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THEODOSIUS DOBZHANSKY AND THE EVOLUTION OF HUMANITY: A DIFFERENT APPROACH

Abstract:

The text is a plausible presentation and critical review of the main work of Theodosius Dobzhansky: "Evolution of Humanity". It tries to show and proves that Dobzhansky tries and largely succeeds in offering a different, let's say, dialectical interpretation of the biological evolution of humanity, i.e., the stages and differences in the evolution of the human species and race. Following in the footsteps of, but also in contrast to, traditional Darwinism and some similar evolutionary theories, Dobzhansky insists on the claim that evolution, primarily biological, is not over, but that it is still going on, despite human, i.e., a cultural intervention, namely simultaneous and together/conjunctive with it, which seeks to influence and change the directions of the existing natural flows and processes. During the multi-millennium history, biology and culture became interdependent and interfering, with which man (woman and man) with his appearance asserted himself as the main and most responsible factor/agent of the fate of the human race and the survival of the human community/human species, namely survival of oneself, but also of the totality and entirety of the planetary biodiversity, as a necessary prerequisite for one's own survival and existence.

In his research on the evolution of humanity, Dobzhansky starts from the inspiring views of some famous predecessors, such as Pierre Teilhard De Chardin, but we can argue that Dobzhansky influenced many of his contemporaries, including Noam Chomsky, especially when it comes to linguistic research on the genesis and emergence of human language, and the influence of transformative-generative grammar on the development of the human mind, i.e., on the development of the human brain.

At the same time, we can state that Dobzhansky's research and insights correspond and coincide with the research and ethical attitudes of some modern bioethicists, philosophers of biology and culturologists, as well as with the attitudes of many like-minded people and followers.

Keywords: *evolution, biology, culture, language, human, humanity.*

> *Man's effort to know oneself is often thwarted by his tendency to self-deception. The industrial revolution did not benefit everyone equally. In nineteenth-century European and American cities, poverty and filth coexisted with growing comfort and luxury. This is nothing particularly new because differences in material and social status have increasingly become part of the social scene since simple economies based on food gathering and sparse population gave way to more complex economic solutions and population growth. What was really new was the fragmentation of the world into colonial empires. The majority of the world was turned into 'subjugated races', which had to be spiritually and morally built up and even civilized; the pedagogic method was that the slaves were forced to work for the benefit of the white masters. If because of this some people felt some remorse, a church song solved the problem: 'The rich man in his castle, the poor man at his gate, God made them, high or lowly. He ordered their estate.'*
>
> (Dobzhansky, 1982:22)

Despite the fact that Theodosius Dobzhansky (1900-1975) is the backbone and main object of our scientific-philosophical research interest, we will start from an author from whom Dobzhansky himself starts as his follower, which is Pierre Teilhard De Chardin and his famous theory of the evolution of the universe. (Ayala, 1985: 163-165) With his discursive analysis, but even more so with his sense and sense of harmonious synthesis, Chardin makes a great contribution to contemporary science, philosophy and critical theology, in their efforts to constantly question, rethink and re-evaluate many of the most essential and important problems and controversies of human existence and its contemporary "phenomenology". Existence, that is. man, is exalted and intoxicated in an anthropocentric rapture/trance for his supposed own exclusive and priority place in the totality of the cosmic/universal "law and order". He, man, "forgets" (Heidegger) that he is only a changing and transitory part of that particular totality, as a part of a whole, and which - unlike the infinity and "immortality" of the totality and its wholeness - remains mortal, finite and transitory creature. Man is born, lives and dies like all other biological species and races, regardless of his "transcendent" desire/will/ambition i.e., **faith** in the immortality of the soul, or, even more, "faith" in the immortality of the spirit.[1] (Dobzhansky, 1982: 283-319; Jaspers, 1960: 51-52)

[1] Admittedly, this is a kind of materialistic interpretation of Hegel's philosophical system and his "The Phenomenology of Spirit"!

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In the next part of our short text, we go directly to Dobzhansky and his main, most extensive and synthetic work, *Mankind evolving* (1962), but with the important note that we will list Chardin's most important thoughts, with which Dobzhansky often starts and continues to develop, and which are the most sublimated and focused and summarized in a few of his sentences, quoted from his most famous work, *The Phenomenon of Man*:

> "Man is unable to see himself entirely unrelated to mankind, neither is he able to see mankind unrelated to life, nor life unrelated to the universe. Thence stems the basic plan of this work : Pre-Life : Life : Thought - three events sketching in the past and determining for the future (Survival) a single and continuing trajectory, the curve of the phenomenon of man."

> "(…) In fact, I doubt whether there is a more decisive moment for a thinking being than when the scales fall from his eyes and he discovers that he is not an isolated unit lost in the cosmic solitudes, and realises that a universal will to live converges and is hominised in him.In such a vision man is seen not as a static centre of the world - as he for long believed himself to be - but as the axis and leading shoot of evolution, which is something much finer." (Underlined by - D.S.) (Chardin, 1979: 16-17; 256)

Dobzhansky starts from the spirit of these conclusions and continues to research the evolution of humanity, and above all he starts from the realization that **human biological evolution is not finished, nor interrupted**, but that it continues and **lasts** uninterrupted. Henri Bergson would call it "real creative duration" (durée), and Erich Fromm would call it the "continuous self-birth" of man. However, unlike Chardin, Dobzhansky is more critical and socially engaged in his **critique** of civil society and its vast social, class and **racial** differences, which this society has created throughout history, especially in the modern period of capitalist expansion and "progressive" **imperial** conquests, and where it is obvious that he is under a great and positive influence of Critical Theory (Frankfurt School), Marxism and Leninism. (Allen, 2016)

Including **Charles Darwin, Dmitri Mendeleev, Ivan Pavlov**, and many others, these various influences make the presentation and critical review of Dobzhansky's life and work even more difficult, so we will be satisfied if in the continuation of our short text we manage to address only on some main, key aspects and dimensions of his huge scientific opus, mostly relying on his main work – *Mankind evolving*.

Namely, Dobzhansky starts from the discoveries of comparative anatomy, from which it is clearly seen that the structure of the human body is built according to the same general "plan" as the structure of the bodies of other living beings (animals), especially when it comes to vertebrates, primates and the apes. This was already clear to Aristotle, Dobzhansky states, so we can consider

Aristotle as a kind of originator of the theory of evolution of the living world, including the evolution of **man** (Dobzhansky, 1982: 185 -186). Of course, it is obvious that man differs from similar mammals, but that difference, Dobzhansky believes, is more of a quantitative than a qualitative nature, because every bone in the human skeleton is **homologous** to the bones of the skeleton of the ape and ape-man, although they may differ from each other in shape and size. This common evolutionary origin can also be seen from the discoveries of embryology, physiology, genetics and serology, because the mechanisms of reproduction, transmission of inheritance and bodily functions are truly universal, despite being diverse and with many variations. (Dobzhansky, 1982: 188-191; Aćimović, 2009: 407-408)

So, all living things, starting with bacteria, through all stages of plants and animals and ending with man, have genes, so "the most impressive proof of the unity of life" is that the genetic code throughout the living world is composed of only four letters of the genetic alphabet. According to Dobzhansky, the overall biological evolution lasts about two billion years, and it took place at the level of genetic "words" and "sentences", without the addition of new ones and the loss of existing "letters", and this is the most immediate evidence that "life arose only once, and that all beings are descended from that one event, or that the existing genetic alphabet proved more successful than the rest, and that it alone survived." This makes it clear why the human genetic coil uncoils all the way back to primeval life forms, meaning that "all living things are related to us." (Dobzhansky, 1982: 191) (Underlined by - D.S.)

And when we are talking about **language**, then it is inevitable to state that every serious philosophical debate about the essence and genesis/evolution of language leads and refers to the researches of **Noam Chomsky**, regardless of whether we agree or not with the findings and attitudes in his famous linguistics and transformational-generative grammar. Namely, the positive influence of Dobzhansky on Chomsky is obvious, regardless of the fact that, at least to us, we do not know if anywhere and ever Chomsky publicly emphasized this influence. So, this is just our brief excurse and our assumption, and the philosophical analysis of language and its influence on the development of the human mind, i.e., the human brain, which Chomsky makes and which coincides with the analyses and researches of Dobzhansky, deserves a special review and a comparative analysis (Chomsky, 1972).

We continue with Dobzhansky and his historicist approach in researching the emergence of man from primates, but with the important caveat that all primates, except man, are tropical animals, of which the great apes are from the family Pongidae in Africa (chimpanzees and gorillas) and from Southeast Asia (gibbon). However, Dobzhansky still admits that it would be too forced to say that only these are the only human ancestors, or that this or someone else is the main ancestor of man and the human race in general. So, we have to be satisfied only with various and complicated biological and cultural **(hypo)theses** about the origin of man, each of which contains elements of truth in itself, because it

is supported by **fossil** remains, but for no fossil remains can be safely argued that it is the key and decisive factor in the explanation of the appearance of man. (Dobzhansky, 1982: 185-217) When all this is taken into account, all the complexity and heterogeneity of **the main biological-culturalogical thesis** of his work *Mankind evolving* becomes a little clearer:

> "The thesis of this book is that man has both a nature and a "history". Human evolution consists of two components: the biological or organic, and the cultural or supraorganic. They are not mutually exclusive, nor are they mutually independent, but are interrelated and interdependent. Human evolution cannot be understood as an exclusively biological process, nor can it be adequately described as a history of culture. It consists in the mutual interaction of biology and culture. Biological and cultural processes are in a feedback loop." (Dobzhansky, 1982: 30)

When starting from this main biological-cultural thesis of Dobzhansky, it is easier to understand his attempt to make a conditional chronology of some human and pre-human fossils, and to present them on an overview table according to historical stages, starting with the semi-ape and ending with the appearance of the first ***Homo***... Of all known *Homo*, first comes *Homo erectus*, known as Heidelberg man, then comes *Erectus erectus*, known as Peking man[2], then comes *Homo sapiens*, commonly known as Neanderthal, and finally comes *Homo sapiens sapiens*, commonly known as Cro-Magnon, and from whom modern humanity is descended, arose in the post-glacial phase of the present epoch from the end of the Quaternary period (approximately several tens of thousands of years ago). (Dobzhansky, 1982: 197)

However, warns Dobzhansky, the problem is that it is not entirely certain whether the evolution of hominids can be shown as a cladogenetic tree of the animal kingdom. If it is judged only according to the principles of finality and irreversibility of the course of evolution[3], then a cladistic tree of hominids can be made, but this does not support the datafound in fossils, according to which no properties and specificities can be found in modern man, which existed in some other and older hominids. Therefore, in man's evolutionary genealogy these older hominids are not his direct ancestors, but his collateral/lateral relatives, but not ancestors. Various, divergent and even absurd theses and theories are derived from these findings. And yet, according to the theory that is probably correct, modern man is the product of **parallel development of several evolutionary lines**, in which each representative of the hominids is a necessary link in the chains/ranges of the creation of man. (Dobzhansky, 1982: 211-217)

Finally, the human race, *Homo Sapiens*, which is a representative of one biological species, concludes Dobzhansky, could not have arisen by the fusion

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[2] in the discovery of which Chardin played a big part!

[3] similar to that of Chardin.

of two or more species, regardless of the possible degree of parallelism of their development. Like any sexually reproducing organic species, man is a genetically closed system, which means that genetically efficient interbreeding is not possible between him and other species. Expressed in the language of modern biology, this means that a common gene pool is available to man, but also that he is the one with a special gene pool reproductively isolated from the rest of the population. This is because **races in humans are open genetic systems**, which means that at a certain stage of evolutionary divergence of the population, the genetically open system at the species level becomes a genetically closed system, and which means that with the achieved reproductive isolation, i.e., with the closure of the genetic system, evolutionary divergence becomes an irreversible process. In truth, Dobzhansky agrees that there is reversibility of the currents of evolution, **but only at the lowest level**, at the level of mutations, e.g., in bacteria, or under the influence of natural selection, but here also only at the level of microevolution. The higher the currents of evolution, of the meso-evolutionary formation of races, species, and of the macro-evolutionary formations of genera, races, families, orders, all the way to kingdoms, **evolution cannot be diverted/reversed**, or those diversions/reversals are negligible; it is irreversible because the genetic changes are almost insignificant. That's why Dobzhansky talks about species as evolutionary units that move along separate evolutionary paths in their further full formation. (Dobzhansky, 1982: 193-195; Aćimović, 2009: 410)

In the continuation of our short text, we will skip those stages of the evolution of hominids that are already generally known, recognized, and accepted almost with acclamation[4], and we will move on to a presentation and review of Dobzhansky's analyses of the evolution of **human spiritual powers** and their predecessors.

So, we move on to what we name today as **culture**, and which in contemporary **social philosophy**, especially German, is increasingly subsumed under the term ***second nature***[5]. In fact, the term *second nature* as an implicit term begins to be used in Antiquity (Democritus), so through various historical stages of the development of philosophy, it is explicitly used until today. And as things stand, especially due to the positive development of **bioethics**, the term *second nature* will be used more and more in the future. This is primarily because this **ethical** discourse raises again the question of **understanding** the relationship of our natural/biological assumptions/predispositions for moral/morality[6] and the existing nature of our social/ethical life, i.e., the relationship of our first nature and our second nature, and where again the great influence of **Hegel's philos-**

[4] from Australopithecus, through Homo erectus and Homo sapiens soloensis, to Neanderthalensis.

[5] German: Zweite Natur.

[6] German: Sittlichkeit.

ophy of right and its famous "realm of actualized freedom" is seen[7] (Dobzhansky, 1982: 193-217; Christ/ Honneth, 2017).

What significantly impacted *Homo sapiens* and his "socialization" and acquisition of properties according to which it is recognizable and different from other living beings, according to the understanding of the majority of biological anthropologists, refers to the posture of the body, upright walking and movement, the use and the continuous improvement of tools and means of work and production, the integration and grouping into family communities and the emergence of the monogamous family. What then follows as factors are the size and differentiation of the brain, the instincts, the drives and the processes of their "cultivation", beginning with the sexual and ending with the "instinct for cleanliness" and the maintenance of personal and domestic hygiene, etc. Then, as an extremely important factor in human evolution, follows the **learning** process, which, unlike animals in humans, is to a large extent a product of **culture** in the process of socialization in early childhood, and in whose research, Ivan Pavlov has great merit, Dobzhansky assesses, and not only because of the popular "conditioned reflex", but also because of other significant discoveries, which, unfortunately, are still not well known. (Dobzhansky, 1982: 233-235)

Finally, we arrive at the crucial point in the evolution of humanity, according to Dobzhansky, which is the emergence of the **symbol, language**, and then the **game, art** and **aesthetics**.

When we talk about **symbols** and **language**, Dobzhansky ironically states that scientists did "mental gymnastics" when they put together formal definitions of human evolution, which, fortunately, was not dominated by biologists, whose definitions of man were never completely and generally accepted. So, man is described as a political animal[8], then as a tool making animal, then as a symbol maker (animal symbolicum), then as a son of God, a god-maker, and finally as an animal rationale, etc. etc., and each of these definitions had its own application. However, Dobzhansky claims, symbol-making and the use of the language of symbols stand out and represent the most special and specific human powers, despite the fact that they are to a certain extent hinted even below the human level. Here, when he talks about **the language of symbols**, and his role in the creation of civilization and the various **metaphysical systems**, which are most often confronted, Dobzhansky acknowledges the merit of Ernst Cassirer and his symbolic system, but at the same time warns that "Ivan Pavlov, much earlier than Cassirer expressed the same idea, talking about the 'second signal system', composed of symbols in the form of words, which is in man, and only in man, added to the first signal system - the conditioned reflexes" (Dobzhansky, 1982: 235). Dobzhansky makes a similar statement about the famous American culturologist **Leslie White**, who is the most deserving of the

[7] Later, Marx also talks about the same "realm of freedom" that will appear in the communist society.

[8] starting from Aristotle's famous philosophical/ethical concept of zoon politikoon.

introduction of the term "culturology" into the categorization apparatus of the social sciences and humanities, but who, according to Dobzhansky, goes too far when he claims that "human behaviour is symbolic behaviour, and symbolic behaviour is human behaviour"(Cassirer, 1998: 46-48; Dobzhansky, 1982: 235-236; Sokolov, 2001:10; White, 1949).

When he talks about the concept of **game**, Dobzhansky starts from the generally known and recognized knowledge that the human nervous system is not only hungry for food, liquid, air, the satisfaction of sexual needs, the need for motherhood, or the satisfaction of the needs of some bodily organs, but that man has a "hunger" and a need to satisfy much more subtle and sophisticated needs than those who have internal digestive organs. So that, when he talks about the phenomenon of game, Dobzhansky starts from the old and banal truth that man does not live only by bread, and is not hungry only for bread, but that he also needs to satisfy his "hunger" for something "more beautiful", "higher", something that gave rise to the popular ancient Roman metaphor "bread and games" (panem et circenses), and which is attributed to the ancient Roman poet Juvenal.[9]

Despite the fact that the literature on the game and the aesthetics of the game is too rich, Dobzhansky states, it is difficult to give a precise definition of **the term game**. Taken as a whole, game is a "self-rewarding activity", as Dobzhansky calls it, the performance of that action is a reward in itself (we would add a goal), and it mainly occurs in vertebrates, especially in higher mammals and birds, and the behaviour of invertebrates is too stereotyped to be considered a game. Man is, therefore, mostly described as an animal that likes to play the most, and such descriptions became most popular, according to Dobzhansky, with the anthology work *Homo ludens* (1939) by the famous Dutch historian and philosopher of culture **Johan Huizinga**. In any case, Dobzhansky concludes, "playing and games belong to cultural universals in all of humanity." (Dobzhansky, 1982: 241)

Finally, it is even more difficult and ungrateful to talk about art and aesthetics, especially when their roots, genesis and inspiration are sought and found in biology, i.e., in zoology and botany (meaning "from below"), as opposed to the usual, accustomed and traditional approach to art and aesthetics as "spiritual" phenomena, tied to the appearance of man/people (meaning "from above"). Aware of the danger of naturalistically reducing art to an epiphenomenon of natural evolution, in which man would be lost in the sea of the rich and enchanting colour of biodiversity and the ecosystem as a whole, Dobzhansky starts from the statement that despite the fact that the game and some other "proto-aesthetic" phenomena certainly occur in many animals, art and aesthetics are usually considered exclusively human property. The sense of beauty and

[9] Otherwise, except in a positive, cultural/aesthetic context and meaning, which is also our primary interest, this beautiful metaphor, unfortunately, is mostly used in a political context, with a negative meaning and connotation, but the political context is not our primary interest in this short scientific text, so we pay no attention to it.

the love for care, then the creation and performance of what is perceived as "beautiful", belong to those properties that **constantly elevate man** above ordinary and mindless beasts. Due to it, and because of that, Dobzhansky adds and concludes, "the problem of the origin and biological significance of art and aesthetics in human evolution is particularly challenging." (Dobzhansky, 1982: 242-243) (Underlined by - D.S.)

Any further detailed cultural analysis of the concept of art and aesthetics, which is so exhaustively presented by Dobzhansky, requires and deserves a **special philosophical review**,[10] and we will continue this short text and end it with his original synthetic conclusions about the evolution of humanity, as a far wider and multidisciplinary subject. Of course, his detailed and extensive analyses of similarities and differences in the growth and development of **polymorphism, classes, castes and races** deserve special attention (Dobzhansky, 1982: 247-385). Not to mention that his researches on the relationship between evolution and the development of **consciousness** and **self-awareness** in man, as well as the relationship between evolution and **ethics**, deserve the greatest philosophical attention in any of our possible next texts, considering that Kant, among others, more than two centuries ago, he pointed out that ethics, like art and aesthetics, is exclusively a **human property**. (Dobzhansky, 1982: 376-378; 383-385)

Namely, if humans are biologically so **similar** to animals, or **almost** the same as animals, then it is learning, symbol and language, game, art and aesthetics, consciousness, self-awareness and ethics that so visibly **distinguish** them from animals, and that which constantly and continuously creates, develops and changes different social and cultural forms and patterns. So, bilaterally, comprehensively and **dialectically** observed, social/cultural evolution is conditioned by biological evolution, and **once created**, cultural evolution stands in **dialectical** interdependence/interaction with the biological evolution of humanity. In other words, **both evolutions** stand in mutual conditioning, which with today's physicalist language we could call some kind of interference or feedback. We can observe this evolution of Homo sapiens starting with the upright walk and the use of tools, then through family integration as a primary social process, and ending with human **spiritual powers**, personified in magic, rituals, myths and religions, as processes of **cultiviralisation**. (Dobzhansky: 1982: 13, 218-246)

Finally, and again, **man** in the evolutionary sense, Dobzhansky constantly and persistently emphasizes, **is not a finished species**, neither biologically, nor culturally/spiritually, so, as before, and from now on, we have an **infinite path** ahead of us. (Dostoevsky) The human race is **biologically** extraordinarily successful precisely because its **culture** can change and transform faster than its gene pool. We have already quoted the main thesis of his most valuable and greatest work, so it remains for us to repeat and conclude that, according to

[10] which we may do on some subsequent occasion.

Dobzhansky, not only have we as humans/humanity (Homo sapiens sapiens) been living **simultaneously in two worlds** for more than 150,000 years, in the world of **biology** and in the world of **culture**, but also that ...

> „The world of culture can only exist until the majority of humanity possesses a genetic preparation favourable to culture. Conversely, this genetic preparation is today for the most part such that its bearers probably could not survive without the priority of culture. Thus, interdependence should become the watchword." (Underlined by – D.S.) (Dobzhansky, 1982: 354-355)

At the end of our short text about Dobzhansky, we return to its beginning, where we pointed out, together with other biographers of Dobzhansky's life and work, that he always refers to **Pierre Teilhard de Chardin**, but continues to develop and elaborate Chardin's inspirational thought. Thus, for Dobzhansky, **evolution** is not only a theory, a system, a hypothesis, but much more than that, their general condition, a unique process of matter, life and man, means a part of **cosmic** development, in which **man is the pinnacle of a great biological synthesis**, the most complex and richest layer of life. (Dobzhansky, 1982: 13; Ayala, 1985: 168; Aćimović, 2009: 412) So, Dobzhansky, together with Chardin, is a **cosmic optimist**, i.e., he also belongs to the group of "progressives", despite the fact that he is incomparably more critical than Chardin, especially when it comes to the degeneration of civil society due to the insoluble **contradictions** and the self-destructiveness of technological civilization in general, which is based on **the profit logic** of **imperial capitalism**. After all, it is generally known that imperialism has been critically analysed by Vladimir Ilyich Lenin, in his famous work *Imperialism as the highest stage of capitalism*, but it is not so well known that his critical analysis is explicitly accepted by Dobzhansky. (Lenin, 1962; Allen, 2016)

Of course, the critical review of these contradictions and controversies, as well as the review of similar paradoxical issues arising from the globalization of capitalism – as well as the review of other types of paradoxical issues, such as the relationship of Dobzhansky and Chardin's **positive utopia** to **negative utopias** (dystopias) of some other contemporary philosophers and bioethicists (e.g. Hans Jonas and Erich Fromm) – we leave them for another occasion, i.e. for some possible follow-up text.

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