

**Aristotle's *Physics***

The *Physics* contains Aristotle's account of the natural world, the fundamental feature of which is change.

Now, Plato had told us that the things that are most real in the world, the Forms, are not susceptible to change; and change occurs only in the visible realm and is a feature of things that are less real or not real at all. Aristotle disagrees with this sharp distinction. Nevertheless, he is aware that there are certain philosophical problems associated with change. If change is the process by which  $x$  goes from being  $F$  to being  $\sim F$ , what could possibly explain this?

As we learn in Book I, Chapter 7, change requires three ingredients: a pair of opposing properties, and an underlying subject. This will lead him to claim that change takes place within a composite being. (190b11) In this chapter, Aristotle gives two examples:

- (a) A man becomes musical.
- (b) A piece of bronze becomes a statue.

In other words, a man who is not musical becomes musical; a lump of formless bronze takes on a certain form and becomes a distinct statue.

As we learn in Book Two, Chapter One, substances, that is, natural things (and artifacts), are composites of *matter* and *form*. This is what I have called in class Aristotle's *hylomorphic* conception of substance. (*Hulē* = matter; *Morphē* = shape, form.) In the examples above, Aristotle is ultimately getting at two kinds of change:

- (a) Accidental change. The individual substance, man, has a change of his attributes, going from unmusical to musical.
- (b) Substantial change. The matter, bronze, takes on a certain form. Similarly, when an acorn becomes an oak tree, it is the matter that is undergoing change.

The ontology of the *Categories*, insofar as it recognizes individual substances as basic, can explain the case of accidental change. But it is unclear what the ontological status of matter and form are supposed to be. And this will be a problem in the *Metaphysics* as well. At the very least, it seems to be inconsistent with the *Categories* because it treats matter and form as more basic than an individual substance.

*Physics* II.1 also tells us that natural things, such as animals, plants, and the elements (earth, air, fire, and water), have within themselves "a principle of motion and stability in place, in growth and decay, or in alteration." (192b14-15) This nature (*physis*) or principle of motion is the shape (*morphē*) or form (*eidos*). This is now frustrating, because in appealing to an *eidos*, Aristotle is adopting Plato's language, in which *eidos* signifies, for example, the Form of Justice or Beauty, etc. But according to Aristotle, "this form is not separable except in account." (193b5) That is, the *eidos* cannot exist apart from the matter, though it is conceptually distinct from the matter. As we will learn in *De Anima*, the soul is the form of the body.

Having established this and having claimed that his intention is to discover knowledge about the natural world and that knowledge requires knowing why something is so, Aristotle goes on to

give his account of the four causes (*aitia*) in II.3. In general, it is best to think of these as answers to “Why?” questions or as explanatory factors. They are:

- (1) Material: the actual stuff out of which  $x$  is made.
- (2) Formal: the essence of  $x$ ; what makes  $x$  what it is.
- (3) Efficient: the thing (outside of  $x$ ) responsible for making, moving or altering  $x$ , or bringing  $x$  into existence.
- (4) Final: the end (*telos*) of, or reason for  $x$ 's existence; what  $x$  is made for.

The standard example is the following: This particular statue has bronze for its material cause, a certain shape for its formal cause, a certain artist for its efficient cause, and a particular intention within the mind of the artist for its final cause.

There are several things worth noting. Nowadays we tend to think of only the efficient cause as a genuine cause, in part no doubt because it locates the cause of something *outside* of that thing. This is because we typically seek causes for *events*, whereas Aristotle's *aitia* relate to *substances*. Further, while it makes sense to think of artifacts as having been made for a purpose, it might seem odd to think that organisms themselves exist for purposes. But it is important to realize that, for Aristotle, the world itself is purposeful; that is, all things throughout nature act for ends or for reasons and fit into a *teleological* system of explanation. (For more on this, see II.8)

While Aristotle has given us an ontology that will account for the possibility of change, he has not yet really explained motion or change. This takes place in Book III, in which he appeals to his important distinction between actuality (*energeia* or *entelechia*) and potentiality (*dunamis*). Aristotle writes, “In each kind of thing we distinguish what is actually *F* from what is potentially *F*. Hence the actuality of what is *F* potentially, insofar as it is *F* potentially, is motion.” (201a10-12) And he goes on to distinguish the following kinds of motion or change:

- (a) alteration
- (b) growth and decay
- (c) coming to be and perishing
- (d) local motion.

In other words, if  $x$  is potentially *F* (and is now  $\sim F$ ), motion is the *actualization* of its potential *F-ness*. Again, Bob is pale now but potentially tan. When he goes to Florida, he undergoes change, going from a potential tanned skin, to an actual tanned skin; he also was actually in Kentucky but potentially in Florida, and his travel to Florida made actual his being-in-Florida. But, obviously, change or motion towards *F* is not possible when  $x$  is not potentially *F*.

Book VIII, Chapter 6 contains a discussion of the prime mover. But I will treat this in the handout on the *Metaphysics*.