Speculation and Science

Speculation advances science even though some speculations hinder science. A scientist may refer to an educated speculation as a hypothesis. If evidence seems to support the speculation, he may call it a theory. As a speculation is repeatedly tested and confirmed, it may even be called a law. However, do not forget that it is a speculation. Some speculations are not as speculative as other speculations, but that does not change the fact that they are speculations.

Many years ago, there was speculation that the Sun orbited the Earth. Also, there was speculation that the Earth orbited the Sun. Both groups of people speculated that heavenly motion was circular or a combination of circles. The speculation that the Sun orbited the Earth was the dominate philosophy among the educated.

One man who speculated that the Earth and other planets orbited the Sun tried to determine what curve described the orbit of Mars. He, Johannes Kepler, finally speculated that the orbit was a curve called an *ellipse*. The circular orbit speculation had been very reasonable, but it did not quite fit the data. If you look carefully, you may notice two curves surrounding this text. Carefully study the curves to see that they trace different paths. The one curve is dotted. The other curve is solid. The dotted curve represents a circle. Because of difficulties with producing a perfect circle using electronic equipment, careful measurements may show that it is not a perfect circle. However, even with imperfections, the dotted curve serves as a useful contrast to the solid curve which represents the orbit of Mars. A careful comparison of the dotted and solid curves shows that it is amazing that Johannes Kepler determined that the circle speculation was inaccurate. How was he able to do such precise work in the 1600s?

He believed that God had created an orderly universe. He wanted to discover how God's creation operated. Before speculating that the orbit of Mars was an ellipse, he had speculated using other oval-shaped curves. However, careful analysis showed that those speculations were inaccurate. Finally, after much hard work, he discovered that the ellipse speculation fit the available data.

Isaac Newton speculated that the force of gravity that operated on the Earth also operated among the heavenly bodies. He speculated that an object attracts any other object with a force that is proportional to the product of the masses of the two objects and is inversely proportional to the square of the distance between the objects. The previous sentence is an oversimplification. If each object is a perfect sphere with uniform density, the distance should be measured between the centers of the spheres. If objects are not perfect spheres, then complications arise which this document ignores.

Theoretical calculations show that if Newton's law of gravity were true, then Mars would travel in an ellipse around the Sun if there were no other planets. However, the other planets influence the orbit of Mars. For example, Jupiter and Mars attract each other. Thus the orbit of Mars is not a perfect ellipse. Kepler's ellipse speculation is not completely accurate even though it helps us to understand the motions of the planets.

After Uranus was discovered, observations showed that Newton's law of gravity did not completely explain its path. Did astronomers conclude that Newton's speculation was inaccurate? No—at least not a large number of them. Instead, there was speculation that a planet beyond Uranus was influencing it. Two men did a mathematical analysis of the orbit of Uranus. They made speculations concerning the supposed planet beyond Uranus. In spite of how much they did not know about this supposed planet, they almost agreed concerning the position of this planet in the sky. After careful searching, the planet Neptune was found fairly close to the predicted positions. This discovery seems to justify Newton's speculation known as the law of gravity.

Newton's law of gravity did not completely explain the path of Mercury. Did astronomers conclude that Newton's speculation was inaccurate? No—at least not a large number of them. Instead, one of those involved with the discovery of Neptune speculated that another planet existed between Mercury and the Sun. He called it *Vulcan*. A book recorded that Vulcan took about 20 days to orbit the sun. It also recorded that someone had observed this planet.

Many years later, Albert Einstein speculated about space and the laws of science. His general theory of relativity helps to explain the motion of Mercury without the assistance of the imagined planet Vulcan. If Einstein's speculations are correct, then Newton's speculations are not perfectly accurate. However, Newton's speculations do a really good job of describing the motion of the planets. Those speculations work well enough that people can use them to calculate how to send spacecraft to other planets.

The speculation of circular orbits does a fairly decent job of describing the paths of the planets. Kepler's speculation of elliptical orbits does an even better job. Newton's speculation concerning a universal law of gravity does an even better job. Einstein's speculation concerning a general theory of relativity does an even better job. Science advances as people make better and better speculations. Somewhat inaccurate speculations can help to prepare scientists for more accurate speculations. Science is more than making measurements. Science is also finding patterns in data. This involves making speculations and testing them. Proverbs 3:19 says, "The LORD by wisdom hath founded the earth; by understanding hath he established the heavens." Speculations help us to find patterns in data and thus glimpse the wisdom of the LORD. Scientific speculations can glorify God since nature points to its Creator (Ro 1:20).

Revealed truth from God is an interesting contrast to the speculations of science. Psalm 12:6 says, "The words of the LORD *are* pure words: *as* silver tried in a furnace of earth, purified seven times." Since it is impossible for God to lie (Heb 6:18), we can believe everything God says. Genesis 1-2 and Exodus 20:11 teach that in six days the LORD made heaven, earth, sea, and all that is in them. God did not give us the Bible to deceive us. He is good and wants to teach us truth. Consider these passages: Ge 1-2, 5; 7:6; 8:13-14; 9:28-29; 11; 12:2-4, 7; 13:15; 15:13; 16:3, 16; 21:5; 25:7, 26; 35:28; 41:46, 53; 45:11; 46:11; 47:9, 28; 50:26; Gal 3:16-17; Ex 6:18, 20; 7:7; 12:40; 20:11; 1Ki 6:1; 11:42; 14:21; 15:1, 9, 10; 16:29; 22:41; 2Ki 3:1; 8:25-26; 9:24, 27; 11:21; 12:1; 13:10; 14:1, 2, 17, 23; 15:1, 7, 27, 32, 33; 16:1-2; 17:1; 18:1-2; 20:21; 21:1, 18, 19, 26; 22:1; 23:30, 31, 34, 36; 24:6, 8, 12, 17, 18; 25:8-9; Eze 1:2; 33:21. These passages show that the LORD made heaven, earth, sea, and all that is in them only thousands of years ago.

Because of their faith in God, some scientists believe the message of the Bible concerning a six-day creation only thousands of years ago. As they study what God has made, scientists discover data that can best be explained by those who believe what God has said. We should be thankful for scientists who glorify God by demonstrating that scientific speculations based on faith in God produce results superior to speculations based on unbelief. Those who sincerely seek truth should be shown that faith in God results in better science than does ignoring what God says about time.

Using Bible teaching of creation only thousands of years ago, one scientist speculated about the strengths of the magnetic fields of Uranus and Neptune. His prediction about Neptune was similar to predictions of others. But his prediction about Uranus differed greatly from other predictions. When *Voyager 2* visited those planets and made measurements, his predictions were confirmed. After *Mariner 10* visited Mercury and measured a magnetic field, he speculated about what would happen to Mercury's magnetic field over time. When *Messenger* later visited Mercury, it was demonstrated that his speculations produced a better prediction than could speculations that are not based on a belief in a six-day creation only thousands of years ago. Is truth from God more important to us than human reasoning?

There is much we do not know about how God created in six days. However, we do know that "The LORD by wisdom hath founded the earth; by understanding hath he established the heavens." The patterns that God set in place can help us glimpse the great wisdom and understanding behind the creation and operation of the universe. We were made in the image of God and are thus able to understand a small bit of His wisdom. We should be thankful that some scientists have such strong faith in God that they believe what He says in spite of the ridicule they experience. It would be really strange to accuse such scientists of lack of faith because of their work that glorifies God by demonstrating that He provided us with truth when He gave us the Bible. Speculations based on what God says provide better explanations than do speculations based on the predominant philosophy that all things continue as they were from the beginning (2Pe 3:4). Revealed truth from God should be more important to us than the speculations of humans.

Scientists who believe God show that speculations based on faith in God help us to understand the universe today. These scientific speculations explain rock layers, magnetic fields, and radioactive decay much better than do the speculations of most scientists. If science is based on faith in a good God who revealed truth, then it provides examples of the trustworthiness of God that can help us to take heed, lest there be in any of us an evil heart of unbelief in departing from the living God (Heb 3:12). Science glorifies God as it helps us glimpse the great wisdom of the Creator. He wisely designed us and the universe so that we can partly understand the wisdom behind its creation and operation.