From the Aztecs Their Tax Systems; Of the Incas Their Accounts, And of the Mayas Their Scripture; The Outcome is the Pre-Columbian Accounting (*)

Reynaldo Frausto Mena
Instituto Politécnico Nacional, Mexico

Abstract

On this occasion, I speak as three of the greatest Pre-Columbian cultures they let us different legacies that manifest such as a whole they exercised their accounting, primarily over who and in what form they practiced this. Also I will expose of the three different Pre-Columbian cultures, both at space and in time, such as: The Azteca (Mexico), The Inca (Peru), and The Maya (Mexico, Guatemala, Belize, Honduras and El Salvador).

I discuss of these Pre-Columbian cultures from these three populations who are to talk about at that time they were very brilliant, as distinguished from other by their systems, same that empires reached to form genuine.

The Aztecs bequeathed us their taxation systems,were the last in arriving Valley of Mexico where they established the capital of Tenochtitlan (1325). Kingdom which dominated cultural and politically Mesoamerica Over the fourteenth century and first quarter of sixteenth They were located within the geographical area that corresponds to southern half of the contemporary Mexico, where he developed a great cultural activity since approximately 2000 BC. In this region lived in various towns, some of whom us are all left their thriving culture as in the case of the archaeological remains the City of Teotihuacan, and uninhabited when the Spanish arrived.

(*) Bu Araştırma, 19-22 Haziran 2013 tarihinde İstanbul'da yapılan 3rd International Conference on Luca Pacioli in Accounting History'de ve 3rd Balkans and Middle East Countries Conference on Accounting and Accounting History (3 BMAC) Konferansı'nda bildiri olarak sunulmuştur.

The Incas left us like their representation of mathematicalits operations performing. The foundation of the history of The Incas was based with de God of Creation, TiciViracocha, who left the Rio Titicaca. People who lived nearby had offended the Grat god, so he destroyed the people and turned them into stone. After this, Viracocha, created the Sun, Moon and new forms of human life to be distributed to different sites along the West coast of South America.

They established a vast empire in The Andes in the fifteenth century. They were great conquerors, his empire stretched from northern Chile to southern Colombia, covering the current territory of Bolivia, Peru, and Ecuador to The Pacific.

Key words: Aztecs Tax System, Accounts, Pre-Columbian Accounting.
Jel Classificiation: M39, M41, M53

The Maya. We have currently allowed background like reflected their ideas and facts through their writing in a particular form called hieroglyphs. Their cultural development occurred in southeastern Mexico. The Maya, who took as his place in history, left evidence of their dynasties, battles and other important events in human life, projecting a legacy to mankind, "Little is known in Europe of this amazing past, it was in 1773 a canon of the Episcopal town of Ciudad Real de Chiapas, Fray Ordoñez heard a rumor that, hidden in the jungle, there was an abandoned city of staggering proportions, dis take in a palanquin by almost 112 kms. to the location of this lost city. That completely covered with jungle vegetation, was one of the most amazing Maya cities Palenque".

The Aztec.

The Aztecs formed an important empire, were very bellicose and dominated all the peoples who inhabited the area, made of the most powerful civilization in Mesoamerica, with the good sense to have picked up and adopting cultural traits of the people who proceeded especially of the Toltec's and Olmec's.

Social organization; Nobody could disobey an order of the Emperor, Grand Orator or "Huey Tlatoani".The calpulli was the basis of social structure, agglutinated patrilineal lineages. The calpulli owned lineage land, which is distributed annually among the various families according to the members who composed it. The job fell to the head of calpulli, who was the oldest man, who also competed preside over the ceremonies to honor the spirits of their ancestors.

The lineages were integrated following the belief of having a common ancestor, usually a creative divinity, in this case, were Quetzalcoatl, "The feathered serpent" they formed, then a clan .However, and inside it were not all equal. There were differences of position, wealth and power. For this reason it was called conical clan.

At the head of the deed hierarchy was the emperor, descendant of the first couple created by the gods. Only of this royal family could leave the emperor and the highest civil leaders, military and religious.

On the death a sovereign, they met a Great Council, composed of nobles, renowned warriors and high priests, to choose among the sons of the deceased brothers, who would succeed to the government.

Every man could rise in the various hierarchies according to their merits. Thus was created nobility, **pillis**, which composed the royal court. They lived on the houses of two floors, they could hold more than two wives, ownership of land and slaves who worked them and send their children to **special schools, The Calmenac**, where they trained them according to their skills, in religion, science, arts and soldiers professions. Noble status was

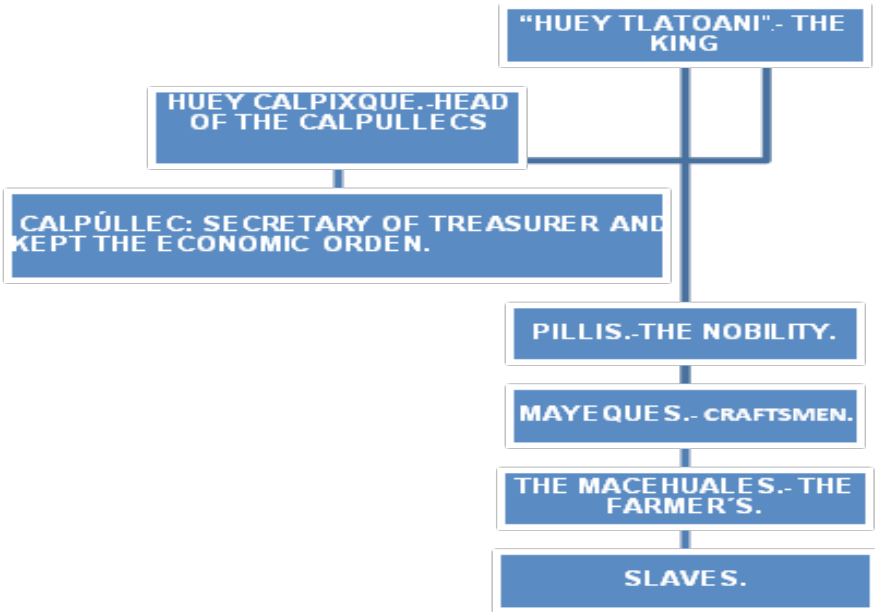
clings to the children. To ascend to it should be highlighted in their respective activities.

The middle stratum was the **mayeques,** independent craftsmen who were working in their shops of gold, silver, feathers, semiprecious stones and wood. These offices were usually hereditary, the product sold in the markets.

The **macehuales** or common people were those which had achieved distinction in any action. They worked the lands of their respective calpullis, educating their children inconformity to strict instruction still they were age of they enter school calpulli. Some were poor and were selling as slaves to the pillis; Slavery also be submitted to criminals, malefactors, and women of bad life. Of course the majority of the slaves came from women and children captured during the conquest. Aztec Slavery was a little rigid. The children of slaves were free. A slave could be declared free if he or she have children with his master (a) or were mistreated .An individual could be declared slave, if he attempted to prevent the escape of a slave.

Government - The ruler the Aztecs was the king or "Huey Tlatoani," a term that means one who speaks or Great Orator. Was elected, so that his government can be called an elective monarchy, on the other hand, was not absolute monarch, if not claimed for himself the possession of land or the people, and his administration was considered a democracy. The kings did not have this category by birthright (i.e. the eldest son of the ruler) but were elected by the tlatoani from the brothers of the former sovereign, or between their nephews if they did not have siblings. These tlatoani was the key figure of Aztec government. They chose the "noble" offspring, which in their opinion, was the one most distinguished for his courage and knowledge. In addition to those members, the clan was other elected officials, as Calpullec, played the roles of secretary-treasurer and kept the economic order, one of the officials who had assigned to administrative responsibilities, was the Huey Calpixque, upper calpullecs or the head of the calpullis.

JERARQUIZACIÓN DE LOS AZTECAS



Education: Aztec writing was mainly pictographic and phonetic hieroglyphics with variants. However, it was very common to learn texts from memory, such as poetry. They wrote their codices, unfortunately destroyed.

Religion: In the Aztec religion many gods ruled everyday life. These Huitzilopochtli (god of the Sun), Coyolxahuqui (the goddess of the moon, according to Aztec mythology, was killed by her brother the sun god), Tlaloc (rain god) and Quetzalcoatl was an ancient god, former the Mexican, of which there are several versions, for some it was the creator god of man, while for others it was a god of civilization, is considered: Son of virgin goddess Coatlique and twin brother **Xolotl**God; Just as introducer of the culture, **inventor of Scripture** he brought in the man, the agriculture calendar, associated with the planet Venus and with the resurrection and a patron of the arts and crafts

The Scientific and technological developments: They developed a pyramid architecture, which the conquerors used as the basement of the buildings, mostly of religious character. Sculpture was an art related to

architecture and contributed to give prominence to stately buildings. Painting, ceramics and are characteristic for its great beauty and splendor.

Engineering & architecture, cities such as Tenochtitlan had elaborate urban planning, officials responsible for maintaining the streets straight lines and tidy, had wastes collection services and waste. The Aztecs were very tidy the house of the upper classes had water and indoor bathrooms. Is reported that the palace of Montezuma; was more than one hundred rooms with private bathrooms.

The Iron known, but not steel, so that iron was rarely used because alone is lower than the bronze alloys. Their swords were made of wood with sharp blades of obsidian, capable of beheading a horse.

Philosophy, Astrology and the Calendar: The Aztec attached great importance to the time, which was registered in two calendars, one the 365 days, xihuitl, which was solar and/or agricultural composed for 18 months 20 days, plus five dark days and the account of the destinations of 260 days called Topalpohualli that had more character divinatory. This calendar I call Mayan calendar, although the great stone found "Sol Aztec calendar" call, do not forget that the Mayan culture is much older than the Aztec, using the calendar was what is most stood out from the Maya and the Aztecs. The destination of the men was carefully noted on it. Among them, the predictions and horoscopes achieved great development. By combining the civil and religious calendar, they could determine, among other things, the most suitable job for the person. Such determinism could only generate the Aztecs a permanent feeling of insecurity and anxiety.

The conceptions of the Aztecs about the universe reflect their tastes and inclinations to tragic sacrifices and bloody practices. The first sacrifices, the gods had to feed the sun bloody from the heart. The underworld comprised nine floors: heaven, thirteenth cases.

Administration: Each family was a member of a farming community. A group of these families formed a clan, and twenty clans formed a tribe, call Tenochas tribe. Each clan had its own elected council and chief, (unlike the Council of Administration of Justice), those who felt more experienced

and wiser or older, they chose to form a council inter-clánico, who was a connecting link between the clans and the governing body of the tribe. This council, at once, chosen among its members the four main or Tlatoani, who were advisers to the head of state and at the same time, voters of the king. The basis of the partnership was a grouping of organized families in clans, called calpullis. Each clan had certain autonomy: owned their land, their gods, their temples and an administration. They were led by a chief elected by the council of elders, and they sent a delegate to Supreme Council of Tenochtitlan. This council chose four military chiefs, who in turn elected the leader of men, as designated the Aztec emperor. In this way, this was not a hereditary office or given by divine power, but democratically elected. On the arrival the Spanish governed the powerful Montezuma.

Economy: The agriculture was the foundation of life of the Aztecs, the number of crop species was plentiful but the essential element was the corn. In contrast, livestock was very poor, since the number of domesticated animals was very low: the most important were the turkey and several species of dogs, one of which was to consume meat.

The Aztecs since most of these cultures did their business transactions through barter or using cacao beans as currency and precious stones, gems. They had great based power a solid economic infrastructure of and expansionistic character was stated whose foundation on the one hand, a rigorous system of taxation imposed on subject peoples and the other in an active and varied exchanges with those who were under his domain.

Their Tax systems, The Mathematics and Accounting that they used: The complexity of structure of Empire also brought complex administration accounting systems possessed able to correspond to economic activity. The authorities were enough information on their properties both the empire and its members of to have systems of both social and economic surveys in which the taxes levied were allocated to each zone. Thomas (1993) describes an overview of the Tribute of Moctezuma, with the "source the Codex Mendoza (1545), which is a good copy of (The Codex**) the Registration of contemporary Taxes** (c. 1511 to 1519). Measures are approximate, because

of the different interpretations of the original taps. Payments are made every eighty days. "(Pág.820). In describing the amounts payable on products such as feathers, clothing, corn, beans, gold, copper and various.

Existed officers dealing and of tax control commercial exchange by allowing to group: The Calpixques, in charge for collecting taxes in each village, who depended on a tax collector in chief, called Petlálcatl, who belonged to the group of tecuhtli, as mentioned in addition to those members, the clan were other elected officials, as Calpullec, which served as secretary-treasurer and maintaining the economic order, one of the officials who had assigned to administrative responsibilities, was the Huey Calpixque, upper Calpollecs or Calpullis chief.

In the complexity of the Aztec society was developed private initiative in commerce arose the figure of the Pochteca or dealer, who in particular form developed the Activity Accounting and thereby the formation of professionals of accounting because it required a good number of staff that will help in the records and controls business. The results from these will come to settle on the Codices, which are unfortunately destroy and wiped them out, in most cases in the same way that happened with the Maya Codices.

The Incas

The beginning of the history of The Incas was based with de God of Creation, TiciViracocha, who left the Rio Titicaca. People who lived nearby had offended the Great god, so he destroyed the people and turned them into stone. After this, Viracocha, created the Sun, Moon and new forms of human life to be distributed to different sites along the West coast of South America.

The established a vast empire in The Andes in the fifteenth century. They were great conquerors, his empire stretched from northern Chile to Southern Colombia, covering the current territory of Bolivia, Peru, and Ecuador to The Pacific Its territory was situated in part on The Andes.

The foundation of empire is attributed to the Inca Manco Capac in the thirteenth century. It was resulting from the fusion of three cultures that preceded it: The Tiahuanaco (1000 - 1300 A.C) in the region of Lake Titicaca

(Peru-Bolivia) and La Nasca, in the southern part of Peru and the Mochica-Michu the northern coast. The Incas were a caravan of emigrants in the late the twelfth century fleeing Taipicala (Tiahuanaco) to seek refuge.

At its height, the Incas could be compared with the ancient Roman society. Successes of the Incas assisted them to dominate an enormous area of South America. They constructed roads, between the kingdom of Ecuador to the southern border of Argentina and Chile, creating an extensive system communication. Throughout each road had messengers or "Chasquis" to carry posts by back and forth with impressive efficiency. The network of roads contributed to success of the Inca simplifying efforts of the government to manage the empire. Although the empire was great and progress, they flourished only for a short term. Starting about 1450, would last less than a century.

In 1532, Francisco Pizarro and his companions reached from Panama at a time of civil unrest for Inca, Huayna Capac, the ruler of those times, had died and had left his kingdom to one of his children, Huascar. This enraged the other child, Atahualpa, who defeated to his brother murderer and, so the last emperor Atahualpa he was murdered by Pizarro in 1533 in the town of Cajamarca and thereby made its invasion in that year and 18 of January 1535 founded the city of Lima. Pizarro exploiting the weaknesses of a culture of civil war, attacked and killed Atahualpa, spelling the end of the Incan Empire, melted all of the gold the Incas to take him.

Economy: This was run by the state, was primarily agrarian and based on crops such as potatoes and corn. The land belonged to the state and divided each year among various social strata. They don´t have private property. To the aristocracy gave it the best lands were cultivated by the manual worker or purics.

Employment: They were highly developed, despite the construction of an extensive network of roads, because they not known the use of the wheel. Neither knew what the currency used barter work, the use of some seeds, such as cocoa, no doubt also use gems.

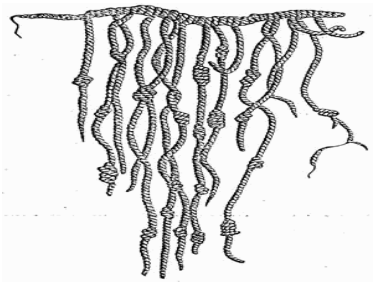
Scientific advances, Roads, which was highly organized human hive that can be seen today in the ruins of its capital, its roads and terraces built for their irrigated crops. It stretching for miles, it down the mountains in successive contours sometimes built platforms on slopes of 45 degrees. Were irrigated by an extensive system of canals, aqueducts and dams, stretched across the mountains, whose flow was tightly controlled by imperial officials and fertilized with guano brought from the coast in these cultivated over one hundred plant species, most originally domesticated them.

Government; to manage better so extended a territory, the Incas divided in four regions which departed from the capital city, Cuzco, Chinchasuyu, AntisuyuConstisuyu and Collasuyu. These zones were divided in provincial and towns consist of "ayllu". Inca emperors were able to sustain and developed their extensive domain, it due to concern about the welfare and the happiness of his sudden, was unknown hunger nor injustices acute, here has it been known Paternalist Empire, well organized and efficient. While the Incas did not have a writing system, had a complex method of accountability and file called "quipu"

Weaving was none other arts with much meaning. Like their government, the tissues were very well organized. Use brilliant colors and geometric patterns as decorations, the tissues were worth far. Moreover, trade was based upon exchange of tissues. Some tissue revealed labeled some events which might be interpreted as a kind of writing.

Mathematics and Accountancy:

The Quips. - Although they had no writing system, they had a complex method of account and file called "quipu". That was a set to record data use knotted strings. The nodes indicate the units ten, hundred, thousands and ten thousands. The loose cords were attached for a cord which hang thicker (as a belt) to record information as harvesting and storage capacity. Those quipus were very complex and were handled by quipucamayocs or an accountant. Between the well-known quipus are a variety from size and complexity, then ranging from very simple to those who have over a thousand strings.



Representation of a quipu

"Knots are more numerous than the stars; and equally that mysterious and beautiful"(John Turner 1988).

The quipu (Quechua: khipu, 'knot') was a mnemonic systems with woolen or cotton cords and nodes of one or several colors. Although know that it was used as an accounting system by quipucamayoc (khipukamayuq), scholars the Inca Empire, could have been used as a form of writing this hypothesis argues Burns.

See the difference between nodes and meaning, quipucamayocs using different sizes and colors. For example a yellow cord meant gold one white: silver and one red: soldiers, brownish: Government, crimson: Inca, Purple: curaca, green: conquest, red: Guerrero, black: time.

Examples of quipu node´s. (Turner, S. 209)

The Inca quipus are old mnemonics an instrument that consisted of a long string, from which hanging 48 secondary strings and several others subject to the above. The knots which were made in the ropes represented the units, tens and the hundreds, and the lack of nodes the zero. Consists of

a main cord, without knots, from which usually depend others knotted and of different colors shapes and sizes the colors identified as sectors and the quantity-calls nodes pendant cords. May have cords without knots, and also ropes which do not flow to the main but secondary (branch streamers).

Contemporary scholars they think which the colors and maybe the form of twisted the strings indicates the objects, while the knots would refer to quantities, including the number zero.

Note that the quipu knotted only **the results of math operations made previously in the abacuses or yupana**. Those abacuses would be carved in stone or clay. They both had lockers that corresponded to Decimal unit and is counted on the assistance of small stones or grains of corn.

Marcia and Robert Ascher examined several hundreds of quipu, noting that most their information is numeric. Each group knots is a check digit and there are three major types of nodes:

a) Simple, node a turn (represented by an s in the system for Ascher).

b) Long, consisting of a node with one or additional rounds (represented by L in the system Ascher)

c) The form of 8, (represented by E in the system Ascher).

On the system of Ascher one fourth type of node, figure eight shaped with a one extra lap is represented by EE.

One number is represented a sequence groups of knots in decimal base. The powers of ten are displayed a position throughout of the chain and this position is lined between the chapters.

The digits on decimal places and for the higher powers are represented single knots groups of (e.g., 40 is four knot at a row at position ten).

Digits in positions of units are represented by knots long (e.g. 4 is a knot with 4 turns). Because of the way in which nodes are attached causes the digit 1 cannot be shown in this manner and in this position is represented by a figure eight-shaped.The unit's digit is displayed in a distinctive way; it is clear where an issue ends. A chapter at one quipu therefore may contain various numbers:

The zero is represented by the absence of a knot in the proper position. (Represented through an X on the system of Ascher)

Examples in the system Ascher:

The number 731 would be represented by 7s, 3s, E

The number 804 would be represented by 8s, X, 4L

The number 107 followed by No. 51 would be represented for 1s, X, 7L, 5s, E

This reading may to be confirmed by a fortunate fact: the quipus regularly contain sums in a systematic way. For example, a string may contain the sum from the following strings and this relationship is echoed throughout the quipu. Sometimes, there are sums of quantities.

Some of the data not numbers but so the Ascher calls it numeric labels. They are composed of digits, but the resultant number seems to be used as a code, such as those that we use to identify persons, places or things. Due to the unknown context of

The single quipu is hard to guess what these code mean. Other aspects of quipu would have also provided information, e.g. color coded relative location of the strings the spacing and the structure of the ropes and secondary chordae.

Accounting: Is known from its use accounting officer record (censuses, harvest) and investigates on their usefulness as a system for linguistic representation of memory and (history, songs and poems) and also to count their cattle.

Accounting

Illustration of chronicler GuamanPoma. The first new chronicle and Good Governance (c. 1615).

Macera says "the quipu was a matrix component of Inca culture and the political control resulted in part because across them could carry a calculation of the people they controlled. To count, also rested on use of the abacus yupana or Inca, of which known to exist by the historians, but not its the specific management, although today has adapted as an educational tool to teaching mathematics at in intercultural projects in Peru, Bolivia, Ecuador and Dominican Republic.

Engraving of the sixteenth century show a chasqui, Messenger Inca quipus at with a his left hand

As possible writing, The Andes was unknown with characters about a write surface area, as it is understood in the West, but those quipus appear to have been an effective tool at administrative tasks mnemonic of Inca civilization and might have served as a reminder events that occurred.

It is postulated that they were equivalent system of writing as it is possible to reach over 8 million combinations thanks to the diverse colors of strings, the distance between strings, position and type of knots possible. There are a few away Andean towns who mention having "written" on the quipus in your area.

Burns suggests that the quipus was a writing books alphanumerical number where the each knot represent symbolized one consonant from the Quechua language and, in turn, have an equivalence with the geometric designs friezes used textile and the pottery, which them also turn into texts Inca scripture.

On August 12 2005, Science magazine included the story "Khipu Accounting in Ancient Peru" ("with Quipu Accounting in Ancient Peru") of an anthropologist Gary Urton and mathematician Carrie J. Brenzine, whereby the first time had been deciphered a nonnumeric element in a quipu: a sequence of 3 figure-8 nodes at the beginning of a quipu that might mean a toponym for the town of Puruchuco.

Quipu; from the collection the Archaeological Museum Rafael Larco Herrera; Lima, Peru

Quipucamayoc - The Accountants

It is known that only government officials know the use of quipus. These were called quipucamayoc (khipukamayuq in Quechua "responsible for the quipus", plural: khipukamayuqkuna). They were supported by the qullqakamayuqkuna, commanding the warehouses or dairies. Usually the kamayuqkhipu were an elderly male, while the Qullqakamayuqkuna was an old woman, and both have been probably youngest partner. Were the persons responsible for recording these events and pull any statistic of a complex State Inca two million square kilometers and more than 12 million people. The quipus were known by the writers, who spoke carefully of them and employed the information contained in, performed and supplied by the khipukamayuqkuna, specializing in its handling: Equipment's They are few memorials or recordings made of branches, which diverse knots and different colors signify different things. It is amazing what reached in this way, because the books may say of stories and law development and ceremony and of business accounts, all of that the equipment so punctually supplement, they admire.

They were used by Inca Empire to register the population in each of ethnic groups delivered their workforce through "mita" (Quechua, "of shift work"), and stored in the colcas (Qullqa) for which each deposit had his khipukamayuq resident.

Cieza de Leon points out that every provincial capital had a khipukamayuq who manager all accounts, including those related to textiles. In accordance with the significance of some these accountants warehouse could have belonged to the lineage of the Inca.

Deletion and destruction: The Spanish conquerors rapidly abolished the use of the quipus (Murillo de la Serda. 1589). The conquistadors believed some quipucamayocs remained loyal to its originals governors instead of king of Spain by sending secret messages. Like the conquistadors carried out policy of converting the indigenous people to Catholicism, all that represented the Inca religion was regarded idolatrous by believing than few conquistadors quipus were things of devil, and so were burnt and destroyed.

The Mayas

The Maya. Origin, Proceeding for Cultural Development of the Maya: One high culture occurred in southern Mexico, the Mayans, taking and their place in the Universal History together with the Egyptian, Assyrians, Chinese and other cultures who also left a record of his dynasties, battles and other significant events in the life the human being, leaving a legacy to mankind. "Little is known in Europe of this amazing past, it was not until 1773 by a canon of Bishops Village of Town Real de Chiapas, Fray Ordonez heard a rumoured that, hidden in the jungle there was a city abandoned and goes staggering proportions. In a true colonial spirit, he made his parishioners on a palanquin carry for almost 112 kilometres to the alleged placement of this lost city. There covered in full with a forest vegetation, it was of the more astonishing Mayan cities, Palenque. "(Gilbert and Cotterell 2003 p 32)

What distinguishes to Classic of The Period of 300 to 900 AD was the significance of the urban centres and its structures at the religious lives of the Mayans and the extent of the literary culture from reading and writing.

The other way to identify the historic process is through the dissemination of certain styles of architecture, which include the different paths (stone, plane column) and curves arches and culture, this is called the Early Classic period (300-600), The Late Classic period (600-900) is marked by the flourishing of Maya cultural in more than ninety cities. The dome always implied new layers rock representing new layers of the underground world; Key to vault about setting obtained by forming an item of the most bizarre at Mayan of cosmology, another identity is spreading the use of writing. The socialized in scenery is populated with Mayas supernatural entities to that must be taken in mind for also involved in mental construction of the space: of atmospheric elements (wind, storms, rainbows, rain) celestial bodies, spirits and deities (souls, friends, ancestors, saints, masters of the world and animals, goblins, ghosts, etc.) "(Breton 2003)

Trade and business operations: "For the marked geographical and ecological differentiation, different regions of the Maya area apart from commodities grown in all it was necessary to exchange and this was done

in most cases the small domestic trade, local or regional through barter, but when it came to major operations or distant character was done in most of the cases, citing the intervening or intervening currency precious stones (jade beads), sea shells, feathers of exotic birds of beautiful colors, most common being the use of cocoa beans. "(Ruz, 1999).

In its business operations as currency also they had cocoa beans. Diaz (1997) confirms this when he remarks, "we came from distant lands and were vassals of a great emperor Don Carlos is said by vassals which has many great lords and caciques, and they owe you have the Lord and that they would be very good at it, and to exchange that those accounts (sartalejos of green beads and glasses and blue diamonds) given food and chickens. It also has been identified in the region of Central America, quetzal feathers were a cherished value playing an important role in the market.

"De Landa writes ("that being this religious and author of this work, in that land, a building was found disrupted (a Mayan pyramid destroyed) a large jar with three handles, silvery painted by a fire outside and inside ashes body burned and some bones of the arms and legs, very thick with wonder, and three good stone from which the Indians used for money."Manifesting with this that the Maya also used some gems as currency.

The commercial mariners Maya: At the time, along the coast of the Yucatan peninsula, Belize, Guatemala and Honduras, there was a heavy traffic of ships covering the maritime route between the two extremes of Mayan World, like numerous port calls at various points of the journey. "The merchants, who were accompanied by slaves or chargers constituted a strong and most influential social class. In codices are depicted with an array as symbol, also wore ceremonial staffs. They even had their own god, **EkChuah**, the Protector, in honor of who performed a ceremony of thanks at the end of each day sailed. "(Morales, Inter.)

The language, writing and representation jeroglífica.-Thompson wrote: "They know 15 major Mayan dialects spoken today and two more that died not long ago. Some have subdivisions that are mixed with each other. They form a group that could compare with the group of Romance languages.

Some of the Mayan languages are most closely related to that between Spanish and Portuguese, others are more or less the same relationships that are between the French and Italian. With a good foundation can speak of two Mayan languages: upland and lowland.“ (1984, p 43)

The origin of Maya Writing: “Not all Mesoamerican peoples came to possess a full script, fully capable of representing sequence of thought and the expression of the word. It fell to the Maya investment such accomplishment with characteristics to them characteristic and exclusive. The epigraphers investigations of have demonstrated that since of the Classic Period and possibly since previous centuries the Mayas was the owners of a hieroglyphic writing syllable in character logo for. Mean that devised glyph or characters represent a word or thought (“logos”) and others registered syllable phonetic. Combined, these comprised the script of words. Occasionally syllable the glyphs entering combined with the characters “logos”. Various forms of structuring took on the character “cartridges” that is made up of items, as had occurred also in Egyptian writing “(León-Portilla 1996 p 12).”It should be noted that these two languages (Yucatec Maya and Lacandon Maya) are but some of blackjack that still spoken now (1986) in the Maya area, of twenty Mayan towns, which are distributed the states of Chiapas, Tabasco, Campeche, Yucatan and Quintana Roo the Territory of (in Mexico, Belize, Guatemala and western Honduras.” (Sodi: 1986). Thompson he found fifteen Mayan languages, speaking from twenty Sodi; Coe described thirty-one.

The writing system of the Mayas consisting in numerals and glyphs, The early may be written with dots, bars and a kind of stylized shell, which respectively have a value of one, five and zero or with what are known as << variant of >> or << variation heads full body >> , which are human representations or animals. Hieroglyphs, in turn have been classified in two types according to function: the main ones larger ones, are at the center and affix positioned above, below, forward or within main glyph. The joining of two or more taps is a cartridge and group of these consist prayers in turn gives rise to the texts. Usually, the order of reading from left to right and top to bottom of two cartridges in columns.” (Valverde, 2000).

Thus the statement of this part of work, we want identify what the Mayans have left no writing in codices, paintings, stelas(wakes o trails), buildings (walls, doorways, lintels, jambs, cornice, stairs or steps, treads and steps) and provided rich textures materials that like shell, cotton, ceramics and objects made of various jewelry made of stones of great beauty, such as jade and obsidian. Primarily as regards the Accounting that and utilized as it expressed.

They developed the most complete system of writing of all American indigenous peoples. They wrote with him all types of texts: medicine, botany, history, mathematics, astronomy. This day there are precedents, thanks to their difficult climb might not be destroyed, us are providing ourselves opportunity to teach More On the great culture. For the Mayans and the other cultures of Mesoamerica, oldest scripture is tightly linked with the calendar: historical events following a chronological order.

The start of the study Maya writing: Since beginning the study of our ancient cultures has awakened emotion that overwhelms the search decipher these glyphs, the same that a small group of researchers are have striven to find their meanings, but to date has not found the formula to transcribe, interpret or read full text "Often we can understand the meaning of various passages, but we cannot read in the spoken language as they would native speakers" (Marcus 1979, p 35).

Förstemann was one of the first to decipher the Maya hieroglyphs, who study and published in 1880 clarified the Dresden Codex. This book Maya Postclassical probably dates from 1200-1250 AD, although some think that is a copy of a book much earlier. I also do a study on the other two existing codices are named same as the city where they are located; The Madrid Codex and the Codex of Paris, later, I dedicate a space to the stone inscriptions of archaeological sites the Maya. With the data was possible in 1894 propone to read the dates on these monuments and identify taps period and their relationship to each other. After combining the study conducted on Codices and the wakes, trails o Wakes found the way it worked Mayan Calendar.

The writing system consists of the Maya numerals and glyphs. The first can be written with dots, bars and a kind of stylized shell, which respectively have the value of one, five and zero or what is known as << variant >> or << variant head Length >> , which are representations of humans or animals. The hieroglyphs, in turn are classified into two types according to their function: the main ones being the larger ones, are at the center and affixes placed above, below, below or within the major glyphs. The union of two or more taps forms a cartridge and the set of these comprise sentences which in turn give rise to the texts. Usually, the reading order is from left to right and from top to bottom, two cartridge columns "(Valverde 2000, Pp. 32 and 33). Hence the title of this part of the work, we seek to identify what the Maya have left written in the codices, paintings, wakes, buildings (walls, doorways, lintels, jambs, cornice, stairs or steps, treads and steps) and offered richly textured materials such as shell, cotton, ceramics and objects made of various jewelry made of stones of great beauty, such as jade and obsidian. Mainly with regard to the Accounting and used as indicated. The developed the most comprehensive writing system for all American indigenous peoples. They wrote all kinds of texts: medicine, botany, history, mathematics, astronomy. Today there is a history, thanks to its difficult ascent could not be destroyed, we are giving them opportunity to know more about this great culture. For the Maya and other Mesoamerican cultures, oldest scripture is tightly linked to the calendar: historical events following a chronological order.

Later, in 1905 J. Thompson Goodman published a paper in which he presented the first correlation of the Maya and European calendars; In 1926 Juan Martinez H. confirmed the correlation; in 1927, J. Eric S. Thompson checked with data from lunar and Venus cycles. Today it is well known correlation Goodman-Martinez-Thompson to the sum of their efforts. "In 1949 there was a big change in the environment of this area because the Mexican scholar Alfonso Caso was able to establish is a correlation between Mixtec and Christian dates, and link ancient Indian dynasties" (Marcus,. 1979, p 35). In 1958 he was struck by the Maya hieroglyphic information, other than that

referred to the calendric information; Heninrich Berlin discovered that every main Maya center had determined that a glyph used many times in their texts, but rarely used outside that place calling them taps emblem <<>>, and it emerged that were names of the sites, dynastic or perhaps tutelary deities. Those taps representing geographic terms

In the early 50s: La Universidad Nacional de México established the Seminar the Study of Maya Writing (SEEM), resulting in the development of several books, the No. 2 was called "Attempts Reading Hieroglyphs on Maya Codices," highlighting the performance of J. Eric S. Thompson and SEEM. Emphasizing the use of **affixes**, which is an "element that is placed at the beginning, middle or end of words to alter its meaning or function" (Barthel 1969, p 8).

Later Proskouriakoff leave us a legacy of many Mayan monuments describe local history, as are the births of nobles, came to the throne of kings, and death of these, I take a considerable material here to make your timeline the Maya. Some features distinguish the other old Mayan Mesoamerican culture, but especially, that attracting between the scouts, students and researchers has been the Maya hieroglyphic writing.

As we enter twentieth century the situation worsened for the alphabet soup which was added a new set of graphics, including orthography practice developed, on the one hand by the linguists and secondly, by the translators of Bible . When to the already confused situation added an international the phonetic alphabet we ended up with a few systems that used diacritical marks, with others that did not use them with nearly as many ways of writing the word Maya with Maya languages and Mayan world researchers there areResulting the same word often written in more than one manner in the same document" (Freidel, Schele and Parker, 1999 p 16).

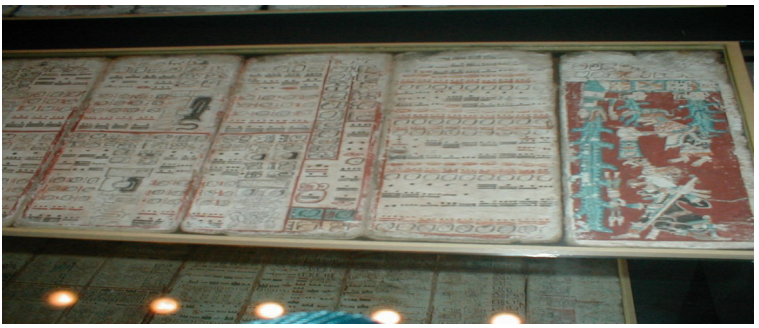
Our system this is also on the basis on phonetic spellings compared to in Maya writing this appears to be quite simple. All of our words are made from some combination of just 26 signs which list all words we name alphabet. On the contrary all Mayan words are done by some combination nearly 800 signs, every sign represents a syllable. This list of signs is single

program called alphabetically of spelling or Syllabus, “from Greek Syllable, book title, label, and table of contents.”

Twenty six signs against hundred signs. Does that sound impossible? Not really, as you can see the next syllabify whereas a sign our alphabetically may represent merely a sound; writer Maya may select various different sign for representing a sound. For instance, there is almost five distinct sign to represents the Mayan syllable of ba: Notice that the syllabus contains are only about 100 of 800 possibilities.

The following Sylabario the characters or the signs are shaped doing combination a consonant in particular of the five vocal a, e, i, o, u. Whether a writer Maya wants describe the act “writing” (or tz’ib ‘in Maya) on scribe could select from several signs for become a sound. Forexample, thiscombinationmay be chosen:(Fundación para el avance de los estudios mesoamericanos)

The codex’s



Codices: they are canvases "That writing their books on a large sheet bent in folds that permission at shut the whole between two tables that were made very galanas, which write the one side and of the other two columns according were creases, and that this role would doing from roots of a tree (Ámate) and that gave him a blank luster in which you could write well and that some principal lords they knew these sciences **from curiosity**, and that for this was more estimates although not they used them in public "(Landa 1944). Reading this passage, one realizes the Lord ignored a lot of the true situation where the Mayans living, as who wrote Codices was hardly prepared.

"The Maya also registered on their books every particular of their lives, genealogy, history, learning, prescriptions for rituals, taxes, barter, mythology and world outlook of history, poetry and thought and maybe ambitions and dreams. Lot of information has been lost in the humidity of the tombs establishment in the jungle, but retain precious and revelator fragment from this inheritance in personal and public articles that they wrote over objects of stone and clay "(Schele and Freidel Pages. 50 and 51)

On his codices, displayed the accuracy of its chronological systems and its literature they realized their art as well as their knowledge in astronomy, medicine and botany. They had an order: each page was perfectly divided into sections of glyphs, numerals and figures. The color of the codices is remarkable, and emphasizes the use of red, black and Maya blue. Most of these were destroyed during the Conquest. Have been preserved to this day only four codices have been named after the city where they are: Dresden (Germany), Paris (or Peresianus) Madrid (or Trocortesiano) The Grolier Codex.

The restless spirit and the imagination without borders of the Maya were the impulse that carried them to abstract their reality and to reinterpret it from elements as elaborate as their majestic architecture, or so simple and precise as their system of numbering; these samples of their scientific development are connected in their nature and structure; they reflect the harmony that this culture managed to grasp of the cosmos.

EkChuak God of los Merchants

This figure is a page of the Codex Madrid representing the following: In the center there are four rows of glyphs calendáricos used for divination with two snakes symbolizing rain. At the top of the left is EkChuak the God of Merchants and central Ah Puch, God of Death, carrying rattles of rattlesnakes in the neck, wrists and ankles.

"Who wrote their books in a long folded sheet with folds that permission to close all between two tables that were very gallant, and who wrote a part and the other columns, as were the folds, and that this role would made from the roots of a tree and gave a white lustra which could write well, and that some of these gentlemen knew main science out of curiosity, and why were the most esteemed but not used in public "(De LandaPp. 1944. 96). Reading this passage is given an account that Mr. ignored much of the real situation in which the Maya lived, as it was very prepared the people who wrote The Codices.

The Maya in their codices, their holy books, recorded news, features and historical facts; did demonstrate the accuracy of their time and their literature and realized his art as well as their knowledge in astronomy, medicine and botany. As evidence, is needed to be keeper of knowledge to write codices, which is why the priests, belonging to the nobility, were responsible for typing; were called **ah ts'ib**: scribes, or **ah Woh**: painters.

They also were the only ones who had the power to read and interpret them as the way to do depend on the moment, the situation and to searchers-as well as the objectives in doing so. As you can see, the interpretation was

unique and never linear, which, by the way, hinders the decoding of the codices. In addition, as his writing has several signs to represent the same idea, reading becomes rich in expressions, but highly complex and codified.

The Dresden Codex, at the Library of University Dresden is saved one of the most valuable works of the pictographic documents Pre-Columbian Mayan of origin, that form the basis upon which the art of the interpretation of the hieroglyphs; It is guarded, a vault in a metal gate decorated with a good taste. Gateway to precinct where is the Dresden Codex.

The Dresden Codex this guarded in vault occupies the Center for Chamber joined by other exciting documents. On every glyph Maya texts it is itself a finished paint whose meaning not depend on no other therefore different elements comprising very significant experienced modifications in order to the resultant configuration is not just a balanced and harmonic picture, but they also exactly matches the allotted space.

<table>
<tr>
<td>  </td>
<td>  </td>
</tr>
<tr>
<td>It is guarded, a vault in a metal gate decorated with a good taste.</td>
<td>The Dresden Codex this guarded in vault occupies the Center for Chamber joined by other exciting documents.</td>
</tr>
</table>

According the recommendation that suggesting Prof. González Martinez that do some comparative studies with other codices posted by different cultures as La Azteca or others, "Although many learned and the Old World epigraphists have held that of writing of the New World is not can be compared to the scope of Middle East, often revealing their personal biases or lack of information "(Marcus Page 36.)

The wakes o trails. Mayan monuments are recorded life events of rulers exceeded mainly in visual pattern matching with the order of events in the chronology of individual lives. From this it follows the following hypothesis: They would be documents that were carved and erected in addition to directly documenting the spread of Classic Maya culture from one place to another will among other things information express some form of **accounting.** Proskouriakoff interprets these monuments as news of battles that are a part of the history it describes. In Mayan stele dates are inscribed in the form of a double column of hieroglyphs. These are read from left to right and top to bottom. The series begins with an introductory glyph and often ends with data on lunar cycles and which of the Nine Lords of the Night was ruled at the time in question.

Wake monuments, located in Cumalkan Campeche, Mexico.	

The Mayan calendar. - Tonalamatl is a period of 260 days in the succession of the 20 day names are repeated over and over without interruption, the same as that of the numerical coefficients of 1 to 13 immediately following the 1 to 13: and the 13 numerical coefficients are added to the 20 names so that, after starting interposing any of them, the next number in your order will be the next name also in their order and succession continues indefinitely in this way. Among these is the date expressed as the number of baktun, katun, etc. plus the date according to the Tzolkin (Count of 260 days) and the Haab (year 365).

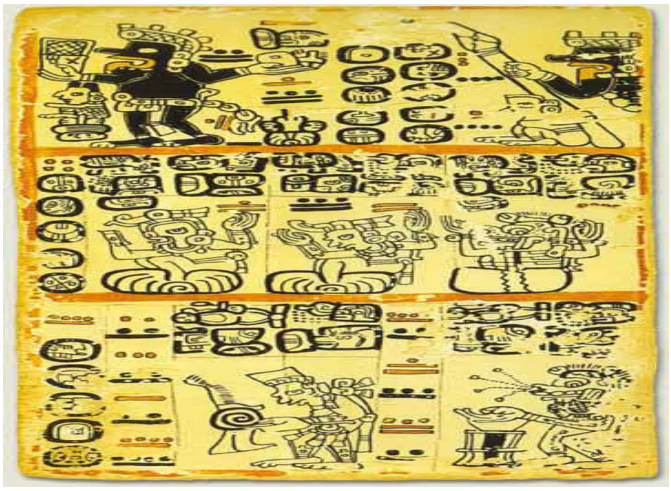
"The written history and preserved in hundreds of images on stone monuments and pottery, architecture, fossilized remnants of the rites celebrated in temples and villages, preserved for the modern Maya, a vision that reflects their heritage because it still makes sense in language and in their practices. The modern Maya are entitled to their past, because he lives in the present. So you cannot come from our world or our science, its manifestations and beliefs shed light on the ancient arts of their ancestors, and make us the gift of new knowledge about old cost "(Freidel, Schele and Parker 1999; Page 13.

Analysing a Codex page

For to try to read the graphic, first of all we divide the hieroglyphics in tree parts:

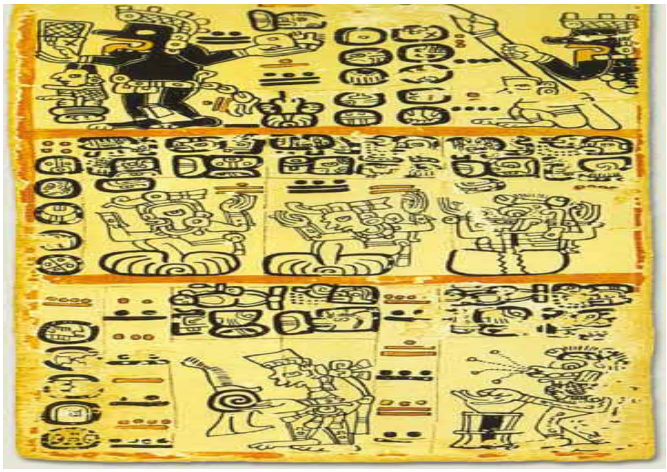
In the present graphic we can found a series of Mayas numerous that indicant quantities or dates also on the over part there are noble's figures.

In the first part we look



The number 4 	 **The number 6**	 **The number 12**	 **The number 13**

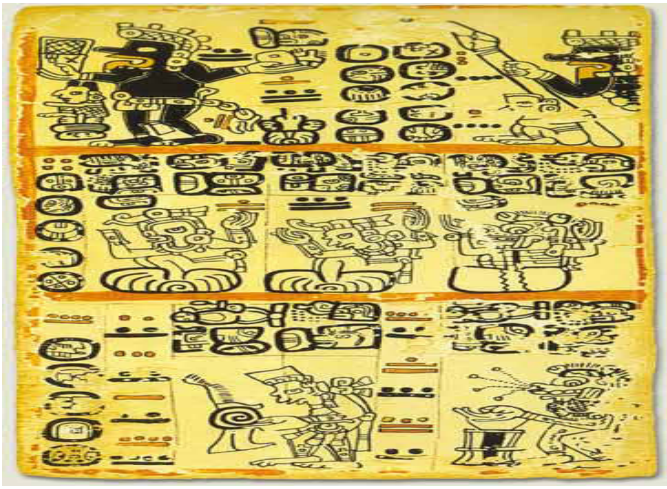
The second part we found:



 **The number 10**	 **The number 11**	 **The number 13**

Also you can identify the Ahau Day "The Sir Day." 

In the third part we can identify:



The number 3	The number 5	The number 7	The number 9	The number 11
				

But in this case we find **numbers with days of the week**, in this situation we should read for columns and by peers of upper figures downward, then with the following pair of columns of the left to right, as following.

 The number 9 and				

This situation invites us that we will treat other them The Codices lecture for decipher their context.

The mathematics. Unfortunately the mathematics.-on archaeological evidence we find any indication that the Maya system used to develop mathematical operations. The elaborate glyphs did not have to reflect the aftermath of numerical operations but will merely perpetuate the final results.

According to the customs of the indigenous peoples found that current regional Yucatecan Mayan ancestral use a system based on maize grains and tzité (The corallodendron Erythrina), using in particular colorin seed) . Héctor Calderón us that: "Other evidence that the test can provide is philological. Both Motul Dictionary, as Pio Perez and the most modern Don Emilio Solis Alcalá, we find that the Mayan language had words for the operations of addition, subtraction, multiplication and division: Sumar is said Buc-Buc xoc and sum- Xocil or cuch-xicil; subtract has several forms depending on what is subtracted, so subtract height and shrink is chichan Cabaltal cunah, multiply-xoc dzaac is said and division is hatzil or Hatzil or Hatzxocil. ". "With the Mayan number system could perform the four basic operations, helping to build it with the multiplication tables and the use of a kind of abacus consists of a mathematical grid or board, which was made of sticks, or painted on the floor, and used small pieces of seeds or rods to represent numbers. The type of grid used this culture can be called matrix scheme and it can perform all the basic operations (addition, subtraction, multiplication and division) and some others, such as obtaining roots. Thus the foundations of matrix algebra, begun to develop in the West at the end of the last century, were used by the Mayans centuries ago "(Garcés, 1982).

The numerical system and Mathematics:

Numerical and Geometric symbols: One party that I have tried to understand more broadly on The Maya, perhaps inspired by the profession of Public Accountant, is that of numbers and mathematics, so it will seek more material to reach understanding, I believe that for an Accounting its main tools are the numbers and mathematics.

"Everything is changing in time and place" this statement until the numbers as applies for traditional society such as the Maya, **the number concept differ diametrally** which of him might have a profane society like ours. It should be stressed since they were the traditional societies which created numbers as concepts of relation, his wise men and inspiring were obtained by revelation while the modern society has only advantage of them, distorting their sense and using them exclusively for its material purposes, ignoring its real meaning, its true essence.

We have denigrated taking into account only their quantitative values, denying **the qualities** of numbers, ideas and concepts that they express. Moreover contemporaries take our numeric code as a reality and given without pause to reflect on what they are saying this system. The numbers continue to express and expressing ideas.

"A metaphysical concept about everything that is numbered or who participates in the categories of the numerator, that is, what is nombrable, and finite future. On the other hand, these 'numbers' are the measure of all things harmonica and how they relate to one another. They are rhythmic patterns, modules and cycles that generate those concepts-in-the 'share' and reveal the 'figures' secret of the cosmos, in which they are active components. It is obvious that the unit does not respond to the same idea that the binary or triad, and not manifest the same thing, but now it is not considered by the horizontal and flat menguada vision of these concepts that we have to consider them as mere factors multiplication quantitative. Italian authorities also noted that these numbers refer to different energies and its intervention in the orderly universe, as has been said that they testify interrelationships of the creative elements-its waves, its vibrations, which are conjugated in the body

pad. Coming to a very simple example will say that even the least gifted know that is not the same be alone (one) that pair (two) or triangle (three).

The numerical system. - If in doubt from the nature and scope of mathematics were able to exercise the Mayans are formed two groups: A group who think that the Mayans are all that occurred was the fate of stars, principally the sun and the Moon, and remark that were obsessed to count day by day as when counting for to count; A second recognized the marvelous achievements representing the accurate determination of the astronomical cycles, the exact ratio of architectural constructions and the imagination progress implied the discovery of zero, the invention of the numeric positions and use of a systemvigesimal.

"His count is five in five to twenty and twenty to one hundred twenty and one hundred one hundred to four hundred, four hundred to four hundred and eight thousand and they used this account much for the recruitment of cocoa. Other accounts have very long, that extend ad infinitum counting eight thousand and twenty times a hundred and sixty thousand, and taking these double for twenty one hundred and sixty thousand, and after doubling and cash them for twenty to making a countless number, count on the floor or flat thing "(Landa 1994, pp. 120 and 139).

Landa also means that counted on the floor or flat thing that the Maya, even today, and according to the customs used to seed corn, that is ancestral in the PopulVuh in the passage of the Third Age: Training tzité men and women to make decisions Cibaque "Cast lots with corn and bean tzité (Colorines) and just be thrown luck. If you leave that can be done we labraremos, we tallaremos his mouth on her face stick "and was told the seers of the Sun and Moon (PopulVuh 2001, Pp. 25 and 26).

"Outpouring a concern to know which way it handled the corn kernels and tzité to perform numerical operations. It is indisputable that it was not simply symbolize a unity with each grain, nor even to simulate bars and dots. But the grains handling marks or chips to add, subtract, multiply and divide "(Calderón 1966, p.8)

"The numerical system of the Mexicans was vigesimal, but it included the zero, with which more precise calculations that in Europe could be done" (Huh Thomas 1994). On the other hand the Encyclopaedia of Cowles in its page 651 dedicated to history in the only photo that appears in this page the Aztec Calendar and on the foot of this writes the following thing: "A stone calendar invented by the Mayans who very were advanced in mathematics".

From the conception of a vigesimal numerical system, based on as simple signs as points and I sweep, the Mayans had the capacity to calculate the astronomical and temporary cycles, and they were made of the tools to administer its material goods of optimal way. Combined to the simplicity of the signs, the importance of the mathematical science of the Mayans resides in the creation of the zero, concept that remained like an incognito for other cultures by several centuries, reason why, without a doubt, the Mayan mathematicians headed the intellectual vanguard of the Pre-columbine cultures of Latin America in the land of exact sciences.

The zero and positional system in Mesoamerica

If one compares the dates of the discoveries and developments between the "advanced" and Western cultures "backward" Americas, as far as arithmetic is concerned, could be a surprise. To visualize the positional notation in the Hindu cultures in the first remember that it was not presented at the beginning of the development of its numerals, but appeared later. The oldest numerals that were found using the value of position and zero comes the year 876 AD, although there are inscriptions Arabs of the year 873 AD Indochinese and an inscription of the year 604 A.D. (Garces, 1982). In both cases you are confident that there is very influential Hindu.

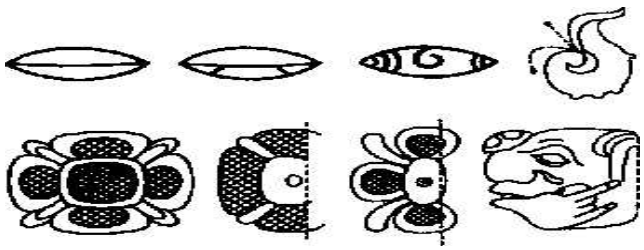
The Maya created the figure of the shell to represent the ten.

On the other hand, monuments, the Seventh Baktún already use numerals in the position, thus being the oldest in Americas with this feature. Among these monuments exist in the footsteps of Chiapa de Corzo 2 and C wake of TresZapotes that, being dated in the years 35 BC BC and 31,

respectively, above for more than nine hundred years the oldest inscriptions Hindus who use numerals with positional value, and for more than six hundred of the oldest in Indochina. If, consequently, we believe that in Europe such numerals are introduced to the year 976 AD (Willerding, 1971), then we have a difference of a millennium with the inscription positional oldest Mesoamerican.

All authorities of arithmetic know that without the zero symbol of a system of notation positional cannot survive properly, for which we must note that the zeros oldest writings of those who are known zeros are carved in the wake of 18 Uaxactún (belonging to the group of inscriptions of the Peten), dated AD 357, 519 and above by 247 years the oldest Hindu zeros and Indochina, respectively.

"One of the most important contributions, which inherited Mesoamerican cultures to humanity, was the concept and the symbol of **Ceros**,which was leading to the development of systems, and Numeric Metric Decimal, as well as the binary number system, After joined the graphic symbol of UN O (1), to form what is called: **Base 1 0** "(Velasquez; 2006 Pg. 1).

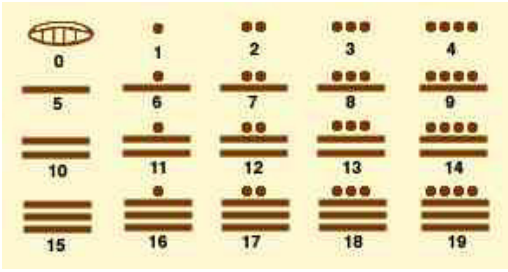


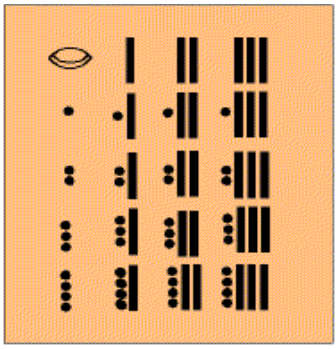
Some representations of Maya zero. In the top row as presented in the codices and the lower monuments (Garces, 1982)

In codices the zero is represented as a shell or a snail both of symbols associated with death, absence of life and end of one cycle, other variants such as the "human shape" show characteristics of the death and decorations concerning the gods of the underworld, while the hand traversed in the jaw meaning complementamiento or the hand binding days and years in do

complete and on the other hand the monumental variation has the shape a Flower calendric, which has been the a symbol of the sacred calendar, the emblem of eternity, of time and cosmic regularity. The Mayan zero appears as Xixim, the name of the shell that represents it.

Also, it is thought that the development of vigesimal originated by taking the basis of the 20 fingers that owns the human body, while the decimal takes only 10 fingers. The numerical Maya writing system is the most developed of the Pre-Columbian America. Consists of numerals of points (value 1) and bars (value 5), and a stylized shell representing zero. Besides the numbers, writing includes several hieroglyphic signs which are schematic and we also have variants (as well as the number 1 to 20, represented human and animal heads).





The symbols used also written vertically.

The punt has a numerical valueof 1 and the dash of 5, in this way we can count until 19. For to do greatest number (in the same form that we made number greatest that 9) they had pointed that signs in determine positions. The numerical system of the Mayas was vigesimal, that is considered the 20 as basis unit for the calculation every space hat advance in the number represent 20 times more that anterior space. For best comprehension we are compared with ours system.

Our system is a decimal system that is ours basic united of calculation is 10. We have whereas numerical signs for accounting from 1 to 9.If we want

count more that 9 need to play with the positions and other in second. The first position are the unites and the second, as like a decimal system, represent 10 times more that the first this is a quantity of ten In this way 25 we writing 25; 5 of the unites plus 2 unites for 10 (2 x 10 = 20). A Maya made follow. € " " the dash occupy the first position that are units and whereas is 5. The punt occupies the second position that signifies 20 times more that of the unities. Whereas one punt in second position is 20 (two points value 40).

This is confirmed by Cortes (2002) when he wrote: "And he asked the captain to the said Indians by the interpreter that he had, that was what people in the battle which had been found, and responding to the eight provinces that had gathered there had come, which the account and copy they had, would by all forty thousand men, and that even that number did they know very well to count."

"What I notice is that not only the common ground has lost any notion that the number is the sign of a quality that he represents and sets, a concept he states unequivocally, articulate and able to play with other concepts, but even the current mathematical-supposed-known scholars to date the true burden conceptual and managed with quantitative criteria, the same as those of the market, although expressed in algebraic terms, mainly suitable for the commercial and materials but not for the Knowledge. "(Gonzales).

The traditional arithmetic geometry, corresponding to numbers with and geometric shapes; to form additional the symbolic codes manifesting concepts identical, correspondence and analogies. In the first three numbers are summarized all the others. From the union of the unit and is reflected binary, i.e., the triad are others, and this primordial triangle all forms arise. There are also traditional civilizations is a direct relationship between numbers and letters. To the extent that for many alphabets, numbers were represented by letters and had no specific signs. In the case of the ancient pre-Columbian cultures that did not know the alphabet, but we want to stress this correspondence because both the numerical code word as the describe all reality, that is, whatsoever is nameless or countable in the sense of 'figures 'harmonic measures,' proportions'-in short, the entire cosmos, the knowable. (Gonzalez, Cap. XIV).

This triad always been regarded as sacred, as the unit, binary and generally all numbers, by their very specific attributes and property which are manifested in his triune nature, which of itself is unavoidable expression of a principle. To wit, an archetypical made which solidifies in a series as representation ideas and energy that are materialized on a magical, mysterious, but by obeying precise laws and universal than numerical codes and geometric correspondences symbolize. Although these modules in its external expression were not the same as today, when we deal with the recent Arabic notation, the archetypes are identical to both refer and equal laws of the cosmos, for all times and places, and one model of the universe. It will then Western numerology corresponds perfectly with the Indian, though the latter was commonly vigesimal-and therefore also decimal-taking both as a common basis the number five.

These five base numbers, common to several people, but especially indigenous and Christian, which is the issue that concerns us. Something we have advanced on the triad, as a form or archetype basic concept present in all things manifest, which are generated by multiplication (Gonzalez) also affirm that it is produced from the amalgamation of the primordial unity with his own reflection and add to that fact, which is designated successively (1, 2, 3), is actually simultaneous and eternal, and he came all the numbers, that is, all manifested beings. Let's now something of the unity and binary concepts are the foundation and source of all civilization and traditional culture, including American " (Gonzalez, Cap. XIV)

Indeed, if we consider two energies symbolized by the high-low, a further upward and downward, we will find that there is a neutral, common to both, where there are no objections. The center or medium in which complement the contrary creates a plane (or world) where this combination occurs, which is a reflection of the original unit metaphysics that led to the manifestation of the arithmetic unit represented by the number one or geometric point. That is the point or center that generates the plane (or world) in question-in this case-Incan civilization acting on it as a reflection of the invisible axis, in other words, energy and active vertical condition of receiving horizontal to copulate

with her, thus creating a level (or world) referred, whose limits are constantly given by the same progression, although that may be considered indefinite is marked by its own laws numerical underway ad **infinitum.**

The number four sigma since the first manifestation of the three action-ontological or overriding principles in the universe (3 + l = 4), the plane creational and its limitations, thanks to which it can be formed or any object, and then assimilated the world and in particular to land. (The number 4 is equal to 2 x 2 or 22 which means all the possibilities of duality multiplied by themselves. Note that Mesoamerican civilizations in this progression is symbolized by the number 400, which equals 20 x 20, or the equivalent of the numerical series indefinitely)

Adding that the arithmetic zero is a concept that not only indicates lack of quantity or absence of identification numbers, but serves as a mechanism for position and order in the tens, hundreds, thousands, etc.., Allowing a large ductility handling and ease notations in the calculation of large units.

The Mayans knew zero and positional notation used in their figures, except that its system was vigesimal instead of decimal.

The binary is patenting in the myth of the founding of the Aztec city and the manifestations of this society.-

The quaternary as a concept demonstration creational, idea generation and limit, or as a form of land (figuratively by the square or the cross), is basic in the ancient American cultures, and we want to stress once again that the latter geometric shape is equivalent to the circle (a cross in motion generates a circle) as both symbolize the same plane creational, his face alternately in static and dynamic in its contraction and expansion, in its crystallization and expansion, respectively similar to the sound and the air, land and sky, or that both are complementary figures, as they are also the world (horizontal plane) and men (vertical axis). In that sense, with five the number of human beings as virtual center of the cosmic radiation, this number multiplied by the land or creational plane, the shapes of all the possibilities raised, the number twenty, measure or form ‘ Magic ‘common to different cultures and pre-Columbian civilizations.

Among the current Maya has been studied with regard to health body heat-cold syndrome, as two opposition contrary present in the entire cosmos-also identified as-dry-wet, to be supplemented to restore vital balance.

This how to measure energy extends to different types of diseases, food, herbs, etc. and is transferred to characters, events and situations. It is not derived from indigenous and medicine Hippocratic or the Arabic. Just as in so many other things, Coincides with other traditions in the archetypal notions.)

Between contemporary Maya has studied with respect to physical health hot-cold the syndromes opposition of two contraries found in the whole cosmos, also identified like dried and humid-, to be complemented in order to restore vital balance. This metric of energy spreads to different kinds of illnesses, foods, herbs, etc. and transferred to the characters, events and situations. It is not derived from native and medicine. Is native and is not of medicine.

Repeat: the circle and the square are analogous symbol that have been used by various societies with the same object or in a single society, alternatively or in combination, linked to the sky and earth to representing the two halves of cosmic model. Moreover, symbols associated with the circle and to the square or their derivatives run similar fate as well as corresponding, as is the case of the circular spiral-as representing the evolution and the exit of the squared-and the cosmos, which in the volumetric and constructive symbolism, are respectively building of the ziggurat (sig-gurat literally forest) and the pyramid as the possibility of a vertical climb, successive and staggered, revealed by the immutability of a shaft, which is the center and the origin of both monuments. We just want to emphasize-and thus end this chapter, a traditional culture that both the stars, like stones, plants, animals and men play a game of mutual relations, a dance of subtle possibilities that complement the rhythmic cadence in which they operate and are the one and the other setting the standards, measures of their relationship, combined in the number as a synthesis of archetypal sense that these ‘modules’, ‘action’, ‘figures’ and ‘proportions’ lead. And on this conceptual study to be the symbolic arithmetic and geometric pre-Columbian, and also be oriented any work in this direction. (Gonzalez, Cap, XIV)

“With respect to the number nine we want to highlight that for their intrinsic characteristics and as a component any set, in it introduced concept of circularity or cyclic. The same applies to your multiples.

We can mention that have been found four series of inscriptions this numbering system further developed, namely (Garcés, 1982):

“We have found four sets of inscriptions of this numbering system more developed, namely (Garces, 1982):

1. A group of former numerals of Monte Alban, (IV or V centuries BC)
2. A group of inscriptions of the Seventh Baktún, (the centuries BC to AD II)
3. Entries Kaminaljuyú, (I or II centuries AD)
4. Registrations of Petén, (III and IV centuries d.C.”

The mathematics. Unfortunately in the archaeological evidence did not find any evidence of the system that the Mayans used to develop their math. The glyphs developed at the steles, codices, walls, portals, jambs, cornices, ladders or steps that were not reflect the aftermath of numerical operations unless they were confined to perpetuate the final results, unfortunately have not been found history of how they operate.

In the aspect of mathematics few records have been located, except what has been interpreted the graph found, as most mathematical operations are active shares, so this time we will seek indirect background manifests itself as The Maya made their mathematical operations.

According to the customs and traditions of indigenous peoples has been found that current Yucatan Maya of the region using an ancient system based on grains of corn and tzité (Erythrinacorallodendron); using in particular seed coloring). To the Maya and having to know the numbers, they could produce an accounting of their assets, Hector Calderon tells us that: “Further evidence that it can provide proof philological. Both the Dictionary Motul, as Pio Perez and the most modern Don Emilio Solis Alcala, we find that the Maya language had words for the operations of addition, subtraction,

multiplication and division: Add states xoc-Buc and the amount Buc - xocil or spoon-xicil; subtract has several forms depending on what is subtracted, and subtract in height and shrink it is Cabaltal Chichencunah; multiply it says dzaac-xoc and division is hatzil or Hatzil or Hatzxocil. “

“With the Mayan number system could perform the four fundamental operations, helping to do with the construction of multiplication tables and the use of a kind of abacus consists of a grid or mathematical board, which was made of poles, or painted on the floor, and used seeds or small pieces of sticks to represent numbers. The type of grid used this culture can be called matrix scheme and it can perform all basic operations (addition, subtraction, multiplication and division) and some others, such as obtaining root. Thus the basis of matrix algebra, begun to develop in the West end of last century were used by the Mayans many centuries ago now “(Garces, 1982).

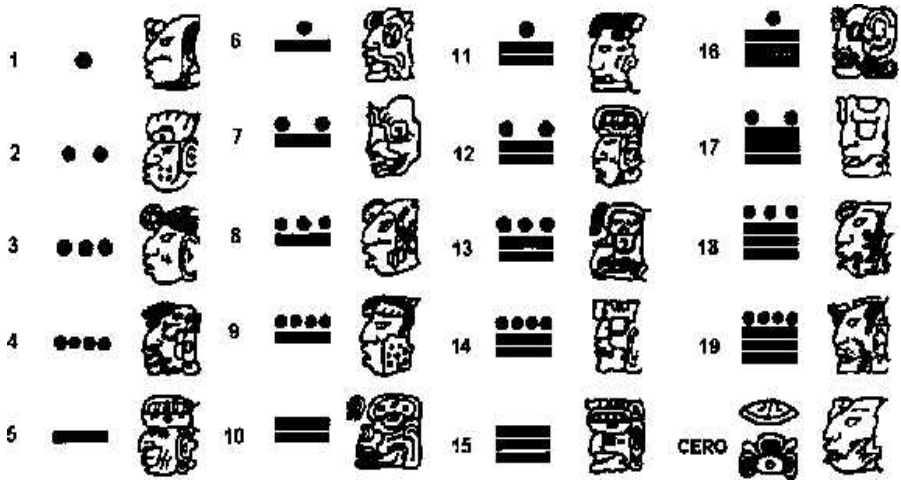
The mathematical achievements, and astronomical time made by the Maya, are among the most advanced ancient civilizations. They were the result of an evolution of consciousness, conceived as the movement of space, which appears to be at its core culture. For them the universe is not static but a reality in constant motion, which gives people the ability to evolve.

The numerical Maya writing system is the most developed of the Americas and pre-Columbian. It consists of numerals points (worth one) and bars (worth 5), as well as a stylized shell representing zero. Besides the numbers, writing includes several hieroglyphics, which are signs esquematizados and who also have variants (like the numbers from one to twenty, represented by heads of humans and animals).

In Mesoamerica the greatest contribution to mathematics apparently is linked closely with astronomical issues, mainly the calendar, and to a lesser degree with statistics, apparently all this by practical matters of daily life. Interestingly enough, for example, while in Europe the centuries XV V to the vision of the cosmos was generally a result of interpretations of a religious text, in Mesoamerica this worldview was based generally on astronomical and mathematical relationships.

Unlike what is commonly Cree, numerals written with points and lines were not invented by the Mayans, as there is evidence of its use in at least two monuments of La Venta (in the state of Tabasco), which ran from the 800 BC and 400 a.C. (Haberland, 1974), before the period in which it was developed Mayan culture. However, these numbers are presented in a way disarticulate and partial. Apparently, their development takes place within the Olmec culture in the area of Monte Alban, before being adopted by the Mayan culture. Nothing is known with certainty about their origin before this time.

The numerals Maya had two alternatives: the numerals or geometric normal, and numerals in human form, usually presented as anthropomorphic faces, although there are special cases where it occurs throughout the body (Garces, 1982). As shown in the following figures.



Numeral Maya (Garces, 1982 and 1985)

The first notation, the geometric, is made up of points, lines and the symbol of the shell. This is commonly known as the notation and disseminates Maya. Their use is simple: points represent units and five units of skates; can form clusters of points with a maximum number of four and rays have a maximum of three per cluster, this principle of using an addendum. It was handled in these way representations from zero to nineteen, as each position

is in the system of scores. However, the Codex Madrid numeral 20 is expressed also with the symbol of the Moon, which can be seen in Figure 3 (Sotelo, 1997).

Two representations of the numeral 20. On the left, as it appears on page 28 of the Codex Madrid (Sotelo, 1997), on the right, according to Thompson (1994).

The second notation, the variant face, is a collection of 20 glyphs representing faces displayed in profile. With notation is the Mayan numerals reached the maturity of the Hindu numerals because they are not used the principle but added that each issue was represented by a guarismo, albeit with the small problem of its complexity. Variants of faces were used almost exclusively on dating and numerals monumental, in which were together, usually by the same numerals but in geometric notation. According to Morley numerals notation in his head are based on figures from 0 to 12, corresponding to the thirteen deities of the world oxlahuntikú or higher, while the jaw of discarnateguarismo of 10 becomes the basis for forming the numerals from 13 to 19 to add that part to corresponding figures of 3 to 9 (Morley, 1983), The figures initials always have the same characteristics in different monuments of this sort that we have the numeral 1 is identifiable by the tuft of hair , Linked to the goddess of the moon; numeral 2 shows an open hand above his head and symbolizes the death and sacrifice; 3, with a headdress as a turban, symbolizes the wind and rain; has a 4 Sun sign to the right, the 5 is the face of an elderly, the 6 is easily recognized by the axe symbol that is presented in his eye, meaning rain and storm; 7 symbolizes the Sun night, the 8 symbolizes the god corn with a plant of this kind visible in his headdress; leads on 9 points in the jaw and represents a snake, with 10. As we said, presents the stark jaw, a symbol of death, the 11 displays the symbol of mountain-land and 12, which symbolizes Venus, wearing a “sign from heaven” on its head (Aveni, 1993).

To denote a quantity in this system positions are placed in a vertical rise from the bottom up, so that the figures representing the units are located at the bottom and it is growing steadily in power for 20 to ascend. Thus came to express the number 12 489 781, which is the larger number who are known wrote and which is found on page 61 of the Dresden Codex (Gortari, 1991).

The vigesimal Maya is worthy representative called the "long Account," which is nothing but the Mayan calendar calculations of the classical era, which dates determined based on the counting of days from the date that corresponds Maya to August 12, 3113 BC (0.0.0.0.0 4 Ahu 8 Cumhú as it now accounts), which coincided with the passage of the Sun by the zenith in Copan (Aveni, 1993).

This system is the unit the day, or kin, and positions are increasing in powers of 20 in 20, except for the second position, uinal, who is 18, because 360 (18 '20) is closer to the actual duration of the year. We must make the important observation that according to Morley (1983) this distortion is presented only in the calculations CALENDAR. After the second position followed again by multiplying by 20 to be nine time periods:

20 kines	= 1 uinal,	o	20 días
18 uinales	= 1 tun,	o	360 días
20 tunes	= 1 katún,	o	7 200 días
20 katunes	= 1 baktún,	o	144 000 días
20 baktunes	= 1 pictún,	o	2 880 000 días
20 pictunes	= 1 calabtún,	o	57 600 000 días
20 calabtunes	= 1 kinchiltún,	o	1 152 000 000 días
20 kinchiltunes	= 1 alautún,	o	23 040 000 000 días

The uinal could have been a lunar month reformed, since it contains the word "moon", while the tun means "stone", perhaps because each tun was marked in stone. On the other hand, baktún was originally called "cycle" by modern researchers, but it seems that his original name is one.

The representation that is currently used for the long Account consists of a set of five numbers from zero to 19, separated by periods. The letters between each data point to say how much in each of the positions of vigesimal calendar, with the longest period on the left and days (units) to the right. For example, consider this date expressed as 9.6.10.0.0, which corresponds to January 29 of 564 of our era, means that are 0 Kines, 0 uinales, 10 tunes, 6 Katuna and 9 baktunes, giving as l Total 342 800 days from the initial date. With this system came to make calculations calendáricos covering over 90 and 400 million years into the past two stelas of Quirigüá and 4 000 years into the future (Gortari, 1991).

Besides this interval of 260 days might have connection with other astronomical events, as the period of occurrences of Venus is 263 days on average and the period Synod of Mars is three times 260 days, to cite two examples.

With their number system could run the Mayas the four fundamental operations, as we do with the decimal system, for helping with the construction of multiplication table and using a sort of abacus consists of a grid or mathematical board, which was done with rods, or painted on the floor, and used seeds or small pieces of rods to represent numbers. By type of grid you used this culture can be called matrix scheme and it can carry out all the basic operations (addition, subtraction, multiplication and division) and some others, such as obtaining roots. Thus the foundation of matrix algebra, which began to unfold in the West at the end of last century, was used by the Mayans centuries ago (Garces, 1982).

The Aztec calendar had the same structure as the Mayan with the only changes in the names of the months and days. On one side were the ritual calendar, called Tonalpohualli, 260 days (20 signs pertaining to 13 issues) and it was mostly used to determine the name and fate of people born in those days and, on the other hand, timing civil, 365 days spread over 18 months of 20 days and one month (nemontemi or bad luck) five days. These two schedules were repeated after a cycle of 52 years, like the Maya, called xiuhmolpilli.

The Accounting

The Mayans, like the majority of the primitive groups, that later got to form nations, passed by situations like the following one:

The Historiography considers that the man of Neanderthal, in Germany, the being older than knows itself, perhaps one hundred thousand years before the Christ, but, evidently most similar to the present man is the man of Cro-Magnón, in France, 25.000 before Christ. Perhaps this man was nomadic, crossed the territory consuming what found and slept where the night arrived to him, in on some trunk under a cliff or a tree or in caves, an antecedent of this situation is the done cave paintings at the prehistoric time, that are in Altamira in the north of Spain, near Santillana of the Sea Cantabria, east of Santander discovered by the Spanish archaeologist Don Marcelino de Sautuola in the ceiling of a cavern.

These paintings have suffered some minor changes from 11000 to 19000 years when they were pit. The murals are not only illustrated signs that the man habit here. Tools, ashes and food remnant that has been preserved here for thousands of years.

Originally the man satisfied his necessities through auto-consume, extracted of the nature all those elements that he required to cover his necessities; soon it happened to the division of the work that is to say, I specialize in a good, same that it changed by those others that it needed; it is in this economic stage when it appears the commerce, first through exchange, but soon it is surpassed when a common satisfactory is born that it serves as unit of measurement of value and account: the money, element that gives greater speed to the transactions, thus arising what we could call "economic units", that is to say: the grouping of inherent satisfactory to a holder a patrimony. When these phenomena happen all, it appears a prevailing necessity, to help to the weak human memory in which it has done with those economic goods, is born therefore a chronicle of this patrimony, denominated in this chronic "accounting" **(**Gertz Manero, 1987).

"Way they become sedentary? Because it finds in these places favorable point to work the earth and to make produce it, this creates a place where it interchanges the produced goods; a market, is born the division of

the work, economic phenomenon that the necessity of continuous and reliable information generates; the market creates saving, its registry, the psychological sensation to protect it, like interchange of goods, at the outset is carried out through exchange, the Accounting, was in species". (GertzManero, 2005 p. 39).

They necessity an Accounting

The archaeological registry left by those old ones, as well as by the description of the Mayans done by its Spanish conquerors, as partial as has been, speak to us of a cultural inheritance that even lives in the present Mayan agricultural communities. Agreeing which much it has changed with the centuries, still it exists a basic connection between old Mayan and its descendants, as much as it exists between Old Saxon and English the modern ones. When examining the life of the modern villages we can recover at least one partial image of the life in those old villages.

From the technical point of view the first manifestations of the accountable discipline were assigned with greater proximity to the mathematical one, in special to the commercial Arithmetic (both disciplines served to the retailer in their still primitive activity, forced to calculate frequently on their businesses being used the four operations and coming to the suitable and ordered registry from their results).

The separation between commercial calculation and accounting is very diffuse, when considering itself both likes instrumental disciplines to the service of still a coarse mercantile activity that without a doubt did not need more complex tools.

The accounting is history

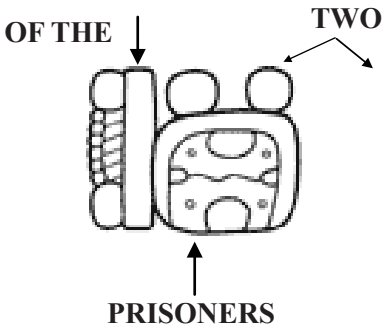
The accounting is the activity that it intends to register the facts or the transactions that are made yet and each one of the elements that constitute a patrimony, reason why it is required to take informs individual into each element that forms that patrimony, we can say that this is similar to the activity that takes I finish history, extender to this like:

- "Story of the events and the worthy facts of memory."
- "Development of the life of the humanity."
- "Story of particular events." "Description of the beings."
- "Painting of historical subject."

Or Then Haven in its book "The history of the accounting" remembers to us on which Huizinga thought on which it is History, nevertheless, a product of the mind, the image created by the intellect repeatedly again of the generation to the generation and the culture to the culture outside the primitive pieces of the past, in which its eye can penetrate that the high image, the forms and the lines of which the truth and the knowledge are formed by the unquenchable thirst for, that never its last source in this life finds. The accounting can be made in diverse forms as they are his hieroglyphics written them, and numerical the first form that we found in diverse the mural and wakes has found that, the second we found in histories or the narrations that writers have done; Hernán Cortes leaves a good example us in its "Letters of relation". The numerical one concludes is he, is with this form with which most of the people this who identify one, presenting/displaying the results through the financial statements.

Antecedent that confirms that the Mayans used accounting.

Hieroglyphic that shows to us that the Mayans had their Accounting. "Being still a adolescent David Stuar, it managed to decipher the hieroglyphic of <<the Number of Prisoners>>. The notary publics frequently included this sign between the name of the King and the one of the City, the number of men captured during the battle demonstrated how powerful the Monarch was" (Coulter, 2002, p. 32).



Others are in the background in several different graph that are at different museums, are those who say the outcome of a ballgame

"The archaeological evidence has not been discovered or recognized as such - some board grid, which serves to mathematical calculations. . . are so simple computer techniques that do not need more than a reasonably systematic order of numbers for a skillful operator run the most complex operations without risk of error. "

That is why we have not seen that the steles, and codices did not reflect the aftermath of numerical operations but they were confined to perpetuate the final results.

The Origin of the Maya Accountant

In the Mayans it is had in the calls ah ts'ibtoday known like write. As it is demonstrated, it was needed to be possessor of the knowledge to write codices; for that reason, the priests, pertaining to the nobility, were the ones in charge to write them. They were called **ah ts'ib: write**, or **ah woh: painters.** Also they were they only them that had the faculty to read them and to interpret them, since the way to do it depended on the moment, of the situation and of whom it thus consulted them - like of the objectives that it persecuted to make -. As it is seen, the interpretation never was unique and linear, fact that, by the way, makes difficult the deciphering of the codices. Combined to it, as its writing has several signs to represent a same idea, the reading becomes rich in expressions, but highly codified and complex.

It writes ah ts'ib, or painters ah woh: according to Mayan codex

They lived in palaces elite, composed and worked in imperial factories. Their works were for producing objects to be used in palaces and rituals and like gifts elite. Taking its traditions and patrons, he is not surprise who wrote and/or painted scenes of the life of the palaces and the ritual elite and ignored to the common ones when they described the World of the Humans.

The word **xok**in Mayan it means numeration, to count, and also to read, which ties to its texts written with the calendar. Like in all the traditions that have reached the writing, letters (or hieroglyphic) and numbers they relate and they correspond to each other.

AJ tz' IV' a (ajtz' IV') (T12.nn: 501: 314) > prep. "The one of the writing," or "writer"; artist title; it designates the occupation of a writer, painter, or artist in general <> (JM) Tnn represents a hand maintaining a painting instrument or writing.
Montgomery, John Dictionary of Mayan Hieroglyphics

Another one of the students of the Scriptures Saints of the Mayan Hieroglyphics was Professor John Montgomerry who wrote "the Dictionaries of the Hieroglyphics" in which we found following the meaning referring To the Accounting.

	**Xo-ki** (xok) (T536:102) 1> n. “Tiburón” 2> n. “contar.”
	**TZ’AK** (tz’ak) (T573) 1> v. tr. “poner en orden” 2> v. tr. “contra”. “incrementar” 3> adj. “todo”
	**TZ’AK b’u-li** (tz’akb’ul) (T573.21:83) 1> v. tr. “poner en orden ” 2> v. tr. “ “to count”, “to increase”
	**AJ-X-B’AK** (aj-X-b’ak) (a. T12.II:570) > prep. “Account of Captives” soldier title, meaning “the one of (x-number of) captives”; the “account of Captives” epithet a. “the one of both captive” b. “the one of five captives” c. “the one of five captives” d. “the one of the twenty captives”; indicates the number of individuals captured by the soldiers in combat <> (JM) Although the use is not exclusive, is very restricted in the Valley of Means of the Usumacinta River.
	AJ su-lu (aj sul) (T12.216:568) >prep. “The Administrator”; Title Elite.
	**AJ tz’i-b’a** (ajtz’ib’) (T12.248:501) > prep. “He has thewriter (el de la escritura”) o “Writer”; Artist título.

	**AJ-X-B'AK** (aj-X-b'ak) (c. T12.V:501.102) > prep. "Accounting of Captives" soldier title meaning "the one of (x-number of) captive"; the "account of Captives" epithet a. "the one of both captive" b. "the one of five captives" c. "the one of five captives" d. "the one of the twenty captives"; <> (JM) indicates the number of individuals captured by the soldiers in combat Although the use is not exclusive very is restricted in the Valley of Means of the Usumacinta River.

	**AJ-X-B'AK** (aj-X-b'ak) (b. T12.V:570hv) > prep. "Account of Captives" soldier title meaning "the one of (x-number of) captive"; the "account of Captives" epithet a. "the one of both captive" b. "the one of five captives" c. "the one of five captives" d. "the one of the twenty captives"; <> (JM) indicates the number of individuals captured by the soldiers in combat Although the use is not exclusive very is restricted in the Valley of Means of the Usumacinta River.

	**AJ-X-B'AK** (aj-X-b'ak) (d. T12.683ª:111) >prep. "Account of Captives" soldier title meaning "the one of (x-number of) captive"; the "account of Captives" epithet a. "the one of both captive" b. "the one of five captives" c. "the one of five captives" d. "the one of the twenty captives"; <> (JM) indicates the number of individuals captured by the soldiers in combat Although the use is not exclusive very is restricted in the Valley of Means of the Usumacinta River

Conclusion

Three different pre Columbian culture in both space and in time as: La Azteca (Mexico), La Inca (Peru) and La Maya (Mexico, Guatemala, Belize, Honduras and El Salvador). I Speak of these three Pre-Columbianculturesam to talk about populations which at the time they were very bright as distinguished from others because their systems, which became they true empires.

The complexity of structure of Aztec´s Empire also brought complex **their tax systems, The Mathematics and Accounting that they used.** The Administration accounting systems, which they possessed, it was able to correspond to economic activity. The authorities were enough information on their properties both the empire and its members of to have systems of

both social and economic surveys in which the taxes levied were allocated to each zone. Thomas (1993) describes an overview of the Tribute of Moctezuma, with the "source the Codex Mendoza (1545), which is a good copy of (The Codex**) the Registration of contemporary Taxes**. Measures are approximate, because of the different interpretations of the original taps. Payments are made every eighty days. ". In describing the amounts payable on products such as feathers, clothing, corn, beans, gold, copper and various.

Existed officers dealing and of tax control commercial exchange by allowing to group: The Calpixques, in charge for collecting taxes in each village, who depended on a tax collector in chief, called Petlálcatl, who belonged to the group of Tecuhtli, as mentioned in addition to those members, the clan were other elected officials, as Calpullec, which served as secretary-treasurer and maintaining the economic order, one of the officials who had assigned to administrative responsibilities, was the Huey Calpixque, upper Calpollecs or Calpullis chief.

In the complexity of the Aztec society was developed private initiative in commerce arose the figure of **the Pochteca** or dealer, who in particular form developed the Activity Accounting and thereby the formation of professionals of accounting because it required a good number of staff that will help in the records and controls business.

The Incas left us like their representation of mathematicalits operations performing. **The Inca's quipu** knotted only the results of math operations made previously in the abacuses or yupana. Those abacuses would be carved in stone or clay. They both had lockers that corresponded to Decimal unit and is counted on the assistance of small stones or grains of corn. The single quipu is hard to guess what these code mean. Other aspects of quipu would have also provided information, e.g. color coded relative location of the strings the spacing and the structure of the ropes and secondary chordae. **Accounting:** Is known from its use accounting officer record (censuses, harvest) and investigates on their usefulness as a system for linguistic representation of memory and (history, songs and poems) and also to count their cattle.

The writing system of the Mayas consisting in numerals and glyphs, The early may be written with dots, bars and a kind of stylized shell, which respectively have a value of one, five and zero or with what are known as << variant of >> or << variation heads full body >> , which are human representations or animals. Hieroglyphs, in turn have been classified in two types according to function: the main ones larger ones, are at the center and affix positioned above, below, forward or within main glyph. The joining of two or more taps is a cartridge and group of these consist prayers in turn gives rise to the texts. Usually, the order of reading from left to right and top to bottom of two cartridges in columns." (Valverde, 2000).

Thus the statement of this part of work, we want identify what the Mayans have left no writing in codices, paintings, **The wakes o trails**, buildings (walls, doorways, lintels, jambs, cornice, stairs or steps, treads and steps) and provided rich textures materials that like shell, cotton, ceramics and objects made of various jewelry made of stones of great beauty, such as jade and obsidian. Primarily as regards the Accounting that and utilized as it expressed.

The Maya. The study of Mayan culture is through the recorded history and stored in hundreds of pictures produced on monuments of stone and clay pots the architecture of their cities and their homes, fossil traces from the rites celebrated at temples and villages, of which remain, and purpose of this is to draw clear photograph of its culture The Archaeology that remains of the ancient Mayans includes monuments architectures, giant buildings and palaces, temples, pyramids with ceremonial center, long and great public buildings, sculptures, roads, ceramics and pottery, are background, the ancient names, inscriptions, respectively well as codices.

They knew and used a **pictographic writing** they wrote in codices, paintings, trails, buildings and materials that provided rich textures like the shell, cotton, pottery and objects made from different jewels made in stone of great beauty, like jade and the obsidian. The Codices were his sacred books registered News and, features and historical facts displayed the precision of their chronological systems and of their literature they realized their art as well as their knowledge in astronomy, medicine and botany.

The prevailing forms in the economic transactions were exchange in certain cases the operations were carried out taking as the cocoa beans money or precious stones.

Had a broad knowledge of mathematics, numerical system and wore a comprehensive and accurate. Counters of that time were the character who wrote Codices, people of study therefore and very polite the majorities were priests belonging to nobility, called ah ts'ib: scribes, or ah woh-painters. Were the only ones had the power read and interpret them as the way to do depended on the moment the situation and from whom consulting them, and of the objectives sought by doing so, interpretation has ever been unique and linear, fact which, incidentally, difficult the decipherment of the codices. Added to this, like her writing has a number of sign for representing a single idea the reading becomes rich in expressions, yet highly coded and complex.

References

Aztecs

- *Huhg, Thomas (1994), La Conquista de México, Editorial Planeta, Barcelona.*
- *M. Alonso – R. Elisalde – E. Vázquez; 1994; Manual de Historia – Europa moderna y América Colonial; Editorial Aique*
- *Katz Friedrich, compilador "Revuelta, rebelión y revolución. La lucha rural en México del siglo XVI al siglo XX; Tomo 1/ Colección Problemas de México, Ediciones Era.*
- *http://www.iila.org/web/publishing.nsf/Content/%E2%80%9CGli+Aztechi+oggi.+grandezza+e+vitalit%C3%A0+di+una+civit%C3%A0+messicana_ESPANOL*
- *Instituto Ítalo Latino Americano – Congreso "Los aztecas hoy" expuesto por el Rector de la Universidad de Roma "La Sapienza". Guido Pescosolido: Decano de la Facultad de Letras y Filosofía de la Universidad "La Sapienza".*

- *Tovar y de Teresa, Rafael: Embajador de México en Italia. Paolo Faiola. Secretario general del IILA*
- *Corona Baratech, Carlos E. "Hernán Cortes."*
- *Historia Mundial – Tomo 6: Historia América. Editorial Espasa Calpe.*
- *Laura Cecilia Ávila.*
- *http://www.monografias.com/trabajos27/aztecas/aztecas.shtml?monosearch*

Incas

- *Turner, S.,J.C.(2009) History and Science of Knots,. 209*
- *Ascher, Marcia y Robert; Code of the Quipu: A Study in Media, Mathematics, and Culture Editor: University of Michigan Press, Ann Arbor. isbn 0-472-09325-8*
- *BBC News.-http://news.bbc.co.uk/2/hi/americas/4143968.stm.*
- *Murillo de la Serda, Fernando (1589). Cartasobre los caracteres, 1589.*
- *William Spencer, Robertson, (1922) - History of the Latin-American Nations*
- *«Khipu Database Project».*
- *«State Museum of Ethnography».*
- *«Museo de Pachacamac».*
- *«Museo Nacional de Arqueología, Antropología e Historia».*
- *«Centro Mallqui».*
- *«Museo Puruchuco».*
- *http://www.larepublica.pe/17-08-2010/el-ritual-del-quipu-aun-sigue-vivo-en-peru*
- *http://www.larepublica.pe/node/79656*
- *http://www.inc.gob.pe/patrimonio_inmaterial.shtml?x=58.*
- *Calvo Rodríguez, Miguel Ángel Manual de escritura incaica. Apéndice: Lógica constructiva en Quipus (enlace roto disponible en Internet Archive; véase el historial y la última versión), por Miguel Ángel Calvo Rodríguez*

- *El Quipucamayoc (In English)*
- *Proyecto Popular para el Desciframiento de los Quipus.*
- *Artículo sobre números y escritura de los Incas.*
- *Obtenido de «http://es.wikipedia.org/wiki/Quipu»*
- *Categorías: Cultura incaica | Arqueología | Proto-escritura | Sistemas de escritura no descifrados*
- *Categorías ocultas: Wikipedia: Artículos con enlaces externos rotos | Wikipedia: Artículos destacados en w:ru Enviado por Paul García.*

Mayas

- *Aveni, Anthony F., Observadores del cielo en el México antiguo, Fondo de Cultura Económica, (F. C. E.)México, 1993.*
- *Barthel, Thomas S. (1969) y La UNAM; Seminario de Estudios de la Escritura Maya (S.E.E.M.), "Cuaderno, Número 2.- Intentos de Lectura de los Jeroglíficos en Los Códices Mayas"; México.*
- *Bretón, Alain; Monod B., Aurore y Mario H. Ruz, Editores (2003); "Espacios Mayas: Representaciones, usos, creencias". U.N.A.M., Centro de Estudios Mayas; México.*
- *Carr, Edgard H. (1993) ¿Qué es la Historia?; Editorial Planeta, Buenos Aires.*
- *Coe,Michael D. (1999),"El Desciframiento de los Grifos Mayas"; F. C. E., México.*
- *Cortés, Hernán (2002), "Cartas de Relación". Editorial Porrúa, México.*
- *Corzo, Miguel Ángel, Sodi, Demetrio, y otros, (1980), "Los Mayas El Tiempo Capturado", Bancomer, S.A. Talleres Litográficos Unidos S.A. México.*
- *Coulter, Laurie, (2002) "Secretos en Piedra, Hablan los Jeroglíficos Mayas" A. Madison Press Book - -Planeta Infantil. México.*
- *De Landa, Fray Diego, (2005) "Relaciones de las Cosas de Yucatán"; Monclem Ediciones, S.A. México.*

- *De Las Casas, Fray Bartolomé (2004) "Los Indios de México y Nueva España"; Editorial Porrúa, México.*
- *Díaz Del Castillo, Bernal (1997), Historia Verdadera de la Conquista de Nueva España, 6ª Edición, Editores Mexicanos Unidos, México.*
- *Drew, David, (1999) "La Crónica Perdida de los Reyes Mayas" Siglo XXI Edit., México.*
- *Estrada Monroy, Agustín; (2001); "Popol Vuh" Costa-Amic Editores, S.A. México.*
- *Evans Schules, Richard, Hofmann, Alberto y Rätsich Christian; (2000) "Plantas de los Dioses; Origen del uso de los Alucinógenos". F. C. E., México.*
- *Fields, Virginia M. y Reents – Bidet, Dorie; Boynton, Jennifer; Stevens; Matt, Nola; Editores (2005); "Los Mayas Señores de la Creación: Los orígenes de la realeza Sagrada"*
- *Fleichman, Richard y Radcliffe, Vaughan S. (2005), "The roaring nineties: Accounting History comes of Age", The Accounting Historians Journal, June (pages.61-109) Vol. 32, No. 1.*
- *Florescano, Enrique (2007) "Quetzalcóatl y los Mitos Fundadores de Mesoamérica"; Taurus; Santillán, Editores; Ediciones Generales, S.A. México.*
- *Florescano, Enrique (2000) "Memoria Indígena"; Taurus; Aguilar, Altea Alfaguada, S.A. México.*
- *Freidel, David, Schele, Linda y Parker Joy; 1999 "El Cosmos Maya.- Tres mil años por la Sendade los Chamanes"; F.C.E. México.*
- *Garcés Contreras, Guillermo, (1982). Pensamiento matemático y astronómico en el México precolombino, Instituto Politécnico Nacional, México,*
- *Garcés Contreras, Guillermo; 1991; Bonampak; Una visión Sincrónica" Instituto Politécnico Nacional; México.*
- *García-Pelayo y Gross, Ramón (1993), Pequeño Larousse Ilustrado, Ediciones Laurousse, México.*

- *Gendrop, Paul (1978) "Les Mayas" Presses Universitaires de France, Paris.*
- *Gendrop, Paul (1985) "Arte Prehispánico en Mesoamérica" Trillas, México.*
- *Gertz Manero, Federico (1987), "Derecho Contable Mexicano", Porrúa, México.*
- *Gilbert y Cotterell 2003.*
- *González, Federico. (1989). "Los símbolos precolombinos; cosmogonía, teogonía, cultura"; Prensa Libre; Guatemala (En Internet).*
- *http://www.geocities.com/daimon.geo/precolpr.htm*
- *Gortari, Elí de, (1991); La ciencia en la historia de México, 4a. dicción, colección «Tratados y Manuales Grijalbo», Editorial Grijalbo, México.*
- *Gutiérrez Solana, Nelly (1991), Los Mayas: Historia, Arte y Cultura, Panorama Editorial, México.*
- *Have, O.ten (1976); "The History of Accountancy", Second Edition, Bay Books, Los Angeles.*
- *Hinojosa, Jaimes (2000); Lindero Ediciones, S.A.*
- *Izquierdo, Ana Luisa; (1983); "La Educación Maya en Los Tiempos Prehispánicos"; UNAM.- Centro de Estudios Mayas Cuaderno 16; México.*
- *Izquierdo, Ana Luisa; (1987); "Alberto Ruz Lhuillier; Frente al Pasado de los Mayas"; Secretaria de Educación Pública; México.*
- *León-Portilla, Miguel (2003), "Códices", Editorial Aguilar, México.*
- *León-Portilla, Miguel (1996), "El Destino de la Palabra.- Dela Oralidad y los Grifos Mesoamericanos a la Escritura Alfabética"; F.C.E. y El Colegio Nacional, México.*
- *León-Portilla, Miguel (1979), La Filosofía Náhuatl.- Estudiada es sus fuentes, Universidad Nacional Autónoma de México, México.*

- *Lorenzo, Antonio (1983) "Desarrollo de la Cronología Maya"; Miguel Ángel Porrúa, S.A. México.*
- *Lloyd Stephens, John; (1984); "Viaje de Yucatán"; I y II tomos; Dastin, S.L. Madrid.*
- *Martínez Vera, Regina y Martínez Limón Enrique; (2006) "Ciudades Prehispánicas, Estudio y Reconstrucción; Olmecas Mayas y Otra Culturas. Tabasco y La Zona Arqueológica de Palenque" CONACULTA-INAH-Grupo AZABACHE, México.*
- *Mattessich, Richard (1987), "Prehistoric Accounting and the problem of representation on recent archeological evidence of the Middle-East from 8000 B.C. to 3000 B.C." TheAccountingHistoriansJournal, fall, (Págs. 71-91) Vol.14, No. 2.*
- *Mendelssohn, Kurt (1999); "El Enigma de las Pirámides"; Dirección General de Divulgación de Ciencia. UNAM; México.*
- *MendizBolio, Antonio; 2000; "La Tierra del Faisán y el Vanado"; Costa-Amic Editores, S.A., México.*
- *Montgomery, John (s/d), Dictionary of Maya Hieroglyph, Foundation for advance of The Mesoamerican studies Inc.*
- *Motolinia, Fray Toribio (2001), Historia de Los Indios de Nueva España, Editorial Porrúa, México.*
- *Peterson, Frederick (1959) "Ancient Mexico; An Introduction to the Pre-Hispanic Cultures.*
- *Popper, Karl R. (1992) "La sociedad abierta y sus enemigos". Editorial Planeta-De Agostini, S.A. Barcelona.*
- *Proskouriakoff, Tatiana y otros (2007) "Historia Maya" Siglo XXI Editores, México.*
- *Recinos, Adrian (Traductor) (1977) "Popol Vuh". Fondo de Cultura Económica, México.*
- *Ruz Lhullier, Alberto, (1999) "Los Antiguos Mayas" F.C.E.; México.*
- *Schele, Linda y Freidel, David. (1999) "Una Selva de Reyes. La Asombrosa Historia de los Antiguos Mayas". F. C. E., México.*

- *Sharer, Robert J.; "La Civilización Maya", 3a. Edic. F. C. E.; México. Escrito por Morley, Sylvanus G., en ingles en 1946, revisado más tarde por Sharer.*
- *Sodi, Demetrio M. 1980 "Los Mayas, El Tiempo Capturado"; BANCOMER-Beatrice Trueblood; México.*
- *Sodi, Demetrio M. 1987 "Los Mayas" Secretaria de la Defensa" México.*
- *Sodi, Demetrio M. (1986) "La Literatura de los Mayas." S.E.P. Edit. Joaquín Mortiz; México.*
- *Soustelle, Jacques (2003), "Los Mayas". Fondo de Cultura Económica, México.*
- *Stuar, George E. y Stuar, Gene S. (1999) "Los Mayas"; Nacional GeographicSociety; CAYFOSA; Barcelona Esp.*
- *Thompson; J. Erick (1984) "Grandeza y Decadencia de Los Mayas; F. C. E., México.*
- *Thompson; J. Erick (1988) "Uncomentario al Códice de Dresden.- Libro de Jeroglíficos Mayas" F. C. E., México.*
- *Valverde, María del Carmen, (2000); "Los Mayas" CONACULTA; México.*
- *Varios; (2001); "El Libro de los Libros de Chilam Balam"; F. C. E.; México*
- *Vaillant, George C(1960); "La civilización azteca," F. C. E., México.*
- *Velásquez Acosta, Enrique (2006); "El Cero y su implicación matemática (Matemática mesoamericana)"; Mimeografiado o Edición particular; México.*
- *Vidal Ángeles, Carlos y Domínguez Turriza, Marilyn (2003); "Calakmul, Antología"; CONACULTA, I.N.A.H.; Campeche, México.*
- *Villacorta, J. Antonio y Villacorta, Carlos A. (1930) "Códices Mayas" La Tipografía Nacional; Guatemala.*
- *Willerding, Margaret F. (1971), „Los numerales indoarábigos", en Lara Aparicio, Miguel, Antología de Matemáticas, núm.7, colección „Lecturas Universitarias", U N A M; México.*

- *Wolf, Werner, (1963) "En Busca del Alfabeto Maya" Instituto de Capacitación del Magisterio; S.E.P. México.*

Revistas

- *Velásquez Morlet, Adriana y Nalda Enrique (s/d) et al. (2005) "Los Mayas en la Península de Yucatán Viejas Ideas, Nuevas Ideas", Arqueología Mexicana, Vol. XIII- Núm. 75 (Págs. 30-37).*
- *Nalda, Enrique; (1994); Arqueología Mexicana; Feb. – Mar. Vol. I Núm. 6.*
- *García Flores, Margarita; (1979) Ciencia y Desarrollo; enero – febrero 1979/ núm. 24*
- *Gugliotta, Guy; La Gloria y la Ruina de los Mayas; "Nacional Geographic, en Español" Agosto de 2007; México.*
- *Marcus, Joyce; 1979; "Los orígenes de la escritura Mesoamérica" "Ciencia y Desarrollo"; enero-febrero 1979/ Núm. 24; México.*
- *Sotelo Santos, Laura Elena, "Los códices mayas", Arqueología MexicanaIV, 23 (enero-febrero de 1997), pp. 34-43.*

Internet

- *Hook, Richard "World Civilizations" - Richard Hines Jun.6 1999.*
- *Foundation for advance of The Mesoamerican studies Inc.*
- *http://www.wsu.edu/~dee/WORLD.HTM*
- *Larios Osorio, Víctor; "Sistemas numéricos en México prehispánico"; Departamento de Matemáticas, CICFM; Facultad de Ingeniería, UAQ. e-mail: vil@sunserver.uaq.mx*
- *Morales, Juan J. Organización Tips. Cancún, México. (Texto por Juan José Morales / Ilustraciones por Carlos Porras y Roberto Franco).*
- *Zender, Marc; "Para sacar a la tortuga de su caparazón "Publicaciones en línea de PARI.- Journal 6(3):1-14 Mesoweb.*
- *www.mesoweb.com/pari/publications/journal/603/Tortuga.pdf.*