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A THEORY OF EVOLUTION AS A PROCESS OF UNFOLDING

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ABSTRACT: In this work I propose a theory of evolution as a process of unfolding. This theory is based on four logically concatenated principles. The principle of evolutionary order establishes that the more complex cannot be generated from the simpler. The principle of origin establishes that there must be a maximum complexity that originates the others by logical deduction. Finally, the principle of unfolding and the principle of actualization guarantee the development of the evolutionary process from the simplest to the most complex. These logical principles determine the existence of a virtual ideological matrix that contains the sequence of the preformed and folded morphogenetic fields. In this manner, the evolutionary process consists of the sequential unfolding and actualization of these fields, which is motorized by a process of teleologization carried out by the opening consciousness of the forms included in the fields of the ideological matrix. This theory leads to a radical change of perspective regarding the materialist worldview, and places life at the center of the evolutionary process as an activity carried out by a consciousness that seeks to fulfill a purpose by actualizing its own potentialities.

KEYWORDS: evolution, unfolding, virtual preformation, ideological matrix, morphogenetic fields, form, teleology, consciousness, life

INTRODUCTION

In a previous work, a historical-epistemological revision of the concept of evolution was carried out (Ostachuk, 2018a). There, it was found that the concept was pregnant with an original sense of unrolling or unfolding, and that its development was marked by an epistemological tension between preformationism and epigenesis. The conclusion of the work was that it was inevitable to resort to a virtual preformationism in order to ensure the correct development of an organism.

In the present work I aim to develop a whole theory of evolution understood as a process of unfolding. This theory represents the last step of a long path of conceptual elaboration and brings together in an organic whole a large part of the concepts presented and developed in previous works/steps (Ostachuk, 2013, 2015a, 2015b, 2015c, 2016, 2018a, 2018b, 2019a, 2019b, 2019c), in addition to creating and introducing several other concepts.

This theory originates and is based on a principle that I will call the *principle of evolutionary order*. In turn, this principle gives rise, as a logical consequence, to two other principles: the *principle of origin* and the *principle of unfolding*. For its part, the *principle of actualization* ensures the formation of the visible world. From these principles, a whole series of consequences will be developed that will shape the content and conceptual structure of the theory.

THE PRINCIPLE OF EVOLUTIONARY ORDER

This is the fundamental and most important principle of the whole theory. It is so important that it is surprising that it has not been formulated before, as far as I know, in the form and context used here. This principle, which I claim to be strictly logical, and not merely axiomatic, is the following:

§1 The more complex cannot be generated from the simpler.

This principle seems at first glance an inversion of the principle of development formulated by Spencer from Baer's works (Spencer, 1857, 1863). However, it consists more precisely in its necessary logical presupposition. For the Spencerian principle to occur in the actual, it is logically necessary that the principle I propose exists in the virtual and guarantees the actual formation of a more complex structure from a simpler one[1].

[1] The epistemological tension between both worldviews, the one that postulates that the complex is generated from the simpler, and the one that postulates the impossibility of this, can be traced, as will be seen later, to the controversy between Epicureans and Stoics in ancient Greece. Western modern science has historically developed under the first of these worldviews: the more complex is generated from increasingly elaborate combinations of the simpler. In recent years, this epistemological tension can be found between the positions of Ilya Prigogine and Isabelle Stengers (1984), and Stuart Kauffman (1993), and the position of David Bohm (2005). Prigogine proposed that energy exchange in chemical systems could

This principle contains a lot of information and determines several consequences that I will develop throughout this section, as well as the following. Perhaps the most important consequence of this principle is the universal presence of teleology in the world and in nature. If mechanicism is the characteristic mode of action of a world that evolves from the simpler to the more complex, teleology is the characteristic mode of action of a world in which the logical anteriority of the complex with respect to the simple must be admitted. In the first case, each evolutionary step represents, ultimately, the formation of a more complex structure by chance, since there is no higher instance that guarantees its formation and existence. On the contrary, in the second case, each evolutionary step represents nothing more, nothing less than the fulfillment of a purpose. This is the reason why we see organized organisms and beings as purposeful structures. Randomness, if it exists, represents the most degraded form of the evolutionary process, which coincides with a mechanistic and deterministic worldview.

Another case in which this principle plays an important role is in embryological development, especially in the relationship between genotype and phenotype. As we have already mentioned, development has been characterized in history by a constant tension between preformationism and epigenesis. Both currents have tried in various ways to explain the increasing complexity of the organism during its ontogenesis. Both currents have demonstrated the need for a higher instance that guarantees the successful formation of an adult organism, either through the presence of an outline of the adult organism, or the presence of a vital force or impulse that imprints its qualities on raw matter (Ostachuk, 2018a). Currently, this tension has been resolved by stating that the genotype contains all the information necessary for the generation of the phenotype.

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lead to the emergence of new (more complex) structures (dissipative structures) due to internal reorganization. Kauffman proposed that the spontaneous emergence of complex systems in evolution was mediated by self-organization. On the other hand, Bohm proposed the existence of an implicate order and an explicate order. The implicate order was the ground, a deeper and more fundamental order, from which the explicate order, reality as perceived (including spacetime), emerged. However, as I have already pointed out, the first principle presented here was not formulated previously in the context and conceptual framework proposed by this theory, and it is the first time, as far as I know, that it acquires a logical form and status, as a consequence of the theory as a whole.

Probably, this solution would not have been accepted by the defenders of any of the two currents mentioned above. In terms of the present theory, a molecule cannot account for the generation of an organism, which implies the passage from chemistry to morphology. Something more complex (an organism) cannot be generated from something simpler (a molecule).

Another important consequence of this principle is that forms are irreducible:

§2 A synthetic arrangement or assembly of parts is not the same as a form, nor can it give rise to one. Forms cannot be formed, but on the contrary, they are already preformed.

This irreducibility of form is what leads to a true Holism. And as we saw in a previous work (Ostachuk, 2019b), a true Holism leads to the same principle that we are establishing:

§3 If everything comes from a whole (a totality), everything comes from the Whole.

THE PRINCIPLE OF ORIGIN

The second important principle, deduced as a logical consequence of the previous one, is the principle of origin:

§4 The regression from the simpler to the more complex according to the principle of evolutionary order, determines that an origin must be established in order to avoid an infinite regression.

I will call this origin *maximum complexity*. Here a parallel can be established between the maximum complexity and the contracted maximum of Nicholas of Cusa (Hopkins, 1985). But in this case there is nothing outside this maximum, and this maximum represents at the same time the Absolute.

§5 This maximum complexity complicates, or implicates, virtually the entire series of successive stages of the evolutionary order. As in an

ontogenetic process, the metaphor of the germ or seed is also imposed here, containing potentially the final form of the tree.

§6 Following the logic of the first principle, if man is conscious, then the maximum complexity is also conscious, and perhaps it is its most distinctive feature. The maximum complexity can be considered as the universal consciousness, conscious of itself, and producer of itself, which is its purpose. That is to say, the purpose and end of this consciousness is to produce itself through a process of explication and unfolding of the evolutionary order, which will be described below.

THE PRINCIPLE OF UNFOLDING

§7 At the beginning, all stages of the evolutionary order are complicated, that is, implicated one with another, so that they are superimposed. In this *syntopic* stage (in the same place) of the evolutionary process the state is that of simplicity, so that this simplicity is actually the consequence of a *synplicity* (syntopic folds or envelopes).

§8 As the stage of *synplicity* develops and explicates, that is to say, the successive stages of the evolutionary order unfold, increasingly complex and specific forms are exposed. In this manner, the process of unfolding occurs in the opposite direction to the logical principle of evolutionary order.

Here the metaphor of the rolled book, explained in a previous work (Ostachuk, 2018a), is very relevant. The book is written in its entirety from the beginning, and as it is unrolled and read, the plot progresses and becomes more complex, until it reaches the end of the story, which was already contained at the beginning in the rolled book. The prototypical biological example of this fact is embryological development. In this case, it is evident that the first stages of development are simpler, and that as development progresses the organism acquires a more complex structure. According to the principles of the present theory, all successive stages of development, including the final form, were

already contained from the beginning in the germ or fertilized egg in virtual form, although not in a lower structure in the evolutionary order, such as it is a DNA molecule.

Then, both evolution and development seem to progress from the actually simpler to the more complex. However, this does not mean, nor can it mean, that the more advanced posterior states are not present virtually from the beginning. Otherwise, the principle of evolutionary order, i.e. that the more complex cannot be generated from the simpler, would be violated. Thus, for example, during development the embryo already has virtually consciousness, although it has not yet been actualized, nor is it materially generated from it.

Finally, it is necessary to point out the following:

§9 The principle of unfolding does not act mechanically, but at each step of the process what is realized is the fulfillment of the end or purpose for which it was created, which is the expression of its own potentialities.

THE PRINCIPLE OF ACTUALIZATION

The world in which we see our lives going implies a process of actualization from the virtual world. The virtual world is populated with ideas-forms, while the actual world is composed of images.

§10 The process of actualization consists in the conscious projection of an idea-form into an image.

The process that first comes to mind is the cinematograph, a device that allows to project still images continuously to create a sense of movement. However, our process of actualization is not mechanical or passive but implies the self-awareness or apperception of an idea-form, which leads or implies at the same time the vision of its corresponding image. In this manner, we live in a world of images, copies of the ideas-forms of the virtual world. This principle has a clear Platonic influence (Plato, 1937), although it also relates to the theory of the archetypes of the unconscious as symbols of transformation proposed by Carl Jung (Jung, 1964, 2014).

THE IDEOLOGICAL MATRIX

These ideas-forms are then in a virtual state, and are, therefore, outside of space-time. These ideas-forms occupy a domain that I will call *ideological matrix*.

§11 The ideological matrix contains in virtual form everything that was, is and will be, and represents in that sense the totality of the potentially actualizable. The ideological matrix is a *pleroma*, a Greek word that means "fullness".

§12 The ideological matrix as a whole consists of a *morphogenetic field*[2]. More precisely, the ideological matrix consists of an ordered series of morphogenetic fields that represent the successive stages of the evolutionary process.

The union between the successive fields is mediated by what I will call *folds*. The process of unfolding consists of the sequential unfolding of these folds, not of the morphogenetic fields, which are virtually preformed, so as to guarantee the principle of evolutionary order. The exposure of the successive morphogenetic fields as a consequence of the sequential unfolding of the folds, allows the *explication* of them and of the ideas-forms that compose them. In this manner, the ideas-forms become conscious of themselves and their content (potentialities) and start the process of actualization. Consequently, ideas-forms consciously actualize their potentialities, which is nothing other than the content of the ideological matrix (its successive evolutionary stages).

Each idea-form of a morphogenetic field can be considered as a subfield, a subset of the total field, although in no way there is a separation between this subfield and the rest of the field, since the whole field that constitutes the ideological matrix represents a continuum, which makes it consist of a true holistic totality [*holon*]. In the same manner, each idea-form that occupies the ideological matrix can be considered a *holon*, a totality, although in a relative

[2] The concept of *morphogenetic field* is a concept originated in the field of Developmental Biology, especially from the works of Alexander Gurwitsch, Paul Weiss, Hans Spemann and, more recently, Rupert Sheldrake (Bertalanffy, 1933; Beloussov *et al.*, 1997; Spemann, 2003; Sheldrake, 1988). Sheldrake developed a whole theory based on the concepts of morphogenetic fields, morphic resonance and habit.

sense, understood as a subset of the total set that constitutes the field of the ideological matrix.

The evolutionary history then represents the degree of unfolding and actualization of the field that constitutes the ideological matrix. The greater the degree of unfolding and expression of the field, the greater the specification and complexity of the organisms arising from it.

Consciousness represents the possibility of exploring and inhabiting this ideological matrix. As this matrix exists prior to the beginning of the unfolding and actualization of the ideas-forms that compose it, so it is with consciousness. It can be said that the ideological matrix is first and foremost conscious, and more explicitly, conscious of itself.

ORIGIN, FORMATION AND STRUCTURE OF THE IDEOLOGICAL MATRIX

A fair question to ask would be the following: how did a structure so complex as the ideological matrix originate? How were the successive virtual fields formed according to the principle of evolutionary order? Aristotle said that the anterior in logical order was posterior in generation (Aristotle, 1912b, 646a25-35). But how is this logical order generated? And everything leads us to the same answer:

§13 Logic is not generated, it is *eternally logical*. The complex is *logically prior* to the simple, and not merely *previously generated*. The ideological matrix then exists eternally, it is ungenerated and its structure derives purely from logical considerations: it is a structure that exists necessarily and logically.

What is this logical anteriority? Nicholas of Cusa considered that what occurs successively, occurs by unfolding of the concept. The concept implicates all the succession: "For the simple concept of a clock enfolds all temporal succession" (Hopkins, 1988, ch. 11, N. 45), "succession is present in the clock without there being succession in the Word, or Concept" (Hopkins, 1988, ch. 11, N. 46). Nicholas of Cusa then used the concept of unfolding to explain the passage from the eternal to the successive, just as the number one implicates all the succession of the numbers, and the numbers consisted of the explication or unfolding of the

oneness (Hopkins, 1988, ch. 11, N. 47). However, this concept of unfolding is simply the application of an *algorithm*, and cannot explain the increase in *complexity*, only in *multiplicity*.

A more appropriate example to explain this is the relationship between the concept of clock and the concept of clock hand. The clock is logically anterior to the clock hands, and all the machinery necessary for it to work. Therefore, the concept of clock is logically prior (anterior) to the concept of clock hand. To assemble a clock it is necessary to start with its parts and the clock is just the final product. However, the clock was first in idea, and then came its development.

§14 In this manner, the successive stages of an unfolding do not generate one another, but rather they preexist and they are ordered according to the logical order of their concepts (as the concept of clock is logically prior to the concept of clock hand). In this sense, the ideological matrix is a conceptual matrix logically ordered and organized.

§15 Each stage of the evolutionary process, from the most complex to the simplest, is *deduced*[3] or *educed*[4] from the previous one. In other words, the simpler stages are logically extracted from the more complex ones. In this manner, the concept of clock hand is extracted, it is deduced from the concept of clock. The concept of clock hand has no sense or meaning without the concept of clock, the latter is what gives it a reason for being.

THE VITAL TUNNEL

Development then implies the unfolding and actualization of a series of morphogenetic fields corresponding to the ontogenesis of a given organism. This series of morphogenetic fields, if imagined stacked and cross-sectional, forms a kind of "tunnel" that represents the entire life of a particular individual. In this manner, I will call this structure formed by the successive morphogenetic fields of an individual *vital tunnel of development.*

[3] From Latin *deduco*: *de-* ("of, from") + *duco* ("lead, pull").

[4] From Latin *educo*: *ex-* ("out, up") + *duco* ("lead, pull").

One might also think that these lines are not interrupted by the successive generations of individuals, thus forming transgenerational tunnels. If the timeline is extended further, these lines become true *evolutionary vital tunnels*, in which not only changes of generation occur but also change of form. This fact marks the fundamental relationship that exists between evolution and development, and that will be explained later.

DUALISM

§16 According to the logical principles of the present theory, dualism is inescapable. If everything must necessarily be preformed from the beginning, since the simple cannot generate the more complex, and if the order in which nature actually evolves occurs in the direction from the simpler to the more complex, then by logical necessity there must be a duality or dualism between the virtual and the actual, although this does not imply a separation as large as that which exists in the dualism between form and matter.

MATERIALISM

§17 The perhaps most evident and immediate consequence of the fundamental principles of the present theory is that materialism does not represent the appropriate epistemological pathway for the understanding of nature. The view that the world is made up of elementary blocks or atoms from which everything around us can be built or rebuilt is inadequate. This is logically derived from the principle of evolutionary order, that is to say, that from the simple the complex cannot be generated. The reason for this is that the simple does not contain the information necessary for the generation of something more complex, and cannot give what is beyond its possibilities.

From this perspective, the materialist postulates that matter is primary and that consciousness represents a highly organized state of it are unsustainable. What is usually called matter actually represents the lowest degree, the last step,

of the evolutionary order. On the contrary, consciousness represents the opposite pole, the principle of origin, that from which the process of unfolding begins. Following this order of unfolding, the so-called matter would consist of the actualization of the first fold of the ideological matrix.

If matter represents the lowest degree of the evolutionary order, and the first actualization in the chronological order, then it is necessary to admit that it derives, it is preceded, by the immaterial, what we here generically call *ideas-forms* (*eidós*). The successive instances of the evolutionary order are ideas-forms that exist in a virtual state, and that are actualized (projected) during the process of unfolding.

Either way, the very concept of matter conflicts with the present theory:

§18 If there are only virtual ideas-forms and actual images, then there is no place for materialism in the present theory. Both ideas-forms and images are indecomposable wholes, *holons*, and consequently they are not composed of parts that can be organized in patterns, mosaics, arrangements or configurations. A form cannot be obtained from the combination of a certain number of parts in an arrangement, in this way only a pattern can be obtained.

This is the basic illusion of materialism: that everything is generated and can be generated from the combination of certain elementary or atomic particles. This is the atomic theory originated by Leucippus and Democritus, and deepened by Epicurus and Lucretius: "our world is the creation of nature: the atoms themselves collided spontaneously and fortuitously, clashing together blindly, unsuccessfully, and ineffectually in a multitude of ways, until at last those atoms coalesced which, when suddenly dashed together, could always form the foundations of mighty fabrics, of earth, sea, and sky, and the family of living creatures" (Lucretius, 2001, p. 62).

Stoicism was opposed to this theory, through the figures of Zeno of Citium, Cleanthes and Chrysippus, who believed that the world was essentially rational and that nothing happened by chance. In Cicero's words: "At this point must I not marvel that there should be anyone who can persuade himself that there are certain solid and indivisible particles of matter borne along by the force of gravity,

and that the fortuitous collision of those particles produces this elaborate and beautiful world? I cannot understand why he who considers it possible for this to have occurred should not also think that, if a countless number of copies of the one-and-twenty letters of the alphabet, made of gold or what you will, were thrown together into some receptacle and then shaken out on to the ground, it would be possible that they should produce the *Annals* of Ennius, all ready for the reader. I doubt whether chance could possibly succeed in producing even a single verse! Yet according to the assertion of your friends, that out of particles of matter not endowed with heat, nor with any 'quality' (the Greek term *poiotes*), nor with sense, but colliding together at haphazard and by chance, the world has emerged complete, or rather a countless number of worlds are some of them being born and some perishing at every moment of time — yet if the clash of atoms can create a world, why can it not produce a colonnade, a temple, a house, a city, which are less and indeed much less difficult things to make?" (Cicero, 1967, p. 213).

MECHANICISM

§19 Mechanicism is the logical consequence of a materialist worldview. If it is accepted that the fundamental principle of reality is matter, then everything else derives from increasingly complex combinations of it, even giving rise, as we have already said, to intelligence and consciousness. Mechanicism is then a *constructivism*, whose combinatoriness seems to know no limits. In this sense, it represents the reverse order of the evolutionary process proposed here: the complex derives from the simpler. For mechanicism, evolution occurs through external interactions between material entities, ultimately capricious and aleatory, since there is no teleological and purposeful process that directs and guides it. However, this aleatory process finds the way to finally generate living organisms and intelligent beings.

The fundamental problem for all mechanicism is that every existing machine has been created by a final cause or external teleology. In other words, every machine has been created by a technician, engineer or constructor, by applying

a design planned in advance. Vitalism, a theory that has been historically opposed to mechanicism, does not seem to be exempt from this problem, since it assumes the presence of some kind of vital force that ensures the correct construction of the machine (Bergson, 1944; Canguilhem, 2008; Driesch, 1908, 1914; Ostachuk, 2016, 2018a). Consequently, neither mechanicism nor vitalism are able to explain how an organism develops and obtains its final form, that is to say, they are not able to explain how "the end is present from the beginning".

ORGANICISM

Organicism is postulated as an overcoming to mechanicism and vitalism, proposing that the distinctive characteristic of living beings is their *organization*: without organization there is no life: "destruction of the organization means at the same time destruction of life" (Bertalanffy, 1933, p. 47). Vital properties are systemic properties that originate from the *arrangement* of parts or components and, therefore, disappear when this arrangement is destroyed. The organisms that exhibit the properties of life do so based on how these components are articulated with each other. The organization is the distinguishing feature of the vital process, and the one that distinguishes it from mere physical-chemical processes (Ostachuk, 2019b).

§20 Despite its apparent "dynamism", organicism is a static structuralist theory that has problems explaining the evolution and development of organisms (Ostachuk, 2019b). Nor can organicism explain the origin and complexification of the organization during the developmental process. On the other hand, it confuses a true holistic totality (*holon*) with a mere organizational arrangement of parts: no matter how complicated, an arrangement will never be a true form.

Consequently, organicism fails to run as a third way to mechanicism and vitalism: "If an act or a being with a unitary, finalist, and organized appearance can be completely explained by factors that are fully subject to physicochemical laws, then by definition it is not truly unitary, finalist, or organized. It is merely an "aggregate" or a system of equilibria. Conversely, if an act or a being is truly unified and organized, then by definition it cannot be reduced to a set of physical

processes that propel or balance one another" (Ruyer, 2016, p. 191).

VITALISM

§21 Vitalism as a philosophical system that defends the irreducibility of life to mere physical-chemical processes is the system that is better able to understand the world, the evolution of life, nature and consciousness. However, the drastic separation it poses between mind and body, and the bridge that it establishes between them through the intervention of a *psyche* (Aristotle, 1912a, 1931), *formative impulse* [*Bildungstrieb*] (Blumenbach, 1792), *élan vital* (Bergson, 1944) or *entelechy* (Driesch, 1908), seems to make things more difficult than to solve them. The descent of a mind or vital force to a raw and inert matter seems a very long way to go, and its action on it an unsolved mystery.

In spite of all this, vitalism has a vitality that resists languishing (Canguilhem, 2008). This force must come from the confidence that life is more than a mechanism or an assembly of organized parts.

TELEOLOGY

§22 Teleology, understood as an internal finalist activity, is a fundamental property of the evolutionary process. Not only can it not be dispensed with, but it also founds and sustains this process. Teleology represents the true internal motor of the evolutionary process, which allows the passage from one stage to another and the gradual unfolding of the field of the ideological matrix.

All teleological activity ultimately presupposes a conscious activity. This is evident in the case of man, the organism in which consciousness seems to have acquired its highest degree of current development. However, as we have seen, consciousness is original and is virtually present from the beginning, it is the ideological matrix itself, and constitutes the ground from which the evolutionary process is carried forward through its unfolding and actualization.

MEMORY

§23 Memory consists of the total content of the ideological matrix. In this manner, the content of memory is not lost and it can always be accessed through consciousness, which is the way of access to the ideological matrix. Such is the case that, what we call past is nothing more than an earlier stage of the evolutionary process. Therefore, the past is always present virtually in the ideological matrix[5].

§24 From this point of view, the embryological development of an organism represents the unfolding and actualization of a mnemic content present in the ideological matrix. The immediate consequence of this is that the reverse order is invalid. The activities of the developed organism cannot alter the mnemic content that gave rise to the organism itself. Consequently, the Lamarckian inheritance is annulled (Lamarck, 1963).

INSTINCT

§25 Instinct is active memory. It is the setting in motion of a mnemic content. It is an idea of the ideological matrix transformed into action. In this sense, its "unconscious" character is only apparent, since it responds to an idea, to an ideal to be fulfilled, and, therefore, it is also ultimately a teleological process.

Several examples could be cited here. Perhaps one of the most interesting is the spider web prepared by the spider to capture its prey. This instinctive behavior, with which the spider is already conceived, basically consists of a trap to catch insects, and a trap is prepared with a purpose. Moreover, the web is designed in such a way that it is not detected by its prey. It is clearly a teleological process that, as we said, represents the unfolding and actualization of a mnemic content of the ideological matrix, which is activated in want or need, i.e. a lack.

[5] Although in a different context and general conceptual framework, this idea is already present in Bergson's work "Matter and Memory" (Bergson, 1991).

EMERGENCE AND NOVELTY

§26 According to the fundamental logical postulates of the present theory, there is no emergence as such in nature, that is, *de novo* generation. No form that emerges in nature is generated *de novo* at the time of emergence, but that emergence occurs precisely by the expression and actualization of the corresponding virtual form in the ideological matrix, which, as we said, are uncreated and they have always existed. Consequently, what is usually called novelty consists of the process described above, and only in this context can an emergence be considered a novelty, that is to say, it is a novelty as long as a form emerges, it is expressed and actualized, for the first time in the world.

This point of view greatly clarifies the terms involved, since it ensures that every novelty is an emergence. An emergence, strictly speaking, in its etymological origin, implies coming to the surface from a depth, it is the opposite of immersion[6]. Consequently, it fits our application quite well as a process of expression, of explication. In both cases, something that was latent becomes evident. The etymological origin of novelty also fits our present approach better than the usual use of the term, since it does not imply a *de novo* generation, but rather indicates something young and recent[7]. In this manner, a novelty points out something that has been expressed recently.

ADAPTATION

§27 Adaptation is always, ultimately, teleological. There is no such thing as a blind adaptation, as it is intended to be conceived in certain forms of Neo-Darwinism. The eagerness to adapt is teleological, it is always an internal finalist activity. Adaptation is essentially a psychological concept.

Adaptation is not an appropriate concept to explain the evolutionary process in the context of the present theory. Concordance, correspondence, between an

[6] Emerge comes from the Latin *ēmergō*.

[7] New comes from the Greek *νέος*.

organism and its environment is not achieved by adaptation, that is, by an effort of the organism to "deal with" and "fit into" an environment that is elusive, strange and unknown, and with which it must constantly reengage and come to terms.

§28 The organism is already born with its own environment, its *Umwelt*, which is appropriate and in accordance to its particular form. It does not need to adapt to it. The organism and its *Umwelt* are already pre-established virtually in the ideological matrix. In this sense, the *Umwelt* is nothing more than the field that surrounds the subfield of the idea-form corresponding to the organism in question in the ideological matrix[8]. The term "adapt" comes from the Latin *adapt* (contraction of *apt ad*) and from the Greek ἀνάπτω, and they mean "bind to", "join to". According to our own theory, everything is already connected and united in the ideological matrix, and a process such as adaptation is not necessary to guarantee it.

The feeling of maladjustment and discomfort that man usually feels is not a symptom of the need to adapt to the surrounding environment. This feeling, felt in some way as a lack, is the sign of the advent and unfolding of a new stage of the evolutionary process. This advent comes from the desire to fulfill and satisfy that lack, which, as we have already said, constitutes the teleological motor of the evolutionary process.

ENVIRONMENT

§29 The environment, strictly speaking, does not exist. An organism does not face its environment in search of the optimal conditions of existence. What is usually considered as an environment are nothing more than other organisms or *holons* like himself, whose mutual relationship is not that of opposition, but that of complementarity and inclusion in a higher field or

[8] The concept of *Umwelt*, developed by Uexküll (1926, 1957), has already been explained previously. See for example Ostachuk (2013, 2019c).

***Umwelt*. All existing forms ultimately come from the total field that constitutes the ideological matrix.**

This does not mean that there are no tensions between the different subfields being actualized, which are caused by phase shifts in the evolutionary process of unfolding. These tensions and phase shifts are transient and the correct complementarity of the total field is always restored, since this is guaranteed beforehand in the structure of the ideological matrix.

SENSATION AND ALTERITY

§30 Sensation is the recognition of a true form present virtually in the ideological matrix. In this manner, perception is ultimately an *apperception*, that is to say, to make an idea conscious.

§31 This conception of sensation[9] determines a drastic change in the conception of otherness or alterity, and in the relationship between subject and object. There is no longer a sharp separation between subject and object, since all "knowledge" actually implies *self-knowledge*, a *realization*. All that a subject can get to know is to make conscious contents of the ideological matrix.

It is in this context that Anaxagoras' maxim that everything is contained in everything can be understood (Kirk & Raven, 1957, p. 375). This "theory of knowledge" is also compatible with the so-called *process of individuation* formulated by Carl Jung, in which the individual acquires self-knowledge through the revelation of symbols of transformation from his unconscious (Jung, 1964, 2014).

LAMARCKISM

Lamarckism proposes an evolution mediated by an individual psychological finalist activity. For Lamarckism, evolution occurs through a process that involves the realization of an end through an individual effort, and the generational

[9] An important Ruyerian influence is recognized in this formulation (Ruyer, 2016, p. 94).

transmission of a modification by habit or memory.

The initial formulation of Lamarck established the following evolutionary process: (1) "In every animal that has not passed the limit of its development, a more frequent and continuous use of any organ gradually strengthens, develops and enlarges that organ, and gives it a power proportional to the length of time it has been so used; while the permanent disuse of any organ imperceptibly weakens and deteriorates it, and progressively diminishes its functional capacity, until it finally disappears"; and (2) "All the acquisitions or losses wrought by nature on individuals, through the influence of the environment in which their race has long been placed, and hence through the influence of the predominant use or permanent disuse of any organ; all these are preserved by reproduction to the new individuals which arise, provided that the acquired modifications are common to both sexes, or at least to the individuals which produce the young" (Lamarck, 1963, p. 113). This theory is usually called *inheritance of acquired characteristics*.

This initial formulation of Lamarck was then further elaborated by post-Lamarckians, such as Samuel Butler. Butler assimilated evolution to learning, and established a parallel between the evolution of species and the learning of an activity, such as playing the piano or memorizing a text (Butler, 1878). At first it required a lot of effort and a very conscious practice. However, over time the activity became more natural, automatic and unconscious. In this manner, the acquired became innate, and the habit became instinct. Consequently, from this version of Lamarckism, what is inherited is not only a set of acquired characteristics, but the memory of increasingly internalized and fixed habits.

As Ruyer states, Lamarckism is right to recognize "the finalist character of organization" (Ruyer, 2016, p. 212). However, it confuses "the direction of the progress of *philosophical reasoning* with the direction of the progress of *the real formation*" (Ruyer, 2016, p. 213). The behavioral finalist activity is an extension of the organoformative finalist activity: "the act of searching for sugar when one is hungry extends in the external environment the organic act of storage and release of sugar in the internal environment" (Ruyer, 2016, p. 213), and not vice versa as Lamarckism proposes. Ruyer asks himself: "Can the habit of making provisions create the instinct of hoarding, then the formative instinct of organic reserves of

sugar or fat?" (Ruyer, 2016, p. 214). It is clear that Lamarckism inverts the real order of formation.

DARWINISM AND NATURAL SELECTION

§32 Natural selection (Darwin, 1859), based on the generation of new forms by random mutations, following the general postulates of this theory, is not capable of producing structures with sense, finality and purpose, such as new organisms.

In the best case, a principle such as natural selection could guarantee the *continuity* of the correct relationship of an organism with its environment, as this principle was conceived, for example, by Edward Blyth (Ostachuk, 2019a). In this case, natural selection was neither capable nor responsible for generating new species, but the created species were already the most suitable for the environment in which they developed, and this principle only ensured that this adequacy was not affected in time. Still understood in this way, natural selection would remain unacceptable for the present theory. According to this theory, the evolutionary history of an organism is contained in the ideological matrix, so that no actual circumstance and external to it can determine its future form.

An alternative to the selective cause of natural selection would be to consider the own environment of an organism as an occasional cause, similar to how Malebranche conceived it (Ostachuk, 2018a). According to this causal form, the environment would only give the *opportunity* for virtual preformations to be actualized, that is to say, it would play the role of *trigger*. Once again, although this interpretation is much more appropriate to our theory than the selective cause, special caution and care must be taken, as we saw, in raising a sharp and real opposition between the organism and its environment, which would mean that this interpretation should be taken in relative terms. The different organisms are complementary to each other, and all together form a whole, similar to how a set of organs form an organism. And just as the cause of an organ is not found in another organ but in the organism as a whole, the cause of an organism is not found in another organism but in the virtual form that gave rise to them. In this manner, the environment as an occasional cause of the evolutionary process

could only have a reduced role in solving some transient tensions and phase shifts of the evolutionary process of unfolding. As we have already said, the true causal motor of the evolutionary process is the teleological principle inherent in the ideological matrix.

§33 Natural selection appeals to a form of improper causality. It is an external final cause in which the end is unknown and undefined. In a proper external final cause, the end, which is known in advance, is set from the outside and is not part of the system itself. The products of art and technique are the prototypical examples of this type of causality. For example, the craftsman who builds a chair imprints the form into matter, which is wood, following the idea and plan that the craftsman had designed in advance. Natural selection appeals to this type of causality, but leaving the idea and the plan undefined, and abandoned to the whim of chance. Natural selection is teleological because (1) every selection has a purpose and an objective in view: if this purpose and this objective are eliminated, the selection becomes a mere aleatory and random whim incapable of generating purposeful structures; and (2) because it depends on the concept of adaptation, which as we said is also teleological.

Supposedly, natural selection works by conserving those varieties that acquire some advantageous characteristic with respect to their congeners, allowing better survival conditions. This mechanism raises the following questions: (1) If these varieties are produced by chance, then the process is not selective, but only a process of "mechanical" filtration completely unregulated with respect to the development of the rest of the ecosystem. (2) If the entire evolutionary process is freed to the free play of the individual possibilities of progress, then it is not possible to generate an ecosystem that maintains the coherence, interconnectivity and complementarity that characterizes it. (3) And finally, and perhaps more importantly, what meaningful destiny can such a mechanism lead to? Ultimately, this mechanism aims to generate complex organisms through random processes, which is not possible. The concepts of adaptation and natural selection are resources to cover the fact that the process is ultimately purely aleatory.

That an individual has the ability to capture more food is an advantage for himself, but is it an advantage for the survival of the species and the healthy

performance of the surrounding ecosystem? If the entire evolutionary process were governed by such a mechanism, the most likely future would be the complete destruction of the interweaving and interconnectivity inherent in nature. No competitive mechanism based on self-interest can lead to a harmonious future of the whole and the holistic totality in which nature consists.

§34 It is no coincidence that natural selection is called the *principle of utility*, associating the final cause and fulfilling a purpose with the search for utility and profit. The principle of utility and natural selection (as well as adaptation) appeal to the same *dormitive principle* of Molière in "The imaginary invalid", turning the effect and the end into the same principle. In this manner, it is not a true final cause but a *retrograde causality*, in which the end is not present from the beginning, but the end is placed as cause or principle.

§35 The principle of utility only makes sense if it is *on purpose*, that is to say, something is useful for something only if it was made *for* that same purpose. Something *useful*, with sense, cannot arise from something random or aleatory. If I find a stone on the floor that *serves to* cut food or hunt, the sense, purpose and utility is not developed by the stone itself *on purpose*, but is put from the outside *a posteriori* by a conscious agent.

§36 Therefore, just as nature as Idea-Form does not need adaptation to produce a coherent, interrelated and meaningful whole, it also does not need selection. The coherence, interconnectivity, meaningfulness and sense that exist in nature as actuality cannot be achieved by a process or mechanism of fitting and random collisions of matter by trial and error. Sense is primary and directs the evolutionary process, as established by our principle of evolutionary order. Ultimately, sense cannot be created, but it

is given in advance, and hence the purposefulness shown by nature throughout its teleological process of unfolding and actualization.

EVOLUTION AND DEVELOPMENT

§37 From the point of view of the present theory, there is no fundamental difference between evolution and development: both are processes of unfolding of virtual fields. The difference between evolution and development is of degree or, more precisely, of order. What in a given order is generally considered evolution, in the higher order is actually a development. In this sense, the concept of evolution (of species) derives from a partial, analytical and divisive view of a holistic and unifying superior reality. In this manner, the historical appearance of the different species of organisms forms together a higher order process of development of what I will call *super-organism*.

This super-organism is also a form coded by a field, a whole, which develops by teleologically actualizing its potentialities and is, therefore, conscious. The most immediate parallelism with this process is the embryological development of an organism itself, in which the different species would be the different "cell types" of the organism. Just as the different species of organisms *evolve*, the different cell types *differentiate*. In both cases, the totality of higher order develops, that is, it changes form as a unit, while the totalities of lower order derive from a common origin, they diverge *evolutionarily* in different transformation pathways, but all, ultimately, fulfill a fundamental role for the existence and development of the superior totality.

The different cell types have a common lineage and then take different routes of differentiation (they diverge). However, the cell types of the first days of the embryo are not the same cell types that exist in the adult organism. This means that the latter were not generated directly from the former, but from others generated later in development. In this manner, each new step of the process of differentiation always implies an advance and a progress, and there is no repetition of all or some of the previous steps to reach the new stage. This determines an evolutionary process (in the sense explained above) more

compatible with Baer's theories (Baer, 1828) than with Haeckel's (Haeckel, 1879), and in principle discards the process commonly referred to as recapitulation. Consequently, both the development in a higher order, and the evolution in a lower order, represent processes in which a complete novelty and emergence from the virtual takes place all the time. There is no repetition of stages and there is no ontogenetic development equal to another.

This view of evolution and development determines that there is a shift in the focus of attention and importance in the relationship of kinship between organisms. According to this view, the main relationship of kinship is not between the different species of organisms from each other, that is to say, in the so-called evolution of species, but between them and the totality of higher order that develops and gives them sense.

This also has repercussions on what is understood by memory:

§38 If everything is supposed to be a constant becoming and a constant novelty, there can be no repetition of fields. In this case then what is remembered is not the past but the future. In reality, the fields that were already unfolded and actualized are not the ones that are remembered, but the new ones that are being unfolded and actualized. This does not mean that the fields already actualized cannot be remembered, because they are all contained in the matrix, but the remembrance of these fields is unconducive, fruitless, since they do not have the potential to lead to any teleologically directed action.

PREFORMATIONISM AND EPIGENESIS

From the phenomenal point of view, or of appearance, embryological development seems to occur through epigenesis, that is, from a homogeneous substance, in general, an egg-cell. However, as we said in a previous work (Ostachuk, 2018a), the resolution of this problem is not as simple as it seems.

§39 If it is assumed that development begins from a dedifferentiated cell, the question immediately arises about the origin of the form of the adult organism. Contemporary biology states that it is obtained naturally from the action of the genetic program contained in the genome of this egg-cell.

In other words, it assumes that this occurs in a purely materialist, mechanistic and constructivist way. However, according to our principle of evolutionary order this is impossible. A true holistic form cannot be generated *de novo* from the assembly of a collection of parts.

Perhaps one of the best examples in nature of the persistence and omnipresence of form is the phenomenon of regeneration. Researchers like Blumenbach, and more recently Spemann, have given evidence of the surprising characteristics of this important phenomenon.

On the other hand, current theories that explain ontogenetic development through the action of genetic regulatory networks (GRNs) must assume for their logical consistency some type of initial asymmetry in the egg-cell, in the form of the presence of some type of spatialization or regionalization of the germinal genome. In this manner, these theories, despite their apparent scientific-technological originality, seem to be nothing more than more sophisticated and modern versions of the successive preformationist theories of the history of biology, being one of the last of them the mosaic theory from Roux and Weismann (Weismann, 1893, 1904; Ostachuk, 2018a).

§40 According to the present theory then, form is already present virtually in the organism before its actualization. Ontogenesis represents, in this manner, the unfolding and actualization of a series of morphogenetic fields corresponding to the development of this or that organism, which are all subfields of the total field of the ideological matrix. Each of these series of morphogenetic fields corresponding to the life of a certain organism is what I have called *vital tunnel*.

LIFE

§41 All beings that appeared in the evolutionary history of nature ultimately came from the same original being, in the same way as every organ, tissue or cell of an organism ultimately came from the same unicellular embryo, i.e. fertilized egg. Consequently, just as all these organs, tissues and cells, although now differentiated and, to some extent, autonomous, are subsets

of the same organism, so also all living beings that appeared during the evolutionary history of nature form the same and unique universal natural Being, which is Life.

§42 Life is then, in its manifestation, this unitary super-organism that includes all the organisms that we know individually in nature. Just as every individual organism develops ontogenetically from an embryo to an adult organism, the Life super-organism develops ontogenetically in history from the first unicellular living being to the multiorganismic and ecosystemic super-organism that includes all living beings that currently exist. This is the fundamental parallel between Evolution and Development. That is to say, evolution is the development of Life. However, what develops in this evolution is Life as a whole, and not each organism separately and independently of others.

A NEW VITALISM

§43 Life as a holistic process that includes nature as a whole and that develops and unfolds historically defines a New Vitalism. It is not a vitalism that requires resorting to a vital force or impulse that acts on matter, but it is the evolutionary process itself through which Life unfolds and develops, actualizing teleologically its potentialities.

§44 There is an intimate relationship between vitalism, consciousness and teleology. They form an inseparable triad that presupposes the existence of a subjectivity, an individuality. This agent or *individual lives* actualizing its own potentialities, to which it has access thanks to its consciousness. Living is a conscious teleologization.

THE INDIVIDUAL AGENT

§45 Nothing occurs without the presence of an agent. The agent, which presupposes the three original properties mentioned above (vitalism, consciousness and teleology), is the origin of every action, movement and

change. The world is ultimately rational, and nothing rational can be generated from chaos[10] and disorder. The conscious agent is the rational guarantee of the universe.

§46 The agent is the subject of an action, and every action is teleological. Every action involves the actualization of an idea. Without subject there is no action, and without action the evolutionary process of unfolding is not possible. Every whole (*holon*) or true form is an individual agent that actualizes its potentialities.

CONSCIOUSNESS

§47 Consciousness is an idea-form and as such it is virtual, it is not found anywhere in the actualized organism. Every idea-form when it unfolds becomes conscious of itself, which implies the possibility of exploring the corresponding contents of the ideological matrix and, in this way, unfolding and actualizing its potentialities teleologically. Consequently, consciousness is an agent that apperceives and actualizes its potentialities. Consciousness is a portal between the virtual world and the actual world, an opening, a means of passage from one reality to another, a means to an end.

§48 The term "consciousness" derives from Latin *conscientia*, which in turn is a calque of the Greek συνείδησις. The latter comes from a verb that means to see, to become aware of, to recognize, that is to say, it implies a vision or mental perception. Consciousness is then the self-relation, the self-recognition of a whole (*holon*) or true form. A true form is like a mirror that can see itself, and seeing itself it recognizes itself, recognizing itself it

[10] In its usual meaning of confusion and complete disorder.

remembers itself, and remembering itself it actualizes itself, that is, it produces itself in time.

§49 Therefore, there is a correspondence between vision and consciousness. One can only see that of which one is conscious. The greater the degree of consciousness, the greater the degree of its openness, the greater is the access to the contents of the ideological matrix, and the greater is the vision of consciousness. In this manner, what each conscious idea-form sees and has as reality will depend on the specific access to the contents of the ideological matrix, and therefore each organism will have a different reality according to its form, which is the same as saying, to what contents of the matrix it has access. This makes each organism have its own reality and field of vital experience, its own surrounding environment, what Uexküll called *Umwelt*. According to our own theory then, consciousness is what one sees, which depends on one's access to the ideological matrix, and what one sees is at the same time one's own *Umwelt*. Consequently, consciousness is the *Umwelt* itself.

This definition of consciousness is compatible with the concepts of Aristotelian *psyche* and Drieschian *entelechy* (Aristotle, 1931; Driesch, 1908; Ostachuk, 2016), although without posing an opposition between form and matter as do the theories of these great thinkers. Aristotle characterizes *psyche* as "the principle of the living [ἀρχὴ τῶν ζῴων]" (402a6, own translation), and defines it as follows: "*Psyche* is an *ousia* in the sense of form (*eidós*) of a natural body that potentially has life. But *ousia* is entelechy, in this manner, therefore, psyche is entelechy of such a body" (412a19-21, own translation). Driesch, on the other hand, defines entelechy as an *intensive manifoldness* that directs the morphogenesis of an organism, that is, of an extensive manifoldness. In an extensive manifoldness the elements are arranged side by side in space, or one after the other in time. On the contrary, entelechy is outside of space and time. In this manner, the Aristotelian definition of what I call consciousness here emphasizes that it is a form, while the Drieschian definition expresses more clearly that it is a potential content that governs the development of an organism through its unfolding and actualization in space and time.

§50 The continuity between the different fields of the individual ideas-forms, forming the total field that I call ideological matrix, leads to the conclusion that there is a universal consciousness that encompasses and includes all individual consciousnesses. This consciousness is the one who, by means of its self-recognition, commands to begin the evolutionary process of unfolding. This universal consciousness differs in degree but not in nature with respect to the consciousnesses of lower hierarchy, and is subject to the same norms and rules as the others, only that it encompasses them all. This consciousness also has the purpose of unfolding and actualizing its potentialities.

CHAOS

The concept of *chaos* can be useful for the description of the present theory. If one takes into account that chaos does not mean merely complete disorder, but that it was used to describe the primitive state of the universe, and that, etymologically, it seems to come from a Greek verb (χαἰνω) which means to open the mouth to utter, speak or say something, the concept acquires a completely different nuance.

§51 In this context, chaos could represent the stage in which the process of unfolding is about to begin to be explicated, like a book that unrolls to begin to be read. Obviously, this chaos has nothing of disorder, but only denotes the moment and the state of beginning of the process of unfolding, in which the ideological matrix begins its process of teleological actualization. With this new definition of chaos, order is not generated from disorder, an idea that is implicitly included in our principle of evolutionary order.

THEOLOGY

§52 This theory is not a theology in the sense that there is a creator God of all things. It is a theology in the sense that a theory is, that is to say, in the sense that both imply a θἐα, a vision (view or sight), a θεάομαι, a seeing. This

theory implies a progressive and increasingly fulfilled and flourished vision of virtual contents.

The most precise characterization that fits the present theory is, perhaps, that of the Stoic worldview. The Stoics conceived of nature as a living being completely imbued with consciousness: "the world is a living being, rational, animate and intelligent" (Laertius, 1925, vol. 2, p. 247). However, there are important ontological differences between both systems. For example, their belief in the mere existence of the corporeal leads their theories towards a certain monism and materialism. Strictly speaking, the Stoics conceived the existence of two substances or principles, one active and one passive. The passive principle was the substance without quality, i.e. matter, while the active principle was the reason inherent in that substance (Laertius, 1925, vol. 2, p. 239). The Stoics associated the latter with a creative fire or vital breath, the *pneuma*.

CONCLUSIONS

This theory, despite its high metaphysical content, aims to be not only a philosophical theory, but a true scientific theory. In fact, it is considered that separating philosophy from science is an error and a consequence of the materialist worldview (for a similar position on this issue see, for example, Gare, 2018). This theory is a great criticism of that materialist worldview, and expresses the need to rehabilitate the reentry of metaphysical considerations into scientific discussion.

Every breakthrough comes not so much from the contribution of new data, but from a new way of seeing things. This theory proposes a new way of seeing evolution. It is based on strictly logical principles, and not merely axiomatic, original and not formulated so far in the way and context presented here. The principle of evolutionary order establishes that the simple cannot originate the complex, it does not have the information to do so. This principle leads to the principle of origin, which establishes that there must be a maximum complexity that originates the others by logical deduction. This determines the existence of a virtual ideological matrix that contains the sequence of the folded morphogenetic fields, which will be explicated and expressed through the principle of unfolding and the principle of actualization.

In a sense, one could say that the logical principles and consequences of this theory are *inevitable*. However, this inevitability does not condemn us to an inexorable determinism, but leads us to commit ourselves to a purpose and a sense in our lives. There is no greater freedom than what one feels when fulfilling a purpose, and there is no greater feeling of self-realization than what one feels when reaching the end of the road and seeing that our lives were loaded with reason and sense, as if something would have been marking our path all the time.

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