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2005

The Enigma of Mayan Hieroglyphs

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1 August 2005

Shipwrecked off the coast of the Yucatan peninsula in the early 16th century, the Spanish cleric Jeronimo de Aguilar may well have been the first European to gaze upon a set of stone engravings, or perhaps a folded birch bark tome, that had markings on it unlike anything he had ever seen before. When told by his captors that this was their form of writing, Aguilar – who had learned to speak the Mayan language – possibly wondered how anyone could make sense of the strange characters. History does not record whether Aguilar learned to read Mayan script, but perhaps if he had, the secrets of the Mayan hieroglyphics would not have remained a mystery for more than four centuries.

Beginning with Bishop Diego De Landa, who faithfully recorded the Maya calendar and Mayan "alphabet" in his manuscript, *Relacion de las cosas de Yucatan* (1566) – to the ensuing dispute over whether the hieroglyphs were phonetic in nature or ideographs – both archaeologists and linguists have struggled for generations to make sense of the enigmatic script. It wasn't until the middle of the 20th century, after a number linguistic dead ends had been reached, that the rich history of the Maya civilization began to be revealed through its writing. The long delay in accurately deciphering Mayan writing can be contributed to a number of factors – one of which was the absolute refractoriness by leading Mayanists – who dominated the field in the late 19th and the first half of the 20th centuries, towards accepting new evidence built upon seemingly previously discredited theories.

Much of the confusion in deciphering Mayan hieroglyphs that has occurred over the centuries can be traced directly to the good Bishop de Landa. Landa is infamous for his religious persecution of the Maya peoples, and beginning in 1562, the systematic destruction of their birch-bark books. Ironically though, it was through his efforts to record what he thought was the Mayan alphabet that laid the foundation for the future decipherment of the hieroglyphs. As Ian Graham explained in a recent interview, Landa believed the Maya used an alphabet. When asked by Landa 'How do you write the letter B' – pronounced 'bay' in Spanish, his Maya informants, Juan Nachi Cocom and Gaspar Antonio Chi, drew a picture of a pair of feet. The sound "bay," in spoken Mayan, means "road," and the glyph for "road" is a little path with footprints. It wasn't until 1952 – almost 400 years later – that the Russian linguist Yuri

Knorozov made the breakthrough analysis that the symbols stood not for letters, but for sounds![1] Subsequent investigations by Tatiana Proskouriakoff and others have identified date patterns, glyphs representing the names of places and rulers, and texts – accompanying the glyphs – that indicate rites of passage and major events in the lives of these rulers. To date, hundreds of glyphs and inscriptions have been identified, and approximately 85% of all known Mayan writing has been translated. Although the last thirty years has seen great strides in interpreting Mayan writing, the preceding one hundred years of Mayan decipherment was characterized by the almost total lack of any progress by those who attempted to lift the veil of linguistic mystery surrounding the written Mayan language.

From the time Landa wrote his memoir detailing the Mayan script, until the middle of the 19th century, little was done in the way of deciphering Mayan hieroglyphs. A few Mayan codices had survived Landa's book burning campaign, and along with his *Relacion de las Cosas de Yucatán*, they lay unnoticed in various dusty archives in Europe until their rediscovery in the 19th century. These codices had been attributed to the Aztecs until Constantine Rafinesque was able to link the Dresden Codex, published in 1810 by Alexander von Humboldt, with the Mayan inscriptions he had observed at Palenque.[2] Landa, however, was not the only one to make note of Mayan glyphs in the 16th century. In other instances, letters written by Spanish officials were uncovered by Maya researchers and referenced in their works. One writer believed the Mayan ciphers were of Chaldean origin, and another writer, Don Diego Garcia de Palacio in a letter dated 1576 to the king of Spain concerning Copán, flatly admits the characters are of unknown origin, but ventured the opinion the great city was built in the Roman style by peoples other than the local inhabitants.[3]

However, few people outside of New Spain during the next 200 years knew of the great ruins scattered over the Yucatán peninsula. A small number of adventurers, missionaries, and colonial officials continued to visit Palenque – an easily accessible site – and Spanish artists Jose Luciano Castaneda, Juan-Bautista Munoz, and Antonio Bernasconi crafted renderings of certain buildings

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[1] Lesley Bannatyne, "Secrets of the Maya ... unlocked!" *The Christian Science Monitor* (May 24, 2005), http://www.csmonitor.com/2005/0524/p18s02-hfks.html (accessed July 18, 2005).
[2] Michael D. Coe, *Breaking the Maya Code* (Thames and Hudson: New York, 1992), 91.
[3] Claude Baudez and Sydney Picasso, *Lost Cities of the Maya* (Harry N. Abrams, New York, 1992), 135.

and reliefs, that unfortunately, were not entirely accurate. For example, Munoz's drawing of a panel from the Temple of the Sun in Palenque lacks the majority of glyphs along with other missing details of the crossed spears, the center shield, and the jaguar mask found in the original. His crude drawing is also completely missing the two small kneeling gods upon which the two main figures stand.[4] Castaneda also committed similar errors when rendering the stucco reliefs at the same site. Later artists, such as the great explorer Jean-Frederic Waldeck, would find it difficult to escape the precedent set by some of these earlier impressionistic interpretations. These inaccuracies, particularly in rendering the glyphs, helped perpetuate the idea that the culturally disenfranchised Maya – despite Landa's long forgotten work – could not possibly have a writing system. As noted before, it would remain for Rafinesque to renew Landa's linguistic adventure of decipherment some hundred-odd years later when he realized that the Mayan language had been a written one.

Rafinesque was, as were many in his day who were interested in the natural sciences, an amateur historian, anthropologist, and scientist. By using limited available materials, however, he was able to establish a number of important points about Mayan hieroglyphs. According to Michael Coe, Rafinesque first saw that the Dresden Codex and the inscriptions at Palenque were the same script. Secondly, Rafinesque deciphered the Mayan numbering system of dots and bars, and he reasoned that since the Mayan language was still a living language, it would be possible to unravel the Dresden manuscript. Rafinesque believed that once the codex could be translated, then the monumental inscriptions could be read.[5] The origin of this writing, however, was another matter, according to Rafinesque. Publishing his analysis in an open letter in the January 1, 1827 edition of the Saturday Evening Post, Rafinesque found "unity of purpose" to the Mayan script, and believed the glyphs belonged to the Empire of Otolum, who were the descendants of the "Neiton (Neptunes) of North Africa…a branch of Atlantes" who had migrated to the New World in ancient times.[6] Despite the fact Rafinesque erred on who authored the Mayan hieroglyphs, his conclusion that the monuments were inscribed and would one day be readable was prophetic.

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[4] Baudez and Picasso, 31-36.
[5] Coe, 91.
[6] Baudez and Picasso, 147.

Shortly after Rafinesque began publishing his findings, the team of John Lloyd Stephens and his close friend, artist Frederick Catherwood, set out for the Yucatán peninsula in search of newly reported Maya ruins. Ostensibly under the direction of President van Buren, Stephens, acting as a special U.S. representative, was to make contact with the newly formed Central American Federation. The Federation was wracked by civil war by the time Stephens arrived, and the mission soon fell by the wayside as Stephens and Catherwood made their way deeper into the Latin American jungles. The subsequent publication of Stephens' account of their journey, along with Catherwood's drawings, gave the modern world its first glimpses of such ancient centers as Copán, Chichén Itzá, Palenque, and Tulum. Although Stephens made no attempt to decipher the glyphs he and Catherwood saw, his observations led him to conclude that the inscriptions from each of the centers they visited belonged to the same writing system. The evidence of a homogeneous script found across the southern lowlands of Central America confirmed that this was a one language – one culture – civilization. Like Rafinesque, Stephens believed the Dresden Codex and the monumental inscriptions were the one and the same writing system.[7] Decipher the Codex and the rest of the writing system will fall into place. The work of these two adventurers is still occasionally referred to, as the accuracy of Stephens' descriptions and Catherwood's renderings remain the standard for 19th century Maya exploration. Unfortunately both of these men's lives were cut short. Stephens died of an unknown tropical disease in 1852 and Catherwood was lost at sea in 1854 – but their work inspired generations of future Maya researchers.

One such researcher, Brasseur de Bourbourg, while not directly influenced by Stephens, set out to do exactly as Stephens suggested – that is, uncover any and all Mayan Codices and decipher them. In 1855, Bourbourg, a French *abbe*, served as the parish priest of Rabinal, a Quiche Maya town in the Guatemala highlands. By immersing himself in the local Maya culture, Bourbourg gained the trust of a local informant who recounted the *Rabinal Achi*, a lengthy pre-Conquest Maya drama. Shortly afterwards, Brasseur stumbled on the *Pohol Vuh* – the sacred book of the Quiche Maya – which he spent the next five years translating into French. Upon his return to France in 1861, Brasseur published both accounts, even though the first Spanish version of the *Pohol Vuh* had been published a few years earlier by the German explorer Carl Scherzer.

[7] Coe, 95.

Unbeknownst to Brasseur, Scherzer had been in Central America at almost the same time as he was. Scherzer found his copy of the Pohol Vuh in the library of the University of San Carlos in the city of Guatemala. The manuscript, which contained the Quiché text plus the first Spanish translation of the Popol Vuh, had been made by Father Francisco Ximénez of the Dominican Order around 1725. Despite being upstaged by Scherzer, Bourbourg's enthusiasm for all things Maya never waned.

The following year (1862), while rummaging through the library of the Royal Academy of History in Madrid, Brasseur came across an abridged copy of Diego de Landa's *Relacion de las Cosas de Yucatán.* Again, Bourbourg was upstaged. Almost at the same time, Leon de Rosny, a French scholar, found and published in facsimile form a Maya codex he discovered at the National Library in Paris. But Bourbourg now felt that between the Dresden and Paris codices, and the Pohol Vuh, he had enough Mayan text, along with Landa's alphabet key, to begin deciphering the Mayan writing system.

Up until this point, the main obstacle to the decipherment of the Mayan script had been the lack of available materials to work with. Due to the destruction of Maya libraries in the major ceremonial centers by the Conquistadors, and the book burning campaign by the Inquisition, few codices survived. In fact, although fake codices have come to light from time to time, to date only four original Mayan birch-bark books are known to exist. How these four books survived has been a matter of speculation, but it is thought that the Dresden Codex had been a gift to the Spanish king, Charles V; the Madrid Codex once belonged to the Conquistador Cortez; and the other two codices – the Paris and Grolier Codices – may have been snatched from the Inquisition bonfires at lesser known Maya centers. As each Maya village and farming community had its own priest, each priest had his own copy of a codex to refer to. Unlike stucco reliefs and the monumental inscriptions, which recorded historical data, the priests used the codices as "prayer books" consulting them for every aspect of daily life. Rituals, ceremonial offerings, prognostications, and determining the best times of the year for certain activities, in addition to governing the behavior of each individual in the Maya caste system, were common uses of a priest's codex.[8]

[8] Yurii Knorozov, *Maya hieroglyphic codices,* trans. Sophie D. Coe (State University of New York: Albany, 1982), 5.

Brasseur de Bourbourg, of course, didn't know any of this when he began his decipherment in the 1860's. Taking his queue from Landa's phonetic alphabet, Brasseur almost from the start made mistakes. His first error was to assign each individual glyph a letter. His second blunder occurred when he reversed the order in which the glyphs should be read; in other words, he tried to read the glyphs backwards. The apparent translations made no sense – even when Brasseur added several letters not included in Landa's original alphabet. As Brasseur started publishing his "results," his reputation as a serious Americanist began to plummet. To make matters worse, his ideas of Atlantean origins of the Maya civilization further eroded his credibility. But a much more serious, and longer lasting, consequence of Bourbourg's efforts was the discrediting of the phonetic method in deciphering the Mayan writing system. Bourbourg's archival discoveries have secured his name in the annals of Maya history, but his bungling of the phonetic approach to deciphering the Mayan hieroglyphs sparked a debate that lasted for the next one hundred years.

The other approach that would come to be adopted by leading Mayan linguists to decipher the glyphs was the ideographic or picture writing method. Before this method became the accepted mode for translation by the 1890's though, certain mechanics of reading the glyphs had to be worked out. It was Cyrus Thomas, in 1882, who established that the reading order of the hieroglyphs was from left to right and top to bottom. Thomas, however, was also a phoneticst who believed the Mayan writing system might have been a transitive system between the ideographic and the phonetic.[9] His belief stemmed from a 1588 description of Mayan writing, recorded by Franciscan Fray Alonso Ponce, who implied that a number of Franciscan friars had actually learned to read and write the Mayan language. Thomas just didn't think that the good friars would have taken the time to memorize hundreds upon hundreds of glyphs.[10] Therefore the Mayan glyphs could not have been strictly ideographic in nature, but rather included phonetic symbols as well that may have been interchangeable or combinable with their ideographic counterparts. This was not far from the truth, as later linguists, such as Yurii Knorozov, would prove. Thomas' ideas, however, came under severe criticism from the German school of Mayan

[9] Coe, 117.
[10] Coe, 118.

research, which consisted a group of late 19th century ideographic researchers loosely centered around Ernst Förstemann and Eduard Seler.

According to the late J. Eric S. Thompson (1975), Ernst Förstemann stood "shoulders above any other student of Maya hieroglyphs" and Eduard Seler was the "Nestor of Middle American studies."[11] Thompson's opinion of Cyrus Thomas was less flattering. Despite Thomas' conclusions about the nature of Mayan writing, it was "without, however, making any fundamental contribution to the subject," according to Thompson.[12] Such was the value of a man who spent a good portion of the last thirty years of his life attempting to crack the code of the Maya kings.

Ernst Förstemann, who was the royal librarian at Dresden and curator of the Dresden Codex, unraveled the complex workings of the Maya calendar over a 14-year time span. Ernst demonstrated that the Maya calendar is based on two sets of intermeshed cycles consisting of 260 and 365 days, and that a date is generally expressed by noting its position in both cycles. Since a particular date would repeat itself every 52 years, Maya chroniclers were able to record a date's position in a more precise "long count" by using a linear reckoning whose starting point they calculated to be the year 3114 B.C. He further established that the Maya counting system was vigesimal based. Even more importantly, however, Förstemann identified the symbol – a stylized shell – that stood for "zero," an achievement that previously only ancient Hindu mathematicians had accomplished. Ernst went on to decipher how the Maya calculated the 584-day apparent cycle of Venus, and interpreted the astronomical tables in the Dresden Codex that the Maya used to predict lunar eclipses.[13] Despite Förstemann's failure to entertain the notion that the Mayan script might be phonetic in nature, his work decoding Mayan mathematics justified Thompson's belief that Ernst stood shoulders above all.

However, it was left to that "Nestor of Middle American studies," Eduard Seler, to dispel any notion that the Mayan glyphs were phonetic based, and to discredit Cyrus Thomas specifically.

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[11] J. Eric S. Thompson, *Maya Hieroglyphic Writing – Introduction* (Carnegie Institution of Washington: Washington, D.C., 1950), 30-31.
[12] Thompson, 29.
[13] Coe, 108.

Seler's research and studies in Maya and Mexican religion, thought, and in particular their codices, was up until that time unequaled. No other scholar, including Förstemann, had even come close to the amount of published research produced by Seler. He knew and understood the Maya and Nahuatl languages, and was well versed in enthohistory and archaeology. Seler, however, was apparently resistant to any line of reasoning that wasn't based upon one hundred percent verifiable fact, and to this end his only major contribution towards decipherment of the Mayan glyphs was the identification of the world colors associated with the four cardinal points of the compass.

Even though Seler retained his semasiographic stance, he did guardedly admit that, much like the Aztecs, the Maya may have also used limited phonetic elements when expressing personal or place names. But there was no evidence of this phonetic usage in their texts, "and that without doubt the greater part of the Maya hieroglyphs were conventional symbols built upon the ideographic principle."[14] When Cyrus Thomas published his findings, claiming that he had uncovered a "key" to deciphering the Mayan script, Seler, rightly so, took Thomas to task. The main fault with Thomas' work was his misidentification of the objects depicted, and of the individual glyphs he used in constructing the "key." While Thomas did try to defend himself – via journalistic debate – by 1903 he surrendered his position and publicly admitted, "the glyphs, so far as determined, are to a large extent symbols used to denote numbers, days, and months."[15] Except for Charles Bowditch who, in 1910, ventured the opinion that, similar to the Aztecs, the Maya used a rebus form of writing that also extended to "common nouns and possibly abstract ideas," and the dismal efforts of Benjamin Lee Whorf in the 1930's, all further serious attempts at using the phonetic approach for deciphering Mayan script came to a stand still for the next fifty years.[16]

Certainly one of the most amazing aspects of the story of Mayan decipherment is the fact that almost everyone associated with the ideographic approach failed to see any parallel between the developments of Old World and New World writing systems. Both the Sumerians and the Egyptians developed writing about five thousand years ago as means of recording dynastic

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[14] Sylvanus Griswold Morley, *An Introduction to the Study of Maya Hieroglyphs* (Dover: New York, 1975), 30.
[15] Cyrus Thomas, "Central American hieroglyphic writing," *Annual report of the Smithsonian Institution for 1903*: 705.
[16] Morley, 30.

linage and important historical events, such as accession proceedings and military victories. The development of these writing systems came about as small societies grew into villages, chiefdoms, city-states, nations, and finally empires. As ancient societies evolved, they tended to become stratified or ranked, which led to competition for leadership among the ruling class. That, along with conflict with neighboring states, provided the importance of using writing to establish the elite's legitimate right of leadership. Creating a "paper trail" of "propaganda," that included documented genealogical associations to elite ancestors or mythical beings, and military dominance over other states, was just one more device available to the ruling class to promote their position of power.[17]

As Edward Tylor pointed out in 1871, culture is "that complex whole (*of society*) which includes knowledge, belief, art, law, morals, custom, and any other capabilities and habits acquired by man as a member of society."[18] Tylor further maintained that culture passed through the three basic stages of development. Human society began in savagery, and then passed through barbarism to civilization, and more advanced societies would show evidence of cultural evolution by exhibiting traces of earlier customs from past cultures. Examples of this can be seen in the calendar that the Maya inherited and modified from the earlier Olmec peoples, the Olmec architectural style, and the carry over of religious elements, including human sacrifice.

Lewis Henry Morgan, a contemporary of Tylor, further distinguished the stages of cultural development in terms of technological achievement – that each stage had its identifying benchmarks. Middle savagery was marked by the acquisition of a fish diet and the discovery of fire; upper savagery by the bow and arrow; lower barbarism by pottery; middle barbarism by animal domestication and irrigated agriculture; upper barbarism by the manufacture of iron; and civilization by the *phonetic* alphabet.[19] If such eminent Mayanists as Förstemann and Seler recognized that if the Egyptians fit these definitions, then surely the Maya civilization did as well. Both Förstemann and Seler however, failed to follow the primary principle that states that

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[17] Joyce Marcus, *Mesoamerican Writing Systems* (Princeton: New Jersey, 1992), 15.
[18] Dennis O'Neil, "What is Culture?" *Human Culture*, http://anthro.palomar.edu/culture/culture_1.htm (accessed July 22, 2005).
[19] Kelly Chakov, "Nineteen Century Social Evolution," *Anthropological Theories*, http://www.as.ua.edu/ant/Faculty/murphy/436/evol.htm (accessed July 22, 2005).

because of basic similarities, which are common to all peoples, different societies will often find the same solutions to the same problems independently.

By the late 19th century, thanks to the work of Jean Champollion, who brilliantly unraveled the mysteries of these hieroglyphs between 1808 and 1824, reading Egyptian hieroglyphs was like reading an open book in one's native language. Although totally unrelated to Egyptian hieroglyphs, Mayan hieroglyphs bear certain similarities in that both use a combination of sound and object glyphs. As Champollion demonstrated, the Egyptians used phonograms representing sounds, and ideograms, like the Maya, to represent objects or ideas and constructed words by using a combination of the two types of glyphs. The refusal of the late 19th century ideographic Mayanists to consider the possibility of widespread phonetic usage within the Mayan writing system was strictly a self-serving tact based upon an ethnocentric belief. A belief prompted by Landa's misinterpretation of the "alphabet." Although the Mayans were mathematically literate, Landa's bungling of the alphabet led the leading epigraphers to believe the Maya were not capable of producing a viable script with which to preserve their history.

During the first half of the 20th century, this belief persisted largely through the efforts of Sylvanus Griswold Morley and Eric Thompson. Morley, who began studying Egyptology, then switched to Mayan anthropology at Harvard, had approached the Carnegie Institution of Washington with a research plan to document as many known Mayan inscriptions as possible, which the Institute accepted in 1914. His association with Carnegie led "Vay," as his friends called him, to toil under the hot Mayan sun for the next fifteen years. During this time, in "Indiana Jones" style, he survived a fatal ambush by Guatemalan troops who mistakenly thought Morley and his crew had been bandits, and engaged in counter-intelligence work for the U.S. Intelligence against German agents operating in Central America during World War I. After the war, his main responsibility was to oversee excavations at Chichén Itzá. But as the 1920's progressed, he also initiated excavations at Copán, Calakmul, and Uaxactúm, plus a small number of lesser-known sites throughout the Petén district.

Morley's enthusiasm, diplomatic skill in charming the Central American authorities, and extensive excavations at Chichén Itzá, however, failed to produce "a cultural picture of ancient

Chichén anchored in a firm chronology."[20] Replaced by Alfred Vincent Kidder in 1929, Morley went on to publish *The Inscriptions of Petén* (1938) in five massive volumes containing over 2,000 pages, 187 plates and almost 40 different maps. What should have been a stellar publication, however, was less than ideal. According to Coe, a comparison of Morley's work to Alfred Maudslay's, *Biologia Centrali-Americana* (1902), reveals a severe lack of photographic quality and deficiency of detail in the black and white renderings of Copán and other sites. In addition, Coe argues, despite Morley's excellent work with deciphering dates, there is a complete absence of Mayan text not related to astronomical or calendrical information.[21] This oversight is characteristic of the prevailing belief that the Maya held no interest in recording their history because they could not construct a phonetic-based writing system.

Thompson, however, who had been recruited to work in the Mayan fields by Morley in 1925, defended him by saying that "with the amassing of so much raw material, Morley had little time for the decipherment of glyphs of unknown meaning."[22] It was these glyphs of unknown meaning that held the key to Maya history, but because they were not numerical related text, the glyphs were thought to be unimportant. It is absolutely astounding that a man who never held an academic post, and who by his own admission was not a "trained linguist," became the leading Mayanist for almost fifty years, and simply ignored any non-astronomical or non-calendrical inscriptions, and attempted to refute any evidence that pointed towards their decipherment.[23]

And refute Thompson did, on more than occasion. He was most critical of the work of Benjamin Lee Whorf, and with good reason. Whorf, a graduate of MIT with a degree in chemical engineering, honed his linguistic skills under Edward Sapir, the head of Yale's newly founded Anthropology Department in the late 1920's. Whorf is perhaps best remembered today for the Whorf hypothesis, which was comprised of two parts. The first – linguistic relativity – simply states that language and thought are somehow interwoven, with language shaping our view of reality. The second – linguistic determinism – maintains that language is the actual cause of how different language groups perceive the world. In other words, what one thinks is fully

[20] Coe, 128.
[21] Coe, 129.
[22] Thompson, 32.
[23] Thompson, 17.

determined by their language. The theory remains extremely controversial, even today. But Whorf's analysis, which he published with the support of Alfred M. Tozzer of the Peabody Museum, "dared to reopen the phonetic question."[24]

Although Thompson had the good grace to wait until Whorf had passed on before making serious comment on his work, Richard Long, a close friend and associate of Thompson's, spared no criticism of Whorf's analysis. Whorf had maintained that the Mayan glyphs were polyvalence. Working with the codices, he was able to show that the glyphs accompanying the pictures had a linguistic structure – verb, object and subject – that reflected the Yucatec Mayan dialect.[25] However Whorf, like Thomas before him, stumbled when it came time to identify the individual parts of the glyphs. Long rejected the idea of any grammatical sentence structure, claiming that the Mayan writing system was frozen in an embryonic stage. Long's real objection lay in the fact that, since writing was a perquisite for civilization according to Tylor's definition, and no other Native American culture possessed a complete writing system, the Maya also could not possibly have a fully developed writing system.[26] Whorf admittedly was an amateur like Rafinesque, but his response to Long was, much like Rafinesque's – prophetic. Writing in the October 1935 issue of *Maya Research*, Whorf acknowledged that if Long was correct, then the hieroglyphs are not worth deciphering, otherwise the glyphs "might require us to revise (*our*) archaeological theories about the Maya."[27] As it turned out, Whorf was right after all, the eventual decipherment of the Mayan script did indeed change our understanding of the Maya world, but not before Thompson would have his say.

Fifteen years later, outlining a number of minor technicalities as examples, Thompson would relegate Whorf and his efforts to that "limbo which already holds the discredited interpretations of Brasseur de Bourbourg," and all those who had followed in his footsteps.[28] According to Coe, both Long and Thompson were technically correct, but they missed Whorf's anthropological

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[24] Benjamin L. Whorf, "The Phonetic Value of Certain Characters in Mayan Writing," *Papers of the Peabody Museum of Archaeology and Ethnology*, Harvard University, 13 (1933): 2.
[25] Coe, 137.
[26] Coe, 138.
[27] Benjamin L. Whorf, "Maya writing and its decipherment," *Maya Research* 2(4): 367-382, quoted in Coe, 139.
[28] Thompson, 311.

concept "that Mayan writing must phonetically record one or another Mayan language."[29] Strangely enough, while Thompson had actually decoded phonetically a small number of non-numerical glyphs that could be read in the Yucatec tongue, he continued to subscribe to the belief that the glyphs were for the most part ideographic in nature with mythological or allegorical associations. "That such mystical meanings are imbedded in the glyphs is beyond doubt," Thompson admonished to those brave enough to read through his massive *Maya Hieroglyphic Writing* (1950); furthermore it is "our duty is to seek more of those mythological allusions."[30] It would not be long however, before a new generation of Mayanists would come to believe that their "duty" lay not in seeking out new allusions, but to give credence to the methodologies of Rafinesque, Bourbourg, and Whorf. Taking the anthropological view that ancient writing systems held certain structural concepts in common, these Mayan linguistic revisionists would soon begin to dismantle the old Thompsonian iconoclastic view of the Mayan language.

Although Thompson successfully shouted down a few minor challenges to his work, the first real assault came from Yurii Knorozov, an unknown scholar from behind the Iron Curtain. Knorozov it seems, was destined to lead the assault right from the beginning. By pure chance, at the end of World War II, he literally plucked from the burning flames of the National Library in Berlin a 1933 edition of the Dresden, Madrid, and Paris codices published by the Villacorta brothers, Antonio and Carlos. Following the war, with the support of his university mentor, Sergei Tokarev, Knorozov took a structural approach and proceeded to demonstrate the phonetic methods that should be used to decipher the Mayan written language. When Knorozov published his results in 1952, Thompson, much like he did with Whorf, pounced upon some inconsequential errors and basically pronounced the Russian's work to be a "Marxist hoax and propaganda ploy."[31] But Knorozov understood that the Mayan glyphs were a complex combination of semantic and phonetic elements, and was unfazed by the controversy his work caused on both sides of the Atlantic in the years to come. The soundness of Knorozov's analysis can be seen in his method. First, he demonstrated that all ancient scripts followed Tylor's evolutionary progression – that is from pictographic to ideographic to phonetic. Secondly,

[29] Coe, 139.
[30] Thompson, 295.
[31] Coe, 153.

Landa's alphabet was not alphabetic, but rather syllabic, and that many of the Mayan signs stood for a consonant-vowel (CV) combination, while others were purely phonetic. Maya scribes used the same principles for hieroglyphic writing as the Egyptians, including phonetic-morphemic combinations similar to Chinese characters, and sometimes gave multiple meanings to individual signs.

Although, Knorozov's breakthrough clearly showed the way, it was ironically another Russian and Carnegie colleague of Thompson's, Tatiana Proskouriakoff, who finally proved the Maya had indeed had a written history. Proskouriakoff's step forward came in the late 1950's when she was studying the engraved figures on the stelae and the lintels of Piedras Negras. Realizing that the number of years elapsed between the opening and closing dates corresponded closely to that of what was thought to be the average lifespan of a person, Proskouriakoff came to the conclusion the stelae must be referring to not mythical gods, but real people. If this was true, then the accompanying glyphs must surely be text relating to these people's lives. Within these "text" glyphs, she identified nominal phrases of three and four glyphs each, which represented certain events in the life of the person memorialized. And as if that wasn't enough, Proskouriakoff was able to ascertain that women were also represented on the stelae![32] Thompson uncharacteristically agreed with her findings. But, according to Coe, Thompson would continue for the rest of his life to insist that the majority of Mayan hieroglyphic writing was nothing more than "a hodgepodge of various primitive attempts to write."

While Thompson's star was fading, a host of Maya epigraphers made contributions towards unlocking the mysteries of the Mayan script that revolutionized the way Mayan hieroglyphs were thought of. Heinrich Berlin, David Kelly, Floyd Lounsbury, the Coe brothers, Ian Graham, the team of Linda Schele and Peter Matthews, and David Stuart, among others, made various breakthroughs – some greater than others – but all important in the sense that each unlocked a piece of the Mayan puzzle. Nowadays, the Mayan script is much like Egyptian hieroglyphs – open to be read by anyone who cares to take the time to learn how. Contrary to the centuries' held view that the Maya were only interested in recording mathematical or astronomical information; the scribes of the Maya world developed a writing system that was just as

[32] Coe, 171–174.

expressive as any modern language. Using logographs in combination with phonetic signs representing syllables, every nuance of sound, meaning, and grammatical structure of the Mayan language could be recorded. In addition, the scribes looked for new ways to write their words. As a result they were able to devise multiple signs to record the same sounds and each sign could be written symbolically, in a personified form, or as a full figure glyph. As recent translations have shown, the Mayan script is a rich descriptive system that was used to record almost every aspect of Maya life.[33]

While the Mayan writing system is not the oldest form of writing in the world, it is the most highly developed found in the ancient Americas. Earlier forms of writing can be found among the Zapotec, and other groups like the Olmecs, but the earliest type of non-verbal communication used in the New World is the "quipu." Found mainly in Peru, the quipu is a sophisticated arrangement of knots and strings used to convey detailed information. The oldest known quipus had been associated with the Incas. Recent archaeological investigations into the Peruvian coastal city of Caral however, have uncovered quipus that are close to 5,000 years old.[34] Their existence points to a sophisticated, organized society where such information as production, taxes, and debts needed to be recorded. While the peoples of Caral never developed a true writing system, it could be argued they had a "high" civilization, as evidenced by the architectural design of their city. Nor did the Incas have a written language, although recent theories suggest they may have had a limited system consisting of twelve letters and ten numbers that was used for communication among the ruling class.[35]

The Maya elite, on the other hand, did not keep their thoughts to themselves. On public buildings, tombs, and stelae, they recorded historical events and sociopolitical propaganda relating to their rulers, conquests, and genealogies – including dates, place names and the names of captives who later were sacrificed. Their codices contained astronomical and astrological information the priests used on a daily basis, and ceramics have been found inscribed with

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[33] Linda Schele and Peter Mathews, *The Code of Kings* (Touchstone: New York, 1999), 22.
[34] Jude Webber, "Peruvian 'writing' system goes back 5,000 years," *MSNBC.com*, July 20, 2005, http://www.msnbc.msn.com/id/8633818/ (accessed July 27,2005).
[35] Eli Lehrer, "Legacy of the Incas," *Cornell Science and Technology* (Spring 1997), http://www.rso.cornell.edu/scitech/archive/97spr/inca.html (accessed July 27, 2005).

ownership names and information detailing the function of the vessel. And emblem glyphs, much like a coat of arms, have been found identifying the ruling families and their cities.

Clearly, the use of writing technologies transformed the early agriculturally-based Maya society. Writing as a technology in the New World began in the period dating 700 – 400 BC in the pre-state chiefdom Olmec and Maya societies. Individuals with elite status characterized these chiefdoms. As the population base and food surpluses increased, the need to record accounts over the centuries, evolved into a means of expressing all of the political, social, cultural, and historical actions of their society. To construct large public work projects, maintain trade competition with other emerging chiefdoms, or to commemorate military victories, the chiefs – in these less institutionalized pre-state societies – relied on propaganda to maintain and bolster their positions.[36] By the Pre-Classical period, writing for the Maya elite had become a useful by-product of their complex religious oriented, economically specialized, and politically stratified society. At the height of the Classical period, through propaganda emphasizing religious and ancestral mythology, and historic events, but more importantly, by limiting the literacy rate among their people, the Maya ruling classes could maintain absolute dominance over their worlds.

Unfortunately due to the lack of contact with other peoples beyond Central America – which prevented them from experiencing cultural and technological diffusion – the Maya were never able to advance to the next stage of writing. Just as the Mayan civilization went into in a steep decline in the 9th and 10th centuries, the Chinese developed wood block printing, which revolutionized their society. However the fact stands, that the Mayan script did not stay an enigma for over four centuries because of their technological shortcomings, but because of the inability of some of the greatest epigraphic minds of the 19th and 20th centuries to overcome their biases and recognize that a New World civilization could develop a writing system using the same principles as those of the ancient Old World.

[36] Marcus, 15.

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