

## A COMPARATIVE STUDY OF BIOCOSMOLOGY AND THE PHILOSOPHY OF SCIENTIFIC PRACTICE

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**СРАВНИТЕЛЬНОЕ ИССЛЕДОВАНИЕ БИОКОСМОЛОГИИ  
И ФИЛОСОФИИ НАУЧНОЙ ПРАКТИКИ**  
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**Abstract:** In the article, a comparative analysis on the Biocosmology and the Philosophy of Scientific Practice (PSP) is realized. Essentially, both (Biocosmology and PSP) are the outcomes of their international scholarly societies' activities, which were launched in the beginning of XXI century. Substantially, Biocosmology is aligned with Aristotle's Organicist all-encompassing (super)system of rational knowledge (called by the Biocosmological Association's associates as *OrganonKosmology*); while PSP (the philosophy of scientific practice) has been created by Joseph Rouse. The latter aims at understanding the science as a practical activity; and is composed of the three kinds: "the political philosophy of science", "cultural studies of science", and "philosophical naturalism". On the contrary, Biocosmology (like the Aristotelian *OrganonKosmology*) is the comprehensive knowledge – of all the domains of science and philosophy. For that reason, there are substantial differences between the two scholarly approaches under study; but there are some similarities – the main is their critique of the mechanistic view of nature and the binary opposition; and both they emphasize the views of organic wholeness, dynamicity, and the self-evolving essence of the world. Also, they determine the new essences for the current epoch and provide with true perspectives for the mankind's safe and successful evolvement.

**Keywords:** Biocosmology; the philosophy of scientific practice; contextualization; Neo-Aristotelism; practical superiority; Dualism; Dynamicity; naturalism

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**РЕЗЮМЕ.** В статье реализован сравнительный анализ Биокосмологии и философии научной практики (ФНП). По сути, оба осуществляемых научных подхода (Биокосмологии и ФНП) являются результатами деятельности их международных научных обществ, и которые были начаты в начале XXI века. По сути дела, Биокосмология согласуется со всеобъемлющей (супер)системой Органицистского рационального знания Аристотеля (называемой сподвижниками Биокосмологической ассоциации как *ОрганонКосмология*); в то время как ФНП (философия научной практики) была создана Джозефом Раузом и его коллегами. Последнее, преследуя понимание науки как практической деятельности, состоит из трех видов: «политической философии науки», «культурологии науки» и «философского натурализма». Напротив, Биокосмология (подобно аристотелевской *ОрганонКосмологии*) представляет собой всеобъемлющее знание, объединяющее в себе все области и дисциплины науки и философии. По этой причине между двумя изучаемыми научными подходами существуют существенные различия; но есть определенные сходства – основным из которых является критика механистического взгляда на природу и бинарной оппозиции в научном мышлении; но подчеркивая ценность используемых концепций органической целостности (человека с окружающим миром), динамичности и саморазвивающейся сущности мира. Кроме того, они определяют новые сущности для текущей эпохи и дают реальные перспективы для безопасного и успешного развития человечества.

**КЛЮЧЕВЫЕ СЛОВА:** Биокосмология; философия научной практики; контекстуализация; нео-Аристотелизм; практическое превосходство; Дуализм; Динамичность; натурализм

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### **Реферат**

Существенной особенностью нашего времени является проблема раскрытия фундаментальных функций восточной и западной культур и цивилизаций. Ядром этого космологического различия является отношение человека (общества, цивилизации) к миру (космосу). С точки зрения восточной органики наш мир – это единый саморазвивающийся организм; следовательно, каждая актуальная культура и цивилизация является важнейшим органом этого Организма и его естественного онтогенеза (как и сам орган является целостным организмом, обладающим присущим онтогенезом). На основе и расположенный внутри этого всеобъемлющего Органицистского ЭвоПроцесса – современный преобладающий (Западный Дуалистский, математико-физикалистский) тип рациональности (т.е., Западная философия и наука) являет собой своевременную стадию (возникшую в подходящее время) цивилизационного (Функционалистского) цикла (эры) развития и достижения необходимых социально-экономических (на основе объективных и позитивистских знаний) результатов развития.

В свою очередь, в отношении философии практики (ФНП) – общее впечатление таково, что ФНП реализуется и развивается в русле главных традиций американской философии и психологии, и непосредственно в рамках состоявшегося в истории США прагматического «функционалистского» мировоззрения. Все это в корне отличает их

от европейской «континентальной» теоретизирующей философии; например, что результаты человеческой и общественной – целенаправленной, осмотрительной и практической деятельности (а также ситуативной, временной, локальной и контекстуальной активности) имеют решающее значение для обнаружения истинных вещей в мире. Хотя, в ФНП – ученые стремятся дистанцироваться от традиционных западных дуалистских подходов; но, как подчеркивается в статье, ФНП-подход имеет глубокие корни в Западном Дуализме, приводящие к глубинной несовместимости и неистребимому противостоянию человека с миром природы. Напротив, Биокосмология (следуя принципам восточного натурализма) признает в качестве первоочередных приоритетов основополагающие природные (космистские) законы Органицистской Динамичности, Биполярности и Цикличности (Триадности), и онтогенетического саморазвития каждого живого субъекта. В этом свете, хотя обе формы натурализма (Биокосмологии и ФНП) одинаково важны в Динамическом Триадологическом единстве жизненных процессов – в работе делается попытка различить эти две формы современной натуралистической деятельности: *мягкую* (западную, ФНП); и *сильную* (восточную, Биокосмологическую).

### Synopsis

The essential singularity of our time is the challenge to disclose the fundamental functionalities of the Eastern and Western cultures and civilizations. The core of this cosmological distinguishing is the relation of a man (society, civilization) to the world (cosmos). From the Eastern Organicist point of view, our world is the one whole self-evolving Organism; therefore, each actual culture and civilization is the essential organ of this Organism and its natural ontogenesis (as the organ it/her/himself is an integral organism with the inherent ontogenesis). On the basis and within this all-encompassing Organicist EvoProcess, the modern prevailing (that is, Western Dualist, mathematical-physicalist) Type of rationality (Western philosophy and science) is just the timely stage (at the appropriate times) of the civilizational (Functionalist) cycle (era) of evolvement and achievement of the required socioeconomic (based on the objective and positivist knowledge) development results.

In turn, in respect to the philosophy of practice (PSP), noting the general impression – PSP is realized and developed in line with the main traditions of American philosophy and psychology, and directly in the framework of the pragmatic “functionalist” worldview that has taken place in the US cultural history. All this fundamentally distinguishes them from the European “continental” theorizing philosophy; for example, that the results of human and societal – purposeful, prudent and practical activities (and which are situational, temporal, local and contextual actions) – have the crucial significance for discovering the true things in the world. Although PSP-scholars strive to distance themselves from traditional Western Dualist approaches; but, as highlighted in the paper – the PSP-approach has deep roots in the Western Dualism, resulting in the foundational incompatibility (with)

and ineradicable standoff of man with natural world. On the contrary, Biocosmology (following the tenets of Eastern naturalism) recognize as overriding priorities the foundational natural (cosmist) laws of Organicist Dynamicity, Bipolarity and Cyclicity (Triadicity), and the ontogenetic Self-evolvement of each living subject. In this light, although both forms of naturalism (of Biocosmology and PSP) are equally important in the Dynamic Triadological unity of life processes – an attempt is realized in the work of distinguishing the two forms of contemporary naturalist activities : *soft* (Western, of PSP); and *strong* (Eastern, of Biocosmology).

## *BASIC CONTENT OF THE ARTICLE*

### **1. The Introduction of Biocosmology**

#### ***1.1 The Origin of Biocosmology***

The outlook of Biocosmology initially is associated with the great Organicist rational (super)system of Aristotle, thereby which is a new (the neo-Aristotelian) form of Organicist and Integralist thinking (of theorizing and practical activity). At the same time, inasmuch as Biocosmology does not associate itself with the neo-Aristotelianism of the Medieval (and the New time) cultural epochs, with their chiefly Dualist (with Binary mentality) essence – contemporary biocosmologists (although being based on the contemporary context), but they prefer to name their trend as the *neo-Aristotelism*, thereby distinguishing their original innovative approach in the title. In essence, the Biocosmological approach is based primarily on the Dynamic and Naturalist (with Ternary mentality; and the Goal-directed and Self-evolving living Kosmos) world outlook. Substantially, therefore, Biocosmology withstands the modern Dualist (based on the Binary Static mentality) approaches that essentially are Idealist, Reductionist and Mechanistic.

As a result, the international Biocosmological Association (BCA) is nowadays a unique academic community in the world. BCA has been introduced into the contemporary scholarly practice in the July of 2010, in Veliky Novgorod, Russia, during the First International seminar of Biocosmology<sup>3</sup>. From the very beginning, and this is a cornerstone of Biocosmology – BCA strives to pursue the Triadological approach to realizing the rational (scholarly) cognizing – Biocosmologists equally recognize and apply all the Three Types of rationality: the polar Organicist and Dualist; and the intermediate synthesizing Integralist knowledge management – treating them as equally independent and essential, based on their own foundations

<sup>3</sup> See the BCA website: <http://en.biocosmology.org>

and exercising their autonomic conceptual frameworks and constructions. Previously, however, Biocosmology (as a scientific and philosophical field) was proposed at the 22nd World Congress of Philosophy in 2008, in Seoul, Korea. Therein, the important meetings with professors Kwon Jong Yoo and Xiaoting Liu took place – who are now the keynote scholars of the BCA, and who are the past immediate and current presidents of the BCA. As a whole, Biocosmology quickly moved to a fundamentally new level of efficient interaction among the contemporary Dynamic (naturalist, systemic) Russian and world academic approaches, and the Asian naturalist cosmologies and their derived contemporary scholarly endeavors.<sup>4</sup> Basically, BCA-scholars correlate their conceptual constructions with the original Organicist scientific theorizing of the Stagirite (as the framework of references; and which is substantially holistic, organicist and of the naturalist dialectics essence), thereby essentially distinguishing their approaches from the modern mechanical standpoints of scholars (as it is expressed in the BCnA-editorial of the 2010).<sup>5</sup>

### ***1.2. The Emergence of Biocosmology***

Over the previous 10 years, the scholars of the International Biocosmological Association (BCA, launched in the 2010, in Veliky Novgorod, Russia<sup>6</sup>) have started elaborating on a conceptual framework and methodological tools of the Biocosmology – a new Organicist all-encompassing approach in realizing the contemporary scientific and philosophical pursuits. In this, BCA associates consider it necessary to link their endeavors with the knowledge of the ancient classical philosophy, chiefly with the Aristotelian Organicist (super)system of rational knowledge; and using that as a framework of references (to have a common ground for reconciling the various exploratory approaches in their common endeavors). Through this process the name of the BCA's journal appeared – “*Biocosmology – neo-Aristotelism*”. For instance, Konstantin Khroutski believes that “we are to return and reinstate the Aristotelian supersystem (cosmology) of all-encompassing Organicist knowledge (his whole comprehensive *OrganonKosmology*) – as the

<sup>4</sup> Huang, Chuan-gen; Du, Jiang. “Biocosmology: A Neo-Aristotelism Based on Contemporary Context,” *Studies in Dialectics of Nature*, 2016(3), p. 90.

<sup>5</sup> Khroutski, Konstantin S. (2010). “Editorial : On Biocosmology, Aristotelism and the prospects of becoming of the universal science and philosophy,” *Biocosmology – neo-Aristotelism* Vol 1, No.1 (Winter 2010): pp. 4–17.

<sup>6</sup> The Biocosmological Association's website is <http://en.biocosmology.org>

matrix (archetype) of the Organicist (equipotential, one of the Three) type of rationality”.<sup>7</sup> In turn, according to Professor Liu Xiaoting (BCA’s President, since 2014), the central tenets of the modern (and postmodern) age and its norms of activity – they now strain the natural capacities and suppress the traditional survival experiences of people, thus leading to the fragmentation of survival abilities and disuniting the body and the mind of a human being. At the same time, the way to overcome this paradoxical state lies in an adequate (to our current historical moment) rehabilitating the ancient and traditional natural history experience and knowledge; and their convening and combining with the contemporary scientific and philosophical excellence.<sup>8</sup>

### ***1.3. The Practical Significance of Biocosmolgy***

According to present knowledge, the world today, at the current stage of sociocultural development, faces many complex challenges. The Biocosmolgy, therefore, through the re-examining and in-depth studying the world cultural possessions – it strives to unleash the new (but, in truth, the well forgotten old) cultural potentials and opportunities for the peace evolution.

Liu Xiaoting points out, in respect to constructive endeavors, that the true basic prerequisite is the acknowledgment of the natural state of things, therefore recognizing the opposite ways of promoting and perfecting the system; this way realizing the pluralistic ontological symbiosis, and carrying out the axiological win-win effects; and, thereby, actualizing the methodology that emphasizes the responsibility shared in the practical action.<sup>9</sup>

## **2. The Main Ideas of Biocosmology**

### ***2.1. The View of Nature : Organic Naturalism***

The view of nature includes the overall understanding of nature, the fundamental ideas on the origin, evolution and structure of the natural world (cosmos), and also

<sup>7</sup> Khroutski, Konstantin S. “To the Triadological Substantiation of Contemporary ‘Grand Strategies’,” In the Book of Abstracts; the 15<sup>th</sup> International Seminar on Biocosmology. Beijing, 2017, p. 44.

<sup>8</sup> Liu Xiaoting, Shi Bo. “Naturalism – the Guiding Principle and Value of Natural History,” *Jianghai Academic Journal*. 2014(5), p. 5–11.

<sup>9</sup> Liu Xiaoting. Perspectives of the Integration between Biocosmology and Asian Bioethics [C]. The 6<sup>th</sup> International Seminar on Biocosmology, Japan, 2013(12). p. 41.

resolving the essential relationship between the human and nature.

Therefore, the view of nature is the basis of people's understanding the world as a whole. In ancient times, essentially, people basically apprehended the natural (cosmic) world as the dynamic whole, with its universal connections and constant movement (self-evolvement), thus forming a naturalist (cosmist) view of nature.

Modern science went deep into every detail of the nature to make an isolated and static investigation; thus generating the metaphysical (mathematical and physicalist) view of nature, and promoting the new – of the mechanistic static cosmology, based on the dichotomy of the mechanical nature and higher state of Plato's eternal ideas and human consciousness, in understanding the world – the new scientific methods and practical approaches to social and cultural development, are but which are incapable (in the given objective approach) to explain the close dynamic relationship between things. Whilst, the Biocosmology substantiates that the whole universe exists (lives) as a synergistic organism, and the relationship between the man and the world are the organic dynamic interrelations between the whole and the part (but which also is the whole itself), but not the relationship between the human as a conqueror, and wherein the nature is a purely passive object (although with its mechanical, sometimes adverse impacts).

## ***2.2. The View of Science : Ternary Dynamic Logic***

The Biocosmological concept of science fully recognizes and appreciates the Dualistic objective (positivist) successes of modern sciences; but, at the same time – biocosmologists insist that the contemporary (of the 21st century) scholars are to return to the Triadological essence of scholarly endeavors, which embrace the equal coexistence and co-operation of the Three independent (all-encompassing) realms of scientific pursuits: the Modern (Dualistic – mathematical-physicalist); the opposite Organicist (neo-Aristotelian – Dynamic and Functionalist); and their symbiosis on the manifold Integralist bases (like the Daoist and Confucian foundations). Noteworthy, the traditional binary logic holds that any proposition has one and only one meaning – either “true” or “false”; therefore, the ternary (dynamic) logic, as non-acceptable – is often overlooked.

At the same time, the ternary dynamic (Organicist) logic and naturalism of the Stagirite provides an excellent opportunity for understanding and conceptualizing the constant natural changes that occur with all living things in peace. In this way,



science and scientific knowledge are not independent of the natural world, and are not immutable; but, because of dynamic mutability of the natural life – thereby rational knowledge is not always universal, unique and standardized; but the new stages of the world evolution substantially bring about the relevant generative foundations and basic theories that underpin the compelling reasons for realizing prudential cultural changes and undertaking sensible social reforms.

### ***2.3. The View of Culture : Diversity and Inclusiveness***

The Biocosmological perception of Culture takes roots into the achievements of the dynamic and cyclic theory of Pitirim Sorokin, a renowned Russian and American scholar; especially, his most famous work – the phenomenal (four-volume) study "Social and cultural dynamics" (1937–1941). Thereby, biocosmologists appreciate and highlight Sorokin's essential scientific Organicism (and its keystone principle of "immanent causality"). Another dominant position is Sorokin's scholarly Triadology – his basic grasp of the "the principle of immanent change" that underlies "*each of the three integrated forms, or phases, of the Ideational, Idealistic and Sensate supersystems*", determining their changing: "*rising, growing, existing full-blooded for some time, and then declining*"; and explaining "why each of these forms does not stay forever at its domination, and why it has to give place for the other forms of the triad." (Sorokin 2010, p. 676)<sup>10</sup> In detail, one can read the paper "Rehabilitating Pitirim Sorokin's grand Triadologic concept: A Biocosmological approach" that is accessible in Internet.<sup>11</sup>

In general, in Biocosmology – "Culture" is treated as a naturalist concept that deals with the historical (self-evolving) organization of humans' and peoples' life activities, that lead to the formation of a given specific – social and cultural – historical type; and which is primarily based on the inherent living (Organicist) potentials. Essentially, each "cultural-historical type"<sup>12</sup>; and each Culture has its own

<sup>10</sup> Sorokin, Pitirim A. (2010). *Social and Cultural Dynamics: A Study of Change in Major Systems of Art, Truth, Ethics, Law, and Social Relationships*. 4 vols. 1937 (vols. 1–3), 1941 (vol. 4); rev. 1957 (Fourth printing 2010), Transaction Publishers, New Brunswick, New Jersey.

<sup>11</sup> Khroutski, Konstantin S. (2014). "Rehabilitating Pitirim Sorokin's grand Triadologic concept: A Biocosmological approach." *Biocosmology – neo-Aristotelism*. Vol.4, No.1&2 (Winter/Spring 2014): pp. 6–42 (URL: <http://en.biocosmology.org/contributors>).

<sup>12</sup> The notion "cultural-historical type" was introduced into science by the Russian naturalist (but also a sociologist and philosopher; and who is considered to be one of the founders of the world

origination (time), life (ontogenesis) and mission (function) in the one common world history. Naturally, such an important and vast Organicist concept rolls out for many branches of physical sciences and sociological sciences.

Referring to the Aristotelian great system of *Organon*Kosmology, the BCA associates appreciate and evolve the indispensable dispositions of the Stagirite for realizing the holistic research; but most of all emphasize the Organicist and Dynamic rational cognitive stand of the great Greek scientist and philosopher. In fact, the universe is not mechanical and static, or something that can be reduced and subjected to human influence and control. The core principle of Biocosmology is that a human being and society are the direct results of the inherent natural (cosmic) evolution, but not *vice versa*. Thereby, Biocosmology reshapes the cultural pattern of the relationship between man and nature, rejects the binary opposition of one or the other, and emphasizes the harmony (with the tolerance of diversity in the dialogue between civilizations), as well as executes the fruitful cooperation between scholars all over the world.

## 2.4. Conclusion

Biocosmology introduces a new scholarly approach (but which is referred to a “well forgotten” Aristotelian *Organon*Kosmology; and, wherein, there is no substantial difference between philosophy and science, for both are based on the same world-viewing and theoretical bases), and which takes into use the Dynamic (Organicist and Integralist) scientific pursuits, enrooted in the ternary dialectical (dynamic) logic and Triadological acceptance of the naturalist (living) world. In a conclusion, the main tenets of the Biocosmology can be seen as following:

- (1) The dynamic organic (living) nature of the universe; thereto generating the organic, dynamic and holistic stands for realizing;
- (2) Trialistic and Triadological approaches to understanding the world, basing on a ternary dynamic (dialectical) logic;
- (3) Appreciating and synthesizing all the Three equal Types of scholarly

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civilizational theory) – Nikolay Ya. Danilevsky, in the book “*Russia and Europe: A Look at the Cultural and Political Relations of the Slavic World to the Romano-German World*”; first published in the 1869 (hence, we celebrate this year the 150<sup>th</sup> anniversary of this unrivaled scientific work). Danilevsky is the outstanding Organicist scholar, who has laid the essential foundations for the development of the world civilizational theory.

endeavors: the polar Dualist and Organicist Types; and the intermediate and basal (centralizing, homeostatic and symbiotic) Integralist Type.

Essentially, Biocosmology is constantly developing (with the continuous improvement of its own theory and system of knowledge; and encouraging a wide range of critical discussions); and the BCA associates eagerly appreciate the co-operation of scholars all over the world, in dealing with the big challenges of our time.

### **3. Introducing the Philosophy of Scientific Practice (PSP)**

#### ***3.1. The Origin of the philosophy of scientific practice***

The philosophy of scientific practice (PSP) emerged in the 1990s, if to compare it with the “theoretical superiority” of the traditional (of modern history) philosophy of science – PSP emphasizes the “practical superiority”. It is represented by Joseph Rouse’s *Knowledge and Power* published in 1987; and Andrew Pickering’s *Science as Practice and Culture* published in 1992. Also, in 1993, Michael Lynch published *Scientific Practice and Ordinary Action*, and Pickering published the *Mangle of Practice* in 1995; all this demonstrates the beginning and development of the philosophy of scientific practice.

Thereby, PSP focuses on practical activity, but not on theorizing. The main advocate of the philosophy of scientific practice, Joseph Rouse implements the practical study of science from the perspective of hermeneutics; he always tries to think about knowledge, truth, reality, rationality and other issues from the perspective of scientific practice and the given historical conditions and trends, believing that precisely scientific practice leads to the formation of the world, as it is demonstrated in his book *Knowledge and Power*. The scholars, representatives of the philosophy of scientific practice – they point out that the scientific results are the product of local knowledge in laboratories, as also the result of the generalization of local knowledge; and, eventually, they establish a scientific thinking mode that provide society with the relevant knowledge for realizing effective practical activities.

#### ***3.2. The Development of the Philosophy of Scientific Practice***

In 2006, the Society for Philosophy of Science in Practice (SPSP) was established; the latter means that the Philosophy of Science in Practice has taken an important step towards institutionalization. In 2018, the Chinese scholars held the

first national conference of the Philosophy of Scientific Practice in Tsinghua University; the conference gathered many researchers around the country. Professor Wu Tong from Tsinghua University, professor Sheng Xiaoming from Zhejiang University, professor Cai Zhong from Nanjing University, and professor Huang Xiang From Fudan University have made important contributions into this field.

Professor Wu Tong argues: “the philosophy of investigating and re-examining scientific practice is based on scientific practice, and puts forward a new theory on the role of scientific rationality in the philosophy of science”<sup>13</sup>. In recent years, scholars have focused on the following major issues: (1) how the knowledge is recreated in the process of use; (2) how the artificial objects intervene and influence on the conditions of theorizing and living in the world, including conceptual models and other tools of cognition; (3) how the innovative scientific and technological achievements impact on the contemporary development of as biological and social sciences, as much the humanities; (4) how methodology influence scientific reasoning and the study of scientific practice.

### ***3.3. The Practical Significance of the Philosophy of Scientific Practice***

The historiographical and sociological studies of modern history have brought about the distinguishing of Eastern and Western cultures and civilizations. One of the core characteristics of this differentiation is the modern science; and that science is the product of the Western civilization, while non-Western cultures are capable to have only some low-level “indigenous knowledge”. In this case, science undertook a mission of “civilization” during the colonial expansion of western countries<sup>14</sup>. In light of this tendency, science and technology and their achievements were (and are) positioned as the most important part of the contemporary society. Thereat, philosophy should explain (implement the philosophical reflection) how science and technology affect the development of society and its theorizing of societal evolution. In turn, as is often claimed, the philosophy of the past, especially the Chinese philosophy, paid little attention to it.

Secondly, the philosophy of science often focuses only on the theoretical

<sup>13</sup> Wu tong. “Philosophy of Science Toward Practice – a Review of the Development of Philosophy of Scientific Practice,” *Philosophical Researches*, 2005 (5): p. 86–93.

<sup>14</sup> Liu Peng. “The Philosophy of Scientific Practice: Connotation, Origin and Meaning,” *Journal of Anhui University (Philosophy and Social Sciences)*, 2019 (2): p. 36–44.

achievements in the development of science, herewith treating science as a propositional statement system; but it rarely pays attention to explaining scientific practices and activities. In fact, we all know that not only scientific theories are changing the world, but, to a deeper degree this is done by scientific practices and practical results, as well the integration of science and technology, and the integration of science into the living world<sup>15</sup>.

#### **4. The Main Ideas of the Philosophy of Scientific Practice**

##### ***4.1. The View of Nature : Contextualization***

The philosophy of scientific practice interprets and transforms the world by practice. Joseph Rouse believes that the understanding of knowledge is local and survivable, and that it is the subject to certain circumstances, embodied in the actual tradition of interpretive practice that is handed down from generation to generation; and which is anthropogenic, for certain circumstances and traditions are shaped by the person. Likewise, the decisive significance has a performative grasp of how to deal with challenges, but not a conceptual understanding of the world<sup>16</sup>.

We can notice, therefore, that philosophy of scientific practice (PSP), to some extent, breaks through the dualistic frame of modern philosophy and dispels the opposition between man and nature (i.e., is developing an integralist character; however, basically, PSP is founded on the Western Dualistic world-viewing); at least, PSP provides new ideas for people to reflect on the relationship between man and nature. In this way, for PSP – science is a way for human beings to deal with nature; while the essence of science is practice. However, the initial impression is such that PSP is realized and developed within the general pragmatist “functionalist” outlook and tradition of the American philosophy and psychology; and what radically differs PSP (and the pragmatist tradition as a whole) from the European “continental” theorizing philosophy.

##### ***4.2. The View of Science : Practical Superiority***

The philosophy of scientific practice opposes the mainstream normative

<sup>15</sup> Wu tong. “The position and function of the practical dimension of philosophy of science in contemporary philosophy,” *Journal of CUPL*, 2015 (5): p.128–130

<sup>16</sup> Rouse Joseph. (1987). *Knowledge and Power: Towards a Political Philosophy of Science*. Cornell university press. P. 60.

epistemology in the 20th century and first regards science as a dynamic practical process rather than a static theoretical set. PSP substantially differs from the traditional (European, of modern history) philosophy of science (with its theoretical superiority and normative nature) – the philosophy of scientific practice combine the traditional methods with naturalist tendencies – to sketch a dynamic, historical, contextualized and diversified scientific image. Science, as PSP representatives claim, is a kind of local knowledge. From this standpoint, PSP-researchers try to paint a different picture of science.

The philosophy of scientific practice differs from the modern mainstream epistemology, firstly regarding the consideration of science as a dynamic practical process, rather than a static theoretical set. It is therefore different from the traditional (European, of modern history) philosophy of science that primarily aims at the theoretical superiority and has a normative nature. Alternatively to this, the philosophy of scientific practice (PSP) combines the objective description method with naturalist tendencies – aiming at sketching a dynamic, historical, contextualized and diversified scientific image. According to PSP, science is a kind of local knowledge. From this standpoint, PSP-researchers try to paint a different picture of science. At the same, PSP is not an autonomic Type of rational knowledge (like Biocosmology is), but is an alternative form within the general Type of Western Dualist rationality; with their valuable attempts to infuse the integralist elements into rational cognizing the interrelations of Man with Nature. Not surprisingly, the PSP-keynote scholars (Joseph Rouse and Andrew Pickering) do not see the Aristotelian *Organon* Kosmology as their basic framework of references. For instance, in the book “Science as Practice and Culture” (1992), edited by Andrew Pickering – there is no one reference to Aristotle, great naturalist and father of science<sup>17</sup>. In the result, the cornerstone statement of the Stagirite on the physical (naturalist) essence of the real world, done in his *Physics*, do far, are unfortunately overlooked by the PSP-community: “It is clear then that if there are causes and sources of the things that are by nature, from which first things they are and have come to be not incidentally but what each is said to be in virtue of its thinghood, then everything comes to be out of something underlying and form;” (190 b 18–22).

According to Professor Wu Tong, a famous Chinese scholar who studies the

<sup>17</sup> Pickering, Andrew (ed.) *Science as Practice and Culture*. Chicago: University of Chicago Press, 1992. 474 p.

philosophy of scientific practice for a long time, knowledge is the interactive mode of human life and the field of practical skills and actions. The attempts to distinguish between the humanities and the natural sciences are inappropriate, and the knowledge is local, practical, developmental and time-dimensional<sup>18</sup>. Also, whether the natural knowledge is correct or reasonable depends on whether a man (researcher) effectively handles the relationship between man and nature, while Western science (but not natural or hard science) also has some local knowledge, opportunistic characteristics, and situational research. In general, however, Western scientists produce scientific knowledge basing on the unified empirical and mathematical (logical) tools, primarily through convening their meetings and establishing the strict standards of their scientific pursuits; and onward realizing laboratory or other exploratory methods, with further equally stringent mathematical processing of the obtained hard data, and the eventual conceptual constructing and verification of the results.

#### ***4.3. The View of Culture : Multiple Standards***

The philosophy of scientific practice offers an original perspective of how we understand the nature, science, human beings themselves, and the relationships between them. This way, PSP formed a multi-standard view on culture that the world is dynamically changing, and the knowledge is no longer has the only one standard, but have local characteristics. The dimension of practice itself deals with ethical and political implications.

Within Aristotle's division of human activities into three parts (theoretical, practical, and productive), herein practical wisdom means that the ultimate aim of the individual activity is to live the Good Life. The latter is a natural thing; therefore the first task for philosophical reflection is how to return the true ethical and political dimensions to the philosophy of science and research<sup>19</sup>. Thereby, philosophy of scientific practice and another philosophy with practical dimension, or one of the philosophical contributions that is based on practice: all this is how to reverse the philosophy without man – to the philosophy with active man who generates really good practical results.

<sup>18</sup> Wu, Tong. (2006). “Scientific Practice from the Perspective of the Philosophy of Scientific Practice,” *Philosophical Researches*, 2006 (6): pp. 85–91.

<sup>19</sup> Wu, Tong (2015). “The position and function of the practical dimension of philosophy of science in contemporary philosophy,” *Journal of CUPL*, 2015 (5): pp. 128–130.

#### 4.4. Conclusion

In conclusion, the main idea of the philosophy of scientific practice is the following:

(1) *contextuality* : the situational relationship, caused by practical activities, determine what the thing is. Rouse points out that the situations of roles, practices, devices, and the goals of our activities – all of them guide our actions and create the meaning of what we do.

(2) Advancement of the *local knowledge* concept is critically related to the fundamental significance of universal knowledge; and points out that modern scientific knowledge is essentially the local knowledge.

(3) The process of practice itself has the fundamental significance; that is why – reality is the process. Alfred North Whitehead claimed that the fundamental characteristic of an organism is its activity, which is manifested as process; and Process is the internal and continuous creation of the various elements that constitute and develop the organism.<sup>20</sup>

### 5. A Comparative Study

#### 5.1. Common forms, but the opposite foundations

What do Biocosmology and the philosophy of scientific practice (PSP) have in common? First of all, they recognize the priority; and, in their conceptual constructions – are including the tasks of (moving at) the rationalizing the unity of man with nature (firstly, through the effective, but prudent and wholesome human practical activities), thereby approaching the Integralist areas of their scopes of research. However, the cosmological (of the world outlook) foundations – of Biocosmology and PSP – are quite opposite to each other: the former is based on the fundamental principles (basics, core values) that can be referred to the great Aristotelian rational all-encompassing (super)system of knowledge, which we call as *Organon*Kosmology; while the latter is certainly reduced to the basics of the Western Dualist cosmology (philosophy and science). Essentially, Biocosmology realizes a neo-Aristotelian perspective. In general, biocosmologists distinguish at least 5 generations of Aristotelism and neo-Aristotelism<sup>21</sup>.

<sup>20</sup> Whitehead, Alfred N., *Process and Reality*, New York: Macmillan. 1929. P. 217.

<sup>21</sup> See: Khroutski, Konstantin S. & Klimek, Rudolf (2018). “Biocosmological definition of Information and its Naturalist causative significance, approaching to evolve the World



In turn, the critical judgment of John G. McEvoy can serve as a true expert opinion on the PSP-achievements: “when Rouse identified scientific research as a form of ‘craft knowledge’, he used Heidegger’s ‘practical hermeneutics’ to argue that all decisions in science, no matter how theoretical some of them may seem, are ultimately practical decisions, dealing with the problem of how to cope with the world, not how to represent it” [McEvoy, 2010, p. 153]<sup>22</sup>. Another valuable opinion, now on the PSP-grounds is the following:

The first five chapters of the book<sup>23</sup> are predominantly historical and critical. They examine and synthesizing several major strands and figures of twentieth century philosophy, including phenomenology, logical positivism, Quinean naturalism, interpretivism (represented by Davidson, Dennett, and Rorty), social science studies, and what he calls ‘feminist science studies’... [Kukla, 2004, p. 216]<sup>24</sup>

Notably, likewise, the philosophy of scientific practice is regarding science as a dynamic process of practice rather than a static set of theories; and PSP does not represent a unified and coherent explanation framework; but it represents theories as families of models and paves routes for the families of similar theories. In this respect, the methodology of ordinary people from Lynch, the laboratory studies from Cetina, the actor network theory (ANT) from Latour (Bruno Latour), and new experimental doctrine from Ian Hacking – are good example of this development.

## 5.2. Critique of Mechanism & Reductionism

Again, with respect to the critique of mechanism and reductionism, Biocosmology is fundamentally different from the PSP. The Triadological rational cognizing approach in Biocosmology equally appreciates each of the Three main Types of rationality (Organicist, Dualist, and Integralist) – for this reason

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Information University (WIU),” *Biocosmology – neo-Aristotelism* Vol. 8, No. 2, (Spring 2018); pp. 203–261 (the section 4: “ARISTOTLE 1.0; ARISTOTLE 2.0; ARISTOTLE 3.0; ARISTOTLE 4.0; ARISTOTLE 5.0”; pp. 240–254).

<sup>22</sup> McEvoy, John G. (2010). *The Historiography of the Chemical Revolution: Patterns of Interpretation in the History of Science*. xiii + 328 pp., bibl., index. London: Pickering & Chatto.

<sup>23</sup> See: Rouse, Joseph (2002) *How Scientific Practices Matter: Reclaiming Philosophical Naturalism*. Chicago: University of Chicago Press. – 336 p.

<sup>24</sup> Kukla, Rebecca. (2004). Book review: Joseph Rouse, *How Scientific Practices Matter: Reclaiming Philosophical Naturalism*. *Philosophy of Science*, 71 (2):216–219, April 2004.

Biocosmology considers the mechanistic (objective and reductionist – mathematical-physicalist) exploration of the natural world as essential of Biocosmological knowledge itself.

Biocosmology and the philosophy of scientific practice are the phenomena in the contemporary history; however, each has taken roots in its autonomic realm of the world culture. It is no wonder, therefore, that biocosmologists feel themselves obligated to co-relate with the *Organon* Kosmology of Aristotle; while the PSP-scholars (normally) do not notice the cultural heritage of the Stagirite. In turn, both appreciate the prudent wholesome practical activity; and both (although from the opposite positions) – strive at achieving the unity of man (society) with nature.

Rebecca Kukla writes: “Joseph Rouse’s How Scientific Practice Matter constitutes a radical move towards what John McDowell might call the re-enchantment of nature” [Kukla, 2002, p.216]. Essentially, however, from the Biocosmological standpoint – what is natural to a human (societal) activity must be likewise (and, first of all) natural to Nature itself. In other words, the true (major) naturalism must be premised on (driven by) the true naturalist (Organicist) laws; like the laws (fundamental principles) of Dynamicity, Bipolarity and Cyclicity – Triadicity, and the ascending Self-evolvement of a living subject, etc. Therefore, a reason is to distinguish the two equally essential kinds of naturalism: *soft* (*within* the omnipotent Dualism) – wherein the “the re-enchantment of nature” is reduced by the PSP-approach to (following Joseph Rouse) the temporal, situational and contextual (hence – Static) “situations of roles, practices, devices, and the goals of our activities that are guiding our actions and create the meaning of what we do”; and the *strong* “re-enchantment of nature” wherein Biocosmology carries out international research activities *from without* the Dualist paradigm, but applying the Organicist and Integralist approaches to substantiating the true naturalist foundations for the approaching the unity of Man (Society) with Nature relationship, and which is essentially Dynamic (i.e. man or society, or any other cosmist living subjects are the natural unities [Functionalist organs] of the One Whole Organicist Self-evolving Process).

### **Instead of conclusion**

In meeting the challenges of contemporary global integration and social development, the introduction of Integralist approaches that unite man (society) with nature can be highlighted as a true one. The compared and analyzed in the work two

approaches – Biocosmology and the philosophy of scientific practice – both are valued as equally important for the contemporary social and cultural development. At the same, these are the cosmologically opposite to each other modes of inquiry (in general, essentially, of Eastern and Western, or North-Eastern and North-Western forms of naturalism), with their own conceptual and categorical frameworks, based on the proper aetiological, methodological, anthropological, etc. foundations of scholarly endeavors; and which ultimately are reduced, appropriately, to Organicism and Dualism. In the work, an initial stage of distinguishing these two basic exploratory approaches has been carried out; of all this, aiming at realizing an efficient and considerable contribution to building a peaceful community of the common destiny and shared future for mankind.

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