STATISTICA, anno LXIX, n. 2–3, 2009

NOTA IN MARGINE

EVOLUTION AND CREATION

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In the following, STATISTICA re-proposes a note of Fiorenzo Facchini — a distinguished anthropologist of the University of Bologna — published on the Osservatore Romano (17/01/2006) and cited by New York Times (18/01/2006). As the reader can easily observe, the strength of the Darwinian thought has provoked a deep reflection also inside the catholic tradition, witnessed here by a scientist that is at a same time a man of the church. After Darwin, such tradition has been forced to modify deeply its philosophical view about the real world.

The heated debate over the issue of evolution versus creation that arose in the United States in the last several decades has reached Europe in recent years and has inflamed the cultural world. Unfortunately, this debate has been tainted by various political and ideological positions that have prevented a peaceful discussion. Some statements made by US "creationists" have elicited reactions among scientists that seem inspired by a certain dogmatic defense of neo-Darwinism. And this has led to the re-emergence of scientistic views typical of 19th century culture.

It seems oftentimes that confusion reigns supreme. Last month in Pennsylvania, federal district court judge John E. Jones barred a school district from teaching "intelligent design" (which is an updated version of "scientific creationism" based on a literal interpretation of the Book of Genesis; on the matter more later) in science classes as an alternative theory to evolution.

On several occasions, the magisterium of the Church, especially in John Paul II's pronouncements, has been clear and open on the issue. More recently in 2004, the International Theological Commission released "Communion and Stewardship: Human Persons Created in the Image of God", a document approved by the cardinal Joseph Ratzinger.

In the world of science, biological evolution is the key interpretative tool used in understanding the history of life on earth and provides the cultural framework for modern biology.

Life on earth is thought to have appeared in a watery environment around 3.5–4 billion years ago in the form of prokaryotes, unicellular organisms without a nucleus. Un-

changed, they were still found 2 billion years ago when the first eukaryotes, unicellular organisms with a nucleus, appeared in the waters covering the earth. Pluricellular living organisms appeared only much later: 1 billion years ago. Still evolution was slow and far diversified until the Cambrian Period, from 540–520 million years ago, a time of exceptional evolutionary activity, when most of the main families of living organisms almost explode onto the scene.

It is likely that for a long time the earth lacked the conditions that would eventually enable today's animals and plants to evolve. But the succession in which fish, amphibians, reptiles, mammals and birds appeared and the speed with which they evolved raise questions that still beg for an answer. The evolutionary lineage that led to humankind appeared in the last minutes of the clock of life. Around 6 million years ago the first split is said to have occurred when the lineage that led to apes broke away from the one that gave rise to the cluster of Hominid species. Eventually, the latter saw the human lineage emerge some 2 million years ago. Before modern humans (Homo sapiens) could develop some 150,000 years ago, other Homo species walked the earth like Homo erectus and, before him, Homo habilis.

The task of paleoanthropology is to reconstruct the various stages in human evolution. In this it is assisted by modern biomolecular DNA research which can identify genetic analogies and differences which have to be reconduced to a common common ancestry.

The debate over what set off evolution and shaped it is still open. The happy intuition of Darwin and Wallace, his less famous contemporary, about the importance of natural selection operating on small random variations within a species (the errors that occur during DNA replication according to the modern view) represents an interpretative model widely-held in the scientific community. According to this view, natural selection applies to all of evolution. However, while accepting that this mechanism applies to microevolution, other scholars consider it inadequate to explain how small variations (or mutations) could in a relatively short period of time generate quite complex structures and evolutionary trends like those found in vertebrates.

In this respect one must take into account possible developments within evolutionary biology as they impact the study of the role of regulatory genes in effecting considerable morphological changes.

Experiments on the regulatory genes that shape the embryonic development of crustacea might allow for hypotheses on new organizational frameworks underlying single genetic mutations. Research in this direction could open up new horizons, but they would still leave one question unanswered, namely whether the causes of the mutations are random or the outcome of some kind of preferential orientation.

Close attention should also be paid to the role of environmental factors in the evolutionary processes.

The environment might in fact slow down evolution, which is what perhaps happened in the first billion years of life on earth, or give them a boost, which is possibly what occurred in the last 500 million years. Indeed, we would not be here to discuss all this if, some twenty million years ago, the Great Rift Valley in Africa had not formed, with its open regions that made biped evolution and the birth of man possible.

What this all means is that the history of life suggests that its development required a

combination of genetic factors and favorable environmental conditions that unfolded in a series of natural events.

This raises two questions: Can creation and God's plan play a role in the history of life? And does humankind's appearance constitute a necessary development in nature's potential?

In his address to an international symposium on "Christian Faith and Theory of Evolution" in 1985, John Paul II said: "Neither a genuine faith in creation nor a correct teaching of evolution may pose obstacles. [...] Evolution, in fact, presupposes creation. In the light of evolution, creation is an ever-lasting process — a creatio continua."

The Catechism of the Catholic Church teaches that "creation [...] did not spring forth complete from the hands of the Creator" (n. 302). God created a world that was not perfect but "in a state of journeying" towards its ultimate perfection. "In God's plan this process of becoming involves the appearance of certain beings and the disappearance of others, the existence of the more perfect alongside the less perfect, both constructive and destructive forces of nature" (n. 310).

When John Paul II spoke to the plenary of the Pontifical Academy of Science in October 1996, he acknowledged that evolution was a scientific theory because of its coherence with the views and discoveries of various scientific disciplines. Yet he also said that the evolutionary process had more than one explanation; among them theories that believers cannot accept because of their underlying materialist ideology. But in such cases, what is at stake is not science but ideology.

In "Communion and Stewardship", the evolutionary process is taken for granted. What must be reaffirmed in theology (and in any rational argument) is the world?s radical reliance on God, who created things from nothing, even though we know not how.

From this comes the importance of the current debate on God's plan for creation. It is known that supporters of intelligent design (ID) do not deny evolution, but they do claim that certain complex structures could not have appeared as a result of random events. For them, such complexity requires God's special intervention during evolution and therefore it falls within the purview of intelligent design. Apart from the fact that mutations to biological structures cannot by themselves explain everything since environmental changes must also occur, by introducing external or corrective factors with respect to natural phenomena, a greater cause is included to explain what we do not know yet but might know. In doing so though, what we are engaged in can no longer be called science but is something that goes beyond it. Despite shortcomings in Darwin's model, it is a methodological fallacy to look for another model outside the realm of science while pretending to do science.

All things considered, the decision by the Pennsylvania judge therefore appears to be the right one.

Intelligent design does not belong in science class and it is wrong to teach it alongside Darwin as if it were a scientific theory. All that it does is blur the boundary between what is scientific and what is philosophic and religious, thus sowing confusion in people's minds. What is more, a religious point of view is not even necessary to admit that the universe is based on an overall design. It is far better to acknowledge that from a scientific point of view the issue is still open. Putting aside the divine economy which

operates through secondary causes (and almost shies away from its role as creator), it is not clear why some of nature's catastrophic events or some of its meaningless evolutionary structures or lineages, or dangerous genetic mutations, were not avoided in the intelligent design.

Unfortunately, one must in the end also acknowledge that Darwinist scientists have a tendency to view evolution dogmatically, going from theory to ideology, upholding a way of thinking that explains all living phenomena, including human behavior, in terms of natural selection at the expense of other perspectives. It is almost as if evolution ought to make creation redundant so that everything was self-made and reducible to random probabilities.

In terms of creation, the Bible stresses design and life's radical reliance on God, but it does not say how all this came about. Empirical observation sees the universe's harmony, which is based on the laws of nature and the properties of matter, but necessarily must refer to a greater cause, not through scientific proof but on the basis of rational arguments. Denying this amounts to taking an ideological, not a scientific stance.

Whatever the causes, be they random or inherent in nature, science with its methods can neither prove nor disprove that a greater design was involved. "Even the outcome of a truly contingent natural process can nonetheless fall within God's providential plan for creation," says "Communion and Stewardship?. What to us may seem random must have been present in God's will and mind. God's plan for creation can unfold through secondary causes as natural phenomena take their course, with necessary reference to miraculous interventions pointing in one or other direction. Or as Teilhard de Chardin put it: "God does not make things, but he makes sure they are made." Similarly, "God is the first cause who operates in and through secondary causes," this according to the Catechism of the Catholic Church, (n. 308).

The other delicate point that we must address is the fact that man cannot consider himself as a necessary and natural outcome of evolution. The spiritual element that defines him cannot spring from matter's potentiality, but requires an ontological leap, a discontinuity that the Magisterium of the Church has always said was at the basis of humankind's appearance. This element presupposes that God can exert a positive will. Man's transcendence, Maritain said, occurs through the soul "thanks to God the Creator's final intervention which He freely makes and which transcends all of material nature's possibilities." The spark of intelligence was lighted in one or more hominids when, where and in the ways God willed it. Nature can potentially receive the spirit according to the will of God the Creator, but cannot produce it itself. After all, this is what happens when human beings are engendered setting them apart from animals. Such an affirmation transcends the boundaries of empirical science, something that scientific methods can neither prove nor disprove.

As to when humankind appeared, no one can say for certain. But one can see what gives humankind its specificity, as John Paul II said in his aforementioned 1996 address. The signs are in our technology and spatial organization when they reveal an underlying plan and meaning within the context of life. In short, when there are manifestations of culture that show us how to detect humankind's presence. They exist at an extra-biological level expressing a certain transcendence (as acknowledged by Dobzhan-

sky, Ayala and other evolutionary scientists), a discontinuity, that from a philosophical point of view is ontological.

Hence, for this author, waiting to discover Homo Sapiens, burial mounds or when art appeared first is not necessary. Yet, whether the cut off period in man's evolutionary history goes back to Homo Sapiens 150,000 years ago or to Homo Habilis 2 million years ago remains a matter better left to scientists rather than philosophers or theologians.

In conclusion, from a perspective that looks beyond the horizons of empiricism, we can say that if we are human we owe it not to random chance or necessity. Indeed, the human story is one of meaning and direction marked by a greater design.