EVOLUTION, SCIENCE AND RELIGION

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There are those who object to the mention, in school, of Creation as a possible origin of the world and living things on it. Usually the objection is on the grounds that, while an account according to the evolutionary theory is scientific, to mention Creation is to teach religion. The author shows that any such objection is not well founded. In the first place, no account of origins can be really scientific; for origins cannot be observed, repeated, or subjected to experiment. Moreover, evolutionary theory, as commonly presented, becomes in fact a religion. The only fair thing, in considering origins, is to present both possibilities for comparison. Moreover, it is pedagogically advantageous to do so.

Introduction

A large, and sometimes vociferous, part of the scientific community rejects the teaching of special creation[1] on the grounds that such teaching is not scientific. Those who adopt this position are quick to add that because creation is based on faith and religious beliefs, it has no place in science classrooms or textbooks. For example, concerning the recent California textbook controversy, the American Association for the Advancement of Science (AAAS) passed the following resolution:

> The various accounts of creation that are part of the religious heritage of many peoples are not scientific statements or theories. They are statements that one may choose to believe, but if he does, this is a matter of faith, because such statements are not subject to study or verification by the procedures of science.[2]

Since this is the prevailing opinion of the established scientific and academic community, there will be great difficulty in obtaining a fair presentation of creation in textbooks and public school classrooms. Assuming that evolution[3] is scientific while creation is not, a lawyer has recently written that there is no legal basis for teaching a religious theory of creation in the public schools.[4] What course of action, then, remains for creationists?

The Scientific Case for Creation

As a first essential, creationists must stress the scientific rather than the religious aspects of the creation-evolution controversy. While the problem is basically spiritual in nature, one usually cannot obtain a hearing in secular scientific circles if he maintains a religious viewpoint. In addition, religious presentations in public schools have been severely curtailed by the courts. Therefore, in secular situations, it is essential to use a scientific approach. Three options may be followed.

Creation and evolution may be evaluated first by seeing how effectively known scientific facts may be correlated and explained by each; second, by comparing the potential for generation of accurate predictions; and third, the necessary basic assumptions of creation and evolution may be tested to see whether they are in agreement with known scientific facts. The efforts of hundreds of scientists in these areas have built a tremendous case in which the evidence overwhelmingly favors creation. Such evidence is the basis for the statement that creation is more scientific than is evolution.

Science and the Scientific Method

Creationists must also be able to demonstrate that not only is the basic postulate of creation nonverifiable by the procedures of science, but evolution, too, is nonscientific, but dependent upon faith and therefore religious. To begin, the reader might consider what is scientific and what is not. The resolution by the AAAS quoted earlier implies that a subject is not scientific: (1) if it "is a matter of faith," and (2) it "is not subject to . . . verification by the procedures of science." In a recent college textbook, Weisz has stated:

> *Anything to which the scientific method can be applied, now or in the future, is or will be science; anything to which the method cannot be applied is not science.*[5] (Emphasis in original)

Thus, the AAAS and Weisz are agreed that, as Weisz has stated, the "scientific method defines the domain of science."[5] If the scientific method is not applicable, it is plainly not scientific.

Weisz has offered a very clear yet comprehensive discussion[6] of the scientific method which can be briefly outlined: The first step is OBSERVATION. Observations by the scientist, in addition to being correct and unbiased, must be *repeatable*. The second step is to define a PROBLEM, or ask questions about the observation. The questions asked or problem proposed must be relevant and testable. Thirdly, the scientist formulates a HYPOTHESIS; i.e., he guesses what the answer to the question or problem may be. In the fourth step, the scientist tests the validity of his hypothesis by EXPERIMENTATION, which is the means by which direct evidence is obtained. If really convincing, unquestionably reliable experimental evidence is available in support of a hypothesis, a THEORY is formulated. A theory, then, is a hypothesis for which corroboratory evidence has been obtained.

From the foregoing, the most appropriate points for this discussion are:

1. Observation
2. Repeatability
3. Testing by experimentation

These attributes are essential if a subject is to be termed scientific. Now these criteria may be applied to the subject of evolution.

Evolution Is Unscientific

The importance of proper observation in science is often stressed. Weisz wrote that "something that

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cannot be observed cannot be investigated by science."[7] Simpson, a renowned evolutionist, has stated:

> It is inherent in any acceptable definition of science that statements that cannot be checked by observation are not really *about* anything—or at the very least, they are not science.[8] (Emphasis in the original).

With regard to the first criterion, observation, it is crucial to ask the following questions: Has evolution ever been observed? Has anyone ever observed the evolution of life from nonlife, a single cell into a multicellular organism, an invertebrate into a vertebrate, a fish into an amphibian, a reptile into a bird or an ape into a man? The answer to both questions is an emphatic NO! Dobzhansky, a world famous geneticist, admitted this when he wrote:

> . . . the occurrence of the evolution of life in the history of the earth is established about as well as events *not witnessed by human observers* can be.[9] (Emphasis added)

Not only has evolution never been noted by man throughout all of recorded history, but observation of the type of changes proposed by proponents of the general theory of evolution is clearly impossible. Therefore, by the definitions of science offered by Weisz and Simpson, it may be concluded that, since evolution is nonobservable, it is nonscientific.

Suppose, however, that someone were to argue that observations in science do not have to be direct; i.e., it is enough to observe the supposed effects or results of evolution. Granting for the moment that this may be a debatable point, the last two criteria can now be applied: Are evolutionary processes repeatable and amenable to experimentation? An event that is postulated to have occurred over millions or billions of years certainly cannot be repeated, nor can such a process be experimentally studied.

One cannot recreate the events which would have caused evolution to proceed in a certain direction, since such events are unknown. Neither is enough time available for the experimenter to effect the required changes. Dobzhansky has recognized the failure of evolution to meet criteria two and three:

> These evolutionary happenings are unique, unrepeatable, and irreversible. It is as impossible to turn a land vertebrate into a fish as it is to effect the reverse transformation. The applicability of the experimental method to the study of such unique historical processes is severely restricted before all else by the time intervals involved, which far exceed the lifetime of any human experimenter. And yet it is just such impossibility that is demanded by antievolutionists when they ask for proofs of evolution . . .[10]

Thus, evolution also fails to meet the scientific standards of repeatability and experimentation. It should be noted that at the end of the last quote by Dobzhansky, he seemed to be irritated that antievolutionists dare to demand that evolutionists furnish repeatable experimental proof of evolution. Yet the evolutionists, as in the AAAS resolution, are equally bold in declaring that creation is "not subject to study or verification by the procedures of science" and therefore nonscientific.

Special creation also fails to meet the three criteria outlined above. It is evident, therefore, from the preceding discussion, that not only is evolution nonscientific, but creation is no less scientific than is evolution. The reader should quickly be reminded, however, that as indicated previously, the creation and evolution models may be evaluated and compared using the known facts of science.

As an aside, something should be mentioned concerning the claims that evolution has been observed[11] and is thereby proven. What has actually been noted is limited variation and occasional speciation **within** the basic animal and plant kinds. Oft cited examples are: industrial melanism in Peppered Moths, bacterial resistance to antibiotics, and insect resistance to DDT. Evolutionists suppose that accumulation of such small (or micro-) changes would lead to large (or mega-) changes postulated in the general theory of evolution. However, to state that micro-changes, when accumulated, lead to mega-changes (e.g., evolution of fish into amphibia) is completely unjustified extrapolation since it has never been observed or experimentally demonstrated.

Creationists do not deny that micro-changes occur, but are correct in pointing out the scientifically verified fact that the Peppered Moths are *still* Peppered Moths, Staphylococci are *still* Staphylococci, and flies are *still* flies. Evolutionists are thoroughly misleading when they term micro-changes "evolution," especially since there is no experimental evidence to justify the notion that such minor changes are responsible for the types of broad changes postulated according to the general theory of evolution. Terms such as "adaptation," "genetic variation," and "gene frequency" would clearly be more appropriate and more descriptive.

Evolution Is a Poor Theory

Because evolution is nonscientific, it would be called, more accurately, a postulate rather than a theory. But, since the term "theory" has almost been universally applied to evolution, the question of whether or not evolution is a good theory will be examined next.

Popper, a widely recognized authority on the scientific method, has stated, "A theory which is not refutable by any conceivable event is nonscientific. Irrefutability is not a virtue of the theory (as people often think) but a vice."[12] This concept of the irrefutability or nonfalsifiability of a theory means that no experiments may be conceived by which results could be gained to disprove the theory. Any observations or experimental results may be "explained" by such a theory. Furthermore, everything is looked upon as verification of the theory.

Concerning the irrefutability of the theory of evolution, Eden wrote that no crucial experiment can be proposed to prove evolution either true or false.

> This cannot be done in evolution, taking it in its broad sense . . . It can, indeed, explain anything. You may be ingenious or not in proposing a mechanism which looks plausible to human beings and mechanisms which are consistent with other mechanisms which you have discovered, but it is still an unfalsifiable theory.[13]

At the same symposium, Fentress offered an example of the evolutionists' ability to explain anything.[14]

He observed the behavior of two species of animals when an object overhead moved. One of the species was native to the woods while the habitat of the other was the open field. When he presented the results to some zoologists friends, he purposely reversed the data, asking why a species living in the field should freeze while the one native to the woods should flee. Even though they were explaining false data, Fentress related that their "evolutionary explanations" were quite impressive.

Popper has explained the need for a scientific theory to be refutable in this manner.

> . . . as long as we cannot describe what a possible refutation of a theory would be like, that theory is outside empirical science.[15]

And biologists Birch and Ehrlich have commented further on the irrefutability of evolution.

> Our theory of evolution has become . . . one which *cannot be refuted* by any possible observations. Every conceivable observation can be fitted into it. It is thus *"outside of empirical science"* but not necessarily false. *No one can think of ways to test* it . . . [16] (Emphasis added)

From the above discussion it is seen that because evolution is irrefutable or nonfalsifiable, it is a nonscientific theory which cannot be studied by experimental science. Special creation, we must admit, is also irrefutable and nonverifiable by the scientific method.

Although creation and evolution are both nonscientific, they may be thought of as **models,** each functioning as a conceptual framework which is used to explain and correlate known scientific facts and to make useful predictions. As such, creation and evolution may be compared as noted earlier viz., in terms of: (1) compatibility of basic assumptions with the facts of science; (2) effectiveness in correlating and explaining known scientific facts; and (3) potential for generation of accurate predictions. Not only is creation just as scientific as evolution, but when such comparisons are carried out, it is found that the creation model is superior in each case.

Evolution Is Religious

To demonstrate that evolution is a religion and that belief in evolution is an act of faith, let us first consider just what is meant by the word "religion." The usual connotation is that of the ritualistic worship of a divine being. It is evident that this is the meaning evolutionists are endeavoring to portray when they refer to creation as being religious. However, the study of the creation model does not involve any ritual, nor does it involve indoctrination with any particular set of religious beliefs and practices. And while the teaching of evolution also does not involve worship of God, it is the basis of the worship of man (i.e., humanism).

Furthermore, the current method of teaching evolution does involve indoctrination with beliefs and attitudes. A system of beliefs held to with ardor and faith constitutes, according to Webster's Dictionary,[17] a religion. One may also be religiously devoted to a cause or belief if he accepts it by faith, holds it to be of ultimate importance and is zealous in his devotion. Other characteristics of religious beliefs are emotionalism and dogmatism. "Faith," an integral part of any religion, involves a belief or complete confidence in something for which there is no empirical or scientific proof.

If, on the other hand, evolutionists are implying that the source of creationist ideas is the Christian or Hebrew religious literature, it may be argued that the source of an idea is not important scientifically. What is important is how well the creation model is in agreement with the established facts and laws of science. In addition, it may be asserted that a truly unbiased examination of physical and biological phenomena would lead one to postulate special creation.

Also, the main idea of evolution was not postulated by means of modern scientific method. Davidheiser has shown[18] that the history of evolutionary thought may be traced to the ancient Greek philosophers Empedocles and Aristotle.†

Macbeth, an agnostic lawyer, has recognized several attitudes in evolutionary thought which indicate that evolution itself has become a religion. Among these are missionary zeal, perfect faith and millenarianism.[19] At this time, only the element of faith in evolution will be pursued.

Concerning the origin of life from inanimate matter, Wald has shown faith, not only in something for which there is no empirical proof, but also in something which he believes to be impossible in the realm of human experience!

> One has only to contemplate the magnitude of this task to concede that the spontaneous generation of a living organism is *impossible.* Yet here we are—as a result, *I believe,* of spontaneous generation.[20] (Emphasis added)

Kerkut, an evolutionist, has cited two examples of faith exercised by evolutionists: first, concerning the origin of life, and second, the classic example of horse evolution.

> It is a matter of faith on the part of the biologist that [a-] biogenesis did occur and he can choose whatever method of [a-] biogenesis happens to suit him personally; the evidence for what did happen is not available.[21]
>
> At present, however, it is a matter of faith that the textbook pictures depicting horse evolution are true or that they are even the best representations of the truth that are available to us at the present time.[22]

Many more examples of faith in evolution may be cited. Dogmatic assertions of the truth or facuality of evolution, which are often found in textbooks and popular literature, constitute statements of faith since, as shown in this paper, the postulate of the general theory of evolution cannot be verified by scientific methodology.

Lucas, who described himself as "not a convinced creationist," has pointed out in a letter to *Science* an example in which creationists have facts while evolutionists must resort to faith.

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†Note, though, that Aristotle disagreed with Empedocles just where the latter was most Darwinian. See, e.g., Aristotle's *Physics,* Book II. Chapter 8; and *On the Parts of Animals,* Book I, Chapter 1 – Editor.

> Creationists would predict that the fossil record will show the absence of transitional forms between each of the older, independently created forms. So far creationism fully agrees with the evidence, whereas evolutionists have to have faith in the original existence of the missing transitional forms.[23]

Ehrlich and Holm have assessed the status of the theory of evolution in this manner:

> Current faith in the theory is reminiscent of many other ideas which at one time were thought to be self-evidently true and supported by all available data . . .[24]

And Matthews, in his recent introduction to Darwin's *Origin of Species,* has confirmed the faith of evolutionists by writing:

> Most biologists accept it as though it were a proven fact, although this conviction rests upon circumstantial evidence; it forms a satisfactory faith on which to base our interpretation of nature.[25]

In a rather remarkable admission, Fox, proponent of prebiotic evolution through proteinoids, made this statement of faith in a recent scientific journal:

> Finally, I respond to friendly inquiries about a "faith" that kept one investigator on this research trail through many long years. That faith was a deep *conviction* that no other process could have resulted in the tremendous array of varied and variegated organisms . . . The *article of faith* is that what is evolvable is solvable.[26] (Emphasis added)

Thus we see that faith is inherent in any acceptance of the general theory of evolution, indicating that evolution is just as religious as creation. Conklin has admitted that many biologists religiously adhere to the tenets of evolution.

> The concept of organic evolution is very highly prized by biologists, for many of whom it is an object of genuinely religious devotion, because they regard it as a supreme integrative principle. This is probably why severe methodological criticism employed in other departments of biology has not yet been brought to bear on evolutionary speculation.[27]

What, then, should be the status of evolution in the science classroom and textbook? Does evolution deserve to be elevated to a superior status in comparison to creation? Matthews has nicely summed up the situation.

> Belief in the theory of evolution is thus exactly parallel to belief in special creation—both are concepts which believers know to be true but neither, up to the present, has been capable of proof.[28]

Since both creation and evolution are unprovable and must be accepted by faith, Gish has pointed out that the ultimate question is "who has the best evidence for his faith, the creationist or the evolutionist?"[29] When one makes an honest effort to evaluate creation and evolution in light of known scientific facts (not theories, hypotheses, postulates and philosophies of men) it can be shown that the evidence is in favor of the case for special creation.

Summary and Conclusions

Evolution is unscientific for several reasons. First, it cannot be subjected to study by the scientific method because it cannot be observed, it is not repeatable (if it occurred at all), and it cannot be tested by experiment. Second, it fails the test of a good scientific theory because, considered as a theory, it is irrefutable, or nonfalsifiable, and can be used to "explain" any observation. For these same reasons, creation is also unscientific. However, creation is no less scientific than is evolution.

Evolution has been shown to be religious in nature. Characteristics of a religion which are evident from a study of evolution are dogmatism, faith, ardor or devotion to a set of attitudes or beliefs, and emotionalism. On the basis of similar characteristics, creation, too, is religious. Therefore, evolution is at least as religious as creation. Indeed, belief in certain aspects of the general theory of evolution requires more faith than to believe the Biblical account of origin.

Creation has been openly denounced as being religious. However, a comparative study of both the creation and evolution models does not involve an act of worship, nor does it involve indoctrination with a set of religious beliefs and practices. On the basis of recent court decisions, such practices as worship and indoctrination in public schools are held to be in violation of the separation of church and state. Clearly, a comparative study of the two models would be appropriate in public schools and not in violation of the doctrine of separation of church and state.

While the current methods of teaching evolution do not involve worship, the practice of teaching evolution exclusively does result in indoctrination of a particular system of beliefs and attitudes. This exclusiveness, together with dogmatism and faith, makes current evolutionary teaching vastly more religious in nature than would be the teaching of both creation and evolution. In addition, there are pedagogical advantages (not emphasized in this paper) to teaching competitive models.

The basis upon which the creation and evolution models may be compared scientifically has been repeatedly emphasized. This aspect of the problem is so vitally important that these approaches deserve to be mentioned once again. First, they may be evaluated by comparing effectiveness of correlation and explanation of known scientific facts. Secondly, they may be compared in terms of potential for generation of accurate predictions. And lastly, the basic assumptions of creation and evolution may be tested by seeing how well they are in agreement with known scientific facts. Thus, a study of both models would not only be appropriate but essential for science classes and textbooks.

The conflict, as presented here, is not between religion and science, but between evolution and science. Rather than pitting the "Bible story of creation" against evolution in the public schools, it is imperative for creationists to stress the scientific aspects of the controversy. Unless it can be shown that creation is at least as scientific and no more religious than is evolution, efforts to obtain the teaching of special

creation will likely be rejected as being nonscientific religious indoctrination.

If evolution is taught, special creation deserves to be taught as well. If creation is prohibited from the science classroom on religious grounds, then evolution, too, must be prohibited. There is no room for a double standard, particularly where "objective" science is concerned.

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Notes and References

[1]Creation or special creation, when referred to as a theory, refers to the postulate that a few thousand years ago the universe, the solar system, the earth and all basic plant and animal types were brought into existence by special creative processes that are not operative today. Biological variation may be granted to have occurred since the original creation, but such variation has been restricted within the variational limits of each created kind.

[2]Resolutions of learned societies in the textbook controversy, *American Biology Teacher*, 35(1):35-36. 1973.

[3]Evolution refers to the general theory of evolution by which proponents postulate that the universe, the solar system, the earth and all forms of life have come into existence through slow, naturalistic, spontaneous processes similar to those processes which can be observed today. Evolution is claimed to have occurred over billions of years and to be continuing today. All living things are said to have arisen from a single source which itself arose from inanimate matter.

[4]LeClercq, F. S. 1974. The constitution and creationism, *American Biology Teacher*, 36(3);139-145.

[5]Weisz, P. B. 1965. Elements of biology. McGraw-Hill Book Company, New York, p. 8.

[6]*Ibid.*, pp. 4-8.

[7]*Ibid.*, p. 4.

[8]Simpson, G. G. 1964. The nonprevalence of humanoids, *Science*, 143(3608):769-775.

[9]Dobzhansky, T. 1958. Evolution at work, *Science*, 127 (3306):1091-1098.

[10]Dobzhansky, T. 1957. On methods of evolutionary biology and anthropology, Part I. Boilogy, *American Scientist*, 45 (12):381-392. See especially p. 388.

[11]Ford, E. B. 1973. Evolution studied by observation and experiment (in) Readings in genetics and evolution, Oxford University Press, London.

[12]Popper, K. R. 1963. Conjectures and refutations. Routledge and Kegan Paul, London, p. 33.

[13]Eden, M. 1967. (in) Mathematical challenges to the neo-Darwinian interpretation of evolution, P. S. Moorhead and M. M. Kaplan, editors. Wistar Institute Press, Philadelphia, p. 71.

[14]Fentress, J. C. 1967. *Op cit.*, p. 71.

[15]Popper, K. R. 1963. Science: problems, aims, responsibilities, *Proceedings of the Federation of American Societies for Experimental Biology*, 22(4):961-972.

[16]Birch, L. C. and P. R. Ehrlich. 1967. Evolutionary history and population biology, *Nature*, 214(5086):349-352.

[17]Webster's seventh new collegiate dictionary. G. & C. Merriam Company, Springfield, Mass. 1969.

[18]Davidheiser, B. 1969. Evolution and Christian faith. Baker Book House, Grand Rapids, Michigan.

[19]Macbeth, N. 1971. Darwin retried: an appeal to reason. Dell Publishing Company, New York, pp. 127-131.

[20]Wald, G. 1954. The origin of life, *Scientific American*, 191 (2):44-53.

[21]Kerkut, G. A. 1960. Implications of evolution. Pergammon Press, London, p. 150.

[22]*Ibid.*, p. 148.

[23]Lucas, E. C. 1973. Letter. *Science*, 179(4077):953-956.

[24]Ehrlich, P. R. and R. W. Holm. 1963. The process of evolution. McGraw Hill, New York, p. 310.

[25]Matthews, L. H. 1971. Introduction (in) The origin of species, C. Darwin. J. M. Dent & Sons Ltd., p. xii.

[26]Fox, S. W. 1974. Origins of biological information and the genetic code, *Molecular and Cellular Biochemistry*, 3(2):129-142.

[27]Conklin, E. G. 1943. Man real and ideal, p. 147; cited by N. Macbeth, 1971. *Op. cit.*, p. 127.

[28]Matthews, L. H. *Op. cit.*, p. xi.

[29]Gish, D. T. 1973. Evolution? — The fossils say no. ICR Publishing Co., San Diego, California, p. 14.

HORSE BRAIN, COW BRAIN

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That the brain of the horse and the brain of the cow are basically similar is not surprising, but it may be surprising that the cerebral cortex of the two animals is so similar in detail, wrinkle for wrinkle (fissure for fissure). This is especially surprising from an "evolutionary" point of view since in the alleged ancestry between them there were smooth brains that had no fissures.

The ancestry of the ungulates (hoofed animals) is not even claimed to be clear to the evolutionists. Generally, evolutionists have held that both the Perissodactyla (including horses) and the Artiodactyla (including cattle) arose from ancestral forms called Condylarths, which had five toes, each capped with a small hoof.

However, Alfred Romer of Harvard believed that groups of hoofed animals "evolved" separately from a non-hoofed ancestry. This led him to make the statement that a cow is probably as closely related to a lion as to a horse.[1] William K. Gregory of Columbia University and the American Museum of Natural History followed Romer in this view, and wrote in his article on "Mammals" in the *Encyclopedia Britannica* of 1963, "The Condylarths or primitive ungulates . . . are not regarded by modern authorities as ancestral either to Perissodactyla or Artiodactyla . . ."[2]

However, authors of articles in the *New Encyclopedia Britannica* (1974) return to the more usual concept of Condylarth ancestry for hoofed animals: (a) "The Artiodactyls can be traced back to a probable descent from a group of early generalized animals called Condylarths."[3]; (b) "The Perissodactyla appeared early in the Eocene. . . . Together with most other ungulate mammals, they were probably derived from the Condylarthra."[4]

No matter what the "evolutionary" opinion of the origin of horses and cattle, the fossil creature called *Hyracotherium* (which now includes the former *Eohippus*) is included by all specialists between the modern horse *(Equus)* and cattle *(Bos)*. Admittedly *Hyracotherium* had a smooth brain without fissures, as the following sampling of statements will attest.

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