

Remote Learning Module for 10 April 2020Lecture Notes for Fernando Espinoza's *The Nature of Science*, Chapter 4

— Aristotle —

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Last time we met the figure of Plato, whose dialogues defended and extended the teachings of his beloved teacher, Socrates. Today we'll look to Plato's illustrious student and fellow philosopher, Aristotle, whose highly systematic methods of both scientific investigation and philosophical speculation stand in sharp contrast with the dialogic methods of Plato.

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(1) Aristotle lived from 384 to 322 BCE. His works had an enduring influence on the course of Western science and philosophy that stretches from his times well into our own. Of his some two-hundred some odd treatises, only thirty-one remain extant. The breadth of his interests was enormous, ranging from biology to meteorology, from physics to psychology, from politics and ethics to aesthetics and rhetoric.

He was born in a small city of Stagira in Macedonia (he would later become known as "The Stagirite"). Also, during the Middle Ages, when writers would refer to "The Philosopher," they assumed that their readers would know they meant Aristotle. When he was seventeen, Aristotle traveled to Athens to study under Plato at the Academy. He remained Plato's pupil for the next twenty years. After Plato's death in 347 BCE, having been denied promotion to become head of the Academy (you'll recall from last time that Plato passed this position on to his nephew), Aristotle traveled to Assos in Ionia, ostensibly to continue the biological studies he'd begun at the Academy. In Assos, he enjoyed the patronage of Hermeias, a friend from his days at the Academy, and now ruler of the *polis*. After only three years, Hermeias died, and Aristotle moved to the nearby island of Lesbos where he met and worked with another former Academic, Theophrastus. Sometime during the two years he lived on Lesbos, Aristotle married Hermeias' niece, Pythias.

In 343 BCE, Aristotle was called by the Macedonian king, Philip to return to Macedon in order to teach the king's thirteen-year-old son, Alexander—who would go on to succeed his father as Alexander the Great. This tutelage would last for about two years. Aristotle must nevertheless have left a lasting impression on the future king and eventual conqueror of the then "known world, for when Alexander set up the center of his new empire in northern Egypt in the town of Alexandria, he built a great library there for Aristotle to conduct the business of his wide-ranging research interests.

In 335 BCE, Aristotle returned to Athens, where he instituted his own school (as far to the east of the city as Plato's Academy was to the west), known as the Lyceum. The name derives from the grove used for public exercise, dedicated to the god Apollo Lykeios. Apparently, the exercise

ground remained in use, so that students would often be found engaged in ambulatory activity there. The Greek term for walking, *peripatos*, came thereafter to characterize Aristotle and his affiliates as the Peripatetics. He remained in Athens, teaching at the Lyceum for the next thirteen years, giving public lectures (*exoteria*) in the mornings and advanced private instruction (*esoteria*) in the afternoons. After Alexander died (of disease; worth mentioning during these, our own, plague times) in 323 BCE, Aristotle left Athens for the island of Chalcis, where he died of natural causes a year later. His leaving Athens was widely attributed in the ancient world to his fearing anti-Macedonian sentiments among native born Athenians, so that, as the legend goes, he is said to have seen no reason to permit Athens to sin twice against philosophy.

(2) Contra Plato.

You’ll recall from last time Aristotle contested four principal doctrines of his teacher, Plato. Roughly speaking here is a quick breakdown of the disputes involved.

Plato’s Doctrines	Aristotle’s Rival Doctrines
(i) Moral evil is a form of ignorance of what is truly good.	(i) Thought moves nothing. Right action requires a combination of understanding (<i>dianoia</i>) and desire (<i>orexis</i>).
(ii) There are two kinds of judgement: from sensation (acquaintance with tokens), and from intellection (familiarity with types).	(ii) Our senses transfer the sensible forms of things from objects to our intellects. Our intellects generalize the particular features of things in order to form concepts.
(iii) The Forms (<i>eide</i>) are the <i>originals</i> of which individuals are <i>copies</i> .	(iii) The Third Man Argument: there is no independent world of forms; forms are just concepts. If the <i>eide</i> were really like cookie cutters, then there would need to be a third-man, a third form, to cut the cookie cutter, and so on indefinitely. There is only one world.
(iv) The human soul is like a pilot (<i>kibernetes</i> , in Greek); it is separable from the body because the individual soul is first and foremost a mind (<i>nous</i>), capable of intellectual knowledge, and therefore immortal.	(iv) The human soul is the form of the body. It is separable from the body only in our thinking, not in reality. The Greek word for matter is <i>hyle</i> , and that for form is <i>morphe</i> , so this view is usually called Hylomorphism.

Here is another thumbnail sketch of the tensions between Plato and Aristotle.

	Epistemological Project	Central Epistemic Problem	Logical Method	Ethics & Politics	Metaphysics
Plato	Rationalism, i.e., begin with concepts/wholes; the analog image of information.	To explain how the world is knowable at all.	Dialectic, or definition by way of necessary and sufficient conditions.	Justice, courage, etc. are forms; in the individual they are indeterminate. The philosopher and the polis are incommensurable.	Three-realm world: particulars, the forms, and the in-between. The soul is tripartite: reason, spirit, and appetite.
Aristotle	Empiricism, i.e., begin with particular facts; the digital image of information.	To organize knowledge into coherent, interrelated systems.	Induction to generalize and syllogistic to organize, with definition by way of genus/species.	Justice, courage, etc. are activities of the soul. Virtue isn't indeterminate but relative to the individual.	Two-realm world: act/potency. Hylomorphic soul. Four be-causes

(3) The Main Branches of Aristotle’s Philosophy.

Remember that for Plato the proper definition of knowledge (*episteme*) is justified, true belief. Aristotle took issue with this simple reduction, arguing instead that there are three distinct kinds of knowledge:

theoria / conceptual understanding (discovery of principles)

phronesis / practical wisdom (praxis --> arête)

techne / skill (means to ends / aptness to purpose)

As regards *theoria* (from which our word, theory derives), the main branches are:

- Logic & Epistemology
- Metaphysics (first philosophy) & Psychology
- Ethics & Politics
- Aesthetics & Engineering
- Physics (natural philosophy)
- Biology (natural history)

(4) Metaphysics.

There are two principal features of Aristotle’s metaphysics, or first philosophy.

[A] The Four Causes. Well, really, we should call them the Four Be-Causes, and this is because each is an answer to one of the four Why-Questions that Aristotle held we need in order to have adequate understanding of anything whatsoever.

Were we still in the JUB, I would have illustrated this notion by asking about the lectern in the front of the room, wondering, why is it just the way it is, and not any other way? Here’s how Aristotle’s Four Causes would apply.

- (i) What is it made of? An answer to this question would be its Material Cause.
- (ii) What is its blueprint or recipe? This would be its Formal Cause.
- (iii) How did it get here? We answer this by citing its causal history, or Efficient Cause.
- (iv) What is it good for? Here we answer: to hold up Bombardi’s notes; this is its Final Cause.

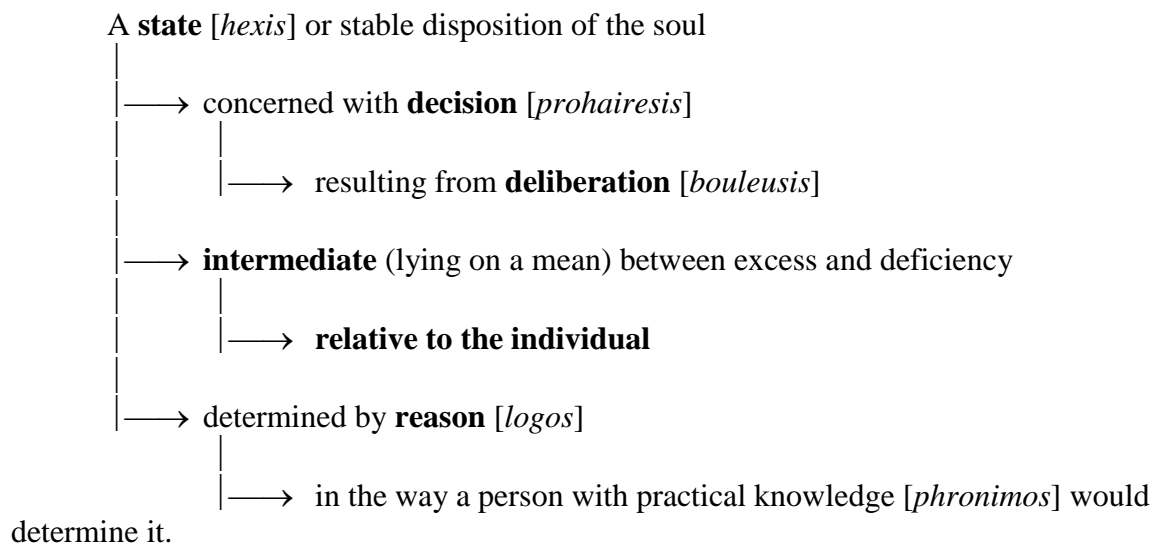
[B] Things and their Properties.

Aristotle notices that any term can be made into the subject of a sentence; we do this in English by adding a suffix, like -ity or -ness to an adjective to form nouns like Beauty or Goodness. Aristotle thought that this trick of grammar misled Plato into supposing that Beauty and Goodness are real things. So he proposed a simple test for determining whether a grammatical subject actually named a *substance* (a thing) or not. Subjects take predicates (that is, we modify nouns with adjectives), but not every subject can be understood as another thing’s predicate. Real substances, things, *cannot* be understood as properties or attributes or predicates of anything else. Here is Aristotle’s example: Honesty can take the predicate, “is the best policy,” but we can also *predicate* honesty of something else, for example a person. But “person” is not anything else’s property, so while “honesty” is only a grammatical subject, it is not a substance, not a thing, while “person,” since it is nothing else’s predicate, is indeed a substance, a thing.

(5) Ethics.

Here is a quick synopsis of Aristotle's Theory of The Virtues and Vices of Character.

- (i) Virtue or excellence [*arete*] is:



- (ii) The virtues of character are acquired by **habituation**.

(iii) Here is a preliminary taxonomy of the virtues and vices or character:

Root:	Excess	Mean	Deficiency
Confidence:	Foolish	Brave	Cowardly
Pleasure:	Intemperate	Temperate	Insensible
Petty Cash:	Wasteful	Generous	Ungenerous
High Finance:	Vulgar	Magnificent	Miserly
Honor:	Vane	Magnanimous	Pusillanimous
Anger:	Irascible	Mild	Inirascible
Truth-telling:	Pretentious	Truthful	Self-deprecating
Amusement:	Buffoonish	Witty	Boorish
Social Pleasures:	Ingratiating	Friendly	Quarrelsome

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Next time, we'll turn our attention to last period of Greek philosophy, the Hellenistic Period, where we will meet the likes of Cynics, Stoics, Sceptics, and Epicureans. As I mentioned last time, the ancient Greeks were not unfamiliar with plagues and pestilence, and while their understanding of the causes of diseases like Covid-19 was by no means as precise, accurate, consistent, or useful as our own, their courage, fortitude, resilience, and benevolence in the face of the many uncertainties such diseases bring to our social lives may be an inspiration to us even today, as I wish you and yours good health, safe-social-distancing, and bright hopes for a future when we can again meet in places like JUB 202.