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THE PLACE OF ROCK ART IN THE LINGUISTIC HISTORY OF TEXAS: AMERICAN INDIAN LANGUAGES

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Abstract

Peopling America has caused linguistic, social and cultural changes that also extend to rock art. The linguistic perspective is not usually used to approach this topic, although it can be extremely informational. To understand human development, internal and external sources are required. One external source is that of paintings in rock shelters which allow an ethnolinguistic interpretation as well as the opportunity to investigate the fragmentation of American Indian (Amerindian) languages and their contact with Indo-European languages. The internal sources are those of the linguistic structures of languages and facts from their analysis. Nevertheless, the question: "what can a linguist do in archaeological research?" — except translating, naturally — is always present. The incursions of archaeologists in Linguistics, Colin Renfrew, for instance, are however normally justified. In this paper I'll present some lines of research, and even some results, based on linguistic — or philological — tools, which might clarify some archaeological and historical issues.

Keywords

Amerindian, anthropomorph, archeology, areal, Corachol, diachronic, external linguistics, Huichol, migrations, mythology, peripheral, Phylum, pictograph, rock-Art, Uto-Aztecan, variation

EL LUGAR DEL ARTE RUPESTRE EN LA HISTORIA LINGÜÍSTICA DE TEJAS: LENGUAS INDOAMERICANAS

Resumen

La ocupación del territorio americano por el hombre ha producido cambios lingüísticos, sociales y

culturales que se pueden percibir en el arte rupestre. Pese a sus posibilidades, la Lingüística no se aplica normalmente al estudio de este asunto, que requiere el uso de fuentes internas y externas. Una de las fuentes externas es la pintura rupestre tejana conservada en una serie de viseras o refugios y que se presta a una interpretación etnolingüística al mismo tiempo que permite estudiar la fragmentación de las lenguas indoamericanas y su contacto con las indoeuropeas. Las fuentes internas comprenden las estructuras lingüísticas de las lenguas y los hechos derivados de su análisis. Siempre se repite la pregunta sobre cuál es el papel del lingüista en la investigación arqueológica (dejando a un lado la traducción). En cambio, las incursiones de los arqueólogos, como Colin Renfrew, en la Lingüística se ven como justificadas. En esta contribución se presentarán varias líneas de investigación, e incluso algunos resultados, basadas en instrumentos lingüísticos o filológicos, que pueden clarificar varios aspectos arqueológicos e históricos.

Palabras clave

Amerindio, antropomorfo, areal, arqueología, arte rupestre, corachol, diacrónico, huichol, lingüística externa, migraciones, mitología, periférico, phylum, pictógrafo, yuto-Azteca, variación

1. General Framework

The study of pre-historic languages requires the analysis of data which do not belong to the type usually dealt with by linguists. Nevertheless, linguistic reconstruction has been related to historical linguistics since the origin of the discipline. One of the goals of comparative grammar was to reach, through analysis and reconstruction, older and non-attested forms of languages known by their forms in later stages. Although many of those attempts, such as the reconstruction of stories in an allegedly Indo-European pre-language or Ur-Sprache, might be seen today as naïve, they contributed to the advancement of the discipline and the origin of Linguistics, as we know it today.

There are many cases, nevertheless, in which the scholar has no clue allowing him to even imagine which people could have lived in a certain area during a certain period of time, let alone to suppose which language or languages they might have spoken. It is in those cases when the linguist requires the aid of other sciences, particularly Archeology and Anthropology. Those sciences may shed light on certain cultural aspects, but linguists know well that a certain culture may be related to different types of languages and be transmitted by people who may have changed their languages as a consequence of invasions, wars, conquests, displacements, and other alterations. A common culture does not necessarily imply a common language.

A linguist working on rock art paintings must rely on the information provided by that type of message. A painting and a poem are made up by the spatial domain of the symbolic accommodation: both are limited in space. That space has to be regulated syntactically before providing the basis for a semantic interpretation. And the syntactic regulation depends on the order of its immediate constituents in the levels of units without meaning (for the text: phonemes) and units with meaning (for the text: morphemes). Syntax and Semantics are also limited by the anthropologic-imaginary orientation of humans in their world. Scholars face therefore two limits: the limit of space and the limit of the anthropological condition of the artist. Nevertheless, it is that anthropological condition which will provide the clues, the patterns, for the analysis of rock art painting as a text linked to a culture and a language, a cosmovision and its expression.

We classify and define cultures according mostly to types of tools and settlements, unless we have more detailed information, such as that represented in myths, beliefs, and language. The American continent is not an exception to the phenomenon of the whole world: that of the existence of communities that accept different languages and adapt their social relation. In the area of the American southwest, the Pueblo Indians are a good representation of this situation. This can be described in order to help form an idea. The eastern Pueblo use languages of the phylum Tanoan, of the family Kiowa-Towa, subfamily Towa, like the Jemez, or of the family Tewa-Tiwa. The western Pueblos prefer a language from the phylum Uto-Aztecan, of the northern family. The Hopi or the Zuni, a language of the phylum Penutian, family of the Plateau. In both the east and the west they speak Keresian, a language of the family Keresian, with two dialects, eastern (Santa Ana) and western (Acoma). The panorama still allows a modification of those speakers of Tewa that migrated to the Hopi territory at the end of the 17th century. Some of these returned in the middle of the 18th century.

Another element which has to be taken into consideration is what in Linguistics is known as *areal* and in Archeology as *peripheral.* The concept of areal linguistics was introduced by the French dialectologist Jules Gilliéron (1880) and has been widely used since then. Marginal areas preserve, in certain cases, more archaic features than central areas. It does not mean that marginal areas are consistently archaic, only that the possibility exists of finding archaic elements in marginal areas, when they have disappeared from the center. It might thus happen that certain elements of an American

Indian culture have been preserved in marginal areas in their pristine form — or an older form, anyhow —, while they were transformed in the rest of the territory covered by that culture through the normal historical development of it.

2. Location and Periodization

The area of research corresponds to Valverde County, in the South West of Texas. It is not an isolated area; on the contrary, it has been occupied by many different human settlers. It became a historical point of encounter, commerce and exchange between those of the Great Plains, local indigenous population and other cultures of the west and North of Mexico. The Pueblo people arrived in today's New Mexico as of 800 AD and the expeditions by the Spaniards (or New Spaniards) are well documented since 1541. Pecos' Archeological sites are related to similar cultures in the Mexican States of Coahuila, Nuevo León, or Chihuahua and, in several cases, deep in the South of Mexico. It is one of the best preserved areas in North America, and contains the longest records of hunters and gatherers in that part of the continent (Newcomb 1961). The entire riverbed of the Pecos River is of great archeological interest. Also it can be of great linguistic interest because it may shed new light on the dates of the fragmentation of Amerind languages as reflected in the origins of Uto-Aztecan sub-groups (Figure 1).

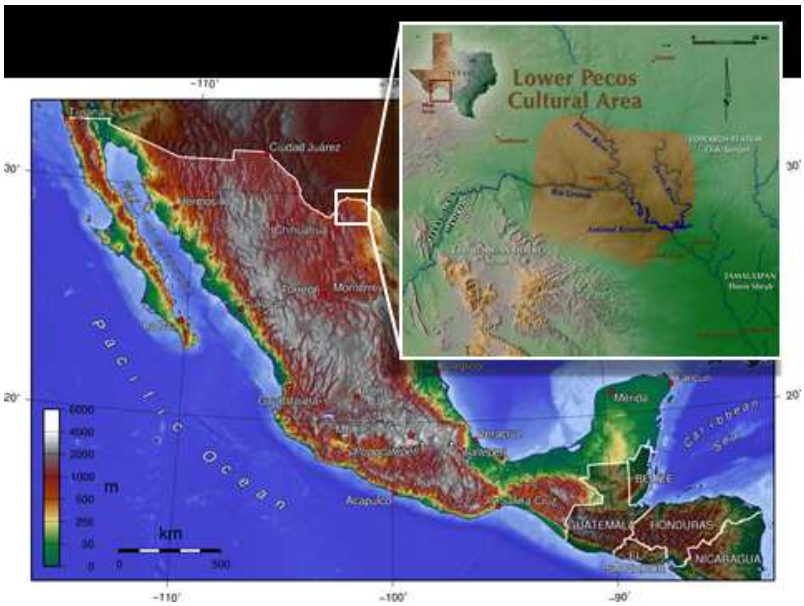

Figure 1. Lower Pecos in context (SHUMLA)

The Lower Pecos Canyon lands extend from Edwards Plateau or Texas Hill Country to the area known as Big Bend (Turpin 2004). They include totally or partially the rivers Grande, Pecos, and Devils. Ecologically the region is technically a desert but in reality it is an area of transition with a large degree of variation. The terrain encountered by those groups who entered the Lower Pecos Lowerlands some 6000 years before the Spaniards was different. Irregular rains and dry periods mark the area today. These nomadic peoples found plains and hills of tall grass which attracted buffalo and other large animals. This has been determined from deposits from 2800 years ago in Bonfire Shelter in Eagle Nest, close to Langtry, Texas.

New Spaniards entered the region sporadically. Their main routes took them west, to El Paso, or east to what is now Eagle Pass. Texas or, best, Coahuila and Texas, was a remote province (Gómez Canedo 1988), whose main interest was the need to defend the northern border of the Spanish Empire, particularly the Louisiana border, at the North-East. The construction of the railway in 1882, and the bridge over the Pecos in 1892 (Reed 1941; Skiles 1996), opened the area to Anglo settlers.

Carbon-14 dating shows that the oldest Human remains belong to people who lived between 14500 to 12500 BC. The oldest period is known as *Paleo-Indian* (12500-7000 BC). Recovered spear heads and other artifacts show that as of 7500 BC the zone had returned to semi-arid. Between 7000-4000 BC, the *early archaic* period is defined by recovered baskets and sandals which are similar to those found in Coahuila in Northern Mexico. The rock shelters of the area show the symbolic elements which allow for a semiotic study based on painted pebbles and statuettes of clay without heads with exaggerated feminine characteristics. The *middle archaic* period extends from 4000-1500 BC and seems to show a larger population of hunters using the atlatl or spear thrower. As of 2000 BC a characteristic style of polychromatic rock art (Figure 2) appeared in the Lower Pecos. It was advanced in ARARA 2010 Conference, and recently demonstrated (Boyd *et al.* forthcoming) that the style known as Red Linear (Figure 3) coexisted with or maybe even preceded the Pecos River style. Read linear paintings have been identified beneath Lower Pecos style, which clearly shows that they were painted before.

Figure 2. Curly Tail Panther Shelter. Pecos River style. Valverde County, TX (FMM)

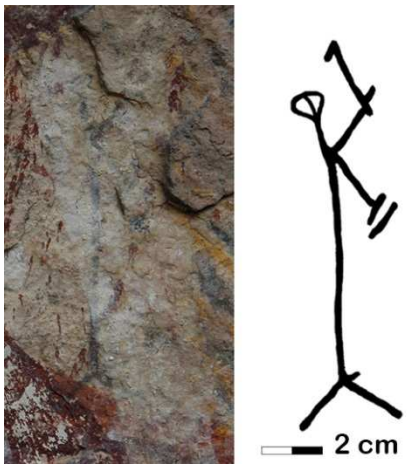

Figure 3. Red Linear beneath Pecos River, Valverde County, TX (CBoyd)

Although, there are many shelters or refuges that were painted but have not been preserved. The *late archaic* period, 1500 BC-1000 AD, is characterized by climatic change with greater humidity which is notable in the pollen remains and allowed the return of large animals such as bison. The *prehistoric or late proto-historic* (1000 -1500 AD) is sufficiently defined by the appearance of the bow and arrow and the arrowheads. The artistic style known as *Red Monochrome* (Figure 4) appeared at this time (Kirkland & Newcomb 1967; Turpin 1984).

It was much later that the Spaniards arrived in Texas from New Spain. Their writings gave the impression that the territory was much less populated than the archeological remains show. *Historic Rock Art* (Figure 5) has left an accurate testimony of the presence of the Spanish language and culture in the area (Kirkland & Newcomb 1967; Turpin 1986, 1989; Brown 1998; Marcos Marín: 2010). Pollen deposits from this

time give evidence that the domesticated animals brought to this area by the Europeans did not allow the region to maintain its vegetation.

Figure 4. Red Monochrome: Painted Shelter, TX (FMM)

Figure 5. Vaquero Alcove, TX. Historic Rock Art (FMM)

3. Some semiotic clues for the Rock Art of the Lower Peco

The Rock Art of the Lower Pecos offers an impressive set of huge panels with compositions of a high semiological value, and many small pieces of symbolic art. Those elements have been recently related to Uto-Aztec myths by Carolyn Boyd and the archeological team of SHUMLA, a prestigious educational and research institution located in Comstock, TX. At this point it is necessary to clarify that, even if the myths represented in the panels are related to current Uto-Aztec myths, as we may know them, they might belong to a previous ethno-linguistic stage, and therefore being shared, at least partially, by other cultures. These findings do not show a specific connection with a current group of people in the sense that it is allowed to say that they are forms preserved as such in a modern culture. It has been pointed out (Rice 2007: 6) how among the American Indian cultures scholars find "deeply rooted and widely shared ideological, philosophical, and religious beliefs and rituals, including origin myths, cyclical time, vigesimal numeration, quadripartite cosmovision, and complex calendrical and writing systems". The Lower Pecos area is marginal to the accepted movements of Uto-Aztecans. There is no other proof of their belonging to that linguistic group or any other and, even if the mythical relationship is undoubtedly strong, there may be other possible explanations. In such a multidisciplinary field, the challenge for a linguist is to reconstruct the possible linguistic situation in the area and the elements that will help archeologists date and explain the panels. It is, no doubt, a most attractive challenge.

Studies devoted to the Rock Art of the Lower Pecos and, particularly, to the panel known as White Shaman (a misleading denomination) have demonstrated the connection between the myth presented in the composition, and current practices as performed by Uto-Aztec groups in Central Mexico, specifically the Huichol group (Figures 6 and 7). The Huichol language belongs to the Corachol group, split from South Uto-Aztecan in a period of time that will be more accurately determined with the proposed methodology. The linguistic analysis of the splitting of Proto Uto-Aztecan (PUA) and its resulting subgroups in new branches and languages is required in order to ascertain the validity of the ethnolinguistic foundation of the connection between that type of Rock Art and the Uto-Aztecan languages.

Figure 6. White Shaman and the Huichol Pilgrimage (Boyd and elements from Myerhoff)

The investigations about motifs of rock art, especially those of Carolyn Boyd, have demonstrated that if the works are studied as compositions, it is possible to obtain more data of interest for other sciences, as well as a realization of their great artistic merit. Simple examples are used to principally display a conceptual approach. In the analysis of the site of White Shaman by this author, there are two aspects, among others, which it is of interest to return to from the linguistic perspective. The first is the separation between a world farther away and this world, the human world. The animal that symbolizes the step between these two worlds, superior and inferior, and that constitutes a door between the two is the serpent (Broda, in Neurath 2008: 246 and fol.). The symbolism of the snake (*coatl* in Nahuatl) in diverse human groups of the Southwest, like the Pueblo and the indigenous of Mexico, and the rock art representations of the Pecos River style coincide. They deal with and replicate a transparent symbol that manifests in other cultures in other places in the world. However, there are some peculiar characteristics, such as the connection with water and the rainy season, that allow for the idea that it is a semiological representation that existed before the linguistic fragmentation of Uto-Aztecan and, arguably, before that of the main group of American Indian languages.

Figure 7. White Shaman antropomorph (C Boyd) and Huichol god Tatewari in Huichoil yarn art by J. B. Sánchez

A second interesting aspect of White Shaman is the opposition between the red and the black and the difference between the black points and the red points that represent peyote, which is associated with the West and the East. Red is associated, by the authors of the composition of White Shaman, with the dawn, the heat, light, and the dry season. It is exactly the distribution that appears in a ceremonial ritual to aid in the arrival of the rains with characteristics coinciding with the Pawnees and the ancient Mexicans (Neurath 2008: 195). It concerns the sacrifice by arrow of a young woman. The part of the young woman that looks towards the East is painted in red, while that which looks to the West is in black. The rite is practiced by the Skiddi confederation, speakers of a language of the subgroup Pawnee of the northern subfamily of the Caddo, and it is related to the myth of Venus. The myth is about the fight of the evening star and the morning star, or between the day and the night. Neurath (2008: 197) relates this with the *tlacacaliztli* of the ancient Mexicans and indicates its survival in present day

festivals, such as the representation during the Holy Week (Semana Santa) as a "cosmic battle between Christ-Sun and his astral brothers, the Jews". It is related with the martyrdom of Saint Sebastian that is mentioned as a note by Neurath, referring to Bricker (1981), who documents this relationship in the Mayas of the Zozil group. The coincidence affects speakers that pertain to three linguistic groups, the Caddo, the Uto-Aztecan, and the Maya. This leads to the questioning of the dates of separation between them and of the linguistic fragmentation in general of the Indian American languages.

4. The interaction of languages and cultures

It is the opinion of this author that when it is attempted to open new passageways, it is not possible to remain in the strict methodological tradition. It is necessary to be unorthodox. The hypothesis of Greenberg, given in his 1987 book and preceded by his provocative study (in collaboration) over the linguistic fragmentation and the dental characteristics of the population, should be considered together with the genetic hypothesis of Cavalli-Sforza and his group. All of them have encountered violent opposition (Campbell 1986, 1997, 2001; Goddard & Campbell 1994; Greenberg 1987, 1989, 1996; Ruhlen 1994a); but, the synthesis and perhaps the manner that is for some overly general, coincides with the data that can be extracted by a compositional study of rock art of the U.S. Southwest.

The dental analysis (Greenberg *et alii* 1986) allows the differentiation of a group of speakers *sundadont* and others *sinodont.* They are characterized by the difference in the number of cuspeds of the molars. The sundadonts offer more examples of four cusped molars, while the sinodonts offer more cases of five. China, Mongolia, Japan (except for the Ainu) and all of the American groups are sinodonts. It may be no great novelty, but it reinforces the generally accepted thesis of the (mostly) north Asian origin of the American population that arrived before the Indo-Europeans. Modern science allows the study of the human genome and the analysis of the polymorphism of DNA. In other words, the differences that exist in certain regions of the genome of normal individuals. In 1999, Santos *et alii* demonstrated that a founding chromosome exists, which includes all of the American Indians. The origin of this chromosome, established through the study of genetic markers of the Y chromosome, is located in central Siberia.

The genetic analysis differentiates the speakers of Na-Dene from other Indian American speaking other languages, whose genetic relation was maintained during a greater time. This idea coincides with the proposal of diverse migrations from the northeast of Asia towards America by crossing the Bering Strait in times of higher temperature (Perego *et al.* 2010). The principal migration took place approximately 15,000 years ago. In this migration the ancestors of a large part of those who speak American Indian languages entered the American continent. The Bering Strait was cut off as of 13,000 years ago, which interrupted the flow of immigrants from Asia to America. The average of the advance towards the south of the American continent that is proposed by Greenberg and his followers is about 16 km a year. Naturally, not all of the recent arrivals continued south at a constant rate (some moved to the North or the Northeast), but this is the time necessary to explain the populating of the entire continent. In Linguistics, the notion of phylum has been developed. It is the gathering of a minimum of structural characteristics that have derived from a common structure. Under phylum, with the most recent derivation and the most shared structures there is the group. With even more similar structures and derivations there is the family. Where there are more tenuous bonds between structures, there are more discrepancies between linguists. With the exception of the phylum Na-Dene (which include the Athabaskan group which includes the Apache and the Navajo) and the languages of the Eskimo-Aleut, the rest of indigenous languages of America have derived from a common ancestor and could be derived from a common origin.

Moreno Cabrera (2003) offers a synthesis which permits a large scale view of diverse authors that have studied American Indian languages. The 1,347 pages of his book cannot be condensed in this article. It is preferable to construct a table that allows the first relation between diverse phenomena, with the objective to initiate a discussion that drives to a new proposal, as logic demands (Marcos Marín 2010).

Approximate dates	**Diversification of villages and languages. Historic events**	**Observations**	**Rock art of the Southwest**
10000 BC	Beginning of the population of Texas and the Southwest	In 7,500 BC began the climatic change and increased dryness	Paleo-Indian period. Bonfire Shelter, TX.
7000 BC		Hearths and sandals	Start of the early archaic period. Painted pebbles, beheaded human figures.
5000 BC	Dispersion of the proto-Uto-Aztecans from their settlement in Arizona and New Mexico	Moreno Cabrera (2003: 796) speaks of "their homeland"	
4400 BC	Start of the diversification of the phylum Proto-Oto-Manguean	(Moreno Cabrera 2003: 788)	
4000 BC			middle archaic period
3000 BC	Start of the fragmentation and dispersion of the Uto-Aztecan languages	(Moreno Cabrera 2003: 791 and 796). May be related to the Cochise culture of Arizona and New Mexico (Moreno Cabrera 2003: 796).	
2500 BC	The speakers of Yokutsan of the phylum Penutian displace the Uto-Aztecans as far south as central Californian (San Joaquin Valley)	(Moreno Cabrera 2003: 807)	
2200 BC	The differentiation of proto-Maya in Guatemala begins after this date	(Moreno Cabrera 2003: 813)	Red linear style. Pecos River style. Polychromatic painting: White Shaman, TX. Semiotic previous to the fragmentation of the languages
1500 BC	Separation of Eyak and of Proto-Athabascan, of the phylum Na-Dene, in the interior of eastern Alaska	(Moreno Cabrera 2003: 736)	Start of the late archaic period. Remains of modern bison which fell from a cliff in Bonfire Shelter, TX.
1000 BC	Separation of Tanoan-Kiowa. Division of Proto-Sioux	(Moreno Cabrera 2003: 764)	
500 BC	Proto-Athabascan (Na-Dene) continues unchanged	(Moreno Cabrera 2003: 736)	
500 AD	Migrations and fragmentation of Athabascan (Na-Dene)	(Moreno Cabrera 2003: 736)	
800 AD	The Pueblo Indians arrive in Arizona		
1000 AD	The Apache begin to differentiate themselves from northern	(Moreno Cabrera 2003: 736)	Start of the prehistoric or late proto-historic period. Red

	Athabascan		Monochrome style: Painted Shelter, TX.
1500 AD	Beginning of the settlement of the Spaniards in central America. 1541, Francisco Vazquez de Coronado.		End of the prehistoric or late proto-historic period. Start of historic rock art.
1650 AD	1680 AD Great revolt of the Pueblo Indians in New Mexico. 1696 AD. The Tewas of the south leave N. Mexico to enter the Hopi territory in Arizona.	1650 AD. Low temperatures of the general cooling. Because of this they speak Tewa on the Hopi reservation of First Mesa, AZ.	
1750 AD	Return of some of the Tewa speakers from the Hopi territory of Arizona to N. Mexico	1770 AD. New low temperatures of the general cooling	
1800 AD	Redistribution of former Mission land in the San Antonio area (Rancho de las Cabras). New-Spanish expeditions to punish the Navajo. 1805 AD Massacre Cave, AZ.		Non-violent historic style: Vaquero Alcove, TX Violent historic style: Chelly Canyon, AZ
1850 AD	1864 AD Kit Carson defeats the Navajos in Chelly Canyon, AZ. 1883 AD. Completion of the Southern Pacific railroad	1850 AD. New temperature lows of the general cooling.	Representation of the campaign of Kit Carson in Massacre Canyon, AZ.

The previous table, despite its simplicity, reveals the modernity of the linguistic evolutions undergone by Amerindian languages. With this information, it is possible to better understand that the rock art paintings of the Pecos River style (and also of the Red Linear) may represent common ethnolinguistic and mythic elements to languages and cultures. Those elements would have since then undergone a rapid process of differentiation. In a period of fragmentation, breaks and encounters, it is also possible to hypothesize that these paintings may have served to maintain a cultural unity among groups of the same cultural roots, when geographically separated.

5. Details of Uto-Aztec myths in White Shaman shelter

The connection between the White Shaman panel and Uto-Aztec myths has been exemplified by Boyd through analogies between motifs in the former and known expressions in the later. The ethnographic analysis of Huichol myth and iconography by Boyd (2010: 21) reveals patterns which are strikingly similar to the patterns in the rock art at the White Shaman site. Each year, preceding the spring rain — bringing ceremonies, small bands of Huichols (Figure 6) travel west to east to Wirikúta to ensure the continuance of the cosmos. Seven features characterize this pilgrimage, according to data which Boyd extracts from several authors (Benítez 1975; Furst and Anguiano 1976; Myerhoff 1974): "1) During the dry season, pilgrims travel from the west to the east in single‐file; 2) Pilgrims confess transgressions and then acquire the divine essences of the ancestor‐deities that made the first pilgrimage; 3) A white cord unites the pilgrims; 4) The leader of the pilgrims is identified as the fire god; 5) Ceremonies involving candles are conducted to help the sun to rise at Dawn Mountain; 6) The peyote‐deer is slain in the land of the dawn; and 7) The pilgrims collect peyote‐deer to transport back to the west". Features 1, 3, 4, 5 and 6 may be identified at the White Shaman panel. As Boyd says (2010: 30): "The White Shaman panel is a pictorial document with multiple functions and levels of meaning that go well beyond that of instruction for how to perform a ritual — the hunt for peyote. It recounts an origin story — the sacrifice of the deer that led to the birth of peyote and the birth of the sun. This act of self‐sacrifice fostered the birth of deities, placement of stars in the heavens, and the holistic division of the cosmos; day and night, hot and cold, rainy season and dry season were established for the first time as portrayed in the White Shaman rock art panel".

The coincidence between the rock art panel and Uto-Aztec myths is striking. The detail allows a much deeper interpretation. Thus, among others, the characteristic horn of Xolotl, as it appears in the Florentine Codex, has been found by Boyd in the head-down figure of White Shaman shelter who is also covered by the five rays which usually indicate the five synodic periods of Venus (Milbrath 1999: 162).

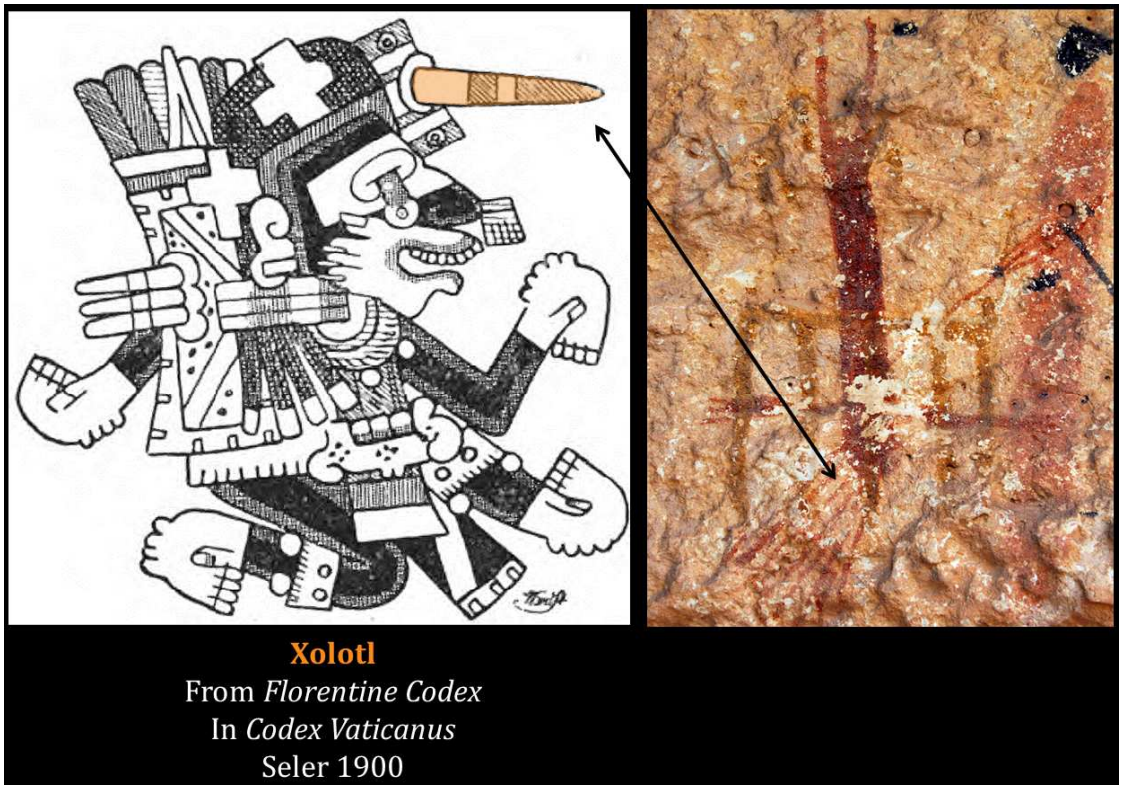

Figure 8. Xolotl and the evening star (Seler 1902 and CBoyd)

Another head-down figure in the panel is portrayed with the characteristic semiological elements of a well know Uto-Aztec deities, Sakaimoka, Huichol god of the West, setting sun and snarer of the deer, and the Aztec Tezcatlipoca. At dusk, Xolot (Figure 8), the evening star (Venus), precedes Tezcatlipoca (Figure 9), the setting sun, in their travel to the land of black and red. The following dawn, Quetzalcoatl will take over until the new sunset.

Figure 9. Attributes of Aztec god Tezcatlipoca and Huichol god Sakaimoka in White Shaman antropomorph (SHUMLA)

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6. The language of the painters of the Rock Art panels

The sum of archeological and ethnological data seems to be conclusive. During a certain period of its history, the Lower Pecos was peopled by groups of Uto-Aztecans, or at least by groups who shared the Uto-Aztec myths. There is no archeological evidence of their being maize cultivators, which adds a new question to their marginal status. Did they speak a Uto-Aztecan language and, if so, which one?

Uto-Aztecan (Miller 1983a, 1983b, 1984, 1986; Mithun 1999; Moctezuma & Hill 2001; Hill 2003, 2012) is an Amerind phylum (Greenberg 1987). It consists of some thirty languages, located in the South-West of the United States and the central plateau and western areas of Mexico. The Ur-Sprache is called Proto-Uto-Aztecan (PUA). A conservative representation of its branches is given in Figure 10.

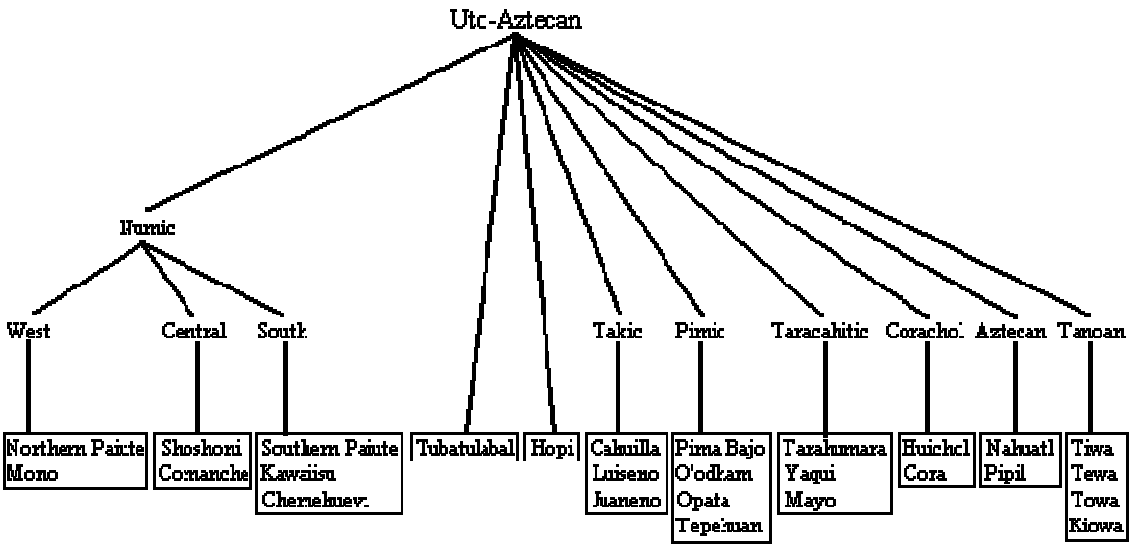

Figure 10. The Uto-Aztecan phylum

Methodologically conservative historical linguists have assigned a time depth of about five thousand years to Uto-Aztecan (Golla 2007: 233; 2011: 169). In her overview Fowler (1983: 224) accurately pointed out that, in the research about the UA homeland, “suggestions outweigh conclusions”. 5000 BP for Uto-Aztecan could be a convenient date to place the Rock Art of the Lower Pecos in the period in which the splitting of Southern UA could have begun.

Delgado-Burbano *et al.* (2010) have studied the Uto-Aztecan premolar (UAP), "a dental polymorphism characterized by an exaggerated distobuccal rotation of the paracone in combination with the presence of a fossa at the intersection of the distal occlusal ridge and distal marginal ridge of upper first premolars". What makes this trait important is that, "unlike other dental variants, it has been found exclusively in Native American populations". These authors add new data documenting the trait's temporal and geographic variation. "The chronology of samples, its geographic distribution, and trait frequencies suggests a North American origin (Southwest) for UAP perhaps between 15,000 BP and 4,000 BP and a rapid and widespread dispersal into South America during the late Holocene". PUA, again, shows a feature that supports the evidence of a common socket for Amerind languages and reinforces the idea of a *substratum* which could explain the common elements between Lower Pecos rock art and cultures south from it. Actually, UA split into North-to-Aztecan and South-Uto-Aztecan in a date still to be accurately determined. Heath (1977) placed together Numic, Takic, Tübatulabal, and Hopi in a Northern Uto-Aztecan unit. Miller (1986: 100) classified Numic in Western (Nomo-Paviotso), Central (Shoshoni-Comanche), Southern (Ute-Chemehuevi), while Campbell and Langacker (1978) put Pimic, Taracahitic, Corachol (Cora and Huichol), and Aztec (Nahuatl) in a Southern Uto-Aztecan section.

Anyhow, Pecos Rock Art seems plausibly related to one of the groups resulting from the split of PUA in North-Uto-Aztecan and South-Uto-Aztecan. Although nowhere is it meant that Huichol modern testimony implies that Rock Art of the Lower Pecos is a Huichol pro-form, there is reason to believe that it is closer to South-Uto-Aztecan, arguably before the split of it into different sub-groups.

7. An open door to forthcoming research

It has been said several times already, that maize is not found in the archeological data of Lower Pecos shelters which contain Pecos River style paintings. Its absence sets limits to the dating of people, culture and languages involved in Pecos Rock Art: marginal or peripheral Uto-Aztecans prior to maize — or unable to cultivate it on that soil and therefore alien to its culture. According to Doris Piperno and Kent Flannery (2001), brought to our attention by Hill (2008), the earliest archaeological maize (Zea

mays L.) was domesticated by men about 6,000 years ago. Domesticity means, in this case, that it requires human care to grow. It was brought into the U.S. Southwest about 4,000 years ago. Without entering into the discussion of the original location of PUA (Hill 2012), this can only mean that the cave art painters of the Lower Pecos belonged to a peripheral group or marginal area, undocumented until now. It is not necessary to propose the Pecos as a migration path in the UA displacements. Small bands might have moved into the area and kept their old ways of life, their old belief systems, which, at a certain time, they felt compelled to capture and impress on the rock walls. The dimensions of the paintings and their compositional character clearly indicate their narrative intention for the benefit of the whole community who supported them. The paintings prove the use of a developed symbolic language. The intention of this author is to pursue his research with a new lexicostatistical analysis that improves the results of the traditional glottochronological methodology (Swadesh 1954; Gudschinsky 1964; Dyen 1973; Embleton 1986; Marcos Marín 2001), following the model of the Moscow school (Illič-Svityč 1971; Arapov & Hertz 1974; Starostin 2000). Expected results include a more accurate date for the split of North and South Uto-Aztecan, and that of South-Uto-Aztecan into branches where modern languages originated as well, and correlation of these data with the expansion of maize culture in the U.S. Southwest.

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References

ARAPOV, M. V. & M. M. HERTZ (1974) Математические методы в исторической лингвистике ("Mathematical Methods for Historical Linguistics"), Moscow: Nauka.

BENÍTEZ, Fernando (1975) *In the Magic Land of Peyote*, University of Texas Press: Austin.

BONNICHSEN, Robson & D. GENTRY STEELE (eds.) (1994) *Method and theory for investigating the peopling of the Americas*, Corvallis, OR: Oregon State University.

BOYD, Carolyn E. (2003) *Rock Art of the Lower Pecos*, College Station: Texas A&M University Press.

BOYD, Carolyn E. (2010) "El Arte rupestre de Tejas. Análisis contextual de motivos recurrentes en el área de la desembocadura del río Pecos", *Revista Iberoamericana de Lingüística*, 5, 5-42.

BOYD, Carolyn E., Amanda CASTAÑEDA, Charles KOENIG & Benjamin DWYER (forthcoming) "A Reassessment of Red Linear Pictographs in the Lower Pecos Canyonlands of Texas", *American Antiquity*.

BRICKER, Victoria Reifler (1981) *El cristo indígena, el rey nativo. El sustrato histórico de la mitología del ritual de los mayas*, México: Fondo de Cultura Económica.

BRODA, Johanna (2008) "El 'Océano de la Salida del Sol' y 'el origen de todas las aguas': una comparación entre los indios pueblo y Mesoamérica", in Johannes NEURATH (coord.), *Por los caminos del maíz. Mito y ritual en la periferia septentrional de Mesoamérica*, México: Fondo de Cultura Económica, 215-272.

BROWN, Roy B. (1998) "Cerro Del Diablo, Janos, Chihuahua: A Historic Apache Site?", in Sheron SMITH-SAVAGE and Robert J. MALLOUF (eds.), *Rock Art of the Chihuahuan Desert Borderlands*, Alpine, Texas: Center for Big Bend Studies, 45-53.

CAMPBELL, Lyle (1986) "Comment on Greenberg, Turner, and Zegura", *Current Anthropology*, 27, 488.

CAMPBELL, Lyle (1997) *American Indian languages: The historical linguistics of Native America*, New York: Oxford University Press.

CAMPBELL, Lyle (2001) "Beyond the comparative method", in Barry J. BLAKE, Kate BURRIDGE, and Jo TAYLOR, *Historical Linguistics 2001: Selected Papers from the 15th International Conference on Historical Linguistics, Melbourne, 13-17 August 2001*, La Trobe University / Monash University, Amsterdam: John Benjamins.

CAMPBELL, Lyle, & Ronald LANGACKER (1978) "Proto-Aztecan Vowels", Parts I, II, III. *International Journal of American Linguistics*, 44, 85-102, 197-210, 262-79.

CAMPBELL, Lyle, & Marianne MITHUN (eds.) (1979) *The Languages of Native America: A Historical and Comparative Assessment*, Austin: University of Texas.

CAVALLI-SFORZA, Luigi Luca (1996) *Genes, Peuples et Langues*, Paris: Odile Jacob.

DELGADO-BURBANO, ME, G.R. SCOTT, C.G. TURNER II (2010) "The Uto-Aztecan premolar among North and South Amerindians: Geographic variation and genetics", *Am J Phys Anthropol.* Dec, 143(4), 570-578.

DYEN, Isidore (ed.) (1973) *Lexicostatistics in Genetic Linguistics. Proceedings of the Yale Conference, Yale University, April 3-4, 1971*, The Hague: Mouton.

EMBLETON, Sheila M. (1986) *Statistics in Historical Linguistics*, Bochum: Studienverlag Dr. N. *Brockmeyer.*

FOWLER, Catherine (1983) "Lexical Clues to Uto-Aztecan Prehistory", *International Journal of American Linguistics* 49, 224-257.

FURST, Peter T. & Marina ANGUIANO (1976) "To Fly as Birds: Myth and Ritual as Agents of Enculturation among the Huichol Indians of Mexico", in Johannes WILBERT (ed.), *Enculturation in Latin America,* Los Angeles: UCLA Latin American Center Publications, University of California, 95-181.

GILLIÉRON, Jules (1880) *Patois de la commune de Vionnaz (Bas-Valais)*, Paris: Vieweg.

GODDARD, Ives & Lyle CAMPBELL (1994) "The history and classification of American Indian languages: What are the implications for the peopling of the Americas?", in Robson BONNICHSEN & D. GENTRY STEELE (eds.) (1994) *Method and theory for investigating the peopling of the Americas*, Corvallis, OR: Oregon State University, 189-207.

GOLLA, Victor (2007) "Linguistic Prehistory", in Terry L. JONES & Kathryn A. KLAR, *California Prehistory. Colonization, Culture and Complexity*, Lanham MD etc.: AltaMira Press, 221-258.

GOLLA, Victor (2011) *California Indian Languages*, Berkeley-Los Angeles: University of California Press.

GÓMEZ CANEDO, Lino (1988[2]) *Primeras operaciones y poblamiento de Texas (1686-1694)*, Monterrey: Instituto Tecnológico y de Estudios Superiores, 1968, México, D.F.: Biblioteca Porrúa.

GREENBERG, Joseph H. (1987) *Language in the Americas*, Stanford: Stanford University Press.

GREENBERG, Joseph H. (1989) "Classification of American Indian languages: A reply to Campbell", *Language*, 65, 107-114.

GREENBERG, Joseph H. (1996) "In defense of Amerind", *International Journal of American Linguistics*, 62, 131-164.

GREENBERG, Joseph H., Christy G. TURNER II & Stephen L. ZEGURA (1986) "The Settlements of the Americas: a Comparison of the Linguistic, Dental, and Genetic Evidence", *Current Anthopology*, 27/5, 477-497.

GUDSCHINSKY, Sarah C. (1964) "The ABC's of Lexicostatistics (Glottochronology)", in Dell HYMES (ed.), *Language in Culture and Society. A Reader in Linguistics and Anthropology*, New York: Harper & Row, 612-623.

HEATH, Jeffrey (1977) "Uto-Aztecan morphophonemics", *International Journal of American Linguistics*, 43, 27-36.

HILL, Jane H. (2003) "Proto-Uto-Aztecan and the northern devolution", in *Examining the Farming/Language Dispersal Hypothesis*, in Peter BELLWOOD and Colin RENFREW, (eds.), Cambridge: McDonald Institute for Archaeological Research, 331-40.

HILL, Jane H. (2008) "Northern Uto−Aztecan and Kiowa−Tanoan: Evidence of Contact between the Proto−Languages", *International Journal of American Linguistics*, 74/2, April, 155-188.

HILL, Jane H. (2012) "Proto-Uto-Aztecan as a Mesoamerican Language", *Ancient Mesoamerica*, 23, 57-68.

HYMES, Dell (1964) *Language in Culture and Society. A Reader in Linguistics and Anthropology*, New York: Harper & Row.

ILLIČ-SVITYČ, Vladislav M. (1971, 1976, 1984) Опыт сравнения ностратических языков, ("Comparative Dictionary of the Nostratic Languages"), t. 1-3, Moscow: Nauka.

KIRKLAND, Forrest & W.W. NEWCOMB (1967) *The Rock Art of Texas Indians*, Austin: The University of Texas Press.

MARCOS MARÍN, Francisco (2001) "La determinación cuantitativa del léxico: reconstrucción desde la sincronía," in Elvira N. de ARNOUX, Ángela di TULLIO, *Homenaje a Ofelia Kovacci*, Buenos Aires: Eudeba, 331-344. [Also in *Lexicografía y Lexicología en Europa y América. Homenaje a Günther Haensch en su 80 aniversario*, Madrid: Gredos, 2003, 425-437.]

MARCOS MARÍN, Francisco (2010) "Arte rupestre y Lingüística amerindia. Estilos y conceptos", *Revista Iberoamericana de Lingüística*, 5, 43-71.

MILBRATH, Susan (1999) *Stars Gods of the Maya. Astronomy in Art, Folklore and Calendars*, Austin, TX: University of Texas Press.

MILLER, Wick R. (1983a) "A note on extinct languages of northwest Mexico of supposed Uto-Aztecan affiliation", *International Journal of American Linguistics*, 49, 328-333.

MILLER, Wick R. (1983b) "Uto-Aztecan languages", in Alfonso ORTIZ, *Handbook of North American Indians* 10 Washington, D.C.: Smithsonian Institution, 113-124.

MILLER, Wick R. (1984) "The classification of the Uto-Aztecan languages based on lexical evidence", *International Journal of American Linguistics,* 50, 1-24.

MILLER, Wick R. (1986) "Numic languages", in Warren D'AZEVEDO (ed.), *Handbook of North American Indians,* Volume 11, Great Basin, Washington, DC: Smithsonian Institution Press, 98-106.

MITHUN, Marianne (1999) *The Languages of Native North America*, Cambridge: Cambridge University Press.

MOCTEZUMA ZAMARRÓN, José Luis y Jane H. HILL (eds.) (2001) *Avances y balances de lenguas yutoaztecas. Homenaje a Wick R. Miller*, México: Instituto Nacional de Antropología e Historia.

MORENO CABRERA, Juan Carlos (2003) *El universo de las lenguas. Clasificación, denominación, situación, tipología, historia y bibliografía de las lenguas*, Madrid: Castalia.

MYERHOFF, Barbara G. (1974) *Peyote Hunt: The Sacred Journey of the Huichol Indians,* Ithaca, New York: Cornell University Press.

NEURATH, Johannes (2008) "La iconografía del complejo ceremonial", in Johannes NEURATH, (coord.), *Por los caminos del maíz. Mito y ritual en la periferia septentrional de Mesoamérica*, México: Fondo de Cultura Económica: 173-214.

NEWCOMB, William W. Jr. (1961) *The Indians of Texas. From Prehistoric to Modern Times*, Austin, Texas: University of Texas Press.

PEREGO, Ugo A., Norman ANGERHOFER, Maria PALA, Anna OLIVIERI, Hovirag LANCIONI, Baharak Hooshiar KASHANI, Valeria CAROSSA, Jayne E. EKINS, Alberto GÓMEZ-CARBALLA, Gabriela HUBER, Bettina ZIMMERMANN, Daniel CORACH, Nora BABUDRI, Fausto PANARA, Natalie M. MYRES, Walther PARSON, Ornella SEMINO, Antonio SALAS, Scott R. WOODWARD, Alessandro ACHILLI and Antonio TORRONI (2010) "The initial peopling of the Americas: A growing number of founding mitochondrial genomes from Beringia", *Genome Res,* 20, 1174-1179.

PIPERNO, Doris R. & Kent V. FLANNERY (2001) "The earliest archaeological maize (Zea mays L.) from highland Mexico: New accelerator mass spectrometry dates and their implications", *Proceedings of the National Academy of Sciences U.S.A.* 98, 2101-2103.

REED, St. Clair Griffin (1941) *A History of the Texas Railroads*, Houston: St. Clair.

RICE, Prudence M. (2007) *Maya Calendar Origins: Monuments, Mythistory, and the Materialization of Time*, Austin, TX: University of Texas Press.

RUHLEN, Merritt (1994a) *On the Origin of Languages: Studies in Linguistic Taxonomy*, Stanford: Stanford University Press.

RUHLEN, Merritt (1994b) "Linguistic Evidence for the Peopling of the Americas", in Robson BONNICHSEN & D. GENTRY STEELE (eds.), *Method and theory for investigating the peopling of the Americas*, Corvallis, OR: Oregon State University, 177-188.

SANTOS, Fabricio R. *et al.* (1999) "The central Siberian origin for Native American Y chromosomes", *The American Journal of Human Genetics*, 64, 619-628.

SELER, Eduard (1902) *Eine altmexikanische Bilderschrift der Vatikanischen Bibliothek.* Herausgegeben auf Kosten Seiner Excellenz des Herzogs von Loubat. Zweite Hälfte. Text der Rückseite und Erläuternde Tafeln, Berlin: Gebr. Unger (Vol. I, 1900).

STAROSTIN, Sergei (2000) "Comparative-Historical Linguistics and Lexicostatistics," in C. RENFREW, A. MCMAHON & L. TRASK (eds.), *Time Depth in Historical Linguistics*, Cambridge: The McDonald Institute for Archaeological Research, Volume 1, 233-259.

SWADESH, Morris (1954) "Time Depths of American Linguistic Groupings. With Comments by G.I. Quimby, H.B. Collins, N. E.W. Haury, G.F. Ekholm, and Fred Eggan", *American Anthropologist*, 56, 361-377.

SKILES, Jack (1996) *Judge Roy Bean Country*, Lubbock, Texas: Texas Tech University Press.

TURPIN, Solveig A. (1984) "Pictographs of the Red Monochrome Style in the Lower Pecos River Region, Texas", *Bulletin of the Texas Archeological Society*, 55, 1986 for 1984, 123-144.

TURPIN, Solveig A. (1986) "The Meyers Springs and Bailando Shelters: Iconographic Parallels", *La Tierra*, 13/1, 5-8.

TURPIN, Solveig A. (1989) *The Iconography of Contact: Spanish Influences in the Rock Art of Middle Rio Grande*, in David H. THOMAS (ed.), *Columbian Consequences: Archaeological and Historical Perspectives on the Spanish Borderlands West*, Washington, D.C.: Smithsonian Press, I, 277-299.

TURPIN, Solveig A. (1994) "Lower Pecos prehistory: the view from the caves", in W. R. ELLIOTT & G. VENI (eds.), *The Caves and Karst of Texas*, Huntsville, Alabama: National Speleological Society, 69-84.

TURPIN, Solveig A. (2004) "The Lower Pecos River Region of Texas and Northern Mexico," in Timothy K. PERTTULA (ed.), *The Prehistory of Texas*, College Station: Texas A&M University Press, 266-280.

TURPIN, Solveig A. & Herbert H. ELING, Jr. (2002) "Body or Soul: The Diffusion of Rock Art Imagery in Prehistoric Coahuila and Texas", in M. Elisa VILLALPANDO (ed.), *Boundaries and Territories: Prehistory of the U.S. Southwest and Northern Mexico*,

Arizona State University Anthropological Research Papers, Arizona State University, Tempe, Arizona, 54, 37-48.

UTO-AZTECAN Bibliography: http://uto-aztecan.org/uanist/?page_id=101 (accessed: November 10, 2012).