

## **Galileo: Faith, Science and the Bible**

**Christians tend to be on the defensive when it comes to science. Many speak disparagingly about it being in conflict with the Christian faith. They charge that the church has stifled science. And they ask: "How can a scientist believe the Bible with its primitive concept of cosmology?" And the dispute between the Roman Catholic Church and Galileo is repeatedly cited as one of history's great emblems of conflict between reason and dogma, faith and science.**

Galileo Galilei (1564-1642), Italian astronomer, philosopher, lecturer in mathematics, was born in Pisa on the day of Michelangelo's death. (February 18), in the same year as Shakespeare. He was born in an age of exploration and scientific discovery and invention. It was also the age of the Counter-Reformation. The famous Council of Trent (1545-1563) tried to implement measures to halt the anti-Catholic tidal wave caused by the Reformation. Out of reaction to Protestantism the Church of Rome tried to build a watertight theological system.

In 1592 Galileo began teaching at the University of Padua, teaching geometry, mechanics, and astronomy, and turned his home into a laboratory to which he invited his students and friends. He never married, but took a mistress, who gave him three children. He was a genius, who has been ranked as one of the founders of modern thought. The Dutch jurist and theologian Hugo Grotius (1583-1645) called him "the greatest mind of all time." He promoted a new way of doing science based on experiment and mathematical analysis. This led to conflict within the academic establishment committed to Aristotelian philosophy and Ptolemaic cosmology. But as Stanley L. Jaki observed, "He was not one of the creators of modern science," a delusion which historians and philosophers of science no longer tolerate" (p. 4, *The Road of Science and the Ways to God*).

In medieval times, and even beyond, the Greek philosopher Aristotle (384-322 BC) was considered THE authority. Through the crusaders Western Christianity had come into renewed contact with his philosophy. His thinking had a powerful influence not only on the philosophers, but also on theologians and scientists. The medieval scholars greatly revered him as well as the ancient classics, which led to the unconscious acceptance of pagan ideas. "The heart may be Christian, but the mind is pagan at the bottom" (p. 20 R. Hooykass, *Religion and the Rise of Modern Science*). Desiderius Erasmus (c1466-1536), foremost scholar in Northern Europe, well acquainted with the Italian religious scene, warned that under the cover of the revived ancient classics, paganism was rearing its head. Among Christians some acknowledge Christ only in name, but breathe in paganism. Their paganism is dearer to them than the glory of Christ (p. 193, J. Huizinga, *Erasmus*).

Aristotle's view in astronomy was not doubted. He based it on what he could observe with the naked eye. The earth is the center of the universe. Round the center of the earth move the celestial bodies in a uniform circular motion. These bodies are more perfect than the earth inhabited by man. They are not subject to decay or growth, their

motion is of the perfect kind, namely circular, each has its own specific kind of motion and its own natural place. For Aristotle, and other Greek thinkers, a big problem was how change could occur, how something new could come into being. They believed that change would be in conflict with reason. Aristotelianism influenced Claudius Ptolemy (2nd Cent. A.D.), scientist and philosopher, whose great work in astronomy dealt with all of the planets and 1,022 stars. He held the earth to be a globe in the center of the world system. The earth is a stationary body about which the sun, planets and stars revolved daily. This system was accepted until the Polish astronomer Nicolaus Copernicus (1473-1543), who criticized this view of the universe.

In medieval times Aristotelianism, modified by the Christian faith might well be viewed as the official philosophy. The Roman Catholic Church's greatest theologian, Thomas Aquinas (1225-1274) built his theology and teaching on Aristotle, and endorsed almost all the details of his view of science. The medieval scholars accommodated scriptural revelation to an old Greek science. They went on to read Scripture in the light of Aristotelian philosophy. They were also persuaded that there are two sources of truth--reason and revelation. Thinking and knowing, also science, belong to the sphere of nature; faith does not enter. Nature is discovered by man's autonomous reason. Whatever was discovered by reason became Christian truths. And whoever opposed these dogmas opposed the Church. This explains the Roman Catholic opposition to any new development in the sciences. Through the influence of Greek philosophy the Church and the scientists became convinced that the earth was the center of the world, a fixed center in the physical-scientific sense. For many years this view remained undisputed and strongly held. One illustration will suffice. In Paris three scholars announced a public defense of a number of theses directed against Aristotle's thinking. The parliament of Paris intervened and the "guilty" were punished. Furthermore they were forbidden to hold or teach any thesis which opposed disobeying the decree. This was in the year 1624. When theology and science are no longer seen as human endeavors and fallible, and when scientists misinterpret nature, conflicts arise. A marriage between philosophy and theology has always been disastrous. When Jerusalem was abandoned for Athens, the Church went astray.

Was Galileo in conflict with the Christian faith when he challenged the prevailing view of science? No! His feud was with Aristotelianism which also meant war with the prevailing view of the church. His explorations in astronomy were greatly assisted by the telescope, a Dutch invention which he improved. With his new instrument he made amazing astronomical discoveries; the most revolutionary was his discovery of the satellites of Jupiter. When he announced the discovery of four additional "moving bodies" in the sky, besides the mountains of the moon, and the stars of the Milky Way, the scholarly world launched an unprecedented fierce attack against him. Scientists denied that these discoveries had any value, seeing that they had been made "only by means of the telescope, an instrument notoriously unworthy of confidence." Vasco Ronchi comments, "It must also be pointed out that a very long time elapsed before the old skepticism yielded to Galilean faith in lenses; it took several generations to achieve this transition" (p. 414, Vol. III, *Dictionary of the History of Ideas*). Why the uproar? Galileo's discoveries opposed Aristotelianism, astrology and even medicine,

which was then closely linked to astrology. He considered his observations as an argument for the system of Copernicus, who had criticized the Ptolemaic view of the universe, suggesting that the earth moved round the sun. But not only the Roman Catholic but also Reformed theologians felt that the Copernican view was so clearly incompatible with the Bible that if it prevailed the Bible would lose its authority. Galileo, convinced that his findings could be explained only on the basis of the Copernican theory, began to talk of the theory as proved. The Church did not object to Galileo's Copernican view as long as he taught as a hypothesis. With the defense of Copernicus and especially with the contention that the earth didn't stand still, Galileo fell foul of the Inquisition, a church court established in the 13th century by Pope Gregory IX. It had as threefold aim: to investigate the spread of heresy; to summon before it all Roman Catholics suspected of heresy; to show them their errors, punish them and call them to repentance. In 1615, a Dominican preacher, Tommaso Caccini, lodged a formal accusation against Galileo before the Inquisition. Monsignor Dini wrote him that if he would insert into his publication a few sentences declaring the Copernican view to be a hypothesis, he would not be disturbed, but Galileo refused. He didn't want to "moderate" Copernicus, as he put it. While in Rome, Galileo upheld the Copernican system at every opportunity. In 1616, the Inquisition directed Cardinal Bellarmine to "summon before him the said Galileo and admonish him to abandon the said opinion, and in case of refusal ... to intimate to him, before a notary and witnesses, a command to abstain altogether from teaching or defending the said opinions and even from discussing them. If he did not acquiesce therein he is to be imprisoned." Galileo submitted to the decree. The Inquisition published this now historic edict: "The view that the sun stands motionless at the center of the universe is foolish, philosophically false, and utterly heretical, because it is contrary to the Holy Scripture. The view that the earth is not the center of the universe and even has a daily rotation is philosophically false, and at the least an erroneous belief."

Many 20th century people, well advanced in science and technology, condemn the Inquisition's decision as ignorant. Sir George Clark wrote, "The Inquisition ... were stupid enough to reject the Copernican astronomy on theological grounds, condemned a book in which Galileo supported it ... This gave Galileo and Copernicus fame which they could never have gained without it, and made the inquisitors a permanent laughing-stock, to the advantage of all heretics" (pp. 177f, *Early Modern Europe. From about 1450 to about 1720*). Clark's remark is ignorant. He is looking back to the 16th and 17th century from his 20th century science perch. I suggest that most likely, we too would have judged Galileo wrong. The masses in the 16th and 17th century were largely illiterate. Both Roman Catholic and Reformed theologians had turned against Galileo, including the majority of scientists.

Galileo tried to have the ban lifted. He even visited Pope Urban VIII, who cordially received him and listened to his Copernican arguments, but refused to remove the Inquisition's decree. Galileo kept pursuing his cause. In 1632 he published his book *Dialogue* defending the Copernican system. Again he treated it not as a hypothesis but as a fact. The Inquisition, forbade its further sale, and ordered the confiscation of all remaining copies. Galileo was summoned to appear before its commissioners in Rome.

He was charged with having broken his promise to obey the decree of 1616, and was urged to confess his guilt. In 1633 the Inquisition pronounced him guilty of heresy and disobedience. Galileo repudiated his convictions with these words: "I, Galileo, in the seventieth year of my age, on my knees before you Eminences, having before my eyes, and touching with my own hands, the Holy Scripture, abjure, curse and detest the error of the earth's movement."

Many years later the church changed its verdict. In 1757 Galileo's *Dialogue* was removed from the Index, a list of publications banned by the church. In 1979 Pope John Paul II, addressing a meeting of the Pontifical Academy of the Sciences, said that he would support an effort to reverse the condemnation issued by the Inquisition. On October 31, 1992, the Pope closed the investigation. The Vatican formally acknowledged its error. The secular media hailed this admittance of error as a victory of science over faith, enlightenment over obscurantism, of reason over the Bible. Not only the Roman Catholic Church came under attack but the whole of the Christian Church. The tragedy is that the blame for the conflict between faith and science did not fall on the medieval Christians who read Greek scientific meaning back into the Bible but on the Bible itself. Dr. Paul A. Zimmerman observed, "Scientists later reached that point where they were ready to throw the baby out with the bath water. They wrongly concluded that Scripture in all its aspects must be discarded completely before science could progress" (p. 13, *Darwin, Evolution and Creation*).

### **GALILEO: His View of the World and of the Bible**

Galileo had no quarrel with the Bible. He wanted to free science from the strangle hold which Greek philosophy had on it. In lectures and pamphlets he attacked the Ptolemaic view of the universe held by most scientists and theologians of his day. When Galileo appeared before the Inquisition, he was told that he could hold the Copernican view if he would admit that it was just another theory. He had to recant his belief that Copernicus was right. In his defense Galileo made two major points: scientific theories should never have creedal status; the new cosmology of Copernicus was in harmony with the Bible. And he declared, "The Bible tells how one goes to Heaven, not how the heavens go. "

Galileo accepted the Bible as authoritative only in matters of faith and morals. The Bible was said to use non-scientific language in its description of the universe. It accommodates itself to common belief when speaking about "the movement of the sun." This resembles Calvin's accommodation theory. God spoke to human beings in language they could understand. He limited Himself to what language can express. Calvin wrote, "For who, even of slight intelligence, does not understand, as nurses commonly do with infants, God is wont in a measure to `lisp' in speaking to us?" (Institutes, 1, xii, i). But Galileo was not a consistent thinker. As a Roman Catholic he was bound to recognize the teaching authority of the popes and Church councils. Though believing the accommodation theory, he still recognized that the decisions of the pope on scientific issues in relation to the Bible should be humbly accepted. Dr. R. Hooykaas comments, "He pretended to expect that the Church authorities would never

proclaim any verdict on matters of science and the Bible, without following the advice of the scientists" (p. 125, *Religion and the Rise of Modern Science*).

Since according to Galileo the Bible uses non-scientific language, his use of Scripture to prove the Copernican cosmology appears contradictory. Yet, in his opinion, the "really initiated scholars" know that "astronomical truth" (that the Copernican system) is in fact contained in the Bible. For example, his interpretation of Psalm 19: 5-7 (the sun like a bridegroom coming forth from his pavilion) was not an accommodation to immediate observation in poetic language. He said, it means that the sun emits rays. "The law of the Lord is perfect, converting the soul" means that God's spotless Law is as much more perfect than the sun, which is marked with stains (sunspots), as the power to guide souls is higher than the sun's power of moving celestial bodies."

Dr. R. Hooykaas notes, "Here even a poetic passage received from Galileo a literalist interpretation, which, moreover, projected into the Bible not a generally received or an ancient world picture, but early seventeenth century discoveries and hypotheses." The very Scripture the Church used to condemn the Copernican view, Galileo employed for its verification. He fell into the same error as his opponents. His philosophy affected the way he read the Bible.

Not much has changed since Galileo. Feminists, creation scientists, liberation theologians, just to name a few, also read their philosophies back into Scripture. To submit ourselves to Scripture is always difficult. What Brian Walsh and Richard Middleton said about the relationship between our worldview and the Scripture is worth pondering: "We must allow the Spirit to correct or even overthrow an unbiblical worldview. The Scriptures are sharper than a two-edged sword and can shatter our preconceptions. The Holy Spirit, working through God's Word, can lead us in a new vision and a new obedience" (p. 105, *The Transforming Vision-Shaping a Christian Worldview*).

See the Concluding article *The Bible and Science: No Conflict If Read Rightly*

Johan D. Tangelder  
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