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ARTICLES

THE NON-CLASSICAL TYPE OF RATIONALITY

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Based on the recognition of the contemporary global crisis of thought and on the observation of some major tendencies within the development of modern science and culture, the authors put forward the idea of the "non-classical type of rationality". They consider it to be one of the historical possibilities that might radically transform the fundamentals of our human world, in fact this process has already begun. The paper explores some of the main features of this process such as, e.g. formation of a new type of scientific object, new conceptual schemes, new logical and methodological arsenals of scientific research, new understanding of human nature, human mind, human action, and social order.

Approaching the end of our millennium it becomes more and more evident that the modern type of rationality – which has dominated Western science and culture since the 17th century – is in a state of crisis; that it has reached the limits of its potential and something new is being created within it. We experience the global crisis of consciousness which concerns fundamental questions of our cultural identity and signalizes the total social crisis of our civilization. A question arises – what is the nature of this identity? Is it still modern or already "postmodern"? Or is it only changing from classical to modern (Král 1994)? Is the crisis of "modernity" a permanent state from which there is no way out and where we can do nothing else than just to bravely endure the fate of our time (Weber 1983)? Should we comply with its anamnesis a deconstruction and thus to acquiesce to the extremes of its dichotomies (Lyotard 1993, Derrida 1993)? Or is this crisis something temporary? Should we believe in future and hope that renaissance of the past will take place in our pluralist society (Ricoeur 1992)? Do we face a decisive turnabout consisting of

our return to the past, Orient and ecology (T. Roszak; F. Capra 1983)? Should we seek an alternative in teleologization of nature and desacralization of culture (Griffin 1988)? Does the route of the rescue of civilization lead through deliverance of the individual "self" from the oppression of blunt rationality? Or does it lead through the enforcement of the principles of fundamentalism whether with a capital "F" (radical, aggressive, insisting on the upholding of the essential articles of faith, e. g. on the literal wording of the Old Testament) or with a small "f" (liberal, human, declaring tolerance and dialogue between the rational and non-rational essence of human life, the overlapping of cultures or mixing science, literature, myth and shamanism in a sort of planetary "Eintopf")? Or should we look for a way out of the crisis via passing to a new type of scientific (physical, etc.) rationality associated with a new quality of life and a new world order (Prigogin 1991; C. F. von Weizsäcker 1992)?

These basic questions have been posed in the particular situation by many contemporary thinkers. A search for answers is complicated. Those who use cheap phrases as replies usually do not know what they are doing. In this paper we shall try to find one of the possible replies. We would like to put forth the following two hypotheses:

i) The crisis of consciousness we are experiencing is part of the global crisis of our whole civilization "paradigm", not the crisis of rationality as such, but merely the crisis of certain historically transient type of rationality that we call Modern Type of Rationality (MTR).[1] MTR had been anticipated by the Ancient Type of Rationality (ATR) which was a dominant way of human thought and action in ancient and medieval societies based on natural economy. MTR has overtaken ATR within the social conditions of capitalist market economy. Both ancient and modern types of rationality keep the nature of the classical types of rationality.

ii) The global crisis of MTR is the "crisis of the growth" and brings the transformation of the core of our human world; it is the process of a radical transformation of the classical type of rationality into a new, non-classical type of rationality which is being formed within the MTR framework and will probably become a dominant way of human thought and action in the following century (of course, on condition that the crisis, or transformation will be successfully managed).

These hypotheses can today be supported by a number of facts identifying the tendencies within the MTR framework which at once cross its limits:

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[1] The historical type of rationality is understood as a global way of "seeing" the world corresponding to the whole historical epoch, its (scientific and non-scientific) knowledge, understanding and re-creation as well as a global way of "seeing" a man in this cognitive, understood, and re-created world. It is not only a certain cognitive model or a pattern characterizing the predominant manner of thought but also a certain civilization pattern characterizing the prevalent mode of human action in a particular epoch, basic cultural values, quality and the way of individual and social life.

1. There is a new non-classical type of science in which a new type of theoretical object with canonically associated quantities subjected to the principle of uncertainty is being introduced.

Entities of the wave-particle nature which associate two seemingly incompatible properties become the object of theoretical physics; they behave once as particles and once as a (probability) wave. The wave-particle nature of microobjects presents itself at the experimental level: if we measure the wave properties of a microobject, its particle parameters are uncertain. The expression of this empirical fact is the Heisenberg's principle of uncertainty (cf. Redhead 1990; 461, 466, 468). Classical theories (Newtonian physics, Maxwell's theory of electromagnetism, Einstein's theory of relativity) contain joint variables which can principally be measured with arbitrary accuracy. In non-classical theories (quantum mechanics, quantum gravitation theory) there are couples of quantities such as position and mobility of a particle, which cannot be determined simultaneously with arbitrary precision. An electron does not have an exactly determined position and a speed in any moment (it does not move round the atom nucleus in orbit); it just can be said with what probability we shall find any value of its speed (Hawking 1995; 52).

In the field of social science and humanities it becomes evident that the most important classical problems like the essence of man, the nature of the human mind and human action or the character of social order, are typical examples of this new theoretical object which classical science could not have adequately understood. The nature of these scientific objects is inherently dynamic and dual or even polydimensional.[2] The dual nature (and apparent paradox) of the theoretical object of non-classical science is neither of the character of analytical opposition (A and non A) nor of Hegelian conjunction (a sort of the "midpoint" between A and non A), not even of the kind of Derrida's difference (a sort of logically incomprehensible and inexpressible "medium" or "dance" between identity and non-identity). Its

[2] Such a nature of theoretical object (which is analogous to the objects of quantum mechanics and quantum theory of gravitation) was anticipated as early as in the 19th century by K. Marx in his analysis of goods. The goods at the empirical level appear to be both useful object and an exchange value (it can either be consumed or exchanged for another product, but hardly can both be done). In its essence (delimited by theoretical thought) it is, however, a differentiated unity of the two canonically associated quantities: utility value and (exchange) value. If two commodities (their owners) meet on the market, one of them, the value of which is to be expressed, shows itself just as a utility value; the second comodity through which the value is being expressed, is presented just as an (exchange) value. Utility value of one commodity becomes material for reflecting the value of the other. The development of this dual nature of the goods is a necessary key to understanding the formation of money (utility value of an article, for instance of gold, becomes a general equivalent in which the values of the whole world of goods are mirrored) as well as to the explication of the formation of industrial capital (labour force turns into the goods; its use in the production process creates greater value than is its value itself).

character is that of rationally and logically expressible dialectic opposition. The logical result of the quantum-mechanical principle of uncertainty for instance is that the mass particle *m* behaves as a wave of the wavelength h/mc, where *h* is the Planck's constant and *c* is the light speed" (cf. Hawking 1995; 97).

Classical theories having lacked the principle of uncertainty assumed that precise measurement of the state of the system is possible and that its future can precisely be predicted. Non-classical theories with built-in principle of uncertainly presuppose that the state of the system cannot be measured with arbitrary accuracy; that the system does not have any precisely determined future; that its real history is developed through a number of various possible histories with different probabilities, and thus its future cannot be precisely predicted either. Basic tendencies of physical, chemical, biological and social processes do not eliminate their chaotic behaviour at all. A minute change of the initial conditions can lead to great changes of the resulting process. The measure of the chaos of the systems is usually characterized by the time in which the small change of the initial state will become double. In the case of the earthly atmosphere it is approximately the period of five days (this is also why the weather can be forecast five days ahead with reasonable accuracy). The motion of planets around the sun, or the motion of the sun and other stars round the centre of the galaxy, or the motion of the galaxy in a group of galaxies, is in fact also of chaotic nature even though in an unusually long period of time. The behaviour of our universe is simple and not chaotic only in relatively large dimensions and its distant future can thus be forecast, or its past can be reconstructed (cf. Hawking 1995; 75, 129–132).

It is similar with the chaotic behaviour of social systems. Owing to an infinite variety of empirical circumstances (natural conditions, demographic situations, historical influences acting from the outside, etc.), these systems can also show infinite variations and gradations which can only be understood on the basis of the analysis of these given empirical circumstances. The line of human history will be thereby the more tortuous the more we shall move from the economic level of society to its level of ideas, or the more we shall pass from the history of the world to the history of particular areas, nations, groups, and individuals. It is difficult to use fundamental laws for predicting the behaviour of individual human beings since, as S. Hawking points out, we are unable to solve here fundamental equations because of the large number of particles which take place in the game; but even if we knew it, the result could disturb the system and lead to another new one (cf. Hawking 1995; 125).

The introduction of a new type of theoretical object enables non-classical science to better understand the inherent dynamics of natural and social processes (processes of self-determination, self-organization, self-transcendence, simple, narrowed and extended reproduction). It creates a space for rational solution of problems which occurred within the limits of classical science in the form of dichotomies, paradoxes, and antinomies.

2. Qualitatively new conceptual systems with a new network of philosophical categories created in the background are being formed.

ATR mediated our understanding of the world through the network of philosophical categories centralized around the categories of thing, quality and relation of similarity. That enabled the description of phenomenal qualities and the classifying way of thought. In MTR, our seeing of the world is mediated by a much better developed network of philosophical and scientific categories, which centralize around the categories of relation, quantity, and causality. This allows a transfer from the description of phenomenal qualities to the analysis of physical and other quantities, from classifying to causal and functional way of thought, from "ideation" of the shape (Pythagorean revolution) to "ideation" of motion (Copernican revolution) and to "ideation" of life (Darwinian revolution) (cf. Kvasz 1994).

The network of the categories centralized around the categories of quantity, relation and causality enables to infer from the surface of objects to their inner essence; it does not create, however, sufficient prerequisites for understanding this interior itself; it remains on its surface. Classical modern science from the times of Galileo understood the motion of material bodies as "a fight between inertia and the force". It did not explain motion as such (inertia, gravitation), only the change of motion, how one motion is related to another one (Filkorn 1953; 198). Inherent dynamics of natural and social processes was left outside the scientific explanation or it was explained teleologically. Classical modern science was built on the ontology of inert mechanism; it looked at the world as something composed of invariable "bricks". The disagreement between misunderstood self-determination and determination by another was reflected as a disparity between mechanicism and teleologism or organicism.

Category and explanation insufficiency (incompleteness) of MTR becomes most apparent particularly when investigating humans, their social being, freedom and subjectivity, i.e. the region where the process of self-determination becomes dominant. In this particular area it leads to antimonies of naturalism and anti-naturalism, or scientism and anthropologism.

There is an evident shift in the development of the category apparatus of the non-classical science. Its centre starts to move from the categories of quantity, relationship, and causality to the categories of inner interaction, dialectic opposition and action. The idea of an internally differentiated unity of a variety of forms replaces the concept of homogeneous identity and pure plurality. A category apparatus enables the theoretical reconstruction of *inherent dynamics of integral systems*, processes of their formation, functioning and qualitative transformation, and inclusion of one system into the other (formation of the complex). Owing to this, not only the change of motion but also the motion as such becomes the object of exploration (processes of self-determination, self-organization, self-transcendence, of integral systems). All this creates a prerequisite for a qualitative change in solving

the dichotomies of mechanicism and organicism, or causality and teleologism, and thus provides other ways to overcome the antinomy of naturalism and antinaturalism, and scientism and anthropologism.

3. The tendency of a new understanding of science of logic is being enforced.

The importance of the ATR consisted in reaching an understanding of the concept of scientific knowledge and in working out the subject-predicate logic (theory of syllogism, that is Aristotelian syllogism), in understanding the dialectic as a method of dialogue, aporetics, or as a method of "patient" induction. Within the framework of the MTR, not only the system of modern formal logic but also foundations of non-classical logic were developed. Modern transformation of deductive logic can be considered as a turn and transition from Aristotelian paradigm (the theory of syllogism) to Frege's paradigm (the core of which is the statement and predicate calculi of a first stage). In addition to the deductive logic, foundations of inductive logic were also laid, based on the concept of probability and simultaneously, in addition to classical extensional logic, non-classical (intensional and multivalue) logics were formed and developed. The theory of probability led to the formation of the theory of statistic estimation. Mathematics enabled to launch the construction of instrumental theories of rationality and the formulation of the basics of inductive rules of acceptance (cf. Nozick 1993; 9). The differentiation between "analytical opposition" and "dialectic opposition" was carried out (Kant) and an attempt at discrimination between the logic of judgement (formal logic) and the logic of knowledge (dialectics as logic) was made (Hegel).

However, within the MTR, the question of a logical and methodological application of the non-classical logics is still to be answered; mainly the question of the universe of their possible and fruitful applications, remains open. The discrimination between the logic of judgement and the "logic" of knowledge is insufficient. A lack of respect for this difference reveals itself by the formation of antimonies. It was already Kant who alerted us to the fact that reason gets into antimonies alone, and necessarily when "dialectic oppositions" are declared to be "analytical". But the "dialectic opposition" (dialectic contradiction) itself is understood as Hegel's conjunction, or as Kierkegaard's paradox, which cannot be understood in mind but only in faith, or as Nietzsche's irrational sum of forces, or as Derrida's logically inexpressible and unnameable "différance", or as Capra's return to ancient mysticism, etc.

A remarkable tendency leading to the overcoming of the one-sided reduction of reason to its analytical, understanding (verständliche) dimension is formulated within the non-classical science. It starts to be emphasized that without reason (Vernunft), reason in a narrower sense cannot lead to own self-correction and thus to self-development. In this connection the difference between judgement and knowledge, between logic and dialectic, between analytical and dialectic opposi-

tion, which is not perceived as something negative, mystic, logically incorrect any more, becomes more distinct. The logic itself starts to be understood as a non-classical type of object. Science about logic is formed, which includes both formal logic (science about logical judgement, deduction) and dialectics as a theory of knowledge (science about category forms of knowledge).

4. A substantial change in the methodological equipment of human knowledge and action is taking place.

Within the framework of the ATR the elementary methods of classification analysis, abstraction, induction and rudimentary deduction were worked out. MTR elaborated and developed a relation and causal analysis, abstraction, and idealization, both relational (F. Bacon) and causal (J.S. Mill) induction. Formal deduction was fully developed; methods of axiomatic and hypothetic-deductive development of scientific theories were explored. Analyses were made of the models of subsumption explanation (Popper and Hempel) and explanations by stepwise concretization of idealized laws (Poznan school) as well as methods of both positive and negative verification of hypotheses and theories – confirmation (Carnap) and falsification (Popper).

A strategic line of the MTR is the reduction of apparent motion of things to their inner explanatory basis but the origin of the explanatory basis has not been studied in detail. Moreover, no sufficient prerequisites for the elaboration of deeper explanatory procedures allowing to understand inherent dynamics of natural and social processes have been created. The questions of explaining the law, particularly historical law, of the relationship between logical and historical method, between the explanation based on law and on understanding, between methodology of natural and socio-humanistic science remain open.

In the non-classical science, it is not only the reduction of the apparent motion (change of motion) to its internally necessary basis (inertia, gravitation, self-determination, self-organization) that is regarded as the strategic line of scientific work but also the exploration of this basis and its origin. The basis itself, or the inner basis is not understood in terms of classical substantialism as something invariable and constant (also criticized by K.R. Popper within his anti-essentialist attitude). Thus a better opportunity is offered not only for explaining the fact but also for explaining the law (explanation of factual laws upon idealized laws and explanation of idealized laws upon inherent laws). New, structural-genetic procedures are developed allowing to elucidate theoretically the process of formation, functioning, evolution, and transformation of integral systems. This creates better preconditions for explaining human action, for understanding the relationship between scientific explanation and understanding, and thus also for bridging the gap between the methodology of natural and socio-humanistic sciences.

5. The understanding of the essential modalities of the human mind and thus also the conception of the relationship between the cognitive, ethical, and aesthetical modalities undergo a substantial change.

In the ATR, the differentiation of basic spheres of human culture – cognitive, ethical, and aesthetic – which are syncretically unified in the pre-scientific type of rationality (common sense and mythology), was launched. The process of their differentiation continued in the MTR; each part was developed to become perfect and autonomous. The question which of the essential modalities of the human mind, reason, will or emotions, is dominant in human culture was due to the tradition of the Enlightment resolved in favour of reason. It was only beyond the horizon of the Enlightenment that the possibility of their deeper unification was begun to be sought, such as *via* the differentiation of the two sides of human intellect: understanding (Verstand) and reason (Vernunft) or *via* the mediating function of imagination (Kant, Hegel).

But in further development of the MTR, the essential spheres of human culture – cognitive, ethical and aesthetic – are not only autonomized but also separated, they are even placed one opposite the other. Each sphere is further structured and rationalized internally (it is institutionalized and bureaucratized) and in its independent growth. Within each of them there is a struggle between the rationalism striving for dominance and the emphasis on other components of human mind (e. g. rationalism *versus* empiricism, or rationalism *versus* intuitivism in epistemology, or rationalism *versus* emotivism in ethics, or rationalism *versus* romanticism in aesthetics, etc.) Science, art, morals and religion are formed as incompatible "life orders". The integrity of human mind has analytically been dissociated and brought down. The unifying element has been searched for either in the disciplining power of the "cynical reason" (Sloterdijk) which should hold the other modalities (emotions in particular) in control and direct towards a rational objective or, *vice versa*, in subjecting reason to the irrational element of will and emotion. Such an inner tension of human mind means disharmonization which probably has its boundaries, beyond which there waits a threat of breakdown (resignation) or explosion (aggression).

A theoretical way out from the given situation consists evidently in understanding the human mind as an object of a non-classical type: the human mind is neither a homogenous unity nor heterogenous plurality but it is a differentiated unity of its components – reason, will and emotions – which intertwine with one another. We better realize that also reason can be unreasonable (Marx), or better to say, unwise, or that reason is not enough to act rationally and that will, moral emotions, and practical experience are also necessary. This leads to a better understanding of the bonds between the essential modalities of the human mind and their functions in cognitive, ethical, and aesthetic spheres of human culture. The problem has, of course, also its practical side: we start to realize more and more that overcoming

the separation of these "life orders" correlate with the creation and re-formation of social order in our practical social action.

6. The understanding of the relationship between knowledge and value is substantially being transformed.

Both the ATR and the MTR have differentiated between an object and a subject of human action while the abstraction of the subject as a rational and free being has acquired priority. Within the MTR it has become understood that awareness of external objects as the objects of sensual experience assumes a relationship to the Self (Descartes, Kant). No modern science and modern technology or modern state could be formed without this differentiation.

However, the subject and the object are understood in an abstract manner; the differentiation between the subject and the object itself has led up to their mutual separation and external opposition. The object is understood merely as a thing placed in the nature; it is not perceived subjectively (as an objectified social relationship); the subject is understood merely as an individual mental subject with either the dominating rational (epistemological) "Self" or irrational (ethical and aesthetic) "Self". The active side of the subject is understood mainly as action of my, our or transcendental consciousness. The direction towards pure objectivity liberated from subject (Frege's analytical philosophy) livens up the opposite direction towards pure subjectivity freed of object (Husserl's phenomenology). The knowledge is set apart from value, non-evaluating science from "critical evaluation", rationality from morality. Discrepancy occurs between the subject of knowledge, evaluation, and action. Knowledge (science) is declared to be a value whose final end is instrumental, since it should serve the practice; but objectivistically understood knowledge separated from any values acquired on and implemented as if from the "view from nowhere", is ultimately shown as a hostage of power abuse.

A new understanding of the subject and the object of human agency occurs in a non-classical type of science. The object starts to be understood not merely as a thing for itself, as a thing given by nature, but also as a thing for us, as an objectified social relationship, as a thing which takes a special place in the structure of human agency and starts to fulfil two new functions, i.e. as a thing which has become of special social importance and acquired a personal meaning and special charm for humans. Also subject starts to be perceived more concretely, as an integral self-conscious objective being, capable of creative value-forming action. Thus better prerequisites are created for understanding of the relationship between knowledge and value, rationality and morality as well as for overcoming dichotomy between the so-called non-evaluating science and the so-called critical evaluation.

7. The understanding of the relationship between knowledge and action, theory and practice is undergoing a substantial change.

The fact that the truth is the objective of theoretical knowledge and the aim of practical knowledge is the act (performance) was already emphasized by Aristotle. The MTR witnessed systematic development of theoretical and practical (applied) sciences. Knowledge, particularly theoretical knowledge, revealed the most powerful force which should serve practice and action. And not only knowledge but also action was subjected to special analysis. In the 20th century, mathematicians, economists, statisticians, and philosophers succeeded in developing the theory of rational decision-making and action. This theory is applied in a variety of theoretical and practical contexts. Its apparatus creates a space for developing the formal theory of rational strategic interaction, theory of games, formal theory of social choice and economic development, for the theory of microeconomic phenomena and the theory of political behaviour (Nozick 1993, 179).

However, even within the MTR, the action itself is understood and implemented one-sidedly; rational-power relationship between subject and object dominates in it to the detriment of the communicative dimension of the relationship between subject and subject. Such a way of development and application of science and technology is conflicting and disharmonious; the possibility of mass consumption is paid for by devaluation and even nihilization of values. "Capitalistic science and technology" becomes, as F. Lyotard writes, a sort of concubinage of the two orders, "confusion of two rationalities" – scientific and political. The aims of scientific knowledge are subjected to the purpose followed by capitalism. Knowledge is produced to be sold, it becomes goods and circulates in the information market as money. It loses its original "utility value", focused on the truth of being and is changed into the "public power" (Lyotard 1993; 23, 29, 62–62, 102–104, 152). A question arises whether it is possible to cut this "concubinage of two orders", which has actually fused into one type of "modern" social rationality.[3]

[3] M. Weber considers this problem to be insoluble, P.K. Feyerabaned demands the separation of two rationalities – political and scientific. But how to separate science and the power of capital while preserving conditions under which their concubinage is created? Was Marx right in showing that the controversial use of science by capital cannot be overcome in any other way than just by mastering the capitalistic market economy? Or is it Lyotard, maintaining that this confusion of rationalities has its origin in metaphysics, who is right? Then, to resolve the problem, would it be sufficient to stop thinking out a sort of metanarrative stories and be satisfied with the resistance to this "rationally unjustifiable confusion" (Lyotard 1993, 63)? Or should we agree with C.F. von Weizsäcker, who says that the renunciation of science and technology would not be beneficial to anything: it is possible to prevent disaster only by orientating science and technology towards the right direction and that this aim can only be, if said politically, the new world order (see Weizsacker 1992, 22)? Or is it M. Bunge, arguing that utopias are needed to be able to plan better future, who is right?

The theoretical way out from the given situation is in understanding the human action as a non-classical type of object. We start to realize not only the fact that the criterion of rationality is in action (Aristotle) but also the fact that the action itself is of dual character; it contains not only the relationship of man to nature, but also the relationship of man to man (Marx). The relationship between man and man incorporates not only communicative dimension (Habermas) but it also has economic, social, political and cultural dimension. Man is not only in relation but s/he literally is the relation with nature, society, with another human being (s/he lives it, realizes it and makes of it an object of conscious creation and re-creation). Social dimension of action starts to be the subject of special analysis (R. Tuomela). The category of practice is included into the theory of knowledge and value and the categories of knowledge and value are included into the theory of human action. It opens up new possibilities for solving the problems of the legitimization of reason, truth, good, freedom, and justice, for overcoming the well-known antinomy according to which the justification of the truths of reason is not possible either outside reason or within it itself.

8. The tendencies towards a new quality of the life of individuals and new world and social order are being reflected and anticipated.

ATR was developed within the contexts of civilization based on natural economy where relationships of master and servant (slave, serf) prevailed. MTR is an expression of the needs and interests of industrial societies based on capitalistic market economy. In the societies of the given type, the social order created primarily on the principle of (individual) freedom as an essential political value predominates. Even the people working for hire become politically free owners of their labour force. Market, democracy, and machine technology are the chief driving forces of social motion.

Social order corresponding with the MTR is characterized at least by two basic signs: 1. by connecting the scientific rationality with the technology of power (of man over nature and over another man) and their practical applications; 2. by final orientation towards solving the problem of emancipation of the rational subject. The expression of the former is industrial society, that of the latter free market, political democracy and the rule of law.

The limits of this type of social rationality consist in the fact that capitalistic application of science and technology is of a controversial character: on the one hand, it enriches humankind by socialization of the process of labour but on the other hand it becomes a means of the estrangement of the values, leading to the polarization of wealth and poverty. As a result, it does not create a sufficient space for solving the problem of freedom (full development of democracy in the economic, social and cultural domains); it does not create conditions sufficient for the full development of the sphere of civic society (overcoming of the political power

of man over man, manipulation with people), or for moral and ecological re-education of individuals (for instance, for overcoming the consumptive way of life). Nor does it solve such crucial social problems as questions of social justice (discrepancy between "to have" and "to be"), equality, solidarity, cooperation, etc.

In connection with the transition from industrial society to "postindustrial" (information) society a problem of the new quality of life of individuals and of the new world order is being perceived. In addition to the demand for the full development of democracy in political area (the rule of law) there occurs a demand for the development of democracy in economy (participation of everyone in the ownership of the basic means of production and living and in the distribution of material values produced). Furthermore there is a demand for the development of democracy in the cultural sphere (participation of everybody in the creation and the use of cultural values) as well as the demand of the full development of the civic society (development of institutions independent of political power, overcoming of the political manipulation, of power of man over man). Added to this there is the moral and ecological re-education of people focused on the humanization of the relations of man to nature as well as interpersonal relationships, to overcome the consumptive way of life and the demand of just evaluation of people not according to what they "have" but according to who they "are".

The implementation of these demands and tendencies might lead to a qualitatively new way of the solution of such crucial socio-political problems like freedom, justice, equality, solidarity, cooperation, etc., to a better understanding of their joint bonds.

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The concept of the non-classical type of rationality is not considered as a further "emancipation idea which ought to be implemented". We try to trace its origin in a sum of tendencies formed within the classical type of rationality and crossing the borders of its possibilities. We observe that its "explanation coherence" (Thagard 1992), practical efficiency, moral and aesthetic force are greater than those of the classical types of rationality (ancient and modern).

REFERENCES

[1] CAPRA, F. (1983): *The Turning Point. Science, Society, and the Rising Culture.* London: Fontana Press.

[2] DERRIDA, J. (1993): *Texty k dekonstrukci. Práce z let 1967–1972* (Texts to deconstruction. Works published between 1967 and 1972). Bratislava.

[3] FILKORN, V. (1953): *Predheglovská logika* (Pre-Hegelian logic). Bratislava.

[4] GRIFFIN, D.R. (1988): *The Reenchantment of Science: Postmodern Proposals.* New York.

[5] HAWKING, S. (1995): *Černé díry a budoucnost vesmíru* (Black holes and the future of the universe). Praha.
[6] KRÁL, L. (1994): *Změna paradigmatu vědy* (A Change of the paradigm of science). Praha.
[7] KVASZ, L. (1994): *Klasifikácia vedeckých revolúcií* (Classification of scientific revolutions). Bratislava.
[8] LYOTARD, J.F. (1993): *O postmodernismu* (On postmodernism). Praha.
[9] NOZICK, R. (1993): *The Nature of Rationality*. Princeton, NJ: Princeton UP.
[10] PRIGOGIN, I. (1991): Priroda, nauka i novaja racionalnosť. In: *Filosofija i žizň*, No. 7.
[11] REDHEAD, M. (1990): Quantum Theory. In: *Companion to the History of Modern Science* (Ed. by R.C. OLBY, G.N. CANTOR, I.R.R. CHRISTIE and M.I.S. HODGE) Routledge. London and New York.
[12] RICOEUR, P. (1992): Je krize jevem specificky moderním? (Is crisis a specifically modern phenomenon?) In: *Pojem krize v dnešním myšlení* (The concept of crisis in contemporary thought). Praha.
[13] THAGARD, P. (1992): *Conceptual Revolutions*. Princeton. New Jersey.
[14] WEBER, M. (1983): Veda ako povolanie (Science as occupation). In: *K metodológii sociálnych vied* (On methodology of social sciences). Bratislava.
[15] WEIZSÄCKER, C.F.von (1992): O krizi (On Crisis). In: *Pojem krize v dnešním myšlení* (The concept of crisis in contemporary thought). Praha.