

# ARISTOTLE'S BIOCOSMOLOGY – TELEOLOGICAL FUNCTIONALIST NATURALISM – AS THE TYPE OF RATIONALITY

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**ABSTRACT.** *The author strongly urges to rehabilitate the genuine significance of Aristotle's supersystem of knowledge as the autonomic (one of the Three) Type of rationality – Type of (Bio)cosmology. First and foremost, we need to reinstate the true meaning of Aristotle's Organicistic (Four-causal) aetiology, wherein all Four causes are telic (teleodiven): hyletic (which is called nowadays as "material"); organic or morphogenetic ("formal"); generative ("efficient"); telic or Functionalist ("final"). As we substantiate, modern perception (and conventional apprehension) of "material" and "formal" causes, as well as the removal of telic causes from modern scientific environment demonstrates a bad misinterpretation of Aristotle's (Bio)cosmology – the (super)system of scholarly Organicist knowledge – and the autonomic atemporal (one of the Three) Type of rationality (of Functionalist naturalism). Likewise, an attempt is to introduce the Bipolar and Triadic essence of Aristotle's teleological (Functionalist) naturalism that comprehensively encompasses (substantiates) all the domains of science and philosophy, thus uniting the knowledge of all kinds into the one overall scheme (Biocosmology or OrganonKosmology). However, during the long time of cultural history – Aristotle's rational heritage had been badly misinterpreted and is out of use at present. This is an absolutely unacceptable state of things – a culturally 'sick-world'. Therein, progression of the current 'cosmological insufficiency' takes place, which occurrence makes impossible at present time the further realization (even planning) of a satisfactory intellectual and cultural life, first of all the safe and wholesome global sociocultural evolution. In this light, therefore, the author's work (within the general activity of the Biocosmological Association) – is the impetus to start (relying on Aristotle's Biocosmology) the process of overcoming the specified 'cosmological insufficiency'.*

**KEYWORDS:** *Aristotle, hyletic, hylomorphism, Four-causal telic aetiology, Type of rationality, Functionalist naturalism, Organicist science, Biocosmological association, cosmological insufficiency*

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## Introduction

Greek greatest geniuses (Aristotle and Plato) occupy the unique position in the history of world culture, for their systems of knowledge have been taken as foundations and patterns – the Types of rationalities – for the contemporary educational systems and institutional organization of science and other sociocultural activities. In this, Plato's Type of cosmology currently dominates (or dictates), while Aristotle's Type fall into a disadvantage state of deep stagnation through the relation of global scholarly community. In very deed, we strongly urge to rehabilitate the genuine significance of Aristotle's supersystem of knowledge as the autonomic (one of Three) Type of rationality – Type of (Bio)cosmology – of Functionalism naturalism essence.

The contents of the “second circular” for the Congress “ARISTOTLE 2400 YEARS” is substantive in this aspect. Prof. Demetra Sfendoni-Mentzou, President of the Congress – justly emphasizes that Aristotle is “the universal philosopher,” whose work “spreads over the broadest range of topics, covering all major branches of Philosophy such as Logic, Dialectic, Syllogistic, Metaphysics, Political-Moral Philosophy, Rhetoric, Poetics and extending in an impressive way into areas related to all fundamental scientific fields, such as Physics, Biology, Zoology, Botany, Taxonomy, Mathematics, Meteorology, Astronomy, Geology, Psychology, Medicine, Economics, Humanities, Law and Political Science, Economics, Health Sciences and even Technological Sciences.”

All this clearly represents the evidence that the rational heritage of Aristotle has not merely the value of a great philosophical or scientific system, but this is precisely the (super)system of knowledge – all-encompassing (Bio)cosmology – the Type of rationality (which essence is the teleological Functionalist naturalism). Not less significant is the realness that Aristotle's (Bio)cosmology is the polar supersystem of rational (scholarly) knowledge – polar to the currently dominating (or dictating) Plato's Dualist Type of rationality – and which both represent (in the best possible way) the atemporal (time-independent) polar Types of rationality – of all-encompassing knowledge, Types of (Bio)cosmology – which are permanently active and actual in all times and epochs.

### 1. The Biocosmological approach

In 2010, in Veliky Novgorod, Russia, the Biocosmological Association (BCA) – of the neo-Aristotelian approach – was launched. BCA's approach has a deep correlation with the dynamic cyclic (Triadologic) theory of the Russian-American outstanding scholar Pitirim Sorokin (mainly realized in his phenomenal *magnum opus* “Social and Cultural Dynamic”, 1937–1941). In general, Sorokin made a phenomenal discovery – sociocultural reality has the dynamic cyclic and Triadologic essence, i.e. is constituted of the Three autonomic **T**ypes of **s**ocio**c**ultural **s**upers**y**stems (T\_SCSS). Thereupon, characterizing the BCA's approach, it could be

mentioned that together with the rehabilitation of the neo-Aristotelism<sup>2</sup> – another basic tenet is the viewing of the cultural history as the naturally dynamic and cyclic evolutionary process (as it is substantiated in the cyclic dynamic theory of Pitirim Sorokin) – as the domination by turns of the T\_SCSS.

From the standpoint of both Aristotle's Biocosmology – as the Type of rationality (of teleological naturalist essence); and Sorokin's theoretical Triadologic dispositions – we have every right to consider both Plato and Aristotle (referring to their monumental rational cosmologies) as (both) Fathers of Philosophy and Science<sup>3</sup>, i.e. Fathers of different polar cosmologies – the all-encompassing (super)systems of rational knowledge. That is to say, Plato and Aristotle have created the supersystems of knowledge (cosmologies) – which are polar (opposite to each other) and which, nowadays, form the foundation (for) and the contemporary supersystems (frameworks and matrix) of rational knowledge. Thus, basically, we consider contemporary philosophical and scientific knowledge as, in essence, naturally heterogeneous, at least, of Triadic essence – constituted of the Three autonomic cosmologies: two polar; and the third intermediate – Integral – Type of cosmology.

In the Vol.5, No1-Issue of the BCA's "Biocosmology – neo-Aristotelism"-journal, starting with the work of Marianna Benetatou<sup>4</sup> – we have started the development (and the discussion over) the study of Plato's and Aristotle's (super)systems of knowledge as the autonomic (independent, in their whole organization) cosmologies – the polar Types of rationality – i.e. which have their own foundations and frameworks (aetiological, gnoseological, methodological, anthropological, etc.), and own conceptual matrix. Our general aim is to define and substantiate clearly both poles of knowledge (polar Types of rationality), thus advancing the foundation for the true Integralist (*in-between* the two poles) studies, which have their own cosmological foundations, but equally and essentially use the scholarly means from both poles, thus "uniting the opposites" and maintaining the "golden mean" ('homeostasis') states of harmonious being.

Primarily, however, our primary goal is to rehabilitate the significance of Aristotle's supersystem of knowledge – as the all-encompassing (Bio)cosmology and the Type of (Organicist) rationality. However, as we give evidence – the latter (genuine Aristotelism) currently is removed from the actual spheres of philosophy

<sup>2</sup> Due to the specific approach, we have decided to introduce the neologism 'Aristotelism', instead of the conventional "Aristotelianism". Therefore, our (Biocosmological) developing of Aristotelism is an attempt and endeavour to evolve the genuine Aristotle's theory (of the significance of Biocosmology, i.e. with the essence of teleological Functionalist naturalism and the Organicist Type of rationality), which, thus, is radically distinct and independent from the modern dominating Platonist cosmological Dualism – the basis for currently dominating (or dictating) mathematical physicalism, accepted as the only possible contemporary scientific approach.

<sup>3</sup> At present, Aristotle is generally recognized as the Father of science, while Plato – as the Father of philosophy.

<sup>4</sup> See: Benetatou, Marianna (2015). "Does Plato outline a mathematical-reductionist model of the physical world? The creation of the world in the *Timaeus* and Aristotle's criticism in *De Anima*." *Biocosmology – neo-Aristotelism*. Vol. 5, No. 1 (Winter 2015): pp. 6–19. URL: <http://en.biocosmology.ru/contributors>

and science. From our point of view, this is an absolutely unacceptable state of things. In our thinking (in medical metaphor), this is a kind of ‘*cosmological insufficiency*’ – we currently live in a unipolar cognitive world (instead of naturally Bipolar and Triadologic realm), i.e. within the solely Plato’s cosmology, thus in a cultural ‘sick-world’: of both the long-running modern prosperous material progress and (but) failure to thrive in intellectual (noetic) development – inevitably resulting in general confrontation (with permanent world wars and global crises).

## **2. Current ‘*cosmological insufficiency*’ and the urgent need to reinstate Aristotle’s genuine hylomorphism and telic aetiology**

All this is a consequence of long existing activities and domination (since Modern era) of societal institutions of education and science (and the Sensate Type of sociocultural supersystems<sup>5</sup>, in general), which intermix Plato and Aristotle, but with ultimate reduction of all to the bases of Plato’s Dualist cosmology, including the derived and developed foundations of (modern) mathematical physicalism – so-called “scientific method”. The other widely accepted (and equally misinterpreting form) is the mixture of Aristotle and Thomas Aquinas (in the Aristotelian-Thomistic tradition – of theological essence).

Nowadays, we need urgently to reinstate the true significance of Aristotle’s philosophy – as the substantive autonomic (super)system of knowledge – (Bio)cosmology or (*Organon*)Kosmology of the teleological naturalism (of Bipolar and Triadologic essence), which comprehensively encompasses (substantiates) all the domains of science and philosophy, which thus are united into the one overall scheme. WM. E. Ritter rightly emphasized (in 1932) that “Aristotle seems now to be recognized by everybody as the founder of the science of living nature. The “father of biology” (or, rather ‘*father of Biology*’. – **K.K.**) is a common short characterization of the man.”<sup>6</sup> Therefore, we strive to propose a contemporary exploration of the basic Aristotelian science theory (and, firstly, his teleological physics), but of all taken as a whole (as the true Aristotle’s Type of rationality – Biocosmology – Organicist science), independently from the modern partial points of view, either formal or material, and which ultimately are reduced to Plato’s Dualism and Idealism.

However, at present, in respect to his teleological naturalism – Aristotle is totally misinterpreted. The notions “*hyle*” and the derived “*hyletics*”, “*hylozoism*” and “*hylomorphism*” can be examined in this relation. For instance, at the Merriam-Webster dictionary – *hyle* is the synonym of *matter* and means “whatever receives form or determination from outside itself”<sup>7</sup>; in Collins dictionary – “*hyle* is matter;

<sup>5</sup> “Type of sociocultural supersystems” – T\_SCSS – is the cornerstone concept of Pitirim Sorokin’s dynamic cyclic theory. Due to the Russian-American scholar – there are three main atemporal (independent of a historical epochs) T\_SCSS, which always exist synchronously and are constituted of the Three main types: two polar (opposite to each other: Sorokin called them Sensate and Ideational); and intermediate – Integral (Idealist).

<sup>6</sup> See: Ritter, WM. E. (1932). “Why Aristotle invented the word Entelecheia,” *The Quarterly Review of Biology* Vol. 7, No. 4 (Dec. 1932), pp. 377-404.

<sup>7</sup> Q.v.: <http://www.merriam-webster.com/dictionary/hyle>

everything with a physical form”. In turn, in Wiktionary – “Hyletics is the study of matter or raw impressions of an intentional act; the abstraction from the form”<sup>8</sup>; while “hylozoism”, in the American Heritage Dictionary – is “the philosophical doctrine holding that all matter has life, which is a property or derivative of matter”. Finally, *hylomorphism* (from Greek *hylē*, “matter”; *morphē*, “form”) , in Oxford dictionary – is “the doctrine that physical objects result from the combination of matter and form”<sup>9</sup>, while Encyclopædia Britannica define it as the “metaphysical view according to which every natural body consists of two intrinsic principles, one potential, namely, primary matter, and one actual, namely, substantial form. It was the central doctrine of Aristotle’s philosophy of nature.”<sup>10</sup>

Notably, the terms “hylozoism” and “hylomorphism” refer to the modern history, i.e. have a fairly recent origin. Referring to Soren Brier<sup>11</sup>, the English term “hylozoism” was introduced by Ralph Cudworth in 1678; although the doctrine of hylozoism is considered to be especially characteristic for the Ancient Greek philosophy. In turn, referring to Danie Strauss and his study of “Hylozoism and Hylomorphism” – the term “hylomorphism” came into use only by the beginning of the XX-th century<sup>12</sup>.

Hylozoism and hylomorphism, and their scientific forms (scientific hylozoism and scientific hylomorphism) are radically distinct from both panpsychism and animism (and Whitehead’s panexperientialism), and are the polar alternatives to (against) a mechanical view of the world (wherein the term matter is appropriate), and which upholds the idea of a unity of organic and inorganic nature, and derives all actions of real (tangible, empirically verified) things from natural causes and laws.

Substantially, in Aristotle’s genuine meaning – *hyle* and *morphe* do not refer to “matter” and “form” (shape), in principle. In very deed, *hyle* and *morphe* do not receive “determination from outside itself”; nor that they are any “abstractions”, and never they are “derivative of matter”, as well as *hyle* and *morphe* are not the parts (or principles) of which “every natural body consists”. Essentially, *hyle* is as much substantial as the “substantial form”. As Francis Peters showed in his work<sup>13</sup>, “*Hyle*, a purely Aristotelian term, does not have its origins in a directly perceived reality... (p. 88). *Hyle*, then, is the primary substratum of change (hypokeimenon, q.v.; Phys. 1, 192a), the ‘thing’ that receives the new eidos (Meta. 1038b)... [p. 89]. But to call it a ‘thing’ is misleading. *Hyle* is like a substance....” [Ibid.] Therefore, the introduction and use (replacement) up to now the terms *matter* and *form* (as the “synonyms” of

<sup>8</sup> Q.v.: <https://en.wiktionary.org/wiki/hyletics>

<sup>9</sup> Q.v.: [http://www.oxforddictionaries.com/us/definition/american\\_english/hylomorphism](http://www.oxforddictionaries.com/us/definition/american_english/hylomorphism)

<sup>10</sup> Q.v.: <http://global.britannica.com/topic/hylomorphism>

<sup>11</sup> See: Brier, Soren. (2009). “Levels of Cybersemiotics: Possible Ontologies of Signification”, *Cognitive Semiotics*, No.4, pp. 28-62.

<sup>12</sup> Referring to: Strauss, Danie. (2014). “Hylozoism and Hylomorphism: a lasting legacy of Greek philosophy.” *Phronimon*, Vol.15, No.1, pp. 32-45.

<sup>13</sup> Peters, Francis E. (1967). *Greek Philosophical Terms: A Historical Lexicon*. New York: New York University Press.

*hyle* and *morphe*) is badly misinterpreting and misleading Aristotle's basic notions (and, thus, his supersystem of knowledge on the whole).

Aristotle was the first to use the terms *hyle* and *morphe*. In this, many scholars assume that Aristotle equally uses the terms *morphe* and *eidos* (in an interchangeable mode). On other words, the accepted view is that *morphe* and *eidos* are synonymous<sup>14</sup>. In turn, Plato's *eidos* and Aristotle's *eidos* are radically distinct. Francis E. Peters speaks about the Aristotelian vs. Platonian "dilemma of immanence vs. transcendence" [p. 50]; wherein the former is "the Aristotelian *eide* as immanent formal (*morphogenetic*. – K.K.) causes with an orientation toward matter (*hyle*. – K.K.)"; and the latter is the Platonian "*eide* as the thoughts of God, a position that continues down through Plotinus (see *Enn.* v, 1, 4) into Christianity," [Ibid.]

Genuinely, due to Aristotle's philosophy (Biocosmology or *OrganonKosmology*) – his *hylomorphism* is not the combination of the two principles ("of matter and form"), as the modern scholarly definitions say, but it is just the expression of the essential Bipolarity and (dynamic cyclic) Triadicity of each living thing. In truth, *hyle* and *morphe* do not refer to "matter" and "form", but are the integrated elements and stages of the hierarchical ontogenetic – dynamic cyclic – Organicist process of the given Function (*telos*, *organon*) self-realization. Put differently, *hyle* and *morphe* (equally, but consistently) contribute to one the same whole Functionalist process that is aimed at the satisfaction of the basic needs of a natural thing.

In general, the ontogenetic process of a thing's inherent Functioning is essentially Bipolar and Triadic (dynamic, cyclic). In each case, the two polar autonomic stages are realized: of gaining the Functional ability (potency), i.e. producing the structural-functional organ (*morphe*) – the Functional(ist) tangible organ; and this Functionalist organ's (*morphe*'s) actual exercise of the given function, thus producing the needed Functional effects (results) – for satisfaction the primary causative need. In other words, every Biorhythm of life activity is constituted of the cycles (and polar stages): of gaining – in the hierarchical ontogenetic process – the Functional(ist) ability (potency), i.e. generating the structural-functional tool – Functionalist organ(on); and the successive (but polar) stage of this Functionalist organ's use and the actual exercise of the given Function – by producing the needed Functional effects (results).

An interesting comment, in this respect, is given in Gareth B. Matthews's book on "Thought's Ego in Augustine and Descartes", concerning the sincere utterances of Thomas Aquinas, that "Thomas was struck in reading Aristotle's *Physics* how a term like *morphe*, whose obvious meaning is the external shape or contour of an object, is used in graded ways to mean any property of a thing, then its constituting essential element. All this in the first book of the *Physics*." [1992, p. 92]<sup>15</sup>. It can be concluded, in this respect, that Saint Thomas Aquinas treated (and used) Aristotle's conceptual

<sup>14</sup> Therefore, the synonym of *hylomorphism* is 'hyloeideticism' (but the latter is evidently less appropriate in linguistic relation).

<sup>15</sup> Matthews, Gareth B. (1992). *Thought's Ego in Augustine and Descartes*. Cornell University Press.

constructs exclusively from theological (but not from the Aristotelian themselves, as they originally are) dispositions.

The overall outcome, however, in terms of cultural historical impact – for the contemporary sociocultural milieu (educational, scientific, philosophical) – is that *hyle* was equated with *matter*, and thus Aristotle's aetiological *hyletic* principle (*hyletic* cause) nowadays is called (and understood) as *material* principle (*material* cause).

Essentially, however, all four Aristotle's aetiological forces: *hyletic* ("material"), *organic* or *morphogenetic* ("formal"), *generative* ("efficient"), and *telic* or *Functionalist* ("final") – all the Four are essentially teleological and cosmologically distinct from the four that are accepted at present (*c.materialis*, *c.formalis*, *c.efficientis*, *c.finalis*). First proof, in this respect, can be found in the fact that Aristotle's cornerstone notion *entelecheia* (under the conditions of materialistic reading of his works) is not translated (by modern commentators) in its original sense but is replaced by the term "actuality" (we discuss this moment below).

We are fully in agreement with the statements of Helen S. Lang<sup>16</sup> who stresses an important thing that "although the term «teleology» is regularly applied to Aristotle, it is a modern one, and is quite definitely fixed in meaning by contemporary use." [p.36] Thus, due to this misinterpretation, "Aristotle's teleology is often identified with his account of «final causes» as if, apart from them, the rest of his physics (or philosophy more generally) were not teleological." [p.274]. Indeed, essentially – all the Four causes of Aristotle's aetiology (*hyletic*, *organic-morphogenetic*, *generative* and *Functionalist-telic*) are equally teleodiven and subdued to the natural inherent telic forces.

In reality, each natural body does not "consist" or "combined" of the "two intrinsic principle" but both (*hyle* and *morphe*) are teleodiven within the natural body – Organ(on) – in actualizing the *first entelecheia* of the given Functionalist potency (and which is ontogenetic and hierarchical) – thus starting the process of generating the actual Functionalist organ (*morphe*) – on the inherent *hyletic* basis, which (*morphe* – the actual Functionalist organ) is already the realization of the second *entelecheia* (of the given Function actualizing) – of all organized within the natural body as the inseparable (*Organon*Kosmological) unity, but which incorporates the autonomic and polar (opposite to each other) substances<sup>17</sup> that are carried out within the changeable Triadic (dynamic cyclic) reality of the given thing and the surrounding world.

In all cases, evidently, Aristotle's *hyle* is not the chaotic mechanical matter as the constructional elements ('bricks') for the creation of new constructions 'from without' – due to divine or anthropocentric activities. Quite the opposite, *hyle* means the predisposed "functional blocks"<sup>18</sup> with their intrinsic ('from within') power to

<sup>16</sup> We cite her book "The Order of Nature in Aristotle's Physics: Place and the Elements." (1998).

<sup>17</sup> And, spheres (and Types – cosmologies) of life activities.

<sup>18</sup> The notion of "functional blocks" is introduced into science by the Russian scholar (physiologist) Alexander M. Ugolev (1987) – author of the conceptions of "New functionalism" and "Universal functional blocks". A.M. Ugolev's main works are: (1985). Evolution of Digestion and the

contribute to the processes of self-organization and production of the need-driven functional structure – for the further actual exercise of the needed effects (results or products of life activity).

Another essential moment is that *hyle* has the direct relation to *steresis* (privation). F.Peters' characterization is: “*Steresis*, which Aristotle defines (*Meta.* 1011b) as the “negation of something within a defined class,” is one of the three essential elements in Aristotle's analysis of genesis in *Phys.* I: the permanent substratum (*hypokeimenon*) and the passage of one form to its opposite (*enantion*) demands the existence of a lack of that second form in the substratum (*Phys.* I, 191a-191b).” [Peters, 1967, p. 180].

Nowadays, we need urgently to reinstate the true significance of Aristotle's philosophy – as the substantive autonomic (super)system of knowledge – (Bio)cosmology or (*Organon*)Kosmology of Functionalist naturalism (of Bipolar and Triadologic essence), which comprehensively encompasses (substantiates) all the domains of science and philosophy, united in the one whole (Bio)cosmology. Notably, yet in 1960, John Herman Randall Jr., renowned specialist in Aristotle, asserted that modern scholars “have come at Aristotle from the standpoint of the later medieval developments and problems” [Randall, 1960, p.iv]; and that the early modern scientists (including Bacon, Descartes, and Kant) had discarded Aristotle in rebellion against his religious interpreters.” [Ibid.] He also seriously doubts, “whether Aristotle can survive translation into the Latin substantives of the scholastic tradition, or whether it is possible to state his fundamental functionalism in the Latin tongue.” [Ibid.] These statements are in accord with the conclusion of Alexander Herzen, which was made in the 1840s, about the “revolt against Aristotle” because of the “originality of the new thinking” and that “one must not forget that Aristotle of the Middle Ages was not the true Aristotle, but the one transcribed to Catholic morals, ... Descartes and Bacon, alike, denied him as the canonized pagan.” [Herzen A.I., 1946]

In a similar vein, David Charles [in his “*Aristotle on Meaning and Essence*”, 2000] argued that Aristotle's actual account is distinct from the one often described and attacked as “the Aristotelian essentialism.” He states: “Aristotle's account of essentialism is, I argue, distinct from that offered by its major competitors (whether conventionalists or Platonists, as these are characterized in Chapter 1), and is immune to some of criticisms developed by (for example) Descartes, Locke, and Quine. [p. 3] He concludes, “Aristotle is not, in my view, the type of Aristotelian essentialist they attack. Indeed, the form of essentialism he defends is preferable (in certain major respects) to the alternatives currently available.” [Ibid.]

At any rate, Aristotle's *hyle* (and, thus, his basic principle of *hylomorphism*) does not have the meaning of the Latin notion *matter* which belongs to another Type of cosmology<sup>19</sup>, and which refers to the external physical (mechanical chaotic) world,

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Principles of Evolution of the Functions. Modern Principles of Functionalism, Leningrad: Nauka (In Russian); (1987). “The Natural Technologies of Biological Systems”, Leningrad: Nauka (In Russian).

<sup>19</sup> In the BCA Triadologic approach (which establishes the independent existence of the Three Types of cosmologies – two polar: of AntiKosmism and RealKosmism; and the intermediate



upon which external constructive effects are materialized. In contrast, the meaning of *hyle* is akin to the potential substance – *first entelecheia* of a thing – capable of organizing (generating) the specific Functionalist unity (entity – *morphe*) of the given (living) thing; in turn, *morphe* is the ready for actual exercise Functionalist organ or *organon* (structural-functionalist system) – *second entelecheia* – ready for the telic (*tropic*) activity (*energeia*), i.e. Functionalist generation of inherent effects.

Again, referring to the substantive analysis of Francis Peters: “*Hyle*, a purely Aristotelian term; does not have its origins in a directly perceived reality – as is true in the case of extension or magnitude (megethos, q.v.) – but emerges from an analysis of change (Phys. I, 190b – 191a); it is not known directly but by analogy (*analogia*, ibid. 191a8) [Peters, p. 88]. Thus, naturally, Aristotle’s *hyle* has no relation to the modern meaning of matter. Peters concludes: “In Meta.990b Aristotle has maintained that the logic of Platonists’ arguments would require them to posit an *eidōs* of every individual thing. Aristotle escapes this necessity, as we have seen, by making *hyle* the cause of individual differences.” [Ibid., p. 91]

### 3. Aristotle’s Bipolar and Triadologic approach (physics)

In Physics<sup>20</sup>, Aristotle writes:

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)

But while the underlying thing is one in number, it is two in kind. (190 b 26-27)

Hence, there is a way in which one must say that the starting points are two, and another in which they are three; and there is a way in which they are contraries; (190 b 31–33).

But this is also resolved by the underlying thing’s being something different, for this is not a contrary. So, the starting points are in a certain way not more than contraries, but two in number in this way of speaking, but neither are they altogether two in account of the being different from them of the underlying thing, but three. (190 b 37 – 191 a 2)

...it is clear that something must underlie the contraries and the contraries must be two. But in another way this is not necessary, for it would be

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AKosmism) – the notion “*matter*” refers to the AntiKosmist Type, and “*hyle*” – to the RealKosmist (of Functionalist naturalism) Type, while the AKosmist Type accepts both.

<sup>20</sup> As it is clearly seen, privation (στέρηση) – deprivation of form, in Aristotle, is the active natural cause.

sufficient if one of the contraries were to bring about the change by its absence and presence. (191 a 4-8)

And the underlying nature is knowable through analogy: (191 a 9).

This then is one starting point (though it *is* not one thing, nor *is* it at all in the same way as a *this*), and one starting point is the articulation that belongs to it, and further there is what is contrary to this, its deprivation. (191 a 12–15).

It was said first that only the contraries were starting points, but later that something must also underlie them and that they must be three; (191 a 17-18).

But whether the thinghood of the thing is the form (in Aristotle's text – *εἶδος*<sup>21</sup> – **K.K.**) or what underlies it, it is not yet clear. But that the starting point are three, and in what way three, and what their character is, is clear. (191 a 21–23)

The aforementioned judgments of Aristotle clearly point out to his Bipolar and Triadological perception of the natural order of the world (cosmos). At the same time, Aristotle's *hyle* absolutely does not acquire (in the modern English translations) its intrinsic – immanent telic causal – meaning and reflection. Instead, the term *matter* is used at present, which is clearly *extrinsic* in relation to transcendent patterns or divine ideas (or human conscious) – elementary, chaotic and mechanical. The same applies to the other cornerstone concept of Aristotle – *entelecheia* – a neologism introduced in the scientific life precisely by Stageirite.

#### **4. *Entelecheia* – Aristotle's (Father of science) crucial notion that is withdrawn from modern scientific life**

From this place and further on – we need to focus on Aristotle's foundational theory of potentiality (*dunamis* – δύναμις) and actuality (*energeia* – ἐνέργεια), which are the principles of an important dichotomy that is essential for the Bipolar, dynamic and cyclic existence of each real natural (evident, tangible) Organic thing. *Dunamis* is the Greek word that is translated as capability, potency, potential, ability, power, strength, force. *Energeia*<sup>22</sup> is a word based upon *ergon* that means “the product of work” (result of action). In turn, *kinesis* is translated as movement (motion, change), used by Aristotle as a particular kind of *energeia*. In this context, the notion of

<sup>21</sup> Aristotle's *εἶδος* (again referring to Peters, 1967, p.50) means “the Aristotelian *eide* that are immanent in matter (*hyle*. – **K.K.**) and direct the entire teleological structure of the individual existents...”.

<sup>22</sup> “ONLINE ETYMOLOGY DICTIONARY” explains that the word “energy” originates from Greek *energeia* “activity, action, operation,” and that it was “used by Aristotle with a sense of “actuality, reality, existence” (opposed to “potential”) but this was misunderstood in Late Latin and afterward as “force of expression,” as the power which calls up realistic mental pictures.”

*entelecheia* (which is crucial in Aristotle's potentiality-actuality theory) is the issue of our special attention. Significantly, at present, *entelecheia* is hardly applicable in the practice of a modern scholar; and, moreover – its genuine meaning is badly misunderstood (precisely, it usually has the theological or spiritual meaning, but essentially not the original – Aristotelian – significance).

Noteworthy, *entelecheia*<sup>23</sup> is the word that is constructed of several semantic units. Following (and appreciating) the conclusions of Mikko Telaranta<sup>24</sup>, they include: a) the prefix “en” (Greek *èn-*), which is indicated with “internal functioning”, that is “the functioning of the organism according to its own nature”; and which is “crucial for all Aristotelian teleological thinking”; b) the process of internal functioning which leads to the end that is also internal, thus “having the *telos* within”. Thus, studying the laws of nature, Aristotle discovered and kept in mind the purposive unity of living things. The third part of the term *entelecheia*, herein we use Joe Sach's explanation, *enteles* is combined “with *echein* (= *hexis*, to be a certain way by the continuing effort of holding on in that condition, while at the same time punning on *entelecheia* (persistence) by inserting *telos* (completion)<sup>25</sup>. This is a three-ring circus of a word, at the heart of everything in Aristotle's thinking, including the definition of motion.” [Sachs, 2004, p.245] Sach emphasizes that “some commentators explain it as being-at-an-end<sup>26</sup>, which misses the point entirely, and it is usually translated as “actuality,” a word that refers to anything, however trivial, incidental, transient, or static, that happens to be the case, so that everything is lost in translation just at the spot where understanding could begin.” [Ibid.]

We can now assert that the loss of Aristotle's philosophy as the whole (Bio)cosmology (and the atemporal Type of Organicist rationality) had led to the basical unacceptability of Aristotle's *entelecheia* (and his other original notions) in the (post)modern systems of knowledge, which are based on Plato's cosmology (Plato's Type of Dualist rationality), i.e. which have the Dualist foundation and mathematical-physicalist (mechanistic-constructive) approach to the study (of) and impact on the surrounding world (objects under study). In this, in Plato's approach, an essential moment is that all pre-existing materials – for a divine (Transcendent), or anthropocentric (Transcendental – analogy to divine Demiurge's) creative and constructive activities – are characterized as material (or physical) “chaos”; and that all the constructive efforts are realized on the basis of knowing (likewise pre-existing) idealist “eternal patterns” (“immortal forms”), approaching to which is possible exclusively on the basis of mathematical achievements. Thus, essentially, all

<sup>23</sup> The terms *entelecheia* and *energeia* are the neologisms and notions introduced into the world of rational knowledge originally by Aristotle.

<sup>24</sup> See the web-publication: Telaranta, Mikko. (2012). Aristotelian Elements: In the Thinking of Ibn al-'Arabi and the Young Martin Heidegger. URL: <https://helda.helsinki.fi/bitstream/handle/10138/32903/aristote.pdf?sequence=1> (retrieved 28.03.2015)

<sup>25</sup> Yourdictionary.com, dealing with the etymology of *entelechy*, states that it originates from Classical Greek *entelecheia* - from *en*, in + *telei*, dative of *telos*, end, completion + *echein*, to hold (see: <http://www.yourdictionary.com/entelechy> )

<sup>26</sup> But this (semantically) – “being-at-an-end” – is an obvious Functioning.

is done *'from without'*, following an *'external'* epistemology, thereby constructively (due to the use of mathematical abstract laws) reorganizing and shaping of (putting into order) the physical world. Precisely as it is noticed by Richard McDonough<sup>27</sup>: “By ‘chaos’ Plato does not mean the complete absence of order, but a kind of order, perhaps even a mechanical order, opposed to Reason”. Substantially, this primordial “chaotic order” survives the imposition of Form and is “always threatening to break out and undermine the rational order of the world.” [Ibid.]

In general, during the long history of Western civilization, Aristotle’s (Bio)cosmology on the whole and the notion *entelecheia* as its constituent (in its genuine sense) was factually deleted from the milieu of modern scholarly endeavors. This is not surprising, for, repeatedly, Western civilization is substantially enrooted in Platonic type of mentality (rationality). “The safest general characterization of the European philosophical tradition is that it consists of a series of footnotes to Plato” [Whitehead, 1967, p.39]<sup>28</sup>. Due to this foundation, it is typical that the notion entelechy (*entelecheia*) is not used, for, in principle, it is unacceptable and cannot be used in the Western mind-set wherein the world (cosmos) is the space filled with material bodies that are (primordially) subdued to a mechanistic chaotic order and are the objects to divine (of a Demiurge) or anthropocentric (of a human mind, analogy to divine Demiurge’s) active intervention (*'from without'*, following an *'external'* epistemology) and constructive (due to mathematical abstract laws) reorganization and shaping of the physical world.

Therefore, it is not surprising that M.Benetatou does not mention *entelecheia* (or *energeia*, or *topos*) in her valuable analysis, for she is (as we all are) the products of the existing (Western, globalized) type of education and institutional setting of (modern) scientific activity that are foundationally set exclusively on the Platonic (Dualist) Type of mentality<sup>29</sup>. Equally, in the result, it is not surprising that modern translators and commentators of Aristotle do not use *entelecheia* (and other cornerstone notions of Aristotle’s Type of rationality, as aforementioned *hyle* or *morphe*) as the inconceivable and unacceptable notions. We can note that this practice grows to a greater extent, over the time.

In this context, hereafter, two translations (excerpts) of Aristotle’s *De Anima* (412a21-412a28) are exemplified: the first is made by Robert Drew Hicks, from his monumental edition of Aristotle’s *De Anima* (1907); editor of the second translation and commentaries is the distinguished scholar Jonathan Barnes [1984]. Both translations are placed below. The original term *entelecheia* is returned into the text (and marked in bold) in those places where it was replaced by translators onto

<sup>27</sup> See: McDonough, Richard. *Plato: Organicism*. URL: <http://www.iep.utm.edu/platoorg/> (retrieved: 28.03.2015)

<sup>28</sup> See: Whitehead, Alfred N. (1978). *Process and Reality*. New York: Free Press.

<sup>29</sup> Notably, Plato himself realized his conceptual constructions in the Integralist realm (of his sociocultural epoch), but having substantially formed the rational bases and general vector (of global significance) precisely of (to) the Dualist pole and type of knowledge. Significantly, this direction (in its full meaning) nowadays is completely realized and has the total characteristics of P.Sorokin’s Sensate T\_SCSS.

“actuality” (significantly, in this passage of *De Anima* Aristotle speaks about the polar Sleeping and Waking cycles of life activity):

Such substance is actuality [**entelecheia**]. The soul, therefore, is the actuality [**entelecheia**] of the body above described. But the term 'actuality' [**entelecheia**] is used in two senses; in the one it answers to knowledge, in the other to *the exercise of knowledge*. Clearly in this case it is analogous to knowledge: for sleep, as well as waking, implies the *presence of soul*; and, whilst *waking is analogous to the exercise of knowledge, sleep is analogous to the possession of knowledge without its exercise*; and *in the same individual the possession of knowledge comes in order of time before its exercise*. Hence *soul is the first actuality* [**entelecheia**] (*all italics are mine. – K.K.*). of a natural body having in it the capacity of life. And a body which is possessed of organs answers to this description. [Hicks, 1907]

But substance is actuality [**entelecheia**], and thus soul is the actuality [**entelecheia**] of a body as above characterized. Now there are two kinds of actuality [**entelecheia**] corresponding to knowledge and to *reflecting*. It is obvious that the soul is an actuality [**entelecheia**] like knowledge; for both sleeping and waking presuppose the existence of soul, and of these *waking corresponds to reflecting, sleeping to knowledge possessed but not employed, and knowledge of something is temporally prior*.

That is why *the soul is an actuality* [**entelecheia**] (*all italics are mine. – K.K.*). of the first kind of a natural body having life potentially in it. The body so described is a body which is organized. [Barnes, 1984]

We see that both commentators do not use (conventionally) the original term *entelecheia* in the main text (replacing it with “actuality”)<sup>30</sup>. More nearly, instead of the original “soul is the first entelecheia” – the authors use: “soul is the first actuality of a natural body” (Hicks); and, “the soul is an actuality of the first kind of a natural body” – thus dissolving the Bipolar and Triadic essence of Aristotle’s scholarly approach. Especially, J. Barnes (predictably for the postmodern scholar) melts the fundamental notions of “first entelecheia” (potency) and “second entelecheia” (actuality) into the external notion – for a human consciousness’s “reflecting” knowledge – that is based on the Dualist relation to the external physical (primarily mechanical) world under study. In reality, however (and as it is stated above) – we clearly see that *first entelechy* refers to *dunamis* (i.e., which formation takes place purely within the realm of Potency), while the *second entelechy* – to *energeia* (i.e. which is put into operative activity), which thus is manifested in the realm of Actuality.

At the same time, in 1907, Hicks used “entelechy” (in its proper sense) in the Introduction and Notes. In general, Hick’s translation (in the beginning of the 20<sup>th</sup> century) is evidently nearer to Aristotle’s theory of motion (*kinesis*) and his

<sup>30</sup> Notably, in the Russian four-volume edition of Aristotle’s works (including the edition by Valentin Ferdinandovich Asmus, 1976), the original notion *entelecheia* is essentially used.

foundational potentiality and actuality theory. In the Notes, he discloses the essential features of *entelecheia* (soul, formal cause) referring to their Bipolarity. Hicks stated: “Of whatever exists potentially the entelechy is the notion, essence or formal cause.” [p.342] His another substantive conclusion is: “In Aristotle the body is the natural instrument of the soul,” while “In Plato body is opposed to soul.” (Introduction, p.xliv) Likewise, in the Introduction, Hicks emphasized:

In other words, the soul is the power which the living body possesses and the lifeless body lacks. This is first actualization or first entelechy. Again, the actual possession of faculties unused still stands to the exercise of these faculties in the relation of potency to act. Life itself, the use of actual power, is the second stage, energy. The actual use must be preceded by actual power. [Introduction, p.xliv]

In the light of aforesaid, we might conclude that Aristotle clearly set the bases of Bipolar and Triadic approach in scholarly knowledge – of the universal existence of two polar (opposite to each other) autonomic realms; and the third intermediate – basic Integral sphere – Organism’s axis for its/her/his natural (normal) ontogenesis. From this perspective, we can claim – Aristotle’s soul (*entelecheia*, *organic cause*) itself is truly the natural function (instrument, *organon*) of the comprising Kosmic organic world.

The more valuable, therefore, is the following conclusion by R.D. Hicks (in his Notes), “This being so, the first entelechy, whether it is or not operant, equally gives form to matter, and is soul in both cases alike.” [p.313] Aristotle’s expression, herein, could be – to organize the functional organ out of the *hyle* elements (primary *functional blocks*<sup>31</sup>), and which are inherently (naturally) predisposed to organize the given Functional(ist) organ<sup>32</sup>, i.e. to organize the structural-functional organ that is *hyletic* (corporeal and tangible, but Organic) in its wholeness and readiness to execute effectively the given function.

In general, from above stated, we clearly see that *first entelechy* refers to *dunamis* (i.e., which formation takes place purely within the realm of Potency), while the *second entelechy* – to *energeia* (i.e. which is put into operative activity), which thus is manifested in the realm of Actuality. Paul Fearne<sup>33</sup> uses the definition to entelechy (taken in the Oxford English Dictionary) that it is “a move from potentiality to actuality” [Fearne, p.26]. Fearne also notes that, in *De Anima*, Aristotle propounds a conceptual framework which commentators (on the work) have called ‘entelechism’. Hugh Lawson-Tancred (translator of *De Anima*, 1986) is one of them. The first part of his Introduction to *De Anima* is titled *Entelechism*<sup>34</sup>.

<sup>31</sup> The scientific notion of A.M. Ugolev (1987).

<sup>32</sup> “Functional organ” is the cornerstone notion of the Russian physiologist Alexey A. Ukhtomsky, introduced in the 1920s.

<sup>33</sup> We cite his book: Fearne, Paul. (2013). *In relation*. Bell-Bird Press.

<sup>34</sup> See the Introduction in: Aristotle. *De Anima (On the Soul)*, trans. Hugh LawsonTancred. London: Penguin, 1986.

Normally, at present (as the scholarly convention) – Aristotle’s principles of potentiality and actuality are understood as opposed and separated to each other. However, as it is stated above, Aristotle basically unites (within the thing’s whole living activity) the opposite poles of Potentiality and Actuality, for that end introducing the notion (neologism) of *Entelecheia*. In turn, if Aristotle’s *entelecheia* naturally integrates both poles of Potentiality and Actuality (respective to the thing’s given *organon*-function), then the *entelecheia* of the whole individual naturally has the hierarchical ontogenetic essence (substance and structure), and the dynamic cyclic process of its/her/his self-actualization, in this consistently implementing the stages-cycles of the *first entelecheia* (with the result of forming the potential abilities) and *second entelecheia* (with the result of self-realizing the actual activity).

### 5. Aristotle’s teleological Functionalist naturalism as the Type of rationality

Substantially, Aristotle’s Kosmos (or Biocosmos, thus the scope of Biocosmology) is originated ‘*from within*’, and is primarily *qualitative* (Functionalist), hence – *finite* (dynamic cyclic) and basically *heterogeneous* (Bipolar, Triadic and, in Functionalist relation – *hierarchically* differentiated). In this Kosmos there is no space (as in Plato’s biocosmology) but only *place*, and everything is ever the unity of *hyle*<sup>35</sup> and *morphe* (*hylomorphism*<sup>36</sup>), while any change (movement and development in Kosmos) is based on the Four telic causes (*hyletic, organic, generative, Functionalist*) and the dynamic (cyclic Functionalist) interrelation of the synchronous but polar and autonomic (independent in their organization) and successive realms of Potentiality and Actuality. On the contrary, Plato’s (bio)cosmology is essentially Static, basically dealing with a created (*from without*) world – within the space (with its dimensions of height, depth and width, within which all things chaotically exist and mechanistically move), but not in relation to the active search of one’s inherent *place*. Essentially, therefore, Aristotle’s principle of *hylomorphism* reflects the unity (of *hyle* and *morphe*)<sup>37</sup> of each thing and living being.

In turn, obviously, and in the light of aforesaid – without the essential consideration of Aristotle’s cornerstone notions and principles as *entelecheia, dunamis, energeia, hyle, morphe, topos telos, organon*, etc. – of all from his original (Bio)cosmological standpoint; as well as his basic principles of Potentiality and Actuality, and their natural organic dynamic interrelation) – an adequate

<sup>35</sup> Let us stress, once again, that modern term “matter” (which replaced *hyle* in the contemporary scientific milieu) has the essentially extrinsic significance in relation to the dominating transcendent patterns (divine ideas or human consciousness), i.e. is elementary, chaotic and mechanical; and, categorically, has no relation to Aristotle’s *hyle* that is, regarding aetiological standpoint – is essentially *intrinsic*: of *immanent* nature and *telic* causality.

<sup>36</sup> Or *hyloeidetism* (see the section 2).

<sup>37</sup> Emphatically, we need to use precisely these terms – *hyle* and *morphe* (stressing their inherent teleological meaning and the belongingness to the ‘intrinsic’ gnoseology) – but not the usual “matter and form” (clear representatives of the ‘extrinsic’ epistemological approach), and which significantly distort the value of the Aristotelian concepts.

understanding and application of Aristotle's supersystem of knowledge (Biocosmology) is impossible in principle. Likewise, besides *entelechiism* – it is impossible to characterize in full (and, further, to analyse) Aristotle's conceptual frameworks without taking into consideration his cornerstone principle of *hylomorphism* and the essential notion of *place* (τόπος, an innermost – individual, first – position in the world, which is inherently used by the thing). Substantially, Aristotle's Kosmos (Biocosmos and Biocosmology) is finite, (primarily) qualitative and inherently changeable (dynamic cyclic), and hierarchically differentiated. In this Biocosmos, based on the *telic hylomorphist* foundations – the notions of *entelecheia* and *topos* point to the unity of the thing and its/her/his surroundings (environment), and the organic unity of the thing and Kosmos on the whole.

Contrary to Plato's approach, Aristotle's teleodrive causes (all Four) are the originative sources in all things' self-realization of their *kinesis*, primarily of their Functional(ist) organs appearance – thus their *organon* (οργάνων) in realization the given Function – ultimately for generating and presenting the results (products) of their inherent and effective Functionalist activity – to the one whole Kosmic all-embracing (Biocosmist) dynamic whole. All this is fully opposite (polar) to Plato's approach wherein the organic order (with the single – *for everyone* – divine *Righteousness* and *Goodness*) is implanted by a Demiurge (*from without*) into the *elemental (chaotic, mechanistic) space*, and is based on the *transcendent "eternal patterns"* ("*immortal forms*"). In other words, in Plato's approach both divine and human agencies are (also) necessarily telic or goal-oriented beings, but they are aesthetically (outwardly) determined and, herein, in all cases – telic-orientation and relations are either divinely, or humanly prescribed, and they have no natural inherent (Organicist) origination.

In this line or reasoning, we fully agree with Helen S. Lang (and the conclusions of her "The Order of Nature in Aristotle's Physics", 1998) wherein she emphasizes that Aristotle's teleology deals with an "immediate active orientation in the moved, the element, for its actuality, to which it is moved – its natural place." [p.192]; and that Aristotle's teleology is, properly speaking, "nothing other than this immediate intrinsic relation of moved to mover." [Ibid.] On the contrary, Plato's approach realizes a divine (Transcendent) and anthropocentric (Transcendental) interventions (into) and constructive shaping of the global (or local) world, which is elementally chaotic (mechanistic) – "Aristotle's teleology is incompatible with any form of mechanical explanation." [p.57]; and that "Aristotle's physics is not proto-mechanistic physics with teleology added on." [p.146]

As Helen Lang continues and concludes, in Aristotle's teleology, indeed, "there is no difference between the order of nature and teleology of nature." [p.274] In respect to Aristotle's central notion of an intrinsic force, she adds that "in natural things, matter is never neutral to form, and form never needs to impress itself or be impressed (by another) upon matter." [p.53] This order presents "the teleology of nature: all natural things (and artifacts insofar as they are made of natural things) are oriented toward its proper place, and hence activity, by an intrinsic relation that never fails (but can be hindered from the outside)." [p.278] Essentially, the author refers to



Aristotle's theory of potentiality and actuality. She stresses "the active orientation of potency toward actuality", and that it is crucial to the account of "things that are by nature." [p.47] This is a cornerstone for Aristotle's teleology of nature being "everywhere a cause of order," [p.47] including "his account of elemental motion." [Ibid]

Therefore, in Aristotle's theory, "what is potential is not thereby passive: in natural things what is potential is caused by its proper actuality because it is actively oriented toward it." [p.64] H.Lang concludes that "this active orientation of *the potential for the actuality that completes it lies at the heart of the order and teleology of nature.*"<sup>38</sup> [Ibid.] Likewise, the author argues that "this position stands in sharp contrast not only to Plato but also to later philosophy, including the Stoics and Philoponus." [Lang, 1998, p.64]

The current misinterpretation of Aristotle (the dissolution of his realistic Hylomorphist supersystem of knowledge in Plato's Dualist realm; we call it the contemporary '*cosmological insufficiency*') – caused the misunderstanding of Aristotle's teleology and organicism. Indeed, as Marianna Benetatou states, for Plato, the world is a "living animal, endowed with reason and movement." [Benetatou, 2015, p.15] In response to her substantive paper, we stated, making a general conclusion, that Plato's Dualist and Transcendent (Idealist, theological) Static biocosmology, including his organicism and teleology – all this is radically (fully) distinct (polar) to Aristotle's Biocosmology that is naturally Hylomorphist and Immanent (Functionalist), and essentially Dynamic – Bipolar and cyclic (regarding the alternation of the cycles of Potentiality and Actuality, united by the thing's *entelecheia*), and thus naturally Hierarchic and Heterogeneous.

However, on the one hand, while modern scholars have realized the full (or over-full) potential of Plato's (bio)cosmology – on the other hand (in their unintentional immense passion), modern science organizers and scholars did erase (cancel, delete – from the sphere of scientific activity, in institutional aspect) the real potential of Aristotle's Biocosmology. This unfavorable process started yet in the Middle Ages (mainly due to the works of St Thomas Aquinas, although which have their own indisputable cultural and historical reference point and great significance). At present, we likewise criticize an idea to focus on the exceptional importance of Descartes (or any other modern European scholars) and their exceptional contributions to the emergence of modern foundations of science. On the contrary, we stress the present urgency of moving back to the original texts of both Greek geniuses – aiming at the rehabilitation and reinstatement the initial and originative existence of the two independent polar (opposite to each other) great cosmologies' initial existence – Aristotle's and Plato's – that gave birth to the two essential atemporal Types of rationality (of Functionalist Hylomorphism-naturalism and of Idealist Dualism that further brought about modern mathematical physicalism).

Indeed, we have nowadays (in medical term) the '*cosmological insufficiency*' and a really dangerous state of affairs in respect to sociocultural development. In fact,

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<sup>38</sup> Italics is mine. – K.K.

Aristotle's Biocosmology (as Functionalist naturalism) is the polar, but essentially equal (to Plato's) supersystem of knowledge – polar Type of Organicist rationality (polar T\_SCSS, hence – the autonomic type of scholarly endeavors). Without the true understanding and (equal) use of Aristotle's Biocosmology (as the Type of rationality) – contemporary cultural figures (including men of science) cannot, in principle, effectively respond to development issues and crises challenges (while they possess only the knowledge of Plato's methodology). Indeed, due to Plato's approach – they need every time (as a starting point) to 'create' the situation of a "primary chaos" (mechanical order) – for their further studying the case and realizing the eventual (re)constructive activities (using mathematical laws and bringing the situation into a sought-for organic order).

It is not surprising, in this light, that we have already two world wars in the 20<sup>th</sup> century and the coming third world war in the 21<sup>st</sup> century. We do need to agree with Anna Makolkin: "Aristotle is more than relevant to the current reality – he is urgently needed to lead us away from the pathway of our own destruction." [Makolkin, 2013, p.686] The point is that Plato's Dualist 'external' (bio)cosmology has its essential imperative (in the case of facing a living body with the inherent organic order) – always to restore the 'primary' chaos (for the subsequent constructive intervention *from without*) and the eventual (re)construction of the desired order. Therefore, if we persist (in keeping on and developing the modern tradition and general disposition) of rendering exclusively Plato's Dualist cosmology and the derived mathematical-reductionist ('scientific') method – we then, on the one hand, will continue the celebration of technological progress; but, on the other hand (bringing forward the complete dominance or dictate of Plato's Dualist (bio)cosmology) – we shall inevitably achieve the disastrous disruption of natural harmonic ('homeostatic') existence and evolution, with (instead) induction of crises, wars and catastrophes into the global sociocultural realm. Certainly, we are to do our best to avoid this disastrous self-destructive way of global wars and catastrophes (although with concurrent technological progress), which reasons lie in our current *cosmological insufficiency*.

Therefore, we do need to urgently accelerate and achieve the clear understanding and permanent right balance of interaction between the two great polar (Types of) cosmologies (Aristotle's and Plato's). In this way, naturally, our first aim is to rehabilitate the vital significance of Aristotle's Biocosmology, thus overcoming the existing *cosmological insufficiency*. In a predictable manner, only further (on) we could count on finding out the optimal variants of harmonious (local and global) sociocultural evolution (chiefly, by developing the Integralist approaches), i.e. effectively synthesizing means taken equally from both polar (bio)cosmological Types of sociocultural (including scholarly endeavours) activities: of Plato's Dualist Static (of external epistemology and mathematical physicalism); and Aristotle's Hylomorphic Telic (Bipolar, Dynamic, Triadologic) Organicism and Teleological physics (Functionalist naturalism).

### **Conclusion: To overcome the current ‘cosmological insufficiency’**

Essentially, these are the polar cosmologies: Plato’s supersystem of knowledge (all-encompassing cosmology) is ultimately reduced to the Transcendent (nowadays – Transcendental anthropocentric) Static world of idealistic prototypes (exemplars, patterns); and Aristotle’s supersystem, which ultimately is reduced to the Dynamic Functionalist (natural inherent Organicist) essences of the particular things and the dynamic Organicist (Biocosmist or RealKosmic) reality on the whole. Conceptually, both great thinkers achieved brilliant (phenomenal) results having created effective (foundational for the world culture) rational cosmologies (supersystems of comprehensive knowledge) but which are essentially polar (opposite) to each other. Essentially, in their mutual polarity, both two supersystems-cosmologies (Types of rationality) – naturally provide the foundation(s) of the really all-encompassing (scholarly) knowledge. However, during our long cultural history – we have run eventually into the current misinterpretation of Aristotle – the dissolution of his realistic Hylomorphist Teleological supersystem of knowledge in Plato’s Dualist (and modern Anthropocentrist) or Thomistic theological realms; and which have led us to the result of ‘*cosmological insufficiency*’, which essence is the current loss of Aristotle’s supersystem of knowledge as the Type of Organicist rationality (one of the Three) with the essence of teleological Functionalist naturalism and scientific Organicism.

The cornerstone of BCA's initiative is that in the case of effective rehabilitation of the original, true significance of Aristotle's Functionalist naturalism (Organicist science) – we acquire both real poles of rational knowledge (opposite Types of rationality), and, therefore – the real perspective of creating and building functional (meaningful) Integralist sociocultural systems, thus substantively realizing our hopes (and needs) for a better, safer and more prosperous (Organic) future for all. Due to the current global sociocultural reality (and in accordance with the main findings of Pitirim Sorokin's dynamic cyclic theory) – our expectations of positive changes in our lives relate solely to the realization of powerful Integralist approaches. In turn, the latter (true Integralism) is impossible without the rational Triadologic approach in science and philosophy, thus – without the rehabilitation of other pole of Aristotle’s Biocosmology (its genuine significance as the all-encompassing Type of Organicist rationality), thus reinstating Stagereite’s principles of natural Kosmos’ Hylomorphism, Bipolarity, Dynamicity and cyclicity (changeability – Triadicity), Hierarchical order, Functionalist heterogeneity, etc.

We do need urgently to rehabilitate Aristotle’s (super)system of knowledge – his (Bio)cosmology – as the Type of rationality (of teleological Functionalist naturalism). Still, however, in the currently existing situation of ‘*cosmological insufficiency*’, i.e. under circumstances wherein the contemporary global scientific and philosophical academic milieu conventionally accept exclusively Plato’s Dualist approach, and forbid the application of Aristotle’s Biocosmology within the scope of scholarly activity – a present-day researcher has no other choice than to follow Plato’s Dualist cosmology. This is the entirely unacceptable state of affairs! Therefore, the pressing challenge is to overcome the existing *cosmological insufficiency* – to decisively

rehabilitate Aristotle's teleological naturalism and the Biocosmological Functionalist approach, and to reinstate generally the natural status of Aristotle's Biocosmology as the equal pole and Type of contemporary rational activity. In fact, the latter is essential and crucial in resolution the topical issues of current sociocultural development. In this perspective, special and primary importance<sup>39</sup> is laid to the development of Integralist (system, complex, holistic, etc.) methodologies – which are intermediate and posed *in-between* two poles, and which, although cosmologically autonomic – equally use the means from both poles: Aristotle's and Plato's.

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<sup>39</sup> And this was the main conclusion of Pitirim Sorokin's theorizing.

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