

NEW RATIONALISM – SPIRIT RATIONALISM

Chapters 1-3

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Classical rationalism, which lies at the basis of the unusually rapid progress of Western society in the recent past, both in the field of science and technology and in the social sphere, faced with difficulties in explaining certain paradoxes in modern physics, entered a phase of crisis. This led to today's global crisis of the most Western society and humanity as a whole. Attempts to correct classical rationalism so far have been unsuccessful. In this book, the author proposes his own concept of revised classical rationalism, which he calls “New rationalism” or “Spiritual rationalism”. The book contains new theories of knowledge, determinism, freedom, ethics and rational theory of the spirit. In the last part of the book, there is an analysis of the causes of the crisis of classical rationalism, the reasons for the failure of previous attempts to correct it and an analysis of the position of philosophers who accepted the impossibility of correcting it. Here are presented three first parts of the book.

Key words: *rationalism, theory of cognition, concept, determinism.*

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Chapter 1

The critique of the modern theories of knowledge and the beginning of the model of cognition by models

This chapter presents the classification of main up to date approaches to epistemology (theory of knowledge, theory of cognition), the scheme of their development, criticism of basic statements of these approaches, and some initial elements of the model of cognition by models, developed by the author. Three global questions concerning the epistemology, discussed below, and in accordance with their answers different philosophical schools are classified.

The first question is: what role does the epistemology play in philosophy? There are two answers to this question. The first Descartes', was adopted by all philosophical schools before the analytical one. According to it the philosophy has a hierarchical structure, i.e. it is impossible to examine one philosophical problem before the consideration of other ones, and the problem to begin with is the epistemology. I.e. theory of cognition is the cornerstone of philosophy. According to the second answer, given by the analytical school, (Fregge, Wittgenstein, Russel, Carnap, and others) philosophy should be begun with the theory of the meaning of words, or in other terms, with the philosophy of language.

The second question is: what is the main subject of epistemology? There are two different answers here too. In the past, most philosophical schools assumed by tradition that epistemology must first answer the question of how our knowledge relates to the reality it describes. Another point of view, represented by the so-called "contemporary theories of knowledge" (such directions as foundism, coherent theories, probabilism, reliabilism and direct realism) answers that the aim of epistemology is the justification of our beliefs.

The third question is already mentioned above: how does our knowledge relate to the reality it describes? Naturally, this question bothers neither representatives of the "contemporary theories of knowledge" nor the analytical philosophers. All other philosophers, according to their answers to this question, can be divided into many directions and I shall mention only the main ones, additionally giving a scheme of the development of epistemology from Kant until now.

Kant and Hume, ancestors of the so-called skeptic direction in epistemology, doubt the capability of our cognition in describing the objective reality correctly and even its existence in itself. Kant wrote:

"It still remains a scandal to philosophy... that the existence of things outside of us must be accepted merely by faith and that if anyone thinks good to doubt their existence we are unable to counter his doubts by any satisfactory proof." [1].

Hume claimed that if we see a vase on the table it does not mean it really exists. What undoubtedly exists in this case is our visual perception of it. [2]

After Kant's and Hume's era rationalistic theories (classical rationalism of Descartes, Pascal and Beckon, pragmatism, Marxism, etc.) seized a leading part in epistemology. I will name them the classical rationalism. The common idea of these theories is the assumption of absolute adequacy of our cognition for reality. For example, such declarations of one of the founders of pragmatism Charles S. Pierce are well known:

"There is no distinction of meaning so fine as consist, but a possible difference of practice", or "when one knows how an object will react to experimental handling one has achieved a clear idea of that object." [3].

Marxism asserts that our cognition merely reflects the reality, reflects it correctly and does it in such a fashion that a subsequent knowledge does not abolish the previous one, but supplements it and so on.

Of course, representatives of classical rationalism were acquainted with the skeptic problems of Kant. Hume, and others, and they agree with the theoretical impossibility of proving the existence of the objective reality. But they proceeded from the second part of the impossibility, namely from the impossibility of proving the negative - the nonexistence of the objective reality. They claimed that the experience of human activity as a whole and the experience of the rapidly developing science and technology in particular confirms both the existence of the objective reality and the ability of our cognition to describe casual connections between its phenomena correctly.

But one day it became evident that Newton's model of the universe, underlying the success of science and technology in that period was limited in its application: Michelson's experiments demonstrated that the speed of light contradicted Newton's mechanics. This contradiction was explained only by Einstein on the basis of his new model. Einstein's model was not a special case of Newton's that would permit inclusion of the new facts science discovered. It gave a qualitatively different picture of the universe. Space and time that were absolute in all their infinite in Newton's model, appeared to be relative in Einstein's. The speed of light which in Newton's model could be relative and determined differently in different systems of coordinate, turned out in Einstein's one to be absolute and independent of coordinate system, etc. For the rationalistic world outlook, it was a shock. It became clear and was indisputably proved that our cognition is not an absolutely adequate reflection of reality and

that the process of cognition is not just an addition of subsequent knowledge to previous one, which having been discovered once, is given only more precision and expansion. It also became clear that cataclysms may occur in this process leading to the denial of the previous picture of the world and its substitution by a qualitatively different one. But who can guarantee that tomorrow it will not be found that this newly discovered picture is also wrong? And how can one rely on such self-exploding cognition determining what is good and what is bad, what is progressive and what is regressive for the human society?

The explosion, which the Einstein's theory means to the rationalistic world outlook, reached humanitarian sciences not right away, but nevertheless, it couldn't help reaching them, especially as various social theories based on rationalism (ideas such as capitalism and socialism) started disappointing. It is shown in creation and dissemination of theories like philosophical relativism, phenomenology of Husserl, existentialism and finally post positivism.

The difference between these philosophies (existentialism in the first instance) and the skeptic ones of Kant and Hume is possible to describe from the epistemic point of view (very simplifying) as such: Kant and Hume doubted the possibility of our cognition to give a correct picture of casual connections of the objective reality; the existentialism simply denies such a possibility and neglects even the reason as an instrument for the discovery of the above mentioned connections. Such, for example, one of the ancestors of existentialism Martin Heidegger wrote:

"Reason, glorified for centuries, is the most stiff-necked adversary of thought." [4].

Although the substitution of Newton's physical model of the world by Einstein's one evoked such strong deviation of philosophy as a whole and epistemology in particular, it did not similarly influence the development of natural sciences and technology. On the contrary, they went on to develop more rapidly, basing on Newton's model as well as on the apparently contradicting Einstein's, and on quantum physics, also apparently contradicting both models. The continued success of natural sciences and technology affected epistemology in the opposite direction.

The result of this effect is reflected in the above mentioned analytical school and in "contemporary theories of knowledge". Representatives of these directions cannot venture to remain on the extremely skeptic concerning our cognition position of existentialism and they declaratively reject it. For example Dummet, observing the analytic school, wrote:

"...Heidegger was perceived only as a figure of fun too absurd to be taken seriously as a threat to the kind of philosophy practiced in Oxford (analytic philosophy, mine)" [5].

The representative of "contemporary theories of knowledge" J.L. Pollock claims:

"We all agree that sense perception can lead to justified beliefs about the world around us" [6].

On the other hand, they were unable to reach the solution of the epistemological problem, which was created by the replacement of Newton's physical picture of the world by Einstein's one, i.e. they cannot answer the main question of epistemology: what is the relationship between our cognition and reality? That is why they choose to abolish the question, replacing it with another one, as "contemporary theories of knowledge" do, or to reject the role of epistemology in philosophy at all, replacing it by the theory of the meaning of words, as the analytical school do? But avoidance of answering the main question of epistemology has made them fruitless. Philosophy appeared from the essential need of mankind to comprehend the surrounding world and the place of humanity in it. It is essential because the survival of mankind and better quality of life of the community as a whole and each human being separately depend on the correct comprehension of that. Naturally such comprehension is connected with the main question of epistemology: what is the relationship between our knowledge and reality, or what makes our beliefs true, not merely justified. That is why philosophies, which have answered this question convincingly for their contemporaries (although they may err), influenced life remarkably. In the case of Marxism and existentialism there was a global influence, changing the face of the human civilization. But we can hardly find any signs of such influence by the analytical school or by "contemporary theories of knowledge". As quoted above, the analytical school regarded Heidegger as a "figure of fun", but Heidegger and Co, by means of their philosophy, caused, or at least helped the realization of, a so called sexual revolution which changed the world into the one we are living in now. And what has been changed by the fact that the analytical school relate to Heidegger as a "figure of fun" or such declaration of the contemporary theories of knowledge" as: "we all agree that sense perception can lead to justified beliefs about the world around us"?

Heidegger and Co influenced social life because they based their conclusions about freedom as the only value and others on the assertion that our cognition isn't able to describe the reality correctly (and therefore no basis exists for any system of morality and so on). The assertion about non-ability of our cognition they substantiated by such cataclysms of the real process of cognition as above mentioned Newton - Einstein's one. It was convincing for contemporaries, although it was wrong. But the analytic school going away from the epistemology and the "contemporary theories of knowledge" refusing to answer its main question, they merely leave this battlefield and oppose nothing to existentialism besides their declarations.

Let us examine at greater length weak points of these theories:

The analytic school proceeds from the assumption that we can express our thoughts only by means of words. But words can have different meanings in different contexts. That is why analytics claimed that before clearing up the exact meanings of words we cannot develop other branches of philosophy.

But it is evident that all discussions about words' meanings and all agreements about them may be carried out only by means of other words. Thus we can never reach the final solution of this problem. Moreover, words' meanings strongly depend on contexts. It is possible to explain a word's meaning in a concrete text, but we in principle cannot establish exact meanings of words generally, i.e. out of the context in which they are used. This is true at least for the continuous development of languages. I.e. the theory of meaning of words cannot take the place of the epistemology as a cornerstone of philosophy. Remarkably, Frege, the ancestor of analytic school, tried to base arithmetic on logic, a task which obviously may be solved, provided we reach absolute exact meanings of words. In the last period of his life Frege realized that this feat was impossible. Concerning the axioms of geometry, he initially accepted the impossibility of founding them on logic. This demonstrated the inadequacy of the theory of meanings for the role of a basis of philosophy.

The other basic idea of the analytic school, namely that words are the only way of expressing thoughts, is also wrong, because all signs and symbols like gestures, sounds, images (e.g. traffic signs) can fulfill this function, albeit not with the success of words. It is essential that in the process of thinking, especially in such a field as cognition, there exist a stage preceding the verbal expression of thoughts. The role of this stage will be discussed further on.

Let's focus our attention on the "contemporary theories of knowledge". As mentioned above, they replace the problem of the truth of our knowledge with the problem of justification of our beliefs. J.L. Pollock wrote: "I have taken the fundamental problem of epistemology to be that of deciding what to believe. We might call this the 'belief guiding' or 'reason guiding' of justification" [6].

For better understanding of the difference between "justification" of "contemporary theories of knowledge" and "truth", let us examine the concepts "defeasible reason" and "defeasible belief", which are basic concepts for all "contemporary theories of knowledge". (As said by J.L. Pollock: defeasible reason "is one of the most important discoveries of contemporary epistemology." [6].)

The defeasible reason is, for example, a conclusion of such kind: because all objects A in some sample have a quality B, we conclude that every A has the quality B (in "contemporary theories of knowledge" such conclusions are named "induction", but this "induction" has the other meaning, rather than in

mathematics). A belief based on such reason is named a defeasible belief. The meaning of defeasibility here is as follows: when we examine objects A outside of the above mentioned sample, it may be found that not all A have quality B and then we merely reject the reason and the belief, i.e. we declare them to be wrong. Obviously, defeasible beliefs can turn out to be true equally well as to be false. We can see that all these theories accept as justified the beliefs, which may be wrong. If so, they cannot get things moving from the initial point of existentialism, declaring that it is quite impossible to rely wholly upon our cognition, especially in such a question as organization of human society and norms of behavior of individual in it. Really, if our cognition is based on defeasible reasons and contains defeasible beliefs, what right do we have to establish any form of organization of society, or to accept this or that moral, if tomorrow, these forms and norms, which seemed to us as the best, may be defeated?

The main shortcoming of all "contemporary theories of knowledge" results directly from the fact that these theories withdraw the demand of truth from our knowledge, replacing it by "justification". As J.L. Pollock notes, "all of the theories thus far discussed (foundism, coherent theories, probabilism. and reliabilism - mine) are subject to a common objection. Namely, they fail to give illuminating general accounts of epistemic justification" [6].

That means that one who switches from "true" to "justified" must explain what he means by this "justified" and why we should accept his offered criteria of it. As noted by Pollock [6] no contemporary theories cope with this task.

However Pollock's criterion of justification in itself is not anchored by him, although he claims having done this. Pollock regards justified the beliefs accepted according to correct epistemic norms. Obviously, it doesn't solve the problem, it merely replaces it with a similar one. This is because in this case the epistemic norms offered by Pollock need grounding. But Pollock doesn't explain the reason for the correctness of his epistemic norms, besides which he does not even describe them clearly. He mentions induction and deduction only incidentally and, elsewhere, the mechanism of the automatic balance regulation of a bicycle ride as the epistemic norms. But do these things share the same nature? On the other hand, the automatic balance regulation has the same origin as all automatic regulation processes in organisms including peristaltic movement of the intestines. Thus, must we relate this last process to epistemic norms?

The "contemporary theories of knowledge" also do not cope with another task, namely the correct description of the process of cognition, regardless of the fact that they all without exception have taken this task upon themselves. Let us demonstrate it:

All contemporary theories of knowledge accept that the basic element of cognition is belief. Furthermore, they all accept the common scheme of epistemic ascent as follows: when we have a number of beliefs, which we assume justified (part of them are so-called appearance beliefs, which are the results of the realization of our sensitive perceptions, for instance “this object is red” or “I see red”), the further evolution of knowledge goes on in two ways:

1. New appearance beliefs continue to appear as a result of the ceaseless stream of perception.

2. Proceeding from available beliefs and continuously creating new appearance ones, so-called arguments are built based on two kinds of reasons: conclusion reasons (logic or mathematic) and defeasible or prima facie reasons (e.g. above mentioned induction).

The arguments have a form as shown in Figure 1.

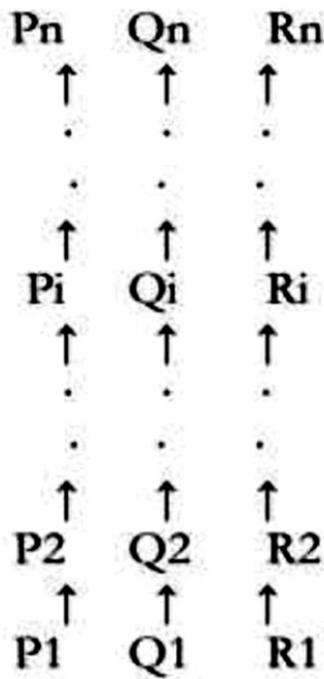


Figure 1.

Here P₁, Q₁ and R₁ - initial beliefs of the according argument;

P_i, Q_i, and R_i - intermediate beliefs of them;

P_n, Q_n, and R_n - finishing beliefs.

The arrows signify reasons by means of which we move from one belief to another.

Each final belief of any argument (as well as each intermediate one) can turn out to be a defeater for some reason or belief of some other argument. For example, Qn can be a defeater for transferring from P2 to P3 or for the belief P3 itself. In other words, Qn will contradict P3 or the reason by means of which it was established (arrow between P2 and P3). In this case, it is solved by rules (varying for different theories) stating which argument to accept and which to reject. If for example the argument Qn is accepted, then argument P is divided between P2 and P3 and remains in the form:



Figure 2

After that, building of arguments continues until a new defeater appears, and so on.

This scheme of epistemic ascent, adopted by all contemporary theories of knowledge, does not correspond to the real process of cognition at all. First of all, the basic element of the process of cognition is not a belief, but a concept. I use here the term "concept" not in its traditional meaning, but in the meaning it receives in my model. A concept means a multitude of objects or phenomena that we single out from all other existing objects or phenomena, on the basis of common property or a number of common properties. It is essential that concepts, as a filling of common properties, appear on the base of a stream of perception, before it is realized by us. In the process of evolution the human being acquires concepts of the most important elements of his surroundings long before realizing them, and needless to say before determining them by words. There is no doubt that a human being distinguishes between trees and grass or between water and fire long before he gets to know the proper words (which are, by the way, the initial and the most primitive definitions of these concepts) for describing them. Furthermore, higher animals also distinguish this group of objects and phenomena, i.e. they also have these concepts, though the question about their consciousness is open, to say nothing about their cognition.

But not only in prehistoric epoch - today various concepts also appear, passing through the subconscious phase before realization. A scientist first feels something common between phenomena and only after that realizes and formulates it.

To clarify the issue, let us trace the formation of the concept of the color red by babies. Immediately after his visual apparatus begins working, a baby receives a lot of visual perceptions. Among visible objects there are groups possessing common qualities: from red things he absorbs similar feelings, but they are different from visual perceptions issued from green ones. Similarity and difference of visual perceptions teach him to distinguish between different colors and to identify them long before his parents begin to explain to him the meanings of the proper words. It is proved by the fact that a child, having grown up in woods among beasts, distinguishes between red and green, though he does not know the proper words, or, for that matter, any words at all.

Thus I dare conclude that concept (in such a meaning of it) is an initial element of cognition. Besides which, it is impossible to formulate any belief including that of appearance, any reason or any defeater without using concepts. For example the above mentioned belief "I see red" contains at minimum the concept of red color. And beliefs more complicated than appearance ones are expressed by means of a large enough number of concepts. Altogether, all things we can formulate or only realize are expressed by means of concepts, are built by them, and cannot be expressed by any other means. That is why concept is an elementary and basic unit of cognition. Cognition operates using concept and nothing else. The problem of exact definition of concepts by means of words is important but it has another nature, as the problem of words' single meanings. This is because concepts are based on the collective experience of mankind and we are able to understand each other accurately enough, although we use non-exact words in defining our concepts.

Besides, as it will be shown in the model of cognition by models, we cannot elucidate interrelation between our cognition and the object of it (should it be reality or something else for those who deny reality), nor ground criteria of truth and justification, if we do not proceed from regarding concepts as basic elements, and in particular, if we do not examine intently the interrelation between a concept, or to be exact between definition of a concept and a multitude of objects, or phenomena, on which, figuratively speaking, we impose this definition.

A right description of epistemic ascent also cannot be done unless be are based on a concept as an initial element. Thus when contradiction between some conclusions (beliefs) of an adopted theory and experiment is discovered, nothing similar to the above described epistemic ascent takes place in the process of cognition. In order to remodel a theory according to some experimental facts

contradicting one of its statements, we have to correct this theory on the conceptual level, which means it has to be corrected in at least one of its basic concepts. In the best case, it is as simple as that. At worst, it is necessary to change all the basic concepts, i.e. build a new theory. This is proved in the model of cognition by models.

Continuing to criticize the description of the process of cognition in the "contemporary theories of knowledge", it is necessary to mention the concentration of their authors on individual aspects of cognition ("The theory of knowledge is an attempt to answer the question: 'How does one know?' [6], and actual, though not declared, their opposition to collective ones. My meaning is that the contemporary theories almost absolutely ignore the role of information in the forming of this "how one knows" on which they concentrate all their attention and build it only on individual sensitive experiences, appearance beliefs, and individual reasoning. Such cognitive processes can be realized only in the circumstances of Robinson Crusoe. One who lives in society, to say nothing of modern society, forms most of his beliefs not on the grounds of individual sensitive experiences and individual reasoning, but as a result of social contacts, through various canals of information, and at last by learning in school. Moreover, one cannot even form most of his beliefs, like let's say an idea about why lightning flashes or about causes of revolutions, on the basis of individual sensitive experience. What's more, many of the beliefs that one can, in principle, form in this way are nevertheless formed through social contacts, information, and learning. This means that the contemporary cognition is developed by scientists and although it is based, as mentioned above, on sensitive experience, it rests mainly on the collective one, maintaining and transferring by means of informative devices (books, films, computers, and so on).

The discussed ignorance regarding the role of collective experience and the exchange of information for development of the cognition leads the contemporary theories to another of their faults connected with the role they give to their main "discovery" - defeasible reason, and particularly to such a variant of it, that is the above mentioned induction. Of course there were epochs in which this induction and defeasible reason played a very important role in the development of human cognition. There is no doubt, that primitive human beings made conclusions according to them. For example, if having grown in desert country and never having seen berries, a man came to live in a forest, and for the first time seeing and tasting a raspberry, he made the conclusion and believed that all red berries were tasty and edible. This belief was kept until he met a defeater, i.e. he found some inedible berries.

In concrete situations even today human beings can reason in the same way. But already in the times of Hume (who proposed the skeptic problem, connected with this induction), not one of the representatives of natural sciences made any conclusions according to this induction. Even in the times of Hume and all the more today a scientist observed that all A in some sample of some type of objects have quality B did not conclude that generally all A have B. He only concluded that there is a correlation between A and B and that the latter provides a reason to seek a causal connection between A and B. But he understands that such a correlation does not necessarily prove the existence of an underlying causal connection, and the correlation can be the result of casual fluctuation for instance. Only upon finding a causal connection is it possible to determine the probability and to discuss when objects A have quality B outside the initial sample.

This is why the presentation of defeasible reason and the above mentioned induction as players of a serious role in contemporary cognition is wrong. The contemporary cognition is developed, as said, by scientists, and all others simply accepted the scientists' conclusions by means of reading and learning. And if nevertheless, anyone finding himself in a forest for the first time makes a conclusion according to the above mentioned induction, it will not enrich the contemporary cognition at all.

Chapter 2

The Model of Cognition by Models and Adjacent Questions

This chapter is the continuation of the previous one, and it starts directly with the presentation of this model without relating it to other theories of cognition.

Let's try to formulate what we can generally demand from the theory of cognition and which questions the latter must answer. It is obvious that first of all it must give the description of the cognitive process and this description must fit the real process. This description must include, for example, epistemic ascent, and so on.

Furthermore, a theory of cognition must answer the question: why should the offered description, with all its rules, satisfy us? The variant of this question: what is a criterion of truth or justification. The other variant is the classical question of epistemology: what is the interrelation between the cognition and the

object of it. One more variant is the question about the reliability of our knowledge, i.e. to what degree and in which circumstances we can rely upon it.

Moreover, a theory of cognition must explain the paradoxes of real cognitive processes, for example, a visible contradiction between Newton's and Einstein's physical models describing seemingly the same sphere of reality.

Of course, all these questions are closely related and interfere with each other. This is why the explored below account of the model of the cognition will not fit the scheme of the questions, but on the other hand it pretends to give them answers.

1. Description of cognitive process

The process of cognition is realized with the help of models, describing concrete spheres of reality.

What is the structure of any model? Any model consists of:

1. A combination of more or less formally defined concepts embracing a multitude of objects of reality, phenomena, and processes described by the model.

2. Fundamental basic laws concerning these concepts, statements which are not proved, but taken for granted as postulates inside the model. (We can judge their correctness inside the model only on the basis of their accordance with our experience and experiment).

3. Conclusions concerning the introduced concepts, received on the basis of fundamental statements (laws) by application of logic and mathematics. Postulates and theorems of logic and mathematics with the help of which we build models are also nothing else than elements of some model (models) more universal than those to which these postulates are applied.

I would like to explain what I mean by a more or less formal definition of concept. As shown on in previous chapter, from the beginning the concepts appear as a subconscious generalization of sensitive experience; subsequently they are realized and receive definitions. Initial and least formal definitions are word-denominations: trees, bushes, freedom, justice, and so on. Why are they not formal?

The subconscious generalization of sensitive experience, which leads to the creation of concepts, is an individual process. But word-denominations appear exclusively in communication between people and are initially intended for it, i.e. for the transfer of information between people. This is why, when man used the word "tree" for the first time, he wasn't alone at that moment and was not talking to himself.

He was undoubtedly addressing some listener(s), and wanted them to understand him. But in that imaginary time they didn't understand him accurately enough even though he pointed a finger at some tree for illustration. This is because they didn't know if he meant trees generally, or some concrete kind of them, or only the tree at which he was pointing, or maybe on the other hand, plants generally. To clarify his discovery to his listeners he would have to repeat his exercise: pointing a finger to different trees, he would announce the word "tree", and pointing to the grass, the sky and so on, he would announce: "not tree". We don't know if the word "tree" originated in this way, but it is clear that during many centuries, one fitted his individual meaning of the concept "tree" to the same of other people by using this word in communication. It is also obvious that no one, using the word "tree" today, means only apple trees or on the other hand spreads the concept "tree" to grass, for example. But also today, though the borders of the concept "tree" are more determined in their common usage than at time of its appearance, they are not exact enough and there are plants, which some people classify as trees, while others call them bushes or even grass. All the more, this relates to such concepts as "freedom" and "justice". And that is what I mean concerning informality and non-exactness of definition of concepts by means of word-denominations.

A more exact form of definition than word-denominations is definition of concept by means of other concepts. For instance: a solid body is one, which without outside influences does not change its form. Here, the concept of "solid body" is expressed by means of concepts such as "form" and "influence" which themselves can also be expressed by means of other concepts or can be word-denominations.

It is obvious, that this way of definition also reduces to word-denominations, but besides the fact, that it permits the expression of new or newly introduced concepts through those having already endured the process of polishing in communication and therefore are more exact and single meaning, it permits the increase of the precision of old concepts too. I will not go into details of the process of this increase, only will note that it is like building more precise devices (machine tools) with the help of less precise ones. But none the less, it is in principle impossible to reach the absolute exactness (single meaning) of definitions in this way.

There is a way of absolute precision and the formal definition of concepts, namely axiomatic definitions, which are applied in mathematics. The most popular example of such definitions is Euclid's axioms in geometry. Euclid did not give a definition of his "points" and "straight lines" through other concepts. Of course, they are the word-denominations, and moreover, they are very polished in communication word-denomination. But, as said, in this quality they cannot be absolutely precise and single meaning. Euclid's geometry achieves

this by means of axioms, which are simultaneously the fundamental laws of geometry and definitions of its concepts.

Now I would like to explain what the meaning of "fundamental laws of models" is. They are, for example, the above mentioned axioms of Euclid's geometry, or Newton's laws in the classic mechanics, or Boyle-Mariotte's and Gay-Lussac's laws in the classic theory of gases. But they can also be the conditions of the beginning of a revolution accepted by this or that historian (for example the degree of exploitation, non-freedom, etc.) although he himself doesn't call them laws.

There is a connection between the definitions of concepts and fundamental laws of models. It is obvious in the case of the above mentioned absolute precision and single meaning definition, given by means of axioms. In the case of less formal definition it is also possible to find a connection between concepts and fundamental laws of a model. Such, for example, if from the above mentioned definition of solid body: "the solid body is one which without outside influences doesn't change its form" we omit "is one, which" we get the law, which is possible to consider as a fundamental one in the theory of solid bodies.

It is possible to add many examples of such a kind, and it is clear in every case that we cannot change the fundamental laws of a model without changing its concepts. It is important for understanding the epistemic ascent. Namely, it explains why after appearance of a "defeater" we must repair a model on the conceptive level, and not to divide it in the middle, as "contemporary theories of knowledge" consider (although they don't discuss models, only arguments). This connection is important also for understanding interrelations between cognition and reality. But it will be considered in more details below.

Now, how does the offered model approach describe the epistemic ascent? As mentioned above, the process of cognition begins from the subconscious formation of concepts on the ground of the unremitting stream of sensitive perceptions sensitive perceptions (and with the help of memory of course). Further on are definitions of concepts and after that or simultaneously is doing establishment of the fundamental laws of the model.

Further on, proceeding from basic laws and with the help of logic and mathematics, conclusions (beliefs) of the model concerning its concepts are built. These conclusions are checked on the fact material acquired before (previous sensitive experience), or with the help of special experiments and through human activity ruled by conclusions (beliefs) of the model.

The further development of the cognition is realized through building new models, which either describe the spheres of reality not described by previous ones, or are the reconstruction and expansion of already existing models on bigger spheres of reality. The latter usually happens when as a result of

experiment or new sensitive perceptions, appears what in “contemporary theories of knowledge” is called "a defeater", i. e. when a fact or facts concerning the objects apparently belonging to a sphere of an existing model and contradicting its beliefs come to light. Then a correction of the model or a building of a new one, which can explain sufficiently the existing data including the "defeater", begins.

Regarding the conformity of the above explored description of the epistemic ascent to the real cognitive process: the fact that the epistemic ascent in the sphere of natural sciences goes on according to the above described model scheme is well known to one who is familiar enough with them, and therefore doesn't need illustrations. Concerning humanitarian sciences (at least those which exceed the phase of registration of facts and try to say something about why these or those events happened in the past, or may happen in the future), it is also possible to challenge some model frame in them, although their authors do not always do it themselves. For example, if any historian describes the French revolution in 1789 and analyses its causes, then first of all he uses concepts, such as “revolution" for instance, without even a formal definition of these concepts. Further, claiming that some circumstances caused, affected, or at least helped the revolution, he introduces by these means the fundamental laws of his model (though he does not presume to). This is because he means that not only the French revolution was affected, caused by these circumstances, but such circumstances generally must lead (or at least help) the beginning of a revolution.

If, subsequently, one begins investigating other revolutions, he examines his model on additional fact material. As a result a “defeater" can be found: it can be discovered that some revolution happened (or didn't happen) contrary to the rules of the model, and so on.

2. Interrelation between a model and the reality described by it. The criteria of the truth. Reliability. The role of bounds.

2.1. The interrelation between a concept and reality

Our concepts are the result of the abstraction of reality. It proceeds already from the account of initial definitions of concepts, which are word-denominations. So, by using the word "tree", we abstract from an enormous (infinite) number of individual signs and qualities of every tree or every kind of tree, (for example, the number of its branches and their individual forms), signs and qualities it possesses additional to the determining ones. And that is only one of the various meanings of the discussed abstraction.

There is still one more thing which is of no less importance to us. Strictly speaking, there do not exist objects, which would absolutely correspond to our definitions, not only in the sense that they possess various qualities which aren't mentioned in definitions, but by qualities lying in the base of definitions. In nature there are neither straight lines nor points nor solid bodies nor gases nor fish nor animals in the strict meaning of the words with which we introduce, or at least must introduce, them into our sciences, although the degree of the lack of coincidence, or the deviation of the phenomena of the reality from our formal concepts., may be infinitely small and imperceptible for us in that sphere of reality which is within the reach of our current experience.

A ray of light seemed to be identical to a straight line in the meaning of straightness until we overstepped the limits of the earth nearby space and discovered that near the great masses, it distorts. As for the field of gravitation it exists in any point of space and theoretically it is evenly distributed in no point (or the vicinity of the point), it follows that straight rays of light, which would correspond to the axiomatic definition of a straight line stating that "through two points..." etc. - do not exist at all. Actually, earthly rays of light are so close to the axiomatic straight line that simply - ah! we lack words... but still...

The concept of a solid body suggests, as already mentioned, that in a situation, where there are no outside forces affecting it, it possesses and preserves its absolutely definite, inherent shape (unlike gas or liquid). All the engineering mechanics are based on this assumption and, thank G-d, it works. However, the assumption itself does not absolutely correspond to the existing reality. If we start to determine shapes of the bodies with the exactness of linear magnitudes commensurable with the dimensions of molecules, we will reach a deadlock: Since the molecules move, consequently, the shapes of the bodies (with the mentioned degree of accuracy) are changeable and indefinite, even in the absence of outer forces. All this is without to say nothing of the inner structure of a molecule or an atom.

One of the most fundamental concepts of physics, maybe even of all contemporary sciences, the concept of location - is connected with the shape of a body. From indefiniteness of the shape of a body proceeds the relativity of its location. I am not referring to Newton's relativity: the position of a suitcase relative to the train in which it is lying and relative to the platform on which the train is moving. Nor do I speak of Einstein's relativity of space, and consequently, of the position of a body in it. I refer to the indefinite position of a body arising from the above mentioned uncertainty of its shape. The concepts of movement, velocity, acceleration etc. are in their turn connected with the location of a body. Therefore, all these objects do not correspond exactly to our definitions of their concepts.

As to fish and animals, the illustration of the non-absolute conformity of these concepts to reality is difficult due to the vagueness and non-strictness of the definition of the concepts themselves and this is no advantage whatsoever, but: a weak point of the corresponding branches of sciences. Because the less strictly the concepts are formulated, the less pithy and proved further statements concerning these concepts are. It is something like Lem's announcement that it is forbidden to root "scorge" in the darkness. What is the use of this seemingly concrete prohibition if we do not know what "scorge" is?

But even for the sciences concerning fish and animals we may also find facts showing that our concepts are never absolutely adequate for reality. For instance there is not a single order or class of living beings which would not have some bordering species not absolutely belonging either to this class or to any other adjacent one. If the definition of some given class (let's say fish) were as strict as the definition of a straight line, it would be possible, moving away from this bordering space, to show that in the animate nature there does not exist a single object which would absolutely fall into the category of our definition. However, there is no doubt that a great number of, so to say, normal fish would fit it well enough to assert with confidence that the concept itself is not empty and that it is worthwhile to use it for revealing certain objective truths, i.e. for the process of cognition.

Here arises a question essential for the understanding of the process of cognition. An unsolvable dilemma seems to follow the above stated: on the one hand our cognition strives and is obliged to strive for the strictness of concepts and statements. On the other hand, the more strict we make our concepts, the more the principle inadequacy between these concepts and the objects of the reality described by them, comes to light (inadequacy not in the meaning of a great number of qualities of the objects of the reality which fall out of our definition but the inadequacy by the basic quality itself indicated in the definition).

However, this is a seeming dilemma, since with no regard to whether this inadequacy is detected or not it exists and the only question is how to take it from the philosophical point of view and the point of view of other sciences. Natural sciences, first of all physics, which were the first to discover the above mentioned inadequacy, overcame this crisis much easier than philosophy, and they found the solution of the problem long ago.

The essence of this solution is that we introduce as many strict and single meaning definitions of concepts as possible, but establish admissible limits of the deviation of objects in reality from the formal definition, quantitative deviations according to the measure of a sign(s) lying in the basis of the definition. Thus, on the one hand, there is being established a formally strict multitude of objects of reality falling under the definition of the concept, and on the other hand the single meaning of the definition allows us to reach the single meaning of

the conclusions concerning it. In other words, for the present moment, to determine a concept means to find a sign characterizing a multitude, to establish a measure (a unit of measurement) of a given sign, and to indicate the quantitative limits (maximum and minimum) of the presence of the above mentioned sign in the object to enable it to belong to the characterized multitude.

But this way of definition of concepts does not overcome the fact that our definitions are abstractions of the reality in the two above mentioned meanings:

1) They are abstracted from all properties of real objects besides these, which lie in the ground at definition.

2) Various objects of reality falling under the definition of concept contain the property laying the ground of the definition in different quantities (degrees), although in some given ranges.

The peculiarity of the interrelation between a concept and reality is not exhausted by the above discussed inadequacy of our concepts for objects and phenomena.

As mentioned above, our concepts are outlined and as formally complete as possible. As for nature it is quite the opposite - there is nothing complete in it, nothing absolutely clear-cut and limited. Its objects can be regarded as fluctuations, condensations of some qualities in its infinite field, where an infinite quantity of interconnected qualities are distributed and eternally transforming into one another.

Let's take, for instance, the quality of straightness or a more general quality of curvature (a straight line is a particular case of a curve, where the radius of curvature is infinite). This quality is distributed in the infinity of the universe and there are its fluctuations, which in various combinations with other qualities present objects, phenomena, or processes, which were mentioned above as straight or linear ones. There are particular cases of fluctuations - objects where this quality approaches the axiomatic straight line: rays of light, the trajectory of a falling body, ribs of crystals, etc. But in all fluctuations of this kind, the degree of the given quality is not absolutely the same and is never adequate for the absolute definition.

Analogically, there are fluctuations of the qualities which approach the definition of some curve, a circle of some radius, for example, but never absolutely coincide with it.

One may figuratively imagine as "cutting out", the process of singling the objects - fluctuations out of the distribution of qualities in the infinity of the universe.

Any material body possessing a certain mass, whether it be stars or a one kilo dumbbell, is nothing else than condensation of the field of gravitation (fluctuations of

the quality we call gravitation... plus other qualities. of course). When in classical mechanics we describe moving parts of the machine as solid bodies possessing some definite masses and definite shapes, we first of all cut these objects out of the infinite field of gravitation, then we cut them out of the field which is generated by all electrons moving in the universe or by smaller particles which move both inside our body and in the zone which we regard as its limits and at last come flying and fly away. But the main point is that we cut them out of the endless quantity of the fields of qualities of which we have no notion at the moment. Moreover, the fields, existences of which are already known to us (a field of gravitation, electrons, etc.), they themselves are none else than fluctuations of the qualities of reality, qualities more global, reflected in our mind through the same process of "cutting out" - abstracting.

And here we come to the next characteristic of the interrelation between concept and reality.

The same objects and phenomena of reality can be described by means of different combinations of concepts, and moreover, by means of infinite quantities of these combinations and combinations, which would, as much as possible, differ one from another qualitatively. This is explained by the fact that what we perceive as objects are actually fluctuations of not one, but very many qualities and even an infinite number of them. By means of selecting this or that quality as the basis for definition, we describe our objects with the help of various concepts. Multitudes of objects described by different but close concepts will not coincide. This is not always obvious due to the following reasons:

First of all, multitudes defined by different concepts, which are close in their meaning have a considerable field of intersection, i.e. the field of objects which fall into both the above mentioned definitions.

Secondly, as mentioned above, the nominal meaning of the definition, if it is absolutely formal, describes only an empty multitude of objects, and only indication of the limits of admissible deviations from it fills this multitude. But these limits are not always indicated, even in physics. Regarding the sciences, dealing with fish, for example, all the more so humanities, such an approach has not reached them as of yet. If, to cap it all, we also take into account the inaccuracy of the definition in these sciences, then the cause of endless arguments concerning definition of phenomena like, for instance, "freedom", will become understandable. Actually the point is not which definition is right, but what kind of objects and phenomena it describes, and, consequently, where the

conclusions made with the help of this definition belong and where the limits of their application are.

A good example of the plurality of concepts which might be used for the description of the same objects in reality and of the lack of coincidence of the multitudes of objects described by different, but close concepts is given through the comparison of the close word-concepts (world-definitions) of different languages. These word-concepts practically never coincide exactly in their meanings because they describe non-coincident multitudes of objects or phenomena. This presents difficulties in the composition of dictionaries and in translations. When in the dictionary for some word of one language there stand one or several words of another language, then in the best case a multitude of the objects described by the word we are translating is included into the total of the meanings of all the words of the translation. But in this total there surely would be many objects (meanings) not included into the multitude of the translated word. Let us take, for instance, a Hebrew verb "lifrots". "Pritsa", which is the noun of the same root, means "breaking in", "burglary". Consequently, "lifrots" means "to break in", "to burst into", "to rob". At the same time, "breaking in" means also "to tame", while in Hebrew we cannot use the word "lifrots" in this meaning. "Burst into" has other meanings too, meanings which have nothing to do with "lifrots", such as: "to burst into tears", "to burst into laughter". "to burst into a run".

Let us take examples from the natural sciences. A solid body is a fluctuation of such a quality as density, which in the most obvious way detaches it from the adjacent medium and 'therefore, it becomes the basis for its initial "cutting out" from the infinite nature by our concepts. But at the same time, it is also a fluctuation of such qualities as gravitation or a field of electrons etc.

Another example is gas in some vessel: first of all, it is a fluctuation of qualities like volume, pressure, and temperature. When the concepts describing these qualities were first applied to gas (and the classical theory of gases built on them was perfectly confirmed by practice), these concepts seemed absolutely adequate to them and the suggested model seemed absolutely adequate for the processes and phenomena of this field. Besides, it was supposed (even if not asserted) that the introduced concepts were the only ones which could be used for the description of the above mentioned objects. This was a natural continuation of the fetishism of our cognition, its identification with reality itself.

But then appeared the "kinetic theory" of gases and it became evident that the same objects could be described by means of concepts such as the quantity of molecules, their speed (or, to be precise, the law of its distribution), and their energy.

A ray of light: at first its initial geometrical description was achieved, then the wave nature of light became clear and further on came its quantum description.

And, finally, concepts such as "animal" or, let's say, "a cat". Here we have a fluctuation of an enormous quantity of easily distinguished qualities besides more profound ones, such as for instance, some of its gen's peculiarities etc. Which of these qualities we choose for the definition depends on what we wish to declare regarding the subject.

We cannot avoid mentioning the following definition of the needle given by Gashek: "a needle is a steel lever which differs from a pig only by having one ear instead of two". For the purposes set by Gashek this is a wonderful definition.

Generally speaking, there are no absolute concepts - either in their absolute adequacy for reality or in the meaning of their uniqueness. The choice of concepts is conditioned by the task we set before us. For a concrete task the chosen concepts may be more or less successful or unsuitable at all. The main thing, any writer and, first of all a scientist, should be concerned with, is making it as clear as possible in which meaning he uses his concepts, especially in the case when he uses concepts widely varied in their meaning or in the cases where he uses them not in their usual meaning.

Thus, it is shown, that we can divide the continual reality by means of our concepts in various ways. This division is a creative act, connected with emotions, intuition, and individuality of an author of a model. But here, "creative" doesn't mean "arbitrary". Our concepts must reflect those communities of properties, which exist in various fluctuations of objects and phenomena, otherwise they give nothing to our cognition and models built on them also do not describe anything, because there are no objects falling under their definitions. This non-arbitrariness also consists of the choice of common properties of objects and phenomena, which lay in the ground of concepts. This choice must correspond to the task, which presumes to fulfill, or in other words it must correspond to the questions about reality which the model presumes to answer.

2.2. The interrelation between fundamental laws of a model with reality

All basic assertions of models and theories in the past and present have been presented in one of the three forms: as absolute truth (in nowadays it almost does not take place), as statements of a purely statistical nature and as axioms. The axiomatic approach is the approach, where we simply declare certain statements concerning certain objects (concepts), which are defined through

these statements and only through them. And the adequacy of these statements for reality is of no interest to us. This is a very fine and fruitful trick but the assertion that their conformity with reality is of no use to us - is only a pose. We just are not interested in it, for the convenience of the discussion, meanwhile, but if we do examine it, we will find that the relationship between the axiomatic postulates and reality may be of a statistic nature only. Likewise concerning the cases where the definitions of concepts are introduced not axiomatically, but directly or by using the word-concepts of the language and then regarding these concepts the initial postulates - laws are stated. Such are Newton's laws, Boyle - Marriot's laws etc. All these laws and axioms are of statistic nature in the sense that, if we start experimenting with the real objects and phenomena, we will achieve conformity between them and our laws and axioms of correlative nature only, although the coefficient of the correlation may be infinitely close to 1.

This principally statistical character of laws is caused not by the imperfection of our measuring (although the latter also adds its stochastic factor to the picture of correlation), but by the above mentioned principle inadequacy between the objects of reality and our definitions, quantitative inadequacy by the determining sign.

This principally statistical character of the phenomena does not contradict causality of the established connections and is by no means the basis for that absurd but extremely popular mode of carrying out statistical researches and establishing correlative dependencies without any attempts to see or even to perceive by intuition the causal foundation of these dependencies.

The answer to the question why statistical nature does not contradict causation becomes evident from the example of the classical and kinetic theories of gases. The kinetic theory, as a matter of fact, gives causal explanation of Boyle - Marriot's laws which in the classical theory were formulated as postulates. The pressure rises with the decrease of volume and the rise of temperature owing to the increase of the number of the molecules' crashes and their energy.

But the same kinetic theory also discovers the statistic nature of the above mentioned postulates, as far as the number of molecules' crashes per minute is a magnitude undoubtedly connected statistically and only statistically with the volume and temperature, even in the case of the same gas literally (not only in the case of the two identical gases).

The above given example is followed by some general conclusions. It was mentioned above that all the objects and phenomena may be considered to be fluctuations of some qualities. Now we see, that these qualities are in their turn a result (integral characteristic) of some processes concerning a more universal object or objects of a more profound nature (pressure and temperature are the integral characteristics of the processes of gas molecule movements). These more universal

objects are also in their turn fluctuations of some qualities. etc., and so on for ever and ever.

Another example: the rules of an arithmetic model seemed initially (and to many, even now) to be absolutely universal and absolutely adequate to the reality to such an extent that there could be no question of either their being of a statistical nature or of their causal explanation on the basis of some more general model. Indeed, is it possible that two times two makes four only to a certain degree of probability? Or is it possible that this may be explained in some different way rather than by means of illustration, that is, by taking two apples and redoubling them by adding another two? But then appeared the theory of multitudes and the arithmetical rules of addition, and consequently, their derivatives - the rules of multiplication - received causal explanation on the basis of a more universal model.

Conclusion: All fundamental basic postulates, laws and formulas concerning initial concepts in any model are of causative and statistic nature simultaneously.

2.3. Interrelation between conclusions (beliefs) of a model and the reality

There are two essentially different kinds of conclusions: the common and the particular. The common conclusions are statements of the type: under these and those circumstances (or under execution of such or other conditions) this and that must be. For example: it must be raining, a revolution must be accomplished, the profit must be one million dollars, the auto must reach a speed of 150 km/hour etc. The example of circumstances: a revolution must be accomplished (according to Marx's theory) if there some degree of exploitation exists, if there is revolutionary class, and if the latter has a revolutionary theory. The particular conclusions are: tomorrow it will rain, next year there will be a revolution in France, this year our firm will achieve a profit of one million dollars etc.

The particular conclusions relate to concrete singular events and facts. The common ones relate to a multitude of events (facts) of same types, which take place or must be in given circumstances.

From the above given examples it is clear that any particular conclusion corresponds to some common one, but relates to concrete situations and assumes that conditions of the common conclusions are fulfilled in this concrete case.

We see that statements of common conclusions, like those of particular ones, are formulated through concepts, are expressed through them and relate to them ("rain", "revolution", "profit", "speed" etc.). That is why the interrelation between these conclusions and reality are connected very closely

with the interrelation of concepts (or more exactly their definitions) with this reality. For example, if the statement of a conclusion claimed that "it will rain" and we have not given a detailed definition of the concept "rain", then our statement will be as true in the case of 5 minutes of drizzle, as in the case of a world deluge. But if we define our concept more precisely, for instance, only the precipitation in a quantity of no less than and no more than during the day will be considered as rain, then neither 5 minutes of drizzle nor a world deluge (not failing in the given range) will justify the corresponding meteorological theory or the concrete weather forecast and the statement in these cases will be false. Besides, different rains, which fall in the given range of the precise definition, will also differ from each other by the measure of a sign (property) lying in the basis of definition (in this case that is quantity of precipitation). Moreover, they can differ from each other unlimitedly by signs not included in the definition: they can be warm or cool, accompanied by a storm or in absolute serenity with thunder and lightning or without etc.

The same picture of interrelation between model conclusions and reality take place in principle and in the case of concepts, for which we haven't got a measure today, to say nothing of device of measuring and ability to measure in practice. For example, today we measure revolutions neither by the quantity of their victims, nor by the dimensions of reforms accomplished by them, and not by the speed of change. But it is clear that a revolution differs from evolution and reforms just by measure of social changes and on the other hand by the rate of them (and maybe also by a drama, meaning a quantity of victims). I.e., at first, all our conclusions have a principle quantitative nature (even if the measure of sign, lying in the ground of definition of the concept about which we made the conclusion isn't established). And secondly, like concepts, conclusions abstract from infinite numbers of qualities of objects which they discuss, and concern only those which lie in the ground of definitions of corresponding concepts.

2.4. Criteria of truth of particular conclusions

From the above mentioned account we can proceed to inference about the criteria of the truth of a particular conclusion of a model. Namely, a particular conclusion of a model is true, when there is a quantitative coincidence between its statement with a concrete event or the fact of real life to which this statement relates. "Quantitative" means here by measure of a sign lying in the ground of definition of a concept of an object or phenomena to which the statement relates, "Coincidence" means that quantity of the sign falls into the limits given by the definition of corresponding concept (a quantity of precipitation: not more than....., not less than... etc.).

If there is a measure of the sign and a device to measure it, then whether the issue is true or false can be established with exactness equal to an error of measuring. If today there is no such measure or means of measuring, one must establish the truth or falsehood of the conclusion on the ground of his own experience (including such experience as apprehension of information). That is why opinions of various people about truth or falsehood of some particular conclusion can be different. For instance, some historians can assume certain concrete historical events as a revolution and others as an uprising or as reforms, which were achieved in the course of a struggle and so on. But it is essential that in a great majority of cases and for most people such a difference of opinion doesn't appear, and nobody, for example, regards the events in France in 1789 to be something other than a revolution. The same relates to rain, even without measuring precipitation even without reading in the newspaper how much precipitation occurred the day before, people don't usually differ in opinion whether it had rained or not. The cause of this lies in the above mentioned quantification of the criteria of truth. Even if we have not got a formal measure or a sign, one has an intuitive idea of this measure, based on his sensitive experience, which is individual. but as a result of communication with other people and reception of information by other ways, this individual experience is reduced more or less to conformity with collective ones, This is why there is no absolute contradiction in the understanding of ideas, like let's say "revolution" by different people, but there is only inadequacy of the borders of this concept among them, The borders of this concept are eroded but there is an inner region removed from the borders which is common for all people. That is why, if concrete events (subjects. phenomena) lie in the vicinity of such a collective eroded border, then the question about truth or falsehood of a particular conclusion concerning these events may have different answers for different people, and in this vicinity difficulties exist in checking the truth. But because an inner zone of the whole concept (at least substantial ones and those which are in general use) is much bigger than the vicinity of its borders, the establishment of truth for an absolute majority of particular conclusions is single meaning even though their concepts have no unit of measurement. Moreover, the problem of "uniqueness" arises also for concepts which have some measure of the main property (sign). But in this case the "border's vicinity" is defined by an error of measurement (in the case of no formal measure, the "border's vicinity" is defined by precision of our receptors and by degree of common usage of the corresponding concept).

2.5 The criteria of truth for common conclusions

Let's first of all remember, that common conclusions are received in the model from its fundamental laws with the help of logic (mathematic) passages (reasons). The fundamental laws themselves are a particular kind of common

conclusion of a model. Moreover, there is a principal opportunity to change the fundamental laws of a model by some conclusions of it, in such a way, that former fundamental laws will be new conclusions of it. For example, it was proved long ago, that it is possible to begin building Euclid's geometry not from the axioms he began with, but by taking some of its conclusions (theorems) as new axioms and then all former axioms are received as conclusions (theorems), and, naturally, all other conclusions of this geometry are preserved. Analogically, the 2-nd law of Newton's mechanics is accepted today as one of the fundamental laws, but Newton himself proceeded from the law of preservation of the quantity of movement (which is received in contemporary textbooks as a conclusion from the 2nd law), and concluded the 2nd law from it.

From the above mentioned it is obvious that the connection between common conclusions of a model and reality have the same nature as the connection between fundamental laws of models and reality. From the point of view of the criteria of truth it is essential that this connection, as said, is a statistic one (remember, that common conclusions relate not to singular concrete events, but to multitudes of events of some type). This means, speaking more precisely, there is a need to formulate common conclusions not in the way shown above, but in the following form: Under these and those circumstances this and that must be, with given probability. Because of the fact that today only physics and engineering have such an exactness of phrasing of conclusions, I will use for illustration an example from the latter.

The machine projects are similar in some ways to models of cognition. The fact that the machine is a creation of human hands doesn't prevent its analogy with a model of reality, because the reality, described, for example, by means of economic, social and some other models, also is a human creation.

The role of the concepts in a project of a machine is played by the details of it and the role of definitions of concepts - by a draft of these details and, besides, nominal dimensions of details play the role of the nominal -definitions and tolerances of dimensions define the multitude of details which are considered as falling under a definition of a concept (draft of a detail).

It is possible to consider assembling drafts as fundamental laws in a model-project. And the final conclusions in contemporary machine industry have the form: if all details are fulfilled with no more deviations than tolerance permits from their nominal dimensions and if the exploitation of a machine is in defined conditions (let's say, a limit of weight of cargo and sand will not be loaded in order not to damage it, etc.), then the probability of its working without breakage during a guaranteed period will have some value less than 1 but more than 0. The sense of conclusions of cognitive models is the same.

In the above given form of conclusion there are also some undeclared but employed parts, namely that if conditions of a project aren't fulfilled, it doesn't mean that a machine will not work at all or can't, in concrete cases, work even the above mentioned period. It only means that then the model guarantees nothing about the work of the machine and how long it will work. I.e. conclusions of a model work only in the conditions of its applicability.

Here arises the question, why even in conditions of applicability of a model, its conclusions are not utterly guaranteed. Why even in this case the probability that the machine will work for a guaranteed period less than 1? As mentioned above, the cause of it is the statistic nature of the fundamental laws of model and its conclusions. But this statistic nature itself has a cause, namely, that objects of reality never correspond exactly to nominal definition of their concepts in a model, never correspond quantitatively upon the measure of signs lying in the ground of definition. A machine could work for a guaranteed period of time with probability 1, only if besides fulfilling all conditions of a project all details absolutely correspond to the nominal dimensions of drafts. The latter is impossible and that is why the probability 1 also is impossible, although we can draw near any small vicinity of it.

Now, it is no problem to formulate the criteria of truth for common conclusions of a model.

A common conclusion of a model is true, if in condition stipulated in the model the frequency of realization of the conclusion is not less than the probability of this result, as indicated in the conclusion. For example, if an engineer designs some machine and claims that in the right conditions of its production and exploitation, it will work during one year without breakage with a probability of 0.99, and, after that a plant began to produce it and from each 1000 machines not less than 991 work during the first year without breakage, the conclusion (claim) of the engineer is true.

2.6. The content of concept "defeater" for a model

Now it is possible to define more precisely what a "defeater" is for a model. Because common conclusions of models relate to the probability of events in conditions of the model, then an isolated fact contradicting some common conclusions of a model does not refute this conclusion and therefore is not a defeater for the model. Only if the frequency of the results according to some conclusion is less than the probability indicated in the latter (and all this, of course, in conditions of a model), we have a "defeater" for the model.

For instance, if in the above mentioned example less me 500 machines from each 1000 were to work during the first year without breakage, then the model used by the engineer in designing and calculating meets its "defeater" (if, of course. there was no mistake in calculation).

2.7 Reliability of common conclusions

The reliability of a common conclusion inside the borders of its model (outside these borders we can say nothing about the reliability of its conclusions) is a probability indicated in the above mentioned precise form of a conclusion. It is clear that not always can we know exactly the value of this probability and usually we have only an intuitive idea (based on experience) regarding it.

From what was shown above it proceeds that the reliability of any conclusion is in principle less than 1, but can come close to 1 within any degree. This degree depends on how real objects are close to nominal definitions of corresponding concepts in the conclusion, and how strong the conclusions are (how many years without breakage we guarantee).

It is possible to increase the reliability of conclusions in two ways: either by decreasing tolerances of dimensions of details (which means the decrease of permitted deviations of objects of reality from nominal definitions of concepts) or by decreasing the period of life of a machine which we guarantee. In the first case we decrease the field of applicability of the model, although it's clear that we are interested in increasing it. In the second case, it means decreasing the power of the statement of a conclusion. From that proceeds the global dilemma connected with the reliability of conclusions of cognitive models: the greater the field which we try to cope with our models and the stronger the statements of its conclusions - the smaller their reliability. This dilemma isn't solved in the frame of a concrete model but is solved by way of the building of new models in which initial concepts are made more precise or they are built anew. How it is done will be shown below, after the interrelation between various models is examined.

Above we discussed the reliability of the common conclusions of a model. The reliability of a particular conclusion has another sense and we will return to it after the question about the interrelation between models.

3 The interrelation between various models.

The paradox of 'contradiction' of models. What is done with a model after the appearance of its defeater

How do various models differ from each other generally?

First of all, they differ by the field of reality they describe. If these fields do not cross and do not overlap (for instance in the case of physical and economic models), there is no connection or interrelation between models and comparison between them is pointless. The case when models describe seemingly the same reality (for example two physical models or two economic ones) is more complicated.

Why "seemingly"? The matter is that models as a rule, in this case do not describe the same field of reality exactly. So, because of their concepts even if they are defined by the same word- denominations, they do not relate exactly to the same fluctuation of qualities and therefore the same multitudes of objects do not fall under their definitions. I.e. their concepts do not cut the reality in the same way. As a result, the borders of such models do not coincide and there will be objects that fall in the field of one model but do not fall in the field of the other (and there will also be objects that fall under definitions of some concepts in one model but will fall under the definitions of different concepts in the other one). I will give examples:

Let's take, for instance, Marx's model of the surplus value (although it does not meet the modern requirements of formality, it nevertheless is a model) and some optimum model from mathematical economics. It might seem that they have the same object: "goods-money-goods" - what else could there be in economics? Moreover, this object is a man-made product and looks absolutely complete and discreet. Nevertheless, it does not prevent money, goods, and workers from possessing an infinite quantity of qualities (like any other object in nature) in the commodity production. And I say nothing of the fact that money can be made of metal and may possess weight and gravity while a worker is a human being, and as such, an animal, belonging to the category of mammals as well as to the category of the Communist Party members (or Mapam), and at the same time, electrons are flowing in him. All this does not concern our subject. I speak of an infinite quantity of qualities of money and the likes from the economical point of view. Money is the world equivalent and at the same time is the wages, i.e. the expression of the cost of labor, an investment into real property and the capital giving an interest, and it is the guarantee, etc. All these are different qualities of money in commodity production. Besides these, there is still an infinite multitude of qualities which we do not formulate at the moment since we did not set appropriate tasks before us, but tomorrow we might set and formulate them because they already exist today.

By analogy, a worker is a producer and at the same time a consumer, and in case he possesses shares, he is also an exploiter (of himself), and if he is a member of a cooperative, he is a collective producer-exploiter.

This explains why different economical models, in spite of the fact that they all deal with the subject of money, goods, and workers, in reality they describe different multitudes of objects (fluctuations of qualities).

For instance, a small owner-producer, working alone in his business, will be included in the category of workers in the: model of mathematical economics (programming), i.e. will be one of the objects lying in the field of applicability of this model, but he won't be included in the field of Marx's model of the surplus value (because he is neither exploited nor an exploiter).

Models describing seemingly the same field of reality (although, actually, as shown, it is not exactly the same field), and cutting it by their definitions on different multitudes of objects have some connection between them, but usually nevertheless, we cannot compare them with each other and cannot determine which as better. This is because they intend to solve different problems and to answer different questions about this field of reality. Let's return to Marx's model and the mathematical-economical one. Marx's model is neither better nor worse. It simply sets a different task, its aim is to disclose the nature of exploitation (how it copes with this task is another question). But in the model of the optimum output of production with the maximum profit stipulated by the inequalities of the consumption and the initial resources there are no signs of exploitation at all, because this model deals with a different subject.

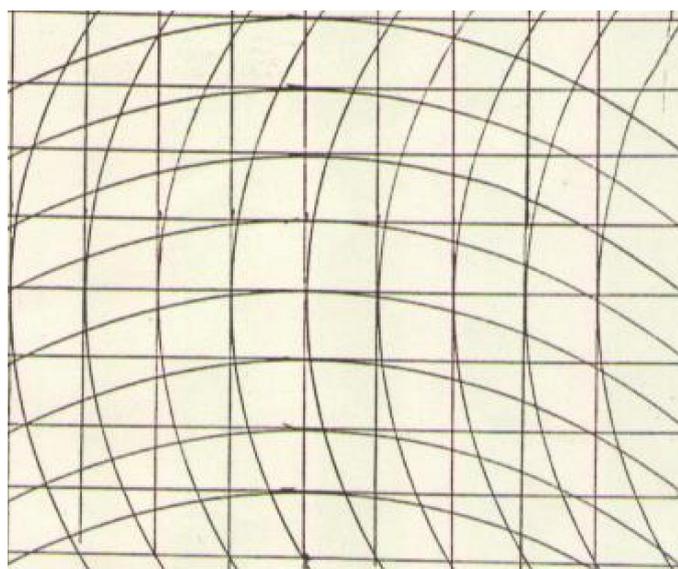
Nevertheless, there are models which it is possible to compare in the above mentioned sense. These are models which do not only describe seemingly the same field of reality, but solve the same problem and answer the same questions. The examples of such models are the physical models of Newton and Einstein. The above mentioned paradox of "contradiction" is connected namely with such a type of models. It must be mentioned that in this case also there is no coincidence between multitudes of objects falling under "common", "same" concepts (with the same name) of both models or between fields of their application (in particular the fields of application of Einstein's model concludes the same as Newton's but are essentially bigger than it). But now we can compare the models and this comparison helps us to understand the sense of the paradox. It is almost obvious that explanation of the paradox proceeds from the comparison of "common" concepts of such models. But before beginning this comparison, the meaning of the "contradiction" of such models must be made more precise.

Speaking about this contradiction terms like an "explosion", a "revolution", a "refutation" etc. generally are used. We are not against using these terms. They are not empty in such cases, for instance, as transition from Newton's model to Einstein's. But one should understand them properly, i.e. to understand that these terms do not mean a qualitatively unbridgeable gulf between the above mentioned models. Let us examine the contradiction between the idea of a ray of light as a straight line and the idea of it as a curve (due to its distortion near the great masses). This contradiction is easily surmountable: a straight line is a particular case of a curve and a curve may be as close as you like to the straight line - in the meaning of the distortion, as well as in the meaning of the deviation from the

straight line, as well as in any other meaning. When we build a model in which a ray of light is a straight line we limit ourselves to that volume of space and a range of phenomena where a ray of light is a curve which is very close to a straight line. This gives us a quantitative acceptability of the results received from our model. When in a more universal model we embrace a larger volume of space and a wider range of phenomena, we move on to the idea of a ray of light as a curve. Such a transition may be, no doubt, called an "explosion", a "revolution" and a "refutation". But it does not eliminate the fact that qualitatively a straight line is a particular case of a curve, and, consequently, we deal with the qualitative expansion of the previous model and not with its denial.

The same concerns the concepts of space and time in Newton's and Einstein's models. Newton's absolute time is in the qualitative meaning a particular case of Einstein's relative time. But Einstein's time, in its turn, is not the only possible one, since there exists relative times of another quality, for which Einstein's will be only a particular case, and in the infinite reality there exist fields of space and phenomena, in which Einstein's particular relativity does not fit (in the whole space), but the more general relativity fits there. And again: quantitatively Newton's concept of absolute time works in the zone of the applicability of Newton's model.

Now let us proceed to the character of the interrelation between the "same" concepts in such models. As mentioned above, our concepts cut the continual reality and can do so in different ways and in an unlimited number of ways. To develop the idea of cutting we offer the following graphic illustration for the interrelation between concepts of discussed models (see drawing №.3).



Drawing 3

Here the net of straight lines simulate the cutting of some field of reality by means of concepts of one model and the net formulated by the arcs of circles - the same of another model. Each of both net cells represents a multitude of objects of reality falling under the definition of some concept. From this illustration we can see, that if the radius of circles are big enough, then cells of one model will coincide with the cells of another practically in all points in some vicinity near the center of the accounted field. But upon removal from the center, non-coincidence of corresponding cells of models will grow and at a distance far enough from it, non-coincidence will be absolute. The interrelation between corresponding concepts of Newton's and Einstein's models (and other such pairs of models) have the same interpretation. This means, there is some region in which the corresponding concepts of both models are put practically on the same multitudes of objects. In this region rays of light, principally curved, will be close enough to straight lines, relative time will be practically absolute, and Einstein's law of summation of speed will reduce practically to the same as Newton's. Conclusions of both models in this region will practically coincide quantitatively (and correspond to reality). But upon removal far enough from the central region, multitudes of objects corresponding to similar concepts of both models can have any non-coincidence between them and in these places conclusions of both models can be different quantitatively in any degree. And naturally, in this case, only the conclusions of one of them can be true.

This illustration also explains how through building new models with more precise concepts we can enlarge the field of reality described by the model without decreasing its accuracy or the reliability of its conclusions, and even increasing them in an initial zone.

This illustration also helps understand that a bigger model (Einstein's in a concrete case) has its limits (borders) of applicability too and a biggest one can be built in such a fashion that it will include it. Besides nets of straight lines and arcs of circles, it is possible to build an unlimited number of nets from various kinds of curves. For example, it is possible to build a net of arcs of ellipses in such a way. that in a certain zone its cells will practically coincide with the cells of straight lines and with the cells of arcs of circles; in a certain bigger zone they will still coincide with circles but not with straight lines; and outside of this bigger zone, they will coincide neither with these nor those. I.e. Einstein's model some time must also reach the borders of its applicability and then will be built a new model bigger than this and so that its fundamental laws will seemingly contradict those of Einstein, but actually this new model will be a generalization of Einstein's, like the latter was a generalization of Newton's.

The question that arises is what happens to a model upon appearance of its "defeater". First of all, a model meets its "defeater" when it goes out of the boundaries of its applicability (as was. for instance, with Newton's model in the

experiment of Michelson). As mentioned above, the contradiction between a model and a fact ("defeater") can be removed only by means of building a new and more general model, which corrects the previous one on a conceptual level. But unlike the point of view of "contemporary theories of knowledge" [6], the former model is not thrown out at all, nor is any part of it. Its statements are totally correct in its region of existence and only the borders of this region are corrected. Thus, after Michelson's experiments and the formation of Einstein's theory, we continue to use Newton's theory in the regions close to earth and for speeds small enough in comparison to the speed of light. What the difference between these two approaches ("contemporary theories of knowledge" and models) from the philosophical point of view will be considered in the next paragraph.

4. Inferences from the model of cognition by models

First of all we must answer the main question of the theory of cognition: what gives us our cognition, can we rely upon its conclusions and be guided by them in life, in carrying out technical projects as well as in transforming society, accepting these or those laws, rules and norms in social life and so on. And, if we can rely on it, to what extent can?

It is clear from the discussed above. that our cognition undoubtedly supplies us with true knowledge about the reality surrounding us (unlike all skeptic conceptions) but (unlike the point of view of classical rationalism), this knowledge isn't the absolute reflection of reality, and it's conclusions are correct only with a given degree of accuracy and with the given probability and only inside the borders of the applicability of concrete models.

Proceeding to the question to what extent we can rely upon conclusions of our cognition, let us at first return to what happens to a model upon appearance of its "defeater", and compare the two approaches to this question: that of the discussed in "contemporary theories of knowledge" and the other of the model cognition by models. According to the scheme of "contemporary theories" after the appearance of a "defeater" we ought simply to reject part of the conclusions (or beliefs) accepted earlier as justified. And concerning those which we retain at that stage as justified (or accept anew as such) we have no guarantee that we will not reject them in the future. Naturally, it is impossible to rely upon such cognition and likewise concerning its guidance in life.

According to the offered model cognition by models, when a fact contradicting common conclusions of some concrete model is found, these conclusions are not generally false and are not rejected, but the borders of their truthfulness, like those of all other conclusions of the model are corrected, and a bigger and more precise model applicable in more fields is created.

What is the difference between the two approaches from the discussion point of view? In the second case we can and must rely upon conclusions of a concrete model. Not in an unlimited space, but we live and act always in some limited space. Not absolutely, only with some probability, but there is nothing absolute in our life.

Here arises the question: because we usually do not know the exact borders of our last model, may it lead us to the same existentialistic results (skeptical about the ability of our cognition) although in another way? I.e. nevertheless there is no point in using our cognition for resolving global human problems, because we can never know if we are inside the borders of the applicability of the model. This objection is not grounded. The matter is that although we do not usually know the exact borders of our models, we usually know some field in which the use of the model is guaranteed. That is the field of reality, on the grounds of sensitive experience of contact with which we formed the concepts of our model. This guaranteed field is smaller than the whole field of applicability of the model, of course, but nevertheless we can say with confidence that achievements of mankind, not only in the sphere of technology, but also in the humanitarian sphere, were based on the use of cognition (model cognition as shown above) in the fields of the applicability of its models.

Everything said above about the reliability of model conclusions and the expedience of using them relates common conclusions. In practice, we are more often interested in reliability and expedience of the usage of particular conclusions. For instance, it is interesting for us to find out which phenomena cause inflation and how to prevent it generally, but what is vitally important for us to know: will we expand inflation, if in our concrete circumstances we make these and those steps, and what is the probability of such a result. In order to answer this question we must examine the reliability of particular conclusions of a model - the subject we put off earlier.

As already said, particular conclusions correspond to common ones, but suppose the conditions of the latter have been fulfilled. Nevertheless, we are interested as a rule in the reliability of particular conclusions not in the past, but in the future, and this is a problem. The matter is, that among the conditions of each common conclusion there are those (although, as a rule, they aren't written, only assumed) which we cannot guarantee the fulfillment of in any degree. For example, we cannot guarantee in any degree that in the period before the expected fulfillment of a conclusion, a comet (or another cosmic catastrophe) will not smash and destroy the earth or not even destroy, but change all conditions on it, including the prescribed one in that particular conclusion. This means that in this sense particular conclusions have no guaranteed reliability. There is only some kind of conditional reliability of it (under the condition that no cosmic catastrophe or something like that occurs in that period). This latter is either equal to the reliability of the corresponding common conclusion or bigger, because most of the

conditions of common conclusions are formulated in the terms "from" "till", and their reliability is defined by extreme values of such conditions, nevertheless in a particular case (in circumstances of a particular conclusion) the concrete value of each such condition is found in some intermediate position between "from" and "till".

The question is: does this peculiarity of particular conclusions give the ground for the above mentioned existentialistic statement? I.e. how may and must we rely on our cognition, if tomorrow a comet can come flying and destroy the earth? Here in accordance with the beautiful models we are projecting capitalism, socialism, certain ethic systems etc., but tomorrow, out of the blue, a comet cuts in and alas! It is simply "Rex" of Churlenis or his picture "Silence" with the endless serene sea in the twilight, and the mountain in the horizon with two fires at its foot. It seems that everything will remain in this numb state for ages and will last to eternity. But you cannot get rid of the feeling of some vague threat hidden in this picture, and all of a sudden you shiver - this is not a mountain and these are not fires. This is a lurking monster with his eyes full of terror and mystery. It will suddenly leap and the silence will be split.

Or let us take the vulgar fact of the finiteness of our existence which excites existentialists so violently. Hence it is worthless not only to project the arrangement of society and the creation of ethics, but even such a simple thing as buying beforehand a bottle of beer and putting it into the fridge, so that upon returning home one hot day you can take delight in drinking it - it is not worth doing either since at the very moment you open the refrigerator the comet might fall and or, even more simply, you will be run over by a car on your way home.

But only desperate mystics arrive at such extreme conclusions. Existentialism, by the way, does not reach them. Existentialists, on the contrary, pay considerable attention to the so-called 'small delights' of life. Sartre, for instance, wrote that from smoking a pipe you may get as much delight as from sexual intercourse. And in fact, he liked smoking a pipe while sitting in the open air of a Paris café. He may not have planned this "small delight", only while passing by the café accidentally exclaimed: "Why don't I have a cup of coffee there?". But it is a bit strange that he always had his cup of coffee in the same café at the same time of day.

We may easily explain from the point of view of the above introduced model approach to cognition, why in our perishable world it still makes sense to plan things in conformity with our comprehension of the casual relationship in the world, and not only to realize our small desires, but also to care for a better arrangement of society, for ethics etc., despite the probabilities of falling comets and other unpredictable trouble, including those we are doomed to, such as a finiteness of our personal existence. Our comet will either come flying or not and the car will run us over or not, but, if I do not store a bottle of beer in the

fridge, I upon returning from work on a hot day will surely not enjoy myself with it. In the same way, if we refrain from adhering to laws and ethic norms, then until the earth is smashed by a comet we will live not as a human society, but as a litter of pigs.

Chapter 3

Determinism of the social development and adjacent problems in the model approach

In this article I want proceeding from the model approach to the cognition to set forth my point of view on the society development process, on the degree of the predetermination of this process depending on the conditions under which it is proceeding, on the possibility of effecting this process by different kinds of the human activities etc.

By tradition, all this range of the problems is attached to the concept of determinism. Treatment of the latter in various philosophical schools as well as in literature is essentially different and as a rule rather vague. Even more different and often even contrary are the points of view on the predetermination of the social development process and our ability to effect on it. Let us regard briefly some of these points of view.

We will start with the glorious story by R. Bradbury: "And there was a crash of thunder". It is based on the idea of some kind of the absolute predetermination of our world: the murder of the butterfly in the epoch of the mastodons leads post-factum to the radical change of the social system in the modern state of the future. It is evident, that Bradbury does not take this idea seriously and it is only a literary device for him, however this conception is known not only in the fiction, but also in a number of the philosophies, especially in the religious ones. The meaning of it is as follows: our actions, no matter, how insignificant they might be, lead or may lead to the global changes in the world (or society) in the future.

Another point of view, which might be called the Marxist one, on the contrary declares that the activities of the one single individual, no matter how great they are, cannot change the picture of the society in the fairly distant future, the picture which is determined by the laws of the development of the society. The activities of the one single individual are, so to say, local disturbances which are in any case fades away sooner or later and being unable to change the course of the historical process as such. They may only speed it up

or slow it down. But in principle it is predetermined by the objective laws of development.

As we see, this is also an extremely determinist view on the history, but the contents of the determinism is here absolutely contrary to the Bradbury's one.

There still exists another view of the determinism, or to be precise, the view of the development of the society and the world, the view which may be called absolutely non-determinist and which is reflected in the existentialist approach to the problem. Existentialism regards the social process as a direct result of our activities, which is being accomplished without being limited by any laws of the development of the society or by any other connections (at least existentialism disregards them).

Modern talmudists might right away raise an objection that one of the introduced determinisms (or all of them altogether) cannot be considered determinism since it does not correspond to the definition of the determinism given by this or that author and accepted all over the world. Meanwhile the overwhelming majority of the people in the world never heard such a word at all, and most of those who did hear it don't know its meaning, and those who do know it may be divided into many groups according to the various contents they fill it with.

This is not the matter of definitions. We used the word "determinism" due to its historical connection with the subject. But as it was already mentioned, we mean to treat the subject of the model of the world and the society development process, the influence of our activities on this development, etc. As a matter of fact we do not need either the Marx's or the Sartre's point of view, or the Bradbury's one and prefer to start on an empty spot. But no one will read our work if in treating such a serious subject we will not mention great names and will not use their terminology. As to the latter, i.e. using this terminology without specifying its contents, it is not worth doing if we want a really solid analysis. Let us take into account that many great people lived long ago. It is clear that Marx, for example, could not apply model approach to the study of the society with full understanding of its meaning at the time when there even were no signs of this approach in the air Marx breathed in. Nowadays on the contrary a non-model approach to the above problems is just nonsense and non-step confusion in the determining what we are talking about.

Thus, what are we talking about? We are talking about the society development process. Well, process! Then give us modern instruments for the modeling of the process!

But first we want to correct ourselves: although we stated above that we do not need either the Marx's or the Sartre's opinion on the subject, we still beg

our readers' pardon -it is not exactly so. Or if to be precise, when setting forth our model approach to the problem of determinism, we really do not need them. But we still would need them to convince ourselves and we hope, you, our reader that the problems under the discussion are not just fancy play of one's imagination or an exercise for its development, but they (i.e. their solution either by the Marxism or by the existentialism, etc.) had a very strong and at times tragic effect on the past and the recent human history and are still effecting it. Therefore in the course of the discussion we will in case of need refer to the Marxism as well as to the existentialism (i.e. to their approach to the problem), however not taking on ourselves the role of a researcher of these teachings, even in the subject under the discussion, but only relating to the most characteristic scheme of their solution.

Here we will pass on to the subject. From the point of view of the classical Newton-Lagrange mechanics, or to be exact, its methodological approach to the modeling of any processes, which (we mean this approach and not the Newton's physical picture of the world) is not only not cancelled and unchanged up till now, but, on the contrary, was thousand times confirmed by the development of all modern physics, chemistries, and more than that, economics, biology and sociology, i.e. almost by all the sciences in which the application of mathematics overstepped the limits of the pure statistics, i.e. is universal. And just from this point of view a process (or a process of development) is nothing else than a movement (or a change) of multi-parameter system in the N -measured space. What does it mean- "is"? It means that if we want to study a certain development process, the more so if we want to say something about what it will or might lead to in future and at the same time do not want to read the tea-leaves or to prophesy intuitively, then we have to model this process presenting it as the above-mentioned system.

There might be created an infinite number of such presentations, since an infinite number of the combinations of the parameters by means of which the process might be described there exist. All these models will possess different cognitive possibilities depending first of all on what kind of a task we set before us while building a model. That means that the number of the models one can build is infinite. But there is no reason to get frightened: out of the methodological approach itself we may already extract at the most definite conclusions concerning the determinism.

What is any model of the movement (development, process) of a multi-parameter system in the N -measured space? It is a total of the parameters describing the system and varying in time under the influence of the outer for the system effects (forces or events) in accordance with the connections, limiting the combined changes of these parameters. These connections might be expressed through mathematical equations as it is accepted for the so-called

continuous (and for a certain part - discreet) models or through certain rules expressed in a certain language, such as let us say FORTRAN -the language of the computers, as it is accepted for the certain discreet models, which are being formulated (not only solved) with the help of the computer's programs. The nature of these bonds may be various for different systems. But any system may be described as a total of the parameters with the connections superposed on them. And the process in this system may be represented as the change of these parameters in time under the effect of the outer forces and with regard for these connections.

Classical mechanics of Newton-Lagrange introduced an important concept of a number of degrees of freedom in the system, which is determined by the difference between a number of the parameters and a number of the connections superposed on these parameters. If a number of the degrees of freedom is zero or is negative then the system is unable to move at all (it is over-limited, so to say), there can be no development. If a number of the degrees of freedom is 1, the system can move along the sole trajectory, which is the easiest way to imagine as the movement of a point in the multi-measured space along a certain curve. The point cannot run off the curve but the law of the movement of the point along the curve may greatly vary and is determined by the initial conditions and effects. The point for instance may move along the curve in either direction in principle, or even rush from one direction to another one depending on the forces effecting it. As we see there is nothing resembling Marx's determinism where we through thick and thin must come to communism. In the case of many degrees of freedom the point might move along an infinite number of the trajectories, and along each one it would move in accordance with an infinite number of laws depending on the outer forces, effecting it. We have to mention also that the possibility that such a great system as the society has only one degree of freedom is insignificantly small. Hence the Marx's determinism in his own formulation does not correspond with the facts, to, put it mildly. Nothing can be absolutely predetermined in the fate of the mankind if to stick to the point that any development including that of the society is ruled by the natural laws, and not by God. Or even if ruled by God, but with the assumption that God created the world in such a way that whatever goes on in it is ruled by the objectively conditioned laws-connections. If it is so then there exist: a model, degrees of freedom and the principle possibility to come to communism as well as to something absolutely contrary.

This is in the case that there exists only one degree of freedom but if there are many of them, then one may come to a great number of various "isms," but nevertheless not by any way we like and not to any point of the N-measured space but only in full conformity with the connections. And the above disproves the existentialist's conception of the determinism.

Here we have to clarify several things. The concept of a number of the degrees of freedom is introduced into mechanics for the system with absolutely rigid connections. Besides the fact that there does not exist anything absolute at all, and the absolutely rigid connections as well as any other nominal definitions of our cognition describe only empty multitude, the idea of the absolutely rigid connections is admissible only for the definite mechanical systems, such as a train rails etc. Even for the mechanical systems, containing elastic elements (a spring, for instance) this concept is unfit not only as an absolute one but also practically. The more so it is for the non-mechanical systems and especially for such a system as the society.

However this circumstance does not change the conclusions drawn above since any connections limit the freedom of the system, and in the case of the system with the not absolutely rigid connections, a number of the degrees of its freedom would be as usually determined by the difference between a number of the parameters and a number of the connections, but the subtrahends would contain various correcting coefficients, stipulated by the various nature of the not absolutely rigid connections. It is obvious that all this does not change the above conclusions concerning the determinism.

Thus resting upon Newton-La-Grange approach to the modeling of the arbitrary processes we have already shown the faults of the two basic non model approaches to the determinism. But the model approach itself is not formulated yet. In order to do this we will use one more concept of the Newton-La-Grange mechanics, namely the concept of the stability of the movement. This concept plays a decisive role in the offered model. Therefore we will dwell on it in detail.

First of all, let us take into account that the point in the N-measured space, representing a system with even N-degrees of freedom, in the case when it is not effected by any outer forces moves along the sole quite definite trajectory and, more than that, in conformity with the sole law. Both the trajectory and the law are determined by the initial conditions.

If there is a certain outer force effecting such a point (system), then it will also move along a certain trajectory and according to certain law (a different one, naturally), determined now by doth the initial conditions and the above outer effect.

In most cases the process is not only proceeding under the effect of the outer forces but is also stipulated by them. The process of life on the earth for instance is impossible without sun radiation. The process of the mechanical treatment of a detail (the system a detail - a machine tool) is the result of the energy feeding the machine tool etc. In principle, in the nature as in the society there cannot be an absolute absence of the outward effects on the system. Any

system is a part of some greater system. And this one in its turn is a part of even a greater system etc., and the processes proceeding in the great systems stipulate outer effects for those included in them. For instance, the system 'human society' is effected by the processes proceeding in the nearby environment of the world space. If as the result of certain process on the sun the temperature on the Earth will rise by 100°C at an average this will have such a strong effect on the social process that all the declarations concerning the inevitability of the triumph of communism or the convergence of capitalism with socialism, all the ethical problems and all the arguments about whether there occurs merging of the national cultures on the earth or their further separation will make no sense at all.

Moreover, any observed process, in principle, is effected simultaneously or at different times by an infinite multitude of the outward factors, for instance, by the radiation of the stars and their fields of gravitation. And the influence of the stars is changing continuously at least due to the changes of their position relative to the process.

Naturally, while modeling the process we cannot take into account all the outer effects separately. Therefore we select out of them the cardinal, the characteristic, the main ones, or whatever you call them, the influence of which we describe by the model, and the casual ones, the influence of which we at least at the first stage disregard. The cardinal effects are those ones the influence of which is big enough, and the probability of this influence lasting during the whole period of the process proceeding is far enough from the zero. What means "enough" in this case depends on the degree of the exactness and the safety we want to describe the process with.

The divide of the outward effects on the non-casual (the basic ones) and the casual ones is relative and is dictated by the task we set before us and by the system we limit ourselves to while modeling the process. So, for instance, the models describing the process of the shell flight initially took into account only the effect the powder gasses and the forces of gravity effecting on the process. Then - the resistance of the air. All other outer effects, such as the wind, the changes of the air density etc., were regarded as casual ones and taken into account only through a statistical picture of the distribution of the deviations from the target.

However with the development of the ballistics, not only of the theoretical one but also of the measuring instruments and the electronic computers there started being built the models regarding the wind, the changes of the air-density and many other things as non-casual factors. As a result the accuracy of the shooting (and consequently of the description of the process) increased to a considerable degree, although certain dispersion in hitting the target still remained. The latter can be explained by the effect of other still infinite quantity

of outer forces, which were regarded by the model as the casual ones, such as, for example, gravitation of the stars.

Further to this example we would like to mention a certain category of the casual external effects which we would need for our further descriptions. The matter is that we are, as a rule, modeling not a sole process but a certain type of the processes. In this case we usually attach some definite constant meaning to the certain parameters. But in reality they are never constant, they change from one process to another one within the described type of the processes. Casual changes of such parameters cause casual changes of the outer effects which were initially introduced into the model as non-casual ones. Regarding the proceeding of the process these changes are equivalent to the casual effects, such as for instance, casual deviations from the standard shell-weight give casual changes to gravity forces effecting shell, etc.

Another example of the relativity of the division of the outward effects into the casual and the non-casual ones illustrates the influence on this division of the transition from a smaller system to a greater one: a comet hitting the earth within the frames of the model describing the processes proceeding in the hereabouts of the earth-space is a casual event, but one can imagine such a great system embracing many galaxies with all their comets where the above hitting will be not casual, but a prognosticated on the basis of the model result of the process.

We go back to the stability. Just for the reason of the casual outward forces effecting the system there arises a problem of the stability of the movement, the stability of the process proceeding in the system. In principle the system under any, no matter how small eternal effects, changes its movement deviating from the trajectory it would be moving along if there were no the above effects (even in the case of the smallest possible change).

The movement is considered stable if in a result of the casual outward effects not exceeding the certain value, the maximum deviations from the trajectory of the process (which would exist in the absence of the above effects) will not excel some certain magnitude.

First of all, what is the nature of the stability, why does it exist, what stipulates the stability of these or those processes? The stability of the process is secured either by the inner connections between the parameters of the process or by the outer limits, or by the non-casual outer effects or their arbitrary combinations. By the way, there is no principle difference between the inner connections, outer limits or outer effects, and the one might be expressed through the other one, which is actually accepted in the Newton-La-Grange mechanics, depending on the purposes of the modeling. But methodologically it is more convenient to treat them as different factors.

We will give examples of the stable processes with the different factors providing their stability.

Membrane jammed on the sides and remaining still. Stillness is a particular case of the movement, i.e. of the process. If the membrane is effected by some casual outer force not exceeding a certain one it will start oscillating, deviating from the rest position at the magnitude not surpassing the certain one, i.e. this is the case of a stable process. The stability in this case is due to the inner elastic connections between the elements of the membrane and its rigid connection with the support through the jam. Please, note that, if the balance of the membrane is upset by the casual effects, it is not only that the membrane will deviate on not more than... from the stable equilibrium (i.e. vibrate), but it will even cease moving in some time. This its complete regaining of its initial position which might be regarded as a great degree of the stability, is stipulated by the forces of the inner friction and the resistance of the air. What does in this case mean "casual effect not exceeding a certain one"? It means the effect which will not snatch the membrane out of the jam, will not tear it up and will not cause its plastic deformation.

Another example, the same membrane but under the effect of the non-casual harmonically changing outward force will be in the stable process of the harmonic oscillation with the definite amplitude and frequency. What does "stable" mean in this case? It means that if besides the non-casual harmonic forces there would be some casual ones not exceeding..., then the deviation of the process from the above mentioned harmonic oscillation would be not more than...(and, moreover in the above case these deviations will damp, i.e. disappear after the outward casual forces cease effecting the process). The reasons of the stability are in this case the same as in the previous example plus the harmonic outward force.

The third example: a torpedo with the magnetic head. If it is not subjected to the casual effects of the waves and the wind it moves along the straight line in the direction of the immovable target or along the corresponding curve in the direction of the movable one. Casual, effects of the waves and the wind cause the deviation of the torpedo from the trajectory to the target, but the magnetic forces prevent these deviations from growing and bring the torpedo back to its trajectory on condition that the force of the waves and the wind does not exceed... or the torpedo does not run against a whale on its way.

The fourth example: the details worked up on the machine tool are rolling down along the directing scupper into the gripping arrangement of another machine tool for further treatment. Casual effects which should be of course taken into account when we are modeling such a process (i.e. are projecting an arrangement) are the collision of the details with each other if many of them are falling down simultaneously and also their collision with the walls of the

scupper. Although these effects are predictable but they occur in casual points and at casual times and therefore may be casually summarized. If the total amount of the casual effects does not exceed a certain magnitude, the details reach the gripping arrangement in the required position. If it does exceed it, the details might fly out of the scupper, get stuck in it, etc. The stability is secured in this case only by the outward limits (the walls of the scupper). If the scupper has a vibrator, the stability is ensured also by a non-casual outward effects causing vibrations. The process of the details rolling down in the vibrating scupper is as a rule more stable than in the non-vibrating...(sticking in the scupper occurs less frequently).

In all the above given examples the factors providing the stability worked either separately or in a rather simple combination. But there exist the processes with a highly complicated combination of these factors when all of them in their complex create a qualitatively new factor called a program. The following are the examples of the stable programmed processes: treatment of the details on the automatic machine tool and the development of an embryo.

As it was already mentioned there is no principle difference between the programmed and non-programmed processes, and the program as well as the connections limits might be expressed through the outward effects. As an example we will compare the process of the treatment of the details on the programming automatic machine-tool with the process of the forced oscillation of the membrane, effected by the harmonic outward force. The law of the outward effects changing in time is actually a program of the outward effects and the connected with it law of the forced oscillation of the membrane is a program of process. The program of the treatment of the details may by in its turn interpreted as the law of the changing in time outer forces effecting the detail (which this time will not already be a continuous function, but it did not have to be it in the first case either), and it also may be introduced as a combination of the law of the changing of the outer forces with the law of the changing of the connections (superposing and release) and so on.

From all the above stated we see that first of all the stability of the process depends on what outward effects we consider casual and what non-casual ones. Moreover actually it is impossible to speak about the stability in general and we may only speak about the stability in regard to the certain casual outward effects or certain casual changes of the non-casual effects by abstracting from other casual effects. It is stipulated by the fact that a number of the possible outer effects on the process in the endless universe, including those ones which may have an effect on the stability is in principle, infinite, and we cannot consider all the infinite number of the possible factors, the more so that in the overwhelming majority of the cases we, in principle, have no idea of them.

Second, the process appears to be either stable or not, depending on the magnitude on which we consider the deviation from it admissible. Thus stability is a concept characterizing not only the objective process but also our aim of cognizing this process. As we already know from the previous parts, this is the property not only of the concept of the stability but also of all our cognition (any model of cognition together with all its concepts reflects a certain objective reality but nevertheless it also depends on what we want to know about this reality in the present case, and depending on this there might be very different models describing one and the same field of the objective reality).

Third, the stability of the process depends not only on what casual factors we consider, but also on the value of the factors we include into our examination. Let us say, in the case of the modeling of the torpedo with the magnetic head movement we may disregard possible effect of the earthquakes, eruptions of volcanoes, cosmic catastrophes and even the enemy's shooting at the torpedo etc. on the process, but to take into account the effect of the wind or waves force. And there might appear that for the certain magnitudes of the force of the wind, or the waves, or their directions the process will be stable, while for other magnitudes of the above it will be unstable (all other conditions being equal).

We see that the stability determined this way although is a valuable concept for studying the process, but it has considerable faults.

One of them is the discreteness of the introduced stability: the process may be either stable or unstable for a certain magnitude of the chosen casual effects. But just due to their casual nature we do not know beforehand what their magnitude will be at our next attempt to carry out the process, but we know, as a rule, the probability law of the distribution of these casual magnitudes. To be able to evaluate the stability of the proceeding of the process effected by the certain casual factors with the magnitudes distributed according to the certain probability laws we should use another determination of the stability, i.e. the stability of the process under the given conditions with regard to a certain probability distribution of the certain casually chosen effects is a probability that the deviation of the process from the trajectory, which would have taken place in the absence of the above mentioned casual effects, would be no more than... In this definition the stability may be greater or smaller, may change from one meaning to another one continuously and possess measure. Strictly speaking the above stated definition of the stability through the probability is nothing else than its measure definition, and the stability itself may be determined as the quality, the measure of which is determined above.

Now we can pass over to the determinism in general and the determinism of the process of the social development in particular. The determinism in the model approach is nothing else than the stability in the second variant of the

definition. The more stable the process is the more it is determined, the less it is subjected to the casual outer effects.

To be able to appreciate the merits and the advisability of the suggested term of the determinism we will put the question this way: What kind of determinism besides the introduced one can we talk about (in the frames of the model approach of course). We can see the only possibility here: we can talk about the determinism of the infinite universal process in the infinite universe, and to try to find out if there is a place for casual effects in such a universal system.

The answer to this question depends on whether we admit the existence of God. If we take a purely atheistic position then our answer is one-meaning and follows from the above stated model approach: the universal process cannot be predetermined due to the infinity of the universe. The above means that no matter how great might be the system we are examining, with the processes proceeding in it, it would always be a part of even a greater one, and the processes of the latter would produce those outer casual forces which effect the first system. If we then admit the existence of God, then the answer depends on the religions we are professing.

We have to note, however that most religions, and Judaism and Christianity among them, deny complete determination of the world process, although they admit its great degree, predicting final results, such as the Doomsday, the advent of the Messiah, etc. However, complete determination as it was already stated is denied by them because, let us say, the time of the Messiah's advent depends on the human deeds, and first of all, because a man is kept responsible before God for his actions, what contradicts the assumption of the absolute pre-determination of these actions. By the way, it might seem that this admittance of the responsibility and the well-known religious dogma declaring that everything is God's will contradict each other. But in fact, however, there is no contradiction here, and no matter how strange it might seem, but just the model approach permits to explain, why (in a certain interpretation, of course).

The explanation of the above is that human actions have small effect on the life process in general and even on his own life in particular. They certainly have influence on this process but do not break its stability and, consequently, its final result. But the greater effects determining the trajectory of the stability are the outer effects, those coming from God. No doubt, this is only one of the possible explanations. It does not follow from any rational model, however, on the other hand, there is not and there cannot be any model which would completely deny it.

Naturally, from the model atheistic approach the more so follows the impossibility of the predetermination of human actions, the presence of the subjective element in them and, consequently, the responsibility of a man for his doings.

When passing on to the determination of the stability of the social processes it is worth to find out, by analogy with how it was done at the beginning of this part for the mechanical processes, what are the reasons of the stability in this case. The investigation of all the reasons would have taken too much time and therefore it cannot be carried out in the frames of this issue. But at least one of the reasons we will point out as an example. This reason is the power of the accepted social opinion or the stereotype which plays the role of inertia in the mechanics. The bigger is the physical mass in the mechanics or of the people in the society, the more is the force of inertia, the stability of the process, and the greater is the effort required for changing the trajectory of the process.

Now we go back to the question to which degree the process of the social development is determined or stable. To answer this question we should first of all clarify for ourselves in regard to which casual outward effects this stability interests us, might or should interest. Nominally it is in regard to anyone of course. But, actually, to get interested in the stability of any processes with respect to the outer effects, not only unknown to us, but which we even cannot imagine, or which probability is equal to zero, is pure scholasticism. Practically, we may get interested in the stability of any process with regard to the known to us factors of the outer forces, effecting it, and only such ones, which probability differs from zero. If, for instance, we are interested in determinism of the process of life on the earth, then as casual factors, regarding which the stability is determined it is logical to examine the changes of the life conditions, which took place in the past, or the characteristic of the probable distribution of these changes in future. We may also examine the stability of this process in its initial definition in regard to some concrete factor of a certain magnitude, let us say, atomic or some other catastrophe. If we speak of the determinism of the social development process, then we should in addition also consider a human casual factor, which is not only rather specific, causing difference between the social development process and all the other processes, but also a factor determining this process. What kind of factor, or rather, factors are these? These are the ideas suggested either by sole individuals or the groups of people; this is the mentality of the whole society, or of its various groups, these are the social activities of a man, or the groups of people: propagandistic, cultural, legislative and revolutionary activities, and at last, the productive activity, scientific-technical, for instance. By the above mentality we mean an existing system of values,

which is accepted by the whole society, or its part, and which determines the behavior of the whole society or this part.

The peculiarity of this factor is, first of all, in its subjectivity, second, in the fact, that we consider ideas, various activities of a man and even changes of the mentality as outer forces, effecting the system “human society”, while the bearers of the ideas and the executors of the deeds are themselves a part of this system, and the mentality is the property of the whole society and is distributed among all its members. No doubt, this seeming contradiction should be eliminated.

Let us remember, that there is no principle difference between the inner connections and outer effects. And everything depends on the way the task is formulated, but, nevertheless, such formulating must be done. We will start with the effect of the already existing idea. To turn it into the outer effect for the society development process it is enough to regard the society, excluding the author (the authors) of the idea. With regard to this part of the society, practically coinciding with the whole society, the idea formally will be already an outer effect.

There still remains one more question: with what probability may we expect the appearance of the new ideas, and which ones exactly. Naturally, that due to the incomplete pre-determination of the world process and due to the meaning itself of the conception the “new mentality”, we cannot, in principle, predict for sure, what the new idea will be like before it appears. However, the probability of the appearance of the new, significant ideas, which would effect on the society this or that way, may be appreciated on the basis of the extrapolation of the previous history of the mankind on its future. And here we may speak not only of the mathematical expectations of a number of the new ideas, which might appear in the following 100 years, let us say, but also of a function of the distribution, depending on the situation, in which the society abides at present. So in the situation of the great dis-satisfaction of the society with its conditions, we may expect greater frequency of the appearance of the new ideas, able to influence the social process. There might be discovered many other regularities, as well.

Now let us represent the change of the mentality as outer effects. It is worth remembering, that the casual changes of the parameters and the connections of the system, in which the process is proceeding, are equivalent and might be formally considered as casual outer effects. We should also notice, that the reference of the changing of the mentality to the casual outer effects, in regard to which the process of the stability is being investigated is advisable, as far as we are concerned, only in some rather particular cases. In most cases the parameters of the mentality will belong to the main variable parameters of the system, the stability of which interests us with regard to such casual, outer

effects as changeable conditions of life (scientific technical progress, let us say), ideas and the like.

As to the stability of the social processes, regarding such human factors as different kinds of the human activities, such as, for example, scientific-technical or legislative ones, here at the first sight it seems especially incomprehensible, how this activity which is, no doubt, a display of the inner forces and the interaction of the system elements, may be considered as an outer effect for the system. The nuance here is what we will consider to be a system, in which this or that social process is proceeding. At first sight, the reply is obvious: the system, in which the social process is taking place, is a society, its elements are people, and it is the sole system we may speak about. But actually it is not so.

The point is that actually the reality is infinite not only in space and time but also in the sense of its infinite variety. Therefore in some volume, no matter how small, finite in space, there are simultaneously taking place a great number of the processes which are in principle interconnected. It is natural that in no model we can examine all the processes going on simultaneously. That is why we examine one or several of them, disregarding the effect of others on the examined ones in the case, when this effect is insignificant, or we consider it as a given outer effect. The effect of the disregarded processes and also the deviations of these, which we take into account as a given outer effect are equivalent to the casual outer forces effecting on our process.

We will explain the above by giving examples.

Let us take the work of a piston under the gas effect, feeding under pressure each cavity of the cylinder by turns through valves. The system consists of the following elements: a cylinder, a piston, gas. The investigated process is extremely stable with regard to the outer casual effects possibly taking place under the ordinary conditions with the probability evidently different from a zero, such as casual pushes, gas temperature changes, changes in its chemical composition etc. The stability is conditioned by a rigid program of the outer forces effecting on the system: by opening and closing the valves at certain positions of the piston and by filling the cavities with gas and discharging them from it under the pressure accordingly.

There arises a question: "Is there in the examined system taking place only the sole process we are interested in?" By no means, there is an infinite number of other processes going on in it. We even do not mention such processes as the exchange of the free electrons between the piston and the cylinder, etc. We wish to point out only those processes, which actually interacts with the examined one, and in the way that sooner or later we will not be able to disregard this interaction since it will essentially influence our process and in particular - will disturb its stability. To that kind of the processes belong the following ones: the

process of the mechanical wear out of the parts of the system, especially of the piston-rings and the valves, the process of the chemical interaction with gas, which can be never completely cleaned from admixtures (corrosion), the process of the stable wear out of the piston rod or any joining elements, etc. We know too well that sooner or later all these processes will lead to such a state of the process, we are interested in, that it will lose its stability, in other words the piston will get out of order. Therefore it is quite logical on our part to take interest not only in the stability of the main process with regard to the casual outer effects (pushes, fluctuations of the gas temperature, etc.), but also in the changes of the system, which are the result of the other processes proceeding in the system together with the main one and interacting with it.

The above example brought us nearer to our purpose but we still have not achieved it yet. We see that from the point of view of the consequences, the interaction with other processes taking place in the system resembles in its results outer forces, effecting on the system. This is enough for the practical utilization of the discovered phenomena, but is not enough for its philosophical comprehension. There still, in principle, remains unanswered the above asked question, how is it that the inner interaction appears to be an outer effect for the system, and whether it at all appears to be the one? And if not, then it will turn out that the initial definition of the stability and, consequently, of the determinism is either a failure or incomplete. In any case it does not comply with the task of the investigation of the social process, we set before us.

But it appears to be an outer effect: the inner interaction of the processes proceeding in the system becomes an outer force, effecting on the system. Everything depends on which system we are talking of in the first case and of which one - in the second one.

The matter is that the infinite nature does not know any division into the inner effects (interactions) and the outer ones. This division is exclusively the product of our cognition. The outer effects appear only after we for the sake of cognition "cut out" of the infinite universe a certain system, and replace its connections with the rest of the universe by the outer effects.

However, it should be mentioned that the nature does not know any division into the processes. The nature is one sole bounded system in which there is proceeding one sole indivisible process. Any "cutting of" of the system is relative. We "cut it off" not with the scissors, but with the help of the model with concepts. In previous parts it was shown, that the models evidently describing the same fields of the reality but describing them with the help of the different concepts, actually describe different multitudes of the objects (fluctuations of the qualities) and, consequently, different systems. We will remind you an example of the comparison of the Marx's model of the surplus value with the mathematical-economical models of the optimum output etc.,

which apparently deal with the same objects: people, money, goods, but they actually come forward with the different qualities in the different models, i.e. we deal here with the different systems.

Now everything takes its place. One and the same man through its different activities: productive one, participation in elections, cultural activities, assimilation and dissemination of ideas - takes part not only in the various social processes (although connected with each other), but also comes forward as an object belonging to the various systems studied by us (we have to remind the reader that the above systems appear only when studied by us, but actually there exists only sole universal system). I.e. the result of the industrial or scientific-technical activities of a man in one process (scientific-technical, let's say) and in one system would be outer forces effecting another process in another system, in which the same man is acting, for instance, in a process of the evolution of the mentality of the society. As a particular case it will be an outer effect for the same man himself, but "the same man" only in the common meaning of the word. But in the model meaning he will effecting on "other man" i.e. an object of another system. The difference between these two objects (which are one and the same man) and, consequently, between the two systems is what qualities of a man we take into account in each of the systems, what connections between the people-objects we are regarding accordingly.

It should be mentioned that due to the property of the human language we use one and the same expression "human society" for all the systems of the different models describing different processes in the society, while actually this term would have different contents (in the model meaning) for the various processes. It is not a big trouble, and there is no need to introduce different terms, if we only remember that in the different models one and the same word-denomination of concept is used for the description of the different in the model meaning systems.

Now, having clarified with regard to which human factors we may, in principle appreciate the degree of stability, it is logical to examine the stability or determinism of the human society development process.

I say "in principle", since I do not mean to do it in this book, for the above purpose would demand a review of a significant part of the history to enable us to appreciate the stability on the basis of how the process was proceeding up till now, and this cannot be done in this part due to its size or it would demand carrying out some active experiments for which we all the more have no possibility.

But nevertheless it would be worthwhile to give examples of the human nature effects, strong for the social development process. First of all, we will specify the terms "strong" and "weak" effects. Due to the fact that there exists

stability, the effects not exceeding a certain magnitude cause only local disturbances of the process, which are dying out eventually, so that in the whole, after a certain period of time the trajectory of the process remains the same as if there had not been any effect at all. We would call that kind of the effects "the weak one". It is obvious that most human actions, such as declarations, public speeches, publishing articles and books, foundation of various kinds of organizations, terrorist acts, etc. are, as a rule, weak effects for the social process. Strong effects are those, that alter the process of the social development in global to such an extent that, even after the effect ceases, the process is still moving along a new, essentially different trajectory. And, as a rule, and on this new trajectory the process possesses stability, so that for bringing it back to its former trajectory it is not enough only to interrupt the above-mentioned strong effects, and is not enough to apply weak effects for this return. There again a strong effect commensurable with the former one, but opposite in its direction is needed. The existence of the measure for each process (conditioned by its stability) which divides all the effects into the weak and the strong ones might be compared with the existence of the quantum of energy in physics: photon flies out only under the effect of the quantum of energy and then there happens an irreversible for the weak effects alteration of the system. There might be even introduced a concept of a quantum effect for any processes, possessing stability, including the social one.

Below is given an example of a quantum (or strong) effect on the social process in Russia and even in the whole world from the recent history. It is the revolution of 1917. This quantum was formed of many components of human activity: of the Marxist teaching and the foundation of the Marxist party, and of the propaganda and the revolutionary activities, and of the WW1 which shattered and weakened the system of Russia, and of the certain rotting processes which had been destroying this system long before the war broke out, and at last, of the armed revolt. When the strong effect took place, the process changed its trajectory, and though most of the effects which formed the quantum, ceased their existence long ago (the war was forgotten and no one in Russia believed in the Marxism any more, etc.), and there existed effects of the opposite nature, such as rotting of the new system, the dissident activity, etc., this system nevertheless demonstrated some period the stability, and the process was proceeding in such a way that socialism was spreading all over the world. V. Bukovsky in his book "A Trip", when describing the weakening of the ideology in Russia and corruption, shows surprise how this regime still manages to exist and even to be supported by all countries of the Third World. The answer is that in order to alter it there needed a quantum effect, and the dissident activity even against a background of decay of regime and disbelief in the Marxism has not reached a quantum till 1991.

We will enumerate now those kinds of the human activities of which (in the main) quantum effect may be formed, the effect, that would globally change the process of the human society development. These are first of all great religious and social teachings, revolutions, the scientific-technical progress and, at last, legislation. To the weaker ones but still considered to be strong effects there belong of the activities of groups of people (the government, for instance), leading to the alteration de-facto of the accepted mentality, the morality of the society - as a particular case.

Thus, we arrived at the conclusion, that the social process possesses a certain stability, which is different in the different parameters and at the different stages of the development, but is never absolutely determined. It is never absolutely determined in the two meanings: a) due to existence of the effects of the processes proceeding in the system, including our earth, i.e. in the infinite universe, and unpredicted just due to its infinity. b) due to the effects, purely human nature, conditioned by the subjective factors of the human will which is not predetermined either and cannot be in principle foretold.

There arise two questions:

1. How does the subjective factor of the human will accord with the rationalist model as such?

2. What are models of cognition describing the society worth, if there exists a subjective factor (of the human will), which in principle is not predetermined and cannot be prognosticated? We will try to answer the above questions.

First of all, how does within the frames of a rationalistic causative model appear subjective will or individuality? We will remind you that the rationalism (at least the modern one and the one we profess) originating from the causation of every phenomena which occurs in the world. Even an individual, his origin and his will does not deny a casualness either. It is also worth mentioning that there are an infinite number of reasons, casual and non-casual, for the appearance of such a phenomenon as an individual, a personality. We will remind you that the division into the casual and non-casual causations (effects) is relative. Absolute, however, is the fact that no matter what a great number of causations we will single out, the causations of the past, which we might study, or the causations which we prognosticate for the future, there always will still remain an infinite number of the casual, not taken into account causations which, no matter how small might be the effect of the each of them separately, (not taking into consideration that there might be also the causations for which it is not small at all) in their total might give on effect which cannot be neglected. In other words, the process of building up a personality (as well as a social process) is not absolutely determined. A nature personality represents a certain

stability, which is determining the reaction of a person to the outer circumstances, i.e. his will. Because the personality cannot be described with the absolute precision (due to the non-absolute determinism of its origin) and because any act of the human will is determined by the personality and the outer effects, among which there is always an infinite number of the casual ones, the display of the human will is not pre-determined either, cannot be foretold, in principle, and contains a subjective element (the above-mentioned stability called personality). Thus, we see that the origin of the personality as well as the display of his will are quite causative which leaves the subjective will within the frames of the rationalism. This however does not eliminate the subjectivity, which is the generalization of an infinite number of the accidentals on which the stability called a personality is superposed.

As for the answer to the second question, it is already partly given in previous parts: any our model including the model of the social process is correct within the limits of the certain conditions. A comet falling down might upset its applicability which is, however, not a reason for the refusal to use the models. As far as the subjective human factor is concerned, here we have to note that human and subjective are not the same thing. The human element contains a subjective one but it contains at the same time an objective factor related to the common for the whole mankind nature and the social ties, and to these causations of the building up a personality (personalities) which we have no reason to completely refer to the casual ones (genotype, bringing up, social environment, etc.).

Besides, in the social models we are, as a rule, interested not in a solo individual, but in the masses with the transition to which the role of the subjective factor decreases due to its becoming average for many individuals. Thus, the behavior of the masses might be prognosticated with the probability different from the zero, but nevertheless not equal to 1, in principle. And judging from the fact how difficult to prognosticate even the economical behavior of the masses, and even the possible appearance of the sudden turnings of the mentality which is connected with the effect of the charismatic personalities this probability cannot be even close to 1.

But what do actually the social models give us? They give us a possibility of the appraisal of what will happen in this or that case in the assumption that the mentality of the masses would not changed spasmodically. As always "in the assumption", but such is our destiny. Besides this mentality, although it sometimes changes spasmodically (and unpredictably), but not very frequently, and these leaps are all the same dancing around a certain point stipulated by the common for all people nature and the connections of the society.

At the same time while evaluating different social phenomena, we should not forget about a principle possibility of the effecting the mentality or the spirit

of the masses through the ideas, which in its turn might lead to a sudden alteration of the system including all the processes taking place in it, i.e. to reach a quantum effect. The above especially refers to the effects, which might lead to the mass demoralization of the society or, on the contrary, to the spirit-flight of fanatical character. Both would alter the system to such an extent that most processes, including the economical, the cultural ones, etc. would take a new course, different from the one prior to the above effect. As an example, we may point out Humaini's revolution, in the basis of which lies the effecting of the mentality of the society in the direction of the sharp flight of the fanatic religious spirit, which caused a global alteration of the system together with all the processes proceeding in it. We have to notice that the probability of the appearance of such ideas, as it was already mentioned, can be appraised only with the distant approximation, however, possible consequences of the already appeared ideas can be predicted with the much greater degree of certainty, which will be illustrated below, especially in our last chapter.

Now, leaning upon the suggested model of determinism we will show how the non-model approach leads to the overestimation of the degree of stability of the human society development process in the Marxism and its underestimation in the existentialism.

We will start with the Marxism. First of all we should note that Marx himself did not absolutize absurdly his laws of the social development, the inevitability of the triumph of Communism, for instance. This follows from his own postulate that any truth is concrete. He, certainly, not sufficiently investigated this concreteness with regard to his own truths-laws but there's no doubt that he did not think that Communism will win even in case the mankind perishes from the collision of the earth with a comet. However, in spite of his admission of the concreteness of the truth Marx undoubtedly was absolutizing beyond measure the laws suggested by him. This showed in the terminology itself: laws and not tendencies, conditioned by the stability of the process. We cannot blame Marx for his terminology (taking into consideration at what time he was writing), but we either cannot close our eyes to the objective consequences of the inaccuracy of this terminology, the inaccuracy which gave the Soviet Union a theoretical basis for the expansionist policy, and the attempt to force socialism on those societies which natural course of historical process by no means can lead to socialism in contradiction to the formulated by their teacher "absolute objective laws".

But another point is more significant: whether at all existed the pointed out by Marx tendencies of the social development, whether they still exist at present, how strong they are, what factors besides cosmic catastrophes, the factors stipulated by the human activities are the strongest effects for the above tendencies. Here we have to point out that Marx surely did grasp a certain

tendency of the social development of his time, but undoubtedly overestimated its stability in regard to the effects of the human factors. We already do not mention the potential of the atomic bombs accumulated by the humanity and able to destroy it, eliminating the effects of any tendencies. But except this we see that the process of the social development after Marx brought us to the situation that at the nowadays reality the main fundamental Marxist conceptions such as exploitation, the dictatorship of proletariat and the like - appear to be worn out, they changed their contents or lost it at all.

Let us discuss exploitation. According to Marx, its measure is the difference between the labor cost and the salary of the worker. But then socialism was built, and it was destined to eliminate exploitation forever. And what happened? Was the above difference diminished to a zero? Not in the least! On the contrary, in the socialist countries it was greater than in the developed capitalist countries. However, the Marx's followers insist that, in spite of all, there is no exploitation in socialist system. Why then? Because this difference seemingly covers the needs of the whole society, and consequently serves for the good of all the workers. It means that it covers the distribution of the production (trade), the maintenance costs of the state machinery (including the Communist party ones), the running costs of the army, the social needs, etc. Just a minute! And what we can say about the capitalist society? Is this difference completely eaten up by the capitalists themselves? Is not there a distribution of the production in the capitalist system, or the state machinery, or the army or the social needs? Or are there no expenses for the above items? In reality, the measure of the exploitation is the consumption plus savings of a capitalist less cost of his share in the production (all this with regard to one single laboring, of course). The difference between this model and the Marx's one, is that, first of all, as it has become perfectly evident today, a capitalist is not only exploiting but is himself participating in the process of production, and his participation in it is, no doubt, of a greater weight than that of a laborer, even if there are hired managers. Further, the expenses of a capitalist towards the distribution of the production and the taxes which he pays the state and which cover the running costs of the state machinery, etc. should be also deducted from the Marxist's measure of exploitation. As a result there might to arise a paradoxical situation when the cost of the capitalist's participation in the production would exceed the measure of his consumption and savings, and he might find himself in the position of being exploited by his own hired laborers. Such cases might be found in a rather mixed picture of the Israeli economics, in the small business, such as: 'three joint owners - three laborers', where the owner himself might be at the same time all of them together: a laborer, an engineer and a manager and in the situation of economic difficulties, not to be forced to close the business he would have to pay the laborer more than he is spending on his own needs. We hope that this fact will not excite broad masses of the capitalists and will not

lead them to fighting for their liberation against laborer's exploitation. The above cases are still exceptions.

Besides if we were building here a model of exploitation (which we are not doing in earnest) then we would have to specify the suggested above measure, and this specifying would be in Marx's direction. The point is that the expenses of a capitalist towards the expansion of his company and those of the socialist state are from the point of view of exploitation not the same thing since a capitalist might recover his expenses by selling his business and spent the receipts on his own needs. It is not a problem to calculate which part of the capitalist's expenses is exploitation and which is not, but as we have already noted this is not our task here. We just wanted to show here that Marx's model of exploitation initially had serious faults. But it is nevertheless not empty. Exploitation still exists and the more so existed in Marx's time. More than that, at the time when the laborers' standard of life was rather low, and the capitalists rolled in luxury, Marx's model despite its faults "worked", so to say. (We will remind the reader that our models do not correspond to the reality absolutely). Thus, the main error was not in the inaccuracy of the model built for the situation of that period but in its expansion on capitalism in general without taking into account the possibility of its changes in future (changes within the frames of capitalism without its transition to socialism) i.e. to a great extent in the incorrect understanding of determinism, in the overestimation of the stability of the social development process. In the situation of the present developed capitalist countries when the standard of the laborers' life and the relation between their wages and the cost of the created by them values rose, and the taxation of the capitalists rose as well, the Marx's model of exploitation decidedly overstepped the limits of its application. The reason why Marx did not foreknow the above-mentioned changes of capitalism, as it was already mentioned, in the incorrect estimation of the stability of the studied by him processes ("the process of the capitalism rotting"), in the absolutization of the corresponding tendencies, i. e. in the misunderstanding of determinism.

As a digression, going back to exploitation we will also note that although we do not think that the problem of exploitation disappeared completely in the capitalist society, the more so its ethical aspect, but if we correctly determine a measure of exploitation, we will arrive at the conclusion in many cases the economical demands of the laborers and their trade-unions are groundless, and, moreover, there exist such groups of the hired workers, which taking advantage of their monopolistic position in a certain important branch of the economy win such high salaries that as per above-mentioned measure they become collective exploiters of the society. The latter is especially typical for the small countries like Israel, where such monopoly is easily achieved.

Now let us dwell upon Marx's estimation of the role of the working class in the production of the material values. Here Marx's understanding of determinism shows quite vividly, in particular in his mixing up of the laws-connections superposed on any process with the trajectories of the stable movements - tendencies and introducing them as indisputable laws. The tendency which Marx took for something invariable for all times - namely: the increasing role of the proletariat in the production of the material values - in his time was, indeed, very strong, and this tendency could not be disregarded when prognosticating the nearer future of the society. But not for all times! We already live at the period when this tendency run short, and the role of the science and the scientists if not yet exceeded the role of the proletariat, it will in the near future.

Marx's teaching about dictatorship of proletariat is built on the conception of the invariable for all times role of it in the process of production and, consequently its invariable progressivity. As a result of the changed tendency, instead of the dictatorship of the proletariat there appeared in the USSR the dictatorship of a people - something rather obscure (over itself? over the ruling party?). Thus, we see that the admission of the concreteness of the truth is not enough. When building his model of the social development or, to be precise, of that particular social process he was interested in, Marx disregarded its interaction with other processes taking place in the society, such as, for instance, scientific-technical and legislative ones, which rapidly enough changed the tendencies he singled out and raised to the rank of the absolute laws (with consideration for the concreteness of the truth, though).

We will now pass on to the study of the existentialist interpretation of the subject according to which one can and should fight for the realization of any social ideals without exception, disregarding their connections with other human values, neglecting the circumstances under which they might be realized, or the efforts, means and sacrifices needed for their realization.

We saw that due to the abundance of the processes simultaneously proceeding in the human society and to their interaction, the possibilities of a human being to influence one of them through participation in the other ones are great enough. However, owing to the existence of the connections and the stability of the processes these possibilities are not unlimited, and what is even more important, for any chance there is a price - in the best case - the price of the efforts put in (big efforts, as a rule), and in the worst case - it is the negative effect on other social processes.

All this, by no means, doesn't abolish the existentialist theses of everyone's participation in everything going on in the society, and consequently, of the responsibility for one's actions. Moreover, just this responsibility forces us to consider the objective laws in our activities, as well as the connections,

limitations and stable tendencies. Otherwise, the actions, carried out with good intentions, might lead to the results just opposite to our intentions. Vivid examples illustrating the above might be found again in the economics due to its being studied more thoroughly than other social sciences on the one hand, and due to its successes and failures effecting on "the broad masses of the working people" on the other hand. Here is one of the examples: let us say, the government wants to develop the economics, to build new enterprises and the like. For this to be carried out new equipment should be bought and the building of the new plants should be paid for, but there is no money. What might be simpler, it seems - we will print the money. Then we will start building, buying equipment - and everything will be OK! The plants will manufacture new production and will pay new taxes to the state, so that there would be no need in printing money for the further building of the new plants. But nothing of the sort! Nowadays even people that have nothing to do with the economics know perfectly well that such money-printing leads to the inflation, and the inflation leads to... etc.

The thought that the economics should be guided on the basis of the models more and more enters people's minds, but as to the moral problems of the society, or the problem of the war, the majority of the people nowadays think that it is possible to solve them on the basis of the spontaneous emotional impulses, clothed in the demagogic slogans, such as "Down with the war! Make love!" etc. In this denial of the society of the rational approach to its vital problems a decisive role is played by the existentialism and other relativistic philosophical teachings.

The existentialism and the like, having destroyed in the sphere of the humanities the faith in the possibilities of our cognition (by their approach to the problems of the determinism as a particular case), did the society an ill turn. And that is not because it gave birth to a great number of the terrorist groups of the anarchic trend. The point is, that it gave birth to the mentality, which beyond its expectations but in full accord with its philosophical basis is being characterized by the deep apathy to any social ideals, which alternates with the chaotic, primitive in their theoretical basis movements, which lead to the results opposite to those their initiators wanted to achieve.

In conclusion, we cannot avoid touching once more upon the correlation of the above-stated with the religious world outlook. There exists the objective reality. There are the processes proceeding in it which are submitted to the laws and limitations. For each process of the concrete system there exist the outer effects and the stability, which is called the determinism after the fashion. To some of the readers it might seem, for instance, that the above proves that the Messiah's advent is out of the question, since where is that process conditioned by the causal laws of our models which might even to a small degree justify the

probability of his advent, and all the more its inevitability? However such a conclusion would be a blunder. I.e. it goes without saying that out of the rationalist models and the processes which we might study in the frames of these models no advent of the Messiah might follow. Nevertheless, as we have already stated in the previous parts, the rationalist world outlook is not in the irreconcilable contradiction with the trust in God. It is only that the rationalist world outlook proceeds from the existence of the causations in the world and our ability to cognize them, irrespective of whether the world was created by God or existed eternally. But if the world was created then there exists a probability of the Messiah's advent which will be certainly a violation of the laws of our models but a violation caused by the alteration of the conditions under which our models are applied. Such an alteration might take place not only as a result of the Messiah's or any other divine being's interference but also as a result of the effect of the certain processes, not embraced by our model, on the studied by us social development process, which is the principal and the inevitable defect of our cognition.

Here arises an opposite question: how should a person trusting in God and the Messiah's arrival regard the rationalist world outlook, particularly the true perception of the processes proceeding in the world and the society in accordance with the laws which are correct for the present conditions of the human existence and his present nature?

To the best of our knowledge, even the belief in the Messiah's arrival does not save a man either from the necessity and even the obligation to be active, or from the responsibility for his activity. One has somehow to live and to manage his life before the Messiah's advent too. Certainly, the main thing in the above activities for the both - the religious man and the non- religious one - is in the inner moral impulse of their activities. First of all, one has to be a human being inside himself - according to his strivings and intentions. But it is absolutely impossible to ignore, the reality either. Even the parents, which love their child, dearly do not permit him everything, since by permitting him everything they will do him harm while the impulse of love and kindness uncontrolled by the knowledge and understanding urges them to do just this. The more so, when we deal in the subject of the society and our social activities, in such "trifles" as our intention of building socialism, capitalism, and what kind of them, or the democracy, and what kind of it, and what kind of freedom to permit and what - not (since there is no society in which all kinds of freedom are permitted for what we are being called intensively lately).

We cannot carry out our activities for the good of the tolerable organization of the society life or for the solution of the less general problems without the proper understanding of the objectively conditioned processes taking place in the society and our possibilities of influencing them, i.e. without being

guided by the rationalist outlook and, in particular, by the model approach to the understanding of the determinism.

The stable programmed processes: treatment of the details on the automatic machine tool and the development of an embryo.

As it was already mentioned there is no principle difference between the programmed and non-programmed processes, and the program as well as the connections limits might be expressed through the outward effects. As an example we will compare the process of the treatment of the details on the programming automatic machine-tool with the process of the forced oscillation of the membrane, effected by the harmonic outward force. The law of the outward effects changing in time is actually a program of the outward effects and the connected with it law of the forced oscillation of the membrane is a program of process. The program of the treatment of the details may by in its turn interpreted as the law of the changing in time outer forces effecting the detail (which this time will not already be a continuous function, but it did not have to be it in the first case either), and it also may be introduced as a combination of the law of the changing of the outer forces with the law of the changing of the connections (superposing and release) and so on.

From all the above stated we see that first of all the stability of the process depends on what outward effects we consider casual and what non-casual ones. Moreover actually it is impossible to speak about the stability in general and we may only speak about the stability in regard to the certain casual outward effects or certain casual changes of the non-casual effects by abstracting from other casual effects. It is stipulated by the fact that a number of the possible outer effects on the process in the endless universe, including those ones which may have an effect on the stability is in principle, infinite, and we cannot consider all the infinite number of the possible factors, the more so that in the overwhelming majority of the cases we, in principle, have no idea of them.

Second, the process appears to be either stable or not, depending on the magnitude on which we consider the deviation from it admissible. Thus stability is a concept characterizing not only the objective process but also our aim of cognizing this process. As we already know from the previous parts, this is the property not only of the concept of the stability but also of all our cognition (any model of cognition together with all its concepts reflects a certain objective reality but nevertheless it also depends on what we want to know about this reality in the present case, and depending on this there might be very different models describing one and the same field of the objective reality).

Third, the stability of the process depends not only on what casual factors we consider, but also on the value of the factors we include into our examination. Let us say, in the case of the modeling of the torpedo with the

magnetic head movement we may disregard possible effect of the earthquakes, eruptions of volcanoes, cosmic catastrophes and even the enemy's shooting at the torpedo etc. on the process, but to take into account the effect of the wind or waves force. And there might appear that for the certain magnitudes of the force of the wind, or the waves, or their directions the process will be stable, while for other magnitudes of the above it will be unstable (all other conditions being equal).

We see that the stability determined this way although is a valuable concept for studying the process, but it has considerable faults.

One of them is the discreteness of the introduced stability: the process may be either stable or unstable for a certain magnitude of the chosen casual effects. But just due to their casual nature we do not know beforehand what their magnitude will be at our next attempt to carry out the process, but we know, as a rule, the probability law of the distribution of these casual magnitudes. To be able to evaluate the stability of the proceeding of the process effected by the certain casual factors with the magnitudes distributed according to the certain probability laws we should use another determination of the stability, i.e. the stability of the process under the given conditions with regard to a certain probability distribution of the certain casually chosen effects is a probability that the deviation of the process from the trajectory, which would have taken place in the absence of the above mentioned casual effects, would be no more than... In this definition the stability may be greater or smaller, may change from one meaning to another one continuously and possess measure. Strictly speaking the above stated definition of the stability through the probability is nothing else than its measure definition, and the stability itself may be determined as the quality, the measure of which is determined above.

Now we can pass over to the determinism in general and the determinism of the process of the social development in particular. The determinism in the model approach is nothing else than the stability in the second variant of the definition. The more stable the process is the more it is determined, the less it is subjected to the casual outer effects.

To be able to appreciate the merits and the advisability of the suggested term of the determinism we will put the question this way: What kind of determinism besides the introduced one can we talk about (in the frames of the model approach of course). We can see the only possibility here: we can talk about the determinism of the infinite universal process in the infinite universe, and to try to find out if there is a place for casual effects in such a universal system.

The answer to this question depends on whether we admit the existence of God. If we take a purely atheistic position then our answer is one-meaning and

follows from the above stated model approach: the universal process cannot be predetermined due to the infinity of the universe. The above means that no matter how great might be the system we are examining, with the processes proceeding in it, it would always be a part of even a greater one, and the processes of the latter would produce those outer casual forces which effect the first system. If we then admit the existence of God, then the answer depends on the religions we are professing.

We have to note, however that most religions, and Judaism and Christianity among them, deny complete determination of the world process, although they admit its great degree, predicting final results, such as the Doomsday, the advent of the Messiah, etc. However, complete determination as it was already stated is denied by them because, let us say, the time of the Messiah's advent depends on the human deeds, and first of all, because a man is kept responsible before God for his actions, what contradicts the assumption of the absolute pre-determination of these actions. By the way, it might seem that this admittance of the responsibility and the well-known religious dogma declaring that everything is God's will contradict each other. But in fact, however, there is no contradiction here, and no matter how strange it might seem, but just the model approach permits to explain, why (in a certain interpretation, of course).

The explanation of the above is that human actions have small effect on the life process in general and even on his own life in particular. They certainly have influence on this process but do not break its stability and, consequently, its final result. But the greater effects determining the trajectory of the stability are the outer effects, those coming from God. No doubt, this is only one of the possible explanations. It does not follow from any rational model, however, on the other hand, there is not and there cannot be any model which would completely deny it.

Naturally, from the model atheistic approach the more so follows the impossibility of the predetermination of human actions, the presence of the subjective element in them and, consequently, the responsibility of a man for his doings.

When passing on to the determination of the stability of the social processes it is worth to find out, by analogy with how it was done at the beginning of this part for the mechanical processes, what are the reasons of the stability in this case. The investigation of all the reasons would have taken too much time and therefore it cannot be carried out in the frames of this issue. But at least one of the reasons we will point out as an example. This reason is the power of the accepted social opinion or the stereotype which plays the role of inertia in the mechanics. The bigger is the physical mass in the mechanics or of the people in the society, the more is the force of inertia, the stability of the

process, and the greater is the effort required for changing the trajectory of the process.

Now we go back to the question to which degree the process of the social development is determined or stable. To answer this question we should first of all clarify for ourselves in regard to which casual outward effects this stability interests us, might or should interest. Nominally it is in regard to anyone of course. But, actually, to get interested in the stability of any processes with respect to the outer effects, not only unknown to us, but which we even cannot imagine, or which probability is equal to zero, is pure scholasticism. Practically, we may get interested in the stability of any process with regard to the known to us factors of the outer forces, effecting it, and only such ones, which probability differs from zero. If, for instance, we are interested in determinism of the process of life on the earth, then as casual factors, regarding which the stability is determined it is logical to examine the changes of the life conditions, which took place in the past, or the characteristic of the probable distribution of these changes in future. We may also examine the stability of this process in its initial definition in regard to some concrete factor of a certain magnitude, let us say, atomic or some other catastrophe. If we speak of the determinism of the social development process, then we should in addition also consider a human casual factor, which is not only rather specific, causing difference between the social development process and all the other processes, but also a factor determining this process. What kind of factor, or rather, factors are these? These are the ideas suggested either by sole individuals or the groups of people; this is the mentality of the whole society, or of its various groups, these are the social activities of a man, or the groups of people: propagandistic, cultural, legislative and revolutionary activities, and at last, the productive activity, scientific-technical, for instance. By the above mentality we mean an existing system of values, which is accepted by the whole society, or its part, and which determines the behavior of the whole society or this part.

The peculiarity of this factor is, first of all, in its subjectivity, second, in the fact, that we consider ideas, various activities of a man and even changes of the mentality as outer forces, effecting the system "human society", while the bearers of the ideas and the executors of the deeds are themselves a part of this system, and the mentality is the property of the whole society and is distributed among all its members. No doubt, this seeming contradiction should be eliminated.

Let us remember, that there is no principle difference between the inner connections and outer effects. And everything depends on the way the task is formulated, but, nevertheless, such formulating must be done. We will start with the effect of the already existing idea. To turn it into the outer effect for the society development process it is enough to regard the society, excluding the

author (the authors) of the idea. With regard to this part of the society, practically coinciding with the whole society, the idea formally will be already an outer effect.

There still remains one more question: with what probability may we expect the appearance of the new ideas, and which ones exactly. Naturally, that due to the incomplete pre-determination of the world process and due to the meaning itself of the conception the “new mentality”, we cannot, in principle, predict for sure, what the new idea will be like before it appears. However, the probability of the appearance of the new, significant ideas, which would effect on the society this or that way, may be appreciated on the basis of the extrapolation of the previous history of the mankind on its future. And here we may speak not only of the mathematical expectations of a number of the new ideas, which might appear in the following 100 years, let us say, but also of a function of the distribution, depending on the situation, in which the society abides at present. So in the situation of the great dis-satisfaction of the society with its conditions, we may expect greater frequency of the appearance of the new ideas, able to influence the social process. There might be discovered many other regularities, as well.

Now let us represent the change of the mentality as outer effects. It is worth remembering, that the casual changes of the parameters and the connections of the system, in which the process is proceeding, are equivalent and might be formally considered as casual outer effects. We should also notice, that the reference of the changing of the mentality to the casual outer effects, in regard to which the process of the stability is being investigated is advisable, as far as we are concerned, only in some rather particular cases. In most cases the parameters of the mentality will belong to the main variable parameters of the system, the stability of which interests us with regard to such casual, outer effects as changeable conditions of life (scientific technical progress, let us say), ideas and the like.

As to the stability of the social processes, regarding such human factors as different kinds of the human activities, such as, for example, scientific-technical or legislative ones, here at the first sight it seems especially incomprehensible, how this activity which is, no doubt, a display of the inner forces and the interaction of the system elements, may be considered as an outer effect for the system. The nuance here is what we will consider to be a system, in which this or that social process is proceeding. At first sight, the reply is obvious: the system, in which the social process is taking place, is a society, its elements are people, and it is the sole system we may speak about. But actually it is not so.

The point is that actually the reality is infinite not only in space and time but also in the sense of its infinite variety. Therefore in some volume, no matter how small, finite in space, there are simultaneously taking place a great number

of the processes which are in principle interconnected. It is natural that in no model we can examine all the processes going on simultaneously. That is why we examine one or several of them, disregarding the effect of others on the examined ones in the case, when this effect is insignificant, or we consider it as a given outer effect. The effect of the disregarded processes and also the deviations of these, which we take into account as a given outer effect are equivalent to the casual outer forces effecting on our process.

We will explain the above by giving examples.

Let us take the work of a piston under the gas effect, feeding under pressure each cavity of the cylinder by turns through valves. The system consists of the following elements: a cylinder, a piston, gas. The investigated process is extremely stable with regard to the outer casual effects possibly taking place under the ordinary conditions with the probability evidently different from a zero, such as casual pushes, gas temperature changes, changes in its chemical composition etc. The stability is conditioned by a rigid program of the outer forces effecting on the system: by opening and closing the valves at certain positions of the piston and by filling the cavities with gas and discharging them from it under the pressure accordingly.

There arises a question: "Is there in the examined system taking place only the sole process we are interested in?" By no means, there is an infinite number of other processes going on in it. We even do not mention such processes as the exchange of the free electrons between the piston and the cylinder, etc. We wish to point out only those processes, which actually interacts with the examined one, and in the way that sooner or later we will not be able to disregard this interaction since it will essentially influence our process and in particular - will disturb its stability. To that kind of the processes belong the following ones: the process of the mechanical wear out of the parts of the system, especially of the piston-rings and the valves, the process of the chemical interaction with gas, which can be never completely cleaned from admixtures (corrosion), the process of the stable wear out of the piston rod or any joining elements, etc. We know too well that sooner or later all these processes will lead to such a state of the process, we are interested in, that it will lose its stability, in other words the piston will got out of order. Therefore it is quite logical on our part to take interest not only in the stability of the main process with regard to the casual outer effects (pushes, fluctuations of the gas temperature, etc.), but also in the changes of the system, which are the result of the other processes proceeding in the system together with the main one and interacting with it.

The above example brought us nearer to our purpose but we still have not achieved it yet. We see that from the point of view of the consequences, the interaction with other processes taking place in the system resembles in its results outer forces, effecting on the system. This is enough for the practical

utilization of the discovered phenomena, but is not enough for its philosophical comprehension. There still, in principle, remains unanswered the above asked question, how is it that the inner interaction appears to be an outer effect for the system, and whether it at all appears to be the one? And if not, then it will turn out that the initial definition of the stability and, consequently, of the determinism is either a failure or incomplete. In any case it does not comply with the task of the investigation of the social process, we set before us.

But it appears to be an outer effect: the inner interaction of the processes proceeding in the system becomes an outer force, effecting on the system. Everything depends on which system we are talking of in the first case and of which one - in the second one.

The matter is that the infinite nature does not know any division into the inner effects (interactions) and the outer ones. This division is exclusively the product of our cognition. The outer effects appear only after we for the sake of cognition "cut out" of the infinite universe a certain system, and replace its connections with the rest of the universe by the outer effects.

However, it should be mentioned that the nature does not know any division into the processes. The nature is one sole bounded system in which there is proceeding one sole indivisible process. Any "cutting of" of the system is relative. We "cut it off" not with the scissors, but with the help of the model with concepts. In previous parts it was shown, that the models evidently describing the same fields of the reality but describing them with the help of the different concepts, actually describe different multitudes of the objects (fluctuations of the qualities) and, consequently, different systems. We will remind you an example of the comparison of the Marx's model of the surplus value with the mathematical-economical models of the optimum output etc., which apparently deal with the same objects: people, money, goods, but they actually come forward with the different qualities in the different models, i.e. we deal here with the different systems.

Now everything takes its place. One and the same man through its different activities: productive one, participation in elections, cultural activities, assimilation and dissemination of ideas - takes part not only in the various social processes (although connected with each other), but also comes forward as an object belonging to the various systems studied by us (we have to remind the reader that the above systems appear only when studied by us, but actually there exists only sole universal system). I.e. the result of the industrial or scientific-technical activities of a man in one process (scientific-technical, let's say) and in one system would be outer forces effecting another process in another system, in which the same man is acting, for instance, in a process of the evolution of the mentality of the society. As a particular case it will be an outer effect for the same man himself, but "the same man" only in the common meaning of the

word. But in the model meaning he will effecting on "other man" i.e. an object of another system. The difference between these two objects (which are one and the same man) and, consequently, between the two systems is what qualities of a man we take into account in each of the systems, what connections between the people-objects we are regarding accordingly.

It should be mentioned that due to the property of the human language we use one and the same expression "human society" for all the systems of the different models describing different processes in the society, while actually this term would have different contents (in the model meaning) for the various processes. It is not a big trouble, and there is no need to introduce different terms, if we only remember that in the different models one and the same word-denomination of concept is used for the description of the different in the model meaning systems.

Now, having clarified with regard to which human factors we may, in principle appreciate the degree of stability, it is logical to examine the stability or determinism of the human society development process.

I say "in principle", since I do not mean to do it in this book, for the above purpose would demand a review of a significant part of the history to enable us to appreciate the stability on the basis of how the process was proceeding up till now, and this cannot be done in this part due to its size or it would demand carrying out some active experiments for which we all the more have no possibility.

But nevertheless it would be worthwhile to give examples of the human nature effects, strong for the social development process. First of all, we will specify the terms "strong" and "weak" effects. Due to the fact that there exists stability, the effects not exceeding a certain magnitude cause only local disturbances of the process, which are dying out eventually, so that in the whole, after a certain period of time the trajectory of the process remains the same as if there had not be no any effect at all. We would call that kind of the effects "the weak one". It is obvious that most human actions, such as declarations, public speeches, publishing articles and books, foundation of various kinds of organizations, terrorist acts, etc. are, as a rule, weak effects for the social process. Strong effects are those, that alter the process of the social development in global to such an extent that, even after the effect ceases, the process is still moving along a new, essentially different trajectory. And, as a rule, and on this new trajectory the process possesses stability, so that for bringing it back to its former trajectory it is not enough only to interrupt the above-mentioned strong effects, and is not enough to apply weak effects for this return. There again a strong effect commensurable with the former one, but opposite in its direction is needed. The existence of the measure for each process (conditioned by its stability) which divides all the effects into the weak and the strong ones might

be compared with the existence of the quantum of energy in physics: photon flies out only under the effect of the quantum of energy and then there happens an irreversible for the weak effects alteration of the system. There might be even introduced a concept of a quantum effect for any processes, possessing stability, including the social one.

Below is given an example of a quantum (or strong) effect on the social process in Russia and even in the whole world from the recent history. It is the revolution of 1917. This quantum was formed of many components of human activity: of the Marxist teaching and the foundation of the Marxist party, and of the propaganda and the revolutionary activities, and of the WW1 which shattered and weakened the system of Russia, and of the certain rotting processes which had been destroying this system long before the war broke out, and at last, of the armed revolt. When the strong effect took place, the process changed its trajectory, and though most of the effects which formed the quantum, ceased their existence long ago (the war was forgotten and no one in Russia believed in the Marxism any more, etc.), and there existed effects of the opposite nature, such as rotting of the new system, the dissident activity, etc., this system nevertheless demonstrated some period the stability, and the process was proceeding in such a way that socialism was spreading all over the world. V. Bukovsky in his book "A Trip", when describing the weakening of the ideology in Russia and corruption, shows surprise how this regime still manages to exist and even to be supported by all countries of the Third World. The answer is that in order to alter it there needed a quantum effect, and the dissident activity even against a background of decay of regime and disbelief in the Marxism has not reached a quantum till 1991.

We will enumerate now those kinds of the human activities of which (in the main) quantum effect may be formed, the effect, that would globally change the process of the human society development. These are first of all great religious and social teachings, revolutions, the scientific-technical progress and, at last, legislation. To the weaker ones but still considered to be strong effects there belong of the activities of groups of people (the government, for instance), leading to the alteration de-facto of the accepted mentality, the morality of the society - as a particular case.

Thus, we arrived at the conclusion, that the social process possesses a certain stability, which is different in the different parameters and at the different stages of the development, but is never absolutely determined. It is never absolutely determined in the two meanings: a) due to existence of the effects of the processes proceeding in the system, including our earth, i.e. in the infinite universe, and unpredicted just due to its infinity. b) due to the effects, purely human nature, conditioned by the subjective factors of the human will which is not predetermined either and cannot be in principle foretold.

There arise two questions:

1. How does the subjective factor of the human will accord with the rationalist model as such?

2. What are models of cognition describing the society worth, if there exists a subjective factor (of the human will), which in principle is not predetermined and cannot be prognosticated? We will try to answer the above questions.

First of all, how does within the frames of a rationalistic causative model appear subjective will or individuality? We will remind you that the rationalism (at least the modern one and the one we profess) originating from the causation of every phenomena which occurs in the world. Even an individual, his origin and his will does not deny a casualness either. It is also worth mentioning that there are an infinite number of reasons, casual and non-casual, for the appearance of such a phenomenon as an individual, a personality. We will remind you that the division into the casual and non-casual causations (effects) is relative. Absolute, however, is the fact that no matter what a great number of causations we will single out, the causations of the past, which we might study, or the causations which we prognosticate for the future, there always will still remain an infinite number of the casual, not taken into account causations which, no matter how small might be the effect of the each of them separately, (not taking into consideration that there might be also the causations for which it is not small at all) in their total might give on effect which cannot be neglected. In other words, the process of building up a personality (as well as a social process) is not absolutely determined. A nature personality represents a certain stability, which is determining the reaction of a person to the outer circumstances, i.e. his will. Because the personality cannot be described with the absolute precision (due to the non-absolute determinism of its origin) and because any act of the human will is determined by the personality and the outer effects, among which there is always an infinite number of the casual ones, the display of the human will is not pre-determined either, cannot be foretold, in principle, and contains a subjective element (the above-mentioned stability called personality). Thus, we see that the origin of the personality as well as the display of his will are quite causative which leaves the subjective will within the frames of the rationalism. This however does not eliminate the subjectivity, which is the generalization of an infinite number of the accidentals on which the stability called a personality is superposed.

As for the answer to the second question, it is already partly given in previous parts: any our model including the model of the social process is correct within the limits of the certain conditions. A comet falling down might upset its applicability which is, however, not a reason for the refusal to use the models. As far as the subjective human factor is concerned, here we have to note

that human and subjective are not the same thing. The human element contains a subjective one but it contains at the same time an objective factor related to the common for the whole mankind nature and the social ties, and to these causations of the building up a personality (personalities) which we have no reason to completely refer to the casual ones (genotype, bringing up, social environment, etc.).

Besides, in the social models we are, as a rule, interested not in a solo individual, but in the masses with the transition to which the role of the subjective factor decreases due to its becoming average for many individuals. Thus, the behavior of the masses might be prognosticated with the probability different from the zero, but nevertheless not equal to 1, in principle. And judging from the fact how difficult to prognosticate even the economical behavior of the masses, and even the possible appearance of the sudden turnings of the mentality which is connected with the effect of the charismatic personalities this probability cannot be even close to 1.

But what do actually the social models give us? They give us a possibility of the appraisal of what will happen in this or that case in the assumption that the- mentality of the masses would not changed spasmodically. As always "in the assumption", but such is our destiny. Besides this mentality, although it sometimes changes spasmodically (and unpredictably), but not very frequently, and these leaps are all the same dancing around a certain point stipulated by the common for all people nature and the connections of the society.

At the same time while evaluating different social phenomena, we should not forget about a principle possibility of the effecting the mentality or the spirit of the masses through the ideas, which in its turn might lead to a sudden alteration of the system including all the processes taking place in it, i.e. to reach a quantum effect. The above especially refers to the effects, which might lead to the mass demoralization of the society or, on the contrary, to the spirit-flight of fanatical character. Both would alter the system to such an extent that most processes, including the economical, the cultural ones, etc. would take a new course, different from the one prior to the above effect. As an example, we may point out Humaini's revolution, in the basis of which lies the effecting of the mentality of the society in the direction of the sharp flight of the fanatic religious spirit, which caused a global alteration of the system together with all the processes proceeding in it. We have to notice that the probability of the appearance of such ideas, as it was already mentioned, can be appraised only with the distant approximation, however, possible consequences of the already appeared ideas can be predicted with the much greater degree of certainty, which will be illustrated below, especially in our last chapter.

Now, leaning upon the suggested model of determinism we will show how the non-model approach leads to the overestimation of the degree of stability of the human society development process in the Marxism and its underestimation in the existentialism.

We will start with the Marxism. First of all we should note that Marx himself did not absolutize absurdly his laws of the social development, the inevitability of the triumph of Communism, for instance. This follows from his own postulate that any truth is concrete. He, certainly, not sufficiently investigated this concreteness with regard to his own truths-laws but there's no doubt that he did not think that Communism will win even in case the mankind perishes from the collision of the earth with a comet. However, in spite of his admission of the concreteness of the truth Marx undoubtedly was absolutizing beyond measure the laws suggested by him. This showed in the terminology itself: laws and not tendencies, conditioned by the stability of the process. We cannot blame Marx for his terminology (taking into consideration at what time he was writing), but we either cannot close our eyes to the objective consequences of the inaccuracy of this terminology, the inaccuracy which gave the Soviet Union a theoretical basis for the expansionist policy, and the attempt to force socialism on those societies which natural course of historical process by no means can lead to socialism in contradiction to the formulated by their teacher "absolute objective laws".

But another point is more significant: whether at all existed the pointed out by Marx tendencies of the social development, whether they still exist at present, how strong they are, what factors besides cosmic catastrophes, the factors stipulated by the human activities are the strongest effects for the above tendencies. Here we have to point out that Marx surely did grasp a certain tendency of the social development of his time, but undoubtedly overestimated its stability in regard to the effects of the human factors. We already do not mention the potential of the atomic bombs accumulated by the humanity and able to destroy it, eliminating the effects of any tendencies. But except this we see that the process of the social development after Marx brought us to the situation that at the nowadays reality the main fundamental Marxist conceptions such as exploitation, the dictatorship of proletariat and the like - appear to be worn out, they changed their contents or lost it at all.

Let us discuss exploitation. According to Marx, its measure is the difference between the labor cost and the salary of the worker. But then socialism was built, and it was destined to eliminate exploitation forever. And what happened? Was the above difference diminished to a zero? Not in the least! On the contrary, in the socialist countries it was greater than in the developed capitalist countries. However, the Marx's followers insist that, in spite of all, there is no exploitation in socialist system. Why then? Because this difference

seemingly covers the needs of the whole society, and consequently serves for the good of all the workers. It means that it covers the distribution of the production (trade), the maintenance costs of the state machinery (including the Communist party ones), the running costs of the army, the social needs, etc. Just a minute! And what we can say about the capitalist society? Is this difference completely eaten up by the capitalists themselves? Is not there a distribution of the production in the capitalist system, or the state machinery, or the army or the social needs? Or are there no expenses for the above items? In reality, the measure of the exploitation is the consumption plus savings of a capitalist less cost of his share in the production (all this with regard to one single laboring, of course). The difference between this model and the Marx's one, is that, first of all, as it has become perfectly evident today, a capitalist is not only exploiting but is himself participating in the process of production, and his participation in it is, no doubt, of a greater weight than that of a laborer, even if there are hired managers. Further, the expenses of a capitalist towards the distribution of the production and the taxes which he pays the state and which cover the running costs of the state machinery, etc. should be also deducted from the Marxist's measure of exploitation. As a result there might to arise a paradoxical situation when the cost of the capitalist's participation in the production would exceed the measure of his consumption and savings, and he might find himself in the position of being exploited by his own hired laborers. Such cases might be found in a rather mixed picture of the Israeli economics, in the small business, such as: 'three joint owners - three laborers', where the owner himself might be at the same time all of them together: a laborer, an engineer and a manager and in the situation of economic difficulties, not to be forced to close the business he would have to pay the laborer more than he is spending on his own needs. We hope that this fact will not excite broad masses of the capitalists and will not lead them to fighting for their liberation against laborer's exploitation. The above cases are still exceptions.

Besides if we were building here a model of exploitation (which we are not doing in earnest) then we would have to specify the suggested above measure, and this specifying would be in Marx's direction. The point is that the expenses of a capitalist towards the expansion of his company and those of the socialist state are from the point of view of exploitation not the same thing since a capitalist might recover his expenses by selling his business and spent the receipts on his own needs. It is not a problem to calculate which part of the capitalist's expenses is exploitation and which is not, but as we have already noted this is not our task here. We just wanted to show here that Marx's model of exploitation initially had serious faults. But it is nevertheless not empty. Exploitation still exists and the more so existed in Marx's time. More than that, at the time when the laborers' standard of life was rather low, and the capitalists rolled in luxury, Marx's model despite its faults "worked", so to say. (We will

remind the reader that our models do not correspond to the reality absolutely). Thus, the main error was not in the inaccuracy of the model built for the situation of that period but in its expansion on capitalism in general without taking into account the possibility of its changes in future (changes within the frames of capitalism without its transition to socialism) i.e. to a great extent in the incorrect understanding of determinism, in the overestimation of the stability of the social development process. In the situation of the present developed capitalist countries when the standard of the laborers' life and the relation between their wages and the cost of the created by them values rose, and the taxation of the capitalists rose as well, the Marx's model of exploitation decidedly overstepped the limits of its application. The reason why Marx did not foreknow the above-mentioned changes of capitalism, as it was already mentioned, in the incorrect estimation of the stability of the studied by him processes ("the process of the capitalism rotting"), in the absolutization of the corresponding tendencies, i. e. in the misunderstanding of determinism.

As a digression, going back to exploitation we will also note that although we do not think that the problem of exploitation disappeared completely in the capitalist society, the more so its ethical aspect, but if we correctly determine a measure of exploitation, we will arrive at the conclusion in many cases the economical demands of the laborers and their trade-unions are groundless, and, moreover, there exist such groups of the hired workers, which taking advantage of their monopolistic position in a certain important branch of the economy win such high salaries that as per above-mentioned measure they become collective exploiters of the society. The latter is especially typical for the small countries like Israel, where such monopoly is easily achieved.

Now let us dwell upon Marx's estimation of the role of the working class in the production of the material values. Here Marx's understanding of determinism shows quite vividly, in particular in his mixing up of the laws-connections superposed on any process with the trajectories of the stable movements - tendencies and introducing them as indisputable laws. The tendency which Marx took for something invariable for all times - namely: the increasing role of the proletariat in the production of the material values - in his time was, indeed, very strong, and this tendency could not be disregarded when prognosticating the nearer future of the society. But not for all times! We already live at the period when this tendency run short, and the role of the science and the scientists if not yet exceeded the role of the proletariat, it will in the near future.

Marx's teaching about dictatorship of proletariat is built on the conception of the invariable for all times role of it in the process of production and, consequently its invariable progressivity. As a result of the changed tendency, instead of the dictatorship of the proletariat there appeared in the USSR the

dictatorship of a people - something rather obscure (over itself? over the ruling party?). Thus, we see that the admission of the concreteness of the truth is not enough. When building his model of the social development or, to be precise, of that particular social process he was interested in, Marx disregarded its interaction with other processes taking place in the society, such as, for instance, scientific-technical and legislative ones, which rapidly enough changed the tendencies he singled out and raised to the rank of the absolute laws (with consideration for the concreteness of the truth, though).

We will now pass on to the study of the existentialist interpretation of the subject according to which one can and should fight for the realization of any social ideals without exception, disregarding their connections with other human values, neglecting the circumstances under which they might be realized, or the efforts, means and sacrifices needed for their realization.

We saw that due to the abundance of the processes simultaneously proceeding in the human society and to their interaction, the possibilities of a human being to influence one of them through participation in the other ones are great enough. However, owing to the existence of the connections and the stability of the processes these possibilities are not unlimited, and what is even more important, for any chance there is a price - in the best case - the price of the efforts put in (big efforts, as a rule), and in the worst case - it is the negative effect on other social processes.

All this, by no means, doesn't abolish the existentialist theses of everyone's participation in everything going on in the society, and consequently, of the responsibility for one's actions. Moreover, just this responsibility forces us to consider the objective laws in our activities, as well as the connections, limitations and stable tendencies. Otherwise, the actions, carried out with good intentions, might lead to the results just opposite to our intentions. Vivid examples illustrating the above might be found again in the economics due to its being studied more thoroughly than other social sciences on the one hand, and due to its successes and failures effecting on "the broad masses of the working people" on the other hand. Here is one of the examples: let us say, the government wants to develop the economics, to build new enterprises and the like. For this to be carried out new equipment should be bought and the building of the new plants should be paid for, but there is no money. What might be simpler, it seems - we will print the money. Then we will start building, buying equipment - and everything will be OK! The plants will manufacture new production and will pay new taxes to the state, so that there would be no need in printing money for the further building of the new plants. But nothing of the sort! Nowadays even people that have nothing to do with the economics know perfectly well that such money-printing leads to the inflation, and the inflation leads to... etc.

The thought that the economies should be guided on the basis of the models more and more enters people's minds, but as to the moral problems of the society, or the problem of the war, the majority of the people nowadays think that it is possible to solve them on the basis of the spontaneous emotional impulses, clothed in the demagogic slogans, such as "Down with the war! Make love!" etc. In this denial of the society of the rational approach to its vital problems a decisive role is played by the existentialism and other relativistic philosophical teachings.

The existentialism and the like, having destroyed in the sphere of the humanities the faith in the possibilities of our cognition (by their approach to the problems of the determinism as a particular case), did the society an ill turn. And that is not because it gave birth to a great number of the terrorist groups of the anarchic trend. The point is, that it gave birth to the mentality, which beyond its expectations but in full accord with its philosophical basis is being characterized by the deep apathy to any social ideals, which alternates with the chaotic, primitive in their theoretical basis movements, which lead to the results opposite to those their initiators wanted to achieve.

In conclusion, we cannot avoid touching once more upon the correlation of the above-stated with the religious world outlook. There exists the objective reality. There are the processes proceeding in it which are submitted to the laws and limitations. For each process of the concrete system there exist the outer effects and the stability, which is called the determinism after the fashion. To some of the readers it might seem, for instance, that the above proves that the Messiah's advent is out of the question, since where is that process conditioned by the causal laws of our models which might even to a small degree justify the probability of his advent, and all the more its inevitability? However such a conclusion would be a blunder. I.e. it goes without saying that out of the rationalist models and the processes which we might study in the frames of these models no advent of the Messiah might follow. Nevertheless, as we have already stated in the previous parts, the rationalist world outlook is not in the irreconcilable contradiction with the trust in God. It is only that the rationalist world outlook proceeds from the existence of the causations in the world and our ability to cognize them, irrespective of whether the world was created by God or existed eternally. But if the world was created then there exists a probability of the Messiah's advent which will be certainly a violation of the laws of our models but a violation caused by the alteration of the conditions under which our models are applied. Such an alteration might take place not only as a result of the Messiah's or any other divine being's interference but also as a result of the effect of the certain processes, not embraced by our model, on the studied by us social development process, which is the principal and the inevitable defect of our cognition.

Here arises an opposite question: how should a person trusting in God and the Messiah's arrival regard the rationalist world outlook, particularly the true perception of the processes proceeding in the world and the society in accordance with the laws which are correct for the present conditions of the human existence and his present nature?

To the best of our knowledge, even the belief in the Messiah's arrival does not save a man either from the necessity and even the obligation to be active, or from the responsibility for his activity. One has somehow to live and to manage his life before the Messiah's advent too. Certainly, the main thing in the above activities for the both - the religious man and the non-religious one - is in the inner moral impulse of their activities. First of all, one has to be a human being inside himself - according to his strivings and intentions. But it is absolutely impossible to ignore the reality either. Even the parents, which love their child, dearly do not permit him everything, since by permitting him everything they will do him harm while the impulse of love and kindness uncontrolled by the knowledge and understanding urges them to do just this. The more so, when we deal in the subject of the society and our social activities, in such "trifles" as our intention of building socialism, capitalism, and what kind of them, or the democracy, and what kind of it, and what kind of freedom to permit and what - not (since there is no society in which all kinds of freedom are permitted for what we are being called intensively lately).

We cannot carry out our activities for the good of the tolerable organization of the society life or for the solution of the less general problems without the proper understanding of the objectively conditioned processes taking place in the society and our possibilities of influencing them, i.e. without being guided by the rationalist outlook and, in particular, by the model approach to the understanding of the determinism.

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