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Special Issue of *Scientia et Fides* on Evolution – Introduction

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The ongoing debate on the Christian philosophical and theological approach to the theory of biological evolution is multifaceted. It refers to the biblical notion of creation, as well as to some strictly philosophical issues such as the difficulty in defining species and units of evolutionary transitions, the nature of chance, and the classical principle of proportionate causation (which states that an effect cannot exceed its own cause). Moving toward theology, it refers to the distinction between creation (*creatio*) and production (*productio*), and to the notion of secondary causation of creatures in the origin of new organic forms, as contrasted with the classical assertion that creatures cannot create, even instrumentally.

Concerning anthropogenesis, a number of important topics, including the mono- or poly-phyletic and mono- or polygenic origin of the human species, and the question of human evolution and original sin (including the means of its transmission), remain the object of an interesting and

ongoing conversation. Inquiring also into wider scientific repercussions of evolutionary theory, we may think of its reference to the idea of progress, philosophical and theological aspects of sociobiology and evolutionary psychology, as well as the challenge of contemporary secular culture, which contrasts biological evolution with the Christian doctrine of creation. In response to materialistic reductionism, the Intelligent Design movement (ID) continues to question the reality of macroevolution, while it relates – at least indirectly – the proposed idea of the purposeful designer of the universe to the Christian notion of God the Creator.

The historical development of the Christian response to biological evolution continues to be yet another promising area of interest and the subject of research projects. Going back as far as the ancient idea of Augustine's *rationes seminales* and its use by theologians in the Middle Ages and among the first theists responding to Darwinian theory in the nineteenth century, this historical analysis addresses many other issues, including the study of the British *virtuosi*, i.e., the members of the *Royal Society* who supported the modern version of "physicotheology," and the Catholic philosophical and theological response to evolution in the age of the Modernist Crisis, including the distinction between the metaphysical, the biological, and so-called "natural species."

Many of the topics listed here are addressed in the series of articles gathered in this volume. They were written by distinguished scholars, many of whom are considered experts in this field of research. I am grateful for their kind acceptance of the invitation to contribute to this special issue of *Scientia et Fides*.

The volume opens with a contribution by Denis Alexander who, drawing from his book *Is There Purpose in Biology?*, reflects upon the character and role of randomness and change in evolutionary transitions. His analysis helps us understand better the constraints imposed on these phenomena when analyzed in the context of dynamic changes in the biological material. Even if randomness and chance are considered to be ontological and not merely epistemological, their distribution in a genome is often clustered (Alexander speaks about "genomic 'mutational hot-spots'"), which makes

them far from random in a mathematical meaning of the term. In the final section of his paper, Alexander concludes that randomness and chance in evolutionary biology have a place within the Christian concept of God's providence.

Reflecting on anthropogenesis, Daniel Turbon emphasizes the uniqueness of humanity and the breach that separates the human species from other animal species. His analysis touches on human rationality, the phenomenon of freedom and ethics, extra-somatically stored information, and symbolic communication. His view might be juxtaposed with the article by Marcin Uhlik, who claims that biological polygenism need not stand in contradiction with theological monogenism. What inspires Uhlik is research showing that the first human(s) (theologically speaking) might have interbred with other members of their biological species, producing fertile offspring. Consequently, if transformation into a *Homo sapiens sapiens* happened before the split between them and *Homo sapiens neanderthalensis* and *Homo sapiens denisovensis*, all three forms might have already been human species (theologically speaking).

Moving towards biblical theology, we find an intriguing article by Tom McLeish, who first expands on the theme of the tension between chaos and emergent order in the biblical creation story, with reference to evolutionary science. He then invites us to look at the Book of Wisdom as offering an account of the transmutation of species, in reference to his treatment of the same topic in the Book of Job in his book *Faith and Wisdom in Science*. McLeish refers his account to the modern genotype-phenotype theory of evolutionary dynamics, exploiting analogies with statistical dynamics.

A number of contributions gathered in the volume address the topic of evolution in the context of Catholic philosophy and theology. Brian T. Carl engages in a careful exegesis of Aquinas, trying to answer the controversy over the principle of proportionate causation in the context of theistic (Thomistic) evolutionism. He shows which states that Aquinas grounds his views concerning the origin of "perfect" animals in physical and biological doctrines received from Aristotle and in a causal principle, that a remote universal cause requires a number of mediating causes to produce more

powerful effects. He emphasizes that the latter is reconcilable with biological evolution.

James R. Hoffman invites us to accompany him in the historical analysis of the complex debate concerning mono- and polygenism, which he compares to the controversy over the Copernican hypothesis in physical cosmology. In the first part of his essay, published in the present volume, he describes the origins of monogenism and polygenism terminology in the nineteenth-century debate over the unity of the human race. Next, he describes the conceptual changes that transpired during the first half of the twentieth century and the resulting role of polygenism in the *nouvelle théologie* of the decade prior to *Humani generis*. More recent developments and implications of the controversy will follow in the second part of Hoffman's essay, to be published in the next issue of *Scientia et Fides*.

Approaching the same topic of human origins in the context of evolutionary anthropogenesis, Kenneth Kemp explores and defends the idea of a dual-origin of man. He thinks that the infusion of a created soul into a body produced (in part, if not entirely) by evolution from an animal body might be defended as resulting not merely in a Platonic composite but a being with the unity of substance required by the Thomistic philosophy of nature. He suggests that animals seem to have sense-powers with a level of complexity that is nearly (if not entirely) sufficient to underlie the abstraction of concepts in beings that have a rational soul.

The argument offered by Kemp stands, at least partially, in opposition to the view developed by Terrence Ehrman, who questions the dual-origin model as leaning towards the pitfall of Cartesian dualism. Drawing from the anthropology of David Braine (developed in reference to Aristotle, Aquinas, and Wittgenstein), he claims to provide a more coherent anthropology which helps us to understand the continuity and discontinuity of the human person in phylogenetic relationship to other species within an evolutionary perspective.

The thought of Joseph Ratzinger (Pope Benedict XVI) on evolution is addressed by Matthew Ramage and Francisco J. Novo. Ramage reflects on Ratzinger's understanding of divine causality in evolution and contrasts

it with the view of ID. He sees Ratzinger as showing a deep respect for the integrity of nature and defining creation as the ever-present act that unfolds "in the manner in which thought is creative" – a dynamic he describes variously as story, drama, melody and symphony. In a somewhat contrasting view, Novo traces a considerable change in Ratzinger's approach to evolution, which he thinks has occurred on the course of his theological career. Departing from future pope Benedict first writings on the topic, until 1979, in which he defends the idea of the compatibility between faith in creation and the theory of evolution when the boundaries of their respective explanatory frameworks are respected, Novo analyses the trajectory leading through Ratzinger's contacts with anti-evolution German intellectuals to his 2006 meeting of the *Schulerkreis* in Castel Gandolfo, in which his criticism of evolution reached its climax. He then refers to Ratzinger's return to the philosophical ideas expressed in his earlier writings, stressing that the intrinsic rationality and inner logic of the cosmos point to a creating Reason.

Turning towards cultural arguments and conflicts over evolution, the volume offers an insight by Thomas Aechtner, who explores how persuasive cues in the Evolution Wars are being articulated with reference to the Cultural Cognition Thesis and Moral Foundations Theory. Juxtaposing views presented by the Institute for Creation Research, Answers in Genesis, and the Center for Science and Culture – on the one hand – and the Richard Dawkins Foundation for Reason and Science, the National Center for Science Education, and BioLogos Foundation broadcasts – on the other – he strives to show how values claims and morally charged language are concentrated within the works of antievolutionists and New Atheist media makers, who collectively promote a certain kind of religion-science conflict.

Thinking about the future stages of evolution, Ahenkora Siaw Kwakye, in reference to Philip Heffner's concept of "created co-creator," offers an attempt at explaining human technological trajectory in theology. She perceives the idea of "created co-creator" not so much as an uncritically optimistic view of technology but rather as a liberation through creativity in recognition of the universal kinship of all creatures to the glory of God.

The main part of the volume ends with another two articles, offering some new insights into long-discussed aspects of creation-evolution debate. Ricard Casadesús explores evolutionary intuitions of the German biologist and theologian Karl Schmitz-Moormann, who – inspired by Teilhard de Chardin's metaphysics of union – introduces a new concept of *uni-totality*. He traces Schmitz-Moormann's perception of various *uni-totalities* in the course of the process of evolution, beginning from sub-atomic particles all the way to humans, and his relating of the created order to the Triune God whom he sees as the *supreme Uni-totality*. Andrii Kadykalo analyzes aspects of the relationship between evolution and biological complexity and the attempts made by scientists and theologians to interpret it within the limits of reductionist scientism and theism.

In addition, one of the two book reviews contained in this volume presents a critical analysis of Marcos Eberlin's *Foresight: How the Chemistry of Life Reveals Planning and Purpose*. The book advances a refined version of the ID theory, hinging on "foresight," or the apparent teleology and purpose discernible in biological, chemical, and other complex life systems. Jason Morgan shows that, although Eberlin describes in more detail some new examples of phenomena pointed to by other ID theorists, his argument for a mindful creation by a "superintellect" does not stand as a view of the origin of complex lifeforms that would defeat Darwinism. At the same time, Morgan claims that Aristotelian-Thomistic notion of teleology and understanding of science allow us to go beyond the divide between ID and a-theistic theories and move the science-and-faith debate onto more solid ground.

I hope that this brief overview of the material covered in this volume gives a taste of the rich and fertile ground that Darwin's legacy provides for contemporary philosophical and theological scholarship. Together with the editorial board of *Scientia et Fides*, I invite readers to explore its content, which we hope will bring a meaningful contribution to the interdisciplinary dialogue between science and religion.