The Greek Transition from Mythology to Scientific Reasoning

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HIST 150: Historical Inquiry I

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February 8th, 2019

According to Frankfort, the Greeks were the pioneers who decided to ask questions and look for explanations in the world as opposed to just listening to the gods. Socrates, Aristotle, Archimedes, and Eratosthenes were the ones who shaped how society perceives the world scientifically today. Socrates’ method of learning involved asking questions in order to get to the answer which led to the advancement of Greek science, and mathematics. After Socrates came Aristotle, Archimedes and Eratosthenes. Aristotle laid down the framework of cause and effect that was later perfected by Archimedes and Eratosthenes.

Socrates’ was survived through his student Plato. In Plato’s *Apology,* which in Greek, apology means “a defense of one’s actions or beliefs, not an expression of contrition or regret,” Plato was recording the events of his late teacher’s trial to an Athenian jury. Socrates’ journey started when the Oracle at Delphi proclaimed to Socrates how he was the wisest there was. Socrates was confused at that proclamation; he responded, “What does the god mean?” Socrates started asking various professionals questions that they could not possibly answer, which ultimately led to his answer. He was wise because he knew that it wasn’t possible to be knowledgeable in every subject. This was the forefront of Socrates’ defense, however, he was never afraid of death even though he knew it was inevitable at the time of the trial. He even said, “When I leave this court, I shall go away condemned by you to death, but they will go away convicted by Truth herself of depravity and wickedness.”

After Socrates’ death Plato eventually taught his “greatest” student, Aristotle. He is considered the founder of “Greek science.” He had 4 causes in his science: The material cause, the formal cause, the efficient cause, and the final cause; every stage had its own story. Although his version of science is different, he led to the discovery of cause and effect which is the basis of science today. Cause and effect mimics the efficiency cause and the final cause. His science also influenced Archimedes and Erastoneses, who took it a step further. In comparison of Socrates with religion, Aristotle “subtly denounced religion, having defined it as a false sign that people are entitled to produce on their will or by tradition.”[[1]](#footnote-0) He also fought for secularism and the Socratic Method.

Archimedes was tasked by Hieron, the tyrant of Syracuse, to make a golden crown. The amount of gold weighed the same as the silver, but it was not enough to make a crown. Before Archimedes, a craftsman was tasked to make the crown but stole from the tyrant instead. Archimedes ended up taking a bath and noticed how the water spilled over. He then thought of an idea on how to test if the craftsman stole the gold. He made two masses of gold and silver that weighed the same as the crown and proceeded to put them each in a vessel full of water. He then recorded how much water spilled out and recorded the amount. He then compared it to the crown itself in water and he realized that the gold loss a smaller amount of water. In doing this he actually was able to test and record his data. Other scientists could also retest and find the same results.

Eratosthenes was another Greek mathematician who tried to determine the circumference of the world. Using a sundial on the solstice in Syene and Alexandria, he determined by the suns’ rays that the two cities were in the same longitude. He then determined the two cities had a difference of 2 degrees. Mathematically, converting Greek units to modern day units he calculated the circumference and was within a few hundred miles of the equatorial circumference. He calculated that the distance between Syene and Alexandria was 1/50th of Earth’s circumference. He then calculated the distance between the two cities by and multiplied by 50 and that was his answer for the circumference.

Socrates started the thought process of asking hard questions to finding hard and unknown truths. As time passed and his student Plato taught Aristotle; Socrates’ views became more manifested in the sense that science and mathematics became pillars in Greek society. Scholars like Archimedes and Erastoneses took Aristotle’s causes to the next level. They laid the foundation for science and mathematics by recording their findings. It allowed for others to recreate the experiment or equation to arrive at the same results to either prove or disprove their theory. Would society be where we are today without the intuition of the ancient Greek scholars? Most likely not. Each of the four built on one another and gave the next generation the tools necessary to conquer any problem they deemed vital to solve.

Bibliography

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