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A Textual Analysis of John Paul II's Teaching on Evolution

At one of the libraries I visited, *The Acts of the Holy See*[1] covering the period of 20th century occupy five shelves. Out of these five, two shelves (about 40%) belong to the pontificate of John Paul II alone. It's noticeable, therefore, that the Vatican under John Paul II produced—on average—twice as many ecclesiastical teachings per year than it did under any other 20th century pope.

When it comes to John Paul II's teaching on evolution, however, all his statements, scattered in different documents, can be fitted on one page of typescript. This is really not much compared to his voluminous teachings on marriage, family, freedom, economy, interreligious dialogue and various other topics. Despite this fact, today's Catholic theologians and public speakers willingly refer to John Paul II to present the current state of the Church doctrine regarding the theory of evolution. For example, they typically quote the Address to the Pontifical Academy of Sciences delivered by John Paul II in 1996.[2] What is often forgotten, however, is that the Address is quite a low-ranking document

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[1] Each year the Holy See publishes a volume of The Holy See Acts (*Acta Apostolicae Sedis*, *AAS*), which contains documents of the popes, Roman Curia and Congregations, among them papal addresses and encyclical letters.

[2] See Ioannes Paulus II, "Ad Pontificiae Academiae Scientiarum sodales (22 octobre 1996)," *AAS* 89 (1997): 186–190.

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and that Catholic teaching on the matter of evolution has a much longer tradition than the one dating two or three decades back. Moreover, the message of the Papal Address of 1996 is not as clear as it is usually believed, to the extent that Cardinal Christoph Schönborn labeled it rather "vague and unimportant."[3] All these facts encourage us to look closer at John Paul II's treatment of the topic of evolution in order to retrieve its full content.

The Meaning of the Words "More than a Hypothesis"

The core fragment of John Paul II's 1996 Address to the Pontifical Academy of Sciences reads: "Today, almost half a century after the publication of the encyclical [*Humani Generis* by Pius XII], new knowledge has led to the recognition of the theory of evolution as more than a hypothesis."[4] As it becomes clear from the context, the Pope says that new knowledge provides a good argument for calling evolution "not just a hypothesis" but "a theory"—a theory which is more and

[3] Christoph Schönborn, "Finding Design in Nature," *The New York Times* (July 7, 2005). Available online—see the section *References* for details.

[4] Ioannes Paulus II, "Ad Pontificiae Academiae Scientiarum sodales," no. 4, *AAS* 89, 188: "Aujourd'hui, près d'un demi-siècle après la parution de l'encyclique, de nouvelles connaissances conduisent à reconnaître dans la théorie de l'évolution plus qu'une hypothèse." The official translation of this particular phrase in the Papal address (i.e., John Paul II, "Address to the Plenary Session on the Subject *The Origins and Early Evolution of Life* [22 October 1996]," no. 4, in *Papal Addresses to The Pontifical Academy of Sciences 1917–2002 and to The Pontifical Academy of Social Sciences 1994–2002* [Vatican City: The Pontifical Academy of Sciences, 2003; hereafter cited as PAS 2003], 372: "Today, almost half a century after the publication of the Encyclical, new knowledge has led to the recognition of more than one hypothesis in the theory of evolution.") does not do justice to the French original. For this reason we employ here our own translation of this particular phrase. All remaining fragments of the Address are quoted after the official translation (PAS 2003). An alternative English translation is given in: John Paul II, "Message to The Pontifical Academy of Sciences: On Evolution" (available online—see the section *References* for details): "Today, more than a half-century after the appearance of that encyclical, some new findings lead us toward the recognition of evolution as more than an hypothesis."

more probable and better confirmed by the new empirical data. This one phrase is often believed to set the Catholic standard for discussing evolution.[5] However, there are at least a few problems with the common interpretation of the Pope's utterance that I want to point out here.

No Definition of Evolution

John Paul II does not provide any explicit definition of evolution, and yet the way one defines the term "theory of evolution" strongly impacts one's attitude toward it. If evolution means no more than "change over time," it does not seem reasonable to challenge it on any grounds, whether scientific, theological or philosophical. Changes in nature and in culture are visible and obvious to both scientists and laymen. Under this definition, evolution is not only a "theory," but a "fact."

On the other hand, if one understands the "theory of evolution" as a type of a great materialistic story designed to explain all cultural and natural phenomena in purely materialistic terms, then it is very unlikely that the Pope sympathized with such a view. Given the basic Christian beliefs (such as the providential care of God over the universe and divine active engagement in the human history), it seems that John Paul II must have meant essentially cosmic and biological evolution in some way guided by God. Only this kind of evolution, namely theistic evolution, could have been seriously taken into account by the Pope.

Theistic evolution is an idea that God used evolution as the so-called "secondary cause" to bring about the forms of the universe we observe in the natural history of the universe. (One example of these forms are biological forms appearing as different species in the fossil record). Different authors have different explanations of how God

[5] See, for example, Tom Kaden and Thomas Schmidt-Lux, "Scientism and atheism then and now: the role of science in the Monist and New Atheist writings," *Culture and Religion* 17, no. 1 (2016): 88.

works in evolution, but the common denominator is that without divine guidance the universe could not form itself into the marvelous structures discovered and explained by science. God either starts the evolutionary process or guides it, or does both. But if this is the case (i.e., if God is involved in evolution), we should ask whether theistic evolution is a scientific concept, which can be judged in scientific terms, or it is a theological concept, which is neither a theory nor a fact, but rather a subject of faith.

To help answer this question, one may notice that the Pope's statement has only a "descriptive" rather than a "normative" value. The Pope describes the state of the matter as it is presented by modern science—according to him, the body of scientific data has grown to the point that no one should call evolution a mere "hypothesis." Thus, the Pope's evaluation of the theory of evolution considers it a scientific enterprise, rather than a theological one.

The Pope's statement cannot be considered normative for the simple reason that popes, given their ecclesiastical authority, are no experts in scientific matters. Their evaluation of scientific theories cannot be normative in the same way as it is in the case of theological issues. The First Vatican Council confirms this principle by pointing out that papal infallibility relates only to matters of faith and morality.[6] It follows that the pope may be wrong in his teaching on evolution regardless of whether scientists are correct or not.

As John Paul II's utterance on evolution has then only a descriptive value, it does not establish any principle that could be applied in theology. Neither does it support any new theological concept that

[6] First Vatican Council, Session 4 (18 July 1870), *First dogmatic constitution on the Church of Christ*, Chapter 4, no. 9 (available online—see the section *References* for details): "[W]hen the Roman Pontiff speaks ex cathedra . . . he defines a doctrine concerning faith or morals to be held by the whole Church, he possesses, by the divine assistance promised to him in blessed Peter, that infallibility which the divine Redeemer willed his Church to enjoy in defining doctrine concerning faith or morals."

could possibly be derived from it, such as a moderate form of theistic evolution (e.g., evolution limited to cosmic and biological realms, leaving out the question of human origins).

Two Reservations

After expressing his conviction about the growing "reliability" of evolutionary theory, John Paul II seems to make two reservations. First, he points out that, "A theory's validity depends on whether or not it can be verified; it is constantly tested against the facts; wherever it can no longer explain the latter, it shows its limitations and unsuitability. It must then be rethought."[7] It is significant that the Pope chooses to remind this obvious meta-scientific rule while evaluating the theory of evolution. This suggests that the Pope was aware that some of the facts of nature are not easily explainable within the neo-Darwinian framework, which remains the most widely accepted explanation to the evolutionary process in biology.

Secondly, John Paul II says that, "rather than *the* theory of evolution, we should speak of *several* theories of evolution. On the one hand, this plurality has to do with the different explanations advanced for the mechanism of evolution, and on the other, with the various philosophies on which it is based."[8] Thus, according to the Pope, the "theory of evolution" cannot be considered one, well-defined concept, rather it is an abstract notion differently interpreted in different philosophical and scientific schools.

Having noted both reservations, we should conclude that there was not much novelty in the Pope's 1996 Address compared to the earlier ecclesiastical teaching. Evolution, wheather cosmic or biological, had been considered a theory (rather than a hypothesis) for decades by

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[7] John Paul II, "Address to the Plenary Session on the Subject *The Origins and Early Evolution of Life*," no. 4, in PAS 2003, 372.

[8] *Ibid.*

many scholars. John Paul II himself called it a theory in a series of lectures he delivered in 1949.[9] It seems, therefore, that the meaning of the 1996 Address has been exaggerated. One of the possible reasons why this happened is that the Address was delivered in a popular way, as a speech which was broadcast and popularized by world mass-media. But to fully understand John Paul II's position on evolution, this one utterance is not enough. We must take into account his earlier, more authoritative statements from 1985 and 1986. Before we do so, however, we need to notice that the 1996 Address in its closing parts[10] contains even more important remarks regarding the origin of man and the problem of hominization. These fragments require separate consideration.

[9] The series was first published in Polish in 1950 and 1999, and then in English in 2016. See Karol Wojtyła, *Considerations on the Essence of Man—Rozważania o istocie człowieka*, trans. John Grondelski (Lublin-Roma: Polskie Towarzystwo Tomasza z Akwinu & Societa Internazionale Tommaso d'Aquino, 2016), 151–153: "[T]he theory of evolution concludes that man emerges from certain animal forms, namely from those whose organisms build most closely approximates man's. As proofs of its truth, it points to supposed intermediate forms through which development occurred. Taken from that perspective, the theory of evolution must be regarded as a natural scholarly hypothesis which is still searching for a fuller justification for itself and a final precision of its conclusions (e.g., on the matter of the *genealogical line*). Because it is a hypothesis, we cannot now take this theory with absolute certainty and on its basis develop some conclusions with regard to man's essence itself."
Moreover, it is not even clear whether a strong distinction between a scientific hypothesis and a scientific theory is universally accepted among philosophers of science and scientists. While some see the difference and claim that a hypothesis is "a well-educated prediction of an outcome that would occur from a scientific experiment" and a theory is "a comprehensive explanation of natural phenomena supported by extensive evidence gathered through observations and/or experiments" (Gregg Hartvigsen, *A Primer in Biological Data Analysis and Visualization Using R* [New York: Columbia University Press, 2014], 88–89), there are others who overlook the distinction and hold that "a hypothesis is a theory or model of the world that allows one to make forecasts, and the creation and updating of such models is just a technical description of how we learn" (Kenneth A. Posner, *Stalking the Black Swan: Research and Decision Making in a World of Extreme Volatility* [New York: Columbia University Press, 2010], 22).

[10] John Paul II, "Address to the Plenary Session on the Subject *The Origins and Early Evolution of Life*," no. 5–7, in PAS 2003, 372–374.

The Problem of Hominization in the 1996 Address

The emphasis on human dignity and the irreducible character of each human person constitutes a hallmark of the entirety of John Paul II's teaching. No wonder that even the 1996 Address contains reaffirmation of the unique place of man among creatures:

> The human individual cannot be subordinated as a pure means or a pure instrument, either to the species or to society; he has value *per se*. He is a person. With his intellect and his will, he is capable of forming a relationship of communion, solidarity and self-giving with his peers.[11]

The topic of human origins is introduced by the Pope with this restatement of the exceptional value of every human being. Human dignity and the resemblance to God, as Thomas Aquinas confirms, derives primarily from the human intellect. As a consequence, any theory of origins that diminishes human dignity by proposing that the human mind emerges from matter is "incompatible with the truth about man."[12] John Paul II links this judgment with Pius XII's encyclical *Humani Generis*. Pius XII decisively stated that even if the human body is derived from a lower "living matter," his soul is created directly by God. According to both popes, therefore, there cannot be an evolutionary origin of the human soul.

The following fragment of the Address (no. 6) raises the most problematic issue. The Pope continues:

> With man, then, we find ourselves in the presence of an ontological difference, an ontological leap, one could say. However, does not the posing of such ontological discontinuity run counter to that physical continuity which seems to be the main thread of research into evolution in the field of physics and chemistry?

[11] *Ibid.*, no. 5, in PAS 2003, 373.
[12] *Ibid.*

> Consideration of the method used in the various branches of knowledge makes it possible to reconcile two points of view which would seem irreconcilable.[13]

To better see the problem that the Pope encountered, we need to recall how the origin of man is understood in biological sciences and among theologians proposing theistic evolution. To put it in a simple way, science proposes a descent of man from other animals through a continual process of generation with modifications. Since in science there is no room for inexplicable supernatural events, this process of the emergence of man must be continual, which means there cannot be a physical leap between non-human and human creatures. But this kind of a leap is implied by the direct creation and infusion of the soul. The reason is that the human soul is the form of the body. The infusion of the soul, from the metaphysical perspective, must necessarily transform the body in such a way that the new, rational form can be accepted by the material component. This vision implies that between a non-human and the human species there must be a physical disconnection, no matter how minute. As a consequence, the descent of man cannot be completely explained by biological sciences.

To see the problem even more clearly, we need to introduce three concepts of the origin of man. The first is based on the historical and literal reading of the Genesis account. Man was created directly and immediately by God. His body was molded of the dust of the earth and the clay model was livened by an immediate creation and infusion of the soul. This concept is called special creation. It has been almost universally abandoned after *Humani Generis*.

The second concept is called special transformism—this is the concept adopted in theistic evolution. According to special transformism, the first human emerged by the infusion of the new form (rational

[13] *Ibid.*, no. 6, in PAS 2003, 373.

soul) into an animal body which involved some kind of transformation of the physical structure of the body.

Finally, the third concept is the one proposed by scientists according to whom man emerged spontaneously as a product of natural evolution from animals. There is no room for physical discontinuity in the process of the generation of man, because this happened according to the universal laws of nature, in this case the laws of evolution and biological generation. Hence, biological sciences can explain the origin of man in purely natural terms.

Now, the problem which John Paul II encounters is that of reconciling the second and the third concept. On the one hand, special transformism accepts the fundamental tenet of evolutionary biology, namely that man descended from animals through biological generation. On the other hand, however, special transformism cannot accept the perfect continuity of this process due to the philosophical and theological requirements concerning the human soul. For example, if the rational soul is not just an epiphenomenon of highly organized matter, it must be infused externally, from outside of the order of nature. This, however, would make the emergence of human rationality inexplicable for natural science. The solution proposed in the Pope's Address is strikingly vague: "Consideration of the method used in the various branches of knowledge makes it possible to reconcile two points of view which would seem irreconcilable."[14] The sentences which follow only sketch the limits of different sciences, but do not provide a solution to the problem itself. One can adopt the clearest division between the experimental and the philosophical sciences and still see the conflict between the two concepts—not because the disciplines are contradictory, but

[14] *Ibid*. Another translation of this phrase available online reads: "An appreciation for the different methods used in different fields of scholarship allows us to bring together two points of view which at first might seem irreconcilable" (John Paul II, "Message to The Pontifical Academy of Sciences: On Evolution").

because one specific problem presented by them gains contradictory explanations. Therefore, we can see that the 1996 Address presents one of the greatest difficulties of special transformism (and by extension of theistic evolution) without offering any meaningful solution.

Papal Statements from 1985 and 1986

In 1985, in his Wednesday catechesis, John Paul II said that allowing chance as a primary force that builds and shapes the universe would be equivalent to "giving up the search for an explanation," "admitting effects without a cause," abdicating "human intelligence" and refusing "to think."[15] This seems like a very strong statement against evolution understood as a blind, unguided process (atheistic evolution). In the same catechesis, John Paul II unambiguously defended a "marvelous finality" visible in the material universe.[16] Again, John Paul II did not say anything that would stray from the long and well-established Christian tradition.

Christians are sure that the Church does not allow evolution as a purely materialistic, purposeless process, with chance as the main explanation of evolutionary changes. But, to be precise, any materialistic concept excluding God and finality would be incompatible with Chris-

[15] Giovanni Paolo II, *Udienza Generale* [*General Audience*] (10 July 1985; available online—see the section *References* for details), no. 7: "Parlare di caso per un universo che presenta una così complessa organizzazione negli elementi e un così meraviglioso finalismo nella vita, significa rinunciare alla ricerca di una spiegazione del mondo come ci appare. In realtà, ciò equivale a voler ammettere degli effetti senza causa. Si tratta di una abdicazione dell'intelligenza umana, che rinuncerebbe così a pensare, a cercare una soluzione ai suoi problemi. [To speak of chance for a universe which presents such a complex organization in its elements and such marvelous finality in its life would be equivalent to giving up the search for an explanation of the world as it appears to us. In fact, this would be equivalent to admitting effects without a cause. It would be to abdicate human intelligence, which would thus refuse to think and to seek a solution for its problems.]" (English translation cited after: Schönborn, "Finding Design in Nature.")

[16] See Giovanni Paolo II, *Udienza Generale*, no. 5.

tian doctrine altogether. Saying that John Paul II rejects a purely materialistic concept seems to belittle the full meaning of the utterance. Adopting such a general interpretation of the Pope's statement is almost tautological—it seems too obvious to account for the full meaning of the statement. Thus, it is likely that John Paul II wanted to say something more than just exclude an obviously non-Christian idea. Unfortunately, explaining in a positive way what the Pope meant is difficult and prone to overinterpretation. For this reason, the crucial question of whether the Pope sees evolution as an acceptable alternative to creation remains open. The only thing we know is that John Paul II rejected atheistic or purely materialistic interpretations of evolution.

In spite of the significant statements on finality made by John Paul II (and later repeated by Benedict XVI), even this aspect of the papal teaching is not completely clear. For example, it is not clear whether the Logos and Reason governing the world (as Benedict XVI puts it) is only an idea that seeks to describe the realm of essentially deterministic and chaotic phenomena of nature, or rather it is the source of an order detectable in biological and physical structures.[17] Papal statements do not provide an unequivocal answer to this question. And this vagueness triggered much discussion and controversy during the past two decades.[18]

Probably the most "pro-evolutionary" statement by John Paul II is that from 1986: "Indeed, the theory of natural evolution, understood in a sense that does not exclude divine causality, is not in principle opposed to[19] the truth about the creation of the visible world, as presented

[17] See Benedict XVI, *Creation and Evolution. A Conference with Pope Benedict XVI in Castel Gandolfo*, ed. Stephan O. Horn and Siegfried Wiedenhofer (San Francisco: Ignatius Press, 2008), 12–13, 19.

[18] Cf. Schönborn, "Finding Design in Nature," and Michael Chaberek, *Catholicism and Evolution: A History from Darwin to Pope Francis* (Kettering, Ohio: Angelico Press, 2015), 271–278.

[19] In the Italian original: "non contrasta, in linea di principio."

in the Book of Genesis."[20] This utterance deals with theological problems, and addresses the role of the Holy Scripture in judging evolutionary theories. In contrast to evaluating evolution as a scientific theory, when it comes to theological matters, religious authorities, such as popes, *do* have competence and can provide authoritative and—under some conditions—even infallible judgments. Thus, this passage is indeed crucial for the current ecclesiastical debate on creation and evolution: If there is no incompatibility between evolution and the Biblical message, Catholic creationists lose their most powerful argument—Biblical Revelation. In that case the debate is over.

And yet, the passage is scarcely noticeable in scholarly publications and was never popularized by the media similarly to the 1996 Address. A possible reason is that this papal statement presupposes that the Bible might be in opposition to evolution and thus biblical arguments might be not only relevant, but even decisive in the debate over the origins. This, however, is the principle of older theology which is very often ignored in contemporary ecclesiastical (specifically Biblical) scholarship.[21]

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[20] Giovanni Paolo II, *Udienza Generale* [*General Audience*] (29 January 1986; available online—see the section *References* for details), no. 3. The English translation after: John Paul II. "In Creation God Calls the World into Existence from Nothingness" (General Audience, 29 January 1986), in *Interdisciplinary Encyclopedia of Religion and Science*, ed. the Advanced School for Interdisciplinary Research (Rome: Pontifical University of the Holy Cross), available online—see the section *References* for details. John Paul II spoke in a similar manner in his "Address to the Plenary Session and to the Study Week on the Subject *Cosmology and Fundamental Physics* with Members of Two Working Groups Who Had Discussed *Perspectives of Immunisation in Parasitic Diseases* and *Statement on the Consequences of the Use of Nuclear Weapons*" (3 October 1981), no. 2: "The Bible itself speaks to us of the origin of the universe and its make-up, not in order to provide us with a scientific treatise, but in order to state the correct relationships of man with God and with the universe. . . . The Bible . . . does not wish to teach how heaven was made but how one goes to heaven" (PAS 2003, 250).

[21] This principle was expressed by several older theologians. For example, St. Augustine wrote: "I have learnt that a man is not in any difficulty in making a reply according to his faith which he ought to make to those who try to defame our Holy Scripture. . . .

According to more than a few scholars, be it scientists or theologians, the Book of Genesis—if it has any historical and realistic meaning at all—is a text which says something different from what it simply says. Rather, it has a "hidden sense" which an inspired author had in his mind, and which we seek to discover. Since there are no clear rules of how to discover that intended sense, it is mainly human reason which creates that "hidden and deeper" meaning, and adjusts it to the demands of time and circumstances. In consequence, when a new theory is proposed—no matter how well founded or unfounded it is—Christians are expected to adjust their understanding of Biblical message to match the theory. At the end of the day, the Bible loses its normative character regarding anything in the universe (worldview) and becomes merely a piece of literature from the ancient past. Its message is entirely relegated to the invisible, the spiritual or the symbolic.

In the traditional Christian approach, however, the Bible is not a "message in itself," but rather requires a context for proper interpretation. This context is delivered not just by the "critical exegesis," but rather Holy Tradition, that is, the teachings of the Church fathers, doctors and saints. From the dawn of Christian era, the Church was dealing with the problem of the genesis of the universe and succeeded to provide some convincing answers. The question of the origin of species did not start with Darwin. Obviously, some of the older biblical inter-

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When they produce from any of their books a theory contrary to Scripture, and therefore contrary to the Catholic faith, either we shall have some ability to demonstrate that it is absolutely false, or at least we ourselves will hold it so without any shadow of doubt" (Augustine, *The Literal Meaning of Genesis*, vol. 1, ed. J. Quasten, W. J. Burghardt, T. C. Lawler, series: *Ancient Christian Writers* 41 [Mahwah, N.J.: Paulist Press, 1982], 45). Later the same principle was adopted by Leo XIII in his Encyclical on the Study of Holy Scripture *Providentissimus Deus* (1893; available online—see the section *References* for details), no. 23: "God, the Creator and Ruler of all things, is also the Author of the Scriptures—and that therefore nothing can be proved either by physical science or archaeology which can really contradict the Scriptures. If, then, apparent contradiction be met with, every effort should be made to remove it."

pretations turned out to be untenable due to the progress of natural science. One spectacular example is the controversy between geocentrism and heliocentrism. Yet, science cannot overturn all classic Christian biblical interpretations by putting forward a physical theory, or by establishing a new scientific paradigm. Science can influence the Christian understanding of the Bible, but science cannot invalidate the truth of faith. Besides studying the findings of science, believers need to also find the limits of science and establish which questions properly belong to theology alone and which to biology and other scientific disciplines.

To see how this works, let's refer to a few examples. There is a massive scientific argument that dead people do not rise from the grave. Nevertheless, Christians believe that it happened in the case of the resurrection of Jesus Christ. Science says that virgins do not give birth. Nevertheless, Christians believe that God transcended the limits of nature and accomplished the virginal birth in the one specific case of Jesus Christ. Examples could be multiplied.

These kinds of claims are justified by one fundamental principle of the Christian understanding of the universe, or the Christian worldview, which says that even though nature is essentially self-explanatory, that is, all natural effects can be traced back to their natural causes, there are some events that happen beyond the order consisting of natural chains of causes and effects. In other words, some events in the physical universe do not have a physical explanation. And this is not just a possibility, but rather the actual way of how God deals with the universe. The greatest evidence of the veracity of this principle are miracles which happen throughout all of the history of humankind. The crucial question when it comes to the problem of origins is whether God must have used only natural causes when forming the universe or, perhaps, God transcended the order of nature in the history of creation. This would be analogous to the way God transcended the order of nature many times in the history of salvation. Unfortunately, we do not

find an answer to this fundamental problem in John Paul II's utterances from 1985 and 1986.

Conclusion

The above considerations lead to the conclusion that John Paul II's 1996 Address does not resolve the question of Christian understanding of evolution and, additionally, creates a problem of the correct understanding of the human soul in terms of Thomistic metaphysics. Moreover, his earlier teaching on evolution also appears as fragmentary and ambiguous, as one that requires greater precision and further development, especially for the sake of the Catholic theology of creation. Are the teachings of Benedict and Francis (John Paul II's successors) on evolution more specific and precise? Clearly, this is a question for another article.

A Textual Analysis of John Paul II's Teaching on Evolution

SUMMARY

The author considers John Paul II's treatment of the topic of evolution in order to retrieve its full content. He starts with an analysis of the Pope's 1996 Address to the Pontifical Academy of Sciences, especially addressing the problem of the meaning of the words that "the theory of evolution . . . [is] more than a hypothesis," and the problem of hominization. Then, he explores papal statements from 1985 and 1986. Finally, he concludes that John Paul II's teaching on evolution appears as fragmentary and ambiguous and, as such, requires greater precision and further development, especially for the sake of the Catholic theology of creation.

KEYWORDS

John Paul II, evolution, theory of evolution, evolutionism.

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