## Proposal to encode the Elymaean script in Unicode

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#### 1 Introduction

This proposal is a revision and expansion of "Preliminary proposal to encode the Elymaic script in Unicode" (L2/17-055). In addition to a change of the script name, this version contains additional background details, an expansion of the character repertoire, and several new specimens of usage.

#### 2 Background

The proposed script was used in the ancient state of Elymais, located in southwestern Iran at the head of the Persian Gulf, which flourished from the 2nd century BCE to the early 3rd century CE (see figure 1). It was a semi-independent polity and was intermittently under the control of the Parthian empire (247 BCE – 224 CE). The name 'Elymais' is a romanization of the Hellenic designation  $E\lambda\nu\mu\alpha i\varsigma$  for the region known in Sumerian as *elam*, in Akkadian as *elamū*, and indigenously as *halamti*. Known in English as 'Elam', the region lies in the present-day Iranian province of Khuzestan, the name of which derives from 'Huza', the Old Persian name for the area.

There is no attested native name for the script. It is generally referred to as 'Elymaean' in English scholarly literature. This identifier is used for the Unicode script block. The script was identified as 'Elymaic' in Unicode records (see Everson 2001).

Elymaean is a right-to-left, non-joining *abjad* derived from Imperial Aramaic. It is related to other scripts of southern Mesopotamia that are derived from Aramaic, mostly closely to Parthian and Mandaic (Mandaean), and also to Characenean and the script of Persis (see Coxon 1970, Häberl 2005, Naveh 1997, Rezakhani 2012). However, Elymaean is distinct from these in terms of character repertoire and letterforms. A comparison of related scripts is shown in table 1.

The script was used for writing Aramaic and "continued the Achaemenid standard language", while introducing "a number of orthographic modernizations" (Gzella 2008: 127). The earliest attestions of the script are inscriptions on coins dated to the 2nd century CE. The extant Elymaean corpus consists of short epigraphical and numismatic inscriptions. Some important epigraphical records are:

- *Tang-e Sarvak* This "valley of the cypresses" in eastern Khuzestan is considered to be the most important archaeological site in Elymais. It is believed to be a sacred grove used for the coronation of Elymaean kings. The site contains four free-standing monuments, with rock reliefs consisting of thirteen panels (Haerinck 2005). The artefacts at the site are generally dated between the 1st century CE and the first quarter of the 3rd century. Six inscriptions are extant (see figures 12–18).
- *Tang-e Butan* The "valley of the idols" in the Shimbar valley in northeastern Khuzestan consists of two large rock reliefs. The first relief depicts an image of one individual and the second depicts twelve individuals (Bivar and Shaked 1964). The reliefs are generally dated between the 1st century BCE and the 3rd century CE. There are five inscriptions extant at the site (see figures 19–23).
- Tang-e Chilau A large triangular stone containing graffito written in carbon ink. Bivar and Shaked note that "Elymaean script of the first and second centuries A.D., similar to that of the Tang-i Butān was especially prominent" here and that "[s]everal examples seemed to mark a stage transitional in the development from chancery Aramaic to Elymaean, and may be of the first century B.C. or even earlier" (1964: 283). Also at the site are ink graffiti in the Parthian and Pahlavi scripts. Specimens of the Elymaean graffiti are shown in figures 24–26.

There are several types of numismatic records from Elymais, containing inscriptions in Greek, Parthian, and Elymaean. Coins bearing Elymaean legends were minted during the Arsacid period. Coins of Orodes II and Kamnaskires Orodes are shown in figures 9–10.

#### 3 Script details

#### 3.1 Character names

Traditional names for Elymaean letters are not attested. For this reason, the proposed Unicode character names are based upon analogues in the 'Imperial Aramaic' block. These differ slightly from traditional Semitic or scholarly names for Aramaic letters. But, given the relationship of Elymaean to Aramaic, it seems practical to follow the existing naming convention.

In this document, names in italics refer to scholarly names for graphemes while names in small capitals refer to proposed Unicode characters, eg.  $\odot$  is *aleph* and ELYMAEAN LETTER ALEPH. For sake of brevity, the descriptor 'ELYMAEAN' is dropped when refering to Elymaean characters, eg. ELYMAEAN LETTER ALEPH is referred to as ALEPH. Characters of other scripts are designated by their full Unicode names. Latin transliteration of Elymaean letters follows the current scholarly convention.

#### 3.2 Character repertoire

The proposed repertoire for Elymaean contains 23 characters: 22 letters and 1 ligature.

#### 3.2.1 Letters

The 22 letters are distinctive analogues to the letters of the 'Imperial Aramaic' script. The full Elymaean *abjad* is attested in the five epigraphs at Tang-e Sarvak.

Glyph	Unicode character name	Aramaic name	Latin
ဗ	ELYMAEAN LETTER ALEPH	ālap	)
¥	ELYMAEAN LETTER BETH	bēth	b
М	ELYMAEAN LETTER GIMEL	gāmal	g
z	ELYMAEAN LETTER DALETH	dālath	d
94	ELYMAEAN LETTER HE	hē	h
כ	ELYMAEAN LETTER WAW	waw	W
J	ELYMAEAN LETTER ZAYIN	zain	z
ų	ELYMAEAN LETTER HETH	ḥēth	þ
U	ELYMAEAN LETTER TETH	ṭēth	ţ
1	ELYMAEAN LETTER YODH	yodh	У
y	ELYMAEAN LETTER KAPH	kāp	k
٦	ELYMAEAN LETTER LAMEDH	lāmadh	1
×	ELYMAEAN LETTER MEM	mem	m
J	ELYMAEAN LETTER NUN	nun	n
Þ	ELYMAEAN LETTER SAMEKH	semkath	S
У	ELYMAEAN LETTER AYIN	٠ē	C
J	ELYMAEAN LETTER PE	рē	p
Jc	ELYMAEAN LETTER SADHE	ṣādhē	Ş
т	ELYMAEAN LETTER QOPH	qop	q
9	ELYMAEAN LETTER RESH	rēsh	r
w	ELYMAEAN LETTER SHIN	shin	š
'n	ELYMAEAN LETTER TAW	taw	t

#### 3.2.2 Ligature

A ligature for the Aramaic particle zy is also proposed as a distinctive character:

Glyph	Unicode character name	Aramaic name	Latin
U	ELYMAEAN LIGATURE ZAYIN-YODH	zy	zy

In some inscriptions the Aramaic particle IJ zy is represented using the form  $\mathbf{u}$  in which the  $\mathbf{J}$  zayin and  $\mathbf{I}$  yodh are joined. As the letters of the script do not generally connect as a matter of convention, the zy ligature may be considered a special case and a candidate for encoding as a distinctive character. This LIGATURE ZAYIN-YODH may correspond to  $\mathbf{L}$  U+0856 MANDAIC LETTER DUSHENNA.

#### 3.3 Representative glyphs

The Elymaean script was not standardized. Naturally, there are variations in letterforms across the corpus. However, the script types may be classified into two groups: epigraphical and numismatic. While there are differences in letterforms between the classes of inscription, it is practical to unify the epigraphical and numismatic styles within a single encoding for 'Elymaean'. It is, therefore, necessary to determine a suitable form for a digital Elymaean standard.

Of the numismatic and epigraphical script types, the latter are most representative of an 'Elymaean' script. The type of script used on coins differs in several respects from the epigraphical type, and may be considered a transitional phase in the development of the Elymaean script. With regard to the letterforms in the Tange Sarvak inscriptions, Henning notes: "The writing is simply the same as that found on the coins which the kings of Elymais issued in Parthian times" and may be "allocated to the first and second centuries" CE (1952: 163). With regard to the script of Tange Butan, Bivar and Shaked write, "the Shīmbār inscriptions are very close from the point of view of palaeography to the Elymaean script of Tangei Sarvak" (1964: 271). Concurring, Gzella writes: "The same script [as that of Tange Sarvak], with a few palaeographic differences which might be due to local variation has also been used for five inscriptions accompanying rock sculptures from Tange Butan in the Shimbar Valley" (2008: 119).

These statements suggest that the scripts of the epigraphs are variants of a style that may be considered 'Elymaean'. For this reason, the representative glyphs for the Elymaean encoding are normalizations of forms used in the epigraphs from Tang-e Sarvak and Tang-e Butan. Other forms may be considered typological variants (see list of variants below). The display of these is to be managed through the selection of fonts designed specifically for each style.

#### 3.4 Variants

The following characters have variant forms:

	Representative	Epigraphical	Numismatic
aleph	ల	c	π
beth	¥		צ כ
gimel	٨	٨	

daleth	3	3	y
he	91	૧૧ લ	71
zayin	J	٤	
yodh	1	•	
mem	×	× ×	
pe	¥		4
sadhe	Jc	Jm	
shin	M)	ות	لا
taw	л	н	
zy	U	٨	

These variants are to be considered glyphic differences, therefore, they are not encoded as separate characters. They can be represented using fonts.

#### 3.5 Other features

**Digits and punctuation** Digits and punctuation marks are not attested. Spaces are generally not used for separating words, but do appear to be used in some of the inscriptions at Tang-e Butan.

**Line-breaking** There are no formal rules for the breaking of words at end of line. In some inscriptions lines appear to be broken at phrase boundaries. In digital layouts, line-breaks may occur after any character.

**Cursive writing** In the majority of inscriptions letters are freestanding. In some sources, the strokes of adjacent letters of a word may connect or overlap. But the script does not possess intrinsic conjoining or cursive behavior. The only evidence of connected writing is the ligatured form of zy. There are no requirements for shaping.

#### 3.6 Collation

The sort order of the letters follows the encoded order:

```
waleph < y beth < magnel < y daleth < make < y waw < j zayin <

p heth < u teth < i yodh < y kaph < j lamedh < x mem < j nun <

p samekh < y ayin < j pe < jc sadhe < t qoph < y resh < m shin < n taw
```

The LIGATURE ZAYIN-YODH should be collated after the sequence < J ZAYIN, I YODH>, for example:

#### 3.7 Character Properties

#### 3.7.1 UnicodeData.txt

```
10ECO; ELYMAEAN LETTER ALEPH; Lo; 0; R;;;;; N;;;;
10EC1; ELYMAEAN LETTER BETH; Lo; 0; R;;;;; N;;;;;
10EC2; ELYMAEAN LETTER GIMEL; Lo; 0; R;;;;; N;;;;
10EC3; ELYMAEAN LETTER DALETH; Lo; 0; R;;;;; N;;;;;
10EC4; ELYMAEAN LETTER HE; Lo; 0; R;;;;; N;;;;;
10EC5; ELYMAEAN LETTER WAW; Lo; 0; R;;;;; N;;;;
10EC6; ELYMAEAN LETTER ZAYIN; Lo; 0; R;;;;; N;;;;;
10EC7; ELYMAEAN LETTER HETH; Lo; 0; R;;;;; N;;;;;
10EC8; ELYMAEAN LETTER TETH; Lo; 0; R;;;;; N;;;;;
10EC9; ELYMAEAN LETTER YODH; Lo; 0; R;;;;; N;;;;;
10ECA; ELYMAEAN LETTER KAPH; Lo; 0; R;;;;; N;;;;
10ECB; ELYMAEAN LETTER LAMEDH; Lo; 0; R;;;;; N;;;;;
10ECC; ELYMAEAN LETTER MEM; Lo; 0; R;;;;; N;;;;;
10ECD; ELYMAEAN LETTER NUN; Lo; 0; R;;;;; N;;;;;
10ECE; ELYMAEAN LETTER SAMEKH; Lo; 0; R;;;;; N;;;;
10ECF; ELYMAEAN LETTER AYIN; Lo; 0; R;;;;; N;;;;;
10ED0; ELYMAEAN LETTER PE; Lo; 0; R;;;;; N;;;;;
10ED1; ELYMAEAN LETTER SADHE; Lo; 0; R;;;;; N;;;;;
10ED2; ELYMAEAN LETTER QOPH; Lo; 0; R;;;;; N;;;;;
10ED3; ELYMAEAN LETTER RESH; Lo; 0; R;;;;; N;;;;;
10ED4; ELYMAEAN LETTER SHIN; Lo; 0; R;;;;; N;;;;
10ED5; ELYMAEAN LETTER TAW; Lo; 0; R;;;;; N;;;;;
10ED6; ELYMAEAN LIGATURE ZAYIN-YODH; Lo; 0; R;;;;; N;;;;;
```

#### 3.7.2 LineBreak.txt

```
10EC0..10ED6;AL # Lo [23] ELYMAEAN LETTER ALEPH..ELYMAEAN LIGATURE ZAYIN-YODH
```

#### 4 References

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	10EC	10ED
0	10EC0	<b>1</b> 0ED0
1	<b>½</b>	<b>JC</b>
2	10EC2	<b>T</b>
3	<b>3</b>	<b>9</b>
4	Э	м
5	10EC4	10ED4
6	10EC5	10ED5
7	10EC6	10ED6
8	10EC7	
9	10EC8	
Α	10EC9	
В	10ECA	
С	10ECB	
D	10ECC	
E	10ECD	
F	10ECE	
	10ECF	

#### Letters

10EC0 **☎** ELYMAEAN LETTER ALEPH 10EC1 👱 ELYMAEAN LETTER BETH 10EC2 A ELYMAEAN LETTER GIMEL 10EC3 **3** ELYMAEAN LETTER DALETH 10EC4 94 ELYMAEAN LETTER HE 10EC5 > ELYMAEAN LETTER WAW 10EC6 > ELYMAEAN LETTER ZAYIN 10EC7 ע ELYMAEAN LETTER HETH 10EC8 u ELYMAEAN LETTER TETH 10EC9 | ELYMAEAN LETTER YODH 10ECA 3 ELYMAEAN LETTER KAPH 10ECB J ELYMAEAN LETTER LAMEDH 10ECC × ELYMAEAN LETTER MEM 10ECD  $_{\mathbf{J}}$  ELYMAEAN LETTER NUN 10ECE p ELYMAEAN LETTER SAMEKH 10ECF y ELYMAEAN LETTER AYIN 10ED0 **g** ELYMAEAN LETTER PE 10ED1 **Jc** ELYMAEAN LETTER SADHE 10ED2 **T** ELYMAEAN LETTER QOPH 10ED3 > ELYMAEAN LETTER RESH 10ED4 **m** ELYMAEAN LETTER SHIN 10ED5 **n** ELYMAEAN LETTER TAW

#### Ligature

10ED6 **u** ELYMAEAN LIGATURE ZAYIN-YODH • used for the Aramaic conjunction zy



http://kavehfarrokh.com/wp-content/uploads/2015/12/Seleucids-and-Parthia-in-192-BCE.jpg

Figure 1: Map of Parthian and Seleucid empires showing Elymais at the head of the Persian Gulf.

	Elymaic	Mandaic	Inscriptional Pahlavi	Inscriptional Parthian	Imperial Aramaic
aleph	8	٥	П	77	*
beth	¥	<u>-स</u>	<b>ل</b>	ح	,
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taw	n	الا_	2	カ	٢

Table 1: Comparison of Elymaic, Mandaic, Inscriptional Parthian, and Aramaic. Mandaic letters have unique names that differ from Aramaic names. Parenthesis indicate that a letter has been unified with another in the respective encoding. In Inscriptional Pahlavi, *ayin* and *resh* are unified with *waw*, and *qoph* with *mem*.

	MONNAIES	DE L'ÉLYMAÏDE		HADJI	- ABAD	ENS					
VALEUR	ORODE I ET ORODE II  (petit module)  CHALDEO-PEHLVIES	ORODE I ET ORODE II (grand module) et monnaies postérieures MIXTES	BARBARES	CHALDÉO-PEHLVI	PEHLVI-SASSANIDE	PAPYRUS ARAMÉENS	ARAMEEN (Epoque perse)	MONNAIES PERSÉPOLITAINES	DRACHMES ARSACIDES	MANDÉEN	ESTRANGHÈLO
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Figure 2: Comparison of script styles on Elymaean coins (from Allotte de la Fuye 1905: 53).

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Fig. 119. Development of the South Mesopotamian scripts (in comparison with Nabataean). Key to the parallels: (1) a bulla from Babylonia; (2) the Nash papyrus; (3) Hatra; (4) the Birecik inscription, Syriac of 6 A.D.; (4a) Syriac inscription of 165 A.D. from Samatar Harabesi (A raised x marks final forms)

Figure 3: Comparison of Elymaic, Mandaic, Nabataean, and other scripts (from Naveh 1997: 137).

P. ARAMAIC	E PARTHIAN	COI	f 4415		k NG	ı S	AR VA	ιK	
Par Statement	F P	SMALL COPPERS (PHRTH)	TETRA- DRADHIS (ARAHI)	No. 1	No. 2	No. 3	No. 4	No.5	No. 6
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Figure 4: Comparison of Aramaic and Parthian with Elymaic letters used on coins and the inscriptions at Tang-i Sarvak (from Henning 1952: 168).

	TANG-I		S	HĪMB <i>Ā</i>	i R	
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Fig. 1. The script of the Shīmbār inscriptions. The column showing the Tang-i Sarvak forms is based on W. B. Henning's table in *Asia Major*, NS, II, 2, 1952, 168.

Figure 5: Comparison of Elymaic letters in the inscriptions at Tang-e Sarvak and Tang-e Butan (from Bivar and Shaked 1964: 270).

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The columns showing the Tang-i Sarvak and Shimbar forms are based on Bivar and Shaked's table in B.S.O.A.S. XXVII (1964), 270; the Mandaic and Syriac bowl texts on Montgomery's table in Aramaic Incantation Texts from Nippur (1913), plates XXXIX and XL, and the Syriac inscription of the second century A.D. on Segal's table in B.S.O.A.S. XVI (1954), 32.

Figure 6: Comparison of Elymaean and other scripts (from Coxon 1970: 21).

TABLE 1. Comparison of Elymaic, Characenean, Parthian, and Mandaic Scripts

Нергем	Aramaic Values	Elymaic Elymaic (Tang-e Sarvak) (Shimbār)	Elymaic (Shimbār)	Characene Coins	Other Forms	Iranian Values	Nisa Ostraca	Parthian Inscriptions	Mandaic Values	Book Hand	Lead Amulets	Inca. Bo	Incantation Bowls
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Figure 7: Comparison of Mandaic, Elymaic, and related scripts (Häberl 2006: 57).

# נצליל ולנלא (לי גד ודוץ אוצים איני ודוץ אוצים

# מארה הרבנה ארלם אבנהנג ארלם

kbnškyr wrwd MLK' BR wrwd MLK'

"King Kamnaskires Orodes, son of King Orodes"

Figure 8: Elymaic legend on the tetradrachm of Kamnaskires Orodes (from Henning 1952: 164).



נבנצארלה אבונבנצ

wrwd MLK<sup>2</sup> BRY wrwd King Orodes, Son of Orodes

Figure 9: Copper alloy coin of Orodes II, early 2nd to mid 2nd century CE. 16mm, 3.89g. British Museum. Registration number: 1900,0405.94. Department of Coins and Medals catalogue number: GC28p262.17.

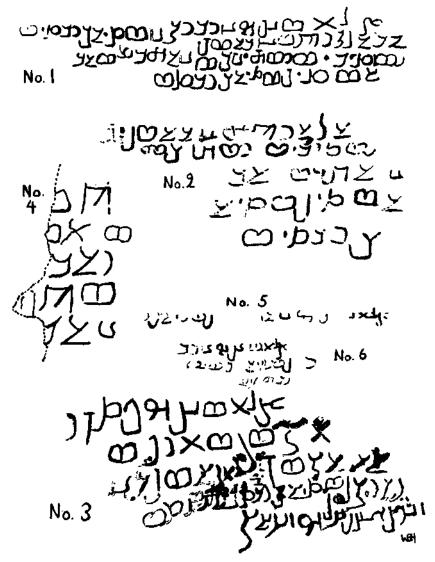


knmkyr wrwd MLK' King Kamnaskires Orodes

Figure 10: Copper alloy coin of Kamnaskires Orodes, early 2nd to mid 2nd century CE. 16mm, 3.73g. British Museum. Registration number: 1909,0205.114. Department of Coins and Medals catalogue number: GC28p267.64.

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                ハイノスないちのこのころ
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                 あるのあるれるようなよ
                                                        しんな ちのあてんしんかる
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११ माम्यापाय प्रतिस्थात १९
                                     3
                                    247
                                         Fig. 335.
   (1) M. Paul Soullard, notre confrère de la Société archéologique de Nantes, a bien voulu nous aider à copier en
tac-similé les légendes ci-dessus.
```

Figure 11: Legends on Elymais coins (from Allotte de la Fuye 1905: 72).



The Elymaean Inscriptions of Tang-i Sarvak

Figure 12: Renderings of Elymaic inscriptions at Tang-i Sarvak made by W. B. Henning (1952: 170). An analysis of inscriptions 1–3 is provided in the following figures.

### שארים סר. השה גלולגסום השסה בי הסיסים האים הוא האבת שאה בר בר וצר נגרה היא היה הלה הלה היה ה של האים האים הלבר בל הים האים היה היה

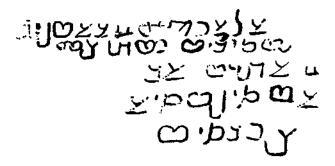
# 

slm > znh zy wrwd n > syb kwrsy >
br bldwš zy rb > ny
w > syry > w > tytk > zy btr \( \cdot > br
b > sy n > syb kwrs >

şalmā denā dī Worōd nāseb korsiyā bar Bēldōšā(?) dī rabbān wa-'Asīryā wa-'Attyōkā dī ba-tar'ā bar Bāsī nāseb kors(iy)ā

This image is the one of Worod, holder of the throne, the son of Beldosa(?), who is (my) lord, and Asirya(?) and Antiochus, who is at the gate, the son of Basi, holder of the throne.

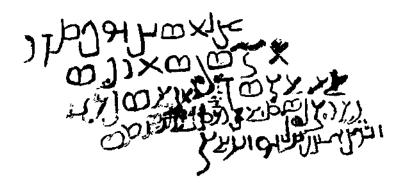
Figure 13: Tang-i Sarvak inscription #1. Facsimile from Henning (1952: 170); transliteration, transcription, and translation from Gzella (2008: 113).



bldwš zy rb, ny w, syry, w, tytk, zy btr, br b, sy n, syb kwrs, Bēldōšā(?) dī rabbān wa-'Asīryā wa-'Attyōkā dī ba-tar( c)ā bar Bāsī nāseb korsiyā

Bēldōšā(?), who is (my) lord, and Asīryā(?) and Antiochus, who is at the gate, the son of Bāsī, holder of the throne.

Figure 14: Tang-i Sarvak inscription #2. Facsimile from Henning (1952: 170); transliteration, transcription, and translation from Gzella (2008: 114).



slm, znh psqw
md, n, m wp,
br bd, q mn b, n kz
wrwd n, syb kwrsy, š, ys,
yzwn gḥn (lyh y) bd

salmā denā pasaq MD'N'M wa-pā(?) bar BD'Q men bān ka-d[ī] Worōd nāseb korsiyā šēsā(?) zayūn gāḥen ʿalēh(?) ye ʿbed

This image have cut MD'N'M and Pā(?) the son of BD'Q from Bān whe[n] Worōd, holder of the throne feeds Šēsā(?), bowing over him, performs (the ritual).

Figure 15: Tang-i Sarvak inscription #3. Facsimile from Henning (1952: 170); transliteration, transcription, and translation from Gzella (2008: 114).

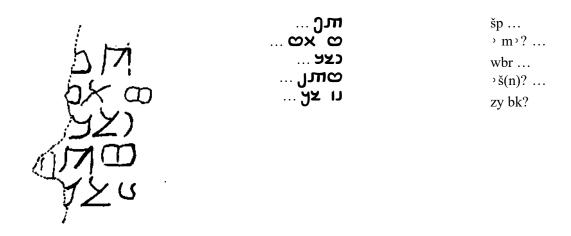


Figure 16: Tang-i Sarvak inscription #4 (Henning 1952: 170).

Figure 17: Tang-i Sarvak inscription #5 (Henning 1952: 170).

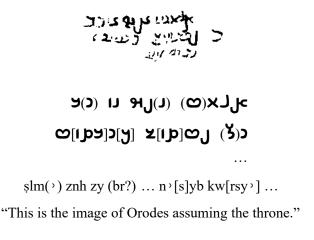


Figure 18: Tang-i Sarvak inscription #6 (Henning 1952: 170).



Tang-i Butān, inscription no. I

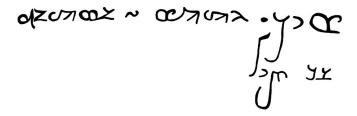
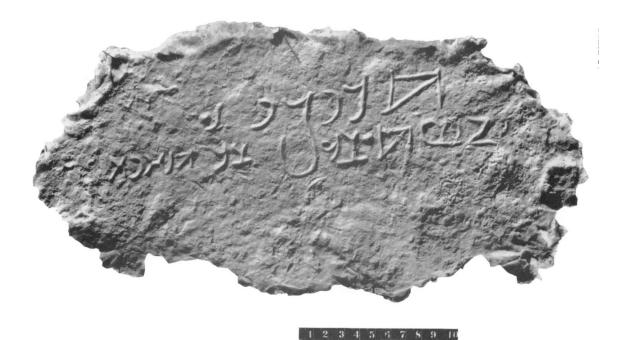


Figure 19: Tang-i Butan inscription #1 (Bivar and Shaked 1964: 273 & plate III).



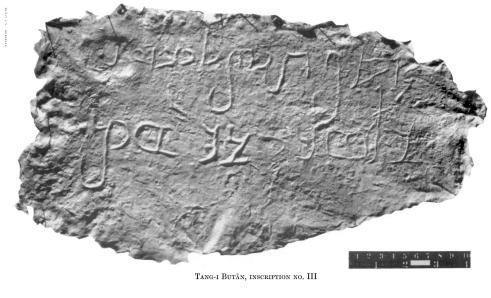
Tang-i Butān, inscription no. II

# TOTOUR YE MACK

אסעווגא גה עראכא ערכלנ וו

šrwkw zy b ' šybh br šmwm

Figure 20: Tang-i Butan inscription #2 (Bivar and Shaked 1964: 273 & plate IV).



المرادم والمرسام والمراد المراد المرا

ארשהנ אה(ו) שנאו דרשה אחנהם וו

šptw stwr, zy
bl, rw br(x)? , wky

Figure 21: Tang-i Butan inscription #3 (Bivar and Shaked 1964: 274 & plate V).



TANG-I BUTĀN, INSCRIPTION NO. IV



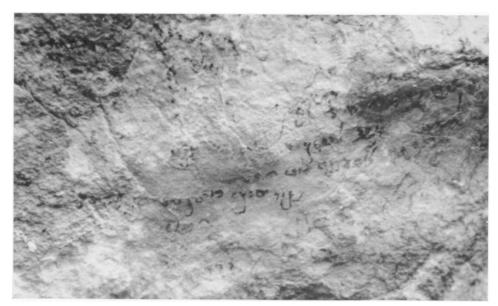
אראום	şlmy <sup>,</sup>
שרא וו אאוצ	hyd chyd
รร วนในเ	šptw zy š>š mn
א שטש	'yrsy
r pyle	

Figure 22: Tang-i Butan inscription #4 (Bivar and Shaked 1964: 275 & plate VI).



אוזא www.q.rp א zy b, šybh

Figure 23: Tang-i Butan inscription #5 (Bivar and Shaked 1964: 276 & plate VII).



ELYMAEAN GRAFFITO AT TANG-I CHILAU

Figure 24: Carbon ink graffiti in the Elymaean script at Tang-i Chilau (Bivar and Shaked 1964: plate XI).



ELYMAEAN GRAFFITO AT TANG-I CHILAU

Figure 25: Carbon ink graffiti in the Elymaean script at Tang-i Chilau (Bivar and Shaked 1964: plate XII).



ELYMAEAN GRAFFITO AT TANG-I CHILAU

Figure 26: Carbon ink graffiti in the Elymaean script at Tang-i Chilau (Bivar and Shaked 1964: XIII).