

THE USE OF INDIAN GESTURE
LANGUAGE FOR THE INTERPRETATION
OF NORTH AMERICAN PETROGLYPHS:
A TRIAL ANALYSIS

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To my good friend Carol
Keep up your good work
LaVan Martineau

In recent years two schools of thought have crystallized on the subject of the purpose and function of North American petroglyphs. One group insists that their primary purpose is for ceremonial activities; the other maintains that their primary purpose is for communication of information. Adherents of the latter position often go further and propose that they are a graphic form of language. Following the approach set by Steward (1929), most workers in the field assume the former purpose. For this reason the term rock art has become a recently applied synonym for petroglyph, e.g. the American Rock Art Research Association and the Canadian Rock Art Research Association. For an explanation of this view see Grant (1967). A number of earlier investigators, including Mallery, supported the latter approach and have suggested that petroglyphs may be graphic representations of Indian Sign (hand gesture) Language.

"The reproduction of apparent gesture lines in the pictographs made by our Indians has, for obvious reasons, been most frequent in the attempt to convey those subjective ideas which were beyond the range of an artistic skill limited to the direct representation of objects, so that the part of the pictographs which is still the most difficult of interpretation is precisely the one which the study of sign language is likely to elucidate." (Mallery 1881: 370).

Other interpretations of petroglyphs have also been put forth (see Swartz 1981, this volume).

In this study the possibility that petroglyphs may be a graphic representation of abstract information symbols and Indian hand "signs" will be investigated.

"There is a paradox in recent research relating to 'human' capabilities--capabilities not possessed by other animal forms. Experiments with the chimpanzee Washoe indicate that non-hominoids are capable of language (Gardner and Gardner 1969), while there is strong evidence that certain forms of Homo sapiens, namely Neanderthals, were physiologically incapable of fully developed articulated speech (Lieberman and Crelin 1971)" (Swartz 1975: 654).

Though both these positions are now questioned (Falk 1975; Terrace 1979), the implications of this possible paradox are crucial for the interpretation of North American petroglyphs. If in the two to three million year time span of the archaeological tool-making period man did not possess speech-language,¹ it seems quite possible he may have practiced gesture-language.

1. Neither the terms speech nor language are adequate. Speech is an articulation with vocal cords. Language is the transmission of abstractions. Speech need not be language, but may be sub-cortically released vocalization. Language need not be conducted as speech, but also can be gesture or some other means.

The occurrence of Plains Indian gesture language could be a vestige of an early universal gesture language stage in human development, a skill easily learned and transmitted by not only hominids, but hominoids. This effect of possible long-term gesture communication on the origins of pictography poses intriguing possibilities. Martineau contends that (1) pictography is visual representation of gesture language, (2) has universal elements, and (3) is the product of worldwide Neanthropine diffusion. On this final point Swartz and Houck strongly disassociate themselves.

Swartz believes that the existing complex pattern of Plains Indian gesture language is not a vestige from an earlier primal state nor, probably, of even great antiquity, but as an intensification of an existing casual gesturing system caused by increased contact due to the introduction of the horse. Now many linguistically distantly related or unrelated tribes often encountered one another and needed a means to communicate. If this is so the use of gesture language to interpret early rock markings becomes more tenuous.

Swartz and Houck maintain that until more is known, North American petroglyphs must be studied and analyzed from a local perspective on a case by case basis. Presented here is a detailed analysis of a panel from the Southwest United States (Washington County, Utah), the area where Martineau has conducted much of his work. The interpretation of specific information is Martineau's. Martineau's procedure of petroglyph interpretation is as follows:

In deciphering² Indian rock writing through controlled experimentation...[a] symbol³ frequency can be very helpful in associating the most frequent words. However, to do this one must have a definite understanding of more than one Indian language, since Indian expression varies from tribe to tribe. One would not expect to find common Hopi words--kiva, prayer stick, clan, kachina--used by a nomadic tribe whose culture would have no use for these words....Frequently lists are designed basically to reduce the amount of guesswork necessary in deciphering unknown symbols. But--since frequency lists will not include all symbols, especially those symbols having neither a high nor a low frequency rate--they have a very limited use in pictography....

The burden of the task of deciphering falls, then, upon other principles of cryptanalysis--topic elimination, grammatical elimination, controlled experimentation, affinity checks and tests, deduction and induction. Most of these tests are designed to reduce the amount of guesswork necessary, and then to test the accuracy of any

2. Swartz is uneasy about employing the term decipher beyond its already overextended use in translating logographic writing (see Swartz 1968).

3. Swartz prefers the term sign to symbol, because the marking may not be symbolic but a general abstraction. <

remaining guesses through consistency tests. A consistency test, however, cannot be made without a few educated guesses to work with, arrived at with the help of imagination, intuition, symbol suggestiveness, research and other sources, after all possible elimination has been accomplished. All such guesswork must be checked thoroughly for consistency.... All communication systems, due to their built-in consistency, are self proving....

In order to reduce the boundaries of...[an] almost infinite field of guesswork, one must first establish a tentative topic, automatically eliminating words foreign to that topic. For example, battle accounts, migrations, and religious ceremonies all have words peculiar to each. One would not commonly find rain-making ceremonies described in a battle account. (All topics, however, do contain words common to all, the incidence of which is in itself a useful tool.) Therefore, the key to isolating the topic of a panel is to first know the meaning of at least one or two symbols it contains which are not common at all topics. Thus the topic of the panel must bear a relationship to such known symbols.

The content of phrases and sentences may also be determined, further reducing the guesswork necessary. For example, it is common to find such words as high, rugged, and snowy occurring together with the word mountain. There is a definite relationship or affinity here; or, grammatically speaking, these words are appropriate adjectives used to describe the noun mountain. Conversely, the word mountain is seldom, if ever found used next to words such as later, ready, today, and now. Such words have no kinship, or affinity, and their use would be grammatically unsound. This knowledge aids in simplifying the processes of translation.

In some examples wherein only two symbols are being studied, each of which is equivalent to only one word, deciphering is aided by simple grammatical elimination. However, in the more common cases wherein one symbol is equivalent in meaning to several words in English or a short phrase, it then becomes only a matter of completing that phrase. There are not many words or phrases in a language which can be properly used with the meaning of one known symbol. This type of cryptanalytic principle or affinity elimination process is thus very valuable in enormously reducing the guesswork necessary....

An example of how elimination by affinity can serve in an almost wholesale elimination process is found in Figure 1.... Column A represents basic symbols which cannot be broken down further without changing their meaning. Each of these symbols represents an assigned phrase, word, or idea suggested by its shape. The symbols in column B represent a few of the numerous variations, combinations, incorporations, and basic symbols.

For example, the symbol in line 3 in column A indicates veering or curved. It must retain this meaning in all its variation, combinations, and incorporations in column B, while at the same time soundly formulating in these embodiments additional linguistic meaning. A considerable amount of guesswork is thus eliminated, since not many meanings exist which can appropriately combine with this one known symbol.

Symbols must also retain their basic meanings throughout all the various attitudes presented in column B. By virtue of these attitudes and variations these symbols suggest their own meanings. For example, in line 5, symbol a is known to mean close or near. Thus symbol b, pointing downward, suggests close down; symbol c, pointing upward, suggests close up, or a short way up; symbol d suggests bunched or close together. If these suggested meanings are indeed correct, then these translations must prove applicable and correct at all times in conjunction with other symbols in actually reading panels.

This chart, in addition to its use as an elimination process, serves equally well as an effective consistency test, once a few symbols are known. For instance, the two symbols curved and near must be consistent in each of their embodiments in column B--if they have been correctly deciphered, if there are no symbols wrongly placed in this chart, and if no tribal variations in meaning exist. Such symbols, because they do not meet the criteria of consistency, are thus identified and eliminated.

Another method of using this chart as a consistency test in checking the validity of guesswork is illustrated as follows: Lines 6 through 10 show five basic symbols in order to prove its accuracy. This of course ultimately requires a knowledge of the meaning of only one or two of these basic symbols, a certain degree of accuracy can be assigned to appended symbols that pass this test. If any guesswork fails to stand up, then it must be reevaluated. The efficiency of this test increases with the increase in numbers of known symbols....'

The existence of linguistic principles in Indian pictography is enhanced by the hypothetical symbols presented in chart 10. These imaginary artistic combinations and incorporations of many of the basic symbols from chart 9 do not exist; such arrangements lack grammatical soundness and affinity. It demonstrates that Indian pictography has a noticeably limited number of symbols and methods in its makeup with which communication can be accomplished.

(Martineau 1973: 180-4).

It must be realized that Martineau's interpretation procedure is circular and self-correcting. It, therefore, is difficult to externally verify by another worker. To fairly judge the approach one must incorporate extensive data to make independent comparisons.

Though, for some reason, he is unwilling to acknowledge it an approach similar to Martineau's has been developed by Marshack (1972a,b) to interpret European Paleolithic graphic signs, and even to relate these implications to language development (1976).

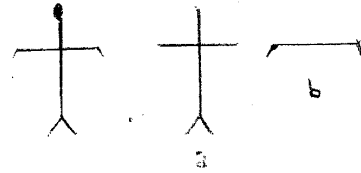
	Column A	Column B									
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											

Figure 1

LEGEND FOR SIGN DESCRIPTIONS

GA	Comparative Affinity
ISL	<u>Indian Sign Language</u> (Clark).
ISL (Tompkins)	<u>Indian Sign Language</u> (Tompkins).
PWAI	<u>Picture-Writing of the American Indians</u> (Mallery).
RBS	<u>The Rocks Begin to Speak</u> (Martineau).
WG	<u>Western Gateways</u> .
WO	<u>Walum Olum</u> .

Locality numbers are from Martineau's catalogue.



1 Sign Number 1 Cluster Number

Literal Meaning: a. man (is not incorporation of barring, sign 22)
 b. keeping-at-a-distance (see signs 3a, 26c, 49b)

Combined Meaning: keeping-back

Extended Meaning: afraid

Inscription Affinity: Walking with fear (radiating legs) and head. Sign 2a - afraid to go with them.or going with fear.

Comparative Affinity:

1. Parunuweep Canyon, Zion, Utah (1462). Map of access route into deep canyon. Route "far down" into a "depp" canyon. Keeping distance sign and down (bird track) sign means "going down fearfully" because of steepness.



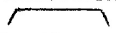
Barring sign occurs 14 times in RBS, Chart 8, p. 160. Distance sign occurs 17 times in RBS, Chart 8, p. 160, Chart 9. fig. 4, p. 182.




- b1. Mule Canyon, side canyon of Grand Canyon, Arizona. RBS, p. 119-120, fig. 61g-f (50 miles), "passing through."
- b2. Rainey Lake, Ontario, RBS, p. 132-133, fig. 66d. "Going down a distance" (see CA1 above). Man drowning from a capsized canoe.
- b3. "wide river" (common).









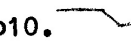

Documentation: PWAI-I, fig. 206, p. 278 (see also 42).

Sign Language [more properly hand gesture language, but the common term will be used in this analysis]: arm pointing off at distance — is common in sign language gesture for distance [e. g. Jenson Jack (Ute) and Jack Bigeye


(Blackfoot) Glicen, Montana]. Distance in two directions is . "Afraid" is indicated by Utes and other Plains Indians as "backing-off" by pulling extended arms back to body. ISL, p. 25, list "afraid" as pulling horns in both index fingers held vertically upright like horns, then pull fingers towards body. Front view of Ute sign for backing off (afraid) Rhoda Poonegup, Ute informant.

Variations: b1.  "close, near"; b2. 
"close down"; b3.  "close up"

RBS figs. 10-11, p. 18-19, sign h;

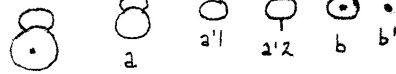
b4.  b5.  (1-5 RBS, Chart 9, line 5); b6.  b7.  b8. 
b9.  b10.  (line 4) b11. 

(see sign 3); b12. "pushing back" (see sign 25).

Oppositions: Arms down and in  "closed-up."

RBS, Chart 9, fig. 5d, p. 182.

Note: Distant meaning of sign 1b is demonstrated, but cryptanalysis indicates other extensions of meaning and a possibility to refine the basic concept.



2 Sign Number 1 Cluster Number

Literal Meaning:

- a. behind beyond
 a'1 shield
 a'2 head
- b. holding-in-one-place (see signs
 7a'2, 9c, 27b'1, 39c'1, 52b'2,
 53b, 54a'2)
 b' here (clenched fist) (see
 signs 42, 47b)

Extended Meaning:

- a. on-the-other-side-(of-the-
 horizon) (head behind shield)
- b'. sit

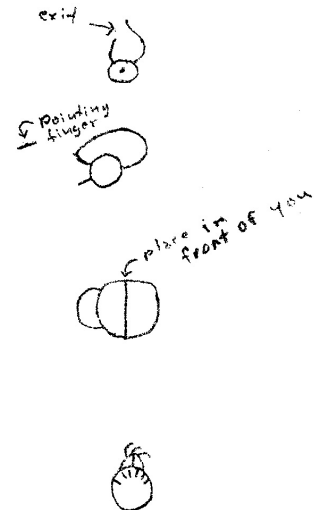
Extended Meaning (composite part b): something-in-it

Inscription Affinity:

1. Movement of 1a indicates walking (or going)-
 fearfully. In contex with afraid this could mean
 sitting down, sign 4, (with Spaniards), beyond
 horizon.
2. With signs 4 and 6 a composite figure is
 constructed.

Comparative Affinity:

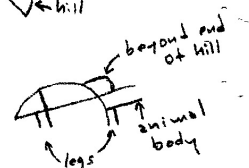
1. Vassay's Paradise, Arizona (899). Beyond
 the horizon in the direction in front of
 you, you cannot exit from canyon (see
 sign 12a).
- a1. Buffington Pocket, Valley of Fire, Nevada
 (1679). Hidden panel behind rock within a
 wash--"look behind."
- a2. Virgin Narrows, Arizona (25 miles) (836).
 "Behind or side of place in front of you."
- a3. Delta, Colorado (1948). "Warrior coming
 out from behind shield" or was "in front
 and now behind shield."



a4. Cima, California (near Las Vegas) (3458).
Many people behind a hill.



a5. Indian Peak, Utah area (3134) "walk along
the hill in front of you," or "walk behind
end of hill."



b1. Hold-in-one-place sign occurs in inscription
sign numbers 7a'2, 9c, 39c'1, 52b'2, 54a'2, .
and 12 times in RBS.

b2. "Confinement," WG, Sign h and picture 3,
p. 19, (incorrectly interpreted, p. 20),
two additional examples in canyon.

b3. Circle around person or animal means "pinned."

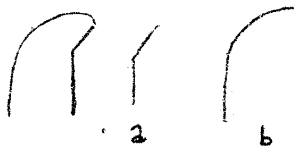
Documentation: Hibben (1975, pp. 131-133).

Sign Language: b. A circle is made with arms to
indicate hold ISL, pp. 212-213. A near circle
with the "flip-flopping" out of the right hand
indicates beyond. A circle beyond a shield is
not unlike a hand beyond a hand. b' Fist
(see sign 42).

Variations" a1. high behind; a2. many
behind; a3. a4. a5. a6.
a7.

b1. b2. b3. going free.

Oppositions: a. "in front of" (body) (see sign
31b) or "unprotected" b. "release" or
"free" (see sign 54), or "nothing there"
(see sign 53b).



3 Sign Number

1 Cluster Number

Literal Meaning:

Combined Meaning: Distance and side signs are incorporated in finger position for first, with "at a distance."

Extended Meaning: a. distance (see sign 1b) affinity with sign 7 - first (ahead, before) (see sign 26CA2)
b. side (beside, with)

Extended Affinity Meaning: First-caught-up-with (this is primarily a supplementary clarifying sign for the cluster).

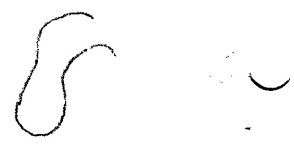
Inscription Affinity: Upper right position of sign to sign 7 indicates first, W0, p. 120; ISL, p. 65, i. e. a future tense indicator. Incorporated into signs 10 as a variation of "top" and 41 (see at point of asterisk).

Comparative Affinity: With sign 1 occurs 7 times in RBS Chart 8, p. 160. Often in locators, meaning by extension "edge." This is a very common petrograph convention.

Sign Language: Right finger on palm of left hand means "with" or "together" ISL, p. 407. The "elongated D" by petrography represents a side. Hence something beside something is together, e. g. RBS, fig. 12a, p. 20.

Variations: Straight line, rather than obtuse-angled "distant" line, means "side" if vertical (see sign 46), or "under" if horizontal. Signs may be closed at both ends
D D O O . See sign 1 variations 6-11 for a.

Oppositions: a. ↑ "close" b. ∩ opposite side.



4 Sign Number 1 Cluster Number

Literal Meaning: sit
good (invitation good, nothing there)

Extended Meaning: 1. invitation-to-sit-good
2. they-sat-down-good (alternative interpretation)

Inscription Affinity: Arm and fist are open (unpecked) indicating the Spaniard's invitation was good--nothing there. With signs 5 and 6 a composite figure is constructed.

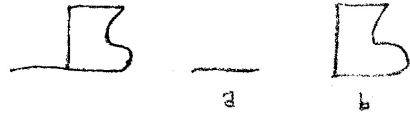
Comparative Affinity: Rare, but Martineau reports three other southwestern sites.

Sign Language: Fist is made to indicate "sit" ISL, p. 349 for "here," ISL, p. 210.

Variation: † Dot means "here" reinforced with arm. Not used in above in that "open" needed to be indicated.

Opposition (variation): † gone (see signs 13a'1, 51a'2).





3 Sign Number 1 Cluster Number

Literal Meaning: a. sole-leather
b. moccasin (boot with flap)

Combined Meaning: sole-leather-on-moccasin

Comparative Affinity:

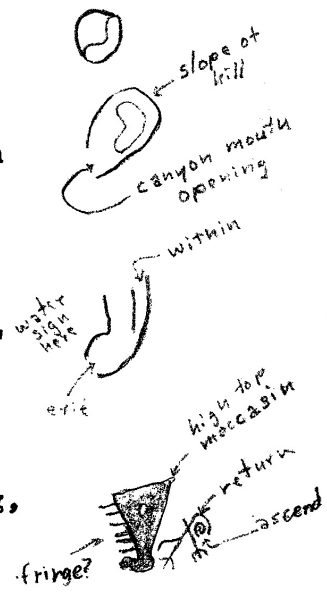
Sole leather (rare), Arizona (4334) and Utah (617). Foot sign common.

b1. Valencia Co., New Mexico. RBS, p. 21.
"walk to left" (around a mountain.

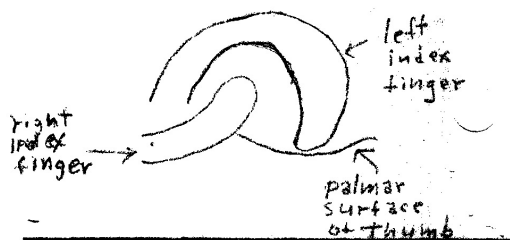
b2. St. George, Utah (1533). "Going down inside (canyon) to 'foot' of hill (canyon mouth)." This is not a locator sign (see sign 12a).

b3. Hualapai Indian Reservation, Arizona (100 miles) (3534). Note exit sign at toe of foot. Line inside means "within." Short toe "come out of canyon to water." Water is present.

b4. Clear Creek Canyon, Utah (1794). Moccasin at base of cliff idea of "ascending, changing direction (see signs 8, 22CA1) and turning around because cliff." Such are cliffs common in the area.



Variations of Combinations: b1. b2. b3. b4. b5. b6.



6 Sign Number 1 Cluster Number

Literal Meaning: poking-through

Extended Meaning: lacing

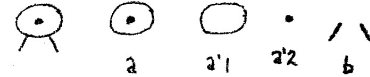
Inscription Affinity: Meaning supported by signs 2b (holding-in-place), 5a (sole leather....) and 7b looking (down). All are involved in operation of lacing sole leather on moccasins. With signs 4 and 5 composite figure is constructed.

Comparative Affinity: This is a seldom used sign.

Sign Language: Is close to pictorially representation of sign for "sew," ISL, p. 333, except that the latter does not have fingers looped. It is to represent pictorially sign language gesture. The looped left index finger might be an unrecorded sign language gesture for "lacing," to differentiate it from "sewing."

Variations (hand signs, not "poke through" variants):

1. 2. 3. 4. 5.



7 Sign Number 1 Cluster Number

Literal Meaning: a. holding-in-one-place (see signs 2b, 9c, 27b'1, 39c'1, 52b'2, 53b, 54a'2)
 a'1. holding
 a'2. have (clenched fist) (see signs 42, 47b)
 b. looking down

Composite Meaning: looking-down, holding-in-one-place

Alternate Composite Meaning: staying-in-one-place-looking-down

Extended Meaning: holding-(sole-leather)-in-place while-looking-down

Inscription Affinity: Proximity to signs 5 and 6 indicate that something refers to sole leather.

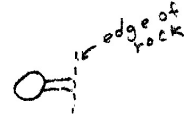
Comparative Affinity:

1. RBS, Fig. 22a, p. 36, Arizona (837).
2. See sign 49a2.
3. See sign 2CA1.
4. Virgin Narrows, Arizona (834). Note eyes "looking down from side of canyon." Locator for another panel which can only be seen while looking down upon it; ♀ Parowan Gap, Utah, (2526) top-most panel on mountain gap slope. "look down" (to lower panels).
5. Safford, Arizona (2999) "Look straight ahead" locates Cottonwood Springs 1/4 mile ahead. Eye sign (see 36a'1) added to finger as a determinative for "look."

♀ canyon sign










6. At Escalante Panel, Utah (544) "Look up at side of cliff" and finger below points up to serve as idea for direction "up" since panel is high up on cliff and not easily seen; Palo Verde, Arizona (3513) (see sign 490Aa2).



Documentation: Vision line PWAI-II, fig. 944, p. 601. Double looking line RBS, fig. 23, p. 36.

Sign Language: Two fingers from eyes ISL, p. 332 meaning "see." Fingers represent vision lines.

Variations: 1.  looking high, 2.  3. 
4.  5. 

Opposition:  "not looking" (relaxed ears),
common. a.  (see sign 53b).



8 Sign Number

2 Cluster Number

Literal Meaning: trade

Comparative Affinity:









1. Arlington, Arizona (2644) two men are holding their hands close to their chests (sign language for greedy) tugging on a trade article.
2. See sign 5CAB4.
3. Mineral Mountain, Utah (3073). Near obsidian quarry "where arrowheads were made and 'traded'".
4. See sign 45CAA1.



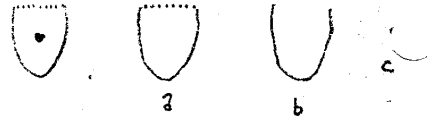
Others, common

Documentation: PWIA-II, fig. 956, p. 603; ISL, p. 169; ISL (Tomkins) p. 80.

Sign Language: The crossing of arms is comparable to cross lines, ISL, pp. 163-4; other variants SLANAI, pp. 381, 450-1, 454.

Variations (of combinations): 1.  trading item gone (see sign 13a); 2.   trading place (see CA3); 3.  trade shoes (see sign 5b); 4.  blind (see sign 23) trade; 5.  trade two; 6.  7. 

Note: Cryptanalysis shows this sign does not mean trade in all cases, only with proper determinatives and context, for example 1. White Man (SLANAI, p. 451). 2. Eastern Indians means war (two combined arrowheads), WO. 3. Changes, e. g. of facial expression. 4. Move. Move and change can be aspects of trade (exchange).



9 Sign Number

2 Cluster Number

Literal Meaning: a. necklace
 b. holding
 c. here (clenched fist) (see signs 42, 47b)

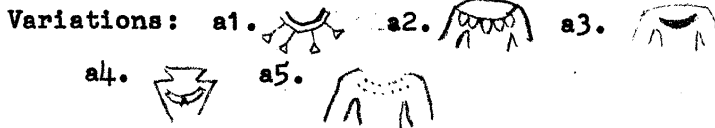
Extended Meaning (be combined: hold-in-one-place (see signs 2b', 7a'2, 27b'1, 39c'1, 52b'2, 53b, 54a'2)

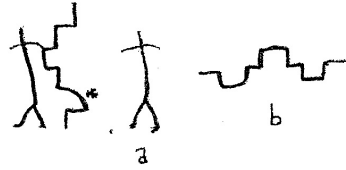
Inscription Affinity: Near sign 12 - knife (see documentation below) and sign 8 - trade. Upper ends of U go over a rock ledge, conveying item of draping.

Comparative Affinity: Hundreds of signs of elaborate necklaces with turquoise pendants Fremont panels, Dryfort Canyon, Utah. These necklaces also drawn in a U shape, but have pendants.

Documentation: Escalante account states that necklaces and cutlasses were traded.

Sign Language: Place right arm (elbow) over head with palm of hand passing by left ear and around behind neck, then describe a U in front of chest. "U put over head and around neck." Then make sign "hanging," by dropping right hand down over left hand, Jim Warden (Arapahoe), El Reno, Oklahoma. Describe U in front of chest with index fingers, starting at both shoulders simultaneously and joining at top of stomach, Charles E. Queacut, Fort Duchesne, Utah.





10 Sign Number

2 Cluster Number

Literal Meaning: a. man (walking) (see sign 1a)
 b. canyon (see sign 11a)
 * top (above) (see sign 14a)

Extended Meaning (combined sign): leading-someone-through-a-difficult-canyon (see signs 16, 44).

Inscription Affinity: Leading (sign 16), movement through canyon (sign 14).

Comparative Affinity:

1. Colorado (1807).



2. At site of Escalante panel, Utah (946).



3. Bluff, Utah (3332A).

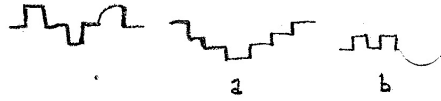


4. Summit, Utah (3025) lending in inscription affinity contex.



Sign is internal and cannot be proved geographically.

Variations: Relationship sign, hence no content variations possible.



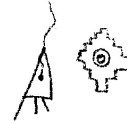
11 Sign Number 2 Cluster Number

Literal Meaning: a. escarped canyon (see sign 10b)
b. difficult route

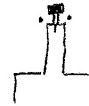
Extended Meaning (combined sign): difficult-to-travel-escarped-canyon

Comparative Affinity:

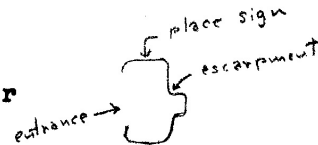
1. Gila Bend, Near Oatman Mountain, (2830). Track and wavy line are flow of Gila River. Escarpment sign indicates escarpments on both sides of a short canyon (to the east) with nothing (markings) in the canyon.



2. At site of Escalante panel, Utah (1238). A figure incorporates escarpment sign, indicates he is in canyon. ./. at neck indicates a narrows locating figure within canyon.



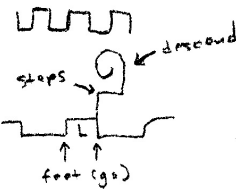
3. Virgin Narrows, Arizona (829). Marker at entrance of an escarped canyon. See sign 12a.



4. Cedar City, Utah (1344). "Difficult route on a slope." On boulder at base of talus slope with many markings at top of Boulder strewn talus.



5. St. George, Utah (1100). Locates panels in talus.







6. Bluff, Utah (3212). "Descended into an escarped canyon."

7. See sign 33CA3.

8. Chippewa Scroll foldout in Hoffman (1891).

Sign Language: Push right index finger forward, upward and downward as one would cross over rocks, a "rough" or "difficult" route. Jim Wardon (Arapahoe), El Reno, Oklahoma.

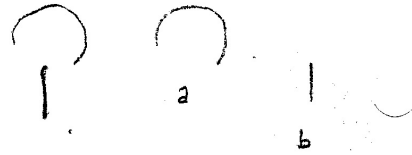
Variations: 1.  2.  3.  4. 

Oppositions: a.  mountain (Dakota), escarped

(Hopi) RBS, no. 17, Chart 5, pp. 138-139.

b. "Easy route," an open "good trail sign"

(trail sign unpecked in center).



12 Sign Number

2 Cluster Number

Literal Meaning: a. mouth
b. meat (projecting from mouth)

Extended Meaning (combined sign): knife

Inscription Affinity: See sign 9.

Comparative Affinity:

a1. Gila River delta, Arizona (2834).
Indicator for the sandy, wide bottom of the Colorado River where it enters the Gulf of California, an uninhabited and inhospitable location.

a2. Montrose, Colorado (Ute country) (1945).
Locates a petroglyph panel within the mouth of an inconspicuous cave.

a3. See 2CA1.

a4. See 5GAb2.

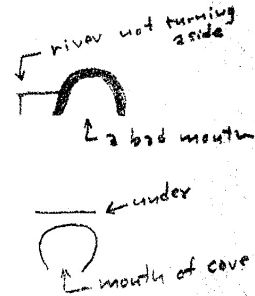
a5. See 5GAb3.






No combined sign for knife on another interpreted panel since flint knives are normally realistically portrayed.

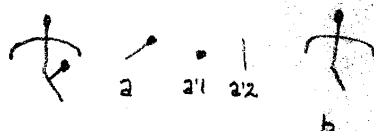
Documentation: See sign 9.

Sign Language: Cutting piece of meat held in left hand and teeth, right hand moving as a knife
ISL, p. 230, SLANAI, p. 386. Sign language idea used rather than a picture to indicate strange Spanish knives which looked different than a flint knife.

Variations: a1. a2. a3. a4.



a5.  a6.  and a7.  empty mouth;
a8.  a9.  food going in mouth.



13 Sign Number

2 Cluster Number

Literal Meaning: a'1. here (clenched fist)
 (see signs 42, 47b)
 a'2. brought-down-from-above
 b. man (used rather than an
 animal for pictographic
 convenience, both have
 stomachs to indicate
 eviserate)

Combined Meaning: a. heading

Extended Meaning: a. gone (see sign 51a'2)
 b. (composite sign - gone, stomach): eviscerated
 stomach.

Alternative Extended Meanings: 1. "knife
 hanging at man's side enclosed (in scabbard)"
 (see sign 35). 2. "knife gone from enclosure
 (scabbard) at man's waist."

Inscription Affinity: With knife (sign 12) compos-
 ite meaning becomes butchering an eviscerated
 animal, knife being the device used.

Comparative Affinity: Gone sign used 14 times,
 RBS, Chart 8, p. 160. Gone sign at breach of
 flintback rifle (bullets gone), Billings cave,
 Yellowstone National Park, Montana, RBS, p. 89.

Documentation: Gone sign PWAI-II, fig. 753, p. 536
 and fig. 1222, p. 723.

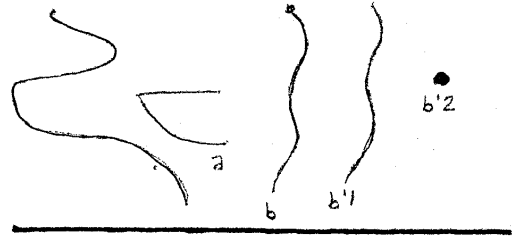
Sign Language: Sign for "forget" (is gone) is
 index finger (line) grasped by fist (dot)
 then released with index finger dropping
 ISL, p. 182.

Variations: a1. → gone short time; a2.

gone long time; directions - a3. ↗ a4. ↘

a5. ↙ a6. ↘

Oppositions: a. ↓ sit (cf. sign 4, see sign 51a).



14 Sign Number

2 Cluster Number

Literal Meaning: a. bowl or hole (see signs 10, 46)
 b'1. movement (route)
 b'2. here (clenched fist) (see signs 42, 47b)

Extended Meaning: a. under, within or below canyon (bowl or hole) rim
 b. heading up (cf. "gone," signs 13a'1, 51a'2)

Extended Meaning (combined sign): upward-route-to-canyon-rim

Alternative Extended Meaning: heading-upward-within-the-canyon

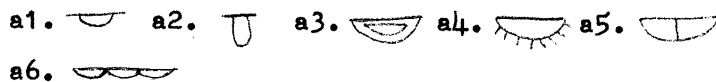
Inscription Affinity: Dominant sign in size of cluster, placement above other inscription clusters indicates "upwardness."

Geographical Affinity: The direction of this sign is the best route to a ford on the Colorado River. At rim (a plain area near Cane Beds and Short-creek) the area is flat for over 100 miles. If the Spaniards continued south they became entrenched in the Grand Canyon.

Comparative Affinity: a. and b'1 are common signs in canyons especially in this area, but not used as locator except here. Commonly used in context.

Sign Language: a. Right hand under left hand (representing rim or "surface line") ISL, p, 65.
 b'1. Sign for "alive" means "walking about," ISL, p. 29. Drawing of three zig-zags with index finger.

Variations: 1. Move or go along canyon side.



Opposition: a pile of dirt on top of the ground, ISL, p. 22.

HOI

DEI

HOI DEI

15 Sign Number

2 Cluster Number

Literal Meaning: a. misspelling (?)
b. of-God (Latin) (see sign 28)

Extended Meaning: Spaniard's (Latin orthography)
(determinative) (see signs 18, 21, 28, 30, 32,
34, 51c)

Inscription Affinity: Proximity to sign 14 indicates
Spaniard's route.

Documentation: Incorrectly formed and misspelled
Spanish and English letters common in Navajo
and Ute inscriptions from ca. 1880 to 1930.



16 Sign Number

2 Cluster Number

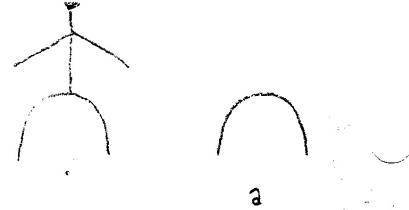
Literal Meaning: one-leading-another

Extended Meaning: lead (holding hands, body of second figure on route sign 14). See sign 10. This body is also a "bad side" or "with" (see sign 3) to indicate "going with on bad (difficult) route (reinforcing sign 10).

Extended Affinity: route (determiner)

Inscription Affinity: Letter determiner indicates Spaniard's route, implying the leader is Indian and followers Spaniards.

Comparative Affinity: See sign 10.



17 Sign Number

2 Cluster Number

Literal Meaning: a. mound (mountain) as legs
 (going)
 Full sign man
 Extended arms mean negation

Extended Meaning: Spaniard (see sign 18)-hill-no
 (Spaniards not going to top of hill)

Inscription Affinity: Meaning clarified by prox-
 imity to Indian route (see signs 14-16).


Comparative Affinity: Negation sign occurs 9
 times and mound 5 times in RBS (Chart 8, p. 160).

1. Same sign Santa Clara River, Utah (899).
 St. George, Utah (1005). "The hill in
 front of you," locates at base of hill.



See 22CA1-2 for barring and mound signs.

Variations: a1.  a2.  a3. 

Opposition: a.  canyon.

J J

10 Sign Number 2 Cluster Number

Literal Meaning: Letters J in Spanish orthography

Extended Meaning: Spaniard's (determinative)
(see signs 15, 28, 30, 32, 34, 51c)

Inscription Affinity: Proximity to sign 17 indicates
that figure is a Spaniard.



19 Sign Number 2 and 7 Cluster Numbers

Literal Meaning: backing-off (side view of sign 1 -
keeping-at-a-distance)

Extended Meaning: afraid

Inscription Affinity: Since no Spanish letter
determiner is present sign probably refers to
Indians. It serves as a supplemental sign for
clusters 2 and 7 (hence is not included in
translation). Arms extended or "reaching" (see
signs 27b, 50), but here "pushing away," note
bent body and position of legs.



20 Sign Number

3 Cluster Number

Literal Meaning: Container (deep without rim) (see signs 27b'2, 29, 44a)





Extended Meaning: Canyon (see sign 17a, opposition)


Inscription Affinity: Incorporation of horse's (sign 24) legs indicate movement and, therefore, bowl is a geographic feature. See sign 14 for bowl with rim.

Geographical Affinity: Proximity of Grand Canyon.

Comparative Affinity: Bowl sign occurs 9 times in RBS, Chart 8, p. 150. See, also, pp. 20, 22, 26, 56. Common sign. Deep bowls at Bloomington, Utah and with short bowls at other sites in Utah and Arizona.

Sign Language: Bowl is made by cupping both hands, ISL, p. 79.

Variations: 1.  2.  3.  4. 

Opposition:  (see sign 17a).

E

21 Sign Number

3 Cluster Number

Literal Meaning: Letter E in Spanish orthography

Extended Meaning: Spaniards (determinative) (see signs 15, 18, 28, 30, 32, 34, 51c)

Inscription Affinity: See sign 22.



22 Sign Number

3 Cluster Number

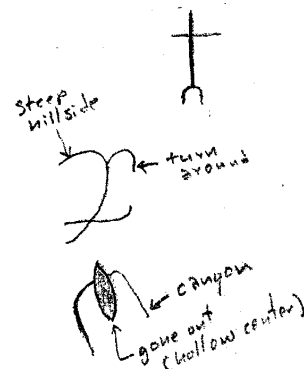
Literal Meaning: barring

Extended Meaning: stop

Inscription Affinity: Sign interposed between signs 21 (Spaniards) and 20 (canyon), indicating barring Spaniards from canyon.

Comparative Affinity: Barring sign occurs 14 times in RBS, Chart 8, p. 160, including Washington Co., Utah, figure 18a, pp. 25-26 and Lipan Apache (?), Meyers Springs, Texas (11 times).






1. Virgin Narrows, Utah (831). Map of Virgin River before narrowest impassable portion is reached, a mile further west. Tall figure (top) "barred from going up high (long body) hill" (see sign 17a). Cross line makes x (see sign 8, 5CAB4) or "change heading." At bottom hill sign is slanted indicating steepness, turn around sign at top. Hollow center in canyon sign (see sign 36a) means "gone out." "Change heading from canyon up side of steep hill and then turn around."



2. Virgin Narrows, Utah (733). "Barred from reaching top of hill because of extremely steep cliff."



3. See sign 26CAa3.

Variations: 1.  bar a long time; 2.  many barring; 3.  bar from talking; 4.  bar from taking; 5.  boundary? (see RBS, p. 91).

Opposition (combinations):  door or  opening.

Solid color
fill in

Not pictured,
must be
incorporated

23 Sign Number

3 Cluster Number

Literal Meaning: something-there

Extended Meaning: dirt (fill-in)

Secondary Extended Meaning: bad (dirty)

Inscription Affinity: Covering sign 20, indicates bad canyon, or route difficult through canyon with sign 24 route difficult for horses.

Comparative Affinity: something-there fill in occurs 40 times in RBS, Chart 8, p. 160.
Common Always incorporated, not a free sign.



24 Sign Number

3 Cluster Number

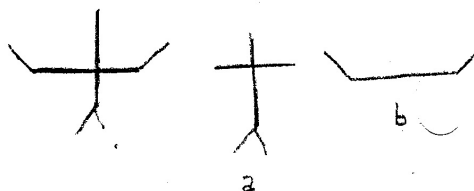
Literal Meaning: horse (see sign 55) (not mules, short ears unlike signs 36b, 37; not goat sign 48).

Extended Meaning: Heading (see signs 48, 53, 55, can be indicated by any quadruped or head). Akin to "leading" (see sign 10).

Inscription Affinity: With sign 25 keeping back (see sign 1) hand toughing front hoof and incorporation of canyon indicates that horses could not make passage across the canyon. Wide bowl rim (horse tail) indicates "bad route under."

Comparative Affinity: a. Horse - Uintah Railway panel, Uncompahgre area, RBS, figure 64, p. 124; Uintah Co., Utah figure 41, p. 62.
B. Heading - 36 times, RBS, Chart 8, p. 160; Utah, Arizona, Nevada.

Sign Language: Importance of ear in horse identification by Utes with sign made by holding up index and little finger, with thumb and remaining fingers held together (SEANAI, figure 266, p. 435).



25 Sign Number

3 Cluster Number

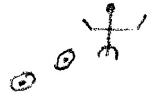
Literal Meaning: a. man (is not incorporation of barring, sign 22)
 b. pushing-back (see sign 1, opposition)

Extended Meanings (combined sign): separate, keep apart, come-between, intercede wide apart (hence wide).

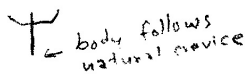
Inscription Affinity: Discouragement of crossing wide canyon (signs 20, 23) with horses (sign 24).

Comparative Affinity:

1. Vasey's Paradise, Colorado River, Arizona (897). Two "held-in-place" signs (see signs 2b, 7a, 9, 39, 47, 52, 54), hence discourage a heading as they will be "held in."




2. Utah Lake, Utah (2309). "a wide canyon" points at one. Alternate reading - "keep away from canyon."



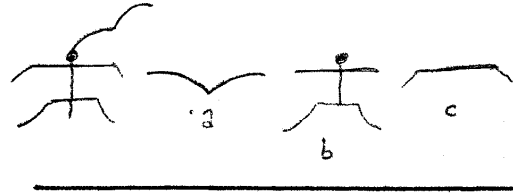
3. South Mountain, Arizona (1368) In front of a wide mountain pass. Long legs indicate "going up high."



Variations: See sign 1.

Opposition: b.  Arms closing in, "bring together" (see sign 1, variation b12).

Note: Cryptanalysis indicates extensions other than "wide," e.g. "distant each way," etc.



26 Sign Number





2 Cluster Number

- Literal Meaning:
- a. opening-up (see sign 35 - opposition)
 - b. man (as not incorporation of barring, sign 22)
 - c. keeping-at-a-distance (see sign 1b)

Extended Meaning (combined sign): Keeping-away-from-crossing-wide-canyon (length of arms increased to further indicate "wide").









Inscription Affinity: Opening up segment of sign points to a crevice, reinforcing the idea of a canyon--a gigantic crevice. Opening up sign on top of head, indicates "heading to a large opening."




Comparative Affinity:

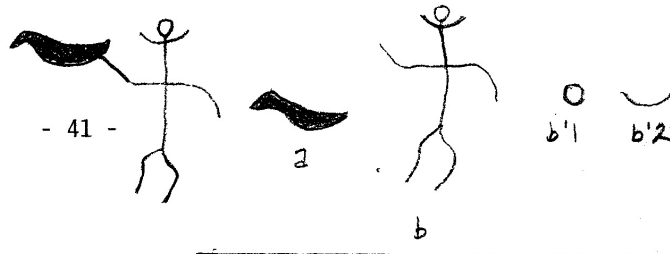
- a1. Castle Creek, Utah (3188). Combination canyon (see sign 20), opening up, and man. Refers to canyon opening with Indian campsites (people in it). 
- a2. Santa Clara River, Utah (1138). Position of sign indicates ahead. Canyon openings are ahead. 
- a3. St. George, Utah (1142). "Barring another from heading up opening (canyon)," (see sign 22). 
- a4. Virgin Narrows, Arizona (827). Opening up of (sign 35-opposition), "where the canyon opens up." 

Sign Language: a. V-shape with palms is sign for "open," Vincent Sireech, White Rock (Ute). Arching indicates opening. "wide" sign for day in ISL, p. 142 and moving them, simultaneously, up in an arch. Actually this sign more precisely

means "opening-up-of-the-dawn," rather than "day."
This meaning is understood by Jack Bigeye, Alberta
(Blackfeet). Sign used to ask if a store was
"open" by Vincent Sireech.

Variations: a1.  going down into; a2.  a3. 
a4.  little coming out; a5.  a6. 
a7.  talk (coming out); a8.  coming out
one side.

Opposition:  closed opposite  open (see sign
35) of which arching indicate a greater degree,
but  means "opening down."



27 Sign Number 4 Cluster Number

- Literal Meaning:
- a. tail-feather (of bird)
 - b. Spaniard (see 28 for determinative)
 - b'1. holding (see signs 2b, 7a'1, 9c, 39c'1, 52b'2, 53b, 54a'2, (onto tail feathers of a bird)
 - b'2. container (see signs 20, 27b'2, 29, 44a)

- Extended Meaning:
- a. write
 - b'1. remember (from hold)
 - b'2. contained-in-head

Extended Meaning (composite sign): Spaniards-write-to-remember-with-quill

Inscription Affinity: Right hand often poised in writing position, (cf. reaching, see sign 50).

Comparative Affinity: Writing with a quill is a rare sign in unusual context to Indians.

- Variations:
- 1. to write (or hold onto writing)
 - 2. 3. a. Numerous feather and bird variations, but not associated with writing.
 - b'2. See sign 20.

Opposition: b'2. (see sign 17a).

D E,

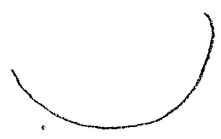
28 Sign Number

4 Cluster Number

Literal Meaning: of-God (Latin) (See sign 15)

Extended Meaning: Spaniard (Latin orthography)
(determinative) (see signs 15, 18, 21, 30, 32,
34, 51c)

Inscription Affinity: Proximity to sign 27 indicates
a Spaniard is writing, or writing of a Spaniard.




29 Sign Number 4 Cluster Number

Literal Meaning: Shallow container (see signs 20, 27b'2, 44a)

Extended Meaning: contained (see sign 27b'2)

Inscription Affinity: Related to sign 20 (bowl) except it relates to canyon due to depth, rather than containing. Relation to signs 28, and 30, i.e. letters contained (in head).

Sign Language: See sign 20.

Opposition:  \$see sign 17a).

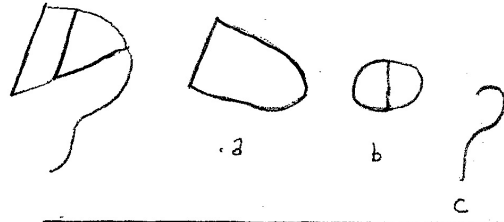
l Q^c

30 Sign Number

4 Cluster Number

Literal Meaning: ? , letters JQC

Extended Meaning: writing-(or printing)-of-the-Spaniards (determinative) (see signs 15, 18, 21, 28, 32, 34, 51c)



31 Sign Number 4 Cluster Number

Literal Meaning: a. rock (triangular) (pecking-stone)
b. in-front
c. flowing (ink)

Extended Meaning: a. writing-tool
b. unprotected (see sign 2 opposition)
c. that-which-has-been-written

Extended Meaning (combined sign): writing (clarified for sign 27)

Inscription Affinity: Latin letters (signs 28, 30, 32) indicates writing by Spaniards.

Comparative Affinity:

a1. Iron County, Utah (619). Horizontal lines indicate "repeat" or "often." Repeated action of hitting meaning pecking (see ISL, p. 272). Double outline indicates "wiping away" (what was written).

a2. Utah, "writing that was spoken."




b. In-front sign occurs 6 times in RBS, Chart 8, p. 160.

c. flowing (see water, RBS, Chart 8, p. 160).

note "hit" signs



Sign Language: b. Idea of moving in a direction from a medial point, i.e. centered line pictographically, for gesture "before" ISL, p. 64. This is in sense of time or relationship position.

Variations: a1.  pecked down; a2.  pecked up
b. See sign 31Cab. c. 

a. E o

32 Sign Number

4 Cluster Number

Literal Meaning: to-God (Latin)

Extended Meaning: writing (or printing) of the
Spaniards (determinative) (see signs 15, 18,
21, 28, 30, 34, 51c)



33 Sign Number

4 Cluster Number

- Literal Meaning:
- a. Cliff differs from distance symbol in that proportion is different, viz., lateral line is shorter in relation to diagonal line.
 - b. something-there (thickened lines) (see sign 23, must be incorporated)

Extended Meaning (combined sign): cliff-(with something on it) or "rock writing"

Inscription Affinity: Idea of writing (pecked in rock) (sign 31). Clarifier for writing, sign 21 using Indian experience of graphic representations as an analogy. Relation to Spanish letter signs 28, 30, 32, and 34 indicates it is Spaniard's writing that is being referred to.

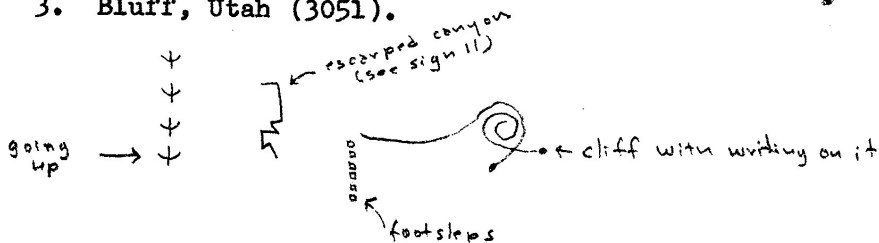
Comparative Affinity:

- 1. Graham County, Arizona (2416). Identical meaning.

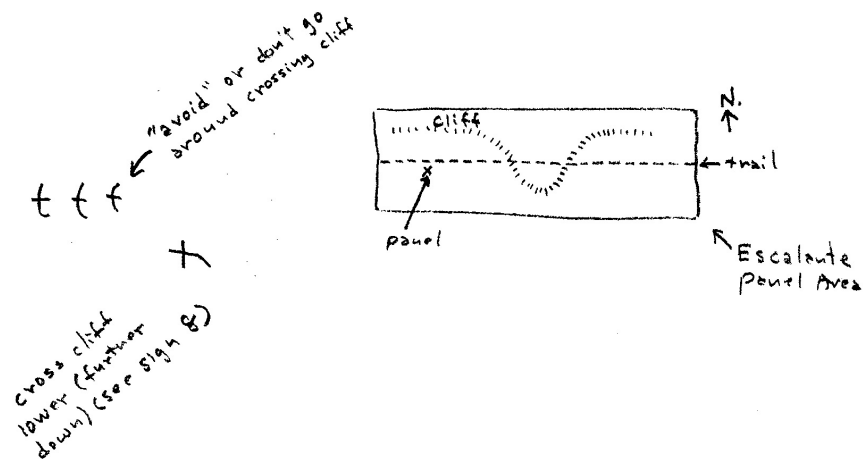


- 2. Parowin, Utah (557). Mouth for speaking (from cliff).

- 3. Bluff, Utah (3051).



4. Site of Escalante Panel, Utah (1508).



Variations: 1.



2.



DE

34 Sign Number 4 Cluster Number

Literal Meaning: ? , letters D E (start of DEO,
DEI ?)

Extended Meaning: Writing (or printing) of the
Spaniards (determinative) (see signs 15, 18,
21, 28, 30, 32, 51c).



35 Sign Number

4 Cluster Number

Literal Meaning: a. closing
b. something-there (thickened lines) (see sign 23, must be incorporated)

Extended Meaning: dim (hard to see), we cannot understand Spamiard's writing (see sign 13 alternative meaning)

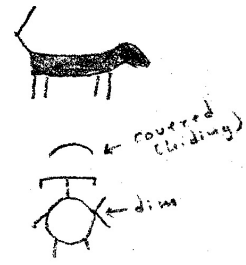
Inscription Affinity: Proximity to signs 31-34 supports connection with writing




Comparative Affinity:




a1. WG, p. 19, picture 3. sign j (incompletely interpreted as "around," p. 20), double incorporation of "around" (and "closing," or "hard to see.")

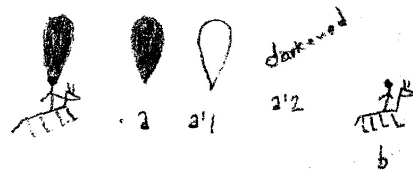
a2. Cedar City, Utah (2562). "Going after the dimness was behind."

a3. Graham County, Arizona (2418). Dim sign on shield of a man "hiding to protect self," hence hard to see or find.



Variations: 1.  closed place; 2.  bending down; 3.  close eye.

Opposition:  open or light (see sign 26a),
 closed or dark. Being on its side, 
its meaning is intermediate, hence dim.



36 Sign Number 5 Cluster Number

Literal Meaning: a'1. eye
 a'2. domething-there (see sign 23)
 a. darkened-eye
 b. rider

Extended Meaning: a. blind (in dark)
 b. traveling

Extended Meaning (composite sign): traveling-in-an-unknown-terrain-(canyon)

Inscription Affinity: Clarified by sign 44.

Comparative Affinity: Darken eye sign occurs 11 times in RBS, Chart 8, p. 160, 6 times in association with canyon, including Canyon de Chelly, RBS, p. 97, fig. 49, sign 1, p. 96. See 22CA1.

Documentation: Clark ISL, p. 417, likens traveling in unknown county as traveling in the dark.

Variations: a1. crooked canyon; a2. long, crooked canyon; a3. wide canyon; a4. short canyon (chopped-off); a5. passing through canyon; a6. looking in canyon (see sign 7); a7. gone from canyon (see sign 4 opposition); a8. heading up canyon; a9. held in canyon (see sign 7a); a10.



37 Sign Number 5 Cluster Number

Literal Meaning: rider

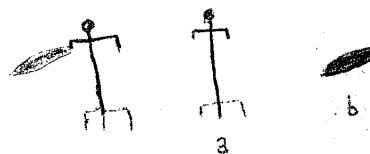
Affinity Meaning: blocked (or hindered)

Extended Affinity Meaning: to-come-up-against

Inscription Affinity: Sign 38b is incorporated as a bar to complete sign. Meaning is further clarified by this rider being "blocked" by a figure (sign 38a), and the ends of one horse's (mule's?) legs near a crack, with hooves missing.

Comparative Affinity: Block sign occurs 5 times in RBS, Chart 8, p. 160.

Sign Language: Idea of juxtaposition gesture sign for "run against," striking one hand against the other ISL, p. 321.



38 Sign Number

5 Cluster Number

- Literal Meaning:**
- a. stretched out (length of body). Limbs rounded on its left (viewer's right) side indicating both turning-aside and not turning-aside (hope for success), disconnection of legs — indicates, however, failure (see sign 41), widen right leg of figure (viewer's left) indicates bad next to horse and rider.
 - b. objectionable place
 - . something-there (not pictured)

Literal Combination Meanings (see literal meaning part a above):

- a. turning-aside, not-turning-aside
- b. failure
- c. bad-side

Extended Meaning:

- a. far, high or long-time
- b. to-avoid-a-bad-place
- . dirt (filled in)

Extended Meaning (combined sign): a-long-time-hindered-in-an-objectionable-place

Extended Incorporated Meaning (combined part a): trying-to-cross-some-thing-bad-on-this-side,-not-bad-on-other-side

Extended Composite Meaning (whole sign): trying-to-cross-an-objectionable-place-for-a-long-time-and-failing

Alternate Composite Meaning (whole sign): hindered-leading-through-an-objectionable-place (see leading signs 10, 16)

Inscription Affinity: Clarified as a canyon by sign 3b.

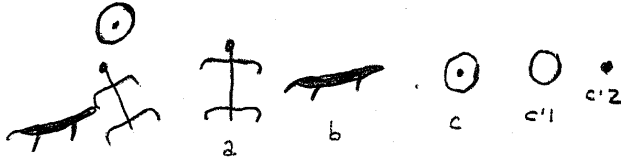
Comparative Affinity: Objectionable place sign used 6 times in RBS; Chart 8, p. 160. Occurs at St. Georges, 10 miles away (#1178). Tall figure for long time see signs 49CAa2 and 50CA3.

- a. Graham Co., Arizona (2021). People in a cliff dwelling looking down and refusing (to surrender) a long, long time (long body, indicating time).



Documentation: b. Mi'gis shell, sacred Midē' society, Ojibwa PWAI-I, p. 246. Sacred, hence to avoid (similar ovoid shape).

Sign Language: a. Hand drawn well apart to show length ISL, p. 236. b. "Island" (bad place to be) is formed as an oval by placing palms together ISL, p. 224. Indian sign language informants (not published) state sign means "to go around both sides."



39 Sign Number

5 Cluster Number

Literal Meaning: a. man
b. horse
c'1. holding
c'2. here (clenched fist) (see signs 42, 47b)

Extended Meaning (ab): leading-a-horse (sign 10)
(c): holding-in-one-place (see signs 2b', 7a'2, 9c, 27b'1, 52b'2, 53b, 54a'2)

Literal Meaning (combined sign): leading-a-horse-and-held-one-place

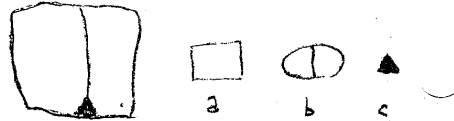
Inscription Affinity: Horse is poorly pecked, indicating the-horse-was-no-good. Feet of man to front and rounded indicating "turning aside" and "not turning aside" (hope for success) (see sign 38). Reference to signs 36, 37, 38 would indicate they led horses up the canyon. Foot on crack indicating canyon (see sign 37). Signs 37, 38, 39 all are above a crack.

Comparative Affinity: Stay-in-one-place sign occurs 12 times RBS, Chart 8, p. 160.

Sign Language: Leading a pony or horse with a lariat, ISL, p. 233.

Opposition: c. ⊙ (see sign 53b).

Note: Translation of arm and leg extensions need further refinement.




40 Sign Number













5 Cluster Number

Literal Meaning: a. place (or object)
 b. in-front (see sign 31b)
 c. (pointer)

Extended Meaning (combined sign): a-place-ahead

Comparative Affinity:

- a. Place sign occurs 21 times in RBS, Chart 8, p. 160.
- b. (with fish) occurs at Three Rivers, New Mexico (5208), "place of the fish." Series of broken squares (542) Utah, "places of framing: or "farm plots."
- c1. Arrowheads as pointers are common, e.g. Zion National Park, Utah (1461), Santa Clara, Utah (1392).
- c2. Bluff, Utah (3206), arrow pointing down associated with descend sign means "descends down this way." 

Variations: a1.  long place; a2.  high place;
 a3.  big place; a4.  little place; a5. 
 many places; a6.  closed place; a7. 
 place with steps; a8.  trading place (see sign 8); a9.  pinned at place; a10.  open place;
 a11.  place of water.
 c.  war (opposition of points) (see RBS, fig. 67k, p. 132).



* see sign 7

41 Sign Number 6 Cluster Number




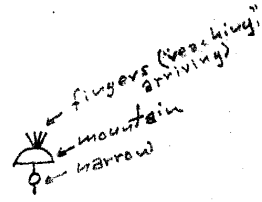

Literal Meaning: bead (threaded), offset (narrow passage)
* finger (see sign 3).

Extended Meaning: failed-to-pass-through

Affinity Meaning: See sign 48.







Inscription Affinity: Line offsetting indicates avoidance, hence failure (see sign 38). Points of thread exits are out of line. Converging index fingers which do not meet is deaf-mute sign for miss. Probable Indian sign, but not recorded.


Comparative Affinity: RBS, fig. 15, p. 24;

1. Graham County, Arizona (2384). A foot-print (path) passing through a narrow crvice. Such a trail is nearby. 
2. Graham County, Arizona (2386). This panel is in long narrow canyon that leads to a hill top and village. "Long and narrow to top of hill." 
3. Bluff, Utah (3205). Narrow canyon. 
4. Mt. Trumbull, Arizona (1253). Narrow passage reaching to the top of a mountain, which is so and is also a good trail. 
5. Bad Canyon. Common. It is a clarifier (not drawn) of 25CAa2. 

Sign Language: Idea of "passing through" is related to hand sign for difficulty (Jensen Jack and Vincent Sireech - Utes). "Canyon," two hands in front of face, facing each other, right slides

between ISL Tompkins, pp. 18-9. Pietograph also used to indicate narrow canyon (41CA1-2).

Variations: 1.  not passing through; 2.  many pass through;
3.  man passing through; 4.  animal
passing through; 5.  leg passing through;
6.  arm passing through.

Opposition:  passing through (not offset).

42 Sign Number 6 Cluster Number

Literal Meaning: here (clenched fist)

Extended Meaning: sit (destination), see signs
2b, 7a, 47

Affinity Meaning: See sign 48.

Comparative Affinity: Sit sign occurs 29 times in
RBS, Chart 8, p. 160.

Documentations: PWAI-I, fig. 206, p. 278 (see also
sign 1).

Sign Language: Fist with palm down means "here"
Charles E. Queacut (Ute).

43 Sign Number 6 Cluster Number


Literal Meaning: not-turning-aside

Extended Meaning: straight

Affinity Meaning: See sign 48.

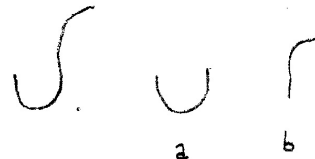
Comparative Affinity: Occurs 11 times in RBS,
Chart 8, p. 160. Corroborated as a panel
locator.

Documentation: A straight line cannot be used for
this sign graphically since it could refer to
"one" or a finger.

Variation: 

Opposition: curved angle (rather than right angle)
means turning-aside. Curved line swastika (four
directions) means revolving, e.g. Pima shields.

Note: If this sign is attached to a body or other
element it can have other meanings as indicated
by cryptoanalysis.



44 Sign Number 6 Cluster Number

Literal Meaning: a. container (canyon) (see signs 20, 27b'a, 29)
b. ladle (or arm)

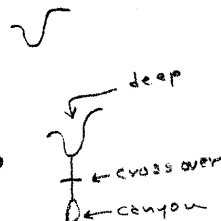
Extended Meaning: a. deep
b. down (reaching)

Extended Meaning (combined sign): reaching-down-deep

Inscription Affinity: Clarifier for sign 36 - narrow passage


Comparative Affinity:

1. Vasay's Paradise, Colorado River, Arizona (897). Refers to deep canyon at base of flat-topped cliff, which is so.
2. Arock, SE Oregon (2295). River comes into a deep canyon from northwest through a large mountain, "Deep crossing of canyon."
3. Fort Piute, California (near Las Vegas) (1665). "Canyon becoming deeper" (or shallower).

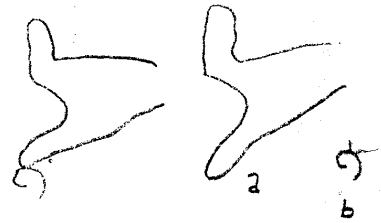


Sign Language: Cup hand (bowl) is sign for "water" ISL, p. 399. If initially notified by point down, ISL, p. 148, composite means deep.

Variations: 1.  reaches up; 2.

 reaches feet.

Opposition: a.  (see sign 17a).




45 Sign Number 6 Cluster Number


Literal Meaning: a. two-fingered-hand (splitting)
 b. (incomplete figure 8) crossing-over-one's-path


Extended Meaning: a. separating-and-going-in-two-different-directions
 b. returning-by-the-same-way-without-completing (incompleteness indicating negative)




Extended Meaning (combined sign): (the Spaniards and Indians)-separating-and-going-in-two-different-directions-(the Spaniards)-returning-by-same-route-and-not-completing-going-to-rim

Comparative Affinity:



a1. Emery County, Utah (2320). Occurs at junction of two creeks. The do-not-turn-aside sign indicates trail follows left fork, which is so. 


b1. Buckeye, Arizona (2803). Left figure 8 follows creek indicating Gila River, right figure 8 points to direction one can cut across a mountain and return to the same river. East of Buckeye the river swings south again. 

b2. Emery County, Utah (2319). Makes a box canyon (Miller Canyon), hence must return. 

Variations: a1.  separated by trading, or trade two (see sign 8 variation 5); a2.  separated and returning; a3.  separated at an objectionable place.

b1.  return long way; b2.  returning;

b3.  return across; b4.  return to see;

b5.  return far; b6. see a2 above.

Opposition: a. ||



46 Sign Number 6 Cluster Number

Literal Meaning: rim (bowl) (see signs 10, 14a)

Extended Meaning: top (canyon)

Clarified Meaning (in relation to sign 45): (Spaniards and Indians)-separated-within-canyon

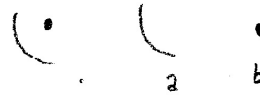
Inscription Affinity: See preceding.

Comparative Affinity: "Top" sign used 9 times in RBS (not on Chart 8, p. 160).

Sign Language: See sign 14a.

Variations: See sign 14a.

Opposition: See sign 14a.



47 Sign Number 6 Cluster Number

Literal Meaning: a. around
b. here (chucked fist) (see sign 42)

Combined Meaning: to-go-around-(a place)

Extended Meaning: (Spaniards)-missed-their-destination

Inscription Affinity: Clarifies sign 45.

Comparative Affinity: To-go-around sign used 22 times in RBS (not on Chart 8, p. 160, but see fig. g, pp. 18-19; fig. 12b, p. 20; fig. 14b, p. 22; between 3 and 4, fig. 43, p. 74; fig. 45g, p. 81).



48 Sign Number

6 Cluster Number

Literal Meaning: goat's head

Extended Meaning: heading (see signs 24, 53, 55)

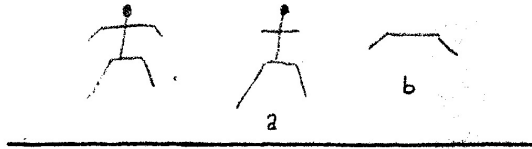
Affinity Meaning: headed (on a bad southward route)*

Inscription Affinity: meandering line of sign 41 turns aside and ends above. Sign 43 (heading) straight is in front of the meander. Sign 42 means sit (destination), the crack in between is the Colorado River--hence, they-did-not-finish-passing-through-narrow-canyon-but-turned-aside-and-went-straight-on-their-way-to-cross-(Colorado)-river*

Geographical Affinity: Looking eastward at panel, the head faces south. East is direction the Spaniards went up the canyon. When Spaniards return to bottom of canyon, they went south to the Grand Canyon.

Comparative Affinity: See sign 24.

Sign Language: Utes place fingers on ball of thumb and move hand forward in arch to indicate direction and "arriving." For Ute, horse variation sign with ears (see sign 24).



49 Sign Number 7 Cluster Number

Literal Meaning: a. man
b. keeping-at-distance (see sign 1b)

Extended Meaning: a. running upward (raised leg)
b. distrust (cause of running)

Extended Meaning (composite sign): (Indians)-running-uphill

Comparative Affinity:

a1. Virgin Narrows, Arizona (835).




a2. Palo Verde, Arizona (3513). Length of man at left means "long time" (see signs 38, 50CA3). Men in middle with "held-in-place" shield and "many" sign, indicating beseiged and "looking down." Man on right running up hill and looking back down. These signs occur at a large stone fortress made by Indians where they were beseiged for a long time.



a3. Graham County, Arizona (2504).



Variations: a1. H standing; a2. H climbing

Opposition: a.  running downhill (also see 1CA1).



50 Sign Number 7 Cluster Number

Literal Meaning: reaching

Extended Meaning: wanting-those-who-fled

Inscription Affinity: outstretched hand on sign 19,
reaching up sign 27b.

Comparative Affinity:

1. Konote panel, RBS figure 43-6, pp. 74-75
reaching for water; figure 43-23, pp. 76-77 -
reaching up; figure 45d, p. 80, reaching to
sky.

2. Fort Piute, San Bernardino, California, RBS,
p. 93. Hand reach out to build wall (con-
struction of Fort Piute?)



3. Bonita Creek, Arizona (2022). Occurs in
cliff dwelling. Figures are reaching, down
to their feet indicating (reaching down to
their enemy" (corroborated by associated
panels). Length of body indicates "long time"
(see signs 38, 49CA2), referring to thām being
beseiged in cliff dwelling for a long time.

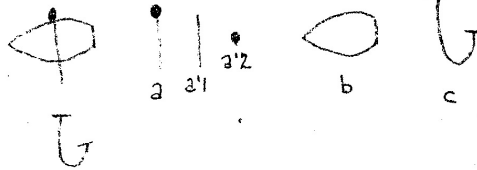


4. Sierra Blanco, Texas, near El Paso (5829).
"Coyote people reaching" for someone on a
defended mountain peak. Peak and defenses
visible nearby, with accounts of a battle.
Human forms associated with coyote ears



5. See 49CAa1.

Sign Language: Sign for "seize" is moving open hands
in front of body, closing them briskly and
drawing towards body ISL, p. 332.



51 Sign Number

7 Cluster Number

- Extended Meaning:
- a. gone (see sign 13a"1)
 - a'1. here (clenched fist) (see signs 42, 47b)
 - a'2. brought-down-from-above
 - b. canyon (see sign 36) (not filled in so 46a would be visible)
 - c. Spaniard's (determinative) (see signs 15, 18, 21, 28, 30, 32, 34)

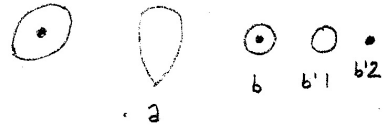
Literal Meaning (composite sign): chopped-off

Extended Meaning (combined sign): left-canyon-before-(journey)-completed-(leaving Spaniards)-below

Comparative Affinity: Gone sign occurs 14 times in RBS chart 8, p. 160.

Sign Language: Idea of shopping ISL, "end," p. 162.

Opposition: a. sit (cf. sign 4, see sign 13a).



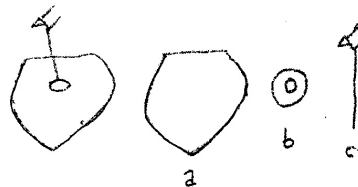
52 Sign Number

7 Cluster Number

Extended Meaning: a. canyon (see sign 36)
b. hole-in-one-place (see signs
2b'', 7a'2, 9c, 27b'1, 39c'1,
53b, 54a'2)
b'1. holding
b'2. here (clenched fist) (see signs 42, 47b)

Extended Meaning (combined sign): hold-in-canyon

Opposition: b. ⊙ (see sign 53b).



53 Sign Number

7 Cluster Number

Literal Meaning: a. canyon and baseline
c. heading (see signs 24, 55)

Extended Meaning: a. under (see signs 39a, 52)
b. nothing-there (see opposition)
c. Indiana

Extended Meaning (composite sign): nothing-in-canyon, -Indians-went-out-from-under

Inscription Affinity: Clarified by signs 50-52.
Flatness of circle indicates canyon rim.

Comparative Affinity:

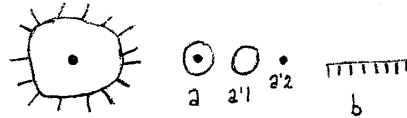
ab1. Vasey's Paradise, Arizona (899). Note eye or canyon sign getting bigger, i.e. the Grand Canyon further west. Interior circle indicates "gone from it" or exit.



ab2. See sign 22CA2. Gone sign in canyon.

b. RBS, fig. 22d, p. 36.

Opposition: ☉ something-there (holding-in-one-place) (see signs 2b', 7a'2, 9c, 39c'1, 52b'2, 54a'2)



54 Sign Number 7 Cluster Number

Extended Meaning: a. holding-one-place (see signs 2b', 7a'2, 9c, 27b'1, 39c'1, 52b'2, 53b)
 a'1. holding
 a'2. here (clenched fist) (see signs 42, 47b)

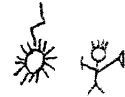
Literal Meaning (composite sign): going-in-all-directions (see sign 2 opposition)

Extended Meaning (composite sign) (alternative 1): scatter (or flee) or release






Extended Meaning (composite sign) (alternative 2): break-your-promise or not-keeping-your-word



Comparative Affinity:

1. Flaming Gorge Dam, Utah (1821). Man with bow and arrow indicates war, hold and release signs indicate an end to a seige and letting enemy go. Line at top indicates "distance" or a "long time."
 2. Gila Bend, Arizona (2828). War sign with release sign "battle seige and release." Located near an Indian fort.
- b. RBS, Chart 2 line 3, p. 14; Chart 5, line 16, p. 138; Chart 8, p. 160 (18 times).



Sign Language: "Charge" indicated by closed hands (similar to circles?) "snapped" open ISL, pp. 97-98, reverse for "retreat" ISL, p. 318. "Release" or "set free" is indicated by holding clenched fists with palms down close to chest and fists side to side, then open and spread fingers, then push both hands outward. This sign is preceded by the sign for "hold" or "catch," Vincent Sireech, White Rock (Ute). The radiating lines are similar to extended fingers on a hand.

Variations: 1.  2.  3.  4. 
5.  scatter; 6. scatter up.

Opposition:  compress (surround). See RBS,
p. 160. a.  (see sign 53b).


Note: If this sign is not in association with holding or sieging contexts it may have other meanings.



55 Sign Number

7 Cluster Number

Literal Meaning: horse (see sign 24)

Extended Meaning: heading (same as sign 24, but reversed--heading of Spaniards back down the canyon) (see also signs 48, 53). The  in sign 51 also used as a determiner here.

Inscription Affinity: Heading reinforced by feet of horse being on a crack.

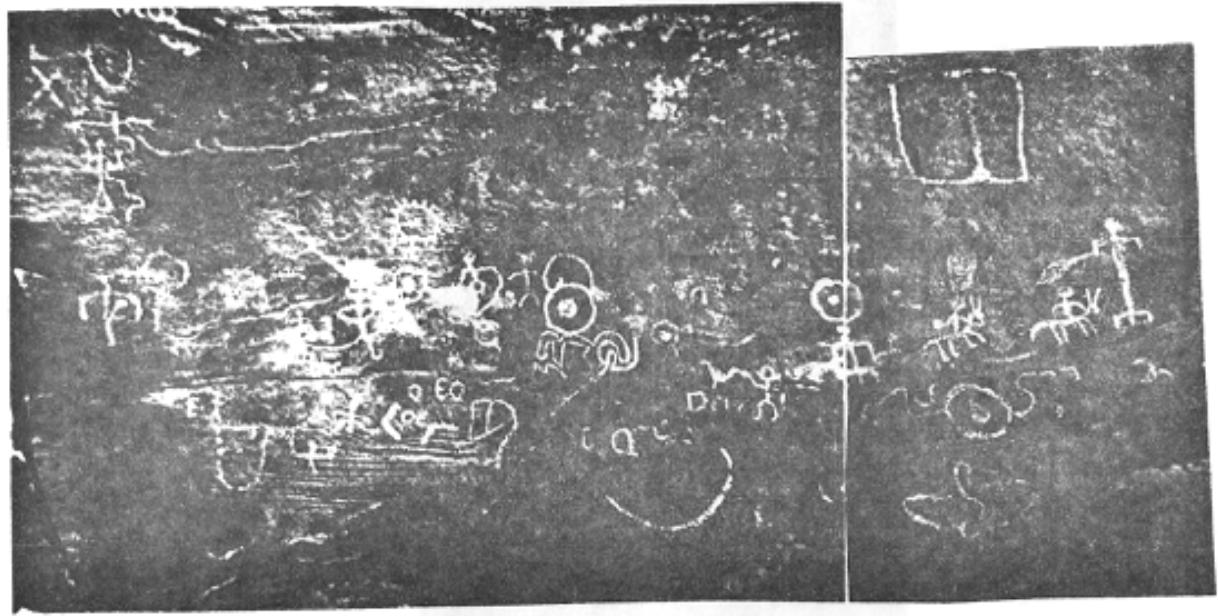


Figure 2



Figure 3

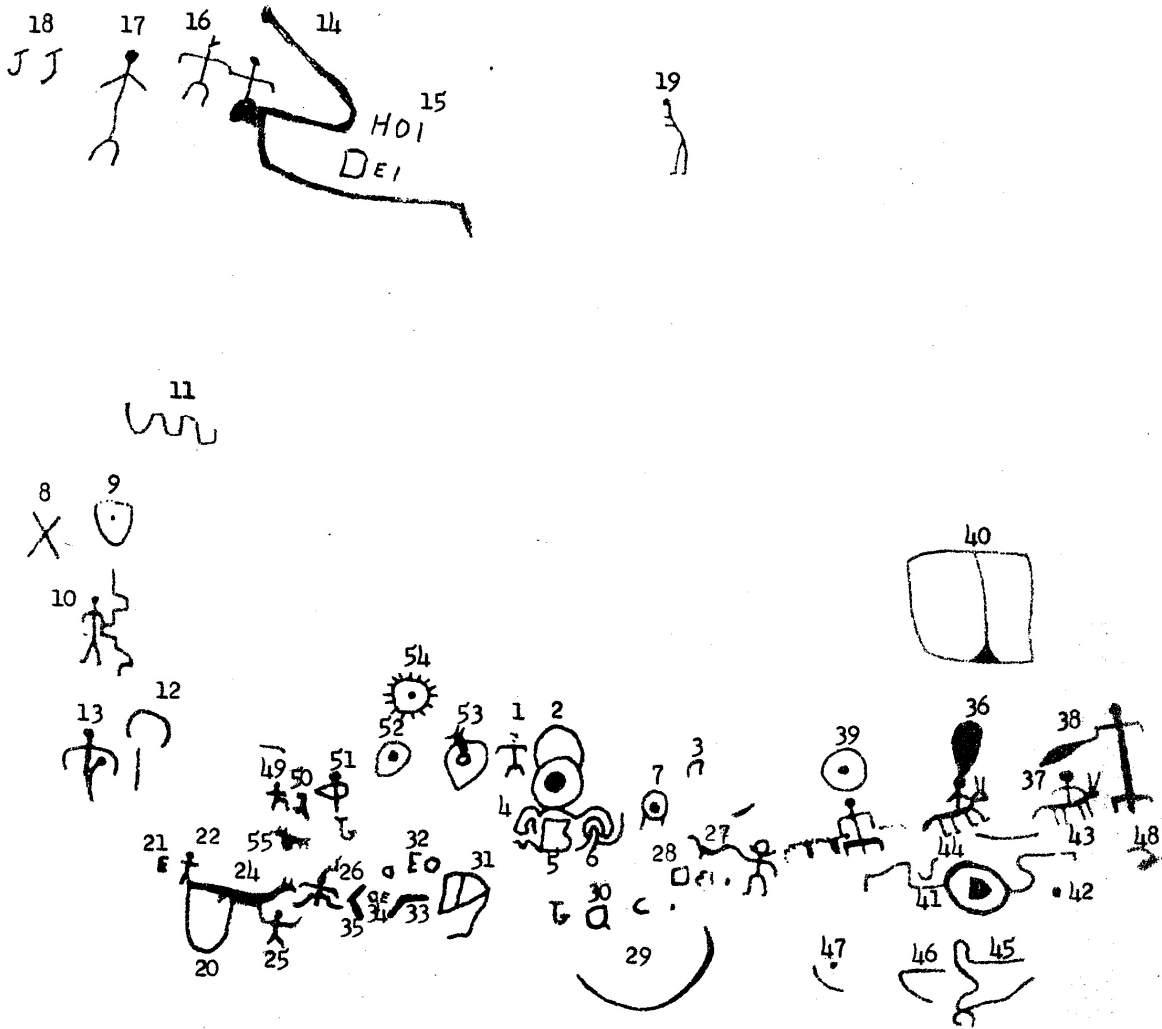


Figure 4.

Following is a compilation of extended sign meanings arranged in sequence of presentation (Column One) and derived account in English syntax (Column Two). This Indian account can then be compared to Escalante's (1776) who provides a Spanish point of view of the possible same events. The transcription of Escalante's writing is not modernized nor corrected. Word units are based on writing continuations, not conventional divisions. It was felt that a literal English translation was best for comparing accounts. The one below is a composite of a translation by John Sullivan, Department of English, Ball State University, and one published by Auerbach (1943: 86-88) with some revisions by Swartz. Material in brackets is for clarification and should be deleted or added on the basis of context.

1. afraid on-the-other-side-(of the horizon) something-in-it first-caught-up-with invitation-to-sit-good sole-leather-on-moccasin poking-through holding-(sole leather)-in-place-while-looking-down
2. trade necklace hold-in-one-place leading-someone-through-a-difficult-canyon difficult-to-travel-escarped-canyon knife eviserated-stomach upward-route-to-canyon-rim Spaniards route no-hill Spaniards
3. Canyon Spaniards stop bad heading separate keeping-away-from-crossing-wide-canyon
4. Spaniards-write-to-remember-with-quill contained writing-of-the-Spaniards writing writing-of-the-Spaniards cliff-(with something on it) writing-of-the-Spaniards dim
5. traveling-in-an-unknown-terrain-(canyon) to-come-up-against trying-to-cross-an-objectionable-place-for-a-long-time-and-failing leading-a-horse-and-held-in-one-place a-place-ahead
6. they-did-not-finish-passing-through-narrow-canyon-but-turned-aside-and-went-straight-on-their-way-on-a-bad-southward-route-to-cross-(Colorado)-river reaching-down-deep (the Spaniards and Indians)-separating-and-going-in-two-different-directions-(the Spaniards)-returning-by-same-route-and-not-completing-going-to-rim (Spaniards and Indians)-separated-within-canyon (Spaniards)-missed-their-destination
7. (Indians)-running-uphill wanting-those-who-fled left-canyon-before-(journey)-completed-(leaving Spaniards)-below hold-in-canyon nothing-in-canyon,-Indians-went-out-from-under release heading

We were afraid to walk with the Spaniards. Some were waiting over the hill. We first caught up with them. They invited us to sit. There was no danger so we did. They sewed sole leather on our moccasins.

They traded necklaces and knives for our guiding them up an escarped canyon. We told them that we would lead them out of the canyon at this point, but they did not want to go this way.

They wanted to take their horses across the Grand Canyon, but we dissuaded them from this, indicating the canyon was too wide and difficult to travel with horses.

The Spaniards wrote characters, which they could read at another time, with a quill. It is like our cliff markings, but we could not understand it.

We, and the Spaniards on horseback, went up the canyon and came to a narrow passage. The horses could not pass through. The Spaniards tried for a long time to lead the horses through, but failed. They had to turn aside from the route to the top of the canyon.

At this point we separated from the Spaniards and did not complete our climb to the canyon top. The Spaniards returned on the route they came in order to get around the canyon. Then they changed directions and eventually crossed over further to the east.

When we separated we fled in fear of the Spaniards who wanted to keep us. We left them stuck in the canyon below and fled to the top, watching them behind us. The Spaniards then returned down the canyon.

Dia 16 salimos de S. Donulo con animo deseguir al sur hasta el Rio Colorado; mas à poco q^e anduvim^{os} oimos, q^e atras gritabás-gentes, y bolviendo a ver de donde venia el eco, vimos 8 Indios sobre los cerritos desaparese, de donde acababamos de salir: los quales estan en medio del llano, lo atravieran casi todo, y abundan de Ieso transparente, y Talco. Bolvimos p^a ellos, dando orden de q^e viniese tambien el Interprete, q^e iba mas adelante. Llegamos al pie del cerillo, y les dimos a entender q^e bajasen, sin rezelo, p^a q^e veniamos de paz; y eramos amigos. Con esto se animaron, y bajaron mostrandonos para el cambio unas sartos, ò hilos de chalchihuite con una concha de colores cadauno, con q^e nos dieron algo q^e pensar, porq^e desde abajo los hilos de chalchihuite nos paracian rosarios, y la conchas medallas de santos. Estuvimos aquí con ellos un corto rato; pero hablan el Iuta tan diferente de todas los demas, q^e ni el Interprete, ni el Laguna Ioaquin, podian darseles a entender plenamente; ni entender lo mas de lo q^e ellos hablaban. No obstante ya por señas, ya porq^e en algunas cosas hablan el Iuta mas conforme a los Lagunas, les entendimos, q^e decian ser todas (menos uno, q^e hablaba mas en arabigo, q^e en Iuta, y pensamos ser Iomaj Jaba) Parusis, y q^e ellos eran los q^e siembran en las riberas del Rio del Pilar, y havitan rio abajo por largo espacio. Tuvimoslos por Cosnimas; mas despues aberiguamos, q^e no lo eran, Ofrecieron sus chalchihuites, y diciendoles, q^e alli no teniamos cosa alguna p^a cambio, y q^e si querian viniesen con n^o nosotros hasta alcanzar à los demas compañeros, entonces les dariamos lo q^e pedian, y hablaríamos de espacio. Vinieron todas mui alegres, pero con gran temor, y rezelo los q^e parecian mas advertidos. Hizimos alto, y platicamos mas de 2 horas, y media, ò mas. Dijeronnos q^e en 2 dias llegaríamos al Rio grande; pero q^e no podiamos ir por donde

queriamos, porq^o no havia agujas, ni p^a aqui podiamos pasar al Rio; por ir mui encajonado, estar mui hondo, y tener por una, y otra v^ada ebadisimos Riscos, y penascos: y en fin q^o de aqui al rio havia mui malatierra. Regalamosles 2. belduques, y acadauno un hilo de quentes de Abalorio. Luego les propusimos, q^o si alguno de ellos nos queria conducir hasta el Rio, le pagariamos. Respondieron, q^o nos irian a encaminar por un cañon, q^o estaba en la mesa oriental al llano, y q^o desde alli ya podiamos ir solos: por q^o ellos estaban descalzos, y no podian andar mucho. Nosotros no queriamos dejar el sur hasta el Rio, sin embargo de esta relacion; porq^o sospechabamos, q^o los Moquinos se nuviesen indispuesto con las Cosnimas, por haverles llebado al P. Gárces, y q^o rezelozos de q^o bolviesen a introducir en Moquí otros Padres, o españoles, huviesen procurado contenerlos con amenazas. I q^o estendida la noticia intentaban aora estos extraviarnos, p^aq^o no llegasemos à los Cosnimas ni à los Iomaj Jabas sus vecinos. Pero á instancia de todas los compañeros, à quienas no convenia por àora manifestar una sospecha condecendimos á tomar el cañon. Ofrecimos á estos Indios aceros [sic] de suelas depetaca p^a Zapatos, p^aq^o nos diesengua. Dijeron, q^o 2 irian connosotros hasta ponernos en camino recto, y bueno. Entramos con ellos en el cañon alto anduvimos por el legua, y media con sumo trabajo, y atrazo delas caballerias, por la mucha piedra de guija, pedernal, y frecuentes pasos dificiles, y peligrosos, q^o havia. Llegamos à unaangostura tan mala, q^o en mas de media hora solo à tres bestias decilla pudimos hacer en ella. A estase seguia una cuesta de peñas quevia tan escarpada, q^o aún à pie costaria trabajo subirla. Viendo los Indios q^o no podiamos seguirlos se auyentaron, impelidos sin duda de su nimia pusilanimidad. Con esto nos fue preciso retroceder, para tomar otra vez el sur.

On the 16th (of October) we left San Donulo with the idea to proceed on [to the] south to the Colorado River, but after walking a little ways we heard people shouting behind us, and looking again where the shouts were coming from, that is, from where we just left, we saw eight Indians disappear over the small hills. These, which are in the middle of the plain, cross it almost entirely; and they abound with transparent gypsum and talc. We turned towards them giving the order that the [Indian] interpreter, who was going on ahead, should come. We arrived at the foot of the small hill and gave them to understand that they might come down without fear because we came in peace and were friends. With this they got their courage up and came down showing us, for exchange, some strands or strings of jadeite [probably turquoise], each one with a colorful shell, which gave us something to think about since from down below the strings of turquoise looked to us like rosaries and the shell medallions of saints.

We were there with them a short while, but they spoke Yuta [language] so differently from all of the others that neither the interpreter nor the Laguna [Indian], Joaquin, could make himself fully understood nor understand much of what they talked about. Nevertheless, at times by signs and at other times because in some ways [things] the Yuta speaks more like the Lagunas, we understood them to say that they all were (except one, who spoke more in [an] Arabic [-like language] than in Yuta and who we thought to be Jomajaba) Parusis, and that they were the ones who sowed seeds along the banks of the Pilar River and live down the river for a long distance. We took them to be Cosninas, but later found out that they were not. They offered us their turquoise and we told them

that [with us] there we did not have anything to exchange and that [then] they should accompany [coming with] us till we overtook the rest of our companions; then we would give them what they wanted and we would talk leisurely. They all came [along] happily [very happy], but the ones who appeared most aware [came] with fear and suspicion. We made a halt and chatted over [more than] two and a half hours, or more. They told us that in two days we would arrive at the Rio Grande, but that we could not go where we wanted because there were no watering places there, nor could we cross [pass to] the river by this way for it flows very narrowly, is very deep and had on one or the other bank[s] very high cliffs and precipices so that from this point to the river there was very rough [bad] terrain.

We gave them two cutlasses and to each one a string of glass beads. We then proposed that if one of them wanted to guide us to the river we would pay him. They responded that they would put us on the right road through a canyon that was in the eastern mesa of the plain, and that from there we could go on by ourselves because they were barefooted and could not walk much. We did not want to give up the south [route] to the river in spite of this account because we suspected that the Moquinos might have been prejudiced against the Cosninas for having carried off father Garcés to them and they suspected that they [the Cosninas] might return to introduce other priests or Spaniards to Moqui (and the Moquinos) might have tried to contain them with threats, and they now understood the notice. They were now trying to misdirect us so that we would not reach the Cosninas nor the Jamajabas, their neighbors. But at the insistence of all our comrades, to whom we did not want, now, to reveal our suspicion, we consented to follow the canyon. We offered these Indians sole leather for shoes so they would guide us. They

said that two [of them] would go with us until they put us on a good and straight road.

We entered with them into the high canyon and we walked for a league and a half with considerable labor and delay on the part of the mounts due to the pebbles and hard rock and [to] the frequent difficult and dangerous passes [that were there]. We arrived at a narrow place that was so bad that in more than a half hour we could only pass three saddle horses through [it]. This was followed by a rocky crest so steep [escarped] that even on foot it would be quite a task to climb. The Indians, realizing that we were unable to follow them, fled, impelled, no doubt, by their excessive timidity. With this it was necessary for us to withdraw in order to once again take [a route] the south.

REFERENCES

- AUERBACK, HERBERT S. 1943. Father Escalante's journal with related documents and maps. Utah Historical Quarterly. 2: 1-142. Salt Lake City: Utah Historical Society.
- CLARK, WILLIAM PHILO. 1885. Indian sign language. Philadelphia: L. R. Hamersly (reprinted 1959 San Jose: Rosecrucian Press).
- ESCALANTE, JUAN DE. 1776. Journal entry, October 16th. Chicago: Newberry Library.
- FALK, DEAN. 1975. Comparative anatomy of the larynx in man and the chimpanzee: Implications for language in Neanderthal. American Journal of Physical Anthropology. 43: 123-32.
- GARDINER, R. ALLEN AND BEATRICE GARDNER. 1969. Teaching sign language to a chimpanzee. Science. 165: 664-72.
- ✓ GRANT, CAMPBELL. 1967. Rock art as art. Chapter five in Rock art of the American Indian, pp. 40-42. New York: Thomas Y. Crowell.
- / HIBBEN, FRANK C. 1975. Kiva art of the Anasazi. Las Vegas: KC.
- HOFFMAN, W. J. 1891. The Midwin or "Grand Medicine Society of the Ojibwa." Seventh Annual Report of the Bureau of American Ethnology, 1885-86, pp. 143-300. Washington.
- LIEBERMAN, PHILIP AND EDMUND CRELIN. 1971. On the speech of Neanderthal Man. Linguistic Inquiry. 11: 203-22.
- MALLERY, GARRICK. 1881. Sign language among the North American Indians. First Annual Report of the Bureau of American Ethnology, 1879-80. Washington (reprinted 1972 The Hague: Mouton).
- / _____ . 1886. Picture-Writing of the American Indians. Tenth Annual Report of the Bureau of American Ethnology, 1881-82. Washington (reprinted, 2 vols., 1972 New York: Dover).
- / MARSHACK, ALEXANDER. 1972a. The roots of civilization. New York: McGraw-Hill.
- _____ . 1972b. Cognitive aspects of Upper Paleolithic engraving. Current Anthropology. 13: 445-77.
- _____ . 1976. Some implications of the Paleolithic symbolic evidence for the origin of language. Current Anthropology. 17: 274-82.
- / MARTINEAU, LA VAN. 1969. Is it language? Western Gateways. 8: 18-22, 43-46.
- / _____ . 1973. The rocks begin to speak. Las Vegas: KC.

- STEWART, JULIAN H. 1929. Petroglyphs of California and adjoining states. University of California Publications in American Archaeology and Ethnology. 24: 47-238.
- SWARTZ, B. K., JR. 1968. Letter to the editor on "Is it language?" by La Van Martineau. Western Gateways. 8: 50, 60.
- _____. 1975. On the concept of the symbol. Current Anthropology. 16: 654.
- _____. 1981. A survey of petroglyph and pictograph research as viewed from America. Papers of the American Committee to Advance the Study of Petroglyphs and Pictographs, No. 1. Harpers Ferry.
- TERRACE, HERBERT S. 1979. Nim: A chimpanzee who learned sign language. New York: Knopf.
- TOMPKINS, WILLIAM. 1969. Indian sign language. New York: Dover (reprint of 5th ed. 1931 entitled Universal Indian Sign Language of the Plains Indians of North America. San Diego).

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FIGURE CAPTIONS

- FIGURE 1. A SAMPLE PARADIGM OF PETROGLYPH SIGNS.
- FIGURE 2. PHOTOGRAPH OF THE "ESCALANTE" PANEL, WASHINGTON COUNTY, UTAH.
- FIGURE 3. ISOLATED PORTION OF THE "ESCALANTE" PANEL NOT PRESENT IN FIGURE 2.
- FIGURE 4. POSITION KEY OF SIGNS BY NUMBER ON THE "ESCALANTE" PANEL.