

Preliminary proposal to encode the Khwarezmian script in Unicode

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1 Introduction

This is a preliminary proposal to encode the ‘Khwarezmian’ script in Unicode. It provides a tentative character repertoire and code chart, a brief description of the script, and a few specimens. Research is ongoing and a formal proposal is forthcoming.

2 Description

The ‘Khwarezmian’ script was used for writing an extinct eastern Iranian language that is known by the same name (ISO 639-3: xco). Alternate English spellings of the name are ‘Chorasmian’ and ‘Choresmian’. The script is derived from Imperial Aramaic and was written from right to left. The earliest attested records in the script are coin inscriptions and documents on wood and parchment from the end of the 2nd century CE, and the latest records are inscriptions on silver vessels and ossuary inscriptions from the late 7th century (MacKenzie 2011). Khwarezmian is related to other Iranian scripts, such as Parthian and Sogdian, but is sufficiently distinct from these to be separately encoded in Unicode.

The tentative repertoire for Khwarezmian contains the following characters, with normalized glyphs and Latin transliterations:

Glyph	Character name	Latin
𐭀	KHWAREZMIAN LETTER ALEPH	ʾ
𐭁	KHWAREZMIAN LETTER BETH	β
𐭂	KHWAREZMIAN LETTER GIMEL	γ
𐭃	KHWAREZMIAN LETTER DALETH	δ
𐭄	KHWAREZMIAN LETTER HE	h
𐭅	KHWAREZMIAN LETTER WAW	w

𐭩	KHWAREZMIAN LETTER ZAYIN	z
𐭪	KHWAREZMIAN LETTER HETH	x
𐭫	KHWAREZMIAN LETTER YODH	y
𐭬	KHWAREZMIAN LETTER KAPH	k
𐭭	KHWAREZMIAN LETTER LAMEDH	δ ; L
𐭮	KHWAREZMIAN LETTER MEM	m
𐭯	KHWAREZMIAN LETTER NUN	n
𐭰	KHWAREZMIAN LETTER SAMEKH	s
𐭱	KHWAREZMIAN LETTER PE	p
𐭲	KHWAREZMIAN LETTER RESH	r
𐭳	KHWAREZMIAN LETTER SHIN	š
𐭴	KHWAREZMIAN LETTER TAW	t

The following features have been identified:

1. The letters *teth*, *ayin*, *sadhe*, *qoph* do not appear to be used in the script.
2. Variant forms are attested for some letters, eg. 𐭪 for 𐭮 *mem*; 𐭬 for 𐭳 *shin*.
3. Two adjacent letters are often rendered as ligatures, eg. 𐭡 *aleph* + *waw*; 𐭡𐭫 *aleph* + *yodh*; 𐭡𐭬 *aleph* + *resh*; 𐭭𐭬 *lamedh* + *kaph*; 𐭰𐭫 *samekh* + *yodh*. Such behavior appears to occur with certain letters, such as *aleph*. It is unclear at present if this is a regular behavior of a particular letter, a common feature of the script, or the result of inscriptional practices.
4. Nesting of some letter combinations is common. As *aleph* is consistently written above the baseline, in several inscriptions when *aleph* follows *kaph*, is it written above the stroke of the latter: 𐭡𐭬 *kaph* + *aleph*, as in the word 𐭡𐭬𐭫 *MLK* ‘king’.
5. Numerical signs and punctuation do not appear in the materials consulted thus far.

2.1 Tentative Character Data

In the format of `UnicodeData.txt`:

```

xx00;KHWAREZMIAN LETTER ALEPH;Lo;0;R;;;;N;;;;;
xx01;KHWAREZMIAN LETTER BETH;Lo;0;R;;;;N;;;;;
xx02;KHWAREZMIAN LETTER GIMEL;Lo;0;R;;;;N;;;;;
xx03;KHWAREZMIAN LETTER DALETH;Lo;0;R;;;;N;;;;;
xx04;KHWAREZMIAN LETTER HE;Lo;0;R;;;;N;;;;;
xx05;KHWAREZMIAN LETTER WAW;Lo;0;R;;;;N;;;;;
xx06;KHWAREZMIAN LETTER ZAYIN;Lo;0;R;;;;N;;;;;
xx07;KHWAREZMIAN LETTER HETH;Lo;0;R;;;;N;;;;;
xx08;<reserved>
xx09;KHWAREZMIAN LETTER YODH;Lo;0;R;;;;N;;;;;
xx0A;KHWAREZMIAN LETTER KAPH;Lo;0;R;;;;N;;;;;
xx0B;KHWAREZMIAN LETTER LAMEDH;Lo;0;R;;;;N;;;;;
xx0C;KHWAREZMIAN LETTER MEM;Lo;0;R;;;;N;;;;;
xx0D;KHWAREZMIAN LETTER NUN;Lo;0;R;;;;N;;;;;
xx0E;KHWAREZMIAN LETTER SAMEKH;Lo;0;R;;;;N;;;;;
xx0F;<reserved>
xx10;KHWAREZMIAN LETTER PE;Lo;0;R;;;;N;;;;;
xx11;<reserved>
xx12;<reserved>
xx13;KHWAREZMIAN LETTER RESH;Lo;0;R;;;;N;;;;;
xx14;KHWAREZMIAN LETTER SHIN;Lo;0;R;;;;N;;;;;
xx15;KHWAREZMIAN LETTER TAW;Lo;0;R;;;;N;;;;;

```

3 References





“Coins of Central Asia”. <http://www.sogdcoins.narod.ru/english/khwarezm/coins.html>

Humbach, Helmut. 2011 [1998]. “Epigraphy i. Old Persian and Middle Iranian epigraphy”. *Encyclopædia Iranica*, vol. VIII, fasc. 5, pp. 478–488. <http://www.iranicaonline.org/articles/epigraphy-i>

MacKenzie, D. N. 2011 [1991]. “Chorasmia iii. The Chorasmian Language.” *Encyclopædia Iranica*, vol. V, pp. 517–520. <http://www.iranicaonline.org/articles/chorasmia-iii>

	10F0	10F1
0	𐭀 10F00	𐭁 10F10
1	𐭂 10F01	
2	𐭃 10F02	
3	𐭄 10F03	𐭅 10F13
4	𐭆 10F04	𐭇 10F14
5	𐭈 10F05	𐭉 10F15
6	𐭊 10F06	
7	𐭋 10F07	
8		
9	𐭍 10F09	
A	𐭎 10FOA	
B	𐭏 10FOB	
C	𐭐 10FOC	
D	𐭑 10FOD	
E	𐭒 10FOE	
F		

Letters

- 10F00 𐭀 KHWAREZMIAN LETTER ALEPH
- 10F01 𐭂 KHWAREZMIAN LETTER BETH
- 10F02 𐭃 KHWAREZMIAN LETTER GIMEL
- 10F03 𐭄 KHWAREZMIAN LETTER DALETH
- 10F04 𐭆 KHWAREZMIAN LETTER HE
- 10F05 𐭈 KHWAREZMIAN LETTER WAW
- 10F06 𐭊 KHWAREZMIAN LETTER ZAYIN
- 10F07 𐭋 KHWAREZMIAN LETTER HETH
- 10F08  <reserved>
- 10F09 𐭍 KHWAREZMIAN LETTER YODH
- 10FOA 𐭎 KHWAREZMIAN LETTER KAPH
- 10FOB 𐭏 KHWAREZMIAN LETTER LAMEDH
- 10FOC 𐭐 KHWAREZMIAN LETTER MEM
- 10FOD 𐭑 KHWAREZMIAN LETTER NUN
- 10FOE 𐭒 KHWAREZMIAN LETTER SAMEKH
- 10FOF  <reserved>
- 10F10 𐭁 KHWAREZMIAN LETTER PE
- 10F11  <reserved>
- 10F12  <reserved>
- 10F13 𐭅 KHWAREZMIAN LETTER RESH
- 10F14 𐭇 KHWAREZMIAN LETTER SHIN
- 10F15 𐭉 KHWAREZMIAN LETTER TAW



Coin of Bivarsar, first half of 4th century CE. Obverse: Crowned bust of bearded king. Reverse: Partially Greek, partial Khwarezmian **כנועכע ולנע** *bywrsr MLK'*, with a *tamgha* at left.



Coin of Tutukhas, late 5th or early 6th century CE. Obverse: Crowned bust of bearded king. Reverse: Khwarezmian **טוטומכ ולנע** *tutuxs / tytyxs MLK'*, with a *tamgha* at left.



Coin of Sawshafan, middle 8th century CE. Obverse: Crowned bust of bearded king. Reverse: Khwarezmian **כניעכפנ סלע סעיג** *MR'Y MLK' sy'wrspn*, with a *tamgha* at left.

Figure 1: Khwarezmian inscriptions on coins (from “Coins of Central Asia”).