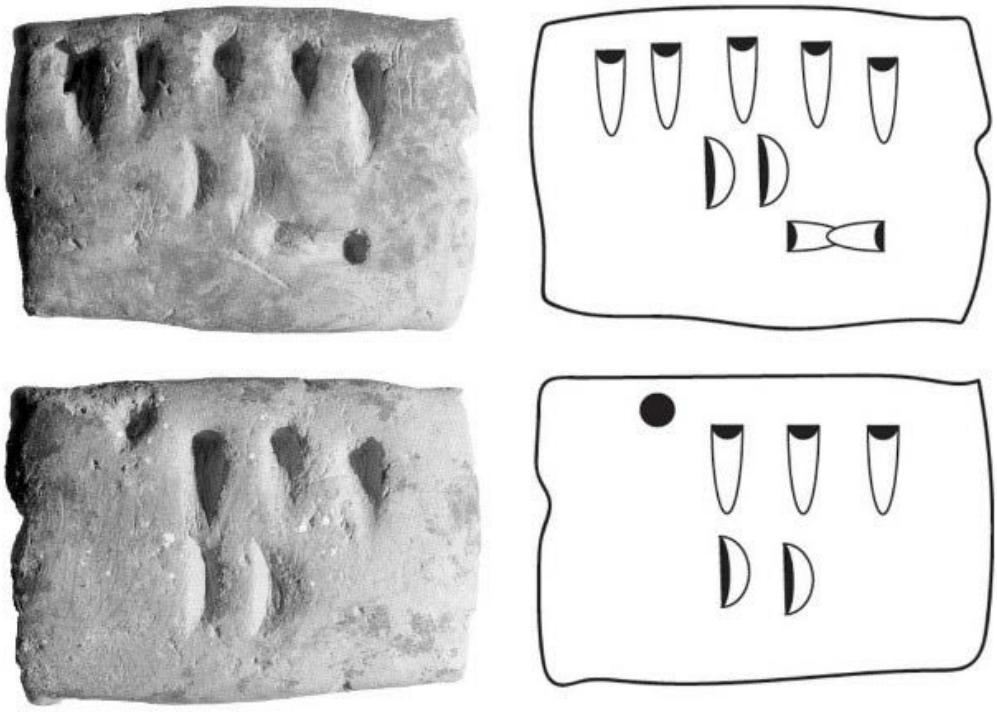


Fig. 10: The Prevalence of the Growing Crescent Numerical Sign in Godin Tepe Formative proto-Elamite Tablets (Drawn by: Authors, 2024).

9. Conclusion

The archaeological evidence at Godin Tepe does not reveal a strong presence of Uruk material culture, such as distinctive pottery, architecture, or administrative technologies. This suggests that the site was not primarily an Urukian trading outpost. The discovery of tablets very similar with Proto Elamite layout and structure at Godin Tepe indicates the presence of a local administrative system, possibly related to the management of highland communities' resources. These tablets suggest that Godin Tepe was integrated into the broader Proto-Elamite economic network. Pastoral nomadism and sedentary agriculture often form complementary economic systems. Nomads provide livestock products (meat, dairy, wool) and transport services, while settled communities offer agricultural produce and craft goods. Godin Tepe could have served as a crucial link in this exchange network. Pastoral nomads often gather seasonally at central locations for social, economic, and ritual purposes. Godin Tepe could have been one such gathering point, facilitating trade and exchange between different nomadic groups and the settled ones. The development of the Proto-Elamite script and administrative system suggests a degree of local autonomy and innovation. This challenges the notion that Godin Tepe was merely a peripheral outpost of the Urukian world-system. While the precise nature of the relationship between the Proto-Elamites and pastoral nomadism remains a subject of ongoing research, the available evidence suggests a strong association. Godin Tepe's location, archaeological findings, and socio-economic context support the argument that it was a marketing hub for Proto-Elamite pastoral nomads, rather than an Urukian trading outpost.

Godin Tepe during the mid and late fourth millennium BCE was a site of multicultural interaction, as evidenced by several archaeological findings. The presence of economic tablets alongside formative Proto-Elamite tablets indicates that Godin Tepe was a point of contact between different administrative systems and possibly different languages. This is further supported by the discovery of pottery originating from the highlands and the central plateau regions, demonstrating that Godin Tepe was a meeting point for various cultural groups. Moreover, the existence of standard Proto-Elamite architecture unearthed at Malyan, Tepe Yahya, Tepe Meymanatabad and Susa at the site suggests that Proto-Elamite groups were not just passing through but had established a significant presence there. These elements collectively suggest that Godin Tepe functioned as a central commercial hub where diverse ethnic groups converged to utilize the site as a marketing center. This marketing activity involved the exchange of various material goods, as well as the application of different administrative technologies, including the use of economic tablets and sealings. The site also featured large spaces where storage rooms with big jars were located, further indicating its role as a center for storage and trade.

In conclusion, the archaeological record at Godin Tepe does not support the interpretation of the site as a primarily Urukian/Susa II trading outpost. The paucity of Urukian material culture, including pottery, architecture, and administrative technologies, stands in contrast to the evidence for a local administrative system. Tablets bearing a strong resemblance to Proto-Elamite layouts and structure suggest that Godin Tepe was integrated into the early Proto-Elamite economic network,

likely involved in the management of pastoral resources. This interpretation is further supported by the complementary nature of pastoral nomadism and sedentary agriculture, with Godin Tepe potentially serving as a crucial nexus for the exchange of livestock products for agricultural produce and craft goods. The site's potential role as a seasonal gathering point for nomadic groups further solidifies its significance as a center for trade and exchange. The development of the Proto-Elamite script and administrative system at Godin Tepe implies a degree of local autonomy and innovation, challenging the view of the site as a mere peripheral extension of the Urukian world-system. The convergence of Susa II economic tablets, early Proto-Elamite tablets, pottery from highland and central plateau regions, and standard Proto-Elamite architecture at Godin Tepe collectively points to its function as a multicultural marketing hub. This hub facilitated the exchange of diverse material cultures and the application of administrative technologies, as evidenced by the presence of economic tablets, sealings, and storage facilities. While the precise relationship between the Proto-Elamites and pastoral nomadism requires further investigation, the available evidence, including Godin Tepe's location, archaeological findings, and socio-economic context, strongly indicates its role as a marketing hub for Proto-Elamite pastoral nomads, rather than an Urukian trading outpost.

Concerning the chronology of Susa after Susa II, Godin material culture specifically related to the administrative system plays a crucial role in bridging the gap between Susa II and Susa III, a period marked by the early stages of Proto-Elamite formation. The archaeological record at Godin Tepe, with its tablets bearing numerical signs within decimal system, linear entity of writing layout, advent of the object image prior to the numerical notations provides valuable data about the administrative practices of this transitional phase. These tablets, similar in layout and structure to standard Proto-Elamite tablets, are dated to approximately 3500-3200 BCE, placing them chronologically between Susa II and Susa III. Thus, Godin Tepe's material culture fills the chronological gap, offering evidence of the developmental stages of the Proto-Elamite culture and illuminating the evolution of its administrative system during this formative period.

Formative Proto-Elamite represents a crucial period of transformation and development leading to the fully developed Proto-Elamite civilization. This phase in Godin Tepe, occurring prior to later Proto-Elamite period in Susa and other sites with Proto Elamite material culture, was characterized by the formative Proto-Elamite administrative systems, including the development of writing from simple numerical tablets to those with fully developed Proto-Elamite script. It also involved increased cultural interaction and exchange, as evidenced by diverse pottery styles and economic tablets at Godin Tepe, indicating a convergence of various cultural influences. Formative Proto-Elamite was a time of experimentation and innovation in administration, communication, and economic organization, with regional variations in the manifestation of these developments. Ultimately, the concept of formative Proto-Elamite helps to understand and fill the chronological gaps in the archaeological record, recognizing this period as a dynamic phase in the trajectory of Proto-Elamite civilization.

The authors suggest that the formative Proto-Elamite culture coexisted with the Late Uruk/Susa II cultures, and Godin VI:1 bridges this time of overlap, a period characterized by the development and adaptation of administrative technologies. This period of coexistence at Godin VI:1 therefore provides critical insights into the formative Proto-Elamite phase and its relationship with the preceding Late Uruk/Susa II cultures (Table 3).

Table 3: Chronological Progression of the Proto-Elamite Administration System

3500-3350	3350-3100	3100-2800
Formative Proto Elamite	Early Proto Elamite	Late Proto Elamite
Godin VI1	Tepe Sofalin, Tepe Sialk, Ghesser, Malyan, Yahya, Shahr-e-Sokhteh	Tepe Sofalin Susa, Malyan, Yahya, Ozbaki

This chronological chart outlines the development of the Proto-Elamite culture across three distinct phases: Formative, Early, and Late. The Formative Proto-Elamite phase (3500-3350 BCE) is primarily represented by Godin Tepe VI:1, indicating the nascent stages of this culture. The Early Proto-Elamite phase (3350-3100 BCE) witnesses a significant expansion, with evidence found at various sites including Tepe Sofalin, Tepe Sialk, Ghesser, Malyan, Yahya, Ozbaki, and Shahr-e-Sokhteh, suggesting a broader dissemination of Proto-Elamite practices. Finally, the Late Proto-Elamite phase (3100-2800 BCE) shows a concentration of sites, primarily Tepe Sofalin, Susa, Malyan, Yahya, and Ozbaki, indicating a possible shift or consolidation of Proto-Elamite centers. This progression from a single site to a widespread distribution and then a selective concentration highlights the dynamic evolution of the Proto-Elamite community, reflecting changes in settlement patterns, cultural influence, and possibly political or economic factors.

Acknowledgments

The authors extend their sincere gratitude to Dr. Morteza Hessari and the anonymous peer reviewers for their insightful critiques and constructive suggestions, which significantly enhanced the clarity and scholarly rigor of this manuscript.

Observation Contribution

The first author was responsible for the writing and analysis of the proto-Elamite tablets in this study. The second author contributed to the design and drafting of the texts, while the third author prepared the relevant research literature.

Conflict of Interest

The Authors, while observing publication ethics in referencing, declare no conflict of interest.

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مـطالعات باسـتان‌شـنـاسی

شاپای چاپی: ۹۲۹۷-۲۲۵۱ - شاپای الکترونیکی: ۴۲۸۸-۲۶۷۶

| شمارهٔ ۳۷ | سال هفدهم | تابستان و پاییز |

https://jarcs.ut.ac.ir/

University of Tehran Press

گودین‌تپه و خاستگاه نظام اداری آغازایلامی

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چکیده

بر پایهٔ شواهد باستان‌شناسی، گودین‌تپه در نیمه و اواخر هزارهٔ چهارم پیش‌ازمیلاد فاقد نشانه‌های بارز فرهنگ مادی اوروکی (مانند: سفال ویژه، معماری خاص، یا فناوری‌های اداری) بوده و بنابراین به‌عنوان یک پایگاه بازرگانیِ صرفِ اوروکی قابل شناسایی نیست. کشف لوح‌هایی با ساختار و چیدمان مشابه با متون آغازایلامی نشان می‌دهد که در این محوطه سامانه‌ای اداری بومی، مرتبط با مدیریت منابع جوامع کوهستانی، فعال بوده و گودین‌تپه در شبکهٔ اقتصادی گستردهٔ آغاز ایلامی ادغام شده است. کارکردهای مکمل اقتصاد کوچ‌نشینی (محصولات دامی و خدمات حمل‌ونقل) و کشاورزی یکجانشینی (محصولات زراعی و صنایع‌دستی) نشان می‌دهد که گودین‌تپه به‌عنوان حلقهٔ واسط در مبادلات منطقه‌ای و محل گردهم‌آیی فصلی کوچ‌نشینان عمل می‌کرده است. یافته‌هایی هم‌چون هم‌زمانی لوح‌های اقتصادی شوش II و نمونه‌های متون مربوط با مرحلهٔ شکل‌گیری فرهنگ آغازایلامی، حضور سفال‌های برآمده از کوهستان و فلات‌مرکزی، و معماری شاخص فرهنگ آغازایلامی، جایگاه این محوطه را به‌عنوان مرکز بازرگانی چندفرهنگی و نقطهٔ تلاقی فناوری‌های اداری (شامل: لوح‌های اقتصادی و مُهروموم‌ها) تقویت می‌کند؛ افزون‌بر این، انبارها و ظروف بزرگ ذخیره‌سازی نقش گودین را در انبارداری و توزیع کالا نشان می‌دهد. از منظر زمانی، مواد فرهنگی گودین VI:1 حلقهٔ اتصال میان شوش II و شوش III با عنوان مرحلهٔ آغازین شکل‌گیری فرهنگ آغازایلامی (حدود ۳۵۰۰ تا ۳۲۰۰پ.م.) را پُر می‌کند و گذار از لوح‌های صرفاً عددی به متون کامل آغازایلامی را مستندسازی می‌کند. این مرحلهٔ «شکل‌گیری فرهنگ آغازایلامی» با نوآوری‌های اداری، تنوع فرهنگی، و گسترش تعاملات منطقه‌ای تعریف می‌شود و نشان می‌دهد که شکل‌گیری این فرهنگ هم‌زمان با تداوم فرهنگ اوروک/شوش II رخ داده است. مجموعهٔ این شواهد، گودین‌تپه را نَه یک پایگاه فرعی اوروکی، بلکه یک محور فعال بازرگانی برای کوچ‌نشینان آغازایلامی با نقش محوری در تکامل سامانه‌های اداری تثبیت می‌کند.

تاریخچه مقاله

صص: ۱۲۵-۹۷

نوع مقاله: پژوهشی

تاریخ دریافت:
۱۴۰۴/۰۱/۱۴

تاریخ بازنگری:
۱۴۰۴/۰۲/۱۱

تاریخ پذیرش:
۱۴۰۴/۰۳/۱۴

تاریخ انتشار:
۱۴۰۴/۰۵/۰۱

کلیدواژگان:
گودین‌تپه، لوحه‌های عددی، آغازایلامی، سیستم اداری، کانون بازرگانی.

ارجاع به مقاله: یوسفی‌زشک، روح‌الله؛ افشاری‌سالکی، حسن؛ و اعتمادی‌فر، دنیا، (۱۴۰۴). «گودین‌تپه و خاستگاه نظام اداری آغازایلامی». مطالعات باستان‌شناسی، ۱۷(۲): ۹۷-۱۲۵.

DOI: https://doi.org/10.22059/jarcs.2025.392835.143343

صفحهٔ اصلی مقاله در سامانهٔ نشریه: https://jarcs.ut.ac.ir/article_102974.html