

Steven French

Columbia Secondary School for Math, Science, and Engineering

New York City, NY 10027

however, was more concerned with the original state of the cosmos than atomism (Curd, 1), and he was exiled from Athens for his association with Pericles. One hundred years after Democritus, Aristotle established beliefs in the four classical elements: fire, air, earth and water. The search for a new way to look at the physics of the natural world was courageous for its time.

It was a group of ancient Greek philosophers who explored the theory of atomism: Leucippus (flourished 5<sup>th</sup> century BC), Democritus, and their followers Epicurus (341–270 BC) and Lucretius (c. 99 BC–c. 55 BC). This group was influenced by Democritus, and through discussion with the following ancient Greeks and Romans for the next 1000 years: Aristotle (384–322 BC), Marcus Tullius Cicero (106 BC–43 BC), Galen of Pergamon (129 AD–210 CE), Alexander of Aphrodisias (flourished 200 AD), Themistius (317–c. 390 AD), Simplicius of Cilicia (c. 490–c. 560), Joannes Stobaeus (flourished 5<sup>th</sup>-century CE), and John Philoponus (flourished 6<sup>th</sup> century) (Taylor, 69-90). Into modern times, even today, the ancient atomist theory and Democritus are discussed by scientists in their books. Many new books on theoretical physics, string theory, and astrophysics start with astrophysics, metaphysics, and extraterrestrial life. *The Copernicus Complex* by Columbia University Professor Caleb Scharf credits Democritus with the idea of matter being made up of smaller parts in the beginning of his book (Scharf, 13).

So why is this important? Why was Democritus so learned? He grew up in Thrace, which was on the edge of ancient Greece and bordered the powerful Persian Empire. His wealthy father received the Persian King Xerxes on his march through Abdera. In gratitude, Xerxes left behind some of his wise men, who taught Democritus astronomy and theology. Upon the death of his









universe, which Albert Einstein and Stephen Hawking worked on. This is because theoretical physicists come up with and refine theories of what the world truly is, similarly to how

the theoretical physicist field, in both modern and ancient times, Democritus would come up with a theory about a natural phenomenon which is unprovable and not verifiable, and subsequently try to gather data to prove it. The only difference between the modern and ancient definitions of a theoretical physicist is that in modern times, one must utilize math in the proof of their theory, while in ancient times, it was rare to see math proving a scientific theory (The Worst, 1).

Some, however, may argue that Democritus was not a theoretical physicist due to the lack developed as others. For example, algebra and calculus were not in existence for at least another 1,000 years. In ancient times, theories were not usually backed up using math and the field of science was still categorized as philosophy. Two millennia later, that all changed and hence appeared the modern day definition of theoretical physics that includes the use of math. For example, Albert Einstein came up with thought experiments that were later backed up by math,

In his exploration of atomism, Democritus could have also used the modern day electron microscope. Just like in the early 20<sup>th</sup> century, Einstein could have used many observatories and data from around the world to prove his theory that there really are stars moving around black holes. Unfortunately, these amenities were not available in the lifetime of these great thinkers.

To conclude, Democritus had no idea how correct he had been by believing in atomism and how much of an effect his atomist theory had over the following 2000 plus years.

Throughout history, scientists have exchanged Demo



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