Philosophy of Great Thinker Galileo Galilei

Known for The Starry Messenger and Discourse on Two New Sciences, Italian astronomer, mathematician and physicist Galileo was also a philosopher.

So much has been written about Galileo the scientist. Regarded as the father of modern physics, Galileo, an Italian astronomer, mathematician, physicist and inventor of the 17th century was far more. He was a philosopher of dynamics and movement. Galileo is famous for The Starry Messenger (1610) and Discourse on Two New Sciences (1638).

Galileo Galilei (1564-1642) is probably best remembered for his work in support of Copernicus' heliocentric theory of the solar system. For the sake of his life, Galileo recanted his scientific observations and views in 1633, admitting that the earth did not spin on its own axis. His beliefs led to conflict with the Church, which felt their authority was threatened.

His discoveries implied that the Earth was not at the centre of the universe; rather, he believed that the planet moved around the Sun, as Copernicus had suggested 70 years earlier. Galileo's beliefs were seen as heretical, as the Bible is consistent with Ptolemy's model of the universe, which holds that the Earth is immobile and the centre of the universe. He wrote a book titled The Dialogue, which is presented in the form of a dialogue that depicted his case. Ultimately, the papal authorities forced him to deny it.

Galileo's Philosophy in Dynamics and the Principles of Movement

Much of Galileo's work lay in dynamics and movement principles. He was the first to discover the law of constant acceleration or the law of falling bodies. What would later be Newton's celebrated First Law of Motion was directly taken from Galileo's principle of inertia, that a body moves in a straight line with uniform velocity unless acted upon. This principle was important as it helped support the Copernican theory that the earth and other planets rotated around the sun as opposed to the Ptolemaic system. It took Galileo's work in dynamics to show that the falling stone retains the rotational velocity of the Earth.

Galileo philosophically held that "the book of nature is written in the language of mathematics." He was influenced by Greek philosophy and a great admirer of Archimedes. Like Locke, he maintained that there was a metaphysical distinction between the primary and secondary qualities of bodies. The former are essential and inherent in objects, whereas the latter exist only insofar as they cause certain effects in the minds of observers. Undoubtedly, Galileo was a great philosopher who risked much in the pursuit of truth and quest for knowledge from the chains of religious dogmatism.

Books by Galileo

Discourse on Two New Sciences, 1638. This work was the culmination of 30 years of Galileo's experiments on the physics of motion and force. As such, it laid the foundations of the new science of experimental physics. His "law of falling bodies" anticipated Newton's laws of motion and was the first to offer a mathematical equation for the displacement of a falling object, starting from rest, under the influence of gravity over time. The accuracy of the experiments from which he deduced this law were far ahead of his time.

The Starry Messenger, 1610. In this short treatise, Galileo recorded the results of his observations of the night sky with his telescope. He wrote of his discovery that the moon had mountains, contradicting Aristotle; that the Milky Way was in fact a vast collection of start; and that he had observed four moons of Jupiter.

Legacy of Galileo Galilei

Perhaps Galileo's greatest achievement is rooted in his philosophy of the principles of movement that created the basis for the modern science of physics. He overturned Aristotle's views on how things fall and he was instrumental in bringing the Copernican heliocentric theory of Copernicus into prominence. Half a century later, paved the way for Isaac Newton's theory relating to motion, force and gravity.

Sources:

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