IN SEARCH OF THE SPECIFIC PARAMETER OF LIFE – GENERAL METHODOLOGICAL COMMENTS

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ABSTRACT. *Even in Ancient Times, Aristotle, basing the empirical facts, sought the basis to find the explanation for phenomena and regulatory processes ocurring in living organisms. The key concept in explaining in bio-philospohy of Stagirite was the concept of the soul (ψυχή), which was to integrate the developmental processes and explain the specific dynamics of the various living beings.*

The original ideas and timeless questions of Aristotle became the groundwork on the basis of which the contemporary researchers[2] *developed their theories in the overall development of living organisms.*

German embryologist and philosopher Hans Driesch (1867-1941) took scientific attempt to consolidate and explain a factor responsible for development that is described by me as the parameter of nature. That specific parameter was responsible for entirety of regulating processes in live forms, especially for the totiopotential processes during embryogenesis and regeneration. Despite an attempt of consolidating the mentioned parameter had failed, nevertheless Driesch formed relevant question relating to a way of eventual explanation of specific relationships and mutual interactions of particular structures and integral parts of process in progress of the entire development. Driesch's method of scientific research brought him eventually to areas of metaphysical explanations which in consequences are not situated in frameworks of strictly scientific explanations, whereby his category of entelecheia remains just as an empty verbal expression requiring new content and fresh methodological solutions.

Methodological way of research in range of complementary of scientific explanations related to development of organism should lead to final resolution of the overall course of organic processes by analyzing different research methods.

Pyotr Kuzmich Anokhin (1898-1974) was extraordinarily thinking researcher who presented certain scientific alternative in the range of explaining complex regulating processes based on functional systems and their mutual dynamic relationships to reach overall organismal results. Not only his specific statement can be the way of translating morphological regeneration but also it can be scientific method in translation of different complex regulatory processes across each live structure.

Perspective of Anokhin proves that methodology of scientific researches may be led on field of pure science without digressions in range of metaphysics often referring to pluralistic method in assigning specific value explaining outer factors to perform a function of being the initiator and regulator in live forms.

Author considers a relevance of mentioned problem hence, this short summary is just indication of research scope that requires further solutions and scientific amendments as well as profound philosophical generalization.

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[2] *See*: Hans Driesch, Pyotr Anokin, Rudolf Klimek, etc.

Introduction

Each life form is a living structure, which growth (becoming) represents complex organizational processes and phenomena on different aspects and stages – an internal multi-dimensional variety, such as: variety of spatial locations, variety of moments in time, variety of shapes, amount of elements and physic-chemical properties.

Biological phenomena seem to be very precisely restricted and, of course, that restriction does not have the homogenous character, on the opposite, that is restriction unimaginably rich and diversified. Repetitiveness of lifecycles in which from the beginning are built new synergistic cycles, totipotential phenomenon and regeneration force scholars to search for specific reason of that diversional restriction.

The pioneer who was seeking the efficent cause of regulatory phenomena was Aristotle. According to Aristotle the factor shaping the material[3] had to use the appropriate tool. „The vegetative soul" – in his view – works through the material tools and its recognition without the ability to use the certain tools is impossible.

Aristole's views were to be variously interpreted, distorted and supplemented by various scholars.

German embryologist and philosopher Hans Driesch was one of such scholar who attempted to formulate the specific parameter of life in terms of living nature. Although the attempt of Driesch in search of that that parameter was unsuccessful, its questions inspire a different researchers and scientists.

Another originally thinking scholar was Pyotr Anokhin who from the beginning to the end of his scientific work was loyal to the teachings, laws and principles of methodology used in the course of explaining the regulative processes within a living form.

This article is a presentation of general methodological analysis, relying mainly on highlighting the relevance of the problem. The main author's intention is to show the different ways of thinking in search of the cause or explanatory causes in the field of organic singular phenomena.

It should be also observed that, used below as important, the notion of information can be presented and explained at various levels of researches and with reference to various biological processes. Hence, information can be distinguished as genetic information, cytoplasmic (non-chromosomal) as well as the formation of information as a result of interaction between individual cells or parts of the body.

1. Pioneering researches of Driesch in terms of harmonic-equipotential systems as the specific base to compose the specific parameter of the world of living nature

On the basis of analytically designed experiments concerning the whole, organizational specificity which are appropriate for the processes consisting of the morphogenesis, Driesch tried to outline his own theory of the specificity of organic

[3] The specific factor of Aristotle, having the ability to shape the matter can be treated as a singular factor with parametric properties but only terms of the metaphysical concept.

phenomena in the form of "the theory of harmonic-equipotential systems". It was based solely on a pretty narrow morphogenetic material but according to the intentions of Driesch, the meaning of this theory was in fact related to the entire organic phenomena at all.

At the methodological core of this theory was a sort of "proof of the existence of vitalism" in the form of "proof of the existence of entelechy" as an objective indicator of the specific nature of the organic phenomena [Driesch 1898, p. 87-97]. However, Driesch's point was not just in terms of experimental embryological studies not at least about *entelecheia* understood metaphysically as supposedly a new variety of "being" in relation to objects and physic-chemical phenomena and their properties but *entelecheia* understood in a purely cognitive and explorative, therefore the epistemologically-methodological.

Since both in physics and chemistry, power, energy and mass, etc. are not some metaphysical "entities" in relation to scientific objects and the physical and chemical phenomena but they are their objective and universal natural parameters, precisely measurable and in their concrete values fully predictable so *entelecheia* was to be, due to the intensions of Driesch's research, as specific parameter of the organic world. Moreover, according to the default postulate of Driesch, *entelecheia* should have been somehow "measurable" and even "predictable" in its particular "values". Unfortunately, neither the formula of that, alleged to be for the organic world – "parameter", nor attempts of its objective consolidation, could not have been put into practice. Yet they resulted indirectly, e.g. effectively in the cognitive research way, paying attention to just some of the deeper structural basis for the specificity of organic phenomena within nature itself. In this too, and only in the strictly and exclusively methodological sense ''the proof of vitalism" succeeded and so was successful for Driesch – e.g. in terms of enriching cognitive heuristics research [Szkutnik 2011, p. 143–155].

2. Hans Driesch's scientific and analytical basics in the introduction of integrating the parameter of E

Making experimental attempts on a selected biological material[4], Driesch observed the course of totipotential phenomenon. He was mainly interested in processes of embryogenesis and regeneration. Let's assume, he wrote, that we have in front of us an ectoderm of a starfish in the gastrula stage. It is known that a part of it can be cut in any direction and even so differentiation of that ectoderm will still be occurring. In the end is obtained a completely healthy embryo but less size than would normally be. In this context the ectoderm of the examined gastrula is its equipotential system, just as the endoderm in the early stage of the blastoderm [Driesch 1921, p. 113-114].

The philosopher intending to consolidate the category of the E, *entelecheia* as specific parameter of life, depicted the examined ectoderm as a roller which unfolded

[4] It should be noted that experiments by Driesch were conducted on the certain, chosen group of organisms eligible for that purpose (ie. sea urchin, ger.: Seeigel).

could provide its coat as a rectangle with specified dimensions a and b. The considered rectangle in the context of that research was to be the basis of normal undisturbed development. Driesch defining its sides as a certain permanent place, claimed that the actual role of the prospective importance of each element of rectangle remains in a permanent and specified relation to the length of the two lines X and Y at a right angle to the sides of this rectangle. To put it in an analytical way, each possible value of X and Y corresponds quite certain specific differentiation state, e.g. the definite ability (destination) corresponding to each possible value of X and Y [Driesch 1921, p. 114].

Empirical studies and embedded on them philosophical deliberations of vitalists would lead to a clear distinction between two important concepts, e.g. the prospective importance and prospective power. Exactly the idea was that the prospective meaning of the elements of examined embryonic body could not be identical to their prospective power. The prospective power is definitely a much richer than a specified case of the demonstrated embryonic development [Driesch 1921, p. 114].

The researcher coming to an extremely important general conclusions of research, raised the question of methodological character: On what factors may the prospective meaning (prospective Bedeutung) B in each case of interaction be dependent on the element X ?

$$\mathbf{B\ (X) = f(\ldots)}$$

Searching for the missing elements of this schematic captive mathematical equation, the philosopher asked in turn: prospective meaning of the element B from X is undoubtedly a function, … but what ?

It was also known on the basis of experimental tests carries out earlier, that any part of the entire organism can be cut off and we receive the proportionally complete embryo unless the removed part is oversized [Driesch 1921, p. 114]. However, it meant that the prospective importance of each element is dependent on something, e.g., that certainly is a function of the absolute size of tested system, existing in a given case. Let the S be the absolute size of the system in any real case of morphogenesis. Then, Driesch thought, we can write the equation in the following form: B(X) = f(S…). However, we will also have to assign other sizes to our S [Driesch 1921, p. 114].

On the other hand, the operation of cutting in the tested case remained not only in a specific relationship to the amount of material removed from the embryo, but also to the direction of the intersection. Of course, in almost every real case there is both the specified size of the system as well as the specific direction of cutting. These two values are always in a certain relationship with each other. In order to ensure the independence and integrity of his research on the "variable direction", the embryologist gave the following example. Imagine – he wrote – that for the first time we isolated the part of our system by the lines a^1, b^1, then we isolated also the same proportion, in which case the restriction constitutes the lines a^2, b^2. Further, as it turns out, in both cases the result of the development may be a small but complete organism, therefore it is noticeable that despite their equal size the prospective

importance of each element of the two intersected embryos may vary even in relationship to the direction of the cut. Considered element X may belong to both parts of equal size, but its real purpose, despite of this equality of their size, will be different [Driesch 1921, p. 115].

Analytically speaking, one could say – proved further Driesch – that this prospective purpose changes depending on the actual place of real boundary lines of parts a^1, b^1 or a^2, b^2, due to the basic direction lines or the side of the whole rectangle a, b. Let this actual position will be expressed by the letter I, where I means the distance of real boundary line of considered part marked from a to b, then we can present our formula as follows: B(X)=F(S, l…) [Driesch 1921, p. 115-116].

Entered in this way equation was not yet complete. It lacked the most important figure that was to play a fundamental role in the world of living nature.

Driesch in the course of his analytical deliberations determined that the S and l are called by mathematicians as variable values [Driesch 1921, p. 115-116]. They can have a certain real constant value which will be determined value B and a specific real purpose X, whose dependence is examined for each value of S and l. At the same time the values S and l were independent to each other and had to correspond to a specific prospective importance designated with the letter X.

Embryologist eventually introduced to his further studies a certain targeting agent, which – in its deepest conviction – had direct influence on the development of organisms and indirectly had been established on the basis of his experimental work. This agent was not to be variable, but it was to be a constant in all cases of impact on living organisms. It was also to include in its range the prospective power of the tested system, although it was not to be completely identical with it[5].

In this research perspective, the prospective power of the tested system (its every element) was the sum of what can be achieved by each element of the system. The fact that in every possible case there is a proportional typical development, proves however, that this sum is not only the simple sum, but presents a sort of certain order. We may call this order as dependency of placement in absolute normal case. However, we should remember that the notion ''prospective power'' or as it may be expressed, this relative proportionality, which is the basis to name the tested system as harmonious, should always define it, then we can use this expression without further clarification of terminology to define the invariable factor of which depends on the prospective importance of each element. If we define the order including the prospective power with the letter E, then we are able to complement our functional expression and present it in the form of:

[5] Quote this *in extenso*: „Nun gibt es aber natürlicherweise in jedem Falle experimenteller oder normaler Entwicklung auch einen gewissen form bestimmenden Faktor, welcher nicht variabel, sondern welcher immer derselbe ist. Dieser Faktor ist in die prospektive Potenz unseres Systems eingeschlossen, obschon er nicht ohne weiteres mit ihr identisch ist.“ H. Driesch, *Philosophie des Organischen*, s. 116., Por. H. Driesch, *Die Lokalisation morphogenetischer Vorgänge. Ein Beweis vitalistischen Geschehens*, Mit 3 Figuren im Text, Eingegangen am 22 November 1898, p. 87–94.

$$B(X)=f(S, l, E)^{6}.$$

The above considerations give an answer to the question, what Driesch's constant size E would mean. In the intention of the researcher it did not mean the result arising from any system; it was not a shorter term for the complicated state of affairs, but the E would express a new, important, permanent of nature.

This perspective I understand as putting forward the postulate by Driesch who finds the existence of a specific naturalistic parameter for organic phenomena and life in general. In the light of this proposal, a life or at least morphogenesis, it would not be a particular inorganic system of events. Hence, biology was not only reduced to physics and chemistry. Life was meant to be something for itself and biology should be an independent primary science[7].

3. Possible scientific fragmentary solutions in explaining the singularity of the organic processes. General comments and observations

Driesch was a scholar, who like Aristotle, to a large degree drew the experimental conclusions on the basis of the observation itself. However, in the case of Driesch, in the initial phase of his exploratory investigations and explanations, they were the strictly scientific analysis[8], yet later in his work, the researcher looking

[6] This also quoted *in extenso* in view of importance of the concept: „Die prospektive Potenz unseres Systems, oder vielmehr jedes seiner Elemente ist, wie wir ja wissen, die Summe dessen, was von jedem Elemente geleistet werden kann; die Tatsache, daß in jedem möglichen Falle eine typische proportionale Entwicklung statthat, zeigt nun aber, daß diese Summe sich nicht als bloße Summe, sondern als eine Art von Ordnung darstellt; wir können diese Ordnung als »Ortlichkeitsbeziehung im absolut normalen Falle« bezeichnen. Wenn wir', nun im Gedächtnis behalten wollen, daß der Ausdruck »prospektive Potenz« diese Ordnung, oder, wie wir auch sagen können,' diese relative Proportionalität, welche der Grund dafür war, daß wir unsere Systeme harmonisch nannten, immer mit umfassen soll, dann können wir diesen Ausdruck ohne weiteres zur Bezeichnung des nicht variablen Faktors verwenden, von welchem die prospektive Bedeutung jedes Elementes abhängt. Bezeichnen wir die Ordnung einschließende prospektive Potenz mit dem Buchstaben *E* so sind wir also imstande, unsere Formel zu vollenden und zu schreiben: *B(X)=f(S, l, E).*“, H. Driesch, *Philosophie des Organischen*, s. 116, Por. H. Driesch, *Die Organischen Regulationen*, Leipzig 1901, p. 170–182.

[7] Quote this *in exctenso* in the original: „Sie bedeutet nicht den resultierenden Effekt irgendeiner Konstellation; sie ist nicht nur ein kurzer Ausdruck für eine kompliziertere Sachlage: unser *E* ist der Ausdruck für ein wahres Element der Natur. Das Leben, die Formbildung wenigstens, ist nicht eine besondere Anordnung anorganischer Ereignisse; die Biologie ist daher nicht angewandte Physik und Chemie; das Leben ist eine Sache für sich und die Biologie ist eine unabhängige Grundwissenschaft.“ H. Driesch, *Philosophie des organischen*, p.138.

[8] Analysis and studies of Driesch led to valuable discoveries including relevant science concepts, ie. prospective importance, prospective power and he tried to define their role during the totiopotential process. It may also be specified that Driesch, yet as a scientists, first recognized the phenomenon in which a certain sort of information directs the development of mold. This phenomenon consisted of the processes related to the differentiation of cells, morphogenesis and the associated entire complex of organization with reference to the role of a single cell against complex of cells. Nowadays, we could say that Driesch recognized the positional role of

for the answer to his accurately raised questions, wanders in the areas of metaphysics [Szewczyk 1993, p. 40]. Such metaphysical perspective of *entelecheia* is outside the scope of any science, hence the category of Driesch, in this perspective, may not be a scientific explanatory proposition for an explanation of a specific organization and regulation running in a living organism.

The rapid development of scientific researches (especially in the field of medicine, biology and physics) on the basis of actual data, contributed to the rise of the another concept trying to provide a basis to explain the way of understanding of complex developmental processes.

In the same field Pyotr Anokhin, Russian scientists, formulated the original scientific approach, referring to the explanation of the specificity and organic processes, which brought to the closed functional systems. The method of his researches is so important that from the beginning to the end is a scientific approach, based on the heuristic value of so far known laws and scientific principles within the same methodology of science.

Anokhin, based on the conducted experimental researches[9], coined materialistic theory of the functional system.

Under the concept of the functional system[10] the researcher understood a number of physiological activities, closely related to specific functions (such as the process of breathing). Each such functional system was supposed to be – to its postulates – a closed system, functioning on the basis of existing permanent connections with subsidiary bodies and permanent innervation flowing out from these bodies. At the same time he also believed that any such system contain a particular set of

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information, which involves the transmission of non-spatial information by mitogenic factors, i.e. hormones and neural connections. Driesch simply stated that the prospective importance of each element certainly is dependent on something, i.e. it certainly is a function of the absolute size of the part of tested system, in fact existing in the particular case. H. Driesch, *Philosophie des Organischen*, p. 114.

[9] The most important experiment of Anokhin lied in cutting the junction of the proper vagus nerve on the neck of the organism. This was an experiment which the researcher devoted the special attention to, played a decisive role in clarifying the closed functional system.

[10] Every functional system of Anokhin was perceived a dynamic structure. All functional systems, regardless of the level of their organization had the same functional architectionics, in which the effect was the leading factor in stable organization of systems. The operational structure of the functional system was based on the following rights: 1. Every living organism has a physiological mechanisms allowing to replace the function of various organs, whose proper functioning was disturbed as a result of a defect caused by a disease, injury or other factors of a destructive nature, 2. Running a functional compensative reserves can only take place in case of dysfunction of basic physiological mechanisms that are responsible for a given function, 3. Compensation processes are started without a will and regardless of which organ was damaged. Autonomous development of these processes is usually disadvantageous to retrieve a lost function and therefore requires to be controlled inter alia by kinesitherapy, 4. Return and re-education of a lost function is not a permanent process. Hence, it requires a constant training at changing an advantageously selected physiological stimulus. The effectiveness of such measures should always be “confirmed” by the kinesthetic analyzer ([Anokhin 1968, Anokhin 1970, Anokhin 1971].

informational signals that lead and simultaneously repair the course of a certain functions occurring in every living organism [Anokhin 1935, p 1–70].

Later Anokhin perceived the functional systems as strictly dynamic and self-regulating with all their components which, in turn interact to each other harmoniously and therefore cooperate together in achieving a specific overall results, useful for the living organism as a whole.

In this research perspective it is noticed the leading role of "arousal" derived from other organs towards the appropriate nerve centers to maintain a functional entirety of the body. The whole system, in this meaning constitutes harmonious interaction of many functional systems at different levels of development. Any parametric change occurring in one system leads immediately to reorganization of functional states of other systems. This can be understood in the way that a collision of particular systems of certain functional values influences on the general regulatory state of organism as a whole. Therefore, in every living organism must exist a specific informative relation for life, between systems, which as a result of dynamic interactions are responsible not only for quantitative changes but also for a qualitative changes of basic developmental processes.

Anokhin's approach is a certain scientific alternative in explaining the regulatory processes. His specific method can not only be a way of explaining morphogenetic regeneration but can also be a scientific way in translating other complex regulatory processes running in every living organism.

The above research approach shows that the methodology of scientific study can be carried out on the area of pure science without digressions in the field of metaphysics referring frequently to the pluralistic method of assigning specific values which explain non-spatial factors[11], having supposedly act as an organizer and regulator in living organisms.

Another researcher – Klimek conducts his research in a similar direction, relaying now on a contemporary studies in the field of medicine. In the studies on the nature of life he indicates to the leading role of information as an important element within the framework of complex developmental processes [Klimek 2014, p. 405–415]. Likewise, Khroutski thinks: the active information is the action of giving the form to the subject by communicating to it/her/him the knowledge or intelligence and, thus, functionally realizing the immanent intelligent Functionalist self-organizing of the subject's organic whole and its/her/his natural dynamic (cyclic) ontogenesis (natural change and development) [Khroutski 2013, p. 28–52].

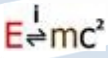
In his scientific studies, Klimek calls the separate part from the environment as a system[12], though remaining within the range of basic laws and physical principles, ie. the mass (M), energy (E)[13] and information (I) which can be summarized as the

[11] Comp. e.g. Hans Driesch (entelechy).

[12] For Driesch systems were organisms surrounded by reality and natural factors from outside and inside acting on the basis of laws of classical physics, e.g. on the basis of the law of dynamics and thermodynamics in the mechanistic concept.

[13] While maintaining a variable values of mass and energy.

famous Einstein equation, however including the informative factor (I) [Klimek 2014, p. 406].



This original attitude to the organic phenomena and processes could relieve the concept of Driesch's *entelecheia* from unproductive metaphysical digressions by assigning a specific parametrical and informative ability.

Although every system (materialistic, energetic, informative) in the universe contains the casual information about a programmed purpose of action (plan, intelligence, purpose) but in the casual-effective relation, which may significantly affect the future course of any potentially observed events [Klimek 1987, p. 135–143, Kolenda 2013, p. 10-20][14], however, such study perspective of dynamic system targeting (or pointing) does not solve completely solve the main problem of the regulating phenomena causality. Yet such a solution involves an additional metaphysical ballast within philosophy itself engaging in science some unverifiable entities that do not add any heuristic value [Nagel 1970, p. 369].

On the other hand, taking into consideration the leading role of information in the course of the regulatory processes is an additional alternative to a fuller understanding of these organic phenomena in the holistic perspective based on the constant exchange of information, matter and energy including the preservation of laws associated with an increase of entropy.

The additional problem can also be the recognition of information itself; in reference to dynamic organic processes; in terms of physical cybernetics which are an explanation basing mainly on static teleology and not on dynamic teleology [Szkutnik 2010, p. 119–136].

Modern science which examines living organisms, gets through a period of uncertainty and actually, even crisis. This is due to the disappointment which in the last half-century was associated with the progress in the course of studies under the sequence, structure and activity of genomes and gene (DNA), genotype reaction on phenotype, especially with the data obtained from the Human Genome Project. These studies only partially fulfilled great hopes that scientists had pinned on them a few decades ago. Not far ago, though it was believed that knowledge of genes and genome will contribute to the eventual resolution of the problems in the range of heredity, individual development, evolution, allowing to know the essence of a number of diseases and enabling to diagnose and effectively treat them. It turns out, e.g. "oneself" do not determine the phenotype and that apart from them there must be some other "information", "programme", or "system".

[14] Compare also: R. Klimek, *Live cancer and virtual information*, Biocosmology – Neo – Aristotelism, Vol. 6, No. 2, Spring 2016.

Summary

Undoubtedly, it should be emphasized that the starting point for most scientific research in the procces of the singularity of animated processes is the original system of knowledge of Aristotle, which was in force from its ancient beginnings, including not only the richest, available at that time the base of empirical knowledge bilogical phenomena and which dominated until the beginning of the seventeenth century which was driven by the theory of preformation. However, the reception of Stagirite's views was different. Bouncing differently on theories of various researchers; either contributed to the development of biological research in purely scientific aspect (including Anokhin, Klimek), or led scientists astray in the direction of metaphysics (including Driesch).

In terms of his pioneering experimental research in the context of embryology, Driesch, as Aristotle raised the fundamental research quesions that science untill now is looking for a precise answer; as to the question of how exactly runs the development of the organism and what eventually leads the regulatory phenomena in all structures and levels of each organism ?

The course of analytical considerations of Driesch clearly shows that he treated implicitly his factor E as a kind of natural parameter, specific for objects and organic phenomena, analogous to the physical parameters – though did not define this in the given by me verbal way. This symbol may define the concept of *entelecheia* in a parametric meaning. In the course of morphogenetic studies of Driesch itself, the factor E was not in any case a "name" meaning supposedly some metaphysical "being" allegedly expressing the "essence" of life. This sense one would have traced in the course of the subsequent purely metaphysical speculations of Driesch [Driesch 1935, p. 40–45].

Unfortunately, it has to be identified as the main weakness of the overall theoretical efforts of Driesch concerning the objective justification of the concept of entelechy in the field of strictly scientific experimental studies on morphogenesis itself and its overall organizing and phenomenologically theological specificity. Yet Driesch failed to work out some peculiar *entelecheia* as a natural parameter of "the measurement theory" of its potential specific numerical values, so that the above presented functional formula could be an effective basis for predictions and experimental findings. *Entelecheia* as a specific natural parameter of life remained in the realm of a kind of "regulative idea" conditionally useful in a certain observations of a living nature, not some "constitutive rules" of its scientific, objective examination of theoretical and explanatory nature. However, if Driesch had managed to do this, then the symbol "E" would not have appeared in the famous physical formula: $E = m \cdot c^2$.

On the other hand, the theory of the functional systems of Anokhin is the concept which demonstrates that a scientific research can be conducted in the framework of fundamental rights and scientific concepts explaining that the certain regulatory specificity and biological behavior within every organism. Such a scientific approach to the inside of organismal processes clearly shows the relationships occurring in the various systems and their mutual dynamic relations in

achieving a specified final result. The concept of Anokhin as the strictly original method of study in the biological recognition is a crucial basis for any further consideration on the nature of the certain phenomena in terms of the regulatory processes including the processes of regeneration and repair of the damaged structures of organism.

This kind of studies certainly require to take additionally into consideration the informative factor (comp. Klimek), beside such basic factors as the mass (M), energy (E) and which in addition brings us closer to understanding of the processes of purposeful direction in the course of the certain functional entirety in terms of the regulatory processes, particularly during the process of regeneration and carcinogenesis. This kind of informative factor acting the leading role in the processes of life may be considered as a crucial element postulated by Driesch's parameter of nature, although this is still a highly questionable issue which requires a number of studies and scientific generalizations.

In terms of the experimental studies still should continue to work primarily on determining the limits of developmental, adaptive and regenerative possibilities in the range of the widely postulated parameter of life in a various environmental conditions. We should also determine the exact run of processes led by this parameter. The more accurate such an experimental analysis of the lifecycle would be, the more precise would be the notion of this integrating cause. Knowledge of the range of possibilities and conditions that trigger these opportunities could help in solving many practical problems such as planning an optimally effective therapeutic methods and maximally efficient farming procedures.

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