

Special Article - Biological and Cultural Factors in Human Evolution

In Times of Global Planetary Challenges: Metanoia

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Abstract

We grow up in a perspective of an existence, which we call reality. We identify our-selves with this reality as something absolute and we reject the experiences that do not belong to it. Each reality is valid only within certain limits (such as family's traditions, religious beliefs, culture etc). So, "this is how our own state of consciousness perceives reality and we can never explore reality without exploring ourselves the reality that we explore" reminds us of Ram Dass. Therefore, the numerous crises that arise in our time, ecological, humanitarian, economic, religious, political, show us how we perceive our-selves: mostly as indifferent and without being aware of nature. This work leads us to deeply think about the fact, that as we are living in the Anthropocene era we can practice a different committed science that helps us clarify and manifest proposals, that will help us to deal with this planetary crisis, from new perspectives or metanoia (from Greek *μετανοῖεν*, *metanoien* a change of mind or direction, new mind).

Keywords: nature, Human evolution, anthropocene, crisis, mechanistic

Introducción

The ecological crisis, according to Bruno Latour has nothing to do with a crisis of nature but it has with a crisis of the objectivity. A generalized crisis that affects all objects and not only those that have been given a "natural" label [1]. The ancient objects had an essence well-defined, with its clean edges, which no doubt clearly belonged to a world of things and facts. While the people that made them were considered unnoticed. If the consequences were thought as a "social impact" in a way predictable. However, new objects no longer have well-drawn edges and their core is not separated from their surroundings; neither are the invisible makers but as they have numerous connections that bind them with other beings; they do not make up a separate universe, but they do create networks or rhizomes [1,2]. Nature, as an external society entity, has been since early 17th century hit with a strong normative content, from the philosophical contributions of classical figures of modern western thoughts, such as Hobbes, Locke or Rousseau. Thus, in the form of natural law, capacities, dimensions, morals and even political principles have been attributed to the "laws of nature" such as the life and freedom. From this external and inert nature, the foundations of modernity thoughts and its principles are leading to an organized society. However, this principle has never been presented to us in a clear and univocal way. Nature is infinitely more powerful than men and has its own rules. Paradoxically, science that studies nature has been forced to separate scientific facts from subjectivity assessment. Nowadays, we can no longer think of nature as something inert and external because the side effects of our actions on the planet are felt like against us, such as innumerable eco-logical disasters (Wertheimer, 2018). Our challenge is, to think about forces of nature, not as an inert agent, but as dynamic and powerful agent as Latour proposed with the formulation of the theory of the Actor Network [3]. The importance of the context was one of the most valuable elements of the Batesonian contributions [4] understanding it as a matrix which describes actions developed by the members that interact in it. While Bateson applied this concept to social sciences, biology looks after the

important of environment influence on genetic functions through epigenetics, which refers in a broad sense, to the study of all those non-genetic factors involved in the determination of ontogeny. In this way environment experiences are trans-formed into chemical reactions that act on the genome, leading to long-term changes in the activity and function of the genes, and this will create physiological and behavioral consequences. Context leads to build from a social web to a way of feeding and relating each other thus it is necessary to develop more elevated functions, and in this way a more evolutioned brain. Therefore, mankind actions against the environment leads the environment to take actions against mankind. And this is the history of mankind [5].

End of the Holocene

Numerous scientists support a report written during the congress of the International Union for Quaternary Research, Switzerland, 2011, that postulates that Holocene period has ended "and consider, by the time being, the Anthropocene as a possible geological era which is located at the same hierarchical level as the Pleistocene and the Holocene. This implies that it is located in the Quaternary Period ...While we were in the Holocene, earth remained stable and indifferent to our story [6,7,8]. This means that civilizations have modified their habitats and have managed to change geographic and climatologic parameters, in a short period of time on earth. We call "consciousness" to the own mankind capacity to recognize themselves, to have knowledge and perception of their own existence and their environment, we can tell that mankind is not fully aware yet of how important is to respect the environment, ecosystem, and the value of life above all. Since ancient times, the main daily activity was to survive within natural biological conflicts and fighting was the way to achieve this task. When everything seemed stable a new element arrived destabilizing their habitats forcing species to mutate (as viral pandemic). These changing factors helped mankind evolution [5].

The Identification and Its Consequences

The identification is a process on which something is experienced

as itself. This type of identification goes unnoticed by most of us, since we are captured within this identity that it never occurs to us to even think about it. However, any attempt to think about it may clash with considerable resistances. If consciousness is identified with the mental context, this content becomes the context from which any other content and mental experience is contemplated. Example, if an individual think “I am scared” and observing that thought sees it as it is, that is, nothing more than another thought, then it has little influence over it. However, if you can identify it with it, just then reality at that time is the individual is scared and is likely to generate lots of ideas, emotions of fear and identify his self with them, fear still an uncertain feeling, that the world might be perceived as frightening and fearful. That is to say, that the identification mobilizes a prophetic process of which experiences and psychological processes validate the reality were subjectivity was identified. The person identifies himself with the idea of “I am scared” then seems to think that everything demonstrates reality and validates his fear. Consciousness has now been restricted to conceiving the world from a single perspective that validates itself. We are dominated by everything that ourselves identifies with. We can dominate and control everything from which we do not identify with, this will help throughout our development. As long as we identified with the object, will be servitude [9]. It is possible that beliefs can be adopted as a strategic and defensive that leads us to survive and to function optimally. When we say that the mind is usually full of ideas with which we identify ourselves without knowing it, it becomes obvious that our state of consciousness is at a state in which we are, literally, hypnotized. While we are in such a state what we think we are the thoughts that we have not yet de-identified we do create our states of consciousness, our identity and our reality [10]. In this sense, John Eccles observed, after a comprehensive study on the behavior of certain neural synapses, that the brain was not a structure complex enough to account for consciousness-related phenomena, so there had to be a self-conscious and distinct external mind of the brain and that exerts the superior function of interpretation and control of neural processes. Therefore, there was a duality, a nonmaterial extended mind, and a physical brain that would now become the receiving antenna of consciousness or extended mind [11]. This dual idea also matches the Austrian philosopher Karl Popper in his Theory of the Three Worlds, with which Eccles wrote *The Self and its Brain: An argument for interactionism* [12].

Mechanic System and Organic System

The traditional view of classical physics is a mechanistic approach to the world rooted in the philosophy of Greek atomists, who understood matter to be constituted by several “basic elements of construction” atoms that are purely passive and are intrinsically dead. It was thought that atoms were moved by some external force to which a spiritual origin was often attributed, which it was fundamentally different from matter. This image became essential in the Western ways of thinking and lead to a dualism between spirit and matter, between mind and body. The Cartesian division allowed scientific men to treat matter as something dead and totally separated from them and to see in the material world as a multitude of different objects gathered in a huge mechanism [13]. This vision of the mechanistic world is opposed by the vision of oriental mystics, which can be characterized by the word “organic” insofar as it considers that all the phenomena of the universe are integral parts of

an inseparable and harmonious totality. For the oriental mystic, all things and events perceived by the senses are interrelated, connected, and are nothing other than aspects or different manifestations of the same ultimate reality. The cosmos is seen as an inseparable reality on an eternal movement, alive and organic, and spiritual and material at the same time. While movement and change are essential properties of things, the forces that cause movement are not outside objects, as in the classical Greek point of view, but are an intrinsic property of matter. Let’s see what modern physics say: The main characteristics of quantum theory recognizes that probability is a fundamental characteristic of the atomic reality that governs all processes, and even the existence of matter. Subatomic particles do not exist with certainty in defined places, but rather, as Werner Heisenberg has said, they show “tendency to exist [14]. With words of Niels Bohr “The isolated material particles are abstractions, since their properties are only definable and observable through their interaction with other systems” [15,16]. “The world is thus shown as a complicated weave of events in which connections of different kinds, overlap or combine, which in doing so determines the texture of the whole”...”natural science has no limits when it comes to describe and explain nature, as part of a reciprocal action between nature and us” [14; 17]. In quantum physics we can never talk about nature without talking about ourselves at the same time. Example, we live immersed in astronomical numbers of bacterial and viruses, inside and outside, in the seas and the soils, the organic with the inorganic world are connected in a complex “network of life“. However, the imposition of the pathological interpretation of these microorganisms, the manipulations of processes that are not well understood and less controlled can become a danger to all humanity and the life of the planet [18,19]. In this sense, we can mention the Kyasanur Forest Disease (KFD) is a highly pathogenic virus that spread from monkeys to humans through virus infected ticks as deforestation shrunk the forest habitat of monkeys. The KFD virus has long existed as part of an established ecosystem in South Kanara [20,21]. Biodiversity richness in our forests, our farms, our food, our gut microbiome makes the planet, her diverse species, including microbiome makes the planet, her diverse species, including humans, healthier and more resilient to pests and diseases [22]. Only after we have begun to genuinely confront and incorporate the recognition that our own identity is nothing more than a process and that the world is an arbitrary construction of our own perception, then it is when we can advance to-wards the discovery and appreciation of freedom that is there in front of us [23].

Beliefs and Their Influences, The Purpose and Interpretations in Science

Whatever the observations of a discipline are destined to address, its underlying meaning cannot be divorced from their beliefs and models of reality, shared by the individuals who dedicate themselves to it. If these beliefs and models change, so do the purposes and meanings of the discipline. Between beliefs and models there are interaction dynamics, little recognized but very widespread. They are generally products of the culture from which they sprout. At certain point they are an autobiography and a projection of those who originate them. Since everything we do, feel or think comes from who and what we think we are, it is possible that one of the most important tasks we do have to face is to modify our cultural beliefs that are

dominant (and with boundaries) with all do respect towards our basic nature and our relationship with the world [10]. Nowadays, our educational systems are directed to focusing on the academic point of view, leaving on a side, attitude, contemplation, observation, who are almost completely absent most of the time. Mainly accentuated is the fact of acquiring data, much less the ability to think. Although it has been pointed out for centuries, the philosophers and scientists from the west have tended to forget the distinction between the two main types of knowledge, the symbolic and the intimate. Symbolic, inferential or “by maps” knowledge is the knowledge we have of something through symbols such as language, as opposed to direct knowledge (concrete reality) of an object that comes from an intimate and non-symbolic knowledge. The obvious thing is that the map is not territory. For example, experimental models proposed by the scientific community usually are symbolic representations that intent to describe the main features or dimensions of the phenomena they represent as accurately as possible. Useful models can be formalized into mathematical equations or into a computational algorithm. However, the organizational complexity of biological systems (territory) challenges their modeling and mathematical analysis leading to the dismissal of many biological significant variable in order to fit the model [24,16]. Ken Wilber reminds us of this distinction and points out that not remembering it results in us forgetting that our ordinary conception of the world is nothing more than a map of symbolic knowledge, a conceptual creation, rather than the real world itself. We can only know the real world if we pass to non-symbolic intimate knowledge of the contemplative mode and its corresponding state of consciousness [25]. Then a true understanding of the real world can only be by understanding as Schroedinger expressed, that “the subject and the object become one.” If reality is inexpressible, it does not cease to be experiential.

The Imagination Role

Wittgenstein and Goethe expressed: the type of vision that visualizes connections is the imagination. “Imagination is the way to visualize, which is also a way of understanding (a way of thinking)” [26]. For the imagination, visualization and understanding is one thing. And what we see is not a physical object; it is how parts connect to each other within its context, the whole and the indivisible sense, the pattern or the field. Although these two forms of visualization are different, the analytic that uses the senses and the holistic that uses the imagination, they are not exclusive. The imaginative form does not replace the sensory but works in conjunction with it. The physical manifestation lives through the senses, on the other hand meaning does not, we need to put into operation the imaginative faculty. Reading is a form of dual vision, when we read a word there are different letters but those letters we see as a word is in a holistic way. Individual words are seen as a sentence when the different elements are viewed holistically. What we visualize in a holistic way is the meaning of the word or the sentence, which is seen as a whole and in a different way from the individual element. Our world is not yet fully formed. It is a development process and we create it throughout our journey, not only by the way we participate, but also by the way we apprehend the meaning of what emerges. Example, networks for telecommunications with the massive increase exposure to radio frequency radiation (satellites, Wi-Fi, mobile phone 2G, 3G, 4G, 5G) do not observe or feel with our physical senses but leave their answers

not only in our communication systems but in every living being [27,28]. The accumulated clinical evidence of sick and injured human beings, experimental evidence to DNA, cells and organ systems in a wide variety of plants and animals, and epidemiological evidence that the major diseases of modern civilization (cancer, heart disease, altered metabolism, neurological damage, negative microbiology effects, etc) are in large part caused by electromagnetic pollution are documented in numerous scientific publication [29,30-35].

Discussion

Humanity has a special role as participant-cognizer in the evolutionary process. Humanity bears the tremendous responsibility of acting in ways that do not upset the flowing equilibrium of the universe. Just now we are aware how the human mind works, as a powerful weapon capable to create techniques of nature manipulation and destruction, creating a side effect of which has not have sufficient power to understand or take responsibilities for his actions and for what he has destroyed. We do easily get confused between power and wisdom, in fact, our power over nature is a deception because we presume that we are something else than nature. Our outer world is a mirror of our internal conditions [36]. There seems to be two fundamental reasons for this evolutionary crisis; first one, is the lack of “internal” evolution which compares the material and the external one, and the second one not recognizing that “internal” growth is the most important thing and essential for the human kind evolutionary process. If we assume the role as co-creators within this evolutionary process, then we must do it with good intentions, caring and being conscious of our actions, because of we do exist within systems and systems interrelated *ad infinitum* [37]. We are defined as a whole, and it is urgent that the sciences of all fields naturally decide to abandon the cartesian dichotomy and watch Life in Gaia as a multicausal and complex process. In this way, the researcher is who must trace associations between humans and non-humans, describing how these assembly and associations occur [38]. Free thinking regarding the Truth found in such associations should be formed in the basis of logic, reason, and empiricism rather than authority, tradition, revelation or scientific dogma. Thus, the phenomenon “would not express themselves in silence, imposing themselves without any sign of intermediation on a totally passive human being” [39]. As expressed by Elgin ...”If a person is consciously and directly committed to life, there is literally no place where he can hide from the experience of being connected to the entirety of life...” [40]. The task, then becomes the effort to carry our own lives in all its different ways (personal, family, social, jobs), into an increasingly conscious and harmonious alignment with the changing flow of relationships of which we are an inseparable part of it.

Author Contribution

All authors have made a substantial direct and intellectual contribution to the work and approved it for publication. Each author contributed equally to all sections of the manuscript.

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