

Aristotle II

PHIL301

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Aristotle on Change – *Physics*, Book I, Chapters 1, 5, 6, 7 (184a11-184b5, 188a32-188b26, 189a28-189b4, 189b30-191b34)

Notes on terminology and basic concepts (see also the text's Glossary, pp. 973ff, for useful discussion of Aristotle's terminology):

- Note the title, *ta phusika*, meaning “the *phusis* things” – i.e., natural things, things with a *phusis*, an internal principle of being – in short, a discourse on nature.
- 184a11-16. Note the explicit reference to principles (*archia*) and their role in human knowledge of the physical world. Note too that Aristotle leaves open the possibility that some things lack an *arche* (principle), suggesting that some things lack logical order (see the discussion of chance and luck).
- Notice, too, that Aristotle recognizes a complex system of principles, elements, forms, essences, and accounts. The form of a thing offers an account (*logos*) of its nature. E.g., the form of Socrates is “man”, roughly speaking, and also, in a somewhat different sense, “philosopher”. The elements, for Aristotle, were earth, air, fire, and water. These have their own nature (*phusis*), such that in various combinations they yield the various stuffs of the world (copper, oil, bone, etc.). In addition, certain things have an “essence”, for Aristotle, which is a complex form identifying its nature (*phusis*). The essence of Socrates would be identified by his taxonomical position: (as we now understand it –) eukaryot-metazoan-deuterostome-chordate-vertebrate-synapsid-mammal-eutheria-primate-catarrhin-hominid-homo-sapiens.
- Note the “data” collection at 189b33-190a13, for example, followed immediately by analysis/synthesis at lns. 13-22.
- Note the references to *logos* – i.e., “account” – e.g., 188b17, 190a18, 191a13.
- Note the reference to order (cosmos) at 188a32-3: the natural world acts not “in just any old way.” Rather, change occurs in an orderly fashion, from opposites (see below).
- Note the mention of order and disorder at 188b11-15, and the role of *logos* (account) in providing order, at the subsequent lines 16-20.

From Parmenides, we have the following puzzle (*aporeia*; see 191a24-28):

1. If change (becoming *P*) is possible, then it must come either from that which is (i.e., *P*), or that which is not (i.e., not-*P*).
 2. But *P* cannot come from *P* (i.e., for that would not be a change).
 3. And *P* cannot come from not-*P* (i.e., cannot come from nothing).
- Hence,
4. Change is not possible.

Aristotle's response

- Change does involve opposites – it is not “completely random” or disorderly.
 - o From *P* comes not-*P*
 - o From not-*P* comes *P*
 - o E.g., the dark, (not-pale) comes from the pale; the musical from the unmusical.

- But, he thinks, change does not involve *only* opposites.¹
- Changing things are not (merely) simple, but compound. See 188b9-10, 189a28-190b1.
 - Simple change involves that which comes or ceases to be, only. E.g., the musical thing (as such) comes to be from the non-musical thing (as such). Where change in simple terms is concerned, we speak solely of opposites.
 - To speak of compound change, by contrast, is to speak of simple change in conjunction with a *subject* of that change. Thus, the non-musical *man* becomes musical. Note that the subject of this change, a substance, is not the “opposite” of anything. Substances *per se* do not have opposites, because substances are things and not simply properties. (Compare *Categories* 4a10.)
- So, in response to Parmenides, Aristotle can reject (1): *P* can come from the *compound* of *not-P* plus a subject (i.e., the subject of *not-P*). (Similarly for a change to *not-P*.)
 - Note that Aristotle can rely here on the substance/property distinction already drawn in the *Categories*. Substances are ontologically prior to the properties (those things *said in* a thing) that inhere in them.
 - In other words, substances *persist*² through change, whereas the property instances they instantiate come and go, replacing each other.

Two forms of change

- Aristotle further departs from Parmenides by recognizing both accidental and substantial change.
- Accidental change: a substance gains or loses an accidental property. E.g., man becomes musical; Socrates becomes pale. Accidental change always involves opposites.
- Substantial change: a substance comes/ceases to be by the gain/loss of an essential property.
 - Here, Aristotle employs a distinction between *matter* and *form*, enabling him to identify a further persisting subject of change.
 - Form: that which is gained/lost (admits of opposites)
 - Matter: the subject of substantial change (doesn’t admit of opposites)
 - For example: a (formless) pool of bronze is molded into the shape (form) of a statue (190a26). The persisting subject of change, here, is the bronze. It gains or loses a particular form. The souls of animals (and humans) are the forms defining their matter (641a19-22).
- Aristotle’s appeal to *matter* as a persisting subject of change will raise an evident conflict with his account in *Categories*. For if matter can be a subject of change, it would seem to

¹ Notice the point that Aristotle makes at 188b10-21: change involves opposites, but we do not always notice this, since we generally lack names for the disordered state. That is, where change involves order, the opposite of order will be disorder. Knowledge of music is an ordered state; the lack of this knowledge is, relative to knowledge of music, simply a lack of order. (As far as the order of a brain is concerned, ignorance of music entails a certain form of disorder, whatever other order it might exhibit.) Where there is no order, there is no occasion for a name or predicate identifying that lack of order. Thus, we don’t ordinarily refer to those who are ignorant of music as the non-musical. And thus, when one acquires a knowledge of music, we may not notice that the musical has replaced the non-musical – that one state has supplanted its opposite. It is interesting to note, here, that Aristotle characterizes the negative state in terms of disorder (chaos).

² Persistence is a philosophical technical terms. A thing *persistent* if and only if it exists at more than one time. Barbaro, for instance, persists throughout the course of his running in the Kentucky Derby, a period lasting about 2 minutes during 2006; obviously, he undergoes some change during this time.

contest primary substance's claim to being the most basic of beings. (We can put this puzzle in the form of this question: why isn't a shapeless pool of bronze itself a primary substance? Perhaps the answer will be that matter as such does not occur without some form or other.)