

Scientific Facts and Religious Beliefs

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Preface *Background*

3 Michel asked: "Can man's understanding of science be of help in understanding his experience of God?". The discussion below will show how it can be useful to some (maybe only a few) individuals.

Summary

Two statements are used to illustrate our discussion:

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1. *The force of gravity causes bodies (objects) to move (be accelerated)*
 2. *The Call of God causes bodies (individuals) to move (travel)*

Many would say that #1 is a scientific fact, and can be proved, while #2 is a religious belief (depends entirely on blind faith). Many think these are opposite, as different as black and white, or night and day.

| The thesis presented here is that scientific facts and religious beliefs have many similarities. Many scientific facts cannot be proved absolutely, but are still useful. Many scientists carry that one step further. They believe that: if it is useful, then it is true. Religious beliefs cannot be proved, but are often useful, especially as they control the actions of individual lives.

Scientific Facts

There are at least two ways of proving a scientific fact. One is by comparing it with experimental data, and the other is by logical deduction. For example, the fact that planets move in elliptical orbits was stated by Kepler (1571-1630). He spent a tremendous amount of time trying to fit the data taken by Tycho Brahe (1546-1601) to circular orbits (or variations), and was unsuccessful. Kepler found that the positions of Mars fitted into an elliptical orbit with a high degree of accuracy. Kepler's first law was the only one that fitted the data, and it became generally

accepted. His three laws could be used to predict the future motion of the planets. If there is only one theory that will fit the data, we often say that proves the theory is true.

Many years later (1680s) Newton was asked by Halley how the planets would move if there was a force of attraction between bodies that weakened as the square of the distance. Newton said at once: "in ellipses." Then he proposed the Law of Gravitation. With an additional stroke of marvelous intuition, Newton maintained that this law of attraction held between any two bodies in the universe. The fact that planets move in elliptical orbits could be proved with a rigorous mathematical derivation. [To do this, Newton had to invent mechanics ($F = ma$) and calculus]. From the Law of Gravitation came not only elliptical orbits for two bodies, but also how a third body can perturb the orbit, and how the tides are caused by the moon and sun. But there is no derivation of the Law of Gravitation. We believe it's true because its predictions fit the experimental data. And, it can be used successfully to predict future motion of planets.

Gravity itself can't be observed. In fact, it is extremely difficult to observe the force directly. So how do we **know** there is a force? Observations are made on the acceleration produced on one of the bodies. This could be an apple, a moon, a planet, etc. The motion of these bodies does not rigorously prove the law of gravity. The law of gravity is only one possible explanation of why these bodies move the way they do. Einstein proposed another explanation (General Theory of Relativity). But Newton's Law of Gravitation is the most useful tool we have to predict the motion of objects in space. We use it to predict the motions of hundreds of artificial satellites now circling the earth. And, because it accurately predicts these motions, and many others, most scientists accept it as a proven theory --- as a scientific fact!

Bild → Call of God¹

Many individuals have heard the call of God --- and as a result have traveled to a far land: Abraham, Moses, Jonah, Peter, Paul, St. Patrick, Brigham Young, Adoniram Judson, Albert Sweitzer, Donald Gordon, etc. In our day there are thousands of missionaries that hear the Call of God, and travel to foreign lands. A few go for a better life (for themselves and others), some preach, some heal, some go to find freedom to worship God, etc. God calls them to go, --- and they go.

¹ Usually a "call of God" refers to a call to redemption. Here the term is used for a call to action, specifically, a call to go to some distant place.

Most people accept the fact that these individuals did travel. Many will concede that these individuals believe they heard God's call. But some say: "This does not prove that God did call." There may be other explanations. Maybe their travels are just random motions, like the motion of gas molecules (Brownian motion). Maybe they wanted to get away from their parents. Many explanations can be imagined. Many medical doctors have gone to a foreign land to bring modern medicine to those that don't have it. Most of them believe in God. I only know one doctor who did this without a belief in God. If the Call of God is the simplest explanation, then some individuals believe it is the truth.

Voice of Authority

Many beliefs are passed from one individual to another. Children believe in God if their parents tell them. Students believe in the Law of Gravitation if their teacher says it's so. Various authorities are accepted, whether they are scientists, priests, teachers, politicians, TV commercials (?), etc. The beliefs of the average person are based on authority. This is the way it is now, in the twentieth century. And, this is the way it was two thousand years ago, with the Greek philosophers.

The spirit of the Renaissance led a number of enlightened individuals to question the authority of ancient wisdom, and discover new ways of looking at the world. This innovative approach brought advances in the fields of astronomy, anatomy, and botany, to name but a few. Within a narrow field of specialization, the questioning of authority has been a useful tool. But in our modern world, no one can question all authority on all possible subjects. The voice of authority still governs most beliefs, for most people.

To be practical, the best that can be done is to choose the authority carefully. Some of us accept statements by astronomers, and reject those of astrologers. Some accept statements of scientists, and reject those of theologians. Some accept the principles taught to them by their parents, and others reject them. Nowadays there is lip service paid to the principle "think for yourself", but analysis often shows that the only change has been one authority for another. During one phase of the women's liberation movement, the teaching was that a woman should be free to do what she wants -- as long as she didn't want to be a wife, mother, and homemaker.

Examining the Evidence

Rather than blind acceptance of authority, it is possible to examine the evidence. We do not accept a theory just because someone says so. Rather, we study the theory, examine the data (or other basis), and reach our own conclusion. When the existence of the anti-proton was first announced, I was extremely skeptical when I went to New York. But the team had thought of all my objections, and had done experiments to answer them. I came away a believer in the anti-proton (amply confirmed in the years since then). One still has to accept the description of the experiment, and believe the data presented was actually observed. [A few scientists have presented false data, but that is a rare exception.] For some scientific theories there is a lot of convincing evidence; for others, much less.

In the field of religion, it is also possible to examine the evidence. Many statements can be tested. "Your faith has made you whole" may be the well-proven placebo effect. This effect probably has more documentation than any other medicine. Another examination of the evidence is to study the lives of individuals with a strong religious faith; is this a life that should be emulated? Another examination is to study the documentation, and see if it is consistent. I have read the Book of Mormon, and find that the sayings of Jesus are not consistent with his sayings in the New Testament. Obviously, others have read the Book and come to opposite conclusions.

In many instances, examining the evidence is better than just blindly accepting the voice of authority. But, it will take time to study the evidence, and often it will be necessary (or easier) to accept authority.

Differences in Accuracy

While there is an analogy between the Call of God and the Law of Gravitation, there is also a difference in the prediction accuracy. With the proper equations and computer software it is possible to predict the future position of a planet with a high degree of accuracy. With the Call of God, there is less accuracy. My father believed he was called to be a medical missionary to China, but my mother convinced him to go to South America. The Call of God may be crystal clear to one person, but another person may have a calling that only becomes clear as the years go by.

While the accuracy of physics may be impressive, it is not absolute. In the days of classical physics, it was believed that if only the initial conditions were

known accurately enough, then predictions could be made to any desired precision. This is no longer generally accepted. Both the quantum mechanics developed early in this century, and the more recent Chaos Theory, state that there is a limit to scientific predictions. Which houses will be demolished by tornadoes next year? What day of the week is Jan 1, in the year 1,000,000 A.D.? Many scientists say that these questions cannot be answered. The tiniest of effects build up to where they produce large effects, that change the answer.

Conclusions

Scientific facts and religious beliefs have many similarities. We need them both in our modern world. Scientific facts are helpful in understanding our world, and in developing modern inventions that make our life easier. Religious beliefs are also helpful in understanding the world, and in helping us make choices as to how we live our lives.

Religious beliefs cannot be logically proved. But the fundamental scientific facts also cannot be proved. For most of these we accept the voice of authority. Hopefully, we are careful about what authority we accept. For some key questions, we examine the evidence. And, sometimes, we experiment for ourselves, even though this may be dangerous. But to function in our modern world, we need a set of beliefs.