

**Asiatic Echoes -
The Identification of Ancient Chinese
Pictograms in pre-Columbian North
American Rock Writing**

Supplemental Report #1

***ANCIENT CHINESE ROCK
WRITINGS CONFIRM EARLY
TRANS-PACIFIC INTERACTION***

by

John A. Ruskamp, Jr., Ed.D.

All rights reserved. No part of this manuscript may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or any information storage and retrieval system, without notarized permission in writing from the author.

Ancient Chinese Rock Writings Confirm Early Trans-Pacific Interaction
Copyright © 2014
Revised July 3, 2017

ANCIENT CHINESE ROCK WRITINGS CONFIRM EARLY TRANS-PACIFIC INTERACTION

John A. Ruskamp, Jr., Ed.D.

Copyright © 2014

Revised July 3, 2017

With input provided by the renowned sinologist David N. Keightley, Ph.D., and the Chief of Natural Resources at the Petroglyph National Monument, Michael Medrano, Ph.D., this paper documents and translates two sets of ancient, readable, and highly complex Chinese writings that were pecked into the rocks of Arizona and New Mexico approximately 2500 years ago. Here is the long sought and conclusive epigraphic evidence that Chinese explorers not only reached the Americas in pre-Columbian times, but that they interacted positively with Native populations, sharing both intellectual and cultural information.

由著名漢學家大衛·N.凱特利博士和國家岩畫紀念碑，自然資源的首席主管麥可·梅德拉諾博士提供參考，這份記錄報告解讀兩套，大約2500年前刻在亞利桑那州和新墨西哥州岩石上，高度複雜遠古的中國文字。這是長期追求和確鑿碑銘的實證，說明中國探險家不僅在前哥倫布時期到達了美洲，並且與本地土著積極以文化知識互相交流。

Este trabajo documenta y traduce dos conjuntos de escritos chinos antiguos, legibles, y altamente complejos que fueron picoteados sobre rocas en Arizona y Nuevo México hace aproximadamente 2500 años. Aquí está la evidencia epigráfica largamente buscada y concluyente que exploradores chinos no solo llegaron a las Américas en la época precolombina, pero que interactuaron positivamente con las poblaciones nativas, intercambiando información cultural e intelectual.

The Written Record of an Ancient Chinese Offering

"John... You might perhaps, see the term *Dà Jiǎ*, A *Shāng* ancestor!"

David N. Keightley, Ph.D.

In a remote region of Albuquerque's Petroglyph National Monument, high above a sandy trail frequented daily by joggers and dog walkers alike, is a very old and readable set of ancient Chinese script petroglyphs (Figures 1 and 2). Here, in public view, yet remaining unrecognized and miscategorized, are the ancient written Chinese symbols of: *Xiàn* (to offer sacrifice in worship to deceased ancestors); *Quǎn* (dog); *Dà* (great); *Jié* (to kneel down in reverence); *Dà Jiǎ* (the name of the third king of the *Shāng* dynasty); and *Gēng* (the seventh Chinese Heavenly Stem).

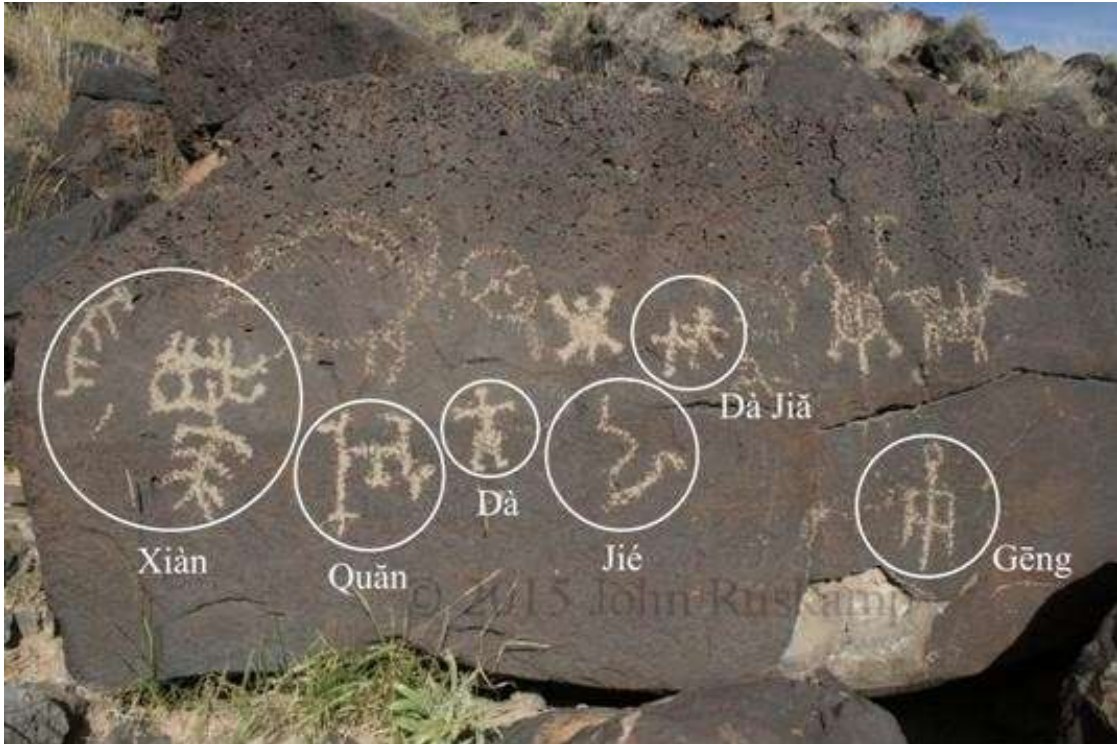


Figure 1. Ancient Chinese script petroglyphs in the Petroglyph National Monument

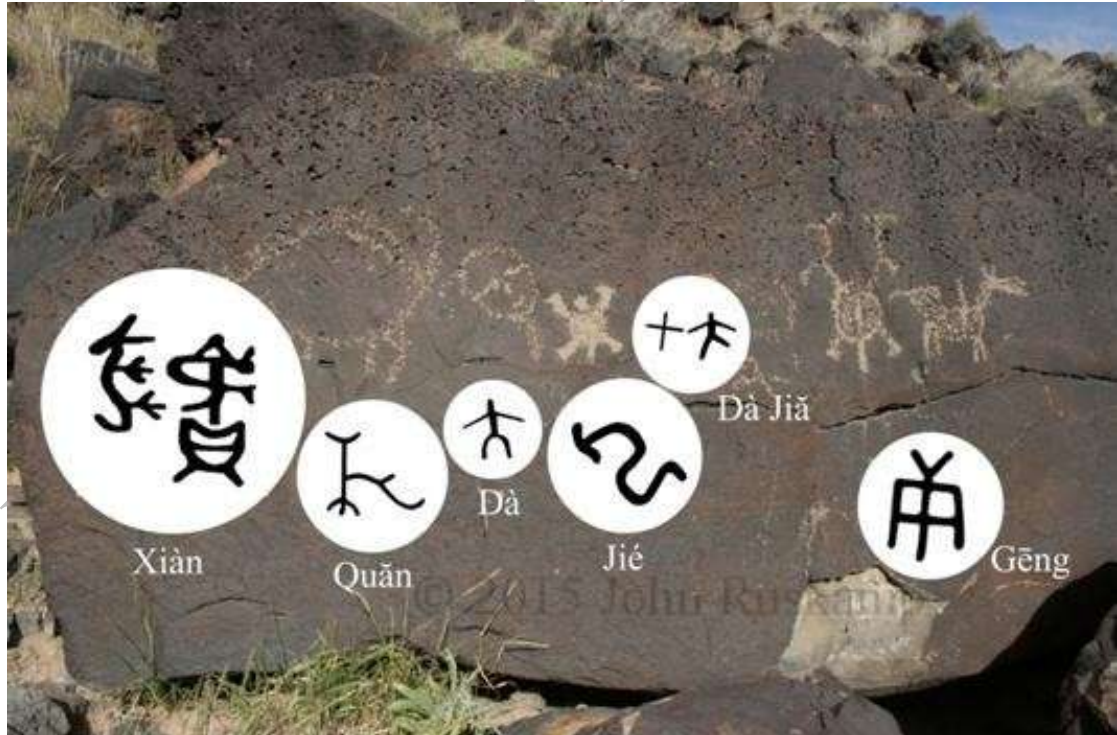


Figure 2. The boulder shown in Figure 1 with matching ancient Chinese pictograms inserted over their corresponding petroglyphs

Images from: Chalfant, Fazzioli, and Sears

Independently, David N. Keightley, Ph.D., considered by many to be "the foremost analyst of oracle texts in the West" (Eno 2010:2), has confirmed that these petroglyphs have the form of Chinese scripts. In fact, Keightley was the first to recognize the name of the Shāng king, Dà Jiǎ, upon this boulder, and communicated his insight with the following message: "John... You might perhaps, see the term Dà Jiǎ, A Shāng ancestor!" (personal communication, May 11, 2013).

Additionally, Michael F. Medrano, Ph.D., Chief, Division of Resource Management for the Petroglyph National Monument, personally evaluated the petroglyphs upon this boulder on November 13, 2013. With more than 25 years of experience working at the Monument with local Native cultures, upon viewing these figures, Medrano commented, "These images do not readily appear to be associated with local tribal entities," and "based on repatination appear to have antiquity to them."

The Recorded Message of the Pictogram-glyphs

Centrally located on this boulder, in the middle of a collection of discernable Chinese characters, is the serpentine bronze era script figure Jié, meaning to kneel down in reverence toward a greater authority. The illustrated message of this symbol (Figure 3), an individual bowing towards a superior while holding aloft his half of an imperial seal (Wieger 1965:147), may be understood as follows.



Figure 3. A man kneeling before his superior holding a royal seal in his hand

Drawing by Jennifer Mucha

The short vertical section atop this curvilinear drawing represents half of an imperial seal given to the man previously, as he now displays it to his superior. From the bottom of this section, the line abruptly bends to the right, depicting the arm of this respectful individual. It then reverses direction and curves to the left forming the outline of the man's body, before subsequently bending back to the right as the man's leg. Finally, this single line

terminates with a small downward section, depicting the toes of the kneeling man as they touch the ground (Fazzioli 1987:67).

Pecked upon this boulder immediately in front of the kneeling figure of Jié, is the image of a stickman embellished with puffy pants and a shirt. While stickmen are common figures in North American rock art, this particular figure exhibits an extraordinary amount of added detail (energy expended for its creation). It communicates to the observer that this man is, indeed, a very important person, someone worthy of deference. As a script, it is a larger-than-life form of the oracle-bone script Dà, meaning "great," and, appearing as it does upon this boulder, it affirms the interpretation provided above for the script Jié.

Written to the left of this image of Dà is the figurative Chinese seal era pictogram of a dog, Quǎn. And left of this canine logograph, near the edge of the boulder's west face, this singular row of four ancient Chinese scripts terminates with the boldly inscribed and highly complex bronze era depiction of Xiàn, meaning "to offer in worship to the deceased ancestors" (Wieger 1965:304).

Xiàn is a multifaceted figure, composed of three unique parts: a schematic depiction of the head of a tiger resting upon a cauldron with a dog strategically positioned alongside. Collectively, Keightley (personal communication, May 11, 2013) has verified the presence of these three graphic components in the figure Xiàn upon this Petroglyph National Monument boulder.

Reading the sequence of these four pictogram-glyphs in the traditional Chinese manner from right to left, beginning with the symbol Jié, we learn about a respectful man honoring a superior with the sacrificial offering of a dog. Notably, "that dog sacrifices were very popular in the second part of the second millennium B.C. in China is supported by evidence in oracle-bone inscriptions..." (Bulling 1977:9).

In addition to the four centrally located pictogram-glyphs pecked into the west face of this boulder, immediately above the character Jié are two additional scripts used for writing the name of China's third Shāng emperor, Dà Jiǎ.

Furthermore, at the lower right side of this panel of rock writing is the oracle-bone symbol of Gēng, the seventh Heavenly Stem of the Chinese calendrical counting system.

In spite of the recognizable forms of these two supplementary scripts, determining a date for the creation of the incongruous styles of Chinese writing placed upon this boulder is no easy task. Nevertheless, all of these scripts exhibit the same level of repatination, indicating that they were created contemporaneously and that they are not recent specious fabrications (i.e., created after the rediscovery of oracle-bone script in A.D. 1899).

Insightfully, Keightley informs us in *Sources of Shāng History* that an emerging Shāng practice towards the end of the dynasty was to add the preface Dà (meaning "great") to the names of their kings, examples being Dà Jiǎ, Dà Gēng, and Dà Wù (Keightley

1978:207). Following the era of the Shāng, a different form of appellation gradually supplanted this custom. Therefore, the intentional placement upon this boulder of the title Dà as a simplistic stickman alongside of the name of Jiǎ, suggests that these logographic petroglyphs were inscribed near the end of the Shāng dynasty in 1046 B.C.

Mutually, the era Quǎn pictogram written upon this boulder and the adjoining bronze era script form seal of the Xiàn character located beside it support the above estimate for the age of these pictogram-glyphs. Informatively, the commingling of these multiple styles of Chinese script indicates that these writings were produced during a transitional period in Chinese calligraphy, likely after 1046 B.C. and not much later than 475 B.C., for, we are reminded that "...the different scripts did not follow one after the other in orderly fashion, each growing from the previous one in a linear progression. They evolved over several centuries and often overlapped" (Wilkinson 2000:409).

The Ancient Poetic Record of a trans-Pacific Journey



Figure 4. Arizona's ancient Chinese script cartouches

In east-central Arizona, approximately 250 miles southwest of Albuquerque, New Mexico, reside three ancient and uniquely subdivided petroglyph cartouches, each filled with readable combinations of ancient Chinese poetic (piánwén) scripts (Figure 4).

Instructively, the ancient Chinese author of these glyphs numbered two of the cartouches, thereby providing the reader with a visual cue for understanding both the alignment of the writings and their proper reading order. Beneath the first cartouche the author inscribed the Chinese character Yī, meaning "one." In a like manner he labeled the second cartouche with the symbol of Yī, meaning "second." The third and final cartouche of this triad was not numbered.

Of note, these cartouches are all relatively small, measuring from 15 to 20 cm in length and width. Consequently, when they are viewed from even a short distance, they are inconspicuous upon this embellished rock outcropping. Evidently, the message preserved by these pictogram-glyphs was not intended to be a public announcement. Rather, as Keightley notes in his article concerning oracle-bone inscriptions published in *Archaeology of Asia*, "the incising mattered more than the writing," as they were "inscribed to leave a record rather than a document;" for "the importance of the inscriptions was that they were there, that they existed, not that they were read" (Keightley 2006:189-191).

Curiously, the scripts within each of the two numbered cartouches were rotated by the author 90 degrees to the left of vertical, while the symbols within the third and unnumbered cartouche were oriented in the opposite direction, 90 degrees to the right of vertical. The deliberate rotation of these writings, both to the left and right of vertical by an equal number of degrees, endorses their authenticity as rotation of individual scripts by ancient Chinese calligraphers is well-documented (Wilkinson 2000; Keightley 1978).

**Cartouche 1
"Together for Ten Years"**

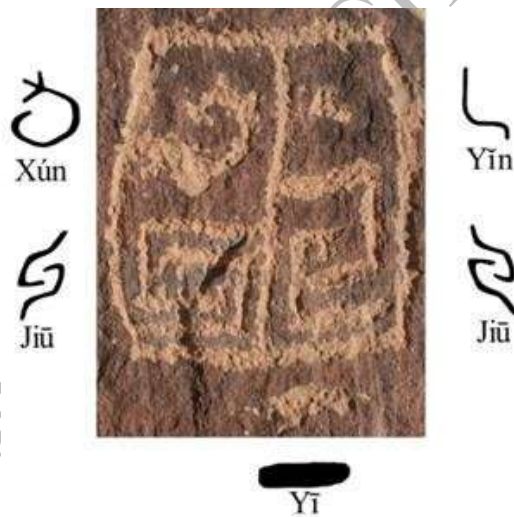


Figure 5. Cartouche 1 with corresponding Chinese pictograms alongside
(Note: Photograph rotated 90 degrees to the right)
Images: Xún - Sears; Jīū - Sears; Yīn - Chalfant; Yī - Karlgren

Purposefully, the ancient author of Cartouche 1 placed beneath it a single horizontal dash, the Chinese script Yī meaning "one" (Figure 5). The manner in which this numerical designation was inscribed beneath the outline of this cartouche informs observers to: a) rotate the figure 90 degrees to the right for reading; and b) "Start here."

Significantly, Cartouche 1 is subdivided into two equal and parallel sections, each of which is filled by a pair (couplet) of vertically oriented ancient Chinese scripts. Informatively, these two sets of aligned scripts have uniquely opposite mirror-like orientations, reminiscent of a reflective script oracle-bone pattern (Keightley 1978), and

suggestive of folio pagination. The intentional separation of these paired and vertically aligned scripts informs the reader that each couplet is to be interpreted independently and read sequentially.¹

Within the top right segment of Cartouche 1 is the ancient Chinese script symbol of Yīn, meaning "secluded" (Chalfant 1906: Plate XXXI), or alternatively, "secretly" or "hidden" (Morrison 1815:38). Below it, the author wrote the Chinese character Jiū, thereby adding to the meaning of Yīn the concept of "togetherness." Collectively, these two scripts inform us about an implicit group of individuals who were ascetically isolated.

Likewise, the left half of Cartouche 1 also contains a pair of vertically aligned ancient Chinese scripts. Here are the backward oracle-bone figures of Xún, meaning "10 years," inscribed above a mirror image of the character Jiū as it appears within the right half of Cartouche 1. Together these two sets of paired scripts describe a team of individuals who have been together for a period of 10 years.

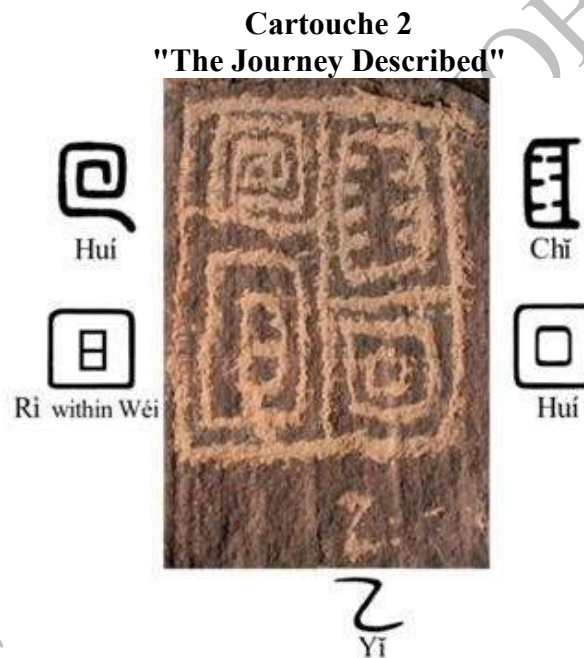


Figure 6. Cartouche 2 with corresponding Chinese pictograms alongside
(Note: Photograph rotated 90 degrees to the right)
Images: Huí (both) - Wiegler; Rì - Sears; Wéi - Sears; Chī - Sears; Yī - Chalfant

In the same manner as Cartouche 1 is numbered by the symbol Yī, Cartouche 2 is identified as the second readable portion of this message by the purposeful placement of the Chinese script Yī, meaning "second," beneath its outline (Figure 6). Instructively, Cartouche 2 was pecked immediately to the left of Cartouche 1, confirming the intended reading order of these scripts, that is, from right to left as a conventional Chinese document.

Consistent with the orientation of the scripts in Cartouche 1 those identified within Cartouche 2 exhibit the same intentional rotation, 90 degrees to the left of vertical.

However, unlike the author's bilateral division of the interior space of Cartouche 1, Cartouche 2 is subdivided into four unequal areas, each filled by a solitary script figure.

From top to bottom and right to left, the individual characters of Cartouche 2 appear in the following order: Chǐ (speech), Huí (return), Huí (completed journey), and the composite symbol of Rì (Sun) within Wéi (a wall) which when written together convey the meaning "House of the Sun."² Read in this manner, these four ancient Chinese pictogram-glyphs preserve the core message documented by these three cartouches i.e., "speaking about," "returning," "the journey completed," (to the) "House of the Sun." Moreover, and of prime importance, the message preserved by these pictograms conforms to the established 4-character poetic style of ancient Chinese piánwén literature.

Curiously, in the ancient Chinese text of the *Shan Hai Jing*, known since at least the fourth century B.C. (Bagrow and Skelton 2009:204), there is the somewhat fanciful account of an ancient expedition that journeyed to a land far beyond the East Sea (Pacific Ocean). Among other things, this early document asserts that this distant region is where the Sun and Moon rise, and that it contains an abyss called the "Big Chasm" (Birrell 1999:159), a possible reference, according to some, to the Grand Canyon.

Cartouche 3
"Returning Home Together"



Figure 7. Cartouche 3 with corresponding Chinese pictograms alongside

(Note: Photograph rotated 90 degrees to the left)

Images: Huí - Wieger; Jiū - Sears; Jiā - Sears

In the same manner as Cartouche 1, the interior space of Cartouche 3 is also bilaterally divided (Figure 7). However, the scripts written within it are oriented 90 degrees to the right of vertical, opposite to the positioning of the characters located within Cartouches 1 and 2.

Inscribed from top to bottom within the left section of Cartouche 3 are the ancient Chinese script figures of Huí (completed journey) and Jiū (together). This sequence of readable scripts reinforces the message of Cartouche 1 by emphasizing the unity of a successful journey carried out by a team of individuals.

Finally, in the adjoining right portion of Cartouche 3 is the solitary figure of an animal, in this case a line drawing of a pig. As this figure is fully enclosed by the interior and exterior lines of the cartouche it is understandable as a stylized form of the ancient Chinese bronze era word Jiā, meaning "home." Accordingly, the message preserved by the three pictogram-glyphs inscribed within Cartouche 3 may be understood as: "(Going) home; (the) journey completed together."

The Message of the Three Arizona Ranch Cartouches

Importantly, the author of the three Arizona cartouches described above utilized an identifiable style of Chinese poetry for documenting his story. By enclosing sets of related scripts within numbered and subdivided outlines, he grouped his thoughts into stanzas as if they were paragraphs written upon successive pages, thereby indicating the reading order for properly comprehending his message. And, as William Boltz reminds us: "The interpretation of what any Chinese character depicts is always subjective and never the same thing as understanding what word the character writes, but if the interpretation is arrived at thoughtfully, and without recourse to unwarranted a priori assumptions, it can sometimes be legitimately suggestive all the same of specific aspects of material culture" (Boltz 2009:107). And significantly, as Chen Lung-Chuan details below, when read aloud these Chinese scripts rhyme!

Consequently, by reading these ancient Chinese scripts in their prescribed sequence, beginning with Cartouche 1 and proceeding from top to bottom and then right to left, the entirety of the message recorded at this location is as follows.

Cartouche 1: "Sequestered (isolated) together, (for) 10 years together;"

Cartouche 2: "Speaking (of) returning, (the) journey completed (to the) House of the Sun;"

Cartouche 3: "(Going) home, (the) journey completed together."

An Alternative Poetic Translation of the Cartouches

When Chen Lung-Chuan of Taiwan read the symbols contained within the Arizona Ranch pictogram-glyph cartouches he immediately noted that the alignment and rhyming scheme of these ancient Chinese symbols identify them as piánwén poetry, a style of Chinese writing found in the ancient book of poems called the ShīJīng which is believed to have been assembled sometime between the 11th and 7th centuries BC. This fact led David N. Keightley, Ph.D. to suggest that these Arizona cartouches could have been created as early as the era of the ShīJīng poems, that is, during the Zhōu dynasty (personal correspondence, July 19, 2015.)

The following is an alternative translation of the Arizona Ranch cartouche pictogram-glyphs provided by Chinese scholar Chen Lung-Chuan.

"For the Cartouche 1 containing the Chinese pictograms of 隱 糾 旬 and 糾 I now know that there is an error in your research. The first "糾" is WRONG (i.e. It is not a LEFT-RIGHT reversion.) It is another word "互" which with its paired pictogram of "隱" corresponds in pronunciation with "寅虎" in Cartouche 3.

Consequently, Cartouche 1 contains the symbols of 隱 互 旬 糾, which are pronounced respectively as Yǐn Hù Xún Jiū and may be translated as "Together left, 10 years together."

(Note: the words Hù and Jiū found within Cartouche 1 rhyme with sounds much like the English words of "who" and "Jew.")

Cartouche 2 contains the symbols of 齒 歌 回 and 朝, which are pronounced as Chǐ Gē Huí Cháo and may be understood as "Talking about the City of Song, Returning to the City of the Sun."

Cartouche 3 contains the symbols of 寅 虎 回 and 糾, which are pronounced as Yín Hǔ Huí Jiū and may be translated as "In Year of Tiger, return together."

Believe me; this (find) is not simply about Archaeology, but also LITERATURE. It is a fantastic poem (or lyrics, if people can find the music scores of it), just like those you read in "詩 經" (the Shī Jīng).

The two "糾" in Cartouche 1 are DIFFERENT words; in fact, they should be in this way.

Cartouche 1 - 隱糾旬互

Cartouche 2 - 齒歌回朝

Cartouche 3 - 寅虎回糾

Therefore;

A. This poem is integrally in rhythm by means of "朝" (in Cartouche 2) and "糾" (in Cartouche 3), according to ancient Chinese pronunciations.

B. The author was also playing the GAME OF PRONUNCIATIONS between the Cartouche 1 and Cartouche 3!

For Cartouches 1 and 3:

隱 pronounces like 寅

糾 pronounces like 糾

旬 pronounces like 回

互 pronounces like 虎

(If you look at the Cartouche 1, then make a big cross mark "X" thereon to get the Cartouche 3.)

CHEN Lung-Chung 2015-08-12 Taipei"

Shared North American and Asiatic Symbolism

Multiple times the ancient author of the cartouches described above recorded his message with graphic images that were, and still are, understood in the same manner by both Native American and Asiatic populations.

The first of these mutually symbolic figures portrays the interlocking fingers of two hands. Persisting into modern times, the Hopi people of North America refer to this figure as "Nakwách," and understand it as their symbol for "brotherhood" and "friendship" (Figure 8). Chinese calligraphers, both ancient and modern, use an identical figure, Jiū (Figure 9), which for them represents the twisting of multiple items into one (Wieger 1965:145). For the Chinese, the figure of Jiū conveys the idea of "togetherness," in much the same manner as the Nakwách symbol is now, and has been in the past, understood by the Hopi.

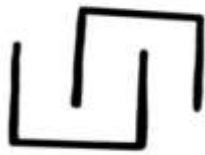


Figure 8. Hopi Nakwách symbol
Image: Frank Waters



Figure 9. Chinese script Jiū
Image: Matsumaru & Takashima

A second prominent example of the parallel symbolism employed by North American and Asiatic authors, evident in the study cartouches, is their joint use of a rectilinear spiral to convey the concept of a "round-trip journey" (Figure 10). This symbol, pronounced as Huí by the Chinese, appears frequently in North American rock art, both as a singular object and in repetitive patterns. Historically, the Hopi have used this symbol to portray the four complete migrations that their legendary god Massau instructed them to make, once to each of the four cardinal directions (Figure 11). Curiously, "...among all Pueblo Indians the cardinal directions, the zenith, and the nadir are associated with specific colors, and color and directional symbolism are important" (Cordell 1997:17). The fact that these same color patterns are associated with the Chinese, and are equally important for them, has also been noted (Davis 2001:xxx; Zeilik 1986:S8).



Figure 10. The Chinese pictogram Huí
Image : L. Wiegner



Figure 11. Linked Native American rectilinear spirals

A Brief History of Chinese Writing

The history of writing is a multifarious topic. From humankind's earliest use of signs and symbols, through proto-writing, to the development of formal script systems, there is considerable debate about just what constitutes true writing. Still, most scholars agree that "Writing arose, as far as we know, *ex nihilo* only three times in old-world antiquity: in Egypt, in Mesopotamia, and in China, and once in the new world, viz., the Mayan script of Mesoamerica" (Boltz 2003:10).

Throughout the evolution of Chinese script, it has remained a highly pictographic form of writing, relying upon imagery (graphemes) to convey meanings rather than employing symbols for the individual speech sounds (phonemes) of the language.

The earliest known, fully developed, example of Chinese writing, oracle-bone script, appears in the historical record around 1700 B.C. From this early date, and for approximately the next 600 years, oracle-bone script was primarily carved into animal bones.

Of singular importance for dating the pictogram-glyphs of this study, knowledge of oracle-bone script was totally lost to humanity for over two millennia following the collapse of the Shāng dynasty in 1046 B.C. Once lost, it remained unknown until A.D. 1899 when ancient bones inscribed with oracle-bone script were recovered from an archaeological site near Ānyáng, China. However, although more than 100 years have passed since its rediscovery, the task of fully deciphering oracle-bone script is not complete. To date, the meaning for approximately 50 percent of the 5,000 known figures remains a mystery (Wilkinson 2000:397).

Following the demise of the Shāng, newer styles of writing appeared which eventually supplanted oracle-bone calligraphy (Figure 12). However, prior to the standardization of writing in China around 200 B.C., scribes were free to independently modify, personalize, and embellish their scripts as they desired. Accordingly, there evolved an overwhelming plethora of new symbols, which, unfortunately, were seldom widely understood. This unregulated profusion of script characters became such a problem for the average Chinese reader that, in approximately 500 B.C., even the learned Confucius complained "of scribes who were dishonest and instead of leaving blanks when they forgot characters, made new ones" (Wilder and Ingram 1922:iv).

With time, the invention and widespread adoption of new and improved writing technologies, such as the brush and ink, required that stylistic changes be made in Chinese characters, rewarding their conformity. Subsequently, each major style of Chinese writing is now associated with a particular historical period. Therefore, although Chinese writing was generally unregulated early on, its major calligraphic styles are very datable and are especially useful for determining the approximate age of written records.

	Modern after AD 220	Seal era 221 BC - AD 220	Bronze era 1050 - 221 BC	Oracle-bone 1700 - 1050 BC
Xiàn	獻	𠄎	𠄎	𠄎
Quǎn	犬	𠄎	𠄎	𠄎
Dà	大	大	大	大
Jiǎ	甲	甲	十	十
Gēng	庚	庚	𠄎	𠄎
Jiè	卩	卩	卩	Unknown

Figure 12. Evolution of Selected Chinese Pictograms
 Images from: Fazzioli; Sears; and Wieger

Discussion

Bruce Trigger reminds us... the ultimate goal for the field of archaeology "must be to recover knowledge of what has been forgotten" (Trigger 2006:531). Demonstrably, and with manifold robust proofs, this study fulfills that quest; it has recovered previously overlooked intellectual information preserved by ancient Chinese scripts embedded within the North American rock art record.

The authorship of North American rock writing is a highly controversial and politically charged topic. While ancient stone glyphs evoke curiosity in many observers, by their very nature they are extraordinarily difficult to date by any established scientific methodology (Donald Graczyk: Chemist; Inorganic Analysis Technical Lead at Argonne National Laboratory, personal communication, May 17, 2013; Patterson 1992:4). Although a few knowledgeable rock art researchers have put forth plausible explanations for particular rock art symbols, most prudent investigators avoid assigning meaning or authorship to these figures. This inclination is largely due to the characteristic uncertainty of rock art imagery (Patterson 1992), and the sometimes-wild speculations which have been and, unfortunately, still are found in some rock art research reports (Ruskamp 2016).

Similar to the controversy involving rock writing, the theory of pre-Columbian trans-Pacific voyages to the Americas has also been a hotly debated topic for over 250 years. Although the facts referenced by various reputable scholars support early trans-Pacific interaction, most professional archaeologists have dogmatically rejected the idea. This reluctance is largely because there has been a dearth of primary supporting evidence, such as the discovery of an undisturbed early period Asiatic relic or village in the

Americas. However, as Henriette Mertz suggests in *Pale Ink*, "It would be a relatively simple matter if the Chinese Buddhists had been as thoughtful as 'Kilroy' and had taken time out to have carved their names in Chinese characters on solid rock, together with a date." "If they did, perhaps we have not yet recognized it" (Mertz 1953:16-17).

Concerning the elucidation of rock art, the noted researcher Col. Garrick Mallery cautions that "no attempt should be made at symbolic interpretation unless the symbolic nature of the particular characters under examination is known or can be logically inferred from independent facts" (Mallery 1893:767). Quantifiably, the line strokes and inter-stroke touch relationships comprising each of this study's Chinese pictogram-glyphs have been statistically correlated, each at or above the 95 percent probability level, with a known ancient Chinese script symbol by application of the Jaccard Similarity Coefficient formula (Table 1). Collectively, these analyses confirm that the Chinese script petroglyphs evaluated in this study were not created, each for a second time, apart from Chinese influence.

Pictogram-Petroglyph Comparison Data				
Chinese Pictogram	Location of Petroglyph	J	P	N
Bronze era Xiàn	Petroglyph National Monument	1.000	0.001	7
Seal era Quǎn	Petroglyph National Monument	0.667	0.01	15
Bronze era Jié	Petroglyph National Monument	0.692	0.01	13
Oracle-bone Dà Jiǎ	Petroglyph National Monument	1.000	0.01	5
Oracle-bone Gēng	Petroglyph National Monument	0.667	0.01	15
Oracle-bone Chǐ	Arizona Ranch	0.864	< 0.001	22
Oracle-bone Xún	Arizona Ranch	1.000	0.01	5
Oracle-bone Yī	Arizona Ranch	1.000	0.01	5
Oracle-bone Rì	Arizona Ranch	0.846	< 0.001	13
Oracle-bone Wéi	Arizona Ranch	1.000	0.001	8
Seal era Hùì	Arizona Ranch	1.000	< 0.001	17
Seal era Hùì	Arizona Ranch	1.000	< 0.001	16
Oracle-bone Jīū	Arizona Ranch	0.615	0.05	13
Bronze era Jiǎ	Arizona Ranch	0.600	0.05	15

Key

- J = Calculated value of the Jaccard Similarity Coefficient
- P = Probability for the calculated value of J occurring by chance
- N = Total number of line stroke and inter-stroke touch relation attributes

Note: Three of the petroglyphs evaluated in this report are not included in the above data set. Both the Yin and Yi symbols lack the minimum number of attributes necessary for making a comparative statistical analysis with the formula of the Jaccard Similarity Coefficient. In addition, while readable, the large Rinconada Canyon stickman petroglyph is an embellished drawing, not a pictographic symbol.

Table 1. Chinese pictogram - petroglyph correlation values generated by application of the Jaccard Similarity Coefficient

Furthermore, independent evaluations of the study's pictogram-glyphs performed by multiple epigraphic authorities confirm their readability as ancient Chinese writings, and in the case of the Arizona Ranch cartouches as literary poems. Significantly, the sequence in which the ancient Chinese scripts of Gēng, Jié, Dà, Quǎn, and Xiàn were pecked into

the patina of this Rinconada Canyon boulder conform with a known style of Chinese writing that was commonly employed for chronicling oracle-bone era sacrificial rites.

For recording sacrificial rites during the Shāng and Zhōu dynasties, characteristically Chinese scribes would begin by documenting the date of the divination followed in order by the sequential pattern of symbols for the subject of the testing, the King, the object of veneration, and the sacrificial action taken (Yuán 2009). The syntax of wáng bīn oracle-bone inscriptions usually follows this pattern:

干支卜 Divined on a <i>gānzhī</i> -day	某貞 Someone tested	王賓 The King present	祭祀對象 Object of veneration	祭祀動詞 Sacrifice verb	亡尤(亡咎) Inquiry about the usefulness
---	-------------------------	---------------------------	---------------------------------	---------------------------	--

Figure 13. The regular pattern employed for recording *wáng bīn* sacrificial rites
From: *Sacrificial Rites for Ancestors during the Shang and Zhou Dynasties*

Reading the Rinconada boulder pictogram-glyphs from right to left beginning with the oracle-bone era symbol of Gēng (meaning "seventh") the syntax of the following symbols of Jié (the subject), Dà (the King present), Quǎn (the venerated object), and Xiàn (the sacrificial rite), conform with this style of ancient writing. Consequently, not only are these long overlooked New Mexican petroglyphs readable as ancient Chinese symbols, their reading order conforms with a known style of writing frequently employed during the Shāng and Zhōu dynasties for recording sacrificial events such as the one inscribed at this site.

Demonstrably, the literary attributes of this study's pictogram-glyphs provide compelling and conclusive evidence that, before oracle-bone characters were fully supplanted by newer forms of Chinese script... "literate Chinese were present early on in North America" (Ruskamp 2016:89). However, there are no known eyewitness accounts detailing the authorship of these ancient rock writings. Moreover, to date, the physical dating of petroglyphs remains inherently unreliable and technically elusive. Still, we are reminded that: "In the absence of sufficiently precise absolute dates, arrived at by carbon-14 dating or some other method, and in the absence of sufficiently precise relative dates, arrived at by analogical or stratigraphic criteria, the inscriptions themselves provide our most reliable evidence for relative dating" (Keightley 1978:94).

Importantly, both the complexity and quantity of the readable combinations of Chinese scripts found at the study's primary sites in Arizona and New Mexico reveal that the author(s) of these pictogram-glyphs had an extensive Chinese vocabulary and knowledge of ancient Chinese literary styles (Ruskamp 2016). Notably, as part of their historical calligraphic development, the Korean, Japanese, and Vietnamese peoples each supplanted their earliest form of writing with Chinese script. However, these appropriations occurred following the domination of Vietnam by China's Han dynasty (221 B.C. - A.D. 206); subsequent to the introduction of Buddhism in Korea around 500 B.C.; and in the case of Japan, during more recent times (ca. A.D. 700) when knowledge of oracle-bone script was well extinguished from human memory. Consequently, the ancient literary

pictogram-glyphs identified by this research endeavor cannot be credited to an Asiatic population outside of China.

Frequently, Native Americans attribute the production of ancient rock art to their ancestors. However, thus far, little if any conclusive proof for the authorship of North American rock art has been offered (Cole 1990:4). Generally, the greater the age of a rock depiction, the less is known about it. Consequently, for some the best answer for the authorship of these enigmatic illustrations is that they are "messages from the ancestors, which, though no longer decipherable, remain signs from the past" (Young 1985:3).

In spite of this vagueness, the extensive Chinese vocabulary evidenced at each of the locations evaluated in this report advocates against the authorship of the figures being credited to Native Americans. None of the more complex Chinese figures identified in this study are known to have any Native tribal affiliation (Medrano 2013); and if these writings were Native accomplishments, there should be additional examples nearby. To date, after the review of more than 175 regional rock art locations, containing hundreds of thousands of individual figures, no further examples of such uniquely complex and literary patterns of Chinese pictogram-glyphs have been identified.

Conclusion

Accordingly, what *is* certain is that *the origin* of the significantly repatinated and uniquely styled Asiatic script symbols identified in this report must be consigned to China, for "The Chinese script is obviously an original system of signs created to record an ancestral form of the Chinese language" (Houston 2008:258); and never in the history of humanity has such a uniquely complex and readable set of characters been invented more than once.

Therefore, in conclusion and in contrast to any previous historical uncertainty, the comparative evidence presented in this report, which is supported by both analytical evaluation and expert opinion, documenting the presence of readable sequences of old Chinese scripts located upon the rocks of North America, establishes that prior to the extinction of oracle-bone script from human memory, approximately 2,500 years ago, trans-Pacific exchanges of epigraphic intellectual property took place between Chinese and North American populations.

Acknowledgements. Foremost, I extend my sincere gratitude to David N. Keightley for his professional review of this manuscript, learned suggestions, questioning, and his advice to "persist" and "publish" this research. Similarly, I express appreciation to Michael F. Medrano for assisting with the physical evaluation of the most significant Chinese pictogram-glyphs located within the Petroglyph National Monument; to Lung-Chuan Chen for providing an independent translation of the Arizona Ranch cartouches; and to Yuzhou Fan, Baochun Ma, Yaoliang Song, and Walter Ko for their scholarly input and ongoing support.

In addition, this research study would not have been possible without the long-term interest and support of Roxanne Knight, for which I am grateful.

Finally, I am thankful for the editorial review of the manuscript by Joan M. Mundell and for the translations of the abstract provided by Drs. Ana M. Espinoza and Walter Ko. This work is dedicated to the memory of Louis Chingwa - uncle, mentor, and member of the Ojibwa people.

Notes

1. Unlike the vertical orientation of the two sets of script pairings located within Cartouche 1, when two Chinese characters are written horizontally as side-by-side "phono-semantic compounds" they have a single meaning apart from that of their component scripts. In such cases, one symbol is a symbolic figure communicating an overall meaning, and the other character functions as a phonetic item providing the reader with a clue for the proper pronunciation of the word.

2. Two different symbols located in Cartouche 2 are pronounced and spelled in modern pinyin Chinese as Huí. Nevertheless, they are composed of different line stroke patterns and have different meanings.

Bibliography

Bagrow, Leo R. 2009. *History of Cartography: Enlarged Second Edition*. Revised by R.A. Skelton and translated by D.L. Paisey. New Brunswick, New Jersey: Transaction Publishers.

Birrell, Anne. 1999. *The Classic of Mountains and Seas*. New York: Penguin Books.

Boltz, William G. 2003. *The Origin and Early Development of the Chinese Writing System*. New Haven, Connecticut: American Oriental Society.

1999. "Language and Writing." In *The Cambridge History of Ancient China*, edited by Michael Loewe and Edward L. Shaughnessy, 74-123. Cambridge, United Kingdom: Cambridge University Press.

Bulling, A. Gutkind. 1977. "A Late Shāng Place of Sacrifice and its Historical Significance." *Expedition* 19(4): 4-11.

Chalfant, Frank H. 1906. "Early Chinese Writing." In *Memoirs of the Carnegie Museum*, edited by W.J. Holland, 1-36. Lancaster, Pennsylvania: The New Era Printing Company.

Cole, Sally J. 2000. *Legacy on Stone: Rock Art of the Colorado Plateau and Four Corners Region*. Boulder, Colorado: Johnson Books.

- Cordell, Linda. 1997. *Archaeology of the Southwest*. 2nd ed. San Diego: Academic Press.
- Davis, Nancy Yaw. 2001. *The Zuni Enigma*. New York: W.W. Norton and Company.
- Eno, Robert. 2010. "3.3 The Oracle Texts." In *Indiana University History G380-class text readings-Spring 2010*. Accessed May 8, 2013. <http://www.indiana.edu/~g380/3.3-Bones-2010.pdf>.
- Fazzioli, Edoardo. 1987. *Chinese Calligraphy From Pictograph to Ideogram: The History of 214 Essential Chinese/Japanese Characters*. New York: Abbeville Press.
- Houston, Steven, ed. 2008. *The First Writing: Script Invention as History and Process*. New York: Cambridge University Press.
- Karlgren, Bernhard. 1957. *Grammata Serica Recensa*. Göteborg, Sweden: Elanders Boktryckeri Aktiebolag.
- Keightley, David N. 1978. *Sources of Shāng History: The Oracle-bone Inscriptions of Bronze Age China*. Berkeley: University of California Press.
2000. *The Ancestral Landscape: Time, Space, and Community in Late Shāng China*. Berkeley: University of California Press.
2012. *Working for His Majesty*. Berkeley: University of California Press.
2006. "Marks and Labels: Early Writing in Neolithic and Shāng China." In *Archaeology of Asia*, edited by Miriam T. Stark, 177-201. Malden, Massachusetts: Blackwell Publishing, Ltd.
- Mallery, Garrick. 1893. *Picture-Writing of the American Indians*. Washington, D.C.: Government Printing Office.
- Matsumaru, Michio and Ken-ichi Takashima. 1994. *Kōkotsumoji jishaku sōran*. Tokyo: Tokyo University Press.
- Mertz, Henriette. 1953. *Pale Ink*. Chicago: Ralph Fletcher Seymour.
- Morrison, Robert. 1815. *A Dictionary of the Chinese Language in Three Parts, Part I*. Macao, China: East India Company's Press.
- Patterson, Alex. 1992. *A Field Guide to Rock Art Symbols of the Greater Southwest*. Boulder, Colorado: Johnson Books.
- Ruskamp, John A., Jr. 2016. *Asiatic Echoes - The Identification of Ancient Chinese Pictograms in pre-Columbian North American Rock Writing*. 3rd ed. North Charleston, South Carolina: CreateSpace.

- Sears, Richard. 2013. "Chinese Etymology." Accessed June 15, 2013.
<http://www.chineseetymology.org>.
- Trigger, Bruce G. 2006. *A History of Archaeological Thought*. 2nd ed. New York: Cambridge University Press.
- Waters, Frank. 1963. *Book of the Hopi*. New York: Viking Penguin Inc.
- Wieger, Lèon. 1965. *Chinese Characters: Their origin, etymology, history, classification and signification. A thorough study from Chinese documents*. 2nd ed. New York: Paragon Book Reprint Corp. and Dover Publications, Inc.
- Wilder, George Durand and J.H. Ingram. 1922. *Analysis of Chinese Characters*. Peking: North China Union Language School.
- Wilkinson, Endymion. 2000. *Chinese History: A Manual - Revised and Enlarged*. Cambridge: Harvard University Press.
- Young, Jane M. 1983. "Images of Power and the Power of Images: The Significance of Rock Art for Contemporary Zunis." *The Journal of American Folklore* 98: 3-48.
- Yuán, Liú. 2009. "Sacrificial Rites for Ancestors during the Shāng and Zhōu Dynasties." *Asiatische Forschungen* 153: 69-92.
- Zeilik, Michael. 1986. "The Ethnoastronomy of the Historic Pueblos, II: Moon Watching." *Archaeoastronomy* 10: S1-S22.