In the interest of furthering our understanding of Aristotle’s place in the history of skepticism, A.A. Long has urged, in his article "Aristotle and the History of Greek Scepticism," that (1) Aristotle left to posterity a methodology "which turns the sceptic's grounds for giving up the quest for knowledge into reasons for maintaining the search and hoping for a solution." In the course of doing this, he lucidly highlights, a number of respects in which Aristotle’s methodological discussions show his awareness of the usefulness of argumentative strategies from the skeptic’s arsenal as well as an awareness of the need to defend his epistemology in the light of objections that would, if successful, undermine the possibility of knowledge as he conceived of it. What are these strategies, and what is the shape of his defense?

(I) Towards the beginning of this article, he schematically compares a skeptical with an Aristotelian attitude towards the role of puzzles, or aporiai, in philosophical inquiry. Although puzzles play a crucial role both in the account that Sextus Empiricus gives of the origin of skepticism and in Aristotle’s own treatment of philosophical methodology in his Metaphysics, Aristotle’s attitude towards them is strikingly different from that of the skeptic. For Aristotle the statement and subsequent elaboration of puzzles puts one in a better position to discover the truth. This kind of examination, in Long’s words, “exposes the problems to be considered and provides possible material for a solution.” In Metaphysics B.1 we are told that somebody who hasn’t first explored the puzzles is like a traveler who sets out on a journey without knowing their destination. With the puzzles, though, one can structure an inquiry. Far from being an impediment to knowledge, the puzzles give rise to a goal or destination for philosophical inquiry. The resolution, or lusis, of a previously a stated puzzle constitutes philosophical discovery.

By way of sharp contrast, the examination of puzzles leads to suspension of judgment for the proto-skeptic as described by Sextus. The proto-skeptics initially proceeded to examine the puzzles in an attempt to determine what is true and what is false, and did so with the goal of ceasing to be troubled as to what they ought to give their approval to. Long thinks that so far this account could almost be borrowed from Aristotle. However, as Long further explains the attempts to settle the discrepancies led the proto-skeptic to the original goal in a completely unexpected way. The attempt to find a criterion to settle the puzzling issues did not in fact end up with a criterion, but rather led to the equal weight of the conflicting opinions, and from there to a suspension of judgment. Without now pausing to consider the nuances of this account, it is enough for his point that the described result of the proto-skeptic’s examination of puzzles is suspension of judgment. Sextus is not describing somebody who has been put in a better position to decide or judge which opinions are true.

(II) In connection with “the material which forms the basis of the Pyrrhonist’s tropoi or
modes for suspending of judgment” (p. 85), Long calls attention to the fact that Aristotle shows familiarity with argumentative strategies as encapsulated in the five modes of Agrippa. In particular, he finds Aristotle to be responding to the second, fourth and fifth of these Pyrrhonist strategies in his attempts to avoid the charges that demonstrative knowledge is vitiated by infinite regress, or the use of hypothetical premises that themselves are not known, or is possible only on the condition that circular proof be allowed. Additionally, Aristotle is aware of the polemical use to which the modes invoking either diaphonia (irresoluble conflict) or relativity, the first and third modes of Agrippa, can be put. Thus all five of these general strategies play a role in Aristotle’s attempts to defend epistemological theses of his own.

A form of knowledge that was of particular importance and interest to Aristotle was demonstrative knowledge. Such knowledge is restricted to necessary truths, and is arrived at by deducing conclusions from immediate truths that are themselves in need of no further explanation. For Aristotle the scientific inquiry that leads to the resolution of perplexity and puzzlement is preeminently a search for such explanatory principles, or origins. All theoretical understanding proceeds rigorously from indemonstrable first principles. General truths can be known and understood by tracing observable facts and features of the world all the way back to their causal sources, and then locating eternal and unchanging truths in their proper place in an axiomatic structure. As Aristotle conceives of demonstrative knowledge, for scientific understanding one needs syllogistic proofs that use as premises principles that are

“…true and primitive and immediate and more familiar than
and prior to and explanatory of the conclusion…”

The idea here is to analyze a scientific demonstration as a syllogism (or string of syllogisms) in which every premise is either an indemonstrable first principle or is itself proven. If the premises are true, and the argument is valid, the conclusions themselves will be true. This is not by itself sufficient for proof. Aristotle thinks that the first principles of a science must not themselves be in need of proof or explanation.

And it is at this point that we reach a thesis that is crucial to Aristotle’s own response to a variety of attacks to his version of a foundationalist epistemology. The resolution of puzzlement and the discernment of scientific truth requires that there are principles that are not known by deducing them from something else, but rather are immediately known in a non-deductive manner. The first principles are not known through demonstration, but rather are known in a better way than the scientific theorems that they explain. He says that they are the objects of noûs, or intellect, rather than demonstrative knowledge.

As we shall see, Aristotle explicitly considers challenges to this picture mounted by those who would insist – contrary to what he himself believes – that all knowledge is demonstrative. If this opposing view were correct, then there would be no such thing as immediate knowledge of principles.

As Long explains (page 86), in the Posterior Analytics Aristotle considers two different kinds of opponent to the type of epistemological foundationalism that this treatise presents and endorses. As Aristotle puts it, (i) “the necessity of knowing the primary things has made some people think that knowledge does not exist”; alternatively,

\[1\] APo. 1.2, 71b21-22.
(ii) the necessity of knowing the primary things has made some people think that “it does exist but there are demonstrations of everything.” Both types of opponent share in common the un-Aristotelian assumption that all knowledge is demonstrative, but they differ as to whether knowledge is possible.

The opponents from Party One assume the following disjunction: either infinite regress or undemonstrated premises. To put it more fully, either the process of demonstrating the premises by means of new deductions continues without an end, or at some point the regress of deductions comes to a halt, and there is a deduction that uses a premise that is not itself demonstrated. Since this opponent is assuming that all knowledge is demonstrative, this leads to the conclusion that knowledge is not possible. In Long’s words “either the move from the posterior to the prior is an infinite or a finite series; if it is infinite, the primary truths cannot be reached; if it is finite, the primary truths cannot themselves be known since they cannot be demonstrated.”

Let us now consider the other type of objector. An opponent from Party Two does not deny the existence of knowledge, but nonetheless holds a position that has an obvious affinity with a skeptical strategy. This opponent believes that there is knowledge, and like the opponents from Party One, agrees that all knowledge is demonstrative. However, this opponent assumes that the premises of one demonstration are conclusions of another. This move allows one to avoid the charge of infinite regress and yet still maintain that all knowledge is demonstrative. However, by allowing for the possibility of circular demonstration, this position rejects Aristotle’s claim that the premises of a syllogistic demonstration are better known than the conclusion. Knowledge does exist, but there is no privileged set of first principles that are known in a better, and known in a non-demonstrative, manner.

As Long points out, in response to this second type of opponent Aristotle plays the skeptic’s game to a certain extent by rejecting the possibility of circular proof. However, Aristotle’s rejection of circular proof rests on the idea that premises that ultimately explain why other things must be the case cannot themselves be just as much in need of explanation as whatever it is they purport to explain. They are both known and knowable in a way that does not involve deducing them from anything else. According to Aristotle, the first principles are known in a non-demonstrative manner. Rather than acquiescing to an epistemological stance that makes room for the existence of knowledge by countenancing circular demonstration, he accepts the second horn of the dilemma stated above. The series from the posterior back to the prior terminates in a finite number of steps, and hence with premises that cannot be demonstrated. However, since it is not part of Aristotle’s own position that all knowledge is demonstrable, accepting this arm of the dilemma for him does not require agreement that the premises at which the regress terminates are unknowable.

Of course this does not settle the issue, since Aristotle’s claim that there is non-demonstrative knowledge is itself in need of defense. As Long points out, an opponent may issue a challenge along the lines that a non-demonstrative faculty of noûs requires a criterion to justify its knowing anything. However, whether or not Aristotle has the resources to ward off such attacks, both the manner in which he delineates the two types of opponent and the rejection of their shared assumption shows that he was familiar with the use of the types of general argumentative strategies that show up later in three of the modes of Agrippa. He both saw their relevance to philosophical argumentation about the
possibility of knowledge, and had thought about what stance to take towards them in connection with his own positive claims about the possibility and nature of demonstrative knowledge.

(III) The key to Aristotle’s considered response to the three Agrippan skeptical strategies that we have considered is insistence in the existence of indemonstrable knowledge. In the case of a demonstrative science there are three types of indemonstrable first principles. Aristotle divides the first principles of a science into axioms and posits. The axioms are common to all of the sciences, and without them scientific reasoning is impossible. The three chief examples of axioms are the principle of non-contradiction, the law of excluded middle, and the axiom that if equals are taken from equals then equals remain. We will briefly look into the principle of non-contradiction shortly. He considers it the most fundamental principle of all reasoning.

Since each science has its own domain of inquiry, in addition to the common axioms, scientists must employ special principles that are appropriate to the kind of thing that science studies. These are what Aristotle calls ‘posits’. Posits are divided into two types. Definitions are statements that give the essence of a definable object. They say of something definable what it is. A supposition (or hypothesis) says of something that it is. The general picture that emerges from the Posterior Analytics is that definitions, or statements of essence, function as explanatory middle terms in proofs of theorems.

Up until now our discussion of Aristotle’s response to various opponents to his epistemology has been fairly abstract. It is useful to consider them within the context of examples of his own practice. Here I will make some brief remarks about the deployment these abstract ideas in the pursuit of a genuine branch of knowledge -- natural philosophy. One place that we can find him investigating existence claims and definitions is in Books III and IV of his Physics where he goes to work on the concepts of motion, the infinite, place, the void and time. This is not the occasion for an extended look at the methodology at work in these discussions, but I would like to point out that in broad outline we can find a patterns that helps illuminate Long’s remarks about the role of puzzles in Aristotle’s account of inquiry. His treatment of each of these topics involves aporiai, but each discussion also leaves us with definite, positive results.

As an example, consider his use of a puzzle about where change takes place--puzzles to which Aristotle alludes in the opening line of III.3. It is important to note that his statement of these puzzles takes place after he has already given us his definition of change as the enteltecheta of the potential as such in the first chapter, and the immediately preceding chapter has already asserted that the “soundness of this definition is evident both when we consider the accounts of motion that the others have given, and also from the difficulty of defining it otherwise.”

He starts III.3 with the claim that “the solution of the difficulty is plain: motion is in the movable.” The previous chapter claimed that given his definition, the cause of motion is going to be ‘contact with what can move’. Due to this contact of agent and patient, there will be some change in the agent as well, provided that the agent is the kind of thing that can move. “The mover will always transmit a form, either a ‘this’ or such or so much, which, when it moves, will be the principle and cause of the motion, e.g., the actual man begets the man from what is potentially a man.”
Given that the change requires contact of agent with patient, and that the agent is itself changed, this could give rise to a question as to whether the change in question is in the agent. For instance, suppose that a housebuilder transmits form to some material through some kind of direct or indirect contact with it. Aristotle has just argued that in such a transaction the housebuilder would be changed and so there is a change that takes place in the agent. In that case one might wonder why housebuilding isn’t what is taking place in the housebuilder.

The point I would like to draw attention to is that he thinks that having given his own definition of change, and defended it by arguing for its superiority to rival attempts, he is now in a position to say that the solution to some puzzle is clear. This is not simply an unrelated afterthought appended to the tail end of his discussion of change. The solution is certainly not clear to everybody, but he thinks that once we are in possession of his correct definition of change the solution is clear to us.

Given his definition of change it is clear that the change of housebuilding takes place in the materials, not in the housebuilder, because change is defined as the actuality of the changeable. In the case at hand, the change is housebuilding, and this is by definition the actuality of that which is able to change in such a way as to be a house. Whatever change the housebuilder may undergo due to contact with the material, that change is not housebuilding because the housebuilder is not a potential house. There are two powers involved, one in the agent and another in the patient. The material has its own passive, or receptive dunamis, and housebuilding is the actuality of the potential house by the agency of something with an active power, or dunamis, to affect just that change – i.e., housebuilding. Housebuilding itself is the actuality of both the active and the passive dunamis, and there is just one change that is the exercise of both. And that is a change that takes place in the patient.

Here, then, is one example of one kind of use of puzzles in an actual science. His use of the puzzle does not lead to suspension of judgment, nor is it left unresolved. Rather, Aristotle uses a first principle – his definition of change—to show how it is to be solved. The definition of change can be used in an explanation for the proposition that change takes place in the patient, and such an explanation establishes that something is the case by showing why it must be.

(IV) Long is quick to point out that, as Myles Burnyeat put it, “Aristotle does not take his starting point to be the problem of perceptual certainty.” He is not responding to a challenge ‘which made perceptual certainty and criteria of truth the primary problems of philosophy’. (p.97). The abstract considerations concerning circular proof, infinite regress and the like are for Aristotle problems about universal scientific knowledge based on understanding, not problems about the determination of individual matters of fact about individual perceptual objects. The kind of foundationalist epistemology that he endorses does not take the form of seeking a secure perceptual foundation in certain truths about current objects of experience, and although he does think that the sense perceptions of the proper objects of the senses are the least prone to error, he does present an epistemology according to which that kind of sensory knowledge is extended by deduction to other pieces of knowledge of further facts about individual, perceptible objects. In addition to perceiving colors, sounds, tastes, and so on (the special objects of the senses), there is perception of the common sensibles (motion, magnitude, shape and
number), as well as coincidental perception of various sorts (we can see the son of Daires, for instance). These are less reliable modes of perception, and no attempt is made to put them on a more certain basis by suggesting that we syllogistically deduce claims of that sort from the more certain perceptions of the special objects of the senses. So when Aristotle does discuss problems and puzzles concerning the perceptions of particulars his aim is not to set perceptual knowledge on a certain and secure foundation. As in the case of the deployment of the formal structures we just examined, he is primarily interested in securing the starting points for scientific knowledge.

It is in this connection that Long also discusses the relevance to Aristotle of the different typology of skeptical strategies exhibited in the 10 modes of Anesidemus. Unlike the Agrippan modes, these classify “a large body of evidence” (p.89) such as that (6) “humans and animals differ in their sense impressions; men differ among themselves; the senses differ between one another; people sense things differently according to whether they are awake or asleep, healthy or ill, calm or emotional, etc.; sense perception depends on variable external conditions and is relative to those conditions.”

Much of this material is as old as Xenophanes, Heraclitus, Parmenides, and Democritus; and much of it would have been familiar from the use Plato makes of conflicting appearances in the refutation of Protagoras in the Theaetetus. Additionally, many of these considerations turn up in Metaphysics Gamma in connection with Aristotle’s discussion of the principle of non-contradiction, and Aristotle’s claim that those who deny this principle ‘out of genuine puzzlement’ arrived at their position ‘as a result of what they perceive.’

As Long interprets this, at least some of the considerations that led them to this view are similar or identical to material found in the 10 modes. He argues that in the context of his discussion of such considerations in the Metaphysics Aristotle is “not concerned to distinguish skeptical doubt from complete subjectivism or negative dogmatism. He assimilates the denial of the principle of non-contradiction to three equivalent theses: ‘the same thing is true and false’, ‘everything is true’, and ‘everything is false (1009a29ff).” (p. 98).

Aristotle obviously thinks that use of material from these modes fails to support any of these theses, but his argument for this is indirect in that it attacks their conclusion as absurd. He does not argue against the conclusions they draw from considerations about perception by identifying the mistake in the argument. Rather he diagnoses their acceptance of one of these conclusions as resulting from the use of these various arguments from conflicting appearances, and from there he directly attacks this denial of the principle of non-contradiction. As Long puts it, “he proceeds to say that anyone who denies the principle of non-contradiction, or what comes to the same, who upholds Protagoras’ thesis, ‘out of genuine puzzlement’ (1009a18f.), has arrived at this position ‘as a result of what they perceive’.” p.90

The principle of non-contradiction is for him the firmest and most secure of all of the principles, and must be known by anybody who knows anything at all. It is formulated in a number of different ways by Aristotle, but the following will suffice:

"the same attribute cannot at the same time belong and not belong to the same subject in the same respect"

\[2\]Metaph. IV.3, 1005b17-23.
There can be no scientific demonstration of this principle precisely because there is nothing prior to an explanatory of it. The principle of non-contradiction is, he thinks, a basis for all reasoning. It is so fundamental to our ability to reason that there simply is nothing more fundamental that could be appealed to in order to show why it must be true.

There is, though, a sense in which it can be demonstrated. According to Book IV.4 it is possible to give an *elenctic* proof in which the premises are supplied by an interlocutor who denies the principle.\(^4\) The basic idea is that if the opponent says something significant Aristotle thinks he can get him to grant premises that will refute his view. Of course the opponent might simply refuse to talk, and then there would be no discussion or argument. In that case, though, Aristotle says he is no better than a plant. Even if Aristotle does succeed in refuting the opponent, the opponent might refuse to admit defeat. After all, if the opponent claims that contradictories can be true at the same time, showing him that his own admissions lead to a conclusion that contradicts this could be viewed by him as further support for his thesis.

Hence somebody who is led by material in the 10 modes to a denial of this principle is in error. Our earlier description of the proto-skeptic is telling at this point. The proto-skeptic inquired in order to solve *aporiai*, but eventually through various modes was led to a suspension of judgment. However, if Aristotle is right, the material in the ten modes has led them into a condition in which they are not saying anything at all. They are no longer inquiring, but neither are they saying anything determinate, and hence there simply is no challenge coming from their quarter that Aristotle must meet.

Although arguments from conflicting appearances have led some into confusion and puzzlement, for Aristotle the puzzlement is the result of improper education, and an betrayed in the unreasonable demand that a proof be given of everything. Here to, as in the case of scientific first principles, Aristotle is confident that puzzles are not an impediment to the discernment of truth. And to express this point one can do no better than quote Long’s own words: “…he left to later philosophers a series of defences against skepticism, some of which they adopted, and a methodology which turns the sceptic’s grounds for giving up the quest for knowledge into reasons for maintaining the search and hoping for a solution.” (p.105)

\(^3\) *Metaphysics* IV.3.

\(^4\) *Metaph.* IV.4, 1006a11-13.