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# Evolution and Christian Thought in Dialog according to the Teaching of John Paul II

IN HIS TEACHING, John Paul II consistently emphasizes that

the Church's dialogue with culture has a decisive role for the future of humanity. More than once I repeated this with conviction and I appealed to all the Church's institutions to see to it that their activity in regard to culture may always be more enlightened, lively, and fruitful.<sup>1</sup>

The natural sciences occupy a special place in contemporary culture. It would be hard to point to another pontificate in modern times in which dialog with the world of science was as intense as is the dialog conducted by John Paul II.<sup>2</sup> That dialog has its roots in Cracow, when then Archbishop Karol Wojtyła organized interdisciplinary meetings of physicists, biologists, philosophers, and theologians in his residence.<sup>3</sup> His bold and innovative initiatives made the later Interdisciplinary Research Institute a place of important meetings in which such famous authors as Carl Friedrich von Weizsäcker, Charles Misner, Frank Tipler, Louis Michel, Ernan McMullin, Jerzy Rayski, Andrzej Staruszkiewicz, Stanisław Lem, and Zygmunt

Chyliński took part. The summer seminars organized by Jerzy Janik at the papal residence at Castello Gandolfo were a continuation of those meetings. They are an expression of that great papal openness to the dialog of science and faith which was an exceptionally important feature of John Paul II's pontificate. Its earlier counterparts would have to be sought in the Renaissance, when new works concerning the theory of comets and arguments against the physics of Aristotle were read at mealtime to popes interested in the development of science and culture.

*Evolutionism according to the Message  
to the Pontifical Academy of Sciences*

One symbol of John Paul II's openness to dialog with the natural sciences was his message to the Pontifical Academy of Sciences of October 22, 1996, concerning the theory of evolution.<sup>4</sup> It goes a long way toward bringing order into the controversies that have been waged by philosophers and theologians from the time of Charles Darwin's presentation of his theory of natural selection. Not limiting himself to Darwinism as one of many possible forms of evolutionism, John Paul II makes more precise the earlier formulations of *Humani Generis* and defines the interpretive horizon on which it is possible for Christian thought and various versions of evolutionism to work creatively together.

John Paul II's message definitely excludes the possibility for a reconciliation with the Christian position of those versions of fundamentalism in which an attempt is made to put in opposition a biblical and a scientific interpretation of the origin of man. That was by no means the first document of his pontificate concerning the theory of evolution. An earlier pronouncement of John Paul II can be found, for example, in the 1986 volume *Evolutionismus und Christentum*.<sup>5</sup> That volume contains materials from scientific sessions organized by the University of Munich and the Vatican Congregation for the Doc-

trine of the Faith. The introduction to the volume was written by Cardinal Joseph Ratzinger himself. Among the authors who explain how evolution should be discussed in catechesis is Christoph Schönborn, the current archbishop of Vienna. The volume closes with a pronouncement directed to the session's participants by John Paul II on April 26, 1985, in which the Pope shows the agreement of the Christian conception of continuous creation achieved by St. Augustine with formulations of contemporary evolutionism.

In a text that appeared eleven years later, John Paul II both develops a general comprehensive view for Christian evolutionism and indicates several of its particular components. It is hard to overvalue the substantive significance of this message when one considers that the *Catechism of the Catholic Church*, published in 1992, contains not a single mention of evolution. Four years later, in his message, John Paul II emphasized that the Pontifical Academy of Sciences is the "scientific Senate" of the Church. Its vocation is service to the truth, which makes possible an authentic dialog, undertaken in a spirit of mutual trust, between the Church and contemporary science. On the threshold of the third millennium, a Christian cannot ignore the special role of science in the transformation of contemporary civilization. He must search for creative answers to the questions troubling many minds about the connection between the scientific and the religious view of the world. In the face of such questions, there is no way to avoid reference to the issue of evolution. Referring to earlier pronouncements of Pius XII, John Paul II emphasizes that, in the context of contemporary scientific research, the theory of evolution can no longer be treated merely as a hypothesis. It is something more than a hypothesis, since scientific research (conducted independently in various scientific fields) leads to a common conclusion showing the evolving universe as a reality that various theories of evolution try to explain. The multiplicity of those theories depends both on discrepant scientific principles (for example, in the determination of the mechanisms of evolution) and

on discrepant philosophical principles inspiring an integrated view of the world.

In his writing, the Holy Father emphasizes that a Christian undertaking an evaluation of the multiplicity of proposed theories of evolution must be guided by the principles of biblical interpretation set forth in the document, *The Interpretation of the Bible in the Church*, of April 23, 1993. That document marks out a direction for the development of reflection on the theory of evolution essential for a Christian. It directs attention to, among other things, the fact that—despite the attitude defended by Protestant fundamentalists—biblical description cannot be interpreted in a literal way. It is necessary to reject the forms of interpretation promoted by Jehovah's Witnesses or by certain groups of Baptists. Biblical description in those views is treated as the counterpart of a scientific interpretation of the world; the grotesque deformation of science afforded by so-called creation science is elevated to the level of Christian worldview. The Papal formulation certainly disappoints all those who prefer their private version of traditionalism to objective truth. A Christian who prefers a cozy intellectual scheme to the obligation of an incessant desire for the truth thereby introduces a dramatic gulf between his own intellectual view and Christ—the personified Truth.

### *Philosophical Questions of Evolutionism*

Not tying himself to any concrete interpretation of evolution, John Paul II drew attention to the great variety of positions in contemporary evolutionism and emphasized that some positions cannot be reconciled with Christian thought. That impossibility has a philosophical, not a scientific, foundation. It is difficult to imagine a theistic philosopher trying to reconcile an evolutionary view of nature with the view of Jacques Monod, in which the entire process of the development of nature is only the play of chance and necessity. For similar reasons, I do not see any possibility of reconciling with Chris-

tian thought the extreme version of sociobiology in which the entire content of culture, including the content of scientific theories, is treated as a consequence of genetic causes. Not entering into scientific controversies over the mechanisms of evolution, John Paul II emphasized that the philosophical content of certain versions of evolutionism can determine the critical evaluation of those versions from the point of view of Christian thought. Philosophical doubts and interpretive inconsistencies were already familiar to Charles Darwin himself. Trying to reconcile a scientific, a metaphysical, and a theological picture of nature, he confessed with an air of resignation: "My theology is a simple muddle."<sup>6</sup>

The theme of intellectual helplessness appears not only in the works of Darwin. Many contemporary scientists would have declared themselves at a loss for words if they had been asked to make a comment on the passages in which the author of *The Origin of Species* confessed:

I cannot anyhow be contented to view this wonderful universe, and especially the nature of man, and to conclude that everything is the result of brute force. I am inclined to look at everything as resulting from designed laws, with the details, whether good or bad, left to the working out of what we may call chance. Not that this notion at all satisfies me.<sup>7</sup>

The phrase "designed laws" can inspire the search for new intellectual perspectives in which there would be a place for the combination of causal interpretations (laws) and teleological formulation (plan). In the philosophical discussions of Darwin's day, the concept of teleology had, however, under the influence of scientific discoveries, such a bad reputation that authors who were open to the possibility of a connection between the categories of causality and teleology in the philosophical interpretation of the deepest levels of evolutionism were a very distinct minority.

Darwin's attention was drawn to the possibility of such compro-

mised interpretations by, among other people, Harvard botanist Asa Gray, who developed an interesting metaphor in which he compared natural selection to the rudder of a ship. The rudder functions effectively because of the operation of the laws of physics. The wind is also subordinated to the causal laws of physics, as is the tide. That does not, however, change the fact that the movement of the ship, dependent on a train of causes, directs it toward a port that was chosen as the end of its journey.<sup>8</sup> In order, therefore, to consider the picture in its entirety, one must introduce the categories both of cause and of end. The attempt to subordinate the complicated process of evolution to a single type of simple mechanisms brings a danger of deeply deformative oversimplifications.

### *Scientific Emergentism and Ontological Emergentism*

In the Pope's message are found formulations that can give rise to disagreements among scientists whose research involves the use of the methodological principle of continuity. That principle demands that any state of a physical system be explained by appeal to other physical factors, without the introduction of discontinuities that would allow the intervention of nonphysical factors. Misgivings resulting from interpretive habits based on the methodology of the natural sciences can arise when the Holy Father spoke about "ontological discontinuities" or an "ontological leap" that appears at the moment of origin of the immaterial human soul. The scientist accustomed to explanatory continuity can, in that case, feel misgivings about whether that "discontinuity" does not signify the insertion of a gap into our knowledge so that it will be easier to introduce a God who will appear as some kind of proverbial *deus ex machina*. Personally, I must remark that there is no lack of foundation for such charges. The ontological structure of the world cannot be determined at the desk through the simple application of methodological principles to which we have become accustomed in daily practice. In order to absolutize

the earlier principles of methodology, it would be necessary, as a matter of consistency, to reject nonlinear thermodynamics and even quantum mechanics. For they introduce discontinuity and destroy the simplicity of the earlier picture of the world.

The transition from the mental life of animals to that of human beings requires consideration of the much deeper difference that is manifested in the view that only man is a being endowed with an immortal, immaterial soul. The creation of that soul introduces a specific discontinuity into the process of evolutionary change, since it can be rationally explained only by appeal to a creative act of God. That process does not need to be formulated in a way overly influenced by naive anthropomorphisms. Such anthropomorphisms appear if one attempts to formulate the evolution of animals exclusively in terms of natural selection and to introduce the special interference of a creator God only with the emergence of man. The Divine Logos is immanently present in the entire process of the creative development of the universe. The process of creation persists in every period and our "persistence in being" is its manifestation. The specifics of the ontological leap that led to the emergence of human mental life are manifested in the appearance of the radical discontinuity which initiates the existence of the immaterial soul. There are, to be sure, well-known theologians who suggest that evolution led to the transformation of the consciousness of lower animals into an immaterial human soul. An interpretation of this type is taken, however, as a manifestation of irrational poetics on the part of those authors who emphasize that no evolutionary process can lead to the transformation of a material being into the immaterial reality of an immortal soul. Interpreting the Pope's pronouncement in that way excludes the possibility of accepting in philosophy the position of so-called ontological emergentism, in which the appearance of the rich world of human mental life would be an unavoidable necessity in the process of the appearance of much more complicated biological structures.

Josep Corco Juvina, in his monograph on Popper's version of emergentism, emphasizes that the very term "emergentism," without any further specification, belongs to a set of terms of particular semantic vagueness.<sup>9</sup> Therefore, it is impossible to argue, on the basis of the restrictions laid down by John Paul II, that every form of emergentism is incompatible with Christian thought. One must necessarily take into consideration that, even in the use of those very terms, the natural sciences investigate aspects of reality different from those investigated by philosophy and theology. Contemporaries of Sir Arthur Stanley Eddington had already posed the question: Could a physicist treat his wife exclusively as a collection of orbiting electrons? Eddington warned that such an attempt to absolutize a physical description could result in the sudden change of the marital state of the physicist who loves simple schemata. That warning is also valid with respect to scientific descriptions of evolution. It is natural that the scientist describing the processes of evolutionary transformation will not use the terms "immortality" or "immateriality." Such words are not part of the vocabulary of the natural sciences. As a consequence of this, the scientist, in his description, can limit himself exclusively to the properties of the various mental processes characteristic both of the lower animals and of the species *Homo sapiens*. Independent of the terminology adopted, it is possible to get a description such that human consciousness appears as though it were the consequence of lower states of consciousness, and it is sometimes described as though it had emerged from those states. That "as though" evokes the resistance of many interpreters even at the level of scientific description. Thus, for example, John Carew Eccles, Australian Nobel Laureate in medicine and physiology, consistently emphasizes, in his works on the neurophysiology of the brain, the gulf between the mental processes of man and those of the lower animals.<sup>10</sup> If, however, some scientist adopted principles different from Eccles's, and in his scientific interpretation spoke about the emergence of human mental life, that would in no way indicate a

conflict with Christian thought. Eccles must not, however, forget about Sir Arthur Stanley Eddington's warnings. Those warnings authorize one to single out a set of traits distinctive of the human race and of our intellectual activity. Mentioning those traits, the Holy Father drew attention to the moral consciousness of man, to the human experience of freedom, to the role of aesthetic and religious experiences, to self-reflection, and to the depth of metaphysical inquiry. Those traits authorize his statement about the special dignity of the human species and do not allow an instrumental subordination of the human person either to the interests of society or to the species itself.

It is a distinctive feature of the human species that our ancestors could ask about *arche* (first principles) and about lines intersecting at infinity even though such questions were never of any use in the evolutionary struggle for existence. A similarly characteristic feature of our species is the experience of aesthetic appreciation and an altruism enlivened by the spirit of love of neighbor. It is true that, in rare cases, it is possible to derive benefit in the struggle for existence from describing the beauty of a sunrise as viewed from the summit of the Trzy Korony; it is difficult, however, to ascribe such motives to all those who value aesthetic appreciation and lofty religious motives more than the comfortable vegetative existence of the satisfaction of biological needs. At the level of human mental life, the rich world of the spirit begins to prevail over the many limitations brought by biology. A mountain climber hiking to the summit puts his biological existence in danger at every step. Despite that, he does not give up an interesting hike that does not bring him any calculable benefit.

In the rich variety of contemporary theories of evolution it is possible to meet radical proposals in which the attempt is made to subordinate even the most sublime realms of human experience to uncomplicated mechanisms. One such attempt was made by Edward O. Wilson in 1978. In his version of sociobiology, even the altruistic devotion of Mother Teresa of Calcutta was interpreted as the

manifestation of a hidden egoism. Wilson's radical idea became the source of many sharp conflicts in contemporary controversies about evolutionism. Its creator, a scientific authority in the area of insect research, tried to apply the simple mechanisms that worked so well in the description of the behavior of ants to human society. After over a decade of heated polemics, he withdrew from all anthropological explanation and is now occupied above all with problems of ecology. The discussions that he initiated, however, show how extensive the area of controversy can be in the attempts at a contemporary interpretation of scientific evolution. John Paul II, in his document, reminds us that a Christian has no reason to interpret scientific evolutionary theories as merely speculative hypotheses.<sup>11</sup> Thinking evolution through to the end, accompanied by attempts to define the meaning of such words as "chance," "necessity," and "laws of nature," introduces us into the rich world of philosophical theories that express the deepest views of the world.

### *The Immanent Divine Logos*

There are many Christian authors who are constantly at work on the development of a theism that coheres well with an evolutionary view of the world. For classical works on this question one can turn to the books of Karl Rahner, *Hominisation: The Evolutionary Origin of Man as a Theological Problem* and *Spirit in the World* of thirty years ago.<sup>12</sup> It by no means follows that a Christian has an obligation to accept the theory of evolution or even to look for Christian prerequisites for the determination of the physical parameters of cosmological models. The essence of the Christian witness of the truth is concentrated around problems of another type. Those problems are, however, unavoidably related to contemporary scientific theories. By developing a commonsense critique of those theories, inspired by a private biblical hermeneutic, we do harm both to Christianity and to individual persons. First, we create the prereq-

quisites for the playing out of the old myth of the conflict between science and religion. Second, we form a mentality in which the adherents of the theory of evolution will unjustifiably be presented as enemies of Christianity. Third, that attitude will bring about problems of faith, and not only for those who study biology.

Those people who remain convinced that a scientific description of the work of creation must be closely tied to the biblical description and its chronology will be convinced that one cannot reconcile with Christianity any physical theories that speak about states of the universe over the course of twenty billion years. Seeing the necessity of a choice between physics and such a deformed Christianity, many people will choose physics. Therefore, the antievolutionary interpretations of religious fundamentalism strike an effective blow against the confessors of Christianity, and it is to them that they can do the greatest harm.

It is possible to be a Christian and to keep an open mind on the subject of Darwin's theory, just as we have no obligation to have any opinion on the Axiom of Choice or the nonstandard analysis of Abraham Robinson. The drama comes only when, in the name of private fancy, someone attempts to force on Christians a war on the theory of evolution. The view presented by John Paul II in his important message excludes such a view of ready conflicts and develops elements of the Christian view of nature presented by St. Augustine and by John Henry Cardinal Newman. On the view proposed by Cardinal Newman, in a time of heated controversies about Darwinism, there is absolutely no reason why divine creative action should be linked to the doctrine of the fixity of species. The field of action of divine power, which creates and saves, is not a cosmic museum but a universe in which the drama of human endeavors is played out. Imposing on God our preferences about the order of the world or the means of creation is an expression of anthropomorphism that is difficult to reconcile with critical theological reflection.

Essential to the truth about the human species, its dignity, and the

purpose of life is not so much the obscure prehistory of man as the fact of the Incarnation of Christ, revealing the infinite dimension of our existence, which is endowed by God with the germ of immortality. The moral principles revealed in the Sermon on the Mount as well as the ultimate meaning of the lonely suffering of Gethsemane and Golgotha are truths much more important than the questions that attract the attention of the critics of evolutionism. The human drama of sin and grace, presented so expressively in the mystery of the Crucifixion, concentrates our attention on those aspects of our life in relation to which genealogical disputes about the nature of our ancestors seem unimportant. A detailed characterization of our nature is within the competence of the natural sciences. A theologian can, however, additionally draw attention to the richness of the connections that unite man to the rest of nature. The affirmation of those connections can also be seen in Christ's words about the lilies of the field and the birds of the air, as well as in Franciscan nature poetry.

It is not the rhetoric of a war directed at the natural sciences but the Franciscan love of nature that created for many people the conditions of an encounter with beauty that in turn leads to Christ, the Truth. The difference between the mentality of the ghetto, which is full of complexes, and the affirmation of the psalmist that "the earth is the Lord's and the fullness thereof" (Ps 24:1) expresses the deeper difference between the distortion of religion and the authentic expression of its spirit. Only in the latter perspective does the truth contained in scientific theories and the beauty of nature reveal the all-penetrating divine reality. It penetrates the evolving world just as light penetrates the darkness.

That great integration of nature, investigated both in theological reflection and in the views of the contemporary natural sciences, received particular attention in the papal letter to Fr. George Coyne, published on the occasion of the tercentenary of the publication of Isaac Newton's *Principia*. The Holy Father emphasizes in that significant document that his great desire is that

the dialogue [between science and faith] should continue and grow in depth and scope. In the process we must overcome every regressive tendency to a unilateral reductionism, to fear, and to self-imposed isolation. What is critically important is that each discipline should continue to enrich, nourish and challenge the other to be more fully what it can be and to contribute to our vision of who we are and who we are becoming.<sup>13</sup>

Without a doubt not all representatives of the natural sciences will respond to the Pope's encouragement of dialog. For some of them are interested above all in their own narrow field of specialization, and such scientists should not be forced to develop interdisciplinary interests. The message of John Paul II shows, however, the concrete possibility of overcoming both a narrow intellectual isolationism and senseless conflicts. It brings an opportunity for a coherent integration of our scientific knowledge and the theological and philosophical convictions that form our worldview.

At the beginning of the twentieth century, Claude Bernard urged that biologists entering the laboratory should leave in the cloakroom not only their coats but also their worldviews. Although that suggestion was appropriate from the methodological point of view, in fact it turned out to be much easier to leave one's coat in the cloakroom than one's nonscientific views. The latter are formed in mutual interaction with scientific discoveries; they lead to new questions that cannot be isolated from the many problems important to our philosophy of life. Despite declarations about the necessary isolation between religion and science, John Paul II emphasized in that same document that

a simple neutrality is no longer acceptable. If they are to grow and mature, peoples cannot continue to live in separate compartments, pursuing totally divergent interests from which they evaluate and judge their world. A divided community fosters a fragmented vision of the world; a community of inter-

change encourages its members to expand their partial perspectives and form a new unified vision.

Yet the unity that we seek, as we have already stressed, is not identity. The Church does not propose that science should become religion or religion science.<sup>14</sup>

In the intellectual climate inspired by the message of John Paul II to the Pontifical Academy of Sciences there arises a special opportunity for creative dialog between contemporary biology and a theology free from fundamentalist distortions. This opportunity requires renewed discussion of the many problems connected with the philosophical interpretation of the immanent presence of God in the laws of nature, of the relation between causality and teleology, of discontinuities in evolution, etc. It is impossible to overvalue the collection of works that have been prepared on this issue under the supervision of the director of the Vatican Astronomical Observatory, Fr. George Coyne.<sup>15</sup> One can see it as a particularly valuable answer from the academic world to the papal message expressed in the letter to Fr. Coyne.

### Notes

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1. "Culture: New Challenge for Science," An Address by Pope John Paul II to the Pontifical Academy of Science, October 29, 1990. English translation published in *The Pope Speaks* 36, no. 2 (1990): 105–9, here 109.
2. Cf. the comments made in the anthology *John Paul II on Science and Religion: Reflections on the New View from Rome* (Vatican City: Vatican Observatory, 1990).
3. Its history can be found in articles of reminiscences published in the pages of *Zagadnień Filozoficznych w Nauce* 25 (1999): 3–15.
4. The original text appears (in French) in *Acta Apostolicae Sedis* 89 (1997): 186–90. An English translation was published in *The Pope Speaks* 42, no. 2 (1997): 118–21. The director of the Vatican Astronomical Observatory also dedicated an article to this question, see George Coyne, "Evolution and the Human Person: The Pope in Dia-

- logue,” in R. J. Russell, W. R. Stoeger, and F. J. Ayala, eds., *Evolutionary and Molecular Biology. Scientific Perspectives on Divine Action* (Vatican City: Vatican Observatory, 1998), 11–17.
5. R. Spaemann, R. Loew, and P. Koslowski (Weinham, Germany: Acta Humaniora, VCH, 1986).
  6. C. Darwin, *More Letters* (New York: Appleton, 1903), 1:321; letter of July 12, 1870.
  7. C. Darwin, *The Life and Letters of Charles Darwin*, ed. Francis Darwin (New York: Appleton, 1905), 2:105.
  8. A. Gray, *Darwiniana; essays and reviews pertaining to Darwinism*, ed. A. Hunter Dupree (Cambridge: Harvard University Press, 1963; originally published in 1876), 316 ff.
  9. J. Corco Juvina, *Novedades en el universo: La cosmovisión emergentista de Karl R. Popper* (Pamplona: Ediciones Universidad de Navarra (EUNSA), 1995), 24.
  10. Cf. J. C. Eccles, *Evolution of the Brain: Creation of the Self* (London: Routledge, 1991).
  11. In interpretations that attempted to minimize the significance of the message, questions were raised about translations into other languages of the French formulation: “Aujourd’hui, . . . de nouvelles connaissances conduisent à reconnaître dans la théorie de l’évolution plus qu’une hypothèse.” Placing emphasis on the “dans,” it was suggested that John Paul II wanted only to emphasize that in the logical structure of the theory of evolution there are more components than only the hypothetical factor. Such an interpretation is artificial and without foundation. In any theory and at any time there are more components than the hypothetical element itself. The use of “aujourd’hui” would, in that context, be as senseless as an explanation in the papal documents of generally known facts about the logical structure of a theory. Therefore, in the Vatican’s publication of the English-language translation of that sentence, citing the authority of George Coyne, S.J., one finds this formulation: “Today . . . new knowledge has led to the recognition of the theory of evolution as more than a hypothesis” (Russell, Stoeger, and Ayala, *Evolutionary and Molecular Biology*, 4 ff.).
  12. Cf. also P. Overhage and K. Rahner, *Hominisation: The Evolutionary Origin of Man as a Theological Problem*, trans. W. T. O’Hara (New York: Herder and Herder, 1965); *Spirit in the World*, trans. William Dych (New York: Herder and Herder, 1968); see also *Das Problem der Hominisation* (Freiburg: Herder and Herder, 1963).
  13. John Paul II, “Message to the Reverend George V. Coyne, S.J., Director of the Vatican Observatory, June, 1, 1988” in R. Russell, W. Stoeger, G. Coyne, eds., *Physics, Philosophy and Theology: A Common Quest for Understanding* (Notre Dame, IN: University of Notre Dame Press, 1988), M7 and M8.
  14. Ibid.
  15. Particularly valuable is the work, already cited many times above, *Evolutionary and Molecular Biology*. Valuable treatments of the presence of God in the laws of nature can also be found in *Chaos and Complexity* (Vatican City: Vatican Observatory, 1995); *Neuroscience and the Person* (Vatican City: Vatican Observatory, 1999).