MIND AND REALITY
The Space-Time Window
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MIND AND REALITY
The Space-Time Window

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World Scientific
PROLOGUE

Our observations in everyday life are of basic relevance for the development of scientific conceptions. Within the frame of such direct observations, trees, houses, the moon and a lot of stars appear spontaneously in front of us without any conscious action. Matter seems to be embedded in space and its structure develops in the course of time. But the space is larger than what we experience in everyday life; we have extended this everyday-life view step by step and a huge space-region could be explored systematically. In other words, our world in front of us has been enlarged and we have came to what we call the universe.

We define the universe as the “totality of existence”, including planets, suns, galaxies, the elementary particles, dark matter, dark energy, etc. We also extended the time-region in the direction of the past and came to the famous Big Bang theory, which can be considered as the present prevailing cosmological model.

For this kind of universe our everyday-life experiences are of basic relevance, and this is because they reflect the first and most direct interaction a human being has with the world outside. Then, the following question is relevant: What kind of reality do we have in front of us? Is it the objective, basic truth or what kind of reality is it really? Is this everyday-life view in particular independent of the observer’s peculiarities? In this monograph we will treat these questions systematically. In order to set the direction for this book, let us here
quote a simple experiment, which demonstrates the relevance of these questions.

The world before us appears spontaneously without any intellectual help. We consider this “world view” as independent from the observer. This is obviously not the case and is particularly demonstrated by the following experiment: A human being who puts on goggles equipped with inverting lenses sees the entire world upside down, not forever but only initially. After a certain time the entire visual field of the observer flips over and the objects are seen as they had been before the goggles were put on. The process takes place without (conscious) action of the subject.

This simple experiment distinctly reveals that the world we experience spontaneously is not independent of the human observer. The brain ignores the goggles although it belongs to the reality outside. We may in particular conclude that the brain of the subject manipulates the impressions that we have from the outside world, i.e., it is obviously a “constructed world”. How can we understand these facts?

What world do we have in front of us? It is obviously this constructed world, designed by the brain on the basis of certain information from the world outside. Already the famous psychologist C.G. Jung was impressed by the fact that an event in the world outside produces simultaneously an inner picture. Just this inner picture appears in front of us and is manipulated by the brain when we put on goggles with inverting lenses; the brain constructs unconsciously a world view which is different from the world outside, and this is because the goggles are ignored although they belong to the material world outside.

We know that there are goggles with inverting lenses and we also know that the effect produced by the goggles are ignored by the brain. But what about other entities in the world outside that do not appear before us because the brain ignores them for the construction of the world in front of us? For answering questions like this
we have to know how the reality outside is composed. What is its 
structure and content? For the assessment of the world in front of 
us, we need in principle the complete information about the reality 
outside. Otherwise we cannot assess the “level of reality”, which is 
reflected in the picture before our eyes.

Is it the “absolute truth”, i.e., the “complete information” about 
the world outside or is it only a part of it? These questions can be 
answered when we consider the principles of evolution. Biological 
systems developed in accordance with these principles, which deter-
mined how a human being or another biological system interacts with 
the world outside. How developed is a human being and his brain 
during biological evolution? What are the peculiarities of biological 
evolution?

The perception of the true (absolute) reality in the sense of a precise 
reproduction implies that with growing fine structure in the world 
before us (its picture), increasing information of actual reality outside 
is needed. Then, evolution should have developed the sense organs 
with the feature to transmit as much information from the outside 
as possible. But just the opposite is correct: The strategy of nature is 
to take in as little of the outside world as possible. Reality outside is 
not assessed by “true” or “untrue” but by “favourable towards life” 
or “hostile towards life”. In other words, it is not “cognition” but 
the differentiation between “favourable towards survival” or “hostile 
towards survival” which plays the relevant role.

The brain developed according to these criteria, and this implies 
that the world in front of us cannot be the absolute truth; it is a 
brain-dependent “constructed world”, as we have already recognized 
in connection with the goggles with inverting lenses. This restricted 
information from the actual reality outside is processed by the brain 
and produces a picture of reality, which appears before our eyes.

This picture is not complete and may contain the information 
merely in symbolic form; the picture of reality does not have to be 
complete and true (in the sense of a precise reproduction) but restricted 
and reliable, at least during the early phylogenetical phase. All these 
features are controlled by the principles of evolution. So, for example,
in order to find a certain place in a cinema, it is not necessary that the visitor gets at the pay desk a small but true model of the cinema, i.e., a one-to-one reproduction of the cinema, which is reduced in size; a simple cinema ticket with the essential information is more appropriate. In this respect, the cinema ticket is the picture of the cinema, like the world in front of us is the picture of the actual reality outside.

Newton’s world view is essentially based on the world in front of us, i.e., it is based on the direct impressions which we have before our eyes. Cars, houses, the stars and the planets are treated mathematically, resulting in the successfully reliable space-time based description of these and other entities. However, Newton’s and other similar world views work on a level at which only restricted information of the world outside is realized. In other words, such theoretical descriptions work on a level at which the picture of reality is not complete and true (in the sense of a precise reproduction) but it is “only” restricted and reliable, and these peculiarities are dictated by the principles of evolution.

Due to these principles only a selected part of the world outside is left available, which is however still reliable. This should also be valid for the mainstream of our theoretical descriptions because they are essentially based on the restricted information selected by evolutionary processes. In other words, the formulas do not reflect the complete world outside but offer reliability. Reliability in particular means that a great variety of situations can be covered by theories. In fact, Newton’s theory could be applied successfully to a great variety of situations around us. That is possibly the reason why Newton’s theory is deemed “successful”; it has a feature of being at the level of everyday life.

The big success of Newton’s mechanics established a world view which became a model for all the other theories, i.e., the basic standards of Newton’s procedural method are also reflected in more improved theories like the Theory of Relativity and also partly in the conventional quantum theory. The reason is obvious: The theories are essentially based on observations which the observer experiences in everyday life, which appear directly in front of the observer. This is
the basic information for which all further developments stem from. As we have pointed out, the world in front of us can however only be a restricted picture and is particularly species-dependent. In this regard the following is important: We do not base our theoretical considerations on what really exists in the basic reality, but on what evolution allows us to recognize. This is Newton’s level, and is also the level of the other theories which has been developed subsequently. This species-dependent point of view must in particular be reflected in the statements when we extend the space-time region successively, as we have discussed above. The relatively new notions like “dark matter”, “dark energy”, “Big Bang theory” and all the other conceptions concerning the basic nature of the universe become therefore uncertain or even useless when we try to recognize absolute standards, i.e., they are only of limited value.

This level corresponds to a world view, which is confined by the reality in front of us (its picture) and how we interpret and assess it, but it is by no means an “ultimate conception”.

Alternative conceptions are discussed in this monograph. Let us give here one of the results: At the level of conventional physics, the possibilities for travelling through space are firmly determined. In this case only restricted space regions can be reached within reasonable time intervals, and this is because the velocity cannot exceed the velocity of light. However, other physical conceptions, discussed in this book, could lead to other, less restricted possibilities for travelling through space and time with a spaceship. On the basis of other experimental situations we could possibly reach any place in the universe at any time, that is, we will not only be able to visit “any” space position in the cosmos, but we could also travel in time and could visit “any” point in time in the past, present and future. This is a completely new perspective but it has a real background of supporting evidence and is not purely a speculative statement.

Due to the effect of evolution, the world view is dependent on the biological system. The philosopher Immanuel Kant thought in this
direction, and was firmly convinced that the impressions in front of a human being in everyday life are essentially influenced by his brain. In fact, modern behavior research supports that.

We have as many world views as there are different species, varying in their biological structure. A lot of scientists believe that we are able to develop a “world equation”, and they are obviously firmly convinced that we will have this world equation soon. Here, a world equation means the final mathematical code about the complete world (basic reality). However, the principles of evolution speak another language: Since the world view is dependent on the biological system (human beings, animals, etc.), we should have as many “world equations” as there are different biological systems.

The book deals with “mind” and its relationship to “reality”; the material aspect of the world is treated realistically in this monograph. When we look out of a window we see the world outside. Space and time can be considered as a “window” because they reflect certain peculiarities of the world outside. The effect of biological evolution on the theoretical description of physical phenomena will be pointed out in detail. Furthermore, the nature of space and time will be analyzed with respect to what we actually observe. In this monograph we will distinguish between the “container principle” (here the world is embedded in space and time) and the “projection principle” whereupon the world is projected onto space and time.

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