

## Remote Learning Module for 3 April 2020

Lecture Notes for Fernando Espinoza's *The Nature of Science*, Chapter 3

### Pluralists & Sophists

\*

Last time we considered some historical features characterizing the ancient Greek world—features that at least partially explain why natural philosophy arose there and nowhere else in the ancient world. After briefly reviewing the Milesians and the Pythagoreans again, we then turned our attention to the figures of Heraclitus and Parmenides (and their disciples, Cratylus and Zeno of Elea, respectively). Today we'll discuss the Pluralists, and we'll meet the Sophists (teachers of rhetoric and public speaking) who were active during the Golden Age of Athens, and who had a dramatic influence on the figure of Socrates.

\* \* \*

#### (1) The Pluralists.

As we observed last class, the Pluralists were natural philosophers (*physikoi*) who despaired of ever finding a single principle (or *archē*, in Greek) that could serve to explain the twin phenomena of change and multiplicity. We also noted that these Pluralists fell into two broad camps: those given to *vitalism* and those given to *mechanism*.

#### (2) The Vitalists.

The two most prominent Vitalists were Empedocles (490 – 430 BCE) and his contemporary, Anaxagoras (500 – 428). They both preferred organic metaphors (over inorganic elements) for understanding the natural world. What separates them from the earlier Milesian monists, however, was not just that they supposed that things in the world cannot be reduced to one fundamental, original element, but that they agreed with Heraclitus in holding that explanations of phenomena require more than building blocks; something, they believed, must account for events, not just the constitution of things.

Empedocles focused on the original meaning of the Greek term, *physis*, which you'll recall, derived from the verb “to grow.” He held, accordingly, that living things issue from four *roots* (to which he gave the divine names, Zeus, Hera, Aidoneus, and Nêstis—names standing for the four elements, fire, earth, air, and water, respectively), with their specific qualities and relations derived from two fundamental forces, which he called “Love” and “Strife.” These terms were, of course, metaphors for forces of attraction and repulsion, and not so very different from the way we think of electromagnetic forces today. Love represents the force whereby the elements come together and blend into the features of living things; Strife, on the contrary, drives the elements apart. Using this elegant, however rudimentary, scheme, Empedocles was able to tackle the arguments that Parmenides and Zeno had launched against the very idea of plurality. For Empedocles, the four roots and the two forces of attraction and repulsion are eternal. We

observe the appearance of change and multiplicity in the world as a result of the forces acting on the elements. Empedocles further fashioned this account into a theory of *zoogony* (how animals came to be) that shares certain elements with modern evolutionary theory. He supposed that at one time limbs, faces, necks, and shoulders wandered about the world disconnected from one another, eventually coalescing into animal forms, some of which were monstrous, but others of which were fitted to survive.

Descended from an aristocratic family from Clazomanae in Ionia, Anaxagoras abandoned the wealth of his ancestry, and came to Athens to study philosophy when Socrates was a young man. Like all the other philosophers of the early period, we have only fragments of his writing, quoted in the works of later thinkers (notably, both Plato and Aristotle). He holds a special place among the so-called Pre-Socratics, however, because Socrates, according to Plato, regarded him as the only *physikos* who attributed the *logos* of the *cosmos* to a form of intelligence. Like Socrates after him, Anaxagoras was accused of impiety towards the gods, and was therefore exiled from Athens after having lived there for roughly twenty years. Not satisfied with merely four roots, Anaxagoras supposed that both change and multiplicity proceed from infinite *seeds*, organized by *nous* (the Greek term we usually translate as “mind”). In other words, Anaxagoras argued that the world owes its variety to its having been designed by *nous*. It is not clear from the writings of Anaxagoras that we have available to us today whether or not he thought there was any purpose in the way *nous* designed the universe from its infinite seeds. In any case, he did hold that the original state of the cosmos was a boundless (*aperion*) mixture of seeds that at some point was set into motion by *nous*. Although he agreed with the Eleatics that there is in nature no ultimate generation or corruption (coming-into and going-out-of being), since the constituents of things (the seeds) are eternal, he offered a wide range of naturalistic explanations for the phenomena of everyday experience. He was able, for example, to provide one of the first correct accounts of the phenomena of eclipses, having determined that the moon does not shine by its own light, but rather reflects the light of the sun. While it was commonplace in Greek religion to think of meteors as “chariots of the gods,” Anaxagoras held that the stars are nothing more than burning bundles of rock cast down from the heavens by physical forces.

### (3) The Mechanists.

Along with his teacher, Leucippus (about whom we know very little), Democritus (460 – 370 BCE) of Abdera was one of the two founders of the school of philosophy known in the ancient world as mechanistic atomism. We owe to these two philosophers the first thoroughgoing account of the nature and constitution of the physical world that can be said to be entirely materialist. In Greek, *tomos* means a knife or a cut. The term, “atom,” comes from appending the particle of negation, *a*, to *tomos*. So an atom is something un-cut-able—a unit that cannot be divided into further units. Not only did Democritus propose that all things are composed of atoms, but that atoms inhabit and interact in a void or vacuum. Democritus was known among the ancients as the “Laughing Philosopher,” because he emphasized in this thought the importance of retaining a cheerful disposition in all things (a view we might find especially hospitable in these weeks of plague and uncertainty in which we find ourselves today). Like Anaxagoras, Democritus held that the number of atoms in the universe is infinite, and that the

void is infinite space. In his commentary on Democritus's philosophy, Aristotle uses an analogy to the manner in which a finite set of letters can be combined into an infinite set of words and sentences, without contradiction. Much of this conception can be attributed to the effort by Leucippus and Democritus to handle the arguments of Zeno and Parmenides, who held that both change and multiplicity are illusions. Consider Zeno's paradoxes of motion—if space is infinitely divisible, then nothing can move, since nothing can traverse an infinite number of intervals. On the atomist account, however, there must be a lower bound, or minimum region of space: the space occupied by the indivisible atom. Recall too, that Parmenides had asserted that the Way of Truth tells us that “whatever is, must be,” while the very idea of “nothing at all” falls into the Way of Seeming. The atomists, however, countered this with the idea that atoms occupy a void or vacuum, thereby distinguishing between two sorts of nothing: the *nothing that is-not* (as when you clasp your hands together so that there is “nothing” between them) and the *nothing that is* (as when we nowadays think of the vacuum of space). For Democritus, atoms have size and shape, and no other properties of their own (excepting perhaps weight); all the other qualities of things arise from the manner in which we perceive assemblies of atoms (what Democritus called, “convention.” The atomists, Leucippus and Democritus, were mechanists in the sense that they denied any sort of purposeful organization in nature.

#### **(4) The Sophists.**

By the time Anaxagoras moved to Athens, the city had already embraced a new form of government which they called, democracy—coined from *demos* (the people) + *archē* (ruler), or self-rule. Although only adult, free males were regarded as citizens, and so, entitled to the business of self-governance, the city itself, built on a high hill about twenty miles from the seaport known as the Pireas, was a flourishing metropolis, replete with opulence, fine art, and drama. This early democracy replaced the earlier forms of kingship (note that the Greek for “king” is *tyranus*), and oligarchy. The citizens of Athens began to gather in an *ecclesia*, or place of assembly (our modern word, “ecclesiastical” comes from the Christian use of this same term for a place of assembly) where they would vote on all the matters of government, from executive decisions, to agreeing to laws, and for adjudicating disputes and criminal charges. In this new context, citizens had to litigate their own court cases before the assembly (which on any given day might vary considerably in size, and depending on the allure of the case at hand). Accordingly, they discovered a need for advanced rhetorical techniques, for which their earlier methods of education left them completely unprepared. Hitherto, the general practice was for young boys to be taught the arts of war and commerce by their uncles. And so, there arose a class of largely itinerant experts in public speaking, known as the *sophists*. Recall that *sophia* is the Greek word we customarily translate as “wisdom”; we find it in the roots of our words, “sophisticated,” and “sophomore.” A *sophos*, then, was someone wise in the ways of rhetoric. Most of the Sophists who came to Athens were foreigners to the city, that is, non-citizens. They were hired on retainer by the more wealthy Athenian families as legal consultants and teachers of the young men. They spoke excellent Greek, as you might imagine, so they were hardly among the *barbaroi*, or non-Greek-speaking peoples of the world; yet they were also not citizens, and thus a new class, of strangers or foreigners, arose within Athenian culture, some of whom

amassed considerable wealth. One of the more illustrious among them was the figure of Protagoras, whom we met in connection with the way of resolving paradoxes that we called *relativism* (showing that apparently incompatible claims can both be true, when truth is relative to the judge). Protagoras lived from 490 to 422 BCE; he was thirty years old when Socrates was born. The ancient Greeks were often concerned to distinguish between knowledge (*episteme*) and opinion (*doxa*). Protagoras taught that knowledge is always relative to the knower, a view that was sure to please any citizen hoping to win a case in the assembly. His doctrine is sometimes called, in Latin, *Homo Mensura*, or “Man is the Measure.” Fully stated: “Each man is the measure of all things, of those that are, that they are, and of those that are not, that they are not.” Today we call this teaching *epistemic relativism*. Remember the wind-argument? Protagoras used this argument to defend his relativism: the wind is neither warm nor chilly in itself, but warm or chilly relative to the body temperature of each person it touches. We find a similar argument for *aesthetic relativism* in the cliché, “beauty is in the eye of the beholder.”

Following in Protagoras’ footsteps, the Sophist, Gorgias (483-375 BCE), taught that *anything* can be proven (including the denial of the claim that anything can be proven!). Of course, he was not referring to mathematical proofs, but rather the sort of persuasive arguments an Athenian citizen might want to construct in civil or criminal litigation. The Greek for “city” is *polis* (plural, *poloi*), and its many citizens were the *hoi polioi* (literally, “the many”); a *polis*, in other words, was a place where many people lived. Once Athens became a democracy, and its citizens began their adventures in self-rule, the art of rhetoric (of giving persuasive arguments), became, in a word, political. And so too became the doctrines of the Sophists. One such figure was Thrasymachus, who, in the spirit of Protagorean relativism, taught that “might makes right”; whoever has the reins of political power determines what counts as just in the city. For Thrasymachus, there is no higher court of appeal than power itself. Critias, a Sophist who was active in Socrates’ day, went further: morality, he claimed, is a myth foisted on the many in order to control their whims, and thus to secure power. Why even bother with argument, Critias claimed, when propaganda will serve more efficiently and effectively. It was into this maelstrom of sophistry that Socrates found himself thrust upon reaching his maturity.

\* \* \*

Next time, we’ll turn our attention to Socrates and his disciple and biographer Plato. Be well everyone, and remember: social distancing saves lives, which is presumably why we are still not in JUB 202 presently.