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Galileo Galilei

Word Count 1002

A man who has had dedicated himself for the revolution of science and innovation of astronomy. A man who faced an obstacle but he never turned his back on science. Nowadays, his name is widely well-known as “Father of modern science” and we have been calling him as Galileo Galilei. This man is expertise in many fields, for example, mathematics, physics, astronomy, and philosophy. He has also developed two equipment, one for his astronomy research, and one for military uses. According to his discoveries and inventions, place him up at the top list, with Newton, Archimedes, Einstein, Leonardo and others. These two equipment have become his best invention. Additionally, the most interesting thing, it is not just only about his science career, it is the book that he has written.

Galileo Galilei was born on 15 February 1564 at Pisa, Italy. There was no one in his family who got a chance to learn science apart from him. <sup>1</sup>Galileo began his student’s life at Pisa University. His father highly hoped that he would study medicine and earn a living to support the family. While he was studying at Pisa University, he began to study about the pendulum. This leaded him to discover that when the pendulum swings fourth and back, the period of time does not depend on the arc of

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<sup>1</sup> Wikipedia contributors. “Galileo Galilei.” *Wikipedia* 27 January 2013  
<[http://en.wikipedia.org/wiki/Galileo\\_Galilei#Early\\_life](http://en.wikipedia.org/wiki/Galileo_Galilei#Early_life)>

the swing.<sup>2</sup>In the meantime, his research led him to disapprove with Aristotelian believe which was that the bigger object would fall faster than a lighter object. He tested the hypothesis by going up to the Pisa Tower and dropped two things at the same time. The result turned out that they touched the ground at the same time. Galileo began to test many experiments until those experiment were given by a word called “De Motu” or “On motion”.<sup>3</sup> Later in year 1592, he developed a device which was a pump that used one horse to raise water. <sup>4</sup>A pumping device was not the only device he has been creating, there were also many others but the most famous one was the telescope.<sup>5</sup>During his scientific study and research, Galileo himself had had a short relationship with Marina Gamba, but he never got married.<sup>6</sup>In my opinion, he may not have time to do such a thing because in his life, science became entire part of him, and before his book was published; he was punished by the church according to his heresy.

In addition, within his long period of study, he had written a book called “Two Chief World Systems”. This book was based mainly on the contrast of the theory between Copernicus and Ptolemy. The book has changed our thinking toward the universe and has turned around the world about our physic and philosophy of religion. Galileo believed in Copernicus theory in which the sun was said to be the center of the universe. Moreover, he used his own theory to disapprove with Ptolemy idea of the universe. Ptolemy said that our earth was the center of the universe which today

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<sup>2</sup> Albert Van Helden, Elizabeth Burr. “Galileo and the Pendulum.” 27 January 2013.  
<[http://galileo.rice.edu/bio/narrative\\_2.html](http://galileo.rice.edu/bio/narrative_2.html)>

<sup>3</sup> Albert Van Helden, Elizabeth Burr. “Galileo and the Pendulum.” 27 January 2013.  
<[http://galileo.rice.edu/bio/narrative\\_3.html](http://galileo.rice.edu/bio/narrative_3.html)>

<sup>4</sup> Gotthard Bechmann, Vitaly Gorokhov, Nico Stehr (eds.). “*The Social Integration of Science. Institutional and Epistemological Aspects*” . 2009. p.259

<sup>5</sup> Theo Koupelis. “*In Quest of the Universe*” .2010. p.70

<sup>6</sup> Rachel Hilliam. “*Galileo Galilei: Father of Modern Science*” .2004 p.43-51

we have proved wrong.<sup>7</sup> After he published that book, Galileo got inquisition by the church of Vatican. The church gave him a chance to elaborate his theories toward Copernicus' believes but he was only able to explain it in a mathematic way. In my opinion, he is a great scientist, but what Catholic Church had done to him was unreasonably unacceptable.

The Pope Paul V warned Galileo that he should not defend Copernicus' theories. However, Pope Urban VIII assured Galileo to write about it. Galileo himself did much research about astronomy, so he was very sure that the proof by Copernicus was right. The church called him to Rome in 1633 to face the inquisition for writing the book which went against Catholic believes. He was found guilty for his heresy. Ptolemy's theories were believed to be similar to what the Bible said, so it made him become one of Catholic enemies. Thus, the church did not agree with Copernicus theories. The reason that the Catholic Church did not believe in Copernicus theories was that the Bible said that our universe was centered by the Earth. However, Copernicus had written a book called "On the Revolutions of the Heavenly Bodies". This book was never published after his death because Copernicus did not want to go against the Catholic church.<sup>8</sup>

These arguments toward Galileo, Copernicus, and Ptolemy are all true in their own way. Ptolemy theories are not totally false, although many of his theories are based on what the Bible was written. Between Copernicus and Ptolemy theories, their

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<sup>7</sup> "Ptolemy" .*Excerpt from the Encyclopedia Britannica without permission.* 1 February 2013  
<<http://abyss.uoregon.edu/~js/glossary/ptolemy.html> >

<sup>8</sup> Student Pulse . "Copernicus, Galileo, and the Church: Science in a Religious World." 1 February 2013  
<<http://www.studentpulse.com/articles/533/copernicus-galileo-and-the-church-science-in-a-religious-world>>

similarity is that the planets orbit in a perfect circular.<sup>9</sup> After Galileo studied both Copernicus and Ptolemy theories, he defined that Copernicus theory was closer to the reality. He did not believe much in the Bible, he used more science and mathematics to prove the Sun is the center of the universe. Galileo was born in the wrong time. In 1820, the church gave one more chance for another astronomer. His name was Joseph Settle. Joseph Settle used the theory based on Copernicus theory as fact. After Galileo's death, in 1992 Pope John Paul II said Galileo received unjustly at the hand of the church. Pope John Paul praised Galileo's religiousness and his point of view toward the relationship between science and religion.

Last but not least, for a long period of time that Galileo studied for science and astronomy. He did many things for human future research. In the meantime, Galileo faced inquisition for being heresy. However, what Galileo believed was not wrong but it was only against what Catholic believed at that time. Even though, Galileo, Copernicus, and Ptolemy may have different ideas regarding the universe, they all have their own theory toward the universe in their own way. Today Galileo's book is accessible for everyone to buy and read without any restriction by Catholic Church. Thus nowadays, we are studying Galileo theories as our basic knowledge toward astronomy, physics, mathematics and science.

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<sup>9</sup> Amazing Space. "Views of the universe: Ptolemy vs. Copernicus." *Amazing space* 2 February 2013 <<http://amazing-space.stsci.edu/resources/explorations/groundup/lesson/basics/g37/>>