

COMPARATIVE LEXICOLOGY

[By J. N. B. HEWITT]

Serian Material

- A. Seri vocabulary, McGee, W. J., entered in Powell's Introduction to the Study of Indian Languages, second edition, in November, 1891.
- B. Seri vocabulary, Bartlett, J. R., printed blank (180 terms), January 1, 1852.
- C. Seri vocabulary, Pinart, A. L., MS. (16½ pp.), April, 1879.
- D. Seri vocabulary, Tenochio, D. A., copied by Pimentel, *Lenguas Indígenas de México*, t. II, Mexico, 1875.

Yuman Material

- I. Cochimi vocabulary, Gabb, W. M., printed blank (211 terms), April, 1867.
- II. Cochimi vocabulary, Bartlett, J. R., printed blank (200 terms), English and Spanish, subsequent to June, 1852.
- III. Cochimi terms in Clavijero, F. J., *Historia de la Antigua ó Baja California*, 1852.
- IV. Cochimi vocabulary and texts in Buschmann, J. C. E., *Die Spuren der Aztekischen Sprache*, Berlin, 1859.
 1. Avesupai vocabulary, Stevenson, Mrs. T. E., MS., Oct., 1885.
 2. Tonto vocabulary, White, J. B., and Loew, Oscar, MS., 1873-1875.
 3. Cocopa vocabulary, Heintzelman, S. P., and Peabody, E. T., printed blank (180 terms).
 4. Maricopa vocabulary, Bartlett, J. R., printed blank (180 terms).
 5. Maricopa vocabulary, Ten Kate, Dr. Herman, MS., May, 1888.
 6. Mohave vocabulary, Loew, Oscar, printed in Report on United States Geological Surveys west of the One-Hundredth Meridian, Lieut. G. M. Wheeler in charge, vol. VII.
 7. Mohave vocabulary, Mowry, Sylvester, and Gibbs, Geo., printed blank (180 terms), 1863.
 8. Hummockhave vocabulary, Heintzelman, S. P., printed blank (180 terms).
 9. Mohave vocabulary, Corbusier, W. H., entered in Powell's Introduction, second edition, in 1885.
 10. Hualapai vocabulary, Loew, Oscar, in Report on United States Geological Surveys west of the One-Hundredth Meridian, Lieut. G. M. Wheeler in charge, vol. VII.
 11. Hualapai vocabulary, Renshawe, J. H., and Gilbert, G. K., entered in Powell's Introduction, first edition, 2 copies, in 1878.
 12. Kutchan vocabulary, Whipple, in Schoolcraft, *Historical and Statistical Information Respecting the History, Condition, and Prospects of the Indians of the United States*, pt. II, 118-121.
 13. Kutchan vocabulary, Gabb, W. M., printed blank (211 terms), 1867.
 14. Diegueño vocabulary, Loew, Oscar, in Report on United States Geological Surveys west of the One-Hundredth Meridian, Lieut. G. M. Wheeler in charge, vol. VII.
 15. Diegueño vocabulary, Bartlett, J. R., printed blank (180 terms).
 16. Diegueño vocabulary, Mowry, Sylvester, printed blank (180 terms), 1856.
 17. H'taäm vocabulary, Gabb, W. M., printed blank (211 terms), 1867.

18. Yavapai vocabulary, Corbusier, W. H., entered in Powell's Introduction, first edition, in 1873-1875.
19. Yavapai vocabulary, Gatschet, A. S., MS., 1883.
20. M'nat vocabulary, Helmsing, J. S., printed blank (211 terms), 1876.
21. Santa Catalina vocabulary, Henshaw, H. W., entered in Powell's Introduction, second edition, in 1884.
22. Tulkepaya vocabulary, Ten Kate, Herman, in Gatschet, Der Yuma-Sprachstamm, Zeitschrift für Ethnologie, Band XVIII, 1886.
23. Kiliwee vocabulary, Gabb, W. M., printed blank (211 terms), 1867.
24. Diegueño vocabulary, Bartlett, J. R. (Los Angeles), printed blank (180 terms).
- 24a. Diegueño vocabulary, Henshaw, H. W., entered in Powell's Introduction, second edition, in 1884.
25. Santa Isabella vocabulary, } Henshaw, H. W., entered in Powell's Introduction, second edition, in 1893.
26. Hawi Rancheria vocabulary, }
27. Mesa Grande vocabulary, }

GENERAL DISCUSSION

The members of a group of languages called Yuman are spoken in a region comprising a part of the peninsula of Lower California, the southern extreme of California, and the western portion of Arizona. In this group of languages ethnologists have hitherto included that spoken by the Seri Indians and their congeners. But the inclusion of this language rests apparently upon evidence drawn from data insufficient in extent and largely imperfect and doubtful in character. In the following pages this evidence is examined, and the conclusion is reached that it does not warrant the inclusion of the Seri tongue in the Yuman group. The same is true with regard to the Waikuri (Guaicuri) language, which has been erroneously, it would seem, included in the Yuman stock; for, judging from present available data, it should remain independent until further research shall decide whether it constitutes a stock in itself or belongs to some other stock.

Moreover, it appears that the principle has been disregarded which requires that, in making lexie comparisons to determine the fact and degree of relationship between one language and another, those vocables having admittedly a common linguistic tradition be carefully and systematically studied before they are juxtaposed to those other terms whose kinship with them is still matter for ascertainment. So comparative lists have been prepared in accordance with this principle.

Now, one of the most important things revealed by the study of language is that the course of anthropic linguistic development has been from the use of polysematic demonstratives, or what are called pronominate elements by Professor McGee, toward the evolution and differentiation of parts of speech. These vocables, which occur in all languages, are of prime importance in linguistic research because they are chiefly vestigial in character. Presumptively embodying the indefinite thought-clusters of the anthropoid stage in glottic evolution, they project into the speech of the present (the anthropic stage) an outline or epitome of that earlier pronominate plane of thought and speech development. These pronominate elements represent a complex of ideas, comprising person, place, direction, number, time, mode, gender, sex, and case (or relation). In the Iroquoian tongue the pronominate prefix *ra-*, "he", signifies "one person of the anthropic gender, male sex, singular number, nominative case, there, now". Professor McGee in *The "Beginnings of Mathematics,"* speaking of the paramount egoistic basis of the thought of primitive men, well says: "They act and think in terms of a dominant personality, always reducible to the Ego, and an Ego drawn so large as to stand for person, place, time, mode of action, and perhaps for *raison d'être*—it is Self, Here, Now, Thus, and Because."

Now, there are in nature actions, bodies, properties, and qualities requiring definite expression to give clearness and concision to speech, and this need gradually led to the development and use of conceptual expressions resulting in gradual restriction

of the multiplication of, and diminution in the number of, pronominal elements. Speech became specific rather than monophrastic and indefinite, and sought to express individual concepts by terms of definite meaning rather than by phrases involving a plurality of concepts and indefiniteness. The monophrasal or pronominal element expressive of several individual ideas is resolved not by a division of the body of the element, but rather by the addition of elements denotive (though primarily connotive) of action, which had been previously wholly or in part symbolized by the pronominal element, or in part inferred from the situation.

Thus it may be seen that these pronominal elements, mis-called pronouns, are not substitutes for nouns, but that the converse statement is the truer one. These elements have been classed together as forming a part of speech in the same category with the noun and the verb; but it has been seen that the pronominal is not at all a part of speech, involving semantically within itself the distinct concepts of several so-called parts of speech. To make this plain, take from the highly differentiated English tongue the following sentences: "*I will give you to her. What can it be? The elk is one of the most timid animals that walk.*" In the first, *I, you, and her* respectively show the relation of the three persons indicated, not only to the act of giving but also to the act of speaking, a function that does not belong to nouns; without change of form they express what is called person, number, case, and sex. And it would be extremely difficult, if not absolutely impossible, to supply the nouns for which *what* in the second and *that* in the third are substitutes; for in the last, not even a noun and a conjunction will answer. Such in part are the concepts for which the pronominal elements stand and which give them such great vitality.

Along with these pronominal elements go the numerals, which were primarily the products of a process of cancellation of common factors from original expressions connoting the required number; and so when once the abbreviated expressions became usual there was no disposition to displace them, and increasing use making them more definite, rendered them more and more permanent. This in brief is the chief cause of the obstinate persistency of numerals in all known languages. An examination of the accompanying lists of number-names will greatly aid in understanding what is meant. The late Professor Whitney, when discussing these elements in the Aryan or Indo-European family, uses the following instructive language:

"When, however, we seek for words which are clearly and palpably identical in all or nearly all the branches of the family, we have to resort to certain special classes, as the numerals and the pronouns. The reason of this it is not difficult to point out. For a large portion of the objects, acts, and states, of the names for which our languages are composed, it is comparatively easy to find new designations. They offer numerous salient points for the names-giving faculty to seize upon; the characteristic qualities, the analogies with other things, which suggest and call forth synonymous or nearly synonymous titles, are many. * * * But for the numerals and the pronouns our languages have never shown any disposition to create a synonymy. It was, as we may truly say, no easy task for the linguistic faculty to arrive at a suitable sign for the ideas they convey; and when the sign was once found, it maintained itself thenceforth in use everywhere, without danger of replacement by any other of later coinage. Hence, all the Indo-European nations, however widely they may be separated and however discordant in manners and civilization, count with the same words and use the same personal pronouns in individual address—the same, with the exception, of course, of the changes which phonetic corruption has wrought upon their forms."¹

And it is on account of the great vitality and persistency of these two groups of vocables that the pronominal elements and the numerals have been given first place in the comparison between the Seri and the Yuman tongues to determine relationship or want of relationship between the two languages.

¹ Language and the Study of Language, New York, 1874, pp. 194-195.

COMPARATIVE LISTS OF SERIAN AND YUMAN PRONOUNS

In the pronominal lists the eight pronominals I, we, thou, ye, he, they, that, and this are compared. The comparison reveals no satisfactory evidence of relationship between the two tongues represented therein. In the list headed "Thou", there is, it is true, a vague resemblance between some of the examples cited; but this is the extent of the agreement among the pronominal elements.

Along with these pronominal lists comparative tables of fifty conceptual terms have also been made. The vocables have been subjected to a discriminating analysis which fails to show any trustworthy evidence of genetic relationship between the Seri and the Yuman languages. These tables will be found at the end of the numeral lists.

The comparative pronominal lists follow:

SERIAN			
<i>I</i>	<i>We</i>	<i>Thou</i>	<i>Ye</i>
B. ive	óve	me	move
C. eve, ivve	ove	me	movve
D. ibe, i, in			
YUMAN			
1. ya	e-é	ba	me-é
11. bu	kéllballa	mu	mugntí
2. nyaa	mági	maa	yamakámvi
4. n'yep	b'dow waángo	man	n'yá'tches
5. enyip	mateshehámk	mainye	hanyís
7. inyeepipa		mahinye	
8. ainyapi	ainyepi	howanye	inak
9. inyéte	inyéteabíte	mante	manteawite
6. iniepa	huateva	manya	
10. anyáa		maa	
12. n'yat		mantz	
13. nyet	nyetehelehaml	manya	koonyemitch
14. inyan	ikhin	nyau	vuyau-khumau
24. n'ya	n'yawaáp	ma	n'yawaáp
16. enyahpah	n'yeahpah	mahpah	
17. nyat	nawot	mat	manyawapa
19. nyüt, nía		mät	mad
20. n'ñép		mañ	mandchequedíe
22. nyá	nyüü'		mätche
23. nyapa	panyapa	m'apa	pamaba
15. n'yàpa	n'yawa	m'apa	m'awa
SERIAN			
<i>He</i>	<i>They</i>	<i>That</i>	<i>This</i>
B. imk'	move (fór imkove)	imke	ipké
C. imki	imkove	imki	
D. itam		itam	
YUMAN			
1.		kwumba	k'hu
11. ngutá	ngultí	ngutá	yamú
2. ma	bémi, maniüsi	owá	bémi, n'wagi
4. v'dán	awatches	ábányim	b'dan

5. sewánye	banyís	wedáin	sewáin
6. huványa		hoványe	vitanya
7. mánya	paichsama	kuacha, "What do you say?"	n'yaveoh
8. howanméeme	nayew	howai	howanmiimi
9. huvatee	iny'tcawínte	nyanya	viçanya
10. nyúée			viyáa
12. habnitzk			
13. abilkoowan	sakewauk	nyasl	badam
14. itcham	kitchámuyú	pú	piyáa
15. pu	pu-wúiptch	pu-witch	p'yà
16.		menmchu	nepte
17. nyip	nyeep	koacha	mop
19. net	íet, iät		iät, íet
20. abáñ	s'tubáñ	s'tubáñ	cezáñ, vedáñ
22. yetháha	nihátchewa		
23. hápa	pachawit	nyepat	mili
24. mais	mawápa	púaisis	piyáis

VOCABULARY LISTS OF SERIAN NUMERALS

The following comparative table of Serian numerals represents all the accessible number-names in existing records of Serian linguistic material. M Pinart records two lists of number-names from "one" to "ten", and says of the first list, "Quando se cuenta seguido", for counting consecutively.

It will be of interest to note the fact that the forms of the digit "eight", in the vocabularies of Professor McGee and Mr Bartlett, with the latter's "eighteen", differ wholly from the elements representing "eight" in their terms for "eighty". The term employed by them is recorded by M Pinart in his second list and also by Sr Pimentel. Another peculiarity to be noted in the vocabulary of Mr Bartlett is the fact that for the numbers "thirteen" and "eighteen" he writes the same form. The latter is evidently miswritten, as the two are composed of identical elements. The explanation of this seems to be that in the former there is a subaudition of the element "ten", and in the latter of the element "fifteen".

It is equally instructive to mark the fact that the terms denoting "two, three, four, five" retain or preserve their fuller forms in their multiples, as in "twenty, thirty, forty, and fifty".

The lists follow:

McGee	Pinart	Bartlett	Pimentel (cit- ing Tenochio)	
1. tó'χun	tokχom	tashsho	tohom	taso, tujon
2. ghá'kum	kaχ'kum	kookχ'	kahom	kokjl, kujom
3. pháum	p'χ'ao	kapχ'a	phraom	kupjtku
4. sá'hkūm	shoχ'kum	kshuχ'kūū	seoehhom	fkosojkl lkosojhl
5. kwáetūm	knaotom	kooχtom	huavat'hom	kouton
6. náhpsūk	napshoχ'	imapkasho	napk'schoch	snapkashroj
7. káhk wūū	kaχkχue	tomkaχkue	kachqhue	tomkujkeni
8. páhk wūū	p'χakχue	kshoχolka	phraque	osrojoskum
9. ksókhūnt	soχanthe	ksovikanlχ'	sohántl	ksobbejoaul
10. khóhnūt ¹	χonalχ'	kanlχ'	honachtl	tanl
11.			tantasóque	
12.			tanchltoque	
13.			tauchtaphraqhne	
14.			[tanchltaseochhom] ¹	

¹This form was not recorded by the collector, but has been formed by analogy by the writer.

15.		tanchluavat'hom	
16.		tanchlischnapk'schoch	
17.		tanchltnmkachqhue	
18.		tanchlphraqhne	
19.		tanchlsovihantlqhue	
20.	üntçkō'k	kanlχ' kookχ'	eanslkoch tanl jaukl
30.	üntçkō'pka		eans'lkapka
40.	üntçksō'k		eans'lsoch
50.	üntçkóitum		eanslkovat'hom
60.	üntçčsnñpkū'schōp		eansly'schnapk'schoch
70.	üntçtñngū'kwū'k		eansltumkachqhue
80.	ñ'ntçknschohotkūm		eanslshchoholchkom
90.	üntçkseğünt		eanslsovikan'tl
100.	üntçgünt'		hiantlkantl taul taul
200.	ñnz-ñ'ntç-kō'k		
300.	ñnz-üntç-kō'pka		
400.	ñnz-üntç-kūkschō'k		
500.	ñnz-üntç-kóitum		
600.	ñnz-üntç-ñsnñpkū'schos		
700.	ñnz-üntç-diñnkwūnk		
1000.	ñnz-üntç kū'nz		

VOCABULARY LISTS OF YUMAN NUMERALS

<i>Kiliwee</i> (23)	<i>Cochimi</i> (1)	<i>Cochimi</i> (III)	<i>Cochimi</i> (IVa)	<i>Laymon</i> (IVb)
1. mesig	1. chaqni	1. tepeeg	1. tejneg (in 5 te- juep) dujven-	1. tejoe
2. ho oak	2. kooak	2. gogno	idi, dujnenidi	2. gowa e, ka- wam, ka-
3. hamiak	3. kabiak	3. combio	2. gogno	moe—"the other"
4. m n o k = " (fingers) down "	4. ichkyum- kooak	4. magacnbu- gná	3. kombio, kam- biec, combiec,	3. kamioec
5. sol chepam	5. nyaki-vam- pai	5. naganná te- jueg igni-	cambiec	4. nauwi
6. m'sig - elce- pai	6. ichkyum- kabiak	mano en- tera" 1	4. magacubugua	5. hwipey
7. hooak - elee- pai	7. chaquera- vampai		5. naganna-tejuep ="one hand"	6. kamioec ka- wam="two three"

¹ "De este número en adelante los mas incultos se confunden y no saben decir mas que: muchos y muchísimos; pero los que tienen algun ingenio siguen la numeración diciendo: una mano y uno, una mano y dos, etc. Para expresar diez, dicen: *Naganná ignimbal demuejueg*, esto es, todas las manos: para quince dicen las manos y un pié, y para veinte las manos y los piés, cuyo número es el término de la aritmética cochimi. Los que han aprendido el español saben nuestro modo de contar."

"From this number onward the most ignorant are confused and are only able to say many and very many; but those who have some ingenuity continue the numeration by saying one hand and one, one hand and two, etc. To express ten they say, *naganná ignimbal demuejueg*, that is, all the hands; for fifteen they say the hands and a foot, and for twenty the hands and the feet, at which number ends the Cochimi arithmetic. Those who have learned Spanish know our method of counting." (Clavigero, *Historia*, etc., p. 22.)

In this citation Padre Clavigero succinctly portrays the cumbersome number series of the Cochimi and other Amerinds of the Californian peninsula. Moreover, the Cochimi terms of Clavigero and those cited from Hervas by Herr Buschmann seemingly suggest a common source of information.

Ducruet (in Murr, *Journal zur Kunstgeschichte*, Nürnberg, 1787, vol. XII, pp. 294) expresses doubt as to the *nauwi* of the Laymon column, not knowing whether it is Nahuatlán or vernacular to the Laymon language. It certainly has an alien aspect. Of Laymonic number names Ducruet says that the Laymen can count singly to five, and then they repeat themselves.

The following citation may be of interest here:

"The Californians know very little of arithmetic, some of them being unable to count further than six, while others can not number beyond three, inasmuch that none of them can say how many fingers

8. h a m i a k -	8. n y a k i - v a m -	10. n a g a n n a - i ñ i m -
e l e e p a i	i v a p a i	b a l - d e m n e j e g
9. m ' s i g k - t k m a t	9. q u a c h e r a -	= " a l l t h e f i n g e r s "
10. c h e p a m - m e -	v a m p a i	15. n a g a n n a - i ñ i m -
s i g	10. n y a v a n i -	b a l - d e m n e j e g
11. m e s i g k - m a l -	c h a q u i ;	a g a n n a p a =
h a .	" n o c o n -	" a l l f i n g e r s ,
12. h o o a k - m a l -	t a m o s m a s	f o o t "
h a	a d e l a n t e . "	20. n a g a n n a a g a n -
20. c h e p a m -		n a p a - i u i m b a l -
h o o a k		d e m n e j e g =
30. c h e p a m -		f i n g e r s , t o e s ,
h o o m i a k		a l l "
40. c h e p a m -		
m i s n o k		
50. m e s i g q u i n -		
q u e d i t - s o l -		
c h e p a m		
60. c h e p a m m e -		
s i g q u i n -		
q u e d i t m e -		
s i g e l e p a i p		
70. c h e p a m m e -		
s i g q u i n -		
q u e d i t		
h o o a k - e l e -		
p a i p , e t c .		

<i>Mohave</i> (6)	<i>Hualapai</i> (10)	<i>Tonto or Gohun</i> (2)	<i>Diegueño</i> (14)
1. ascentik	sitik	sisi, shiti	khink
2. havik	hovak	nake	oak
3. hamok	hamok	moke	hamok
4. tchungbabb	hobá	hóba	tchibabk
5. harabk	hatábuk	satabé	selkbakai
6. siyinta	tasbek	geshbé	niugushbai
7. viiga	hoágeshbe	hoageshbe	niokhoak
8. mungá	hamúgeshbe	mogeshbe	niokhamuk
9. paaya	halathúig	halseye	nitchibab
10. arábábá	vuáruk	nave	selghiamát
11. ascentik nitank	sitígíilaga	nave-shiti	niekhin
12. havik nitank	hovaktiálik	nave-uake	niekhvabgushbaib
20. arábavik - takavuts havik	vavahovak	nake-uave	selghhoak
30. arábavik - takavuts - hamók	vavabamok	moke-nave	
40.		hóba-nave	
50.		satabe-nave	

he has. They do not possess anything that is worth counting, and hence their indifference. It is all the same to them whether the year has six or twelve months, and the month three or thirty days, for every day is a holiday with them. They care not whether they have one or two or twelve children, or none at all, since twelve cause them no more expense or trouble than one, and the inheritance is not lessened by a plurality of heirs. Any number beyond six they express in their language by *much*, leaving it to their confessor to make out whether that number amounts to seven, seventy, or seven hundred."—Jacob Baegert, in Smithsonian Report, 1864, p. 388.

COMPARATIVE LISTS OF SERIAN AND YUMAN NUMERALS

ONE

<i>Serian</i>	<i>Yuman</i>
A. to'χm, stem to'χ-	1. chaqui, chaχ', or χαχ'
B. tohom, stem toh-, or toχ-	11. dopí
C. tokχom, stem tokχ-	24. h'in
{ tashsho, stem tash-	25. h'ín
D. taso, stem tas-	{ c'hink'
{ tujon, stem tuχ-, "first"	14. khink
	23. mesig, -sig (?)
	7. saχto
	9. seto
	12. { aiséntic
	{ sin.
	27. sin
	6. aséntik
	15. shen
	5. shendíb
	20. shéntic
	1. ashéntik
	17. shin
	16. { asshin
	{ shin
	3. shitti
	13. sin
	26. ūssin
	8. issintaich ,
	2. sisi
	19. sísi
	1. sita
	22. sité
	18. síti
	10. sitik
	21. ūsitika
	11. sitta
	III. tejuég, tepeeg
	IV. tejoe, tejuég, tejuép, dnjuenidi, dnju- venidi

In examining the Serian column, it is apparent that the several forms for the numeral "one" are homogeneous, their varying outlines being due to the language of the collector, and especially to the alphabet employed by him. An apparently aberrant form is the *tashsho* (C) and *taso* for *tashsho* (D). The stem of the digit is presumably *to'χ-* or *tokχ-*; and *tash-* is related to *tokχ-* in the same manner as *duchess* is to *duke* in the English tongue.

The Yuman column is more extensive than the Serian, representing as it does several well-marked dialects. It will be seen that the Diegueño terms for the digit "one" collected by Mr Bartlett (15) and Lieutenant Mowry (16) are evidently from a common stem, while that recorded by Dr Loew (11) is as clearly from a different one. But the Diegueño term (24) obtained by Bartlett near Los Angeles is apparently a modified form of the one obtained by Dr Loew. The two forms (25) obtained by Mr Henshaw at Mesa Grande confirm this view. While these forms apparently differ wholly from the remainder of the Yuman list, yet it seems safe to connect them with the Cochimi digit (I) collected by Dr Gabb. On the other hand, the Cochimi of

Bartlett (II) introduces another term which appears to be kin to the Laymon (III, IV). The remainder of this list presents modified forms of a single vocable, which appears to have been a demonstrative. Compare these with Mohave *asč'nténte*, "an other", and *sč'uta*, "the other one"; also with the Yavapai *sí'temi*, "an other", and with *děspč-bíka*, "other, the other one".

TWO

<i>Serian</i>	<i>Yuman</i>
A. <i>ghá'kum, ghá'k-</i>	II. <i>goguo</i>
B. <i>kahom, kah- or kaχ-</i>	III. <i>gogúo</i>
C. $\left\{ \begin{array}{l} kaχ'kum, kaχk- \\ kookχ', kookχ' \end{array} \right.$	IV. <i>gowae (Laymon); kawam; kamoe, =</i> "the other"
D. $\left\{ \begin{array}{l} kokj], lokχ- \\ kujom, kuχ-$	22. <i>guwáke</i>
	7. <i>habeeka</i>
	4. <i>habiek</i>
	15. <i>habiek</i>
	20. <i>jubic (j as in Spanish)</i>
	6. <i>havik</i>
	12a. <i>haviék</i>
	9. <i>havía</i>
	21. <i>hawáka</i>
	12b. <i>hawiek</i>
	13. <i>hawik</i>
	18. <i>hčwáki</i>
	5. <i>χawík</i>
	23. <i>hooak</i>
	10. <i>hovak</i>
	3. <i>howöék</i>
	17. <i>howok</i>
	16. <i>howuk</i>
	8. <i>howwaich</i>
	19. <i>húáka</i>
	1. <i>hwáka</i>
	24. <i>h'wach</i>
	11a. <i>hwaga</i>
	25. <i>kawú'k</i>
	26. <i>kawú'k</i>
	14. <i>óak</i>
	2. <i>uake</i>
	11b. <i>wága</i>
	I. <i>kooak</i>

The Serian examples of the digit "two" are of such phonetic character as to warrant the inference that they are derivatives from a single phrasem of demonstrative origin, the differences in their orthography being due chiefly to the language and training of the collectors and to the difference in the alphabets employed. There is evidently phonetic and sematic relationship between the stem of this digit and the *-kak* in such demonstrative elements as *ish-kak*, "here (where I am), now, then"; *ikχ'-kaka*, "near"; *imk-ahaka* for *imk-kaka*, "there where he, she, is, they are"; *akki-kak*, "whither? to-where? whence?"; *toχ'-kaka*, "far, distant, far off"; and also with *iki* in *akki-iki*, "where?". In these examples the affix *akki-* has an interrogative force. The meaning of *-kak* is that of contiguity or proximity to the Here, the Self.

Now, the fuller Yuman list presents several forms seemingly closely accordant, phonetically at least, with the Serian terms, but these being merely divergent representatives of the distinctively Yuman term which does not accord with the Serian

form, are of no avail to prove relationship. The available material pertaining to this group supplies but scant data for ascertaining the derivation of the Yuman digit. But, in addition to the connection of the Laymon *gowac*, with *kawam*, "the other", it may be that it is permissible to compare here *owá* (2), "that" in Tonto, the Mohave *huvá-nya* (6), "he, that", the Hummockhave *howa-uméceme* (8), "he", and *howai* (8), "that", the Mohave *hura-tee* (9), "he", the Kutchan *habu-ítzk* (12), "he", the Kiliwi *hapa* (23), "he", and other terms, which suggest its origin. From the foregoing explanations, there appears to be no lexie relationship between the Serian and the Yuman digits denoting "two".

THREE

<i>Serian</i>	<i>Yuman</i>
A. phám, <i>phá-</i>	IV. { <i>cambiec</i>
B. phraom, <i>phra-</i> or <i>phcha-</i>	{ <i>eombiec</i>
C. p'χ'ao, p'χ'a-	II. <i>combió</i>
kapχ'a, <i>kapχ-</i>	III. <i>combió</i>
D. <i>kupjtku</i> , <i>kupχ-</i>	I. <i>kabiak</i>
	{ <i>kambiec</i>
	IV. { <i>kamioec</i> } (Laymon)
	{ <i>kombiec</i> }
	23. <i>hamiak</i>
	4. <i>hamóek</i>
	24. <i>hamoek</i>
	15. <i>hamók</i>
	6. <i>hamok</i>
	25. <i>hamó'k</i>
	26. <i>hamó'k</i>
	10. <i>hamok</i>
	7. <i>hamoka</i>
	9. <i>hamóka</i>
	3. <i>hamoke</i>
	12. <i>hamóok</i>
	21. <i>hamúka</i>
	22. <i>hamúke</i>
	18. <i>hémúki</i>
	14. <i>hamok</i>
	17. <i>homook</i>
	8. <i>homuck</i>
	16. <i>hummoke</i>
	1. <i>humuga</i>
	20. <i>jamóe</i> (j as in Spanish)
	5. <i>χamú'k</i>
	11. (ha) <i>moga</i>
	2. <i>moke</i>
	19. <i>móki</i>
	13. <i>mook</i>

The Serian forms of the name for the digit "three" are evidently derivatives from a single term. This vocable appears to be *emahk*, "one-half" (McGee), found also in the name for the middle finger as given by both Professor McGee and M Pinart, the former writing *ñnulte-mú'ka'p*, and the latter *inol'lemakap*, "middle finger". In the Iroquoian languages also, "three" is etymologically "the middle one", i. e., the middle finger, a signification arising from the primitive method of using the fingers as counters in numeration. The middle finger is the third one counting from

either side of the hand. The form *kapχ'a* (C) of M Pinart apparently retains almost unchanged its primitive phonetic outline.

The Yuman list of the dialectic forms of the digit "three" is full and is evidently composed of derivatives from a single source. This parent stem seems to be the attributive *hami*, "tall, long", of the Mohave vocabulary. The form *hamiak* signifies "it is long, tall", and is an appropriate name for the middle finger of the hand. The Kiliwee *hamiak*, "three", still preserves unchanged the phonetic integrity of its component elements. These etymologies fail to develop any lexic relationship between the Serian and the Yuman terms.

FOUR

<i>Serian</i>	<i>Yuman</i>
A. <i>sá'bkūm, sá'hk-</i>	8. <i>chaimpap'k</i>
B. <i>scochhom, scochh-</i>	12. <i>chapóp</i>
C. $\left\{ \begin{array}{l} \textit{sho}\chi\textit{'kum, sho}\chi\textit{'-} \\ \textit{ksu}\chi\textit{'kũũ, ksu}\chi\textit{'k-} \end{array} \right.$	24. <i>chepap</i>
D. $\left\{ \begin{array}{l} \textit{koso}\chi\textit{kl, koso}\chi\textit{k-} \\ \textit{koso}\chi\textit{hl, koso}\chi\textit{h-} \end{array} \right.$	7. <i>choompapa</i>
	13. <i>ch'pap</i>
	17. <i>ch'pop</i>
	4. <i>chumpáp</i>
	15. <i>chumpáp</i>
	16. <i>chupop</i>
	20. <i>chumpáp</i>
	3. <i>s'pap</i>
	5. <i>stumpáp</i>
	26. <i>teápáp</i>
	14. <i>tchibabk</i>
	6. <i>tchungbabk</i>
	9. <i>teimpápa</i>
	2. <i>hóba</i>
	10. <i>hobá</i>
	11. <i>hoopbá</i>
	1. <i>hópa</i>
	18. <i>hopá</i>
	19. <i>hópa</i>
	21. <i>hopá</i>
	22. <i>hupá</i>
	1. <i>ichkynm-kooak</i> , (=iχ'kiim-knak)
	11. <i>maga-cubugúá</i>
	III. <i>maga-cubugúá</i>
	23. <i>mnok</i> (?), "(fingers) closed, lying together"
	IV. <i>nanwi</i> (Laymon)

The Serian examples of the digit "four" are evidently mere variants of a common original, the derivation and signification of which the meager linguistic material at hand seems not to supply. In no manner do these forms accord with those of the Yuman list below, thus barring any inference of relationship.

The Yuman list presents apparently only three different terms for the digit "four". Without the means of obtaining even a partially accurate view of the historical development of such a form as the Mohave *chaimpap'k* (8), it is nevertheless instructive to compare it with the Cochimi *ichkyum-kooak* (I), the literal meaning of which is "two repeated". This apparently gives a clew to both the derivation and signification of the Mohave term. The initial *chaim-* is seemingly a modified form of the prefix *ichkyum-*, signifying "repeated, again, iterated". If this identification be correct, as it certainly seems to be, then the final *-pap'k* is the duplicated

form of the numeral "two", the variants of the stem of which are as follows: *hob-*, *hob-*, *har-*, and *hab-*. This *chaim-* changes to *cha-*, *che-*, *choom-*, *chu-*, *chuum-*, *styum-*, *tcim-*, *tchi-*, *ch'*, *s'*, and *tchung-*, while *pap'k* appears as *pop*, *pap*, and *papa*. The next stem is that of the Tonto *hóba* (2), which is apparently cognate with the verb *hobam*, "to set, lie down", like the sun and moon, referring to the fact that when the fingers are "all lying down" the count is "four". The following six terms are apparently cognate with this Tonto form. The Cochimi (I) has already been mentioned. Its final *kook* is the numeral "two", and the prefix, as explained above, signifies "repeated, again, iterated". The next two forms (II) and (III) are apparently composed of the iterative, or rather additive, prefix *maga-*, "added, over", and a form of the Cochimi numeral "two", *goguò*. The Kiliwi *mnok* signifies "lying together, closed", as the fingers, thus approximating in sense the Tonto *hóba*, above.

FIVE

Serian	Taman
A. kwáetüm, <i>kwáe-tüm</i>	8. hairrap'k
B. huavat'hom, <i>kora-t'hom</i>	6. harabk
C. { <i>kuaotom, kuaotom</i>	22. herápo
{ <i>kooχtom, kooχtom</i>	18. hērā'pi
D. kouton, <i>kou-ton</i>	10. hatábuk
	11. hütápa
	2. satabé
	IV. hwipey (Laymon)
	II. mgnacogüi
	III. naganná tejneg ignimel = "one whole hand"
	IV. naganna tejnep = "one hand"
	I. nyakivampai
	9. çarhápa
	7. tharrapa
	4. saráp
	5. saráp
	13. sarap
	15. saráp
	17. sarap
	24. sarap
	20. saaráp
	16. sarrap
	14. selkhakai
	12. seráp
	21. seräpa
	19. sarápi
	23. sol-chepam
	3. s'rap

The several forms of the Serian numeral "five" appear to be derivatives from a common original. There seems to be no doubt that it is a compound expression, meaning "one full, complete (hand)". The final *-tüm*, *-t'hom*, *-tom*, and *-ton* are evidently forms of *tóχun*, *tohom*, *toχom*, meaning "one", while the initial *kwáe-*, *huava-*, (*kora-* in "fifty"), *kooχ-*, and *kou-* are apparently derived from the term *kor'*, occurring in *ishshax' kor'*, "full, complete moon".

In the Yuman list, however, there are several different stems employed to designate the digit "five". The forms *sarap*, *seráp*, *harabk*, and *hairrap'k* are clearly variants of a single original. Its literal signification, however, is not so evident, but from the data at hand the inference is warranted that it signifies "entire, whole, complete". In the Mohave of Dr Corbusier *hi-sal koçwápa* signifies "the

whole hand", and "fingers", *koçāṛāpa* being also written *kothaṛāpa*. Now, *hi-sal* means "his hand", and *ko, aṛāpa* or *kothaṛāpa* would soon lose its initial *ko-*, from the wear to which it is subjected. In *hatābuk*, *hūtāpa*, and *satabi'* a new stem is to be recognized; it signifies "to grasp", or rather "grasps", and is found in *auwa sataba*, "fire-tongs", in which *auwa* means "fire" and *sataba* "to hold, take hold". The reference here is to the clasped hand as signifying the digit "five", because in counting the fingers are bent down upon the palm of the hand, the result being a closed or clasped hand. Now, in *selkh-akai* and *sol-cepam*, a form of the usual *sūl*, "hand", occurs, and *-akai* and *-cepam* have presumptively a signification semantically equivalent to *koçāṛāpa* and *sataba* in the preceding Yuman examples, but the meagerness of the material at hand prevents the setting forth of the data necessary to prove this conjecture: yet it may be stated that if the term "hand" is a constituent element of the name for the digit "five", it is because of the fact that the fingers and the thumb thereof are in number "five", so that "the entire hand, the whole hand, the complete hand", may become the name for the digit "five". Hence, when the word hand is an element of the name thereof, as it is in the present instance, it is presumptively certain that some word like "entire, complete, whole, clasped, bent down", must form the other element of the compound. The Cochimi (II) *mugnacogūi* is seemingly a combination of *mugna* for the cognate *hamuga*, "three", and *cogūi* for *goguó*, "two". And the Cochimi (I) *nyakivampai* is a compound of *gi-nyak*, "hand" [*mī-nyak*, foot], and some element denoting the completion of the count of the digits of one hand, *-i-rampai* or *rampai*. The Cochimi (III) and (IV) are self-explanatory, *naganna*, signifying "hand", while Laymon (IV) is not explainable from the accessible data. These analyses fail to show genetic relationship between the two lists, in so far as the digit "five" is concerned.

SIX

<i>Serian</i>	<i>Yuman</i>
A. nahpsūk	2. geslibe
B. napk'schoch	3. hamhoke
C. { napshoχ'	13. hoomahook
{ imapkasho	17. hoomahook
D. snapkashroj	15. humhóck
	16. humhóke
	12. humhóok
	24. humhóck
	4. humhóque
	20. joumjóe (j as in Spanish)
	5. χemχúk
	1. ichkyum-kabiak
	IV. kamioce kawam = 2 x 3
	8. maíke-siu-kenaičh
	22. m'sig-eleepai
	14. niu-gushbai
	23. kumhók
	26. kómhók
	7. seeinta
	9. síyinta
	6. siyinta
	18. dč-spé
	10. ta-sbe-k
	19. tč-shbč
	21. te-shpč'-k
	22. te-zpč
	11. tú-spč
	1. tü-rspe

The given forms of the Serian digit "six" are evidently mere variants of a common original, which seems quite naturally to have been composed of the stem *-apka* of the numeral "three", and of both a prefix and a suffix. The prefixes, for there are two, are, to judge from the one in *imapkasho*, demonstrative in character. It may be compared with *im-* in *imk'*, "he"; *imke*, "that"; *imkove*, "they"; *imki*, "that", in which it appears to be a directive prefix. And the initial *n-* and *sn-* may be cognate in origin. But the final *-sūk*, *-schoch*, *-shoχ'*, *-sho*, and *-shroj*, according to the audition or otosis of the collector, must mean "repeated, doubled, again", etc. or an equivalent. Hence, the Serian number "six" would be literally "three repeated".

In the Yuman column at least eight different elements are involved in the formation of the digit "six" in the several dialects of the group. The digits "two" and "three" compose the larger portion of the forms, resulting in such outlines as *hamhoke*, *hoomahook*, *humhoke*, *humhogue*, *χemχúk*, *kumhok*. *Hamok* (10), "three", is a characteristic form of this digit, and *hooak* (23), *habick* (4), and *huáka* (19), *óak* (14), *nake* (2), are characteristic outlines of the digit "two". Compare these two lists. The final *-k* of the numeral "three" is elided in composition, as it is merely a predicative element, as has been indicated in discussing the Yuman digit "three"; hence, *ham-* or *hum-*, symbolizing "three", with the suffixion of such forms as *hooak*, *huáka*, or *nake*, "two", readily becomes *humhoke* or *hamhoke*, literally "two threes". In such forms as *geshbe* (2), *despé* (18), and *niugushbai* (14) there occurs a common element *-shbe*, *-spé*, or *-shbai*, which evidently signifies "added, over, plus", just as *-eleepai* does in *m'sig-eleepai* (23), "six", literally "one added, one more than". The *ge-* or *-g-* in (2) is evidently the final *g* of the Kiliwi form of the numeral one, *mesig*, *m'sig*, which may have at one time been the digit "one" in the Tonto (2); so that *geshbe* or *g-eshbe* stands for an earlier *mésig-eshbe*, "six", literally "one added (to five)". The term *de-spé* is evidently a contracted form of *siúta-spé*, "one added", as the other similar forms show. Compare *ta-sbe-k* (10) and *siúta* (9) and *siyúta* (6), in the last two of which the suffix is wanting or at least overlooked by the collector. In *ichkyum-kabiak* (1) the digit *kabiak*, "three", occurs, so that *ichkyum* must mean "repeated, again, iterated", just as it was shown in the remarks on the digit *four*. Now, the form *maíke-sin-kenaiç* is, perhaps, an ordinal and not a cardinal. The initial *maíke-* signifies "more, over, added, plus", the final *-kenaiç* is the doubtful part, and the middle portion *-sin-* is a contracted form of *súta*, *siúta*, "one", as may be seen in the list of the Yuman forms of the digit "one". One other form remains to be considered. The Diegueño (14) of Dr Loew has *niu-gu-shbai* (the syllabication is the writer's, showing the elements of the combination). An examination of the digits "seven", "eight", and "nine" reveals the fact that the initial *niu-* has the value of "added, over, plus, in addition to", five. But it has been seen that the ending *-shbai* has a like signification. The only reasonable explanation of this anomaly is that like the Tonto (2) *g-eshbe*, it owes its origin to the term represented by the Kiliwi *mésig*; and, moreover, it seems to be a dialectic loan-word. If the term *geshbe* (2) was adopted as meaning *six*, supplanting, it may be, an earlier form like *hamhoke*, the force of analogy, to assimilate this to the other forms, namely, of "seven", "eight", and "nine", would affix the regular dialectic prefix *niu-* (or *nio-*). These explanations and analyses of the diverse forms of the numeral "six" reveal no relationship between the Serian and the Yuman groups.

SEVEN

Serian	Yuman
A. kahlwūū	22. hawake-zpé
B. kachqlue	18. hēwakē-spé
C. kaχkχne	10. hoáge-shbe-k
tomkaχkue	2. hoage-shbe
D. tomknjkui	19. huáke-shpé
	11. hwag-spé
	hwagū-spé

- | | |
|-----|------------------|
| 1. | waka-spe |
| 23. | hooak-eleepai |
| 8. | maik-kewikenaich |
| 11. | nio-khoak |
| 20. | paajkék |
| 13. | pahkae |
| 17. | pahkai |
| 5. | παχkyèk |
| 21. | pakai |
| 24. | pakai |
| 3. | pakha |
| 16. | parkai |
| 4. | patchkieque |
| 12. | pathcayó |
| 1. | chaquera-vampai |
| 7. | bee-eeka |
| 9. | vika |
| 6. | viiga |

It is evident that the forms of the Serian digit "seven" are variants from a common source, and it is equally apparent that the numeral "two" is the basis for the term. The several examples of this numeral are *ghá'kum*, *kahom*, *kaχ'kum*, *kookχ'*, in which the final *-um* or *-om* appears to be a suffix; in the term for "twenty" Professor McGee writes *ántkō'k*, in which the final *-kō'k* is the term denoting "two", and in which the final *-um* or *-om* is wanting, which probably indicates that it is a flexion. Now, it is seen that this numeral "seven" terminates in the syllable *-wūū*, *-ue*, and *-ui*, in direct contrast with the termination of the digit "two". The material at hand is too limited to determine whether this final syllable should be *-wūū*, *-ue*, *-ui*, or *-kwūū*, *-kue*, *-kui*. It apparently signifies "added, over, plus", or some equivalent term. To attain economy of utterance the term denoting "five" was omitted from the original statement, "two added to five", as the expression of the number seven, and so "two added" became the name of the number "seven". An initial *tom*, *tum*, *tūn*, or *dūn* occurs in the names for 7, 17, 70, and 700. An evident derivative from the name for "hand", it denotes "five". It is a cognate of *ūnt* in *ksōkhūnt*, "nine", literally "four-five", and also with *tanchl* in Mr Bartlett's numbers 12-19; the correct form for "seven", it would seem, should have been *tan' l kaχkue*, etc., "five-two-added-on"; its initial *t* is identical with the *t* in *t-ant* (*t-ant* ?), "ten". The difference in the endings of this prefix—the difference between an *m* and an *n*—may easily be explained. In the several vocabularies it is seen that one collector fancied he heard an *m* sound, while another, equally careful, heard an *n* sound. The fact appears to be that it is an obscure nasal sound, which may readily be taken either for an *m* sound or an *n* sound by the heteroglot. In Bartlett's list of numerals *tan-tasó-que* signifies "eleven", wherein *tasó-* is the numeral "one", as given by both M Pinart and Sr Tenochio, *tan-* the prefix under discussion, and *-que* the suffix mentioned above, which was regarded as signifying "added, more, plus".

The first eight terms of the Yuman list are clearly modified forms of a single original combination, which is apparently still retained nearly unchanged in the Yavapai (18) of Corbusier, *hivaké-spe*. The signification and function of the final *-spé* have been discussed in the remarks on the probable derivations and meanings of the Yuman names for "six". The given conceptual element is evidently the term *hivaké-*, "two". And *-spé*, as has been ascertained, signifying "added, more, plus", etc, the expression literally means "two added", i. e., to five, which is here understood, but unnecessary, since "two added" has acquired the meaning "seven", originally expressed by the entire proposition. The Kiliwee (23) term *hooak-eleepai*, "seven", has literally the same meaning as the terms last under discussion. It will be seen that the conceptual element is the term *hooak*, "two", which is only another form

of *h'waki*, treated above. Now, it is mathematically certain that if "two" be an element of the concept "seven", it must be *added* to some preceding number that will produce the result sought, and this number is of course five. So it is presumptively certain that the element *-clepai* must mean "added, laid onto, superadded, subjoined". The Hunuockhave (8) *maik-kewik-enaich* is composed of the conceptual element *kewik*, "two", the prefix *maik-* meaning "more, over", and the suffix *-enaich* (or *-kenaich*), which seems to be an ordinal or distributive flexion. So that "two over, added", is here likewise the expression for the numeral "seven". The next form, the Diegueño (11) of Dr Loew is another example of the use of the numeral "two" with different flexions, to express the number "seven". An examination of this Diegueño list of numerals shows that in such a form as *nio-khoak*, "seven", the initial *nio-* is a prefix signifying "added, in addition to", etc, while the *khoak* is a form of the numeral "two". The next ten forms, while apparently derivative from a common source, are difficult of explanation from the material at hand. The same may be said of the last four, three of which are evidently cognate and are very probably shortened forms of the original represented by the first group in the list. Take, for example, a form like (22) *hawa'ke-zpé*, and drop the final *-zpé*, as is done in some of the terms in the "eight" list, and also the initial *ha-*, and the result is a form *wake*, which in the dialects (6) and (9) would become *viiga, vika*, which is the form of the digit "two" in these dialects. The form (7) *bee-eeka* is also merely the digit "two" of this dialect without any index to show that it is not "two" rather than "seven". The same thing is to be noticed in the Serian lists, in which the form for thirteen is in all respects the same as that for the numeral "eighteen", both apparently meaning merely "three added".

EIGHT

<i>Serian</i>	<i>Yuman</i>
A. p'áhk'wññ	23. hamiak-clepai
B. phraque	10. hamúge-shbe-k
C. { kshoχolka	22. hamuke-zpé
{ p'χakχue	18. hémukč-spé
D. osrojoskum (osχoχoskum?)	11. huaga-spe
	1. humuga-spe
	2. mogi-shbe
	19. múkč-shpé
	9. móka
	7. moo-ooka
	6. mungá
	16. chip-hoke
	12. chip-hóok
	21. hipp-óka
	3. sep-hoke
	13. seepa-hook
	4. sepp-óque
	5. sep-χúk
	15. sepp-óek
	17. shepa-hook
	20. siip-jóe (j=χ)
	25. teép-hók
	26. teép-hók
	8. maíke-homok-enaieh
	14. nio-khamuk
	24. pakai-hin-awach
	I. nyakivamivapai

The Serian numeral "eight" is expressed by two different terms. The first is based on the numeral three, and the second on the digit four. The former is the remaining factor of an original expression which signified by uttered elements "three added to five (= the full hand)", but the need for economy of expression led to the suppression of the uttered element denoting "five", as soon as the shorter "three added" acquired the usual signification of "eight". The basis of the digit is *kō'pka* or *kapχ'a*, "three", with the suffix *-kwāū* (*-kχue*, *-quc*), presumably denoting "added, plus". This represents the usual method of forming this digit. The second term, *kshoχolka*, is that which is presumably based on the numeral "four". This is the form given by M Pinart. But Sr Pimentel, citing Sr Tenochio, writes this *osrojokum*, which at first sight appears to be quite different from the other; yet the *r* of the latter evidently stands for a modified *χ* and the *j* for a *χ*, and making these substitutions the term becomes *osχ'oχoskum*, which is approximately the form in which Professor McGee and Mr Bartlett wrote this digit in the numeral "eighty". Now, it is self-evident that if the element "four" constitute a factor in the combination denoting "eight", it must be added to itself by addition or multiplication, and the result will be the same in either event. The final *-olka* appears also as *-olkām*, *-olchkom*, and *-oskum* in these Serian vocabularies, either in the numeral "four" or its multiples. The origin and signification of this ending are not clear; but taking into consideration the great variations in the spelling of its recorded forms, especially in so far as the consonant sound preceding the *k*-sound is concerned, it may not be presumptive to adopt the *s*-sound (though *sχ'* may be more correct) as that which represents approximately at least the true sound, for it varies from *l*, *t*, *lch*, to *s*. And it has been seen that the final *-um* is a flexion denotive of serial or consecutive counting and so not a part of the stem. Then it is seen that *-s-k-* (the last two hyphens representing uncertain vowels) is the termination requiring explanation. Now, it is probable that this termination is identical in meaning and origin with the *-sūk*, *-shoχ*, *-sho*, *-schoch*, and *-shroj* (= *-shχ'oχ*) terminating the forms of the digit "six". If this identification be correct (and there is no present reason to doubt it), it signifies "repeated, again, duplicated", as was suspected and stated in the discussion of the forms of the numeral "six". So granting this derivation to be correct, *kshoχolka*, then, signifies "four repeated", which of course denotes "eight".

In the Yuman list, the first eleven forms are evidently composed of the numeral "three" and a suffix signifying "added, plus, more than", but the last three of the group want this suffix, a fact due perhaps to the fault of the collector rather than to linguistic development. The terminations *-eleepai* and *-shbe-k* and its variants have already been explained when treating of the numeral "seven". And the twelve forms beginning with *chip-hoke* (16) are variants from a common original composed of the numerals "two" and "four". It will be readily seen that *chip-* in such a form as *chip-hoke* is a contraction of a form such as *tchibabk* (14), "four", *chepap* (24), "four", as may be seen in the Yuman list of terms for the digit "four". Now, the next portion of the term is *-hoke*, which is but a slightly disguised numeral "two", as may be seen by reference to the schedules of the numeral "two". Compare *hooak* (23), *huāka* (19), *uake* (2), and *hčvđki* (18), all signifying "two". Now, the next term, *maike-homok-euaich* (8), is a combination of *maike*, "above, over, more than", *homok*, "three", and the ending *-euaich* (or *-kəuaich*), which may be either an ordinal or a distributive flexion. The form *nio-khamuk* (11) is a combination of the prefix *nio-*, signifying "added, above, or more than", and the conceptual term *khamuk*, "three", the expression signifying "three over, or added to". The next two examples are evidently irregular, if not spurious. The form *pakaikhiu-awach* is composed of *pakai*, "seven", *khiu-*, "one", and the suffix *-awach*, "added to". Now, the last, the Cochimi *nyaki-ramivapai*, appears to be erroneous. It contains the term *nyaki* for *ginyaki*, "hand", but the remainder of the expression is composed of elements that are not comparable to anything in the meager material at present accessible. The Serian and the Yuman terms herein show no relationship.

NINE

<i>Serian</i>	<i>Yuman</i>
A. ksókhünt, <i>ksókh-ünt</i>	9a. hailyuthu
B. sohántl, <i>soh-ántl</i>	1. halathuya
C. {soχanthe, <i>soχ-anthe</i>	11. halathúya
ksovikanlχ	10. halathúig
D. ksobbejoaul (<i>j=χ</i>)	22. halesúwi
	19. halěsúyi
	2. halseye
	18. hülěthúyi
	3. hambinmoke
	13. hoombhoomook
	17. hoombhoomook
	15. humhum móck
	4. humhum móque
	12. humhamóok
	21. húnhum múka
	20. jumjamúç (<i>χumχamúk?</i>)
	5. χemχemúk
	8. muke
	16. n'yimhummoke
	26. nímhum mók
	23. m'sigk- <i>tkmat</i>
	14. nitchibab, (<i>ni(o)tchibab</i>)
	6. paaya
	7. paeyya
	9b. páia
	1. quachera-vampai

The first three Serian terms for "nine" are evidently forms of a common original, signifying "four added to five". It is evident that *ksó'kh-* in (A) *ksó'kh-ünt* is the same element as *-ksó'k* in *ünç'tksó'k*, "forty", and *-kschó'k* in *ünz-untçkúkschó'k*, "400". The element *-ünt* here is a name for "five". Its literal meaning is "hand", which may be gathered from the following citations: *ñol'k* = "hand"; *mí'noñ'l* = "arm"; *ñulte-mü'ka'p* = "middle finger", in which *ñulte* means "finger (or hand)". These are from the vocabulary of Professor McGee. Then M Pinart records *innol'χ*, "arm", *intłash* "hand", *inol'tis*, "finger, index finger", *inol'tip* "ring finger". And Mr Bartlett writes *inoyl*, "arm", *inosiskersk*, "hand", *inosshack*, "fingers". This *-ünt* will be further treated when the numeral "ten" is under discussion.

While it is evident that the first eight forms of the Yuman list are but variants from a common original, it is not, however, so clear what the original signification of the combination was. But as there can not be any question of relationship between these and the Serian terms, this fact will not affect the result of this study. The next terms of the Yuman list are variants of an entirely different combination of elements. The forms (15) *humhum-móck* and (12) *humhamóok* may be taken as characteristic of these terms. Now, it is plain that there is here duplication of the stem *hum-* or *ham-*, "three", making the literal sense of the combination to be "three threes", which of course gave the required meaning. The Cochimi (23) *m'sigk-*tkmat** contains the element *m'sig*, "one", and the final *tkmat*, which appears to mean "lacking, wanting, or less". And in the Diegueño (14) *nitchibab* for *niotchibab* a still different method of expressing "nine" is found. In discussing the numeral "seven" and "eight" the signification of the initial *ni-* was ascertained to be "added to, over, plus", and *tchibab* is of course the numeral "four". The original expression, then, was "four added to five", producing the required number, "nine". The next three forms, though evidently cognate, are, like the first group, not analyza-

ble from the data to be obtained from the meager material at present accessible. The last form is doubtful. These analyses show no relationship between the Serian and the Yuman terms.

TEN

<i>Serian</i>	<i>Yuman</i>
A. <i>khóhnüt'</i> , <i>khóh-nüt'</i>	6. aráábá
B. <i>honachtl</i> , <i>ho-nachtl</i>	9. arháp
C. $\left\{ \begin{array}{l} \chi\text{on}\alpha\chi', \chi\text{o-n}\alpha\chi' \\ \text{kaul}\chi, \text{ka-n}\chi' \end{array} \right.$	7. arrapa
D. <i>taul</i> (<i>taul'</i> ?)	8. raphawaich
	18. buwáwi
	1. huwava
	19. náíbi
	2. nave
	11. $\left\{ \begin{array}{l} \text{uwawa} \\ (\text{h})\text{wáwa} \end{array} \right.$
	10. $\left\{ \begin{array}{l} \text{varuk} \\ \text{vuárnk} \end{array} \right.$
	22. wáwe
	3. sahóke
	12. sahóohk
	21. sahóka
	13. sahook
	15. shahóck
	20. shahahjoc (j=χ)
	4. shahóque
	5. shaχúk
	16. sharhoke
	17. shauhook
	14. selgh-iamat
	23. chepam-mesig
	III. naganna ignimbal demuejneg := "todas las manos"
	1. nyavani-chaqui

The Serian forms of the numeral "ten" are apparently cognate, being composed, it would seem, of the same elements. Thus they are mere variants of a common original expression, signifying, literally, "two fives", or what originally was the same thing, "two hands".

The element *khóh-* in (A) *khóhnüt'* represents *ghá'k* (*kha'k*) or *kǝ'k*, as it is also written, signifying "two", and *-nüt'* is the slightly disguised name for "hand" and "finger", being also transcribed as *-nachtl*, *-nalχ*, *-nχ*, and lastly *-aul*. Compare these carefully with the words denoting "arm, hand, finger", in this language, and it will be seen that the spelling of *khóh-* varies in the several vocabularies from *khóh-*, *ho-*, *χo-*, to *ka-*, respectively. The derivation of the *t*, or rather *tǝ*, in *taul* of Sr Tenochio, is not evident, but seems to be cognate with the prefix *tom-*, *tum-*, *tǝn-*, or *dǝn-*, already noticed, making *taul* thus signify "five added", i. e., to five, and so producing "ten units". Such seems to be the evident resolution of the Serian names for the numeral "ten". But *taul* may have been miswritten for *ta-an'l*.

The first four terms of the Yuman list are plainly based on the numeral "five", expressed by *sarap*. The form *raphawaich* (8) is evidently a shortened form of *sarap-howwaich*, literally "two fives", or, what was the same thing at the beginning, "two hands". The first term, *sarap*, signifies "five, finger", denotively, but its literal or connotive signification is "entire, whole, full, complete, collectively", a meaning which was suggested in the discussion of the numeral "five". And *howwaich* is the form of the digit "two" in this dialect.

The next nine forms are so contracted, irregular, and, perhaps, miswritten that an analysis of them is a matter of doubt and difficulty, but the following ten terms are cognate and signify "two fives (hands)", or, denotively, "ten". In the comparative list of names for the "arm, hand, finger", etc., *shah*, *shawas*, *shawarra*, and *eesarlya* are a few of the many variants of *säl*, "arm, hand, finger", etc. So, in such a form as *sahhoke* (3) the *sah* is the name for "hand" and *hoke* is the numeral "two", the combination signifying "two fives, hands", or "ten". The other nine terms are but variants of the original of this compound. In *selgh-iamät* (14), *selgh* for *isalgh* is the element denoting "hand", or "five", while *iamät* means "added to, upon, over", there being the subaudition of the element denoting "five". Hence the original combination meant "five added to five", or "ten". This is a strict application of the quinary system.

The Kiliwee term *chepam-mesig* (23) signifies literally "one *chepam*". If reference be made to the "five" list, it will be seen that there *sol-chepam* signifies "five", or, to be exact, is the translation of the term "five". Now, the element *sol-* of this compound is a variant of *esal*, "hand", while *chepam*, judging from analogy, must signify "the whole, entire, the complete", collectively "all". Moreover, the Kiliwee terms for "fingers (*dedos*)" and "toes (*dedos del pié*)" are *salchepa* and *emehchepah*, respectively, wherein the element *chepah* is added to *esal*, "hand", and to *emc*, "leg". Hence it may be inferred that *chepam-mesig* signifies "one complete count of all the fingers", and so "ten". The next is Cochimi, in which *naganna* means "hand", and the last term (1) appears to be miswritten. It will be seen from these partial analyses of the names for the digit "ten" that there is no linguistic relationship between the Serian and the Yuman terms.

ELEVEN

<i>Serian</i>	<i>Yuman</i>
A.	6. aséentik-nitauk
B. tan-tasó-que	8. sienti
C.	1. sita-giala
1.	10. siti-gialaga
	18. siti-kwaï hli
	11. sitta-gälla
	3. sahhoke-shitti
	4. shahóque-maga-shentick
	20. shahajóe umaig ashénd
	2. uave-shiti
	19. uáveshiti
	5. maik-shendik
	13. mae-sint
	21. emmiá-shiti-ki
	23. mesigk-malha
	14. nie-khin

The only Seri example of the numeral "eleven" is that which was recorded by Mr Bartlett, who writes it *tan-ta-só-que*, instead of *tan-tasó-que*, which exhibits the component elements of this compound. This expression signifies "one added to, or, over, upon". Its conceptual base is the numeral *tasó*, "one". The initial *tan-* has already been discussed while treating of the numeral "seven". It was there made a cognate of the initial *tom-* or *tum-* of the several examples of that digit, and likewise of *tanchl* in Mr Bartlett's numbers 12-19. It would seem that the correct form for "eleven" should be *tanchl-tasóque*, i. e., "ten-one-added-on". Where "hand" is the name for "five" and is an element in the name for "ten" there arises confusion, unless there is marked difference between the two expressions.

In the Yuman list the first fourteen examples of the numeral "eleven" have some form of the digit *ascentik* (*sita, siti, sint, shiti*), "one", as the dominant element in the expression, while the elements denoting "added to, more than, plus", are severally as follows: in the first *-nitank*, in four others a variant of *-giala*, in five others the prefix *maga-* (*umaiga, emmiá, mae*); while in some such a flexion is entirely wanting, probably, at least in a majority of the forms, because of misapprehension on the part of the several collectors rather than the abrasion of use. But in *mesigk-mahla* (23) *mesigk* denotes "one", and *malha* "plus, added to". In the form *nie-khin* (14), *khin* signifies "one", and the prefix *nie-*, "plus, added". It will be noticed that the flexion *maga* (*umaiga, mae, emmiá*) is a prefix to the element "one", and so when *shahoque*, "ten", is expressed as in (4) it stands between the two notional terms. But in (8) neither "ten" nor an element denotive of addition is expressed.

TWELVE

<i>Serian</i>	<i>Yuman</i>
A.	6. <i>havik-nitank</i>
B. <i>tanchltoque, tan-chlt-oque</i>	11. <i>hawā-gállá</i>
C.	18. <i>hēwakē-kwā hli</i>
D.	10. <i>hovak-tiálik</i>
	23. <i>hoak-malha</i>
	1. <i>huwaga-giala</i>
	21. <i>emmiá-hawáka</i>
	13. <i>mae-hewik</i>
	5. <i>maik-ḡawik</i>
	19. <i>ná-hoáki</i>
	2. <i>nave-nake</i>
	14. <i>nie-khyabgushbaib</i>
	20. <i>shahahjéc umai-javíc (j=χ)</i>
	4. <i>shabóque maga habick</i>
	8. <i>vaike.</i>

The only known example of the Seri numeral "twelve" is that which was recorded by Mr Bartlett. He has apparently misapprehended its true pronunciation, for he wrote *tanchl-to-que* instead of *tanchltakahque* or *tanchltakochque*. In his orthography *kahom* signifies "two", but the final *-om* is employed only in serial counting, so that *kah-* is the stem, which is only a variant of *koch* in *eastl-koch*, "twenty": and *tanchl* signifies "ten".

In the first six examples of the Yuman list the element "ten" is not expressed, but only some form of the numeral "two", with a suffix denoting "added to, over, more than"; in the next three the flexion of addition is prefixed to the element "two"; and in the next two, (19) and (2) respectively, the element "two" is immediately preceded by the very abbreviated and perhaps misapprehended forms of the numeral "ten"; in the next a very questionable form is recorded, for it appears to be an attempt to form a compound signifying "two times six", but without accomplishing the purpose; yet it may be miswritten for *nio-khoak-tshbe*, in which *khoak* is the element "two", with a doubled sign of addition, namely, the prefix *nio-*, already explained, and the suffix *-tshbe*, also explained above. In the next two the element denoting "ten" is expressed, with *umai-javíc* and *maga habick* as the second part, both meaning "two added". The last (8) *raike* is a highly modified and probably misapprehended form of an earlier *havik-tshbe*, "two added", with a sub-audition of the numeral "ten".

TWENTY

<i>Serian</i>	<i>Yuman</i>
A. ũntç-kō'k	6. arábavik-takavnts-havík
B. eansl-koch	9. arháp-havik takadútea havík
C. kanlχ' kookχ'	23. chepam-hooak
D. taul jaukl	22. guwákē wáwi
	18. hěwakē buwáwi
	19. huáka huávi
	1. huwāka huwāva
	III. naganna agannapa inibal demne- jueg—"las manos y los pies"
	3. sahhoke was poppe
	8. sahoaiç sahoeki hawaich
	13. sauhook ahoowik
	11. selgh-hoíg
	4. shahóque ahabick
	20. shahahjõe abah javic (j = χ)
	5. shaχúha χawík
	2. nake-uave
	10. vava-hovak
	11. wába-hoá'g
	21. womása-howūk

The four examples of the Serian numeral "twenty" are merely combinations of the terms *kō'k*, *koch*, *kookχ'* and *jaukl* (for *χaukl*), all cognate forms, meaning "two", and the forms *ũntç*, *eansl*, *kanlχ'*, and *taul*, all cognate and signifying "ten".

The Yuman expressions denoting "twenty" are all, with two exceptions, combinations the dialectic elements denotive of "ten" and the forms of the numeral "two", which have been treated elsewhere in their proper places. The two exceptions are (III) the Cochimi, which signifies "all the fingers and toes", and (21) the Santa Catalina, which here presents what appears to be a new term for "ten", for the final word *howūk* is the numeral "two". These analyses do not show relationship between the Serian and the Yuman terms.

THIRTY

<i>Serian</i>	<i>Yuman</i>
A. ũntç-kópka	6. arabavik-takavnts-hamók
B. eans'l-kapka	9. arhap-havik-takadútea hamók
C.	23. chepam hoomiak
D.	18. hěmnkē buwáwi
	1. hamuku hawava
	11. hwáwa hamók
	8. sahoke-hamnek
	13. sauhook-ahoomook
	20. shahahjõe abah jauúie (j = χ)
	1. shahóque ahamóek
	5. shahúha χamúk
	14. selgh-hamuk
	19. muku-ávi
	2. moke-uave
	10. vava-hamók
	21. womása hamú'k

FORTY

<i>Serian</i>	<i>Yuman</i>
A. ùntç-ksõ k	9. arhap-havik takadútea teimpap
B. eans'l-scoeh	23. chepam misnok
C.	2. hoba-nave.
D.	18. hopachë buwáwi
	19. hopadsh-návi
	1. hopätia wáva
	11. hwáwa hoopá
	13. sahook wanchoopap gishbab
	20. shahahjóc ahah tseumpáp
	5. shaçúka sumpáp
	10. vava-hõpa
	21. womas ahopá

FIFTY

<i>Serian</i>	<i>Yuman</i>
A. ùntç-koitum	9. arhap-havik takadútea çarhabk
B. eansl-kovat'hom	14. aselghakai
C.	18. hërâpë buwáwi
D.	11. hwáwa ftápa (Gilbert)
	23. mesig quinquedit sol-chepam
	13. sahook wa sarap
	19. sërâp návi
	20. shahahjóc ahah saarâp
	4. thërâpa wuwáva
	10. vava hatábuk
	21. womas aserâpa
	2. satabe-nave.

COMPARATIVE LISTS OF SERIAN AND YUMAN CONCEPTUAL TERMS

SERIAN

<i>Man</i>	<i>Woman</i>	<i>People, Indians</i>
A. kû'tümm	A. kmámm	A. ku ⁿ -kák
B. éketam	B. ékemam	B. komkak
C. ktam	C. kmam	C. komkak
D. { tam (ktam)	D. { kmam	D.
{ tamuk; ktamuk (pl.)	{ kamujik, kamykij (pl.)	

YUMAN

III. tama	19. epá vëçí	11. demansú = "Indian"
IV. { tamá, tämmá, tammá	3. nisúke	24. epái
	16. nechuck	26. ipai = "Indian"
{ nami = "man, male"	17. geçhak	15. ipaye
II. delmá	5. { senyeák	11. upáh, úp-á'
1. wanyu-ami = "young man"	{ senyeáks	I. { maha = "people"
3. apah	12. seenyaek	{ mahati = "Indian"
19a. epá	8. siniake	23. mehale
4. epá-che (pl.)	20. sînaeeca	17. m'tee-pai
13. epa	4. sin'yaáke-che (pl.)	12. ml-épáie
12. { epáh	7. thinyeahka	7. peepe
	9. { çinyiák	13. peepe-chamal
{ epátch (pl.)	{ çinyiákte (pl.)	8. pipachi-taik = "many men"

YUMAN—continued

Man	Woman	People, Indians
17. epa	24. sinquahin	9. pipate (pl. of man)
8. ipa	24a. ěssin	20. piipatse-pallenám
2. { ipa ipa gūli = "Indian"	15. { s̄iin syn	16. tepitetehtleowah
5. { ipás (s doubtful) ipátsh (pl.)	27. s̄in	5. { matsh-tshámak matsh-tshámak
19b. pí, pí'h	26. s̄in	21a. ipai = "Indian"
10. pa	14. sing	
{ pa 18. { pa-hēmí = "large man"	6. hanya-aga	
21. pa hūmá = "large man"	13. suyaka	
22. pa-hamí = "large man"	10. pōgii	
7. peepa, pé-paa	11. { pūkí (Gilbert) púkehí	
9. { p̄ipa pipate (pl.)	18. pūkí	
11. ūpā' (Gilbert)	22. peke	
15. eeoúch	1. k we í i n í n i g a = "squaw, wife"	
16. eeoche	2. make. ouidima = "In- dian woman"	
14. igutch	21. m̄b̄isí .	
21a. ikute	23. kokoa	
26. { fikuítch ikwits	1. wálki	
27. ikwite	{ wakoe (Laymon) IV. { wuctu, wuctu (Lay- mon)	
20. euracea	huágin = "mullier"	
23. kimai	II. h̄uisin	
24. equitchquahin		

Those philologists who have classed the Seri tongue as a dialect of the Yuman stock have laid great stress on the alluring phonetic accordance, supposedly indicative of genetic relationship, between the Laymon (and probably Cochimi) *tamá* or *tammá*, "man (homo)", and the Serian *kú'tamm*, *ktam* or *eketam*, possibly of the same signification—i. e., "man (homo)", rather than "man (vir)"; but the accompanying comparative list of vocables purporting to denote "man (homo)" discloses the significant fact that *tamá* (*tammá*) belongs only to the Laymon, and (probably) the Cochimi dialects. In Mr Bartlett's Cochimi record, he wrote *delmá*, "man, hombre", and *guami* (Spanish *g*), "husband"—that is, "male person". From certain Laymon texts with interlinear translations in Buschmann's "Die Spuren der aztekischen Sprache", etc., the following forms of the vocables in question have been extracted: *tammá*, "man (homo, Mensch)"; *tamma-butel*, "this man"; *wami-butel*, "this man, this male person"; *wami-jua*, "man (vir, Mann), male person"; *wakoe-butel*, "this woman"; *gui-wuctu-jua*, "his woman"; *wahanu*, "small, young, a child"; *wahuu-wami-jua*, "a small, or young, male person", perhaps "a boy". Now, *wanju* or *wanyu*, "young", *wáhki*, "woman" (-*aki* in *wanju-aki*, "girl"—i. e., "young woman"); *ouami*, "(my) husband", correctly, "(my) male person"; *ouíqua*, "(my) wife", evidently a form of *wáhki*, "woman", are all Cochimi vocables. Dr Gabl, in his Cochimi vocabulary, did not record the presumptively correct term denoting "man"; for the word which he has written, *wanyuami*, and which he has translated "man", really signifies, "young male person", rather than "man (homo)". This is unfortunate, because in Mr Bartlett's Cochimi, *delmá* is rendered

"*mau* (*homo*)", and the Cochimi of Padre Clavigero has *tamá*, "man", and the Laymon, *tamá*, *tammá*, or *tämmá*, "man", and there is seemingly no absolutely satisfactory method of ascertaining whether the *l* of Mr Bartlett's *delmá*, "man", is genetic or not. But as the Laymon and the Cochimi are apparently cognate dialects, it is probable that the form *delmá* of Bartlett's Cochimi and the *tamá* or *tämmá* of the Laymon and the Cochimi of Padre Clavigero are cognate vocables. The part of the terms which the two dialects have in common is the final and usually accented *-má*; in other words, *-má* is the common conceptual element in the vocables *delmá* and *tamá*. This of course rests on the presumption that *tamá* and *delmá* are compound terms, having probably genetic relationship. The following facts may aid in discovering the lexica constituting the elements of the two words in question, and these, it is seen, are *-má*, *del-*, and *ta-*. In Dr W. M. Gabb's record of Cochimi words, collected by him in the vicinity of San Borja and Santa Gertrudis about the "center of the peninsula" of Lower California, the term "Indian" is represented by *maha-ti*, and "people" by *maha*. On the same schedule with the Cochimi Dr Gabb recorded a vocabulary of the Kiliwee, dwelling 150 miles "further north" at and near San Quentin. In this dialect, which is Yuman, the word "Indian" is rendered by *kimai*, and "people" by *mcha-le* (preferably *mexale*¹). The apparently genetic accordance between the Kiliwee word for "people" and the Cochimi terms denoting "Indian" and "people" is brought into stronger light by a comparison of the terms for "warrior"; in the Cochimi, *mach-karai* (*max'-karai*), in the Kiliwee, *makh-pkátai* (*maxk-pkátai*). The unquestioned kinship between these two dialects warrants the inference that these two compound expressions, denotive of the same thing and possessing at least one common element, *max-* or *max'*, must accord approximately at least, in the signification of their heteromorphic constituents.

In the Kiliwee *pah-kate* signifies "a chief", from *e-pa*, "Indian", hence "man" (primitively) and *kute* for (*k*)*e-tai*, "large, great", hence "old", found in such expressions as *sal-kootai*, "thumb", literally "large finger", and *pah-tai*, "old", but literally "old man". So the name for a chief may be rendered freely "the elder person; the old man (the wise man)". The Cochimi term *mach-ka-é*, as written by Dr Gabb, denotes "far", while *mach-i-kung-i-nga* means "near". These vocables may preferably be written thus, *max'-kaé* and *max'-kañ-iñä*. The ending *-iñä* is a privative flexion or suffix in Cochimi, forming derivatives with meanings directly adverse to those of the primals; so the literal signification of *max'-kañ-iñä* is "not far", hence "near"; but in *max'-kaé* the final *-kaé* is the adjective "large, great", having here an intensive function signifying approximately "more", while *max'* is evidently a form of the proximate pronominative found in the terms "thou" and "ye" in this group of languages. In the Laymon *kahal ka*, "water large (is)", for a "sea or stream of water", *ka* signifies "large, great"; and the Cochimi *kä'tenyi*, "few, not much", is literally *kä'tte* for (*k*)*ctai*, "large, great, much, many", and *-iñä* the privative denoting "not". And the Laymon *metañ*, "many, much", is evidently from *m-* for *ma* (a proximate pronominative), *cta* for the Cochimi *ctai*, "large, great, much, many", and the final *-ñä*. Compare Bartlett's *modo*, "all, todos", and *modol-iñä*, "many, much". Such are some of the forms of the adjective signifying "great, large, much, many". There is also in the Cochimi an intensive *pa*, *ibal*, *ibá*, which signifies "very". This explains the presence of the *p-* second in the term *maxk-pkátai*, the Kiliwee for "warrior".

It has thus been shown that a probable connection exists between the Cochimi terms *maha*, "people", and *maha-ti*, "Indian", on the one hand, and the *max-*, inferentially signifying "man" in the Cochimi and Kiliwee names for "warrior", *max'*-

¹In Dr Gabb's alphabet, an underscored *ch* occurs, which, he states, sounds "like soft German 'ch' as in 'ich'", and also an underscored *h*, which is, he says, "heavily aspirated". For convenience the character *χ* has been substituted for both these sounds, except that for the former it is accented thus *χ'*.

karai and *maxk-pkítai*, and the *mexa-* in the Kiliwee *mexa-le*, "people", on the other. The significance of the initial *ta-* in *tämmá* (*tamá*, *tammá*, *tamal*, *tammalá*) seems to be that of a definitive pronominal; it is found in the Cochimi of Dr Gabb and in the Laymon. Dr Gabb recorded in his vocabulary *ta-ip*, "good", but *ta-ip-ena*, "bad", the final *-ena* being the characteristic Cochimi privative suffix elsewhere written *-ñi*. So it would seem that the stem is *-ip*, meaning "good, desirable". In Kiliwee *aχok* (Dr Gabb's *ahok*) signifies "flesh, meat", while *aχok-m-gai* denotes "deer", literally "good, desirable meat", in which *m-gai* signifies "good, desirable"; it is probably connected with the term *ka*, "great", and its variants noted above, and so may also denote "abundance". Under the word "love" Dr Gabb has *m'gai-yip*, the free translation of which should read "greatly desirable; abundantly good, well". Thus *-ip*, or *-yip*, signifies "desirable, good, pleasing to the sense"; in Laymon likewise the initial *-ta* is sometimes wanting, as in *wapp-mang*, "good (is)", as distinguished from *tahipo-mang*, "good (is)". The final *-mang* (= *mañ*) is a term apparently denoting "to exist, to live", and is possibly cognate with the *má* (Kiliwee *me*) in the words discussed above.

This, it would appear, is the origin of the *má* in *tamá*, "man". The individual character of the initial *ta* is suggested in what has already been said in reference to its absence from such vocables as *wapp-mang* and *m'gai-yip*, in which the *wapp* and the *yip* are identical with the *ip* in *ta-ip*, "good". This term *ta* appears as the relative "that" under the form *te*. It also appears as a prefix in the Cochimi and Laymon numeral "one" and in the adjective *te-junoey*, "a few"; also in the adjective *de-muejueg*, "all"; and again in the peculiar numeral "one", namely *du-juenidi*.

Such appears to be the analysis of the Cochimi and Laymon *tamá*, "man". The form of it recorded by Mr Bartlett, *del-má*, "man", compared with his *de-ma-usú*, "Indian", is seemingly a valid confirmation of the foregoing derivation, because this *l* in *de-l-má* is probably identical with the final *l* or *lá* in *tama-l* and *tamma-lá*, "man", cited above. In the Cochimi for "water", *ca-l*, its true character is partly seen; *cal aso* signifies "river", but in *caa-pa-l* (Gabb's *kaχ-pa-ra*), "sea", it becomes a suffix, the element *pa* signifying "much, great", and Dr Gabb's form shows that in the dialect he recorded its form is *ra*; again in *cal ka*, "lake", literally "large water", it is a suffix. It appears again in Mr Bartlett's *del-mag*, "light", as compared with Dr Gabb's *ma-ahra* (= *maah-ra*), "fire"; it appears evident that the *mag* of *del-mag* and the *maah* of *maah-ra* are cognate, so that *de-l* is here found as a prefix, as it is in Mr Bartlett's *de-l-má*, "man". Thus it is that *delmá* and *dema-usú*, "Indian", of Mr Bartlett and *tamá* and *tammalá* of Hervas, Duflot de Mofras, and Miguel del Barco are cognate.

It accordingly appears that the assumed linguistic relationship between the forms discussed above and the Serian *ká'tümm* (*ktam*, *tam*), "man", is very improbable, because there are no evidences nor data indicative that the Serian forms have had a common linguistic tradition with the Cochimi and Kiliwee forms discussed above. It seems proper, therefore, to reject such assumed relationship between the Yuman and the Serian vocables in this comparison.

The comparative list of names purporting to signify "woman" in both the Serian and the Yuman tongues reveals not a single phonetic or lexic accordance that may even suggest linguistic kinship between the two groups of vocables.

The comparative list of terms purporting to signify "people" and "Indian" in the Serian and Yuman groups of languages exhibits, in a manner similar to those already examined, the same decisive lack of phonetic accordance between the vocables compared.

SERIAN		
Head	Hair	Nose
A. a ^b leht	(a ^b leht)	ññf
B. ih'lit	ina = "feather" (?)	ife
C. il'pit	ill'it kopt'no	hif
D.	obeka = "down"	

YUMAN		
<i>Head</i>	<i>Hair</i>	<i>Nose</i>
2. ho (and "face")	1. kawáwa	3. aho
17. ho	11. cowáwä	16. ho, chinattuksah
11. hoo	18. kuwá'wa	15. h'ho
19. { hu	21. káwá'wá	13. ho
1. huú	2. { kovaüva govava (Loew)	17. ho
10. huu	19. kwáwa	21. ho
4. chukschässese	22. kwawe	20. ijó (j=χ)
8. ichueksa	10. koan	1. hoó-che (pl. ?)
7. chookk'sa	7. mókora (Gibbs)	7. mee-hoo,—"thy nose"
13. chookoosá	9. mokófa	12. { ee-hóo eho-tehe (pl.)
6. tehksa	6. mogora	2. hu
9. teúksa	8. amacora	18. hu
20. edzksah	7. m e m - m u k k o r r a (Mowry)	19. hú
12a. econ-tsucherówo	12b. ocono	22. hu
14. iltá	4. eéche	6. ihu
{ itebhama	12a. eéche (pl. ?)	8. ihu
3. { mocerre (Peabody; = "hair"?)	20. ee	9. { hibú hilihúv-tca (pl.)
12b. oom-whelthe	5. ees	14. khu
24. huch'ta	23. neesmok	5. iχn-úsh (pl.)
15. hulchtekamo	3. { amawhach mowh'l	23. epe
16. tenahcumoh	15. hulchsta	24. hou'yapú
18. kumpaiya kúwá wa	24. huch'lmo	11. yaya (Gilbert)
21. kapá	17. h'lemo	yaiivá (Renshawe)
5. kwisásh	11. khaltá	10. yaiya
23. ne-ee	16. het'tar (r silent)	1. yáyō
1. epok	13. m'aeae	1. viehpyuk
11. gupir	1. epok	11. huichil
III. agoppi	11. lagubú	25. ah'tu (=aχu)
25. h ũ s t a - k w a r ũ r, = "scalp"	25. hūsta	26. a'ho; h'ō (=aχō)
26. máwhl	26. hl-ta	27. eh'ū (=eχū)
27. h'l-ta (=χlta)	27. h'l-ta (=χlta)	26. h'ō(χo),—"beak, bill"
24a. ā-hú	24a. h'alta (=χalta)	24a. ā-hú—"beak, bill"

This comparison of the Seri and Yuman terms for "head", to ascertain linguistic relationship, seems barren of any but a negative result. It is true that there is an apparent resemblance between the Seri and the Diegueño terms, and a still more doubtful one between the Seri and the Kutchan. It is significant that the twenty-odd other Yuman dialects employ for "head" an entirely different term. The kinship of the Seri term to either the Kutchan or the Diegueño is therefore nothing more than a possibility, and it seems safe to reject it. The phonetic discordances, and the fact that there has been no evidence adduced to show that the Diegueño term was ever prevalent in the other Yuman dialects, warrant this rejection.

The following analysis may be of service here. A careful comparison of the Diegueño terms for "head", and "hair" indicates that the form (14) *ilta*, "head", is very probably a shortened *khaltá*, "hair". In the Diegueño, Santa Isabella, and Mesa Grande vocabularies Mr Henshaw recorded several names for "hair" and "head" which may serve to aid in the explanation of the words in the following comparative list. In his Diegueño record *lémis* and *limi*, variants evidently of a common original, stand for "hair, feathers, skin, and fish scales", as in the entries *haltan lémis*, "rabbit skin", *kasau lémis*, "fish scales", *kúkwaiip lémis*, "deerskin",

lēmīs, "feathers" and "hair" of animals; and also *yiu-lēmīs*, "eyebrow", literally, "eye hair", and *ā-līmī*, "beard", literally, "mouth hair", in which *yiu* for *iau* means "eye" and *ā* for *ya*, "mouth". In his Mesa Grande vocabulary, Mr Henshaw recorded *h'ltā* for both "head" and "hair"; in his Hawi Rancheria vocabulary he wrote *mā-whl* for "head", and *h'ltā* for "hair"; and lastly, in his Santa Isabella record *hūsta* means "hair", *hūsta-kwarār* is written for "head" (literally, "hair skin", meaning "the scalp"); and *ūstū-kūmo* is rendered "skull". Thus, *h'ltā*, *lēmīs*, and *hūsta* are terms denoting "hair, fur, skin, feathers, and fish scales". Yet it is possible that *hūsta* is a softened and ill-pronounced cognate of *h'ltā*. In Corbusier's Yavapai vocabulary "eyebrow" is written *yuh-kēlēmē*, and in Dr White's Tonto word list *yū-gūlma*, both signifying literally "eye hair". It is apparently safe, therefore, to regard the element *-kēlēmē* or *-gūlma* of these two dialects as cognate with the *lēmīs* (*līmī*) noticed above. In his Mohave record Mr Corbusier renders his entry *hīmīç* (*hīmīth*) by "hair on an animal". Yet in this very dialect he writes *hīdho-koōros hīmīç*, "eyebrow", literally, "eye hair"; and in the H'ta'im or San Tomaseño by Dr Gabb "beard" is written *āh-lamīse*, literally, "mouth hair". "Hair" is written *helt'h-yeç-mōh*, seemingly "head hair", for "forehead" is rendered by *helt'ūmīç*, in which *helt'h-* or *helt'* seems to be the term denotive of "head"; but in Lieutenant Mowry's Diegueño this term, which is there written *helttar* (for *heltā*) signifies "hair". In Ten Kate's Maricopa, "beard" is written *ya-womis*, literally "mouth hair", *-womis* being clearly a variant of *hīmīç*, which is but a variant of *hīmīth* and of *-kēlēmē* noticed above. In the Santa Isabella, Mr Henshaw wrote "feathers" *li-mīth*.

COMPARATIVE LIST OF DIEGUEÑO AND OTHER YUMAN NAMES FOR "HEAD", "HAIR"

<i>Head</i>	<i>Hair</i>
14. <i>iltā</i>	<i>khaltā</i>
15. <i>hu-lchte-kamo</i>	<i>hu-lehsta</i>
16. <i>tenah-cumoh</i>	<i>hetltar</i> (= <i>hetlta</i>)
24. <i>hu-ch'ta</i>	<i>hu-ch'lmo</i>
24a. <i>āhū</i> (also "beak, bill")	<i>h'al-ta</i> (= <i>χal-ta</i>)
17. <i>ho</i> (= <i>χo</i>)	<i>h'lemo</i> (= <i>χlemo</i>)
27. <i>h'l-ta</i> (= <i>χl-ta</i>)	<i>h'l-ta</i> (= <i>χl-ta</i>)
26. <i>mā-whl</i>	<i>hl-ta</i>
<i>h'co</i> (= <i>χo</i>) (also "beak, bill")	
25. <i>hūsta?</i>	<i>hūsta</i>

It seems clear, furthermore, that *iltā* (14) is merely a curtailed example of *khaltā* (14), for it is clear that this *iltā* is a cognate with the *h'ltā* (27), the initial *h'*-sound of which, Mr Henshaw says, represents a rough guttural utterance (represented herein by the character *χ*). In (27) of the comparative list *h'ltā*, expresses both "head" and "hair", thus completing the circuit and making *iltā* cognate with *khaltā*, since it is plain that *h'al-ta* (*χal-ta*) of 24a, *hltu* of 26, and *h'l-ta* of 27, the initial sound in each being, as shown above, a rough guttural are related to *khaltā*. The term *hu-ch'lmo* (24) is a compound of *hu-*, "head", and *-ch'lmo*, an evident cognate with the element *-gūlma* or *-kēlēmē* (= *kēlēmīs*) noticed above, denoting "hair"; hence, the combination signifies "hair of the head". In like manner the H'ta'im or San Tomaseño form (17) *h'lemo* may be explained. In this dialect *ho* (= *χo*) signifies "head", and an original *hōlemo* (= *χo-lēmīs*), signifying "hair of the head", became contracted to the form in question, namely, *h'lemo*. In the Santa Isabella record of Mr Henshaw *hūsta* signifies "hair", but *hūsta-kwarār* is given for "head", while *ūs-tūk-ūm-ō* is translated "skull"; the last expression should have been written (*h*)*ūstū-kūmō*. Under the caption "robe of rabbit skins", *h'kwir* is found, but under "skin" in "Parts of the Body" of his schedule, *uqakwāt* (26) and *u'kwir* (25) are found, both meaning "my skin"; Corbusier's Mohave record has *himāt-makwīl* ren-

dered "skin of man", but meaning "skin of the body", *himat* signifying "body", and *mukwil*, "skin". The Mesa Grande term for skin is given as *limis*, a vocable which has already been discussed. So it must be that the foregoing *hüsta-kwarür* signifies "skin of the hair" or "skin of the head", if *hüsta* is also a synonym for "head". The final *-ür* in the compound in question is due to the misapprehension of the rolled or trilled *r*-sound with which the term for skin terminates. The element *-kümō* of the vocable (*h*)*üstü-kümō*, rendered "skull", is also a factor in the Diegueño terms for "head" in numbers (15) and (16) of the comparative list; so that it is highly probable that these terms signify "skull" rather than "head". And, lastly, it is equally probable that the expression (18) *kumpaiya kiwawá* signifies "hair of the whole head (skull)" rather than "head" only; for the initial *kum-* is presumptively the cognate of the forms *-cumōh* and *-kümō*, denoting in the compounds already noted "skull", while *-paiya* signifies "all", and *kiwawá* "hair". There appears to be a relationship between the terms for "head" and "hair" in (12*b*) *oomw'hélthe*, "head", (3) *amawhach* and *mow'h'l*, "hair", and (26) *má-whl*, "head". The explanation of the term *hu-lehsta* (15), denoting "hair", is probably to be found in its resolution into *hu* (*χu*), "head", and *lehsta* for a form of *hüsta*, "hair", discussed above; the term signifies, therefore, "hair of the head". In like manner *huch'tta* (24), rendered "head" there, seems rather to mean "hair of the head", by its reduction to *hu*, "head", and *ch'tta*, for a form of *khalta* (= *χalta*), "hair".

The Serian variants of the term denoting "head", are respectively (A) *a'lecht*, (B) *ih'lit*, and (C) *ill'it*. These forms certainly have no kinship with the Yuman terms discussed above; they have a totally alien aspect. The Serian terms for "hair" are respectively (A) *a'lecht*, (B) *ina* ("feather" rather than "hair"), (C) *ill'it kopt'no*, and (D) *obeke*, and while the last has an aspect foreign to the other terms classed as Serian, none of the vocables appear to offer ground upon which to predicate relationship between the Yuman and the Serian. For a further explanation of *obeke* turn to the discussion of "tooth".

The comparative list of Serian and Yuman names for the "nose" reveals no evidence of linguistic relationship between the two groups; but an inspection of the Yuman lists for "head", "hair", and "nose", exhibits a close connection between a number of the names for "head", "nose", and "beak, bill".

SERIAN		
<i>Eye</i>	<i>Face</i>	<i>To see</i>
A. mütto	aiyen	
B. ito	iy'en	ikehom
C. hirtovχs (pl.?)	hien (in hienkipkue)= "cheeks"	okta; χ ookta
D. iktoj (for iktoχ) (pl.?) llen		
YUMAN		
1. edóche (pl.)	edóche	eyñuk
7. } hidho	} hidho } meethoownya="thy face"	} hissank (far), hiyñuk (near) } ekwuo
7. } meet'dho="thy eye"		
6. ido		hisank, i-ñdo ¹
8. idosaca	ilo	halquack
9. hiço, hiçotea (pl.)	hiço	sank="I see it" isampote="I do not see"
12a. edoteche-ée (pl.)	odóche, eeyu }	o-ook
13. medok="thy eye"	meya	eeyu
20. edhó	edo-enámecoba	iyúe
21. yú	yú	
2. yú	ho (and "head")	ó-o

¹ This signifies, "let us see"; Dr Loew also writes, *iyó-ok*, "to see you".

YUMAN—continued

	<i>Eye</i>	<i>Face</i>	<i>To see</i>
22.	yu	yu	
19.			nú
11.	yu, úh (Gilbert)	ethool, tialbúgá	
18.	yuh	yu	ahámi
11.	yuh' (Renshaw)	ethool	
1.	yú-u	páya	
10.	yu-u	yuu	akhámuk
1.	yupicha (pl.?)	yupi	gir
11.	ye-bakú	yabi	amigi
3.	agu, ihu	inabó	ouwerk
23.	ayn	nehúha	sau
14.	hiyéu, i-ido		iyib
17.	yeoo	yeoo	oom
15.	yion	alt'hwá	ewiouch
16.	eeyon	ceoh	ohum
12b.	eeyu-suneyao		
21.		yeon	kewí
111.			gadey
5.	woyoes	ídosh, yaxelemish	ashaámuk
25.	hiyu	hiyu	
26.	iyiu	iyiu	
27.	iyiu	iyiu	

Eight of the terms for "eye" in the Yuman word lists are *ido*, *hidho*, or their variants, in five Yuman dialects, Maricopa, Mohave, Hummockhave, Kutchan, and M'mat (virtually in but three, for Hummockhave is but a subdialect of Mohave, and M'mat of Kutchan), and the remaining twenty-one examples are from an entirely different stem or base which is apparently connected with a verb "to see," one of the forms of which is *eyúuk* (4), *h'éyuk* (7), and *iyó-ok* (6); the form *ido* and its several variants is seemingly connected with *iúdo* (6), "let us see", apparently an imperative form, in a manner similar to the connection between *yú* (2), "eye", and its variants, and the verb form *eyúuk* just cited.

It will be seen from the table that *okta* and *χ'ookta* (or *χ'uktá*) are the Serian forms of the verb "to see". The form *iktoj* or *iktoχ'*, "eyes", recorded by Sr Tenochio, is the nominal form of that verb, the final *j* or *χ'* being, as it would appear, the plural ending. The *-rχs* final of M Pinart's record as distinguished from Professor McGee's *mitto* and Mr Bartlett's *ito* and approximated in Sr Tenochio's *iktoχ'*, is evidently plural in function. While the Serian material bearing on this question is, indeed, very meager, it nevertheless seems proper to regard the apparent accordance between the Serian term for "eye (eyes)" and the Yuman vocable, *ido* and its variants, of limited prevalence, signifying "eye," as fortuitous rather than genetic.

The comparative list of the Serian and the Yuman names for the "face" shows no relationship between the two groups of languages.

SERIAN

<i>Tongue</i>	<i>Tooth, teeth</i>	<i>Foot</i>
A. áps s	A. atá'st	A. táhöt ^{kl}
B. ip'l	B. ítast	B. ítóva
C. hípxl	C. hitast	C. ittovax
D.	D.	D. itoba

YUMAN		
<i>Tongue</i>	<i>Tooth, teeth</i>	<i>Foot</i>
11. abilg	1. edooche	3. amea (Peabody)
12. { epulch	12. aredoche	13. mee
{ epailehe	6. idó	17. mee
4. epalch	8. ido	11. mí (Gilbert)
10. ipal	5. hidóös	19. mi
11. ipä'l (Gilbert)	9. hidhó (hieó)	21. mí'
21. ipä'l	7. meet'dho	10. mie
20. ipáll	13. medok	18. mih
8. ipala	20. edháw	11. mí ^h (Renshawe)
2. pala	13. yá (Gilbert)	1. mí
6. ipaylya	19. yá	24. emil
1. hapara	21. yá	15. emil-yepiyen
18. hipäl	11. yó (Renshawe)	4. emésh
5. hipälsh	2. yo	8. eme-culepe
9. hipäl'y	18. yoh	23. emepah
13. mepal	1. yóo	12. emetch-slip aslap-yah
7. { meepahlya	10. yoo	20. eme-guzlapa-zl'áp
{ hípala	17. yeow	16. emmee
IV. mabela	16. eow (ow long)	6. ime
15. anapalch	23. eau	3. imi-coushu
24. anapalch	14. iyao	14. i-míl
14. anepállkh	3. iyahui	9. himé
16. anpatl	15. iyáou	5. himís
17. henapaíl	21. iyaou	7. meemee
23. nehapal	11. foea	2. { nanyo
3. inyapatch	1. hastai	{ nanú (White)
1. yupáu		1. ma-nyakkoyan (cf. ma-nyak, "leg")
11. yupäl (Renshawe)		IV. agannapa (cf. "leg", "hand")

After a careful examination of the collated lists of names purporting to signify "tongue" in the Serian and Yuman languages it will be seen that the relationship conjectured to exist between the two groups is fortuitous or coincidental rather than real. The guttural rough breathing χ preceding the l sound in M Pinart's record, and indicated by an apostrophe in Mr Bartlett's spelling and by an s in Professor McGee's orthography, is clearly wanting in all the Yuman terms cited. Were there linguistic relationship between the two groups of terms here compared it would seem that this sound should find a place in one or another of the long list of Yuman terms, notably divergent among themselves. It is possible, if not probable, that the final l , la , or ra of the Yuman terms is not a part of the stem; but this would not affect the want of accordance noted above.

An analytic investigation of the comparative list of vocables purporting to signify "tooth" in the Serian and the Yuman languages discloses no evidence of genetic relationship between them. Those who classify the Serian speech as a dialect of the Yuman cite the Yuman *ido*, *hidhó* (the *ch-doh* of Lieutenant Bergland), signifying "tooth", as one of the vocables indicating a genetic relationship between the two groups of languages. The comparison is made between the *ido*, *hidhó*, and *ch-doh* cited above and the close variants of the Serian *ata'st*. An inspection of the comparative list of names for "tooth" shows that this particular Yuman form is confined to the Mohave, Maricopa, and Kutchan dialects (for the M'nat, which also employs this term, is nearly identical with the Kutchan), and that the remainder of the Yuman

list of dialects has, with a single exception, an entirely different word; this exception being the Cochimi, which independently has another. The Yuman group, then, has three radically different words purporting to signify "tooth".

The Serian vocable for "tooth" is a compound term, being composed of elements denoting "mouth" and "stone". In the Seri word-collection of Professor McGee *att'nn* signifies "mouth"; *atta-moχ*, "lower lip", possibly "down about the mouth"; *attahk*, "saliva" ("water of the mouth"); *attahkt*, "the chin"; *takōps*, "upper lip"; *attēms*, "beard"; *ata'st*, "tooth"; and *a'st*, "rock, stone". Mr Bartlett, in his vocabulary, recorded *iten*, "mouth"; *ita-mocken*, "beard"; and *ast*, "stone". M Pinart, in his Seri word list, wrote *hiten*, "mouth"; *hita-mokken*, "beard"; and *hast*, "stone". Lastly, Sr Tenochio wrote *iten*, "mouth", and *ahste*, "stone", in *ahsteka* "large, high stone, rock". Sr Tenochio also recorded *obeke*, "hair, down (pelo)". One of the peculiarities of the sounds represented by the letters *m* and *b* is that in many instances they grade one into the other. There is here, seemingly, a case in point. The *moχ* of Professor McGee, the *moeken* of Mr Bartlett, the *mokken* of M. Pinart, and the *obeke* of Sr Tenochio appear to be cognates. Substituting *m* for the *b* in *obeke*, *omcke* results, which is approximately the *moχ*, *moeken*, *mokken* cited above. Hence, *hita-mokken* and its congeners, it seems, signify "down of the mouth". In *attahk*, "saliva", the element combining with *attē* (for it is plain that the final *-n* is dropped in compounding) is 'ahk or 'akh, "water", so that this compound signifies, literally, "water of the mouth". These analyses show that *attēnn*, *iten*, and *hiten*, dropping the final *n*-sound, unite with other elements in the form *attē*, *ite*, and *hite*, respectively. Now, these, in combination with *a'st* or *ast*, "stone", become, respectively, *atta'st*, *itast*, and *hitast*, the forms of the word for "tooth" recorded by Professor McGee, Mr Bartlett, and M Pinart, in the order given. The Seri name for "tooth" signifies, then, literally "stone of the mouth" or "stones of the mouth". This analysis demonstrates the lack of relationship between the Serian and Yuman names for tooth.

The comparative schedules of names for "foot" in the Serian and the Yuman languages show no accordances of a phonetic character tending to show any genetic relationship between the two groups compared.

SERIAN

Arm	Hand	Finger(s)	Thumb	Fingernail(s)
A. mī'noūl't'	A. $\left\{ \begin{array}{l} \text{ūnōlk} \\ \text{ūnlūhss}' \\ \text{unlā'hss}' \end{array} \right.$	A. ūnut-	A. ūmultekōk	A. ūnosk
B. inoyl	B. inosiskersk	B. inosshack	B.	B. inōsk'l
C. innolχ'	C. intlash	C. inol'tis	C. inol'vōkoχ	C. inosk'lχ'
D. inls	D.	D.	D.	D.

YUMAN

2b. sote (White)	10. sal	3. ainchahlo	1. sal-kōvatēa	6. salgolyoho
1. t'hōtīi	11. sal	(Heintzel-	10. sal-guvetee	23. salhow
10. thutii	21. sāl	man)	11. $\left\{ \begin{array}{l} \text{sāl-qovutčh} \\ \text{sal-gavitēye} \end{array} \right.$	21. sāl saleehó
11. thutiya (Gilbert)	18. sāl	6. salgoharaba	18. sāl-knbēté	7. saltilyoho (Gibbs)
18. thudí	1. sālle	21. salsclawhó = "fingernail"	21. sal-kūbitó	9. hisalyekēl-yehó
13. mevee	23. esal	23. salehepa	9. hisalye-kō-būtá	8. isalenlyiho
4. mibiisch	21. esaleh	11. $\left\{ \begin{array}{l} \text{sāltiqi} \\ \text{saltida} \end{array} \right.$	19. shāl-gubdē	16. ashatlkay-
7. $\left\{ \begin{array}{l} \text{meebeenya} \\ \text{(Mowry)} \\ \text{hibi (Gibbs)} \end{array} \right.$	12. esālche	10. saltídyá	23. sal-kootai	show (o as in bough)
	7. eesarlyá (Mowry)	15. selchkasow	2. shal-kóta	

COMPARATIVE LIST OF SERIAN FINGER-NAMES

	McGee	Pinart	Bartlett
Thumb	ñmültékok	inol'vekoχ	
Forefinger	ñnñ'stess	inol'tis	
Middle finger	ññltemü'ka'p	inol'Veumakkap	
Ring finger	ññl'te'pa	inol'tip	
Little finger	ññlschálk	inol'shak	
Arm	{mí'noñl't [mínoñl'd]	innol'χ'	i-noyl
Wrist	ññhpkíht	inoliavap'χ'a	
Hand	{ññol'k [ññlñ'hss',ññlñ'hss']	intlash	i-nos-is-kersk
Fingers		inol'tis	{i-nos-shack i-nos-shack-itova= "toes"
Right hand		inol'l'apa	
Left hand		istlik	
Finger nails	ñnosk'	inoskl'χ'	i-nósk'l

It would seem that the term given by M Pinart for "fingers" is not accurate, since he has previously recorded it for "forefinger", in which he is confirmed by Professor McGee. It seems probable that the literal signification of the term for "little finger" is "son (or offspring) of the hand." Professor McGee writes *i-sahk* for "son" as said by the father, and M Pinart writes *isaak* for the same idea.

SERIAN

Wing(s)	Feather(s)	Bird
A.	A.	A.
B. iséka	B. hrekíua, = "bird feather"	B. schaík; (schek-) ¹
C. isselka	C. inna	C. shek; (shiik-)
D.	D.	D.

YUMAN

2. sha	4. shabílsh	2. tishá
13. eeshalk'sabillns	5. shawílsh	17a. tächá (San Tomas)
7. ibilya (Gibbs)	7. seebeelya (Mowry)	19. itisha; tyesha
eebeelya (Mowry)	siviya (Gibbs)	22. tesya
9. hivilyé	6. siviya	21. teisá
11. wā lā	9. siviya	1. icha
18. wá lē	8. sewailye	14. asha
23. oowaloo	17. shawalh	15. asa
4. melahótch	12. sahwith'l	18. isá = "eagle"
20. -millažo, (etsiyerre-) ²	13. sabíl; (sawillch ³)	11. {issā, = "raven" ñsā = "eagle" (Gilbert)
21. wirawídā	10. segnala	13a. shuh
24. wirawir	19. wā la	

¹ Mr Bartlett wrote *schek-áipeh*, "bird's egg", and *ahano-hraik*, "a duck", literally, "water bird", thus showing that *hrek* in the term "feather" signifies "bird". M Pinart wrote *shiik-immen*, "bird's nest", and *ipχ'*, "egg". In both, the spellings here differ somewhat from the terms in the list. In the term for "duck" and "feather", Mr Bartlett substitutes *hr* for the *sch* in his spelling of the name for a "bird".

² In 20 *etsiyerre* signifies "bird".

³ From Bartlett's Kuteian or Yuma Vocabulary, MS.

YUMAN—continued

<i>Wing(s)</i>	<i>Feather(s)</i>	<i>Bird</i>
17. wurawir; (whirrawhi-uh ¹)	23. tewalooeme	6. atsiyera
16. erwirry	15. hewirwirr	7. {cheeyura
15. -awirr (hewichitt-)	24. wirrawir	{achiéra (Gibbs)
8. eyerk	21. apa-quirrh = "tail feather"	9. achiyera = "small birds"
1. ichquan	18. {walle	17b. cheeyara
11. gouuó	{múséma = "quills"	20. etsiyerre
26. würrawürra	20. -čémist (etsiyerre-)	5. tseyérekopai
	2. mata	23. kewalo
	1. ichquan	4. e-yé'rk
	II. nhamba	8. noosquivira
	16. sohmay sharwattéI	10. kipay
	26. limith	11. kabto
		13b. ahermá
		16. sohquiah (i in like)
		24. sepa

The comparative list of names for "wing" in the Serian and the Yuman languages exhibits no satisfactory evidence of a genetic relationship between the collated vocables; in like manner there is no phonetic accordance whatever between the terms denoting "feather" in the two groups of words. It seems evident, however, that several of the Yuman words for "wing" and "feather" are phonetically mimetic onomatopoes; compare *whirrawhiuh* (17) from Mr Parker's San Tomas Mission Vocabulary, which is evidently an imitative word for the sound made by the wings of a bird (for example, of the California quail) in rapid motion.

In the collated schedule of names for "bird" there is lacking any phonetic accordances indicative of linguistic relationship between the languages compared.

SERIAN

<i>Bone</i>	<i>Leg</i>
A. mittag (like German "mittag")	A. attâ* attâqklem = "thigh"
B. hrehiták	B. itahom
C. ittak	C. {hitaxom = "thigh"
D.	{hippeçl = "leg"
	D.

YUMAN

15. äk	2. nata (Loew)
24. ak	impadi (White)
24a. äk	1. mópada
25. äk	11. mupata (Renshawe)
26a. ak	19. mpáda
1. hak	6. methilya
23. hək	{methilya (Gibbs) = "thigh"
27. häk	7. {meemay meethilya (?) = "upper leg"
17. ok	10. methil
26b. n'yak	20. emé
18. chiyä'ka	23. eme
21. tciúka	21. emmí
4. escháques	

¹ From Parker's San Tomas Mission Vocabulary, MS. 1876.

² This was rendered, "A white feather worn in the scalp"; in Parker's San Tomas record *táschalaemiss* is given for "feather", but it is literally, "bird's hair".

YUMAN—continued

<i>Bone</i>	<i>Leg</i>
7. n'eahsark (Mowry)	17. mee
5. shaaks	13. memae
13. yoosak	12. meesith'l
8. inyesake	15. emilye
20. ndchashácq'	4. emistilish
10. tiága	3. imyiliwhý
19. tiága	16. ewhitl
6. uúniiga	14. inilgh
3. namsail	24. enyi-wilch
2. kuévata	18. thimuwála
7. esal-hiwa (Gibbs)	5. eskarowish
11. acheso (Spanish?)	8. enesaquiwere
16. micashsho	9. himetca-áma = "upper legs"
	11. sininohe (Gilbert)
	1. ma-nyak
	11. gelelepi
	IV. agannapaho (cf. "foot")

An examination of the several names for "bone" in the two groups of terms from the Seri and the Yuman tongues in the comparative list above reveals no trustworthy evidence of linguistic relationship between the two groups.

The same want of agreement between the two groups of terms purporting to denote "leg" in the Serian and the Yuman languages is manifest in the foregoing comparative list.

<i>Blood</i>	SERIAN	<i>Red</i>
A. á-it	A. ka-ailqt	
B. áv't	B. ke-vileh	
C. a'vat	C. kēveχ'l	
D.	D. kebbs	
	YUMAN	
9. ahwátam	22. gnate	
16. ahwhat	9. awhát	
21. awhát	16. h'what	
12. awhút (Comoyei)	21. awhátēk	
25. ā-whūt	12. achawhut	
26. a-whūt	25. whūt	
14. akhoat	26. whūt	
6. neghoata	14. khoat	
10. tigval	6. aghóathum	
23. t-quat	10. kokhoát	
15. h'wat	23. oo-qual	
13. h̄wat ($\underline{h} = \chi$)	15. h'wát	
17. h̄wat	13. h̄wat	
18. bwat	17. h̄wat	
19. hwát	18. chēhwáta	
11. hwā'tiga	19. ahnāti	
2a. hūata	27. ōwhūt	
3. inuwbal	2a. awátí	
8. nichwarte	8. awhát	
7. n'yawhart (Mowry)	7. itchahhoata (Mowry)	
20. nejuit ($j = \chi'$)	20. enicávojuít	

YUMAN—continued

<i>Blood</i>	<i>Red</i>
7. yahwata (Gibbs)	7. echahuáta (Gibbs)
2b. kúalayú	2b. kalyo
4. ehivetch	4. hivet
5. hiχwítsh	5. χwíttem; gwíttem
I. luat	1. machéhuang (=maχχuang)
IV. jueta	II. mocao
II. jued	IV. mokó

At first glance there seems to be some degree of relationship between the groups of terms signifying "blood" and "red" in the Serian and the Yuman tongues. But a discriminating examination of the words of the two collated lists seems to lead to the contrary conclusion.

It may be well to note that the difference between the Serian vocables denoting "blood" and those signifying "red" is that the latter have a prefixed *ká-* or *ké-* sound, in this resembling most other attributive terms in the language. This *ká* or *ké* is probably a pronominal element. The Seri forms of the name for "blood," however, have no initial guttural prefix, and, owing to the lack of historical evidence, it is not possible to declare that the Seri word, as compared with the Yuman terms, has lost an initial guttural aspirate, which is apparently genetic in the Yuman words, as it is present in 27 of the 28 variants of the Diegueño (14) *khoat* and Mohave (9) *ahwat* cited in the list. This is emphasized by the fact that the guttural aspirate remains unchanged whether the term denotes "blood" or, metaphorically, "red". The Yuman word apparently has no distinctively adjective or attributive form. This is evidently in direct contrast with the Seri word, in which the attributive form is initially and terminally different from the form of the word employed as the name for "blood". These considerations strongly militate against the assumed linguistic relationship between the Serian terms denoting, concretely, "blood", and, metaphorically, "red", on the one hand, and the Yuman vocables of like signification on the other.

SERIAN

<i>Yellow (brown)</i>	<i>Green</i>	<i>Black</i>	<i>Blue</i>
A. móssol ^{qt}	kóil ^{qth}	kopolt	kóil ^{qth}
komassolt (brown)			
B. k'másol	kovileh	kopoleht	valeh-kopoleh
C. kmassoīχ'	koviiχ'; χpanamas	kopoχ'l (dark)	koviiχ'
D. kmozol	kobslh	jikopohl (dark-ness) (j=χ)	

YUMAN

I. simarai	manachui	ichchara	changmangchui
II. yembil	mosoo	akal	
2. kūase	ilvi	nya	aveshūve
4. aques	hashamelav'k	milk	habashū'ek
5. kwissem	verrevèrs	nyilk	χaweshūk
6. agoathum	havesug	vanilgh	havasug
7. fokwarthi (Mowry)	havasook	whenyaeelk	havasook
lakwátha (Gibbs)	amatk	hwainyēlk	havasóke
8. akwahum	timabóchi	naailk	avisuk
9. akwátha	habasó	hwanyily	habasó
10. agoathega		nyágh	ashuga
12. aquesque	atsowoo surche	quimele; n'yeelk	hawoo surche

YUMAN—continued

<i>Yellow (brown)</i>	<i>Green</i>	<i>Black</i>	<i>Blue</i>
13. quas	hbsoo	nyil	hbsoo
14. akhoas	kaposhu	nilgh	kaposhu
15. quas	h'pashu	qu'n'y'leh	h'pashu
17. quos	hpshoo	nyil	h'pashoo
16. quass	quass	netl	hupshu
18. akwátha	habēsúwi	nyá'chi; nyä	habēsúwi
19. kuáthi	kuáthi	iniä	havēshúvi
20. accuésque	jabashúe	ñicllgue	m'mai; m'mai cojo-shuñiá
21. aquásúk	aquás	hapili	habishú
22. akwátha	gawesúwe	nyátie	gawesúwe
23. koosai	emelsoo	nyeg	emelsoo
24.	ahapeshu	qu'n'ilch	ahapeshú

These comparative schedules of color-names denoting "yellow or brown", "green", "black, darkness", and "blue", collated from the Serian and the Yuman languages, exhibit no phonetic accordances which would be indicative of linguistic kinship between the two groups of languages compared.

It may be of some interest to remark here that the only dialect among the large number compared above that employs the term "sky" for blue is the M'mat (20); in this dialect *m'mái* signifies "sky", while *m'mái* or *m'mai-cojoshuñiá* (literally, "sky color") denotes "blue".

SERIAN

<i>White</i>	<i>Old</i>	<i>Young</i>
A. kó'pól	kua'kō'k (man) kūnkai e (woman)	sepia' (man)
B. kó'pcht	ikomákolch	síp
C. kohoyp	¡kmakoj (man)	sip; psip = "boy"
D.	¡konkabre (woman)	

YUMAN

I. tipyche (tipy'x'e)	oosing	wanju
II. eali	acusó	
IV. gala		{ whann = "child, young one" wakna, misprint for wáhna (Laymon)
2. n'shava	velhé (Laymon)	ba (Laymon)
4. hemaál	kuraácks	homarsh
5. xemálye	{ kureáks (man) lakoís (woman)	me'xáís
6. nimesan	kvoraaga	ipa
7. { n'yamahsava (Mowry) n'yamasába (Gibbs)	{ kwirirark (Mowry) kwarraák (Gibbs)	{ mess-ser-haik (Mowry) messerhaik (Gibbs)
8. yimensavi	qnaráki	issintaie = "one"
9. nyamasába	{ kwadaí'k (man) kwaknyá (woman) atatayútea = "ancestors"	maháia (man)
10. nimesav	patáiga	hemóiga
11.	{ pagataiya (Gilbert) = "young man" kanúdümú (Gilbert) = "young woman"	{ hamé' (Gilbert) = "young man, boy" múmsí (Gilbert) = "young woman, girl"

YUMAN—continued

<i>White</i>	<i>Old</i>	<i>Young</i>
12. bamarlk		
13. hmal	koorchak	amaliai
14. nomosháb	umáu	itman
15. yem'súp	quirruck	ikutkuspírr
16. nemschap	qurruk	quomieik
17. eemshap	koorak	quel
18. nyuměsábi	{bělhéi (man) kámúhwi'dámúr (woman)	
19. niměsáva		
20. jamallgue	enra'ícca (man)	iepac
21. imicápa	{pělhé (man) pakí (woman)	pahürmá'rrě hateč'n (woman)
22. nyemesáwe		
23. umesap	pahtai	pakookeechap
24. ném'shap	querak	quenacni (woman)
24a. nír-misháh	korák	{hequál (man) hateč'n (woman)

The group of Serian names for the color "white" have no phonetic accordances with the collated Yuman terms of like meaning.

Of the compared groups of Serian and Yuman names for "old" and "young" it may be well to remark that in both some of the terms recorded mean simply "man", "woman", without regard to age, or "large, great man" (Seri A, B, D, and Yuman 6, 9, 10, 21, 23, 24. In number 21 *paki* signifies simply "woman", regardless of age. Yuman number 8 signifies "one", not "young"). This cursory comment shows how untrustworthy much of this material is. It is evident that there is here no proof of genetic linguistic relationship between the Seri and the Yuman languages.

SERIAN

<i>Great, large</i>	<i>Small</i>	<i>Good</i>	<i>Bad, ill</i>
A.		-gebkpa	
B. kakoleh	kipk'ha	kípi	homíp; miph'la
C. kakkoχ'	kíp'χχα; kissilχ'	χeppe	χ'omípla (kmipla, "bitter")
D. kakoj			

YUMAN

I. <u>chai</u> , (= χ'ai)	achtawan (= aχá'- tawan), "young"	taip	taipəna
II. c'áokoo	cánil	ahámi	aminlí (= amiñyi)
IV. ká (Laymon)		{ami tabipo tahipe} (Laymon)	{ambiñyi may (Laymon)
2. {vete (Laymon); bite	gatye	{khaue abónni	kalyeve
4. otia	n'yokek	hoátk'	nyoymik
5. wetáym	nokik	χotk	nyomík
6. vataim	itáuk	akhotk	alaik
7. {veltakík (Mow- ry) meltaim (Gibbs) hōmmék="tall"	{anchoik hitáuk	{ahboteka ahót'k	{munnaik elhōtmuk; elláik

YUMAN—continued

<i>Great, large</i>	<i>Small</i>	<i>Good</i>	<i>Bad, ill</i>
8. h'watai	echitawa	epache-hoti = "good men"	pipach-ilhotim = "bad men"
9. veltáia; ohumik = "tall"	hitchaúwa	ahót	alai
10. vatega	ketiga	akhánega	hianomaga
12. oteique	onoc oque	ahotekah; ahotk	haloolk
13. btek	qunnuk	hanna	enoimi
14. ign	ítik	khan	jkútsikhlítch
15. aquaektáiyé	el máam	h'hun	w'hlítch
17. quotai	lecpist	moohoi	oorap
16. attili	el marm	k'hun	witlítch
18. taya; ta; hómí	k'chi	háni, hánikúm	kalépi
19. táyake; v'eté	kitie	háne	χ'él'pě
20. bettáie	n'noc	ajótk	l'láie
22. weté	kétye	hané	helépe
23. etai	mootit	mgai	hoogloi
24. eciy	halyemuck	quahan	qual-hitch

In the comparison of the adjectives "great, large" there is a single apparent accordance between the two groups, and that is between the Cochimi *ciókoo* and the several Serian terms. The Laymon form indicates that the stem is *ka* or *ca*; but an analysis of the Serian words shows that *kolch*, *koχ'* or *koj* (for *koχ'*) is their base, the initial *ka* being merely a pronominal, as may be seen from an inspection of the compared lists of attributives or adjective elements in the Serian groups, including the color-names. Now, Mr Bartlett writes in the same list with *ciókoo*, *calka*, "a lake" = "water, large", accenting the *ci*, "great, large"; and his "small" is *ci-nil* = "great not".

Comparing Dr Gabb's *χai*, "great, large", and *ka* or *ca*, on the one hand, with the Kiliwee *kootai* and *kute* in *sal-kootai* and *pah-kute*, "thumb" or "large finger", and "chief" or "large, great man", and with the Kiliwee *etai*, "great, large" on the other, it becomes evident that *ca* is a curtailed form of *kootai* (*kute*), as *etai* is. The *ciókoo* of Mr Bartlett evidently signifies something more than "large, great"; it may possibly mean "large house"—i. e., *caúaka*, or "large earth, ground"—i. e., *caakug*, or it may be a cognate of Gabb's *χkaikang*, "high mountain". But nevertheless its derivation has been demonstrated so as to show that it has nothing in common with Serian terms.

There is likewise no phonetic relationship between the Serian and the Yuman words denoting "small", and this is also true of those signifying "good", "bad", and "ill". These four comparative lists then show no genetic relationship.

SERIAN

<i>Water</i>	<i>Die, dead</i>	<i>Wood, tree</i>
A. ak', hak'	-amūkūk	ahká-uhká = "firewood"
B. ache (= aχ')	koehhe	fakáhoke = "wood"
		eaomtkite
C. aχ' (aχ')	{ikoχχe = "die"	fakaχχ'úkūā = "wood"
	{χnaχχ'e = "dead"	ehe = "a stick, palo"
D. ahj (ahχ')		ehe = "arbol"

YUMAN

I. {kaχ'- (in kachpara, "sea") tasi; desi = "to drink"	epé	{wache = "tree" aput = "wood"
II. cal	ybitá	allegó = "wood"
IV. kahal; kalal (t) (Laymon)	ibi; yibi	

YUMAN—continued		
<i>Water</i>	<i>Die, dead</i>	<i>Wood, tree</i>
1. ahá, aháa	epiga	
2. aha	nevaye; bi="dead"	i-i="tree, wood"
3. nilnwhet; habaw'l		{ ihu="tree" inalch="shrub" iya="wood"
4. háche	epúik (ipáik="alive")	{ emabatách="tree" eerche="wood"
5. χá	epúik	{ teish="tree" lish="wood"
6. akha	ipuík	ai="tree"
7. { ahá { ikhha (Gibbs)	{ hippooik="dead" { hippóik (Gibbs)	{ ahah="cottonwood" { ahee; a-i="wood" (Gibbs)
8. ahá		ichichiwoche="tree" a-i="wood"
9. aha	hipúik	ahaí="tree; ai="wood"
10. aháa	apige	iie="tree"
11. ha	haigopiga (Gilbert)	
12. ahá		éesh="tree" e-ee; e-etch="wood"
13. ha (=χα)	puik	eekwsen; ce="wood"
14. akha	meley	akhakunan; il="wood"
15. h'ha	mispā	ilye; sin'yanquatāi="tree"
16. ahal	mispah	e-ee; e-ee="wood"
17. ha (=χα)	m's'pa	oochoh; ce="wood, pine"
18. ahá, ha	pih	iñ
19. áha, há	bihi; bi; pi	ivi; i-i="wood"
20. já (χ'a)	opúic	ei="wood" and "tree"
21. ahá	ipapí	ii, akiñl; iiruba="wood"
22. aha	hepi	
23. aha (=αχα)	paspi	haipak
24. ah'há	mesapá	ily="tree"

All the Serian words denoting "water" are monosyllabic and terminate with the *k*-sound or aspirated guttural *χ*, followed by the breath instant (to which the final *e* of Mr Bartlett's orthography is equivalent). On the other hand, the vocables of the Yuman group of dialects invariably end in a vowel or a double vowel, and, in 24 out of 31 given forms, they are dissyllabic, several being trissyllabic. The Laymon form of the term is evidently the least affected by use, and jointly with the words numbered 5, 6, 7 (Gibbs), 13, 14, 17, and 23, shows the genetic character of the terminal vowel in the given words. These considerations render it probable that the apparently radical resemblance of the collated words is fortuitous and not at all genetic.

In the Serian list of names for "wood" two different words are given, and a third occurs meaning "tree", perhaps "shrub". This third word, *che*, is very probably an exotic in the list, and is seemingly of Yuman origin, through its substitution by a Yuman-speaking interpreter for the proper Serian word. The correct term is probably contained in the other word given, *ahkáuuká*, "firewood" (McGee); *a-ká-hoke*, "wood" (Bartlett); *akaxχ'úkñü*, "wood", Spanish "leña" (Pinart). The base of the word is evidently *ahka*, *a-ka*, or *aka*, signifying "wood", while *uhka*, *hoke*, or *χχ'úkñü*, is the attributive, meaning "dead" (compare *ikoxχe*, "to die", *χuaχχ'e*, "dead", *kochhe*, "dead"). Hence, the compound signifies "dead wood" or "dead timber", and the correct Serian word for "wood" is very probably *ahka*, or *aka*. In

giving the names of the time periods M Pinart records an expression that confirms the foregoing analysis. The word in question *koucheχkūč ishshaχ'*, which signifies the month in which "se seca el pasto"—i. e., the month "the grass dries, becomes sere". Now, the element, *heχkūč* is evidently identical with *χχ'ūkūč* above, and this rendering should be "the month the grass dies". Thus it would seem that the term *che*, not being a native Seri word, does not serve to establish relationship with the Yuman.

The compared list of the Serian and the Yuman vocables purporting to denote "die, dead", show no tokens of relationship.

	SERIAN	
	<i>Sky (the heavens)</i>	<i>Rain (cloud)</i>
A.	{ a-mē m-ma a-mēu-ma kwñ-i'k-pok a-mē m-ma kũm-ũm-kwet-na = "hori- zon "	{ khópká = "rain"; oká'ta = "cloud" kũthla = "fog"
B.	a-mí-me	ip'kakaokuk = "heavy rain" (?)
C.	amimme = "sky, heaven "	{ hipka = "rain, shower" χoopka = "it is raining" okala kχuanom = "it is cloudy "
D.	ammime	{ ipka = "rain" okaxla = "cloud "
		YUMAN
21.	akwarra	hóka
8.	iqui	kowawakochain
2.	o'kve okenedia	kivo; kiva, kiwa
3.	ama	haishunat
24.	amái	equi
13.	amai	k'wus
9.	amáia	kubaúk; kubaugč = "it is raining "
12.	amamai	muhheč; ikwi = "cloud "
10.	amayaá	kivvoga
6.	amaya	kovank
1.	hámasia = "heavens "	čkwi mädshiga
23.	emmai	quicha
1.	embai	
15.	mái	paon
16.	mai (i in like)	pow
17.	mai	qui
4.	máiche	oaúk
5.	maish	
14.	may	ikvuy
11.	maya (Renshawo)	kw'voga
20.	muái	obánc
22.	meya	
11.	miyá (Gilbert)	
7.	{ mumaýya ummaía	{ coolowwa; hobank (Yuma) kobank
18.	ámíyü'	ikwiwó = "rain"; ikwi = "clouds "
19.		čkwi = "clouds"; tiwo = "rain"; ek- wariga = "the sky is cloudy "

While the seeming resemblance between the Yuman terms for "sky, heaven", and the Serian vocables of the same meaning is more apparent than real, yet the kinship of the Seri with the Yuman group of languages has been conjectured upon data of which this merely fortuitous similarity was made a factor.

The derivation of the characteristic Yuman term *amai*, the variants of which constitute, with the exception of three vocables, the entire list here compared, is evidently from the stem of the Mohave *amail*, "above, on top", *amaik*, "higher", the Yavapai *miäri*, "up", and also the Yuma (Bennett's MS.), *amiki*, "over". In the number-names, such as those for "eleven" and "twelve", this vocable becomes *maik* and *maga* in Maricopa, in Bartlett's *Coco-Maricopa*, and in Cochimi, and *maike* in Hummockhave, *amike* in Yuma (Bennett's MS.), *umaiga* and *umai* in M'mat, *amaik* in Mohave (Gibbs), *mae* in Kutchan, *amaik* in Kutchan (Englehardt), *emua* in Santa Catalina; in all the number-names in which these variants occur they have a single meaning, namely, "above, over, on top, added to, plus". Thus it is evident that the Yuman variants of *amai*, "sky, the heavens", are cognate with the auxiliaries or flexions of number-names cited above. Hence, originally the Yuman concept of the "sky" was "the place above, the higher place, or the place on top".

The derivation of the Seri vocable *amime* or *amimma*, "sky, the heavens", while bearing only a fortuitous resemblance to the Yuman terms noted above, is not traceable from the meager material at present accessible. Strictly speaking, the extent of the phonetic similarity between the Yuman and the Seri vocable is the possession of an *m*-sound in the first syllable, which is evidently the dominant one in the Yuman terms. On the other hand, the Serian vocable has two syllables dominated by the *m*-sound, and the foregoing explanation of the derivation of the Yuman vocable, if correct, as it seems to be, does not supply any means for explaining this duality of syllables dominated by an *m*-sound in the Serian term. For unlike the Yuman dialects of the present the Seri tongue does not duplicate the stem of a word or any part thereof for any purpose whatsoever (though in the past the Seri may or may not have had the duplicative process, for a language can not only do what it is accustomed to do, but may at all times acquire new habits). So it would seem that without historical evidence to support it this comparison is invalid as an indication of linguistic kinship between the vocables compared, and its evidence regarding the conjectured relationship of the two groups of languages is negative.

SERIAN

<i>Sun</i>	<i>Moon</i>	<i>Fire</i>	<i>Earth</i>
A. sčähk	essehahk	a'má'ká	ámunt; e'k—"dust"
B. schra	isah	amakinoch	am't
C. shaa	ishshax'	amak	{ a s h a m t = "clay, adobe" hamt—"the earth"
D. rahj; tahj		amak	ampte

YUMAN

I. epang	konga	maahra	émut
II. ybo	kaglimbák	usi	akug
III. ibo			
IV. ibo; ibungá (Laymon)	gamma: ganehma- jen	usi	amet; ammet
1. inyáa	háláa	oóo	
2. nyā	h'lá; hallá (White)	hoo: weya (White)	uata
3. inugh	hailiyugh	eya: ahi	muat
4. enn'yache	halyáche	n'yakiém	máche
5. nyas	χilás; χalásh	ahaus	mát
6. anyá	halyá	aáua	amata

	PIMAN		
<i>Dog</i>	<i>Coyote</i>		<i>Wolf</i>
a. cox (Pima, White)			serr
b. yocsi (Nevome)	vana		suhi
c. koks (Pima)	pan		
d. kocks (Opata)	guo		
	YUMAN		
1. ethatta	etadwachtibawaha		(etadwachtibawaha)
II. masa			
1. uhát	kathá't		
2. tsata	kethuda		mhá
3. cowwaick			
4. hatch			hatakúltis
5. χát	χatelwís; χatelwísh		χattekúltis
6. akhatchora			luksara
7. {hotchóuk hatchóka (Gibbs)	hūkthara (Gibbs)		hooktharu
8. hachochoke	hookhara		
9. hatteáka (pl. hatteák-tea)	bukçára		
10. akhat			gesat
11. hot; ahát (Renshawe)	kthat; cathá't (Renshawe)		
12. hoowée			
13. ahatchookachook	ahatelceway		
14. khat			
15. h'hút			hutch'kólk
16. hotchukchak			hutchpah
17. ahot	ahotoopai		
18. kuthá'rt	kuthá'rt hána		
19. katháta			nimmíta (nimiwi)
20. jatsoesóc			jatelnó
21. a'hat; ahút			
22. kehér			
23. itat	milti		latkil
24. h'hut			h'takulch
huwi. (Kutchan, Bartlett)			

The comparative list of names for "dog" shows that the Seri term was very probably adopted from the Piman group of tongues, and there is therefore no apparent relation between the Serian and the Yuman terms.

The Serian name for "coyote" shows no kinship with the Yuman names for this animal.

The Serian names for "wolf", *χ'ekkos* and *hasho-kévlch* (= "red hasho"), show no apparent linguistic relationship to the Yuman names for this animal. It is possible that the Serian terms have some affinity to the Piman terms for "dog" and "wolf".

Notwithstanding the unqualified conclusion of Herr J. C. E. Buschmann as to the separateness of the Waicuri (Guaicuri), the late Dr Daniel G. Brinton, in positive terms, though from adverse evidence deduced from precarious data, included this and the Seri tongue in the Yuman stock of languages. Speaking of a comparative list of words specially selected from the Cochimi, Waicuri, Seri, and Yuma, he says: "The above vocabularies illustrate the extension of the Yuman stock to the southward. The Cochimi and Waicuri are remote dialects, but of positive affinities."¹ Yet of seven terms selected by him from the Waicuri to prove these

¹The American Race, p. 335.

"positive affinities" not one has any phonetic accordance with the term with which it is compared. This, it would seem, should have sufficed to eliminate the Waicuri from the Yuman stock. Pending further research, this language should stand independently.

Of the conjectured glottologic kinship of the Seri to the Yuman stock Dr Brinton says:¹ "The relationship of the dialect to the Yuman stock is evident." Yet out of twenty-one terms which he chose to exhibit the grounds of his faith only six (those for "tongue", "eye", "head", "water", "man", and "teeth") show any definite phonetic resemblance. This number, however, can certainly be reduced by careful scrutiny. Thus, he cites the Laymon and Cochimi *tamad* as a cognate of the Seri *eketam*. The Laymon and Cochimi term, it must be remembered, does not occur in this form in a single other tongue admittedly Yuman. Now, before this vague resemblance can establish relationship it must first be shown that the terms compared have a common linguistic tradition and that a form of *tamad* is or has been an element common to the other dialects of the Yuman group. But an analysis of the Cochimi term shows no trustworthy ground for considering these terms related. So this certainly reduces the number of conjectured accordsances to five.

Comparison is made by Dr Brinton between the Serian *ata'st* (*itast*, *hitast*), "tooth" and "teeth" (collectively), and the vocable *chdoh* (Lieutenant Bergland's), "tooth", variants of which are common to only three of the twenty-odd Yuman dialects. He made this comparison evidently under the impression that the first part of the Seri term *ata'st* (*itast*, *hitast*) signifies "tooth". But such is not the fact. The first part of this Seri vocable signifies "month" (as may be seen in the discussion of the comparative list of names for "tooth") and the latter part "stone". The term *itast*, "tooth", is, therefore, literally "stone of the month". This is certainly not the signification of the Yuman terms, and so the comparison is invalid, and the number of apparent accordsances is reduced to four. By some oversight it seems Dr Brinton omitted from this comparison the Cochimi *hastad*, "tooth"; but this collocation has been made by others. Now, this term *hastad* belongs exclusively to the Cochimi dialect, and before becoming a means of comparison would have to be shown to be a vocable common to the body of Yuman terms having a common linguistic tradition, which has not been done. Moreover, the phonetic obstacles barring a way to a fruitful comparison of this term with the Serian are quite insuperable—the assumed loss of the first half of the Seri term, the acquirement by the Cochimi of the initial *h* sound and of the final accented syllables *-ad*, or the converse process. This, it seems safe to say, renders this comparison likewise invalid.

The Seri term *inilash*, "hand", has certainly no phonetic accordance with the peculiar Yuman *israhl*, which is from the Yuma or Kutchan record of Lieutenant Eric Bergland, nor, indeed, has it any accordance with any other Yuman term for hand. The presence of the *r* sound in it supplies the peculiar feature of the term; but it may be used only to lengthen the following vowel (though this is only an assumption). This form is peculiar because there is none like it in about thirty Yuma vocabularies, representing about twenty dialects, in the archives of the Bureau of American Ethnology. A careful inspection of the comparative list of the Seri and the Yuman names for "arm", "hand", "finger", "thumb", and "fingernail" will demonstrate the utter futility of the comparison under consideration, for there is no accordance between the Seri and the Yuman terms.

Elsewhere herein, in discussing the terms for "head" and "hair", "eye", "tongue", and "water", it is shown that there is no apparent linguistic relationship between the Serian terms on the one hand and the Yuman on the other, and those explanations dissipate entirely the suspected accordsances of Dr Brinton.

¹ Loc. cit.