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MAGIC AND ANIMISM IN OLD RELIGIONS: THE RELEVANCE OF SUN CULTS IN THE WORLD-VIEW OF TRADITIONAL SOCIETIES

Animistic attitudes towards natural objects as prevailing forms of understanding nature and reality are found across all pre-modern societies. Sun and moon are, like other mere physical objects, understood in terms of animate and conscious beings or persons. Ancient peoples feel personal relations towards these heavenly bodies, worship them as gods and make sacrifices to feed them. The sun cults of the Aztecs and the ancient Egyptians, chosen as typical examples to demonstrate these phenomena, can only be explained in the context of animistic, magical and artificialistic belief systems. Developmental psychology of cognitive structures explains the prevalence of these belief systems as parts of the cognitive development of mankind.

Keywords: sun cults, animistic thinking, cognitive development, magic, sacrifices, gods

1. Animistic and mechanic understanding of the heavens

The rise of the mechanical philosophy in the 17th century and of the physical sciences in the 18th century reflected the transformation of understanding nature and reality in Europe. From that time on nature has been conceptualized in terms of physical laws and causal-mechanic principles. Not before the rise of the early modern times astronomical, meteorological, and geological phenomena were separated from biological and psychological phenomena. Since then Europeans have been making a sharp difference between biological and physical phenomena, living plants, animals, and humans on the one hand and dead matter on the other hand, psyche and physics, subject and object. In this mechanical philosophy, opposite to the prevailing ideas of ancient philosophy, material objects are seen as passive

phenomena reacting to external circumstances, whereas only living beings are seen as equipped with self-motion and consciousness (Dijksterhuis 1956; Cohen 1985; Oesterdiekhoff 2002; Gloy 1995).

Ancient philosophy did not differentiate between physics to the one hand and biology and psychology on the other hand, physical sciences and humanities, matter and life, subject and object. Aristotelian philosophy understood the physical sciences as a part of something what today we would call biology including psychological (animistic) concepts. All parts of reality were understood in biological terms; even chemical and physical elements were seen as living and therefore biological entities. It is the biological and animistic perspective of ancient philosophy that makes the difference between metaphysics (theological philosophy) and modern physical sciences.

Pre-modern societies do not accept the sharp differences between matter and soul but see the whole world as an orchestra of living entities. Sky, clouds, landscapes, rivers, rocks and trees are experienced as animate entities, equipped with mental capacities which are more or less similar to those of humans and ghosts. Physical phenomena are not experienced as "It" but as "You". Spirits and spectres dwell inside physical objects and steer their behaviour. Souls are the motor of human bodies, plants, animals, stones, rocks, and stars. Objects can not exist without souls, which rules them and connect them to the higher spheres of demons and gods, to the invisible and magical network of influences that combine all parts of the cosmos to each other. The souls, which belong to the objects, can act on their own will, and they can obey to sorcerers, demons, and gods, like humans who have a free will but can follow the orders of their masters and lords (Mbiti 1969; Evans-Pritchard 1937; De Groot 1910; Tylor 1871; Lévy-Bruhl 1959).

Thus humans in pre-modern societies have a fundamentally different attitude towards nature, compared to the world view of the scientific civilization. The relations between man and nature in pre-modern societies have a social, moral and psychic character and are not relations between a living human and dead matter. Humans in traditional societies cultivate personal relations to physical objects and nature, understanding these relations as an exchange of deeds, respect and goods, an exchange that is intended and managed by both sides. Gods, ghosts and animate objects are the agents behind good and bad events and processes, always intending them in order to punish or praise humans, weighing the value of their deeds. Thus, natural processes and incidents such as droughts and famines, storms and floods, epidemics and lost wars are recognized as personal answers and intended reactions of supernatural powers, gods, demons, and magicians, personal agents who communicate with humans in these forms of good and bad events. Bad events are either punishment by the good gods or evil acts of devils and witches, while good events result from the good will of benevolent gods. Nature is perceived this way in terms of personal interaction. Natural

processes and incidents are intended actions, answering and reacting to human behaviour. Natural processes are seen as personally intended, aroused or influenced by human behaviour. Thus, there is no sharp difference between incidents and actions; in this perspective incidents *are* actions. Two examples from thousands of others, to be found everywhere in ethnographic reports: All around the world pre-modern people believed that persons who drowned in rivers or lakes were caught by ghosts who needed the drowned persons in order to get rid of their curse and to be enabled to escape from their underwater prison (De Groot 1910; Lévy-Bruhl 1959). George Catlin (1979) rode with some Natives across a valley when a fire storm began, nourished by the prairie grass, and threatened the life of the group which succeeded in escaping by reaching a protecting hill just in time. The Natives explained the fire storm by their own activities: The noise of the galloping hooves made the sleepy fire god angry who intended to remove the riders to find his sleep back. These two examples illuminate the typical animistic mechanism to recognize reality, a mechanism that is found take across all pre-modern cultures around the globe (Tylor 1871; Lévy-Bruhl 1959; Mbiti 1969; Frazer 1977; Piaget 1981).

When natural incidents and processes are essentially communicative, then it is possible for humans to influence these powers to get their support and to avoid all kinds of damage which could stem from the demonic activities. Humans provide food and say prayers, make sacrifices to these agents in order to appease them and to arouse their helpful support. The cults, ceremonies and sacrifices are social interactions with the gods. The sacrifices, plants, animals, drinks, are intended to feed the gods in a literal, not a metaphoric sense. The prayers are meant as a real talk to intercede for help and to avoid damage. The rituals and sacrifices correspond to the animistic interpretation of nature and to the interpretation of nature as a social and communicative process. The rituals are rooted in the lacking difference of nature and society, physical and moral laws. If man expects something from the gods, he has to bring them respect, reverence and goods: *Do ut des*, as É. Durkheim interpreted the ancient relationships between god and man. The sacrifices are the "money" ancient man has to pay for the permission to live in the world and to enjoy its fruits (Frankfort et al. 1981:11-13; Tylor 1871; Frazer 1977; Gehlen 1975; Lévy-Bruhl 1959; Jung 1991:35-47; Schimmel 1986; Oesterdiekhoff 2006:167-178; Jensen 1948, 1992).

This does not mean, as often believed, that the primitive contributes human attitudes to a world seen as dead matter. But he really does not personalize inanimate appearances, because he has no concept of dead matter and inanimate phenomena. He does not additionally complete an empty world with ghosts because from the very beginning he interpretes the world as a living entity, natural phenomena as animate and conscious. All appearances are always interpreted as "You", never as "It" (Frankfort 1981:12, transl. by G. O.).

Trees and rivers, mountains and stars, sun and moon were worshipped as gods in ancient times to an amount that can hardly be exaggerated. This article wants to analyse ancient man's attitude to the sun, worshipping the sun as a god. Although many authors have written a lot about this subject, I do believe that it is necessary to throw a further and deeper glance. The literature about sun and sun cults is huge, of course. But I really doubt that a deep understanding of the basic structures of this ancient world view has been sufficiently mediated. This article wants to develop a deeper understanding of the underlying cognitive structures which account for these religious phenomena.

The prevailing animistic understanding of stars and planets in pre-modern societies implies the assumption that they are animate and conscious, living as gods and persons. Australian Aborigines, Native Americans, Egyptians, Chinese and other peoples believed that their ancestors were living on as stars in the heavens. Deceased humans appear as stars in the heavens. Thus, stars are transformed humans and that is why they rule the world as gods. Ancestor worship understands deceased persons as gods. Ancestor worshipping, animistic understanding of the heavens, the understanding of stars as gods, the belief in the transformation of deceased persons into stars, and the astrological understanding of the celestial government on all processes taking place on earth are interconnected parts of the animistic belief system which is found in pre-modern societies around the globe since the earliest times (Gebelein 2000; Jensen 1992; Oesterdiekhoff 2002). Stars are running around the earth by their own will and power, obeying a higher order, like musicians playing their part in the orchestra by their own but thereby following the instructions of the conductor. This animistic theory of heavens is found with all tribal societies, in the ancient philosophy of Platon, Aristoteles and Ptolomaeus, being surpassed not before the rise of mechanical philosophy in the early modern times. The astonishing transformation of the animistic to the mechanical theory of the heavens took place in Johannes Kepler's, not in Nikolaus Copernicus's work. In his work *Epitome* Kepler explained the motions of the stars in a merely mechanical way, later followed by I. Newton and I. Kant (Gloy 1995:166; Shapin 1998:45; Koyrè 1998:65; Oesterdiekhoff 2002:106-118; Dijksterhuis 1956:550).

The sun is, as Renan remarked, actually the only reasonable symbol for god. The sun is the father god who gives life to all appearances, the creator of all living things, the energy source of our world (Jung 1991:123, transl. by G. O.).

The sun was worshipped as a god in every ancient culture, but nevertheless its importance varied a lot across ancient cultures. God and sun were connected to each other by the so-called mystical participations. The sun was in any case a deity, but the other gods were no parts of the sun. Archaic thinking sometimes tended to amalgamate sun and god as if they were one thing

(Echnaton 2007; Frobenius 1904), but mostly the sun was only seen as one of a lot of manifestations of god. God is in every part of nature, but the shining sun is the most impressive manifestation of god. These mystical participations do not differentiate sufficiently between identity and difference, substance and quality, part and whole (Lévy-Bruhl 1959; Oesterdiekhoff 2006; Arieti 1995). But there cannot be a doubt that the sun is seen as a living being and as a deity in all pre-modern societies around the globe since the earliest times (Eliade 1994; Jensen 1992; Campbell 1964; Frazer 1977; Stegemann 1987; Tylor 1871; Mbiti 1969).

In the next chapter I will give a systematic explanation concerning this clear conclusion that we have to draw from all related ethnographic and historical reports. It is quite clear that not social structures can account *directly* for this fact. Differences between tribal societies, archaic kingdoms, and ancient empires, i.e. social structures, do not influence or diminish this ubiquity of animism. Animism prevails in all traditional cultures, but not in modern societies. The existence of sun cults in all pre-modern societies, even in those where the moon is a very important deity, and the scientific concept of the sun in modern societies, cannot be referred to social structures but to modes of thought. The ubiquity of the animistic understanding of the sun in all pre-modern societies stems from specific modes of thought, whereas the decline of animism in modern societies is due to the rise of rationalism and physical sciences. Thus we can conclude that there are big similarities of attitudes towards the sun across all pre-modern societies, similarities which are stemming from a common source of modes of thought. Already the classical authors recognized that specific modes of thought, found in all pre-modern societies, are responsible for the existence of the animistic theory of heavens and sun cults (Tylor 1871; Frazer 1977; Jensen 1992). In the next chapter I will throw light on these two types of modes of thought above the level of the classical authors.

The sun was seen as a power that embodies the energy of the entire cosmos and delivers physical and magical power to all parts of the cosmos, heaven, earth, plants, animals, and humans (Eliade 1994; Jung 1991:123). Against this background the theory of an age of sun cults (Frobenius 1904), assuming that they are stemming from a specific geographical and cultural root and following and spreading special traditions, is surely in the wrong. This theory cannot explain the universality of sun cults in ancient cultures since the stone ages. Although the sun was worshipped as a god in all ancient cultures, not in every culture the sun cult was in the centre of religion, cults and rites. Some cultures emphasized the sun's role more than others. The discussion on the connection between solar cult and kingdom still continues, but it is quite clear that the solar cult had a tremendous influence in the empire of the Inca, in Japan, Egypt and similar kingdoms, more than in ancient Rome, China, and Europe. On the other hand, there is no ancient

culture without a solar cult, not even medieval Christian Europe or ancient China. The causes accounting for the ubiquity of the magical-animistic solar cult across ages and ancient cultures are the same which account for the universality of magic and animism: elemental processes of cognition which did not disappear before the rise of mechanical philosophy and science in the early modern times in Europe. The surpassing of elemental processes of cognition by causal-mechanical ideas accounts for the rise of mechanical philosophy and physical sciences, as a lot of authors and scholars have emphasized and figured out (Koyrè 1998:70; Dijksterhuis 1956; Cohen 1985).

2. The cognitive-developmental approach throws light on the causes of animistic thinking and sun cults

How can we explain the ubiquity of magical-animistic thinking in pre-modern societies and the evolution of mechanical philosophy in the early modern times in Europe? The prevalence of magical-animistic thinking in pre-modern societies is not a result of a lack of knowledge but of prevailing elemental cognitive processes. On the other hand, cognitive transformations, mainly not an increase of knowledge, account for the evolution of mechanical thinking in the early modern times. Developmental psychology of cognitive structures is necessary to understand the cognitive trajectories of historical processes in world history – this is a message supported by the great authors of developmental psychology (J. Baldwin, S. Hall, H. Werner, J. Piaget, H. Wallon, P. Janet), Psychoanalysis (S. Freud, C. G. Jung, S. Ferenczi, E. Neumann), many sociologists (A. Comte, N. Elias, J. Habermas), some historians and ethnologists (K. Lamprecht, C. Hallpike, D. LePan, S. Gablik, C. Raddings) (see the overview in Oesterdiekhoff 2000:49-79, 1997:5-44).

In the course of the past 70 years, Piagetian cross-cultural psychology has found out by more than 1000 enquiries among more than 100 cultures that cognitive structures of pre-modern illiterate populations remain bound to pre-operational and concrete-operational structures and can hardly attain formal operations (Dasen/Berry 1974; Dasen 1977; Hallpike 1978; Oesterdiekhoff 1997, 2000, 2006; Lurija 1982; Mogdil/Mogdil 1976, Vol. 8). The structural identities between pre-formal thinking, reported by developmental psychology, and ethnic thinking, reported by ethnography and history, are found in all parts of the experience of reality, down to the smallest details and peculiarities such as the understanding of shadows and lengths, perspectives and volumes, chance and probability, life and death, nature and society.

The thinking beneath the stage of formal operations is magical-animistic, while the decline of magic and animism and the concomitant evolution of causal-mechanical thinking is a result of the development of formal operations, evolving during early adolescence in modern societies but hardly

to be found among adults in pre-modern societies. Empirical surveys in developing regions have found out that not only children but even illiterate adults remain bound to magical-animistic representations and do not master the transformation to the mechanical-causal understanding of the world and to concomitant formal operations. Throughout their entire life-time they continue to believe that sun, moon, clouds, mountains, woods, and rivers are animate and conscious (Havighurst/Neugarten 1955; Kälble 1997; Dennis 1943; Lévy-Bruhl 1930; Tylor 1871; Mbiti 1969).

Most of the adults in modern Turkey, especially those who are living in rural areas, are animistic and believe in the soul and spirit of physical objects, in the animate nature and the moral duty of the sun and the moon. The survey Kälble carried out in Turkey should convince every ethnologist that animism is always a part of pre-modern world view. The answers of the Turkish adults do not substantially differ from the children's answers developmental psychologists have collected around the world; they differ only concerning the different level of the mastering of language. Children in pre-modern *and* modern societies answer in the same way as illiterate adults in pre-modern societies. This fact gives evidence to the basic idea of developmental psychology that animism is not a result of socialising processes but a part of lower stages of cognition. Animism is not a result of a lack of knowledge or of a special philosophy, transferred from one generation to the next. The ubiquity of animism stems from elemental, pre-formal stages of cognition (Piaget 1981; Stern 1928; Oesterdiekhoff 2006). Here an extract from interviews Kälble made among adults in Turkey about 10 years ago:

Question: Is the sun alive? – Answer: Definitely, because she makes us warm. The sun is in the sky and accomplishes her duties as we are doing. – Q: Is the moon alive? – A: The moon lives because he knows his duty and rises in the night. Why did he not rise during daytime? You see, he only rises at night, therefore he must know what he is doing. He has a target and a duty, therefore he must be alive... The sun warms all humans and the moon shines at night, so they know what they are doing. The sun is so happy because she has been living for thousands of years. We move by our own power, they behave the same way. We know it, they know it, too (Kälble 1997:220, transl. by G. O.)

Jean Piaget (1981) researched into the ontogenetic development of the animistic theory of heavens. All children up to the age of ten or twelve all around the world do believe that sun and moon are alive and act intentionally. Here some typical examples that can be generalized to all children around the globe:

Q: Does the sun know when the weather is fine? – Gara (8;6): Yes, because she can watch at the world. – Q: Has she eyes? – A: Yes, of course. Sometimes, when she arises, then she sees that the weather is bad. Then she moves to better places where the weather is fine. – Q:

Does she know that she is called "the sun"? – A: Yes, she knows that humans love her. She is so nice that she makes that we have warm weather. – Q.: Does she know her name? – A: I do not know. Sometimes she listens to us talking and then she listens to us saying her name, and then she knows her name... Q: When your father was a small boy, did the sun exist at that time? – A: Yes, the sun came into being in order to make life possible for humans. – Q: What are the origins of the sun, where does she come from? – A: The heavens came into being, a man died and climbed up to the heavens. The man was god. – Q: And then? – The man was entirely red and so he gave his colour to the sun (Piaget 1981:217 n., transl. by G. O.).

Gara's theory is found in the heart of the cosmology of ancient people, as I will show in the next chapter. Not only animistic but also artificialistic thinking is running through the stages along the line from "intentionality to mechanics". The heavens are not only animate but they are made by man and deities, too. Piaget calls the belief into the man-made origin of nature "artificialism".

Caud (9;4): Q: How did the sun start? – A: By warmth. – Q: Which warmth? – A: Fire. – Q: Where was this fire? – A: In the heavens. – Q: How did it start? – A: The dear god lighted it by lumber and coal. – Q: Where did he find lumber and coal? – A: He made it. – Q: How did this fire make the sun? – A: The fire is the sun... Hub (6;6): Q: Has the sun been existing forever? – A: No, she came into being once. – Q: How? – A: By fire. – Q: How did this begin? – A: By a match. – Q: How? – A: By lighting a match. – Q: Who did that? – A: A man. – Q: What's the man's name? – A: I do not know. – (...) Q: Where are the clouds coming from? – A: From the sky. – Q: How did they start? – A: In the smoke. – Q: Where did the smoke come from? – A: From the stoves. – Q: Can the smoke make moons? – A: Yes (Piaget 1981:214 n.).

The enquiries could show that all children stemming from all cultures answer this way. All children understand the stars as animate and conscious, assuming they are watching the humans and are working for them. All children believe in relationships between stars and humans. The stars are connected to the parents or represent them. The humans came into being together with the stars and created them. At the first stage children believe that humans and deities create the stars by fire or by transformations of human bodies take into stars. On the second stage they surmise that the stars are made by clouds which again are stemming from smoke and fire made by man. At the third stage, not before the beginning of the second decade of life, children in industrialized countries realize that the stars have an origin that has nothing to do with human actions and that humans have no influence on stars. From now on children understand that stars have no consciousness and are not personally related to humans.

3. The sun cult of the Aztecs

The pre-modern understanding of heavens and stars is usually bound to the first and second stage Piaget described. Sun cults and solar magic must be referred to the explanations delivered by developmental psychology. I want to show this fact by referring to the examples of the sun cults of the Aztecs and the ancient Egyptians. According to the world view of the Aztecs, the first four ages had been destroyed due to the disappearance of the first suns which ruled the cosmos. The starting of the fifth age depends on the creation of a new sun, a work that had to be done by the gods. To start the fifth age of the entire cosmos, all the gods met once upon a time in Teotihuacan. The gods must be killed as sacrifices for the sun. It was necessary to sacrifice all the gods to have sufficient material for the building of the sun. The killed gods transform themselves into the sun, which means the sun's body is made by their dead corpses (de Sahagún 1989:53, 122).

When the sun came into being all the gods were slaughtered and the sun was nourished by their blood. Not one god could escape from his fate (de Sahagún 1989:53, transl. by G. O.).

The stability and duration of the fifth age depends on the delivery of an endless row of gods who must be sacrificed to the sun. The sun is always shining, she always gives energy to the earth therefore she always depends on new fodder from fresh sources. From time to time it is necessary to deliver new gods (sacrifices, blood) to the sun in order to restore and preserve her energy and mass. The creation of the cosmos *in illo tempore*, in the first day, must be replicated continuously to stabilize the cyclical processes of cosmos, sun, and life. The Aztecs used the prisoners of numerous wars, called them gods and slaughtered them in order to continuously bring energy to the sun. The prisoners and other sacrificed humans took over the role of the first gods in Teotihuacan; the bloody rituals replicated the holy creation on the first day of the fifth age in Teotihuacan. The prisoners were seen as gods because they anticipated the solar status they attained after their death. After becoming a part of the sun the victims *became* the sun that is they were reborn for an eternal life as sun. The eternal cycle and life of the sun is a guarantee for the eternal life of the victims and for their status as gods. The identity of victims (= humans) and sun accounts both for their identification with gods and their eternal life. Thus, the victims should be happy to be selected for the sacrifices.

The smoke of the burnt hearts and blood of the human sacrifices climbed up to the sky and nourished the hungry sun. In the world view of the Aztecs the sun was nothing else than a mass consisting of blood and heart stemming from human sacrifices. The sun cult is a factory that provides the energy for the sun and the entire cosmos (de Sahagún 1989:33, 37; Eliade/Culianu 1995:50). In the world view of such people there exists a mystical participation between blood and sun: same colour, same substance.

While the heart is the motor of the microcosm, the sun is the corresponding motor of the macrocosm. And the microcosm is the motor of the macrocosm. The heart is the motor of the human body as the sun is the motor of the cosmos. This idea of the Aztecs can be found in ancient astrology all around the world, for example in the centre of the Jewish system of Cabbala philosophy or the Egyptian philosophy of Hermes Trismegistos, founding occidental esoteric philosophy (Gebelein 2000:75). We find this idea also in the ideologies of schizophrenics (Storch 1922; Schilder 1918). Thus, burning hearts can sustain the sun and the entire cosmos.

The endless wars of the Aztecs aimed at getting masses of prisoners to have enough material to feed the sun with material and energy.

That is why the Aztecs feel obliged to get blood in order to sustain the cosmos and the fifth age. Thousands and thousands of victims, prisoners and women, are sacrificed according to a holy ritual (Eliade/Culianu 1995:50).

The priests lay down the victims on their backs and cut their chest with a thick knife to take their hearts. They call the heart of the victims "eagle fear", precious stone. They raise it to the sun, celebrate it to her, to the "prince of turquoise", the "young fire god", "the rising eagle", give it to her, nourish her with the heart. Then they lay down the heart in a jar, the "eagle jar". And the sacrificed victims are called the people from the "eagle country", the "eagle people"... And another priest comes by with the "eagle-straw". They put it into the chest of the victim where his heart had been and dive it in the blood, suck it full of blood, raise the blood to the heavens, they say they bath the sun in blood (de Sahagún 1989:33, 37, transl. by G. O.)

This killing of humans fulfils all the criteria that accomplish sacrifice cults as sacrifice rituals have been understood in all ancient cultures around the globe. The sacrifice serves both for humans and gods; it is nutrition for both gods and humans. For example, the Aztecs spent the heart and the blood for the gods, but the rest of the body was eaten, prepared in a soup, by themselves. This sharing of the sacrifice among gods and humans is found in every ritual, no matter if plants, animals, humans or drinks are used as sacrificed materials. The sacrifice serves as nutrition for the gods, but at the same time the participants in the ritual take their part, it may be bread, wine, meat or whatever. They share the meal with their gods. The sacrificed stuff transforms into the god in the course of the holy ritual. Thus, the participants eat and fill their bodies with god, taking the food from the same substance which they have given to the gods. The Aztec cannibals called themselves therefore "god eater", because the victims had become solar and holy status during the ritual that is before being eaten by the cannibals. This is the basic logic of all sacrifice rituals worldwide (Eliade 1994:395-400; Schimmel 1986:1638-1641;

Durkheim 1981; Mbiti 1974:71; Lanczkowski 1989; Raetsch 1998; Jensen 1948, 1992; Frazer 1977:114 f).

Although the Aztecs and the Maya particularly emphasized the cannibalistic sun cult, their weaker forms are frequently found across pre-Columbian North and Latin America (Eliade/Culianu 1995; Lafiteau 1752; Catlin 1979; Lanczkowski 1989; Rätzsch 1998). Human sacrifices, but also all other forms of plant and animal sacrifices to stimulate the sun, are found in Africa, Asia and Europe since the oldest times. Prisoners of war and other humans are burnt in ancient Europe to sustain the energy of sun and cosmos not only in ancient times but partly much longer in remote areas, for example in Scotland up to the 18th century (Frazer 1977:944, 886, 949, 954).

Fire ceremonies, taking place at winter and summer solstices and other critical days of the year, are found worldwide. Very often they are the most important religious ceremonies. These fires were believed to be the guarantee of the existence of stars and cosmos. These rituals are the most important powers carrying and sustaining cosmos, earth and sun. Man carries the cosmos on his shoulders; microcosm makes macrocosm (Frazer 1977:931; Eliade 1994:383-417; Durkheim 1981; Jensen 1948, 1992).

Native Americans across the two continents believed that the smoke of their tobacco pipes would climb up to the sky and nourish the sun. They always greeted the sun and sent their smoke to her (Lafiteau 1752). Even the famous philosopher Albertus Magnus, like the children, assumed that the smoke from the chimneys might sustain and feed the stars. That is the same idea that was widespread among Australian Aborigines who were convinced that their camp fires created clouds and stars (Durkheim 1981:476; Oesterdiekhoff 2006:183 nn.). Against this background it is understandable that French farmers, not far from Paris in 1772, attacked one of the first balloons, which landed in a field, and damaged it because they believed the moon had been landed on earth to carry out evil acts against the holy order of god and cosmos. Ancient illiterate people had no idea about distances and proportions, mostly did not differentiate between meteorology and cosmology, and believed therefore that smoke can feed the sun, understood the sun as a massive body comparable to human bodies, as a person with intentions and duties (Piaget 1981:228).

It is quite clear that the sun cults of the Aztecs and other ancient peoples can only be explained in terms of developmental psychology. Both the existence of stars and humans is based on reciprocal causations and relations. Sun and stars represent parental authorities who organize and sustain the foundations of the cosmos. Children and ancient people see the sun as a person, as a god who relies on sacrifices and worshipping. Being living beings, the stars are getting older and are continuously losing power and energy. Therefore it is the duty of humans to provide food and energy for the stars to hold them vivid and fresh. Humans sustain sun and cosmos by

their rites and sacrifices. All children (Piaget 1981:125-142, 207-227) and ancient cultures (Durkheim 1981; Frazer 1977; Jensen 1948, 1992; Oesterdiekhoff 2006) adhere to this belief-system.

Both groups assume that the stars are made by fire and smoke stemming from humans and gods. The substance of the stars is fire made by man. The smoke of burning hearts is the substance of the sun. The sun is a human body. This is the belief of the above-mentioned Gara and ancient peoples, too. Gara is telling the myth of the Aztecs on her own, creating this myth spontaneously. The Swiss child Gara tells that a man, a god, was transformed into the sun and gave the red light of his body to the sun. Thus, the sun light is man-made. That is the basic idea of the sun cults world-wide, the ideology underlying the Aztec sun cults and their myth of the creation act in Teotihuacan. The universality of children's thought, due to the laws of elemental cognitive processes, accounts for the universality of mythological ideas and related religious rituals. The elemental character of cognitive processes accounts for the identity of ancient and ontogenetic myths (Campbell 1964; Frankfort 1981; Piaget 1981; Oesterdiekhoff 2006; Schilder 1918; Storch 1922; Jung 1991). While ancient man adhered to this belief system throughout his entire life-time, a fact that explains the universality of this belief from the stone ages around the globe until the rise of modern societies, only the adolescents of modern societies surpass these ideas, replacing animism, magic and artificialism by mechanical causality and formal logic.

4. The sun cult of the ancient Egyptians

The ancient Egyptians believed in the reciprocal interdependence of sun and man, too. The sun god steers the cosmos but depends on human rituals providing food and energy for him. The sun god is born every morning, gets older in the course of the day and dies every evening in the West to be reborn next morning. Without human sun rituals the existence of the cosmos is endangered and would collapse (Assmann 1995:218; Quirke 1996:101; Hornung 2000). The cosmic process is not only a physical phenomenon but a psychic and moral phenomenon, too. There is no difference between society and nature. The sun god rules both nature and society. Justice and truth, energy and power, human life and natural processes are different parts and manifestations of the cosmic "energy" of the sun. Ma`at as the daughter of the sun god is a synonym for this cosmic order. Ma`at makes sure that the sun god is enabled to keep the cosmic process running. The sun god rules the earth by giving Ma'at to the earth, while he is getting Ma'at back by the rituals. The giving and taking of Ma'at, the exchange of Ma'at between god and humans, is the basis of the cosmic order and the energy motor of nature and society. The sun god can only work for the cosmos when the human

rituals provide him with sufficient energy. Giving Ma'at to the sun god is the most important sacrifice, the most important act humans can carry out on earth (Assmann 1995:187). The sun god lives from the energy Ma'at is giving to him. Therefore the sun is watching Ma'at, breathing, kissing, embracing and eating her. A sun hymn of the Amun ritual puts it:

You (the sun) eats Ma'at
You drink Ma'at,
Your bread is Ma'at,
Your beer is Ma'at,
You breathe incense as Ma'at,
The air of your nose is Ma'at,
You live of her every day (Assmann 1995:188, transl. by G. O.).

Ma'at is much more than the ruler and helper of the sun god. She provides the energy exchange between sun god and earth, sun god and humans. She makes sure that the energy and power of the sun is distributed to all parts of the world. It is the sun god who guarantees that the waters, the harvests, weather conditions, child-births, political relations, the natural and social conditions of cosmic and human life are running in a good mood. The sun is the creator of all forms of social and natural life. Ma'at is the distributor of the sun power to all kinds of life. The energy power of the sun is the motor of the life of the humans. The sunrise in the morning restarts human life every day. The sun sends her energy directly into the hearts of the humans. They can lead their lives only by the mediated power of the sun.

Not only the sun is eating Ma'at but also the humans eat Ma'at in the rituals of the sun cult. Like in every sacrifice around the world the Egyptians shared their food with their gods. Ma'at is eaten by both gods and humans. When the humans eat Ma'at they fill their bodies with sun power. By preparing the sacrifices the humans are controlling the holy nature of their food taken at the ceremonies (Assmann 1995:191).

You welcome, Ma'at, lord of the north winds,
Who let exist the noses of the humans,
Who gives air to the sun god,
The noses of humans breathe by your gift,
Life power for those who follow you (Assmann 1995:171, transl. by G. O.)

You (sun) make embryos in the women's womb, by transforming water into humans, you animate the son in his mother's womb... you open his mouth after birth and satisfies his needs. You determine the date when the chickens are allowed to leave the eggs... You give nutrition to everybody and determine the life-spans of every man and woman... You create millions of phenomena by your own: towns, villages, fields, streets, rivers... Oh, my sun, I live only for you, because you live in my heart (Echnaton 2007:15-21, transl. by G. O.)

Egyptians, just like the Aztecs, not only believed that the sun is the creator of life; they also believed that the sun relies entirely on human sun cults. The sun cults create Ma'at, it climbs up to the sun god who then has so much power that he can give back his energy to humans and cosmos. The Aztecs had the same idea; the same idea that all ancient religions shared with the Egyptians.

The most important ritual of the Egyptians implied to bring Ma'at to the sun god (Assmann 1995:187).

I (the king) raised the Ma'at which he (sun god) loves
Because I understood that he is nourished by Ma'at
So it is my nutrition, too, I swallow her dew
Thus we share the same body (Assmann 1995:189, transl. by G. O.)

Especially the deceased persons bring Ma'at to the sun god. After their death humans fly to the sun and become a part of her body. So the body and energy of the sun is made by corpses (Assmann 1995:192). It is a similar idea the Aztecs and other ancient peoples had; it is an idea that children believe around the world, clearly expressed by Gara in her spontaneous myth. While the Aztecs fed their sun god with human sacrifices, the Egyptians preferred the belief in the assumed place of the dead and their solar transformation. But like the Aztecs, the Egyptians had several myths to explain the artificial origin and man-made preservation of the sun. All ancient people believed in the importance of plant and animal sacrifices for the deities and for the sun god, and in the role of magical hymns (Durkheim 1981; Jensen 1948, 1992; Frazer 1977). More than half of the hymns of ancient Egypt are solar hymns. Most of the texts found in Egypt are solar hymns. These magical hymns were said or sung by the priests around the clock, every hour, day and night, day after day, years after year. These recitations are magical sayings to keep the sun running. The priests of the sun sing the formula:

It is me who says Ma'at to Re... I bring Ma'at to his master, to the sun
(Assmann 1995:193).

The Egyptian temple is a "power station" in order to make sure the functioning of the cosmos. It is a "machine" to preserve and guarantee the stability and order of the cosmos (Quirke 1996:101).

The sun priest who cites a hymn for the sun god strongly believes to keep the sun god running. Praising the lord is the giving of Ma'at to the sun... The priest does not speak only *about* the sun course, but *to* the sun course, that is *to* the sun god and *to* the cosmos (Assmann 1995:194 f).

The king takes over the role on earth that the sun has in the heavens. Being the son of the sun god, the pharaoh mediates the power exchange of earth and sun. By ruling the sun cult the existence of the cosmos lies in the pharaoh's hands. It is his duty to provide his father with food and energy. The pharaoh is a mortal god who after his death returns to the sun and joins her (Quirke

1996:52).¹ The sun god uses the pharaoh to keep the cosmos and himself running by inducing the pharaoh to maintain the sun cults (Assmann 1995:208, 210, 218, 221).

Re gave power to the king
On the earth of the humans
For ever and ever
To give law and justice to the humans, to satisfy the gods
To create Ma'at, to perish the evil Isfet
The king brings sacrifices to the gods and the ancestors
The name of the king on earth
Is Re in the heavens (Assmann 1995:206).

The identity of the basic structures of the sun cult of the Aztecs and the Egyptians are quite obvious. There are a lot of reasons to maintain that the foundations of these ideas are to be found in every ancient culture since the stone age (Oesterdiekhoff 2006 b:56-63, 2006:179-226; Jensen 1948, 1992; Durkheim 1981; Eliade 1994, 1997). The Aztec sun cult is based on cannibalism, other than the Egyptian sun cult, but nevertheless the combination of cannibalism and sacrifices is a world-wide phenomenon. And even the Aztecs sacrificed not only humans but also fluids, plants and animals. The underlying ideas of sun magic and star cults, of cults and sacrifices are quite similar around the world (Eliade/Culianu 1995; Tylor 1871; Frazer 1977:472-580). The basic ideas of the sun cults are magic, animism, artificialism, ideas stemming from elemental, pre-formal types of reasoning developmental psychology has found out and described in the past 100 years.

The Egyptian sources deliver huge materials which show that the sun was worshipped as a person, as god, as "You". The above-mentioned sources clearly show the childlike and honest attitude of the Egyptians to the sun (and nature), an attitude that is characterized by love, humility, gratitude, fear and

¹ The myth of the birth of the god, result of a relationship between the sun god and a mortal woman, belongs to this context. The king is the holy child of the sun god. The birthday of the boy Horus, born by Isis, was celebrated in ancient Egypt on the 25.12. and symbolizes the winter solstices. The similarities to Jesus and Buddha are obvious (Quirke 1996:52; Deschner 1988; Frazer 1977). Jesus Christ was born on 25.12., and died like a lot of other ancient gods such as Adonis or Attis in the spring solstices. His rebirth after three days, similar to the rebirth of Adonis and Attis, symbolizes the cycle of cosmos and life, not at least the rebirth of vegetation in the spring. In the Roman Empire Constantin the Great replaced the birthday of the Sol Invictus by the birthday of Christ, not for tactical reasons, as mostly supposed, but to continue an old tradition. Even in the Christian middle ages, especially in the popular forms of religious life, sun and god were often identified, and in any case the sun was an important symbol or manifestation of god, not only in the sun singings of Franz of Assissi (Usener 1911; Jung 1991:106; Frazer 1977:472-580; Deschner 1988:45-98). Johann Wolfgang of Goethe, for example, said in 1814 that the sun is a complete proof of the eternal life of the human soul (Jensen 1992). That is not far away from the belief of the Aztecs and Egyptians.

concern. Ancient man speaks to the sun as if he was intimate and related to her.

All hearts cheer when they see you, because you appear as their lord
(Echnaton 2007:29).

Ancient man strongly assumes that the sun can listen and understand the hymns and that she is speaking to him. He cheers and shouts when she appears in the morning and strongly believes that she feels the same way. It is impossible for a modern psyche to develop this archaic mentality and the heartily feelings towards the sun.

5. The contribution of clinical psychology

Already Carus, a founder of psychiatry, recognized in 1829 that mental disorders are regressions to an elemental stage of psyche and cognition. Schizophrenia (and also debility and aphasics) is best understood in terms of developmental psychology as a regression to childlike, elemental stages of personality and psyche, thinking and action, worldview and religion. The thinking becomes pre-logical, visual, ambiguous, and superficial. The capacity to think formal-operationally, according to the youth in developed countries, disappears. The ability to understand the difference between appearance and reality, delusion and reality, desire and reality is weakened. The imagination gains wild and vivid character so that delusions determine more and more the definition of reality. The demonic character of reality results from the rebirth of animistic schemes. Magic and finalism appear again while the disordered person falls back to childlike levels. Against this background the mostly accompanying paranoid developments are explainable in terms of cognitive egocentrism (Toelle 1994; Arieti 1995; Storch 1922, Schilder 1918; Ferenci 1985); like pre-modern people living under the constant fear of witches, demons, and sorcerers who are believed to persecute humans by sending accidents and misfortunes of all kinds (Lévy-Bruhl 1959; Evans-Pritchard 1937). For more than 100 years clinical psychology and psychiatry have been knowing the deeply rooted connections between schizophrenia and childlike, elemental cognitions. Schizophrenia can be measured in terms of Piagetian stage theory of cognitive development and related theories of children's development (Piaget/Inhelder 1980; Piaget 1993; Werner 1959). The parallels between the thinking of children, mentally disordered persons, and schizophrenics have been emphasized by most of the great authors of psychiatry, developmental psychology, and psychoanalysis (Tölle 1994; Arieti 1995, Jung 1991:37ff, 44, 393; Storch 1922:1, 4; Piaget 1981; Ferenci 1985; Goldstein/Scheerer 1941; Schilder 1918). Werner (1959) made one of the most important contributions to understand these parallels.

In the past decades, only a few historians of culture have taken over these insights, in contrast to the abilities of earlier generations of scholars to recognize these facts and to use them for interpretations of historical developments. But fortunately this great tradition of basing the interpretation of cultural history has never completely broken down. For example, Emma Brunner-Traut (1996) based her research on ancient Egypt on these traditions and showed in her books that the thinking of ancient Egyptians is very close to that of schizophrenics and children. She successfully used developmental psychology, clinical psychology, and brain research to understand culture and world view of the ancient Egyptians. To my opinion she would immediately find the support of great old Egyptologists such as Erman, Breasted, or Frankfort. Frankfort, Jacobsen, Wilson, and Irvin (1981:12, 19, 71, 145 f) characterize the thinking of ancient Egyptians by the same categories that are typical for schizophrenic or pre-operational thinking.

Carl Gustav Jung has already proven that the ancient sun cults can only be understood in terms of clinical psychology. Jung (1991:103) presents a psychotic person (dementia praecox) who hallucinates an erected penis fixed at the sun while watching at her. When the person shakes his head to both sides then the sun penis bounces the same way, thereby causing winds which fructify all parts of the earth. The sick person therefore believes that he leads the procedure to induce the sun to provide cosmos and earth with life spending energy. It was the Mithras liturgy that opened the door for Jung to understand the true meaning of the sick person's delusion. The liturgy of this most important mysterious religion describes:

You will see the so-called pipe, the origin of the benevolent wind. You will see the pipe hanging from the sun (Dieterich 1910: 6 f, transl. by G. O.).

Oriental mythology describes the sun very often not only as being provided with eyes, face, hands and feet, but also with a penis that appears as a snake or a flame. Mithras liturgy calls the pipe *horama*, which turns to all directions blowing the wind which brings life power to all parts of the earth. The believer becomes god himself by melting to one with Mithras in the course of the holy ceremony and hallucinates that he steers the sun penis fructifying the world. The believer – *as* Mithras – becomes both god and sun. The liturgy promises him:

If you have said these words then the sun will rise immediately (Dieterich 1910:11, transl. by G. O.).

The believers of the Mithras cult become eagles; the eagle status is the highest status to be attained in this cult (Dieterich 1910: 69), breathtakingly similar to the Aztecs (de Sahagún 1989) and the schizophrenics (Schilder 1918). This solar magic experience is often found with schizophrenia: the patients see a strong light, wind blows to them, they feel their life completely changed and

feel visited and obsessed by god himself (Jung 1991:104). They feel control the sun in their bodies (Schilder 1918).

A schizophrenic woman tells:

The big star way that goes to the end of the world, the snake was divided into parts, because the other blood lines need life energy, too... The snake has become a stream of star-gold falling down on my bed. The stars came down in Tübingen, in reverse a lot of grubs climbed up to the stars. I work every day and night to keep my blood line strong, to preserve my holy soul... The long snake, this life energy, the stars where I came from, started on this earth and will last for all eternity (cited in Storch 1922:73, transl. by G. O.).

This report corresponds completely to the experience of the above-mentioned sick person, and to the sun cults of the Aztecs, Egyptians and Mithras believers in the Roman Empire. The energy exchange between sun and man is mentioned (star gold against grubs), and the energy delivery implies sexual contacts with a clear resemblance to the archaic mythological thought.

As the archaic cults, the disordered persons controls the sun and deliver the energy, by shaking heads, saying prayers, sending grubs. Children, schizophrenics, and ancient people see the winds as the mediators of the mutual exchange of energy. The sun is a human or divine person; the humans melt or transform into sun gods in the course of the rituals. All three groups of persons see cosmic and biological fertility in terms of sexuality (Piaget 1981:213).

The idea of the sun penis is not only found in the Mithras liturgy and with disordered persons, but with a lot of old religions. Ancient Egyptians called Ma'at the snake of the sun god, fixed at his head. Ma'at is the lord of the north wind, also called breath, air, or wind.

The governor Rechmire speaks of himself in his autobiography, resembling the psychotic client of Jung:

I erected Ma'at up to the heaven's heights
I let go her beauty across the entire world
For she blows through the noses as north wind
And drive out the bitterness (Assmann 1995:171, transl. by G. O.)

The snake walking around the sun
Protecting the limbs of the sun
The beautiful leader of the lord...
The human's nose breath by her gift
Her magic power is in every eye
Her protecting power belongs to the palace resident (king)
Her strength is against those who rebel against him (Assmann 1995:163, transl. by G. O.)

Ma'at is related to the sun god as the pipe horama is to the sun in the Mithras cult, and the sun penis to the sun in the mind of the sick person. Assmann

(1995:177) sees the relationship between Jahwe and the goddess of wisdom, Hokmah, who "plays" in front of Jahwe, in the same context. Comparable ideas are found world-wide. The most important ceremony in Timor is the sun cult where the sun fructifies the world by an accompanying tree (Eliade 1994:159). These representations can be deduced with a clear universal tendency from the laws of the archaic-elemental thinking.

6. Conclusions

Children and ancient men understand stars and sun, above that: all natural objects and phenomena, in a very different way compared to literate people of industrialized countries. The stars have a personal and magical importance. They interact with humans and exchange ideas and powers (Jung 1991:375; Storch 1922:68-76; Piaget 1981). Among psychotics very often the first sick emotions concern an assumed specific relationship to stars and to the sun. Psychotics feel deep links to the stars while believing that sun and moon would speak to them and observe their behaviour on earth (Storch 1922:27; Schilder 1918).

From the perspective of elemental cognitive processes of children, psychotics and ancient men, the relationship between subject and object, man and nature is more narrow and more intimate. The emotional-cognitive distance to nature and reality is not developed to an amount that is common among people of industrialized countries. The objects are not related to a cold-rational, thinking man, but a person feels his emotional bounds to nature and experiences his social dependencies on natural objects (Ferenczi 1985). Not only mountains and rivers but also sun and moon are seen as animate persons who communicate with humans. Natural objects and processes attain symbolic meanings and mediate or withdraw power or thoughts from the humans.

All three groups see the sun as a divine person equipped with organs of senses and reasoning, having wishes and intentions. The sun carries out parental functions, overtaking duties of moral and political control of their children. The sun gives life and energy to the earth. But like all gods she needs support, reverence and food from their human believers. Thus, the humans pray to the sun and bring her food by several kinds of sacrifices. The substance of the sun is made by the sacrifices, by smoke, fire, blood, organic matter, prayers and magical singings. Sacrifices for the sun are found around the globe since the oldest times. The sources make very clear that ancient people had a childlike-naïve relationship to the sun and saw her literally as an understanding and acting person on whom they felt themselves personally dependent.

Against this background it is quite clear that the archaic experience of reality, the interpretation of stars, sun and moon, cannot be explained mainly in terms of a lack of knowledge. It is necessary to explain these phenomena in

terms of developmental psychology, in terms of elemental, pre-formal cognitive structures that account for magic-animistic sun and star cults. And above that, we must insert the understanding of the relevant cognitive structures into a theoretical context that encompasses the entire psyche and personality. These phenomena cannot be reduced only to cognitive structures but must be referred to elemental structures of psyche, personality and experience. The magic-animistic understanding of reality is rooted in an entirely primitive structure of psyche and cannot be restricted to definable cognitive structures alone.

The sun cults are not stemming from specific religious inventions made once upon a time, thereby spreading by specific traditions and religions across the world regions and historical times. The ubiquity of sun cults in all pre-modern societies is a result of the ubiquity of elemental, pre-formal types of thinking, as modern cross-cultural psychology has found out.

Against this background it is obvious that educated humans of modern societies have no possibility to find an internal entrance to this way of understanding the world, to this kind of experience and cognition (Gehlen 1975:117). Developmental psychology can explain this way of understanding reality, but can not reproduce or replicate these forms of experience. Developmental psychology cannot bring back these ancient forms of experience, does not give us the possibility to feel the same way as ancient people did. But developmental psychology can explain the psychic-cognitive structures underlying sun and star cults. Developmental psychology can explain why in all ancient cultures sun and star cults did exist. All ancient populations are characterized by pre-formal types of reasoning, while the rise of formal thinking among modern populations depends on modern school systems and further socialisation practices bound to modernity alone. Piagetian cross-cultural psychology found out that only modern school systems and job experiences raise the cognitions above a pre-formal level. Thus, it is a lack of social stimuli and incentives that accounts for the dominance of pre-formal types of reasoning among traditional populations (Dasen/Berry 1974; Dasen 1977; Hallpike 1978; Lurija 1982; Oesterdiekhoff 2000, 2006, 2006 b). Magic, animism and artificialism are parts of pre-formal types of reasoning (Piaget 1981). The ubiquity of pre-formal types of reasoning accounts for the ubiquity of magic, animism and artificialism in all pre-modern cultures, and that is the reason for the ubiquity of sun cults across all pre-modern cultures. Magic, animism and artificialism on the one hand and sun cults on the other hand are therefore not a result of specific traditions, historical inventions and diffusions spreading across regions and cultures whenever in historical times. These cognitive forms are a result of the ubiquity of pre-formal types of reasoning, as old as the human race and present in all ancient cultures as long as elemental processes of cognition have prevailed.

Only the development of mechanical philosophy, mechanical theory of heavens and physical sciences in the 17th and 18th centuries surpassed the childlike-elemental and the pre-formal types of reasoning, especially concerning the understanding of heavens. Galileo Galilei, René Descartes, Isaac Newton and Immanuel Kant are the important scholars who were the protagonists of these transformations. Among the educated classes artificialism, magic and animism have been disappearing in the course of a process lasting 200-300 years (Thorndike 1923 ff; Oesterdiekhoff 2002). Religion has retreated from nature and has started to become thinner and more abstract. Instead of natural religion, the physical sciences conquer the realm of interpreting the world and initiate the industrial revolution. That is the reason why there are no more solar cults in New York, Tokio, London and Berlin and why the humans of today have a different understanding of the meaning of the words "flying to the sun".

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MAGIJA I ANIMIZAM U STARIM RELIGIJAMA:
VAŽNOST SUNČANIH KULTOVA U SVJETONAZORU
TRADICIJSKIH DRUŠTAVA

SAŽETAK

Animistički stavovi prema prirodnim predmetima kao prevladavajući oblik razumijevanja prirode i stvarnosti postoje u svim predmodernim društvima. Sunce i mjesec su, kao drugi sasvim fizički predmeti, shvaćani animistički i kao svjesna bića ili osobe. Stari narodi osjećaju osobnu povezanost s tim nebeskim tijelima, štiju ih kao bogove i prinose im žrtve da bi ih nahranili. Sunčani kultovi Asteka i starih Egipćana, izabrani kao tipični primjeri tih poimanja, mogu se protumačiti samo u kontekstu animističkih, magijskih i artificijelnih sustava vjerovanja. Razvojna psihologija spoznajnih struktura objašnjava prevladavanje tih sustava vjerovanja kao dijelove spoznajnog razvoja čovječanstva.

Ključne riječi: sunčani kultovi, animističko mišljenje, spoznajni razvoj, magija, žrtvovanje, bogovi