Dr. Sci. Sam Semir Osmanagić

Faculty of Political Sciences, University of Sarajevo

Doctoral dissertation on the subject:

NON-TECHNOLOGICAL MAYAN CIVILIZATION VERSUS MODERN TECHNOLOGICAL CIVILIZATIONS

Dr. Sci. Sam Semir Osmanagić

Faculty of Political Sciences
University of Sarajevo

Doctoral dissertation on the subject:

NON-TECHNOLOGICAL MAYAN CIVILIZATION VERSUS MODERN TECHNOLOGICAL CIVILIZATIONS

Sarajevo, March 2009.

Dr. Sci. Sam Semir Osmanagić

Faculty of Political Sciences
University of Sarajevo

Doctoral dissertation on the subject:

NON-TECHNOLOGICAL MAYAN CIVILIZATION VERSUS MODERN TECHNOLOGICAL CIVILIZATIONS

Committee:

Prof. Dr. Hidajet Repovac, Mentor
Prof. Dr. Ivan Cvitković, Chairman
Doc. Dr. Asim Mujkić, Member

Sarajevo, March 2009.

Contents

1. INTRODUCTION

The initial chapters of the dissertation will focus on the applied methodological approach and scientific instrumentarium. The dynamic approach will be combined with the classical scientific techniques on the one hand, and the results of the new scientific disciplines, which became an indispensable instrument in the interpretation of the events from the past, on the other.

The Chapter Four will point to the traditional understanding and prejudice about the Mayan Civilization as a "neolithic culture" with all disastrous consequences that placed the Maya among the inferior "tribal" societies as referred in the encyclopedic vocabulary.

The Fifth Chapter is identifying the civilization criteria; what are the criteria which determine the level of civilization? Such a definition will allow a proper comparison of the two civilizations.

Chapter Six covers, in discrete segments, specific distinct bodies of advanced Mayan knowledge all of which made them a developed civilization.

The comparison of the civilizations is done in Chapter Seven. According to the Society Evolution Theory, the modern Western Civilization is convincingly ahead of all cultures and civilizations so far. The technological component is its main advantage. This dissertation will establish a new definition for determination of the level of civilization

and for proper comparison of the advanced multi-millennia-old Mayan Civilization with the last phase of the Western Civilization. By comparing the basic parameters that determine the development level of a society, will answer the questions about the level of civilization of the West and the Maya.

This thesis is a result of the author's original research. Secondly, the very title of the dissertation propounds the hypothesis that the Maya were a civilization. This hypothesis will be confirmed through the application of widely-accepted scientific methodology. Thirdly, the goal of this thesis is to constitute an original scientific contribution to the body of knowledge about the Mayan Culture. Fourthly, the comparative analysis between the Western and Mayan Civilization has been performed. For this purpose only, the sets of primary and secondary comparation parameters are established.

This Doctoral Dissertation introduces several novelties in relation to the officially sanctioned knowledge about the Mayan Culture:

- The Mayas are regarded as a civilization as opposed to the present approach, in which the Maya are viewed as "Indian tribes" or "a neolithic culture";

- The existence of the Maya Civilization after 10th century is repudiated, together with the established thesis about the "continuation and decline of the Yucatán civilization after the 10th century"

- The indisputable examples of acoustic engineering, mathematics, astronomy and quartz head skull technology sustain the thesis about the Maya as a civilization capable of solving complex technological problems;

- By placing the Maya much further back along the historical timeline, this dissertation intends to revise the historical sequence of the emergence of other cultures in Central-America. Among other things, the claim that either the Zapotecs or Olmecs (depending on the author) had been the cradle of all other cultures, including the Maya, Toltecs and Mixtecs is no longer valid. New archaeological evidence recognized the Maya as the oldest civilization in this region.

In cooperation with the Members of the Committee for the Defense of the Doctoral Dissertation the contents were corrected on five occasions: in August 2005, in June 2007, in June 2008, in January 2009 and in March 2009.

2. SOCIOLOGY OF HISTORY

Two most important social sciences dedicated to the civilized human societies are Sociology and History. As that the purpose of this Doctoral Dissertation is to compare two civilizations (Mayan and modern Western Civilization) it is necessary, therefore, to apply the scientific method of sociology to compare the two historical entities. This synthesis of two fundamental social sciences can be referred as the "Sociology of History".

An alternative term to "Sociology of History" would be "Historic Sociology". The essential differences between them do not exist, because in both cases the historical processes and activities of the intelligent human being are examined from the sociological perspective.

In chronological terms, History is a much older science. The tendency of human beings to record important events, customs and traditions of a social community in the oral or written form extends to the period before the ancient times. On the other hand, the discipline and methodology of sociology is only in the third century of its existence (from 19th to 21st century). Therefore, the sociological analyses of the historical phenomena ("Sociology of History") will develop through the study and analysis of the various transformation aspects. This is supported by the Selective Bibliography of the Sociology of History, i.e. Historical Sociology. (SEE ATTACHMENT: Selective Bibliography of the Sociology of History.)

Comment [HM1]: Čega? Nije jasno u originalu? VIDI PREDLOŽENU REFORMULACIJU – da li odgovara *transformacija*

3. METHODOLOGICAL APPROACH AND SCIENTIFIC INSTRUMENTARIUM

This chapter reviews the basic scientific methods applied in proving the thesis. It is a combination of classic scientific methods and some particular new scientific procedures and techniques that have become inescapable in the interpretation of past events.

3.1. Classic scientific methods

The designation "classic" in this context does not have the connotation of lower importance or inferiority in regard to the "new" scientific methods. On the contrary, this is an essential approach when analyzing the societies of the past and therefore these methods are essential.

3.1.1. Historical method – Dynamic and revisionist concept

3.1.1.1. Heuristics

3.1.1.2. Critical approach

3.1.1.3. Synthesis

History is not a passive, immutable or a “catalogued sequence of dates”. In this dissertation, the predominant approach to history as a static process will be replaced with a dynamic concept of the history. The interpretations of the past will not remain as they traditionally were, but they will be subjected to a constant dialogue with the present.

There are three concepts of the historical methodology: static, dynamic and revisionist. This dissertation will promote the dynamic and the revisionist concept of history as the primary one. We will show that the exploration of the Maya Civilization as a continuous process of researching new sources, materials, pieces of evidence and interpretations. The 21st-century humans live surrounded by the change; therefore, it is necessary to change the vision of our past. As our level of knowledge increases, we are able to perceive and understand more realistically the accomplishments of the Mayan Society.

There are three main activities in the application of the historical method, which are demonstrated in the Dissertation:

- Heuristic (search for the sources of material)
- Critical (evaluation of the source, “historical criticism”)
- Synthesis (conclusions of heurism and criticism) (1)

The History of Civilizations is a science, but it is not an exact science. Its field does not have universally accepted technical terminology, except certain methodological terms. (2) The absence of technical terms is the history’s weakness and results in a partial imprecision. This will also affect the dissertation, especially in the comparative quantification of the Western and Mayan Civilizations.

3.1.2. Anthropological methodology

3.1.2.1. Physical anthropology

3.1.2.2. Cultural anthropology

3.1.2.3. Archeology

3.1.2.4. Linguistic anthropology

In explaining any civilization, Anthropology is a crucial social science. This is a "broad study of the civilization, explaining humanities' biological and cultural aspects". (3) In doing this, Anthropology applies four methods:

- Physical anthropology (biological evolution, genetic inheritance, human ability to adapt, fossil remains)
- Cultural anthropology (culture, ethnocentrism, cultural aspects of language and communication, relations between the society members, marriage, social control, political organization, religion, sexes, etc.)
- Archeology (cultural evolution trends, discovery techniques, dating and material analysis)
- Linguistic anthropology (communication process, non-verbal communication, structure, function and history of language and dialects) (3)

Comment [HM2]: Vidi da li je ovo pobrkano, i u originalu, već imam broj 3 napočetku ove stranice

All four methods will be applied in the analysis of the Mayan Civilization.

3.1.3. Comparative method

3.1.3.1. Descriptive approach

3.1.3.2. Prescriptive approach

The comparative method will be the crucial method to be applied in the comparison of the Western and Mayan Civilizations (Chapter Seven).

This is a sociological method which lacks technical exactness (quantification), but which reveals the empirical relation between two entities, two societies, and for this, it is necessary for the analysis.

The comparative method will also yield the goals that are expected to emerge from this study: to understand better our own civilization and learn different ways of resolving issues which we are facing.

This analysis will follow a dual approach: descriptive (neutral description of social variables of both civilizations) and prescriptive (proactive approach in the interpretation of the achieved civilization level with different social variables).

3.1.3.3. Empiric analysis

3.1.3.4. Inductive logic

3.1.3.5. Deductive reasoning

The empirical research will be incorporated in this manuscript and it will make use of direct observation as a reality test (especially in Chapter Six). In doing this, the author has visited dozens of ancient Mayan Civilization cities in the Central American area of Mexico, Honduras, Guatemala, Belize and Salvador.

The two methods combine and supplement each other in the experiential analysis: inductive logic (reasoning formed by individual observation basis) and deductive reasoning (a global set of conclusions had been known before it has been proven in a specific example). (4)

3.2. New scientific disciplines

The second half of the 20th and the beginning of the 21st century have created the technological conditions for emergence of new scientific disciplines. Some of them are applied effectively in supplementing and revision of the historic and anthropological knowledge. In the case of this dissertation, these methods will significantly contribute in proving the given thesis.

In other words, several centuries ago this thesis would not be scientifically provable.

3.2.1. Acoustic Archeology

Since the 1960s, the elements have emerged for foundation of a new scientific discipline: Acoustic Archeology, based on acoustic engineering. With the development of tools and instruments, sound theory and simulations, and with the demands of industry, architecture, construction and theoretical science, acoustic engineering is experiencing a very broad application. Thanks to this discipline, the Mayan Civilization and its edifices can also be subjected to additional tests.

This scientific discipline incorporates advanced vibration studies, acoustic simulations, sound quality, vibration transmission, low and high frequency, structural vibration, sound insulation, vibration measurement and control, and acoustic results through computer modeling.

The Western Civilization applies acoustic architectural design by using modern computer and acoustic technologies. The Mayan Civilization, as it will be proven later on, knew about acoustic design without using the technologies known to us.

3.2.2. Archeoastronomy

Combining the traditional scientific disciplines, archaeology and astronomy, the archeoastronomy was created. The necessity for this exact discipline emerged after a precise connection was established between the architecture of ancient peoples and certain particular cyclical phenomena in the Universe.

Archeoastronomy can provide direct explanations for many construction and archaeological achievements of the Maya and, therefore, it will be applied in the dissertation

.

3.2.3. Radiocarbon method

Immediately after the Second World War, American chemist Willard F. Libby developed the radiocarbon dating method of the organic material. The explanation of Libby's 1960 Nobel Prize Nomination read as follows:"hardly any discovery in chemistry had such an impact on so many domains the human activity, including archaeology, geology, geophysics, etc." (5)

Today, over 130 laboratories in the world apply the radiocarbon C-14 method. The results will help prove the historical facts related to the Mayan Civilization.

4. TRADITIONAL UNDERSTANDING AND PREJUDICE ABOUT THE MAYAN CIVILIZATION AS "NEOLITHIC CULTURE"

Failure to comprehend the true essence of the Mayan Civilization has persisted for nearly half a millennium. In effect, there are few authors daring to call the Maya "a civilization".

There are many reasons for this historical situation:

- First, in the area of the former Mayan Civilization (in present-day countries of Mexico, Honduras, Salvador, Guatemala, Belize), Europeans encountered primitive Indian tribes and wrongfully attributed to them the authorship over abandoned, ruined Mayan cities;

- Second, everything that they did not understand and that exceeded the level of knowledge at the time, European colonizers (Spanish Conquistadores more than anybody else) have destroyed, for example: all written Mayan literature ("Codices"), gigantic Mayan edifices (pyramids, temples), civilization's infrastructure ("Sacbe" – white stone roads), sculptures and art artifacts…;

- Third, only towards the end of the 20th century, the knowledge of the Western Civilization developed to the extent to be able to interpret the achievements of the Mayan Civilization, such as astronomy, archaeoastronomy, architectural acoustic design and simulations, mathematical knowledge, the decoding process of Mayan pictographs, etc.;

- Fourthly, a tendency of the Western Civilization elite organizations is to hide the knowledge and minimize and underestimate the significance of any other historical civilization.

Now we will examine the circumstances in which Western Civilization representatives have encountered the land and the vestiges of the Mayan Civilization.

The Europeans have landed on the Central American mainland for the first time during Columbus' fourth and last journey in 1502. His ship was anchored in Guanaja, one of the Atlantic islands off Honduras. The ship's crew captured a commercial canoe of the local Indians with a cargo of exotic items, such as cocoa beans, sea shells, Quetzal plums and

fine pottery. (6) Columbus sailed down the coast and discovered the Veragua Region, where he found enough gold to encourage his countrymen to embark on more expeditions.

Unlike Europeans in North America, the Spanish came to Central America as soldiers, not immigrants. They did not bring over their families, instead, they had children with local Indian women. It engendered numerous *Mestizos*, who in time have become the most numerous population. A few of the *Peninsulares*, who brought over their families from Spain, had the positions reserved at the top of the hierarchy. Presence of *black* African slaves was evident all along the Atlantic Coast, as well as the *Mulattoes*. Here we had the coherent groups of *Chinese*, *Miskito* and *Darien Indians*. And, in the end, in most countries in the region the Indians, who declare themselves to be the *Mayan* descendants, have preserved the racial heritage. (7)

The ancient Mayan world ("El Mundo Maya") spread from the Mexican Yucatan Peninsula in the North, forested Chiapas region in the West, the Belize plateau on the East, and the jungles of Guatemala, Honduras and Salvador in the South. Thirty different languages with the same root are spoken even today by approximately six million Indians who link their ancestry with the Maya.

The life of several million Indian farmers looks like the life their ancient ancestors once had: the plants are the same (corn, beans, chilly, tomato, squash), agricultural techniques are the same. Even the rural social organization is almost untouched. The herbal medicine

predominates. (SEE ATTACHMENT: Photography 1: Mayan Farmer, the vision of a Guatemalan artist, the statue is located in front of the National History Museum, Guatemala City, Guatemala)

However, there is an important exception: at the heart of their organization were monumental "ceremonial centers", temples and pyramids, art and astronomy centers. Today these two worlds coexist, side by side.

"Maya" is a key Hindu philosophical term meaning "world creation" and "world of illusion". In Sanskrit, Maya is attached to the concepts "great", "measure", "intellect" and "mother". Maya is also the name of Buddha's Mother. In Vedas, Maya is the name of the leading astronomer and architect. In Egyptian philosophy, the term Maya signifies the "universal world order". In Greek mythology, Maya is the brightest of the seven stars of the Pleiades Constellation. Mayab is the name for the homes of the Central American Maya: Yucatan Peninsula. (7)

It is ironic that a lot of information we know about the Maya, especially that the majority we do not know, is connected with the Franciscan priest: Diego de Landa. In 1562, he ordered a mass incineration of all Mayan manuscripts in a town of Muna, a Spanish settlement in Yucatan. As a result of this barbarism, the largest individual collection of the Mayan literature and history was destroyed. The leading spiritual leaders – "keepers of the Mayan knowledge" were also burnt in the fire.

Not long after, this same Diego wrote about the Maya in Yucatán. He recorded their customs, religious rituals, the writing system in detail…, but he was at the same time that his writing was not nowhere near profound enough. "It may be", Diego said, "that this land keeps secrets not yet discovered, about which even the natives know nothing." (8)

When the Spanish came to Central America, they found magnificent abandoned cities and an entire universe of mysteries that needed decoding. The common people who lived in the Mayan lands were unable to explain the cosmic philosophy of their ancestors. Technologically superior barbarians remained baffled. Then the Spanish made an crucial mistake in thinking that these local natives were of the Mayan race. This is why, even today the descendants of poor farmers from the age of true Maya are called Maya; those people who remained in this land after sudden disappearance of their rulers and protectors.

Traditionally, the Mayan Culture is divided into three periods: pre-classical (several hundred years BC to 300 AD), classical (300 to 900 AD) and post-classical period, from the ninth and sixteenth century and the arrival of the Spanish conquerors. (9), (10), (11), (12), (13), (14), (15), (16), (17), (74)

In the last two decades, modern science has moved the beginning of the first, "pre-classical," period, several times further into the past. Discovery of new artifacts allowed the archaeology to date the Mayan cultures back to 2000 BC. (18), (19), (20), (21).

For example, the foundations of the Guatemala City inexorably covered the remains of an ancient centre of the Maya - Kaminal Juyú. Hundreds of buildings and pyramids used to stand in the heart of this city which had developed cultural and commercial centers with Teotihuacan with its population of half a million (north of the Mexico City). The radiocarbon dating method had finally proven thirty years ago that the remains of the pyramidal structures on nearby graves dated from before AD. (7)

Comment [HM3]: Da li bi ovdje trebalo veze? Ovako je i u originalu, ali nema očitog smisla: „centar" koji je imao „centre". OSTAVI ZA AUTORA

In addition to the fact that the “pre-classical” period began significantly earlier than believed, we can question the so-called third, “post-classical,” period. The official claim is that the Maya moved from the south (Guatemala, Honduras, Chiapas) after leaving their cities and went north in an organized way to the Mexican peninsula of Yucatán. This “post-classic” period lasted from 11th to 16th century, i.e. until the arrival of the Spanish. It was also called the period of Mayan cultural decline.

But much archaeological research contradicts this thesis, too. Namely, it was proven that the settlements in Yucatán were erected at the same time as the settlements in the other parts of the Mayan world: therefore, in the centuries before AD, and abandoned in the 10th century as well. Nomadic tribes from the north of Mexico came to abandoned Mayan cities between the 11th and 14th century and it was their members who welcomed the Spanish conquistadors.

Even in the early 21st century, a predominant description of the Maya is summarized in the encyclopedic description (Columbia Encyclopedia, New York, 2003): “Maya are Central American Tribes… descended from the Olmecs or nomad tribes from the Northern Guatemala in 1000 BC, who had advanced agriculture…” (16)

This perpetuates the process of misinformation of the general audience. The following premises are used as starting points: the Maya never used metal, wheels or animal-drawn carts. Naturally, there is no evidence of the presence of technical tools such as we use today (vehicles, calculation machines, celestial phenomena-tracking instruments etc.). The conclusion: this is an agricultural tribal culture on the Neolithic level (usage of stone tools).

And even when their achievements in the domain of “gigantic architecture, high artistic abilities” are recognized, the assumption remains that it is “surprising how little practical use they made of their knowledge” (?) (74)

4.1. Ritual sacrifice – between reality and symbolism

The perception about the Central American cultures was formed on the basis of the reports of the Spanish conquistadors. Having in mind that the Aztecs were the only culture that the Spanish encountered, they became the benchmark for all previous ones. This syndrome and way of thinking are still ingrained in the education system and the general public. Ritual sacrifice is suggested as a counterpoint of brilliant Aztec architecture (which remained after barbaric Spanish conquest), and as something that cannot be disregarded. Naturally, the takeaway is that this region, in general, was the home to barbarian societies.

For example, said it is highlighted that the Aztecs “perceived the human sacrifices as a supreme act to please the gods”. As for cannibalism, they said that “from the original rite, it developed into a habit because of which made warriors go to war”. (74)

The real evaluation of the Aztec Culture has still not happened. At the time of culmination of the age of the Aztecs, predecessors, the Maya, had already been gone for 500 years. Therefore, the simple fact that both existed in Central America does not mean that the experiences are automatically transferred from one culture to another.

For example, for both the Aztecs and Maya, the period of 52 years is connected with the cyclic movement of the Pleiades star system (the time necessary to return to the “starting” point on the night sky).

The difference is that the Aztecs celebrated the end of this cycle by sacrificing chiefs of rival tribes. The Maya treated this cycle through the calendar which had been attributed cosmic importance.

The Aztecs pulled hearts from living prisoners and turned towards the Sun to show it their "love and loyalty". The Maya considered the Sun as the source of life and the celestial body from and to which "love, as the behaviour model in nature", came and went.

Archaeological remains in several Mayan cities served archaeologists as an argument that this civilization also, nevertheless, practised ritual sacrifice. This refers primarily to the most important Mayan city on Yucatán - Chichen Itza.

Example number 1:

The central playfield at Chichen Itza on one of its walls shows two teams standing before the ruler (after the match ended?). The teams had seven members; the captain of one of the teams does not have his head. Archaeologists assumed that the team leader had been beheaded as the punishment for losing the match. Since recently, Mexican guides explain that a recent trend among the "Mayan scholars" is that they believe that, on the contrary, the leader of the winning team had earned to leave this life and to be promoted to the eternal, celestial one.

Regardless of the version you choose, from the standpoint of the Western Civilization values, beheading is a barbaric act. It is likely that a civilization which practices it probably loses the ground to be considered an advanced civilization, despite the other criteria it may meet.

Based on this engraved image at Chichen Izta, this Mayan game was defined as „barbaric“. It is claimed that at the end of each match one team captain dies.

Let us examine this thesis. There are several hundred restored playfields of the Maya Civilization (more in Chapter 6.3.7. Playing with the ball as the imitation of cosmic phenomena). The only playfield where an image of the beheaded team captain has been found is actually one in Chichen Itza.

Moreover, this playground is unusual for many reasons. First, the image shows the teams of seven members. In other Maya cities, there are no writings, murals or stone engravings of scenes showing that many team players. Could it, then, be just a primitive variation which emerged in the late period of the Mayan Civilization?

The prevailing view of the archaeologists is that this monumental playfield at Chichen Itza had been built between the 9th to 13th century (age of the Toltecs' influence). This period will not be considered in this paper because it is irrelevant for the Mayan Civilization.

We do not deny the possibility that, in some Mayan cities during the 4000 years of history, some members or team captains had been sacrificed. But, at this time, we lack the evidence that would allow us to make a well-argued defence of any thesis.

Example number 2:

There are several stone blocks at Chichen Itza, which are richly decorated with figures and ornaments. The official explanation is that these are „sacrificial altars“. This thesis is supported by the depiction of animals holding human organs in their claws: the eagle holds the heart, and the jaguar holds the male sexual organ. At first sight, this is another proof of a primitive Indian culture which sacrificed its members. (SEE ATTACHMENT: Photography 2: Richly decorated stone blocks with images of the jaguar and the eagle, Chichen Itza, Yucatan)

We can counter this thesis with the symbolism of the Mayan world deciphered to date (7). The nine levels of the Mayan Underworld (“Xibalba”) were highly respected by the Maya. Across the world of the Maya, there are pyramids with four levels, descending from the west, four from the east and the ninth level/platform „situated“above the centre of the Underworld. They are ruled by the God of Death, Ah Puch, helped by the Jaguar God, an animal which the Maya esteemed the most of the entire animal kingdom.

The Jaguar, also, helps the Sun to complete the travel through the darkness; the spots on the jaguar’s skin symbolize starry sky. Legends of the Lacandon Indians at the Chiapas reservation say that, someday, the jaguar will destroy the Sun and thus end the life on Earth.

The photograph of the jaguar at Chichen Itza is another indication of the astronomical and philosophical depth of the Mayan knowledge. The Heavens and the Underworld represented the eternal antagonism, thirteen heavenly gods fought against nine lords of the Underworld…

These stone blocks are only a part of the complex, which depicts significantly more complicated images with all superior beings of the Underworld and Heavenly World. The human existence on this planet ends in physical death: the jaguar holds the sexual organ in its claws to mark the end of the sensory life.

On the other side, an eagle holds the heart, symbol of love and soul. The man rises to the Heavenly World.

The remainder of the scenes on this mosaic depict the eternal confrontation between good and evil, which produces the phenomena on Earth; the good gods bring the rain and sunshine; evil gods bring the drought, hurricanes, wars, death and destruction. The man faces the need to balance these mighty powers. Which role did the Maya play in this cosmic battle, in their struggle to achieve harmony on Earth? We do not know.

And even in this example, we lack a definitive proof in favour of either barbarism or symbolism.

Example number 3:

The following explanation is attached to one of the holy underground sinkholes – "cenote" at Chichen Itza: "Recent explorations of the National Geographic Society have resulted in the discovery of ten skeletons under the mud. With the DNA and carbon analysis, it has been established that these had been children, a couple of young girls and a few skeletons of older people". An immediate conclusion based on this discovery was that the Maya practised ritual sacrifices of children to the gods for a rainy season.

My experience with these holy sinkholes, which had been the main water source for the Maya on the Yucatán, is as follows: These pits were used for drinking, irrigation,

everyday activities, swimming and maybe secret meetings. The traces of the life in Chichen Itza are over 2000 years old. How great is the chance that, over such a long period, some people would slip and drown in deep sinkholes? Specifically, the depth of the underground well is several tens of meters from the surface, as is the case with the "Aqua Azur" Cenote near Chichen Itza. (SEE ATTACHMENT: Photography 3: Aqua Azul Cenote, Holy Mayan Sinkhole, Chichen Itza, Yucatán, Mexico)

And, once again, we face a dilemma: whether the arguments in favour or against sacrificial rituals prevail? At this time, the answer would be in the domain of speculation.

Example number 4:

Preserved Mayan murals are a real rarity. After a millennium passed it is hard to find a well-preserved piece of visual art, which depicts the life of the Maya. So far, the best-preserved mural is in the Mexican State of Chiapas, in the Lacandon Indian Reservation. It is in the ancient Mayan city of Bonampak. A scene on the mural probably depict "Mayan captives tortured by the winners from Bonampak". The blood is spilt and this is the only example I found in which the captives' blood is spilt. (SEE ATTACHMENT: Photography 4: Mayan murals from Bonampak, Chiapas, Mexico)

However, the deciphered pictographs usually include an episode with bloodletting from the fingers. Typically, it is the Mayan City Ruler who, in annual cycles, "feeds the land with his noble blood as a sign of the expectation of a fertile season".

Of course, the Maya were not perfect and hundred percent peaceful (see Chapter 6.2.5. The local conflicts). But, is this a continuous ritual similar to the one ascribed to the Aztec warriors by conquistadors?

Is there a difference between civilization which torture (or kill?) their captives and the ones that allow that, every year, hundreds of millions of children and people die of curable diseases, hunger and poverty that can easily be eradicated? (More in Chapter 6.2.5. The Conflicts).

5. CIVILIZATION CRITERIA

Can we evaluate the Maya using our science and technology? Do we believe, because there is no evidence that they had spaceships, computers and telescopes, that they were intellectually inferior?

If we approach the Maya from the superior position, we will never understand and decipher them. The intention of this paper is to establish the new criteria for defining civilizations in order to adequately evaluate the civilization level of the Maya.

We will see that, in several aspects, their science, intellectual achievements and mental capabilities had been far ahead of ours.

- On the stone stelae in the East Guatemala, the Maya describe the event which happened 4, 5 and 13 billion years ago (!) (Chapter 6.3.3. Calculating Time)

- On the Rosalila Temple in Honduras, there are carvings of vehicles carrying Maya in the cabin, almost two thousand years old (?!)

- The stairs of the Kukulcan Pyramid on Yucatán in Mexico hide a surprising sound recording that perfectly imitates the frequency of the holy bird Quetzal (Chapter 6.3.6. Examples of acoustic engineering in the Maya world)

- Brilliant astronomical knowledge of the Maya culminated with the following of the movement of the Solar System in our Galaxy and the completion of the 26,000-year cycle beginning on December 2012… Only in the early 1990s, Western Civilization astronomers, after a century of patient research, succeeded in confirming those thousands of years of the Maya knowledge. (Chapter 6.3.2. Advanced astronomical knowledge)

They were able to achieve so much while having so little. The technology was not important to them, nor did they use it. Let us forget about telescopes and the wheel. There were other ways as well to work stone and build pyramids or to see the planets from different cosmic angles.

Hopi Indians, who nowadays live in the Grand Canyon in Arizona, have an interesting legend of Palat-Kwapi. It is about a Mysterious Red City in the south. A city-temple had been built there. The city's sole purpose was to present a system of knowledge and information. The workers had the order to abandon the city-temple upon the completion of the construction, because the city was supposed to serve as a colossal book of knowledge for future generations. (7)

However, new generations had forgotten the ancient command; in this city, they lived, fought, conquered and been conquered. Until the time when the city-temple too had been abandoned.

This Hopi legend perfectly matches the Mayan legacy. They erected magnificent cities-temples that would be transformed by Indian villagers and warriors who, forgetting their original purpose, transformed them into their residential and religious centres.

5.1. Definition of Civilization

What makes a community of people a civilization? Which criteria will yield a definite distinction between, for example, Eskimo Society over the last thousand years) and the commonwealth of the United States of America (in the last two centuries)?

The traditional definition of civilization describes societies with advanced agricultural production, urban population, construction of monuments, writing system, specialized occupations, complex religion and social inequality.

In their approaches, 19th and 20th century authors use different key terms:

- “Manufacturing society”, “city life”, “alphabet” and “expansion instruments” (for example, professor Carroll Quigley from the renowned Georgetown School of Foreign Service). (23)

- “Collective human behaviour” (Auguste Comte),

- Economic base of societal organization (Karl Marx),

- Darwinist principles in the human society (Herbert Spencer). (16)

- “Complex culture consisting heterogenic ideas and people, who preserve their past and sponsor innovations and values”. (15)

An author who observes the civilization definition in the context of the planetary, spiritual and energy relations has an interesting thesis in this context:

- “Humankind is not an arithmetical sum of civilization and anti-civilization. It is their algebraic, indivisible product: Humankind = civilization x anti-civilization. With top ten social criteria: light-darkness, life-death, peace-war, love-hate, moral-amoral, knowledge-ignorance, work-inactivity, order-chaos, law-anarchy, democracy-dictatorship.” (73)

- More recent definitions describe civilization as “the advanced state of a society characterized by historical and cultural unity” (77)

As it will be shown, these criteria and definitions will not be a sufficient framework for this analysis and we will need a modified and updated set of criteria.

Let us use the simplified concept of civilization so we could depict the sequence of civilizations over the past eight thousand years.

We will rely on the Carroll Quigley's work ("The Evolution of Civilizations") which divides human collectives into:

- Communities
- Groups
- Societies.

Here, "communities" are people found at the same place at the same time, but without mutual relations. "Groups" are able to identify their members, but the major part of their activities are conducted outside the group. And, finally, "societies" consist of members which establish the majority of the relations with other members of the society. Furthermore, Quigley divides the societies on:

- Parasite societies (Sioux tribes, Eskimo etc.)
- Manufacturing societies
- Tribes

- Civilizations.

Less than twenty civilizations had emerged over the last 8000 years. This author lists them in the following order:

Civilization	Date	Culmination	Conquerors
Mesopotamia	6,000-300 B.C.	Persia	Greek
Egypt	5,500-300 B.C.	Egypt	Greek
Ancient India	3,500-1,500 B.C.	Harappa	Aryan
Crete	3,000-1,100 B.C.	Minoan	Dorian
Ancient China	1,.900-1,000 B.C.	Han	Huns
Hittite	1,900-1,000 B.C.	Hittite	Phrygians
Canaan	2,200-100 B.C.	Punic	Romans
Classic	1,100-500 A.D.	Rome	Germans
Mesoamerican	1,000 B.C. - 1550 A.D.	Aztec	Europeans
Andean	1,500 B.C. – 1,600 A.D.	Inca	Europeans
Hindu	1,500 B.C. – 1,900 A.D.	Mogul	Europeans
Islamic	600 A.D. – 1,940 A.D.	Ottoman	Europeans
Chinese	400 A.D. – 1,930 A.D.	Manchu	Europeans
Japanese	100 B.C. – 1,950 A.D.	Tokugawa	Europeans
Orthodox	600 A.D. -	Soviet Union	?
Western	500 A.D. -	?	?

Table 1: Present civilizations according to the American author Carroll Quigley (23)

As recently as four decades ago, this table was almost indisputable in the deliberations about the history of civilizations. With the development of new ideas, the dynamic and revisionist approach to history, we can now question almost every attribute of these civilizations.

So, for example, instead Mesopotamia, we should certainly distinguish the emergece of the first civilization of the world's recent history – Sumerian. The complexity and advancement of this society guarantee it a special place in a new, amended table.

Of course, predating the Sumerian, we found material remains of other Middle East societies (Jericho as the centre, whose ruins were dated as 9,000 years old by the carbon method, the Gobekli Tepe in Turkey as 13,000 years old, also following by the radiocarbon method etc.)

For their significance and diversity the "Classic Civilizations" should be divided into in Ancient Greece and Rome.

At this point, material evidence about the existence of the Pacific and Atlantic Civilisations older than 12,000 years is not the subject of our interest. (25)

In the same way, the "Andean Civilization" complex, which had been believed to had originated around 1,500 B.C. are considerably more recent in the light of new discoveries

which put very advanced, but very different civilizations in the area, thousands of years deeper into the past.

Only a few decades were sufficient to refute the American author's claims, in regard to the ending of certain civilizations. Now it is obvious that the Indian, Chinese and Islamic Civilizations continued to exist after the mid-20th century despite the prediction of their ending.

Both the Japanese and Orthodox civilizations are blending into the Western one, and this is the leading trend of the 21st century. The U.S. (after Portugal, Spain, France, United Kingdom) imposed itself as the culmination of the Western Civilization.

However, what the revisionist approach to history brings in terms of the Mesoamerican Civilization relates also to the period and culmination of the civilization in this region of the world. A serious analyst clearly understands that the Aztecs were not the culmination of the civilization in Central America, even though, chronologically observing, they were the last to emerge. (27) In spiritual, social, architecture and astronomical aspects of life, the Aztecs lagged behind their ancestors the Maya, as well as the "temporarily established categories" of the societies Zapotecs, Olmecs, Toltecs and so-called Teotihuacan. (I call them "temporary categories" because the official science does not know their true names, nor the age of the cultures whose artefacts had been found around Central America.

The date of 1,500 B.C. does not correspond as well to the new archaeological findings, which put the existence of civilizations in this area several thousand years deeper in the past.

Of course, it is ironic that professor Carroll Quigley does not even mention the complex Mayan society, as part of the set of world civilizations.

However, despite all the deficiencies, this table provides us with the starting point for a debate on the definition of civilization.

5.2. A Benchmark of Civilization

What is the benchmark of civilization? Which measures will we apply in this paper to determine the level of civilization?

As we have seen, earlier authors looked at the boundary which separates the tribal level from a civilization. But, for the purpose of this paper, we have to develop a set of tools which will clearly distinguish and differentiate the level of individual civilizations.

While both the Ancient Crete and Contemporary West are classified as civilizations, one of them can be considered as superior.

The following are crucial determinants of the level of civilization:

- Achieved level of knowledge
- Lifestyle

5.2.1. Achieved level of knowledge

The knowledge, as the cosmic category, is indivisible. The beginning of life in the cosmos, emergence of planets, “living” and “non-living” matter, transformation of matter into energy and vice versa, the sequence of cosmic events, etc. has its laws and history.

Young civilizations, such as the recent Earth Civilizations (particularly the Classic and Western civilizations) over the past 8,000 years have developed the instruments for attaining partial knowledge. This partial knowledge was called “sciences”: physics, chemistry, geology, astronomy, mathematics, quantum mechanics, etc.

The new trend is to strive to obtain the unity of knowledge by their integration. It is clear that the 21st-century Western Civilization has still a long way to go to acquire the key answers and put together the mosaic called “the Knowledge”. It seems to me that the attempts which lean on Einstein’s theory of relativity (particularly on the Special theory of relativity), Supergravity theory and Superstring theory in order to reach the “Theory of everything” are the right way.

Naturally, this concerns the attempts of materialistic science which integrates the achievements of quantum mechanics and the Superstring theory, in order to reach the common denominator that will provide explanations of all natural forces. By this, I mean all forms of energy. This common denominator is probably hiding somewhere between the tenth and twelfth dimension. With this imaginary denominator, it will possible to explain all natural events: at the level of energy and matter. And then you can say that a society has a respectable level of "Knowledge".

For example, Professor Michio Kaku, co-discoverer of the Superstring theory (Theoretical Physics, City University of New York) is aiming to complete the Einstein's "Theory of everything," which will integrate all fundamental forces of the Universe. In his book "Hyperspace: A Scientific Odyssey through Parallel Universes" (75) Dr Kaku proves "the existence of higher dimensions which are the central key for unlocking the secrets of the Universe".

Even Lenin himself, Vladimir Ilych, has debated "the existence of multiple dimensions" (75), but in reality, he had to overthrow an emperor from the third dimension. Picasso rejected the three-dimensional world with cubism and stepped into the fourth dimension.

The first four dimensions, at first glance, have nothing in common: gravity (holding us on the Planet's surface), electromagnetism (the electricity), the strong nuclear power (the Sun), and the weak nuclear force (radioactive radiation). Every new discovery of a new dimension, however, reopens the question where the common denominator is. (75)

There is not just one way to the “Knowledge”. From our earthly perspective, I believe that there are at least two of them: scientific, which we have just mentioned, and spiritual, which will not be discussed in this Dissertation because it cannot be tested by current exact scientific methods.

It is intriguing that the holders of superior knowledge of two earthly worlds (scientific and spiritual), one personified in a theoretical physicist, and the other in a shaman from one of the spiritual civilizations, will arrive at the same conclusions on energy forces that govern the cosmos. (28) And all individual knowledge is derived from there, including the ones we strive to master on our tiny Planet.

Therefore, the attained level of knowledge is the determining category of a civilization. The society which, as a whole, understands the global cosmic laws, has a developed concept of the past and the future, can explain how the process of life process is created and transformed... can obviously be considered an advanced civilization.

And the opposite also holds true. The society which ignores the celestial phenomena, which does not see beyond compiling material goods or which is dogmatically shutting itself up in its own boundaries is clearly low on the level of civilization.

5.2.2. Lifestyle

This segment follows logically from the previous one. Just “possessing knowledge” is not sufficient to make a civilization advanced or superior to another.

As we become better at understanding the natural processes and gaining a better image of the whole of cosmos, it is expected that this knowledge will have a beneficial influence on a civilization.

For instance, at the moment when the majority of members of a civilization starts living the generally accepted fact of the interdependency of all living beings, it would be logical to expect that they will show understanding for all plant and animal world on the Planet. The “pyramidal hierarchy”, imposed and promoted by Man as “the most intelligent” and “the strongest” being on the Planet, will cease to exist.

Knowledge is supposed to contribute to the wisdom of the human civilization; the wisdom is supposed to transform directly our way of life, with the behaviour of domination and control over others ending and the process of respect for other living beings beginning, whether these beings are in the plant or animal world or members of other human communities or other civilizations.

As one civilization is getting more knowledge about the structure, for example, of our home Planet, the civilization's respect towards the own Planet will grow. Instead of being arrogant members that relentlessly misuse unrecoverable resources of the Planet, the civilization will strive to live in harmony with the Planet and all natural processes.

As the knowledge on the Sun broadens, we will not be considering solely the physical characteristics, such as temperature, pressure, sunspots or solar storm. The energy essence

of the process will be understood, the laws that govern their manifestation and their influence on the Earth and the members of individual civilizations.

As a civilisation approaches the realisation that their members are the energy beings that radiate (predominantly) positive or negative energy, it will understand that the basic communication process is the one characterized by respect and love.

It has been experimentally proven (29) that the "negatively" packed emotions, such as fear, jealousy, envy, manipulation with others, etc. have long and slow wavelengths . These waves are activated by a smaller portion of our amino acids ("micro-antenna" which communicate with the DNA).

On the other hand, the emotion of love is the base for all positive emotions. It generates quick and short wavelengths that engage a greater percentage of the DNA antennas. (29) In this way, the human potential expands, the obstacles are falling, and the human body opens up to nature through its genetic code (DNA).

"Lifestyle," as the extended arm of "knowledge," determines the level of civilization. At the same time, it answers the question if the civilization exists in harmony with nature and whether it allows unlimited development to its members.

Now we have determined a new definition and content of the level of civilization: The criterion of the civilization is the attained level of knowledge and lifestyle.

6. ELEMENTS OF MAYA CIVILIZATION

This Chapter has an unpretentious title “Elements of the Mayan Civilization” because of the obvious reason: this is an extinct civilization and therefore it is not possible to provide a complete civilization overview.

The limitation we encounter is compounded by two additional facts: first, most of the Mayan writing system/hieroglyphs has not been deciphered (over 80%) so we are not able to use the information which is theoretically available, but still incomprehensible; and second, in our exact scientific approach we will not make use of the rich wellspring of information possessed by today’s shamans, and “keepers of the Mayan knowledge”, nor of the legends and stories from this area. But, in spite of that, we have plenty information to process analytically which should permit us to overcome this handicap to a degree.

6.1. Initial assumptions

The task of this dissertation is to prove that the Mayan society was at the level of the civilization, and then to compare two societies, one of which does not exist anymore, and the other still flourishes. We will start with the hypothesis that both civilizations are

autochthonous in their origin and development. The Western Civilization has its roots in the classical civilizations of Rome and Greece and somewhat earlier Sumer and Babylon. However, we will consider the Middle and New Ages as outcomes of independent development, and pay attention predominantly to the period from the 17th and early 21st century.

As the starting point for the Mayan Civilization we will be take hypothesis that they did not have a model for their development and that there had been no more advanced civilization to influence their fundamental civilization achievements. In other words, for the purposes of this dissertation, we will exclude the possibility that a superior civilization (terrestrial or extraterrestrial) had shaped the knowledge of the Maya.

Consequently, the starting axiom is that the Maya and the Western Civilization are both exclusive creators of their accomplishments in architecture, astronomy, communication, and other civilizational achievements.

6.2. Territorial and chronological framework

In territorial terms, the Western Civilization includes the so-called countries of the "First World": Western European, North American (USA, Canada) and some Pacific countries (Australia, New Zealand and Japan). The period of observation is from the 6th to early 21st century (fifteen hundred years).

As the territory of the Mayan Civilization, we take the region of today's Mexico (counties of Chiapas, Tabasco, Yucatán, Quintana Roo), Belize, Honduras, Guatemala and Salvador. The world of the Maya had three seaboards: the Mexico Bay to the north, Caribbean (Atlantic Ocean) to the east and the Pacific Ocean to the west.

Illustration 1: The Map of the Mayan World located on the territory of five Central American countries of today: Mexico, Belize, Honduras, Guatemala and Salvador

The timeline of the Mayan appearance starts from the beginning of the 3rd millennium B.C. and lasts until the 10th century A.D. In addition, most archaeological information is focused on the last fifteen hundred years of this civilization.

At this point, we need briefly to review the widely-accepted dogma about the chronology of historical emergence of the cultures in the territory of Central America.

Most sources consider the “Olmec Indian Culture” as the “mother of all cultures” in the region. Its appearance had been dated about 1000 B.C. Allegedly, they preceded the cultures of the Zapotecs, Toltecs and Teotihuacan citizens around 2000-2200 years ago. The time of the Mayan appearance has also been dated at several centuries BC (10), (12), (13), (16), (22), (30), (31), (32), (33), (34), (36), (37)

The results of more recent archaeological research have completely changed this chronology. In the Mayan city of Cuello, in Northern Belize, the remains of wooden dishes had been discovered and submitted to the radiocarbon C-14 testing method. It has been established that the items are about 4,700 years old. (35) Archaeologist Norman Hammond, who had discovered these items, wrote: “One working season in Cuello shifted the Mayan history by one thousand years. The Olmec Civilization has been abandoned as the source of the Mayan Culture. The possibility has been open that the Maya actually played the role in the emergence of the Olmecs”. (35)

Even though the early 21st century research moved the historical appearances of the Olmecs a somewhat earlier, to 2000 B.C. (25), (which is one thousand years more than

believed only two decades ago), this is still not enough to take away the primacy of the of the Maya as the oldest culture in the region.

6.3. Elements of developed non-technological Mayan Civilization

6.3.1. Mayan Architecture: creativity, diversity, originality

Examples of the original and creative Mayan architecture are visible on different types of constructions, such as ceremonial platforms, temples, palaces, towers, pyramids, playing fields, etc.

6.3.1.1. Ceremonial platforms

Chichen Itza, Mexico Uxmal, Mexico

Illustration 2: Mayan ceremonial platforms, Chichen Itza and Uxmal examples (50)

The ceremonial platforms are relatively short, up to four meters long. The sidewalls have figures engraved in stone. Their public-gathering function is obvious, since they had the altars on the upper part, the places for lighting of aromatic incenses and flag poles.

6.3.1.2. Temples

Palenque, Mexico

Tankah, Mexico

Tulum, Mexico

Chichen Itza, Mexico

Illustration 3: Different design solutions of Mayan Temples, examples in the cities of Palenque, Tankah, Tulum and Chichen Itza

Communication with higher, superior beings ("Gods") was conducted in the temples. Temples were usually located on the pyramid tops and opulently decorated. Inside, they had

rooms and a place for the altar. In some cases, the temples have murals and panels engraved in stone. Some temples were built of wood (these temples were mostly lost in the time) and some of stone, and these were for the most part preserved.

6.3.1.3. Palaces

Uaxactun, Guatemala

Kabah, Mexico

Uxmal, Mexico

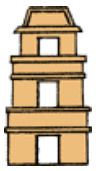
Illustration 4: Mayan Palaces, examples in the cities of Uaxactun, Kabah and Uxmal

Mayan Palaces are constructed either individually or in groups. They are situated on platforms, inside ceremonial centres. The walls are flat and smooth and often decorated with ornaments or engraved figures and petroglyphs. A series of inside chambers probably served as accommodation for the ruling class.

5.4.1.4. Towers

Xlapak, Mexico

Nocuchich, Mexico



Palenque, Mexico

Puerto Rico, Mexico

Chanchen, Mexico

Illustration 5: Mayan Towers, examples in the cities of Xlapak, Nocuchich, Palenque, Puerto Rico and Chanchen.

The towers, as Mayan stone monuments, were built mostly in the western part of Yucatán in the Mexican State Campeche today. To date, their astronomical and calendar functions have been confirmed, as well as the correlation with the cycles of the Sun and Venus.

6.3.1.5. Pyramids

Coba, Mexico

El Mirador, Guatemala

Uxmal, Mexico

Illustration 6: Mayan Pyramids, examples in the cities of Coba, El Mirador and Uxmal

Impressive pyramidal structures of the Maya were the result of additions to older buildings. Such additions were performed in exactly determined time intervals. This way, the new pyramid was erected on the top an earlier building, leaving the earlier pyramid intact.

6.3.1.6. Playing fields

Copan, Honduras

Zaculeu, Guatemala

Illustration 7: Mayan Playing fields, examples in the cities of Copan and Zaculeu

Each Mayan city had at least one playing field; larger city centres had eight or more playing fields. The ball game had a cosmic significance. The pitch is situated in the centre; to the sides are lateral slopes that end inside the walls. The stone rings for ball strikes are attached to them. The platforms for the audience and the ceremonial temples are above the walls. The size of the pitch, the platform and the temples vary from city to city.

6.3.1.7. Observatories

Uaxactun, Guatemala

Chichen Itza, Mexico

Dzibilchaltun, Mexico

Illustration 8: Mayan observatories, examples in the cites of Uaxactun, Chichen Itza and Dzibilchaltun

The instruments for the observation of the celestial bodies have never been found inside Mayan observatories permitted them to serve as fixed points for observation of stellar

constellations and celestial bodies. It has been confirmed that the observatories were also used as the astronomical markers, located on the same path as the other construction markers. (50)

6.3.1.8. Corbelled Arches

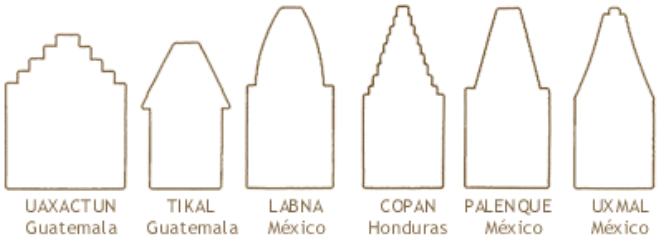


Illustration 9: Stone Corbelled Arch in Mayan architecture, examples in the cities of Uaxactun, Tikal, Labna, Copan, Palenque and Uxmal

The diversity of architectural solutions and construction methods is visible in the construction of corbelled arches. The illustration shows six different techniques of putting in vaulted ceilings.

6.3.1.9. Stelae

Izapa, México.

Xultún, Guatemala.

Yaxha, Guatemala.

Naranjo, Guatemala.

Bonampak, México

Illustration 10: Stelae as the original architectural expression of the Maya, examples in the cities of Izapa, Xultun, Yaxha, Naranjo and Bonampak

Stone monuments – stelae are the original architectural approach of recording of the important events in the political, military and historical life of Maya. The stelae usually portraits Mayan leaders, surrounded by mythical beings and animals; stelae are full of superior beings being worshipped by Maya leaders. (SEE ANNEX: Photography 5: The stone stela no. 5, Izapa, Mexico, is 255 cm tall and weighs 15 tons; dated 300 BC)

6.3.1.10. Houses

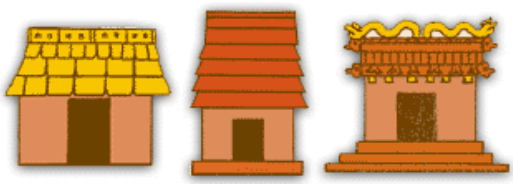


Illustration 11: Examples of Mayan House

Most Mayan residential buildings had been built of organic materials. A millennium later, the remains of their houses have not been preserved, but it is assumed that these looked like in the illustration above. Modest, but representing a permanent solution.

Other Mayan architectural types that stand out are: underground reservoirs (“chultuns”) used for collecting, steam baths for spiritual cleansing and medicinal use, the sewage systems and the road system – “sacbe”, which will be further elaborated below.

6.3.2. Advanced astronomical knowledge

Despite the systematic efforts of the Spanish to destroy all evidence of sophisticated achievements of the Maya in astronomy and mathematics, in the last few decades, a lot of effort has been invested in understanding this lost civilization.

6.3.2.1. Venus

There is solid evidence about a very intimate relationship between the Planet Venus and the "Governor's Palace" in Uxmal (Yucatán, Mexico). Spanish conquistadores, amazed by the beauty of this building, had named it the governor's seat. Of course, the Maya had not had governors and the key to understanding this building is hidden in its astronomical orientation.

More than 350 glyph engravings dedicated to this planet of the Solar System had been carved into the facade of the "Governor's Palace" (stylized letter "M" with two dots is the Mayan symbol for Venus; and this symbol dominates the main facade). (SEE ANNEX: Photography 6: "Governors' Palace", Uxmal, Yucatán, Mexico)

The measurements taken in 1975 (explorers Aveni and Hartung) (51), showed that the long side of the Governor's Palace has the angle of 19 degrees in relation to the main orientation of the buildings in Uxmal. Under the identical ("southernmost") angle, the planet Venus appears in the sky every eight years. This exact eight-year period was very important for the Maya.

The Maya knew that the synodic period of Venus (the time when the Venus is in conjunction with the Sun in the sky) is 584 days. There are five different synodic positions of Venus (as the diurnal and nocturnal cosmic object). After the fifth synodic period, this phenomenon repeats over five new periods. Modern astronomers call this phenomenon "the Great Cycle of Venus".

Five cycles of Venus (2,920 days) correspond exactly to the period of eight earth cycles, or years (2,920 days). The specific evidence of this "five-to-eight" relationship is evident on the northwest and northeast ends of the Governor's Palace facade. A line with three dots, i.e. number eight accompanies the mask of god Chaac who has a strong connection with the planet Venus. (SEE ANNEX: Photography 7: "five-to-eight", Governors' Palace facade, Uxmal, Yucatán, Mexico)

The event itself, when the Venus appears at the southernmost point in the sky (January 1997, 2005, 2013, etc.), and its celestial trajectory correspond to the imaginary line between the Governor's Palace in Uxmal on one end and a small pyramid in Cehtzuc, still little-known Mayan city, which is visible on the horizon when looking from Uxmal! According to Aveni (1975), the deviation is insignificant: less than one degree (117.56 relative to 188.22 degrees). But, at the time when the Maya built these pyramids (late 9th century), the position of the Earth in the Solar System had been a bit different, therefore, there had been no deviations whatsoever.

Southwest of the Palace, the Great Pyramid rises to the sky. It has been partially restored. Originally, it had nine terraces, i.e. nine levels ("Nine Time Keepers of the Maya"). The

symbolisms behind the number of the stairs and the levels and the temple on the top of the platform with the figure of the God Chaac complement the sacred Uxmal complex, which served as the exclusive school for astronomers, mathematicians, shamans, priests, oracles and healers.

6.3.2.2. The Sun

Another example of the brilliant link between astronomy and architecture can also be seen on the Temple ("seven puppets") at Dzibilchaltun in Yucatán (Mexico). With their extraordinary performance, Mayan builders allowed the sunlight to shine fully only during the annual equinox. In this way the Maya had shown the mastery in both disciplines.

Photography 1: Mayan Temple built in such a way, that the Sun appears full size in the central aperture only on the day of spring and autumn equinox, Dzibilchaltun, Mexico

Photography 2: Kukulcan Pyramid during the spring equinox, the light phenomenon creates the illusion of the serpent on the stairs, only on the day of spring equinox, Chichen Itza, Yucatán, Mexico

We mentioned before the sun effect, which is created only on the day of the equinox in the example of the Kukulcan Pyramid (Chichen Itza, Mexico). Seven light triangles are created and together with the serpent's head at the foundation of the stairs they form a descending serpent. This is the symbolism on the astronomical, architectural and philosophical level.

6.3.2.3. Mercury, Jupiter, Mars, Saturn

One of the preserved Mayan books, the Dresden Codex, is mainly dedicated to astronomical phenomena. It can be established by the textual analysis (52) that the Maya described the movement and celestial visibility of the following planets: Venus, Mercury, Mars, Jupiter and Saturn.

In the symbolism of Venus, there is a sequence of the following numbers: 236 days, 90 days, 250 days and eight days. The sum of days is 584, which conforms to the Venusian synodic cycle. The first number of 236 days corresponds with the visibility of Venus in the eastern sky (as observed from Central America) as the “morning star”. The second number of 90 days is the period when Venus is not visible because it is “hidden” from the Sun. The third period lasts 250 days when Venus appears in the western sky as the “night star”. And finally, the fourth eight-day period, when the Venus is hidden by the Sun again. (52)

As we mentioned before, five of these periods last 2,920 days in total and overlap with eight Earth years.

The Codex provides the information about the visibility of Mercury, which has an eccentric elliptic orbit. Because of such orbit, the synodic cycle of Mercury lasts between 104 and 132 days.

The Codex provides information on solar eclipse cycles and the full and the new moon cycles. The Moon cycles are an example how the Maya solved the problem of its duration. Modern astronomy determined that the lunar month lasts 29.53059 exactly. So, less than 30 and more than 29 days. Mayan astronomers determined that 4400 days can be represented as 149 lunar cycles, which corresponds to the number 29,53020. This was obviously more than enough to minimize the discrepancy between 29 and 30 days. (12)

The appearances of the planets (Mercury, Venus, Jupiter, Mars, and Saturn) after the conjunction with the Sun are described as well. Then the planets are visible in the morning sky, before the Sun rises. These periods matter, because they determine the duration of the

synodic cycles of individual planets. For example, Mayan astronomers had rounded the synodic cycle of Mars to 780 days (to be more precise, it is 779.936 days).

The Dresden Codex provides a precise description, when two planets, visible from Earth, find themselves aligned, obscuring one another.

Also, the Codex accurately determines solstices and equinoxes.

Some explorers of the world of the Maya found that Mercury and Jupiter were meaningful for Maya leaders. Floyd Lounsbury showed that the positions of Jupiter in the sky had been important for several ruling dynasties in Palenque. James Fox and John Justeson demonstrated the references to Saturn in ancient Mayan glyphs. (12).

6.3.2.4. Movement of the Solar System in the Galaxy

The Maya situated their stay on Earth within the framework of the "Long Calculation System", which lasts for 13 baktuns (1,872,000 days or 5,128 years). Each event is in the cycle that started in 3114 BC. This cycle ends in 2012. (12) Five of these cycles match the exact duration of the Platonic Long Year (approximately 26,000 years).

Illustration 12: Stela number 11 from the ancient Mayan city of Izapa, Mexico, shows the Cosmic Father inside the Cosmic Mother's "mouth"; representing the "birth canal" (Milky Way Galaxy) which will culminate on December 21, 2012, when the prophesized planetary disposition of the planets and the stars occurs in the sky. (76)

The question which will remain unanswered is how the Maya knew about this cosmic cycle. It was obviously necessary that the civilisation had the concept about (a) the existence of the solar system, (b) the existence of the galaxy as a complex set of solar systems, (c) the movement of the solar system within the galaxy, and (d) the periodicity, i.e. laws governing this movement.

6.3.3. Calculation of Time

6.3.3.1. Perfect cosmic and terrestrial calendars of the Maya

Normally, when we consider Mayan achievements, we think about their Calendar. It is well known, that the Maya calculated the duration of an Earth's revolution (its rotation around the Sun) to a thousandth of a decimal point. Archaeology claims that the Maya did this without precise instruments. And not just that. As we saw in the previous chapter, the Maya had the lunar phase and eclipse calendars and with great precision calculated duration of the orbits of Mercury, Venus, Mars, Jupiter and Saturn.

According to Linda Schella, the leading expert for deciphering the Mayan language ("Mayan Cosmos, New York, 1993) the stone stelae in the Mayan city of Quirigua, Eastern Guatemala, portrays events that occurred 4.6 and 13 billion years ago!

Were the Maya by this letting us know that they had known very well (a) when our Planet was created and (b) when this cosmic cycle had begun (since "the Big Bang")?

The official historiography talks about the "Mayan obsession with calculation of time". They list their calendars: (1) the "Long Calendar", which last from Day Zero and year 3114 B.C. to our year 2012; (2) the "Religious" calendar of 260 days, consisting of 20 13-day months; and (3) the "Solar" calendar with 365 days (18 months of 20 days, plus five more days).

Their very precise calculations of solar years for the planets in the Solar System are not questioned. Some pointed out that the fascination of the Maya with time had not been scientific in our sense of the term; for them, time was circular, with the cycles repeating ("the rulers should repeat the rituals and actions of their ancestors").

In the Visitor Centre of the Kitt Peak observatory in Tucson (Arizona, USA) there is a Mayan mural with the following inscription: “The Maya had a calendar in use which was scientifically more precise than today’s Gregorian calendar”.

This fact is not a coincidence.

The Western Civilization’s calendar is based on a year with 365 days. Every four years, it must be corrected by one day (which is added in February). And not just that. Every 400 years, another day must be added to harmonise the calendar with the Earth’s position in the Solar System.

On the other hand, in 4,000 years of the existence of their civilization, the Maya never once needed to harmonize (whether add, or subtract) days in their calendar

Here, of course, we mean just one of the calendars. Below, we will list the famous Mayan calendars. (53)

1. Tzolkin – the main, “sacred circular” calendar of 260 days. It maintains the harmonic relationship between people, the Sun, the Solar System, and the Hunab Ku Galactic core, the Creator of movement and measuring. It also forms the short 52-year cycle of the Pleiades Constellation.

2. Haab – the main secular calendar. It consists of 365 days or 18 months of 20 days and five additional days every year.

3. The Long Cycle – the linear time cycle. According to the NASA research, it is precise down to 0.00000001 of the atomic calendar clock, or one day in 180,000 year period. This calendar was used on the facades of temples and on the stelae to project important dates from the distant past and the far future. This calendar is correlated with the Baktun Cycle: 5200 years x 5 cycles = 26,000 years, which corresponds to the "Platonic Year".

4. Masters of the Night – the nine-day cycle which is constantly repeating. When it is used in combination with the circular calendar, it yields the dates which will not be repeated in 467 years.

5. Ixim Tun – the natural cycle's calendar, important for the Mayan agriculture. It lasts for 130 days, half of the Tzolkin.

6. Mom Tun – a 180-day cycle; it helped the Maya understand the insects' reproduction.

7. Tun –360-day cycle, which is perfectly correlated with the Solar System, planets, stars and galaxies.

8. Tz'otz Tun – Prophetic calendar, with 364 days. It consists of 13 months, 28 days in each month (also known as the "bat" cycle).

9. Ix Tun – the lunar calendar used on monuments. It counted the days of the lunar cycle, therefore, it was important for the tides and female cycles.

10. Klejeb – 400-day prophetic calendar used by some of the present-day "keepers of the Mayan knowledge" today. Very little is known about its real purpose.

11. Muchuchu Mil –the Pleiades Calendar; the 52-year-long cycle, which synchronizes the Haab and Tzolkin Calendars. Its purpose is to enable a full life experience to every human being to allow them to earn the status of the wise.

12. Chol Tun –260-day calendar similar to the Tzolkin, only this one is applies to the macro level.

13. Ku Tun – the cycle of 520 years which observes and measures "the collective influence" on humanity.

14. Tiku Tun – calendar divided into two cycles: (1) Belejeb Bolon Tiku, the dark cycle of nine periods of 52 years, which is a total of 468 years, and (2) Oxlajuj Tiku with 13 celestial cycles of 52 years each, and 676 years in total. This is a prophetic calendar.

15. Ajau Tun – 20-year prophecy cycle, especially interesting for archaeologists.

16. Ekomal Tun – the 520-year cycle that marks the male and female radiation from the Sun. It covers information important for all mankind.

17-21. The Maya had five more calendars, used only by them, whose details remain unknown to us.

The notion of "prophetic calendars" was for the first time substantiate by arguments in the Michael Coe's book "Breaking the Mayan Code", in which he claimed that the "emergence and the development of the central city of Copan in Honduras were prophesied a long time ago in epigraphs. The new breakthroughs in deciphering the Mayan code have confirmed it." (67)

6.3.3.2. Tzolkin – Cosmic Matrix

This Chapter is inspired by the Jose Arguelles's book "The Mayan Factor" published in 1987 (42), in which the author, after decades-long research, introduced completely new notions about the secret Mayan Calendar – Tzolkin. Having in mind that this is an inspiring, but not

profoundly scientifically reasoned text, it should be considered as such: as one possible way to understand the Mayan calendars.

"... Archaeologists, of course, see the calendar as the way to track the time. But, why would anybody dedicate that much time to "track the time" with such incredible precision?

Do numbers have deeper significance in cosmic relations? Besides providing coordinates on cosmic space and time? And, is it really accessible to our physical senses?

What if these numbers have their own frequency? And what if they carry their resonant characteristics... and describe beings, planets and experiences?

Do Mayan incredibly precise numbers hide inside themselves the cosmic code for each and every one of us? Is each number an information... being sent into space?

Each number is information, and every information represents a particular frequency. Communication, or information exchange, takes place between beings, between planets, and between solar systems.

In early 1985, I was contacted by a Mayan, by name of Hunbatz Men. In our conversations, I learnt that was using 17 Mayan "calendars". Archaeologists knew of only six. Finally, I met Hunbatz in Boulder, Colorado, where he gave a lecture entitle "Mayan Astrology". The key to his presentation and to his knowledge was revealed in his final word. Hunbatz stated that *our Solar System is the seventh system whose cosmic map had been processed by the Maya!*

"... Mayan Prophet, Chilam Balam, falls into a trance and the only words he speaks out are the numbers: 1, 13, 7, 9 and 4".

Are the numbers just the numbers or something more?

Are the numbers alive? Are they ethereal entities? Can they occupy our the spiritual dimension of our mind... The dimension that is beyond the control of our materialistic perception of the world?

Can we express the entire story of the Maya, and the global and cosmic history in numbers? To be more precise, using 13 numbers and 20 symbols? In other words, in a 13x20 matrix.

The archaeologists use the term Tzolkin for the Mayan "calendar" with 20 months and 13 days. The original name of this "secret calendar" is unknown, but we know that it is much more than a simple calculation of terrestrial days…

(The Tzolkin is a code. Our alphabet is a code as well. But, the person who knows thirty or so letters has a great power, because through writing it is possible to express the knowledge and wisdom of the cosmos. In the same way, the encrypted language of the Tzolkin carries a distinctive cosmic power. Our brain is programmed to think about numbers as quantity symbols. But, quantification is just one function of numbers.)

"... The comparison with the music notes is appropriate: numbers may also be presented as the music scale. C, D, E, F, G, A, B... 1, 2, 3, 4, 5, 6... Then, there are different octaves, tonal sequences, synchronization of two or more tones... Possibilities are endless. And it all began with a small seven-tone set."

What we call time, the Maya called "harmonic resonance". The days are not periods that last twenty-four hours, but tones ("kin") represented by numbers. Groups of days create harmonic cycles... These cycles are part of a higher organic order in the cosmos.

Our planet Earth is a part of this harmonic system through its relation with the Sun, and beyond, with the Galaxy.

For the Maya, everything was intelligent energy: the cosmos, the Sun, a lump of quartz, an ant or a human. Everything is alive. Every single thing has its frequency. All is information. And information travels.

For the Maya, numbers did not have relationships, as we know them; for us, ten is a bigger number than nine. For them, each number had its own qualities.

Naturally, there had to be a source somewhere as well. That is the Galactic Centre, which the Maya called Hunab Ku. Everything began and ended with this Source of inconceivably brilliant energy force; everything it.

The Maya depicted the energy flow in both directions with a set of numbers from 1 to 13 and then 13 to 1 (counter direction). From simple to complex energy pulsations. And back.

Each number travels to four points of compass, and this is repeated five times. This is the symbolism of 13 numbers and 20 different directions. Tzolkin! 13x20! The Cosmic Matrix.

For the Maya, Tzolkin is a universal table of cosmic frequencies. The numbers go back and forward, communicating with each other. This is what we call,in our Earth parlance, call "time". Our problem is that our "time" travels only in one direction: from the past to the present and to the future. But, all of that is just a half of the picture. The Maya, clearly had a complete picture of cosmic time.

The purpose of the Mayan mathematics had not been simple to calculate time and determine rainy and dry periods, and when to begin with the harvest. This favorite archaeological explanation had third-rate significance. Through the magic of the numbers – the Maya had discovered the galactic constant - Tzolkin.

The numbers on the stone monuments of Copan and other places represent the relationship between galactic harmony and the annual cycles of Earth, Moon, Sun, Venus and other celestial bodies.

The Maya had erected “stelae”, artistically rich stone blocks. Nevertheless, the stelae are not Mayan highest artistic accomplishment. The stelae are the “time markers” that the Maya used to mark the package of five, ten and twenty year periods.

The galactic beam diameter is 5,125 years. The galactic constant is the “calendar” of 260 units. (archaeologists remain baffled by what these 260 “days” actually represented).

So-called “Sun worship”, which both archaeologists and historians like to ascribe to the Maya, is a completely mistaken notion.

As a spiritual people, the Maya knew and valued the higher knowledge and wisdom emitted from the Sun. These cosmic emissions arrived through the cycles that our astronomy calls “sun spots”.

The higher cosmic knowledge is hierarchically ordered: from the Galactic Center (Hunab Ku), to stars (our Sun, i.e. Kin), to planets. The Kin Sun has a cycle of almost 23 years (two times 11.3 years). Inhale and exhale. The Sun receives the information from the centre of the galaxy and then it transmits it to the planets under its protection.

We receive the information from the universe through a system of glass lenses and light refraction. Therefore, at one end, we have the galactic center, and, on the other, the human being. Individual lenses that are between us serve to amplify and transmit this information.

The human being has three lenses: one is the equivalent of the reptile brain, the second of the mammal brain, and the third of the higher mind.

The human dimension is connected with the planetary body (the fourth lens). From this point, the planetary consciousness vibrates together with that of the Sun (the fifth lens). The Maya claimed that, between the Sun and the galactic center, there are two additional lenses between the Sun and the galactic center (one is used for communication between the stars, and the other for information coming from the galactic centre itself).

Let us forget for a bit our vision of the world, with the atoms, space and time, the distance and isolation. Instead, let us look through this galactic telescope. The lens system oscillates in a unique and harmonious way. The information flow is instantaneous. We are talking about cosmic harmony.

And that is exactly what the Tzolkin Matrix is. The harmonic language of the cosmos..."

6.3.4. Mathematical knowledge – uniqueness of the calculation system.

The Western Civilization was introduced to the concept of zero in mathematics only in the 12th century, via so-called "Arabic numerals". Today, it is the generally accepted counting method (from 0 to 9 and combinations of these 10 digits) with the base 10.

The Arabic numerical system emanated from the older, Indian one. There are some indications that Indians had used the zero as early as the sixth century BC. (7)

Six thousand years ago, the first civilization in the modern history, the Sumer, had a numeric system that lacked the zero and had a basis of 60 (seconds, minutes, hours; 360 degrees and 60 minutes of the circle). The numbers were represented by stylized goblets. For example, number 421 was represented by four goblets, space, two goblets, space, and then another goblet.

Later, the Babylon transformed that gap into the zero, making a significant breakthrough in arithmetic. Egyptians expressed numbers in two ways. First, in hieroglyphs, and second, for daily use, they used simple graphic characters (vertical line for number one, reversed "U" for ten, a bundle of rope for one hundred, a lotus flower for a thousand, etc.).

The Hebrew, Greek and Roman systems were similar: the digits were represented by alphabet letters (A is 1, B is 2, etc.), the zero did not exist, nor did the concept of negative numbers. In ancient times, the Chinese used a simple system of vertical and horizontal lines, and the zero was represented by a square.

The Maya had a fascinating numeric system on the base 20. Using only three symbols (dot, dash, a shell as the zero) the Maya were able to write any number. One dot was a number one. Three dots represent the number three. One dash is five, and three make fifteen. Three dashes and three dots above represent the number 18. For the numbers above 20, a new line is introduced above the first one. Therefore, the number 234 is represented in two lines: the sign

for eleven is in the first one – two dashes and a dot (it means 11 sets of twenty or 220); the sign for 14 is in the second line, i.e. two dashes and four dots. The two lines together give the number 234.

Similarly, for higher numbers, the third line is introduced. This third line is the product of 20x20 multiplication, therefore, from 400 and up. The fourth line starts with the values of 8,000 (20x20x20).

The zero is represented by the stylized shell (or a small elongated ellipse). In this way, the Maya had had constructed a system of advanced mathematical reasoning, which included the value of zero.

The Maya always used the same numeric system on their stelae and temples. So, it takes us back five thousand years. The system is simple, very flexible, it is easy to calculate, even for high value operations.

Our numeric system has ten digits (from zero to ten). The Maya had only three.

Using our figures we can express every number by simply adding; we can go indefinitely far in the past and the future. For example, archaeologists and biologists do that, they travel back for ten thousand years, a hundred thousand, or even millions of years back in history, seeking to explain life on Earth.

The Maya had been doing the same. On one of the steles (stone slabs), there is a date (number) of one billion and eight hundred million days (1.814.639.800 days). This is a five million and hundred thousand-year period! It has not yet been deciphered what the Maya described from that period, but the deciphering of this date is just a new piece of evidence on the actual civilization level of the Maya. (7) (SEE ANNEX: Photography 8: Number 8 (dash and three dots) engraved into a stone block, Copan, Honduras)

6.3.5. Hieroglyphs and Petroglyphs – multilayered pictographic writing system

During a period that spanned more than three thousand years, the Maya recorded astronomical knowledge, terrestrial and cosmic legends, and their own history and art.

Their favorite medium were the picture books, folded many times. They were known as codices. Until recently, we knew of only three such books and they were named after the Museums where they are kept: Dresden, Madrid and Paris. The so-called Grolier Codex appeared in late 1960s, but it is not available to the general public (it's a part of a private collection). Finally, in 2005, the Prague Codex kept at the National Museum of the Czech Republic (Naprstek Museum Department) emerged as the fifth preserved Mayan manuscript.

The Mayan writing system was complex and, despite intensive research of the epigraphs, most of them have remained mysterious. It is a combination of the system of characters (glyphs) which represent entire words, processes or smaller sound combinations (syllables). About 800 glyphs have been identified so far, and it is assumed that we know the meaning of one-fourth of these. This type of pictographs are called logographs and they usually appear in

the form of an image. For example, the word “jaguar” is represented by the image of a jaguar’s head.

Illustration 13: Glyph which is pronounced “Ee”; in the upper right corner is the ear, symbolizing the life trajectory; the straight nose represents the stairs and this glyph symbolizes the life’s destiny, the path that is chosen and the initial energy needed to achieve the goals.

For some words that were not easily represented by an image, the Maya used a glyph that sounded like the desired word. For instance, the verb “to count” (“shok” in the Mayan language) was represented by the head of a mythological fish, also called “shok”.

The combination of words and syllables most often looked like a rebus. Each character had multiple meanings; each image could also be interpreted in different ways (in a literate translation of what it represented, or by a pronunciation, in which case it meant something else). Did “shok” mean “counting” or “fish”?

The glyph with a stylized smile (“smile-line”) and two small squares (“two frontal teeth”) has at least these meanings: a spirit, a breath, the wind, cosmic energy, inspiration, life principle, the breathing system, the North (point of compass)!

Imagine the possible combinations of these 800 pictographs. An exceptional spiritual and material knowledge is necessary to either decipher this system or to write in it.

Not only that each word had multiple meanings, but also one word could be written in many ways. The jaguar mentioned before, for example, can be represented by a stylized jaguar's head. But the Jaguar ("balam") can also be presented by the syllables ba-la-ma, which resemble three rebus images.

Using their hieroglyphic writing system, the Maya were able to represent their sound language perfectly: sounds, grammar and syntax.

In comparison with their written language, our alphabet is simplistic, superficial and incomplete.

450 years ago, Spanish Bishop Landa, tried to transpose the concept of Mayan written language into the Western alphabet. In conversations with the local Mayan priest, he received individual meanings which he could not understand conceptually (for example, images sometimes represented letters; some words were pronounced the same, such as "sky", "four", "snake" and "prisoner", but the meaning was defined bythe context). As he saw that this Spanish high church dignitary could not extricate himself from his limited mental box, one morning, the Maya simply wrote in the Lands' book: "I cannot do it any longer". And then he just left. (7)

On the photograph I took at the Mayan Centre in Copan, Honduras, there are several glyphs engraved in stone. The pictographs come in series of four. And that is how they should be read, in the clockwise direction. The first image is added to the second one, the second to the third... and in this way, the meaning is completed.

Our system is much simpler (not an advantage in this case). Words consist of letters and their meaning is unchanging, whatever stands at the end of the sentence.

Mayan pictographs had communicated with, merged and augmented one another.

Photography 3: Mayan Petroglyph, Copan, Honduras

6.3.6. Examples of acoustic engineering in Mayan world

The most beautiful Ancient Greek amphitheater is in Epidaurus (today's Peloponnese). It was built in 330 BC and it had 14,000 seats. Concrete benches were placed a meter apart. When the orchestra starts playing on the stage, the sound reflected off the concrete blocks and began making its own "music". The periodicity of the blocks (one meter each way) generated periodically low tones of approximately 340 Hz. These are very short sounds which last less than 50 milliseconds. (54) Epidaurus is an example of the accidental echo sound effect.

Right after its opening in 1962, the largest cultural center in the world, the Lincoln Center in New York, had to completely dismantle and rebuild its new main concert hall, due to acoustic defects.

The so-called "Whispering Gallery" of the St. Paul's Cathedral in London displays unusual acoustic effects; the whisper from one end of the gallery can be clearly heard at the other end, 42 meters away.

The similar thing happens in the Oval Gallery in the U.S. Congress in Washington, where a whisper can be heard throughout the entire granite hall. So, while the politicians of one party whispered about voting strategies, the politicians of the opposing party would cock their ears and pick up the other side's secrets. Of course, this could not go on for long in the Congress and this venue today is used only for sculpture and art exhibitions. German poet Goethe had called architecture "the frozen music". The periodicity of construction blocks reminded him of musical rhythms.

For the Maya, there had been no such thing as “accidental echo sound effect” nor was their architecture just “frozen music”.

The Great Mayan Playing Field at Chichen Itza is hundred and eighty meters long and seventy-five meters wide. The two parallel walls are ten meters high; the court is completely open to the sky. The walls have no curvature, and they do not touch. A whisper at one end of the wall can be clearly heard at the other end. And across the court as well. On that November day, when I paid a visit to this city, there was a light breeze. But it did not affect the sound waves at all. (SEE ANNEX: Photograph 9: Acoustic stone wall on the Playing Field, Chichen Itza, Mexico)

An echo inside the semi-enclosed amphitheater or a whisper travelling inside the British cathedral could be understood. But, if the Maya could achieve a much stronger effect, in open spaces, then it is obvious that this could be no coincidence. In theory, the acoustics at the playing field would be expected to be very poor, but in reality, the outcome is exactly the opposite.

In the first third of the 20th century, as a reconstruction of the Great Playing Field was carried out, the archaeologists noticed that the sound started to carry more strongly as more original blocks were put in and as the wall resumed its former appearance.

This indicates two phenomena. First, the stone that the Maya had used had special “sound-conductivity” characteristics. And, second, that the location of this city is such (“energetically

potent spot") that it amplifies sound transmission. This is how this sound phenomenon, or anomaly, is generated.

Leopold Stokowski, the famous conductor of the Philadelphia Symphony Orchestra, investigated the acoustic phenomena at this site in 1931. He would listen to his phonograph for days, and would move it to all possible locations at the Playing Field, trying to discover its secret. At the time, Stokowski wanted to build a concert hall in the open. However, he never discovered the secret of Chichen Itza. (55)

I have often witnessed several interesting phenomena myself when standing on the top of the pyramids in Guatemala and Mexico.

First, if you looked from the ground level, the pyramid's 30-40 meter height did not seem that impressive. However, when you stood at the top of the pyramid, people down below seemed to become much smaller than expected. Their voices were somehow muted, and disappeared in the distance. On the other hand, our voices, from the top of the pyramid, echoed down the valley. The explanation is hidden inside the temples at the top of the pyramids. The indentations in the stone walls operate as amplifiers of our sound, which is then transmitted in all directions. At the top of the pyramid, we assume divine properties. Here, the design abilities of Mayan architects got their full expression. And, to comprehend completely their genius, one should have a chance to be present when these pyramids had been covered in plaster, whose smoothness, further amplified soundwave reflection and transmission effects.

The pyramids in Tikal, Guatemala, face each other. Thanks to the stone resonators, people talking in the normal voice at the top of one pyramid can be clearly heard at the top of the other, distant pyramid.

Another example of the Mayan acoustic engineering comes from the Tulum in the Carribean. The openings at the stone temple are shaped in such a manner that, when the wind blows from a particular direction and at a specific speed, a sound similar to the referee's whistle is created. Was the purpose of this whistle to signalize the arrival of a hurricane or a storm as the literature suggests? I believe that the original buildings could have been produced the sounds for various climate forecasts. (SEE ANNEX: Photograph 10: Whistle from Tulum, Quintana Roo, Mexico)

In Yucatan, they use the term "the singing stones" to describe the stone that amplifies the sound. The Maya knew which stone has this property; moreover, the layout of their buildings indicates that Mayan architects constructed particular sections of their cities in a systematic manner.

In the centre of the Playing Field in Copan (Honduras), there is a square stone slab. Before the game began, the team captains would stand on the slab and address the ruler in the royal lodge. The amplified sound would easily bridge the distance between the ruler and the players. (SEE ANNEX: Photograph 11: Acoustic sound effects at the Playing Field in Copan, Honduras)

The similar acoustic sound effects are seen at the playing field in Monte Alban, one of the largest in Mexico. The court is in a hollow; I could hear the conversation from the top of the stairs even while standing at the centre of the court.

The Kukulcan pyramid in Chichen Itza has another impressive feature. At the bottom of the great stairs, stone serpent heads are entering the fundaments. Imitating the guides and other visitors, I also clapped my hands. But this time, the echo of the clap did not return to me. The sound I heard resembled the chirp of a bird!

This goes hand in hand with the legend, which states that the recorded sound of the sacred Mayan bird – Quetzal had remained inside the pyramid.

According to the legend, the Quetzal bird symbolically represents the “Mayan spirit”. The Kukulcan in its root (prefix “k’uk”) represents the Quetzal bird in the Mayan language. The second name of the Superior Being Kukulcan is Quetzalcoatl (in the Nahuatl language, a thousand kilometers to the west).

The importance of the bird Quetzal, is shown in Mayan hieroglyphs. The Kukulcan is shown in human form with a large Quetzal hovering like a ghost behind him. Furthermore, there are many pieces of evidence on the use of Quetzal feathers in the spiritual ceremonies in all Mayan cities.

The Quetzal is the link between the material and spiritual world. The Kukulcan Pyramid bypasses these two dimensions through a sound of a bird chirping. The echoes that we can hear… are the spiritual voice of Quetzal delivering messages from the Superior Beings. (7)

The 21st-century world uses the media such as computer discs to record its sounds. In the last hundred years, the sound recording technology has changed several times.

Unlike us, the Maya kept their sound records inside their buildings. Unlimited by technological shifts or changing seasons.

In order to confirm this thesis, it is necessary to apply the new scientific discipline – acoustic archaeology. We will employ the modest instruments of the present (sonography and sound crystal) and seek to verify this hypothesis.

The hypothesis is as follows: In the Kukulcan Pyramid example, the Maya had constructed the stairs to act as the acoustic lattice, intentionally creating the echo that imitated the sound of the sacred Mayan bird Quetzal (lat. pharomachrus mocinno).

The sound recording of the Quetzal's chirping had been made in its natural habitat; also, the sound and the sonogram of the "chirping" that is created on the stairs had been recorded. The comparison parameters were sound quality, the frequency, length and the structure of the harmony. The results were reported by acoustic scientist David Lubman from Westminister (California) in 1998: there is a striking similarity! (56)

The sound frequency of the Quetzal bird's chirp is between 900 and 1300 Hz. The average width of the stairs is 26.2 cm and it gives the maximum frequency of the "birdsong" of 1310 Hz. The average height of the stairs is 26.4 cm, giving the length of the hypotenuse of 37.3 cm and the minimum frequency of the stairs' "chirp" of 922 Hz.

In other words, the design of the stairs, the material used and the construction itself, had all been chosen to ensure as close as possible imitation of the sound that the Quetzal produces.

There is something unusual about the design of the stairs. , The archaeologists explained the fact that they are quite narrow because the Mayan bodies were proportionally smaller than ours. However, at the same time, each step on the stairs was significantly higher than it would be expected for the short-statured Maya. (SEE ANNEX: Photograph 12: Disproportionately high and narrow stairs of the Kukulcan Pyramid, Chichen Itza, Yucatán, Mexico)

Acoustic archaeology offers the answer to this incongruity. The width and the height of the stairs had been carefully selected in order to produce the desired tone. The Maya used the dimension of the stairs as the parameters to produce a desired intonation!

The stairs at different Mayan Pyramids have different dimensions. Does it mean that they "played different tunes"? I have no doubts that it is the right answer. Do the stairs of the Kukulcan Pyramid contain the sound recording that is one thousand and a half years old? And again, my response is affirmative.

It is ironic that archaeologists have so far been ignoring sound in their research of ancient civilizations. While every time they walked down a pyramid's stairs, they would play an ancient audio recording.

In theory, it would take at least two stairs to create a distinctive sound. By adding the number of stairs, the tonal experience also increases. A dozen stairs can create a tone that lasts from one to two hundreds of a second. If it is an enclosed space, then the echo off other structures might conceal the tone of the stairs. In effect, in order to produce and maintain the sound, it would be ideal to have a long flight of stairs in the open. The Maya were well aware of these requirements.

Each side of the Kukulcan Pyramid has a sequence of 91 wide stone stairs. Two sets of the stairs have been completely restored and the chirping can be clearly heard. But the same tone, somewhat weaker, can be heard on the other two, as yet unrestored, staircases. And, of course, all this occurs without polished plaster that used to cover the stairs.

Because of the length of the stairs, the duration of the echo is 100 milliseconds (1/10 of a second). The Quetzal bird's chirp lasts a little longer, approximately 200 milliseconds. (56)

The pyramid's height causes yet another phenomenon. The chirping comes down from the top of the pyramid in frequency, prolonging its duration. Nothing similar exists in any other building in the world.

The explanation is as follows: the echo arrives first from the lower stairs to the listener standing at the bottom of the stairs. The echoes from the top stairs arrive with delay. The time between the echoes from the lower stairs and the higher ones increases as we are climbing the stairs. This is how the impression is created that (1) the chirping is moving, (2) chirping lasts longer and (3), that the chirping from higher stairs is lower in frequency. (56)

The Kukulcan Pyramid is an excellent example of the mathematical simulations commingled with the Mayan construction skills.

The acoustic experiments in the City of Palenque are especially interesting. The parts of the city which have been excavated and restored so far have demonstrated unusual sound properties. If we produce a light whistle, it travels between the pyramids and temples, it is amplified and moves like a snake from one part of the city to another.

The layout of the Mayan stone buildings affects sound amplification at two levels: horizontal – between individual pyramids, and vertical – emitting the sound from the city as a whole towards the jungle, or to other Mayan settlements. (SEE ANNEX: Photography 13: Palenque, Chiapas, Mexico)

6.3.7. Ball play as imitation of cosmic phenomena

Throughout its existence, the Organization of the United Nations adopted just one unanimous decision in a session of the General Assembly: to suspend all warfare during the 2004 Olympic Games.

Even though athletes and the public were not aware of this decision, which had the legal effect of a law, it reminded us about the universality of similar customs dating back to the time of Ancient Greece. In 776 BC, in the city of Olympia, an athletic competition (200-meter race) was held in honor of the God Zeus. After the initial success and interest, boxing, wrestling, long jump, long-distance and carriage races were added to the program, which was the beginning of the Olympic Games Era, when all Greek city-states suspended warfare. Sports were raised to the universal level and this lasted almost 1200 years. Roman Emperor Theodosius I had abolished the Games in year 394. Only after the dark Middle Ages passed, new sports emerged in the late 19th century: basketball (1891), soccer (1885), baseball (1845), and others.

Unlike the Old World (Europe), the sports competitions in Central America had started much earlier and went on continuously for four thousand years!

Archaeological remains of six hundred (600!) stone playing fields in the area of today's Mexico, Belize, Guatemala, Honduras and Salvador are a subject of controversy between archaeologists and historians.

Remains of wooden dishes have been discovered during the recent excavations in the Mayan City of Cuello, Northern Belize. The remains were subjected to the Carbon C-14 dating method analysis and it was established that they were about 4,700 years old.

For the time being, the theory of the Olmec Civilization as the “mother of cultures” of all other nations in the Central America still holds sway. The Cuello discovery had complicated things: suddenly, the Maya became almost one thousand years older than the Olmecs. The earlier claims that the Maya had based the development of their hieroglyphic script and the knowledge of astronomy on the Olmecas’ legacy were discredited.

Norman Hammond, archaeologist who discovered the mentioned items, once wrote: “A single working season in Cuello has extended the history of the Maya by a thousand years. The Olmec Civilization has been eliminated as the source of the Mayan Civilization. It now looks likely that, actually, the Maya had a role in the appearance of the Olmecs.” (34)

This paper presents a hypothesis that the Maya had appeared on the stage of history even earlier, i.e. as early as 5200 years ago. In the preserved Mayan documents, stelae and hieroglyphs, the year 3188 BC is given as the first year of the new 5200 year-cycle, which ends in 2012. It would be logical to assume that the Maya emerged as an organized society at the start of the cycle.

Another archaeological finding draws special attention. In the far south of Mexico, in the town of Paso de la Amada, a stone playing field was discovered. John Clark, the Brigham Young University anthropologist, had worked on the excavations of the ruins here ever since 1985. After a few years of excavations, to his surprise, he confirmed the discovery of the oldest playing field in the Mayan world.

“It took us a while to understand that this was a playing field – the last thing to expect here, because archaeologically it is very old and, at the same time, the structure is so big”, John Clark said. (57)

Until then, the playing field in the Central Chiapas, which is 2,800 years old, was considered to be the oldest playing field. The playing field in Paso de la Armada is 3,600 years old. It is 80 meters long. It is assumed that an entire network of similar playing fields had existed at the time.

The typical Mayan playing field is shaped as the Roman numeral one (“I”). There are two parallel stone walls framing the court at an inclination. At the height of several meters, near the top of the walls, there are one or up to three circular discs or rings. Different cities had a different number of discs or rings.

Comment [HM4]: Neka provjeri naručilac

A rubber ball had been used in the game. Its size varied. Some balls that were found are as much as 50 cm across, but others are the size of an orange. Mayan petroglyphs and murals confirm this; for instance, the disc from Chinkultic (Chiapas) is showing a player with a basketball-sized ball. Proportionally, the ball on a vase discovered in the Mayan city of Hixwitsu was of the similar dimension. The balls with the human skull inside, dated in the late classical period, were discovered in Chichen Itza. (SEE ANNEX: Photograph 14: Playing field, Monte Alban, Oaxaca, Mexico)

The size of the playing field was determined in accordance with the temporal power and cosmic importance of the given city. Most cities I visited had smaller playing fields: the walls are twenty meters long, or more, and the court is five meters wide, or more. The larger cities

had several playing fields (Coba had eight). The greatest playing field is in Chichen Itza and it is twice the size of the average soccer stadium: 180 meters long and 75 meters wide! (SEE ANNEX: Photograph 15: Playing field, Chichen Itza, Yucatan, Mexico)

The number of players depended on the size of the court: from two per team on the smaller playing fields to as many asseven players per team on the bigger ones.

The walls were smooth, so the ball could bounce back to the players. Since the ball was filled with rubber, it weighed more than one kilogram. For this reason, the players had the padding on their arms and legs.

The images and texts do not indicate that the players touched the ball with their hands. It is believed that it had been prohibited to hit it with hands or feet. The padding was worn on the elbows, thighs, and around the abdomen.

The position of stone rings or discs suggests that the objective of the game was to pass the ball through the ring or hitting the disc.

The contemporary simulation of the game demonstrated that this had been a very hard thing to do. It would not be surprising that it might have taken for ancient players an entire day to score.

The bas-relief at the Chichen Itza stadium shows two teams of seven players each. The captain of one team holds the head of the sacrificed captain of the other team. This had motivated researchers to conclude that the Maya ended each game with a sacrifice. At first, it was assumed that the victim was from the losing team. More recently, the accepted version has spread that the captain of the better team had "deserved" to be sacrificed because he would be born again on the spirit level. A third school raised the possibility that the sacrifice had been just a simulation.

Since the ball is always shown in the air it is believed that it was not supposed to fall to the ground. (SEE ANNEX: Photograph 16, Playing field, Copan, Honduras)

Unfortunately, the rules in written form had not been preserved. There are no oral descriptions, because the original game had vanished with the Maya. The Spanish had not made an effort to describe in detail a very similar game played by the Aztecs in the 16th century. Because of all this, everything that has been suggested about this topic belongs in the domain of conjecture.

The Book of the Creation "Popul Vuh" tells the legend about two young men challenged to a duel by the gods of the underground world. The youngsters lost the game and were executed. The head of one player ended up in the hands of the Goddess Lady Blood, who soon afterwards gave birth to a pair of twins. When they grew up, they beat the gods in a rematch. (58)

This legend could not be confirmed on any of the playing field walls, but it contributed to the game's bloody reputation. (SEE ANNEX: Photograph 17: Playing field, Coba, Yucatan, Mexico)

However, the symbolism of the game itself has a different, cosmic character. The ball could represent the Sun and Moon, and the playing field could be Earth. The ball is always in the air, same as the Sun and the Moon are, always in the sky.

The match between the two teams can symbolically represent the fight between the life and death after the Third Creation (according to the Maya, the last five thousand years has the time of the Fourth Creation).

Also, the game could symbolize fertility of the soil. The field is the soil, the ball is seed, and the seeds fall to the ground down the walls.

In most cases, playing fields are precisely aligned with the points of the compass. The sides of the wall face towards the East and West. This implies that the rubber ball bouncing from the East and West actually represents the rising or setting Sun. (7)

The ruler of Yaxchilan, Bird Jaguar the Fourth, is shown on a bas-relief dressed as the player "playing" with his captured rival about to offer him as a sacrifice to the Sun. (SEE ANNEX: Photograph 18: Playing field, Yaxchilan, Chiapas, Mexico)

The players are always shown as richly dressed, adorned with jewels and wearing protective helmets, which indicated their status and social significance of the game itself.

All stone rings always bear inscriptions of hieroglyph texts and spiritual images. It has been assumed that the passing of the ball through the ring symbolizes the passage through the gate to another world (dimension). (SEE ANNEX: Photograph 19: The ring at the Uxmal Playing Field, Yucatan, Mexico).

In some cases, the rings were an integral part of stone statues that showed a serpent's head; in other words, the rings have the role of eyes for the deities, who are also watching the matches.

And, finally, the Mayan word "hom" means "the crack", but also "the playing field". If the walls that are coming down at an angle to the court could also be considered as a crack in the "Mountain of the Creation" (mentioned by the Popul Vuh), then the playing field itself is the symbol of the act of creation. In this case, the playing field, or the crack, actually allows the game participants to cross into another dimension. (58)

From this dimension, we can be present at the moment when the Third Creation transited into the Fourth… The moment when the Maya appeared on our Planet. And, in the playing fields, introduced the symbolism of the start of a new cycle…

6.3.8. Complex role of the stone roads in the Maya life

The symbolic and metaphysical significance of the “sacbe” – the white roads, is something that has been ignored by the literature.

The essence of the white road is not that it had been built of white stone and that it connects the “white” (stone) cities, but it is in connecting the cities which are the sacred points on the horizon. This is how they attain astronomical meaning.

The network of white roads matches the cosmic network of the stars in the Milky Way Galaxy. Mayan white roads carried information between the cities. Galactic roads carry information between the stars. The terrestrial white road is imitating the cosmic information flow.

Information is a symbol of knowledge. An uninterrupted flow between either the cities, or stars, reflects the capability of a ruler (“God”) to maintain the information (cosmic) network.

Not all Mayan cities are connected by white roads. Nevertheless, there is a connection between the sacred cities. Ideological, informational, spiritual. Many legends mention underground tunnels which also link Mayan cities. If, only for a moment, we could look through the eyes of the Maya, we could see the complex information network of the ancient world.

The characteristic of the white Mayan roads is that they are perfectly straight, without any bends.

Of course, the question is why do the Maya need straight roads if they “did not have a wheel nor draught animals,” as archaeologists claim today.

The link between informational, spiritual and energy networks in ancient Peru, Yucatan, Pueblo Bonita and southwestern England shall become evident. The parallel between the stone roads and (sacred) underground springs and electromagnetic lines will be uncovered. (7)

Therefore, it is possible that, in our microcosm, walking the white roads between cities, or individual buildings, on particular days, actually imitated the path of individual stars and planets in the macro cosmos.

In the ancient Mayan town Chan Kom, the Milky Way Galaxy is called “Zac Be”, or “white road”! The same exact word used for the stone road as well.

The Spanish conquistadors had started destroying Mayan stone roads 500 years ago. A legend had been preserved from those times, which says that, “by cutting the sacbe into two parts, they had “spilt the blood”. There is no doubt that the road from Tulum over Coba, Chichen Itza to Uxmal was one of the most important arteries in Yucatan. It was a sort of umbilical cord with the bloodstream between them. Without knowing it, by cutting it, the Spanish attacked the Mayan system of values and their information network.

6.3.9. Features of the Mayan perfect crystal skulls

In 1927, the researcher Mike Mitchell-Hedges had been cleaning the top of one of the temples in Mayan city of Lubaantun (Belize). His adopted seven-year-old daughter Anna, who accompanied him, had noticed something shiny. She pulled from the dust a beautifully sculpted crystal skull with a missing jaw. Three months later she recovered the jaw as well, ten meters away from the skull. (59)

The skull is made of one, unusually large, block of transparent quartz crystal. It is 13 cm high, 18 cm long and 13 cm wide. It weighs about five kilograms. By size, it matches the size of a smaller human skull, with the details perfectly executed. There is no circular protrusion, which means that it is an imitation of a female skull.

Soon, the skull became the most famous and most mysterious ancient crystal item ever to be discovered.

Photography 4: Mayan Crystal Skull, Lubaantun, Belize

Various controversies have been linked with the crystal skull. Many authors dispute that Mitchell-Hedges (1882-1959) even took his daughter to Lubaantun. They criticize him that he failed to mention his discovery until 1943. And, finally, they claim that he had bought the skull at the Sotheby's of London's Auction in 1943. They also deny Mitchell-Hedges' claims that the skull had been made in the age of Atlantis and later transferred to the Maya. They criticize Anna too, for continuing to proffer her father's "misinformation": she claims that the skull is of extraterrestrial origin and that it had been in Atlantis before it was sent to Belize. The sceptics claim that the skull was made in Germany 150 ago following the example of the Aztec models. (7)

Nevertheless, as we are about to see, all these claims do not deny the unique characteristics of the crystal skull.

Unfortunately, no contemporary technology can date quartz crystal, nor, consequently, the crystal skulls. We can only rely on the years when each crystal skull was revealed to the public for the first time. The older the date is, for instance, the 18th and 19th century, it is more likely that it is a product of ancient masters or some technology still unknown to us.

The short-term French occupation of Mexico during the 1860s, allowed the "explorers" and merchants to obtain crystal skulls, which were later on sold to European museums. The Musee de l'Homme (1878) in Paris and Museum of Man (1898) in London had the transparent crystal skulls, doubtlessly originating from Mayan cities, as the exhibition centerpieces.

The Paris Skull has been on public display to this day at the Trocadero Museum in Paris. The high-polished quartz crystal commands admiration. The Museum's guide contains speculation that the skull represented the Aztec God Mictlantecuhtli. It has been left unexplained how the Museum acquired this item, but it is assumed that it was a part of the "Maximillian's Collection". In other words, from the time of the French rule in Mexico. The skull is of a markedly elongated shape. (60)

The British Crystal Skull is not currently available for public viewing. However, the obvious resemblance with the Mitchell-Hedges' skull can be seen in available images. The only difference is that this skull is in one piece. The material is also the same, the transparent quartz crystal. Only one scientific article was published about this skull, back in 1936, under the auspices of the Royal Anthropological Institute. (61)

There is another crystal skull that is drawing public attention. Its current owners are JoAnn and Carl Parks of Houston, Texas. They bought the skull from Norbu Chen, bioenergy specialist from Tibet. According to his avowal, the skulls originate from the jungles of Guatemala.

The links between the Maya and the crystal skulls do not end here. In 1978, Nick Nocerino obtained a crystal skul for a brief period from its owner, a Mayan priest. He had been authorized to sell the skull for a high price to purchase food for his people (!?). No one bought the skull, but it had been submitted to thorough examinations: with sound frequencies,

oscillator equipment, psychometry, colored lights, magnets, sounds, etc. The conclusion: this is a perfect example of crystal technology. (62)

Comment [HM5]: Vidjeti sa naručiocem: li se ovdje nepotrebno ponavlja « zvučna frekvencija » i « zvuk », ili možda na engleskom treba nekako drugačije ovo riješit

The sales agent of another Mayan priest offered an amethyst (purple quartz) skull for sale in the U.S. in 1982. It had not been sold that year, and then the skull resurfaced again in 1998, looking for a buyer willing to pay a million dollars. Again, it was unsuccessful. (7)

After Mitchell-Hedges's death, the art restorer Frank Dorland obtained the permit (1970) to test the famous crystal skull in the Hewlett-Packard's laboratory (Santa Clara, California).

These tests uncovered a number of anomalies.

The skull had been immersed in the benzene-alcohol solution and a ray of light was directed through it. It was established that both the skull and the jaw had been made of the same block of crystal. The thing that astonished the laboratory technicians is that both the skull and the jaw had been made without regard for the natural axis of the crystal. Namely, the first procedure in modern crystallography is to determine the axis of the crystal to prevent it from shattering during the processing. In the case of Mayan crystal skulls, it appears that their creators had such technology that they did not need to worry about the possibility of the crystal block's shattering.

The unknown artist had not used iron tools. A microscopic analysis failed to find even the faintest scratches that should be visible if such tools had been used. An additional problem

was the hardness of the crystal (Mohs factor 7), which means that most modern tools could not even scratch the crystal's surface.

From the current standpoint, the only way to process the crystal would be the following one: first, the rough outline of the skull was shaped, using diamond tools. Then, the fine processing and polishing were done with abundant application of liquids and crystal sand. If such technology had been applied, it would have taken 300 years of continuous work to produce such a perfect crystal skull. (62)

This phenomenon can be explained either that ancient peoples had advanced technology still unknown to us, or that the crystal skull is an artefact of an extraterrestrial civilization. The latter possibility has been rejected in the context of determination of the initial assumptions for the comparison of two civilizations (Chapter 6.1), and therefore we will not take it into consideration. For the time being, let us focus on the first possibility and the need for the Maya to have possessed advanced crystal processing technology.

The mysteries do not end with the creation of the skull. From the cheekbone to the edges of the skull there are crystal arches which are separated from the skull itself. These arches function as light tubes which apply the principles of modern optics… And carry the light from the skull's base to the eye sockets.

The eye sockets are miniature concave lenses which also transfer the light from the source to the upper part of the skull. And, finally, inside the skull there are a bent prism and tiny light conduits, making it possible to light and magnify objects under the skull.

Richard Garvin, the author of a book on a crystal skull, believed that it was designed to stand above a ray of light. (59) Various light transfers and prism effects would illuminate the entire skull and eye sockets.

Frank Dorland performed experiments with light and observed that the skull “lit up as if on fire”. (62)

We said before that the skull was made of two pieces. The jaws fit the head perfectly and attach to it with two small indentations. This allows the jaws to open and close. The skull has two small indentations on each side, probably intended to fix the skull in place. In a perfectly calm surrounding the skull would remain still. But just a light breeze, for example, would put it off balance and start a back and forth movement. Consequently, the jaws would open and close due to the counterbalance. It would create the visual effect as if we were looking at a “living” skull that spoke (mouth opening and closing) and gestured (nodding up and down, left and right).

What had been the purpose of this crystal skull? Was it an intelligent toy? Or had it been something more?

Many observers had noticed the skull changing colors. The frontal sometimes blurs and looks like white cotton; at other times, it is perfectly transparent. Sometimes, the dark blotches

form, first on the right side of the skull, and then quickly darken the entire skull. Subsequently, the blotches retreat and vanish mysteriously.

Observers also reported strange things occurring inside the eye sockets. They would see the images of buildings, even though the skull's background was black. There were reports that the sound of bells was heard coming from inside the skull…

On the basis of the experiences to date and the skull's effects on its surroundings, it may be construed that it affects all five physical senses. It changes color and light, releases smell, emits sound, and generates the sensation of warmth and coldness in those who touch it (even though the skull is always kept at the same room temperature). It even caused some visitors to feel hunger and thirst. (62)

In Dorland's opinion, this is a phenomenon of the crystal stimulating unknown parts of the brain and opening psychic doorways. He concluded: "The crystal continuously emits electric radio waves. When we remember that the brain is doing the same, it means that they are communicating." He had observed that the cyclic occurrences inside the skull may be correlated with the positions of the Sun, Moon and planets in the sky. (62)

Suggestions of many other researchers are also intellectually challenging.

Marianne Zezelic claimed that the skull "…stimulates and enhances psychic abilities. The crystal acts as a storage device for the Earth's magnetism. When one focuses on the crystal skull, the eyes establish a harmonic link and stimulate the magnetism collected in the part of

the brain known as the cerebellum." In this way, the cerebellum becomes a reservoir of magnetism which affects the quality of the magnetic flow through our eyes. An uninterrupted flow of magnetism is created between the crystal skull and the observer. The amount of energy flowing into the brain intensifies; the magnetic poles of the brain, located right above the eyebrows, are stimulated. And next, we get psychic and parapsychological phenomena. (7)

Adhering to the same reasoning, Tom Bearden, an American expert in the field of psychotronic studies, believes that in the hands of an experienced person, the crystal skull can become a healing instrument. The frequency of the crystal skull can be adjusted to the frequency of the patient's mind and body… in order to amplify the beneficial energy… whose effects are first visible in the patient's aura. In this case, the crystal skull acts as amplifier and transmitter of the psychic energy and terrestrial energy forces. (7)

If we sum up all the knowledge on Mayan crystal skull accumulated so far, it is not strange that the experts, such as Frank Dorland, claim that "… It is literally, impossible even with our level of the technology today, to duplicate something like the crystal skull." (62)

Or, according to the words of a crystallography specialist from the Hewlett-Packard's laboratory: "… This thing simply should not exist!"

Nevertheless, it does exist. Despite the fact that we are unable to explain the technology applied in its production, nor can we completely discern its purpose.

The only thing that we know is that the Maya had been using them. And that they are perfect.

6.3.10. Codices – preserved Mayan books

Only a few Mayan books had been preserved, which makes them priceless for understanding this civilization. Therefore, these codices will be discussed below. (7)

6.3.10.1. Madrid Codex

Abbe Brasseur de Bourbourg (1814-1874) had dedicated his most creative years to the exploration of the Mayan Civilization in Central America. Having lived in Mexico and Guatemala for several years, he had learnt the language, the customs and rituals of the local Indians; during his frequent journeys to European cities, he searched the archives of the documents from the age of the Spanish conquests. In a series of his writings, Abbe wrote about his translations of Mayan stelae and of little known documents which local spiritual leaders had allowed him to examine.

Certainly, his most spectacular discovery was finding the Troano Codex in Madrid in 1866. This is one out of four Mayan books that managed to evade conquistadors' bonfires in the 16th century. A priest who had served in Mexico brought this book to Madrid, where it lay forgotten for 200 years.

When the paleography professor Juan de Tro y Ortolano had bought it at an auction in 1860, he failed to realize what he held in his hands. Abbe identified the book as a Mayan Codex and he named it Troano Codex. (7)

From the Codex, Abbe Brasseur learnt that a horrible cataclysm had destroyed an island in Atlantic in the ancient past. The Codex describe meteors falling from space and ending one advanced ancient civilization Years of relentless scholarly work and publication of completely new theories about human history had not brought glory to this Frenchman: his colleagues ridiculed him, and public institutions shunned him till the end of his life.

There has been no independent confirmation of this decryption of the Codex, so it has to be considered with a reservation.

A replica of the Codex, with the hieroglyphs and drawings rendered in red, green and yellow, and an image of a Maya working on a new book, can be seen in the Archaeological Museum of Guatemala.

Comment [HM6]: Original nejasan, vidjet naručiocem da li ovo značenje odgovara namjeravanom smislu

Photograph 5: Replica of the Mayan Codex, Guatemala City

The authors of the codices had been specially trained. This was because, according to the Maya, the content of the codices was associated with the heavens. The writer had to be “in contact with the gods” and therefore a book is a “sacred object”.

The books were kept inside special rooms in the temples. The only priests who could read them were the ones who had passed the purification (cleansing) process before addressing people at festivals and during special ceremonies.

The authors of the codices had borne the titles of “ah tsib” (writer) and “ah voh” (painter). The priests would pick the most talented children, which were then trained to absorb in-depth knowledge of history, language, astronomy, medical science, etc. They would then devote their entire lives to the writing of codices in Mayan cities.

The colors in the codices did not have a decorative purpose. They had a strong symbolic function and every color had a special meaning and correlation with nature, cosmos and the deities. The paper used for writing had been produced of the inner bark of fig trees ("kopo"). In the case of remaining codices, the books are several meters long and about 20 cm wide. They are folded over and into the shape of a fan. Protective calcium-carbon paste was applied between pages Insides of the pages bear typical Mayan squares, with ideograms. Besides their basic interpretation, the hieroglyphs have additional meanings owing to their arrangement and communication with neighboring hieroglyphs.

The topics addressed by the codices are various: from astronomy, religion, agricultural cycles and history to the prophecies. However, one thing they have in common is that the content is always related to the spiritual world.

Not long after the discovery of the Troano Codex, Spaniard Juan Palacios offered to the Royal Library in Paris and the British Royal Museum, a document which he claimed to was the fourth Mayan Codex. The book had not sold until 1872, when it was finally bought by Spanish collector Jose Ignacio Miro. He, however, sold it again three years later to the Archeology Museum in Madrid. It was named the Codex Cortesianus, since it was believed that it once belonged to Hernan Cortes.

In 1875, Leon de Rosny came to Madrid and concluded that these two documents constituted a single book and he called them the Tro-Cortesanius Codex. Since 1888 these two books are kept together; today they are known as the Madrid Codex and are kept at the Archaeology Museum in Madrid.

When unfolded, the book is almost seven meters long. It has 112 pages (the text is on both sides). It is divided into 11 sections: from rituals for God Kukulcan, through explanations of the calendar and the 52-year cycle, to the process of dying, purification, etc.

This brings us to Dr. Augustus Le Plongeon (1825-1908), a Frenchman, who having travelled the known world, finally settled in Yucatan. He is known as the first explorer of Chichen Itza, where he made over 500 photographs, taken in a special technique which permits three-dimensional viewing.

In addition, le Plongeon learnt the language of the local Indians, studied their culture, listened to their tales and participated in the shaman rituals. He found out that the occult knowledge originated in the distant past. The ritual customs were identical to the initiation process in ancient Egypt. Since le Plongeon was himself a mason himself, he was astonished by the discovery of the mason customs and symbols in Mayan sculptures. (63)

Several sources which described the life of Augustus le Plongeon noted that, until his death at the age of 83, “he had not received scholarly recognition for his work in Yucatan, because his theories had been considered weird” (64).

Augustus le Plongeon applied his knowledge to the translation of the Troano Codex. The following section describes the end of an unknown civilization in the Pacific:

"In the sixth year of Kan, eleventh Mulua, the month of Zac, devastating earthquakes came about and lasted continuously until the thirteenth of Chuen. The Mu land was sacrificed. Twice raised from the water lowered back again, one night it was submerged forever. The volcanic forces incessantly shook the water basin, flooding the land in different locations. In the end, ten countries were submerged. 64 million inhabitants died… eight thousand and sixty years before this book was written." (65)

Le Plongeon also translated the hieroglyphs at the Uxmal temple. According to his interpretation, the writings state that "the edifice has been built to commemorate Mu, the western country, where the mysteries came from…" (66)

Since such conclusions contradicted the established doctrines, le Plongeon lost his credibility and was rejected by the community of scholars, just like Abbe Brasseur. And that was not all. The Mexican Government confiscated most artefacts that the local Indians had presented to le Plongeon. Towards the end of his life, le Plongeon lost the interest to share his discoveries with the outside world. Upon his death, his wife Alice stated that her husband had hidden the maps of underground caves and chambers where perfectly preserved Mayan documents were stored. Will they ever be revealed to us again to reveal the complete truth about the Maya?

6.3.10.2. Dresden Codex

In 1739, the Director of the Royal Library in Dresden (Germany) had bought a book from his Viennese colleagues. The book is presumed to have arrived to Vienna during the 16th century

from the Spanish Royal Court, because at the time the King of Spain was also the King of Austria. The book remained unnoticed for about seventy years until Alexander von Humboldt mentioned it in 1810 in his work on “the natives of America”. And finally, in 1829, Constantine Rafinesque identified this book as a Mayan Codex.

Since then, the Dresden Codex has become the key for deciphering Mayan hieroglyphs and the most famous and most beautiful Mayan book. (7)

During the Second World War, Dresden was heavily bombarded, and the library was damaged as well. Twelve pages of the Codex were destroyed with all the hieroglyphs. The original book is 20 cm wide and 3.5meters long when unfolded. Seventy-four pages had been colored with exquisite technique and with particularly thin and precise brushes. The basic colors are red, black and Mayan azure blue. The descriptions in the Codex have been linked to the city of Chichen Itza in Yucatan. An authentic replica of the scorched Codex is kept at Chichen Itza.

Astronomy is the core subject of the Codex. For a long time, the Codex was used for divination. It contains astronomical and astrological tables. The only thing we can understand with our level of astronomical knowledge is the description of the eclipses of the planet Venus. The Codex also contains the projections of other stellar systems, of other planets of the Solar System and of the Moon. One page is dedicated to the ancient flood and to the disappearance of earlier civilizations.

Photograph 6: Dresden Codex Replica, Chichen Itza, Yucatán, Mexico

6.3.10.3. Paris Codex

In 1859, Frenchman Leon de Rosny (1837-1914) found the second Mayan Codex in the trash bin of the Paris Imperial Library. It was wrapped in paper inscribed with the words “Peres” and “Tzeltal” (in the Aztec Nahuatl language), and was about to be discarded. It had been kept at the Library since 1832, when it was catalogued as “Number 2, the Mexican Collection”.

Having saved it, Rosny identified the book as the Mayan Codex entitled the Peresianus Codex. It was in worse condition than the Dresden and Madrid Codices and of somewhat inferior artistic quality. It is presumed that it was made and used in Palenque. Eleven pages of text (24 cm x 13 cm) are about to gods and ceremonies, rituals and prophecies, future almanacs and zodiac prophecies.

Photograph 7: Detail from the Mayan Paris Codex (69)

6.3.10.4. Grolier Codex

The fourth surviving Codex was discovered in Mexico in 1965 in a cave near the small city of Sierra de Chiapas. Its authenticity was verified by Mexican archaeologist Dr. Jose Saenz. (67) The Codex had been severely damaged, and its contents is mainly astrological in character, it describe the orbit tables of Venus. In 1971 it was sold to the Grolier's Club in New York and subsequently named after it.

Photograph 8: Detail from the Grolier Codex

6.3.10.5. Prague Codex (?)

Scholarly circle recognize four surviving Mayan codices. Czech authors Bohumil and Vladimir Bohm have claimed that a fifth Codex – so-called the Prague Codex is found in the Naprstek Museum, which belongs to the National Museum of the Czech Republic.

At the time this dissertation was written (2009) it was known only that its authenticity had not yet been confirmed by independent sources. According to the Czech authors, "the process of the manuscript preservation is still ongoing and it will soon be presented to the general public". (68)

The Czech authors informed us that the first analysis of the document had been performed in 1956 by scholar Čestmir Loukotka and proclaimed as a forgery created in the 18th century. Loukotka believed that the hieroglyphs that represented the twenty-day cycle had been arranged in a chaotic manner without any system.

The Bohm brothers analysis and the applied ultraviolet spectrum photographic analysis established that is the manuscript was an original Mayan Codex, covered up with a layer of newer drawings. Original figures and calendar information are visible only on the positives with a dark background. It is evident that the original surface of the Codex wad replaced by more recent color illustrations showing the themes similar to the ones in the Dresden and Madrid Codices.

The Prague Codex is 2834 mm long and it is folded into a shape of a book with 18 155 mm x 265 mm pages. The dimensions of pages, the material, the structure of the codex and its age are identical to the other known codices.

The Codex describes the events from the sacred 260-day Tzolkin Calendar (20 and 13-day cycles are given as parallel). The symbolic algorithm also points to the synodic cycle of Venus.

Photograph 9: Insert from the Prague Codex of the Maya

Further research continues, with the application of the latest technology of the variable spectrum of invisible radiation, which are supposed to separate the original manuscript from the layer of new drawings. It will make it possible to glean additional information that was invisible at first sight.

If this is really the fifth original Mayan Codex, then the information presented up to date only further confirms the inclination of the Maya towards explaining of cosmic laws and their impact on the events on Earth.

7. COMPARISON OF THE CIVILIZATIONS: TECHNOLOGICAL WEST – NON-TECHNOLOGICAL MAYA

Preceding chapters introduced us to the basic knowledge about the Mayan Civilization. This allows us to turn to the central process of discovery in this thesis: comparison of the two civilizations: Western and Mayan Civilization.

A comparative analysis of this kind is not found in scholarly literature. This is another problem encountered in this pioneering work – it cannot build on any known model.

For that reason, the current, seventh, chapter, will define the original approach to the analysis of the elements for comparison of civilizations.

We will apply two sets of parameters through which we will filter both civilizations. We will divide these parameters into primary and secondary ones.

The purpose of this analysis is to quantify the relationship of two social entities (civilizations). The results of the quantification should allow us to reach the results that will respond to the proposition posed in the title and subtitle of this dissertation.

The conclusion of each parameter will include the author's individual assessment of the Western and Mayan level of civilization. The outcome of this procedure will yield a brief quantified score that will indicate which of these two civilizations is superior.

The scale model, (for example, from 1 to 10), will not be used in the assessment of the level of civilization because there are no exact scientific mechanisms or appropriate technical terminology for its application. Therefore, the civilizations will be scored on a simple model with the following legend:

Legend for the assessment of the level of civilization

_____

+ + desired civilization level achieved

+ trending towards the desired civilization level

0 halfway along the path to civilization

- negative civilization level

? insufficient information for assessment

_____

7.1. Set of Primary Comparative Parameters

In the view of the author of this dissertation, the following parameters are fundamental for the determination of the level of a civilization. The selection of the parameters is drawn from the author's set of experience and thus it is open to future improvement and amendment.

7.1.1. Level of knowledge

The path we have to follow in terms of the "level of knowledge" is to find out the complete picture about the laws of cosmic creation. On our planetary micro level, this would mean solving the genetic puzzle, answering the questions about the origins of life, establishing the "science of everything" and discovering a common denominator for all energy processes and dimensions…

It is a fact that a small number of top scientists from the Western Civilization have been pondering these issues. This is the first step towards finding answers. However, the academic community and the overall system of transferring knowledge to the general public (media, education system, etc.) are lagging behind in answering the universally posed questions about life. The approach to education is partial and the global picture has been lost. Moreover, the general public typically perceives reality in terms defined by the past.

In their outlook on life, the Maya had been oriented towards the cosmos and they had been searching for answers about their place in it. Many examples provided by the researchers of the Mayan world show overlaps between the Mayan sacred Tzolkin Calendar, ancient Chinese divination text I Ching and the genetic code structure of the DNA. However, just as in the case of the Western Civilization, the division between the educated and the ones dedicated to farming life world is evident in the Mayan as well.

	Western	Mayan
Knowledge	+	0

7.1.2. Civilization goals

The higher the level of the civilization gets, it becomes increasingly expected that the strategic goals on reaching the ideal level of knowledge are established by consensus. Once these goals are established, the methodologies for their achievement are developed.

In case of the Western Civilization, the dominant profit economy exerts unparalleled influence on the functioning of the system as a social organism. This means that the elites

emerge: a minority of those with the knowledge and assets and a majority who do not have the access to the superior knowledge and wealth. The middle class is fed the ideology that our lives should be spent accumulating material possessions. The correlation between manipulation and control of the majority becomes the civilizational goal of the elites. Universal goals are not established and acquisition of knowledge is more a consequence of military, scientific, technological and profit interests than a democratic decision of the entire civilization. Uncontrolled development (demographics, armament, pollution of the Planet, etc.) has become the standard. Voices of reason are overpowered by the voices of raw power.

As a more homogenous society, the Maya sought to relate all their life activities with the cosmos. Architecture and construction, roads and calendars were in unity with nature. Nature was not polluted, there was no uncontrolled development of the population, nor uncontrolled growth requiring territorial expansion and expropriation from others.

	Western	Mayan
Civilization goals	0	+

7.1.3. Wisdom

The path towards knowledge and personal experience makes us wiser. Achieving inner balance at the level of an individual or the society is indicative of the attained level of a civilization's wisdom.

The Western Civilization has outstanding scientific achievements, but, in everyday life, it fails to demonstrate the wisdom at both the universal and the individual level.

The less stress-prone Mayan Civilization was closer to the balance with nature.

	Western	Mayan
Wisdom	0	+

7.1.4. Love as the communication model

Inside our organism, there is a multitude of “micro antennas” (amino acids), which communicate with the DNA. It is scientifically proven (70) that these genetic antennas are turned on and off depending on the wavelength of emotions, which pass through the DNA all the time. The emotion of fear, the source of all negative emotions, has a long and slow wavelength and it turns on only a few genetic antennas. The emotion of love is the base of all positive emotions. These fast and short wavelengths turn on the many more genetic antennas.

This is how we are connected with our multidimensional being. Our potential becomes limitless. Our body is open to the energy of nature and the barriers fall down.

The Western Civilization is dominated by negative emotions, fear and uncertainty on the global level.

Unfortunately, we do not have sufficient exaxt evidence to assess this parameter for the Mayan Civilization.

	Western	Mayan
Love as behavior model	-	?

7.1.5. Harmony with nature

A wise man understands his role on the Planet and in cosmos. He shows respect to every energy form (living or non-living thing, without difference).

A conceited being exhibits the urge to dominate its environment, nature, and the Planet. Uncontrolled development and the desire for power still keep the Western Civilization at the lower level of civilization (in terms of this parameter).

The Maya exhibited considerably greater sensitivity to their environment. They used only natural materials (stone, wood). There was no unnecessary pollution as is the case in the Western Civilization (plastic, radioactive material, exploitation of nonrenewable resources of the planet, etc.).

	Western	Mayan
Harmony with nature	-	+

7.1.6. Spirituality

Striving to comprehend the causes of all cosmic processes and communication with God are in the background of spiritual aspirations of civilizations.

The Western Civilization has based its spirituality on the ideological system that predominantly rests on two sacred books (Old and New Testament). In the original version of the Old Testament the so-called Biblical Code can be detected, which leads to the

conclusion that the author had possessed superior characteristics. The New Testament was a text which had been amended on multiple occasions, mainly in the service of manipulation. This had been the basis for emergence of religious branches that contributed to the division of Christianity. The differences between this civilization and the rest of the world loom powerfully. An individual turns to his religious leadership, surrenders its freedom and seeks the ready answers to all questions. The approach that prioritizes an inner quest for all answers has been forgotten. Because, in that case, the role of the "broker" (religious hierarchies) would become secondary.

The Maya had depended less on the Earthly "gods", and were more oriented towards superior cosmic beings. They looked towards the Galactic Core ("Hunab Ku") and searched for regularities through cyclic movements embodied in their calendars.

	Western	Mayan
Spirituality	0	+

7.1.7. Art

The art "enriches the human soul" and brings it closer to perfection, which is why it is highly ranked and a part of the set of primary parameters.

The creativity of the Western Civilization, particularly evident in the richness of artistic expression: through music (cosmic perfection of Mozart or Bach), the brush and chisel (da Vinci or Michelangelo), written word, movement, dance, acting…

The display of artistic talent by the May was expressed on smaller scale and diversity (the example of the art center in Copana, Honduras). However, for them, the art, apparently, was in the function of global civilization goals (calendars, rituals). (SEE ANNEX: Photograph of stone figures on the wall of the masks in the Mayan City of Kabah, Yucatan, Mexico)

	Western	Mayan
Art	+ +	0

7.2. Set of Secondary Comparative Parameters

While the primary comparative parameters express the global values of society and its level, the secondary parameters explain the development and achievements of a civilization in its individual segments.

There are seventeen parameters that will be applied as filters for the comparison of the two civilizations.

7.2.1. Territory

Members of a civilized society live in different territories. The extent of the adaptability of life in different climate conditions and different areas tells us a lot about the level of civilization. The entity as a whole, undoubtedly benefits if its members manage to bring experiences from different territories.

The Western Civilization has displayed unquestionable adaptability to life in all climatic conditions and terrains on the Planet. To a considerable extent, this was made possible owing to the level of technological development.

The Maya also lived in various climate conditions and different types of natural surrounding: near rivers, lakes, on mountains, in the jungle, on the seashore and the islands.

	Western	Mayan
Territory	+ +	+

7.2.2. Demographic aspect

The demographic level of the community is also determined by the adopted goals of a civilization. It has to be optimal and in harmony with the natural environment, available resources and relationships with other living beings.

In 1750, the population of the Planet was 500 million people. In 2009 it exceeded 6.5 billion. (72) This is exponential growth that is completely unsuited to this tiny planet. This number is expected to stabilize around 2050 on the level of around nine billion people. The late 20th and early 21st century were characterized by low birth rates in the Western Civilization, but only after centuries of a demographic boom. So far, the experience is devastating: uncontrolled population growth and destruction of the habitat of the living world directly caused the disappearance of 50% of the plant and animal life on the planet!

The Maya were disciplined in maintaining their demographic levels, therefore, there was no need for territorial expansion or conquests outside Central America. The estimates of their population vary (for instance, in the 9th century, between three and 15 million people). The Maya civilization had spanned millenia, but the demographic factor was always under control.

	Western	Mayan
Demographic aspect	-	+

7.2.3. Technology

This dissertation demystifies the inevitable relationship between the technological level and the level of the civilization. The civilization does not necessarily require having the technology to attain knowledge, be wise and live in harmony with the natural order of things. Nevertheless, the technological level provides many benefits to individuals (at least from the aspect of a member of the Western Civilization): standard of living, communication possibilities, choice of vocation, architectural accomplishments, etc.

After a millennium-long era of the Middle Ages, the West barely saw any civilizational progress; with the arrival of the industrial revolution, and especially with the technological boom in the second half of the 20th century, a vast field of development possibilities had opened (computer technology, robotics, biogenetics, artificial intelligence, superconductivity, lasers, interplanetary travel, etc.). The negative aspects of the technological development are: new discoveries are engendered in military laboratories, the centralized system of technology might collapse in case of problems at its core, the incongruity of the level of civilization with the new technologies leverages their application primarily for manipulation and domination over others (nuclear bombs, computer gap, developed and undeveloped world, etc.). The super-technological society can lead to complete de-humanization and neglect of the spiritual side of Man, which would at the same time destroy the natural balance between the individual and society.

Relying on the mental capabilities of the individual and the experience of the society leads to the resolution of the most difficult challenges: in construction, astronomy, communications,

etc. The Mayan Civilization is non-technological in comparison with the technological aspect of the Western Civilization. Nevertheless, the existence of impressive pyramids, perfect quartz skulls, multi-layered petroglyphic script, application of acoustic design… testifies that the Maya had ways to resolve the issues that remain technological challenges for us today.

	Western	Mayan
Technology	+	+

7.2.4. Political organization (Elitist vs. Rule of Free People)

Democracy ("rule of the people") is in general a proclaimed goal of Western Civilization nations, which replaced the domination of monarchies. This is a very high level of development of the political system; if it is amended with a provision to protect heterogeneous groups, regardless of their size, from being overruled, and to ensure that such groups are treated with great respect, we would be getting close to the ideal political system. In such a system, political representatives and the executive branch become just a service of the public.

Functioning of the Western Civilization's political system has been reduced to the domination of the elites (corporate, financial, and political) over the majority of the people. Apart from some very positive examples (Scandinavian nations) the fundamental trend is that the West as a whole is still far from full democracy.

The Mayan Civilization, similarly to the Western one, had the distinctly separate elite segment (leaders – who combined the temporal and spiritual functions, "aristocracy" and other privileged categories – artists, military leaders, bureaucracy, etc.)

	Western	Mayan
Political system	0	0

7.2.5. Conflicts

For the level of civilization it matters how conflicts that unavoidably occur are resolved: by a dialogue or by applying the force. In case of limited resources on one hand, and the greed of the political elites and uncontrolled demographic development, on the other, potential for conflicts inevitably rises.

7.2.5.1. Local conflicts

The segments within a civilization (city-states, religious groups, class groups, special interests) found themselves in conflict, which led to wars.

The history of civilizations recorded more than 15,000 armed conflicts or wars in last 7,000 years. The conflicts of interest and the elite politics were the cause that the wars within the Western Civilization, and particularly outside the the Western framework against other territories, became the pattern of behavior.

Almost every Mayan city has the records describing the conflicts of the local city leaders with the neighboring cities. Typically, this involved some important date, when a famous leader established an undisputed rule in his city and/or region. The stelae often described achievements of leaders; conflicts are always mentioned. The scope and frequency of the conflicts had not been even close to the Western experience. But their occurrence is regular.

	Western	Mayan
Local conflicts	-	-

7.2.5.2. General Conflicts

Armed conflicts of great proportions are a particular expression of destructive action within a civilization.

In the 20th century, the Western Civilization engendered two world wars, causing enormous human and material losses. Destruction had been general and no respect had been accorded to civilized values. Development of nuclear weapons brought and still keeps the entire planet on the verge of self-destruction.

The Mayan Civilization, according to all available translated texts, had not engaged in a large conflict during all four millennia of its existence. The assumption is that, occasionally, two or three cities formed alliances against a larger center (e.g. cities of the Usumacinta River Valley against the City of Palenque). However, the concept of a general conflict did not exist.

	Western	Mayan
General conflicts	-	0

7.2.6. Astronomy

The focus on the heavens, reflection about their own position relative to universal processes, influence of cosmic bodies on the planet… Indicate the level of wisdom of a civilization.

After barbaric attitude in the past towards the freedom of thought, in a later stage the Western Civilization embraced individual and collective efforts to learn more about the Universe.

The Mayan Civilization had based and subordinated all life processes to the universal environment.

	Western	Mayan
Astronomy	+	+

7.2.7. Architecture

Architectural creativity is another feature of a civilization's development.

The architectural heritage of the Western Civilization is impressive; the sole (but important) shortcoming is the use of artificial materials, which are often indestructible waste.

Originality and diversity of Mayan architectural design show that this discipline was only a part of the complex knowledge applied in the design of various buildings.

	Western	Mayan
Architecture	+	+

7.2.8. Construction technology

Transformation of designers' dreams into architectural reality can become a daunting challenge requiring combination of complex intellectual and technological capacities.

The Western Civilization proved itself by erecting grandiose and/or artistically beautiful structures. However, the logic of consumerism turned this discipline into a bulldozer which is destroying the planet's lungs.

In erecting their structures, the Maya applied unknown methodologies (probably based on the developed mental abilities) to resolve most complex technical challenges.

	Western	Mayan
Construction technology	+	+

7.2.9. Communication Infrastructure

The exchange of ideas, goods, services, and the speed of this process, are dependent on the communication infrastructure.

After dozing of for millennia, the Western Civilization in currently undergoing a communications boom. Various forms of transport, telecommunication devices and the Internet have transformed the image of civilization.

The Maya had more modest technological means at their disposal, but their different concept of communication was on a high level and it was coresponded to celestial phenomena (roads following the planetary orbits, cities built and arranged in order to imitate the position of star constellations). The "Sacbe" road network was both information and metaphysical connection tissue of civilization, not just a simple means of transportation and communication of the people and goods.

	Western	Mayan
Communication infrastructure	+	+

7.2.10. Time calculation concept

On this planet, the time is an absolute category. A lower level of knowledge is persuaded that the time passes linearly (past-present-future). Most advanced knowledge of physicists and spiritual knowledge from different parts of the planet are a convincing indication that time is a relative category outside the Earth's boundaries.

The linear keeping of time still holds firm sway over the Western Civilization. Mathematical models and the discoveries of nuclear physics about inevitable existence of different models of time (for instance, "past and future meet in the present, which is eternal") and about other dimensions in which time functions differently, remain limited to elitist scientific circles.

The Maya tracked their time in cycles, not linearly. They followed the law of repetition of cosmic and terrestrial processes. For this purpose, they had developed more than 20 calendars, each for a different purpose (from predicting cosmic events to monitoring everyday terrestrial phenomena).

	Western	Mayan
Concept of keeping time	+	+

7.2.11. Social component (treatment of unprotected people)

The level of civilization can also be measured in terms of the treatment of its most vulnerable members: children, sick, elderly, handicapped, or people with special needs.

Different Western Civilization nations have different approach towards socially vulnerable people. Generally speaking, developed and rich groups that treat the members of their same race inhumanely leave a dark impression.

There is insufficient information to draw conclusions about the civilizational attitude of the Mayan elite towards the vulnerable people.

	Western	Mayan
Social component	0	?

7.2.12. Education

Access to the knowledge attained within a civilization (scientific achievements, preservation and transfer of past knowledge, support for innovative and creative groups) determines the of a social organization.

On one hand, the Western Civilization is recording a scientific-technological boom with various forms (particular basic) education available to everybody. Telecommunications have

a very practical effect on the dispersion of knowledge. On the other hand, an organization of the society that favors elites makes advanced knowledge available only to the minority who build their power on it.

There is evidence that the Maya transferred their knowledge to all members of the community during regular gatherings. However, it is presumed that the Maya kept advanced knowledge within the elite circles too. Nevertheless, there is not enough evidence to support the existence of a formal system of education.

	Western	Mayan
Education	+	?

7.2.13. Health Care

The health of an individual is the health of the entire community. The belief that an individual "energy ball" (the human) is nothing but a part of the cosmic energy complex constitutes the first precondition living in harmony with nature. Every violation of this principle leads to a disorder that is manifested as an illness. Unless the illness had not been detected in the aura early on, then a belated treatment is provided only when there are symptoms on the physical level. Treatment may involve either natural (herbal medicine, for

example, holds the cure for all illnesses) or allopathic medicine. Speaking in the simple vocabulary of the 21st century: alternative or official methods.

Technological development brought the Western Civilization to create pharmaceutical industries that provide a pill for any condition. The symptom is treated, not the cause. Besides, there are negative effects on other levels. Nevertheless, modern medical science had made curable a range of previously incurable, fatal illnesses using various preparations had made that the life lasts longer. The combination of the alternative and official medicine will prove to be the right trend. Advanced health infrastructure is still geared towards servicing the elites. Degree of development of individual methods varies.

It is likely that the Maya had probably relied exclusively on herbal medicine. Most recent studies of Chiapas Indians confirm the use of therapeutic steam baths and understanding of the "thermal" nature of the human body. In brief: steam baths were an integral part of the Mayan life, creating benefits in terms of personal hygiene, preventive and therapeutic medical science. (78)

	Western	Mayan
Health Care	0	?

7.2.14. Military component

Development of armed forces is justified in only one case: existence of an external threat.

The Western Civilization based on the concept of dominance and development of offensive weapons. The Mayan ambitions in terms of weaponry were quite modest. There are no records on the conflicts with societies outside their territory.

	Western	Mayan
Military component	-	+

7.2.15. Script

The script, as expression of communication, is a symbol of a civilization. Simplicity and precision, unambiguity and ability to represent the most complex processes are imperative for fast development of civilization.

The Western alphabet is simple, but single-layered; it has unambiguous character, but it is rich enough to describe very complex phenomena.

Most (80%) of the Mayan pictographic script still remains to be completely deciphered (80%), and, therefore, we are handicapped in its full assessment. But, based on all available facts, we are aware that it has multiple layers and allowed easy representation of complex phenomena; reading a glyph “in context” presupposed a great pool of knowledge, which made it inaccessible for the majority of the population.

	Western	Mayan
Writing system	+	+

7.2.16. Diversity of vocations

The opportunity to choose a vocation where it is possible to exhibit various predispositions and talents is a characteristic of advanced civilizations. Contented individuals are a precondition of a happy civilization.

Many vocations emerged due to the specialization and partialization of the aspects of life. In theory, people have an exceptional wealth of choices. In reality, however, most people are not satisfied with their jobs and they do not feel creative. The for-profit economy forces the individual to accept a job to secure a living or maintain the attained standard. Once the society breaks free of required vocations and is reduced to a series of creational vocations, then it will have reached the ideal of development.

The Maya had various vocations, but the social status affected the choice (affiliation with aristocracy/clergy, astronomers, architects, artists, entertainers, builders, farmers, shamans).

	Western	Mayan
Diversity of vocations	+	0

7.2.17. Living standard

A community with a limited population size can offer its members the ultimate "standard according to the individual desire". Everything is available; there is no room for "envy".

In recent decades, the Western Civilization created a middle class, which has been provided with satisfactory living conditions. The relationship between the sovereign and subordinates, evolved into the more sophisticated relationship of elite/middle class/socially vulnerable categories.

Social stratification had existed in the Mayan world. Affiliation with the elite had also directly determined the standard of living. The links with the natural habitat had been more emphatic.

	Western	Mayan
Standard	+	0

7.2.18. Other

All the things which influence the contentment of an individual (in a positive way, not at someone else's expense) are directly reflected on the whole of society. Details change, but the essence remains the same: sports, games, recreation, fashion…

	Western	Mayan
Other	+	0

7.3. Results of the comparative analysis

The limitations of social sciences in terms of the exactness and technical terminology have already been discussed above. Therefore, all attempts at quantification remain insufficiently precise and deficient.

In the previous chapters, the author intended to remain neutral, even though he belongs to one civilization, while the other one he observes from an independent researcher's standpoint.

The result of the comparative analysis will be divided into two sections: the first one presents the results obtained through application of the primary parameters. The second section presents the results for the set of secondary comparative parameters.

Table 2: Comparation of civilizations – a set of primary parameters

	Western	Mayan
Level of knowledge	+	0
Civilization goals	0	+
Wisdom	0	+
Love as the communication model	-	?
Harmony with the nature	-	+
Spirituality	0	+
Art	+ +	+

Outcome: primacy of the Mayan Civilization

Legend for assessment of the level of civilization

+ +	desired civilization level achieved
+	trending to the desired civilization level
0	in the middle of the civilization road
-	negative civilization level
?	insufficient information for assessment

The table shows that the multi-millennia old Mayan Civilization was more structured and advanced in terms of primary civilization criteria. The technological Western Civilization is under control of the elites and for-profit economy, and it still does not demonstrate sufficient wisdom on its way to mastering cosmic knowledge.

Table 3: A set of secondary comparative parameters

	Western	Mayan
Territory	++	+
Demographic aspect	-	+
Technology	+	+
Political system	0	0

Local conflicts	-	-
Global conflicts	-	0
Astronomy	+	+
Architecture	+	+
Construction	+	+
Communication infrastructure	+	+
Concept of keeping time	+	+
Social component	0	?
Education	+	?
Health care	+	?
Military component	-	0
Script	+	+
Diversity of vocations	+	0
Standard	+	0
Other	+	0

Result: relative primacy of the Western Civilization

A series of secondary factors that influence the level of development slightly favor the Western Civilization. However, this civilization needs to heed the warning inherent in the

devastating marks of its performance in the areas of demographic development, conflicts and universal access to benefits of technology.

Obviously, the underperformance in some of the primary criteria (wisdom, living in harmony with the environment) led to emergence of these crucial weaknesses of the Western Civilization.

8. CONCLUSIONS

Application of the scientific methodology has led to the following conclusions:

- Central American culture of the Maya has been defined as an indigenous, planetary civilization.
- Comparative analysis has been performed between the Western (6^{th} – 20^{th} century, with the emphasis on the period from the late 18^{th} to the early 21^{th} century) and Mayan Civilization (with the emphasis on the period from 4^{th} to 10^{th} century) through application of a set of primary and secondary parameters (civilizational goals, wisdom, harmony with nature). It has been determined that the Mayan Civilization

holds a relative primacy from the standpoint of primary comparative parameters (civilization goals, wisdom, harmony with nature, spirituality). The Western Civilization has a relative primacy according to a series of secondary criteria (. Underperformance in terms of particular segments of the primary criteria (wisdom, harmony with nature) led to the weaknesses of the Western Civilization when it comes to uncontrolled demographic growth, occurrence of global conflicts and misuse of technology.

- An adequate assessment of the Mayan Civilization and adoption of their achievements might provide the Western Civilization with useful development models. Instead of a turn into out-of-controls, super-technological society dominated by elites, development of a sophisticated civilization which combines modern technology and developed mental abilities, as well as universal cosmic knowledge with the balanced life on the planet should be set as the civilization's goal.

9. BIBLIOGRAPHY

(1) Gilbert J. Garraghan, "A Guide to Historical Method", Declan. X. McMullen, USA, 1946
(2) Professor Donna T. Mc Caffrey: "Historical Methodology", predavanja na Providence College, USA, jesen 2003
(3) Definicija prema: Behavioral Sciences Department, Palomar College, San Marcos, California, USA, ljetni semestar 2005
(4) Zarefsky, David: "The Study of Effective Reasoning, Parts I and II", The Teaching Company, USA, 2002
(5) Taylor, Royal Ervin: "Radiocarbon Dating: An Archeological Perspective", Academic Press, USA, 1987
(6) "Mexico Travel Book", AAA Publishing, Florida, 2001
(7) Osmanagich, Sam: "The World of the Maya", Gorgias Press LLC, New Jersey, USA, 2005
(8) Diego de Landa, "An Account of the Things of Yucatán", Monclem Ediciones, Mexico, 2003
(9) "Larousse Encyclopedia of Archeology", General editor Gilbert Charles-Picard, The Hamlyn Group, London, UK, 1972
(10) Hawkes, Jacquetta, "Atlas of Ancient Archeology", McGraw-Hill Book Company, New York, 1975

(11) C. Bruce Hunter, “A Guide to Ancient Maya Ruins”, University of Oklahoma Press, 1977
(12) Sharer, J. Robert: “The Ancient Maya”, fifth edition, Stanford University Press, California, USA, 1994
(13) Charles Galenkamp, “Maya, The Riddle and Discovery of a Lost Civilization”, David McKay Company, New York, 1976
(14) Stuart, Gene S., “Secrets from the Past”, National Geographic Society, USA, 1979
(15) “The New American Desk Encyclopedia”, third edition, A Signet Book, Penguin Books, USA, 1993
(16) “The Columbia Encyclopedia”, third edition, Columbia University Press, New York, USA, 1994
(17) “The Dwellings of Eternity”, editied by Alberto Siliotti, Chartwell Books, New Jersey, USA, 2002
(18) Norton, Natasha and Whatmore, Mark, “Central America”, Cadogan Books, London, UK, 1993
(19) Fowler, William, “Maya Civilization”, New York, USA, 2003
(20) Stierlyn, Henry, “The Magnificient Realm of the Mayas”, Reader’s Digest, USA, 1978
(21) Gardner, Joseph, “Mysteries of the Ancient Americas”, The Reader’s Digest, 1991
(22) Herreid, Clyde Freeman: “Case Studies in Science: A Novel Method of Science Educatin”, Journal of College Science Teaching (str. 221-229), February 1994, University at Buffalo, State University of New York, USA, 1994
(23) Quigley, Carroll: “The Evolution of Civilization: An Introduction to Historical Analysis”, Liberty Press, Indianapolis, USA, 1979
(24) Osmanagić, Semir: “Alternativna historija”, TKD Šahinpašić, Sarajevo, 2004
(25) Osmanagić, Semir: Alternativna povijest: Tragovima Atlantide”, Indrija, Zagreb, 2003
(26) Osmanagić, Semir: “Civilizacije prije početka zvanične historije”, TKD Šahinpašić, Sarajevo, 2005
(27) Osmanagić, Semir: “Misterija Anasazija”, TKD Šahinpašić, Sarajevo, 2005
(28) Kalifornijski “Institut za srčanu matematiku” (Institute of HeartMath, www.hearthmath.org)
(29) Millard, Anne: “Pyramids”, Larousse Kingfisher Chambers, New York, 1996
(30) Westwood, Jennifer: “The Atlas of Mysterious Places”, Barnes and Noble, New York, 1998
(31) C.A. Burland: “Adventuring in Archeology”, Frederick Warne & Company, New York, 1963
(32) Breeden, Robert: “Vanishing Peoples of the Earth”, National Geographic Society, Washington D.C., 1968
(33) Hatt, Carolyn: “The Maya”, Virginia Beach, VA, ARE Press, ISA, 1971
(34) Sodi, Demetrio: “The Great Cultures of Mesoamerica”, Panorama Editorial, S.A., Mexico D.F., Mexico, 1983

(35) Victor Wolfgang von Hagen, "Maya Explorer, John Lloyd Stephens and the Lost Cities of Central America and Yucatán", Chronicle Books, San Francisco, 1990
(36) Norton, Leonard Jonathan: "Ancient America", Time Life Books, New York, 1967
(37) Scarre, Dr. Chris, "Past Worlds, Atlas of Archeology", Border Press, Michigan, 2003
(38) Prema studiji istraživača Barbare W. Fash sa Harvard University's Peabody Museum (USA), koja radi u Copanu od 1977; trenutno je direktor projekta za prezervaciju Copanovih hijeroglifskih stepenica.
(39) "El Mondo Maya", Quimera Editores, Mexico, 2002
(40) David Freidel, Linda Shele & Joy Parker, "Maya Cosmos", William Morrow and Company, New York, 1993
(41) "Secrets of the Pyramids", Reader's Digest, USA, 1982
(42) Arguelles, Jose, "The Mayan Factor", Bear & Company, Santa Fe, New Mexico, 1987
(43) Ruz, Alberto, "Uxmal", Instituto Nacional de Antropologia e Historia, Mexico, 1974
(44) Sodi, Demetrio, "The Mayas", Panorama Editorial, Mexico, 1983
(45) Le Plongeon, "Sacred Mysteries Among the Mayas and the Quiches", Macoy Publishing and Masonic Supply Co, New York, 1909
(46) General Information about Sayil, www.isource.com/maya/cities/sayil, Internet Solutions, 2003
(47) Mitchell, John S.: "Archaeology: Enigmatic Quirigua", www.mayadiscovery.com, Organizacion Tips, Cancun, Mexico, 2005
(48) Royal Ontario Museum, Agency of Ministry of Culture, Canada, 1998
(49) Punta Mango, Cultural Tours, www.puntamango.com, El Salvador, 2004
(50) Ilustracije iz: Leonardo Berges: "Mayan architecture: Dialogue between Men and Gods", www.mayadiscovery.com, Organizacion Tips, Cancun, Mexico, 2005
(51) Aveni, Anthony & Hartung, Horst: The Observation of Passage through the Zenith in Mesoamerica", Archeoastronomy", No. 3, Suppl. J, p. 51-70, South Carolina, USA, 1981
(52) Bohm, Bohumil & Bohm, Vladimir: "The Dresden Codex – the Book of Mayan Astronomy", Prague, 2004; široki izvodi iz knjige se mogu naći na sajtu: www.volny.cz/paib/dresden_codex.htm
(53) Mercier, Aloa Patricia: "The Maya Shamans", CPD, Wales, Great Britain, 2002
(54) Izračunavanja prema: David Lubman, 136 ASA Meeting, Norfolk, VA, USA, 1998.
(55) Prema knjizi: "Sylvanus G. Morley", Robert Brunhouse, USA, 1971.
(56) David Lubman: "An Archaelogical Study of Chirped Echo from the Mayan Pyramid of Kukulkan at Chichen Itza", Acoustical Society of America, Norfolk, Virginia, USA, October 12-16, 1998
(57) Clark, John E., PhD, Brighan Young University, Director of BYU "New World Archeological Foundation", Chiapas, Mexico, 2002
(58) Cristenson, Allen J.: "Popol Vuh: The Sacred Book of the Maya", O Books, USA, 2004
(59) Garvin, Richard, "The Crystal Skull", Doubleday & Co, New York, 1973

(60) Fotografije na web-sajtu Trocadero muzeja u Parizu: www.trocadero.com
(61) Opširnije na web-sajtu muzeja u Londonu: www.empiremuseum.com/crystalskulls.htm
(62) Dorland, Frank, "Holy Ice-Crustal Healing", Golden Press, St. Paul, 1992
(63) Le Plongeon: "Sacred Mysteries Among the Mayas and the Quiches", Macoy Publishing and Masonic Supply Co, New York, USA, 1909
(64) Le Plongeon, Alice and August, "Queen Mu and the Eastern Sphinx", Steiner Publications, New York, 1973
(65) Le Plongeon, Alice and August, "Queen Mu and the Eastern Sphinx", Steiner Publications, New York, 1973
(66) Hatt, Carolyn: "The Maya", A.R.E. Press, USA, 1976
(67) Coe, Michael: "Breaking the Maya Code", Thames and Hudson, USA, 1992
(68) Bohm, Bohumil & Bohm, Vladimir: "The Prague Codex – the Fifth Preserved Mayan Manuscript", www.hermetic.nofadz.com/cal_stud/maya/boehm/prague_codex/doc
(69) Original je u Nacionalnoj biblioteci u Parizu, a fotografije se mogu naći na: www.famsi.org/mayawriting/codices/pdf/paris_love.pdf
(70) Kalifornijski Institut of Hearthmath, www.hearthmath.org, se bavi istraživanjem utjecaja raspoloženja na srce i mozak; kako emocije ljubavi ili straha utiću na naš organizam.
(71) Michael Drosnin: "The Bible Code", Touchstone, New York, USA, 1997
(72) Zvanični demografski podaci Ujedinjenih naroda, Povjerenstvo za stanovništvo i razvoj, New York, 18.02.2005
(73) Osmanagić, Muris: "Iza drugog milenijuma", Svjetlost, Sarajevo, 2001
(74) Innes, Hammond: "The Conquistadors", Alfred A. Knopf, New York, USA, 1969
(75) Dr Michio Kaku, "Hyperspace: A Scientific Odyssey through Parallel Universes", Anchor Press, USA, 1995
(76) Jenkins, John Major: "Mayan Cosmogenesis: Cosmic Mother Gives Birth", The Center of Mayan Time, USA, April 1995
(77) "Civilization", Microsoft Encarta, Online encyclopedia, 2005
(78) Groark, Kevin P.: "Vital warmth and well being: steambathing as household therapy among the Tzeltal and Tzotzil Maya of Highland Chiapas, Mexico", Department of Anthropology, University of California, Los Angeles, California, USA, 28.01.2005.

10. ANNEXES

10.1. ANNEX: Selective bibliography of the Sociology of History

Abbott, A. (1994), History and Sociology: The Lost Synthesis. In: E. Monkkonen (ed.), Engaging the Past: The Uses of History Across the Social Sciences (pp. 77-112), Durham, Duke University Press.

- (1999), Life Cycles in Social Science History, Social Science History, 23 (4): 481-489.

1. Abrams, Ph. (1980a), Historical Sociology, Open Book, Bath.
   - (1980b), History, Sociology, Historical Sociology, Past and Present, 87: 3-16.
2. Abrams, Ph. and E. A. Wrigley (eds.) (1978), Towns in societies: essays in economic history and historical sociology, Cambridge/New York, Cambridge University Press.
3. Adams, J. (1998), Feminist Theory as Fifth Columnist or Discursive Vanguard? Some Contested Uses of Gender Analysis in Historical Sociology, Social Politics, 5 (1): 1-16.
4. Adorno, T. V. (1995), Šta znači obrada prošlosti, Vaspitanje i obrazovanje, 2-3: 94-105.
5. Afrić, V. (1989), Struktura sociološke teorije, Zagreb, Naprijed.
6. Alexander, J. C. and P. Colomy (eds.) (1988), Differentiation Theory and Social Change: Historical and Comparative Approaches, New York, Columbia University Press.
7. Althusser, L. (1965), Esquisse du concept d' histoire, La Pensee.
8. American Journal of Sociology (1998), Symposium Historical Sociology and Rational Choice Theory, 104 (3).
9. Aminzade, R. (1992), Historical Sociology and Time, Sociological Methods and Research, 20 (4): 456-80.
10. Andrews, R. M. (1978), Some implications of the Annales School and its methods for a revision of historical writing about the United States, Review, 1: 165-180.
11. Antonić, S. (1987), Prilog kritici istorijskog materijalizma kao filozofije istorije (magistarski rad), Beograd, Fakultet političkih nauka.
    - (1995), Izazovi istorijske sociologije, Beograd, Institut za političke studije.
12. Aron, R. (1961), Introduction to the Philosophy of History, London, Weidenfeld and Nicolson.
    - (1980), De la condition historique du sociologue, Paris.
13. Aron, R. (1996), Demokratija i totalitarizam, Novi Sad, Izdavačka knjižarnica Zorana Stojanovića.
14. Aronowitz, S. (1981), A metatheoretical critique of Immanuel Wallerstein's The Modern World System, Theory and Society, 10: 503-519.
15. Aymard, M. (1972), The Annales and French Historiography (1929 ⁄ 1972), Journal of European Economic History, 1: 491-511.
16. Badie, B. (1992), Comparative Analysis and Historical Sociology, International Social Science Journal, 133: 319-327.

17. Baker, P. (1999), Editor's introduction: What is Social Science History, Anyway?, Social Science History, 23 (4).
18. Banks, J. A. (1978), History and sociology: a re-appraisal, Leicester, University of Leicester/Department of Sociology.
- (1989), From Universal History to Historical Sociology, The British Journal of Sociology, 4: 521-543.
19. Barnes, H.E. (1982), Uvod u istoriju sociologije, I-II, Beograd, BIGZ.
- (1984), Historical sociology: its origins and development, New York/London, Garland.
20. Baron, A., Prospects for Courtship, http://www.sla.purdue.edu/academic/soc/comphist/chs97Fall.html
21. Barratt Brown, M. (1988), Away with all the great arches: Anderson's history of British capitalism, New Left Review, 88: 22-51.
22. Bauman, Z. (1979), The phenomenon of Norbert Elias, Sociology, 13 (1): 117-125.
- (1994), Ideologija ili izgradnja sveta ideja, Treći program, 100: 269-282.
23. Bedarida, F. (1987), The modern historian's dilemma: conflicting pressures from science and society, Economic History Review, 40 (3): 335-348.
24. Bell, D. (1962), The End of Ideology, Glencoe, III, The Free Press.
25. Bendix, R. (1963), Concepts and generalizations in comparative sociological studies, American Sociological Review, (28): 532-539.
- (1984), Force, fate, and freedom: on historical sociology, Berkeley/London, Calif./University of California Press.
26. Beržajev, N. (1989), Smisao istorije: ogled filozofije čovječje sudbine, Nikšić, NIO Univerzitetska riječ.
27. Berger, B. M. (ed.) (1990), Authors of Their Own Lives. Intellectual Autobiographies by Twenty American Sociologists, Berkeley, University of California Press.
28. Berlin, I. (1991), Pojam naučne istorije, Treći program Radio-Sarajeva, 70: 361-395.
29. Bloch, M. (1967), Land and Work in Medieval Europe. Selected Papers by Marc Bloch (Translated by J. E. Anderson), London, Routledge.
- (1970), Odbrana istorije ili zanat istoričara, Treći program, II (2): 329-460.
30. Bock, K. E. (1956), The Acceptance of Histories: Toward a Perspective for Social Science, Berkeley and Los Angeles, University of California Press.
31. Bogdanović, M. (1993), Metodološke studije, Beograd, Institut za političke studije.
32. Bois, G. (1983), Marksizam i nova istorija, Marksizam u svetu, 12: 67-87.
33. Bonnell, V.E. (1980), The uses of theory, concepts and comparison in historical sociology, Comparative Studies in Society and History, 22 (2): 156-173.
34. Bosserman, P. (1968), Dialectical Sociology. An Analysis of the Sociology of Georges Gurvitch, Boston, Mass., Porter Sargent.
35. Bourdieu, P. (1988), Homo Academicus (Translated by Peter Collier), Cambridge, Polity Press (originally published in 1984).
36. Bowersock, G. W. (1988), Gibbons's historical imagination, American Scholar, 57 (1): 33-47.
37. Braudel, F. (1966), Historija i sociologija. U: G. Gurvitch, Sociologija, (tom I, str. 94-110), Zagreb, Naprijed.
- (1972), History and the social sciences. In: P. Burke (ed.), Economy and Society in Early Modern Europe (pp. 11-42), London, Routledge and Kegan Paul.
- (1980), On History, London, Weidenfeld and Nicolson.
- (1989), Mediteran i mediteranski svijet, Naše teme, 5: 979-1037.
- (1990), Civilizacije kroz povijest, Zagreb, Globus.

- (1997/98), Sredozemlje i sredozemni svijet u doba Filipa II, I-II, Zagreb, Antibarbarus.
38. British Journal of Sociology (1994), Special issue on The Uses of History in Sociology (includes contributions by Joseph M. Bryant, Nicky Hart, Nicos Mouzelis, Michael Mann, and John H. Goldthorpe), 45 (1): 1-78.
39. Brodel, F. (1989), Dinamika kapitalizma, Sremski Karlovci/Novi Sad, Izdavačka knjižarnica Zorana Stojanovića.
- (1992), Spisi o istoriji, Beograd, Srpska književna zadruga.
- (2001), Mediteran, Podgorica, CID.
40. Bryant, J. M. (1994), Evidence and Explanation in History and Sociology: Critical Reflections on Goldthorpe's Critique, British Journal of Sociology, 45 (1): 3-19.
41. Burawoy, M. (1989), Two methods in search of science. Skocpol versus Trotsky, Theory and Society, 18 (6): 759-805.
42. Burke, P. (1980), Sociology and History, London, George Allen and Unwin.
43. Burkhart, J. (1996), Razmatranja o svetskoj istoriji: o izučavanju istorije, Beograd, Srpska književna zadruga.
44. Bus, A. E. (1994), Maks Veber i Azija, Niš, Gradina/JUNIR.
45. Cahnman, W. J. (1995), Weber & Toennies: Comparative Sociology In Historical Perspective, New Brunswick, NJ: Transaction.
46. Cahnman, W. J. and A. Boskoff (eds.) (1964), Sociology and History, New York, Glencoe.
47. Calhoun, C. (1987), History and sociology in Britain, Comparative Studies in Society and History, 29 (3): 615-625.
- (1998), Explanation in Historical Sociology: Narative, General Theory, and Historically Specific Theory, American Journal of Sociology, 104 (3): 846-871.
48. Callinicos, A. (1987), Making History. Agency, Structure and Change in Social Theory, Cambridge, Polity Press.
49. Carlyle, Th. (1963), On Heroes, Hero-Worship and the Heroic in History, London, Oxford University Press.
50. Carr, E. H. (1962), What is History, London, Macmillan and Co.
- (1977) The Constitution of the Historical Past, Middletown, Wesleyan University Press.
51. Chirot, D. (1976), Thematic controversies and new developments in the uses of historical materials by sociologists, Social Forces, 55 (2): 232-241.
52. Clark, J. (etal.) (1990), Anthony Giddens. Consensus and Controversy, London, Falmer Press.
53. Colin, H. and D. Wincott (1998), Structure, agency and historical institutionalism, Political Studies, 46 (5): 951-957.
54. Collins, R. (1975), Conflict Sociology. Towards an Explanatory Science, New York, Academic Press.
- (1979), The Credential Society. An Historical Sociology of Education and Stratification, New York, Academic Press.
- (1985), Three Sociological Traditions, Oxford, Oxford University Press.
- (1986), Weberian Sociological Theory, Cambridge, Cambridge University Press.
- (1999), Macro-History: Essays in Sociology of the Long Run, Stanford, Stanford University Press.
55. Comhaire, J. and W. J. Cahnman (1959), How cities grew: the historical sociology of cities, Madison, N.J., Florham Park Press.
56. Comparative Social Research (1997), Special issue on Methodological Issues in Comparative Social Science (includes contributions by John H. Goldthorpe, Charles

C. Ragin, Charles Tilly, Dietrich Rueschemeyer and John D. Stephens, Henry Teune, Andrew Abbott, and Jack A. Goldstone), Vol. 16.
57. Ćirković, S. (1976), Socijalna istorija: susret sociologije i istorije, Sociološki pregled, 1-3.
- (1996), O istorijskoj nauci, metodologiji istorijske nauke i nastavi istorije, Nastava istorije, 3: 95-103.
- (1997), Rabotnici, vojnici, duhovnici, Beograd, Equilibrium.
58. Damjanović, P. (1977), Istorija kao kompleksna nauka, Treći program, 32: 137-142.
59. Danto, A. (1965), Analythical Philosophy of History, Cambridge, Cambridge University Press.
60. Dačić, M. (ur.) (1994), Istorijska nauka i nastava istorije u savremenim uslovima, Podgorica, CANU.
61. Dean, M. (1994), Critical and effective histories: Foucault's methods and historical sociology, London, Routledge.
62. Deletić, Z. (1996), Naučna rasprava o teorijsko-metodološkim problemima istorijske nauke, Nastava istorije, 4: 201-207.
- (2000), Metodika naučnog rada u istoriografiji, Priština, Univerzitet u Prištini.
63. Denemark, R., Friedman J., Gills, B. K. and G. Modelski (eds.) (2000), World System History: The Social Science of Long-Term Change, London: Routledge.
64. Dibi, Ž. (1970), Istorija mentaliteta, Treći program, proleće, 303-328.
65. Diltaj, V. (1984), Izgradnja istorijskog sveta u duhovnim naukama, Beograd, BIGZ.
66. Dirkem, E. (1963), Pravila sociološke metode, Beograd, Savremena škola.
67. Dray, W. (1964), Philosophy of History, Englewood Cliffs, N. J., Pretice-Hall.
68. Dobrov, G. M. (1970), Nauka o naukama, Beograd, Zavod za izdavanje udžbenika.
69. Drobićeva, L. M. (1971), Istorija i sociologija, Moskva.
70. Dunning, E. (1989), A response to R. J. Robinson's 'The civilizing process': some remarks on Elias's social history, Sociology, 23 (2): 299-307.
71. Đorđević, D. B. i D. Todorović (2000), Maks Veber i Azija (kritika Andreasa E. Busa). U: Komunikacija sociologije sa filozofijom i istorijom, Nikšić/Podgorica, Univerzitet Crne Gore/ Institut za filozofiju i sociologiju Filozofskog fakulteta.
72. Đorđević, J. (1938), Sociologija i istorija, Sociološki pregled, knj. I: 83-91.
73. Đorđević, M. (1959), Savremeni problemi istorijske nauke, Beograd, Kultura.
74. Đurić, I. (1990), Istorija - pribežište ili putokaz, Sarajevo, Svjetlost.
75. Đurić, M. (1987), Sociologija Maksa Vebera, Zagreb, Naprijed.
76. Eisenstadt, S. N. and H. J. Helle (eds.) (1985), Macro-sociological Theory, Beverly Hills, Sage.
77. Eisenstadt, S. N. and S. Rokkan (eds.) (1974), Building States and Nations, Beverley Hills, Cal, Sage.
78. Elias, N. (1978), What Is Sociology? London, Hutchinson (originally published in 1970).
79. Elijas, N. (2001), Proces civilizacije, Sremski Karlovci/ Novi Sad, Izdavačka knjižarnica Zorana Stojanovića.
80. Emirbayer, M. (1996), Durkheim's contribution to the sociological analysis of history, Sociological Forum, 11 (2): 263-284.
81. Encyclopaedia of the Social Sciences (1951), New York, Free Press.
82. Erikson, K. T. (1971), Sociology and the historical perspective. In: Bell, W. and Mau, J. A. (eds.), The Sociology of the Future, New York, Russell Sage Foundation.
83. Essays on Historicism (1975), Middletown, Wesleyan University Press. Fejić, N. (1992), Pogled na noviju francusku istoriografiju o srednjem veku (Škola "Anala"), Istorijski časopis, 299-305.

84. Ferguson, A. (1980), An Essay on the History of Civil Society, London, Transaction Books (originally published in 1967).
85. Ferrarotti, F. (1997), The Relation Between History and Sociology: Synthesis or Conflict?, International Journal of Contemporary Sociology, 34 (1): 1-16.
86. Fink, C. (1989), Marc Block: A Life in History, Cambridge, Cambridge University Press.
87. Fire, F. (1994), Radionica istorije, Sremski Karlovci/Novi Sad, Izdavačka knjižarnica Zorana Stojanovića.
88. Franzosi, R. and J. W. Mohr (1997), New Directions in Formalization and Historical Analysis, Theory & Society 26 (2-3): 133-160.
89. Fulbrook, M. (1985), The emergence of modernity: patterns and people in sociocultural history. A review article, Comparative Studies in Society and History, 27 (1): 130-137.
90. Gadamer, H. G. (1996), Pohvala teoriji, Podgorica, Oktoih.
91. Gagnon, P. (1988), Why study history? Atlantic Monthly, Nov.: 43-66.
92. Giddens, A. (1971), Capitalism and Modern Social Theory. An Analysis of the Writings of Marx, Durkheim and Max Weber, Cambridge, Cambridge University Press.
- (1976), New Rules of Sociological Method: A Positive Critique of Interpretative Sociologies, London, Hutchinson.
- (1979), Central Problems in Social Theory, Berkeley and Los Angeles, University of California Press.
- (1983), A Contemporary Critique of Historical Materialism, Berkeley and Los Angeles, University of California Press.
- (1984), The Constitution of Society. Outline of the Theory of Structuration, Cambridge, Polity Press.
- (1987), Social Theory and Modern Sociology, Cambridge, Polity Press.
- (1989), Nova pravila sociološke metode, Ljubljana, ŠKUC Filozofskog fakulteta.
93. Gidens, E. (1998), Sociologija, Podgorica, CID.
94. Godelier, M. (1984), Prelazak iz jednog načina proizvodnje u drugi, Marksizam u svetu, 1: 171-215.
95. Goldstein, I. (1977), O odnosu historije i sociologije u nekim sociološkim udžbenicima, Časopis za suvremenu povijest, III: 107-113.
- (1980), Gledišta o objektivnosti i subjektivnosti u historijskom istraživanju prema novim njemačkim izdanjima, Časopis za suvremenu povijest, III: 131-137.
96. Goldstone, J. A. (1998), Initial Conditions, General Laws, Path Dependence, and Explanation in Historical Sociology, American Journal of Sociology, 104 (3): 829-845.
97. Goldthorpe, J. H. (1986), The Relevance of History to Sociology. In: M. Bulmer (ed.) Sociological Research Methods (pp. 155-161), 2nd edition, London: MacMillan.
- (1991), The Uses of History in Sociology: Reflections on some recent Tendencies, The British Journal of Sociology, 42 (2): 211-230.
- (1994), The Uses of History in Sociology: A Reply, British Journal of Sociology, 45 (1): 55-77.
98. Gotham, K. V. and W. G. Staples (1996), Narrative Analysis and the New Historical Sociology, Sociological Quarterly, 37 (3): 481-501.
99. Goudsblom, J. (1987), The sociology of Norbert Elias: its resonance and significance, Theory, Culture and Society, 4 (2-3): 323-338.
100. Gould, R. V. (ed.) (2000), The Rational Choice Controversy in Historical Sociology, Chicago: University of Chicago Press.

101. Griffin, L. J. (1993), Narrative, Event-Structure Analysis, and Causal Interpretation in Historical Sociology, American Journal of Sociology, 98: 1094-1133.
- (1995), How Is Sociology Informed By History, Social Forces, 73 (4): 1245-1254.
102. Gross, M. (1963), O francuskoj sociološkoj historiografiji, Jugoslavenski istorijski časopis, 4: 57-72.
- (1978), Metodološki problemi strukturalne historije s posebnim obzirom na stupanj razvoja jugoslavenske historije, Jugoslovenski istorijski časopis, 1-4: 24-45.
- (1979), Što je novo u američkoj "novoj" historiji, Časopis za suvremenu povijest, I: 89-112.
- (1980a), O osnovnim metodološkim problemima historijske znanosti na kraju sedamdesetih godina, časopis za suvremenu povijest, I: 97-112.
- (1980b), Historijska znanost. Razvoj, oblik, smjerovi, Zagreb, Liber.
- (1988), Metodološka pitanja pri komparativnom istraživanju nacionalnih i društvenih odnosa u jugoslovenskim zemljama u 19. stoleću, Jugoslovenski istorijski časopis, 1-2: 25-29.
103. Gurevich, A. J. (1983), Medieval culture and mentality according to the new French historiography, European Journal of Sociology, 14 (1): 167-195.
104. Gurvić, G. (1965), Savremeni poziv sociologije, Sarajevo, Veselin Masleša.
105. Gurvitch, G. (1957), Continuite et discontinuite en histoire et en sociologie, Annales: Economies, Societes, Civilisations, 12 (1): 73-85.
- (1966), Sociologija, I-II, Zagreb, Naprijed.
106. Habermas, J. (1984), Povest i evolucija, Marksizam u svetu, 1: 120-170.
107. Hall, J. A. (1989), They Do Things Different There, Or, The Contribution of British Historical Sociology, British Journal of Sociology, 40 (4): 544-564.
108. Hall, J. R. (1999), Cultures of Inquiry: From Epistemology to Discourse in Sociohistorical Research, Cambridge: Cambridge University Press.
109. Hall, Th. D. (2001), Using Comparative Frontiers to Explore World-Systems Analysis and International Relations, International Studies Perspectives, 2 (3): 253-269.
110. Halsey, A. (1984), T. H. Marshall: past and present 1893 – 1981, Sociology, 18 (1): 1-18.
111. Hamilton, G. G. (1987), The "New History" in Sociology, International Journal of Politics, Culture and Society, 1 (1): 89-114.
112. Hantington, S. P. (1998), Sukob civilizacija, Podgorica, CID.
Hart, N. (1994), John Goldthorpe and the Relics of Sociology, British Journal of Sociology, 45 (1): 21-30.
113. Hawthorn, G. (1976), Enlightenment and Despair. A History of Sociology, Cambridge, Cambridge University Press.
114. Hegel, G. W. F. (1966), Filozofija povijesti, Zagreb, Naprijed.
115. Held, D. (1987), Models of Democracy, Cambridge, Polity Press.
116. Heler, A. (1984), Teorija istorije, Beograd, Rad.
117. Helmes-Hayes, R. C. (1992), 'From Universal History to Historical Sociology' by J.A. Banks - A Critical Comment, British Journal of Sociology, 43 (3): 333-344.
118. Hempel, D. (1982), Razlozi i obuhvatni zakoni u istoriji, Gledišta, 1-4.
119. Hexter, J. H. (1972), Fernand Braudel and the Monde Braudelien, Journal of Modern History, 44 (4): 480-539.
120. Himmelstein, J. and M. S. Kimmel (1981), Skocpol's structural model of revolution, American Journal of Sociology, pp. 1145-1154.
121. Hjuz, S. (1989), Istorija kao umetnost i kao nauka, Niš, Gradina.

122. Hobden, S. (1998), International Relations And Historical Sociology: Breaking Down Boundaries, New York: Routledge.
- (1999), Can Historical Sociology be Critical?, Alternatives: Social Transformation and Humane Governance, 24 (3): 391-413.
123. Hobden, S. and J. M. Hobson (eds.) (2001), Historical Sociology of International Relations, Cambridge, Cambridge University Press.
124. Hobsbaum, E. (1985), Istorijska vizija, Marksistička misao, 2: 195-215.
125. Iacovetta, F. and W. Mitchinson (eds.) (1998), On the case: explorations in social history, Toronto/Buffalo, University of Toronto Press.
126. Istorija i druge nauke (1971), Treći program, proleće, 305-497.
127. Istorija i savremeno društvo (1976), Treći program, zima, 32: 65-145.
128. Istorija i ostale društvene nauke (1989). U: Zbornik radova profesora i saradnika Filozofskog fakulteta u Nikšiću (str. 10-11, 233-253), Nikšić.
129. Istoriografija i njeni metodi (1970), Treći program, proleće, 187-277.
130. Jakšić, B. (1976), Historija i sociologija, Zagreb, Liber.
131. Janičijević, M. (1976), Stare i nove predrasude o odnosu sociologije i istorije, Sociološki pregled, 1-3.
132. Jenkins, J. C. (1982), Why do peasants rebel? Structural and historical theories of modern peasant rebellions, American Journal of Sociology, 88 (3): 487-514.
133. Jones, G. S. (1976), From historical sociology to theoretical history, British Journal of Sociology, 27 (3): 295-305.
134. Jones, R. A. (1983), The New History of Sociology, Annual Review of Sociology, 9: 447-469.
135. Jovanović, J. B. (1926), Istorija i sociologija, Arhiv za pravne i društvene nauke, kolo II, XIII/3: 161-180.
136. Kalberg, S. (1994), Max Weber's comparative-historical sociology, Chicago, University of Chicago Press.
- (1999), Weber's Critique of Recent Comparative-Historical Sociology and a Reconstruction of His Analysis of the Rise of Confucianism in China, Current Perspectives in Social Theory, 19: 207-246.
137. Kandić, D. (1989), Istorijski materijalizam i istorizam, Marksistička misao, 5: 131-142.
138. Kangrga, M. (1972), Funkcija povijesne svijesti, Treći program, proleće, 190-199.
139. Kealey, G. S. (ed.) (1988), Class, gender, and region: essays in Canadian historical sociology, St. John's, Nfld., Committee on Canadian Labour History.
140. Kelle, V. (1980), Teorija i istorija, Moskva, Politizdat.
141. Kendall, G. and G. Wickham (1999), Using Foucault's methods, London/Calif., Thousand Oaks/Sage Publications.
142. Kendrick, S., Straw, P. and D. McCrone (eds.) (1990), Interpreting the past, understanding the present, New York, St. Martin's Press.
143. Kermauner, T. (1972), Funkcija istorijske svesti i literalna istorija, Treći program, proleće, 281-195.
144. Kinser, S. (1986), Annaliste paradigm? The geohistorical structuralism of Fernand Braudel, American Historical Review, 86 (1): 63-105.
145. Kiser, E. (1996), The Revival of Narative in Historical Sociology: What rational choice theory can contribute, Politics and Society, 24 (3): 249-271.
146. Kiser, E. and M. Hechter (1991), The Role of General Theory in Comparative-Historical Sociology, American Journal of Sociology, 1: 1-31.

- (1998), The Debate on Historical Sociology: Rational Choice Theory and Its Critics, American Journal of Sociolgy, 104 (3): 785-816.
147. Klaić, N. (1970), O kritici izvora kao naučnoj disciplini, Treći program, proleće, 204-216.
148. Klausen, J. and A. T. Louise (eds.) (1997), European Integration in Social and Historical Perspective: 1850 to the Present, Lanham, MD: Rowman & Littlefield.
149. Knapp, P. (1984), Can Social Theory escape from History? Views of History in Social Science, History and Theory, 1: 34-52.
150. Koen, M. i E. Nejgel (1982), Uvod u logiku i naučni metod, Beograd, Zavod za udžbenike i nastavna sredstva.
151. Kolingvud, R. D. (1986), Ideja istorije, Sarajevo/Zagreb, Svjetlost/Globus.
152. Koka, J. (1994), O istorijskoj nauci, Beograd, Srpska književna zadruga. Kosić, M. (1934), Uvod u opštu sociologiju, Novi Sad, Štamparija Jovanović i Bogdanov.
153. Kovačević, B. (1994), Istorija između funkcionalne ideologije i racionalne spoznaje, Istorijski zapisi, 3-4: 69-81.
154. Krieken, R. van (1991), The Poverty of Social Control: explaining power in the historical sociology of the welfare state, Sociological Review, 38 (1): 1-25).
155. Kuljić, T. (1983), Jedinstvena ili parcijalne istorijske svesti, Marksistička misao, 4: 20-32.
- (1991), Društvena struktura i istorijska ličnost (jedan metodološki problem istorijske sociologije), Gledišta, 5-6: 117-131.
156. Lakić, Z. (1994), Da li je zaista došao kraj istorije?, Istorijski zapisi, 1-2: 109-119.
157. Lasch, C. (1985), Historical sociology and the myth of maturity. Norbert Elias's 'very simmple formula', Theory and Society, 14 (5): 705-721.
158. Lažuk, L. P. (1977), Uvod u istoriju i sociologiju, I-II, Moskva.
159. Lattimore, O. (1962), Studies in Frontier History, London, Oxford University Press.
160. Lawrence, T. N. (1998), Editor's introduction: An invitation to historical sociology, American Sociologist, 29 (2) :3.
161. Lawson, J. and H. Silver (1973), A Social History of Education in England, London, Metheun.
162. Le Goff, J. (1988), La nouvelle histoire (sous la direction de Jacques Le Goff), Paris, CEPL.
- (1992), Nastanak čistilišta, Sremski Karlovci/Novi Sad, Izdavačka knjižarnica Zorana Stojanovića.
163. Le Rua Ladiri, E. (1986), Naučnost istorije, istoričnost nauke. U: K. Mihalski (pri.), Čovek u društvenim naukama, Novi Sad, Književna zajednica Novog Sada.
164. Leca, J. (1992), Postface: Has Historical Sociology Gone Back to Its Infancy?, International Social Science Journal, 133: 403-415.
165. Lenski, G. (1976), History and social change, American Journal of Sociology, 82 (3): 548-564.
166. Lipset, S. M. (1963), The First New Nation. The United States in Comparative and Historical Perspective, London, Heinemann.
167. Lipset, S. M. and H. Richard (1968), Sociology and History: Methods, New York: Basic Books.
168. Lloyd, C. (1986), Ecplanation in Social History, Oxford, Basil Blackwell.
169. Lloyd, Ch. (1991), The methodologies of social history: a critical survey and defense of structurism, History and Theory, 2: 180-219.

170. Lowenthal, D. (1968), Review of Moore, 1966, History and Theory, 7 (2): 257-278.
171. Lukes, S. (1973), Emile Durkheim. His Life and Work. A Historical and Critical Study, London, Allen Lane.
172. Lukacs, J. (1987), The Evolving Relationship of History and Sociology, International Journal of Politics, Culture and Society, 1 (1):79-88.
173. Lustick, I. (1996), History, Historiography and Political Science: Multiple Historical Records and the Problem of Selection Bias, American Political Science Review, 90 (3): 605-618.
174. Mandalios, J. (1999), Civilization and the human subject, Rowman and Littlefield Publishers.
175. Mann, M. (1994), In Praise of Macro-Sociology: A Reply to Goldthorpe, British Journal of Sociology, 45 (1): 37-54.
176. Maravall, J. A. (1986), Culture of the Baroque. Analysis of a Historical Structure, Manchester, Manchester University Press.
177. Marković, M. (1998), Smisao istorijskih zbivanja i odgovornost istoričara, Nastava istorije, 7: 76-82.
178. Marković, P. (1992), Beograd i Evropa, 1918-1941, Beograd, Savremena administracija.
179. Matijević, Z. (1980), Povijest kao historijska i društvena znanost, Časopis za suvremenu povijest, III: 139-142.
180. McLellan, G. (1984), History and theory: contemporary debates and directions, Literature and History, 10 (2): 139-164.
181. Merton, R. K. (1979), O teorijskoj sociologiji, Zagreb, CDDSSOH.
- (1987), Metodologija savremene istorije, Beograd, Institut za savremenu istoriju.
182. Mićunović, D. (1976), Sociologija i istorija, Sociološki pregled, 1-3.
183. Milanović, V. (1985), Kako kritički preispitivati savremenost, Marksistička misao, 2: 182-193.
184. Milenković, P. (1994), Sociološka istorija, ili istorijska sociologija, Sociologija, XXXVI (3): 303-314.
- (1995), Srednjovekovni brak i ideologije u analizi Georgesa Dubyja, Sociologija, XXXVII (3).
- (1999), O mogućnostima sociološke istoriografije: Škola Anala (magistarski rad), Beograd, Filozofski fakultet.
- (2000), Fransoa Fireovo mišljenje revolucije. Godišnjak Filozofskog fakulteta u Novom Sadu, Novi Sad, Filozofski fakultet.
- (2001), Fernan Brodel i dugo trajanje, Sociologija, 1.
185. Milić, A. (1988), Porodica. Dijalog sociologije i istorije. U: A. Milić (pri.), Rađanje moderne porodice, Beograd, Zavod za udžbenike i nastavna sredstva.
186. Milić, V. (1978), Sociološki metod, Beograd, Nolit.
- (1986), Sociologija saznanja, Sarajevo, Veselin Masleša.
187. Milošević, B. (2000), Teorijskometodološke mogućnosti komunikacije sociologije i istorije. U: Komunikacija sociologije sa filozofijom i istorijom (str. 17-27), Nikšić/Podgorica, Univerzitet Crne Gore/Institut za filozofiju i sociologiju Filozofskog fakulteta.
188. Mils, R. (1998), Sociološka imaginacija, Beograd, Plato.
189. Mironov, B. N. (1984), Istorija i sociologija, Leningrad, Nauka.
190. Mitrović, A. (1970), Istoriografija kao nauka, Treći program, II (2): 249-257.
- (1983), Sedam teza o mestu i ulozi istorijske nauke u istorijskoj svesti, Marksistička misao, 4: 3-19.

- (1991), Raspravljanja sa Klio. O istoriji, istorijskoj svesti i istoriografiji, Sarajevo, Svjetlost.
- (1992), Ćudljiva muza: ogledi o istorijskom, naučnom i umetničkom, Valjevo.
- (1994), Skica predloga za raspravljanje o proučavanju istorije društva, Godišnjak za društvenu istoriju, sveska 1, Beograd.
- (1995), Pisati istoriju kako je uistinu bilo, Glasnik Odjeljenja društvenih nauka CANU, 8: 7-32.
- (1996), Propitivanje Klio: ogledi o teorijskom u istoriografiji, Beograd, NIU "Vojska".

191. Mitrović, M. (1982), Jugoslovenska predratna sociologija, Beograd, IIC SSO Srbije.
192. Mitrović, Lj. (1992), Sociologija razvoja, Beograd, Stručna knjiga.
- (2000), Balkan - granica i most među narodima, Beograd, Zavod za udžbenike i nastavna sredstva.
193. Miličević, N. (1978), Struktura filozofije povijesti, Ideje, 3: 37-50.
194. Mičić, S. (2001), Doprinos Slobodana Jovanovića sociologiji istorije (neobjavljena doktorska disertacija), Niš, Filozofski fakultet.
195. Mouzelis, N. (1994), In Defence of 'Grand' Historical Sociology, British Journal of Sociology, 45 (1): 31-36.
196. Mur, B. (2000), Društveno poreklo diktature i demokratije, Beograd, Filip Višnjić.
197. Musgrave, P.W. (ed.) (1970) Sociology, History and Education, London, Methuen.
- The Historical Sociology of Education: reflections on a rereading of Durkheim's The Evolution of Educational Thought (1938), http://www.ecel.uwa.edu.au/gse/erp/vol26no1/26-1.3.musgrave.html
198. Niče, F. (1977), O koristi i šteti istorije za život, Beograd, Grafos.
199. Noakes, J. A. (1995), Using FBI Files for Historical Sociology, Qualitative Sociology, 18 (2): 271-286.
200. Oppenheimer, F. (1927), History and Sociology. In: W. F. Ogburn and A. Goldenweiser, The Social Sciences and their Interrelations (pp. 221-234), Cambridge.
201. Painter, N. I. (1987), Bias and synthesis in history, Journal of American History, 74 (1): 107-112.
202. Parsons, T. (1951), The Social System, New York, Free Press.
203. Parsons, T. i dr. (1969), Teorije o društvu, I-II, Beograd, Vuk Karadžić.
204. Pavlović, M. (1993), Iskušenja istoriografije, Letopis Matice srpske, knj. 451, 478-495.
205. Petranović, B. (1970), Savremena istorija i njeni problemi, Treći program, II (2): 233-246.
- (1986), Savremena istorija i njeni paradoksi, Naše teme, 12: 1553-1583.
- (1997), Istoričar i savremena epoha, Beograd, Stručna knjiga/Univerzitet Crne Gore.
206. Pitt, D. C. (1972), Using Historical Sources in Anthropology and Sociology, New York: Holt, Rinehart and Winston.
207. Poper, K. (1988), Beda istoricizma. U: V. Gligorov (pri.) (str. 145-181), Kritika kolektivizma, Beograd, Filip Višnjić.
208. Popov, (1997), Traganje za "totalnom istorijom", Nastava istorije, 6: 71-81.
- (1999), O istoriji i istoričarima, Sremski Karlovci/Novi Sad, Izdavačka knjižarnica Zorana Stojanovića.
209. Popović, D. (1938), Istorija i sociologija, Sociološki pregled, knj. I: 76-82.

210. Popović, D. J. (1936), Istorija i sociologija, Novi Sad, Štamparija Jovanović i Bogdanov.
211. Popović, M. (1995), Ritam sveta - Škola svetskog sistema I. Wallersteina, Podgorica, CID.
212. Purvis, J. (1981) Towards a history of women's education in nineteenth century Britain: a sociological analysis, Westminster Studies in Education, 4: 45-71.
213. Quadagno, J. and K. J. Stan (1992), Have Historical Sociologists Forsaken Theory?, Sociological Methods & Research, 20 (4): 481-507.
214. Radovanović, M. (1976), Predmet i zadaci istorijske sociologije, Sociološki pregled, 1-3.
215. Ranković, M. (1970), Gurvićevo shvatanje strukture i tipologije globalnih društava, Beograd, Rad.
216. Raspopović, R. (ur.) (1997), Istoričar i savremena epoha, Podgorica, Istorijski institut Republike Crne Gore.
217. Rastoder, (1998), O istoriji, istorijskoj nauci, objektivnosti u istoriji, Istorijski zapisi, 3-4: 129-133.
218. Reger, N. (1978), Da li su objašnjenja u istoriji specifična?, Gledišta, 9: 849-861.
219. Riht, G. H. fon R. (1975), Objašnjenje i razumevanje, Beograd, Nolit.
220. Ritzer, G. (1997), Suvremena sociologijska teorija (preveo i uredio Ognjen Čaldarović), Zagreb, Globus.
221. Robinson, R. J. (1987), The 'civilizing process': some remarks on Ellias's social history, Sociology, 21 (1): 1-17.
222. Roper, J. (1989), Democracy and its Critics. Anglo-American Democratic Thought in the Nineteenth Century, London, Unwin Hyman.
223. Rosenzweig, R. (1987), What is the matter with history?, Journal of American History, 74 (1): 117-122.
224. Roy, W. G. (1984), Class conflict and social change in historical perspective, Annual Review of Sociology, 10: 483-506.
225. Runciman, W. G. (1983), A Treatise on Social Theory. Volume One: The Methodology of Social Theory, Cambridge, Cambridge University Press.
- (1989), Confessions of a Reluctant Theorist, London, Harvester Wheatsheaf.
R�sen, J. (1984), Theory of History in the Development of West German Historical Studies: A Reconstruction and Outlook, German Studies Review, 7 (1): 11-25.
226. Samardžić, R. (1970), Razvitak istoriografije i druge oblasti naučnog delovanja, Treći program, II (2): 259-274.
- (1994), Na rubu istorije, Beograd, BIGZ.
227. Samuel, R. (1981), People's History and Socialist Theory, London, Routledge and Kegan Paul.
228. Sanderson, S. K. (1990), Social Evolutionism: A Critical History, Cambridge, Mass, Basil Blackwell.
229. Savolainen, J. (1994), The Rationality of Drawing Big Conclusions Based on Small Samples: In Defense of Mill's Methods, Social Forces, 72 (4): 1217-1224.
230. Schama, S. (1989), Citizens. A Cronicle of the French Revolution, London, Viking.
231. Schwartz, M. A. (1987), Historical Sociology in the History of American Sociology, Social Science History, 11 (1): 1-16.
232. Shaw. M. (1998), The historical sociology of the future, Review of International Political Economy, 5 (2).

- (2000), The state of international relations. In: S. Owen-Vandersluis, The State and Identity Construction in International Relations (pp. 7-30), London, Macmillan.
233. Sheridan, A. (1980), Micliel Foucault. The Will to Truth, London, Tavistock Publications.
234. Shils, E. (1980), The Calling of Sociology and Other Essays on the Pursuit of Learning, Chicago, Chicago University Press.
235. Skocpol, T. (1977), Wallerstein's world capitalist system: a theoretical and historical critique, American Journal of Sociology, 82 (5): 1075-1090.
- (1979), States and Social Revolutions, Cambridge, Cambridge University Press.
- (1984), (ed.) Vision and Method in Historical Sociology, Cambridge, Cambridge University Press.
- (1987), Social History and Historical Sociology: Contrasts and Complementarities, Social Science History, 11 (1): 17-30.
- (1989), Reconsidering the French Revolution in world-historical perspective, Social Research, 56 (1): 53-70.
236. Skocpol, T. and M. Somers (1980), The uses of comparative history in macroso-cial inquiri, Comparative Studies in Society and History, 22 (2): 174-197.
237. Smaje, C. (2000), Natural hierarchies: the historical sociology of race and caste, Oxford, Malden, MA, Blackwell Publishers.
238. Smit, D. (2001), Uspon istorijske sociologije, Beograd, Zavod za izdavanje udžbenika i nastavnih sredstava.
239. Smith, D. (1982), Social History and sociology more than just good friends, Sociological Review, 30 (2): 286-308.
- (1983), Barrington Moore. Violence, Morality and Political Change, London, Macmillan.
- (1988), History, geography and sociology: lessons from the Annales school, Theory, Culture and Society, 5: 137-148.
- (1991), The Rise of Historical Sociology, Cambridge, Polity Press.
240. Smith, D. i M. Barrington (1983), A Critical Appraisal, New York, Armonk.
241. Smith, S., Booth, K. and M. Zalewski (eds.) (1996), International theory: positivism and beyond, Cambridge, Cambridge University Press.
242. Sociologija društvene akcije Talkota Parsonsa (1990), Beograd, Institut za sociološka istraživanja Filozofskog fakulteta u Beogradu.
243. Somers, M. R. (1995), What's Political or Cultural about Political Culture and the Public Sphere? Toward an Historical Sociology of Concept Formation, Sociological Theory, 13 (2): 113-144.
244. Stein, M. and A. Vidich (eds.) (1963), Sociology on Trial, Englewood Cliffs, N. J, Prentice-Hall.
245. Steinmetz, G. (1998), Critical Realism and Historical Sociology. A Review Article, Comparative Studies in Society & History, 40 (1): 170-186.
246. Stephens, J. D. (1989), Democratic transition and breakdown in Western Europe, 1870 - 1939: A test of the Moore thesis, American Journal of Sociology, 94 (5): 1019-1077.
247. Stern, F. (ed.) (1956), The Varieties of History. From Voltaire to the Present, Cleveland, Meridian Books.
248. Stinchcombe, A. (1978), Theoretical Methods in Social History, New York, Academic Press.
249. Stoianovich, T. (1976), French Historical Method. The Annales Paradigm, Cornell, N. Y., Cornell Universtity Press.

250. Stojanović, T. (1995), Balkanska civilizacija, Beograd, Centar za geopoetiku.
- (1997), Balkanski svetovi - prva i poslednja Evropa, Beograd, Equilibrium.
251. Stone, N. (1979), The revival of narrative: reflections on a new old history, Past and Present, 85: 3-24.
252. Strugar, V. (ur.) (1993), Izvori i istoriografija o Crnoj Gori, Podgorica, CANU.
253. Supek, R. (1983), Zanat sociologa, Zagreb, Školska knjiga.
254. Szakolczai, A. (1998) Reflexive Historical Sociology, European Journal of Social Theory, 1 (2): 209-227.
255. Szompka, P. (1986), The renaissance of historical orientation in sociology, International Sociology, 1 (3): 321-337.
- (1994), The Sociology of Social Change, Oxford and Cambridge, Blackwell.
256. Čečić, B. (1986), Filozofija istorije: smisao istorije, Novi Sad, Matica srpska.
257. Šlezinger, A. M. (Mlađi) (1976), Istoričar kao učesnik, Istorijski zapisi, 3-4: 571-579.
258. Tartalja, S. (1976), Skriveni krug; Obnova ciklizma u filozofiji istorije, Beograd, Ideje.
259. Tasić, (1938), Opšti pregled naše sociologije i naših društvenih nauka, Sociološki pregled, str. 237-271.
260. Thompson, E. P. (1976), On history, sociology and historical relevance, British Journal of Sociology, 27 (3): 387-402.
261. Tili, (1997), Suočavanje sa društvenom promenom, Beograd, Filip Višnjić.
262. Tilly, Ch. (1981), As Socilogy Meets History, New York, Academic Press.
- (1997a), Means and Ends of Comparison in Macrosociology, Comparative Social Research, 16: 43-53.
- (1997b), History and Sociological Imagining. In: Kai Erikson Sociological Visions.
- (1988), Future history, Theory and Society, 17 (5): 703-712.
263. Tilly, L. and C. Tilly (1980), Problems in social history: a symposium, Theory and Society, 9: 667-681.
264. Tojnbi, A. (1970), Istraživanje istorije, I-II, Beograd, Prosveta.
265. Topolski, J. (1984), Istorijska činjenica, Marksizam u svetu, 1: 216-234.
- (1990), Istorijsko objašnjenje kao teorijski i metodološki problem, Istorijski časopis, 229-239.
- (1996), Istine i mitovi, Istorijski zapisi, 3: 15-21.
266. Trevor-Roper, H. (1972), Fernand Braudel, the Annales, and the Mediterranean, Journal of Modern History, 44 (4): 468-479.
267. Turner, B. S. (1986), Citizenship and Capitalism. The Debate over Reformism, London, Alien and Unwin.
268. Turza, K. (1996), Modernost na biciklu, Beograd, Akademia nova. Van den Braembussche, A. A. (1989), Historical explanation and comparative method: towards a theory of the history of society, History and Theory, 1: 1-24.
269. Veber, A. (1987), Tragično i istorija, Novi Sad, Književna zajednica Novog Sada/Dnevnik.
270. Veber, M. (1968), Protestantska etika i duh kapitalizma, Sarajevo, Veselin Masleša.
- (1976), Privreda i društvo, I-II, Beograd, Prosveta.
271. Veser, H. A. (ed.) (1989), The New Historicism, London, Routledge.
272. Veyne, P. (1971, 1978), Comment on crit l'histoire, Paris, Seuil.
- (1992), Bread and circuses: historical sociology and political pluralism (translated by Brian Pearce), London, Penguin Books.

273. Vranicki, P. (1988), Filozofija historije, Zagreb, Naprijed.
274. Volerstin, I. (1997), Kako otvoriti društvene nauke, Podgorica, CID.
275. Vujović, S. (2000), Skica o društvenoj istoriji u Srbiji danas. U: Komunikacija sociologije sa filozofijom i istorijom, Nikšić/Podgorica, Univerzitet Crne Gore/Institut za filozofiju i sociologiju Filozofskog fakulteta.
276. Vukičević, S. (1995), Preispitivanje mita o nauci o istoriji, Istorijski zapisi, 2: 58-73.
277. Wallerstein, I. (1983), Historical Capitalism, London, Verso.
- (1986), Suvremeni svjetski sistem, Zagreb, Cekade.
- (1988), Should We Unthink Nineteenth-Century Social Science?, International Social Science Journal, 118: 525-531.
- (1990a), Culture as the ideological battleground of the modern world-system, Theory, Culture and Society, 7 (2-3): 31.55.
- (1990b), Kapitalizam - istorijski sistem, Titograd, CID.
- (2000), From sociology to historical social science: Prospects and obstacles, in: British Journal of Sociology 51(1): 25-35.
278. Walsh, W. (1967), An Introduction to Philosophy of History, London, Hutchinson University Library.
279. Walters, R. G. (1980), Signs of the times: Clifford Geertz and the historians, Social Research, 47: 537-556.
280. Weber, M. (1989), Metodologija društvenih nauka, Zagreb, Globus.
281. Wehler, H. U. (1983), Povijest kao historijska nauka o društvu, Marksizam u svetu, 12: 39-66.
282. White, H. (1975), Metahistory: The Historical Imagination in Nineteen-Century Europe, Baltimor and London, The Johns Hopkins University Press.
283. White, J. (1978), Historical Explanation: The Heresy of Historicism, Historical Method, 6 (1): 51-65.
284. Zeidin, T. (1976), Social history and total history, Journal of Social History, 10 (2): 237-245.
285. Zimel, G. (1994), Problemi filozofije istorije (Saznajnoteorijska studija), Sremski Karlovci/Novi Sad, Izdavačka knjižarnica Zorana Stojanovića.

10.2. ANNEX: Selective bibliography about Mayan Calendar

1. Aveni, Anthony F.: Skywatchers of Ancient Mexico (U. of Texas Press, 1980)
2. Native American Astronomy (U. of Texas Press, 1977)
3. Archaeoastronomy in the New World (Cambridge U. P., 1983)
4. Archaeoastronomy in Pre-Columbian America (University of Texas Press)
5. Empires of Time, subtitled Calendars, Clocks, and Cultures, Part III, Chapter 6 (Basic Books, Inc., New York, 1989)
6. The Sky in Mayan Literature (Oxford University Press, Oxford, 1992)
7. Gordon Brotherston (eds.): Calendars in Mesoamerica and Peru: Native American Computations of Time (BAR International Series, no. 174, Oxford, 1983)
8. H. Hartung: Maya City Planning and the Calendar, Transactions of the Amer. Phil. Soc., Vol 76, Part 7, 1986
9. Azcapotzalco Maguey Manuscript, in facsimile (The Maya Society, Publication 6, 1935)
10. Blom, Frans F.: Maya Books and Sciences
11. Bolles, John S.: Las Monjas, A Major Pre-Mexican Architectural Complex at Chichen Itza (U. of Oklahoma Press, 1977)

12. Bourgeois, Julia F.: The True Calendar-Years of Aztecs and Mayas and the True Mayan Calendar System (Editorial Cultura, Mexico, 1942)

13. Bowditch, C. P.: Was the Beginning Day of the Maya Month Numbered Zero (or Twenty) or One? (Cambridge U.P., 1901)

14. The Numeration, Calendar Systems and Astronomical Knowledge of the Mayas (Cambridge U.P., 1910)

15. Bricker, V. R. and H. M. Bricker: "The Seasonal Table in the Dresden Codex", Archaeoastronomy, No. 12, 1988, pp.S1-S62

16. "Classic Maya prediction of solar eclipses", Current Anthropology, xxiv, 1-23 (Chicago)

17. Brunhouse, R. L.: Sylvanus G. Morley and the World of the Ancient Mayas (University of Oklahoma Press, 1971)

18. Closs, Michael P.: Comment on Harvey M. Bricker and Victoria R. Bricker, "Classic Maya prediction of solar eclipses", Current Anthropology, xxiv, 19 (Chicago)

19. Native American Mathematics (U. of Texas Press, 1986)

20. A. F. Aveni & B. Crowley: "The planet Venus and Temple 22 at Copan", Indiana, ix, 221-47 (Berlin)

21. Codex Nutall (Dover Publications, 1975)

22. Coe, Michael D.: The Maya, 3rd ed. (Frederick Praeger, 1975; Thames & Hudson, 1984)

23. Breaking the Maya Code, 1992

24. Edmonson, M. S. (transl.): The Ancient Future of the Itza, the Book of Chilam Balam of Tizimin (U. of Texas Press, 1982)

25. Gallenkamp, Charles: Maya (Viking, 1985)

26. Gates, William E.: The Maya and Tzental Calendars (Cleveland, 1900) The Dresden Codex (Maya Society, Baltimore, 1932)

27. Goodman, J. T.: The Archaic Maya Inscriptions (Taylor and Francis, London, 1897)

28. Gruyter, W. J. de: A New Approach to Maya Hieroglyphs (Amsterdam, 1946)

29. Heinrich, Walther: Die Sonnen von Tiwanaku, INTI-Verlag, Trier, 1983 (with English summary, also available at Library of Congress, Wash. D.C.)

30. Heinrich, Walther: Altamerikanische Kalender, INTI-Verlag, Trier, 1993

31. Heinrich, Walther: Der Sonnenstein der Azteken, INTI-Verlag, Trier, 1995

32. Heinrich, Walther: Zahl und Zeit in magischen Quadraten — Die Primzahlen und das Sonnenjahr — Verbindungen zu Altamerika, INTI-Verlag, Trier, 1997.

33. Ifrah, Georges: From One to Zero (Chapter 28), Penguin Books

34. Justeson, John S.: Corpus of Maya Hieroglyphic Inscriptions (Peabody Museum Press, 1975)

35. Kelley, D. H.: Deciphering the Maya Script (University of Texas Press, 1976)

36. H. A. Moran: The Alphabet and the Ancient Calendar Signs, 2nd edition (Daily Press, 1969)

37. Knorosov, Yuri V.: "New data on the Maya written language", Proceedings of the Thirty-Second International Congress of Americanists (Copenhagen, 1956), pp. 467-475.

38. Leon-Portilla, Miguel: Time and Reality in the Thought of the Maya, with foreword by Sir J. Eric S. Thompson (U. of Oklahoma Press, 1988)

39. S. L. Cline (eds.): The Testaments of Culhuacan (UCLA Latin American Center Publications, 1984)

40. Le Plongeon, A.: Sacred Mysteries among the Mayas and the Quiches 1150 Years Ago, subtitled Their Relation to the Sacred Mysteries of Egypt, Greece, Chaldea and India (New York, 1886)

41. Lister, R. H., and R. C. Lister: In Search of Maya Glyphs (Museum of New Mexico Press, 1970)

42. Lowe, John W. G.: The Dynamics of Apocalypse, a Systems Simulation of the Classic Maya Collapse (U. of New Mexico Press, 1985)

43. Makemson, Maud W.: The Astronomical Tables of the Maya (Contributions to American Anthropology, no. 42, 1943)

44. Morley, S. G.: An Introduction to the Study of the Maya Hieroglyphs (Smithsonian Institution, 1915; Dover Publications, 1975)

45. "Correlation of Maya and Christian Chronology", Amer. J. of Archaeology, 2nd ser., XIV (1910), pp. 193-204.

46. The Inscriptions at Copan (Carnegie Institution of Washington, 1920)

47. The Inscriptions of Peten, 6 volumes (Carnegie Institution of Washington, 1937-38)

48. The Maya Correlation Problem (1946)

49. A. B. Vásquez: The Maya Chronicles (Carnegie Institution of Washington, 1949)

50. The Ancient Maya (Stanford U. P., 2nd printing, 1958)

51. Owen, Nancy K.: "The Use of Eclipse Data to Determine the Maya Correlation Number", in Aveni[4], pp. 237-246.

52. Penrose, Th.: Mayan Cryptoquantum Numerations (Liberty Bell Associates, 1984)

53. Peterson, Frederick: Ancient Mexico (Capricorn Books, 1959)

54. Proskouriakoff, Tatiana A.: An Album of Maya Architecture (U. of Oklahoma Press, 1977)

55. "Historical implications of a pattern of dates at Piedras Negras, Guatemala", American Antiquities (The Society for American Archaeology), 1960, Vol. XXV, No. 4, p.470.

56. J. E. S. Thompson: Maya Calendar Round Dates such as 9 Ahau 17 Mol (Notes on Middle American Archaeology and Ethnology, no. 79, Washington, 1947)

57. Rau, Jack: Discovering the Lost Maya Cities (Pre-Columbian Press, 1960) [53] Rauh, James H.: "Two new concepts in Mayan calendrical studies" (Trustees for Harvard University, 1971)

58. Recinos, Adrian (transl.): Popul Vuh (U. of Oklahoma Press, 1950)

59. Robertson, Merle Greene (ed.): Third Palenque Round Table, 1978: Part 2, The Palenque Round Table Series Volume V (University of Texas Press, Austin, 1980)

60. Robicsek, Francis: Copan — Home of the Mayan Gods (Museum of the American Indian, Heye Foundation, 1972)

61. The Maya Book of the Dead — the Corpus of Codex Style Ceramics of the Late Classic Period (University of Oklahoma Press, 1981)

62. The Smoking Gods, Tobacco in Maya Art, History and Religion (U. of Oklahoma Press, 1972)

63. Roys, Ralph L.: The Book of Chilam Balam of Chumayel, with introduction by J. Eric S. Thompson (U. of Oklahoma Press, 1967)

64. Sablov, Jeremy A.: The New Archaeology and the Ancient Maya (Scientific American Library, 1990)

65. Satterthwaite, Linton: Concepts and Structures of Maya Calendrical Arithmetics (Philadelphia, 1947)

66. Severin, Gregory M.: The Paris Codex: Decoding an Astronomical Ephemeris, Transactions of the American Philosophical Society, Volume 71, Part 5, 1981

67. Smiley, Charles H.: "The Solar Eclipse Warning Table in the Dresden Codex", in Aveni[4], pp. 247-256.

68. Smither, R. K.: "The 88 Lunar Month Pattern of Solar and Lunar Eclipses and its Relationship to the Maya Calendars", Archaeoastronomy, Vol. IX (1986), pp.99-113

69. Spinden, Herbert J.: The Reduction of Mayan Dates (Papers of the Peabody Museum of American Archaeology and Ethnology, Harvard University, vol. 6, no. 4, 1924)

70. Tedlock, Barbara: Time and the Highland Maya (U. of New Mexico Press, 1982)

71. Tedlock, Dennis (transl.): Popul Vuh (Simon & Schuster, 1985)

72. Temple, J. E.: "Maya Astronomy", Contributions to American Archaeology (Carnegie Institution of Washington), Vol. 1, 1931, pp.29-115

73. Thomas, Cyrus: Mayan Calendar Systems

74. A study of the Manuscript Troano (Contributions to North American Ethnology, vol. 5, pt. 3, 1882)

75. Thompson, J. Eric S.: Maya Hieroglyphic Writing, 2nd edition (U. of Oklahoma Press, 1960)

76. A Catalog of Maya Hieroglyphs (U. of Oklahoma Press, 1962)

77. The Rise & Fall of Maya Civilization, 2nd edition (U. of Oklahoma Press, 1966)

78. Maya History and Religion (U. of Oklahoma Press, 1970)

79. Commentary on the Dresden Codex, with facsimile reproduction of the Dresden Codex (American Philosophical Society, 1972)

80. Maya Heiroglyphs without Tears (British Museum, 1972)

81. "Maya Astronomy", Phil. trans. Royal Soc. of London, A, cclxxvi, pp.83-98

82. Tozzer, Alfred M.: "A Maya Grammar", Papers of the Peabody Museum (Harvard University, 1941), Vol. XVIII

83. "Landa's Relacion de las Cosas de Yucatán, a translation", Papers of the Peabody Museum (Harvard University, 1941), Vol. XVIII

84. Whittaker, Arabelle, and Viola Warkentin: Chol Texts on the Supernatural (U. of Oklahoma Press, 1965)

85. Willson, Robert W.: Astronomical Notes on the Mayan Codices (Papers of the Peabody Museum of Archaeology and Ethnology, Vol. 6, no. 3, 1924)

86. Wright, Ronald: Time Among the Maya, Travels in Belize, Guatemala and Mexico (Henry Holt, Salt Lake City, Utah, 1991)

10.3. ANNEX: Selective bibliography of the authors of books about Maya

1. Argüelles, José: Earth Ascending (Bear & Co., 1984, 1988): The Mayan Factor (Bear & Co., 1989)
2. Aveni, A. F. (ed.): Archaeoastronomy in Pre-Columbian American (1975)
3. Baudez, Claude and Sydney Picaso: Lost Cities of the Maya (Abrams Discoveries, 1992)
4. Benson, Elizabeth P.: The Maya World (Thomas Crowell)
5. Brinton, D.G.: The Books of Chilam Balam (1892)
6. Carr, Robert F.: Tikal Report No. 11 (University of Pennsylvania, Museum monographs, 1961)
7. Carstensen, Jeanne: "Mayan Cultural Resurgence" (Whole Earth Review, Fall 1991, pp.74-77)
8. Coe, Michael D.: Mexico (1962)
9. Breaking the Maya Code (Thames and Hudson, 1992)
10. Coe, William R.: Tikal, a handbook of the Ancient Maya Ruins (University of Pennsylvania, 1967)
11. Colby, Benjamin N.: The Daykeeper — the Life and Discourse of an Ixil Diviner (Harvard University Press, 1981)
12. Edmonson, Munro, S.: The Book of the Year: Middle American Calendrical Systems (University of Utah Press, 1988)

13. Ferguson, William M. and John Royce: Maya Ruins of Mexico in Color (University of New Mexico Press, 1984)

14. Gates, W.: An Outline Dictionary of Maya Glyphs (1931)

15. Goetz, Delia and Sylvanus G. Morley (transl.): Popul Vuh (U. of Oklahoma Press, 1950)

16. Gordon, G. B.: Prehistoric Ruins of Copan, Honduras (1896)

17. Harris, John F. and Stephen K. Stearns: Understanding Maya Inscriptions: A Hieroglyph Handbook (Philadelphia: The University Museum of Archaeology and Anthropology, 1992)

18. Harris, John and Stephen K. Sterns: Understanding Maya Inscriptions, a Hieroglyphic Handbook (University Museum, University of Pennsylvania, Philadelphia, 1992)

19. Hellmuth, Nicholas M.: Maya Archaeology: Tikal, Copan (Foundation for Latin American Anthropological Research, St. Louis, Missouri, 1978)

20. Hunbatz Men: Secrets of Mayan Science/Religion (Bear & Co., 1990)

21. Hunter, C. Bruce: A Guide to the Ancient Mayan Ruins (University of Oklahoma Press, 1974)

22. Jenkins, John M.: Journey to the Mayan Underworld (Four Ahau Press, 1989)

23. Tzolkin — Visionary Perspectives and Calendar Studies (Borderland Sciences, 1994)

24. Kurbjuhn, Kornelia: Maya: The Complete Catalogue of Glyph Readings (Kassell, Germany, 1989)

25. Landa, Diego de: Relacion de las cosas de Yucatán (1956). English translation by W. Gates: Yucatán Before and After the Conquest (1937).

26. Leon-Portilla, M.: Pre-Columbian Literature of Mexico (1969)

27. Lounsbury, Floyd: "The Base of the Venus Table of the Dresden Codex and its Significance for the Calendar-Correlation Problem", in Aveni & Brotherston [6]

28. "Maya Numeration, Computation, and Calendrical Astronomy," in Dictionary of Scientific Biography, ed., Charles Coulston

29. "A Derivation of the Mayan-to-Julian Calendar Correlation from the Dresden Codex Venus Chronology," Aveni [5a], p. 184

30. "A Solution for the Number 1.5.5.0 of the Mayan Venus Table," Aveni [5a], p.207

31. "Some Problems in the Interpretation of the Mythological Portion of the Hieroglyphic Text of the Temple of the Cross at Palenque," in Robertson [54a], p.99

32. Luxton, Richard and Pablo Balam: The Mystery of the Mayan Hieroglyphs (Harper & Row, 1981)

33. Makemson, Maud W.: The Maya Correlation Problem (Publications of the Wassar College Observatory, No 5, New York 1946)

34. Maler, T.: Explorations in the Department of Peten, Guatemala (1911)

35. Malmstroem, Vincent H.: Cyles of the Sun, Mysteries of the Moon — The Calendar in Mesoamerican Civilization (University of Texas Press, 1997)

36. Meyer, C. and C. Gallenkamp: The Mystery of the Ancient Maya (1985)

37. Miller, M. E.: The Arts of Mesoamerica (1986)

38. Morris, A. A.: Digging in Yucatán (1931)

39. Morris, E. H., J. Charlot and A. A. Morris: The Temple of the Warriors at Chichen Itza (1931)

40. O'Neil, W.M.: Time and the Calendars (1975)

41. Perera, Victor: The Last Lords of Palenque (University of California Press, 1985)

42. Peters, Daniel: Tikal (historical novel)

43. Proskouriakoff, T.: A Study of Classical Maya Sculpture (1950)

44. Robertson, Merle Green: Sculpture of Palenque, Volumes I - IV (Princeton U. P., 1983 and later)

45. Rupert, Karl: The Caracol at Chicen Itza (1933)

46. J. Eric S. Thompson and T. Proskouriakoff: Bonampak, Chiapas, Mexico (Carnegie Institution of Washington publication no. 602).

47. Schele, Linda, and Peter Mathews: The Bodega of Palenque, Chiapas, Mexico (Dumbarton Oaks, Washington, D.C., 1979)

48. Maya glyphs: the Verbs (University of Texas Press, Austin, 1982)

49. The Mirror, the Rabbit and the Bundle: "Accession" Expressions from the Classic Maya Inscriptions (Trustees for Harvard University, 1983)

50. Mary Ellen Miller: The Blood of Kings: Dynasty and Ritual in Maya Art (Kimbell Art Museum, Fort Worth, 1986)

51. David Freidel: A Forest of Kings: the Untold Story of the Ancient Maya (Morrow, New York, 1990)

52. Schook, Edwin M.: Explorations in the Ruins of Oxkintok, Yucatán (1940)

53. Tikal Reports (University of Pennsylvania, Museum monographs, 1958)

54. T. Proskouriakoff: Yucatán (1951)

55. Scofield, Bruce: Day Signs: native American Astrology from Ancient Mexico (One Reed Publications, Amherst, Massachusetts, 1982)

56. Sitchin, Zecharia: The Lost Realms (Bear & Co., 1990)

57. Smith, A. L.: Archaeological Reconnaissance in Central Guatemala (1955)

58. Spinden, H. J.: A Study of Maya Art (1913)

59. New World Correlations (1926)

60. Origin of Civilizations in Central America and Mexico (1933)

61. Stirling, M.: Stone Monuments of Southern Mexico (1943)

62. Tate, Carolyn E.: Yaxchilán: The Design of a Maya Ceremonial City (University of Texas Press, 1992)

63. Thompson, J. Eric S.: "Maya Chronology: The Correlation Question," in Contributions to American Archaeology, Volume III, Nos. 13 to 19, Carnegie Institution of Washington, No. 14, 1937, pp. 51-104

64. "The Introduction of Puuc Style of Dating at Yaxchilan", Notes on Middle American Archaeology and Ethnology No. 110, May 15, 1952

65. Tozzer, A. M.: Chicen Itza and its Cenote of Sacrifices (1957)

66. Wasson, R. Gordon: Wondrous Mushrooms — Mycolatry in Meso-America (McGraw Hill, 1980)

67. Westheim, P.: The Sculpture of Ancient Mexico (1963)

68. Wauchope, Robert (ed.): Handbook of Middle American Indians, 16 volumes (U. of Texas Press, 1964-92)

69. Willard, T. A.: The City and the Sacred Well (1926)

70. The Lost Empires of the Itzaes and Maya (1933)

71. Williamson, R. A. (ed): Archaeoastronomy in the Americas (1978)

72. Vogt, Evon Z.: The Zinacantecos of Mexico: A Modern Maya Way of Life (Holt, Rinehart and Winston, 1970)

10.4. ANNEX: Photography of the Mayan world– author's gallery

Photography 1: Mayan farmer, the perspective of Guatemalan artist, the statue is located at the entrance of the National History Museum in Guatemala City, Guatemala

Photography 2: Stone blocks with engraved images of the jaguar and eagle, Chichen Itza, Yukatan

Photography 3: Cenote Aqua Azul, the wwsacred Mayan sinkhole, Chichen Itza, Yucatan, Mexico

Photography 4: Mayan murals from Bonampak, Chiapas, Mexico

Photography 5: Stone stele number 5, Izapa, Mexico, 255 cm tall weighing 15 tons; dated 300 B.C.

Photography 6: The “Governor’s Palace”, Uxmal, Yucatán, Mexico

Photography 7: “Five-to-eight”, façade of the Governor’s Palace, Uxmal, Yucatán

Photography 8: Nuber eight (dash and three dots) engraved into a stone block, Copan, Honduras

Photography 9: Acoustic wall at the Play Field, Chichen Itza, Yucatán, Mexico

Photography 10: Whistle from Tulum, Quintana Roo, Mexico

Photography 11: Acoustic effects at the Copana Play Field, Honduras

Photography 12: Disproportionely high and narrow stairs of the Kukulcan Pyramid, Chichen Itza, Yucatán, Mexico

Photography 13: Palenque, Chiapas, Mexico

Photography 14: Play Field, Monte Alban, Oaxaca, Mexico

Photography 15: Play Field, Chichen Itza, Yucatán, Mexico

Photography 16: Play Field, Copan, Honduras

Photography 17: Play Field, Coba, Yucatán, Mexico

Photography 18: Play Field, Yaxchilan, Chiapas, Mexico

Photography 19: Stone ring at the Uxmala Play Field, Yucatán, Mexico

Photography 20: Stone figures of the Maya in the city of Kabah, Yucatan, Mexico