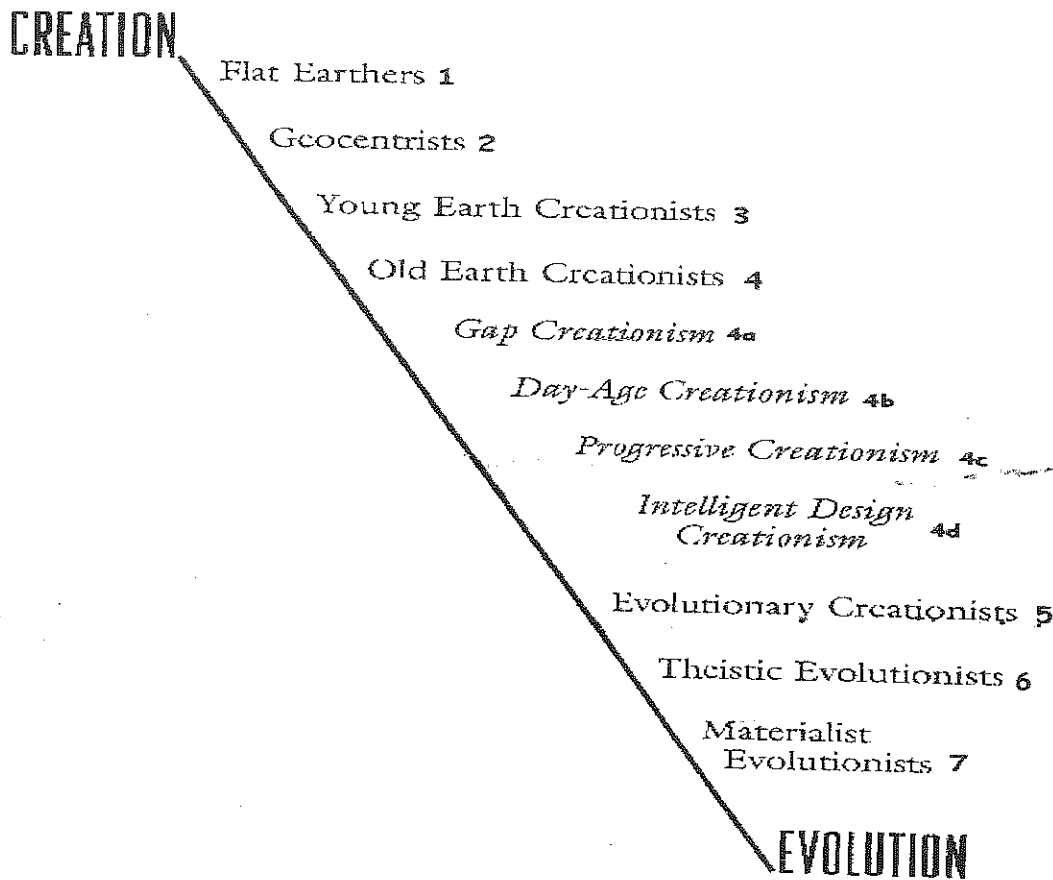


# THE CREATION/EVOLUTION CONTINUUM

*By Eugenie Scott (modified/adapted for classroom use by A. Grim 2/08)*

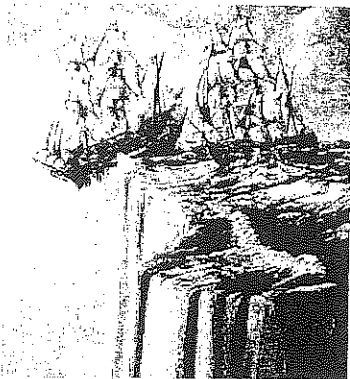
Many—if not most—Americans think of the creation and evolution controversy as an either/or argument with "creationists" on one side and "evolutionists" on the other. Unfortunately, this assumption often leads to the conclusion that because creationists are believers in God, evolutionists must all be atheists and/or that religious people cannot accept evolution. The true situation is much more complicated. In real life, we don't see a simple division with "creationists" on one side and "evolutionists" on the other. What we see in real life is a *continuum* of opinions—shades of many opinions that run from one extreme end to the other—more like the diagram in below. Even this diagram is simplified. In reality, there are various viewpoints *between* the labeled positions, and some of these viewpoints overlap with others. So if someone tells you, "I'm a creationist", you could ask, "What kind?" Let's examine these positions one at a time.

## THE CREATION/EVOLUTION CONTINUUM



### 1. Flat Earthers (FE)

The International Flat Earth Society ([http://www.alaska.net/~clund/e\\_djublonskoof/Flatearthsociety.htm](http://www.alaska.net/~clund/e_djublonskoof/Flatearthsociety.htm); <http://www.theflatearthsociety.org/forum/>)



is headquartered in Lancaster, CA, and they are very serious about the planet's shape being as the ancients thought: circular and flat, shaped like a coin. The International Flat Earth Society has only about 200 members. Its members claim that if you read the Bible *literally*, it describes the earth as being flat. The book of Genesis is

an ancient Hebrew book and the ancient Hebrews believed the earth was flat. In short, the earth is flat because the Bible says it is flat. Scientific evidence to the contrary is of secondary importance. Figure 1 shows the ancient Hebrew's idea of the structure of the universe. (The essential flatness of the earth's surface is required by verses like Daniel 4:10-11. In Daniel, the king "saw a tree of great height at the centre of the earth...reaching with its top to the sky and visible to the earth's farthest bounds." If the earth were flat, a sufficiently tall tree would be visible to "the earth's farthest bounds," but this is impossible on a spherical earth. Isaiah 10:22 & Job 38:12-13 also require a flat earth: "It is he that sitteth upon the circle of the earth..." and "take the earth by the edges and shake the wicked out of it".)

Flat earthers' literal interpretation of the bible leads them to reject modern astronomy, physics, chemistry as well as biology.

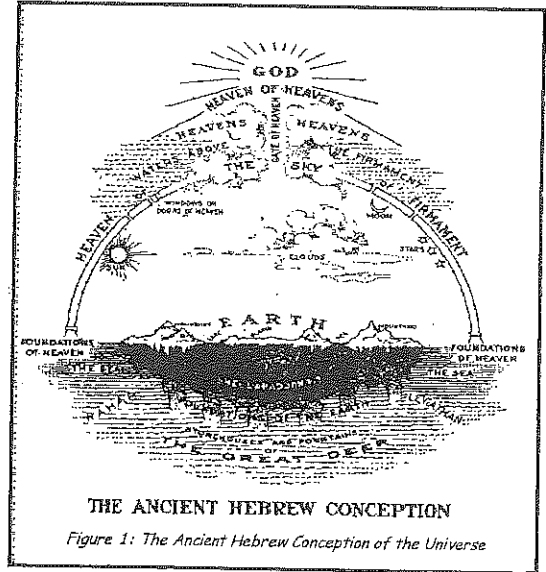
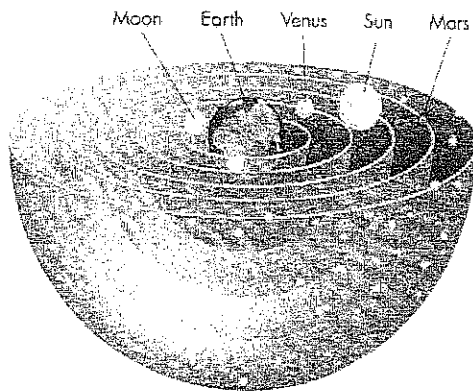


Figure 1: The Ancient Hebrew Conception of the Universe

### 2. Geocentrists (G)



Geocentrists accept that the earth is spherical, but they deny that the sun is the center of the solar system. They point out that the sun appears to travel around the earth, not vice versa. Like flat earthers, they reject not only modern astronomy, but practically all of modern physics and chemistry as well as biology. Geocentrism is a slightly larger group than the flat earthers. As recently as 1985, the secretary of the Creation Research Society was a published geocentrist. (The Bible uses geocentric language, such as: "From the rising of the sun unto the going down of the same" (Psalms 113:3)).

### 3. Young-Earth Creationism (YEC) (the followers of Henry Morris, the founder of the Institute for Creation Research (IRC))

Very few Young-Earth Creationists (YECs) interpret the flat-earth and geocentric passages of the Bible literally, but they reject modern astronomy, physics, chemistry, and geology concerning the *age of the earth*, and they *deny biological evolution*. In their view the earth is from 6000 to 10,000 years old.

#### 4. Old-Earth Creationism (OEC)

The idea that the earth is very old was well-established in science in the mid-1800s and was not considered a radical idea in either the Church of England or the Catholic Church (Eiseley 1958). From the mid-1700s on, the theology of creationism has been harmonized with scientific data and theory showing that the earth is very ancient.

Theologically, according to Old Earth Creationists, the most important part of creationism is God's personal involvement in Creation: *precise details of how God created are considered secondary in importance.*

There are 4 main types of Old Earth Creationism: a) Gap Creationism, b) Day-Age Creationism, c) Progressive Creationism, and d) Intelligent Design Creationism.

##### a. Gap Creationism (GC)

One way people have brought agreement to religion and science by hypothesizing that there was a large gap in time (*millions or even billions of years*) between Genesis 1:1 and Genesis 1:2. This viewpoint was first raised in the late 1700s. Gap Creationism assumes a creation (possibly with dinosaurs etc.) during Genesis 1:1. That creation was then destroyed before Genesis 1:2. Then God created the present world, complete with Adam and Eve, in 6 days. A time gap between the two separate creations allows for the acceptance of evidence for a very ancient earth.

##### b. Day-Age Creationism (DAC)

Another attempt to mesh science to a literal, or mostly literal, reading of the Bible is the Day-Age model (which was more popular than Gap Creationism in the 1800s and the early 1900s. Day-Age Creationism says that each of the 6 days of creation was a really long period of time—thousands or millions of years—instead of merely 24 hours long. 2 Peter 3:8—"But do not forget this one thing, dear friends: with the lord a day is like a thousand years, and a thousand years are like a day".

Many in this group have pointed out that there is a partial match between the order of appearance of living things in the fossil record and the order of appearance of living things in the 1<sup>st</sup> chapter of Genesis (plants appearing before animals and humans appearing last).

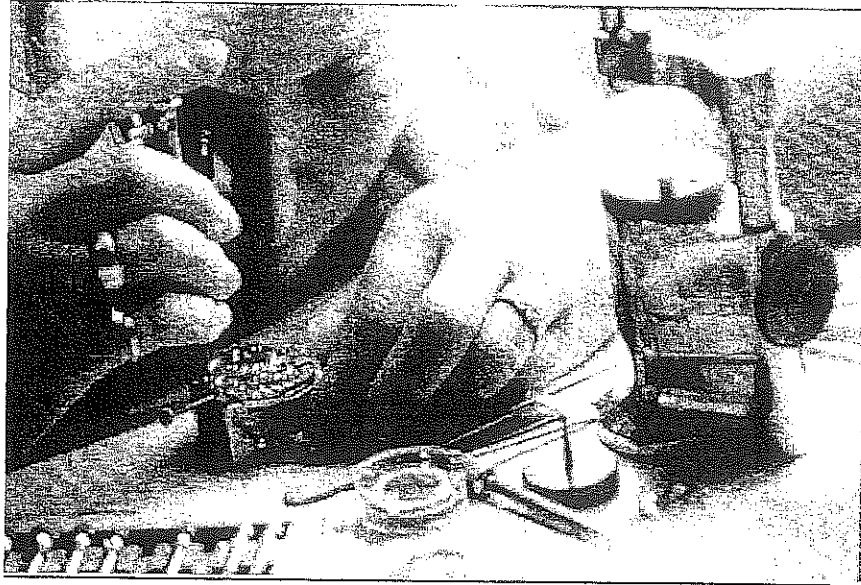
##### c. Progressive Creationism (PC)

Although some people still hold to Gap Creationism or Day-Age Creationism, most Old Earth Creationists today believe some form of Progressive Creationism (PC). The PC view blends creationism with a good deal of modern science. PCs have no problems with scientific data concerning the age of the earth or the long amount of time it has taken for the earth to come to its current form. Although modern astronomy, physics, chemistry, and geology are accepted, not all of modern biological science is accepted.

PCs generally believe that God created "kinds" of animals in order, and the fossil record shows this accurately since different plants and animals appeared at different times, rather than having been created all at once. PCs reject that earlier forms are genetically related to later ones—"kinds" are separate creations. PCs do not believe that fish gave rise to amphibians, amphibians gave rise to reptiles, and reptiles gave rise to birds and mammals. PCs do, however, believe micro-evolution occurred within groups through mutation, recombination, natural selection, genetic drift, and speciation. For example, a cat "kind" possessed enough genetic variation to evolve into all members of the cat family (lions, tiger, pumas, leopards, bobcats, house cats). In PC, God is seen as an active creator who uses natural law (ex. Microevolution) as a tool.

d. Intelligent Design Creationism (IDC)

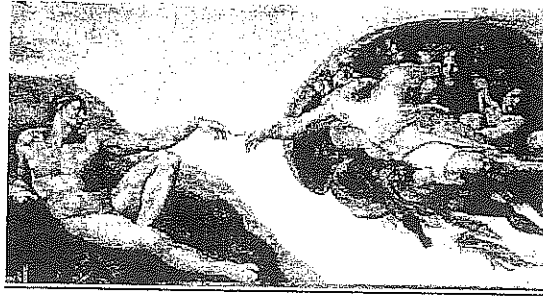
Intelligent Design Creationists believe that the variation and detail found in species today is proof that they were designed by a creator. An analogy is that if one found a watch, it is obvious that such a complex thing could not have come together by chance; instead, the existence of the watch implies the existence of a watchmaker who designed the watch with a purpose in mind.



As with Progressive Creationists, IDCs accept microevolution, and deny that mutation and natural selection are enough to cause change from one "kind" to another (ex. Fish → amphibians → reptiles → birds & mammals). Major body plans are too complex to be explained naturally, thus there must be an intelligent designer.

Most IDC activists are not scientists, but philosophers, historians, or lawyers. The few biologists among them accept a fair amount of evolution (ex. Fish → amphibians → reptiles → birds & mammals). In 1996, Lehigh University biochemist Michael Behe published the most scholarly and scientific IDC book to date, *Darwin's Black Box*, which offers little comfort to typical creationists. Behe accepts that natural selection produces most of the complex structural adaptations of plants and animals, and even accepts that modern living things descended with modification from common ancestors. He also agreed with Brown University Biologist Kenneth Miller that common DNA shared by apes (including humans) is strong support for their having shared a common ancestor.

Still, Behe argues that some biological phenomena cannot be explained through natural processes. He claims that at the level of cell biochemistry, there are "irreducibly complex" processes and structures, such as the complex rotor motor of a bacterium's flagellum. Behe argues that the motor cannot be broken into individually functioning parts (however, it has since been shown that another bacterium uses a simpler version of the "motor" as a syringe to inject toxins into host cells). In fact, scientific reviewers of his book were quick to point out flaws in Behe's reasoning and factual and conceptual understanding, especially concerning the cumulative nature of natural selection. Behe's critics point out that yes, *mutations* are random, but *natural selection* is NOT random.



#### 5. Evolutionary Creationism (EC)

Despite its name, Evolutionary Creationism is actually a type of evolution. Evolutionary Creationists believe that God the Creator uses evolution to bring about the universe according to his plan. Evolutionary Creationists and Theistic Evolutionists accept similar scientific concepts, but they come from different theological backgrounds. Conservative (fundamentalists) Protestant Christians tend to follow Evolutionary Creationism, while Theistic Evolution is the official position of the Roman Catholic Church.

#### 6. Theistic Evolution (TE)

Theistic Evolution is the theological view that God creates through evolution. Modern physics, chemistry, astronomy, geology and biology are accepted by Theistic Evolutionists. TEs vary in whether and how much God intervenes, so *within* the group known as TEs there is a continuum. At one end of the continuum TEs believe God created the universe at the time of the Big Bang and then let the universe, the world, and life evolve *all by itself* according to natural laws. At the other end TEs believe that God created the universe at the time of the Big Bang and then He was actively involved in every step of the entire history of the universe, but through the "eyes of science", it *looks* like undirected, "naturalistic evolution" because God can't be seen through the "eyes of science". In between the two ends of the TE continuum, some TEs see God as intervening only at critical intervals during the history of life (especially the origins of humans), and they are closer to PCs. TE is the official position of the Roman Catholic Church, and in 1996, Pope John Paul II stated God created, evolution happened, humans may indeed be descended from more primitive creatures, but the hand of God was needed for the creation of the human soul.

#### 7. Materialist Evolutionism (ME)

Materialist Evolutionism is a non-religious view of evolution. "Materialism" refers to matter and energy and their interactions. Modern science follows can only attempt to explain the *natural* world using natural causes. In this view, science is neutral to religion. It is neither for nor against religion. It is neutral because non-physical/spiritual things (like God) are by definition outside of the realm of science. Science cannot answer "Who created the world and life?" This is a question for religion to answer. MEs would say that you cannot prove that God exists, and you cannot disprove that God exists by doing science.

Some MEs "step out of bounds" of the rules of science and say that the laws of nature are all there is. It is important to realize that in such cases they are expressing personal beliefs, not conclusions based on science.

It is also important to note that there are many scientists, including evolutionary biologists, who accept evolution and believe in God. Gregor Mendel is a classic example of a religious man and a rigorous scientist.