

Proto-Elamite and Linear Elamite, a Misunderstood Relationship?

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Abstract:

In this study I address the previously abandoned, but recently resurrected assumption that the proto-Elamite writing system did not disappear but was continuously in use in Iran until the late Third Millennium BC when the so-called linear Elamite texts were written in, supposedly, a developed version of proto-Elamite. I suggest, as a simple explanation for the similarity of some signs between these two systems, separated by more than 500 years, that late 3rd Millennium scribes created a new script, as an act of schismogenesis, using recovered proto-Elamite tablets as part of their inspiration, as well as their extensive knowledge of Old Akkadian cuneiform.

Keywords:

Proto-Elamite; linear Elamite; proto-cuneiform; invention of writing; archaising script

In the early years following the discovery of the proto-Elamite and linear Elamite texts at Susa¹, scholars usually believed that the linear Elamite texts represented a later stage of the same writing system². That claim was however strongly refuted by DAMEROW AND ENGLUND (1989: 4-5, fn 14), only to be resurrected in recent years by both MÄDER (2021: 4) and DESSET *et al.* (2022: 52ff). Whereas the proto-Elamite texts are dated archaeologically to ca 3100-2900 BC (DAHL ET AL. 2013), the core corpus of linear Elamite texts is dated, using the internal information of the texts such as royal names, to ca 2100-1900 BC³. I will address the similarity in sign forms between the two scripts and offer a suggestion how to explain this without positing direct descent⁴.

MÄDER (2021: 4) and DESSET *et al.* (2022: 52ff.) both suggest that Linear Elamite is an organically developed writing system, descended from proto-Elamite. MÄDER (2021) gives only limited evidence⁵, whereas both MÄDER (2020) and DESSET *et al.* (2022) are complete with lists of all linear

¹ The first proto-Elamite tablets were found in 1899, and the first linear Elamite objects a few years later; see DYSON 1968 for an introduction to the early excavations at Susa.

² But see already BRICE 1962.

³ Note that DESSET *et al.* 2022: 15 and MÄDER 2020: 15-17 and n. 16 date some Susa linear Elamite objects to much earlier than the datable objects, but provide no hard evidence.

⁴ For an early suggestion in this direction see already DAHL 2009 (not cited in DESSET *et al.* 2022), proposing that the likeness in sign forms could have resulted from influence from cultural symbols still in use or still visible (see also below on the possible origin of the shape of the so-called Cruciform Monument).

⁵ MÄDER 2021: Table 5 is complete with proto-Elamite comparisons to linear Elamite “diacritical” signs (= Complex Graphemes), that does not take into account the current author’s work on complex graphemes in proto-Elamite DAHL 2005b, or comparable work on complex signs in proto-cuneiform (see for example Englund’s critique of reading inscribed signs as Sumerian phonetic glosses in proto-cuneiform in ENGLUND 2009: fn 18). It is also not clear from MÄDER 2021 what he means with diacritics, usually a term for small additional marks in a script that adds or changes the pronunciation of the original sign. The proto-Elamite signs listed in that table may better be labelled complex graphemes (DAHL 2005b), although some of Mäder’s “diacritics” might qualify as hatching, a productive strategy for creating new and variant signs in proto-Elamite, similar to Sumerian *gunification* (DAHL 2005a: 119-120 and figure 24). But the problem with this approach runs deeper than just terminology: MÄDER 2021: Table 5 entry 23, for example, lists the proto-Elamite sign M447_b, depicted upside down to correspond to the linear Elamite glyph. Reading backwards from the right-hand column, M447_b is then split into two glyphs that each are similar to yet other linear Elamite glyphs. Although both of the constituent proto-Elamite glyphs that Mäder lists are attested, they do not function as either carrier signs or inserted signs in other complex graphemes (M316_e almost certainly a household sign, and M64, likely to be a variant of M72, the proto-Elamite equivalent of proto-cuneiform SAL). With more than 1600 unique glyphs there is no shortage of signs to propose as building blocks for other signs, of course, and also no shortage of signs to compare to the linear Elamite signs; M447_b for example, is attested in only one text, MDP 26, 151. Pointing to even less command of the primary data is Mäder’s explanation of the complex grapheme is

Elamite signs and their proto-Elamite comparisons⁶. DESSET *et al.* (2022) adds proto-Elamite to the linear Elamite signs in figure 7a-b, the main table listing the proposed syllabic values for the linear Elamite signs, and to figure 7c, listing the linear Elamite hapax legomena, but provides no contextualisation. In both figures the proto-Elamite signs are simply labelled as “PE graphic comparisons”. In MÄDER (2020: 1) a graphical analysis of the similarity between linear Elamite and proto-Elamite signs is proposed using technologies from both “Kulturgeschichte” and “Schriftarchäologie”⁷. All the presented evidence in these studies is therefore exclusively graphic, without any mention of graphotactics or similar studies of the sign use in proto-Elamite⁸.

The proto-Elamite signs and their numberings in DESSET *et al.* (2022) appear to be based on various generations of my own work, but without consultation of the current state of research⁹. For example, a sign M483 is given as one of the graphic comparisons to a linear Elamite sign with the proposed syllabic value “me”. However, no sign M483 exists in the current version of the corpus of proto-Elamite texts (available through the Cuneiform Digital Library Initiative, CDLI)¹⁰. The number M483 was introduced in a list from 2005, and later abandoned when I realised the correct graphical visualisation of the sign – two overlapping M346¹¹. It was then renamed M346_d¹². This sign is found only in two texts, S.28 (P009524) from Sialk, and the singular Tepe Ozbaki text (MADJIZADEH n.d.; VALLAT 2003); it is not attested in the Susa corpus, but is a likely graphical variant of similar Susa signs (all object signs, unlikely to have a syllabic value) denoting young female(?) sheep (see here figure 1a)¹³.

M351+3N₁, which he analyses as M351 with an inscribed M379. M379 is not 3xN₁, however: N₁ is a numerical sign. Of course, Mäder has already established a “series” of signs formed by inserting M379 into a container sign and may simply be looking for signs that are graphically close enough to assume that role. Might that also be the reason why M351+3N₁ is not turned according to the original orientation of the signs but left turned 90° CCW?

⁶ MÄDER 2020: 10 addresses the statistically interesting fact that comparing a limited set of graphical signs consisting of ca 100 glyphs to a much larger set consisting of more than 1500 glyphs is likely to produce a high number of close matches possibly rendering the entire exercise useless. Note however, that MÄDER 2020 uses MERIGGI 1974 as basis for his analysis and thus recognises only ca 400 distinct proto-Elamite signs.

⁷ For more on Mäder’s approach see the “Alice Kober Gesellschaft für die Entzifferung antiker Schriftsysteme” at <<https://center-for-decipherment.ch/>>. Although Mäder mentions “schriftarchäologie” he does not cite Jaritz (1967).

⁸ Large amounts of raw material for the study of proto-Elamite, including now growing image documentation of the tablets in Tehran, have been made freely available online through the pages of the CDLI (<<https://cdli.mpiwg-berlin.mpg.de/>> or <<https://cdli.ucla.edu/>>), in the hope that scholars and students would consult it prior to publishing on this exciting writing system.

⁹ Although the authors cite only Desset for the proto-Elamite signs in their article, these appear to be the normalised sign forms I have released on the webpage of the CDLI as part of my working sign list (<https://cdli.ox.ac.uk/wiki/doku.php?id=proto-elamite_period>). MÄDER 2020 does not use my working sign list but the one by MERIGGI 1974, regardless of the fact that recent work has significantly modified Meriggi’s list and many of the proto-Elamite signs in MÄDER 2020 are not found on any proto-Elamite tablet but was based on erroneous readings by MERIGGI 1974 (who had no access to the Tehran tablets for example, for a critique of MERIGGI 1974 see already DAMEROW AND ENGLUND 1989: 5-6).

¹⁰ CDLI offers various tools that allow users to generate up-to-date sign lists, see for example <<https://cdli.mpiwg-berlin.mpg.de/resources/token-lists>>. All my drawings of proto-Elamite signs are available on GitHub <https://github.com/cdli-gh/proto-elamite_data>. See also the cdli:wiki for more on the proto-Elamite sign lists <https://cdli.ox.ac.uk/wiki/proto-elamite_period>.

¹¹ This was difficult to detect from the copy by GHIRSHMAN 1938: pls. XXXI:1, XCII, but clear when the text was compared to similar accounts from Susa and fully analysed.

¹² See already DAHL *et al.* 2013: 372 figure 18.19 and page 373 where the M346_d is depicted and discussed.

¹³ See DAHL *et al.* 2013: 373, see also DAHL 2005a for proto-Elamite terminology related to sheep and goat herding.

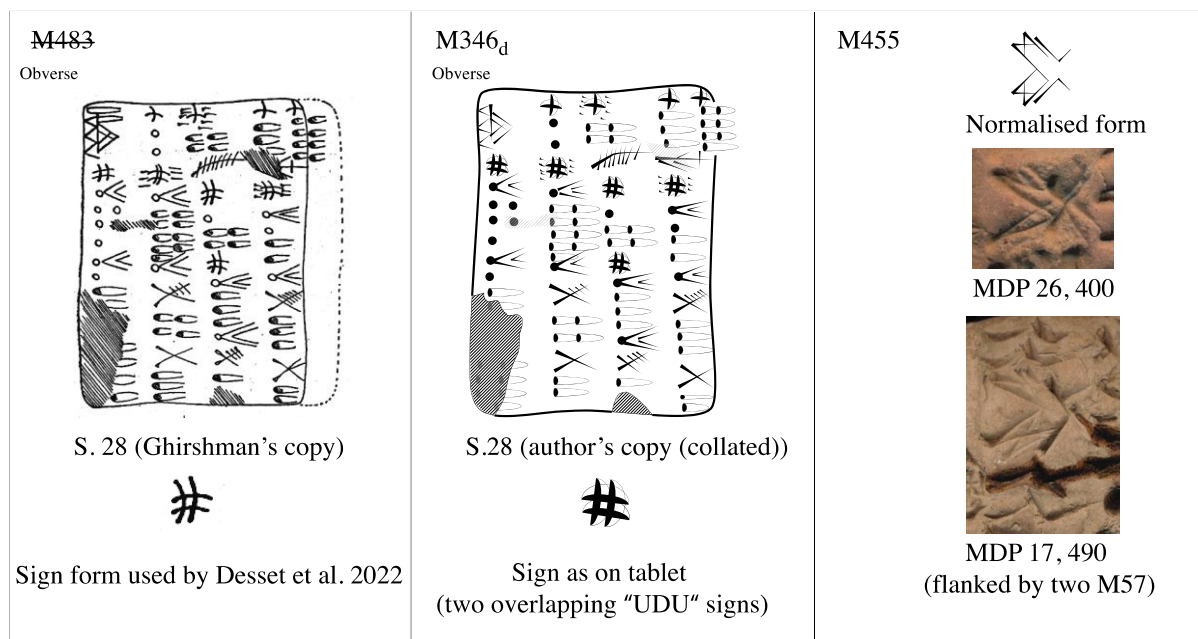


Figure 1a: The proto-Elamite signs M346_d (earlier M483) and the not yet fully understood sign M455, found in only two proto-Elamite texts; M455 is given as a “graphic comparison” to linear Elamite “wa” in DESSET *et al.* (2022 fig. 7b).

It is however unclear whether Desset and his co-authors hold a list of proto-Elamite signs themselves with their own numbering or whether they simply have misunderstood the system I have developed¹⁴. In my sign list the numbering follow loosely that of MERIGGI (1974), with alphabetic suffixes indicating likely semantic variants, and numerical suffixes indicating likely graphical variants¹⁵. The reason for this organisation was to anchor the working sign-list in a published list, but not to accept any of Meriggi's graphical variants. Signs which I could not understand were given numbers in the high 400s or in the 500s, purely as placeholders until I could study them further (see also figure 1a).

In their 2022 article Desset et al. make the prediction that the sign values they propose for the linear Elamite signs may be transposed back onto proto-Elamite to aid in the decipherment of that script. Born et al. (*forthcoming*) have already shown how many of the proposed linear Elamite to proto-Elamite “graphical comparisons” in DESSET *et al.* (2022) are very unlikely to represent syllabic signs in proto-Elamite, and they have presented evidence to suggests that the linear Elamite readings have little credibility for understanding the proto-Elamite texts, and I will here limit my arguments to the question of evolution of scripts and the schismogenesis of scripts¹⁶.

¹⁴ Seven of the signs from the proto-Elamite “graphic comparisons” in figure 7a-b do not occur in the current proto-Elamite corpus, see above for one of these, M483, and BORN *et al.* 2022.

¹⁵ Note that neither DESSET *et al.* (2022) or MÄDER (2020, 2022) cite the sign list appended to DAHL 2019 (pages 185-227), listing the signs published in that volume following a brief introduction to the naming practice I use for proto-Elamite signs.

¹⁶ I wish to thank P. Daneshmand for the reference to the theoretical framework for schismogenesis, recently expanded by GRAEBER 2013, and GRAEBER AND WENGROW 2021 beyond the somewhat narrow concept first defined by BATESON 1935: 181 and 1936: 171-197.

































= "ha" (Desset et al. 2022 figure 7a)	   M263 M263 _a M259 Possible graphic variants Semantically distinct signs						
= "l" (Desset et al. 2022 figure 7a)	 (hapax occurring only in MDP 26, 400) M243 _g						
= "m" (Desset et al. 2022 figure 7a)	<table border="1"> <tr> <td>   M243_e M243_i Possible graphic variants (object signs) </td> <td>   M246_h M246_b Possible graphic variants (non object signs) </td> </tr> <tr> <td>    M218+101 M218+320 M218+288_f Possible graphic variants </td> <td>  M224_a </td> </tr> <tr> <td colspan="2" style="text-align: center;">Semantically distinct signs</td> </tr> </table>	  M243 _e M243 _i Possible graphic variants (object signs)	  M246 _h M246 _b Possible graphic variants (non object signs)	   M218+101 M218+320 M218+288 _f Possible graphic variants	 M224 _a	Semantically distinct signs	
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   M218+101 M218+320 M218+288 _f Possible graphic variants	 M224 _a						
Semantically distinct signs							
Related signs not listed by Desset et al. 2022: figure 7a	    etc M243 _b M243 _{ee} M243 _{ef} M243 _h						

Figure 1b: proto-Elamite graphical and semantic variants occurring in DESSET *et al.* 2022: figure 7a (note that two semantically different signs may have been coded under M246_b in my working sign list, one object sign and one, possibly syllabic sign)

Comparing two writing systems based on graphical likeness of the signs alone is not new: Both SCHEIL (1905) and MECQUENEM (1949) outfitted their sign lists with comparative tables, lining up proto-Elamite (and linear Elamite) signs against graphically similar cuneiform signs¹⁷. Both use normalised 1st millennium cuneiform sign forms for their comparisons, and not signs from the contemporary archaic texts from Mesopotamia (late fourth and early third millennium BC texts), a few specimen of which were available to Scheil, and more plentifully to Mecquenem¹⁸. It is therefore easy to show how these comparisons are almost all incorrect (figure 2a)¹⁹. Using a similar approach to

¹⁷ In SCHEIL 1905, the first substantial publication of proto-Elamite texts (and archaic texts altogether), many signs in the sign list (p. 83 ff.) were furnished with cuneiform equivalencies, but no special table of equivalencies was published; MECQUENEM 1949: pl. 68-70 published a standalone table of equivalencies of proto-Elamite and cuneiform signs.

¹⁸ Thureau-Dangin published his signlist of early cuneiform signs in 1898 including signs from all then known archaic texts including the Blau Monuments (Thureau-Dangin 1898), he later published all then known archaic texts with a sign list in 1927 (Thureau-Dangin 1927), before Falkenstein proved the linear relationship between the signs of the Late Uruk texts and later cuneiform in his sign list of the archaic texts from Uruk (Falkenstein 1936). Note also that BRICE (1962: 15) pointed out how proto-Elamite signs resemble proto-cuneiform (his archaic Sumerian texts from Ur, Jemdat Nasr, and Uruk).

¹⁹ e.g. SCHEIL 1905: 85 compared M46 (Scheil's number 97) to cuneiform AN, see DAHL *et al.* 2018: 27-28 for a full discussion of M46, a sign for a category of workers, perhaps adolescents, see also DAHL *forthcoming*; on p. 90 Scheil compared M145 (his 223) to LU—following DAMEROW AND ENGLUND 1989: 53-55 we know today that the proto-Elamite equivalent to LU is M346, Scheil's number 869 (page 110); MECQUENEM (1949): compared M36 (Mecquenem's 954) to MAR, while M36 is in fact a sign for a small cereal container, or measure, perhaps comparable to Late Uruk NINDA₂ (see DAHL 2005b: §2.3-2.5), and M157 (1037) to DUB, although M157 is likely a sign for a household, perhaps a sheepfold (KELLEY 2018: 290).

that of Scheil and Mecquenem, one could compare many signs from proto-Elamite with signs from the Shang Oracle bones, especially when comparing normalised forms of signs from both systems (figure 2b). However, such games are of course facetious and non-productive, and only serve to caution against using graphical form only as a guide to relatedness. In fact, if we look at the actual form, as found on the tablets, of some of the signs listed by DESSET *et al.* (2022) in figures 7a-c, we see that the likeness is limited, and that multiple additional signs could be enlisted as potential proto-Elamite comparisons to the same linear Elamite signs (Figure 1b)²⁰.

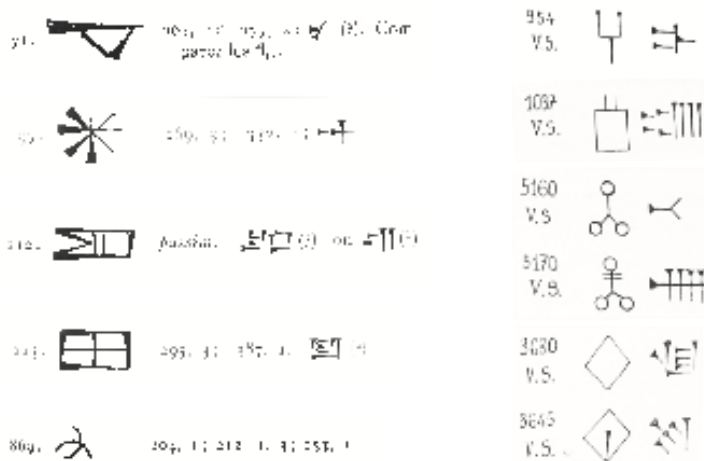


Figure 2a: Proto-Elamite with cuneiform comparisons (left from SCHEIL 1905; right from MECQUENEM 1949) (note that Scheil suggested cuneiform ‘šunigin’ as the comparison to M288, based on his understanding of the proto-Elamite accounts).



Figure 2b: A Shang Oracle bone (c 1300 to 1050 BC), British Library (Or. 7964/1509), signs copied by author from photo, with “PE graphical comparisons”.

²⁰ See also MÄDER 2020 for a positive assertion of similarity, based on proto-Elamite sign forms in MERIGGI 1974 and not close examination of the texts.

Returning to the issue of the relationship between proto-Elamite and linear Elamite, the theory of descent, proposed by both MÄDER (2020 and 2021) and DESSET *et al.* (2022), suffers from a significant error: if linear Elamite was a natural descendant of proto-Elamite, and represented a living tradition spanning a millennium, we would expect to see a significant change in the sign forms between the two corpora.

Almost all writing systems undergo a process of simplification over time, and this has been recognised since the beginning of the study of writing systems itself (see KELLY *et al.* 2021). In the processes of simplification, signs tend to get written increasingly economically, often with fewer strokes, up until the point before their identification is compromised. Additionally, many scripts undergo cursivization (KELLY *et al.* 2021: 672). Cursivization, possibly linked to speed and frequency of writing texts (see for example FARMER *et al.* 2004: figure 1), may be observed in late proto-Elamite texts.

As I mentioned above, all the proto-Elamite signs in DESSET *et al.* (2022) are based on my normalised versions of the proto-Elamite signs, and all are, without exception, standard proto-Elamite signs, and not late or very late proto-Elamite signs²¹. Even within the short lifespan of the proto-Elamite script we can observe significant change in the sign forms, often going from complex, almost decorated, versions in the earliest texts, to standard simpler forms in the standard proto-Elamite text, with a further modification in the very latest texts involving a clear ‘cuneiformication’ and drive towards a more cursive form: this is expected and pointed out in various publications (see also figure 3a)²². This change, difficult to establish in an undeciphered writing system as it is, is not considered in either MÄDER (2020) or DESSET *et al.* (2022). Specialists of Mesopotamian cuneiform will of course be well-aware of the significant change in the shape of signs in the texts from the Late Uruk period, contemporary with the proto-Elamite texts, to the texts of the post-Sargonic period (Gudea of Lagash and Ur III, ca 2100 – 2000 BC), contemporary with the linear Elamite texts, and there is no reason not to believe that signs would have undergone similar dramatic changes in Iran (see also figure 3b). This fact alone should have cautioned anyone working on linear Elamite from suggesting descent as the reason for the similarity between the signs of the two corpora, and inspired a hypothesis generation phase, suggesting other possible explanations for the similarity in sign forms between the two scripts.

²¹ See DAHL 2019: 62-65 and figures 3 and 4, for the late and very late proto-Elamite texts. MÄDER 2020 uses Meriggi’s sign list only, including several signs that I do not find on the actual tablets and are likely based on poor quality copies.

²² See DAHL *et al.* 2013: 371 and figure 18.18, and DAHL 2019: 65 and figure 4.



















Early	Standard	Late
 M288 _b  M288 _d	  M288 _b	 M288 _b
 M56	 M56 _f	 M56 _f
 M362		 M359
 M106 _a		 M106 _a
 M206 _g		 M292 _f
 M102 _c		 M102 _d
 M309 _a		 M246 _m

Figure 3a: Early, Standard and Late proto-Elamite signs.

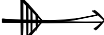









	Uruk III	Ur III
BUR2		
MA		
LU2		
GU7		
GIR3		

Figure 3b: Uruk III (c. 3200-3000 BC) and Ur III (c 2100-2000 BC) sign forms.

Indeed, we need not look far from Elam for possible clues to how the “invention” of linear Elamite might have come about. In a brief note from 1997, entitled *Practical Political Palaeography*, Irving Finkel discussed a new fragment of a Neo Assyrian exercise text in archaic style which he, no doubt correctly, claimed would have “enable[d] learned scribes to produce royal inscriptions couched in venerable-looking ancient script” (FINKEL 1997, see CTN 4, 235) (see also figure 4a). The most likely reason for the similarity in sign forms between the linear Elamite script and the proto-Elamite script is therefore, as I hinted at in DAHL (2009), that the scribes who created linear Elamite simply based it on

recovered proto-Elamite tablets which must have been abundantly available at Susa. Again, we can draw on examples from Iran's western neighbour and consider the sources for the so-called Cruciform Monument, a first millennium BC Babylonian pious fraud. In their discussion FINKEL AND FLETCHER (2016: 242) suggest that "the Cruciform Monument was freshly created within a world in which inscriptions from former times came to light naturally in the course of excavation work or the digging of wells."

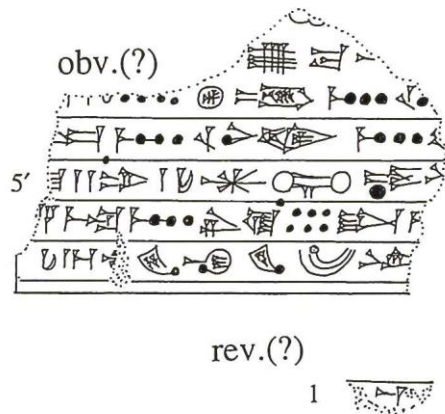


Figure 4a: A historical inscription in archaic ductus (Neo Assyrian period ca 911-612 BC) (CTN 4, 235).

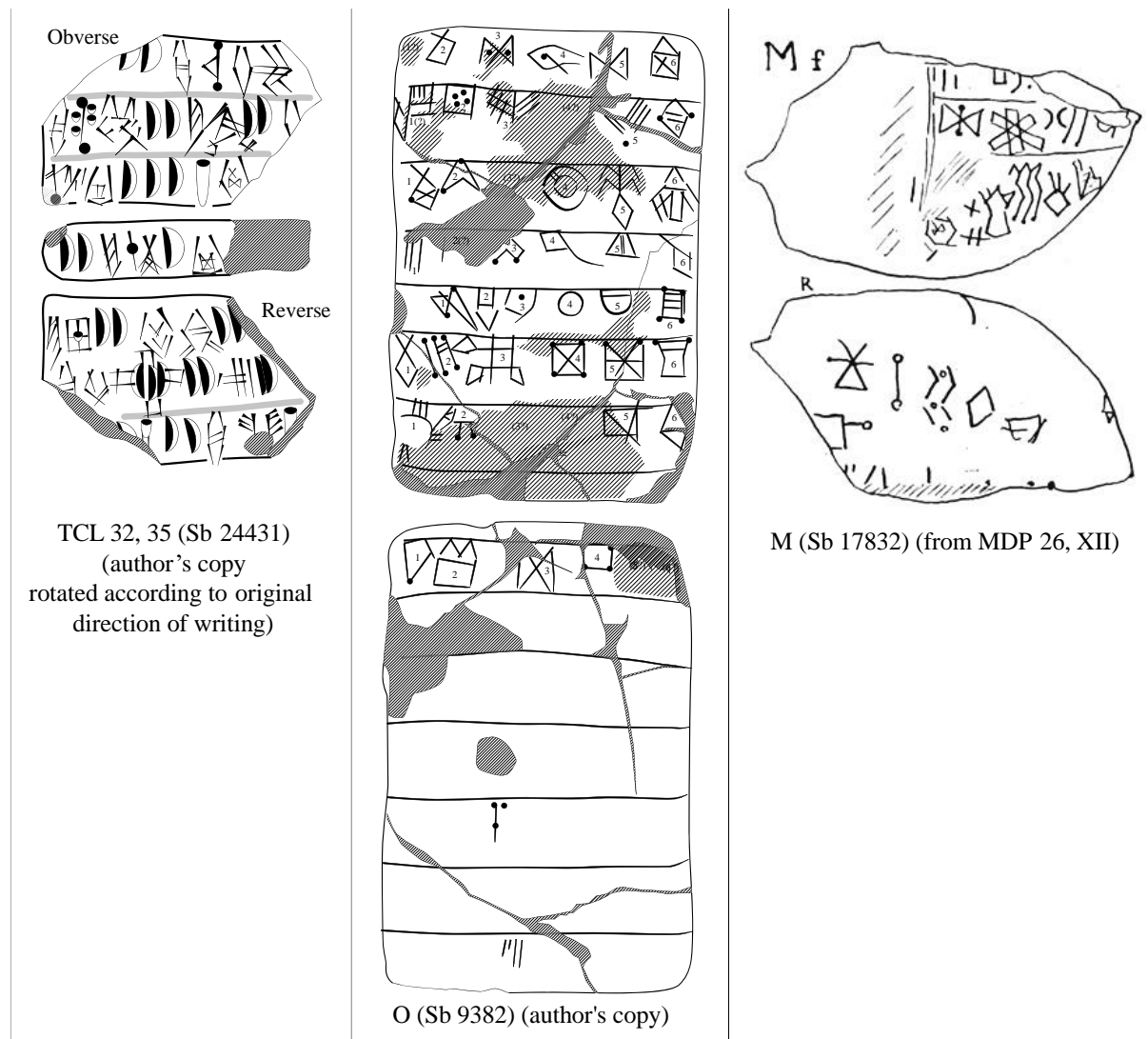


Figure 4b: Proto-Elamite tablet TCL 32, 35, and linear Elamite texts O (Sb 9382) and M (Sb 17832).

Retrieving and copying old inscriptions has a long history in Mesopotamia, although it is best attested in the first millennium BC. Similarly, the tradition of palaeographic sign-lists, recording ancient sign forms next to their current forms, is known from the late 2nd millennium, but again best attested from the first millennium (VELDHUIS 2011: 79). 22 fragments of the so-called palaeographic vocabularies have been recovered among the tablets of the Library of Assurbanipal, giving mostly Old Babylonian sign forms²³. More remarkable are perhaps the Nineveh text 1881-7-27,49+ and the Nimrud text CTN 4, 229, two texts where 1st millennium scribes appear to attempt to explain very early sign (late 4th or early 3rd millennium), albeit rather unsuccessfully, with later equivalencies (see also figure 4c).²⁴

²³ See FINKE 2003/2004: 144 for a list of the texts, see also VELDHUIS (2011: 79) for a discussion of 'palaeographic S^a and S^b'.

²⁴ One of the anonymous reviewers pointed to the fact that whereas Mesopotamian scholars could indeed read all or most of the early texts they copied and mimicked, that would not be the case in the proposal I am making in this article, where Elamite scholars at the time of Puzur-Inshushinak reused proto-Elamite signs for Linear Elamite without knowledge of their original use. However, texts such as 1881-7-27,49+ and CTN 4, 229 show that Mesopotamian scribes also attempted to copy and use texts they could not read.

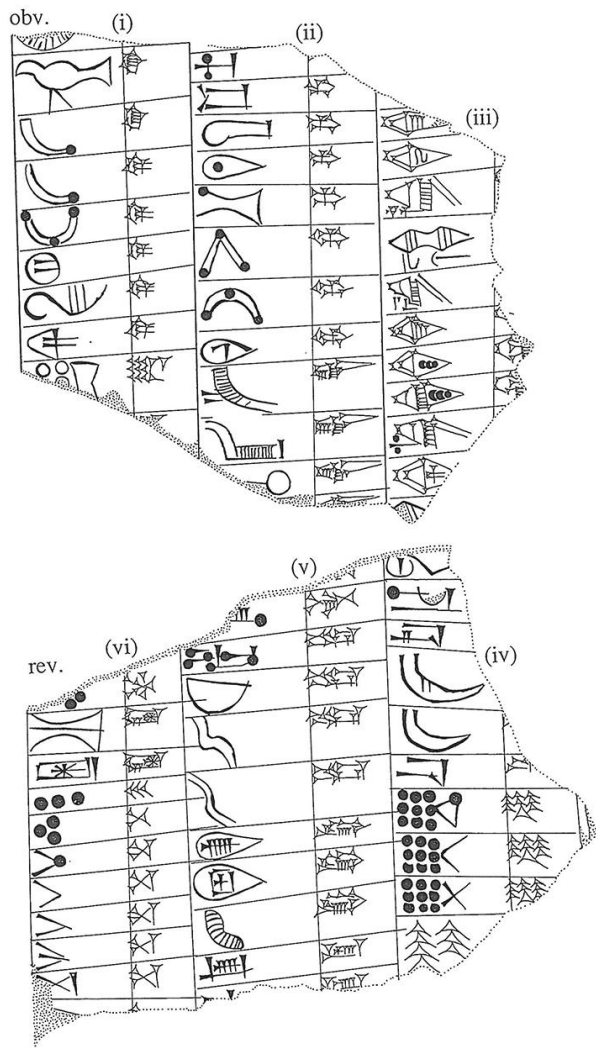


Figure 4c: Palaeographic vocabularies (Neo Assyrian period ca 911-612 BC) (CTN 4, 229)

The fruits of these labours are of course well known, with numerous examples of royal inscriptions written in an archaizing ductus—most famously perhaps the stela of Hammurapi, or the archaizing inscriptions of Nebuchadnezzar II—, sometimes aiming at a shape of script hundreds of years older than the time of composition²⁵. Although most of these texts in an archaizing ductus are real historical texts, ancient cuneiform scholars also engaged in copying older texts, sometimes in the original ductus, but mostly preserving only the orthography, transposing the signs to their contemporary forms²⁶. The so-called Cruciform Monument mentioned above, a famous pious fraud, attests to the real-life application of ancient cuneiform ductus in the late period. It was written in the Neo-Babylonian period by priesthood aiming to secure their demands and claims doing so, as Finkel and Fletcher state, “more assertive and [with] greater authority [...] by imitating a venerable Old Akkadian document to confirm the longevity of their royal entitlements” (FINKEL AND FLETCHER 2016: 241). Finkel and Fletcher go through the possibilities behind the manufacture choices of the Cruciform Monument, including how its shape might have been influenced by already then centuries old objects or symbols dedicated to or related to the cult of Shamash (242), how it was cut from an already old object (242), and based partly on a retrieved text from the Old Akkadian period, retaining

²⁵ This also remains one of the reasons why palaeography alone is a poor indicator for dating of cuneiform inscriptions.

²⁶ See KOGAN 2011 and SOMMERFELDT 2012: 195-201 for the Old Babylonian copies of Old Akkadian texts.

or adding breaks and disturbances to achieve a more probable look for a millennia old document (242-3). Interesting, and perhaps relevant to our question of the sources for the invention of the linear Elamite script, is the fact that the cruciform monument was copied on clay tablets already in the time of its creation, but not in the same archaizing ductus of the monument, but in the script of the day, Neo Babylonian cuneiform (FINKEL AND FLETCHER 2016: 245)²⁷.

It is therefore the proposal here, that linear Elamite had a point of invention, and that it was based partially on recovered proto-Elamite texts. It is further the hypothesis that this invention was the result of schismogenesis (see DANESHMAND *forthcoming*, for further examples), where scribes in Susa, confronted both with Mesopotamian cultural expansion in the late 3rd millennium BC and informed through Puzur-Inshushinak's conquest of Northern Babylonia, used signs from an ancient local writing system as the basis for the signs of their new script. This proposal provides an explanation for the odd linear Elamite texts such as "O" (Sb 9382)²⁸, "M" (Sb 17832) etc, which may then be examples of late 3rd millennium scribes attempting to copy signs from old tablets, or even as DESSET *et al.* (2022) suggests a nascent scholarly tradition for linear Elamite (see also figure 4b). Text "O", a list of hapax legomena, is hardly a likely candidate for a royal inscription or an administrative text²⁹. Seen as a tool in the resurrection of a local writing system by scribes reacting against the Mesopotamian cultural expansion³⁰, however, text "O" makes perfect sense. This hypothesis would also explain why only about half of the signs in syllabary of DESSET *et al.* (2022) have cognates in my own proposed list of proto-Elamite syllabic value signs, a list which is based on a graphotactical analysis of the proto-Elamite corpus, and why the rest are signs for which it is very unlikely that a syllabic value would have existed in the proto-Elamite script³¹.

There is also no serious archaeological argument against a single creation event for linear Elamite—the archaeological context of the Susa examples does not suggest a differentiated chronology, and the non-Susa objects are all from non-standard excavations, and if verifiable³², from a date later than the Susa objects.

It is important to note that although I, and others, have suggested that a subset of the proto-Elamite signary may represent a syllabary (DAHL 2019: 82-85, MERIGGI 1971: 172 ff.), this is by no means certain. In fact, strong arguments against this can be made. Whereas this subset of signs on the surface appears to behave similar to a syllabary used to write personal names, syntactically appearing in the

²⁷ Could the linear Elamite texts, almost all found on display objects, be examples of an archaizing ductus of a living proto-Elamite tradition? Even in the absence of any evidence for this we can deem this to be highly unlikely as sign forms on both display objects and non-display objects are identical, and because widespread use of a cursive form of proto-Elamite would have led to a broader standardisation of the script.

²⁸ Both DESSET *et al.* 2022: 15 and MÄDER 2020: 15-16, claim that "O" (and certain other objects) is earlier than the other linear Elamite objects but presents no proof, only vague remarks and references to speculations by the excavators.

²⁹ Note that MÄDER 2020: 15 argues that text "O" is not necessarily a list of hapax legomena, since the signs could be repeated in other (early) unrecovered linear Elamite texts. However, none of the signs repeat within the text itself and my observations regarding this text therefore stands (see also DAHL 2009: 7). Add also the observation, made already in DAHL 2009, that each line appears to have exactly six signs.

³⁰ This is of course a deceptively blunt and oversimplifying description meant only as a placeholder for further investigations. Of course, Old Akkadian rulers conquered Susa and greatly influenced the intellectual history of the city, witnessed through the widespread introduction of cuneiform in Susa at this time. In the following period the dynasty of Awan, to which Puzur-Inshushinak belonged, Susa extended its powers beyond the boundaries of Khuzestan, only to be subdued again in the Ur III period, when once again Southern Mesopotamian culture was imposed on Susa.

³¹ Most prominently of course M288 and M157_(a) and other owner and object signs, see also BORN *et al.* 2022.

³² Insufficient verifiable data has been published to remove the doubt that exists regarding the date and authenticity of the Jiroft texts. See DESSET (2018) for the origin and authenticity of some of the later non-Susa linear Elamite texts.

texts exactly where we would expect individuals to be identified³³, and although the number of signs in this subset and the repetition patterns may agree with some syllabaries in other, later, corpora, the same features could be compared easily to non-linguistic symbol systems such as Central Asian Tamgas or Pictish symbols (SPROAT 2023: 3.A.4 & 5). Similarly, the following three features speak strongly against identifying this subset of signs in the proto-Elamite signary as a syllabary. The fact that none or very few of the signs are polyvalent³⁴, the fact that the few verifiable polyvalent signs in the subset are signs that could also, without much difficulty, be explained as titles or designations of people in a hierarchical organisation³⁵, and the fact that the subset appears to be a complete syllabary, at a time when similar scripts in Mesopotamia and elsewhere may indicate one or two endings with a syllabic sign, and in fact predates complete syllabaries with more than 500 years³⁶.

The question also remains whether the theory of descendency of MÄDER (2020 and 2021) and DESSET *et al.* (2022) can ever be proven, given the nature of the proto-Elamite script. Born *et al.* (*forthcoming*) are transposing the readings proposed by DESSET *et al.* (2022) directly to the proto-Elamite corpus. On a first read-through this yields little or no useful linguistic data, regardless of whether the syllabary proposed in DAHL (2019: 82-85) is correct or not. However, if the hypothesis proposed here in this short paper is correct, then the proto-Elamite signs are likely to have been chosen by linear Elamite scribes, not according to which signs may or may not have coded linguistic information³⁷ but according to frequency. We can look, therefore, at whether the linear Elamite scribes simply copied the most frequent proto-Elamite signs, by chance copying some of the “syllabic” proto-Elamite signs, while also capturing many assuredly non-syllabic signs. Finally, we can look at certain features of the proto-Elamite script that the linear Elamite scribes may have found difficult to copy given that they did not use the exact same syli as the proto-Elamite scribes, and finally, should this theory be correct, and this was behind my hesitation in DAHL (2009), we need to ask why the linear Elamite scribes did not copy the numerical signs. Given the absence of numerical signs in the linear Elamite texts, the possibility remains that linear-Elamite sign forms were based on symbols still in existence (on surfaces, objects, seals), but neither recovered proto-Elamite texts or a living writing system developed from proto-Elamite.

The result of the first of these two investigations is conclusive. Almost all of those linear Elamite signs that have a somewhat close resemblance to a proto-Elamite sign are among the high-frequency proto-Elamite signs (see table 1), regardless, if these are also likely to have a syllabic value in proto-Elamite or not (very unlikely for M32, M157_a, M288). Since the proposed syllabic signs are among the high frequency signs altogether in proto-Elamite it is not surprising that they should feature

³³ This assumption rests primarily on an analysis of a set of late and very late proto-Elamite texts with long strings of non-numerical signs (e.g., MDP 6, 353, MDP 6, 4994, and MDP 26, 400). In the only texts that without any doubt list teams of workers, the so-called very long ration texts (DAHL *et al.* 2018), none of the counted humans (adults and children) are differentiated using strings of signs from the subset suggested to have syllabic values. Rather, the entries assumed to represent the “foreman” of each team is designated with strings of these signs (as discussed already in DAHL *et al.* 2018). The signs identified as “foremen” could however also be administrative units identified through non-linguistic symbol signs rather than syllabic signs. See also ENGLUND 2009 on names of workers in comparable Late Uruk texts.

³⁴ Most of the signs discussed in DAHL 2019: 82-85 occur only in nested strings of 2-4 signs, often framed by owner and object signs, suggesting that these would qualify the owner sign in some way. The vast majority of these signs do not have a secondary function as an owner or an object sign, wherefrom a phonetic value could have been deducted through for example repetitive notation from dictation in a central administrative setting (for this elegant hypothesis, see SPROAT 2023).

³⁵ In particular the numerical signs N₂ (= M386_a), N₂₃ (= M387, and derived signs M387_a, M387_{ef}), as well as possibly N₅₁ (= M390), see DAHL 2019: figure 13.

³⁶ Note in this regard the results of a computer simulation by R. Sproat, which suggested that symbol systems trained with phonetic information would over time produce compounds consisting of semantic glyphs with adjoining phonetic glyphs to write new concepts not in the original training set (see SPROAT 2023 section 7.2).

³⁷ If descent was the cause for the similarity in sign forms it is possible that even non-phonetic signs, appearing in sequences identifying persons, were reinterpreted at some point as syllabic or something akin to a syllabary.

heavily among the signs copied by the linear Elamite scribes. A few groups of signs, such as M243_e, M243_g and similar shaped signs, all equated with linear Elamite “m” (see also figure 1b), are low frequency signs in proto-Elamite, but similar looking signs nevertheless found their way into the linear Elamite syllabary. DAHL (2019: 82-85) is cautious about including low frequency signs in the list of possible syllabic value signs, whereas the list of DESSET *et al.* (2022: figure 7a-c) includes almost 50 low and very low frequency signs (see also Born *et al.* *forthcoming*). In summary, a brief look at the proto-Elamite sign frequencies supports the theory put forward here, that linear Elamite scribes chose the shape of their signs from the most frequently occurring signs available on recovered proto-Elamite tablets³⁸.

Sign name	Frequency	Rank	Dahl 2019	Desset et al. 2022
M288	831	01		+
M218	525	03	+	+
M371	309	04	+	+
M297	265	06		+
M387	249	08	+	+
M066	243	09	+	+
M009	223	11	+	+
M096	212	12	+	+
M263	174	13	+	+
M001	141	14	+	
M032	121	17	+	+
M004	115	19	+	+
M157 _a ³⁹	96	23		+
M057	95	24		+
M219	88	25	+	+
M347	84	26		+
M259	69	28	+	+
M386 _a	64	31	+	
M263 _a	59	33		+
M377 _e	56	34	+	+
M387 _{ef}	55	35	+	
M387 _a	54	36	+	
M101	52	37	+	

Table 1: High frequency signs in the proto-Elamite sign list proposed by DESSET *et al.* 2022 (column 5) and DAHL 2019 (column 4) to have syllabic value (frequencies computed by L. Born).

Obviously, this is connected to the second investigation, concerning the transmission of certain features from one system to the other. The scribes who wrote the proto-cuneiform and proto-Elamite texts used the round end of two different styli to write the numerical signs and some of the non-numerical signs: one thin and one thick. The strokes of the proto-Elamite signs were made with the pointed tip of another stylus (or possibly the pointed end of one of the other two styli)⁴⁰. The depth and angle of the impressions made with the rounded end styli carried meaning (DAHL 2019: figure 4). Scribes continued to use the rounded end of a thin stylus to write numerical signs (called curvilinear

³⁸ Some of the other high frequency proto-Elamite signs for which no syllabic value has been proposed are in fact equally good candidates for a ‘graphical comparison with PE’ as many of the ones listed in DESSET *et al.* (2022) figure 7_{a-c}.

³⁹ Note that M157_a and M157 may be graphical variants. Including all instances of M157 in this count would obviously move M157_(a) up in the rankings.

⁴⁰ During the proto-Elamite period there is a clear evolution towards ever more cuneiform-looking impressions of the strokes of the proto-Elamite signs, see DAHL 2019: 65.

signs) throughout the entire 3rd millennium BC, whereas the use of a thick stylus fell out of use following the Uruk III/Jemdat Nasr period⁴¹.

More than 300 administrative texts written in cuneiform and dated to around the time of the earliest linear-Elamite tablets (Old Akkadian and Ur III) have been found at Susa. Many of these use curvilinear signs for numerical notations (see figure 5a), and it may therefore be possible to suggest that the scribes who wrote the linear Elamite texts knew what numerical signs in the proto-Elamite tablets represented and avoided them when choosing signs for their new script. Excavations at Susa also produced about a dozen of royal inscriptions from the time of the earliest datable linear Elamite texts, written in Akkadian, mentioning Elamite rulers, and using the Old Akkadian ductus and orthography. One of these, Sb 17 (see GELB AND KIENAST 1990: 328-329), had a Linear Elamite inscription (text “A”) appended to it (it was originally considered a bilingual, see GELB 1963: 89-90). We can therefore conclude that the scribes who wrote the earliest datable linear Elamite texts knew cuneiform well, and were likely familiar with both administrative texts, with their use of curvilinear signs, and that they were familiar with stone cuneiform inscriptions with archaizing sign forms⁴². It is not clear, however, how they would deal with non-numerical proto-Elamite signs made up by impressions or strokes made with both a stylus with a rounded end and a pointed stylus, and signs consisting of impressions made with the rounded end of a thick stylus⁴³.

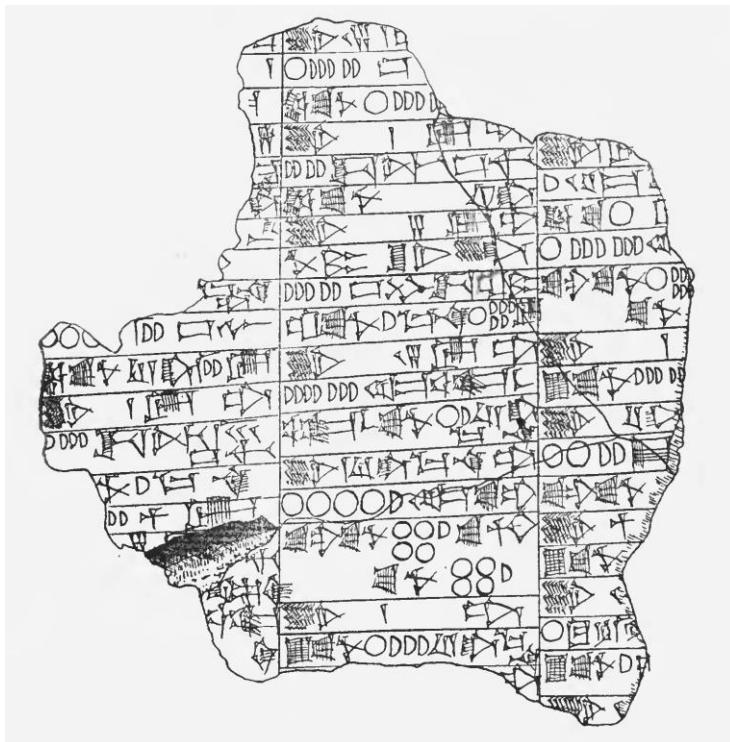


Figure 5a: Old Akkadian administrative text from Susa with curvilinear signs (MDP 14, 86 [reverse only]).

⁴¹ See CHAMBON 2003 for the square numerical signs of the Archaic Ur texts.

⁴² See also ALVAREZ-MON 2020: 142 for the assertion that Puzur-Inshishinak’s artisans were familiar with Old Akkadian sculpture from Puzur-Inshushinak’s successful occupation of Northern Babylonia. Alvarez-Mon goes further and discusses how Puzur-Inshushinak, who has been called the “last king of Akkad”, “developed an artistic program that acknowledged Susa as the revolving urban door between highland and lowland traditions” (p. 142), and “sought to integrate and harmonize features of the political and cultural Akkadian heritage into an Elamite ‘naissance’” (p. 142-143).

⁴³ In cuneiform, signs originally drawn with the rounded end of the thin stylus were occasionally represented by the so-called *Winkelhagen*, the U sign, as is familiar to most in the KUR sign; round signs were usually squared (as in UDU, or SAR, etc.).

If we are to accept that linear Elamite and proto-Elamite are related, then the small dots at the ends of some strokes in some linear Elamite signs are likely meant to resemble one or two, or both, types of impressions made with the rounded end of a slim stylus in proto-Elamite (essentially those coded as the numerical signs N_1 or N_{14} in proto-Elamite, see figure 5b). Thus, for example, in linear Elamite “nu”, the dots at the end of the arms of the sign are presumably meant to represent the heads of the four “ N_1 ” signs that made up M391 (a sign probably representing a field). However, “nu” has only three dots, except in texts J’ and I where it has four. Linear Elamite “ p_2 ” also has dots, but its “PE graphic comparison” does not. Similar for “ hu_2 ”, “hu”, “e”, and “ši”.


















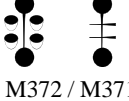
	 M4 Drawn impressing a N_{14} deeply on top of a single line.		 M374 _c Drawn impressing a N_{14} , on a M387.
	 M57 / M57 _{a3} Drawn impressing one or more N_1 lightly, holding the stylus at a 45° angle, inside two zig-zag lines		 M377 _e Drawn impressing two N_1 lightly on top of three lines, holding the stylus at a 45° angle.
	 M301 Drawn impressing three N_1 holding the stylus at a 45° angle, inside a M296.		 M387 Drawn impressing two N_1 , facing in opposite directions, holding the stylus at a 45° angle.
	 M371 Drawn impressing two N_{14} deeply at either end of a single line.		 M391 Drawn impressing four N_1 , facing in opposite directions, holding the stylus at a 45° angle
	 M372 / M371 _c Drawn impressing two N_{34} deeply into the clay, holding the stylus at a 45° angle, and drawing a single line between the two. M372 is framed by four N_1 impressed holding the stylus at a 45° angle; in M371 _c the central line is crossed by two horizontal lines.		

Figure 5b: Linear Elamite signs (left) with proposed proto-Elamite forerunners (right) written using N_1 . Linear Elamite signs from Wikipedia (https://en.wikipedia.org/wiki/Linear_Elamite: “Regularised Linear Elamite characters as interpreted by DESSET *et al.* in 2022”). A few additional linear Elamite signs have added dots.

However, following DESSET *et al.* (2022), the way proto-Elamite M347, M344, and circular signs such as M352_n, all written using the round end of a thick stylus (essentially coding the numerical sign N_{34} in proto-Elamite, see figure 5c), are represented in linear Elamite raises an interesting question. Did the linear Elamite scribes understand the underlying form of the sign? In proto-cuneiform the sign

UDU is drawn as a quartered disk⁴⁴, whereas the proto-Elamite equivalent, M346, is an approximation drawn with two crossing half-circles formed by impressing the rounded end of a thick stylus into the clay holding it at a 45° angle. UDU of course is later drawn as a square with a cross in the middle and eventually as a regular cuneiform sign. If the theory of DESSET *et al.* (2022) is correct then, we should ask how late, or post-, proto-Elamite scribes dealt with M346, M347 and indeed M352_n, when moving to an ever more cursive script (see figure 5c). Since proto-Elamite has no established successor script we do not know, but the fact that the execution of linear Elamite signs appears to use multiple different approaches (dots for both N₁ and N₁₄ as well as lines for N₃₄), and to elaborate several signs with extra dots, might point to it not being a naturally transmitted system, the hypothesis of this paper.











 “hi”	 M356 Drawn impressing a N ₃₄ lightly in the centre, surrounding it with N ₁₄ signs.
 “ki ₂ ”	 M352 _n Drawn impressing a N ₃₄ lightly in the centre, superimposing a plant-like sign
 “pa”	 M344 Drawn impressing a N ₃₄ deeply into the clay, holding the stylus at a 45° angle
 “pu”	 M347 Drawn impressing two N ₃₄ deeply into the clay, holding the stylus at a 45° angle
 “s”	 M348+M4 Drawn impressing two N ₃₄ deeply into the clay, holding the stylus at a 45° angle, and drawing a M4 between the two.

Figure 5c: Linear Elamite signs (left) with proposed proto-Elamite forerunners (right) written using N₃₄. Linear Elamite signs from Wikipedia (https://en.wikipedia.org/wiki/Linear_Elamite: “Regularised Linear Elamite characters as interpreted by Desset *et al.* in 2022”).

An objection to the theory proposed here, supported by theoretical considerations, is the complexification of scripts discussed by KELLY *et al.* (2021: 671-672). KELLY *et al.* (2021: 672) argue that “complexification, or inertia, may set in when writing systems are employed primarily for symbolic, aesthetic, or religious purposes, or when the inscriptions are intended to be displayed for long periods of time.” Just how long periods of time Kelly *et al.* have in mind is not clear, and they

⁴⁴ FRIBERG 1978: 9-10.

remind us in the next sentence that “the trend usually goes from complex to simple.” However, if proto-Elamite had been used for display inscriptions, one might propose that a purely lapidary script had developed which remained more or less static for c 700 years. Of course, there is no evidence that proto-Elamite was ever used for anything but for administrative texts (similar to proto-cuneiform which was used on clay only and for administrative and school texts only). If the signs of linear Elamite were based on other types of symbols existing outside of writing, on the other hand, these could of course have had a very long lifespan, unchanged, as I suggested in DAHL (2009)⁴⁵.

Finally, the suggestion advanced here, that linear Elamite is not an organically developed writing system, but the result of schismogenesis of writing⁴⁶ using objects discovered at the centre of the new capital city Susa⁴⁷, would explain the large variation in sign forms, and the inconsistency in execution of the signs, in the linear Elamite corpus. An organically grown script, especially a syllabic one, would exhibit far greater coherency in the sign forms and execution of the texts⁴⁸.

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⁴⁵ Compare the inclusion of symbols already existing in Vai culture in the emergent Vai writing system, see KELLY *et al.* 2021: 680, and add n. 16 for comparable data from other emergent writing systems.

⁴⁶ Compare the socio-historical situation around the invention of the Vai writing system by the Vai people marginalised by freed slaves migrating from the US to Liberia, see KELLY *et al.* 2021: 682.

⁴⁷ See also ALVAREZ-MON 2020: 142-143 cited above.

⁴⁸ A further objection which could be raised against the hypothesis of this paper is that linear Elamite simply could be an archaising version of a cursive script which descended from proto-Elamite. This is hard to disprove but relies on a number of assumptions that together would appear unlikely: the signs on clay objects are entirely similar to those on the statues and silver vases; there exists no corpus of cursive linear Elamite tablets; there is no evidence of a derived script in Iran between c 2900 and 2150 BC.

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