

Scientific Method And Creationism

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Introduction

One of the biggest charges laid at the door of science by creationists is that the Theory of Evolution requires as much faith as a belief in a god and, as such, the “theory” of creation should be taught in schools alongside evolution as a science.

In this article I will demonstrate that the Theory of Evolution fully adheres to scientific principles and that creation, and particularly, creation “science” cannot be considered as a science at all.

Creationist Questions and Assertions

1. Creationism/Creation "Science" does not oppose modern science but is simply science working under the assumption (and acknowledgement) that there is a creator.
2. The Theory of Evolution (Darwin, 1859), unlike other scientific disciplines, does not fit the required scientific model i.e. observation, repeatability and falsifiability.
3. Many evolutionists disagree with each other, many doubt that spontaneous evolution can have occurred, many do not know and many believe that if evolution did occur then God started it.
4. Unsupported speculation is not an acceptable scientific method, as it cannot be reproduced.
5. Evolutionists present unproven theory as fact and thus attempt to discredit creationism!
6. The Theory of Evolution is a religion just like creation in that it requires faith to believe.
7. Creation is a science just like evolution.
8. Proof/disproof of God is within the scope of science

Abstract

- Science determines how the observable universe around us works and scientific method is the process by which we observe, hypothesise, test and confirm those findings. Any scientific theory must be observable, reproducible and falsifiable.
- For the past 100 years or more Darwinian Evolution has been the theory generally considered as explaining how life of Earth evolved.
- Creation “science” rests on the dogmatic proposal that the universe around us was formed “by direct creative acts of God during the Creation Week described in Genesis.”
- Faith is the 'belief, or the acceptance of something, in the absence of evidence' i.e. a belief in the supernatural.
- There is significant evidence to indicate that the universe & Earth evolved over vast time-scales (many billions of years) and, as such, the scientific community can no longer seriously entertain the claim of divine creation as per Genesis.
- That evolution occurs is fact ... it is observable in the universe around us and demonstrable in the laboratory.
- The Theory of Evolution lies within the purview of science and is supported by evidence the vast majority of which has been derived by scientific method.
- Darwin's Theory of Evolution is now so firmly established it is generally regarded as fact.
- Creation "science" is not true science because of its basic teleological nature i.e. it starts and ends with the dogmatic proposal that the universe around us was formed "by direct creative acts of God during the Creation Week described in Genesis."
- Creation "science" is opposed to everything that true science stands for because it works under the assumption (and acknowledgement) that there is a creator.
- Creation “science” fails to meet the essential requirements for it to be considered in any scientific.
- Creation “science” leaders re-interpret the evidence (observed by true scientists), distort the truth and lie to their followers: ‘There is no observational fact imaginable, which cannot, one way or another, be made to fit the creation model’ (Henry Morris, ICR).
- Science does not generally accept supernatural hypotheses on the basis that there is no evidence to refute them and that it is not possible to define or execute a test for the same.
- Despite creationist claims to the contrary The Theory of Evolution is not currently considered to be under threat and it is the nature of science to be subject to peer-review and of scientists to disagree.

- Adherence to evolution does not require faith, but creationism does.

Discussion

Is a given discipline science or religion? To decide that it is necessary, first and foremost, to define science, scientific method and faith.

Science determines how the observable universe around us works by using scientific method (VonRoeschlaub, 1998). Scientific method is the process of observing (though not necessarily directly), hypothesising, testing and confirming data and theories within that universe. In other words, to adhere to scientific methodology, we:

- Look to the universe around us to provide the phenomena to explain
- Suggest something to explain why that might be so.
- Test our hypothesis with new experiments from which we gain additional data (reproduce it) i.e. looking again to the universe around us to supply the answers.
- Assuming our data confirms our hypothesis accept that hypothesis as a working theory.

A valid scientific theory must be observable, reproducible and falsifiable. The last point is particularly important ... it means that we must be able to define a test that will, if true, disprove our theory ... this last is typified by the question "what piece of evidence would make this theory untrue?"

A definition of faith is more difficult. To quote Ken Harding, one of the more active members of the Talk Origins web site, "for the purposes of this argument, faith is defined as: 'belief, or the acceptance of something, in the absence of evidence'". Harding goes further to say that "much of the time it (faith) is belief *in spite of* evidence to the contrary."

Evolution (accepted as fact long before Darwin published "The Origin of the Species), like any scientific theory, is not guesswork or an approximation but an extensive explanation developed from well-documented and reproducible sets of data derived from experiments that repeatedly observe natural processes. From such data models are developed and it is important to note that these models (and their subsequent outcomes) are not decided in advance but can be modified and improved, as new empirical evidence is uncovered. Science is constantly subject to peer-review and is a self-correcting attempt to understand nature and the observable universe. Science is not teleological -- that is to say theories do not start with conclusions, refuse to change and acknowledge only data that the initial conclusions support. Further, science does not base theories on untestable collections of dogmatic proposals but is characterised by questions, hypothetical proposals, design of empirical models and conceptual frameworks with the aim of researching natural events.

So is creation "science" a true science? To understand the nature of creation research it is necessary to examine one of their leading organisations more closely ... The Creation Research Society (CRS). The following is quoted from original CRS material:

The Creation Research Society is one of the leading organisations researching special creation and claim to have founded their membership from members who are committed to full belief in the Biblical record of creation and early history. All of it's members must subscribe to the following statement of belief:

1. *The Bible is the written Word of God, and because it is inspired throughout, all its assertions are historically and scientifically true in the original autographs. To the student of nature this means that the account of origins in Genesis is a factual presentation of simple historical truths.*
2. *All basic types of living things, including man, were made by direct creative acts of God during the Creation Week described in Genesis. Whatever biological changes have occurred since Creation Week have been accomplished only changes within the original created kinds.*
3. *The great flood described in Genesis, commonly referred to as the Noachian Flood, was an historic event worldwide in its extent and effect.*
4. *We are an organization of Christian men and women of science who accept Jesus Christ as our Lord and Saviour. The account of the special creation of Adam and Eve as one man and one woman and their subsequent fall into sin is the basis for our belief in the necessity of a Saviour for all mankind. Therefore, salvation can come only through accepting Jesus Christ as our Saviour.*

The society publishes a quarterly, peer-reviewed journal which emphasizes original research and the reinterpretation of existing scientific data within the creationist framework. The journal carries both technical and popular articles in most major scientific and allied disciplines, and thus is of interest to individuals from a wide range of backgrounds. CRS encourages a broad spectrum of research to develop and test a creation model, and administers a research grant program whereby modest funds are distributed to qualified researchers for the conduct of creation-related research.

CRS claims to be a scientific society and it was deemed at the outset that its government should be in the hands of scientists. The highest levels of membership of the society (voting members) are required to hold at least one earned post-graduate degree in a recognized area of science.

From the above it can be seen that creation "science" is not true science because of its basic teleological nature i.e. it starts and ends with the dogmatic proposal that the universe around us was formed "by direct creative acts of God during the Creation Week described in Genesis." Since science does not work in this manner it can be seen that creation "science" is, effectively, opposed to everything that true science stands for because it works under the assumption (and acknowledgement) that there is a supernatural creator.

From the US Legal system the following definitions of "creation-science" and "evolution-science" were necessarily established (McLean v. Arkansas Board of Education, 1996):

"Creation-science" means the scientific evidences for creation and inferences from those scientific evidences. Creation science includes the scientific evidences and related inferences that indicate:

- Sudden creation of the universe, energy, and life from nothing;
- The insufficiency of mutation and natural selection in bringing about development of all living kinds from a single organism;
- Changes only within fixed limits of originally created kinds of plants and animals;
- Separate ancestry for man and apes;
- Explanation of the earth's geology by catastrophism, including the occurrence of a world-wide flood; and
- A relatively recent inception of the earth and living kinds.

"Evolution-science" means the scientific evidences for evolution and inferences from those scientific evidences. Evolution-science includes the scientific evidences and related inferences that indicate:

- Emergence by naturalistic processes of the universe from disordered matter and emergence of life from non-life;
- The sufficiency of mutation and natural selection in bringing about development of present living kinds from simple earlier kinds;
- Emergence by mutation and natural selection of present living kinds from simple earlier kinds;
- Emergence of man from a common ancestor with apes;
- Explanation of the earth's geology and the evolutionary sequence by uniformitarianism; and
- An inception several billion years ago of the earth and somewhat later of life.

However, caution should be exercised when using these definitions ... the trial notes make it clear that every theologian who testified, including defence witnesses, believed that "creation" referred to a supernatural creation which was performed by the Christian God.

During the trial the essential characteristics of science were established:

- It is guided by natural law;
- It has to be explanatory by reference to nature law;
- It is testable against the empirical world;
- Its conclusions are tentative, i.e. are not necessarily the final word; and
- It is falsifiable.

It was found that creation "science" failed to meet these essential characteristics in all respects.

Creationists sometimes tell us "There is no reason to disbelieve the biblical claim (Genesis) that God created our universe, earth, plants, animals, and people." Even assuming claims of a "disinterested creation" (creation prior to the beginning of the current universe/big-bang) there is no evidence to support such a claim. Science does not generally accept hypotheses on the basis that there is no evidence to refute them. Whilst there has been speculative research concerning events prior to the "big-bang" it is not currently known what did occur. The claim that a god may or may not have instigated the "big bang" is irrelevant ... it is generally assumed that the lack of evidence to support any form of divine creation means it did not happen.

The theory of evolution (which is supported by many scientific disciplines e.g. biology, biochemistry, zoology, geology, cosmology and physics to name but a few) is now so firmly established it is generally regarded as fact. There is, in fact has been for a very long time, a significant amount of evidence to indicate that the universe, Earth, plants, animal & people evolved over vast time-scales i.e. 4.5 billion years for the Earth and 13 billion for the universe. Nowadays there is little tolerance for claims of divine creation (as per Genesis) within the serious scientific community.

It is also important to understand that Darwin's theory is not dogmatic (like the Bible) as creationists claim nor has it persisted 140 years unscathed. Darwin believed in a non-Lamarckian version of use & disuse that has since been discarded i.e. there are aspects of Darwin's original theory that have changed or been discarded. Darwin's Theory of Evolution has been subject to change within itself in other respects and since it was first defined in 1859 has absorbed punctuated equilibrium, kin selection,

and most of our current knowledge of DNA and genetics (including Mendel's work then unknown to Darwin). Darwinian evolution has changed so significantly that some scientists now refer to it as neo-Darwinism.

Neo or modern Darwinism can be looked upon as having two facets. Firstly it deals with explaining the origin of life under primitive earth conditions and occurring within a strictly physico-chemical framework. Secondly it encompasses neo-biogenesis (speciation) which explains the production of new species from pre-existing species.

As a direct result of this the leaders of creationism, fully aware that Darwinian evolution is so heavily supported by the available evidence resulting in it being (effectively) proven, are forced to re-interpret the evidence, distort the truth and lie to their followers. Darwin's Theory of Evolution has existed for 140 years and, though it has itself evolved, has resisted all attempts to destroy or displace it.

Some scientists (by this it must be understood that we refer to true scientists ... for reasons described above there is no such thing as a "creation scientist") hold religious beliefs and that is not a problem ... despite claims to the contrary faith is not in direct conflict with science. Other scientists, again the vast minority, are willing to speculate that life did not evolve as per Darwin's theory but as yet no theory has been advanced with evidence significant enough to be accepted. It is unfortunate, however, that creationists attempt to claim that such disagreements within the scientific community are significant and indicative of vast problems with the Theory of Evolution. Despite the claims of creationists the world over Darwinian evolution is not currently considered to be under threat ... it is the nature of science to be subject to peer-review and of scientists to disagree.

Evolutionists are scientists and it is wrong to claim that a belief in evolution requires faith. Evolutionary scientists do not require faith to predict events proceed according to theory -- they have evidence that allows them to expect it. In philosophical terms the religious amongst us have faith the sun will rise in the East tomorrow but the true scientist, based on past experience, simply expects that it will.

It is important to understand that scientists do not "believe" in evolution so much as accept it as the inevitable and inescapable conclusion which is drawn from the evidence. Religion, according to adherents, is an unchanging and inerrant guide. Evolution, on the other hand, is not a religion and makes no such claim. It is certainly not unchanging (no scientific subject is immune to change) and makes no claims to being inerrant (as our methods and technology improve, so our theories more closely represent reality). Evolution remains as the inference of the currently available evidence, whether creationists accept it or not, and evolution, as a theory, in no danger of being "overturned" by creationism (Harding, 1998).

With regard to the difference between creationism and science or evolution Harding goes on to say "Creationists have their literal biblical interpretation to protect, and are willing to say anything to do so. When Henry Morris (former president of the Institute for Creation Research) says 'There is no observational fact imaginable, which cannot, one way or another, be made to fit the creation model' how can anyone trust the 'science' of creationism?" To further emphasise creationist attitudes with regard to science Dr. Henry Morris (Institute of Creation Research) said "It is precisely because Biblical revelation is absolutely authoritative and perspicuous that the scientific facts, rightly interpreted, will give the same testimony as that of Scripture" ("Scientists Confront Creationism, Ed. Laurie R. Godfrey). There is not the slightest possibility that the *facts* of science can contradict the Bible"

Finally it is worth noting that evolution and those that support it do not typically care about creation ... it is religion and as long as it stays that way then fine. But when creationists try to insist that their ideas are in any way scientific then they have overstepped the mark. Scientists may well ignore the Christian God ... if it exists at all it is supernatural, untestable and irrelevant to science.

Conclusion

Evolution is a science in itself and is supported by most, if not all, major scientific disciplines, that is to say it is impossible to attack one evolution without attacking them all. It does not require faith to believe evolution -- just observation, theory and awareness of what it would take to prove it wrong.

It is important to understand that evolution occurs ... it is observable in the universe around us and demonstrable in the laboratory. Evolution is a fact. Whether Darwin's Theory of Evolution explains the methods by which evolution proceeds and the huge variety of species found on the Earth is more debatable. Aside from punctuated equilibrium (in reality a subset of Darwin's Theory of Evolution) it's only plausible contender has been the Lamarckian Theory of Evolution (see glossary) but subsequent experiments failed to support it and added further weight of evidence to the Darwinian version of events.

Creation, on the other hand, is not now and never will be a science. It starts with the unshakeable conclusion that the Christian God exists, it ignores or attempts to destroy that evidence which denies it's tenets and re-interprets evidence in such a way that it is unjustifiably forced to fit into the ideas in which they have so much faith. The demand that it should be taught as a science alongside evolution is, quite frankly, an insult to rational thinking humans of any kind. Its divine precepts are not testable or

falsifiable and, in many cases, not observable. The charges it levies at science and evolution are not only wrong but often reflective of the flaws endemic within the concept of divine creation.

Had it not been for the recent massive rise in interest in creationism and their newfound access to technological media, which has allowed them to spread their lies across the world, they would not be a great danger. But the fact that they are spreading as insidiously and certainly as a plague (1 in 4 Americans believe in a literal creation) and threaten the Freedom of Intellectual and Scientific Thought is no longer tolerable.

References

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