

ARISTOTLE POSTERIOR ANALYTICS (c. 330 BCE)

"Demonstrative Knowledge and its Starting-Points." Trans. John Cottingham. Western Philosophy: an Anthology. Ed. John Cottingham. Oxford: Blackwell, 1996. 19-21.

BOOK I

Chapter 1

Aristotle begins by arguing that "[a]ll teaching and all intellectual learning arises from pre-existing knowledge" (20). He adds that this is true of "both syllogistic and inductive arguments" (20) which "produce instruction by means of what we are already aware of" (20).

Chapter 2

Aristotle argues here that "scientific knowledge or understanding of something" (20) is the result of knowing "that the cause of the item in question is its cause and that it is not possible for it to be otherwise" (20). Some may be deluded that they possess scientific knowledge of something but in fact possess only (mistaken) *beliefs*. However, scientific *knowledge* is "related to that which cannot be otherwise" (20). Though there may be "another way of knowing" (20), Aristotle contends that "scientific [or objective] knowledge" (20) is produced "through demonstration" (20). This he equates with what he calls "scientific syllogism" (20) (i.e. of the sort 'all A's are B's, all B's are C's, therefore all A's are C's'). However, he adds, "demonstrative knowledge must necessarily depend on premises which are true, primary, immediate, and better known than, and prior to and causes of, the conclusion" (20). If syllogisms do not meet these conditions, they do not constitute demonstrations and thus do not produce objective knowledge.

Chapter 4

The reason for the foregoing is that "that which is known through demonstrative knowledge must be necessary" (20). That is, demonstrative knowledge "is the knowledge we have in virtue of having a demonstration" (20). This is why a demonstration is a "syllogistic deduction from necessary premisses" (20). In other words, such knowledge (or conclusions) derives logically (can be deduced) from true starting-points (or premises).

Chapter 8

Aristotle argues here that if the "premises of a syllogism are universal, then the conclusion of such a demonstration . . . must also be an eternal truth" (20). This is why "there can be no demonstration with respect to perishable things, nor any scientific knowledge of them strictly speaking but only in the accidental sense; for in such cases the attribute does not belong to the subject universally, but only at a particular time and in some respect" (20). In other words, the object of scientific knowledge is those enduring primary and secondary substances and not those accidental qualities which may change from particular to particular, time to time: this is why he equates "scientific knowledge" (20) with concern for "what is" (21).

BOOK II

Chapter 19

Recalling that scientific knowledge cannot be achieved “through demonstration unless we know the premises that are primary and immediate” (20). He contends, contra Plato’s view in the Meno that our ideas are innate, that it would be strange if humans possessed such “starting-points” (20) “all along, since then we would possess knowledge superior to demonstration without being aware of it” (20). By the same token, however, if we “acquire” (20) knowledge of the premises purely by deductive means, “how could we come to know and learn them in the absence of any pre-existing knowledge” (20) or, more accurately, “if we are ignorant and have no predisposition for knowledge” (21)? Aristotle believes that both of these alternatives are wrong, that is, that our ideas are neither innate nor acquired because we already possess a “capacity” (21) which is responsible for providing what he termed at the start ‘pre-existing knowledge.’

Aristotle defines this “capacity [which] evidently belongs to all animals . . . an innate power of discernment – what we call sense-perception” (21). In some animals, the “sense-impression persists, while in others it does not” (21). For less sophisticated animals, “there is no knowledge outside the act of perceiving” (21) (i.e. such animals immediately forget what they perceived through their senses) whereas other more sophisticated animals “can retain something in the mind after perceiving it” (21) (i.e. one can remember what one has perceived). When “this happens frequently, we get a difference arising as a result of the retention” (21), the memory being different per se from the actual sense-perception, and the result being the production of a mental concept (*logos*). In this the development of human rationality is grounded, Aristotle seems to assert.

In humans, “from sense perception, there arises memory; and when there is repeated memory of the same thing, there arises *experience* (for though there are many memories, they make up a single experience” (21). “And from experience – the whole universal now established in the mind (the *one* distinct from the *many*, whatever is *one and the same* in all the many instances) – there arises the starting-point of a skill, or of scientific knowledge (skill if it concerns what merely comes to be, scientific knowledge if it concerns what *is*” (21). Aristotle has in mind here the grasping of the relationships which link particular instances, for example, the fact that particular objects (particular men) viewed are manifestations of the same underlying substance (mankind as opposed to lions). What groups particulars into universals is not abstract ideal forms, as Plato would have it. Rather, the human mind is able to assimilate particulars to universals on the basis of observing and remembering resemblances between particulars and constants where only change seems to exist.

These “dispositions” (21) to grasp resemblances between seemingly peculiar instances are neither “innate in a determinate form” (21) nor “do they arise from other higher states of knowledge” (21) (i.e. syllogistic demonstration), but “come about from sense-perception” (21) (the capacity for which is innate). It is sense-impression, then, which is the “starting-point of scientific knowledge” (21).

Aristotle seeks to clarify his point in this way: “When one of the undifferentiated particular things ‘stands fast,’ a primitive universal is in the mind; for although what one perceives is the particular thing, the perception is *of* a universal – for example, of a *man*, not of Callias, the particular individual. Again, a stand is made in these primitive universal, and the process continues until the ultimate concepts stand (for example, such and such a species of animal is a step towards the general kind *animal*, and so on)” (21). This is why, Aristotle argues, “clearly it is not by deduction but by induction that we have to get to know the starting-points” (21).

Aristotle argues that some of the "intellectual faculties by which we reach the truth" (21) are "always true, while others, such as opinion and reasoning, admit of falsehood; scientific knowledge and intuition [*nous*] are always true. No other kind of thought except intuition is more accurate than scientific knowledge, and the starting-points are more knowable than the demonstrations which proceed from them" (21). Hence, he argues, scientific knowledge of the starting-points is impossible and, "since nothing can more true than scientific knowledge except intuition, it is intuition that grasps the starting-points" (21). In short, induction is primary while logical deduction is secondary.