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A KEY TO THE NAVAHO ORTHOGRAPHY EMPLOYED BY
THE FRANCISCAN FATHERS

THE NUMERALS "TWO" AND "THREE" IN CERTAIN
INDIAN LANGUAGES OF THE SOUTHWEST

BY
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A Key to the Navaho Orthography Employed by the Franciscan Fathers.

—In glancing through Dr Goddard's recent review¹ of the accurate and important Ethnologic Dictionary of the Navaho Language published last year by the Franciscan Fathers of St Michaels, Arizona,² I was disappointed in not finding a key of some sort which would give the equivalents of the peculiar letter-values adopted by the Fathers in more standard phonetic symbolism, that is, in a symbolism which has been adopted by great European phoneticians. The Fathers have nowhere in the Dictionary tabulated or systematized the Navaho sounds, nor have they described their manner of production in scientific language. Linguists and ethnologists are everywhere feeling the need of a standardizing key to the Fathers' orthography.

Although a mere beginner in the study of Navaho, I have been so bold as to work out the accompanying table of equivalents in the hope that until it is superseded by a similar key such as our authority on Athapascan phonetics, Dr Goddard, could prepare, it will be of service to students. I would suggest that those interested cut it out and paste it in their copies of the Ethnologic Dictionary, and that the Fathers examine it and accept such letter-values as they deem good, for use in their future publications, thereby making the orthography of the Navaho language more nearly correspond to that in which the other languages of the Southwest are being recorded. I am merely trying to assist students and to aid the Fathers in their praiseworthy work.

One will find, given below, all of the symbols employed by the Fathers. Each of these symbols is followed by an English or German word which contains a similar sound or by some other explanation as given by the Fathers, in parenthesis; and each is also accompanied by an equivalent symbol suggested by me, in brackets.

I. ORINASAL VOWELS

ê (bât, very short, but orinasal) [ê]; ê (dëbt, very short, but orinasal) [ê]; î (pîn, very short, but orinasal) [î]; â (ärt, very short, but orinasal) [ä]; ô (döne, very short, but orinasal) [ö]; u (pull, very short, but orinasal) [u]; â (bäd, long, but orinasal) [ä]; ē (dâte, long, but orinasal) [ē]; î (pîque,

¹ Pliny Earle Goddard, *American Anthropologist*, Vol. 12, No. 2, April-June, 1910, pp. 311-315.

² The Franciscan Fathers, *An Ethnologic Dictionary of the Navaho Language*, St. Michaels, Arizona, 1910.

long, but orinasal) [i']; *ā* (fār, long, but orinasal) [a']; *ō* (nōte, long, but orinasal) [o']; *ū* pōōl, long, but orinasal) [u'].

2. ORAL VOWELS

ǣ (bāt, very short) [æ]; *ĕ* (dĕbt, very short) [ĕ]; *ĭ* (pĭn, very short) [i]; *ă* (ărt, very short) [ă]; *ō* (done, very short) [o]; *ŭ* (pŭll, very short) [u]; *æ* (bat, medium long?) [a]; *e* (debt, medium long?) [e]; *i* (pin, medium long?) [i]; *a* (art, medium long?) [a]; *o* (done, medium long?) [o]; *u* (pull, medium long?) [u]; *ā* (bād, long) [æ']; *ē* (dāte, long) [e']; *ī* (pīque, long) [i']; *ā* (fār, long) [a']; *ō* (nōte, long) [o']; *ū* (pōōl, long) [u'].

3. CONSONANTAL VOWELS

y (yield) [j]; *w* (will) [w].

4. LARYNX CONSONANTS

h (hemp) [h]; ' ("a fairly guttural exhalation which at times is equivalent to h, and even q. Frequently this sound has been rendered with h") [ʰ or h]; ' ("abrupt close of the vowel," i. e., complete glottal stop) [ʔ]; ' ("hiatus preceding a vowel," i. e., light glottal stop) [ʔ].

5. BACK OF TONGUE CONSONANTS

g (gig) [g]; *k'* (clicked k) [k']; *k*, or *kh*, or *kq* (ken) [kʰ or kh]; *gh* ("a guttural g to which the rolling sound of r is added," i. e., open g) [q or R]; *q* (German lachen) [x].

6. FRONT OF TONGUE CONSONANTS

d (den) [d]; *t'* (clicked t) [t']; *tq* [tʰ or th]; *z* (zone) [z]; *s* (sit) [s]; *zh* (azure) [ž]; *sh* (shall) [ʃ]; *l* (like) [l]; *t'* ("strongly aspirated l," i. e., voiceless l) [l̥]; *dz* (adze) [dz]; *ts'* (clicked ts) [ts']; *ts*, or *tsg*, or *ds* (pretzel) [tsʰ, or tsh]; *j* (judge) [dž]; *ch'* (clicked ch) [tʃ']; *ch*, or *chq* (church) [tʃʰ, or tʃh]; *dl* [dl]; *tl'* [tʃ']; *tl'* [tʃʰ, or tlh]; *n* (man) [n].

7. FRONT OF TONGUE SOUNDS

b (been) [b]; *m* (man) [m].

As additional sounds recorded by the Fathers we ought to mention *ń* ("indicates an accented n," i. e., a syllabic n) [n, or n']; *'n* ("sound of dn, as in dníeper," i. e., n preceded either by glottal stop or opening of nose passage by lowering velum) [ʔn, or 'n, or ɲ]; *kw* (quick) [kw]; *wh* (ghw) [qʷ]; *qu* (when) [xw].

It appears from the text of the Dictionary that the Fathers distinguishing three lengths of oral vowels but only two lengths of orinasal vowels, although a definite statement to this effect is nowhere to be found.

The writer cannot agree with Dr Goddard when he says in the recent review¹ that the Fathers' "treatment of nasalized vowels seems happy." The use of circumflexes and tildes over vowel characters to indicate different combinations of length and nasalization seems to me very unhappy, illogical, and confusing. They indicate only two lengths. How would they have indicated three lengths? By using circumflexes, tildes, and some other diacritical marks? Would they use as many varieties of mark as they distinguish lengths? And if they abandon this principle, placing, say, the tilde over every nasalized vowel, and yet retain their system of indicating length and stress of unnasalized vowels, and apply that system to the nasalized vowels also, some of their vowel characters will have three diacriticals piled up above them. And as it is, the combinations of vowel character plus tilde plus acute accent are with such difficulty distinguishable from the combinations of vowel character plus macron plus acute accent that the eyes are continually strained. Professor Brugmann and other foremost linguists settled the question as to writing nasalization several years ago, adopting the Polish method of placing a hook open to the right under a letter. Examine the usage in the standard *Grundris der vergleichenden Grammatik der indogermanischen Sprachen* by Brugmann and Delbrück. An exposition of the reasons why the subscript hook is the best method of writing nasalization would cover several pages, and would here be out of place. May I add only that the use of superior n ("n") after a vowel has little or nothing to recommend it; it is illogical, sprawls the word in an ungainly fashion, and pure nasalization of vowels such as we have in many Indian languages has nothing more to do with n than with m or "ng".

I differ from Dr Goddard in the opinion that "probably a strict alphabetical arrangement would have been more available." This is a book to read, page after page. In logical sequence it introduces us to the whole Navaho universe. The book is provided with an excellent and complete alphabetically arranged English index. An index of Navaho words might well be added. Should the Navaho words in such an index be arranged in the Roman alphabetical order, or in an order more scientific and yet very readily learned?

JOHN P. HARRINGTON.

The Numerals "Two" and "Three" in Certain Indian Languages of the Southwest.—

LANGUAGE	RECORDER	"TWO"	"THREE"
Tepehuan	Charencey	gaok	baech
Tarahumare	Charencey	oka	baica

¹ Goddard, loc. cit., p. 314.

Cora	Conant	huapoa	huaeica
Cahita	Pimentel	uoi	vahi
Opata	Pimentel	gode	vaide
Pima	Charencey	houak	vaik
Seri	McGee	ghá'kum	pháum
Cochimi	Gabb	kūak	kabiak
Kiliwi	Gabb	hhu-ak	hhamiak
Cocopa	Harrington	ha-wö'k ⁿ	ha-mók ⁿ
Diegueno	Harrington	ha-wö'k ⁿ	ha-mók ⁿ
Maricopa	Harrington	ha-vík ⁿ	ha-mók ⁿ
Yuma	Harrington	ha-vík ⁿ	ha-mók ⁿ
Mohave	Harrington	ha-vík ⁿ	ha-mók ⁿ
Yavapai	Freire-Marreco	uak ⁿ	muk ⁿ
Tonto	Loew and White	uake	moke
Walapai	Harrington	ha-wák ⁿ	ha-mók ⁿ
Havasupai	Harrington	ha-wö'k ⁿ	ha-mók ⁿ
Ute	Harrington	wáijüinĩ	páijüinĩ
Paiute	Gatschet	vay	pay
Chemehuevi	Harrington	wai	pai
Pavant	Gatschet	wyune	piune
Shoshone	Gatschet	waii	pahi
Comanche	Charencey	waha	pahu
Hopi	Harrington	léjō' ^ö	pájo' ^o
Kern River	McGee	wo	pai
San Luis Rey	Gatschet	whii	paa
Kauvuya	Gatschet	vuy	pa
Gaitchaim	Gatschet	vue	pahe
Cahuilla	Conant	mewi	mepai
Taos	Harrington	wiina	pajüä
Isleta	Harrington	wisi	patso
Isleta del Sur	Harrington	wisi	patso
Piro	Bartlett	wi-yú	môn-tu
Jemez	Harrington	wiš	ta ¹
Tewa	Harrington	wije	poje
Kiowa	Mooney	yi'a	päo

JOHN P. HARRINGTON.

¹ Is the Jemez numeral for three borrowed from the Navaho language?

