

Definitions: Evolution, Theistic Evolution, and Creation

The biological literature about evolution amounts to thousands of books and papers published every year. There is also a significantly smaller number of publications by Thomists who try to show how evolutionary theory may be reconciled with Thomistic philosophy. But the common problem of both Thomistic and non-Thomistic literature is a lack of clear and consistent definitions of terms. Let's look at just a couple of examples found in the Thomistic literature.

One of the books says: "The task of evolutionary biology is to explain new species as arising out of earlier ones in the same way that mountains and lakes are explained as having arisen out of earlier geological formations."¹

Here biological evolution is compared to geological processes such as elevation of mountains, erosion of rocks, etc. But the first part defines evolution as new species arising from the earlier species. We already have confusion, because a new species is definitely something entirely new compared to an old species. For example, the common evolutionary story says that birds evolved from reptiles; thus, initially there were only reptiles (mostly robust and heavy quadrupeds walking firm on the earth) and finally we have small, gentle, and quite agile creatures that differ in almost all internal and external organs and systems from the reptiles. Thus, in biological evolution, over the course of time, we would see the emergence of some total novelties, such as wings, pneumatic skeletons or the "four-cycle" respiratory system. We do not see such creativity in any geological processes. What we see instead is mountains changing into different mountains or into valleys or sea beds which change into mountains or valleys again. Nothing new is created in geological processes.

So, what does the definition tell us? Does it mean that those new "species" that evolve from the old ones are just minor variants emerging due to environmental adaptations? We know that if we move a population of foxes from dry and hot conditions to cold and humid they may survive and adapt by developing thicker fur, thicker blood and perhaps other features. But we do not see an emergence of a new species from the earlier species. In fact we know quite well that a polar fox is as much a fox as a desert one.

Moreover, when we check the fossil record, we do not see dramatic change in the animal forms that have inhabited the earth over long ages. A hundred-million-year-old crocodile fossil is identical to the currently living crocodile of the same species. It is true that some species appear and others disappear in the fossil record, but we do not have evidence that those "newer" species evolved from the older ones. On the contrary, forms of all species remain unchanged over millions of years, and this is the rule rather than an exception. So, how should we understand the quoted definition? It seems to be at least incoherent. It claims that entirely new species of living beings may arise owing to evolution, but at the same time it compares evolution to geological processes which do not create anything new.

Moreover, this definition assumes the existence of species—new species evolve from the earlier ones. But where did those earlier species come from? According to this definition evolution does

¹ G.M. Verschuuren, *Aquinas and Modern Science*, Angelico Press 2016, p. 153.

not explain the origin of species. At the end of the day, we do not know if the definition speaks about macro- or microevolution. Does it mean that evolution creates species, or just minor variants within species? Are all species sharing common ancestry, or there were many beginnings of life? These and many other questions remain unanswered. But the answer to these questions is crucial, if we are to know what we are talking about when discussing evolution and Aquinas's philosophy.

Another definition found in Thomistic literature defines evolution as: “the scientific claim that all the living organisms on our planet have a common biological origin and that these diverse organisms arose through a process of natural selection acting on genetic diversity.”²

This definition ends up requiring circular reasoning. If natural selection acts on genetic diversity, the genetic diversity must exist prior to natural selection. But genetic diversity is carried by the diversity of organisms which, according to the definition, are produced by natural selection. The diversity of life must exist so that natural selection can create the... diversity of life.

One could also wonder how much science there is in the “scientific claim” that “all the living organisms on our planet have a common biological origin.” Such a general statement about all life on earth sounds more like a philosophical postulate rather than a conclusion from any scientific research.

Given such ambiguities and even contradictions in the definitions provided by Thomistic evolutionists, we need to resort to clear and consistent definitions and—by doing so—establish the problem facing those who would reconcile Aquinas with evolution.

Biological Evolution

Evolution may be considered as a process occurring either in nature or in culture. In culture it is evolution of laws, languages, customs, arts, political systems, etc. In sum, evolution in culture applies to the changes in the sphere created by rational and typically human activity. And this is not the type of evolution we are concerned with. In nature we can speak about the evolution of the cosmos (cosmic evolution), which includes the development of planetary systems, the emergence of stars, etc. Chemical or biochemical evolution usually refers to processes of change allegedly responsible for the origin of life. But in the center of our interest is organic or biological evolution. Biological evolution is about changes in living beings. However, not all changes are controversial and not all biological changes are an object of hot debate. If evolution means just “change over time” it does not create much controversy. Everybody can see that living beings change—they are born, mature, grow old and die. New generations come. We can see that populations change, too. Species migrate, sometimes die out, and sometimes propagate beyond the capacity of their habitats. Moreover, individuals differ from each other and very often one trait (biological characteristic) may dominate a population while another trait may completely disappear. We also see environmental adaptations of living beings due to the changes in natural conditions. But none of these things is the point of controversy. At least, it is not a point of controversy when we ask the question of whether Thomistic philosophy is compatible

² N.P.G. Austriaco, J. Brent, Th. Davenport, J.B. Ku, *Thomistic Evolution: A Catholic Approach to Understanding Evolution in the Light of Faith*, Tacoma, WA: Cluny Media 2016, p. I

with biological evolution or not. The debate and controversy begins when we make a distinction between micro- and macroevolution.

Microevolution

Microevolution is a process of change that is quite well documented by biological sciences. It involves adaptive changes in living beings that may happen because of various factors. These may include genetic mutations. One example is the resistance of bacteria to antibiotics which is produced through random mutations and natural selection. This kind of evolution does not affect the external form of an organism in any way. Another example is an adaptation of organisms to different environments. This kind of change may impinge quite dramatically upon the external look of an organism. It may, for example, produce different color of skin or fur, or longer fur or debilitated fur; it may influence the blood density, weight, size, or many other features of an organism. But the common point of all microevolutionary changes (whether internal or external) is that they never produce a new natural species. Instead, these changes occurring in individuals fall within the limits of their species.

Macroevolution

Macroevolution, as typically understood, consists of three grand claims:

First, that all organisms share common ancestry, i.e., all species, whether extant or extinct, branched out from one or a few ancestors in a distant past. This also means that all living beings are connected by the process of natural biological generation.

Second, that the transformation of one species into another species is possible by means of natural generation. This means that an individual or a population of one type of organism can (and in fact will) change into an individual or population of a completely different type of organism, given enough time and other natural conditions (e.g., including mutations and selection pressure).

Third, that the changes that have produced all the diversity of life were natural, i.e., happened thanks to the properties and laws inherently present in nature. No supernatural power worked in this process.

All the three claims are an object of the ongoing controversy. Consequently, the problem of compatibility of Thomistic philosophy with biological macroevolution boils down to three questions: Is Thomism compatible with universal common ancestry? Is Thomism compatible with the transformation of species? Can species be produced naturally?

Species

Evolutionists (such as Darwin and his followers) deny the existence of species or maintain that it is impossible to define species. But if this were the case, how could a book on the origin of species (including Darwin's own work) make any sense? In fact evolutionists are incoherent in their adoption of the notion of species. Darwin had to deny the existence of species in order to introduce the idea of transformation of species. This is why he made such bold claims like "No line of demarcation can be drawn between species".³ But in the course of his work he changes his mind without admitting it. Having said that species are indistinguishable he says that there

³ C. Darwin, *The Origin of Species*, London: John Murrey, 1859, p. 57, cf. 470.

are “true species” and “intermediate species”. Those “intermediate” are the initial stages of the production of those “true” or “distinct” species. Hence, it seems as if in Darwin’s mind species do not exist but, yet exist.

This kind of confusion has entered biology and will remain there as long as macroevolutionary theories will drive the interpretation of data. The reason is that it is impossible to postulate transformation of species and at the same time maintain a clear definition of species. Aristotle and Aquinas did not doubt that species exist and that we can define them. Moreover, if evolutionists claim that species arise from one another and all species share one ancestor they need to have some definition of species. To avoid the type of confusion introduced by Darwin we will distinguish four ways of understanding species:

1) *Logical species*—the idea of species taken as a logical subcategory of the broader category of genus. In this sense, species can be attributed to individuals quite arbitrarily, simply by projecting new working definitions on different classes of beings. Species, taken in merely a logical sense, is a relative term that simply maintains a distinction between classes and sub-classes of a group of objects or organisms. Examples of logical species include: a revolver which is a species under the genus “firearm”, hammer is a species under the genus “hand tool”, triangle is a species under the genus “geometric figure”. Nominalists, i.e., those who claim that species do not exist, understand them only in this way.

2) *Metaphysical species*—a species predicated with respect to a substantial form. Metaphysical species includes beings that have the same substantial form.

3) *Natural species*—natural kinds of living organisms, such as dogs, cats, cows and horses. Natural species can be defined according to the three levels of the human knowledge:

a) In natural science (biology), a natural species are living beings belonging to the same genus or family according to the classical taxonomy.

b) In philosophy, a natural species includes organisms that share the same nature. In this context “nature” is defined by Aquinas as “the essence of a thing as it is ordered to the proper operation.” From the metaphysical perspective, natural species can be seen as living composites of form and matter that share the same substantial form.

c) In theology, natural species may be identified with kinds mentioned in Genesis 1.

4) *Biological species (or modern scientific notion of species)*—according to one modern definition by Ernst Mayr, a biological species signifies all populations in which individuals are prospectively able to interbreed in their natural environment and produce fertile offspring.

Only the third understanding of species (as natural species) is relevant in the controversy over evolution. Macroevolution assumes that new natural species (not biological species) can emerge from the previous ones. This also helps settle the difference between micro- and macroevolution. Microevolution includes all changes occurring within natural species whereas macroevolution postulates transformation and emergence of new natural species. We have defined natural species according to three realms of human knowledge (natural science, philosophy, and theology). This means that whether we approach evolution from a theological, philosophical, or scientific perspective the problem is always the same: Can new natural species emerge through evolution? And this is the subject of the debate.

Biological Macroevolution and Darwinism

We said before that biological macroevolution comprises three grand claims about the biological realm. All three tell us “what would happen if evolution worked long enough”. These three grand claims describe the supposed *effects* of evolution rather than a *mechanism* or the way how evolution happens. We should therefore distinguish between the supposed effects of macroevolution and the biological mechanism that is supposed to produce those effects. The commonly adopted mechanism of evolution in biology is the neo-Darwinian one. It consists of two basic factors—random genetic mutations and natural selection. Mutations provide diversity from which selection chooses the “better adapted” traits and rejects the “worse adapted”. Only the mechanism of evolution is a proper object of scientific scrutiny. The grand claims remain just the grand claims which are not so much scientific as philosophical. The grand claims have never been demonstrated according to the methods of natural sciences. Thus, it is important to keep in mind the distinction between the mechanism and the effects of evolution. The mechanisms may change, but the supposed effects (the three grand claims) remain the same from the times of Darwin to now. In our debate between Thomism and evolution we are not concerned with the mechanism of evolution but with the three grand claims. Consequently, it does not matter for us how much credibility any mechanism gains in science, whether it is confirmed or disproved. Darwinism or neo-Darwinism may be true in what it claims about the changes of species and at the same time the three grand claims about the origin of species may be completely false.

Theistic Evolution

Biological macroevolution is a scientific theory aimed at explaining the origin of species. Many Christian scholars after Darwin asked if biological macroevolution is compatible with the Christian faith. Those who answered in a positive way never challenged the theory itself. Instead, they came up with the idea that God used evolution to produce species. Evolution was called a secondary cause of creation: As a carpenter uses saw and hammer to make a bench, God uses evolution to create biodiversity. Those scholars often distinguish between the mechanism of evolution and the effects in the form of different species. They say that the mechanism may change, in fact there may be even many different mechanisms of evolution, but the grand evolutionary claims about universal common ancestry and natural transformation of species are valid regardless of any mechanism. In this sense biological macroevolution becomes theistic evolution, that is, the theological concept saying that God did not create species separately but instead used the powers of nature (such as generation, random variation and natural selection) to bring about the whole diversity of life. In theistic evolution there is room for God—He is considered the highest Being who acts as the final cause of the evolutionary process. Theistic evolutionists claim to be radically different from atheistic evolutionists who deny any higher cause or any finality in evolution. However, theistic evolutionists agree with atheists that there are no marks of divine causality left in the natural order. Consequently, the science of biology can fully explain the origin of species. Thomistic evolutionists say the same as the theistic evolutionists, with the addition that theistic evolution is compatible with Thomistic philosophy. According to Thomists (i.e., those Thomists who support theistic evolution), had Aquinas known modern science he would not have a problem with admitting the three grand claims of biological

macroevolution: universal common ancestry, transformation of species, and the natural origin of species.

Creation

Aquinas defines creation as not a change, but a simple emanation of being out of nothing. A thing may start to exist in two ways, either by creation or by a change, such as mutation, generation, or any type of movement. But creation has no movement. It is not a process. It is a simple emanation of being which is produced according to its entire substance. Hence, there are three characteristics of creation: (1) It is always a supernatural (and direct) act of God; (2) It is instantaneous and not continuous (not a process); (3) It does not involve any secondary causes. Evolution, in contrast, is: (1) natural; (2) a process (it is a change), and continuous, i.e., extended in time; (3) an operation of secondary causes. Creation and evolution are mutually exclusive—something is either created or evolved. Creation and evolution are in logical opposition.

Even so, many theologians believe that one and the same thing can come about by creation and by evolution. One influential theologian complains about “somewhat fierce debate raging between so-called *creationism* and evolutionism, presented as though they were mutually exclusive alternatives.” The theologian goes on to say: “This antithesis is absurd.” Another renowned theologian believes that “the alternative *theory of evolution or creationism* is too simplistic.” Yet if we adopt the classic Christian understanding of creation and the classic scientific understanding of evolution it is not absurd to oppose evolution and creation; rather, it is absurd to say there is no opposition between them.

It is not rare that Thomistic evolutionists call the creative act an intervention. They usually claim that God does not “intervene” in the natural world, but instead guides everything using natural secondary causes. By identifying creation with an intervention they dismiss creation as *interventionism*. There is a lot of confusion in this argument. “Intervention,” from the Latin *inter-venio* (“come between”), means that God enters a chain of causes and effects in order to change its course and bring about a different effect than would otherwise follow. But in creation there is no previous chain. God begins being in an absolute way whether it is the being of the total universe (first creation out of nothing) or the subsequent creation of particular new substances. Intervention presupposes the existence of causes and effects; creation does not presuppose anything. That’s why creation cannot be an intervention. We can compare divine creative activity to a painter adding a new object to a painting. It does not destroy anything that was already painted. It does not break any of the existing order. It simply adds something entirely new. In creation an absolute novelty is produced out of nothing.

Another confusion regarding the term “creation” is apparent in a phrase like “the mode of creation.” Thomistic evolutionists use this phrase to explain *how* God created species. They say that the Bible tells us *that* species were created, but it does not tell us anything about *how* it happened. To explain *how* species began to exist, they say, belongs to science. But this is already contradiction in terms, because if something emerges by creation there cannot be any process to account for its origin. Saying “a mode of creation” is redundant because creation signifies both *that* a thing began to exist and *how* it began to exist, namely, out of nothing by the direct act of God.

Young Earth Creationism

Young earth creationism includes two basic tenets. The first tenet is that creation happened exactly according to the Biblical account. This means that species were created separately and no macroevolution took place. The second tenet is that the time-line of the natural history of the universe should be derived from the genealogies given in the Bible and the assumption that the days described in Genesis 1 are natural days, i.e., 24 hours. Consequently, the total history of the universe based on biblical genealogies is about six thousand years (though some proponents of YEC allow up to ten thousand). The contemporary form of YEC was crystallized when some Christian groups challenged Darwinian evolution in the early 20th century. Later, in the 1960s a modified version of YEC was proposed. It is typically referred to as “scientific creationism” (see below). Scientific creationism differs from the original young earth creationism by proposing the congruence of scientific data with the young earth perspective derived from the Bible. The proponents of YEC often claim that all of Christendom before the geological revolution (18th and early 19th centuries) believed in a young earth. According to them, allowing an old earth is a betrayal of the uninterrupted Christian tradition and an offense to the Bible. They, however, fail to add that Christians never believed in young earth *as a matter of faith*. Christians of the pre-scientific era did not have any reason to adopt “deep time” (billions instead of thousands years of history) because geology did not exist at the time.

Progressive Creation

Progressive creation (PC), frequently known as old earth creationism (OEC), agrees with YEC regarding the historical interpretation of Genesis 1–3. Progressive creation also rejects macroevolution as an explanation for the origin of species. However, according to progressive creation the literal and historical interpretation of Genesis does not preclude the concept of “deep time.” The Biblical days can be interpreted as epochs. Consequently, progressive creation accepts all cosmic and geological evidence of “deep time”; however it rejects the theory of biological macroevolution as the explanation to the origin of species. Hence, progressive creation is congruent with all scientific data (in cosmology, geology and biology) although it rejects some scientific theories (i.e., interpretations of data such as the theory of biological macroevolution). Theistic evolutionists usually present their position as a “middle ground” between the extreme atheistic evolutionism of Richard Dawkins on the one hand and young earth creationism of “fundamentalists” on the other. But they overlook progressive creation, which is also a middle ground between the two extremes and—by the way—an alternative to theistic evolution.

“Scientific Creationism”

Still another confusion regarding the understanding of creation is found in the label “scientific creationism.” Scientific creationism is the name for an intellectual endeavor started by young earth creationists in the 1960s to make their concept of creation more “scientific” and by this counter the scientific concept of biological macroevolution. The problem is that creation cannot be scientific because it refers to divine activity. Science speaks about natural events, whereas creation by definition is supernatural and cannot be an object of science. “Scientific creationism” is an oxymoron.

“Evolutionary Creation”

The term “evolutionary creation” is also an oxymoron. It is promoted by theistic (and Thomistic) evolutionists when they in fact mean theistic evolution. They believe that by putting together two contradictory terms they overcome the contradiction, or at least make theistic evolution less repulsive to the traditional believers. But creation cannot be evolutionary, and evolution cannot be creative (in the theological sense), for the reasons mentioned above.

Intelligent design

The best place to find a correct definition of intelligent design is on the website created by the authors of this theory. At www.intelligentdesign.org we read:

Intelligent design refers to a scientific research program as well as a community of scientists, philosophers and other scholars who seek evidence of design in nature. The theory of intelligent design holds that certain features of the universe and of living things are best explained by an intelligent cause, not an undirected process such as natural selection. Through the study and analysis of a system’s components, a design theorist is able to determine whether various natural structures are the product of chance, natural law, intelligent design, or some combination thereof. Such research is conducted by observing the types of information produced when intelligent agents act. Scientists then seek to find objects which have those same types of informational properties which we commonly know come from intelligence. Intelligent design has applied these scientific methods to detect design in irreducibly complex biological structures, the complex and specified information content in DNA, the life-sustaining physical architecture of the universe, and the geologically rapid origin of biological diversity in the fossil record during the Cambrian explosion approximately 530 million years ago.