Doc Type:	**Working Group Document**
Title:	**Final proposal to encode the Osage script in the UCS**
Source:	**Michael Everson, Herman Mongrain Lookout, Cameron Pratt**
Status:	**Individual Contribution**
Date:	**2014-09-21**
Replaces:	**N4548 (2014-02-20), N4587 (2014-07-30)**

1. Introduction. This document requests the addition to the UCS of a new script used for the Osage language.

1.1. Background. A variety of ad-hoc Latin orthographies and transcriptions have been used for the Osage language over the past 210 years, having been devised by people for reasons such as bible verse translation, language documentation, and study. Most of the writing systems were prepared by second-language Osage speakers. One of the earliest sources is dated circa 1851, attributed to Father Ponziglione, a Jesuit priest who ministered to the Osage.

2. The development of the contemporary Osage orthography. In 2004, the 31st Council of the Osage Nation passed a resolution initiating the Osage Language Program. Soon after, Herman Mongrain Lookout—known as "Mogri"—was hired as the director, and was afforded office space in downtown Pawhuska, Oklahoma. At that time no standard orthography existed for Osage, and students were exhorted to "spell it like you hear it", which, naturally, led to conflicting conventions differing from student to student and lacking linguistic robustness. Mogri developed a Latin-based orthography which used all capitals: SHOᴺ-KE 'dog', TSI 'house', TA 'deer', KE 'turtle'. It soon became felt that students' knowledge of the English orthographic values of these letters interfered with good pronunciation of Osage, and by 2006, working with advanced learners, a practical ortho-graphy had been designed whose letters were in origin modifications or fusions of Latin letters, but which users consider to be a separate script. The words above were written 𐓰𐓪𐓷.𐒼𐓘 *šǫke* 'dog', 𐓷𐓐 *tsi* 'house', 𐒷𐓊 *ta* 'deer', 𐒼𐓘 *ke* 'turtle' with these new letters.

The new Osage orthography was taken up with alacrity by students and teachers, and has been consistently and regularly used throughout the Osage Nation since 2006. In 2012 a number of linguists and speakers of the language raised some issues about the repertoire of characters employed, on the basis of their experience using it. Cameron Pratt and Dylan Herrick produced some documents analysing the use of the orthography and outlining questions which they felt should be examined and addressed.

At the same time graphic artist Ryan RedCorn and more recently Jessica Harjo had explored Osage typography and noticed a number of features which they felt to be somewhat problematic. Issues of character encoding and of orthographic reform began to be discussed with Michael Everson late in 2012 and early in 2013, and finally a three-day working seminar was hosted by the Osage Language Department on 12–14 February 2014, at which questions of linguistic issues, graphic design and

fonts, and character encoding were discussed at length. Participants in the seminars included Mogri Lookout (who devised the orthography), linguist Cameron Pratt, teachers and curriculum developers Janice Carpenter and Stephanie Rapp, graphic designers Jessica Harjo and Ryan RedCorn, governmental representative Geoffrey StandingBear, and other members of the Osage community.

3. Osage consonants. The table below shows the relation between Osage consonantal phonology. The first column for each consonant is the transcription used in Quintero 2009, the second IPA transcription, and the third Osage orthography.

	Labial			Dental			Palatal-alveolar			Velar			Glottal		
Glottalized stops	pʔ	pʔ	Ᏼ'				cʔ	tsʔ	℮'	kʔ	kʔ	Ᏻ'	(ʔ)(ʔ)	–	
Lax voiceless stops	p	p	Ᏼ	t	t	Ᏸ	č	tʃ	Ꮐ	k	k	Ᏻ			
Affricates	c	ts	℮												
Preaspirated/tense voiceless stops	hp	ʰp	Ᏼ	ht	ʰt	Ᏸ	hč	ʰtʃ	Ꮐ	hk	ʰk	Ᏻ			
	hc	ʰts	℮												
Voiced stops	br	bɹ	Ʀ												
(Post)aspirated stops	pš	pʃ	Ᏼꞩ	ch	tsʰ	℮				kš	kʃ	Ᏻꞩ			
	px	px	Ᏼᚁ	tx	tx	Ᏸᚁ				kx	kx	Ᏻᚁ			
Voiceless/tense fric.				s	s	Ç	š	ʃ	ꞩ	x	x	ᚁ	h	h	ᴊ
Voiced/lax fricatives				z	z	Ꙁ	ž	ʒ	ᴊ	ɣ	ɣ	ᴪ			
Palatalized										kʲ	kʲ	Ᏻ	hʲ	hʲ	ᴣ
Nasals	m	m	℗	n	n	Ꮂ									
Approximants	w	w	Ꙃ	l	l	Ꮸ									
				ð	ð	Ꮭ									

4. Osage vowels. Oral and nasal vowels are distinguished by means of a diacritic dot:

Λ ʌ *A a*, Ⴟ λ *Ə ə*, Ɑ α *E e*, Ω ɴ *I i*, O o *O o*, U ʋ *U u*; Λ κ *Ą ą*, Ⴟ ⴟ *Ə̣ ə̣*, Ω �172 *Į į*, O σ *Q ǫ*

This diacritic dot is an existing a combining mark, U+0358 COMBINING DOT ABOVE RIGHT. Three diphthongs use a similar dot inside the character (this is not a combining character and these are encoded as unitary characters); there is also one oral diphthong:

Λ ʌ *aị aị*, Ɑ α *Eị eị*, Θ ɵ *Oị oị*; Λ ʌ *Ai ai*

Long vowels are indicated by means of U+0304 COMBINING MACRON ABOVE:

Λ̄ ʌ̄ *Ā ā*, Ɑ̄ ᾱ *Ē ē*, Ω̄ n̄ *Ī ī*, Ō ō *Ō ō* Ū ū *Ū ū*; Λ̄ κ̄ *Ą̄ ą̄*, Ω̄ n̄ *Į̄ į̄*, Ō σ̄ *Q̄ ǭ*

Where pitch accent needs to be indicated U+0301 COMBINING ACUTE ACCENT is used:

Λ́ ʌ́ *Á á*, Ɑ́ ά *É é*, Ώ ń *Í í*, Ó ó *Ó ó*, Ú ú *Ú ú*; Λ́ ќ *Ą́ ą́*, Ώ ń *Į́ į́*, Ó σ́ *Q́ ǫ́*
Ά ʌ́ *Áị áị*, Ɑ́ ἀ *Éị éị*, Ό ɵ́ *Óị óị*; Λ́ ʌ́ *Ái ái*

Where pitch accent needs to be indicated in conjunction with vowel length, U+030B COMBINING DOUBLE ACUTE ACCENT is used:

Λ̋ ʌ̋ *Ā́ ā́*, Ɑ̋ ά̋ *Ḗ é̋*, Ω̋ n̋ *Ī́ ī̋*, Ő ő *Ő ő*, Ű ű *Ű ű*; Λ̋ ќ̋ *Ą̋ ą̋*, Ω̋ n̋ *Į̋ į̋*, Ő σ̋ *Q̋ ǫ̋*

5. Reforms of previous orthography. Five reforms were agreed at the February 2014 meeting, which have been implemented in the present proposal. The first of these was the introduction of case pairs. The examples of the introduction of case into Old Hungarian by young learners, and of the ramifications of the re-introduction of case into the existing Cherokee encoding were discussed at considerable length, and during the February meetings everyone including Mogri Lookout and the two graphic designers was quite certain that the orthography was mature enough to acquire and

implement case, in order to offer a robust new typographic tradition. In particular the experience of the Cherokees changing the encoding model was taken quite seriously; the Osage accepted that any changes made now needed to be permanent and stable.

Another reform was in the special representation of the "pre-aspirate" consonant class. These consonants represent original geminates in proto-Dhegiha, and are either pronounced as geminates, or as pre-aspirated consonants. The original representation was either ⌐Þ *hp*, ⌐𝕯 *ht*, ⌐ℙ *hc*, ⌐𝕲 *hč*, ⌐𝕂 *hk* or ⌐Þ *ʰp*, ⌐𝕯 *ʰt*, ⌐ℙ *ʰc*, ⌐𝕲 *ʰč*, ⌐𝕂 *ʰk*; the reform replaced these with unitary characters Þ *ʰp*, ᴆ *ʰt*, ℯ *ʰc*, ᴈ *ʰč*, ᴌ *ʰk*. The alternation of geminate/pre-aspirate is better represented by a single character than by a prefixed *h* or *ʰ*, which could be misleading to learners who prefer the geminate pronunciation.

The third reform involved the abolition of two ligatures (ᴣ *sts* for ℂℙ *s-ts* and 𝔖 *sk* for ℂ𝕂 *s-k*). Two other characters which represent palatalized (but evidently not phonemic) consonants ⌐ [hʲ] and 𝕂 [kʲ] have been retained as *ʒ hy* and *ʗ ky*.

The fourth reform was in the representation of nasality. Instead of representing nasality in the nasal vowels Λ^ *ą*, ⋂^ *į*, O^ *ǫ* differently from its representation in nasal diphthongs Δ *ai̧*, ℃ *ei̧*, O *oi̧*, an intrinsic dot, to the top left or internally, is now used for all of them: ᴋ *ą*, ᴔ *į*, ơ *ǫ*, ᴀ *ai̧*, ᴕ *ei̧*, ⊙ *oi̧*.

The final reform was modification of the glyph for ⅋ *x/ɣ* and splitting it into two characters ⋔ *x* and a new ψ *ɣ*. Compare ⋔őᴘα *xǫ́ce* 'cedar' with ψőᴘα *ɣǫ́ce* 'sloppy'.

While the community was confident in the reforms agreed, in February they understood the permanency of the UCS encoding process and have taken the intervening months to test out the reforms following this preliminary proposal for encoding. It has been recognized that the reforms respond appropriately to criticisms and queries about the orthography.

6. Ordering. The following is a specification for ordering Osage orthography. Nasal vowels are treated as separate letters from oral vowels. Accented vowels are treated as variants of their base letter. Preaspirate/geminate and palatalized letters are treated as separate letters from non-aspirate letters.

Λ <<< Λ << Ā <<< Ā << Á <<< Á << Ắ <<< Ắ <
ᴋ <<< Λ̇ << ᴋ̄ <<< Λ̄ << ᴋ́ <<< Λ́ << ᴋ̋ <<< Λ̋ <
ᴀ <<< Λ << ᴀ̄ <<< Ā << ᴀ́ <<< Á << ᴀ̋ <<< Ắ <
ᴀ <<< Λ << ᴀ̄ <<< Ā << ᴀ́ <<< Á << ᴀ̋ <<< Ắ <
λ <<< Ӽ << λ̇ <<< Ӽ̇ < ʀ <<< ʀ < ɢ <<< ɢ < ɢ <<< ɢ <
α <<< Ѻ << ᾱ <<< Ω̄ << ά <<< Ѻ́ << ᾰ <<< Ѻ̋ <
α <<< Ѻ << ᾱ <<< Ω̄ << ά <<< Ѻ́ << ᾰ <<< Ѻ̋ <
ʒ <<< ᴣ < ʒ <<< ᴣ̇ < ᴔ <<< Ω << ᴔ̄ <<< Ω̄ << ᴔ́ <<< Ώ << ᴔ̋ <<< Ω̋ <
ᴔ <<< Ω̇ << ᴔ̄ <<< Ω̄ << ᴔ́ <<< Ώ << ᴔ̋ <<< Ω̋ <
ᴌ <<< 𝕂 < ᴌ <<< 𝕂 < ʗ <<< 𝕂 < ᴄ <<< Ϲ < ᴘ <<< ℙ <
ʟ <<< ʟ < o <<< O << ō <<< Ō << ó <<< Ó << ő <<< Ő <
ơ <<< Ơ << ơ̄ <<< Ō̇ << ớ <<< Ố << ő̇ <<< Ő̇ <
⊙ <<< O << ō <<< Ō << ó <<< Ó << ő <<< Ő <
Þ <<< Þ < ᴘ <<< Þ < ᴄ <<< Ϲ < ᴎ <<< 𝔖 < ᴅ <<< 𝕯 < ᴆ <<< ᴆ <
ᴘ <<< ℙ < ᴘ <<< ℙ < ᴘ <<< ℙ < ᴛ <<< ᴛ <
u <<< U << ū <<< Ū << ú <<< Ú << ű <<< Ű <
ʒ <<< ʒ < ⋔ <<< ⋔ < ψ <<< Ψ < ɀ <<< Ζ < ȥ <<< Ȥ

7. Encoding model. The proposals in N4548 and N4587 discussed alternative encodings for Osage orthography. Essentially the choice came down to whether the orthography should be treated as a set of extensions to Latin (reflecting the typographic aspirations of the user community and the historical development of the characters) or as a unique self-contained script like Cherokee, participating in the Latin typographic tradition but nevertheless being treated separately from Latin. Technically, either approach would work. If Osage were to be unified with Latin, most Osage characters would be extensions, and the overlap with Latin would be small:

O = U+004F LATIN CAPITAL LETTER O   o = U+006F LATIN SMALL LETTER O
U = U+0055 LATIN CAPITAL LETTER U   u = U+0075 LATIN SMALL LETTER U
Λ = U+0245 LATIN CAPITAL LETTER TURNED V   ʌ = U+02BC LATIN SMALL LETTER TURNED V

Although there are cases to be made for both approaches, members of the UTC at a meeting held on 2014-08-07 felt that it would be less problematic to consider Osage as a unique script, embedded (as Cherokee is) in a Latin typographic world, behaving like Latin in terms of casing and glyph design, but nevertheless encoded separately from Latin. One obvious (even if minor) advantage would be that a default sorting order for Osage would simply work without special tailoring of the position of Λʌ at the beginning of the alphabet rather than towards the end where it is in the default table for Latin.

A disadvantage (for users of the UCS, though not for users of Osage) would be that Ŧħ would remain unencoded as Latin characters available for Unifon orthography, and Ƛƛ would remain unencoded as Latin characters available for some Native American orthographies. But these could be encoded for Latin in due course.

At meetings held in Pawhuska with the stakeholders on 28–29 July 2014, it was determined that the Latin extensions option might be the most advantageous, but it was agreed there that advice from the UTC and WG2 could be taken if it were felt better for Osage to be encoded separately. In any case, the user community explicitly wishes to have their orthography participate in the full range of Latin *typography* and *behaviour*.

For the purpose of identifying potential confusables, note should be taken of letters which are similar to other Latin letters. In the code chart below on page 14 the names list contains cross-references to these characters.

Λ ≠ Λ U+0245 LATIN CAPITAL LETTER TURNED V   ʌ ≠ ʌ U+02BC LATIN SMALL LETTER TURNED V
Ꞧ ≠ Ʀ U+01A6 LETTER YR   ʀ ≠ ʀ U+0280 LETTER SMALL CAPITAL R
O ≠ O U+004F LATIN CAPITAL LETTER O   o ≠ o U+006F LATIN SMALL LETTER O
Þ ≠ Þ U+00DE CAPITAL LETTER THORN   þ ≠ þ U+00FE SMALL LETTER THORN
Ꝥ ≠ Ꝥ U+A764 CAPITAL LETTER THORN WITH STROKE   ꝥ ≠ ꝥ U+A765 SMALL LETTER THORN WITH STROKE
Ꞔ ≠ C U+004F CAPITAL LETTER C   ꞔ ≠ c U+006F SMALL LETTER C
Ɒ ≠ D U+0044 CAPITAL LETTER D   ᴅ ≠ ᴅ U+1D05 LETTER SMALL CAPITAL D
Ð ≠ Ð U+00D0 CAPITAL LETTER ETH   ᴆ ≠ ᴆ U+1D06 LETTER SMALL CAPITAL ETH
Ћ ≠ Ћ U+040B CYRILLIC CAPITAL LETTER TSHE   ħ ≠ ħ U+045B CYRILLIC SMALL LETTER TSHE
U ≠ U U+0055 LATIN CAPITAL LETTER U   ᴜ ≠ u U+0075 LATIN SMALL LETTER U
Ψ ≠ Ψ U+03A8 GREEK CAPITAL LETTER PSI   ψ ≠ ψ U+03C8 GREEK SMALL LETTER PSI
Ȥ ≠ Ȥ U+0224 CAPITAL LETTER Z WITH HOOK   ȥ ≠ ȥ U+0225 SMALL LETTER Z WITH HOOK
Ⱬ ≠ Ⱬ U+2C6B CAPITAL LETTER Z WITH DESCENDER   ⱬ ≠ ⱬ U+2C6C SMALL LETTER Z WITH DESCENDER

Note that while in modern fonts the bowl of Latin Ꝛ ʏʀ and Þ ᴛʜᴏʀɴ is based on the shape of upper-case *P*, the bowl of Osage Ꝛ ʙʀᴀ, Þ ᴘᴀ, and Ᵽ ᴘᴀ ᴡɪᴛʜ ꜱᴛʀᴏᴋᴇ is based on the bowl of lower-case *b*.

$$\text{Ꝛ Þ} - \text{Ꝛ Þ}$$

ʏʀ and ᴛʜᴏʀɴ − ʙʀᴀ and ᴘᴀ

It has been proposed to encode all of these characters in a new block Osage in the SMP.

8. Digits and punctuation. Osage makes use of standard European digits and punctuation.

9. Unicode Character Properties.

```
104B0;OSAGE CAPITAL LETTER A;Lu;0;L;;;;;N;;;;104D8;
104B1;OSAGE CAPITAL LETTER AI;Lu;0;L;;;;;N;;;;104D9;
104B2;OSAGE CAPITAL LETTER AIN;Lu;0;L;;;;;N;;;;104DA;
104B3;OSAGE CAPITAL LETTER AH;Lu;0;L;;;;;N;;;;104DB;
104B4;OSAGE CAPITAL LETTER BRA;Lu;0;L;;;;;N;;;;104DC;
104B5;OSAGE CAPITAL LETTER CHA;Lu;0;L;;;;;N;;;;104DD;
104B6;OSAGE CAPITAL LETTER EHCHA;Lu;0;L;;;;;N;;;;104DE;
104B7;OSAGE CAPITAL LETTER E;Lu;0;L;;;;;N;;;;104DF;
104B8;OSAGE CAPITAL LETTER EIN;Lu;0;L;;;;;N;;;;104E0;
104B9;OSAGE CAPITAL LETTER HA;Lu;0;L;;;;;N;;;;104E1;
104BA;OSAGE CAPITAL LETTER HYA;Lu;0;L;;;;;N;;;;104E2;
104BB;OSAGE CAPITAL LETTER I;Lu;0;L;;;;;N;;;;104E3;
104BC;OSAGE CAPITAL LETTER KA;Lu;0;L;;;;;N;;;;104E4;
104BD;OSAGE CAPITAL LETTER EHKA;Lu;0;L;;;;;N;;;;104E5;
104BE;OSAGE CAPITAL LETTER KYA;Lu;0;L;;;;;N;;;;104E6;
104BF;OSAGE CAPITAL LETTER LA;Lu;0;L;;;;;N;;;;104E7;
104C0;OSAGE CAPITAL LETTER MA;Lu;0;L;;;;;N;;;;104E8;
104C1;OSAGE CAPITAL LETTER NA;Lu;0;L;;;;;N;;;;104E9;
104C2;OSAGE CAPITAL LETTER O;Lu;0;L;;;;;N;;;;104EA;
104C3;OSAGE CAPITAL LETTER OIN;Lu;0;L;;;;;N;;;;104EB;
104C4;OSAGE CAPITAL LETTER PA;Lu;0;L;;;;;N;;;;104EC;
104C5;OSAGE CAPITAL LETTER EHPA;Lu;0;L;;;;;N;;;;104ED;
104C6;OSAGE CAPITAL LETTER SA;Lu;0;L;;;;;N;;;;104EE;
104C7;OSAGE CAPITAL LETTER SHA;Lu;0;L;;;;;N;;;;104EF;
104C8;OSAGE CAPITAL LETTER TA;Lu;0;L;;;;;N;;;;104F0;
104C9;OSAGE CAPITAL LETTER EHTA;Lu;0;L;;;;;N;;;;104F1;
104CA;OSAGE CAPITAL LETTER TSA;Lu;0;L;;;;;N;;;;104F2;
104CB;OSAGE CAPITAL LETTER EHTSA;Lu;0;L;;;;;N;;;;104F3;
104CC;OSAGE CAPITAL LETTER TSHA;Lu;0;L;;;;;N;;;;104F4;
104CD;OSAGE CAPITAL LETTER DHA;Lu;0;L;;;;;N;;;;104F5;
104CE;OSAGE CAPITAL LETTER U;Lu;0;L;;;;;N;;;;104F6;
104CF;OSAGE CAPITAL LETTER WA;Lu;0;L;;;;;N;;;;104F7;
104D0;OSAGE CAPITAL LETTER KHA;Lu;0;L;;;;;N;;;;104F8;
104D1;OSAGE CAPITAL LETTER GHA;Lu;0;L;;;;;N;;;;104F9;
104D2;OSAGE CAPITAL LETTER ZA;Lu;0;L;;;;;N;;;;104FA;
104D3;OSAGE CAPITAL LETTER ZHA;Lu;0;L;;;;;N;;;;104FB;
104D8;OSAGE SMALL LETTER A;Ll;0;L;;;;;N;;;104B0;;104B0
104D9;OSAGE SMALL LETTER AI;Ll;0;L;;;;;N;;;104B1;;104B1
104DA;OSAGE SMALL LETTER AIN;Ll;0;L;;;;;N;;;104B2;;104B2
104D3;OSAGE SMALL LETTER AH;Ll;0;L;;;;;N;;;104B3;;104B3
104DC;OSAGE SMALL LETTER BRA;Ll;0;L;;;;;N;;;104B4;;104B4
104DD;OSAGE SMALL LETTER CHA;Ll;0;L;;;;;N;;;104B5;;104B5
104DE;OSAGE SMALL LETTER EHCHA;Ll;0;L;;;;;N;;;104B6;;104B6
104DF;OSAGE SMALL LETTER E;Ll;0;L;;;;;N;;;104B7;;104B7
104E0;OSAGE SMALL LETTER EIN;Ll;0;L;;;;;N;;;104B8;;104B8
104E1;OSAGE SMALL LETTER HA;Ll;0;L;;;;;N;;;104B9;;104B9
104E2;OSAGE SMALL LETTER HYA;Ll;0;L;;;;;N;;;104BA;;104BA
104E3;OSAGE SMALL LETTER I;Ll;0;L;;;;;N;;;104BB;;104BB
104E4;OSAGE SMALL LETTER KA;Ll;0;L;;;;;N;;;104BC;;104BC
104E5;OSAGE SMALL LETTER EHKA;Ll;0;L;;;;;N;;;104BD;;104BD
104E6;OSAGE SMALL LETTER KYA;Ll;0;L;;;;;N;;;104BE;;104BE
104E7;OSAGE SMALL LETTER LA;Ll;0;L;;;;;N;;;104BF;;104BF
104E8;OSAGE SMALL LETTER MA;Ll;0;L;;;;;N;;;104C0;;104C0
104E9;OSAGE SMALL LETTER NA;Ll;0;L;;;;;N;;;104C1;;104C1
104EA;OSAGE SMALL LETTER O;Ll;0;L;;;;;N;;;104C2;;104C2
104EB;OSAGE SMALL LETTER OIN;Ll;0;L;;;;;N;;;104C3;;104C3
104EC;OSAGE SMALL LETTER PA;Ll;0;L;;;;;N;;;104C4;;104C4
104ED;OSAGE SMALL LETTER EHPA;Ll;0;L;;;;;N;;;104C5;;104C5
104EE;OSAGE SMALL LETTER SA;Ll;0;L;;;;;N;;;104C6;;104C6
104EF;OSAGE SMALL LETTER SHA;Ll;0;L;;;;;N;;;104C7;;104C7
104F0;OSAGE SMALL LETTER TA;Ll;0;L;;;;;N;;;104C8;;104C8
104F1;OSAGE SMALL LETTER EHTA;Ll;0;L;;;;;N;;;104C9;;104C9
104F2;OSAGE SMALL LETTER TSA;Ll;0;L;;;;;N;;;104CA;;104CA
104F3;OSAGE SMALL LETTER EHTSA;Ll;0;L;;;;;N;;;104CB;;104CB
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104F4;OSAGE SMALL LETTER TSHA;Ll;0;L;;;;;N;;;104CC;;104CC
104F5;OSAGE SMALL LETTER DHA;Ll;0;L;;;;;N;;;104CD;;104CD
104F6;OSAGE SMALL LETTER U;Ll;0;L;;;;;N;;;104CE;;104CE
104F7;OSAGE SMALL LETTER WA;Ll;0;L;;;;;N;;;104CF;;104CF
104F8;OSAGE SMALL LETTER KHA;Ll;0;L;;;;;N;;;104D0;;104D0
104F9;OSAGE SMALL LETTER GHA;Ll;0;L;;;;;N;;;104D1;;104D1
104FA;OSAGE SMALL LETTER ZA;Ll;0;L;;;;;N;;;104D2;;104D2
104FB;OSAGE SMALL LETTER ZHA;Ll;0;L;;;;;N;;;104D3;;104D3
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10. References.

Quintero, Carolyn. 2009. *Osage dictionary*. Norman: University of Oklahoma Press. ISBN 978-0-8061-3844-2

Osage Nation Language Department. ⅄Λ.Ɀʌ.Ɛɑ ∩.ɑ [*WA.ŽA.ŽE I.E*]: *Osage Language Beginner Lessons*.

12. Figures.

ᏦᎪᎠᏢ Ꭰ ᎢᏋ
Scott N. BigHorse
Principal Chief

Osage Nation
Office of the Principal Chief

ᏦᎪᎠᏢ ᎠᎢᎠ
Assistant Principal Chief
Terry Mason Moore

February 11, 2014

To Whom It May Concern:

As Principal Chief, I have sworn an oath to uphold and defend the Osage Nation Constitution and to respect the right of future generations to share the rich historic and natural heritage of our Osage people.

In accordance with Article XVI, Section 1 of the Constitution which mandates protection and promotion of the Osage language, I have designated Herman Lookout as the authority within the Osage Nation and I fully support him in his efforts in creating the Osage Orthography and submitting to Unicode Consortium for acceptance.

Sincerely,

Scott N. BigHorse
Scott N. BigHorse
Principal Chief
Osage Nation

SNB/dw/cr

627 Grandview * P.O. Box 779 * Pawhuska, Oklahoma 74056
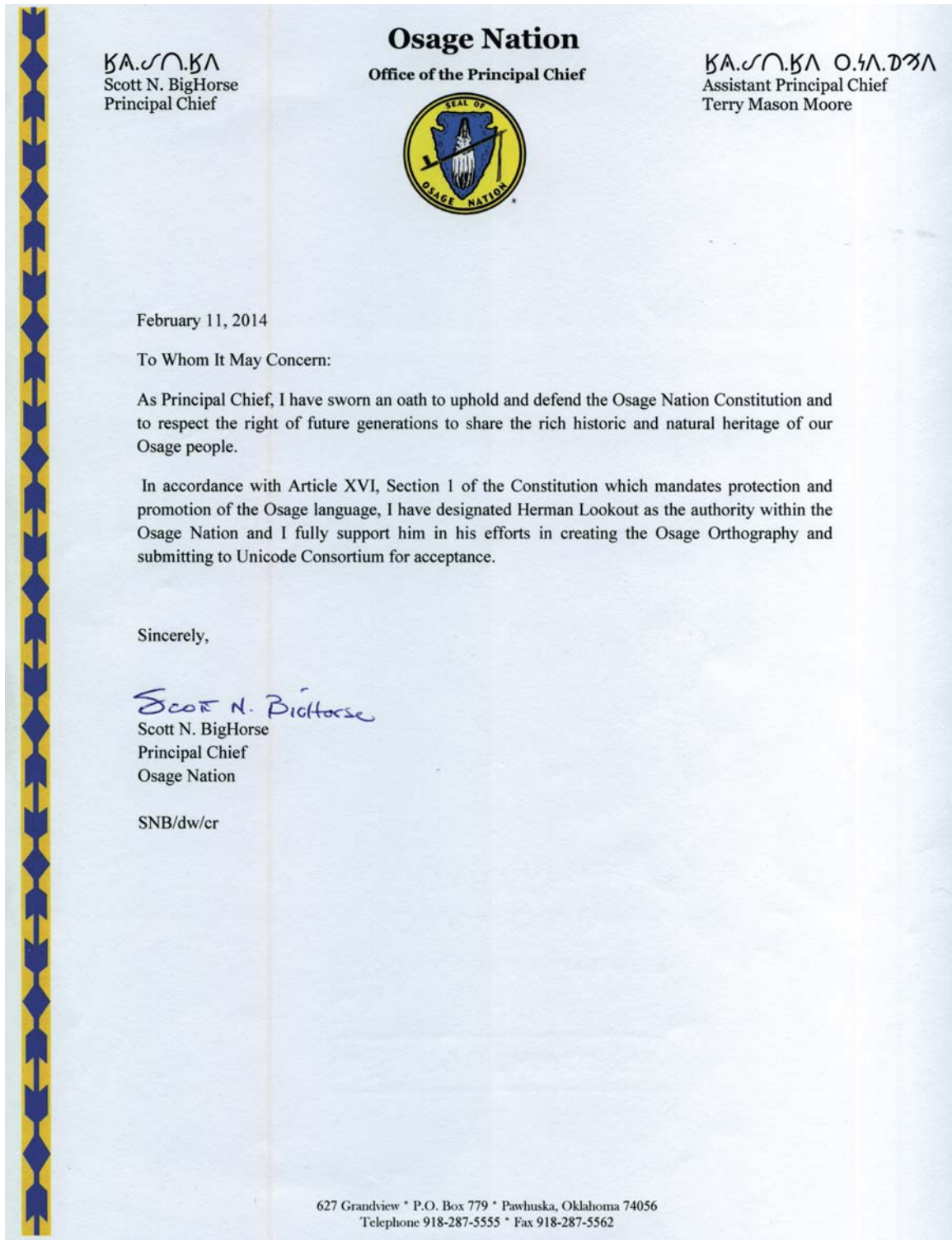Telephone 918-287-5555 * Fax 918-287-5562

Figure 1. Letter from the Principal Chief of the Osage Nation detailing Herman Mongrain Lookout's authority in the matter of Osage orthography and the UCS encoding.

Osage Orthography

Primaries

Λ	'awe' sound as in the word, **awe**some.
∩	long e sound as in the word, sl**ee**p.
α	short e sound as in the word, **e**gg.
λ	short u sound as in word, b**uh**!
O	long o sound as in the word, **o**h.
U	'oo' sound as in the word, b**oo**t.
^	nasal sound
Δ	blend of Λ and ∩^
Ọ	blend of O and ∩^
ọ	blend of α and ∩^
Ⱥ	blend of Λ and ∩

Modifiers

⅔	similar to the 'X' sound, but guttural.
Ⅽ	english S
✓	english H
⅄	english W
Ⅽ	english L
ന	english M
⅃	english N
7	english Z
Þ	between the 'P' and 'B'
Ƙ	between the 'K' and 'G'
Ɗ	between the 'T' and 'D'
ℏ	blend of T and H as in the word, **th**ese.
ଋ	blend of S and H as in the word, **sh**ip.
∩	blend of C and H as in the word, **ch**ip.
Ⱬ	blend of Z and H as in the word, trea**s**ure.
Ƥ	blend of T and S together.
Ʀ	blend of Þ medial and R.
ଟ	blend of S and K.
Ƙ	blend of K and Y.
↗	blend of H and Y.
ⱬ	blend of S and D

Figure 2. Description of the earlier Osage orthography.
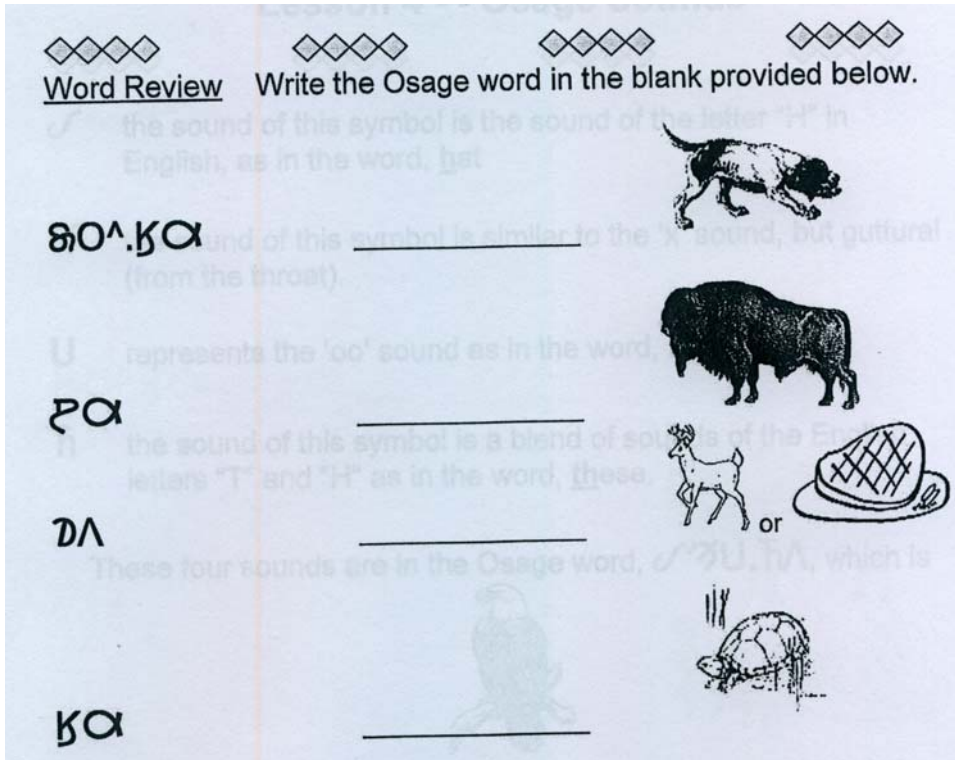
Figure 3. Example text from the beginning workbook for Osage language.

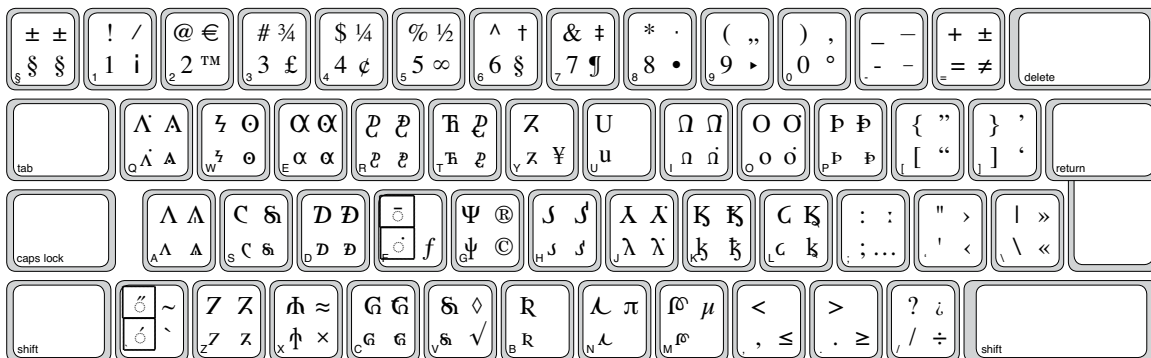**Figure 4a.** Scheme for the first Osage keyboard layout.

Figure 4b. Scheme for the current Osage keyboard layout.

Figure 5. Exterior of the Osage Language Department showing the script in use. The text in red says *Wažaže ie* 'Osage language'.

Figure 6. The Osage Language Department in Pawhuska, Oklahoma.

Figure 7. One of many drawings by children displayed in the Osage Language Department. Text reads: Ŧα ꜱꜵꜱꜷ ꝑꝆꜱꜜꜟꝌꝆ ꝃꝆꞁꝆ ꝑꝋ; in another font style Ŧα ꜱꜷꜱꜷ ꝑꝆꜱꜟꜜꝌꝆ ꝃꝆꞁꝆ ꝑꝋ.

Figure 8. More drawings by children displayed in the Osage Language Department.

ᎿᏢ.ᏞᎡ ᏚᏢ.ᏚᎡ.ᏞᎡᏫ ᏬᎡ ᎡᎡᎪ.ᏒᏢ
I want to address everyone as friends and relatives

Ꭱ.Ꮳ ᏫᎡ.Ꮳ Ꮳ.ᎡᎡ.ᏬᏜᏣ ᏬᎡ ᎡᎡᎪ.ᏒᏢ
I want to say a few words

ᏔᏣ ᎿᏢ.ᏞᎡ ᏚᎡ.Ꮳ ᎡᏜᎡ.Ꮳ
I am addressing you all.

ᎿᏢ.ᏞᎡ ᏚᏢ.ᏚᎡ.ᏞᎡᏫ ᏬᎡ ᎡᎡᎪ.ᏒᏢ
I want to address everyone as friends and relatives

Ꭱ.Ꮳ ᏫᎡ.Ꮳ Ꮳ.ᎡᎡ.ᏬᏜᏣ ᏬᎡ ᎡᎡᎪ.ᏒᏢ
I want to say a few words

ᏔᏣ ᎿᏢ.ᏞᎡ ᏚᎡ.Ꮳ ᎡᏜᎡ.Ꮳ
I am addressing you all.

Figure 9. Above, text in the original standard "Official Osage font"; below, examples of Jessica Harjo's experiments in quite graceful Osage typography, using the original orthography. The text reads: ᎿᏢᏞᎡ ᏚᏢᏚᎡᏫ ᏬᎡ ᎡᏬᏒᏢ. ᎡᏣ ᏫᏫᏣ ᏣᎡᎡᏬᏜᏣ ᏬᎡ ᎡᏬᏒᏢ. ᏔᏣ ᎾᏢᏞᎡ ᏚᎡᏣ ᎡᏜᎡᏣ; in another font style: ᎿᏢᏞᎡ ᏚᏢᏚᎡᏫ ᏬᎡ ᎡᏬᏒᏢ. ᎡᏣ ᏫᏫᏣ ᏣᎡᎡᏬᏜᏣ ᏬᎡ ᎡᏬᏒᏢ. ᏔᏣ ᎾᏢᏞᎡ ᏚᎡᏣ ᎡᏜᎡᏣ.

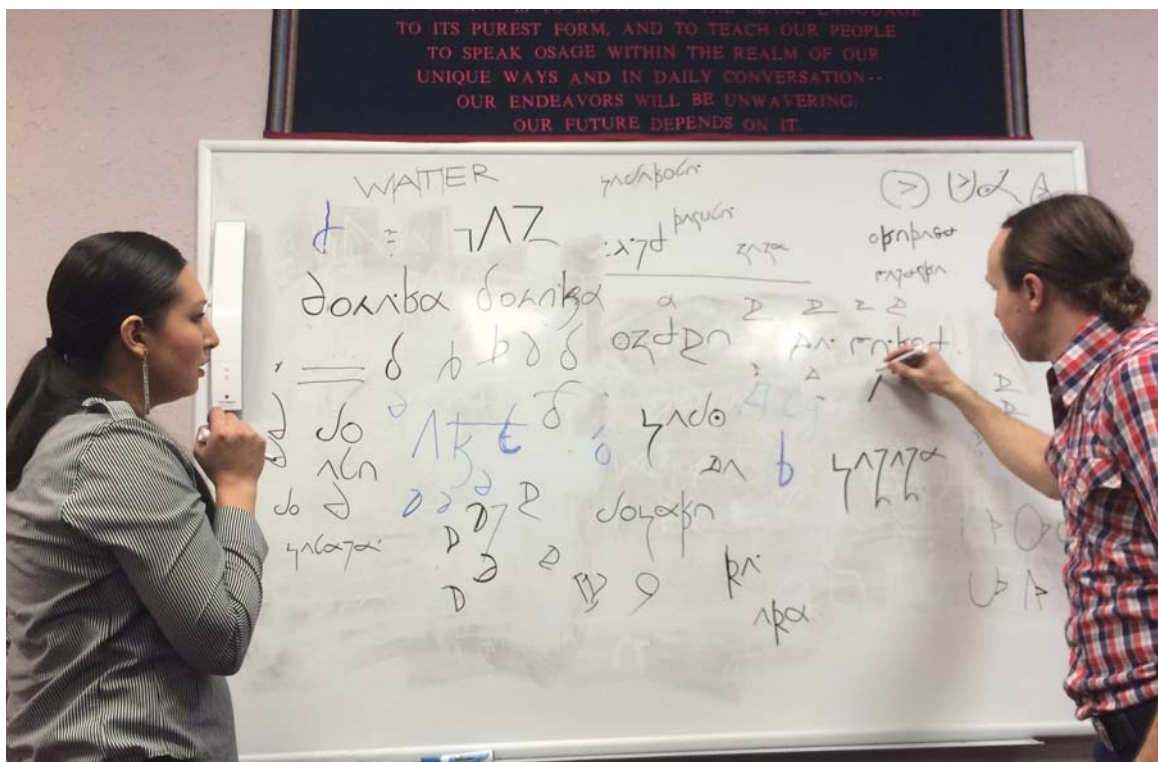**Figure 10.** Typographic explorations in a heavy display face by Ryan RedCorn.

Figure 11. Jessica Harjo and Ryan RedCorn on the third day of the seminars in February 2014. Text here is casing, and the lower-case letters have ascenders and descenders.

Figure 12. Participants in the third day of seminars in February 2014. From left to right are Stephanie Rapp, Janis Carpenter, Michael Everson, Mogri Lookout, Jessica Harjo, Cameron Pratt, and Ryan RedCorn.

An Old Man was going—he was going following a creek. He saw a Snake. The Snake said, "Walk over there."

The Old Man said, "You, you walk over there. I'm going to kick you," the Old Man told him.

The Snake said, "When you kick me, I will bite you."

The Old Man said, "Then bite me," and he kicked him. When he kicked, this snake bit him on the heel. When he bit him, the Old Man went on, and at a tree, he sat down there. As he sat, his whole foot was swelling.

The Old Man said, "Oo, I'm getting fat!" As he kept sitting, they say he was dying, and the Old Man died. His whole body was swelled up and he was dead.

Figure 13. Sample text in a number of font styles.

	104B	104C	104D	104E	104F
0	Λ 104B0	℔ 104C0	⅏ 104D0	α 104E0	𝒟 104F0
1	Λ 104B1	⅃ 104C1	Ψ 104D1	ꝭ 104E1	Đ 104F1
2	Ꭺ 104B2	O 104C2	7 104D2	ꝭ 104E2	℘ 104F2
3	⅄ 104B3	☉ 104C3	Ƶ 104D3	Ω 104E3	℘ 104F3
4	Ɽ 104B4	Þ 104C4		ķ 104E4	℘ 104F4
5	Ꮐ 104B5	Ᵽ 104C5		ƙ 104E5	Ħ 104F5
6	Ꮆ 104B6	C 104C6		ķ 104E6	U 104F6
7	α 104B7	℠ 104C7		ᴄ 104E7	ꝯ 104F7
8	℀ 104B8	𝒟 104C8	Λ 104D8	℔ 104E8	⅏ 104F8
9	ꝗ 104B9	Đ 104C9	Λ 104D9	⅃ 104E9	Ψ 104F9
A	ꝭ 104BA	℘ 104CA	Ꭺ 104DA	O 104EA	7 104FA
B	Ω 104BB	℘ 104CB	⅄ 104DB	☉ 104EB	Ƶ 104FB
C	Ķ 104BC	℘ 104CC	Ɽ 104DC	Þ 104EC	
D	Ķ 104BD	Ħ 104CD	Ꮐ 104DD	Ᵽ 104ED	
E	Ķ 104BE	U 104CE	Ꮆ 104DE	C 104EE	
F	ᴄ 104BF	ꝯ 104CF	α 104DF	℠ 104EF	

Capital letters

104B0	Λ	OSAGE CAPITAL LETTER A
		→ 0245 Λ latin capital letter turned v
104B1	Λ	OSAGE CAPITAL LETTER AI
104B2	Λ	OSAGE CAPITAL LETTER AIN
104B3	Λ	OSAGE CAPITAL LETTER AH
104B4	R	OSAGE CAPITAL LETTER BRA
		→ 01A6 R latin letter yr
104B5	G	OSAGE CAPITAL LETTER CHA
104B6	G̵	OSAGE CAPITAL LETTER EHCHA
104B7	α	OSAGE CAPITAL LETTER E
104B8	α̵	OSAGE CAPITAL LETTER EIN
104B9	ʃ	OSAGE CAPITAL LETTER HA
104BA	ʃ	OSAGE CAPITAL LETTER HYA
104BB	Ω	OSAGE CAPITAL LETTER I
104BC	Ҟ	OSAGE CAPITAL LETTER KA
104BD	Ҟ̵	OSAGE CAPITAL LETTER EHKA
104BE	Ҟ	OSAGE CAPITAL LETTER KYA
104BF	Ϲ	OSAGE CAPITAL LETTER LA
104C0	℗	OSAGE CAPITAL LETTER MA
104C1	ⳑ	OSAGE CAPITAL LETTER NA
104C2	O	OSAGE CAPITAL LETTER O
		→ 004F O latin capital letter o
104C3	Ө	OSAGE CAPITAL LETTER OIN
104C4	Þ	OSAGE CAPITAL LETTER PA
		→ 00DE Þ latin capital letter thorn
104C5	Ᵽ	OSAGE CAPITAL LETTER EHPA
		→ A764 Ᵽ latin capital letter thorn with stroke
104C6	Ϲ	OSAGE CAPITAL LETTER SA
		→ 0043 C latin capital letter c
104C7	℠	OSAGE CAPITAL LETTER SHA
104C8	ᴅ	OSAGE CAPITAL LETTER TA
		→ 0044 D latin capital letter d
104C9	Ð	OSAGE CAPITAL LETTER EHTA
		→ 00D0 Ð latin capital letter eth
104CA	℗	OSAGE CAPITAL LETTER TSA
104CB	℗̵	OSAGE CAPITAL LETTER EHTSA
104CC	℗	OSAGE CAPITAL LETTER TSHA
104CD	Ћ	OSAGE CAPITAL LETTER DHA
		→ 040B Ћ cyrillic capital letter tshe
104CE	U	OSAGE CAPITAL LETTER U
		→ 0055 U latin capital letter u
104CF	Ꙥ	OSAGE CAPITAL LETTER WA
104D0	ⱨ	OSAGE CAPITAL LETTER KHA
104D1	Ψ	OSAGE CAPITAL LETTER GHA
		→ 03A8 Ψ greek capital letter psi
104D2	Ƶ	OSAGE CAPITAL LETTER ZA
104D3	Ⱬ	OSAGE CAPITAL LETTER ZHA
		→ 0224 Ȥ latin capital letter z with hook
		→ 2C6B Ⱬ latin capital letter z with descender

Small letters

104D8	ʌ	OSAGE SMALL LETTER A
104D9	ᴧ	OSAGE SMALL LETTER AI
104DA	ᴧ	OSAGE SMALL LETTER AIN
104DB	ƛ	OSAGE SMALL LETTER AH
		→ 019B ƛ latin small letter lambda with stroke
104DC	ʀ	OSAGE SMALL LETTER BRA
		→ 0280 ʀ latin letter small capital r
104DD	ɢ	OSAGE SMALL LETTER CHA
104DE	ɢ̵	OSAGE SMALL LETTER EHCHA
104DF	α	OSAGE SMALL LETTER E

104E0	α	OSAGE SMALL LETTER EIN
104E1	ʃ	OSAGE SMALL LETTER HA
104E2	ʃ	OSAGE SMALL LETTER HYA
104E3	∩	OSAGE SMALL LETTER I
104E4	ҟ	OSAGE SMALL LETTER KA
104E5	ҟ̵	OSAGE SMALL LETTER EHKA
104E6	ҟ	OSAGE SMALL LETTER KYA
104E7	ⲥ	OSAGE SMALL LETTER LA
104E8	℗	OSAGE SMALL LETTER MA
104E9	ⳑ	OSAGE SMALL LETTER NA
104EA	o	OSAGE SMALL LETTER O
104EB	⊖	OSAGE SMALL LETTER OIN
104EC	Þ	OSAGE SMALL LETTER PA
104ED	Þ	OSAGE SMALL LETTER EHPA
104EE	ⲥ	OSAGE SMALL LETTER SA
104EF	℠	OSAGE SMALL LETTER SHA
104F0	ᴅ	OSAGE SMALL LETTER TA
104F1	ᴆ	OSAGE SMALL LETTER EHTA
104F2	℗	OSAGE SMALL LETTER TSA
104F3	℗	OSAGE SMALL LETTER EHTSA
104F4	℗	OSAGE SMALL LETTER TSHA
104F5	ħ	OSAGE SMALL LETTER DHA
104F6	ᴜ	OSAGE SMALL LETTER U
104F7	ɺ	OSAGE SMALL LETTER WA
104F8	ⱨ	OSAGE SMALL LETTER KHA
104F9	ψ	OSAGE SMALL LETTER GHA
104FA	ƶ	OSAGE SMALL LETTER ZA
104FB	ⱬ	OSAGE SMALL LETTER ZHA

A. Administrative

1. Title
Final proposal to encode the Osage script in the UCS
2. Requester's name
Michael Everson, Herman Mongrain Lookout, Cameron Pratt
3. Requester type (Member body/Liaison/Individual contribution)
Individual contribution.
4. Submission date
2014-09-21
5. Requester's reference (if applicable)
6. Choose one of the following:
6a. This is a complete proposal
No.
6b. More information will be provided later
Yes.

B. Technical – General

1. Choose one of the following:
1a. This proposal is for a new script (set of characters)
Yes.
1b. Proposed name of script
Osage.
1c. The proposal is for addition of character(s) to an existing block
No.
1d. Name of the existing block
2. Number of characters in proposal
72.
3. Proposed category (A-Contemporary; B.1-Specialized (small collection); B.2-Specialized (large collection); C-Major extinct; D-Attested extinct; E-Minor extinct; F-Archaic Hieroglyphic or Ideographic; G-Obscure or questionable usage symbols)
Category A.
4a. Is a repertoire including character names provided?
Yes.
4b. If YES, are the names in accordance with the "character naming guidelines" in Annex L of P&P document?
Yes.
4c. Are the character shapes attached in a legible form suitable for review?
Yes.
5a. Who will provide the appropriate computerized font (ordered preference: True Type, or PostScript format) for publishing the standard?
Michael Everson.
5b. If available now, identify source(s) for the font (include address, e-mail, ftp-site, etc.) and indicate the tools used:
Michael Everson, Fontographer.
6a. Are references (to other character sets, dictionaries, descriptive texts etc.) provided?
Yes.
6b. Are published examples of use (such as samples from newspapers, magazines, or other sources) of proposed characters attached?
Yes.
7. Does the proposal address other aspects of character data processing (if applicable) such as input, presentation, sorting, searching, indexing, transliteration etc. (if yes please enclose information)?
Yes.
8. Submitters are invited to provide any additional information about Properties of the proposed Character(s) or Script that will assist in correct understanding of and correct linguistic processing of the proposed character(s) or script. Examples of such properties are: Casing information, Numeric information, Currency information, Display behaviour information such as line breaks, widths etc., Combining behaviour, Spacing behaviour, Directional behaviour, Default Collation behaviour, relevance in Mark Up contexts, Compatibility equivalence and other Unicode normalization related information. See the Unicode standard at http://www.unicode.org for such information on other scripts. Also see Unicode Character Database http://www.unicode.org/Public/UNIDATA/ UnicodeCharacterDatabase.html and associated Unicode Technical Reports for information needed for consideration by the Unicode Technical Committee for inclusion in the Unicode Standard.
See above.

C. Technical – Justification

1. Has this proposal for addition of character(s) been submitted before? If YES, explain.
Yes., in N4548 and N4587
2a. Has contact been made to members of the user community (for example: National Body, user groups of the script or characters, other experts, etc.)?
Yes.

2b. If YES, with whom?

Members of Osage governmental and educational authorities, and others: Debra Atterberry, Janis Carpenter, Jessica Harjo, Mary Linn, Herman Lookout, Ted Moore, Terry Mason Moore, Veronica Pipestem, Cameron Pratt, Billy Proctor, Stephanie Rapp, Ryan RedCorn, Ed Shaw, Geoffrey StandingBear, Joe Tillman, David Webb.

2c. If YES, available relevant documents

3. Information on the user community for the proposed characters (for example: size, demographics, information technology use, or publishing use) is included?

Osage speakers and writers.

4a. The context of use for the proposed characters (type of use; common or rare)

In modern use.

4b. Reference

5a. Are the proposed characters in current use by the user community?

Yes.

5b. If YES, where?

Various publications, many educational.

6a. After giving due considerations to the principles in the P&P document must the proposed characters be entirely in the BMP?

No.

6b. If YES, is a rationale provided?

6c. If YES, reference

7. Should the proposed characters be kept together in a contiguous range (rather than being scattered)?

Yes.

8a. Can any of the proposed characters be considered a presentation form of an existing character or character sequence?

No. The script derives from Latin, but is not unifiable with Latin.

8b. If YES, is a rationale for its inclusion provided?

8c. If YES, reference

9a. Can any of the proposed characters be encoded using a composed character sequence of either existing characters or other proposed characters?

No.

9b. If YES, is a rationale for its inclusion provided?

No.

9c. If YES, reference

10a. Can any of the proposed character(s) be considered to be similar (in appearance or function) to an existing character?

No.

10b. If YES, is a rationale for its inclusion provided?

10c. If YES, reference

11a. Does the proposal include use of combining characters and/or use of composite sequences (see clauses 4.12 and 4.14 in ISO/IEC 10646-1: 2000)?

Yes.

11b. If YES, is a rationale for such use provided?

No.

11c. If YES, reference

11d. Is a list of composite sequences and their corresponding glyph images (graphic symbols) provided?

Yes.

11e. If YES, reference

Existing combining characters are used with Osage vowels to indicate length and pitch accent.

12a. Does the proposal contain characters with any special properties such as control function or similar semantics?

No.

12b. If YES, describe in detail (include attachment if necessary)

13a. Does the proposal contain any Ideographic compatibility character(s)?

No.

13b. If YES, is the equivalent corresponding unified ideographic character(s) identified?