

THE HISTORY OF `MODERN PHYSICS`

Man and his search for knowledge on the nature that surrounds him, were probably born together. Many registers come from ancient times, mainly after the advances of applied mathematics, especially basic geometry. An example with been that the Egyptians used in geometric calculations to measure the distance between ships and the height of the pyramids.

Many philosophers and Greek sages have absorbed much knowledge from these regions and then they shared that knowledge with one another, in a natural academic process, that is, from masters to disciples. So we can perceive such a knowledge exchange through Tales of Miletus, Pythagoras, Socrates, Plato, Aristotle, Aristarchus, Archimedes, Hipparchus among others.

However, the history of `modern physics` has been officially initiated by a natural observer: Galileo Galilei - who was born in January the fifteenth 1564, in the city of Pisa Italy. Still a young boy, he loved to explore and investigate everything that surrounded him. When he was not dealing with his school homework, he would go out alone to discover secret tunnels and abandoned buildings throughout the city, or to explore the fields in the region of Tuscany.

When he was 22 years old he finally discovered his scientific vein and abandoned medical school in order to study mathematics. When he was 23, he wrote his first book, Il Bilancetta, and starts to gain recognition from the scientists of his time.

But it was when he was nineteen years old that he made his first important scientific discovery. During a long sermon at a Sunday mess at the cathedral of Pisa, Galileo got bored...

His eyes were scouring the ceiling, and he soon realized that the chandelier was swinging from side to side because of an air draft. He noticed that sometimes the length of the swing was sometimes shorter, and sometimes it was longer. However, whichever was the distance, the chandelier always took the same `time` The complete the swinging cycle. Galileo would check to the oscillation time using his own pulse, as he did in other experiments. He then performed two other experiments and was able to confirm his suspicions at the cathedral. He had discovered in this way, a phenomenon called "periodic pendulum oscillation" and formulated a simple law:

- The size of a pendulum's oscillation is irrelevant; the time it takes to complete the cycle is always the same.

From that postulate, the first pendulum clock, much more precise than those that existed back then was invented.

“Galileo, perhaps more than anyone else, was responsible for the birth of `modern science`... that is because he was one of the first to say that man can understand how the world works and, besides, that it would be possible through the simple observation of the real world.

(Stephen Hawking)

GALILEO AND THE MOVEMENT OF THE CELESTIAL BODIES

Another important fact of the life of this investigator of nature, was his incessant observation of the celestial bodies' movement throughout the heavens, mainly the solar spots-He did all this by using a special Lunette he designed and built himself.

It is also noteworthy his stalking of the laws of movement, as everything that fell, went up, accelerated, orbited or simply moved was in his interest to research. Galileo was a great fighter, as, though he faced many obstacles in his missionary walk, such as:

- * having to swim against the current in college and it's many in narrow minded academics and their old ideas.
- * having to evade his whole life the inquisitors and their persecution in the name of the Catholic Roman church, who clung to an "egocentric" world model founded by a wise Greek called Aristotle; A belief which stated that man was made in the image of god, and the earth, being his dwelling, had to be the center of the universe, and all the other celestial bodies would orbit around it. [1]
- * having to support his mother, wife and three children.
- * having been judged and condemned as a heretic because he agreed to a Heliocentric model, that is, the earth was the one that circled the sun.
- * having become totally blind before he could write his final and more detailed work; "mathematic discourses and demonstrations on two new sciences".

He was able to build the foundations of the first great pillar of a new science; `modern physics` which was born based on any you universal concept:

- Universal dynamics!

"at a distant point in the future, humanity's average knowledge Will be superior to that of Galileo while his own will be superior to that of a child. And, with so many possibilities one might occur to a future Galileo. And, when it is formulated as a law, it will be used to describe the movements of a body better then the laws proposed by Galileo In 1638".

(Albert Einstein)

NOTE: [1]

1 - By studying Galileo and his religiousness, we were able to attest that there was a gap created between the science academies and the church and vice versa and that it did not occur by will of the scientists themselves, but by the inquisitorial policy of the dominant church and its archaic dogmas-the church did not accept new interpretations of the universe and it's phenomena so that it's authority would not be compromised.

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