



CIRCULAR ARGUMENTS

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Creationists frequently criticize the fact that geologists use the presence of particular fossils in a particular stratum of rock as a sign of the rock's age, and that biologists use the location of a fossil in a particular stratum to determine the fossil's age, as circular reasoning. Therefore, they say, rock strata are no indication of the great age of the Earth. The Creationist argument is that the Earth is only 6000 years old. According to James Ussher (1581-1656) Archbishop of Armagh, the Anglican Primate of Ireland, the Universe was created at noon, on 23 October in 4004 BC. He based his argument purely on the Bible and calculated the amount of time that would have elapsed through all the generations of Adam's descendants. Creationists see no reason to update this age based on later evidence.

To a very limited extent, the Creationists are correct. Absent other indications, a geologist will use the presence of particular fossils in a rock to determine its age, but only because the correlation between fossils and the age of strata was, long ago, well established. Charles Lyell was the founder of modern geology, and wrote his magnum opus, "Principles of Geology" on the subject in the early 1830's. Lyell was not an evolutionist when he wrote "Principles" and disagreed with Darwin for years on the theory of Natural Selection.

Lyell believed that the only way to study the Earth was to assume that the phenomena that were shaping the Earth acting at the present moment, (i.e., sedimentation, volcanism, erosion, etc.) were always in operation and pretty much at their current rates throughout all of time. There was (and still is) no evidence to indicate otherwise. From his long observations of these phenomena, he concluded that the Earth had to be at least hundreds of millions of years, and probably billions of years old. He found that most rock strata were sedimentary and that the various strata laid down by sedimentary processes were many thousands of feet thick! It takes about 6000 years just to lay down just one inch of limestone. Furthermore, nowhere was there evidence of Noah's worldwide flood as described in the Book of Genesis. Flood geology, the centerpiece of modern creationism, was disproved as a scientific theory 160 years ago.

It had always been known that different layers of rock contained different fossils but, prior to the 18th and 19th centuries, it was assumed that these distributions were caused by the flood or that they weren't really impressions of animals at all but were just patterns that God put there to confuse us. It wasn't until Geology and Biology came together, that it was realized that the flood was a myth and that animals that no longer exist on Earth were replaced by newer ones (judged by the rock stratum they were in), that were in turn replaced by still newer ones. And this didn't happen just once or twice, but a great many times. Also, the further back in the book of rocks you looked, the simpler the life forms became.

Lyell's original interpretation of this evolutionary pattern was that God performed a number of creations over the billions of years of Earth history, replacing animals that had gone extinct with newer forms. A number of other respected scientists of the 19th Century held this interpretation also, including the great Swiss-American naturalist Louis Agassiz. It wasn't until Darwin showed a natural mechanism for evolution, Natural Selection, and that mechanism was accepted by the vast majority of the world's scientists, that the various theories of multiple creation were abandoned. Even Lyell eventually came to agree with Darwin.

It should be noted here that scientists will always seek a natural explanation for a natural phenomenon rather than a supernatural one. And this is one reason why, in spite of creationist arguments to the contrary, science is not a religion. The only dogma science follows is to explain the evidence, be able to draw inferences from the conclusions that can be tested or observed, and no miracles allowed.