

How Real is the Conflict Between Revealed Religion and the Theory of Evolution?*

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It is a common view that the theory of evolution is in disagreement with those religions that have as a basic belief some alternative story of creation, for example, those religions that believe that the biblical story of creation is the literal truth. To many, this view implies that science and religion are in serious conflict. It is my purpose in this paper to argue that this conflict is more apparent than real.

Let me state at the outset that for me personally there is no problem with the theory of evolution. I personally find the evidence for it overwhelming, and I hold no religious beliefs that in any way in contradict it. But my personal beliefs do not constitute scientific proof. And many people do believe in religions whose teachings imply that the theory of evolution is false. For this reason, I think it is worth while showing that people whose religious views contradict scientific theories are not for that reason in a real conflict with science.

I will argue this point by referring to the history of the theory of light, whether light is a stream of particles or a form of wave energy. I will use this history to make some important points about the nature of science. I

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find this a good example because I am unaware of any religion which has teachings of any kind on the nature of light, and so with this example the points I want to make about the nature of science can be made independently of the emotions that are often involved in religious belief.

As I. Bernard Cohen and Sir Edmund Whittaker point out in their Preface and Introduction, respectively, to [1], physicists of the nineteenth century thought that Newton had made a mistake in the seventeenth and early eighteenth centuries by proposing a theory of light that combined features of the wave and particle theory. They thought that Newton should have designed and conducted an experiment that would clearly distinguish the two possibilities and determine which was the truth. They thought that Thomas Young had done exactly that at the beginning of the nineteenth century by using the diffraction pattern obtained when light is passed through a crystal to calculate its wavelength. To these nineteenth century physicists, the wave and particle theories of light were so diametrically opposed that they could not possibly be combined in any way, and therefore a means had to be found to make a decision between them.

In the early twentieth century, the development of the quantum theory showed that this supposed opposition between the wave and particle theory of light was an illusion. In particular, it was shown in the 1920s that a beam of electrons passed through a crystal generates a diffraction pattern. Now electrons are known to be particles: their mass has been determined by experiment and calculation. On the other hand, it is an essential part of the quantum theory that light is not a continuous stream of waves, but rather discontinuous packets of waves. Thus, it follows from quantum theory that waves and particles are hard to distinguish.

One way to look at this history is that Newton turned out to be closer to the truth than nineteenth century physicists when he combined features of wave and particle theories. On the other hand, Newton and his contemporaries could never have understood quantum theory; they lacked some of the necessary intellectual tools, including some of the necessary mathematics. The quantum theory could never have arisen directly from Newton's theory of light; it required for its development the wave theory of the nineteenth century.

Nevertheless, if there had ever been a religion which had a teaching that light was a mixture of waves and particles, this religion would have regarded Newton's theory as being closer to the truth than the wave theory of the nineteenth century.

There are several conclusions that we can draw from his history about science in general:

1. Science has required for its development theories that have later come to be regarded by scientists as false.¹
2. Sometimes these “false” theories have actually replaced those that are later regarded by science as closer to the truth. Despite being apparently less true than the theories they replaced, they have nevertheless been a necessary step to the still newer theories now accepted.

These are, it seems to me, basic truths about science which ought to be more widely known. They should be taught in the schools when science is taught. Perhaps they are too advanced for the early grades of elementary school, but for the later grades of elementary school and for secondary school, they should be taught as important truths about the scientific enterprise.

So far, I have spoken only from the point of view of science. But for somebody who believes that there is a source of truth outside of science it would follow that *science must sometimes proceed using false theories*. In particular, this would be the conclusion of a believer in a religion which teaches that there is a revealed truth.

This means that religious believers who believe as an article of faith that the theory of evolution is false are not really in conflict with science. They need only conclude that we are currently in a period in the history of science in which biology needs to base itself on a false theory, and that someday a new theory that reconciles biology and their religious beliefs will replace the current theory, just as the quantum theory replaced the nineteenth century wave theory of light. Indeed, they should want their children taught what the theory of evolution is and how biologists use it, for otherwise they are denying their children the possibility of participating in the development of the new theory in case that development occurs within their lifetimes.

What does not follow for these religious believers is that it is possible to understand today what that new theory will be like. The new theory may be

¹I am speaking here about the basic theories underlying scientific disciplines. There are scientific questions that are of interest to courts of law and legislative bodies, such as the safety and effectiveness of medical treatments or the safety of lack thereof of food additives, about which there is less change in scientific conclusions than there is about the theoretical bases of scientific disciplines. The reason that courts and legislatures should pay attention to what science has to say about these questions is that the scientific method tends to produce the best evidence available at any given time about them.

as impossible for anybody from our time to understand as quantum theory was for Newton and his contemporaries.

The so-called “creation science” is not really a science, since it does not generate scientific research programs. It is rather like an attempt made at the time of Thomas Young at the beginning of the nineteenth century to construct a theory that would preserve Newton’s mixture of wave and particle theory. At that time, in the early nineteenth century, it was as impossible to understand quantum theory as it was in the time of Newton. It is no more possible to anticipate today the form of a new theory which might replace evolution than it was in the time of Newton or Young to anticipate quantum theory.

As I said earlier, I personally do not believe that any new theory will come along that replaces the theory of evolution and validates any religious texts. But this is just my personal opinion. Textbooks of science and works on the nature of science for the general public should not state an opinion of this nature as scientific fact.

References

- [1] Isaac Newton. *Opticks*. Dover, New York, 1952.