

Readings

For Tuesday Seminar Session 3

“What is a Cause? What is an Explanation?”

(Led by Michael Augros)

Excerpts from Aristotle

1. In every science in which there are principles or causes or elements, understanding and knowing why result from knowing these. For we think we know each thing when we know its first causes and first principles and have reached its elements. It is clear, then, that in natural science as well one must try to determine first what concerns the principles. (*Physics* 1.1, beginning)

2. We think we scientifically know each thing (simply, and not in a sophisticated way, that is, by something incidental), when we think we know the cause on account of which something is, as the cause of it, and that it cannot be otherwise. It is clear that knowing scientifically is something of this sort, witness both those who do not know scientifically and those who do know scientifically—since the former believe themselves to be in the condition [described], and the latter are in it. (*Posterior Analytics* 1.2, beginning)

3. Questions are equal in number to the things we scientifically know. And we ask about four things:

- (1) Whether it is thus
- (2) Why it is thus
- (3) Whether it exists
- (4) What it is

For when we ask whether this or that is so, including a number [of terms], for example, “Does the sun get eclipsed or not?”, we ask “Whether it is thus.” The evidence for this is that we stop when we find that it does get eclipsed; and if we know at the outset that it does get eclipsed, we do not ask whether it gets eclipsed.

4. But when we know that it is thus, we ask “Why it is thus.” For example, knowing that the sun is eclipsed, or that the earth shakes, we ask “Why is it eclipsed?” and “Why does the earth shake?” So, then, the former [kind of question, combining terms, is asked] in these ways.

5. Others, however, we ask in another way, for example whether there is or is not a centaur, or a god. (By “whether it is or is not” I mean simply, not [e.g.] “whether it is white or not.”)

6. But when we know that it exists, we ask what it is, for example, “What is a god?” or “What is a man?”

7. These, then, are the things we ask; and the things which we know scientifically, when we find [the answers], are these and so many.

8. ... In all these questions we ask whether there is a middle term, or what the middle term is. For the cause is the middle term. And in all these this is what is sought—for example, “Does the moon get eclipsed?” is asking whether there is any cause of this or not. Afterwards, when we know that there is one, we ask what it is.

(*Posterior Analytics* 2.1, and 2.2 90a5-9)

An Excerpt from
Aristotle's (so called) *Physics*
(Book 2 Ch.3)

9. After determining these things, one must consider causes, of what sort they are and how many in number. For since this endeavor is for the sake of understanding, and we do not think we understand each thing before we can grasp the “why” of it (and this is to grasp its first cause), it is clear that we must do this also as regards coming to be and ceasing to be and all natural change, so that, knowing the principles of these, we can try to reduce to them each thing [that is] sought after.

10. In one way, then, “cause” means that from which something comes to be, being present in it, as the bronze of the statue, and the silver of the bowl, and the genera of these.

11. In another [way, “cause” means] the form and the pattern; this is the definition of the “what it is”—and the genera of this (for example, of the octave, it is [the ratio] two to one, and more generally, number)—and the parts which are in the definition.

12. Further, [“cause” may mean] that from which there is the first beginning of change or of rest, as an advisor is a cause, or a father of a child, and in general the maker of the thing made and the changer of the thing changed.

13. And moreover [“cause” is meant] as the end; and this is that for the sake of which, as health [is the cause] of walking. For why does he walk? “So that he might be healthy,” we say, and, so saying, we think we have offered the cause. Also, whatever things, with another thing moving them, come to be between [it] and the end—for example, thinning or purging or drugs or instruments are for health; for all these are for the sake of the end, although they differ from each other as being activities or instruments.

14. Perhaps, then, “causes” are spoken of in so many ways.

15. Now since things are called “causes” in many ways, many things can also be causes of the same thing not incidentally; for example, both the sculpting art and the bronze [are causes of a statue], not as something else, but as a statue—although not in the same way, but the one as matter, and the other as that from which there is motion.

16. And some things are also causes of each other, as exercise of well-being and well-being of exercise—although not in the same way, but the one as the end, the other as the beginning of motion.

17. Moreover, the same thing [may be the cause] of contraries. For what is a cause of something by its presence, we sometimes blame for the contrary of this by its absence, as the cause of the shipwreck is the absence of the pilot, the presence of whom was the cause of the ship's safety.

18. All causes now spoken about fall into the four modes just shown. For the letters of syllables, the material of artificial things, and the fire (and such like) of bodies, the parts of a whole, and the premises of a conclusion, are causes as that from which. Of these, however, some are [causes] as underlying, like the parts; some as the "what it is," like the whole and the composition and the species; but the sperm, the doctor, the advisor, and, generally, the maker, are all [causes as] that whence is the beginning of change or staying or motion; while others are [causes] as the end and good of the others. For "that for the sake of which" is the best thing and what one would have be the end of the others. (And it makes no difference to call it the good or what seems good.)

19. These, then, are the causes and they are so many in kind.

20. The modes of causes are many in number, but, being brought under headings, they are fewer. For "cause" is said in many ways, and even those of one kind are prior and posterior the one to the other, as the doctor or the artist is the cause of health, and the ratio two to one or number is the cause of the octave, and, generally, more inclusive things in relation to more particular ones.

21. Moreover, there are incidental [causes] and their genera, as Polycleitus is the cause of the statue in one way, but the sculptor is the cause in another way; since to be Polycleitus is incidental to the sculptor. And what contain the incidental thing [are in a way called causes], for example, if [we say] a man is the cause of a statue, or, generally, animal. And among incidental causes, some are further and some closer than others [to the non-incidental cause]; for example, the white thing or the musical thing might be said to be the cause of the statue.

22. Moreover all [causes], whether called [causes] properly or by something incidental, are spoken of either as being capable or as acting; for example, [the cause] of the house being built is "the builder" or "the builder while building."

23. And those things of which the causes are the causes will be spoken of in a similar way. For example, [a cause] is said to be the cause of “this statue,” or of “statue,” or of “image” generally; and of “this bronze” or of “bronze” or of “matter” generally. And so too in the case of incidental [causes].

24. Moreover, both the latter and the former may be spoken of in combination; for example, not just “Polycleitus” or just “sculptor,” but “the sculptor Polycleitus.”

25. All these however are six in number, each being spoken of in two ways. For [a cause is spoken of] either as a particular thing, or as a genus; either by something incidental, or by the genus of something incidental; either as a combination of these, or as something said without combination. And all are either things acting or they are in potency.

26. They differ inasmuch as individual acting causes and the things of which they are causes exist (and cease to exist) simultaneously [with each other]—for example, this man curing with this one being cured, and this one building with this thing being built—whereas those in potency are not always so. For the house builder and the house are not destroyed at the same time.

27. Just as in other matters, one must always seek the most exact cause of each thing. For example, man builds because he is a house builder, and he is a house builder by the art of house building: this, then, is the prior cause. And so in all cases.

28. Moreover, the genera [of causes should be referred] to the genera [of effects], and the particular [cause] to the particular [effect], as sculptor to statue, and this [sculptor] to this [statue]; and those in potency to those in potency, those acting to those in act. Let so much suffice, then, as our determination of how many causes there are, and in what ways they are causes.