

The Very Short Introductions Podcast
Episode 79: Ancient Greek and Roman Science

The VSI Podcast Intro 00:06

Welcome back to The Very Short Introductions Podcast. From public health to Buddhist ethics, soft matter to classics, and art history to globalization, we'll showcase a concise and original introduction to a wide range of subjects, for wherever your curiosity might take you. So here is today's very short introduction.

Liba Taub 00:26

I'm Liba Taub, an historian of science, Professor Emeritus of History and Philosophy of Science at the University of Cambridge, and Director of Research at the Whipple Museum of the History of Science. Science is at the center of our modern society. Wherever we are, we probably look to science for answers, at least to some questions. The origin and early history of scientific ideas and practices fascinates many people, including Nobel Prize-winning physicist. Ancient Greeks are often credited with having invented science, and the Romans are usually criticized for not having had much interest in science, but having focused instead on technology, including building aqueducts. I was delighted to write the Very Short Introduction to ancient Greek and Roman science. It's a great series, and I'm very pleased that my work is part of it.

Liba Taub 01:21

I'm particularly interested in how questions and explanations about what we call the natural world fit within the cultures of ancient Greece and Rome. In fact, some historians have claimed that ancient Greeks invented the idea of nature. I think that the concept of nature itself deserves more historical study. I first got interested in ancient science when I was a postgraduate student in History of Science at the University of Oklahoma, in the United States. In the US, unlike the UK, it is very usual for postgraduates to be required to attend lectures. I can still remember the lectures in which I began to learn about the pre-Socratic philosophers, those lovers of wisdom, who lived before, or contemporaneously, with Socrates. Aristotle said that Thales of Miletus was the first to philosophize about nature. It is said that he thought that water was the underlying principle of everything, and also that everything is ensouled.

Liba Taub 02:24

I found that very exciting, and eventually decided that I would most like to study ancient Greek science. Over the course of my career, I have also become very interested in what different Roman authors had to say. I am convinced that they did more science than we have sometimes thought. Both of the ancient Greeks and Romans we know about, who were credited, in antiquity and later, with explaining nature, the scientific work was not paid. Science was not a profession. In fact, in ancient Greek and Latin, there is no single word that correlates directly with our modern world "science."

Liba Taub 03:02

Science is a modern category, not an ancient one. The word scientist was not coined until the 19th century. As a shorthand convenience, I use the word "science" and "scientist," but I recognize that they are somewhat anachronistic. While a term equivalent to scientist did not exist in Greek or Latin, nevertheless, we find in ancient texts a clear sense of people actively engaged in and knowledgeable about the study of nature, medicine, and mathematics. There are ancient terms to refer to people who were understood to have specific specialist knowledge and skills, including physicists, those who studied "fysis" (nature), and mathematicians. Most of information about ancient science comes from written texts; however, the scientific, mathematical, and medical writings that survived from antiquity are not always in a format in which we would find modern works on such subjects. For example, we have important poems investigating astronomy, the nature of the world itself, and even mathematics. This raises questions about the ancient authors and their aims; also about their audiences for these written texts.

Liba Taub 04:17

Poetry was an especially powerful mode of communication in Greco-Roman culture, and some poems about nature, including Lucretius's "On the Nature of Things," were widely read, not only in antiquity, but in later periods, too. In the modern period, Lucretius's poem provided an important window on Epicurean ideas about nature, including atomism. Some of our most important scientific and technical texts were written by individuals we primarily think of as poets. The earliest Greek poets, Homer and Hesiod, were depicted as men with all kinds of skills and knowledge, not only as poets. Plato and Aristotle described them as the "fathers of philosophy," and there was a later ancient poem describing a mathematical contest between Homer and Hesiod. Other words, great poets could be mathematically talented.

Liba Taub 05:14

Even though in antiquity, many of the people known for scientific and mathematical work were described as philosophers, physicists, or mathematicians, quite a few of them were also celebrated for their practical achievements. Also have a good deal of information about work done to collect, preserve, and share data, including the measurement, calculation, and estimation of the size of natural objects, such as the height of mountains, and the depths of the sea. In other words, many of the ancients who we would think of as scientists were not only theorizing but were doing practical work, too.

Liba Taub 05:53

The legacies of ancient Greek and Roman science, including ideas, practices, instruments, and ways of communicating, endure well beyond antiquity, through the Middle Ages, Renaissance, and even the modern period. A number of concepts and concerns are seemingly very long lived, including those relating to elements, atoms, chaos, the idea of whether the cosmos is itself a living being, the status of scientific knowledge in wider culture, the place of mathematics and science, and whether the world changes in significant ways over time. This apparent longevity points to a degree of continuity among scientific practitioners and across communities. While there were many discontinuities, the engagement with similar questions in different contexts, at distinct times and places, may indicate some shared interests and ambitions, expressed as a sort of scientific community, or communities, extending over cultural, temporal, and linguistic boundaries.

Liba Taub 06:56

Some modern scientists feel a powerful affinity with their ancient intellectual forebears. In the mid 20th century, the Nobel Prize-winning physicists, Werner Heisenberg and Erwin Schrödinger, both published books on early Greek science, intended for non-specialists. They each had had an education that included the ancient classics, during which they were exposed to ideas of the ancient Greeks. By his own account, Schrödinger enjoyed the study of classical languages when he was young, and that interest seems to have remained throughout his life. They both engaged with the work of ancient Greek scientific thinkers, comparing and contrasting the new physics of the 20th century to that of ancient Greece and Rome. Heisenberg points to the view attributed to Thales, that water is the material cause of everything, noting approvingly that the philosopher Friedrich Nietzsche

claimed that it expresses three fundamental ideas: the question of the material cause of things, the demand that this question be answered in conformity with reason without resorting to myths, and the idea that, ultimately, it must be possible to reduce everything to one principle.

Liba Taub 08:09

Schrödinger sought to show that the fundamental features of the modern scientific world picture are historically produced, rather than logically necessitated, pointing to two features of modern science that he thought can be traced back to the pre-Socratics: the idea that the world can be understood, accredited to Thales, and that in order to understand the world, one must become an external observer, and he attributed this to Heraclitus. I find it fascinating that not only these two Nobel Prize-winning physicists, but other distinguished modern scientists have taken ancient science so seriously, that studying it became an avocation.

Liba Taub 08:51

It is hard to say much about the ideas and work of the earliest Greek thinkers who wrote about nature because their writings only survive in fragments. We do have references to their ideas and writings by other, sometimes much later, ancient authors. The reporting and discussion of earlier ideas and activities by later thinkers demonstrate their importance. So much of what survives of the pre-Socratic philosophers is concerned with nature; these thinkers may appear to be closer to the modern ideal of the scientist than other philosophers, including Socrates, Plato, and even Aristotle.

Liba Taub 09:30

Today, we are still searching for answers to some of the same questions as the ancients. How did the world begin? What is the world made of? Are there other worlds? How do humans relate to other parts of the universe, including other living beings? How do we know what we think we know? If you want to know what to read, I very much hope that I have enticed you to look at some of the ancient sources, to read the ancient works, and to examine the visual evidence, too. Rather than labeling someone from antiquity as a scientist, perhaps thinking of them as someone who had scientific or mathematical interests might be more useful, and would also help to put their scientific endeavors in better context with regards to the rest of what we know about their other activities. By

studying texts that describe or report science, we learn more about the broader contexts in which science was produced, including who was engaged, involved, and interested in science. And doing this, we understand that science and mathematics were deeply embedded in broader culture in Greco-Roman antiquity.

The VSI Podcast Outro 10:43

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