The question of the principle of knowledge and senses and the relationship of experience with knowledge was appreciated as necessary for the development of cosmological interpretation. Some pages were added to the two volumes of English treatise with the title and subtitle:

COMPLETE UNIVERSE, DYNAMIC SPACE
&
WAVE PHENOMENA

How the natural laws and forces are applied. The fundamental concepts and relations for a rational Cosmology (Cosmonomy)

(A cosmological theory on the structure of the Universe and matter)
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"*Asking correctly is often more than half way to solve the problem*"

W. Heisenberg (1901-1976)

Socrates to Meno: "*Would he try to find or learn as much as he thought that he knew, before tackling the question and so starting to desire to learn?*"

Plato 4th century BC

contents

"*See the forest not the tree*"

2.0. THE ABSTRACT KNOWLEDGE AND THE UNIVERSE

(A little epistemology is required for cosmological research!)

Universe, Cosmos, "multi-verse". The unity and multiplicity of things

An initial observation: The Greek word " Σύμπαν = Universe " is a compound word and it simply means the totality of everything, that is to say, all this, which exists. This definition does not prohibit us from accompanying the word " Universe " with an adjective like the words " complete " , " full " or from saying with emphasis " the totality of the Universe ". The meaning of the word " Universe " is found in something unique, that distinguishes it from each particular thing. The word " Universe " or the phrase " the totality of all that exists " are not so explicit, as we believe. All humans will not think of precisely the same when they hear these phrases. It isn't immediately obvious what we mean by the words " things " and if we denote with the word " totality " also the multitude of exterior things as a sum or moreover our dreams, our thoughts, the motions of the things etc. By the initial and " wide" definition of the "Universe" we hinder the precision of its definition and we let ourselves be open to the possibility to think somehow otherwise, when we determine more precisely the most general notions, such as " existence " and " thing ". Moreover, many philosophers and the modern researchers have written paradoxical theories about nature, the world and the universe and irrational and contradictory thoughts. To avoid misinterpretations, we have to stress or clarify the meanings that are obvious and rational to a lot of people.

One of the oldest and most popular biases in the human history takes shape, when we hear the simple word " Universe ", namely the entire world, everything, the totality of all things. The truth of our smallness by the criterion of our geometric dimensions leads our thought to a generalized opinion of our smallness regarding all our other attributes and abilities. The generalized opinion of our overall smallness in contrast to an infinite Universe en-

chains our mind and discourages the exploratory thought as it happens with our opinion about God. Few people in history dared to think of the wider world and how nature works: the Philosophers. This bias has continued to be an obstacle to the historical growth of the entire Science. Due to this bias human thought has been fragmented in separate and closest phenomena, which we can observe, without the conscience of their unity and of their deeper interconnection. That is, without knowledge for the common laws that are imposed on the different phenomena. Furthermore, the usefulness of abstract thinking for the detection of the dependence of all the phenomena and for the formulation of general laws was degraded compared to the observation of the separate things that offered infinite opportunities. The notion " concrete thing " was identified with the " visible " and the " solid ", while the " abstract notion " is considered to be " invisible " and " fictional ", namely they are in diametrical opposition.

It should cause a big impression, that in science we can even be told about the Universe in its entirety, while removing almost all the things that it contains. We say "Universe" , that is to say everything, all the things that exist and that no-one will either ever measure or see and know. We seek to know the "Universe", namely something which appears to be like infinity, inexhaustible and complicated. If we knew all the things, which the Universe contains, then we would be " gods ". It happens paradoxically that we speak more easily about the Universe and it is more difficult to understand the human society, which is included by the Universe. Because of the fact that the Universe is a totality, but a unique and united wholeness, we can refer to its entirety of things without speaking about anything particularly. On the contrary, it is required… that we know the least number of discrete things and not the most and also to remove them from our thought! Is this knowledge without experience? Yes and No! Yes, it is without experience, because we remove useless details and particularities of innumerable things. We remove traits and things that are randomly formed or that we happen to perceive. We remove the experience of things, which do not offer in a nutshell the knowledge that we need in order to explain the nature as a whole. We remove things that had not existed before a certain time point, but a whole cosmos had existed before them. This experience with all its details may be valuable for our action and for our survival in our environment, but it is a misleading experience for the cosmological research. We can think of

the universe, not because we despise experience itself, but because we choose the valuable experience and we observe the essential phenomena, without which the universe would not exist. Conversely, those, who think of the universe as if it were a warehouse with a lot of things, contradict themselves and do not understand well what they say. Because they say, that it is difficult to talk about the universe, but they easily believe or imagine, that the universe is only an infinite number and variety of bodies. They do not think and imagine that the most important difference of the cosmos as a whole is not the variety and the unimaginable number of bodies, but the laws and the way with which the laws are imposed on individual things. Thousands of impressive pictures of space cannot show the invisible relations of phenomena and the laws that regulate their existence. They do not reveal and they neither explain the laws that regulate the motion and the structure, which we observe in big and in microscopic dimensions of world, nor do they explain the role of matter. It is needed that we think rationally, calculate and read… The photos from space are very nice and fantastic, but they offer nothing more to the minds of most people who do not conduct research of the astronomical world. They simply stimulate their thoughts so as to wonder whether and how far the boundaries of the universe are and to compare the things of their common experience with astronomical sizes. In other words, the photographs and the edited images from space ignite the thought of the most realistic people who are indifferent to philosophy in such a way that they occasionally ask the same questions, as some philosophers do. These same philosophical questions can be articulated even by observing common things and simply by rational thinking. But those who live by having all their thoughts and soul focused on human relationships need such images in order to realize even instantaneously their great ignorance and their excessive certainty - a certainty of their profit, of the events of the distant past as well as of their predictions.

When we talk about the totality of things and try to give an overall explanation, we do not need to refer to separate and complex things, which are next to us and nowhere else. That is, it will not help us much and it will not be the fastest way, if we talk about the plants, the specifications of cars, the geophysical map of the Earth, the city we live, every star which is added on the map of the astronomical space and the specific relationships, which are described in the scientific books in all over the world. The evolution of hu-

man knowledge of the things around us has revealed some phenomena and elements, which are more prevalent and are encountered more often in nature. These are contained in a larger number of things and at longer periods, such as for example, in the composition of chemical substances as well as the electromagnetic fields. The discovery of similarities and common elements in all things is not surprising for the philosophers and for the theoretical thinking. For instance, the existence of the structural elements of nature is not a random phenomenon either in nature or in rational thought. This (the similarities and common elements) has been expected instead since ancient times for many researchers, theorists and thinkers. This is why, we have found since the earlier times many attempts for describing the universe including the unique and most famed examples of ancient Greek philosophy.

2.1. Observing... the observer and the abstract concepts

Some thoughts about the cosmos start with a turning of thought into itself and not from observing the sky! This was an advantage of philosophy unknown to most people and which no scientist should ignore or degrade it. Some questions are asked about knowledge (what is it and when we have it) and about a destination of life with this intellectual turning. Incidentally, these same questions will be revealed by anyone by virtue of this inner / intellectual inversion. In particular, the question regarding whether the senses show the things and world just as they are is an inseparable issue from the research of nature. Rational thoughts are initiated with regard to this issue by a few abstract concepts, which result to general views of nature as a single wholeness of things with common laws regardless of the individual differences and changes that appear due to the senses. That is, rational thinking reveals more quickly that nature has similarities and analogies, common features, common phenomena, specific laws, universal forms and conditions for balance. This is although nature as perceived by the senses appears to be relative and different to each biological body and different when the same biological body moves. There are different biological organs in function and number and how nature looks depends on the organs with which the biological body is equipped. Therefore, do not depreciate and deride rational thought. The **relativity in the appearance of the world by the senses** is

one of first revelations.

Since the description of the totality of things and the general explanations refer to common elements and common phenomena, it is thus rational to use some abstract concepts and expressions such as: time and length, act and effect, change, motion and rhythm, totality, component and many other notions, which are necessary in order to refer briefly and overall to all related things. The relation of these general concepts with concepts, which describe phenomena in physics or other sciences, is not random and this coincidence is not a puzzle. We can speak of a kind of experience which we do not have yet and this possibility emanates from experience by the mediation of some general notions. **Some notions can emanate from a minimal number of perceptions (or observations), but these notions correspond to a much bigger number of observations** (to things that we haven't seen). For example, when we say, that humans have two feet, this is a truth not only for those whom we have perceived - this is our real experience – but it is a truth also for innumerable other humans in present, for many that are absent and for a lot of people that we have not seen. Then, if I conclude that a man who has only one leg cannot run faster, this will be true for almost every human being. This is knowledge beyond personal observation and experience because things bear similarities and analogies with one another. I can also conclude rationally that a man with one leg can run faster than the one who has two legs but does not rum at all (for example a paraplegic). But this is not the rule. A multitude of accidental and fragmentary conclusions of experience can be revealed faster, easily and not randomly. Also, a multitude of separate explanations (special cases) have a common prerequisite and the same explanation when the same result is repeated. We detect some traits that are usually together (eg body and expanse) through the theoretical analysis of some concepts. By linking some general concepts (eg quantities and sizes) we create again concepts that can also reflect a combination of phenomena in the world. By observing some relations and resemblances in the nearest and the most common things of our experience, we also confirm that some phenomena are repeated or they are more than we have initially found. By the analysis of a few words and meanings, which can be found in widespread physical phenomena (common experience, for example light, time, motion) and by the rationale of the everyday experience and how the phenomena relate to each other, we can give answers and achieve well-

aimed approaches to many scientific questions. In some cases, if we reject the correct meanings or if we say something nonsensical, then we will need to say absurdities and our thought will “break” with some foolish impasses (reductio ad absurdum). Many of the scientific observations and discoveries, which were made accidentally, could have resulted rationally and by another time priority. They could have resulted as a reasonable consequence, by rules of logical thinking and correct expression even if our thought had begun from different observations and by observing the usual phenomena in our environment. Furthermore, it would have been possible to avoid some mistakes that have spread to society and science for a long time and some failed interpretations!

It is no coincidence, that humans can think and formulate opinions on things beyond experience, on the most distant things, on the greatest and the smallest, on invisible things and for the universe overall. Philosophers were not so deluded and stubborn, as it might seem from their inconsistencies, errors and differences. It is rather common in science to make assertions on a smaller number of things than it could be done or to discover some relations amongst the things, while we have anticipated that the things are not connected or we have believed that these relations exist only in local phenomena. *Jayant Narlikar* wrote simply by observing (in his book "The lightness of Gravity", 1999) "We started talking about gravity on the occasion of the fall of an apple and look how far we have come!". When we hear some thoughts on creation or the purpose of nature, we realize that we try to exceed our spiritual power. In our thought comes immediately the image of an immense world, with infinite forms, developments and details and a comparison with the geometric dimensions of the human body. However, research on these issues has begun since pre-Christian times and with the least possible knowledge. But look! Many thoughts and opinions did not cause laughter, but admiration and so the great and amazing story of Philosophy began. The ones, which are in conflict with the common experience of all people are the most amazing philosophical thoughts. Such a thought is that the senses and experience mislead us. While everyone expects that we have to travel all over the universe to find out what the essence of things is and while everyone is sure that the world is as it appears before our human eyes, many philosophers thought subversively: The world is not as it appears before our eyes. The world is not even stable and we cannot say that it is, since

it is constantly realized. Finally, it is confirmed that the thoughts on the world as a whole or on some of its laws are easier and the answers are less compared to many (local) things that we think we know well. The human soul and society are more complicated issues. This is, because we think about phenomena that do not follow the rules of logic and the laws of nature but rather the imagination and feelings. A lot of things are found exclusively in a region of the world or some unique events happened at a certain moment and did not leave a mark. If we think about such (unique and non-repetitive) phenomena then it is more difficult to know and confirm them. As for cosmology, we do not try to learn all the possible forms of things, to measure all the celestial bodies and we do not need all the knowledge to make a complex construction. We primarily seek laws, fundamental phenomena and some mathematical relations that regulate the structure of the world and matter and their boundaries. And look again, astronomers observe with the latest technology, that the same structural elements are located at distances that we will never approach. And think, that the structural elements are essential and important to all things, and therefore what we learn about the matter of our own body is knowledge of the matter of many other bodies that lie in the depths of the Universe.

One of the greatest (most misleading) biases in science and more generally in the humanity is the opinion, that the reference to the particular things and the attempt to describe the things with clarity provides us with more knowledge. This clarity not only does not provide us with more knowledge but it simultaneously increases our ignorance and it presupposes an error: We ignore things, which we consider (arbitrarily) not to be connected. That is to say, concrete description = piecemeal and fragmented description and ignorance at will. In our daily lives and in science, we ignore things and relations with compromise in order to achieve simplification and for reasons of priority, while we foresee what is related more immediately and what indirectly. We refer to "concrete" things without knowing well what precisely we need to ignore, while we teach all details of things into a virtual environment of our imagination. This is, because we are thus (choosing things in mind and out of their environment) facilitated and delighted, since we need to begin from somewhere in order to conduct research or to live (as we expect). By the time our thought refers to concrete things, we have in this same moment ignored, the wholeness -theoretically- of reality and its possi-

bilities, someone could easily say, and we make this abstraction usually without conscience. If the world had a small number of things and an approachable limit, then we would be explore it fast. If it were easy to acquire enough knowledge, then knowledge would probably have an end. We would not even need to talk or write so much! If we still have difficulty studying a particular thing, this difficulty should incite a suspicion of how much this thing is definitely a thing and how "united" it is with its environment.

2.2. How information is formed from senses

One of the first observations on cosmological issues is the observation of the very notions of words, and the inference laws (which fortunately apply to the outside world). It is surprising to conclude via a survey of how we get information with our sensory organs about the world and about what we mean "knowledge", that everyone can see that the world appears to be deficient, incomplete and misleading. By detecting relations, which the separate things have with each other and with the inference laws, a more complex -and different than the perceived- world is quickly revealed. Indicatively, such a logical and cognitive problem, which leads to answers to cosmological questions is the following: Everything can be defined (numerically) as only one or as many parts together. Depending on the angle we observe, how far we observe it, and by what mediates (other things)the observation, one thing is many things together and at the same time different things (with different sides and views). Anyone expressing an opinion about one thing has decided and has chosen to define it as one thing or as many things together. This choice often goes unnoticed. Moreover, what we define as one thing and express in an abbreviated manner, is very often not just one thing, because many parts meet and touch each other or the parts bear a similarity (such as a same color or have solidity). Then there are many disagreements, because one refers to the thing in such a way that one chooses to see and think about it (selectively). By these last remarks for the observer, we do not want to explain the phenomena as hallucinations, as many thinkers can easily claim. We want instead to **facilitate research by removing a number of unnecessary observations**. The right explanation for the creation of things has to explain how the senses show the world with such

relative traits and not to avoid this relativity by virtue of the easy thought, that the traits of the world are random and are introduced as illusions by the biology of the observer. Physicists, allow us to add a few lines with more observations on the principle of knowledge. They will easily understand how useful these observations are for nature research.

Undoubtedly a little epistemology is necessary for cosmological research. One of the advantages of philosophy and the hidden possibilities of nature is that some thoughts on nature can start with a turning of thinking into itself and not with observing the sky! That is, it starts with certain questions on knowledge (what is it and when we have it) and the destination of life. In particular, the question on whether the senses disclose the things and nature such as they are themselves: This question goes directly to abstract thoughts and general views about a nature as a single wholeness of things which has global laws, regardless of the individual differences and changes that the senses exhibit. Cosmology begins with rational thought and observation of mental processes. If cosmological research does not start so rationally and with the detection of some research prerequisites, then research will be random and a collection of observations starting from wrong definitions of phenomena.

1) Knowledge begins with choice and will. What will we look at? Where are we going to look for? Where will the attention come from? So in every research and in every science morality and intent are somehow involved, that is, the purpose of the research and the choice of the research area for some reasons (if not purposes) and by some motivations.

2) The principle of knowledge is in close relation to its biological and spiritual creator (the person). So the world appears and becomes known it, relatively, selectively and discriminatory.

3) Knowledge of things is formed by biological and mental processes and is spiritual. Knowledge is not things, but it shows things. The formation of knowledge includes features from the biology and the language (of the mental subject).

4) Here, be careful, do not make the mistake of asking how the external

actions from the natural world influence the biological senses and are converted into information about the natural world. Each biological body has already in itself constant information about itself and about its condition. External actions cause changes on a biological body that already had information (and not is created from zero). Since the information, which this biological body has already for itself, changes, so certain characteristics of the natural world are detected. Since the biological body (with its whole matter) is inseparably linked (internally and externally) to a natural environment. So the right question is, how is it achieved that a physical body has information about itself and therefore how is it achieved to be alive and to define it as "biological"? You will not find life without some information about itself.

5) Information and thoughts are linked to show things right. In humans some selected observations and concepts are externalized into a sequence by applying rules of logic and grammar. However, the order of observations and the rules which are applied have the formation of knowledge and the proper representation of things as effect. This success of knowledge through the application of rules in thought and in expression reveals that i specific rules and laws are in force in the real world. These are at least these laws, which allow the things to appear and become sensible and known. In human thinking there are laws and rules for the connection of concepts and for the proper representation of things that are contemporaneously knowledge of the cosmos. These are rules such as the relation of a large quantity to a small quantity and the number of things, rules for things moving or immobile (nouns and verbs in natural language), for a beginning and for an end (times of verbs), for many characteristics of only one thing (adjectives in natural language), ways of moving or connection (adverbs in natural language), for identity and for otherness of things, etc.

2.3. Biological specifications also determine which reality is revealed

In our (human) biological life a reality is revealed which is not exactly the same for every life. Which reality is revealed? It does not depend only on our conscious choices and our thoughts. Biological specifications determine also which reality is revealed: Which sensory organs and how many such sensory organs are, how they work, ie what effects they detect and re-

ceive (irritations) and in which feelings they are transformed. Also, at which point in time, in which area of space, in which geographical position, exactly where and in which position in relation to some other things the biological body is (relative to the time of local things) etc. In general, how the biological body is made, in which environment and how it is connected with the environment, so it is specified which reality is revealed and if it is imprinted. Our physical movements also determine what we see, what we hear, what we generally perceive and which reality is formed as our experience. The events which we observe and in which we participate are inseparable from our (inner) life. However, the same things and facts can be perceived by many others as a "package" along with different images, with another view and meaning and perhaps in a different time order. In the end, a different experience will "reconstitute" another reality especially if the individual memorizes information easily. Of course, reality is never only what we perceive and it is never the whole. Always a part of reality is revealed (to every biological body) with a unique “texture”, which is determined by the unique (energy) structure of the biological body and its choices. Without any reference point is reality an infinite number of events that happen simultaneously. The facts are distinguished when a point of reference is determined, where they cause stimuli or effects. This point can be a planet, a galaxy, a stone or a biological body, etc. Everything that affects them comes from a reality or as a part of a reality. Anything, which does not affect it, is a potential reality for those things that do not receive these actions and effects.

2.4. Sensory organs utilize natural phenomena that are repeated most often

Nevertheless, a biological body has the ability to receive influences through its sensory organs and thus to receive information and store it – partly or entirely. It is a complex "receiver" of reference, which can be affected in more ways than a stone. The stone is affected by its closest environment, which can be soil, air, rain water, gravitational force, pressure by a nearby stone, heat, soil vibrations, friction. This is the "reality" to an inanimate stone. However, a biological body has sensors that are influenced by sound waves, it has sensors that form information by its contact with its en-

vironment (eg changes in heat and pressure) and it has, above all, sensors influenced by a segment (or more) of the electromagnetic spectrum. A (minimal) effect of things, which exist farther away into the environment, becomes possible with eyesight. Thus we can easily understand by a brief and general description about what is the condition for the appearance of the reality, that something else is important for the dependence and relevance of the empirical reality: In order for the biological body to have sensations that reveal a reality beyond the nearest things (that affect it on its body) its sensory organs have adapted in such a way that an advantage of the **effects, which are permanent or more repeated and common, can be taken**. That is, they use natural laws and physical phenomena (such as electromagnetism, heat, density, inertia, sound waves, etc.) that do not miss from other things and are common features of a reality. Thus, it is explained that many people observe the same characteristics of nature and a person still perceives the characteristics of a common reality and not different characteristics according to any specific time point. And as it has been revealed by the application of mathematics that one law of reality or one of its characteristics is its change by quantitative measure and analogy relations. We almost say, that the principle of sensation reveals irrespectively of the variable content in the sensory organs, that **if we want to find rather a common reality than an infinite multitude of things, we need to explore the common and permanent characteristics of the cosmos** and thus to explain proceeding, how many different things exist in so many ways and deviations.

2.5. The environment acts and influences the biological body, which already has information

The simplest form of life is in contact with an environment that is not limited to the outer limits of its biological form, as we perceive easily. The contact of the biological body is at the same time informative. That is, every form of life detects the contact of its body with the environment, because it has information on the condition of its body. How the biological body has contact with the environment and how it is affected neither depends solely on the environment nor does it solely depend on the biological body (how it is formed, how many and with what organs etc.). Everyone -even without

being a philosopher- can ask and think of this question: Is the environmental detection an effect determined solely by the effects on the biological body, no matter what that body is? No. If so, then the biological body would be set in motion exclusively by the effects of the environment without its own involvement and action (ie deterministically like a tennis ball).

Is environmental detection an effect that depends exclusively on the biological body? No. If so, then the biological body would be mobilized only by its own action and it would not take in account the environment (ie it would be crazy, preposterous and self-destructive) at all. Everyone -even without being a philosopher- can think that the information, by which the environment is detected by a biological body, is formed with the contribution of both "worlds": The subject and object, as some earlier philosophers would say. The environment acts and influences the biological body, which already has information on its condition, and the body detects the effects and responds accordingly. For example, the biological body detects an increase or decrease in temperature in its environment and changes the direction of its motion or speed and seeks a tolerable environment that will not threaten its biological balance. It detects an abnormality on the surface that it touches, a protrusion or a dent and it accordingly adjusts the body and its movement. The biological body has been created and evolved in an environment and by the matter this environment offers. So in general, the biological body is created with environmental specifications and has acquired the necessary equipment for self-preservation within it. Some of its supplies are also the sensory organs with which it collects information. Temporarily we leave aside the knowledge and thoughts that the human brain introduces. This is, because when the time comes to add the thought and the knowledge of a man to the information of the senses, then we will need to write many books!

On the other hand, it would be, of course, impossible to have some information and experience without our existence (physical or biological and psychological). Therefore, information and experience are never independent of the quality and the potential of our own existence. Information through the senses is not independent of ourselves as a whole. We can be assured of this in general without having to refer specifically to some of the biological parts of ourselves or to some biological functions. Reality shows a biological body that behaves entirely with the participation of all its

organs. Here we do not have to say more about the brain, the nervous system, the sensory organs. For the same reason, we can rationally conclude that another person, who is not with the same interconnection of matter, with the same possibilities and same relations within its environment, does not perceive the same things and at the same time. We anticipate this difference with the information of the senses and in the perception for every biological body, which is different as a complex body, even a little. **The sensation of external things and the information of sensory organs is always a result of the relationship between things and the biological body**. This relation of ours to things (position, moment, direction, distance, angle, weight, resistance, biological and mental state, etc) changes in various ways and always shows a part of the reality, never the whole.

2.6. The senses make abstraction and generalization (but they do not deceive us)

So our perception (our bio-information, if you prefer) is a piecemeal knowledge of reality, ineluctably. The fact that the information of the senses is not directly the same thing, and that it does not show us the things just the way they are (that is, regardless of ourselves) does not imply that things do not exist and that we suffer from hallucinations. On the contrary, it implies that the things are not completely different than our own biological body and it further implies that things do not exist without relationships, without parts and without interactions or without some common elements. The abstraction of information, synopsis and distortion in knowledge begin automatically (unconsciously) along with the sensations to show the environment of the biological body and not the whole cosmos or the whole of the actions that take place outside the biological body. It is not only information removal and selective reception of information (as is done consciously with human thinking) is realized by the senses. Observe still that senses make generalization (as it is realized with general concepts of words)! That is, many things appear the same or with the same trait, while they have many and important differences. For example, we see two things of the same shape or same color. However, things may be different in their materials, structure, properties, usefulness, etc beyond the same shape or

color. Color appears automatically (carelessly and biologically) as a general and abstract notion of the senses, whether we think or not. That is, the senses automatically make abstraction and generalization of information, as when we think and form words. This is an observation "bomb" and it requires from us to identify the senses as intellectual functions and not to contradistinguish between them. The knowledge of things begins with the senses but deception and selective information (partiality and predilection) begin also together with it.

Of course, as we have already started to say more generally, the senses do not display a fake world, since they respond to the effects of the environment and need the laws of nature. The senses were not formed without natural laws and they do not mislead the biological body. They are physiological functions of the biological body, which is inseparable from nature and its laws. The senses use natural phenomena and their organs are developed together with the biological bodies, which are adapted and utilize the natural phenomena in order to survive in their environment. For example anything reacting to our body movements seems to be real for us and this physical resistance is mathematically related to the inertia of the physical bodies. The biological organs do not show the wholeness of reality and just as it is, but this does not mean that they display a fake world. Sensory information is formed according to the principle of matching. A microphone converts the sound into electrical pulses. Then the inverse process is completed for listening: The electrical pulses are converted into vibrations of the speaker. Electrical pulses are not the vibrations of the speaker. But the electrical pulses encode and carry the ratios for the vibration of the speaker, as when the electrical pulses were created with the vibrations on the microphone. So the senses are not things, but they transform stimuli and proportions of the stimuli and thus transfer information. Sensations transform stimuli via natural processes that are caused by natural phenomena and external actions. We see, hear and touch things because we are made of the same materials and there are similarities between the physical bodies. Such a body permanently accompanies our own inner presence. In short, although the sensations and the appearance of things are misleading and incomplete, they begin, however, from natural processes and from the laws of nature and not from different laws for each biological body, as the case would be if the world did not have laws, shared

phenomena and similarities. That's why there is consistency according to natural laws and correspondence with some natural processes of how things appear.

One of the first findings of the study on the objective world (on a nature which has multiple forms and relationships independently of our own spirit) is included within the very word "world" or "cosmos". If natural phenomena were not regulated and there were no order and global laws, then there would be no world and humans. There would be molecules that move and meet at random without any progression and without producing anything stable. The fact that an unbelievably large amount of molecules constitutes the human body is an awesome and unlikely achievement that requires laws, balance conditions, successful combinations and regulatory actions. Things are simpler when we want to understand. If we do not want to understand, then we can doubt everything. Yes, it is revealed that change is thus not only as we mean it unilaterally as instability, overturning, imbalance and this is realized by solely understanding that nature exists and saying the phrases "cosmos or nature or universe". The change is realized by laws, by a measured quantity and can be repetitive, synchronized and rhythmic. It is not the change of a chaos without laws. It is a change that requires some order and is somehow regulated. Change is not always like the sparks of fire. The change in structure of matter maintains the atoms. The change in the biological body preserves the body. The change in the Earth's orbit maintains Earth and life. Forget the blind repetition of the one-sided observation that everything is changing. Everything changes, but how... they change, with what pace they change and how they are balanced and synchronized, we would ask if we were more careful.

2.7. Information and observations are not limited to the senses

The close relation of thought to matter and the essential difference between humans and other animals are among the most misunderstood issues in the philosophy and even in science. A stimulation and in general the influence on a biological body only by the external things impel to a life as the one of the other animals. That is, they impel to a life, which is determined momently with every change in sensory data in an accidental and

exterior way and the behavior is regulated more simply, without continuity and not creatively (but solely for survival). However man has the direct/-inner ability to maintain and process the information of the senses in his/her interior without time and area restrictions. The observation of humans is not limited to the senses. Most sensory data is lost in case there are no corresponding things that appear and without the same ways of effect of the environment. Human thought allows for the preservation and correlation of information, the "abstraction" of time and distance like something detached from instantaneous information of the senses. Humans have this intellectual and biological advantage to hold identifying signs of things (namely informative statements about their identity) and then to think about these signs and externalize them by a language. Humans can contemplate about what is found in their memory without it being in front of their eyes, contemplate about the exterior things without they being simultaneously presented to their senses, distinguish the information due to their attention, maintain an experience and so they can influence themselves immediately - mentally, by memories and fantasy. Thus, humans participate also in the specification and in the quality of their experience and their life in an interior - mental way and influence even their biology.

Humans are not influenced as a dead thing or only by the senses like the other animals and exlusively for survival within their natural enviroment. Humans are influenced by themselves by virtue of the maintained experience, the thought and the knowledge of exterior things and society, without the things being presented to their sensory organs, without they existing or really influencing them. Humans are distinguished both internally and externally from all other animals by this constant possibility to maintain and process data. It would be impossible for any living organism to think and acquire this interior/spiritual advantage, if its biological specifications did not offer the possibility to maintain and process information independently of the exterior things. The facts that an animal has one or more bodily members, it moves standing on two feet or diagonally, its organism is maintained by a different operation, it has feathers or many heads are phenomena of adaptation for survival, that do not ensure the spiritual advantage of the humans. Almost all activities of humans and their psychology are created and influenced permanently by their thinking until the other side: to behave and act as being more influenced by the interior

(mentally) rather than by what is really perceived in the nearby environment. Unfortunately, the interesting question on how credibly we know the world and things becomes more complicated when we introduce thinking and the processing of intelligence into the initial knowledge / information of the senses. We will not get away from the purpose of this book.[i]

2.8. Reliability and Truth

All opinions -even the ones opposed to our own- are expressed by people. But we all treat words, meanings, and synthesize meanings in sentences that are supposed to describe or explain something in the real world. Which view is the right one? Often all different views are correct, and sometimes they are all wrong. When do we understand whether they are right or wrong? We do not have many brief ways to appreciate the correctness: We need to open our eyes, look out into the world and investigate if what we say really exists or happens. If they are not visible to the eyes, then we have to trace the results of what we say that exists or happens. If we do not turn to the visible world to think, then we can not say with a 100% certainty that what we describe and explain exists or happens. We have to distinguish somehow our imagination from the correct representation of things in our thought and from correct information. How do we make this distinction? Those who think carelessly and speak and write without observing their words and meanings should rather think of the answer by themselves.

People easily talk about the words that they identify with things, they talk without rules of correct expression of the meanings and for things exclusively in their imagination. Humans can imagine or not remember correctly or have hallucinations or deliberately say things differently. A rule for the assessment of credibility is to be able to observe in the world what we have in our thought or that we were told. If many other people can observe it, then this ability is a positive sign and the doubt diminishes. Much of the information, which we are told, is not easy to verify or it is not verified. We do not need to show our knowledge and compete for who knows best. We do not need to have the full knowledge to understand if others have knowledge of what they say or if they say something because they read it or imagined it. It is easy to say a lot that reveals the unreliability of what we hear or

read. **Our assurance is not due to our own excessive assumption that we have knowledge**. Our certainty is due to the fact that others speak and write without themselves having seen, without having noticed and they talk about the things that are not common or constant. It is extremely easy to observe if what others say or write:

· We can see it in the world with our own observation.

· Concerns their imaginary world, while the laws of the sensible world neither are applied nor do they cooperate with their imaginary world.

· Are references to something that someone said, saw or heard, and no one else can hear or see.

· If what others write is consistent according to the rules of logic or is a loose sequence of words and if the queries generated can be answered.

· If the world of senses is seriously considered or deemed to be a world of hallucinations.

· If they show us results and causes, but most of the involved things and much information are missing from our thought.

There are criteria / marks with which we estimate that we probably have knowledge or that we probably hear jokes, lies and fantasies.

1) There is common experience from the sensible world. (Sensory organs have this usefulness, we are informed. Without these biological abilities we could not have any information either about our body or about our environment).

2) The experience by the scientific research and testing is reproduced and taught. (Observations that have been recorded and confirmed many times and by different efforts and are often exploited for technology).

3) In order to talk and write, we apply some rules (mainly grammar and syntax rules). Without these rules, it would probably take a psychological investigation to understand us.

4) The words and symbols by which the information is transferred must reflect the elements of the world and observations made in things.

5) We apply rules of logic in order not to say absurdities and explana-

tions that negate what we initially accepted. We have heard about the principle of conservation of energy. Have you heard about the "principle of conservation of reason"? What we say should not invalidate our original thought and meaning of words. Information can be organized in a way that facilitates research and learning. These intellectual abilities are summarized in the words "logic" and "rational thought". Consider the opposite, that we will not think logically... We will say something and we will immediately cancel it and we will say the exact opposite. In terms of quantities we will say "equality" instead "inequality" and vice versa. We will notice some differences in two things, but we will conclude that they are exactly the same thing. We will observe common traits and we will conclude that they are completely different things.

6) In nature, as it seems, things have their order, their identity, their differences, their processes and their equilibrium because laws are applied. For example, some procedures lead to a result and some procedures impede the same result or prepare the opposite result. Separate bodies always have a difference in their identity and are therefore separate. This observation would not be worthy of inquiry if natural laws did not conform to rules of reason. The differences of things and their developments seem to be regulated so that things have an identity and the actions have their results (while maintaining its natural laws).

7) Finally, when we hear about a thing or an event or a situation that we cannot observe (because it is far in time or space and especially when something is not repeated), then we need to hold doubts. Do not equate the clues with the evidence.

8) In order to avoid an erroneous estimation in cases of time pressure and other limitations for verification, we can estimate with probabilities whether what is said to has 100% reliability or less. Lack of reliability is not always a complete disproof and total denial. If necessary, we bear in mind what we have learned and control its reliability at another time.

Everyone can say anything they want, but not all people are credulous. Many would like of us to be so gullible and tolerant regarding every thought. If we show our research thinking, they will not like it. This is, because they are dreaming or because they want to protect their interests or because they want to deceive us or because they have never thought there are

criteria / filters of truth and because they abuse the ability to communicate. Many people are gullible and possible victims of the fraudsters because they have not learned that there are some signs of truth. We cannot equate all viewpoints, as if all were confirmed equally easily and within the common world. We cannot hear all the views and answers with the same chance that they are right. Some views are more obvious, more likely, simpler, more understandable, shorter, more easily verified and are backed up by observations made by everyone. For example, few people would bet that tomorrow the sun will not rise. Some other views are not so obvious. They need calculations, they are not short and simple, their vocabulary is not understandable, they need a trained intellect, they are not confirmed by observations in the world, they are mixed with imagination and some opinions are mostly predictions or testimonials of few people. The inquiring thought prevents the hurried certainty. We, who choose the filters for the truth, have marks of credibility and reject easily many thoughts and doubt a lot of information, are not overly confident and omniscient. We understand that self-control of thinking and its confinement to the most obvious, the most widespread and the most certain things is not a pleasant choice.

2.9. Thinking from the general point of view unto the particular and individual case

Eventually, some first thoughts and remarks on how we are in psychological and intellectual contact with the physical world reveal immediately certain weaknesses that limit our knowledge of the world and create doubts with regard to the true correspondence of knowledge to things. These first thoughts and remarks can be made by any person (thinking being) and for this reason many important thoughts have already been made since the earliest years. In the time of the *European Enlightenment* these easy philosophical thoughts about human thinking and the weaknesses of knowledge were not appreciated or were ignored by younger and pioneering researchers after many centuries of contempt for nature research and passive replication of religious beliefs. Researchers of physical and chemical phenomena have focused on the individual things and the perspective that this particular knowledge provides for the action and for work. The observations on the

weaknesses of thought and the views of the principle of knowledge reveal thus immediately and before the research of nature that knowledge begins fragmentarily, by random choice and imagination and that thus non-existent relations of things are introduced or necessary relations are removed. Thus, the observation of phenomena begins with imagination and with reckless deduction even in scientific research and it falls into traps when it is ignorant of observations (of how our knowledge is formed).

One of the traps, which has been disclosed in all areas of human research and is nowadays well known, is the role of the whole for the existence of its parts and for the regulation of the relations amongst them, especially when they are dynamically connected. Also, the relations amongst the parts, the possible ways to interact, the ways in which things are done and connected, and their qualities are always a big part of the reality - the greater - that is not visible and obvious to the senses. Only with the intellect can we discover it, focus our attention on it and study it better.[ii] Everything around us could have its own name, even the same fruits of a tree. We necessarily use generic concepts that show (briefly) many things that look alike. The ambiguity does not invalidate the fact that general concepts and words have a percentage of information. Perhaps we would like more information and to talk more specifically about each thing individually. But this is not always necessary. We talk more specifically about one thing and give more information when needed. Also some phenomena are obscure by nature itself. For example, our soul ... If we start talking more specifically about our soul, then we will maybe write a novel or a book of psychology. Quantum physics has not yet given the philosophers' timeless message that the "specific" is not so clearly defined, stable, comprehensible, unambiguous and determined sufficiently, as science minds imagine by trusting too much their senses and degrading the distortion that the ignorance causes to our thinking. "*We overestimate the material causes and we imagine that from now on we have found the solution of the enigma, because we are lulled by the delusion that we know the matter better than the "metaphysical" spirit, but matter is as unknown to us as much as the spirit,*" wrote psychologist *C.G. Jung (1875-1961)*.

Every educated person, who was a studious pupil in their school years, must have read that the observation and the research of exclusively individual things leaves the role of the whole for the existence, connection and for

the regulation between its parts and their relations in the dark. Every educated person must have read and understood, that certain relations are lost by the analysis of a dynamic total to its components or to simpler parts, which are essential and exist only when the parts constitute a total (for example, a human body). It is understood, that the whole and form are not always a sum of parts, but something more, particularly if the connection between parts is realized dynamically and not statically. Also, every educated person must have known and each scientist surely knows, that we find in a lot of separate observations on the individual things and in a multitude of phenomena, what they have common or what is repeated in time in the same conditions (as a law). From the enormous volume of data in our observations, from experiments and via long-lasting verification we reach a brief view-estimation, that refers to a multitude of cases. In school, such concise and fundamental thoughts are marked as SOS signal, since they are fundamental to the application to a multitude of special cases. If somebody reaches from a straight line the initial idea -in which many observations of separate phenomena are indicated and summarized -, then they will have an advantage. This “theorist” has won time and is able to explain the impasses and errors of the other researchers and goes a step beyond. A lot of separate (in our descriptions) phenomena lead to abbreviations, general findings and a big number of pages with a lot of analyses, which can be summarized and said with a minimal number of words. A lot of particular phenomena and things need some fundamental laws (that regulate the totality of things).

An example of absurdity regarding the notions of "nothing" and "zero". In order to draw conclusions with the rules of logic, a prerequisite is to know the general definition of the words we use. Many concepts have been formed by the observation of things and we express them in words (eg the tree, the dog, the stone) and we know a little bit that these words show something in the real world. Many other concepts are formed within the human intellect, but it is not as obvious whether they signify something in the real world. For example, we form the word "monster" from the imaginary image of a monster with limbs of different animals and then we mean our own fantasy with this word. However, a concept / idea may not signify something in the physical world, but this concept can be realized. A brilliant case is the concept of number and many concepts of mathematics. Another case may be the concept of a "tool". We have not seen it, however, we can

build it and then replicate it (eg a knife). It has not existed until that moment and then we find it in all the countries of the world. So far, we summarize known spiritual processes to think particularly about the words "nothing or none or zero". We humans choose what they mean and where these general concepts apply. In everyday life, when we say "nothing" or "not at all" we mean the lack of a thing or a situation or an event. We mean absence and non-existence. That is, these words have been defined in general for those cases where we want to declare a lack and absence. Some examples: "Did he apologize? No, he did not at all! Does the pot still have oil? No, it has nothing. Did our friend make the decision? Not yet, nothing! It is not forbidden by our thinking to leave a little of the notion that there is something in the concept of "nothing" and not to mean the complete lack with the concept of "nothing". We will find again an application of the word in the natural world. In order to avoid misunderstanding and to be able to understand, it is important to clarify from the outset how we use this concept. If the word "nothing" is defined as a complete lack, then we contradict ourselves when we extract something from this concept with the rules of logic. If, however, we choose so contradictorily this notion of "nothing", then with the same irrational thinking we can think of the reverse: The "something" and what exists is not necessarily something and it does probably not exist relatively and it is "nothing". (Hegel dared to make such a dialectical use of concepts and he was great! "You are ... and at the same time you are not what others are," Hegel would have told you). Conclusion: If we use the notion of "nothing" together with the meaning of "something", then **also the concept of "something" can be used with the notion of "nothing"**. So decide whether you want to apply the rules of logic to thinking or not. This is, because the acceptation of the contradiction in thought results in the identity of opposing concepts and the meaning does not change by the choice of one or the other word.

2.10. We describe fundamental and necessary phenomena for all things

As we said, cosmology begins without the observation of the sky and its stars and the shortest path of research goes through the thoughts of who the observer of the world is. Then it quickly becomes obvious that the things

have a relative existence and their characteristics relatively to each other. These characteristics are removed from the research and thus the research is facilitated. At the same time, the common elements which are necessary for the existence of the world are revealed and certain properties and phenomena which are not missing from the constitution of things. Some of the first observations (phenomena) regarding the cosmological questions are observations 1) on the very meanings of words, 2) on the principle of the senses (which informs us about the world) and 3) on some rules of connection of the meanings (the inference laws which apply fortunately to the outside world). **The problems of cosmology are not exclusive to the field of physics**. Undoubtedly problems with logic of concepts, rules of thought, some problems with the expression of thoughts and choices of thoughts and observations for research are included. The appropriate observations and some experiments on nature itself give us unexpectedly easily information on the (common) natural phenomena that are involved in all individual things or regulate and adjust them. The first concepts and observations, on which cosmology is founded as a science and which direct the research refer to essential attributes of things and prerequisites of their existence. Knowledge about nature as a whole is not knowledge of any particular thing. This means that knowledge about nature as a whole is neither expressed in narrow terms nor by names of specific things. This is, because if we explain how nature is and how it started evolving by using some rare or complex phenomena, then this explanation will create new questions about what these phenomena are and why they are necessary for the whole nature. Knowledge of the necessary phenomena of nature and its laws is generalized and abstract knowledge. But this rational and abstract thinking does not preclude knowledge from commencing observations on separate things. For cosmological issues we can start from general principles to individual things, from general and fundamental notions to specific and occasional things. Deductive reasoning, which is utilized by philosophers, and not inductive reasoning, which is utilized in scientific research, is the preferred way to conduct our research.

In order not to expand this thought (for rational research) further, read an example to think that the way from the general trait to the individual one does not necessarily start from the imagination, but by observing experience. Suppose an alien craft landed near a village and its passengers saw

some people going and coming. Immediately, they could make the hasty conclusion: They were on a planet where such creatures live in a standing position, with two legs, two hands, two eyes, two ears ... Before each research and other land trips their conclusion would be correct! From their first observations, they would be able to think that they would meet other similar people who would not be the same as those they saw but they would look like them (they would have some basic traits). Later, from observation and experience, they would confirm that their hasty conclusion would have been correct, although they might have imagined something more (wrongly)... In the case of the study of the universe (the world as a whole) what we first need is an explanation of its structure and not the good knowledge of each astronomical body that is included in it. The answers to the questions about the meaning of life and about the beginning of the cosmos are not the most difficult. To give these answers in summary, it does not require good knowledge of any individual thing, good knowledge and expertise of the characteristics of an insect or of a galaxy, the exhaustive knowledge of a part of the world or the most complicated calculations. It needs observation and thought about the laws of the world, about certain common qualities of things and a few measurements about physical sizes. All the world touches our body and permeates us. We would not have to go far in order to explore the laws of the world and the essence of its potentials. Our experience shows us that resemblances and common elements amongst the things in the entirety of space and time exist, which also need an explanation. This means, that we can collect information through the observation of nearest things about the most distant things and about not visible things.

I emphasize addressing all thinking people and especially skilled researchers and professors of physics, that a contrast exists between our own research method and the one of traditional scientific research: This is the opposite direction regarding the investigation and the eduction of inferences, that was a conscious choice in philosophy and was named logical method of abductive inference (abductive reasoning), and deductive thought through the use of general terms (deductive reasoning). For the development and teaching of the physical science and also for research we usually remove the wholeness of reality and a lot of associated phenomena, which we temporarily ignore. Usually, this is done without knowledge of the interdependence of phenomena, in order to begin the research with a few undisputed observa-

tions. We describe those phenomena, which are usually randomly observed and are related closely to the academic field of research. So we think even when the phenomena which we observe are not fundamental and necessary for the existence of all other things and for their total. This is for example, when we observe the heat and glow in two metal bodies rubbed together. Here in this treatise, we have removed the unique, the unrepeatable, the accidental, the occasional and some instantaneous phenomena and a multitude of specific things with their details, in order to distinguish and describe the phenomena, which are fundamental and necessary to the realization and existence of all other things, in comparative moments, places and circumstances... For example, when we think of a maximum speed in nature, we can think properly and observe some mathematical relations without having to start with observations on all the motions that take place next to us. This abstract thinking is not contrary to research when the generalization is made with the prospect of a later application of certain relations (as laws) to specific things and in more particular cases. A cosmology instilled by such rational thought is a rational cosmology and it would be more fitting to be expressed by the phrase “cosmonomy”.

2.11. Certain initial and ancillary thoughts for a proper understanding of the concepts

Rational cosmology with observations of our everyday experience: Thoughts that are necessarily produced through general concepts and by reductio ad absurdum. Explanation for all phenomena of the cosmos as complete and self-sufficient. Precedence of the global, timeless and always previous phenomena in contrast to individual, local and occasional things. The common phenomena by which all the individual and temporal phenomena are regulated and created. Knowledge about common reality, which is not a separate thing, but it is imposed by laws and rules.

Individual and occasional phenomena, that is to say: locally limited, with different forms and combinations, which have a short duration of existence or are unstable and instantaneous, with many variations and deviations, in simpler or more complex ways, random or caused by other things, with actions and reactions, with approaches, compounds and mergers or by re-

moval, decoupling and disintegration. Is there something identical or stable to the individual and occasional phenomena? What stays the same and fixed is not an individual thing.

2.12. Cosmology or Cosmonomy:

For modern researchers, cosmology is a branch of astronomy along with astrophysics, which describes and interprets the origin, structure and destination of the world as a whole (as a totality of all things in time and space), on the basis of astronomical observations and by the application of known physical laws. This is the contemporary concept of cosmology. Those who speak about cosmology as a particular science emphasize two research fields that contributed to its development and its mathematical formulation in the early 20th century. One field of research began with the formulation and study of relativity theories. The second began from the study of the structure of matter and the introduction of the term "quantum" to describe certain electromagnetic phenomena. Physics, as it has been developed since then, is called modern physics, while physics as it had been developed until then, is named classical. Of course, it was crucial for the development of cosmology as well as for research in general to observe the sky with the most modern telescopes and using the latest technologies.

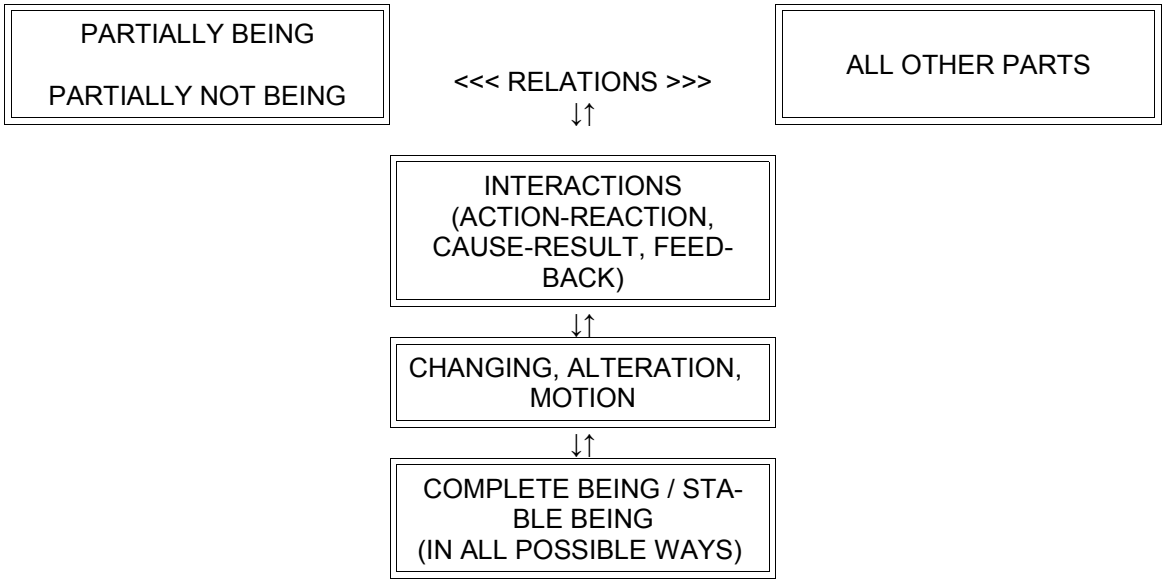
The theories for the description and interpretation of the world as a whole, and all the thoughts that were formulated over a period of many centuries which preceded them, were called "philosophical." These were degraded as "prehistoric" nature research and they were considered to be a mythology of few whimsical people. If we tolerate some of the earlier philosophical theories or thoughts on the term "cosmology", then cosmology can be considered to be a direction or a branch of philosophy. It is a philosophical branch in which a theory and an interpretation are formulated with regard to the origin, laws, and destination of the world as a whole, through the observation of local phenomena and rational thoughts that are regulated by rules of logic. In philosophy, certain common traits are attributed to things, a substance of things is appointed and explanations are generalized, while interpretations are even attempted in the forms of speech. In philosophy the relations between life and material nature and a possible relation of a god (in

the sense of a spiritual being with a global role) are indispensably studied. This is a wider and historical concept of cosmology. In this broader perspective cosmology does not develop within the narrow margins of a scientific theory and exclusively on the basis of only a few laboratory observations. Also the object of study of cosmology is not just the calculation of some quantities. What exactly cosmological research involve and what is the sequence of thoughts for its advancement is also an issue which, in order to be completely and reliably answered, should perhaps be answered after the research will have been completed. When the credibility of the senses itself is questioned, then it is unrealistic if we have the view that we are clearly aware of what we are looking for and which solutions are needed. A lot of past observations of the physical world and many of the logical thoughts along with their queries, as they have been recorded in the history of philosophy, are also included in cosmology.

Cosmology has been developed with observations of local phenomena from recent research that are to be found and to be detected everywhere in the world such as the gravitational field, e / m phenomena, the structure of matter and microscopic processes, the inertia of bodies, heat, electricity and kinetic energy, acceleration and mass, the principle of conservation of energy, and the relation of energy with the particles and the heat. So locally there have been astronomical observations of similarities in star processes and their structure, the large number of galaxies and their distribution, and the well-known matter has been detected in depth of space and time. These few observations -out of the entire physics and of the infinite problems of mathematical calculations- and few locked measurements are necessary for the development of cosmology and for a unified interpretation of the world. Easy generalization was not just a hasty and frivolous rationale of some philosophers. Nature itself provokes and encourages us to think more broadly about the world and creatively and rationally for research. Everyone should recognize the creative role of abstract thinking and appreciate rational thinking for the cosmological research, particularly on the principle of knowledge not only as a method of reasoning but also as source of rules that are also applied by nature to its processes.

2.13. The common features and properties (attributes) of all things

The Theory of a full and stabilized Universe has been unfolded by this first and logical concept for the totality of things:



<<< THE FUNDAMENTAL PHENOMENA >>>

MODES OF INTERACTIONS	DIRECT - INDIRECT	SYNCHRONIZED MOVE AND RHYTHM MOMENTARY AND STABLE RELATIONS WEAKER AND STRONGER INTERACTION COMMON MODES / SHARED ELEMENTS
	FAST - SLOW	
	RHYTHMIC - IRREGULAR	
	SYNCHRONIZED - ASYNCHRO-NIZED	
	DIRECTED – INVERSE	
	PERPETUAL - MOMENTARY	
	CONTINUAL - RECURRENT	
	BIPARTITE - MULTIPARTY	
	WITH RESISTANCE - UNHINDERED	

COMPLETE BEING → STABILIZED (TOTAL) BEING → IN MAXIMUM TIME

PARTIAL/INCOMPLETE BEING → FLUCTUANT BEING → IN LESS INTERVALS

SMALL AMOUNTS OF BEING → STRUCTURAL ELEMENTS → MIN. MOMENTS

Reality as a common totality and as a part. The thoughts, which follow intend to show the consequence of rational thought and how surprising conclusions emerge in such simple words. Eventually, is there one common to all (objective) reality, and are there many ways to interpret it, or are there many different realities? This is one of the first cosmological questions that every human can think of. The question is reawakened in particular by reflections on how reality is shown to different observers and to the sensations of every biological body. By observing some difference of reality as it appears from person to person and to every form of life, it is easy to deny that there is a common to all reality. A reality, which appears different and multiple has at the same time the signs that it is one and the same for all. It is therefore easy for anyone to support the one view or the other. We will give the right answer when we agree that reality is common and one for all but at the same time it is made up of many parts that are somewhat connected to each other.

If the parts are not the same, then the phenomenon occurs, which is worth pondering on, that each one of the parts is affected differently in comparison to the other. That is, their matter does not produce the same results from their environment. But parts of the world are neither (exactly) the same, nor are they completely different. That is why their matter may not produce the same results from their environment, but some results are created the same. Before we come to introduce the notion of an "observer", the inanimate bodies are already influenced differently by their external influences. Therefore, if bodies acquire biological functions and evolve into living bodies, then their different influences are experienced and detected respectively with some differences. The common and (objective) reality in itself, without reference to anything is with an unbelievable number of separate bodies, is in all the ways these bodies are connected and transformed. No individual thing is the whole reality. The common reality in itself, without reference to anything, is a common reality only if it is understood as a complete totality in reference to itself. But, apparently, the unified and common reality has this characteristic, that it is not only in reference to its total self. Its "self", that is to say, the unified and common reality, is at the same time fragmented, shared and over many time intervals. Individual things are not the global common and unique reality. But locally the individual things can also be

common things in their environment. Their environment also is a deficient reality, with a limited number of interconnected things. Many individual things combined with each other are also not the whole of reality. Given that the common reality exists at the same time as fragmented, shared and not at a single time, therefore the overall and common reality does not exist in reference to its parts or it does not exist as a whole and it is not detected entirely.

If the parts of the common reality are some molecules, then these molecules are affected by their environment as molecules and little results are generated on them. If the parts of the common reality are biological bodies, then the bodies are affected by their environment as biological and results are produced on them that give information. To solve this cosmological puzzle (of a same reality and at the same time different), we should understand that the common and unique reality exists at the same time with two permanent features: 1) The common and unique reality is as it is in reference to the whole of itself and 2) at the same time it is not in reference to its total self. How does this happen? Why does the world confuse our thinking? In case 2, because the common and unique reality is not in reference to its total self, therefore, two conclusions follow: The common and unique reality is absent in reference to "nothing" and its most fragmented parts. Each separate and different thing has another connection with its environment and with the common and unique reality. It receives the effects as it can according to its structure and how it is and with its own interconnection with the environment.

The common and unique reality is as it is in reference to its total self and 2) at the same time it is not in reference to its total self and **at the same time, the common reality is missing ... and exist as incomplete**, piecemeal and as a part. The double presence of one and the same reality (or dual process, let's say) is a fundamental feature of reality. The reality which is common to all at the same time is not common, it exists and it does not exist. The reality is complete as a whole, however it is not complete as a part. It is complete and with all the effects on the whole of itself, and it does not exist as a whole and with all the results for its parts. The common reality to the different parts is not with all the same results and therefore it is not exactly the same reality (in relation to the different parts). Following these rational observations, we can conclude for the biological bodies that if they

are different then they do not detect the same common reality. Experience agrees with this rational conclusion.

But here we make another important observation (which is easy to follow from the observation of relativity and the multiplicity of things): How can things not be exactly the same, but also not entirely (100%) different? How can things be the same, but always have a difference? (Such as the fruits of a tree or a large number of people). If we analyze it rationally, we will find that things always have a common element and they are never completely different as parts of two completely (100%) different worlds. It is true that the individual things always have a common element and this observation is linked to the other observation that the individual things always detect something common from one and the same reality. The explanation must be sought in this observation: If the individual things always have a common element, then they have some same influence. The complete reality (toward itself), which is common to all through rational thinking, seems to be as if it were at the same time linked to every separated and different thing. And paradoxically, by the research of the physical world and by the common experience, we detect a division of the world that fits with the previous rational thought: The world appears to be incomplete with the image of a universal space, and this space is connected to each separate body. The interpretation of a complete and stabilized Universe confirms a natural process that is incredible to the eyes, but it is obvious to the rational thinking.

The observer as a person has options to think about the world as it wants and about everything the world contains. And indeed the psychology of humans affects how and what they will think, and whether one will think with a purpose or will be biased or impartial. Again, the following happens, which is worth pondering on, that if a person thinks only of themselves, then they separate themselves from the whole world and the whole world is downgraded to a stage for their own individual action. If a person only thinks of themselves, then they live with the illusion that the world is given only to them. This is how selfishness and megalomania and at the same time, the degradation of other people and the corresponding behaviors, which devalue others, appear. That is, through thoughts about human psychology and behavior, a conclusion emerges again about moral consequences when the cosmos is seen as limited in human eyes and not impartially as a global whole.

If we ask about the laws of the World, then again we will easily conclude as the first law the global equilibrium. Notice how a word that is used as if it had a known meaning often hides more information that we haven't thought about: The world to have laws, it must first be a world! The World must be preserved and be united as a whole so as to has laws, that is, some fixed functions or processes by which the World is maintained and changed. Because if the Universe were different per cubic meter, if it were not a Total and if in every fraction of a second the world is transformed into another world, then also its laws: they would have moments of disappearance, they would change in every fraction of time and they would not be same laws for the whole World. From these reasonings it follows that the first law is the law of universal equilibrium (so that the Universe exists and is one and evolves without disappearing). A world without laws is probably not a world (and certainly not organized as a single whole). Laws without a World is a human fantasy and would be inapplicable.

NOTES

i How knowledge, thought, behavior, and human life are closely linked are an important issue that has been extensively presented in some other books of the author. In these books, ethic is grounded in the concept of a spiritually oriented life, with impartial logic and without illusions where be created by external action and random experiences.

ii Aristotle in the first book of "Metaphysics" observes that the sensation is common to all people, but it is not wise. Wisdom is the science of causes and principles, he writes among others. In my own words, Aristotle almost says, that if what we have in our senses were knowledge, then we would all be wise and scientists!