

Evolution, Creation, and Intelligent Design

Suchi Myjak

Clearly, it is important to give our children a perspective on our origins that is in keeping with our Faith. What may be less obvious is that the information we present to them should also be reasonable in light of the scientific evidence available. Why? While the danger to our children's faith is more apparent in the first case, it is no less real in the second. Both faith and reason are important, and we must be careful not to put our children in the position of having needlessly to choose between the two.

Creationism

Creationism is the belief that the account of creation in Genesis 1 is to be taken literally. It goes along with the view that the earth is rather young—anywhere from 6,000–10,000 years old. Certain groups of Protestants and indeed some Fundamentalist churches hold to this view. Of course, variations do exist among Creationists.

A problem with interpreting Genesis 1 as a completely literal history is that it disagrees with the account in Genesis 2 on certain particulars, such as the order in which creation occurred. For example, in Genesis 1, man is not created until the sixth day, after the plants and animals; however, in Genesis 2:4-7, man is created “in the day that the Lord God made the earth and the heavens,” and *before* the plants and animals. Clearly both accounts cannot simultaneously be totally literal histories of creation.

Also, in order to accept a literal reading of Genesis 1, we have to ignore the evidence of a number of fields of science from geology to astrophysics (radiometric dating of rock layers to distance scale measurements), which all place the age of the universe at billions (not thousands) of years. Of course, it is *possible* that God could have created the world a few thousand years ago, and merely made it *appear* to be a lot older. However, this flies in the face of reason, a faculty for which the Catholic Church has always had a healthy respect. We need never fear to seek the truth in scientific investigations since

God will not contradict Himself (see CCC, para. 159).

As Catholics, we are blessed to have the Magisterium of the Church to interpret the Scriptures infallibly. We need not rely on our own understanding, which to my mind is the fatal flaw of Protestantism. Catholic scriptural exegesis affirms the importance of the literal meaning of a passage; however, this refers to what the human author was trying to convey (see CCC, para. 106–110). The Church has not definitively spoken on this aspect of the creation account; therefore, we are not required to accept a literal 6-day creation as part of our faith. In fact, there is a long history in the Church, including writers of the stature of St. Augustine, of not interpreting the “days” in Genesis as literal 24-hour days, for example in reference to God's statement to Adam that he would die on the very day that he ate of the forbidden fruit (see Gen. 2:17). This makes sense since Adam and Eve did not literally die that same day, although they did suffer a spiritual death by cutting themselves off from God's grace and eventually did die bodily.



The Church does teach that the Genesis account is historical in some sense and not merely mythological. Clearly, God's creation of the universe from nothing is a historical fact revealed in Genesis. Another is the creation of man in God's image. A third is the fact that God has given man dominion and stewardship over the world. All these are points of definitive Catholic teaching. Further, the Genesis accounts show that God's hand is involved in the design of every living thing.

Evolution: Darwinism and Its Successors

Although the term "evolution" has come to mean a broad range of concepts, it is still the term used by biologists. The following summarizes the development of evolutionary theories since Darwin.

- Darwin's proposal in *The Origin of Species* contained two key pieces: (1) *common descent*: that all the forms of life seen today arose from a common ancestor, and (2) *natural selection*: the mechanism by which this occurred.
- Darwinism per se has been acknowledged to be insufficient for a significant period of time; for one thing, it did not include a method for generating variation. The theory was therefore updated in the mid-twentieth century, producing "neo-Darwinism." The main change was the addition of random genetic mutation as the mechanism to generate variation.
- Over time, additional mechanisms, such as genetic drift and gene flow, have been included in the theory. Some refer to the result as the "modern synthesis," while others continue to call this "neo-Darwinism."
- The unwritten rule is that all mechanisms must operate solely by natural processes.

Evolution can be broadly divided into two categories, with the species level as the defining boundary. "Micro-evolution" refers to events below this boundary, while "macro-evolution" refers to those above it. Further, biologists refer to the "fact" of evolution as well as to the "theory" of evolution. More on this in a moment.

It is vital to understand that biologists define "evolution" as a change in the frequency of genes in a population over time. At

the micro-evolutionary level, such changes have been observed on numerous occasions. Examples include bacteria developing resistance to antibiotics, insects becoming resistant to pesticides, and heritable changes in coloration or size of animals. No one, including creationists, disputes this. This is one aspect referred to as the "fact" of evolution—i.e., "evolution happens."



At the macro-evolutionary level is where creationists generally have a problem with evolution. However, here too, there is strong evidence pointing to common descent; examples include (1) the fossil sequence, including transitional forms; and (2) gene-sequence comparisons. Speciation events have been observed in several instances, including in plants, yeast cultures, and fruit flies. This, too, is referred to as

the "fact" of evolution—i.e., "evolution has happened."

Why, then, is evolution also called a "theory"? When biologists speak of the "theory" of evolution, they are speaking of the mechanisms by which the observed changes in organisms might have occurred. In general, the currently known mechanisms are thought adequate for micro-evolutionary changes; however, whether they are adequate for macro-evolutionary changes is hotly debated within the community of scientists working in the field of evolutionary biology. The general pattern seen in the fossil record is one of very rapid differentiation of groups of creatures near the time of their origin, followed by long periods of stability. This does not fit well with the gradualism envisioned by the modern synthesis. While some contend that macro-evolution is simply cumulative micro-evolution, others (especially paleontologists) contend that additional mechanisms are needed to explain macro-evolution. Ironically, the actual "origin of species" remains poorly understood today.

Intelligent Design

The basic concept of Intelligent Design is that even though we can't always tell by looking at an object *who* made it, we can still tell *whether* someone designed it or whether it came to be by chance. For example, if you saw a watch or a car, you would immediately conclude that someone had made it, not that it had been constructed by random events. Similarly, scientists

in the Intelligent Design community see design evident in the natural world.

Another important concept concerns the question of detecting design. We already know that God did design living beings, but can we detect that design? An artifact may be designed without that design being detectable; modern art comes to mind. Conversely, non-intelligent processes may create an orderly pattern. Scientists working in the area of intelligent design therefore look for both complexity and specificity in order to detect design.

These scientists see design in many places. For example:

- **“Irreducible Complexity” on a Biochemical Level.** An irreducibly complex system has to have all parts in place and functioning in order to work. If the system only has some subset of the parts, it will not perform the function imperfectly—rather, it will not perform the function at all! The idea here is that it is not possible for such a system to evolve each part separately, since it doesn't make sense for an organism to retain several components that have no useful function. Thus, irreducibly complex systems imply design rather than evolution as their origin. For more on this, see *Darwin's Black Box* by Michael Behe (see Additional Resources list below).
- **The “Anthropic Fine Tuning” of the Universe.** There are many universal constants which we tend to take as a given; yet, if any one of them was changed even a little, life would cease to exist. So, many scientists (especially physicists) have asked, *Why* are these values so conveniently set? It is perhaps a measure of the desperation of those who reject the design hypothesis that they resort to extra-evidential theories, such as the existence of infinite parallel universes, to explain this fine-tuning.
- **Origin of Information in DNA.** The probability of the development of these complex and specified (i.e., information bearing) structures purely by chance is vanishingly small, even over a time scale of billions of years and given the most favorable (not necessarily realistic) conditions.



Intelligent Design in and of itself does not argue for or against any particular time frame. Nor does it posit that all possible variations have been the direct result of design. Rather, it contends that design rather than chance accounts for the increasing complexity of living creatures in the course of the earth's history. In a sense, it may be thought of as a mechanism by which evolution has occurred.

As with any proposal in science, there are arguments against Intelligent Design, primarily from supporters of Darwinian evolutionary theories, which do not allow for intelligent agents. Many scientists, unfortunately, display an unwillingness to engage in discussion of these ideas on their own merits. For more on Intelligent Design, including responses to the major arguments against it, see *Science and Evidence for Design in the Universe*, by Behe, Dembski, and Meyer (see Additional Resources list below for more information).

Intelligent Design is a plausible source for the sudden appearance of novel features in living creatures. It makes sense of the scientific evidence and seeks the truth, regardless of its implications. And, although it does not make any direct statements about God, since He is outside the realm of scientific investigation, design clearly implies a Designer. However, even if these ideas are true, we may never prove them to everyone's satisfaction; sometimes God chooses to be in the whisper rather than the earthquake (cf. 1 Kings 19:12).

What Does the Church Say about Evolutionary Theories?

The fullest teaching of the Church on this subject is in Pope Pius XII's encyclical *Humani Generis*:

“The teaching authority of the Church does not forbid that in conformity with the present state of human science and sacred theology research and discussions on the part of men experienced in both fields take place with regard to the doctrine of evolution in so far as it inquires into the origin of the human body as coming into existence from preexistent and living matter—for Catholic faith obliges us to hold that souls are immediately created by God. However, this must be done in such a way that reasons for both opinions, that is, those favorable and those unfavorable to evolution, be weighed and

judged with the necessary seriousness, moderation and measure and provided that all are prepared to submit to the judgment of the Church to whom Christ has given the mission of interpreting authentically the Sacred Scripture and of defending dogmas of faith.”¹

In addition, the *Catechism of the Catholic Church* says: “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.”²

In sum, we may believe in “theistic evolution” under the conditions that (1) God created the universe, so that it is not eternal; (2) God intervened in a special way in the generation of the first man; (3) all men are descended from one man (monogenism); (4) the soul of every man is directly created by God and not evolved in any sense; and (5) we are willing to submit to the judgment of the Church.³

God’s creation of the universe is not, of course, provable by science. Nonetheless, an “eternal” universe (as was once believed by scientists) would be in contradiction with it, whereas the Big Bang theory is compatible with it.

Similarly, science cannot determine whether God intervened to give man a soul, making him a rational being. Nonetheless, the evolutionary theory in question must be compatible with this idea. Both critics and proponents (most notably Richard Dawkins) of neo-Darwinism, or the modern synthesis, note that the theory implies atheistic materialism; it not only does not explain the origin of the soul, but it also effectively denies its existence. This in and of itself raises a red flag for faithful Catholics. Pope John Paul II stressed this point in his 1996 address to the Pontifical Academy of Sciences: “Consequently, theories of evolution which, in accordance with the philosophies inspiring them, consider the mind as emerging from the forces of living matter, or as a mere epiphenomenon of this matter, are incompatible with the truth about man. Nor are they able to ground the dignity of the person.”⁴

Another observation, made by Cardinal Ratzinger (now Pope Benedict XVI), is that our origins do not lie in “chance and error”; we are, rather, “something willed; . . . the fruit of love.”⁵ Or, as the *Catechism of the Catholic Church* says, “Man is the only creature on earth that God has willed for its own sake.”⁶ The point is that God designed the universe to make human existence not merely *possible*, but *certain*. We didn’t just happen to come into being; God willed for us to exist.

Perhaps because of an animosity to creationism, most evolutionary biologists insist on polygenism, or the idea that there was a group of interbreeding individuals that were the “first parents” of the human race, rather than one couple (Adam and Eve). This is incompatible with the revealed truth of the dogma of original sin. (Incidentally, the mitochondrial DNA evidence harmonizes with monogenism, though it does not necessarily require it.)

The Church teaches that, subject to the above considerations, we may believe in a theory of the evolution of life on Earth, though of course she does not require us to do so. Such a theory must stand or fall on its own scientific merits.

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Recommended Resource

Creator and Creation by Mary Daly.

Additional Resources (Thanks to Mary K for most of this list!)

Church documents:

- *Humani Generis*, Pope Pius XII, 1950. www.ewtn.com/library/ENCYC/Pr2HUMAN.HTM
- *Address to the Pontifical Academy of Sciences*, Pope John Paul II, 1996. www.ewtn.com/library/PAPALDOC/JP961022.HTM

Books:

- *In the Beginning . . . A Catholic Understanding of the Story of Creation and the Fall* by Joseph Cardinal Ratzinger (Pope Benedict XVI), Eerdmans Pub., 1995.
- *Copernicus, Galileo, and the Catholic Sponsorship of Science* by Jane Meyerhofer, Ye Hedge School, 2001.
- *1000 Years of Catholic Scientists* compiled by Jane Meyerhofer, Ye Hedge School.
- *Did Darwin Get It Right?—Catholics & the Theory of Evolution* by George Sim Johnston, Our Sunday Visitor, 1998.
- *Darwin’s Black Box* by Michael J. Behe, Touchstone/Simon & Shuster, 1996. (Behe is Catholic)
- *Science and Evidence for Design in the Universe*, by Behe, Dembski, and Meyer, Ignatius Press, 2000.

Websites:

- Catholic Educator’s Resource Center: Core Subjects: Science: www.catholiceducation.org/directory/Core_Subjects/Science
- Ye Hedge School (Mary Daly’s website, Catholic): www.hedge-school.homestead.com
- Dave Armstrong’s Intelligent Design site (Catholic): <http://ic.net/~erasmus/RAZ15.HTM>
- Discovery Institute (mostly Christian: both Protestant and Catholic): www.discovery.org

Endnotes

1. Pope Pius XII, *Humani Generis*, Aug. 12, 1950. www.ewtn.com/library/ENCYC/Pr2HUMAN.HTM.
2. *The Catechism of the Catholic Church (CCC)* para. 295.
3. cf. John A. Hardon, S.J., *Pocket Catholic Dictionary* (Image Books, 1985), p.136. For more, see *Humani Generis*, op. cit.
4. The full text of his address is at www.ewtn.com/library/PAPALDOC/JP961022.HTM. A good discussion of it is available online at <http://www.cin.org/users/james/files/whatsaid.htm>.
5. Joseph Cardinal Ratzinger (Pope Benedict XVI), *In the Beginning* (Eerdmans Pub., 1995), pp. 56-7. cf. CCC, para. 284, 295.
6. CCC, para. 356.