

BOOK OF ABSTRACTS

***1st International Witten Seminar on Philosophy and Medicine, and
3rd International Seminar on Biocosmology***

“Aristotle, Biology, and Medical Anthropology in the 21st Century”

co-organized by
Witten/Herdecke University and Biocosmological Association



June 30th and July 1st, 2012, Witten/Herdecke University, Room E 110

Witten, Germany

**1st International Witten Seminar on Philosophy and Medicine, and
3rd International Seminar on Biocosmology
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Alfred Herrhausen Straße 50, D- 58448 Witten, Germany

Aristotle, Biology, and Medical Anthropology in the 21st Century

Scientific reductionism of the 19th and 20th centuries has led to tremendous progress in medical sciences and civilization, but also to a one-sided emphasis on physical and technical aspects of human existence and reality. The increasingly problematic consequences of this development gradually lead to the insight that a more profound understanding of the human being, nature and the cosmos is necessary. The aim of this interdisciplinary seminar is to explore whether a modern application of central Aristotelian concepts can provide a more comprehensive approach to science and ethics in biology, medicine and related fields. This includes contributions from the history of science, philosophy and mathematics, physics and chemistry, biology, psychology, anthropology and various fields of medicine.

Saturday, June 30th 2012

Opening Session:		Chair: Peter Heusser
General issues of 'Bio'-Philosophy and New Forms of Aristotelism in Science and Ethics		
08.15	Welcome Address: <i>Heusser, Peter & Khroutski, Konstantin</i>	
08.30	<i>Khroutski, Konstantin S. - Veliky Novgorod, Russia:</i> The Formula of Biocosmology (neo-Aristotelism) - Bio-3/4	
09.00	<i>Kettner, Matthias, Witten/Herdecke, Germany:</i> On the Ambivalence of Aristotelianism in Modern Ethics	
09.30	<i>Kozlov, Victor K. - St. Petersburg, Russia:</i> The Biocosmological Approach in Modern Medicine: The General Line and Central Points	
10.00 Break		
10.30	<i>Takahashi, Takao. - Kumamoto, Japan:</i> Cosmological Worldview in the Age of Co-disaster	
11.00	<i>Sass, Hans-Martin. - Bochum, Germany:</i> A Biocosmological Imperative	
11.30	<i>Kofler, Walter. - Innsbruck, Austria:</i> An „Extended view“ on the evolution of physical reality, live, emotion, social structures, and virtuality as fundament for a comprehensive understanding of health and sustainability	
12.00 Lunch		
Session 2:		Chair: Victor Kozlov
Biocosmological/ Neo-Aristotelic Concepts in Evolutionary Biology		
14.00	<i>Chapouthier, Georges. - Paris, France:</i> Mosaic structures in living beings in the light of modern philosophical positions	
14.30	<i>Rini, Enrico. - Milano, Italy:</i> Aristotle and Modern Taxonomy	
15.00	<i>Epstein, Veniamin B., Dogadina Tatjana V., Gorbulin Oleg S. and Komaristaya Victoria P. - Wuppertal, Germany & Kharkov, Ukraine:</i> Crisis in evolutionary systematics in the light of Aristotle's teaching on the essences	
15.30	<i>Rosslbroich, Bernd. - Witten/Herdecke, Germany:</i> Organismic systems biology as a way to reintroduce Aristotle's unity of matter and form into biological research	
16.00 Break		

Session 3: Chair: Matthias Kettner	
Philosophical and Mathematical Aspects of Neo-Aristotelism/Biocosmology	
16.30	<i>Tanabé, Susumu. - Istanbul, Turkey:</i> On Aristotelian genus (το γένος) notion and natural science after Cartesian revolution
17.00	<i>Zhang, Lu. - Beijing, China & Berlin, Germany:</i> The reintroduction of Aristotelian form in Leibnizian substance in 17 th century
17.30	<i>Tasić, Milan. - Nis, Serbia:</i> On the final cause in Aristotle. Biocosmology and the category theory in mathematics
18.00 - 18.30 The day's Summary: Chair: Hans-Martin Sass	
18.30 Supper	
19.30 Cultural Event	
Sunday, July 1st, 2012	
Session 4: Chair: Konstantin Khroutski	
Applications of Biocosmological and Aristotelian Principles in Studies of the Mind, Medical Anthropology, Physiology, Diagnostics, and Pharmacology	
08.30	<i>Yoo, Kwon Jong. - Seoul, Korea:</i> Study of the human mind: From Confucianism to modern history, and coming back and moving forward in spiral development to Confucianism (Biocosmological aspects)
09.00	<i>Guja, Cornelia. - Bucharest, Romania:</i> Elements of biocosmological anthropology: Informational integration by archetypal forms
09.30	<i>Kozlov, Victor & Yarilov, Sergey - St. Petersburg, Russia:</i> Multilevel systemic-functional estimation of safe health: use of possibilities in modern medicine
10.00 Break	
10.30	<i>Heusser, Peter. - Witten/Herdecke, Germany:</i> Rudolf Steiner's renewal of Aristotelian principles in modern science and medicine
11.00	<i>Wong, Ming. - Allston, MA, USA:</i> The theory of yin and yang in TCM and Biocosmology
11.30	<i>Sun, Wei. - Hannover, Germany:</i> The characteristics of Aristotelianism in the Neo-Scholasticism
12.00 Lunch	
14.00	<i>Aksenenko, Jevgeni & Khroutski, Konstantin. - Veliky Novgorod, Russia:</i> Cardiometasymphathetic nervous system - as the object for pharmacological treatment
14.30	<i>Liu, Xiaoting. - Beijing, China:</i> Natural History and the Return of the Life Experience
15.00	<i>Karpov, Anatolij V. & Yurov, Alexander. - Veliky Novgorod, Russia:</i> Problems and prospects of the treatment of Tuberculosis: Biocosmological constituents
15.30 Break	
Session 5: on-line video-conference Chair: Georges Chapouthier	
Additional Concepts of Biocosmology and Neo-Aristotelism in Modern Science (on-line)	
16.00	<i>Chadov, Boris. - Novosibirsk, Russia:</i> The Biocosmology Categories
16.30	<i>Grinchenko, Sergei N. - Moscow, Russia:</i> Aristotelian Purposeful Reason and Biological Modeling
17.00	<i>Suteanu, Cristian. - Halifax, Canada:</i> Laws, learning, and adaptation processes. Implications of information management
Closing Session: Summary, Conclusions, Organizational Issues of the BCA and Future Prospects	
17.30 Discussion, all participants, chair: <i>Konstantin Khroutski & Peter Heusser</i>	
18.30 Adjourn	
20.00 Farewell Dinner	

The Formula of Biocosmology (neo-Aristotelism) - Bio-3/4

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Abstract. During the First International seminar on Biocosmology (in Veliky Novgorod; July 22-25, 2010), the formula of Biocosmological agency was proposed - Bio-3/4. First of all, however, it was recognized that we urgently need to rehabilitate the original meaning of the notions “cosmology” and “cosmological studies” - which in all cases embrace four main areas: 1) creation of a rational fundamental world-view based on the perception of the Cosmic Whole (Weltanschauung); 2) resolution of the issue of causality in Cosmos or its active driving forces (i.e., aetiology); 3) revealing and presentation of the fundamental universal laws in the given cosmological sphere; 4) disclosure of the place and role of Homo sapiens (the individual) in the given Cosmic Whole. It was likewise recognized that a cornerstone (shortcoming) of the current civilization is that we have run into a kind of ‘cosmological insufficiency’ (in the medical meaning of the term). In brief, there are at least three autonomous cosmological spheres (“sociocultural supersystems”, in the term of Pitirim Sorokin); we name them: of AntiCosmism (anthropocentrism); ACosmism (anthropoholism) and RealCosmism (anthropocosmism). (Their comparative characteristics are given in the presentation). The fact is that the pole of life processes and sociocultural sphere of RealCosmism (i.e., precisely the (neo)Aristotelism, as concerns its rational substantiation) have been lost during our global cultural evolution (“the baby has been thrown out from the bath together with water”, during the turbulent Modern times). (This point is also disclosed in the presentation). As regards the formula Bio-3/4: “Bio-” signifies precisely the Aristotelian “Bio-”cosmos - i.e. organic, whole, hierarchical cosmos, wherein each (living) entity has its/her/his inherent place and destination in the one whole (organic) self-evolving cosmic world (‘organism’); therefore - “Bio” means Bio-universality; and that Biocosmology uses the universal Organicist relation to the world - the position “within” the one whole organic Cosmos. Herein, Organicism likewise has the fundamental essence - the disclosure and use of fundamental principles that are applicable (universal) in all the levels of organization of life: vegetative, animal, human and sociocultural, and cosmist - of the individual’s ontogenesis. In turn, “3” implies Three-dimensionality of the treatment of life processes and the application of the universal Triadic (Three-dimensional) approach in scientific study. In essence, Three-dimensionality means the synchronous existence of the three autonomous - independent from each other - spheres: the two polar, and the third that is intermediate, but has the fundamental vital significance - of the basis that permanently self-supports life processes. Finally, “4” indicates the Four-causality - the Four-causal (truly Aristotelian) aetiology and, thus, - the return and making the full use (in the scientific area) of all the 4 Aristotle’s existing (cosmic) aetiological causes: material, formal, efficient, final; stressing their equivalence, but highlighting the leading role of the immanent causes (c.formalis, c.finalis, entelecheia). Our main task is to achieve the rehabilitation of Organicism (Biocosmology, neo-Aristotelism), and the active inclusion (treatment of Biocosmology) as the relevant and essential means for the modern scientific and philosophical inquiry.

On the Ambivalence of Aristotelianism in Modern Ethics

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Abstract. Kantianism and Aristotelianism are often treated as an exclusive alternative in modern philosophical ethics. Normative universalism is the most important divide: Neo-Kantians (e.g. J.Habermas, K.-O.Apel, O.O'Neill) embrace normative universalism while Neo-Aristotelians (e.g. A.MacIntyre, B.Williams) reject it in favor of particularist virtues and phronesis. Some "communitarians" (e.g. M.Sandel, C.Taylor) admit only thin notions of universalism. But is universalization really the hub of the moral? I will argue that an adequate conception of action and practice is an issue that is at least as important for the construction of a realistic rational approach to modern morality, as is universalizability. Aristotle's analysis of practice can be read through the lens of modern philosophical pragmatism and yields a realistic conception of norms. Another interesting point is that a single action can be construed as the infima species of a practice. Both points mark Aristotelian contributions to progress in philosophical ethics.

The Biocosmological Approach in Modern Medicine: The General Line and Central Points

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Abstract. Biocosmological approach (as the expression / form / neo-Aristotelianism) is simultaneously a unity of three compulsory components: 1) universal worldview - organicist cosmology - Biocosmology (K.S.Khroutski); 2) realist research methodology, 3) practically capable techniques of scientific knowledge. These positions are especially actual points for development of the modern medicine (V.K.Kozlov) which is in deep crisis of outlook as the unity of medical (therapeutic, surgical) and preventive branches of medicine is lost. It is necessary to discuss scientific doctrines, such as *pathocentrism* in therapeutic and surgical medicine (Disease Medicine) and *sanocentrism* in preventive medicine (Health Medicine). These doctrines as the world outlook bases formulate an essence *structural-morphological* and *functional (procedural) scientifically-medical paradigms*. Aiming at the development of the theory and practice of modern medicine (especially for the approaches and technologies of preventive medicine), the significance of the study of *integrative regulation patterns* is highlighted, including an *estimation of quality of the basic rhythmical processes of life-support*. In general, this conceptual building meets and keeps development of the *Basic Biocosmological Principles*, in particular such as *triadicity*, *cyclicality* (repeatability, recurrence), *bipolarity*. Author's point of view and results of clinical researches likewise includes the theoretical principles that may serve as the ideological basis of *a new health paradigm* and *epistemological foundation of modern methodologies and technologies* of diagnostics, medical prophylaxis and nonspecific preventive treatment of many diseases that are caused by disorders of integrative regulation of life-support. Now *the most important special moments in problem area of biocosmological aspects of medicine* are following questions: 1) general philosophic basis of therapeutic and surgical medicine (*Medicine of Diseases*), preventive medicine (*Medicine of Health*), *Evolutionary Functionalist (personal, ontogenetic) Medicine* as battle-fields of modern medicine; 2) fundamental concepts (paradigm) of building of philosophical doctrines of medicine; 3) *health, a prenosological (prepathological) condition, illness as private life stages*; 4) *concept of systemic regulation quality* (perfection of biological feedback, "the active information" / P.Heusser) and the formulation of *a modern paradigm of health*, 5) theoretical components of the complex approach in modern medicine: remarkable achievements and the list of problems which will be solved, 6) prospects of realization of the systemic (integrated) approach in modern medicine.

Cosmological Worldview in the Age of Co-Disaster

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Abstract. On 11th March eastern Japan was struck by an extremely strong earthquake. It caused not only a huge Tsunami with the loss of twenty thousand lives, but the serious atomic-power accident at Fukushima that lead to the nuclear meltdown. Now we are faced with disasters of global scale such as global heating, ozone depletion, air pollution, radioactive pollution and global food crisis in addition to the increase of damage caused by local disasters such as hurricane, flood. It may be said we are in the age of disaster, or, emphasizing our attitude and worldview, in the age of co-disaster.

The Great East Japan Earthquake revealed problems in far-reaching fields, e.g. seismology, Tsunami engineering, architectonics, nuclear power engineering, politics, historical science. It also revealed the problem which is philosophical and related to the essence of environmental ethics, i.e. the relationships between man and nature. The mainstream of environmental ethics has focused upon conservation of nature, not disaster prevention. If we pay attention to the aspect of disaster prevention as well as nature conservation, what kind of view of nature should be adopted? If we adopt a cosmological view of nature, nature as life not only gives us blessings but sometimes shows fury to us. In this standpoint, natural disasters and our daily life, politics etc. are linked cosmologically, and environmental ethics and bioethics will have the common task, i.e. to form, maintain and restoring good relationships between lives.

As a kind of cosmological worldview, I will show an outline of the four layer structure of the present animism, two of which we live in and the other two are the world of reason and the world of life itself.

A Biocosmological Imperative

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Abstract. Multiverse models in quantum mechanics and scientific insight derived from biological multiworld studies suggest that our cosmos is part of a much more complex and living interactive warped string reality of life forms, their interactions, differentiations, transitions, and parallel realities. Fritz Jahr, who coined the term 'Bio-Ethik', in 1927 defined a Bioethical Imperative: 'The guiding rule for our actions may be the Bioethical Demand: Respect every living being on principle as an end in itself and treat it, if possible, as such! Examples will be given from quantum mechanics, biology, and religion for the application of the do-not-harm principle to a Biocosmological Imperative in the tradition of Kant and Jahr: *"Respect mother earth with all her forms of life, whether natural or man-made, basically as goals in themselves and treat them, if possible, as such."* Such an Imperative includes respectful and careful recognition of powers beyond our influence and the adjustment to act prudently and morally for our own protection and cultivation and for the protection and cultivation of our natural and social environments. The future of the cosmos in general and of the earth in particular are unpredictable and go far beyond our powers of manipulation and cultivation. But we have the powers to harm and to kill many fields of this earth, even make the earth in its entirety uninhabitable for us humans and many fellow species. However, the biocosmological respect for the earth as a living being and for all what is living on and in it calls for good protection from harm. This earth is the only one we have, so if we do not respect her for what she is, we should do so for our own sake and for the wellbeing of our fellow humans and cultures.

An „Extended view“ on the evolution of physical reality, life, emotion, social structures and virtuality as fundament for a comprehensive understanding of health and sustainability

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Abstract. The actual critical situation in economy demonstrates: daily life, health and sustainability are depending on an increasing complexity of interactions. Scientists nowadays should be able to link real and virtual aspects (e.g. of economy). But up to now there are no instruments to bridge even the "classic" gaps ("world riddles") between e.g. body-mind, individual-society, materialistic and idealistic aspects etc. on the level of causality. The consequences of these lacks are highly relevant. Therefore it should be an ethical must to close these gaps: The gaps are caused by actually incompatible terminologies, ontologies and epistemologies. So considerations about the adequateness and power of philosophical tools could give hope to bridge these gaps - as it was common in the 19th and early 20th century. Such a "historic" tool was developed by Einstein to handle the incompatibility between the physics of Newton and of Maxwell. Both theories seem to exclude each other according to the Aristotelian logic. Einstein was able to explain these incompatibilities as artifacts and consequences of the principle of any scientific approach: to restrict the view on reality and the content of the used terms according to the special need of the selected scientific focus. Therefore he concludes: *Any term and any scientific theory is just a free invention of the human mind and from another nature than that for what it is staying.* He recommends to improve the level of science by so called "Real Theories": A special form of meta-theory which allows to integrate former distinct theories into a new "extended" theory by the modification of joint key terms. The basic theories are not falsified: They are further on the adequate instruments to deal with "classic" applications. The "Real Theory" provides additional power for topics dealing with more fundamental and/or "joint" problems.

I used this technique for the "Extended view". The basic assumption was: If we would be able to invent a model for a process which covers the autopoietic evolution of all health-related aspects within one frame, then the incompatibilities between the physical, chemical, biological, emotional, intellectual, social, virtual etc. aspects would disappear. Quanta are the oldest health-related objects from the evolutionary point of view. Therefore the desired real theory should be based on "free inventions" to deduce quanta with respect to the Big Bang and cosmology. These assumptions should allow deducing the autopoiesis of human persons as social beings and their creation of social structures - in agreement with the indispensable health-related positions of the related sectoral disciplines.

The hope to gain additional power by the use of the Extended View could be confirmed. The technique to develop the Extended View will be presented for discussion within this contribution.

Mosaic structures in living beings in the light of modern philosophical positions

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Abstract. The neo-Aristotelian biocosmological philosophical approach, arguing that the laws of the microcosm mimic the laws of the macrocosm, suggests that the laws of complexity which rule the most complex systems found on Earth (i.e. living beings) could also be considered as general laws for complexity elsewhere in the universe. My personal research has led me to develop a theoretical model of complexity in living beings called the model of "complexity in mosaics" as presented in previous publications (Chapouthier, 2001, 2009). This mosaic complexity is founded on systematic repetition of two general principles - juxtaposition of similar entities and integration of these entities into more complex structures - ultimately leading to mosaic structures in which each further level - the whole - still leaves a level of autonomy to the component parts. The model is valid for anatomy, genes, animal populations, memory and language, and also aims at a general or universal application as a model for complexity. I shall present the main features of the mosaic model, in summarized form, in the field of biology, showing how it fits the biocosmological stance developed by Konstantin Khroutski and how it could, more specifically, be related to Khroutski's "triunity" laws. Evidence will also be presented to show that the theories developed by a number of modern thinkers (Richard E. Michod, Stephen M. Modell, Naoshi Yamawaki, Stephane Lupasco and Laurent Cherlonneix), could, to a certain extent, be integrated within this scope. Further consequences could affect the theory of knowledge.

References :

Chapouthier G., *L'homme ce singe en mosaïque*, Odile Jacob, Paris, 2001;

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Aristotle and Modern Taxonomy

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Abstract. In this talk I will discuss the role of taxonomic concepts in Aristotle's biology. According to a widespread opinion, Taxonomy was already the major focus of pre-evolutionary biology *and* pre-evolutionary Taxonomy was mainly conceived as a set-theoretical system. I will discuss such ideas with regard to Aristotle. This is especially interesting for a comprehensive reconstruction of pre-evolutionary thinking, since we recognize Aristotle as the first proper biologist.

In particular, I will present an analysis of the *language* used by Aristotle to describe animal diversity, with regard to both category names (*genus* and *species*) and the names of animal *taxa*. I will argue that (i) the logic of Taxonomy, even before Darwin, is fundamentally different from the one underlying set-theory; (ii) in Aristotle's works, the concepts of *genus* and *species* conform to some basic rules that are peculiar to both Linnean and evolutionary Taxonomy and are not compatible with set-theory, but that (iii) notwithstanding this, Aristotle's hesitant attitude toward scientific nomenclature for animal *taxa* determines the absence of a taxonomical *system*.

This analysis shows that there is no theoretical incompatibility between Taxonomy and Aristotle's biology, since some of Aristotle's core concepts, such as *genus* and *species*, and some of Aristotle's biological explanations could be used to validate taxonomical groupings. Nevertheless, I will show that taxonomy seems to be *absent* in Aristotle. What is certainly completely absent is what is usually believed to be a major focus of Aristotle's work: a classification of the animal kingdom into sets.

Crisis in evolutionary systematics in the light of Aristotle's teaching on the essences

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Abstract. One of the authors of this thesis in a series of books from the monograph "The Philosophy of Systematics" (Epstein, 1999, 2002, 2003, 2004, 2009, 2011) has drawn attention to the confrontation between traditional evolutionary systematics and Henning's cladistics, in its different versions, as the classical situation of crisis in science, according to the concepts of the theory of scientific development by T. Kuhn (1977). The authors, on the examples of groups of organisms studied by them (Epstein - zoologist and expert on the class of leeches, co-authors - botanists-algologists), are convinced that, on the empirical level of scientific knowledge, this methodological situation manifests itself in the form of adoption by cladists unacceptable, from the standpoint of the traditional taxonomy, taxonomic decisions. It is common knowledge that practically the whole system of nature is created by traditional taxonomists. In addition, it was noted that cladists do not create taxa but rework taxa created by traditional methods, according to their phylogenetic concepts (Meyen, 1988). The authors agree that between the two directions compromise can be achieved and complementarity can be set (Starobogatov, 1989). For that, it should be assumed, that classification must be based on similarity only, without adding to it phylogenetic hypotheses, and phylogeny must be reconstructed with the methods of phylogenetic systematics, rather than by phylogenetic adjustment of classification dendrogram. In other words, classification reflects phylogeny in static, through the levels of taxonomic hierarchy, and phylogeny - in dynamics, in the form of hypotheses about the development of this process. The result would be the two schemes, which, as in classical physics, are matched in the above sense. Appeal to the history of philosophy of science suggests that the methodology of the traditional taxonomy historically stems from the methodology of classification laid down by Aristotle in his treatise "On the parts of animals" and "Metaphysics". Taxa are the essences of the second kind, created by intellect through generalizing the degree of similarity between organisms - a first-order entities, and between entities of the second kind. Linnaeus created the original teaching on the natural method of classification, and realized that it corresponds to the logic of Aristotle, which he studied in his years of study. In the "Origin of Species", Darwin said that classification is explained by phylogeny, but not that classification is based on phylogeny, as is stated by cladists. Thus, there is reconstructed the single line of development, leading from the teaching of Aristotle's essences to overcome the current crisis in evolutionary biology.

Organismic systems biology as a way to reintroduce Aristotle's unity of matter and form into biological research

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Abstract. An organismic variant of modern systems theory is proposed to overcome the obvious problems of reductionism in biological sciences. According to this concept every living organism is characterized by a hierarchy of different level systems which are in simultaneous interdependencies with each other. The systems of each level generate circumscribed units, each with a spatial and temporal integrity. Each level is expected to be organized by its own laws and thus needs its own information. In this sense, an information content is expected to be not only present in the DNA, but rather on other system levels of the organism as well. In a broad sense, this information content is identical with what goetheanistic science expresses by the term "typus" and is obviously able to reintroduce Aristotle's unity of matter and form into the study of organisms on different levels, as well as that of ecosystems. Examples from modern science are given which unequivocally hint at the existence of such system levels.

On Aristotelian genus (το γένος) notion and natural science after Cartesian revolution.

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Abstract. It is a well-known fact that Descartes took a counterpart position to Aristotelian world view in philosophy and science. In his “*Regulae ad directionem ingenii*” a kind of geometrization of physics is proposed. According to him there must be a general science (*mathesis universalis*) that explains all the points that can be raised concerning order and measure irrespective of the subject-matter. He severely criticized those who made useless and harmful distinction between geometrical species (e.g. light) and arithmetic species (e.g. sound harmony) that shall be treated in a unified manner in the framework of the *mathesis universalis*.

On the other hand, Aristotle argued that geometrical proof shall be neatly distinguished from arithmetical one. For him a geometrical continuous quantity must be treated separately from discrete arithmetic numbers because they are related to different **genera** (τα ἕτερα γένη). Aristotle denied the supreme role of Being, as a Platonic idea located at the summit of hierarchy of all genera, and thus partitioned the world into a multiple of irreducible categories of genera that are not communicable one another. This lead to a conclusion that one cannot use the relation $a^3 xb^3 = (axb)^3$ in geometry ; the former means a multiple of two cubes while the latter means the cube of a surface which is an absurd in a three dimensional space. Of course, Aristotle insisted on that a surface and a volume have different genera in such a way that they are in principle incommunicable.

All remarkable achievements in physics and branches of sciences subordinate to it (e.g. chemistry, bio-chemistry) have been made, since XVII-th century, following the Cartesian principle that claimed the predominant role of *mathesis universalis* or mathematics in a wider sense of the word. But Descartes insisted more - it must be the **unique** guiding principle to explore the physical reality of the world. This acclamation seems to support the mechanistic view on the life that tries to reduce all biological process to physic-chemical reactions. In this historical perspective, we try to reexamine the Aristotelian “genus” notion in search for its positive assessment as a possible counterpart to over-geometrized or over-arithmetized scientific views, especially in biology and medicine.

The reintroduction of Aristotelian form in Leibnizian substance in 17th century

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Abstract. Modern philosophy of mechanistic view of nature appears in the trend of opposing to the scholasticism of the Aristotelian view of nature, and the materialism is consequential. In the first part, I want to talk about the concept of extension of Descartes to consider body as the length, breadth and height which not only causes the unity of body and mind, but the existence of diverse natural basis. Similarly, Spinoza's idea of "God is nature" is also facing the problem of multiplicity of nature. In order to solve this problem, Leibniz reintroduces the Aristotelian concept of form.

In the second part, I want to give the explanation of the structure of Leibnizian substance. There are three elements constitute Leibnizian substance: appetite/entelechy/form (primary active force); primary matter; organic body. I will give more details of the similarity of Leibnizian appetite and Aristotelian form. Different elements of substance follow different laws. The part of form follows the final causation and the principle of morality; the part of primary matter as the passive force follows the efficient causation and the principle of mechanism; the part of organic body acts as the phenomena of the soul which in the Pre-established Harmony by God. The last section I want to talk about the significance of the reception of Aristotelian form in Leibnizian substance. The thoughts of Leibnizian substance not only give an answer to the problem of mind and body, but also solve the problem of the multiplicity of university and set a foundation of active nature. His positive thought of Aristotelian form gives life back to the native, avoiding human being to become a machine without any freedom.

On the final cause in Aristotle. Biocosmology and the category theory in mathematics

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Abstract. In accordance with the "formula Bio - 3 / 4 of Biocosmological investigations"- so that, in addition, they should be carried out on a new "neo-Aristotelian basis"- we examine somewhat Aristotle's understanding of the notion "final cause", to propose afterwards its possible "neo-Aristotelian amendment" - in the sphere of the nature, and in that of humanity. Just bearing in mind the achievements in the science of the New Age (Newton, Leibniz, Darwin), we bring in connection too with the theory of categories in mathematics what is covered by the word organicism (functionalism). For the principles of this theory do inspire with sufficient reason the philosophers of our time (Alain Badiou et al.) to rethink the being in its terms, finding both times the matter is to a higher degree of structures which are homeomorphic between them.

Study of the human mind: From Confucianism to Modern history, and coming back and moving forward in spiral development to Confucianism (Biocosmological aspects)

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Abstract. This presentation has two targets. The first is to develop the Confucian understanding of mind with contemporary ideas of mind studies. The second is to look for the matching point between Confucianism and Biocosmology.

For the first target, theoretical structure of Confucian mind-learning will be analyzed. For example, the root metaphor to generate the mind conception, the ontological structure, the self-cultivation methodology, its cosmological inclination, etc. Especially this mind-learning as the source of this study comes from the context of Chosun Korea history during the 16th and 17th century, because it is recognized that it has completed the mind model of Neo-Confucianism and it has developed a typical program of the self-cultivation under the instruction of Confucius by the theoretical and practical verifications.

The mind model of the mind-learning is based on the cosmological idea of the Neo-Confucianism and stresses the point that human being should become a morally good being with the method of embodiment with the Confucian proprieties through a long term learning and self cultivation, and the ultimate purpose of self-cultivation is to compose a harmonious world. We can discuss the features of Confucian cosmological thinking specially by focusing on the idea of harmony and thus do about how the Confucian mind can make the harmony. That is necessarily related to not only the Confucian understanding mind but also the way to use the mind according to the Confucian instruction.

The development of the Confucian understanding of mind is a new interpretation by the viewpoint of contemporary integrated science, for example, cognitive science or neuroscience. The integrated sciences are continuing the approaches to the brain-neuronal level, which had been the veiled in mystery, and now supply new paradigm for the understanding of the human being and human mind. Therefore the integrated science can be a new perspective for understanding human being and practice. The new interpretation of Confucian understanding mind is of course relying on this new perspective and as the result of the interpretation Confucian understanding can be the sources of discourse of contemporary sciences of mind. Especially this presentation looks for the matching points of Confucianism with the Biocosmology in the field of study of mind. Even now Biocosmological approach to the study of mind has not accomplished yet. And it seems that the field of mind study has not been fixed in theoretical structure of Biocosmology. How does the Confucian idea match with Biocosmology? In this presentation, the matching point will be observed and discussed by focusing the cosmological thinking of Confucianism.

Elements of biocosmological anthropology: Informational integration by archetypal forms

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Abstract. The birth of a new research direction in a certain field is determined by the appearance of new objectives for the field under study in which one finds new interdependencies, new types of relations or new forms of communication specific of the new objective. Constituting an Informational “Biocosmological Anthropology” would fulfill a natural aspiration for the modern epoch. Man-Cosmos interrelation within Anthropology is indirectly implicated in many sub-fields but not as a declared object as such, with its own methodological status. Biocosmology, initiated and developed in the last few years under the auspices of “The Biocosmological Association - BCA”: <http://en.biocosmology.ru/the-biocosmological-association---bca>, meets many essential problems of present Anthropology. Some of the concepts and the theoretical and experimental methodology which lie at the basis of Informational Anthropology: <http://www.corneliaguja.blogspot.com/> may be a starting point for supporting and developing the conceptual foundation of Biocosmology: Biocosmology and Informational Anthropology: Some Common The experiments we made during our laboratory researches in the field of Individual’s Anthropology regarding electrographic diagnosis revealed the fact that, between the integrating and adaptive processes in the internal, organic medium and the external environment there are very interesting interactions that may be seen on a radiological negative. The electrographic diagnosis consists in interpreting the images existing on the radiological film by interposing the palms in a high voltage electromagnetic field for a few second fractions. The images contain imprints of certain electric discharges, sparks, on the photosensitive film. After computerized analysis of thousands of such images, we reached the conclusion that the shapes of electrical discharge may be classified in a few categories that help establish the diagnosis health/illness. These shapes prove to be well known in our planetary and cosmic existence - archetypal forms. The paper presents the results of these studies carried out during several decades. Interpretation of comparative studies has led to conclusions regarding man’s integration and adjustment owing to the presence of certain communication forms (archetypal codes) which we consider to be specifically informational. They are present in the interface of all systems and subsystems that are interacting and are integrated in the environment on the Earth and maybe in the farther Cosmos.

Multilevel systemic-functional estimation of safe health: use of possibilities in modern medicine

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Abstract. Preventive medical influences and technologies of treatment, including ways of preventive maintenance of development and progressing of oncological, somatic and psychosomatic diseases then will be successful as much as possible when the listed influences are operated. Controllability can be reached: 1) at the *adequate characteristic of object of preventive influence* (possibility of quality standard of a condition of the patient), 2) by *quantitative monitoring of result of influence*, 3) by the forecast of a sign on reached changes (an *estimation of a vector of clinical displays of illness*), 4) at *dynamic monitoring of repeating influences* (presence and feedback monitoring between the patient and the doctor. Use of *the modern computerized hardware-software diagnostic complex "Omega-sports"* allows to provide the above described conditions. The complex fixes in a *dynamic mode and deciphers laws of variability of rhythms of heart*. This complex is issued by the Russian research-and-production firm "Kosmos-M", (Moscow, Russia). Complex work is based on a *new principle of extraction of neurodynamic codes from variability of rhythms of heart and modern mathematical programs of decoding* of the taken information. It allows to estimate and characterize as much as possible full functioning of systems of biological management by *rhythmic activity of heart of the person*. The obtained data is interpreted and in accessible to perception by clinical experts to the form is objectively displayed. As a result, the complex allows to estimate a *condition multilevel integrative managerial organism systems* on following levels: 1) *quality of system regulation* - general management contour (on value of an index of interface of all rhythmic managerial processes), 2) *the central contour of management* (cortical level of regulation, hypothalamo-pituitary level of regulation) (on values of indexes of functional activity of a cerebral cortex and central subcrustal / hypothalamo-pituitary/ regulation), 3) a *peripheral contour of management* (the centers of vegetative regulation, autonomous heart knot) (on values of an index of vegetative balance). At approbation of the described methodology and technology of diagnostics with inclusion in clinical research various groups clinical supervision (professional sportsmen, students of universities of St.-Petersburg, clients of the fitness centers, patients of therapeutic hospitals with a various somatic pathology, oncological patients) the interrelation of system infringements of regulation (in particular modalities of function of biological management) with the concrete periods of life in healthy people and with stages of diseases at patients has been studied. It is established that *the modern multilevel systemic-functional estimation of variability of a warm rhythm* allows not only to estimate quantitatively level of safe health on a condition of system regulation, but also to estimate adaptation reserves at any influences, including surgical operations, pharmaceutical and therapeutic influences, physiotherapy exercises and massage influence, influence of psychosomatic manipulations.

Rudolf Steiner's renewal of Aristotelian principles in modern science

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Abstract. Rudolf Steiner (1861-1925) had studied natural sciences and mathematics at the Technical University of Vienna, had taken courses in philosophy at the University of Vienna and gained his PhD in epistemology at the University of Rostock. He had then worked at the Goethe and Schiller Archive in Weimar as an editor of Goethe's natural scientific work and dealt extensively with contemporary epistemology. Later he moved to Berlin where he was active as a writer and editor for journals with a wide thematic focus in culture, philosophy and science. He combined and extended his teachings as "Anthroposophy" and founded a research, development and education center in Dornach, Switzerland, named after Goethe ("Goetheanum"). Basic scientific works where his introductions and commentaries to Goethe's natural scientific writings, "A Theory of Knowledge - implicit in Goethe's World Conception" (1886), "Truth and Science" (1892), and his "Philosophy of Freedom" (1894). In his epistemology, Steiner demonstrates empirically how scientific cognition can reach the objectivity of the phenomenal world as well as the objective laws that govern these phenomena. As a result, reality can be considered as the unity of phenomena with their laws. This corresponds to Aristotle's unity of matter and form as well as Thomas Aquinas' and Hegel's concepts of appearance and essence. Consequently, for Steiner the objective laws of nature are not only "abstract", intelligible ideas for human subjects, but also real, active ideas that constitute nature and its processes. They are equivalent with Aristotle's *causa formalis*, *causa finalis* and *entelechy* and lead to a complete restitution of Aristotle's teaching of causality. Steiner shows how inorganic, mechanistic processes are effects of *external* interactions (as in Aristotle's material and efficient causality), whereas organic processes follow the *inner* causality of teleonomic organismic laws (as in Aristotle's formal and final causes). In living organisms, the laws and forces of matter have to obey to those - hierarchically higher - organismic laws. This results in the typical emergent phenomena of life such as the holistic, teleonomic, polar and triadic organization that distinguish organisms from machines. Steiner showed how Goethe was the first one to establish organismic science in this very sense, albeit not for philosophical reasons, but on a purely empirical basis. Furthermore, Steiner reestablished and further developed Aristotle's fourfold anthropology in that he showed how in the human organization the physical substances are not only governed by organismic life processes, but additionally, that these are in turn governed by the hierarchically higher emergent laws and forces of the soul and the human spirit. This results in medical concepts where health and disease are not mechanistically explained by a mere interaction of molecules, but holistically by differentiated harmonious or disharmonious interactions of laws and forces of matter, life, soul and spirit in an organ, organ system or the whole organism (see Steiner R., Wegman I.: "Fundamentals of therapy", 1925). In this context, Steiner was the first one to describe the triadic functional organization of the human organism as a whole: organic functions are either informational processes (mediated by the sense-nerve-system), metabolic processes (mediated by

the organ and cell processes summarized as metabolic system), or rhythmic processes (mediated by organ or cell systems summarized as rhythmic system). The nerve-sense-processes are polar to the metabolic ones, but both are mutually harmonized through rhythmic processes. Steiner also showed how these three functional systems provide the organismic basis for the three basic functions of the human soul and spirit: cognition, emotion, and volition ("The Riddles of the Soul", 1917). This profoundly alters the traditional reductionist mind-body concepts. Steiner's concepts have found many practical applications in areas such as pedagogy, biology, psychology and medicine, they are testable through today's scientific methods and provide a modern renewal and extension of Aristotelian science.

The theory of yin and yang in TCM and Biocosmology

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Abstract. In the Axial time, for Cosmology, the framework Aristotle established could be interpreted as: Original framework: From “4” - basic cosmic (Aristotelian) causes (driving forces): 1) Materialis, 2) Formalis, 3) Efficiens, 4) Finalis. This framework could be easily translated into: 1. primary elements; 2 Formals (the operation system (compare to “Microsoft system or Apple system) 3. Efficient (With 1. primary elements; 2. Formalis (the operation system), what kind of production appear), 4. Finalis, the final outcome of causality; how accountable it is.

With this framework (We could called it as classic cosmology), it actually implied and created two kinds of cosmology: A) Conventional Cosmology, for non-life; B) Advance cosmology, for life; that is the Bio-cosmology. In Conventional Cosmology, 1) Primary elements are: matter, energy, quantity (number), space and time; 2) Formals is: under the role of Newtonian mechanics. 3) Efficients are: molecule, complex of molecules, in-organic, organic life; 4) Final accountable - rationalism (matter, energy, quantity (number),space and time and their behave under the theory of Newtonian mechanics) - the rule of physics. In Advance Cosmology / Bio-cosmology, 1) Primary elements are: free energy, negative entropy, temperature, space and branch’s couplings and other thermodynamic parameters ; 2) Formals: under the role of thermodynamics --- more precisely, advance non-equilibrium thermodynamics: life system,→ the theory of yin and yang system --- advance non-equilibrium thermodynamics; wisdom system (brain) → the theory of Major Confucian --- intellectual advance non-equilibrium thermodynamics) 3) Efficient, the thermodynamics microsystem,→ classic thermodynamic system,→ classic non-equilibrium thermodynamic system, advance non-equilibrium thermodynamic system→ intellectual advance non-equilibrium thermodynamic system 4) Final accountable --- reasonable non-rationalism (free energy, negative entropy, temperature, space and branch’s couplings and other thermodynamic parameters and their behave under the theory of advance non-equilibrium thermodynamics --- order of nature.

The frameworks are the same, but the contents are different. Due to the Conventional Cosmology is unable to express the existence of negative entropy and branch’s couplings in the system of Bio-cosmology, the Biocosmology is more fundamental and more complete than the Conventional Cosmology; the Conventional Cosmology is “something” of a subset of the advance cosmology; basic on this conclusion, any complex (manifold) from the Conventional Cosmology is not able to express Bio-cosmology thoroughly and completely.

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The characteristics of Aristotelianism in the Neo-Scholasticism

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Abstract. Neo-Scholasticism is the revival in the late 19th century of the medieval Scholasticism. The mainstream of Scholasticism emphasizes the connection of knowledge and noumenon. It pays attention to prove the belief of Christian religion by the way of reason. Scholasticism comes to its prosperous eras by the effort of Thomas Aquinas. Neo-Scholasticism is just the reconstruction of the tradition of Thomas. In the final analysis, it is the revival of Aristotelianism. Neo-Scholasticism critically inherits the Aristotelianism in the dimensions of ontology, epistemology and ethics. Firstly, on the ontological level, the concrete being is constituted by material and form. Form is taken to be the first. Material is a kind of potentiality. Every potentiality has the possibility to become as reality. However, as religious philosophy, concrete being will always point at God at the end. Secondly, on the level of epistemology, it established the significant status of sensation, where knowledge comes from. But sensation is just the very beginning. From sensation to intellect, truth and knowledge can only be reached by the way of rational thinking. Thirdly, by ethics, happiness is to have a moral life. The way which goes back to Aristotelian is very important: ethics of virtue. Good is the ultimate goal. Happiness is the arrival of the acme of Good.

Cardiometasympathetic nervous system - as the object for pharmacological treatment

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Abstract: The conception of metasympathetic nervous system (MNS) has been developed by the Russian academician Alexander D. Nozdrachev in 1980s, during his heading of the Department of Physiology at the St. Petersburg State University. This department was organized in 1863. Predecessors of Nozdrachev (in heading this department) were the outstanding Russian scientists: I.M. Sechenov (head of the department from 1872 to 1889) and A.A. Ukhtomsky (1911-1942). In our opinion, they both represented precisely the Biocosmological direction of scientific activities. A.D. Nozdrachev is the proximate successor of the traditions of St.-Petersburg physiological school - his conception similarly possesses Organicist (neo-Aristotelian) character. Substantially, comprehension of the conception of “metasympathetic nervous system” claims a due ‘*hierarchical*’ approach to the studying of physiological issues. Indeed, the notion “metasympathetic” means not a set of interacting or interdependent components (as the term “system” usually signifies), but a kind of “juxtaposition” (Chapouthier, 2009) - positioning together of organs. At the same time, the “metasympathetic nervous system” means the independent (organ) level of the organization of autonomous nervous processes that are equal (in the complexity of organization) to the higher (of the CNS) hierarchical level. This metasympathetic (organ) level is absolutely essential for the permanent maintenance of homeostatic (vital) parameters of the organ’s life activity and of the optimum functional condition of the given organ. Thereon, Nozdrachev has disclosed and substantiated the triadic essence of the autonomous (vegetative) nervous system organization - existence of the three independent systems (divisions): of the fundamental metasympathetic and of the two polar systems that regulate the organ’s life activity - parasympathetic and sympathetic. The subject of our investigation is the cardiometasympathetic nervous system (CMNS) and our object is the possibilities of pharmacological treatment of this system. For instance, enteric nervous system (which is analogous to CMNS) is already the object for pharmacological management. However, the notion itself of CMNS is absent in modern scientific use (we meet it only in Russian-speaking scientific community and publications, and Russian section of Wikipedia). On our side, in respect to the issues stated above, - we have realized the experimental research on the limited number of animals (rats), and also have made the review of the scientific literature related to the study of the vegetative status of patients with the transplanted heart. The received results are shown and discussed in the presentation.

Natural History and the Return of the Life Experience

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Abstract. In modern times, with the establishment of dominant right of mathematical and physical science or experimental science, the completion of uniform of the regulations of scientific knowledge as well, human beings are separated by mathematical visualization of nature and technically activities, and lost the direct and essential contact with nature. As the result, the methods and content of obtain experience which human being has already had are reduced greatly. The life of human being lost its original richness, precision and realness. This is a consequence of the intervention of human experience by modernity.

A basic approach of limitation of this consequence of modernity is back to the Aristotelian natural history, which has been stopped by modern scientific revolution. Natural history is based on the primitive people in the earth's most basic survival experience, with nature, local, individual, embodied and specific characteristics. Therefore it can be reconstructed on the special understanding and basic experiences of human being.

Problems and prospects of the treatment of tuberculosis: Biocosmological aspects

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Abstract. Current approaches to the treatment of tuberculosis are based on the main quest to achieve an effective impact on the pathogen (*Mycobacterium*). Ultimately, however, despite the obvious progress in the development of pharmacological agents - we have run into a paradoxical situation. The fact is that the current situation is characterized by the growth and expansion of (multi)drug resistance in *Mycobacterium tuberculosis*, and the worsening of treatment results in general. Thus, the objective need arises for the disclosure of new foundations (of science) in the carrying out of adequate scientific approaches and achieving the effective treatment of tuberculosis. First and foremost, we need to understand (at the scientific level) the goals of the integration of biological, psychological and social knowledge about man and his safe (healthy) life, including the resolution of the problem of tuberculosis. In this regard, Biocosmological approach requires serious study and development. In the presentation, author precisely studies and analyzes this issue.

The Biocosmology Categories

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Abstract. Materialism recognizes matter as originless and endless. Energy, mass, and movement it considers to be perpetually related and existing eternally. This approach is not justified in the case of living matter. In the living, energy, mass, and movement are less interdependent and not eternal. Energy and movement appear to be major factors. The living does not arise without energy, without movement the living disappears.

Within the biocosmological platform, the platform for study of the Cosmos as a whole [1], a cyclic model for the organization of the Cosmos is presented [2]. Energy is at the basis of the Cosmos. Energy transfers from one place to another in space. The forms of its movement are: 1) chaotic, 2) linear laminar, 3) vortical cyclic. Cyclic movement and close to it quasicyclic movement (along coil), create conditions for reflection. Mutual reflection of vortices create the state of the whole called matter. Movement in the two other forms does not create reflection, for this reason a part of the Cosmos is not matter (transcendental) [2].

Biocosmology, as presently understood (at the start of the project), should be concerned with the identification of the general principles of the Cosmos organization and their manifestation at different levels of matter. The cyclic model allows to unify into a whole a number of important concepts from different areas of knowledge about the Universe. Having united concepts with cyclic forms of movement and by making them meaningful philosophical categories, Weltanschauung system comparable to philosophical is created. At present, these concepts are: 1) *cyclicality* (bipolarity, triadicity, oscillation); 2) *quasicyclicity* (complexity, hierarchy, system, evolution, progress); 3) *repetivity* (symmetry, segmentation, fractality); 4) *reflection* (information and information transfer); 5) *energy* and *energy progressing*; 6) *purposefulness, expediency*; 7) *resonance*; 8) *homogeneity* and *heterogeneity*; 9) *world constants* and some others. Triadicity and bipolarity have been discussed at the seminar held in Veliky Novgorod (Russia) in 2011.

The indicated above categories fill the Cosmos concept with a highly theoretical content and allow to discuss principles of biocosmology. At the level of matter, it concerns all its three forms: inert and living matter, consciousness. The biocosmology principles may serve as guides in scientific disciplines, they may be applied in interdisciplinary models and applied activities.

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Aristotelian Purposeful Reason and Biological Modeling

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Abstract. The known definition of mathematical model as the totalities of functional dependences, which connect the variable quantities (“reasons”) with their functions (“consequences”) rests on (usually implied on silence) possibility of establishing of the cause-effect connections between the first and the second. But this possibility is located only for the sufficiently simple objects of simulation. In living nature as “the simple” can be examined the objects, which function in the time intervals, not exceeding appropriate “characteristic times” (typical for the system fluctuating or relaxation type times). In the more prolonged time intervals cause-effect connections no longer can describe the processes of the adaptive behavior of evolutionary nature living nature objects. For its adequate modeling it is necessary to use the *purposeful approach*, at basis of which lies the *cybernetic model* of self-controlled hierarchical mechanism (of the energy nature purposeful criteria search optimization on the random search algorithms) [1-4]. I.e., living nature as a whole should be considered as the *hierarchical self-controlled system*, processes in which form hierarchical optimization contours - the closed chains of cause-effect connections. Tearing up contour (for research goals) in one or another place - actually or mentally - we can obtain those or that relationships of “cause-effect”. However, living nature for each of its hierarchy tiers permanently approach to energetically optimum states, that demonstrates its cybernetic purposeful model. Thus, the formalized by means of cybernetic language property of living nature “energy-search optimization” corresponds - actually realizing - with the Aristotelian “realistic purposeful reason” *causa finalis*, returning thus the latter from the periphery of the scientific knowledge sphere to its center, in one row with the remaining Aristotelian Cosmic reasons (forces): material *causa materialis*, formal *causa formalis* and acting *causa efficiens* - moreover on the leading role.

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Laws, Learning, and Adaptation Processes: Implications of Information Management

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Abstract. The paper discusses informational processes such as those involved in law abiding, novelty detection, learning, and adaptation, in the light of recent results in the science of information. It highlights the essential role these processes play in interactions between organisms and their environment, and their importance for the multi-level balance implied in what we call “health”.

Insights provided by scholars ranging from Aristotle to Luhmann regarding the concepts of law, sameness, difference, and novelty are reconsidered in terms of information flux theory, and used to identify distinct information management strategies. It is shown that “law abiding” and “learning” represent extreme end-members of a spectrum of information flux filtering procedures, with all the components of this spectrum having the concept of feedback as their common core. Recognizing the occurrence of information discretization may help us to distinguish among different types of law and learning, and to anticipate the transformations occurring in the interactions that take place in the environment.

This exploration demonstrates the ineffectiveness of a reductionist approach to human-environment relations, and the necessity to i) properly adjust the meaning of “environment” in this context, and preferably use the word “cosmos” instead, ii) find other paths that transcend our current inter- and transdisciplinary approaches, in order to make sense of the intricate information-based phenomena at work on many scales in space and in time.

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