

## Aristotle's Rationalism

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As is well known, Aristotle not only claims that all of our knowledge has its origins in perception (cf. e.g. *APo.* 1. 18), he also in his own practice attaches great importance to the detailed observation of the relevant facts in a given domain. In particular his biological writings give evidence of this, sometimes in an impressive way. Given his theory and given his practice, it is, perhaps, not surprising that Aristotle sometimes is called a 'empiricist'.

It is equally well known, though, that Aristotle also claims that all knowledge, properly speaking, is either knowledge of principles which govern a certain domain, or knowledge by deduction of what follows from these principles. It is not immediately obvious how these two claims go together. One might think that it was Aristotle's view that, though all derivable truths were known, strictly speaking, only by deduction from the principles, the principles of a science themselves owe their epistemic status as known truths to the fact that they can be justified by some kind of inference from what we observe. And if this were the case, one would, indeed, have no difficulty in calling Aristotle an 'empiricist'.

But this manifestly is not Aristotle's view. Aristotle clearly thinks that we have immediate knowledge of first principles. Hence he cannot think that we depend for their knowledge upon their confirmation by what deductively follows from them, let alone upon their confirmation by what we can observe. Our knowledge of them is not a posteriori. They owe their status as known truths to the fact that they are seen by reason to be immediate truths. And since he also thinks that whatever else we know we know by deduction from first principles, that is to say a priori, his view clearly is that all knowledge, properly speaking, is knowledge by reason. Things are known a posteriori only in a debased sense of 'know-

ledge'. That is to say, Aristotle is the paradigm of an extreme rationalist. All strictly speaking known truths are truths of reason, seen to be true by reason, either immediately or mediated by deduction.

There is much that is puzzling about this view. Thus we would like to know why Aristotle insists that all our knowledge has its origins and its basis in perception, if he assumes that all that can be known, strictly speaking, is known by reason. But what makes it particularly puzzling is that Aristotle himself often enough talks as if we could argue for these first principles, as if we could come to know them by inference, indeed, as if we know them by what he calls 'induction' (*epagoge*), an induction at least sometimes based on perception.

In what follows I am not primarily concerned to resolve these puzzles. I am more concerned to see what kind of notion of reason is underlying Aristotle's rationalism. But I do hope that in getting clearer about the notion of reason involved, we will also be in a better position to deal with the puzzles raised by Aristotle's rationalism.

There is some reason to suppose that Aristotle was familiar with a version of empiricism, in particular in Greek medicine, according to which knowledge or expertise is just a matter of experience, that what we know we know from experience, that, as our experience grows by careful observation, our knowledge grows, and that we should just rely on experience and not treat assumptions as known if, in fact, they are arrived at by mere speculation. Presumably under the influence of this view in medicine a similar view arose in rhetoric. On this view rhetorical knowledge or expertise, too, is a matter of experience. Aristotle certainly is familiar with this view. For he refers to it in the *Metaphysics* A1. 981<sup>a</sup>4-5. But, though he refers to it approvingly in so far as it rightly emphasizes the role of experience in knowledge, it also is clear from this very chapter that Aristotle himself does not think that knowledge is just a matter of experience. In fact, he here tries to argue that in order to have knowledge, properly speaking, we have to go beyond mere experience and to rely on rational insight into the relevant principles. So this chapter seems to provide us with at least some of Aristotle's reasons for rejecting some version or other of empiricism and adopting a rationalist position. And since in many ways its closest parallel in the Aristotelian corpus is the last chapter of the *Poste-*

*rior Analytics*, B19, in which Aristotle explains how we come to know first principles on the basis of experience, I would like to focus on these two chapters. A clearer understanding of them should allow us to understand better the crucial role Aristotle reserves for observation and experience in his version of rationalism. But the passage in the *Posterior Analytics* also seems to be of particular interest in that it clearly and explicitly draws on a certain conception of reason.

In *Metaph.* A1 Aristotle points out that experience, at least in the case of human beings, is so rich and so powerful that it almost seems to amount to the same as true knowledge and art (and hence might be easily mistaken for them). But, in fact, it is not the same; experience just is what, in the case of human beings, gives rise to true knowledge (981<sup>a</sup>1-3). And so Aristotle goes on to explain how views or beliefs we have on the basis of mere experience fall short of being a matter of true knowledge. I say 'true knowledge' because even in this chapter Aristotle is willing to speak of 'knowledge' (*epistamai*) in the case of merely experiential knowledge (981<sup>a</sup>29). So it is true knowledge, knowledge properly speaking, which requires more than mere experience. And this, according to Aristotle's explanation in this chapter, in at least two regards: (1) real knowledge, unlike experiential knowledge, has to be truly universal (981<sup>a</sup>5-12); (2) experiential knowledge is knowledge of the mere fact; true knowledge involves an understanding of what is known; it involves knowledge of the reason why something is the case and not just the knowledge that something is the case (981<sup>a</sup>24-30).

The two points are clearly connected in a way we will consider when we turn to the first point. But, to begin with, I want to consider briefly the second point: to know, properly speaking, is to have insight, is to understand, to know why, rather than to merely know that. It is easy to see why Aristotle should think that claims to knowledge have to be backed up by an appropriate reason for thinking that something is the case. If we claim to know something, we claim to be in some special, privileged position to say what we are saying. But Aristotle requires more than an ability to justify one's claim appropriately. He also requires that the reason offered for thinking that something is the case be the very reason (or cause, as he often puts it) why something is the case. And obviously he does so because he, like Plato, thinks that knowledge, properly

speaking, involves understanding. To know that something is the case involves knowing why it is the case, knowing what explains that it is the case. What is more, he has a particularly stringent and demanding view of understanding and explanation. Most explanations we ordinarily give, including our scientific explanations, would not satisfy Aristotle's demands. He requires that there be a necessary connection between the explanation and what is to be explained, such that, given the explanation, what is to be explained cannot but be the case. The explanation may not be correct, but if it is correct, it does not leave room for any unclarity, for any further questions. And given these stringent demands, it turns out that nothing that could be said to be known by experience could possibly constitute the explanation of something. And it certainly could not be a matter of experience that some particular fact which explains something stands in the appropriate relation to what gets explained by it such that, given the explanation, it could not but be the case. So it is a certain notion of understanding and, correspondingly, explanation which makes Aristotle think that knowledge, properly speaking, could not be a matter of mere experience.

But the first reason Aristotle offers for saying that mere experience, however rich it may be, does not in itself constitute knowledge, properly speaking, is that mere experience does not provide us with the truly universal assumptions which on his view characterize real knowledge (98r<sup>a</sup>5ff.). What Aristotle has in mind becomes clearer if we take into account his examples, which, interestingly enough, are drawn from medicine.

We have the experience, Aristotle asks us to imagine, that Callias, when he suffered from a certain kind of fever, benefited from this kind of treatment. We have the experience that the same happened with Socrates and with many others. This, Aristotle says (98r<sup>a</sup>7-9), is a matter of experience. It may help to expand somewhat beyond what Aristotle explicitly says what it is that is a matter of experience. Without going beyond what Aristotle thinks, we surely may add that, given this experience, we can be said to know by experience quite generally that some people benefit from this kind of treatment when they suffer from this kind of fever. Perhaps we even have rich enough an experience to be able to say something about which people benefit from this kind of treatment when they suffer from this kind of fever. (For, given his remarks in

98r<sup>a</sup>11-12, Aristotle himself seems to envisage a case in which not all patients affected by this condition would respond favourably to this treatment.) Perhaps it turns out, as a matter of experience, that it is those people who have a certain complexion who respond positively. This allows us to form the empirical generalization that those patients afflicted by this kind of fever who have this complexion benefit from this kind of treatment. All this, Aristotle thinks, does not suffice to give us true knowledge because it does not give us a genuinely universal truth. To have true knowledge we would have to grasp the salient feature which distinguishes all those who benefit from this treatment when they suffer from this disease from those who do not benefit. Those who benefit might, for example, be of a bilious or of a phlegmatic condition (cf. 98r<sup>a</sup>11-12). It is only if we grasp this feature that we can form more than a mere empirical generalization, namely the truly universal judgement that all patients of this constitution who suffer from this fever will benefit from this treatment. And it is only then that we have the beginnings of an account of why these patients benefit from this treatment. For there is a necessary and hence truly universal connection between having this constitution, suffering from this fever, and benefiting from this treatment, which, once spelled out, explains the success of the treatment.

Before we pursue this further, it is worth while to look briefly at a passage in the *Ethics* (EN 6. 7. 1141b<sup>16</sup>ff.) which seems to presuppose a similar view. The example Aristotle is discussing there, again, is a medical example. We might know by experience that meat of fowl is good for one and hence particularly good for patients in their weakened condition. This is an empirical generalization. What mere experience does not provide us with is a grasp of the salient universal feature. It is an insight, and not a matter of experience, to realize that the salient feature is the lightness of the meat. So it is, in fact, all light meat which is good for one, and fowl just happens to be light meat. Its being fowl in a way is irrelevant to its being good for one, just as in the earlier example the patient's having a certain complexion in a way was irrelevant to his benefiting from the given treatment.

So true knowledge goes beyond mere experience in that it involves the grasp of a salient universal feature. Grasping that feature, and grasping how it is necessarily related to other features in the domain, allows us not only to form a truly universal judgement

as to what is the case, but also to understand and to explain why it has to be the case. Hence, whatever enables us to have the experience we have does not yet enable us to have true knowledge. Hence perception and memory, though on Aristotle's view in *Metaph. A1* they suffice to account for our experience, do not suffice to account for knowledge, properly speaking. To account for this, some other ability is needed in addition to perception and memory. And this Aristotle takes to be reason.

Now, before we look more closely at how reason is supposed to enable us to have knowledge properly speaking by allowing us to grasp the salient universal, it is worth noting what, at least according to *Metaph. A1*, it is not needed for. To go by the account in *Metaph. A1*, one gets amazingly far without reason. In fact, the way Aristotle talks in this chapter, for all practical purposes one does quite well without reason altogether, just relying on experience. Aristotle at 980<sup>a</sup>27 ff. explains how animals in virtue of their ability to perceive can also be sensible (*phronima*) if they just have memory; not truly rational, of course, but at least sensible. And he also explains how, given certain further conditions, they can even learn. Aristotle elsewhere has a lot to say about the considerable amount of *phronesis* animals are capable of in virtue merely of their ability to perceive and to remember and to thus gain a certain amount of experience. This experience, though, which animals may acquire is modest by comparison to the rich experience human beings accumulate (980<sup>b</sup>26-7). Human experience is so rich and powerful that one might mistake it for knowledge and art (*techné*, 981<sup>a</sup>1-2). In fact, for practical purposes experience does not seem to differ from true knowledge (981<sup>a</sup>12 ff.). If anything, the person with experience in practice has an advantage over the person who somehow knows, but has little or no experience (981<sup>a</sup>13 ff.).

If one reads all this, one gets the impression that reason, though it is that which distinguishes human beings from animals, only comes in to serve a highly specific and rather elevated function, namely to account for our ability to grasp the appropriate general features and the necessary connections between them. And this seems to be an ability which, according to Aristotle's account here, we can dispense with in ordinary, everyday life without detriment to our efficiency. All we would lack would be a certain kind of understanding. This, by contrast, suggests that Aristotle, at least

here, does not think that our everyday dealings, in so far as, in them, we just go by our experience, do involve the use of reason. Hence, at least here, he does not seem to think that our ordinary everyday thought or reasoning does involve reason, properly speaking. For he can hardly want to suggest that those who in practice do quite well just relying on their experience proceed altogether without what we would call 'thinking' and 'reasoning'. So it seems that Aristotle does not associate reason primarily with ordinary, everyday thought and reasoning, as we do, but with a much more specific function of reason. Perhaps he assumes that this highly specific function of reason also colours, or even transforms, our ordinary everyday thought and reasoning, but he clearly does not introduce reason to account for our ordinary thinking and reasoning.

Obviously this is a crucial point. Perhaps it can be clarified in the following way. Clearly Aristotle does not want to deny that human beings, and perhaps even animals, learn, on the basis of their experience, to discriminate between things. Thus he envisages that people, just on the basis of their experience, might be able to distinguish between people who suffer from a certain affliction and those who do not, between people who benefit from a certain treatment and those who do not. He clearly also envisages that people with the appropriate kind of experience, just on the basis of this experience, will take the view, when they encounter somebody with the affliction they are familiar with, that he should receive the familiar treatment, since this has proved beneficial in previous cases.

Now I submit that it is Aristotle's view that all this does not yet by itself amount to thinking and to reasoning, properly speaking. For it to amount to anything we could really call 'thinking' and 'reasoning' it would have to involve a minimal mastery of appropriate concepts of the relevant features involved. The point is not merely that thinking involves concepts. It is the much stronger point that it is the application of concepts which are based on a sufficient grasp of the corresponding features and of the relations between them which constitutes thinking. But obviously the mere ability to discriminate things on the basis of perception and experience does not as such presuppose the use of appropriate concepts. Even when the use of something like concepts is involved, these concepts do not necessarily reflect the relevant feature or features

of the things discriminated by means of the concept. On Aristotle's view it does not seem to suffice for thinking that we have a notion of, say, a human being which allows us, by and large, to distinguish successfully between human beings and other things; the notion rather has to be based on a sufficient grasp of what it is to be a human being, of the crucial feature or features of human beings, and of how these features are related to each other and to a whole network of features.

There are all sorts of obvious difficulties with this view, but there is one detail which one should not overlook and which is particularly relevant here. What makes a notion an appropriate notion, a notion of the crucial feature of a class of objects, clearly is not that, carefully comparing these objects, we find that it is a feature they, and only they, share. To grasp what it is to be a human being, on Aristotle's view, is more than just to grasp what human beings have in common; it is to grasp something which figures prominently in the explanation of human beings and their behaviour. More generally, what makes a notion an adequate notion is that it is appropriately related to other concepts, and thus imports a whole system of related concepts in terms of which one can understand and explain the objects falling under the given concept, because the corresponding features stand in the appropriate relations to each other. Thus, to go back to the first example, we may well be able to discriminate, merely on the basis of experience, between those people who have a certain complexion and those who do not; and we may also, on the basis merely of experience, have the impression, or the view, that people with this complexion benefit from this treatment if they suffer from this fever. But the salient feature is not that of having a certain complexion. This is not the feature which is appropriately related to the other features involved so that by having a proper understanding of them we would be able to understand and to explain, in fact to reason, that some people who suffer from this affliction benefit from this treatment. What allows us to have a thought, properly speaking, rather than a mere impression or a view or a belief (*doxa*), and to reason, rather than to proceed by the association of impressions or ideas, is the recognition that the appropriate concept is, say, the concept of something of a bilious constitution, because it is this feature which is appropriately related to the other features involved, e.g. the feature of suffering from a certain fever and the feature of responding posi-

tively to this kind of treatment, in such a way that we can argue that, and thereby show why, some people who suffer from this fever benefit from this treatment.

That Aristotle, in introducing reason, primarily means to introduce a highly specific ability, namely the ability to grasp certain features and the necessary relations between them, rather than our ordinary, everyday ability to think and to argue, is borne out, I think, by Aristotle's claim that his predecessors tended to overlook reason or the intellect (*nous*), or at least to fail to distinguish it as a separate ability. Clearly, Aristotle does not think that his predecessors, apart from Plato, overlooked our ordinary ability to think and to reason. What they overlooked, in Aristotle's view, is what he finds distinctive about reason, the ability to grasp universals, and this is why they failed to distinguish it as a separate ability. In *de Anima* 3.3.427<sup>a</sup>19ff., Aristotle tells us 'It is thought that intellectually grasping things (*noein*) and being sensible (*phronēin*), too, amount to some kind of perception; and those of old, at least, claim being sensible and perceiving to be the same.' He goes on to refer to Empedocles and to Homer (427<sup>a</sup>23-6), and then (427<sup>b</sup>6-8) points out that being sensible and perceiving are not the same, since perception is to be found in all animals, whereas only some animals have sense. Nor, he argues, is intellectually grasping the same as perceiving.

In this passage, then, Aristotle seems to accuse at least the older philosophers of the following: they assimilate intellectually grasping or having insight (*noein*) to being sensible (*phronēin*), or at least they fail to distinguish the two, and they then reduce being sensible, and with it having insight, to some form of perception. Why Aristotle finds this objectionable we can understand in terms of the passage in *Metaph.* A1 which we have been considering. It is true that some animals, having experience, have sense or *phronēsis*, but they do not have this just in virtue of perception. Otherwise all animals would have it. It also presupposes a certain kind of memory. But, in addition, though it is true that mere experience can explain how one can have sense of a sort, how one can behave in a way which looks sensible or even reasonable, we should not confuse having sense (*phronēsis*) with having insight (*nous*), i.e. that ability in virtue of which we have not only experience, but true knowledge. In any case, it is clear that Aristotle is accusing his predecessors of failing to acknowledge that which he takes to be

distinctive of human cognition, namely *nous*, the ability to grasp universal features and to have insight by seeing the relations between them. Even when his predecessors do talk of 'nous', at best, he seems to think, they only talk of the kind of *phronesis* animals have, too.

In fact, in a closely related passage, namely in *de An.* I. 2. 404<sup>b</sup>5, Aristotle uses the phrase 'nous in the sense of "phronesis"', Aristotle here, 404<sup>a</sup>26-<sup>b</sup>6 (and again somewhat later in the same chapter, 405<sup>a</sup>9ff.), speaks of philosophers who identify the intellect as a kind of soul, that is to say as something which can move and perceive and which, hence, can account for the ability of animals to move and to perceive. Aristotle refers to Democritus (cf. also *Resp.* 472<sup>a</sup>7-8) and, in this following Democritus it seems, to Homer. He explains that Democritus identifies the true as what appears to be the case, i.e. as what we perceive to be the case (404<sup>b</sup>27-9); and he takes that to mean that Democritus does not acknowledge the intellect as a distinctive cognitive ability (404<sup>b</sup>30-1). In treating intellectually grasping or insight as a kind of perception, Democritus identifies the intellect with the soul, i.e. with that in virtue of which we are able to perceive and to move. Aristotle acknowledges that Anaxagoras' case is somewhat different (404<sup>a</sup>27, <sup>b</sup>1ff.). On the one hand, there is Anaxagoras' famous *nous*, which is supposed to account for the rational order of the world, an obvious work of real intelligence. But then Anaxagoras also seems to identify the intellect with the soul, as Aristotle puts it in 404<sup>b</sup>3 (cf. 405<sup>a</sup>9ff.), when he attributes it to all animals. In *Metaph.* I 5. 1009<sup>b</sup>10ff., Aristotle seems to take a similar position. Here he accuses Democritus, Empedocles, even Parmenides, and—with some hesitation—Anaxagoras and Homer, of assuming that perception constitutes having sense (*phronesis*) and of failing to recognize the distinctive nature of *nous*.

This, it seems to me, suggests that what Aristotle wants to attribute to human beings as what is distinctive of them, when he attributes *nous* or reason to them, is not, or at least not primarily, an ordinary ability to think and to figure things out, but a highly specific ability which is needed to have true knowledge and which most of his predecessors, Aristotle thinks, failed to acknowledge, namely the ability of the intellect to grasp general features and to see relations between them.

We find out more about this ability when we turn to *APo.* B19,

the text which provides the closest parallel to *Metaph.* A1 in the Aristotelian corpus. Like *Metaph.* A1 it focuses on the distinctive contribution reason makes, in virtue of which we not only, like other animals, have experience, but can have knowledge. It confirms the view suggested by *Metaph.* A1 in many details, but in several regards adds to it.

As in *Metaph.* A1, Aristotle is concerned with the distinctive human ability to grasp universal features and to know universal truths. In B19 he wants to show how we come to grasp the basic features of the domain of a scientific discipline such that in virtue of having this grasp we directly know the immediate truths about these features which then serve as the axioms for this discipline. Thus we want to grasp, if we do geometry, what is to be a line or a point. But, grasping this, we see how being a line or being a point is immediately related to certain other features. And these insights provide us with the axioms. But Aristotle explains how we come to grasp these basic features by explaining how we come to grasp the universal features in a domain quite generally and in the course of this also come to grasp the most basic or most abstract features.

How, then, do we manage to grasp the relevant universal features? At this point there seems to be a strong temptation to assume that Aristotle appeals to a mysterious quasi-mystical power of the mind to intuit universals. It is this presumption which traditionally has led many philosophers to reject Aristotle's view of knowledge and in particular his rationalism, since they seemed to be based on this fictitious ability of the mind. But if we look at B19, it turns out that, though Aristotle's account in places may be highly obscure and questionable, it does not seem to rely on the postulation of some mysterious faculty, but on abilities we all commonly rely on, though our theoretical understanding of them may be faint and dim.

Put in a nutshell, just having reason turns out to be in itself a matter of having developed the right notions of the features relevant to a domain, and—ideally—of the features which characterize reality quite generally. And having the right notions, there is nothing mysterious about reason's ability to recognize things for what they really are, to grasp their relevant universal features. Nor is there anything mysterious about our ability to grasp the relations, immediate or mediate, between the features thus conceived.

Hence there is nothing mysterious about our ability, once we have reason thus understood, to see that being meat of fowl and being conducive to health are not appropriately related, except in so far as meat of fowl happens to be light meat, but that being light meat and being healthy are appropriately related, in so far as both are related to being easily digestible. And this allows us to understand, and hence to know, that light meat is good for one, and that, hence, incidentally meat of fowl is good for one. That is to say that having reason, or at least reason in this domain, allows one to grasp the salient universal in the experiential truth that people of a certain complexion, when suffering a certain kind of fever, benefit from a certain kind of treatment. It might take a lot of experience and a lot of reflection and a richly developed reason, a reason with a rich stock of appropriate concepts and a good grasp of the relations between them, to grasp that this is the salient feature. And, of course, there is nothing to guarantee that we might not be mistaken in thinking that we finally have grasped the relevant feature. But there does not seem to be anything mysterious about this, albeit fallible, ability to have such insights.

So the crucial and controversial assumption here is not that the mind can grasp universal features, the problematic assumption rather is one involved in the conception of what it is to have reason, of what it is to be rational. It is assumed that to be rational in itself already is to have the right notions of things, of their crucial features, and thereby to be aware of the necessary relations between these features and, thereby, the relations between the things characterized by these features. But that is to say that just to be rational in itself already involves substantive knowledge about the world. And once we grant this, we may as well grant that on the basis of this knowledge we can grasp salient universal features. Knowing enough about human physiology, it should not be difficult to see what it is about meat of fowl which makes it a particularly appropriate diet for patients. What is difficult is to know enough about human physiology, especially given Aristotle's high demands on what it is to really know about anything.

Now what is problematic about this notion of reason, or of being rational, is not that it presupposes that we have certain notions of things or their features. For it seems that it is distinctive of rationality that it involves the use of concepts. Nor does it seem problematic that it is assumed that in virtue of reason we grasp relations

between concepts or the features thus conceived. For it seems that to be able to use concepts properly at all we have to be aware to some extent of how this use in each case is constrained, or even defined, by the relation of the particular concept to other concepts.

In the Aristotelian tradition one has tended to think that to have the right kind of concept of something is a matter of isolating and abstracting the feature which all things of the relevant kind have in common. But this does not give us an adequate account of what it is, in fact, to have the right kind of concept. Nor does it do justice to Aristotle's conception as it emerges from *Metaph. A1* and *APo. B19*. This becomes particularly clear if we now look at the latter chapter in some more detail.

In *APo. B19* Aristotle raises the question 'In virtue of which disposition do we know first principles?' Note that this is not the same as the question 'In virtue of which disposition do we come to know first principles?' Aristotle rather is concerned with the disposition in virtue of which we actually already know principles. The chapter raises several questions concerning this disposition. And one question which it tries to answer, and which, indeed, it raises first, is the question whether we are born with this disposition or only acquire it with time. Aristotle's answer is that it is a disposition which we only acquire with time, and he has something to say about the way we do acquire it.

Now, one crucial point for my purposes is this: I have talked a lot about 'reason', but in the passages I have discussed so far, in particular in *Metaph. A1*, the word 'reason' itself does not actually occur. Now, in *B19*, the crucial word, 'logos', finally does occur, namely in 100<sup>a</sup>2. It is used to refer to precisely the disposition of the mind or soul in virtue of which, or perhaps rather in which, we know first principles, and he talks of this disposition as something we come to acquire. I infer from this, though the conclusion seems striking and surprising (given our intuitions about, and our understanding of, reason), that Aristotle assumes that we are not born with reason, but only acquire it, and that, in Aristotle's view, to have reason, to be fully rational or reasonable, is to know first principles.

Of course, something can be said to alleviate the intuitive difficulties one has with the claim that for Aristotle reason is not something with which we are born, but which we only acquire. For

instance, it can be said that Aristotle must assume that we are born with the capacity for reason, with potential reason, and that in this sense, even on Aristotle's view in *APo.* B19, we are born with reason. But, this having been said, one needs to insist that Aristotle in B19 is quite specific as to what kind of abilities it takes to acquire reason. On his view (cf. 99<sup>b</sup>32 ff.) it primarily takes the ability to perceptually discriminate, but then also the ability to remember what we have perceived and to process what we remember in a certain way. His view quite definitely is not that it takes the ability to perceive, the ability to remember, and, in addition, potential reason. The view rather is that reason develops out of our ability to discriminate perceptually and to remember. Given the way human beings perceive, given their powerful memory, which allows them to develop a powerful experience, they come to form the right concepts and thus to acquire reason. Hence it seems that, if we want to talk about potential reason at all, it is not an ability which we have innately in addition to the specifically human forms of the abilities to perceive and to remember; to be potentially rational seems to consist in nothing else but the particular powerful way in which human beings can perceive and remember, which, in the course of an ordinary development, gives rise to concepts and ultimately to the right kind of concepts. It gives rise, not just to concepts, but to the right kind of concepts at least in part because perception already itself is a discriminative ability (99<sup>b</sup>35). And it is this discriminative ability of perception which is innate and constitutes the potential for reason.

As far as the claim is concerned that reason is a disposition in which we actually know first principles, this, at first sight, does seem excessively strong. But what Aristotle may have in mind is this. As reason is something which we acquire, it is something which we acquire more or less completely. Thus we may want to distinguish between a state in which we have acquired reason sufficiently to be qualifiedly called 'rational', and a state in which we can be called 'rational' unqualifiedly. We might also distinguish between 'reason' and 'perfected reason', as the Stoics did later. But this should not obscure the fact that Aristotle here commits himself to the claim that to be fully and unqualifiedly rational is to know the first principles of things.

Aristotle in B19 not only claims that we only come to have reason, only come to be, at least ideally, thus disposed as to know

first principles, he also explains how this disposition arises out of perception and experience. There are in particular two aspects of this account which are of relevance for us. Aristotle assumes that the disposition in question is acquired by acquiring all the relevant concepts which are supposed to arise out of perception and experience. However obscure, and in their interpretation controversial, the details of his account of how we acquire these concepts may be, it is abundantly clear from 100<sup>a</sup>12-<sup>b</sup>3 that Aristotle does not envisage that the concepts are acquired one by one in isolation. However we interpret the battle metaphor, it seems clear that he assumes that we begin with a tentative and unstable grasp of the different features, which constantly threatens to collapse until we get a firm grasp on some features such that, given the way the features are interrelated, our grasp of the whole group solidifies and stabilizes. This is also why Aristotle can assume that having the right concepts is to know the first principles. We do not come to acquire these concepts piecemeal, but by a process of mutual adjustment with other related concepts, as a result of which certain elementary relations between features in the end seem evident. Again it is clear that Aristotle, to explain how we first come to grasp universals, does not appeal to some mysterious power of the mind to see directly or intuit features or forms, but to some complex process in the course of which our notions again and again are readjusted until they finally fit into a coherent and appropriately structured system of notions and correspondingly beliefs in terms of which we finally can make sense of what we know from experience.

The other aspect of the account which is relevant here is that the acquisition of reason is represented as basically a natural process. It is our nature to acquire reason. It is not that some of us decide to acquire methodically, according to certain rules, the right concepts and thus reason. The process by which perception gives rise to memory and memory in turn to experience, and by which this in turn leads to incipient concepts, is something which goes on in us without our doing anything about it. It seems, indeed, that Aristotle thinks that there is a very powerful mechanism which guarantees that, by and large, we end up with adequate, though perhaps primitive and as yet inarticulate, notions of things. For otherwise he could not claim, at the beginning of *de Interpretatione*, that, though different languages use different words for the same



things, the affections in the soul corresponding to these words and things are the same with all people. Hence, to the extent that this is a natural process based on perception, the relation between our perceptions and our knowledge of first principles, or whatever knowledge we have by reason, is a natural, a causal, rather than an epistemic relation. Our knowledge of first principles is not epistemically, but only causally, based on perception. And this is how Aristotle can be an extreme rationalist and still constantly insist on the fundamental importance of perception for knowledge.

Now, obviously, the matter is more complicated. To say that it is somehow a natural process by means of which we arrive at first principles is to exploit Aristotle's generous conception of what is natural and to focus on just one aspect of it. This becomes particularly clear if we keep in mind that on Aristotle's view it also is the case that by nature we are meant to be virtuous and are thus constructed as to naturally be virtuous. Nevertheless, Aristotle also assumes that it takes a great deal of effort on our part actually to become virtuous. And, similarly, he clearly also assumes that it takes a great deal of effort on our part to come to know the first principles in general (and thus to become wise), or even just the first principles in some domain. What is needed for this is a great deal of often highly specialized observation and of often highly technical reflection. But this should not obscure the fact that the insight, if it is an insight, does not derive its epistemic status from these observations and reflections which lead up to it. What makes it an insight is not the support it gets from observations or considerations, but that one finally sees in a way which fits how the features in question are related to each other and to other relevant features.

And this, I want to suggest tentatively, is where reasoning, strictly speaking, for Aristotle begins. By grasping the features of things and by thus grasping certain relations between these features as well, we also come to be in the position to deduce that certain further relations hold between features, and thus to extend our knowledge and understanding. Aristotle's syllogistic clearly is meant to show when and how we can infer from the fact that each of two features is related in a certain way to a third feature, that the two features themselves also are related to each other in a certain way. And such deductions are something quite different from the kind of thinking and reasoning we engage in in everyday life.

Now, it is obvious, and it was obvious to Aristotle, that one can successfully engage in syllogistic reasoning without knowing first principles or even being anywhere near grasping first principles. In fact, one can engage in such reasoning without having any grasp of the real features of the world. But this is not the point. The point is that Aristotle seems to have a conception of reasoning which fits his highly specific view of what reason is, rather than what we in everyday life consider as thinking or reasoning, which on Aristotle's view in *Metaph. A1* might be accounted for just in terms of a powerful notion of memory.

To conclude, Aristotle is a rationalist. But to understand this properly one has to see that he has a highly specific notion of reason. And reason for him is a disposition which we only acquire over time. Its acquisition is made possible primarily by perception and experience. Thus built into Aristotle's version of rationalism is a strong regard for empirical observation, a regard which is so strong as to tempt us to think of Aristotle as an empiricist. But for Aristotle knowledge, properly speaking, is only based causally and not epistemically on perception and experience. In this, as far as I can see, he does not differ significantly from either Plato or the Stoics, though in other aspects of their conception of reason there are significant differences, e.g. in that Plato does assume that reason is innate and not acquired. And this is why Aristotle in *APo. B19* goes to such lengths to explain that reason is something which we are not born with, but only acquire in the course of a natural process, a view which was taken up and elaborated on by the Stoics.