

Asiatic Echoes:

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

Supplemental Report #3

ANCIENT AMERICAN CHINESE ROCK WRITING DEFINES THE LUNAR MONTH

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 American Chinese Rock Writing Defines the Lunar Month
By John A. Ruskamp, Jr.
Copyright © 2019

ANCIENT AMERICAN CHINESE ROCK WRITING DEFINES THE LUNAR MONTH

By
John A. Ruskamp, Jr., Ed.D.
© 2019

In this study a unique set of ancient Chinese petroglyphs located in the Mojave Desert of southern California is analyzed and deciphered. Collectively these images preserve the account of an ancient astronomical message defining the monthly lunar cycle as the sum of three 10-day periods. Epigraphic and statistical analysis of these images informs us that literate Chinese were indeed present in North America approximately 2500 years ago, and that some of the 3-ringed concentric circle rock art patterns found in the American Southwest, and also around the world, may represent the set of three 10-day weeks employed in ancient times to describe a lunar month. Curiously, long ago both the Chinese and Native Americans embraced such a calendric system. Collectively, this set of archaic petroglyphs preserves a demonstrable record of an early Chinese trans-Pacific exchange of intellectual property.

Evidence of Early Trans-Pacific Contact

For over 250 years the possibility of an early trans-Pacific interaction between Asian and North American populations has been debated. As early as the middle of the 18th century the theory was set forth by the renowned scholar Joseph deGuignes as he reflected upon the mounting secondary evidence in support of such an event. A century later the writings of Charles Leland, Edward Vining, and Alexander von Humboldt all gave voice to the likelihood of early trans-Pacific crossings based upon both historical and nautical data. More recently, genetic analyses of both animal and plant species have provided conclusive scientific evidence for the early movement of both people and biologicals across the Pacific (Sorenson and Johannessen: 2004).

Recently, examples of long extinct styles of ancient Chinese writing have been found pecked upon the rocks and boulders of North America, confirming early trans-Pacific interactions as historical events. (Ruskamp, 2018). Importantly, these ancient writings have conclusively been shown to be real artifacts and are not modern specious fabrications. And, as knowledge of the most ancient forms of Chinese script appearing in these recordings was lost to mankind following the fall of the Shang Dynasty in 1046 BC, and recovered only recently beginning in AD 1899 near Anyang, China, these recordings remained forgotten, overlooked, unstudied, and pristine for millennia. Significantly, the levels of repatination evident upon these marks, located at multiple incongruent sites over 700 miles apart, confirm that these scripts are considerably older than a mere 120 years.

One particularly evocative argument that has been set forth as suggestive of an early trans-Pacific intellectual exchange is the fact that both ancient Native American and Asiatic people utilized three weekly 10-day periods to mark the moon's monthly rotation around the earth (Zeilik 1986). Additionally, 10-day weeks were also employed in ancient Egypt, and briefly during the French Revolution. However, the dearth of demonstrable physical evidence to support the theory of a calendrical paradigm being transmitted from one population to another, and that it was not independently developed on both sides of the ocean, has left the idea as little more than a curious historical sidebar.

Defining the Lunar Month

In late 2015 a research study being conducted in the Mojave Desert of southern California came upon a previously overlooked large boulder embellished with two ancient Chinese script petroglyphs in a small canyon otherwise embroidered with a plethora of archaic Chinese scripts (Figure 1).



Figure 1.

The ancient Chinese rock writing defining a lunar month

Ancient Chinese writings typically read from top to bottom and from right to left. Employing this paradigm to understand the symbols on this boulder reveals that the first two of these images are well-understood ancient Chinese scripts. However, deciphering the implied meaning of the third image upon this boulder, a set of three concentric circles, is problematic as this is a common rock art pattern found at sites around the world. When viewed as stand-alone items concentric circles are typically very difficult to interpret with certainty. Fortunately, in this instance the tri-partite circular symbol was

intentionally placed below two clearly readable Chinese scripts, revealing its meaning and the lunar aspects of the symbol.

At the top of this boulder the ancient author began recording his message by pecking into the surface an illustration (pictogram) of the figure “D,” the antique symbol employed by the early Chinese for their word Yuè, meaning “moon” and also signifying “month” (Houston 2004). Although similar figures of the moon are still in everyday use, viewed in the context of this singular rock writing, and with a readable ancient Chinese character inscribed below it, this D-like symbol is understood as the first word of a larger informative statement.

Beneath the symbol for the moon this ancient author placed another identifiable Chinese script, the archaic symbol of Shí, meaning “a period of time” (Figure 2). Importantly, the multifaceted elements of this character are helpful for its decipherment as Shí is a compound symbol composed of three sub-elements.

The script begins at the top with the symbol of a plant (Ma 2019) underscored by a single horizontal line representing the “ground.” At the side of these two depictions the ancient author drew a divided rectangle which is understood as the Chinese script for the Sun, Rì (Song 2019). Viewed collectively these three pictograms form the unique archaic Chinese ideogram Shí, meaning “a period of time” (Chen 2019).



Petroglyphs forming the symbol Shí



Image variant: Wilder & Ingram

Figure 2.

As noted above, images of the moon and patterns of three concentric circles such as are portrayed on this boulder are common rock art designs. However, here the ancient author’s intentional placement of the readable multi-element Chinese script symbol of Shí between these two symbols provides a literary context for translating this set of images. Importantly, the ancient Chinese script symbol Shí has a complex form that is unknown to have been employed outside of China, so both the age and source of this character are understood by its unique design.

Worldwide rock art enthusiasts have encountered great difficulty in explaining the exact meaning of patterns of concentric circles. For instance, in *Rock Art Symbols of the Greater Southwest* concentric

circles are unfortunately defined as “concentric circles” (Patterson 1992). Other authors in the field of rock writing have set forth equally uncertain definitions for these circular patterns. They have been described as: “ ... visual stimuli associated with altered states of consciousness” (Hedges 1981); footprints of the Hopi god Maasaw (Stephen 1940); or reflecting the ability of a shaman to travel between the upper and middle worlds (Edberg 1985). Unfortunately, such interpretations as these fail to provide insight into the meaning of any given concentric circle pattern, although it is a frequent rock art depiction.

Informatively, in this desert setting the readability of the two ancient Chinese scripts located above the three circles pecked into this boulder provide a contextual setting for deciphering the pattern, at least in this instance. Subsequently, learning the meaning of the 3-ring concentric circles at this site may prove useful for understanding similar images at other locations, especially in the American Southwest. With the moon above and the symbol Shí positioned between the moon and the lower depiction of three concentric circles the meaning of the entire message can be logically deciphered.

Beginning with the symbol of the moon, and then reading down, the first two ancient Chinese scripts in this message (Figure 3) form the phrase Yuè Shí which may be translated as “Moon, period of time... .”

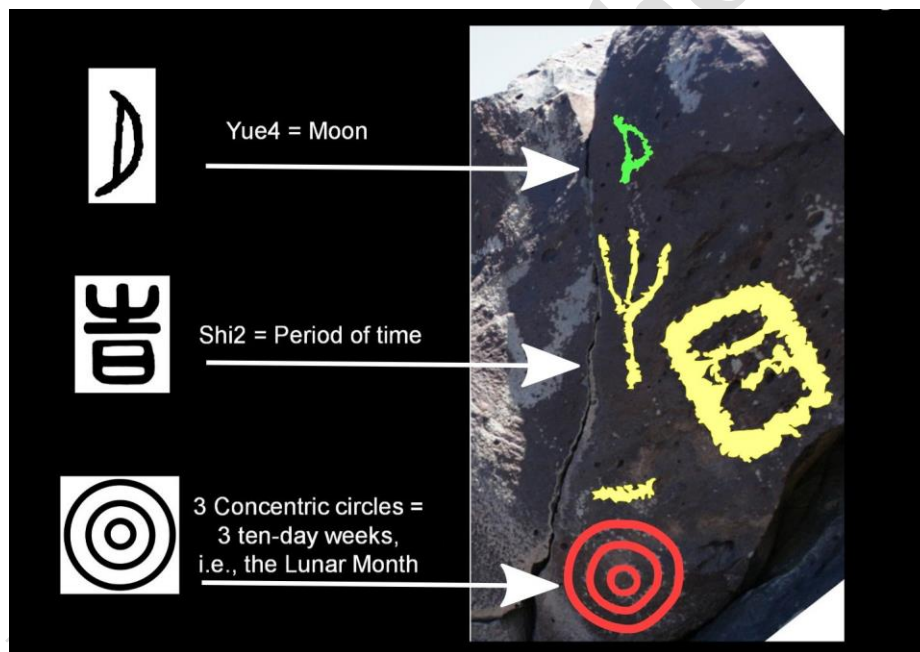


Figure 3.

Continuing to read below this defining phrase, as Chinese is read from top to bottom, the three concentric circles located below Yuè and Shí remind us of the three 10-day weekly cycles employed for keeping time in ancient China, and importantly in pre-Columbian America. Therefore, the complete message preserved by these rock writings inform us that “(the) Moon’s period of time (is) three cycles.” To state this more clearly, “the lunar month is composed of three 10-day periods.”

DISCUSSION

To correctly decipher and interpret ancient Chinese writing it is important to note that prior to the era of the Qin dynasty (221-206 BC) the forms of the scripts used for writing were unregulated (Norman 1988). Lacking standardization authors often wrote in their own styles much as today our personal signatures reflect our uniquely individual preferences. The world renown sinologist David N. Keightley notes that “One of the major difficulties in deciphering early inscriptions derives precisely from this ‘looseness’...” (Sennner 1989). Hence, variation in symbols was a common element of early Chinese writing (Galambos 2006).

Generating written symbols on a rock surface and in a desert-wilderness is a substantially different experience than what was involved in creating the early Chinese written record. Pecking patterns of scripts into hard rock, often basalt, involved applying different tools, techniques, and expenditures of energy than those required for placing a pen to paper, inscribing a symbol upon a bone, or for casting an image into an ancient bronze vessel. While the representative scripts preserved in ancient Chinese lexicons were assembled from the styles of writing employed by the scholars of a bygone era, the rock writings analyzed in this study were created by individuals of unknown levels of literacy and upon a different medium. Consequently, variations between the styles of the ancient Chinese scripts created in these different settings are to be anticipated.

Importantly, following the fall of China's Shang Dynasty in 1046 BC the forms and meanings of oracle bone scripts such as the Shí figure described above fell into disuse and obscurity. Ultimately these forms were eliminated from human memory, that is, until examples of these symbols were rediscovered near Anyang, China in AD 1899 and subsequently deciphered.

The shared elements of such a uniquely extinct system of writing by two widely disparate populations informs us that at an early date, prior to or shortly following the demise of the Shang, a significant trans-Pacific intellectual exchange of the particulars of this style of writing occurred, for no system of writing has been independently invented more than once (Houston 2004). Significantly, the use of such a uniquely datable style of writing in the American rock art record provides a platform for assessing the age of unrelated petroglyphs independent of the rock's surface characteristics, including many of Native authorship.

As noted above, it is significant that both the ancient Chinese and Native Americans employed three sets of a 10-day weekly paradigm as a lunar metric (Zeilik 1986), and that each of these peoples wrote upon the rocks of North America utilizing some of the same ancient Chinese script symbols (Ruskamp 2014). So why would a literate ancient Chinese explorer in North America invest the time and energy to mark down on the rocks at a remote location a record of what was a widely understood and accepted method of time measurement... unless it was to preserve the most important details of an intellectual exchange?

However, if the literate Asiatic individual who recorded upon rock the description of the Chinese 10-day calendrical system described above had introduced this measurement to the Native people he was with, then providing a written record of it for future reference would be most beneficial. Manifestly, this unique set of readable ancient Chinese glyphs informs us that ancient Chinese were operating in North America at an early date, as it preserves a “rock solid” record of an important trans-Pacific intellectual exchange at a time when the ancient style of scripts that comprise this message were still in use in the Orient, at least 2200 YBP.

CONCLUSIONS

All of the Chinese script petroglyphs contained in this study's database have been independently confirmed as an identifiable form of an ancient Chinese symbol by multiple world renown Chinese historians and epigraphers. Additionally, the statistical probability for the independent creation of each of the glyphs included in this study, apart from prior knowledge of ancient Chinese writing, has been calculated to be less than 5% in each instance, and for most of the scripts this value is less than 0.1%. Cumulatively, the chance of independently engraving rocks at scattered sites with these readable ancient Chinese scripts, and in some cases as clusters exhibiting the appropriate syntax from a bygone era, is essentially zero. Augmenting these statistical values, the level of surface repatination observed upon the study's Chinese script petroglyphs has been assessed as having substantial age (Medrano 2013; Jett 2018).

This monograph details the decipherment of an ancient Chinese rock writing describing the period of a lunar month, and along with the larger study's discovery of an ancient Bronze era Chinese poem inscribed upon a cliff along the Little Colorado River and the unique scripts and syntax employed to record an equally ancient traditional Chinese sacrificial message in the Petroglyph National Monument, it demonstrates that the trans-Pacific theories previously set forth in the literature by such scholars as Nancy Yaw Davis, Alexander von Humboldt, Carl Johannessen, Joseph Needham, and others are demonstrably confirmed and upheld.

REFERENCES

- Adams, James D. Jr., Cecilia Garcia, and Eric J. Lien. 2010. A Comparison of Chinese and American Indian (Chumash) Medicine. *Evidenced-Based Complementary and Alternative Medicine* 7(2):219-225.
- Arizona State University in collaboration with the Hopi Tribe. 2000. *Interpreting the Prehistory of Lyman Lake State Park*. St. Johns, Arizona: Lyman Lake State Park.
- Bagrow, Leo R., and R.A. Skelton. 2009. *History of Cartography: Enlarged Second Edition*. (D. L. Paisey, trans.) New Brunswick, New Jersey: Transaction Publishers, (Original work published 1951).
- Baroni-Urbani, Cesare. 1980. A statistical table for the degree of coexistence between two species. *Oecologia* 44:287-289.
- Bednarik, Robert G. 2013. On American Mammoth Depictions. *La Pintura* 39(3):7.
- Birks, H. J. B. 1987. Recent methodological developments in quantitative descriptive biogeography. *Annales Zoologici Fennici* 24:165-178.

- Birrell, Anne. 1999. *The Classic of Mountains and Seas*. New York: Penguin Books.
- Bishop, Jerry E. 1993. "A Geneticist's Work On DNA Bears Fruit For Anthropologists." *Wall Street Journal*, November 10, 1993.
- Boltz, William G. 2003. *The Origin and Early Development of the Chinese Writing System*. New Haven, Connecticut: American Oriental Society. (Original work published 1994).
1999. Language and Writing. In *The Cambridge History of Ancient China*, edited by Michael Loewe and Edward L. Shaughnessy, pp. 74-123. Cambridge, United Kingdom: University Press.
- Bulling, A. Gutkind. 1977. A Late Shāng Place of Sacrifice and its Historical Significance. *Expedition* 19(4):4-11.
- Bunzel, Ruth R. 1933. *Zuni Texts*. New York: G. E. Stechert & Co.
- Bureau of Land Management. 1995. *Three Rivers Petroglyph Site and Picnic Area*. Las Cruces, New Mexico: BLM Las Cruces District Office.
- Castleton, Kenneth B. 1987. *Petroglyphs and Pictographs of Utah*. Vols. 1 & 2. Salt Lake City, Utah: Museum of Natural History.
- Chalfant, Frank H. 1906. Early Chinese Writing. *Memoirs of the Carnegie Museum* 4(1): 1-36.
- Chen, Lung Chuan. Personal correspondence: July 25, 2019
- Chinese Text Project. 2016. "Gān." Accessed January 29. <http://ctext.org/dictionary.pl?if=en&char=甘>.
- Cole, Sally J. 1990. *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.
- Covarrubias, Miguel. 1946. *Mexico South: The Isthmus of Tehuantepec*. New York: Alfred A. Knopf.
- Cushing, Frank Hamilton. 1883. *Zuni Fetishes*. Washington, D.C.: Government Printing Office.
1901. *Zuni Folk Tales*. New York: The Knickerbocker Press.
- Davis, Nancy Yaw. 2001. *The Zuni Enigma*. New York: W.W. Norton and Company.

- de Guignes, Joseph. 1761. Le Fou-Sang des Chinois est-il l'Amerique? *Memoires de l'Academie des Inscriptions et Belles Lettres* 28.
- Doyel, David E. 1981. Prehistoric Environment, Subsistence, and Land Use in Dead Valley, East-Central Arizona. *Kiva* 46(3):143-153.
- Duff, Andrew. 2002. The Upper Little Colorado Region. *Archaeology Southwest* 16(3):1.
2002. Late Prehistoric Settlement in the Upper Little Colorado River Region. *Archaeology Southwest* 16(3):4-6.
- Eaton, William M. 1999. *Odyssey of the Pueblo Indians*. Paducah, Kentucky: Turner Publishing Company.
- Edberg, Bob. 1985. Shamans and Chiefs: Visions of the future. In *Earth and Sky*, edited by Arlene Benson and Tom Hoskinson, pp. 65-92. Thousand Oaks, California: SI'w Press.
- 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.
- Fewkes, J. Walter. 1895. The Destruction of the Tusayan Monsters. *Journal of American Folklore* 8(29):132-137.
1897. Tusayan Totemic Signatures. *American Anthropologist* 10(1):1-12.
- Galambos, Imre. 2006. *Orthography of Early Chinese Writing: Evidence from newly Excavated Manuscripts*. Budapest: Department of East Asian Studies, Eötvös Loránd University.
- Garfinkel, Alan P. 2007. *Archaeology and Rock Art of the Eastern Sierra and Great River Frontier*. Ridgecrest, California: Maturango Press.
- Garfinkel, Alan P., and J. Kenneth Pringle. 2004. Dating the Rock Drawings of the Coso Range: Projectile Point Petroglyphs. *American Indian Rock Art* 30:1-14.
- Grant, Campbell. 1979. *Canyon de Chelly - Its People and Rock Art*. Tucson: The University of Arizona Press.
- Grant, Campbell, James W. Baird, and J. Kenneth Pringle. 1969. *Rock Drawings of the Coso Range*. Ridgecrest, California: Maturango Museum.
- Griender, Terence. 1966. Periods in Pecos Style Pictographs. *American Antiquity* 31(5):710-720.
- Guo, Bonan. 1995. *Gate to Chinese Calligraphy*. Beijing: Foreign Language Press.

- Harrington, Mark Raymond. 1957. A Pinto Site at Little Lake, California. *Southwest Museum Papers* 17.
- Harris, Hendon M., Jr. 1973. *The Asiatic Fathers of America*. Taipei, Taiwan: Wen Ho Printing Company, Ltd.
- Harvey, Helen M. Whittier. 1944. Some Caves and Pictographs near the Harvey Rock Shelter. *The Minnesota Archaeologist* 10(4):124-129.
- Hatt, Gudmund. 1949. Asiatic Influences in American Folklore. *The Royal Danish Society of Sciences - Historic-philological Messages* 31:6.
- Hedges, Ken. 1982. Phosphenes in the Context of Native American Rock Art. *American Indian Rock Art* 7-8:17-32.
- Hegmon, Michelle. 2008. *The Archaeology of Regional Interaction*. Boulder, Colorado: University Press of Colorado.
- Heizer, Robert F., and Martin Baumhoff. 1984. *Prehistoric Rock Art of Nevada and Eastern California*. Berkeley: University of California Press.
- Hough, Walter. 1915. *The Hopi Indians*. Cedar Rapids, Iowa: The Torch Press.
- Houston, Steven. 2008. *The First Writing: Script Invention as History and Process*. New York: Cambridge University Press.
- Jaccard, Paul. 1908. Nouvelles recherches sur la distribution florale. *Bulletin de la Société Vaudoise des Sciences Naturelles* 44:223-270.
- Jett, Stephen C. 2018. Notes and Queries -Comments on Ruskamp's "Two Ancient Rock Inscriptions Indicate an Archaic Chinese Presence in the American Southwest." *Pre-Columbiana: A Journal of Long-distance Contacts*. 6(2-4): 24.
- Jones, Terry L., and Kathryn A. Klar. 2005. Diffusionism Reconsidered: Linguistic and Archaeological Evidence for Prehistoric Polynesian Contact with Southern California. *American Antiquity* 70(3):457-484.
- Karlgren, Bernhard. 1923. *Analytic Dictionary of Chinese and Sino-Japanese*. Paris: Librairie Orientaliste Paul Geuthner.
1957. *Grammata Serica Recensa*. Göteborg, Sweden: Elanders Boktryckeri Aktiebolag.

- Keightley, David N. 1978. *Sources of Shang History: The Oracle-bone Inscriptions of Bronze Age China*. Berkeley: University of California Press.
2000. *The Ancestral Landscape: Time, Space, and Community in Late Shang China*. Berkeley: Institute for East Asian Studies, University of California.
2006. Marks and Labels: Early Writing in Neolithic and Shāng China. In *Archaeology of Asia*, edited by Miriam T. Stark, pp. 177-201. Malden, Massachusetts: Blackwell Publishing, Ltd.
2012. *Working for His Majesty*. Berkeley: University of California Press.
- Personal correspondence: January 6, 2016.
- Kellar, James H. 1955. The Atlatl in North America. *Indiana Historical Society -Prehistory Research Series* 3(3):281-352.
- Klar, Kathryn A., and Terry L. Jones. 2005. Linguistic Evidence for a Prehistoric Polynesia-Southern California Contact Event. *Anthropological Linguistics* 47(4):369 - 400.
- Lee, Georgia. 1977. Chumash Mythology in Paint and Stone. *Pacific Coast Archaeological Society Quarterly* 13(3):1-14.
- Leland, Charles G. 1875. *Fusang or the Discovery of America by Chinese Buddhists in the Fifth Century*. London: Trübner & Company.
- Lewis-Williams, David. 2002. *The mind in the cave: Consciousness and the origins of art*. London: Thames and Hudson.
- Li, Xueqin, Garman Harbottle, Juzhong Zhang, and Changsui Wang. 2003. The earliest writing? Sign Use in the Seventh Millennium BC at Jiahu, Henan Province, China. *Antiquity* 77(295):31-44.
- Liu, Cheng-Lin, Kim, In-Jung, and Kim, Jin H. 2001. Model-based stroke extraction and matching for handwritten Chinese character recognition. *Pattern Recognition* 34:2339-2352.
- Ma, Baochun. Personal correspondence: July 28, 2019.
- Ma, Ru Sen. 1991. *Yin Oracle Practical Dictionary*. Shanghai University Press Co., Ltd.
- Mallery, Garrick. 1894. *Picture-Writing of the American Indians*. Washington, D.C.: Government Printing Office.
- Malotki, Ekkehart, and Henry Wallace. 2011. Columbian Mammoth Petroglyphs from the San Juan River Near Bluff, Utah, United States. *Rock Art Research* 28(2):143-152.

- Martin, Paul S. 1961. A Human Effigy of Stone from a Great Kiva Near Springerville, Arizona. *The Kiva* (26)4:1-5.
- Martin, Paul S., John B. Rinaldo, and William A. Longacre. 1961. Mineral Creek Site and Hooper Ranch Pueblo, Eastern Arizona. *Fieldiana: Anthropology* 52.
- Martin, Paul S., John B. Rinaldo, William A. Longacre, Constance Cronin, Lislle Freeman, Jr., and James Schoenwetter. 1962. Chapters in the Prehistory of Eastern Arizona, 1. *Fieldiana: Anthropology* 53.
- Martineau, LeVan. 2003. *The Rocks Begin To Speak*. Las Vegas, Nevada: KC Publications, Inc.
- Maturango Museum. 2007. *Little Lake Ranch Geology, Archaeology, and Rock Art*. Ridgecrest, California: Maturango Museum.
- Medrano, Michael. Personal correspondence: November 13, 2013.
- 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.
- Needham, Joseph, and Gwei-Djen Lu. 1985. *Trans-Pacific Echoes and Resonances; Listening Once Again*. Hackensack, New Jersey: World Scientific Publishing Company. Pte. Ltd.
- Needham, Joseph, Ling Wang, and Gwei-Djen Lu. 1971. *Science and Civilization in China, Vol.4, Physics and Physical Technology, Part III, Civil Engineering and Nautics*. Cambridge: University Press.
- Norman, Jerry. 1988. *Chinese*. Cambridge. Cambridge University Press.
- Olson, Eric T., and Olson, Tammy Perry. 2000. *Real-Life Math: Statistics*. Portland, Maine: J Weston Walch Publishing.
- Patterson, Alex. 1992. *A Field Guide to Rock Art Symbols of the Greater Southwest*. Boulder, Colorado: Johnson Books.
- Pearson, James L. 2002. *Shamanism and the Ancient Mind*. Walnut Creek, California: Altamira Press.
- Peratt, Anthony. 2003. Characteristics for the Occurrence of a High-Current, Z-Pinch Aurora as Recorded in Antiquity. *IEEE Transactions on Plasma Science* 31(6):1192-1214.
- Price, Neil. 2001. *The Archaeology of Shamanism*. New York: Routledge.
- Qiu, Xigui. 2000. *Chinese Writing*. Berkeley, California: The Institute of East Asian Studies, University of California.

- Raven, Christopher. 1985. *Landscape Evolution and Human Geography in Panamint Valley*. San Diego, California: Great Basin Foundation.
- Real, Raimundo. 1999. Tables of significant values of Jaccard's index of similarity. *Miscellània Zoològica* 22:29-40.
- Real, Raimundo, and Vargas J.M. 1996. The probabilistic basis of Jaccard's index of similarity. *Systematic Biology* 45:380-385.
- Rees, Charlotte Harris. 2008. *Secret Maps of the Ancient World*. Bloomington, Indiana: AuthorHouse.
- Rodriguez, Paul. 2011. *Piedras Marcadas: Archaeoastronomy of a Ceremonial Site*. Poster session presented at the Conference on Archaeoastronomy of the American Southwest. Albuquerque, N.M.
- Rohsenow, John. 2004. Fifty Years of Script and Written Language Reform in the PRC: The Genesis of the Language Law of 2001. In *Language Policy in the People's Republic of China*, by Minglang Zhōu and Mongkai Sun. Boston, Massachusetts: Kluwer Academic Publishers.
- Sanders, Joseph B. 2003. *Reading Jornada Mogollon Rock Writings or Why I Never Saw a White Man Read a Petroglyph*. Bent, New Mexico: Center of the Universe Press and Southern New Mexico Archaeological Services, Inc.
2008. *Three Rivers Petroglyph Site: A Self-Guided Tour Book*. 2nd ed. Bent, New Mexico: Center of the Universe Press.
- Schaafsma, Polly. 1978. Rock Art in the White Canyon Basin. In *An Archaeological Survey of the Upper White Canyon Area - Southeastern Utah Antiquities Section Selected Papers* 5(13):66-72.
1994. Trance and Transformation in the Canyons, Shamanism and Early Rock Art on the Colorado Plateau. In *Canyonlands: The Archaeology of Horseshoe Canyon*. Canyonlands National Park-National Park Service: 19-30.
- Sears, Richard. 2011. *Chinese Etymology*. Retrieved June 15, 2013, from <http://www.chineseetymology.org>.
- Senner, Wayne M. 1989. *The Origins of Writing*. Lincoln, Nebraska: University of Nebraska Press.
- Shaughnessy, Edward L. 1991. *Sources of Western Zhou History*. Berkeley, California: University of California Press.
- Slifer, Dennis. 2000. *Guide to Rock Art of the Utah Region Sites with Public Access*. Santa Fe, New Mexico: Ancient City Press.
- Sokal, Robert, and Rohlf, F. James. 1981. *Biometry: The Principles and Practice of Statistics in Biological Research*. 2nd ed. New York: W.H. Freeman and Company.

- Song, Yaoliang. Personal correspondence: July 28, 2019.
- Sonin, Bill, and M. Leigh Marymor. 1995. *California Rock Art: An Annotated Site Inventory and Bibliography*. Los Angeles: UCLA Institute of Archaeology.
- Sorenson, John L., and Carl L. Johannessen, "Scientific Evidence for Pre-Columbian Transoceanic Voyages" *Sino-Platonic Papers*, 133 April 2004. Department of East Asian Languages and Civilizations, University of Pennsylvania.
- Stark, Miriam T. 2005. *Archaeology of Asia*. Malden, Massachusetts: Blackwell Publishing.
- Stephen, Alexander M. 1940. *Hopi Indians of Arizona* Leaflet #14. Published by the Southwest Museum, Los Angeles, California.
- Takashima, Ken-ichi, and Michio Matsumaru. 1994. *Kōkotsumoji jishaku sōran* 甲骨文字字釋綜覽 (A Comprehensive Guide to Interpretations of Oracle-bone Graphs). Tokyo: University of Tokyo Press.
- Tamm, Erika, Toomas Kivisild, et al. 2007. *Beringian Standstill and Spread of Native American Founders*. *PLoS ONE* 2(9) e829.
- Taylor, Insup, and M. Martin Taylor. 1995. *Writing and Literacy in Chinese, Korean, and Japanese*. Philadelphia: John Benjamin Publishing Company.
- Trigger, Bruce G. 2006. *A History of Archaeological Thought*. 2nd ed. New York: Cambridge University Press.
- United States Army. 1994. *Lettering Techniques*. Fort Gordon, Georgia: United States Army Signal Center and School.
- Vining, Edward Payson. 1885. *An Inglorious Columbus; or, Evidence that Hwui Shan and a Party of Buddhist Monks from Afghanistan Discovered America in the Fifth Century, AD*. New York: D. Appleton and Company.
- Voth, H.R. 1905. The Traditions of the Hopi. *Fieldiana, Anthropology* 8.
- Warren, F.P. 1864. On Steering Steam and Other Vessels. *Journal of the Royal United Service Institution* 7:205-217.
- Waters, Frank. 1963. *Book of the Hopi*. New York: Viking Penguin Inc.
- Watson, Patty Jo, Steven A. LeBlanc, and Charles L. Redman. 1984. *Archeological Explanation: The Scientific Method in Archeology*. New York: Columbia University Press.
- White, William. H. 1894. *A Manual of Naval Architecture*. 3rd ed. London: John Murray.

- Whitley, David S. 1996. *A Guide to Rock Art Sites Southern California and Southern Nevada*. Missoula, Montana: Mountain Press Publishing Company.
- Whitley, David S., and James D. Keyser. 2003. Faith in the Past: Debating an archaeology of religion. *Antiquity* 77(296):385-393.
- Wieger, L. 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.
- Wilford, John N. April 6, 1999. "When No One Read, Who Started to Write?" *New York Times*, sec. F:1.
- Wilkinson, Endymion. 2000. *Chinese History: A Manual - Revised and Enlarged*. Cambridge, Massachusetts: Harvard University Press.
- Winsor, Justin. 1889. *Narrative and Critical History of America*. Vol.1. Boston: Houghton, Mifflin and Company.
- Young, Jane M. 1985. Images of Power and the Power of Images: The Significance of Rock Art for Contemporary Zunis. *The Journal of American Folklore* 98:3-48.
- Younkin, Elva. 1998. *Coso Rock Art: A New Perspective*. Ridgecrest, California: Maturango Press.
- Yuán, Liú. 2009. Sacrificial Rites for Ancestors during the Shāng and Zhōu Dynasties. In *Asiatische Forschungen* 153, edited by Xianbing Wang-Riese and Thomas O. Höllmann, pp. 69-92. Wiesbaden, Germany: Harrassowitz Verlag.
- Zeilik, Michael. 1985. Sun Shrines and Sun Symbols in the U.S. Southwest. *Journal for the History of Astronomy* 16(9):S86-S96.
1986. The Ethnoastronomy of the Historic Pueblos, II: Moon Watching. *Journal for the History of Astronomy, Archaeoastronomy Supplement* 17:S1-S22