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Man: Something or Nothing

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Abstract— *Man has been dealing with a wide range of questions about the Universe, about himself, and especially questions about his essence and place in the Universe since his inception. Hence, the arrangement of the Universe, no matter how objective it may be, from the point of view of man makes sense only in relation to man. No matter how well researched the question of 'the origin of man' (the evolution of the living world) is, science has established the time of the creation of the living world on Earth, where the appearance of man as we know it today is placed at the very end of the evolution of the living world. However, since 'something' cannot arise from 'nothing' or turn into 'nothing', the biggest question remains: what is this 'something' at the beginning of life? The traces of human existence on Earth, its entire history, give people (who deal with the questioning of man) enough material to place the essence of man between two poles, 'nothing' and 'something'. Man himself, until today, places himself in these limits, sometimes in their extreme poles. The content of this work are excerpts from lectures that the author gave at the Faculty of Architecture of the University of Sarajevo on the topics „Architecture in Context" and „Architecture and Philosophy" (2010-2022).*

Keywords— *Man, Being, Space, Time.*

I. INTRODUCTION

People, rare individuals who achieved enormous power during their lifetime (power and influence over the lives of a large number of people), had a pronounced need to be 'immortal' and expressed this need in a visible, material way, and their efforts remained visible to this day. Other people, on the other hand, have achieved their 'immortality' through the power of their spirit and immaterial deeds that will be useful and a source of spiritual wealth for generations of people who will live on Earth. Hence, over time, the question of 'something' and 'nothing' became complicated to the extent that the former 'something' (materially visible and physically stable) became 'nothing', and the former 'nothing' (values of the human spirit) became 'something', and more and more as time goes by. Although the term 'nothing' is in the very title of this work, for the Author it signifies the theoretical limit of 'battle'. Therefore, 'nothing' does not exist, and everything that is - material and spiritual - is 'something'. Countless books have been written on the subject of 'Man', in a more or less direct way, and their authors were people from a wide range of education, with different views on the world and man's place in it. Some of the books, as references, entered the bibliographies of many philosophical and scientific topics and are widely known as such. Some books are rare, available to the public as a special relationship of their authors to the subject of 'Man'. This work will also belong to this group of books, since it depicts the view of the subject 'Man' of one individual, which is based on his personal experience. In this sense, it is both 'accurate' and 'true', and the extent to which it will be referential in the treatment of the topic 'Man' depends on the overlap of its content with the content of other books, or rather, the lives of other individuals. On the life scale of each person, the image of the 'objective world' changes, and he himself changes, his 'software and hardware' with which he perceives objective reality and forms his judgments about it (Figure 1). It is the result of the 'natural' default of the world. Permanent changes in the world, and changes in man as an integral part of it, require the 'vigilance' of man and his permanent questioning. His imagination often becomes reality, and its boundaries expand (and sometimes narrow). Science discovers new truths about nature, often correcting or even canceling 'previous scientific facts'. In this sense, most scientists, more or less explicitly, question the Holy Books, trying to compare 'their discoveries' with the 'God's word delivered to man long ago' in the form of the Holy Books: Bible-Old Testament-Torah, New Testament-Gospel, Qur'an [1] [1]. Brian Greene, author of the book „The Hidden Reality: Parallel Universes and the Deep Laws of the Cosmos" (2011), has shown that the existence of parallel universes and, of course, a parallel Earth, is something we must not ignore. He wonders if his 'I' that lives in this Universe is the original or a 'copy' and concludes that it is a disturbing thought that we have to get used to if we are going to move forward with the knowledge of the world that surrounds us, of which we are mostly unaware because many reasons [2]. Thanks to Green's research, more and more cosmologists agree that we live in one of the existing universes and that the surrounding universes are, most likely, so close to us that we could 'reach out' if we knew how. They believe that we cannot see these worlds because they exist in a space different from our reality and the dimensions in which we live. Because of all that has been said, there are more and more loud objections to typical settings in which time is added to the three dimensions, because if the theory of multiverses is correct, then our 'sense' of time completely loses its purpose, and the linear

[1] Einstein writes: „I maintain that the cosmic religious feeling is the strongest and noblest motive for scientific research... And in this materialistic age of ours, serious scientific researchers are the only deeply religious people". Einstein wants to define his religiosity almost paraphrasing Spinoza himself: „The perception of the universe and its deep rationality and beauty represents true religiosity; in that sense, in that sense only, I am a deeply religious person!" When asked by his associate P. Frank, how this can be interpreted, Einstein answered: „By the fact that clerics, like me, are interested in the general laws of Nature, and physicists are often only interested in partial problems. I'm interested in what thoughts God had when creating the Universe, everything else is details". His picturesque saying should be understood in this sense: „Science without religion is lame, religion without science is blind". Only disbelief in God is not a philosophy for a long time. "According to some, for Einstein, faith in one God was better than atheism" [1].

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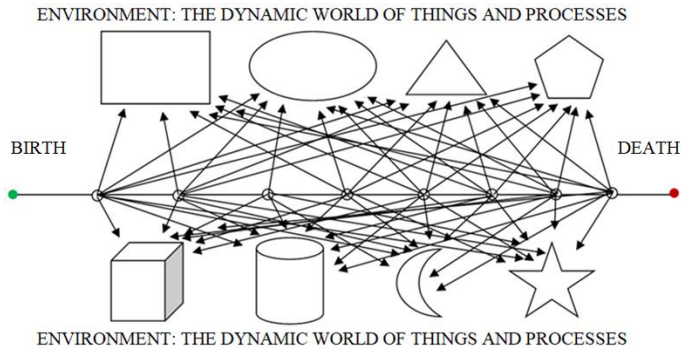
understanding of time and the three-dimensional appearance of space, that it really becomes - just an appearance and limitation in which we live. Brian Green understands how important research with the Large Hadron Collider is: „All of us who work on LHC research[2] are not trying to focus on the existence of only one, this Universe, but also the existence of other universes that become obvious to us with logical calculations and enable such statements to be made. I am extremely excited that we can get out of the everyday life in which we live and that we can take a look at the universe through mathematical terms, on the largest possible scale“ [3]. As a part of the Universe, man is, by himself, such a complex reality that, as long as he exists, he will not be fully 'explored'.



Figures 1. Human perception of objective reality
Source: Author 2019.

II. THE AUTHOR'S REVIEW OF SOME PHILOSOPHICAL, SCIENTIFIC AND MORAL TOPICS

In various phases of his life, after some special events and life circumstances, various questions arose before the Author, 'of their own accord', which then became latent for him. He used to intensely try to find an answer to them, since they haunted him, with different feelings, sometimes guilt, sometimes pride, sometimes special longing... And when he found answers to them and thought he had elaborated them, some questions opened up again to which the answers became different from the earlier ones, with completely new content. The Author could not answer some questions and left them 'behind', only to have them reappear, quite unexpectedly. The questions were of a different nature, from the seemingly trivial to the 'big' ones - philosophical, scientific and moral in nature. The author did not record the answers to the self-asked questions, but they agreed and became part of his experience, a kind of 'filter' through which he viewed the world. Many of the questions were elaborated by the Author through his books, but most of them remained unexplained, since the answers to them were quite unclear even for the Author himself. This work mainly deals with these questions. It is interesting that the Author placed each of the questions in his picture of the world and memorized their place in that picture. The picture of the world changed its contours over time, but all the contents of the Author's experience kept their place in the picture. Some image contents faded over time, while others sharpened. It never happened that the Author forgot the place of some content in the picture, which helped him to, with or without his will, return to that content, reexamine it and enrich it.

2.1. Space

From the first memories and realizations of the world, the Author wondered: "What is behind what he sees and what he knows?" What is behind that door, behind the window, behind the courtyard wall of his house and other houses, behind that hill, beyond the visible horizon ...? As he grew up, he shaped and solidified the image of the visible world, which was filled with more or less rich content of personal experience. The streets in his village, orchards, forests and hills in the distance, other villages, the arrangement of meadows, the river Krivaja (...) had their place in his picture of the world formed from the perspective of his birthplace. But, when he went to the nearby hill and looked at his village 'like in the palm of his hand' and from there tried to distinguish parts of the picture formed from the perspective of his house, he was particularly excited by the presentation of 'different faces' of the same picture. When, as a child (4-5 years old), he went with his mother to his mother's house, in a village some 7 kilometers away from his native village downstream of the Krivaja river, it happened that, on the way back, he made a mistake in the direction of the Krivaja river, thinking that he is the opposite of the flow he perceived from his village. When he was eight years old, he and his father climbed the Bijeli vrh, the highest point in his homeland, for the first time. From this peak, his father showed him his village, Solun on the Krivaja river, the Zunova village, Olovo... These were completely new images for him, and he was unable to create a picture of their relationship that did not fit in with the picture of their relationship that he perceived from of his village in the Krivaja valley. The author thinks that he was in the fifth grade of elementary school in Thessaloniki, Krivaja, when the teacher showed the Earth-globe model to the students in the geography class. From the first look at the globe, he caught the eye of the detail that the axis of rotation of the Earth is not in a vertical position, but in an oblique position in relation to the horizontal plane. It was only when he was attending high school that he understood this case and its immediate consequences - the change of seasons on Earth. Until the fourth grade of high school, the author understood space, similar to the philosopher Anaximandar of Miletus, „as an apeiron to which all the signs of the world's substance are attributed: non-origin, impermanence, inexhaustibility, indestructibility“. After the graduation excursion (when he visited many cities of the former Yugoslavia with his professors and friends), his idea of space began to be filled with various contents, primarily historical and cultural, whereby architecture began to occupy an important place in his image. Although during his architecture studies (1976-1980) he heard a lot about 'architectural space' and the relationship between architecture and the natural and social environment, there was no explicit ('in-depth') curiosity about this topic, which was a paradox. It was only during his postgraduate studies at the Faculty of Architecture in Belgrade (1983-1986) that the issue of space became his primary

[2] The Large Hadron Collider (LHC, CERN)
[3] Ibid.

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preoccupation, both in architecture and in the entirety of his world view. After working on many architectural topics (through the creation of test tasks), the Author became familiar with a wide range of relevant books in the field of architecture, which are considered the basis of architectural theory in general[4]. For the Author, it was important that some of his professors at the postgraduate studies more or less directly dealt with the issue of space. As philosophy, many scientific disciplines (geography, physics, mathematics, sociology, ethnography...), as well as many aspects of human everyday life (politics, for example), were considered 'domicile' for the interpretation of space, the Author felt an intense need to defines 'architectural space' and to place it in the context of the Universe. He expressed this effort in his doctoral dissertation. The dissertation was the basis of all the Author's subsequent works, i.e. the elaboration of any topic related to architecture. The author summed up his definition of architecture (Architecturally Defined Space-ADS)[5] in one picture for which he used the name 'amoeba' (Figure 2).

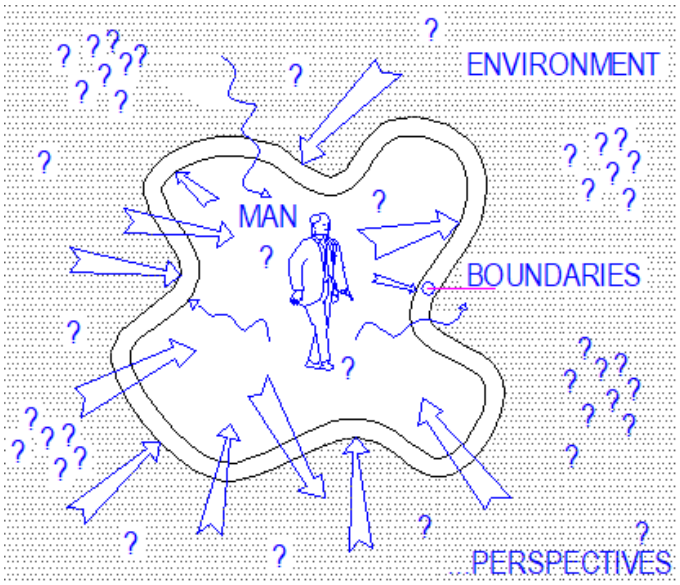

Figure 2. Architecturally Defined Space (ADS)
Source: Author 1987

Architecture (ADS) defined through its four basic elements (Environment, Man, Boundaries and Perspectives) is part of the Universe, that is, Space understood in its totality, which is realized in countless appearances, depending on the 'resultant' of the interaction of its basic elements. At the same time, the Author, based on dialectics, concluded „that Space is the most general concept that is distinguished by: omnidimensionality, boundlessness and permanence. Space is everything that is, what was and what will be“. Although this opinion about space[6] is communicated in a scientific work (dissertation), it is fundamentally philosophical in nature. In addition, this opinion deviates from the widely accepted 'scientific' views on the 'origin of the world', the 'Universe', the 'black hole theory'), with the fact that Space, in the opinion of the Author, is not an 'idea' but the overall material and immaterial world in which matter and energy are in unity.

After completing the dissertation, the Author 'filled in' his definition of Space and Architecturally Defined Space (ADS) with personal experience and studying various sources that were not always directly related to architecture. He observed that each human-individual has his own idea of space and architecture, which were 'correct' for the specific individual, regardless of 'verified and scientifically established facts' about objective reality. As a result of this realization, the Author created the sketch 'Man's perception of objective reality' (Figure 3) and explained this phenomenon to himself empirically, in the most concise form. Realizing the existence of a large number of 'truths' (very often mutually contradictory), the Author was able to explain to himself many individual-human and more or less broad social phenomena and events, which determined the historical course of social communities and humanity as a whole. This knowledge explicitly imposed on him the question that stands in the title of this book (Man, something or nothing?) and directed him to look for answers in the holy books - the Torah, the Gospel and the Qur'an.

2.2. Space levels

Based on the stated views:

- Space is the most general concept that is characterized by omnidimensionality, boundlessness and impermanence,
- Space is everything that is, what was and what will be,
- On the life scale of every person, the image of the 'objective world' changes, and he himself changes, his 'software and hardware' with which he perceives objective reality and forms his judgments about it, which is the result of the 'natural' default of the world,

it is clear that the interpretation of space can be approached from different aspects, that is, we can talk about different 'levels of space' which, at first glance, appear as autonomous entities governed by 'their own laws' which in unity form a

[4]
- Giedion, S. (1941). Space, Time and Architecture: The Growth of a New Tradition, Harvard University Press,
- Gropius, W. (1956). The Scope of Total Architecture, Walter Gropius,
- Lynch, K. (1960). The Image of the City, The MIT Press,
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- Venturi, R. (1966). Complexity and Contradiction in Architecture. New York: The Museum of Modern Art Press.

[5] The basic hypothesis of the dissertation is: „Architecturally Defined Space (ADS, architecture) treats space as the most complex of all human activities“.

[6] Prof. Branislav Milenkovic, Ph.D., in his review of the author's book (published doctoral dissertation) announces: ...“For the author, space is part of the real world with its multiple meanings and is never closed in such individual manifestations - these areas of action are free, mobile and often contradictory“.
Hadrovic, A. (2007). Defining Architectural Space on the model of the oriental style city house in Bosnia and Herzegovina, Serbia, Montenegro, Kosovo and Macedonia, Booksurge, LLC, North Charleston, SC, USA

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general understanding of space. At the same time, individual units can be in contradiction with each other, which in looking at the space as a whole turns into 'dynamic harmony'. Thus, one can talk about: cosmic space, physical space (macro and micro space), geographical space, mathematical space, philosophical space, architectural space, cyberspace, cultural, political space, existential space, mental space, personal space... therefore, in each of the mentioned levels of space, special sub-levels of space, more or less dynamic, can be observed.

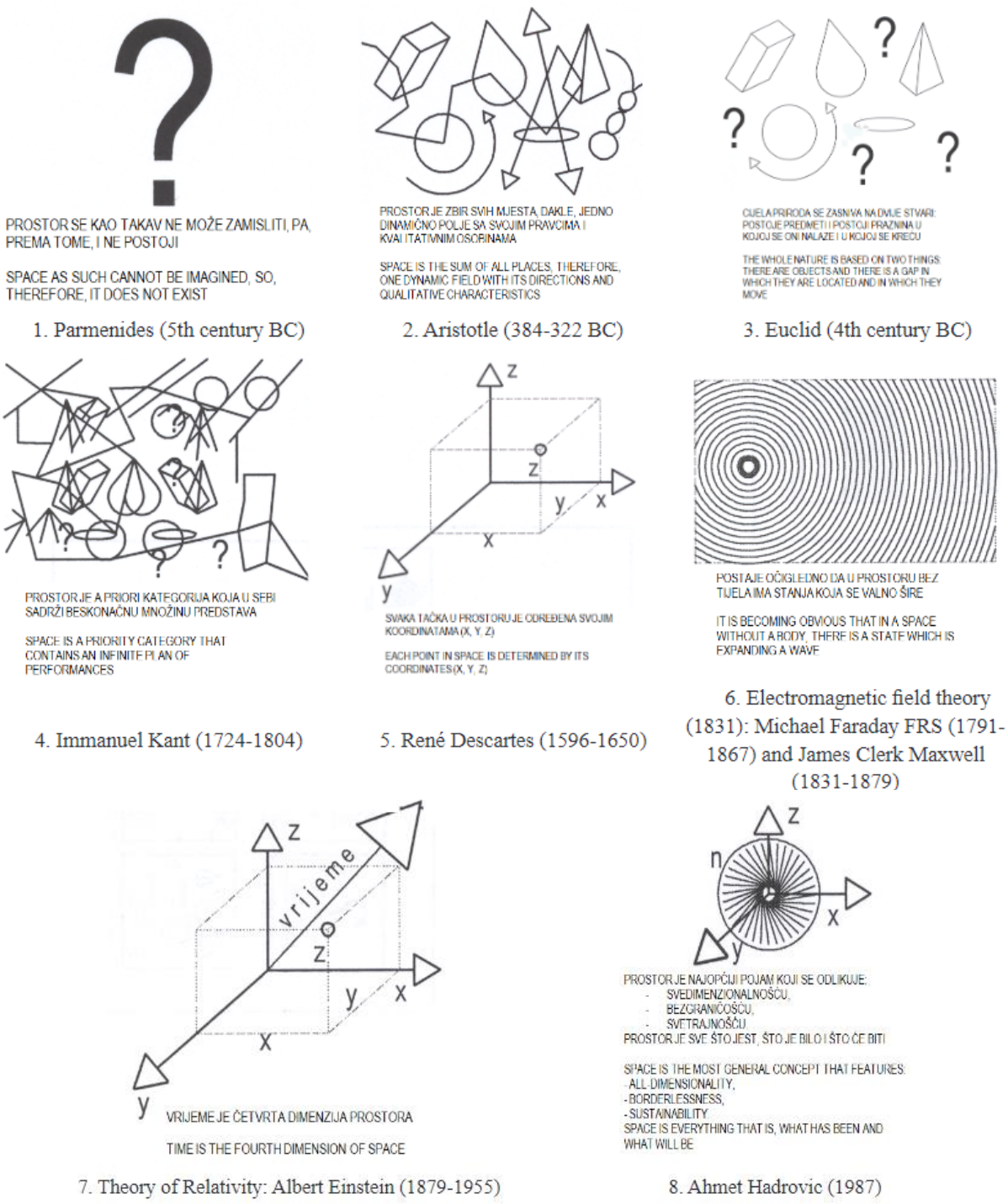

Figure 3. Man's understanding of Space through history

2.3. *Universe (Cosmos)*

Parallel to the term 'Space', the terms Universe, Cosmos, Space are used with questions about its size, boundaries, content, method of creation, and its durability. The universe is the subject of interpretation of philosophy, science and religion. In the 6th century BC, in the capital of Ionia, Miletus,

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the commercial and cultural center of Greece on the west coast of Asia Minor, the Miletus school developed, which is the name for the teachings of the three Miletus philosophers: Thales, Anaximenes and Anaximander. The Miletus school, the oldest Greek school of philosophy, belongs to the cosmological period of Greek philosophy. The three philosophers of the Miletus school share a basic philosophical question: what is the primordial basis (archéu), the primordial cause, the primordial beginning of the world, i.e. what is that which survives every transitory change and how does it turn into this or that particular thing or change that thing - what is, therefore, the world substance that undergoes all the changes of impermanent things, from which all individual things arise and to which they return again. Before the philosophers of Miletus, the answers to such comprehensive questions that would explain the world and the world state were provided by myths.

The answers of the people of Miletus to the question about the beginning of everything (arché) implicitly carry within them the monistic assumption of the unity of the world: all processes in nature have the ultimate cause of one, unique substance. Thales considered water to be the beginning of everything, because of its mobility, changeability and liveliness. Anaximenes cites air as the beginning, which through dilution and condensation passes into other elements and things (such as fire, water, earth, clouds, wind). While the teaching of Thales and Anaximenes remained within the limits of the experiential, Anaximandar introduces the metaphysical concept of 'apeiron', the infinite one, taking a step from the research of facts towards conceptual thinking and placing the world substance at the end of every experience. If each of the four traditional elements (water, air, fire and earth) is opposed to the other three, and if one destroys the other when it comes into contact with it, then none of these elements can represent a stable elemental form of world matter. According to Anaximander, although nothing corresponds to the primordial beginning that would be the subject of experience, the primordial beginning must nevertheless be assumed as something that is outside of experience and by which experience is conditioned. Anaximander attributes to the apeiron all the marks of the world's substance: non-origin, impermanence, inexhaustibility, indestructibility.

To the teaching of Anaximander, the author added the teaching of Heraclitus from Ephesus (Greek: Ἡράκλειτος ὁ Ἐφέσιος, 535-475 BC) which speaks of the unity of all beings, which are in constant change[7]. Heraclitus took fire, the most unstable of all elements, as a symbol of becoming. Its heat is the beginning of life, its light permeates the Cosmos, its flame transforms everything it comes in contact with, and its unstoppable restlessness is the image of eternal movement (becoming). The world is eternally alive (change), a fire that burns with measure (principle) and goes out with measure. The cosmos was, is and will be an eternally living fire that burns and goes out according to certain laws. According to Heraclitus, the basic principle governing the Cosmos is the unity of opposites. He understands the struggle of opposites as an essential meaning for the existence of the One. One exists in the tension of opposites. Reality is one and many. Everything is harmonized in One. God is day-night, satiety-hunger, war-peace, all opposites. To God, everything is beautiful, good and just, and people consider one to be just and the other to be unjust.

Astronomy (Greek: ἀστρονομία) is one of the oldest sciences in general that deals with celestial bodies, organization and phenomena in the Universe. Cosmology (Greek: κόσμος = kosmos and λογία = learning about something) is a branch of astronomy that deals with the origin, properties, origin and development of the Universe as a whole. It is closely related to physics, philosophy and theology. Myths about creation, which existed among all ancient peoples, are the result of the first cosmological teachings, while modern cosmology is firmly based on the laws of physics known today. The central astronomical-cosmological term is galaxy (Greek: γαλαξίας = milky), which implies huge systems composed of stars, gas and dust (interstellar matter), and dark matter held together by gravity. The sizes of galaxies range from dwarf (with about ten million stars) to giants (with up to 10^{12} stars), which move in orbits around the center of mass. Galaxies can contain multiple star systems, star clusters, and various interstellar clouds. The sun is one of the stars in the galaxy known as the Milky Way[8]. The solar system contains the Earth and other objects that move in orbits around the Sun[9].

Historically, galaxies have been divided according to their apparent appearance (visual morphology). Galaxies have different appearances: elliptical (with a more or less slender elliptical profile), spiral (disc-shaped clusters with curved, dusty arms), irregular and unusual shapes (they are known as unusual galaxies and typically result from ruptures caused by

[7] The world is full of opposites, and everything is in motion: there is no unchanging battle. Everything flows (πάντα ῥεῖ) is a formula that summarizes his teaching, which is eminently dialectical. Everything is moving, everything is constantly changing. Things arise, change and perish. Reality, created by the struggle of opposites, is in the eternal process of becoming. We know things only by their opposites. The modern interpretation of Heraclitus' teachings has brought to light the aspect of the unity of opposites: becoming is only a deceptive appearance, and harmony is hidden behind it. The world (apparently) is ruled by disorder, but all events contain an internal lawfulness. It was here, in order to define this secret law of harmony, that Heraclitus - the first in history - used the term 'logos' (Greek: λόγος = mind, word, speech, meaning, principle, law, science), which will mark the entire Greek philosophy. For Heraclitus, the Logos is both unity and the struggle of opposites, the law that governs both nature and human society.

[8] The Milky Way Galaxy is 100,000 light years wide. There are 200 billion stars. The closest galaxy to us, Andromeda, is 2.5 million light-years away from us, and it is 200,000 light-years wide. The largest known galaxy in the universe is IC 1011. It is 6 million light years across.

[9] The diameter of the Sun is about 1392000 km, which is 109 times more than the diameter of the Earth, and its mass is about 2 x 10^{30} kilograms, which is 330000 times more than the mass of the Earth. The average density of the Sun is 1,411 kg/m³ (about 1/4 the density of the Earth). According to the chemical composition, ¾ of the Sun's mass is hydrogen, while the rest is mostly helium, and less than 2% is made up of heavier elements such as oxygen, carbon, neon, iron and others. In the center of the Sun, which is the source of energy and where the temperature reaches 15 million Kelvin, there is less hydrogen than helium. The mean distance between the Sun and the Earth is 149,600,000 km or one astronomical unit (AU). Light travels this distance in 8 minutes and 19 seconds. The energy transmitted by sunlight provides almost all life on Earth, thanks to photosynthesis, and is also the fundamental generator of the Earth's climate.

the gravitational attraction of neighboring galaxies). There are more than 100 billion (10^{11}) galaxies in the visible Universe. Most galaxies are between 1000 and 100,000 parsecs[10] in diameter and are usually separated by millions of parsecs. Intergalactic space is filled with rarefied gas whose density is less than one atom per cubic meter[11]. We can better understand the dimensions of the galaxies and the physical space between them if we understand the time it takes for some, the fastest known human-made object, to cross those distances. The Helios probe, which can reach a speed of 253,000 km/h, takes 4,300 years to cover a distance of 1 light year. This means that it would take 430 million years to cover the entire width of our galaxy (Milky Way), and it would take 25.8 billion years to cover the width of the IC 1011 galaxy. Astronomical measurement units (such as light years, parsecs or redshifts[12]) help us to get at least some ideas about them[13].

In all discussions about the Universe, the central question is its origin. Today, the "Big Bang Theory" is the most widely accepted in science, according to which the Universe was created by a big bang of hot and densely packed matter approximately 10 to 20 billion years ago. Then, according to the mentioned theory, all the matter of the Universe was gathered into a ball the size of the head of a pin. The explosion conditioned the expansion of dense matter, from which stars, planets and planetary systems were gradually formed by cooling. According to this theory, the Earth was formed 4.5 billion years ago. This theory, however, does not answer the question: where did the original matter in the form of a ball come from, and what is the nature of the 'void' outside that ball in which the Universe expanded after the 'big bang'?

All great religions (Torah-Old Testament, Gospel-New Testament, Qur'an) have given answers to the question of the origin of the Universe, which are basically identical [14,15].

2.4. Matter and energy

Matter is the subject of interest, research and interpretation of philosophy, art and science. In philosophy, matter is understood as any objective reality that exists, independent of human presence, independent of human consciousness and knowledge about it. However, matter touches man in various ways, where he establishes his relationship to it through senses, consciousness (thinking) and feelings.

Art is a human interpretation of the world, which, along with the artist-creator and his work, necessarily includes the audience, that is, the observer and evaluator of the work of art.

Science views matter as an objective phenomenon in the Universe that simultaneously manifests itself as matter, waves, energy and information.

The substance of matter is represented by its mass, which consists of its elementary particles, atoms. Atoms, by themselves, are complex particles composed of smaller particles classified into two groups - fermions and bosons. The group of fermions includes baryons (hadrons, i.e. protons and neutrons) and leptons (electrons). The group of bosons includes mesons and photons. An essential property of mass is its attractive force, gravity.

The 'Periodic (natural) system of elements' is a tabular presentation of known chemical elements arranged according to their electronic structure. Elements in the same column have similar consciousnesses. The original system of elements was created at a time when the composition of atoms was not known. This was done (in 1829) by the German chemist Johann Wolgang Döbereiner (1780-1849), who arranged the then-known elements by increasing atomic mass, adding some other properties to it. He observed the natural movement of the properties of the elements as a function of their atomic mass. Döbereiner thus observed a certain number of triads of similar elements.

The English chemist John Aleksander Reina Newlands (1837-1898) discovered (1865) that elements of a similar kind appear in intervals of eight elements, which he compared to a musical octave. Then (1869), almost simultaneously, independently of each other, the German Julius Lothar Meyer (1830-1895) and the Russian Dmitry Ivanovich Mendeleev (1834-1907) created the first natural system of elements, where the elements were arranged in increasing order mass. Mendeleev arranged several elements outside of the strict order of increasing mass, since they agreed more closely with the properties of neighboring elements. In this way, he corrected errors in the values of several atomic masses and even predicted elements that had not yet been discovered. In addition, he precisely predicted their properties, which was the best confirmation of the value of the discovery of the periodic (natural) system of elements.

From the periodic table of elements, all important properties of individual elements, groups of similar elements, and even elements that have not yet been discovered can be read. So, for example, all atoms of an element of the same period have the same number of electrical shells, and atoms of all elements from the same group (column) have the same configuration of the outer (valence) shell. Elements of the same group have similar properties.

[10] A parsec (symbol: pc) in astronomy is a unit of measurement for length. It is defined as the length of the leg of a right triangle that forms an angle of one arc second with the hypotenuse, and the length of the other leg equals one astronomical unit. In practice, this means that the distance in parsecs is equal to the reciprocal of the annual parallax in seconds of arc. One parsec is equal to 3.0857×10^{13} km or 3.2616 light years or 206265 astronomical units (AU). 1 AU = 149 597 870 691 ± 30 meters, or approximately 150 million kilometers). A thousand parsecs is called a kiloparsec (kpc), and a million parsecs is called a megaparsec (Mpc).

[11] Most galaxies are organized in hierarchical societies called clusters, which can further be grouped into superclusters. These larger structures are generally arranged in planes and threads that span the vast voids of space.

[12] Red shift is the shift of the spectral lines of light (increasing wavelengths) towards the red part of the spectrum. More generally, the shift of the spectral lines of electromagnetic waves towards longer wavelengths in the spectrum. It occurs when the source of electromagnetic waves moves away, the faster the source moves away, the greater the red shift (Doppler effect) or when the source of electromagnetic waves is located in a strong gravitational field, and the emitted waves spread towards a weaker gravitational field. The cosmic redshift reflects the general expansion of the universe (Hubble's law). Gravitational redshift is caused by the loss of photon energy in the gravitational field. It is proven by the Mössbauer effect and is observed in the spectra of stars with a strong gravitational field.

[13] NASA's Hubble telescope has captured the most distant galaxies ever discovered in the visible Universe. About 10,000 galaxies can be seen in the video. As the light traveled to us for a very long time, we actually see how the galaxies looked like some 13 billion years ago. Today, they are about 30 billion light years away from us.

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Energy is defined as the body's ability to do work. In other words, work represents a change in energy. Work manifests itself in several ways: change in temperature, change in speed, change in position... Hence, work and energy have the same unit of measurement, the joule (J). Every body in the Universe possesses energy, and this fact is expressed in several ways, through the postulates (laws) of thermodynamics.

The first postulate of thermodynamics[14] expresses the stated fact about the existence of the internal energy of every body (system) in the Universe. Stated analytically, this law reads:

$dU = \delta w + \delta q$, where:

- w, 'useful' mechanical work,
- q, heat,
- U, internal energy.

The first postulate of thermodynamics is also called the law of conservation of energy[15].

The second postulate of thermodynamics reflects the nature of energy. Namely, if two closed thermodynamic systems (system I and system II, each individually at the observed moment in equilibrium) are brought into contact via the diathermic boundary surface (DBP), their energy states will be disturbed: energy (heat) from the system I will pass through the diathermic boundary surface to system II (until equilibrium is established). The new equilibrium state between systems I and II will not change, both with the existence of the contact surface (DGP) and if the contact is broken.

Temperature represents the degree of thermal state of the body (thermodynamic system). This is also the definition of the so-called Zero Postulate of thermodynamics. In practice, there are several scales for determining temperature: Celsius, Reomir, Fahrenheit. For all of them, the same fixed points were taken as a basis - the equilibrium state of water and ice, that is, water and water vapor, at the same pressure (of one physical atmosphere)[16]. The International System of Measurements (SI) adopted the one proposed by the famous physicist Lord Kelvin (William Thomson, 1st Baron Kelvin, 1824-1907) as a valid temperature scale. Kelvin took as the basis of his scale the triple point of water (indifferent state of water with precisely determined pressure and temperature). He added the value of 0 K to that energy level of water, thus defining the unit value of temperature. The starting point of the Kelvin scale (0 K) is at -273.15 ºC. This temperature is called absolute zero[17]. The temperature expressed in K (kelvins) is called the thermodynamic temperature (T). Obviously, absolute zero is the theoretical limit state of a body that has no energy. In the Universe[18], there is no temperature lower than zero kelvion (0 K), that is, -273.15 ºC. Energy appears in nature in various forms: thermal energy (internal energy), mechanical energy (that is, potential and kinetic energy), electrical energy, solar energy, nuclear energy... The equivalence of matter and energy was discovered and established (1905) by Albert Einstein (1879-1955) expressing this relationship with one of the most famous equations in the world of nature, i.e. physics: $E = mc^2$.

Nuclear fission. In nature there are elements where, in a natural or artificially induced way[19], atomic nuclei can split (nuclear fission) into two fission fragments with the release of energy. Uranium-233 and uranium-235 cores, plutonium-239 cores and plutonium-241 cores are feasible. At the same time, the only fissile element in nature is the uranium-235 isotope. The energy released by the fission of uranium-235 is about 200 MeV[20]. The energy obtained from the fission of 1 kg of the uranium-235 isotope is equal to the energy that would be obtained by burning 1300 tons of coal or 1350 tons of oil.

Fission reactions (splitting) of atomic nuclei are chain, progressive, and in order for their energy to be used for peacetime purposes[21], fission processes must take place in a controlled and continuous manner. The controlled process of fission takes place in special devices called nuclear reactors. Fission products are radioactive and are a source of radioactivity in spent nuclear fuel.

Radioactivity is a spontaneous natural process in which alpha-particles (α) and beta-particles (β) are emitted from the substance along with the frequent emission of gamma radiation (γ). During this process, one chemical element changes into another, with the release of a certain amount of energy.

Each atomic nucleus has its own half-life. Emitting of the mentioned particles and gamma-rays from the nucleus of the atom. Alpha-particles are helium ions or the atomic nucleus of helium, beta-particles are high-speed electrons (which are emitted from the nucleus and not the electron shell of the atom), while gamma-radiation corresponds to short-wave X-ray radiation.

There are 270 stable and about 50 natural radioactive isotopes in nature. Radioactive isotopes are mostly produced in laboratory conditions. The half-life ($T_{1/2}$) is the time required for half of a sample of unstable atomic nuclei or elementary particles to decay. Moreover, this time does not depend on the amount of sample. It characterizes a certain type of decay. Its values are different, ranging from 10-8 s (for 216mRa) to 1024 years (for 128mTe).

[14] ... „an isolated system after a certain time always spontaneously reaches a state of thermodynamic equilibrium and the achieved state of the isolated system cannot be changed“ [3].

[15] In stoichiometry (calculation of quantitative relationships between reactants and products in balanced chemical reactions) a similar law applies - the law of conservation of matter: matter is indestructible, it can only change from one form to another. In 1905, Albert Einstein connected these two laws into a single law on the equivalence of matter and energy: $E = mc^2$.

[16] The physical atmosphere (1 At or 1 atm) is an invalid unit according to the SI system. 1 At = 1 atm = 101302.178 Pa.

[17] At this temperature, all movement stops, that is, the energy of the system is equal to zero.

[18] In fact, there are no bodies with a temperature of 0 K in the Universe.

[19] The English physicist Ernest Rutherford (1919) performed the first nuclear conversion (transmutation) by bombarding nitrogen with alpha particles. During this process, he received oxygen:
nitrogen-14 + α (alpha particle) → oxygen-17 + p (proton).
Physicists John Cockcroft (1897-1967) and Ernest Walton (1903-1995) performed (1932) the 'atom splitting' experiment where they bombarded the lithium-7 atom with protons and in that reaction two alpha-particles were created.

[20] In physics, the electron volt [eV] is a unit of energy whose value is: 1 eV = 1.6 x 10^{-19} J (joule).
1 MeV = 1.602^{-13} J (joule).

[21] An uncontrolled fission reaction is what happens in an atomic bomb.

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X-ray radiation occurs in conditions when electrons hit the metal at high speed, whereupon they suddenly slow down, and electrons are ejected from the outer shell of the metal atom they hit. In the described process, two components of X-ray radiation are created:

- The sudden deceleration of fast electrons directed at the metal produces bremsstrahlung radiation (German: bremsstrahlung) with a continuous spectrum of intensity at different wavelengths.
- By ejecting electrons from the atomic shells of lower energy levels by incident fast electrons and filling the thus created vacant places with electrons from higher energy levels, X-ray radiation of a discontinuous spectrum, characteristic radiation, specific to the metal from which the anode is made, is produced.

X-ray radiation[22] was named after its inventor, Wilhelm Conrad Röntgen (1845-1923), who discovered it in 1895, calling it X-rays (due to its unknown nature at that time). Immediately after the discovery, their great similarity with light was noticed. The difference between X-rays and gamma (γ)-radiation should be emphasized: X-rays originate in the electron shell of an atom, while gamma (γ)-radiation originates in the nucleus of an atom. In nature, X-ray radiation can occur in a gas vortex around a black hole, then in the collision of fast electrons and photons[23]. In laboratory conditions, X-ray radiation is generated in X-ray tubes, i.e. vacuum tubes with an anode (+) at one end and a cathode, i.e. a filament (-), at the other. When the cathode, through which the electric current flows, glows[24], it begins to emit electrons that are sent to the other side of the tube, towards the anode. By hitting the anode (which is made of metals resistant to high temperatures, molybdenum or tungsten, for example), 99% of the energy of the electrons arriving from the cathode is converted into heat, and 1% leaves, as ionizing radiation (X-rays), vertically through the opening in the x-ray tube towards the target location. X-ray radiation is widely used in various areas of people's lives: medical radiology and radiography, computed tomography (CT), fluoroscopy, radiotherapy[25]...

Contrary to nuclear fission, nuclear fusion is a process in which several atomic nuclei are joined together, resulting in heavier atomic nuclei. This process is accompanied by the release of energy, the value of which depends on the mass of the atomic nuclei involved in the fusion reaction. Nuclear fusion of lighter elements into heavier elements takes place under conditions of extremely high temperature and pressure. The energy released in most nuclear reactions is much higher than the energy generated in chemical reactions because the energy that binds the nucleons in the nucleus is significantly higher than the energy that binds the electrons in the electron shell of the atom[26]. In nature, the fusion process takes place in stars. The Sun is the central star of our planetary system. Its diameter is about 1,390,180 km, that is, 110 times larger than the diameter of the Earth, which makes its volume 1,300,000 times larger than the volume of the Earth. Considering its size, it belongs to the G 0 type dwarf stars. Within its galaxy, relative to other stars, it moves at a speed of about 20 km per second. The mass of the Sun consists of hydrogen (50%), helium (40%), and other elements (oxygen, nitrogen, manganese, silicon, carbon, iron). The Sun is a huge natural thermonuclear reactor in whose core (at a pressure of 13.3 x 10^9 kPa and a temperature of 16 x 10^6 °C) every second 6 x 10^{11} kg of hydrogen fuses into 596 x 10^9 kg of helium. The mass difference of 4 x 10^9 kg is, according to Einstein's law of equivalence of mass and energy ($E = m c^2$), converted into a huge amount of energy of about 3.6 x 10^{26} W. This energy is emitted into the Universe in the form of electromagnetic waves, where Only half of its millionth part, i.e. 1.8 x 10^{17} W[27], reaches the earth. Solar radiation is an elementary assumption for life on Earth as we know it. All the values of architecture that have been developed in its history are a direct consequence of the existence of the Sun, i.e. the arrival of its radiation into the spaces where man realizes his existence.

Fluorescence (luminescence). If we 'bombard' a rarefied gas enclosed in some space with electromagnetic radiation or directed particles (electrons, ions), the electrons will 'jump' from the shells of lower to shells of higher electronic charge in its atoms, with the appearance of new electromagnetic radiation of small (invisible to the eye)) wavelengths, i.e. ultraviolet light. This light, in contact with certain (fluorescent) substances[28], acquires longer wavelengths visible to the eye. The described phenomenon is called fluorescence or luminescence. This phenomenon is used to generate light in fluorescent lamps where the inside of its glass body (tube) is filled with gas under low pressure.

..."When the electrodes in the tube are energized, the negative electrode emits electrons that are directed towards the positive electrode. On this way, the electrons will knock out electrons from the electron shell of the inert gas[29], which ionizes the gas; the gas becomes more conductive to electricity and an electric arc is established. Droplets of metal (for example, mercury) will eventually evaporate in the form of a gas and themselves begin to participate in the flow of

[22] X-ray radiation is electromagnetic radiation whose wavelengths are between 10 nm and 0.01 nm. Soft X-rays have a wavelength of 0.1 nm to 10 nm, and hard X-rays have a wavelength of 0.01 nm to 0.1 nm. Light, the visible part of the spectrum of electromagnetic radiation, has wavelengths between 300 and 750 nm. Gamma (γ)-radiation is part of the spectrum of electromagnetic radiation, with a wavelength of less than 0.5 nm.

[23] The wavelength of the X-ray radiation produced in this way is about 10 light years.

[24] The cathode is most often made of tungsten, which glows at a temperature of 2600 K.

[25] Prolonged exposure to X-rays damages the human body. That's why protection measures must be applied in all operations with this radiation (especially for personnel working on devices that generate X-ray radiation).

[26] For example, the ionization energy obtained by adding an electron to the nucleus of a hydrogen atom is 13.6 eV, which is less than one millionth of the energy (17 MeV) released in the D-T (deuterium-tritium) nuclear fusion reaction.

[27] Although it is a negligibly small amount of energy for the scale of space, it is gigantic for the scale of the Earth, about 100,000 times greater than the total energy that humanity produces in a year. The power of solar radiation that reaches 1 m2 of the upper surface of the Earth's atmosphere is designated as the 'solar constant', and its value is 1355 W/m2.

[28] Calcium fluorophosphate ($3Ca_3(PO_4)2CaF_2$) is often used as a luminescent substance.

[29] The ejected electron from the lower shell moves to a higher shell (that is, a shell of a higher energy level), and since this one is "saturated" with electrons, the electron returns to the shell of a lower energy level. In doing so, electromagnetic waves of short wavelengths (ultraviolet rays) are released.

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electrons. This produces light with a spectral composition that is different for all gases. When discharging through gases and metal vapors, the largest share of emitted electromagnetic radiation (about 60%) is in the area of ultraviolet rays. In order to use them as best as possible (in obtaining the visible spectrum), the inside of the tube is coated with special substances (luminescent or fluorescent substances) that have the ability to transpose ultraviolet radiation into the area of the visible spectrum[30].

The process of electric discharge is progressive and if it were not controlled, it would become so intense that the pipe would fall apart. Therefore, a special 'ballast' is installed in the pipe, which makes the electrical discharge a controlled process [4].

2.5. Inanimate and living world

Life is a term we use to distinguish physical entities that possess biological processes (living entities) from those that do not (non-living entities). There are various forms of living entities: animals, plants, fungi, algae, protozoa and bacteria. Biology is a science that studies living entities. For philosophy, life is its most important and fundamental question that it deals with, and that in the way of thinking about its meaning. Bioethics is a scientific discipline that studies life from the aspect of moral principles. From the point of view of biology, life is a complex event made up of numerous partial processes that take place in a living entity (individuals) during its lifetime. One of the basic properties of living entities that distinguishes them from non-living entities is the possession of complex compounds with carbon. At the same time, the cell is their smallest structural and functional feature. The basic conditions for the realization of life are: water, air, heat and light. It is believed that life on Earth is about 3.7 billion years old [5], and that about 300,000 plant and several million animal species live on Earth today. At the same time, there is a huge number of extinct species.

From the point of view of biology, life is a characteristic of organisms, which exhibit all or most of the following characteristics [5]:

1. Homeostasis: means maintaining constant conditions in the internal environment of cells. Almost all organs and tissues in the body perform functions that contribute to the maintenance of these constant conditions,
2. Organization: the body of living organisms is made up of one or more cells, which are the basic units of life,
3. Metabolism: a set of chemical reactions that take place in a living organism, in order to maintain life. Living things need energy to maintain internal organization (homeostasis) and to produce other processes related to life support,
4. Growth: building the body and increasing the volume of the body,
5. Adaptation: the ability to change over time in response to changes in the environment. this ability is fundamental to the process of evolution,
6. Responding to stimuli: it can be very diverse, from simple contractions of unicellular organisms to external chemicals, to complex reactions involving all the senses of multicellular organisms,
7. Reproduction: the ability to produce new individual organisms, either asexually from one parent organism or through sexual intercourse between two organisms.

Koshland (2002) [6] lists seven characteristics of life:

1. Program (DNA),
2. Improvisations (response to the environment),
3. Compartmentalization (possibility of divisibility into parts),
4. Energy,
5. Regenerativeness,
6. Adaptability and
7. Isolation (chemical control and selectivity).

Other scientific disciplines, as well as philosophy and religion, deal with the question of life. From the aspect of the title of this work, life can be defined as 'a material system that undergoes reproduction, mutations and natural selection'.

2.6. Earth's Place in the Universe

Apart from being a part of the solar system and a part of wider systems in the Universe, the Earth itself is a very complex system made up of a relatively rigid spheroid and an atmosphere. The spheroid is composed of several spherical, concentric, layers (going from the periphery to the center): Earth's crust, upper mantle, middle mantle (asthenosphere), lower mantle, Wiechert - Gutenberg discontinuity, outer core, last discontinuity, core. Each of the layers is specific for its chemical composition and physical properties, resulting, among other things, as a result of the progressive increase in temperature (from 360 °C in the Earth's crust to 5,000 °C in the core) and pressure. The Earth's surface consists of land (149 million km^2) and the World Sea (361 million km^2). The picture of the arrangement of the continents and oceans that we know is 'current', and is the result of the dynamic geological history of the Earth. Namely, the Earth's surface, both its terrestrial part and that under water, is exposed to permanent influences (from its interior - volcanoes and earthquakes, on its surface - water flows, wind, human activities, plant and animal activities, and those coming from cosmos - solar radiation) which results in its more or less intense change. All water surfaces (World seas, lakes and rivers) form a special layer of the Earth (hydrosphere) which is a dynamic connection between the solid spheroid and the gaseous atmosphere; namely, the seemingly more or less constant amount of water never rests: in the World Sea it is in motion in the form of horizontal motion (warm and cold currents), vertical motion (tides and ebbs); in rivers through horizontal movement by overcoming the height difference; in lakes through inflow and outflow; all together, the water permanently evaporates into the atmosphere, only to return to the Earth's surface in a reversible process, in the form of precipitation. It goes without saying that the Sun's radiation and the Earth's revolution and rotation are the basic assumptions for this magnificent process in nature. Only in

[30] Such a photo-luminator is, for example, phosphorus, borates, silicates, tungstates... Thanks to these coatings, about 25% of the supplied electricity is converted into light, and 75% into heat.

such a dynamic process, water has the significance of an elementary prerequisite for life[31].

The atmosphere is the invisible covering of the Earth made up of a mixture of different gases in special ratios of their representation. Its permanent ingredients are: nitrogen (78.08 %), oxygen (20.95 %), argon (0.9 %) and other noble gases, as well as hydrogen, methane and nitrous oxide; carbon dioxide is of particular importance, even though it is only 0.03%. Atmospheric impurities are water vapor, condensation and sublimation products, and various solid and liquid particles that enter the atmosphere naturally or as a product of human activities (emanations). Nitrogen is an inert gas, so it does not play any active role in atmospheric processes. Oxygen absorbs the Sun's radiation well on its way to Earth, which contributes to significant warming of the atmosphere. Carbon dioxide absorbs long-wave infrared radiation (Earth radiation) well and thus contributes to more or less rapid warming (cooling) of the atmosphere and the Earth. Water vapor (clouds) absorbs both incoming radiation from the Sun to the Earth and outgoing radiation from the Earth into space; liquid and solid particles behave similarly. It should be emphasized that the atmosphere is a very mobile medium that does not allow the appearance of 'concentration' of some of its constituents in a certain place, which removes the misconception that, for example, the concentration of oxygen in forests has increased. Similarly, the release of harmful gases and particles into the atmosphere (emissions from cement plants, coking plants, thermal power plants, oil refineries ...) does not pollute the atmosphere only above the place where it occurs, but the atmosphere as a whole. The atmosphere is the Earth's connection with the Universe, and from the aspect of life on it, its elementary assumption; thanks to its existence, layering (the specific chemical composition and physical properties of each layer), a special balance is ensured, the balance of Sun-Earth and Earth-Space radiation, and a complex of extremely complex phenomena on Earth, precisely determined by a series of physical quantities, united by the term climate [7]. A practically unlimited number of combinabilities of climatic factors and climatic elements results, on the one hand, in a wide variety of occurrences of life on Earth (plant and animal life), and the possibility of man to influence some climatic factors and elements with his activity imposes, on the other hand, the need his responsibility for the survival of life on Earth.

2.7. Time

Time (in physics) is a basic physical quantity that marks the duration of an event or the distance between two events. It makes it possible to distinguish two (otherwise exactly the same) events at the same point in space. The distance between these events serves as the basis for measuring time. Event, change and movement cannot be understood without time. Time can only be seen by changing events. Many phenomena in nature repeat themselves regularly and can be used to determine the time. Thus, for example, the Earth's rotation around its axis determines the time of one day, and its motion around the Sun determines the time of one year. A clock-pendulum is constructed on the principle of a pendulum. Other devices are also used to determine the time: hourglass, water clock, mechanical clock, digital clock, atomic clock... Time and space are used to determine the speed of movement.

Philosophical considerations about the nature of time can be roughly classified into two opposing viewpoints. According to one (corresponding, for example, to Newton's ideas), time is part of the real and fundamental structure of the Universe: it is a dimension of the Universe in which events take place in some order - and is not dependent on those events. According to another point of view (corresponding to the views of Leibniz and Kant, for example), time is only part of the human intellectual apparatus, the way in which the human consciousness perceives and interprets events.

In physical considerations of the nature of time, the first point of view dominates (although there are also attempts at alternative interpretations). Time is the fundamental dimension of the Universe, along which events are ordered from the past to the future. Time is used to measure 'where' the event is in that order, and how long the intervals between events are or the duration of the process. The development of physics in Einstein's time showed how observations of moments and intervals can depend on the observer who measures them. Isaac Newton (1643-1727) believed that time is 'absolute', that is, it flows equally for all observers. Classical mechanics (non-relativistic classical mechanics) is based on Newton's concept of time. In order to interpret some observations from the end of the 19th century, Albert Einstein (1879-1955) in his special theory of relativity postulated the equality of the amount of the speed of light (in a vacuum) for all observers, and showed that because of this they will not perceive space and time [8]. Because of this, the measurements of space and time become interdependent, which is why the concept of a four-dimensional space-time continuum (space-time) is introduced into physics. Heidegger's (Martin Heidegger, 1889-1976) Marburg lecture On the concept of time (Der Begriff der Zeit, 1924) outlined the limitation of the traditional understanding of time exclusively to natural time. Its main characteristics are measurability, homogeneity and spaciousness. Opening a new approach to the temporality of human existence, Heidegger finally, in the work Being and Time (Sein und Zeit, 1927) [9] derived the necessity of the destruction of the history of ontology from the inadequacy of the previous fundamental ontological treatment of temporality. Time opens up as a possible horizon for understanding battle in general. Temporality does not establish the existence of time in modernity, but starts from the primacy of the future.

In everyday life, the term 'time' is used in a wide variety of meanings: right time (moment), wrong time (moment), good/bad time (time), 'everything in its time', 'out of time' ('out of time') , 'all-time', 'good old times', 'good/bad weather' (as a term in climatology)... Each of the mentioned terms has at its base a fundamental physical meaning of time, which, in

[31] Namely, if the Earth stopped rotating around its axis or around the Sun, all the water on the side of the Earth facing the Sun would evaporate, while it would freeze on the opposite side. The described position of the Earth in the solar system is precisely so 'adjusted' that water can circulate: a smaller distance would lead to the evaporation of water from the Earth, and a larger distance to its freezing.

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certain circumstances, acquires wider dimensions, including those of a historical, philosophical, existential, psychological (...) nature [10].

In the author's life experience, the term 'time' referred to the 'order' ('orderliness') of life, on a daily, weekly, monthly, annual, periodic and general life basis. At the same time, the phrase 'everything in its time' was at the basis of his understanding of time. Aware of the default of life, its changes and finitude (Figure 1), the Author treated Time as his obligation and order of life. In addition to all that, the Author was aware that, despite his idea of time, someone else was the final and only 'director' of his life.

2.8. Man

This chapter will discuss some (selected) dimensions of man [13], that is, terms that are most often encountered in the life of man (society), their usual understanding and the Author's understanding of those terms. The question of what a man is is probably one of the most fundamental, most common and most difficult questions that can be asked. We could view human history as the history of searching for an answer to that question. The greatest philosophical systems (from Plato to Kant to modern conceptions) have tried and are still trying to solve this question. This question is always provocative and never loses its freshness. The answer to it is hidden and unfathomable, and at the same time lies before us like an open book. We explore our own history, get to know old cultures, the customs of our ancestors, their beliefs, their wisdom and their prejudices. We know about the noblest human feats as well as the most terrible destruction resulting from hatred, fear and misunderstanding. The abundance of cultural, historical, artistic, religious and scientific material tells us a story about ourselves. No matter how you arrange the parts into a whole, it seems that the picture is never complete. Our efforts are still aimed at knowing what may not be known, but the longing for that knowledge always pulls us forward.

TABLE 1. Man (complexity of the human being)

MAN	A BIOLOGICAL BEING	Air, water, food
		Security
		Thermal comfort (t_i, t_e)
		Air humidity comfort (φ)
		Ventilation comfort (speed of air flow, m/s)
		Air comfort (O, CO_2, SO_2, smell, ...)
		Rest (sleep, hobby, recreation, relaxation, contemplation, ...)
		Reproduction (birth formation)
		...
	SOCIALLY BEING	Struggle for authority in the community
		Culture
		Sport
		Religion
		...
	IT WILL BE THERE	Privacy
		Family
		Contemplation
		...
	BEING OF PRACTICE	Work
		Innovations
		Exercise, 'drill'
		Skills
		Striving 'to be perfect'
		...
	BEING OF OPPORTUNITIES	Imagination
		Innovativeness
		Adventurism
		Competition
		Experimentation
		Pursuit of discovery (science)
		...
	BEING - CREATOR OF THE BEAUTIFUL	ART: - Painting, - Sculpture, - Music, - Architecture - Literature - Movie, - Acting - ...

Source: Author 2016.

At the beginning of the presentation in this chapter, the author will refer to the character and work of Omar Khayyam (1048-1131), one of the greatest and most versatile people in the entire history of mankind, who was an excellent

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mathematician, poet, philosopher, sage and bohemian. Omar Khayyam was an adviser to Malik Shah (Malik-Shah I, 1055-1092) and Sanjar Shah (Ahmad Sanjar, 1085-1157), rulers from the Seljuk dynasty in part of today's Iran. These rulers (seeing how valuable his scientific potential and work are) gave him material and other support for his scientific work[32]. A clear distinction, made by Khayyám, based on the works of earlier Persian philosophers, such as Avicenna, between natural and mathematical bodies. A natural body is defined as a body that is in the category of matter, and as such is sufficient to itself, and thus is also the subject of natural sciences, while the other body, 'volume', is in the category of coincidences (attributes) that do not exist independently in the external world and therefore form the subject of study in mathematics. Khayyám was very careful to respect the boundaries of each of the disciplines and wrote criticisms on account of Ibn al-Haytham's proof of the parallel postulate, solely because he violated this rule and subject belonging to natural philosophy, motion, which belongs to natural bodies, introduced into the domain of geometry, which deals with the study of mathematical bodies. In this book, the author mentions the great mathematician Omar Khayyam because of his versatility, the openness of his senses and mind to the world as it is, his sense of freedom, his awareness that he is 'weak and sinful', his faith that God will forgive his sins because he is only human[33] [16].

In addition to Omar Khayyam, the Author would also like to refer to Erich Seligmann Fromm (1900-1980), whose ideas and work are close to him. Fromm approached the topic 'man' from all sides, with the attention and dedication of a true theoretician-humanist: observing man as an individual and man as an inseparable part of society, man as a simultaneously rational, emotional and affective being, analyzing his conscious and subconscious aspirations, his dependence and the possibility of freedom, its creation and destruction, what makes each person separate and what connects all people as their common foundation. Fromm found the material for his views on man in history, in observing current affairs, in contact with his own patients whom he subjected to psychoanalysis, in the study of culture and the way it determines individuals. Fromm not only gives a diagnosis of man and society, but also gives a critique, warns of anomalies, of man's distancing himself from himself, from his nature. At the end, he also gives suggestions on how to fix this condition, what are the possible ways to recovery. He is a critical thinker, and his thought is ultimately a thought of hope, of faith in man and his nature, which, especially in the circumstances of the modern Western world, is greatly constrained, but still fights for its positive, biophilic, loving and life-oriented manifestations.

Some people have a need to impose their own views as correct, as the only values, their thoughts as facts. It is interesting how certain people feel called to give their comments on all (current) events, to express their opinion on everything, even when they are not asked. They find a way to associate every great success of an individual (scientist, athlete...) with themselves, using their control over all media in what is, for them, a targeted social space. The need to emphasize oneself and one's values without choosing means, even at the cost of diminishing the value of another person, is the main characteristic of such people.

2.9. Objective(st) and subjective(st)

The terms 'objectivity' and 'subjectivity', in their modern usage, generally refer to the subject of perception and the perceived object. An object is something that exists independently of the subject's perception. In other words, the object would be there, as it is, even if no subject observed it. Thus, objectivity is usually associated with ideas such as reality, truth, and reliability. The perceiving subject can either perceive accurately or appear to perceive features of the object that are not in the object. For example, a subject experiencing jaundice may appear to perceive an object as yellow when the object is not actually yellow. Therefore, the term 'subjective' usually indicates the possibility of error. The possibility of a discrepancy between the features of the subject's perceptual impressions and the real qualities of the perceived object generates philosophical questions. There are also philosophical questions about the nature of objective reality and the nature of our so-called subjective reality. Therefore, we use the different terms 'objective' and 'subjective' and their cognate terms to express possible differences between objective reality and subjective impressions. Philosophers consider perceptual impressions subjective or objective. The resulting judgments are objective or subjective to varying degrees, and we divide reality into objective reality and subjective reality. It is therefore important to distinguish between the different uses of the terms 'objective' and 'subjective'.

Objectivity is the philosophical concept of truth independent of individual subjectivity caused by perception, emotion or imagination. A proposition is said to have

[32] There are at least three basic mathematical ideas that have strong philosophical dimensions that can be traced back to Omar Khayyám:

1. Mathematical order: Where does this order come from and why does it correspond to the natural world? His answer lies in one of his philosophical 'theses about being'. Khayyám's answer is that "the divine origin of all existence not only radiates from being, but is also the source of order that is an integral part of all existence".
2. The importance of axioms in geometry and the need for mathematicians to rely on philosophy, and thus the importance of the connection of any science with basic philosophy. This is the philosophical background of Khayyám's overall rejection of any attempt to 'prove' a parallel postulate, and alternately his refusal to use motion to prove this postulate, like Ibn al-Haytham, because Khayyám associated motion with matter and wanted to keep it away from clearly understandable and immaterial world of geometry.

[33] Perhaps the most vivid and complete picture of himself was given by Omar Khayyam through his poetry. His collection of poetry under the title Rubaiye (known here in the translation of Safvet-bey Basagic, 1928) is known all over the world. Below is an excerpt from the said collection:

At the royal court - now without a roof -
to whom a nation of centuries slaves,
at court, whom poets celebrate
with a thousand verses - today the owl is roaring!
...Once there are no more of us on Earth - the world will be the world,
when we lose track and voice - the world will be the world;
and before we were - the world was the world,
and for us when the last hour knocks - the world will be the world [16].

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objective truth when the truth conditions are met without the bias caused by the sensing subject. Scientific objectivity refers to the ability to judge without bias or outside influence, sometimes used synonymously with 'neutrality'.

Plato (428-347 BC) considered geometry a condition of idealism that deals with universal truth. His juxtaposition of objectivity and opinion became the basis for philosophies that aimed to resolve questions of reality, truth and existence. He considered opinion to belong to the changing sphere of sensibility, as opposed to fixed, eternal and intelligible immortality. Where Plato distinguished between how we know things and their ontological status, the subjectivism of George Berkeley (1685-1753) depends on perception. In Platonist terms, the criticism of subjectivism is that it is difficult to distinguish between knowledge, opinion and subjective knowledge. Platonistic idealism is a form of metaphysical objectivism, according to which ideas exist independently of the individual. Berkeley's empirical idealism, on the other hand, holds that things only exist as they are perceived. Both approaches have an attempt to express objectivity. Plato's definition of objectivity can be found in his mathematically based epistemology, and his metaphysics, where knowledge of the ontological status of objects and ideas is resistant to change.

In contrast to the personal deduction method of the philosopher René Descartes (1596-1650), the physicist and philosopher Isaac Newton (1643-1728) applied a relatively objective scientific method in the search for evidence before forming a hypothesis. Partly in response to Kant's (Immanuel Kant, 1724-1804) rationalism, the German mathematician and philosopher Friedrich Ludwig Gottlob Frege (1848-1925) applied objectivity to his epistemological and metaphysical philosophy. If reality exists independently of consciousness, then it would logically include a plurality of indescribable forms. Objectivity requires a definition of truth that consists of truth-valued propositions. The attempt to create an objective construct includes ontological commitments to the reality of objects [17].

The importance of perception in evaluating and understanding objective reality is discussed in the observer effect of quantum mechanics. Direct or naive realists rely on perception as the key to observing objective reality, while instrumentalists hold that observations are useful in predicting objective reality. The concepts that encompass these ideas are important in the philosophy of science. Philosophies of mind investigate whether objectivity relies on perceptual constancy. According to ethical objectivism, the truth or falsity of typical moral judgments does not depend on the beliefs or feelings of any person or group of persons. This view holds that moral attitudes are analogous to claims about chemistry, biology, or history, insofar as they are true despite what everyone believes, hopes, desires, or feels. When they fail to describe this mind-independent moral reality, they are false-regardless of what anyone believes, hopes, desires, or feels. There are many versions of ethical objectivism, including various religious views of morality, Platonic intuitionism, Kantianism, utilitarianism, and certain forms of ethical egoism and contractualism. Platonists define ethical objectivism in an even narrower way, so that it requires the existence of intrinsic value. Therefore, they reject the idea that contractarians or egoists can be ethical objectivists. Objectivism, in turn, places primacy on the origin of the frame of reference-and, as such, holds that any arbitrary frame of reference is ultimately a form of ethical subjectivism by transitive ownership, even when the frame happens to coincide with reality and can be used for measurements.

The term 'ethical subjectivism' encompasses two different theories of ethics. According to cognitive versions of ethical subjectivism, the truth of moral statements depends on human values, attitudes, feelings or beliefs. Some forms of cognitivist ethical subjectivism can be considered forms of realism, others are forms of anti-realism. David Hume (1711-1776) is a fundamental figure for cognitive ethical subjectivism. On the standard interpretation of his theory, a character trait is considered a moral virtue when it evokes a feeling of approval in a sympathetic, informed, and rational human observer. Similarly, according to Roderick Firth's (1917-1987) ideal observer theory, right actions are those that would be approved by an impartial and rational observer. William James (1842-1910), an ethical subjectivist, believed that an end is good (for a person) only if that person wants it. According to non-cognitive versions of ethical subjectivism, such as emotivism, prescriptivism, and expressivism, ethical statements cannot be true or false at all, but are expressions of personal feelings or commands.

Ethical objectivism is the view that what is right or wrong does not depend on what one thinks is right or wrong. An example of such will be the categorical imperative philosophy of Immanuel Kant, who said: „Act only according to that maxim (rule) in which you can simultaneously become a universal law“. John Stuart Mill (1806-1873) was a consequential thinker and therefore proposed utilitarianism which explains that the right thing in any given situation is that which is likely to produce the most happiness. When it comes to relativism, the Russian philosopher and writer, Fyodor Dostoevsky (Fëdor Mihajlovič Dostoevsky, 1821-1881), used the phrase „If God does not exist, everything is permitted“. This expression is his explanation of how the decline of religion affects our moral thinking. American anthropologist Ruth Benedict (1887-1948) argued that there is no single objective morality and that morality changes with culture.

Subjectivity is a central philosophical concept, associated with consciousness, mediation, personality, reality and truth. Three definitions suggest that subjectivity is a quality or condition:

- Something that is a subject, narrowly means an individual who possesses conscious experiences, such as perspectives, feelings, beliefs and desires,
- Something that is a subject, the broader meaning of entity, which means that it acts on or has power over some other entity (object),
- Some information, ideas, situations or physical things are considered true only from the perspective of the subject or subjects.

These different definitions of subjectivity are sometimes combined in philosophy. The term is most often used to explain what influences, informs, and interferes with people's judgments of truth or reality. It is a subject-specific collection of perceptions, experiences, expectations, and personal or cultural understandings and beliefs about an external phenomenon. Subjectivity contrasts with the philosophy of objectivity, which is described as a view of truth or reality that is free from individual bias, interpretation, feelings, and imagination.

The rise of the concept of subjectivity has its philosophical roots in the thinking of Descartes and Kant, and its articulation during the modern era has depended on an understanding of what constitutes an individual. There have been different interpretations of terms such as 'self' and 'soul'. Subjectivity is often an implicit theme of existentialism. Sartre (Jean-Paul Charles Aymard Sartre, 1905-1980), one of its main proponents, emphasizes subjectivity in his phenomenology. Unlike his colleague Merleau-Ponty (Maurice Jean Jacques Merleau-Ponty, 1908-1961), Sartre believed that, even within the material force of human society, the ego had an essentially transcendent position.

Subjectivity is an immanently social mode that arises through countless interactions within society. As much as subjectivity is a process of individuation, it is equally a process of socialization, the individual is never isolated in a self-sufficient environment, but is endlessly involved in interaction with the surrounding world. Culture is the living integrity of the subjectivity of any society that is constantly transforming. Subjectivity is both shaped by it and is shaped by it, but also by other things such as the economy, political institutions, communities, as well as the natural world.

Political subjectivity is a new concept in social sciences and humanities. It is a reference-deeply rooted subjectivity in socially intertwined systems of power and meaning.

The terms objective(st) and subjective(st) are used by people every day, and each of them has their own understanding of their meaning. Some philosophical interpretations of these concepts have been put forward and, at first glance, although they are different, we could agree with each of them.

2.10. Senses

Senses in humans and animals represent anatomical-physiological systems of observation or perception of information from their own body and from their environment. Sense is the organism's ability to perceive external and internal stimuli or stimulation. Still according to Aristotle's definition set in the 3rd century BC. There are five senses: touch, smell, taste, hearing and sight. The environment in which organisms live is constantly changing. Day and night, seasons, sight, smells and tastes change, sharp and rounded objects are touched, pain, cold and heat are felt. Despite this, a person always knows what is happening in his body and the environment that surrounds him, and how he should behave in every situation. Such abilities are based on its system of informing and maintaining the integrity of the organism, i.e. homeostasis. This system collects data about the human environment and about one's own body, and with appropriate reactions it maintains the integrity of the organism by processing the received notifications and conducting them to the organ that performs the desired actions. This system, therefore, consists of receivers (receptors) of notifications, conductors and processors of these notifications (nervous system) and executors - effectors (cells, tissues, organs, organ systems), which upon receiving notification in the form of stimuli (impulses) immediately they react by performing a certain action.

The process of receiving (reception) notifications takes place on the basis of the ability of living organisms, including humans, to react to certain influences with appropriate efficiency. Influences that bring notifications and cause reactions of the organism are called stimuli. All actions of the external (life) and internal (organism) environment that cause changes in the organism are more attractive. Changes in the organism caused by stimuli are called stimulus or stimulus. When a stimulus occurs under the influence of a drug, the organism can react with a certain activity. This ability of the organism to react is called irritability.

All those physical and chemical actions of the external or internal environment that cause irritation (stimulus) in a living system are irritants. On the basis of whether they come from the environment or occur in the interaction of parts of the organism, they can be external or internal. Their activity is based on the addition or subtraction of certain amounts of energy, to the extent that can disrupt the existing energy stability or balance and bring the receptor cell into a state of irritation. At the same time, the charms do not supply their own energy, but excite and activate the energy system of excitable structures. In order for a factor or influence to have the property of irritation at all, it must reach a certain minimum size capable of causing irritation, which is designated as a threshold value (threshold of irritation). It is the minimum amount of some energy that is able to produce a stimulus, i.e. bring its receptor into an excited state, which results in the initiation of biocurrent. Individual and combined changes in the conditions of the external and internal environment of the organism act through cell membranes, which are in direct contact with the specific energy of adequate stimuli. It is known that through the active transport of ions, in the state of rest, the specificity of their distribution on the inner and outer surface of the membrane is established. At the same time, the interior has a negative and the exterior - a positive electric charge. Resting potential is the difference between the electropotential of the outer and inner surface of the cell membrane, which occurs as a result of its selective permeability. The magnitude of the resting potential varies, both among individuals and among cells of the same organism, and typically ranges from 30-90 millivolts (mV). In vertebrates, this potential depends on the so-called sodium-potassium pump, which functions based on the active transport of sodium ions from the cell and retention of potassium ions, despite the differences in the concentration of intracellular and extracellular environments. The membrane remains polarized as long as there is a potential difference between its interior and exterior. However, when under the influence of external

energy there are changes in membrane permeability, the distribution of ions changes - its depolarization occurs. This occurrence in the cell triggers enzymatic and other chain reactions that cause changes described under the common name - stimulus. Ion polarization and membrane potential occur in all living cells, but they are particularly pronounced and significant in the functioning of the receptor and nervous system. Regardless of the degree of complexity of the organism, the function of all receptors includes: absorption of specific energy, its transformation, creation of the receptor electropotential and initiation of the action potential of the associated nerve cell.

Absorption of energy has its full physiological significance only above the threshold value of its intensity, that is, at strengths of stimuli that are capable of causing receptor irritation. The transformation of the received stimulus implies the process of reshaping or converting the stimulus of the input energy into specific energy changes of the stimulated receptor, where the energy of the stimulus only encourages the process to be started, but does not involve itself in it. The receptor potential is, in fact, a direct and specific consequence of the transformation of the energy of the stimulus, the intensity of which is directly proportional to the magnitude of the stimulus. The action potential of a nerve cell that receives a bioelectric impulse from an excited receptor is equal to the difference in the electropotential of the stimulated and non-stimulated place on the corresponding nerve fiber. In higher animals, the intensity of stimulation is estimated in the nerve centers, based on the number of impulses that arrive from the stimulated receptor per unit of time. If an extremely high stimulus intensity lasts longer, the frequency of impulses is gradually reduced, that is, the receptor reacts as with reduced stimulus intensity. This phenomenon is referred to as receptor (sense) adaptation. That's why, for example, after a long stay in rooms with intense pleasant or unpleasant smells, the initial feeling of the situation gradually weakens, even though the intensity of the odor has remained unchanged. Coding in neurons is a common label for the ways and forms of representation and transformation of received information within the nervous system. Namely, in addition to other functions, the nervous system has the ability to process and process or transform the impulses that arrive from the receptor or from one part of it to another[34]. Therefore, this coding includes both forms of transmission of nerve impulses: bioelectric currents (along nerve fibers) and chemical - through neurotransmitters in synaptic connections. The nature of information coding in neurons has little resemblance to the principle of maternal-numerical and genetic coding and has a much broader meaning. In their flow through successive nodes of connections between nerve cells in each of them, nerve impulses can be broken down and combined in a new way, that is, at each stage of transmission, they are reshaped (transformed) and recoded (recoded). The coding system in the neuron and the realization of the code include: input signal or information, transformation of stimulus (information) or coding process, transmission or transmission of an encrypted signal and interpretation or interpretation of the received signal in the effector. This coding process is established on several levels, such as individual neurons, small receptor-effector circuits (reflex arcs) and larger and more complex parts of the nervous system. It is interesting how humans (and animals) are 'programmed' to certain values of stimulus intensity with their senses. Thus, for example, the human sense of sight reacts (notices) a certain part of the spectrum of electromagnetic waves, in the wavelength range from 380 nm to 780 nm, which it perceives as light, while the part of the spectrum in the wavelength range from 780 nm to 10^6 nm will register as heat, in the range from 100 nm to 380 nm by a reaction that is manifested by some accompanying phenomena such as, for example, darkening of the skin. As every body (board, column, stick, piece of wire, canvas...) has its own frequency (or a wider range of these frequencies), so does the human hearing organ have its own frequency range. It is in the frequency range from 16 Hz to 20,000 Hz. This applies to people aged up to 30 years. Young people can hear a frequency of up to 25,000 Hz, and older people barely above 10,000 Hz. A dog senses a frequency of up to 50 kHz, a cat up to 65 kHz, a bat up to 120 kHz, a dolphin up to 150 kHz... The resonant frequency of the human auditory system (considered as a whole) is 1,000-3,000 Hz).

Predators have to focus their gaze strongly on their prey in order to catch it. The fact that they can see with both eyes enables them to have excellent depth vision. Thus, they can precisely determine where the prey is located and what is the distance between the objects. Animals that are prey to predators in nature have eyes located laterally, so they have a wide field of vision, and thus a better overview in all directions. The rabbit has a 360º field of vision, which means that it can spot enemies from all sides in its surroundings. The cat's visual angle is 180º. In humans, the visual angle in the vertical plane is defined by an angle of about 120º, and in the horizontal plane by about 190º. In order for the perceptive cells of the retina of the human eye to react, the incident light flux must be dense enough (seen). If the luminance is below o.o5 cd/m^2, it is scotopic, and above 3 cd/m^2 it is photopic vision. Some mammals also see at night. The structure of the eye in animals that are active at night is actually the same as in other mammals. The difference is that the eyes of nocturnal animals are larger, more protruding and therefore more sensitive to light. Nocturnal animals have a reflective layer behind the retina that reflects the incoming light so that the rods once again register the light rays. We can see this effect if we observe a fox or a cat at night on which the light falls. Their eyes shine brightly because they reflect light. In addition, the retina of the eyes of these animals has an unusually large number of rods compared to cones, which increase the sensitivity of the eye even more at dusk. This means that these animals must stay away from daylight.

[34] This phenomenon is explained by the Weber-Fechner law (Ernst Heinrich Weber, 1795-1878 and Gustav Theodor Fechner, 1801-1887) in the field of sensory psychology and perception, according to which the relative differential limen (or threshold) is constant, which means that the differential limen (the smallest the perceptible difference between two sensory stimuli, eg two lights, two sounds, two touches, etc.) increases as the level of stimulation increases.
http://www.enciklopedija.hr/natuknica.aspx?id=65912. Accessed: July 25, 2019.

Because of this, in bright daylight, the pupils of the cat's eyes narrow into a narrow slit. Successful hunter-predators (cats, for example) must focus their gaze on their prey in order to catch it. The fact that they can see with both eyes enables them to have excellent depth vision. Thus, they can precisely determine where the prey is and how far away it is. Birds, fish, amphibians and reptiles have four types of color receptors. That is why they have the ability to, in addition to what humans can see, detect ultraviolet light (300-400 nm), and other adjustments give them the ability to detect magnetic fields as well. They have more light receptors in the retina than mammals and more nerve connections between the receptors and the brain. The vision of different species of birds differs, and each is adapted to the environment and lifestyle of the bird itself. Although the sensory systems (sense of sight, sense of hearing, for example) of all people are the same from an anatomical and physiological point of view, each person still sees and hears in a specific way. Thus, some people will hear certain sound information as music (pleasant sound), and others as noise (unpleasant sound). If one group of people (even of the same age and education) observes the same scene (landscape, architectural composition - for example), the idea of their seeing is different.

2.11. Instinct

Instinct (innate behavior) is an inherent tendency of a living organism towards certain complex behavior. The simplest example of instinctive behavior is a fixed action pattern (FAP), in which a very short to medium-long sequence of actions, without variations, is carried out in response to a corresponding clearly defined stimulus. Any behavior is instinctive if it is carried out without prior experience (in the absence of learning), and is therefore an expression of innate biological factors. Sea turtles, recently hatched on the beach, will automatically move towards the ocean. At birth, marsupials climb into their mother's pouch. Bees communicate by dancing in the direction of food sources without formal instructions. Other examples include animal fighting, animal courtship behavior, nest building... Although instinct is defined by its immutable innate characteristics, the details of its performance can change with experience (for example, a dog can improve its fighting skills after training). Instincts should be distinguished from reflexes, which are simple responses of the organism to a specific stimulus, such as the contraction of the pupil in response to bright light or the convulsive movement of the lower leg when we hit our knee. The absence of will power should not be confused with the inability to change fixed patterns of action. For example, humans can modify a stimulated fixed action pattern by consciously recognizing its activation point and simply stop doing it, while animals without strong enough willpower may not be able to disengage from their fixed action patterns. The term "instinct" was first used in psychology by Wilhelm Wundt (1832-1920) in the 1870s. William McDougall (1822-1905) believed that many instincts have certain specific emotions. As research became more rigorous and terms better defined, instinct as an explanation for human behavior became less common. In 1932, McDougall argued that the word 'instinct' was more appropriate to describe animal behavior, while he recommended the word 'tendency' for the targeted combinations of many innate human capacities, which are loosely and changeably linked, in a way that shows strong plasticity. At a 1960 conference chaired by Frank Beach (1911-1988), a pioneer in comparative psychology, the term "instinct" was limited in its application. During the 1960s and 1970s, textbooks still contained some discussion of instincts in relation to human behavior. By 2000, a survey of the 12 best-selling introductory psychology textbooks found only one reference to instincts. The term 'instinct' seems to have become obsolete for introductory human psychology textbooks. In everyday life, we often hear the phrase: 'I acted according to my instinct', 'my instinct never deceives me', 'my inner instinct tells me'... All people in their experience have those situations when they 'acted according to their instinct' , without ever being deceived or making a mistake.

2.12. Reason

After a person collects information from the environment and from himself through the sense system, the process of 'storing' (memory, experience) and the complex process of combining them, i.e. bringing them into different mutual relations, follows. Reason is the ability of prudent (logical, critical) reasoning. In the history of philosophy, the relationship between reason and mind was defined differently. For Kant (Immanuel Kant, 1724-1804), reason is a narrow cognitive power, and mind is a broader and higher one, which, in addition to sensibility, also includes reason and the creation of ideas. Etymologically, the term 'reason' comes from the Latin 'ratio', a term which in the social speech of the time had the meaning of calculation or relationship. Cicero (Marcus Tullius Cicero, 106-43 BC) used the term to translate the ambiguous Greek word logos (Greek: λόγος). In medieval scholasticism, the term ratio was used to translate the Greek term dianoia (Greek: διάνοια), that is, that which differs from the term nous (Greek: νόος) which was translated into Latin as intellectus. Thought and opinion are psychological functions that enable us to determine the properties of phenomena and discover relationships between them through mental operations. Opinion (or train of thought) is a mental process that is characterized by reasoning and reasoning, that is, by understanding cause-and-effect relationships between different concepts. A thought (that is, the content of an opinion) is regularly read in a judgment or statement. In philosophy, it is usually assumed that people are characterized by rationality, and the most obvious manifestation of rationality is the ability to think. Due to the connection with emotional and other factors, we distinguish: concrete and abstract, logical and illogical, magical and archaic thinking.

2.12.1. Cognition

Cognition is the highest thought activity of man, the understanding of reality that is based on man's experience and opinion. Knowledge includes the process of acquiring knowledge and the content of knowledge, knowledge and the known. The process of knowing is primarily a subject of psychology. Differentiating the ways of knowing and the character of knowledge itself, we speak of scientific, artistic, religious and philosophical knowledge, of intuitive, discursive or rational knowledge. In the philosophy that interprets the

concept of cognition more broadly, it is most often interpreted depending on the primacy of three different, although connected plans: as a subjective (theoretical) activity, as a rational structure of the relationship between subject and object, or as the objective content of reality. The question about cognition is one of the fundamental questions that touches the root of the very question about man and his possibilities. It is answered from the perspectives of science and philosophy, in a special way from religious and artistic creations, as well as from the broadest understanding of human history and practice. In this sense, the discussion about cognition provides a very diverse set of theories and viewpoints which, although interdisciplinary, are usually defined as philosophical cognitive theory.

2.13. Knowledge

Knowledge is defined in various ways, such as:

- facts, information and skills that a person has acquired through experience or education,
- theoretical or practical understanding of a subject,
- the totality of everything known in a field,
- facts and information,
- awareness or familiarity acquired through the experience of a fact or situations.

Philosophical debates generally begin with Plato's formulation of knowledge as 'justified true belief'. There is, however, no universally accepted definition of knowledge, nor does one appear to exist, and numerous theories remain. Acquiring knowledge involves complex cognitive processes: perception, learning, communication, association and reasoning [18]. The term 'knowledge' is also used to denote a reliable understanding of a subject, with the potential ability to use it for a particular purpose. Perception is the process by which the brain organizes data received from various senses and interprets them to form a meaningful whole. Perception allows us to see various spots of color as a specific object, to hear a multitude of sounds as speech, to taste the combination of sweet, sour and other flavors as a specific dish... Perception is a peculiar 'subjective reflection of objective reality'. The conclusion or conclusion of an argument has the characteristic of validity. If the conclusion is valid, then it necessarily follows from the aforementioned premises. If the conclusion is not valid, then it is not a necessary consequence of the premises, that is, it does not necessarily follow from them. The validity of the entire argument depends on its validity. An invalid conclusion contains some logical error. There are several types of conclusions: direct conclusion (one in which one judgment is derived from only one other judgment), conclusion by which one judgment is derived from at least two other judgments, deductive indirect conclusion, inductive indirect conclusion, analogical indirect conclusion.

Intuition (Latin: intuitio = seeing, seeing) is a term that means insight, that is, immediate, direct understanding and cognition. The ability to grasp directly and in one act see the whole and its parts, to directly know and grasp the essence of an object without discursive thinking. Intuitive cognition is in principle opposed to conceptual, rational consideration or intellectual reflection, but borderline contacts of both, often mutually intertwined spheres (Archimedes' eureka) are not excluded. Plato (428-427 BC), René Descartes (1596-1650), John Locke (1632-1704), Johann Gottlieb Fichte (1762-1814), Friedrich Wilhelm Joseph von Schelling (1775-1854), Arthur Schopenhauer (1788- 1860), Henri Bergson (1859-1941) and many other philosophers understood and interpreted intuition very differently, which is why this term is often ambiguous and vague in the history of philosophy. The meaning of intuition is particularly great in mystical and idealistic philosophies and philosophies of life. In aesthetics, especially with Benedetto Croce (1866-1952), intuition is often understood as a specific way of artistic perception of reality from which a work of art is created. According to Croce, the logical, conceptual, cannot exist without the intuitive, and the intuitive, aesthetic can exist without the logical, scientific [19]. Husserl (Edmund Husserl, 1859-1938) points out that in addition to the empirical intuition by which we know individual objects, there is also an eidetic intuition, which perceives pure essences [20]. Intuition is a frequent topic of research in psychology. Intuition can be called or is often associated with terms such as 'sixth sense', 'inner voice', 'extrasensory perception', 'subconscious', 'unconscious mind'. The Swiss psychologist Carl Gustav Jung (1875-1961) believes that intuition is one of the four psychic functions. For him, it is irrational and represents an instinctive understanding. Psychologist Gary Klein (1944-) claims that 90% of critical decisions are made based on intuition. In psychology, it is also considered that intuition includes the possibility according to which a valid solution to problems and decisions can be found out. Some look at intuition from a paranormal point of view, like, for example, Hans Holzer (1920-2009), professor of parapsychology and researcher of the paranormal. In philosophy, the ability to think and understand is a form of knowledge peculiar to man. Understanding includes perceiving the logical content of a symbolic expression, connecting meaningful elements into a complete meaningful insight, as well as understanding an event or a psychological act. Together with interpretation, it is the basis of traditional and contemporary philosophical hermeneutics. Dilthey's hermeneutics (Wilhelm Dilthey, 1833-1912), which essentially builds on Schleiermacher (Friedrich Daniel Ernst Schleiermacher, 1768-1834), talks about the conditions under which comprehension and understanding are possible. For example, each text is an individual achievement of the author, but also belongs to a general system of understanding. Understanding is the understanding of something internal on the basis of its external appearance, it materializes spiritually on the basis of subsequent own experience. In the philosophy of Heidegger (Martin Heidegger, 1889-1976), the second existential mode is battle understanding: man, understood as an individual, is characterized by the understanding of battle. In his hermeneutic philosophy, Gadamer (Hans-Georg Gadamer, 1900-2002) maintains that understanding is a hermeneutic method and a way of human struggle in which he opens himself to the world. The process of understanding moves in a hermeneutic circle in which the individual must be interpreted from the whole, and the whole from the individual. Ricœur (Jean Paul Gustave Ricœur, 1913-2005) understands the

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course of understanding as the course of understanding the meaning of symbols: they are double signs that, in their apparent battle, point to a hidden meaning and a more complete field of battle.

2.14. Love

Love is a complex human condition that is determined by his emotions and mentality. The range of dimensions of this state is wide, from simple sensory pleasures to deep feelings of two people. It is most often understood as a feeling of strong attraction and emotional attachment. As such, love is a virtue that symbolizes human kindness, compassion and affection, as a selflessly devoted and benevolent concern for the good of another. In its various forms, love is the mediator of interpersonal relationships and, because of its central psychological significance, it is one of the most common themes in the creative arts. It is considered the basis of a healthy human life. Ancient Greek philosophers identified five forms of love: family love (στοργή - Storge), friendly love or platonic love (φιλία - Philia), romantic love (Ἔρως - Eros), love for guests (ξενία - Xenia) and divine love (ἀγάπη - Agape). Contemporary authors also distinguish other types of love: unrequited love, empty love, friendly love, flawless love, infatuated love, self-love... The triangular theory of love suggests that 'intimacy, passion and commitment' are the fundamental components of love. The variety of its meanings, combined with the complexity of the feelings involved, makes love unusually difficult to define consistently. Apart from the affective-mental separation of man and woman, love for life and love for work are the dimensions of 'love' that make it the basis of human existence.

III. CONCLUSION

The author repeatedly asked himself why he wrote all this? As a human-individual, aware of his limited knowledge of the Universe and man in it, he is convinced that the most important quality of man is to seek knowledge. Knowledge and honesty is his greatest wealth that can help him to be on the other side of the complex nature of man where his better nature is generated. The author is also aware that in higher spheres of knowledge (if he were to reach them) he would give a different answer to the self-posed questions in this paper, at this moment. Already now, he can see the question: why did he need this kind of questioning (and to even publish it)? The fact is that the planet Earth (and the Universe) was created before man, and existed without man. Therefore, the planet Earth can exist without man. In this sense, man is 'nothing'. Man is 'something' only within his dimensions, which are 'nothing' in the boundless Universe. Man is a being who has the possibility to realize himself in two possible directions - positive and negative (Figure 4). Both directions are a reality, no matter how far it reaches. This work suggests the idea that Man can be 'something' if he affirms the positive side of his essence through his actions, for the benefit of all people and the default values of the natural environment (Figure 4).

The author notes that this paper presents only part of the question about 'Man', which he problematized in the topics „Architecture in Context“ and „Architecture and Philosophy“ [22].

Figure 4. Man - 'something' or 'nothing'

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