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What is life? revisited

Abstract

A brief updated analysis of the legacy of the book *What is Life* (1943), written by Erwin Schrödinger, emphasizing the main role of Carbon in the structure of humans, their concepts of genes (a periodic crystals) and the sui generis metabolism of living organisms, characterized by the concept of order in the midst of disorder and that thanks to the efficient storage and transmission system of information made by the genes, they have allowed the survival and improvement of human beings. At present, however, the transhumanist movement tries to go beyond natural evolution by encouraging the creation and development of better improved humans.

Keywords: human evolution, natural selection, carbon, silicon, cyborgs, transhumanism

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Introduction

Until today, the origin of life continues to be a partially understood but a central theme in biology. After the appearance of: "What is Life" (1943), written by Erwin Schrödinger (1887-1961), an Austrian theoretical physicist, Nobel Prize in Physics in 1933,[1] many preconceptions of the origin of life (divine creation, spontaneous emergency of life, etc.),[2] disappeared giving way to others theories based on scientific evidence. In "What is life",[3] Schrödinger responds aptly, albeit partially, to classic questions: Where do we come from? What are we? Where are we going?

Where we come from?

In this regard, Schrödinger alludes that we are the offspring of dead suns from other planetary systems,[1,4] made basically from Carbon [C], a special element that allowed the emergence of a very complex chemistry: forming proteins, peptides and corporal forms as do meccano games, with angles that conditioned different shapes and for having large polymers that allow storing and transmitting 3D information, accepting positive and negative charges, repelling water, etc. And, although some scientists think that in other planets, the C could be replaced by Silicon (Si), the reality is that Si, forms weak bonds with each other, so that their conformations would have little stability.[5] On the other hand and as far as our view reaches the Universe it is full of H and C.

What are we?

A biomachine regulated by an emergent brain endowed with an excellent management of systems and information and a peculiar metabolism: islands of order in the middle of the environmental atomic chaos (Second Law of the thermodynamics),[6] ordered with a self-sufficient metabolism that allows the breaking and reassembly of discarded amino acids -according to the circumstances- capable of harboring hundreds of simultaneous metabolic chemical reactions in small cellular spaces, self-replicating and adapting not to one, but to different environments. The living being is separated from the environment by a particular chemistry, in which the vital process is the chemical reaction itself. However, the most surprising thing about what Schrödinger wrote was to predict the existence in chromosomes (genes were not yet known), a pattern of written codes,[1] to rule the future development and functioning of each individual, laying the foundations for a stable permanence of genes that he defined as a periodic crystals capable of being transmitted from generation to generation and endowing the individual with a solidity and order capable of controlling the atomic chaos within each living organism. A living being sustains itself by producing ordered events of self-organization and self-maintenance. To the characteristics of this organism would be added others like: evolution, natural selection, inheritance and capacity of self-replicacion.

Where there is news is in: Where are we going?

Because the subject of natural evolution was until recently wildly guided by natural selection, currently it seems firmly consolidated but at the same time finished, because in recent years there has appeared a certain transhumanist perspective[7] of evolution based on the enhancement of the biological efficacy of the Homo sapiens sapiens.[8] Until recently, the non ethical forces of natural evolution had worked without respite and without pause selecting species destined to survive being that in a certain way, the sense of evolution. Several scientific groups now assume that the final biological forms must be determined by science, technology, environment and culture.[9] What implies a great responsibility because there are plausible eugenic programs to be implanted by certain governments that will generate frictions in the societies, some of which will be in favor and others against. While certain evolutionary decisions will have short-term beneficial effects, others could induce irreparable genetic damage in part or in the totality of humanity. The perspective of evolution in this sense is new and of profound significance. We have finished one cycle and started another. A new one that starts with some urgencies: lengthen the human useful life, emerging in the long term the possibility of creating planned life with increased somatic potentialities,[10] human cloning,[11] generating self-organs at will and cyborgs: human with vital mechanical or electrical devices.[12] Given the huge population growth, perhaps in the future may be offered: dermal photosynthetic devices to ingest direct solar energy instead of natural foods, possibly forcing human body transformations. Evolution will no longer be guided by chance and necessity, but by science, technology and culture.

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Conflict of interest

The author declares no conflict of interest.

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