



THE “RATIONAL KERNEL” OF NATURAL TELEOLOGY: DIALECTICAL INTERACTION AS THE CONCRETE-UNIVERSAL’S FORM OF DEVELOPMENT

*EL “NÚCLEO RACIONAL” DE LA TELEOLOGÍA NATURAL: LA INTERACCIÓN
DIALÉCTICA COMO FORMA DE DESARROLLO DE LO CONCRETO-UNIVERSAL*

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Recibido: 30/09/2022 Aceptado: 15/01/2023

Cómo Citar: Piedra Arencibia, R. (2023). El “núcleo racional” de la teleología natural: la interacción dialéctica como forma de desarrollo de lo concreto-universal. *Dialektika: Revista De Investigación Filosófica Y Teoría Social*, 5(12), 1-20. <https://doi.org/10.51528/dk.vol5.id89>

Abstract:

It is often believed that the only alternative to an idealist conception of natural phenomena excludes both the presence of objective universal forms and their progression towards higher forms as the finality of processes in the natural world. Realism regarding the universal and teleological approaches regarding processes are signs of idealism. Therefore, materialism, it would seem, must conform to a nominalist and mechanical view of nature. However, an intelligent materialist reading of idealism’s classics reveals a more complex scenario. A real fact is expressed in a mystical fashion in idealism’s conceptions of objective universals and teleology. This article attempts to show such a real fact in its authentic (materialist) form. With that goal in mind, the present article discusses the notion of nature’s alienation, the distinction between abstract and concrete universals, and the concept of dialectical interaction. The natural-historical emergence of a higher form of matter’s organization assimilates, as its organs, the conditions that preceded it in time, transforming itself into an active producer of such conditions. That is the secret glimpsed but not correctly understood by idealism that a consistent materialist should not ignore.

Keywords: Dialectics; Teleology; Concrete Universal; Interaction.

Resumen:

A menudo se cree que la única alternativa a una concepción idealista de los fenómenos naturales excluye tanto la presencia de formas universales objetivas como su progresión hacia formas superiores como finalidad de los procesos en el mundo natural. El realismo con respecto a lo universal y los enfoques teleológicos en los procesos son signos de idealismo. Por lo tanto, el materialismo, al parecer, debe ajustarse a una visión nominalista y mecanicista de la naturaleza. Sin embargo, una lectura inteligentemente materialista de los clásicos del idealismo revela un escenario más complejo. Un hecho real se expresa de manera mística en las concepciones idealistas de los universales objetivos y la teleología. Este artículo intenta mostrar tal hecho real en su forma auténtica (materialista). Con ese objetivo en mente, el presente artículo discute la noción de alienación de la naturaleza, la distinción entre universales abstractos y concretos, y el concepto de interacción dialéctica. El surgimiento histórico-natural de una forma superior de organización de la materia asimila, como sus órganos, las condiciones que le precedieron en el tiempo, transformándose en productor activo de tales condiciones. Ese es el secreto vislumbrado pero no correctamente comprendido por el idealismo que un materialista consecuente no debe ignorar.

Palabras clave: Dialéctica; Teleología; Universal concreto; Interacción.



“Intelligent idealism is closer to intelligent materialism than stupid materialism.”

V.I. Lenin (1976, p. 274)

INTRODUCTION

The view that only individuals exist in the world, that universal forms are mental abstractions, would seem a forced premise for materialism. It is not by mere chance that modern materialism, the “natural-born son of Great Britain,” started under the form of nominalism (Engels, 1976, pp. 97-99). Is not the Platonic conception of the “world of Forms,” perhaps only surpassed by Hegel’s gibberish of the “Absolute Spirit,” the ultimate example of mystical idealism? Thus, what has been called “the ontology of individual objects” (Laycock, 1979, p. 91) would seem to be the only appropriate posture for coherent materialism. Something similar could be said of the view of an objective direction or finality within nature. Today, a teleological account of nature would seem an anachronism, if not a scandalous theological crime, from the point of view of materialism. Such an account would mean to find in nature’s order the result of an intelligent design, the execution of an ideal plan, a “purpose,” a sign of Providence, of God’s work (Clark, Foster, & York, 2007). Thus, contemporary science mainly understands nature as a blind mechanism, stripped of meaning and intentionality in which nothing has a purpose or an end. In other words, from the dominant materialist point of view, both conceptions of the objectivity of universal forms and the teleological disposition of nature seem to be doomed to rest in peace in the garbage bin of the philosophy’s history.

However, in this essay, I will try to show that only by revealing the real content behind objective

idealism’s—indeed, mystical—approach to universal forms and teleology can we understand nature and our place in it from consistent materialism. I will attempt this in three steps. Firstly, I will briefly comment on the conception of matter as a chaotic, formless and passive substratum of an alienated nature, particularly its influence on Western Marxism (a typical case of this view). Secondly, I will distinguish between two historically divergent approaches to universality: as the abstraction of the common traits among individual phenomena (abstract universals); and as the concrete unity of contradictory components in historical totality (concrete universals). Then, I will show how the materialist understanding of concrete universality is the key to revealing the authentic content behind objective idealism’s metaphysical teleology.

THE ALIENATION OF NATURE

Both objective idealism and materialist empiricism share an alienated conception of nature—by itself, nature is seen as a passive abstract realm without inner forms of development. “In a priori constructs, nature lost its sovereignty and became a passive reflex of the self-development of notions. Within the bounds of empiricism (nineteenth-century empiricism, i.e., militant empiricism), the theory of nature dissolved into phenomenological assertions, and nature itself into separate events” (Kuznetsov, 1971, p. 52).

This conception of nature has a long history, as long as philosophy itself. It started with the early presocratic materialists and had its decisive victory thousands of years after, with the rooting of



modern science. It required one of the most significant achievements of the human mind—the ultimate detachment of the self from natural objects (Cornford, 1966, pp. 16-17), accomplished when the presocratics deprived nature of will and consciousness. Since these are exclusive features of the human subject, there is no point left in begging anthropomorphized forces of nature for their intervention in our business. The world is deaf to human desires (Jung, 1988, p. 95). If we, inhabitants of this overwhelming indifferent world, want to achieve our desires, we must not supplicate nor get angry at it but understand its internal objective *ratio* and act accordingly. Such is the materialist principle of the fundamental distinction between the mythological and scientific worldviews and the secret behind the latter's magnificent success (Iliénkov, 2009, p. 15).

However, this process also had negative consequences. The disenchantment of nature brought a view of nature as a passive realm of isolated bodies without creative development. This view, characteristic of the mechanical worldview of early modern science (see Engels, 1990, p. 370), is related to the anthropocentric conception of nature as passive matter ready to be actualized by the (human-like) spirit's forms of activity. Nature is seen only as formless matter; universal forms of development are imposed upon nature from outside, either by a Demiurge (as in objective idealism) or by our subjective activity (as in

subjective idealism). The resultant dualism of form and matter, of the active and the passive sides, of teleology and causality has been the rule in Western philosophy.

It is true that, throughout the history of philosophy, we find a speculative effort carried out mainly by idealism to unite the active form with the passive matter internally. However, due to the very nature of idealism, this effort could not succeed. While in Plato, forms exist independently and are imperfectly reproduced in nature by the Demiurge, in Aristotle, only the union of form and matter is real (substantial). Thus, his teleology acquires some degree of immanentism¹. But, of course, in Aristotle, it is the Prime Mover (an external entity), the author of this unity, the ultimate source of all processes and changes in the universe.

Moreover, even in the most developed form of objective idealism, the Hegelian system, which conceives form as the self-movement of matter (Hegel, 2010, pp. 394-395)², the dualism between form and matter does not disappear. For Hegel, “[m]atter, determined as indifferent, is the passive as contrasted to form, which is determined as the active. This latter, as self-referring negative, is inherently contradiction, self-dissolving, self-repelling, and self-determining” (Hegel, 2010, p. 393). Since Hegel's Demiurge, the “World Spirit,” needs to materially alienate its ideal forms for knowing itself through

1. “The teleology of the *Timaeus* may be usefully compared to that of Aristotle's philosophy of nature. What is immediately striking in that comparison is the absence from Aristotle's natural philosophy of a purposive, designing causal agent that transcends nature. Aristotelian final causes in the formation of organisms and the structures of the natural world are said to be immanent in nature (i.e., the nature or “form” of the organism or structure) itself: it is not a divine Craftsman but nature itself that is said to act purposively. Such an immanent teleology will not be an option for Plato” (Zeyl & Sattler, 2019).

2. On the materialist interpretation of Hegel's views on matter-form relation, see (Lukács, 1978, pp. 92-93).

3. This is Hegel's answer to the insidious Epicurean question to Plato and the Stoics: Why should god have chosen to create the world?

the mirror of nature and society³, in his system, form and matter presuppose each other: “matter must be informed, and form must materialize itself; it must give itself self-identity or subsistence in matter” (Hegel, 2010, p. 395). Thus, in his philosophy, the attempt to unite the active principle to matter from an idealist’s point of view arrives at its maximum expression. Indeed, in this respect, Hegel was far more materialist than Newton⁴.

Nonetheless, the duality remains because form, the active principle, does not originate from material reality but from the conceptual realm. Therefore, what Hegel (2010, p. 388) calls “content” (i.e., the unity of form and matter) that provides the “ground” for teleological reasoning is the product of the movement not of nature by itself but of concepts, of “reason”: “to be a ground in a teleological sense is a property of the *concept* and of the mediation effected through of it, and this mediation is reason” (Hegel, 2010, p. 388). Hence, in objective idealism, form is tactically preserved as ideal activity, while matter has to play the role of the mere object of such activity. Here the immanentist attempt of objective idealism’s conception of form meets its limit; for immanentism is the basic principle of materialism, and therefore not even the most objective idealism can fully place activity in nature without quitting idealism.

Non-dialectical materialism bought (i.e., acritically accepted) idealism’s duality of the active form as an ideal principle and the passive matter as a mere substratum deprived of determination or self-development. Within the Marxist tradition, this approach was typical of many exponents of Western Marxism who rejected Engels’ *Dialectics of Nature* as a step back towards the enchanted (idealist) conception of nature (see Piedra Arenceibia, 2019). In principle, the (idealist) belief that form, the active principle, is a product of consciousness (only that now understood not as a cosmical subject, as in Hegel, but as a social subject) is what led the young Lukács (1971, p. 24), founder of Western Marxism, to place dialectics only in the interaction of (conscious) subject and object. Starting from there, virtually all the exponents of Western Marxism claimed⁵ that matter was incompatible with dialectics because it does not possess an immanent principle of activity and, to suggest otherwise would be equivalent to assume a pantheist theological position, that is, a regress to the “enchanted” conception of nature⁶. Following this path, the old Althusser opted for “[a] materialism of the encounter, of contingency—in sum, of the aleatory, which is opposed even to the materialisms that have been recognized as such, including that commonly attributed to Marx, Engels and Lenin, which, like every other materialism of the rationalist tradition,

4. “It is better to say that a magnet has a soul [...] than that it has an attracting force; force is a kind of property that, separable from matter, is put forward as a predicate —while soul, on the other hand, is this movement itself, identical with the nature of matter” words of Hegel, quoted by Engels (1987, p. 558).

5. “Western Marxism, in fact, was to start with a decisive double rejection of Engels’s philosophical heritage —by Korsch and Lukács in Marxism and Philosophy and History and Class Consciousness respectively. Thereafter, aversion to the later texts of Engels was to be common to virtually all currents within it, from Sartre to Colletti, and Althusser to Marcuse” (Anderson, 1989, p. 60).

6. “[The] idea of a dialectic of nature working itself [...] must necessarily lead to the pantheistic-hylozoic conception of a 'nature-Subject,' and hence of course to the abandonment of the materialist position” (Schmidt, 1971 p. 59). See also (Kolakowski, 1978, p. 406).



is a materialism of necessity and teleology, that is, a disguised form of idealism” (2006, pp. 261-262).

According to this, any attempt to find necessity, intrinsic order, and direction in nature would imply idealism. Thus, in its rejection of Marxist dialectics, the late Althusser recoils to Epicureanism: “This non-anteriority of Meaning is one of Epicurus’ basic theses, by virtue of which he stands opposed to both Plato and Aristotle” (2006, p. 260). The reference to Plato and Aristotle, in an argument against Marxist philosophy as a supposed idealist form of “rationalism,” is not fortuitous, for those ancient philosophers are the fathers of the form/matter philosophical duality expressed in their teleological views of nature. In both, despite their differences, we can find a teleological account of nature in which form has the active role of determining passive matter. Materiality is here pictured only as an indeterminate (undifferentiated) substratum without life of its own, an abstract identity, that only becomes something (different of something *else*) when “actualized” by form. The same in Hegel: “[m]atter is the absolutely abstract. (One cannot see, feel, etc. matter; what one sees or feels is a determinate matter, that is, a unity of matter and form)” (2010, p. 392).

It is not a mere accident that the notion of form acquired a divine nature in Plato, Aristotle, and Hegel. Here, in objective idealism, the representation of nature as “unformed matter” is

based upon a highly sophisticated sublimation of human labour, the activity in which an ideal plan/design is realized in the materials given by nature. In this way, Plato’s Demiurge, introduced in his *Timaeus*, is made out of the image of a very human craftsman that shapes its jar out of mud guiding his activity by an ideal scheme that you could never find in the formless mud (see Cornford, 1997, p. 37; Guthrie, 1978, pp. 271-280). Aristotle’s Prime Mover⁷ and Hegel’s World Spirit⁸ play similar roles, as suppliers of nature’s activity and movement towards the ideal (divine) form.

Therefore, objective idealism (in both Plato and Aristotle, despite their differences, and then mainly in Hegel) explains the activity of material objects, the development of nature, through a teleological conception of universal forms as objective and ideal realities. Althusser, in his late days, sees the only materialist alternative to this conception in nominalism and ontological individualism of the kind of Wittgenstein and Russell: “The thesis that there exist only cases—that is to say, singular individuals wholly distinct from one another—is the basic thesis of nominalism. [...] I would say that [nominalism] is not merely the antechamber of materialism, but materialism itself” (Althusser, 2006, p. 265). So, the solution offered by *metaphysical*⁹ materialism to objective idealism’s dualism, as becomes apparent in the person of Althusser, consists of

7. In Aristotle, nature’s “variety of generation and growth depends ultimately on the existence of the Prime Mover, and that for each thing to realize its own form, the good for itself, is to imitate God in its own way” (Guthrie, 1978, p. 265).

8. “The spirit-creator (the absolute, ‘world spirit’) does the same from epoch to epoch, creating his external image to be more and more like himself” (Ilyenkov, 2018, p. 128).

9. “The antinomies could be eliminated in one way only, by discarding from logic exactly half of its categorial schemas of synthesis, recognising one category in each pair as legitimate and correct, and banning the other from use in the arsenal of science. That is what the old metaphysics did. [...] That is why Hegel somewhat later called this method of thinking metaphysical. It was, in fact, characteristic of the old, pre-Kantian metaphysics, delivering itself from internal contradictions simply by ignoring half of all the legitimate categories of thought, half of the schemas of judgments with objective significance” (Ilyenkov, 2009, p. 62).



simply denying ontological status to universal forms, necessity, and finality while proclaiming unconditioned (contingent) causality among isolated individuals the sole objective mode of existence of matter. Here “monism” is not achieved through the resolution of the contradiction (i.e., by conserving the true content of internal oppositions in a higher form) but only by eliminating one of its poles. According to this, there is no contradiction between matter and form, contingency and necessity, or causality and finality, just because such things as form, necessity and finality had never existed.

In other words, Althusser abandoned dialectics and ran into the arms of empiricism and nominalism precisely because he carried Western Marxism’s alienation of nature to its ultimate consequences. In this sense, the late Althusser is the most consequent Western Marxist. However, is nominalism indeed the only materialist alternative to idealism? To answer this question, we must examine more carefully the category of the universal.

CONCRETE VS ABSTRACT UNIVERSALS

We can identify two opposite fundamental conceptions of the universal throughout the history of philosophy. The first one understands the universal as the common law of existence that unifies the diversity of phenomena in the form of a system, an objective totality. Virtually all presocratic materialists, who saw the principle of unity in different kinds of arches, shared this conception. In principle, this also was, although in an idealistic fashion, the position behind Plato’s

Forms and Aristotle’s form-matter immanent relation. This tradition flows into Hegel and Marx’s philosophies, also having conflicting (idealist vs materialist) views on the concrete universal. The second basic conception of the nature of the universals consists of the abstract identity of phenomena sharing common traits under a class, kind or genus. Only individuals have ontological status according to this view. Within this tradition, we can find the Middle Ages’ nominalists, Modern Age’s British empiricism, and contemporary philosophies related to the analytical trend.

This second interpretation, predominant in contemporary common sense, has its philosophical roots in Stoicism. The central statement of the Stoics’ ontology is that only bodies exist, which are always particular things (Sedley, 1985, p. 87; Sellars, 2011, p. 184). Consequently, the universal forms are not in a separate objective world, as they were for Plato; neither do they exist within the individual things, as Aristotle posed; there simply are no such entities. Thus, the Stoics considered universals as “convenient paraphrases,” “linguistic conveniences,” or “fictions” (Long & Sedley, 1987, pp. 181-182) obtained through inductive generalization (Sedley, 1985, p. 89). This view passed to the medieval nominalists, who saw language as the sole bearer of universals. Such a view reached its zenith in British classical empiricism when John Locke defined the universals as creatures or inventions of the understanding based on the *similarity* of things observed by the mind, out of which it creates abstract-general ideals that we evoke with the help of names referring to classes of individual things (Locke, 2005, pp. 404-405). That is why we are entitled to use the expression “abstract universal” to refer to this



interpretation of universality—its main feature is the generic identity among individuals achieved by the subjective operation of abstraction. This definition remained unchanged by Locke’s idealist adversaries, Berkeley and Hume, and has soaked so deeply Anglo-Saxon philosophical tradition that it is characteristic of its contemporary exponents to uncritically identify the universal with the abstract as opposed to the concrete, considered a synonym of the particular (see, for instance, Quine, 2013, p. 215).

The (historically) first conception of the universal, however, was quite different. This conception understands the universal not as the outcome of a subjective operation (abstraction) but as the objective order or “logos,” principle or “arche” behind the development of natural phenomena. The search for one and the same material principle of the unity of nature’s magnificent deployment and variety of phenomena was the main task for presocratic materialism. Despite idealism’s efforts to hide it (see, for instance, Hegel, 2010, p. 124), the ancient materialists such as Thales, Heraclitus or Democritus tried to find this universal principle not in the realm of pure thought, not from outside nature, but within nature, in matter itself (Curd, 2019).

Anaximander’s *apeiron* is nothing but the genetic undifferentiated material stuff out which, through its internally contradictory (dialectical) movement towards progressive differentiation, all the multiplicity of material things come to be (Curd, 2019). As speculative as Anaximander’s doctrine may sound, contemporary medical science has found its “apeiron” in a very real, material object, namely, stem cells. These relatively undifferentiated cells are real, *particular* cells

that might exist side by side with brain, muscle and blood cells. Indeed, they are singular cells that have a very poor resemblance to bone or skin, yet they have the universal potential of transforming themselves into any other kind of cells forming our tissues (brain, bone and skin included). Therefore, all cells of our body refer (are linked) to embryonic stem cells not as the generic abstraction of their common traits but as their common *ancestor*. Here universality is not merely generic (abstract) but the genetic community (concrete union) of the father-son type.

In this regard, Ilyenkov often quotes Hegel’s Lectures on the History of Philosophy’s well-known passage on Aristotle’s concept of the “figure in general”:

It was thus that Hegel saw the point of departure of the paths of dialectical thought (in his terminology “speculative”) and purely formal thought [...]. “Similarly, among figures only the triangle and the other definite figures, like the square, the parallelogram, etc., are truly anything; for what is common to them, the universal figure [or rather the “figure in general” – EVI], is an empty thing of thought, a mere abstraction. On the other hand, the triangle is the first, the truly universal figure, which also appears in the square, etc., as the figure which can be led back to the simplest determination. Therefore, on the one hand, the triangle stands alongside the square, pentagon, etc., as a particular figure, but – and this is Aristotle’s main contention – it is the truly universal figure [or rather the “figure in general” – EVI]. Therefore, Aristotle’s meaning is this: an empty universal is that which does not exist or is not itself a species. All that is universal is in fact, real, in that by itself, without further change, it constitutes its first species, and when further developed, it belongs, not to this, but to a higher stage. (Ilyenkov, 2009, p. 201)



It is crucial to notice that this genetic unity of the concrete universal, by opposition to the abstract universal, is not accomplished through identity but through difference, opposition and, specifically, through contradiction. “Among the attributes of a common ancestor who continues to live among his descendants, one has to presuppose a capacity to give birth to something which is opposite to itself, i.e. a capacity to give birth both to the gangling (in relation to itself) and the dwarfish (again in relation to itself)” (Ilyenkov, 2009, p. 200). Indeed, water (wet, cold) is the direct negation of fire (dry, hot) as much as air (light, dynamic) is the opposite of earth (heavy, static); and yet Thales thought that everything (including fire) comes from water, while Anaximenes that everything (including earth) comes from air (Curd, 2019). Abstract identity is static similarity; concrete universality is dynamic opposition.

This concrete form of unity applies to any organic (internal, necessary) interaction process. Contrariwise, in the classical Newtonian conception, interaction among bodies is usually conceived as a more or less casual, contingent (external) event. The paradigmatic example of this kind of (external) interaction is the crashing of billiard balls on a pool table. The pool balls, put in motion by an external agent, meet for a millisecond and say their respective farewells without worrying about their future as pool balls. They do not need each other. However, the development process of a concrete totality, such as an organism, is carried out throughout another very different kind of interaction. When a hand says farewell to his arm (i.e., when it's chopped off), it rots and disappears as a hand sooner than

later. Interaction between organs always takes place as complementary reciprocity. The heart needs the lungs precisely because these provide the blood what the former cannot, and vice versa. Anyone could tell the same concerning their personal or even romantic relations. “Two absolutely equal individuals, each of which has the very same set of knowledge, habits, inclinations, etc., would be absolutely uninteresting to one another, and the one would not need the other. They would simply bore each other to death. It is nothing but a simple doubling of solitariness” (Ilyenkov, 2009, p. 202). In sexual union, copulation presupposes two complementary opposites, male and female; even homosexuals tend to find in their partners what they need (lack). Indeed, this dialectical (internal) interaction between opposed-presupposed lovers is what is popularly known as “chemistry,” as a chemical attraction.

When two chemical particles, previously apparently identical, are “locked” into a molecule, the structure of each of them undergoes a certain change. Each of the two particles actually bound in the molecule has its own complement in the other one: at each moment, they exchange the electrons of their outermost shell, this mutual exchange binding them into a single whole. Each of them gravitates towards the other because, at each given moment, its electron (or electrons) is within the other particle, the very same electron which it lacks for this precise reason. Where such a continually arising and continually disappearing difference does not exist, no cohesion or interaction exists either; what we have is more or less accidental external contact. (Ilyenkov, 2017, p. 137)

Here, the universal is an entirely material relation, an objective form of interaction inherent to natural-historical processes. In Plato, and perhaps even before



him in the mystical Pythagorean school, this objective universal principle is changed from the material to the ideal realm. However, this does not mean that Plato conceived the universal as the result of a mental operation, nor as similarity or mediocre average among individuals' properties. For Plato, "[t]he generic Form must be conceived, not as a bare abstraction obtained by leaving out all the specific differences determining the subordinate species, but as a whole, richer in content than any of the parts it contains and embraces" (Cornford, 1997, p. 40). Indeed, Platonic forms being ideal, remain concrete. Moreover, they are concrete (real, rich, complex totalities) precisely because they are truly universal. Hence, Plato correctly dismisses the commonsensical identification between material and concrete or abstract and ideal. The concept (the universal in thought) is not an abstract set of traits for some—unknown—reason repeated in a group (class, set, aggregate) of phenomena, but a totality of theoretical relations, a concrete totality of ideal determinations with more "content" than any particular case in which it "participates." That is why Engels (1987, p. 503) liked to say that "[t]he general law of the change of form of motion is much more concrete than any single "concrete" example of it." Nor Plato was wrong insisting on the objectivity of the ideal, for the ideal is not a product of the individual's mind, nor can it be explained from the analysis (either psychological or physiological) of the individual.

Nevertheless, Plato and Hegel are wrong in conceiving socio-historically developed ideas as eternal "absolute" principles that preexisted and shaped material reality. In other words, instead of understanding the ideal forms as human-made objective representations of universal material forms of development, objective idealism sees them

as the source of concrete universality in nature. In this inversion, "the idea," "the concept," appears as the prime cause and the ultimate end of material reality. Thus, according to Hegel, "[n]ature comes first in time, but the Absolute Prius is the Idea; this Absolute Prius is the last thing, the true beginning, the Alpha is the Omega." (1970, p. 211). In other words, "the Idea" (Hegel's deification of human knowledge) is for him the only active and universal principle that animates nature, its "Alpha," its "true beginning;" but also is "the Omega," its end, for the Spirit alienates (reifies) itself in matter only to know itself through the mirror of nature, through "its other being." That's why, when the objective idealist brags about his doctrine as the philosophy of the "identity" of thought and "being," he is really talking about the identity of thought with itself (Ilyenkov, 2009, p. 123).

As we have seen already, idealism is nothing but the sublimation of human activity, particularly of the social activity per excellence, labour, which "enchants" nature with meaning and teleology. Labour is a purposeful activity that, while obeying the laws of nature, imprints on nature the seal of our will. Labour faces blind natural processes among themselves according to an ideal plan. As a result, we produce a second nature in which we live—a complex and irreducible system of non-natural (cultural, artificial) objects that we could never find emerging in nature by itself (i.e., without the intervention of the human hand).

However, does this creative (dialectical) character of labour, the source of idealism's illusions, implies—as Western Marxists affirmed—that nature lacks any historical, contradictory and active character? Does human "praxis" replace Plato's Demiurge and Hegel's World Spirit in their role of infusing nature with the active universal principle

that poor matter by itself lacks? Although we already have seen the falsity of this view while addressing the concept of concrete universality, we can only provide a fuller answer to these questions after a deeper consideration of the notion of finality.

INTERACTION, DIALECTICS AND THE TRUE MEANING OF IDEALISM'S NATURAL TELEOLOGY

Western Marxism's attempt to alienate nature from dialectics negates its intrinsic *historical* development. That nature organizes itself in systems was so well-acknowledged in his time that not even the pompous Jean-Paul Sartre could deny it. "But such systems, [he says], are not really dialectical because these totalities are not totalities which come about, but structures without history and of which exteriority is their law. It is, therefore, the very intelligibility of the dialectic which disappears when one pretends to transport it into nature" (Sartre, 1976, p. 71).

Let us pose the problem as acutely as possible: Is nature a historical reality, as Engels (1987, p. 556) claims or is it just a passive, essentially static realm? With the materialist interpretation of the concrete universal, we already have seen that nature can produce new forms of existence; in other words, nature moves through processes (i.e.,

temporally extended interactions) of becoming, of transformation. However, are we entitled to speak of the historical development of nature? Indeed, the question is pertinent. History is not just a random succession of changes, in which each formation is put side by side without any other relationship than the temporary extrinsically connection of "before," "after," or "simultaneously;"¹⁰ but a relative progression, i.e. a directional process from lower to higher forms of development, from simpler to more complex stages. Even presocratic materialists conceived their concrete universals not only as principles of change but of the generation of order out of chaos, i.e., of development and evolution¹¹. In general terms, tribal communities are not just past social formations but also less developed ones compared with our current modes of production. In the same way, we talk about the embryo's development in the mother's womb, the evolution of the living world or even of the entire universe¹². Are the latter just metaphorical expressions, or is it the case that all these are truly historical processes?

Why is this question pertinent? Idealism's teleology sees the persecution of a conscious finality in all directional processes. Thus, for Hegel, "[p]urpose has resulted as the third to mechanism and chemism; it is their truth" (Hegel, 2010, p. 656). Western Marxism, in its rejection of a

10. "If a deck of cards is shuffled over and over, the sequence of cards changes continually, yet in some sense nothing is happening. One random sequence of cards is much like another, and successive states of the deck cannot be described except by enumerating the cards. For Bergson and Whitehead, for example, no evolution is occurring because there are only successive states of chaos, while an evolutionary process must give rise to new states of organization" (Lewontin & Levins, 2009, p. 12).

11. "The theory of Anaximander seems then to have been that human embryos grew inside the bodies of the early fish-like creatures, and later emerged as fully-formed men and women. His account proceeds in the first place by deduction from the hypothesis that all life had its origin in moist slime acted on by the heat of the sun, this being in its turn only a particular stage in the evolution of the cosmos by the interaction of the opposites" (Guthrie, 1985, p. 103).

12. "Thus, the expanding-universe cosmology, while directional, also has specific historical content, in that the accidental accumulations of matter resulting from the original unique event will remain permanently in existence, held by their gravitational and electromagnetic forces" (Lewontin & Levins, 2009, p. 19).



cosmical mind that infuses meaning to the world, but without giving up on the idea that all historical processes guided by an ideal plan or a “project,” concludes that dialectical development is only a feature of human history and the natural objects affected by it (Sartre, 2004, pp. 182-183). Like Plato’s Demiurge, Western Marxism’s “praxis” impregnates nature with the Forms (“totalities”), and like Aristotle’s Prime Mover, it puts the inert matter in movement.

True enough, we shape our human (social) lives in that (teleological) way. All our actions, at least those that matter, have some purpose. This applies to man not only as an individual but also—and fundamentally—as humankind. Labour, the concrete universal activity throughout which humans create their (social) world, is a conscious and teleological process in which an ideal plan or design precedes its material realization, its product¹³. Therefore, labour’s material product (outcome) is “the being-in-the-other” of an ideal conscious end, a plan, a design that gives direction to the activity. However, this is precisely what all materialism must, by principle, deny to extra-human nature. Indeed, Engels writes:

In nature—in so far as we ignore man’s reverse action upon nature—there are only blind, unconscious agencies acting upon one another, out of whose interplay the general law comes into operation. Of all that happens—whether in the innumerable apparent accidents observable upon the surface or in the ultimate results which confirm

the regularity inherent in these accidents—nothing happens as a consciously desired aim. (Engels, 1990, p. 387)

For Engels (1987, p. 323), a teleological account only meant the absence of a proper scientific explanation for unanswered problems of natural phenomena. However, if that is Engels’ position, why do Western Marxists accuse him of pantheism or hylozoism? Only because Engels conceives nature as a historical realm of active processes, i.e., as a system of systems with the inherent capacity of creating higher (more complex, ordered and multifaceted) forms of existence out of simpler forms of interaction to which they cannot be reduced¹⁴. From the perspective of objective idealism, the spontaneous transition from an inferior to a superior form (e.g., from inanimate matter to living creatures) seems to be a miraculous violation of the famous *ex nihilo nihil fit* (nothing comes from nothing) principle. For there is nothing alive in chemical or physical interaction out of which one can derive a bacteria, let alone a human being; just as there was no alcohol or sweet flavour in the water out of which Jesus made wine during the marriage at Cana. Thus, it is reasonable to suppose that such development must have been concealed in the form of a concept, an ideal design that expresses itself through the lifeless matter, just as the jar’s model manifests itself through the mud shaped by the craftsman. Have you stopped for a moment to marvel what a wonderful thing a jar is? Each part

13. “A spider conducts operations that resemble those of a weaver, and a bee puts to shame many an architect in the construction of her cells. But what distinguishes the worst architect from the best of bees is this, that the architect raises his structure in imagination before he erects it in reality. At the end of every labour process, we get a result that already existed in the imagination of the labourer at its commencement. He not only effects a change of form in the material on which he works, but he also realises a purpose of his own that gives the law to his modus operandi, and to which he must subordinate his will” (Marx, 2010, p. 188).

14. “Motion in the most general sense, conceived as the mode of existence, the inherent attribute, of matter, comprehends all changes and processes occurring in the universe, from mere change of place right up to thinking” (Engels, 1987, p. 362).



of a jar serves a purpose—the handle is there for us to handle it, the foot's base is there for it to stand, and the lip at the top of it is intended for us to protect its liquid content in a controlled waterjet towards a cup. You can sit and wait forever, observing a mud puddle (a piece of metal, a bunch of glass, plastic, wood, etc.), and it will never transform itself into a jar.

Like a jar, an organism is not a product of a random (blind, unguided) combination of parts. Here too, it seems we need the intervention of a conscious being who shapes our body according to an ideal plan. How can we explain that our eyebrows seem designed to prevent the sweat on our forehead from falling into our eyes without recurring to a designer's intervention? Indeed, the incapacity to explain the spontaneous apparition of *higher* (not just new) forms of movement and organization provided with these quasi-intentional functions is the Achilles heel of mechanistic materialism, from which mystical idealism profits.

Supporters of intelligent design argue that many features of the natural world, particularly biological structures, are too complex to be explained by naturalistic causes and, thus, can only be explained as products of an intelligent designer—i.e., God. Stephen C. Meyer [...] claims that DNA is like a software program or “an advanced form of nanotechnology” and that a programmer must have written such a complex “program.” [...] Such intelligent design proponents center their attacks on Darwin and the theory of evolution, attempting to show that the intervention of an intelligent designer or deity is necessary to explain numerous natural phenomena—and thus, evolutionary theory as a materialist explanation of biological development is wrong. (Clark et al., 2007, p. 516)

In ancient times this was a hot topic of discussion among the Epicureans and the Stoics (see Long & Sedley, 1987, pp. 57-65). In direct opposition to the Epicureans, who believed that all things (including living organisms) are the outcomes of spontaneous, accidental combinations of atoms, the Stoics held a providential and teleological account of nature. For the Stoics, the mind of God is an active body that permeates and commands the entire world according to its divine (perfectly rational) plan. “Their world is no unplanned accident of matter in motion. It is the result of a systematic plan that divinity thinks up and fulfills by energizing and organizing matter” (Long, 2006, p. 5). Within the Stoic conception, this universal divine reason takes the form of a providential designer that introduces purpose into all the natural things. Such a divine (perfectly rational) design was the basis of their fatalism. For the Stoics, “Fate (Fatality, Destiny) in a structure of universal determinism: everything is determined, there is no contingency, chance, the possibility of fortuitous events” (Cardona, 2015, p. 59).

Unlike the Stoics' intransigent determinism, Engels granted ontological status to chance. He thought that chance and necessity transform into each other within nature—necessity always expresses itself through contingency (Engels, 1987, pp. 498-501). In this conception, the laws of nature never take place in their pure form but as objective tendencies, as imperfect regularities of the transformation processes of reality. All regularities we can find in nature have a history—the history in which something accidental transforms itself into something necessary. “It has always happened in history that phenomena that subsequently



became general arose first precisely as individual exceptions to the rule, as anomalies, as something particular and partial. Hardly anything really new can arise in any other way” (Ilyenkov, 2009, p. 213). In other words, the regular and the irregular, the simple and the complex, are relative principles constantly transforming into each other.

Since it denies the divine design of nature, recognizes the objectivity of chance, and emphasizes mutual interaction, Engels’ conception seems to share more with Epicurus¹⁵ than with the Stoics. However, we should also notice a vital distinction here. While, for the Epicureans, “[life] and mind are not basic to the world, but emergent properties of particular types of atomic conglomerates” (A.A. Long, Long, 2006, p. 4), for Engels, those are inalienable (necessary) properties of nature conceived as a whole¹⁶. Indeed, even for eighteen-century metaphysical materialism, the rejection of teleology meant that nature’s developments, such as the apparition of the thinking brain, were pure aleatory events, even if step by step causally determined¹⁷. Hence, although Engels disagrees with the Stoics’ notion of the “everlasting recurrence”¹⁸ without the slightest variation in its numberless cycles, he is on their side when they claim that mind is not a mere (expendable) accident within the flow of nature

but an immanent and necessary attribute of it¹⁹. This does not mean that the mind has to be present in each part of the world (panpsychism), but that nature, as a whole, must necessarily produce mind in some random point of space and time (see Engels, 1987, pp. 334-335). However, precisely what consists of this “necessity”? How does the emergence of new and more complex forms of organization of matter appear not just as happy coincidences but with “iron necessity”? Moreover, how is this realized without the intervention of a conscious guiding hand?

Dialectical thought found the answer to those questions in the category of interaction—“reciprocal action is the true *causa finalis* of things” (Engels, 1987, p. 512). As we have seen with our pool balls and chopped hand examples, reciprocal action can only fulfill this (dialectic) role as internal interaction of a concrete totality.

It is true that Hegel’s dialectical conception of the concrete universal glimpses this solution (see Lukács, 1978, pp. 93-94). However, Hegel’s insight into the dialectical implications of interaction is quickly buried under his idealism. Interaction is seen by him not only and not mainly as an activity of matter itself but, first and foremost, as the movement of judgements, concepts and syllogisms

15. “[Epicurus] combined an emphasis on contingency and complexity in emergent organization that provided a powerful materialist alternative to teleological conceptions of the world” (Clark et al., 2007, p. 525).

16. “[We] have the certainty that matter remains eternally the same in all its transformations, that non of its attributes can ever be lost, and therefore, also, that with the same iron necessity that it will exterminate on the earth its highest creation, the thinking mind, it must somewhere else and at another time again produce it” (Engels, 1987, p. 335).

17. See (Engels, 1987, p. 490).

18. This idea refers to a cyclical process of destruction-creation in which the entire universe reboot itself over and over again, reconfiguring each time its intrinsic structure according to the same (rational) laws. “The present world-order will end in a total conflagration, activated by the sun, but will then be reconstituted again as the conflagration subsides. On this conception [...], the universe is a cyclical process which alternates for ever between an ordered system, of which we ourselves are parts, and a state of pure fire, or ‘light’ in Chrysippus’ interesting formulation” (Long & Sedley, 1987, p. 278).

19. On this topic, see my discussion about Engels’ influence upon Ilyenkov’s cosmology in (Piedra Arencibia, 2021, pp. 15-19).

(Hegel, 2010, p. 656).

It was through Marx's and Engels' dialectical materialism that the concept of interaction definitely stepped out of mystical teleology, providing "a rational explanation of the fact that any given stage of development (any state of affairs) contains within itself, as if in an "embryo," the objectively determined and therefore scientifically determinable future" (Ilyenkov, 2018, p. 206). In nature (i.e., without any conscious intervention), this is done by the emergence of a new form of interaction that subordinates the precedent forms of interaction as a subsystem of its peculiar development. The new and higher form of interaction prevails in time as a relatively autonomous process, even if at any time it presupposes the lowest levels of reality as its preconditions. For instance,

The original protein body, the cell of life, emerges completely independently of any biological processes as a product of the chemical process, and additionally, it is an extremely unstable product from the chemical point of view. [...] But inside any living body exists a necessary combination of such conditions as the organism itself is actively transforming substances that get into it from the outside, without waiting, while the chemical environment that exists outside and independently of it produces a living molecule of protein. (Ilyenkov, 2018, p. 193)

In a concrete historical process, a new and higher form of interaction always emerges based on specific preconditions created by the processes that precede it in time. However, the new formation does not remain the passive result of its preconditions; it becomes an active producer of such conditions that now appear as its means of

existence. In this way, the higher form of matter's organization can spontaneously transform itself into the end, the goal of the interaction between itself and its preconditions. Here lies the real fact that is mystified (and misunderstood) by idealism's teleological conception of nature—the dialectical "twist" or transformation of the cause into the effect and of the effect into the cause that occurs throughout the process of a concretely universal interaction of a developing system.

The environment is not a structure imposed on living beings from the outside but is in fact a creation of those beings. The environment is not an autonomous process but a reflection of the biology of the species. Just as there is no organism without an environment, so there is no environment without an organism. [...] Not only do organisms determine their own food, but they make their own climate. [...] Organisms are both the consumers and the producers of the resources necessary to their own continued existence. [...] The most powerful change of environment made by organisms is the gas composition of the atmosphere. The terrestrial atmosphere, consisting of 80 percent nitrogen, 18 percent oxygen, and a trace of carbon dioxide, is chemically unstable. If it were allowed to reach an equilibrium, the oxygen and nitrogen would disappear, and the atmosphere would be nearly all carbon dioxide, as is the case for Mars and Venus. It is living organisms that have produced the oxygen by photosynthesis and that have depleted the carbon dioxide by fixing it in the form of carbonates in sedimentary rock. A present-day terrestrial species is under strong selection pressure to live in an atmosphere rich in oxygen and poor in carbon dioxide, but that metabolic problem has been posed by the activity of the living forms themselves over two billion years of evolution and is quite different from the problem faced by the earliest metabolizing cells. (Lewontin



& Levins, 2009, pp. 99-100)

First, a higher level of development appears as an anomaly, an exception to the rule within the (previous) levels of matter's forms of movement. "Further process, from this point of view, looks like the transformation of this form of interaction from potentially dominant, potentially universal into actually dominant, actually universal" (Ilyenkov, 2018, p. 206). How the new form of interaction becomes not just a casual, isolated event but a genuinely universal form? By producing and reproducing its own conditions, integrating and subordinating the logic of functioning of its constituents into its own. In this process, the parts of the dialectically emerged system appear as its "moments," as abstract aspects of a concrete whole that grants them their distinctive role. Hence, explaining a particular phenomenon means defining its specific place or function in the totality that determines its emergence, development, and demise laws.

The specific functioning logic of the higher form of interaction is not reducible to the logic of its components. Societies consist of human beings; as living creatures, they are composed of cells, cells are composed of molecules, these, in turn, are made out of atoms, and so forth. However, you cannot understand society by studying human individuals separately, let alone by considering their cells, molecules or subatomic particles. Each of these levels of matter's forms of organization has its own (specific) logic of functioning that is integrated and subordinated by each higher form. We could describe the fall of the Berlin wall with the help of Newtonian mechanics: "the momentum conferred by the strike of the hammers to the bricks of the wall made it fall." But

do we really explain that socio-historical event with such a description? Of course, without Newtonian mechanics or even without gravity, the wall cannot fall at all, but these natural laws appear here merely as subordinate forms under the determining socio-historical process. So, to understand that social event, one must not study Newton's *Principia* but the history of the URSS and Eastern Europe's socialism.

This is also why neuro-physiological reductionism is incapable of explaining thought. As Engels puts it: "One day we shall certainly 'reduce' thought experimentally to molecular and chemical motion in the brain; but does that exhaust the essence of thought?" (Engels, 1987, p. 527). Human thought, the ideal, the higher form of matter's interaction, is incomprehensible from the naturalistic point of view because it is not a natural but a social process, the process of human activity in which the forms of things are transformed into the form of the subject's activity (subjectivized), and, vice versa, the forms of the subject's activity are transformed into the forms of things (objectivized). The brain is just a prerequisite for the emergence of the ideal, not its cause, let alone the material (physiological) processes occurring inside it are the ideal itself. Thought requires, as its pre-history, the natural formation of a healthy and highly developed organism. This "pre-history," of course, is the result of purely natural (development, evolution) processes both of the individual (i.e., ontogenesis) and the species (i.e., phylogenesis). These natural formations are, thus, an absolute *sine qua non* (mandatory but not specific) condition for the emergence of thought. They provide the possibility of its appearance but not its sufficient (specific) cause. The necessity of

emergency of thought is not the outcome of those natural processes but of the socially mediated practical (material) interaction of man with nature, i.e., labour (see Piedra Arencibia, 2018). Thought appears fused with this activity, or more precisely, initially is nothing but such a practical activity—the original form of thought is practical thinking (Vygotsky, 1999, p. 5). However,—and this is the exciting part—as organs of labour, our bodily organs do not remain as unchanging conditions. Once incorporated as an organ of labour activity, our entire body, including the brain, undergoes a profound transformation—it becomes a human body, a human brain (see Engels, 1987, pp. 452-456). Here too, the condition becomes the product. Men need their bodies to work upon the bodies of nature, but through this activity, they transform (shape) not only the external bodies but also their own. Thus, even the erect posture that liberates our hands for all our daily manual tasks is not a natural (innate, species determined) formation (see Candland, 1993) but a culturally (unnaturally) determined one that comes with the (biological) cost of additional pain and difficulties for women during child delivery (Grant & Woods, 2003, p. 60). In this sense, it is not the brain that produces thought; on the contrary, thought produces the *human* brain.

In short, in any concrete development process, the necessary conditions for the emergency of the new formation become its consequences. The higher emerged form begins “putting” itself as a differentiated self-regulating entity qualitatively distinct from those conditions it has integrated into its own logic of functioning as the organs of its self-development. Thus, “[t]his dialectical “turn” from conditioned to conditioning, from effect to

cause, from particular to universal is the characteristic sign of internal interaction, thanks to which real development takes the form of a circle, and more precisely, of a spiral, which at each new turn expands, on an ever-increasing scale, its own movement” (Iliénkov, 2017, p. 168).

CONCLUSION

Reductionism is incapable of seeing in the whole anything else but an aggregate of parts, externally (casually) interacting among each other; dialectics sees in the whole a concrete totality in historical (directional) development, which establishes itself as the law, the goal, the end of its subordinated (conditional) forms of interaction. In this *quid pro quo* between the outcome and the source, effect and cause, causality and finality, object and subject lies the secret of the “smartness” of matter.

Concrete universality is the form of internal interaction within—and between—totalities in historical development. The universal character of such totalities lies not in the abstract identity of similarities among individuals but in the real genetic link of its becoming process. The “goal” in such a natural process is posed by itself as the form in which it realizes its concrete universality, its internal and specific law of dialectical interaction that actively produces its conditions as the means of its own development. Here lies the real fact, mystified by the teleological conceptions, which deify the active principle of universal forms through Plato’s “Demiurge,” Aristotle’s “Prime Motor” and Hegel’s “World Spirit.” Moreover, here also lies the fundamental fact unnoticed by inconsistent (e.g., Western Marxism’s)



“materialism.” However, mystically expressing a real fact is 100 times better than simply ignoring it. That’s why we find more materialism in highly intelligent idealists like Plato, Aristotle and Hegel than in silly “materialists” such as Althusser, Schmidt or Sartre.



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