

“Church and Evolution”

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A. Church’s teaching about Creation

1. In the beginning God created the heavens and the earth.
2. We believe that God created freely out of nothing “even though we don’t know how.”
3. Creation was good and ordered.
4. God upholds and sustains it.
5. Universe is in a state of journeying toward ultimate perfection.
6. The “six days” of creation expresses a hierarchy from the less perfect to the more perfect. Man is the summit of the Creator’s work.
7. The Bible stresses design and life’s radical reliance on God, but it doesn’t say how all this came about.
8. 282 Catechesis on creation is of major importance. It concerns the very foundations of human and Christian life: for it makes explicit the response of the Christian faith to the basic question that men of all times have asked themselves: Where do we come from? "Where are we going?" "What is our origin?" "What is our end?" "Where does everything that exists come from and where is it going?" the two questions, the first about the origin and the second about the end, are inseparable. They are decisive for the meaning and orientation of our life and actions.
9. CCC 289 Among all the Scriptural texts about creation, the first three chapters of Genesis occupy a unique place. From a literary standpoint these texts may have had diverse sources. The inspired authors have placed them at the beginning of Scripture to express in their solemn language the truths of creation - its origin and its end in God, its order and goodness, the vocation of man, and finally the drama of sin and the hope of salvation. Read in the light of Christ, within the unity of Sacred Scripture and in the living Tradition of the Church, these texts remain the principal source for catechesis on the mysteries of the "beginning": creation, fall, and promise of salvation
10. CCC 295 We believe that God created the world according to his wisdom. It is not the product of any necessity whatever, nor of blind fate or chance. We believe that it proceeds from God's free will; he wanted to make his creatures share in his being, wisdom and goodness.
11. CCC 301: With creation, God does not abandon his creatures to themselves. He not only gives them being and existence, but also, and at every moment, upholds and sustains them in being, enables them to act and brings them to their final end.
12. CCC 302: Creation has its own goodness and proper perfection, but it did not spring forth complete from the hands of the Creator. the universe was created "in a state of journeying" (in statu viae) toward an ultimate perfection yet to be attained, to which God has destined it. We call "divine providence" the dispositions by which God guides his creation toward this perfection.
13. CCC 310: But why did God not create a world so perfect that no evil could exist in it? With infinite power God could always create something better.¹⁷⁴ But with infinite wisdom and goodness God freely willed to create a world "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. With physical good there exists also physical evil as long as creation has not reached perfection.
14. CCC 314: We firmly believe that God is master of the world and of its history. But the ways of his providence are often unknown to us. Only at the end, when our partial knowledge ceases, when we see God "face to face," will we fully know the ways by which - even through the dramas of evil and sin - God has guided his creation to that definitive sabbath rest for which he created heaven and earth.

B. Scientific teaching about Evolution

1. In the world of science, biological evolution is the key interpretative tool used in understanding the history of life on earth and serves as the cultural framework for modern biology.
2. C&S¹

¹ 2002 International Theological Commission document Communion and Stewardship: Human Persons Created in the Image of

God." http://www.vatican.va/roman_curia/congregations/cfaith/cti_documents/rc_con_cfaith_doc_20040723_communion-stewardship_en.html

- a. 63. According to the widely accepted scientific account, the universe erupted 15 billion years ago in an explosion called the "Big Bang" and has been expanding and cooling ever since. Later there gradually emerged the conditions necessary for the formation of atoms, still later the condensation of galaxies and stars, and about 10 billion years later the formation of planets. In our own solar system and on earth (formed about 4.5 billion years ago), the conditions have been favorable to the emergence of life.
 - b. While there is little consensus among scientists about how the origin of this first microscopic life is to be explained, there is general agreement among them that the first organism dwelt on this planet about 3.5-4 billion years ago. Since it has been demonstrated that all living organisms on earth are genetically related, it is virtually certain that all living organisms have descended from this first organism.
 - c. Converging evidence from many studies in the physical and biological sciences furnishes mounting support for some theory of evolution to account for the development and diversification of life on earth, while controversy continues over the pace and mechanisms of evolution.
 - d. While the story of human origins is complex and subject to revision, physical anthropology and molecular biology combine to make a convincing case for the origin of the human species in Africa about 150,000 years ago in a humanoid population of common genetic lineage. However it is to be explained, the decisive factor in human origins was a continually increasing brain size, culminating in that of *homo sapiens*. With the development of the human brain, the nature and rate of evolution were permanently altered: with the introduction of the uniquely human factors of consciousness, intentionality, freedom and creativity, biological evolution was recast as social and cultural evolution
 - e. 67. With respect to the *creatio ex nihilo*, theologians can note that the Big Bang theory does not contradict this doctrine insofar as it can be said that the supposition of an absolute beginning is not scientifically inadmissible. Since the Big Bang theory does not in fact exclude the possibility of an antecedent stage of matter, it can be noted that the theory appears to provide merely *indirect* support for the doctrine of *creatio ex nihilo* which as such can only be known by faith.
3. Evolution presumes creation.
 4. Evolution theory is based on two principles:
 - a. Random mutation (at the level of DNA replication)
 - b. Natural selection (survival of the fittest)
 5. Combination of genetic factors and environment.
 6. Random mutation applied to microevolution doesn't explain how small mutations could in a very short period of time generate quite different structures like those in vertebrates.
 7. Perhaps the most famous Achilles' heel in Darwin's theory was the lack of fossil records to demonstrate a smooth progression of intermediate forms between one species and the next. Darwin himself said future discoveries should plug the gap, but that has not happened.
 8. In an influential 1985 essay, Erbrich said that proteins with essentially the same structure and function are found even in very distantly related species. To explain this, evolutionary theorists would have to posit that essentially the same proteins developed two or more times, independently of one another, and both by chance.
 9. "The probability ... of the convergent evolution of two proteins with approximately the same structure and function is too low to be plausible, even when all possible circumstances are present which seem to heighten the likelihood of such a convergence," Erbrich wrote.
 10. From there, Erbrich drew a broader conclusion. "Why does the scientific theory of evolution hold on to the concept of chance to the degree it does?" he asked. "I suspect it is the fact that there is no alternative whatsoever which could explain the fact of universal evolution, at least in principle, and be formulated within the framework of natural science. If no alternative should be forthcoming, if chance remains overtaxed, then the conclusion seems inevitable that evolution and therefore living beings cannot be grasped by natural science to the same extent as non-living things -- not because organisms are so complex, but because the explaining mechanism is fundamentally inadequate."
- C. Church teaching on Evolution
1. There is no genuine conflict between evolution and creation— JP II, 1985 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*."

2. CCC 283: The question about the origins of the world and of man has been the object of many scientific studies which have splendidly enriched our knowledge of the age and dimensions of the cosmos, the development of life-forms and the appearance of man. These discoveries invite us to even greater admiration for the greatness of the Creator, prompting us to give him thanks for all his works and for the understanding and wisdom he gives to scholars and researchers.
3. CCC 284: The great interest accorded to these studies is strongly stimulated by a question of another order, which goes beyond the proper domain of the natural sciences. It is not only a question of knowing when and how the universe arose physically, or when man appeared, but rather of discovering the meaning of such an origin: is the universe governed by chance, blind fate, anonymous necessity, or by a transcendent, intelligent and good Being called "God"? and if the world does come from God's wisdom and goodness, why is there evil? Where does it come from? Who is responsible for it? Is there any liberation from it?
4. CCC 285: Since the beginning the Christian faith has been challenged by responses to the question of origins that differ from its own. Ancient religions and cultures produced many myths concerning origins. Some philosophers have said that everything is God, that the world is God, or that the development of the world is the development of God (Pantheism). Others have said that the world is a necessary emanation arising from God and returning to him. Still others have affirmed the existence of two eternal principles, Good and Evil, Light and Darkness, locked, in permanent conflict (Dualism, Manichaeism). According to some of these conceptions, the world (at least the physical world) is evil, the product of a fall, and is thus to be rejected or left behind (Gnosticism). Some admit that the world was made by God, but as by a watch-maker who, once he has made a watch, abandons it to itself (Deism). Finally, others reject any transcendent origin for the world, but see it as merely the interplay of matter that has always existed (Materialism). All these attempts bear witness to the permanence and universality of the question of origins. This inquiry is distinctively human.
5. CCC 286: Human intelligence is surely already capable of finding a response to the question of origins. The existence of God the Creator can be known with certainty through his works, by the light of human reason, even if this knowledge is often obscured and disfigured by error. This is why faith comes to confirm and enlighten reason in the correct understanding of this truth: "By faith we understand that the world was created by the word of God, so that what is seen was made out of things which do not appear."
6. 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).
7. The authoritative Catechism of the Catholic Church: "Human intelligence is surely already capable of finding a response to the question of origins. The existence of God the Creator can be known with certainty through his works, by the light of human reason." It adds: "We believe that God created the world according to his wisdom. It is not the product of any necessity whatever, nor of blind fate or chance."
8. 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 theoretical 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.
9. Man cannot consider himself as a necessary and natural outcome of evolution.
 - a. 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 mankind's appearance. Nature can receive potentially the spirit according to the will of God the creator, but cannot produce it itself. Such an affirmation transcends the boundaries of empirical science, something that scientific methods can neither prove nor disprove.
 - b. As a human, we owe it not to random chance or necessity. The human story is one of meaning and direction marked by a greater design.
10. Communion & Stewardship
 - a. Christians have the responsibility to locate the modern scientific understanding of the universe within the context of the theology of creation. The place of human beings in the history of this

evolving universe, as it has been charted by modern sciences, can only be seen in its complete reality in the light of faith, as a personal history of the engagement of the triune God with creaturely persons.

11. Summary

- a. **We must believe that the literal meaning of Scripture is true. But what is the literal meaning?** The meaning conveyed by the words and discovered by proper exegesis, following the rules of sound interpretation (§116).
- b. **What are possible literal meanings of the word “day” in the first chapter of Genesis?** It could mean six 24-hour periods; six temporal periods; or six logical divisions in creation, which would be giving primacy to the phrase “in the beginning” rather than the six days. CCC ¶337 says that the “six days” were “symbolic.”
- c. **Does the Genesis account rule out an act of creation which took place all at once?** No, because it says that God created the heavens and the earth “in the beginning,” which St. Augustine interpreted to mean that God created in an instant, not in temporal progression. It would be necessary for St. Augustine to be able to explain how animals were created “and then” man, which the IV Lateran council recapitulated. St. Augustine said the six days were meant to stress the hierarchy of creation, which the CCC reaffirms.
- d. **How do St. Augustine and St. Basil understand the idea of the formlessness of the earth?** St. Augustine believed that the formlessness of matter was not prior in time but in origin or the order of nature. He meant the absence of all form. In this sense, the formlessness of matter was not prior in time either to its formation or to its distinction. Formless matter cannot exist because it is a contradiction in terms — it must have some act to exist. In the same way that potentiality is prior to act, the formlessness of matter preceded in origin and nature (but not in time) its formation or distinction. SS. Basil, Ambrose, and Chrysostom hold that formlessness of corporeal matter preceded in duration of time its formation, but they understand formlessness to be the absence of beauty now apparent in creation. There was a three-fold beauty lacking to corporeal creations, which is why they said they are without form: darkness, void — invisible, and formless — empty or unadorned.
- e. **Why, according to St. Thomas, is this important for understanding their views on the possibility of development in creation?** The saints disagree about creation happening in one act or in several, but their conclusions, St. Thomas says, were different because they differed on what “formlessness of matter” meant. St. Augustine thought it was the absence of all form. The others the presence of form but the lack of “beauty,” and thus, that creation occurred without bringing about the final development or form of the creatures. St. Augustine held that God’s work was already perfect in one sense, but in another just begun. God created some things in a certain sense of potency, with that potency necessarily found in their cause. The cause for new species would be found in the *seminal reasons*. In this sense, God had completed all causes at the end of the six days, but the effects would come later.
- f. **Darwin accounts for the appearance of new species by saying that they developed from other species. What would St. Augustine or St. Thomas have to say to that?** They would not have a problem with this understanding. They both believe that creation was in a sense completed by the end of the hexameron.
- g. **How would their explanations be different from his?** St. Augustine would assert his seminal reasons, which would be present in the creation completed after six days. The cause’s new species would be present in the seed, or *seminal reason*, planted by God during the six days of Creation. For St. Thomas, creation is done as first act-second potency by the seventh day. God acted on the seventh day by directing his creatures toward their secondary perfections. Nothing entirely new was created after the sixth day. New (future) species existed in the first act completed during the six days. Both saints assert that there are boundaries contained in the seminal reason or potency. Forms are finite so there must be limited potentiality. If evolution be acceptable, God must have intervened at the boundaries — particularly non-living to living and living to man — to overcome them in a process including some development but not along a continuum.
- h. **Could an active potency or seminal reason explain a development from a material to an immaterial reality?** No. St. Augustine explicitly excepted man from production via seminal reasons, because no material being can produce a subsistent immaterial soul. Only an infinite

being can produce an immaterial soul, which must be created *ex nihilo*. St. Thomas said that God still needs to create souls, but not any new kinds of things.

D. Critical Comments about Evolutionism

1. A clear distinction must be made between what evolution is and what theories try to say about it.
 - a. While it is certainly true that phenomenon itself is real, theories about it must be experimentally verified before they can be considered scientifically valid. So far this has not happened. And for this reason, the last word on evolution has not been said. Ahead of us therefore there is much work to do before we can fully understand the mechanisms of the evolutionary process.
 - b. The scientific issues must be dealt with separately from their philosophical and theological implications.
2. Not able to answer question about whether mutations are the byproduct of random selection or the outcome of some kind of preferential orientation.
3. Cardinal Schonborn
 - a. The Catholic Church, while leaving to science many details about the history of life on earth, proclaims that by the light of reason the human intellect can readily and clearly discern purpose and design in the natural world, including the world of living things. *This is philosophical.*
 - b. Evolution in the sense of common ancestry might be true, but evolution in the neo-Darwinian sense – an unguided, unplanned process of random variation and natural selection – is not.
 - c. Any system of thought that denies or seeks to explain away the overwhelming evidence for design in biology is ideology, not science.
 - d. Scientific theories that try to explain away the appearance of design as the result of "chance and necessity" are not scientific at all, but, as John Paul put it, an abdication of human intelligence.
4. JP II
 - a. 1985: "All the observations concerning the development of life lead to a similar conclusion. The evolution of living beings, of which science seeks to determine the stages and to discern the mechanism, presents an internal finality which arouses admiration. This finality which directs beings in a direction for which they are not responsible or in charge, obliges one to suppose a Mind which is its inventor, its creator."
 - b. He went on: "To all these indications of the existence of God the Creator, some oppose the power of chance or of the proper mechanisms of matter. 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."
 - c. 1986: "It is clear that the truth of faith about creation is radically opposed to the theories of materialistic philosophy. These view the cosmos as the result of an evolution of matter reducible to pure chance and necessity."
5. JP II's 1996 statement that evolution is "more than a hypothesis" "cannot be read as a blanket approbation of all theories of evolution, including those of a neo-Darwinian provenance which explicitly deny to divine providence any truly causal role in the development of life in the universe." Furthermore, according to the commission, "An unguided evolutionary process – one that falls outside the bounds of divine providence – simply cannot exist."
6. C&S
 - a. In continuity with previous twentieth century papal teaching on evolution (especially Pope Pius XII's encyclical *Humani Generis*), the Holy Father's message acknowledges that there are "several theories of evolution" that are "materialist, reductionist and spiritualist" and thus incompatible with the Catholic faith.
 - b. Mainly concerned with evolution as it "involves the question of man," however, Pope John Paul's message is specifically critical of materialistic theories of human origins and insists on the relevance of philosophy and theology for an adequate understanding of the "ontological leap" to the human which cannot be explained in purely scientific terms.
 - c. 68. With respect to the evolution of conditions favorable to the emergence of life, Catholic tradition affirms that, as universal transcendent cause, God is the cause not only of *existence* but

also the cause of *causes*. Through the activity of natural causes, God causes to arise those conditions required for the emergence and support of living organisms, and, furthermore, for their reproduction and differentiation. Although there is scientific debate about the degree of purposiveness or design operative and empirically observable in these developments, they have *de facto* favored the emergence and flourishing of life. Catholic theologians can see in such reasoning support for the affirmation entailed by faith in divine creation and divine providence.

- d. 69. The current scientific debate about the mechanisms at work in evolution requires theological comment insofar as it sometimes implies a misunderstanding of the nature of divine causality.
- e. Many neo-Darwinian scientists, as well as some of their critics, have concluded that, if evolution is a radically contingent materialistic process driven by natural selection and random genetic variation, then there can be no place in it for divine providential causality. A growing body of scientific critics of neo-Darwinism point to evidence of design (e.g., biological structures that exhibit specified complexity) that, in their view, cannot be explained in terms of a purely contingent process and that neo-Darwinians have ignored or misinterpreted. The nub of this currently lively disagreement involves scientific observation and generalization concerning whether the available data support inferences of design or chance, and cannot be settled by theology. But it is important to note that, according to the Catholic understanding of divine causality, **true contingency in the created order is not incompatible with a purposeful divine providence.**
- f. Divine causality and created causality radically differ in kind and not only in degree. Thus, even the outcome of a truly contingent natural process can nonetheless fall within God's providential plan for creation. According to St. Thomas Aquinas: "The effect of divine providence is not only that things should happen somehow, but that they should happen either by necessity or by contingency. Therefore, whatsoever divine providence ordains to happen infallibly and of necessity happens infallibly and of necessity; and that happens from contingency, which the divine providence conceives to happen from contingency" (*Summa theologiae*, I, 22,4 ad 1).
- g. In the Catholic perspective, neo-Darwinians who adduce **random genetic variation and natural selection** as evidence that the process of evolution is absolutely unguided **are straying beyond what can be demonstrated by science.** Divine causality can be active in a process that is *both* contingent and guided. Any evolutionary mechanism that is contingent can only be contingent because God made it so.
- h. An unguided evolutionary process – one that falls outside the bounds of divine providence – simply cannot exist because "the causality of God, Who is the first agent, extends to all being, not only as to constituent principles of species, but also as to the individualizing principles....It necessarily follows that all things, inasmuch as they participate in existence, must likewise be subject to divine providence" (*Summa theologiae* I, 22, 2).
- i. With respect to the immediate creation of the human soul, Catholic theology affirms that particular actions of God bring about effects that transcend the capacity of created causes acting according to their natures. The appeal to divine causality to account for genuinely *causal* as distinct from merely *explanatory* gaps does not insert divine agency to fill in the "gaps" in human scientific understanding (thus giving rise to the so-called "God of the gaps"). The structures of the world can be seen as open to non-disruptive divine action in directly causing events in the world.
- j. Catholic theology affirms that that the emergence of the first members of the human species (whether as individuals or in populations) **represents an event that is not susceptible of a purely natural explanation and which can appropriately be attributed to divine intervention.** Acting indirectly through causal chains operating from the beginning of cosmic history, God prepared the way for what Pope John Paul II has called "an ontological leap...the moment of transition to the spiritual." **While science can study these causal chains, it falls to theology to locate this account of the special creation of the human soul within the overarching plan of the triune God** to share the communion of Trinitarian life with human persons who are created out of nothing in the image and likeness of God, and who, in his name and according to his plan, exercise a creative stewardship and sovereignty over the physical universe.

7. Benedict 16
 - a. "We are not some casual and meaningless product of evolution. Each of us is the result of a thought of God. Each of us is willed, each of us is loved, each of us is necessary." (Inaugural Mass, April 24, 2005).
 - b. April 6, 2006: WYD: "Science presupposes the trustworthy, intelligent structure of matter, the 'design' of creation."
 8. Intelligent Design
 - a. Supporters of ID don't deny evolution, but claim that certain complex structures could not have appeared as a result of random events.
 - b. Such complexity requires God's special intervention during evolution.
 - c. This is really meta-science, something that goes beyond the scientific method.
 - d. This is a philosophical, not a scientific, conclusion.
 - e. From a scientific point of view, the issue is still open. From a philosophical point of view, the case can be made for a designer.
 - f. Darwinist scientists 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.
 - g. To deny a greater cause to the laws of nature and properties of matter is to take an ideological, not scientific stance. Science can neither prove nor disprove that a greater design was involved.
 - h. Even the outcome of a truly contingent natural process can nonetheless fall within God's providential plan for creation. What to us may seem random must have been present in God's will and mind, which unfolded through secondary causes as natural phenomenon.
 9. Philosophical misuse of evolution
 - a. It's the philosophical misuse of evolution with which the church is most concerned.
 - b. What this amounts to is a distinction, which unfortunately comes more naturally in German than in English, between evolution and "evolutionism" -- between a scientific hypothesis, and a philosophical system.
 - c. "For Catholic thinking," Schönborn told John Allen, "it was clear from Pius XII's encyclical, *Humani generis*, that evolutionary theory can be valid to understand certain mechanisms, but it can never be seen or accepted as a holistic model to explain the existence of life."
 - d. The theory of evolution sometimes has a tendency to insist on being a full explanation of the totality of existence, which makes both metaphysics and God superfluous.
- E. Other issues
1. Science is not the only true knowledge.
 2. All truth comes from God and cannot contradict each other. If it seems to contradict, then it is because we have drawn a false conclusion from one of the data we have.
 3. Throughout history the Church has defended the truths of faith given by Jesus Christ. But in the modern era, the Catholic Church is in the odd position of standing in firm defense of reason as well. In the 19th century, the First Vatican Council taught a world newly enthralled by the "death of God" that by the use of reason alone mankind could come to know the reality of the Uncaused.
- F. Conclusion
1. Creation and Evolution are meant to go together.
 2. One should not veer into the proper area of the other.
 3. The theory of evolution neither destroys the faith nor confirms it, but rather presents it with a challenge.