Sextus is insisting that an externalist account will not suffice to defeat the sceptic. If you hold that *P*, and your belief is caused by the fact that *P* falls into $\beta$, then you have knowledge that *P*. But suppose that you do not know the constitution of $\beta$. Or rather – and this is the nub – suppose that the friendly Pyrrhonist brings it to your attention that neither you nor anyone else can be sure what the constitution of $\beta$ may be. What will you *then* say? Well, you may still say: 'If *P* falls into this unknown $\beta$, and if its doing so has caused my belief that *P*, then I may justifiably claim that *P*.' *But will you still claim that P?* Surely not; for your realisation that it is quite uncertain whether or not *P* belongs to $\beta$ and quite uncertain what caused your belief that *P* must affect your preparedness to claim that *P*.

At the end of the argument, you are likely to say something like this: 'Maybe I do know that *P*, and maybe I don't; maybe *P*, and maybe not.' And with that you reach a properly Pyrrhonian state: you suspend judgement.[38]

38 This chapter offers, in curtailed and simplified form, a few thoughts which I have presented at the Universities of Göttingen, Oxford, Zürich, Alberta, York, Budapest and Pecs. A penultimate version was delivered to the Princeton Colloquium in Ancient Philosophy in December 1986, where Paul Woodruff was my commentator (and Terry Irwin presented a paper covering much of the same ground). All my audiences gave me much food for thought. I owe special debts to Julia Annas, Annette Barnes, Stephen Everson, Terry Irwin and Paul Woodruff. A longer version may eventually be published somewhere.

# 11

# An empiricist view of knowledge: memorism

MICHAEL FREDE

## (i) Introduction

The terms 'empiricist' and 'rationalist' go back to antiquity. They have their origin in a particular debate among ancient doctors concerning the nature and origin of medical knowledge, indeed the nature and origin of technical or expert knowledge quite generally (see Galen, *Subfiguratio Empirica* (*Outline of Empiricism*) p. 87, 2–3; Celsus, *Proemium* 31–2; Galen, *de Sectis Ingredientibus*, p. 10, 26; 11,6). To mark their opposing views these doctors introduced the terms 'empiricist' (*empeirikos*) and 'rationalist' (*logikos*), and hence themselves came to be known as 'empiricists' and 'rationalists' respectively (Galen, *de Sectis Ingredientibus* p. 2, 7–11). Very roughly speaking, the empiricists were called 'empiricists' since they took the view that knowledge is just a matter of a certain complex kind of experience (in Greek *empeiria*), whereas the rationalists were so called since they assumed that mere experience, however complex, does not amount to knowledge, that knowledge crucially involves the use of reason (*logos* in Greek, *ratio* in Latin), for example to provide the appropriate kind of justification for our belief.

If we try to get clearer about the precise contrast between 'empiricism' and 'rationalism' in this debate, we run into a series of difficulties. One crucial set of difficulties concerns the very notion or conception of reason involved in the debate. Up to a certain point we can understand the dispute between rationalists and empiricists just in terms of our conception of reason. Whatever precisely our conception of reason may be, we think that insight, understanding and inference are functions of reason. And to some extent we can understand the dispute in terms of such a notion of reason. What is in question in this dispute first of all is: what is it about a case of knowledge that makes it a case of knowledge, rather than of mere belief? The rationalists claim that it involves insight and understanding, and – as a rule – some kind of inference or proof, in short some achievement of reason. The empiricists

deny this; for them to know something is just to have observed it and to remember it in the appropriate way, to have the kind of experience of it, and with it, which makes us say that we know it. And technical knowledge for them in principle is no different from this; it just involves a rather complex and specialised kind of experience. But the debate, as we will see, does not just concern the question what makes a case of technical knowledge a case of knowledge, rather than of mere belief. In the course of the discussion of this question rationalists and empiricists also turn to the question of the source and the origin of this kind of knowledge. And here at least some empiricists again maintain that the kind of experience which, they claim, constitutes knowledge can be completely accounted for without any reference to reason. They defend the view that we can account for our technical beliefs and even for our technical knowledge solely in terms of the senses and of memory: we observe things; we remember what we observe; what we remember guides us in what we do, what we pay attention to, what we observe; and thus memory, rather than reason, is supposed to produce the kind of complex experience which constitutes technical knowledge. There is no need to appeal to reason, to account for this experience; perhaps there is no need to postulate such a thing as reason in the first place. Obviously such a position does raise the question as to the notion of reason involved. For clearly a position of this kind is only viable if certain functions, which we nowadays attribute to reason, are attributed to memory, for instance the formation of general beliefs of the kind we call empirical generalisations. It may well be true that we know that a certain drug is an effective remedy against a certain disease, not in virtue of some rational insight or understanding, or in virtue of some proof, but in virtue of the fact that we have the appropriate kind of experience, that we have observed the efficacy of the drug in this kind of case sufficiently to know that it works. But to assume this is not yet to assume that reason plays no role in our coming to have this kind of experience and the general belief which goes with it. And even less is it to assume that reason never plays a role in our coming to have this kind of experience and the corresponding general belief. To claim this seems to presuppose a particular conception of reason which is different from ours, a conception on which it is not true by definition that anything we would call 'inference' or 'reasoning' will be a function of reason. It rather seems to be a view which attributes some or all functions of reason, to the extent that it recognises them, to memory. To put the matter very crudely, it is a view which involves something like an associationist account of thought. It is this version of the empiricist position, according to which knowledge can be completely accounted for, even in its origin, solely in terms of the senses and memory, rather than at least also in terms of reason, which I will be mainly concerned with in this chapter. Galen (*de Sectis Ingredientibus*, p. 2, 9) tells us that the empiricists were also called 'memorists' (*mnēmoneutikoi*). Perhaps this just refers to the fact that all Empiricists emphasised the role of memory in human knowledge. But, as we will see, it is more likely that this is a term which goes back to a time when empiricists quite generally claimed that there was no need for reason to account for our knowledge, and that we just needed to rely on the senses and on memory. Hence I will call, following what, on the basis of Galen's testimony, I presume to be ancient usage, such a position 'memorism' and its adherents 'memorists'.

Memorism, though, is only one version of empiricism. Other empiricists, as we learn from Galen (*Subfiguratio Empirica*, p. 87, 12ff.), were quite ready to acknowledge that reason, in addition to the senses and memory, does play a role in an account of knowledge. Hence it will be best to begin with a general characterisation of the debate between empiricists and rationalists and only then turn to memorism. Now matters are further complicated by the fact that according to Galen (*Subfiguratio Empirica*, p. 87, 24ff.) some empiricists like Menodotus sometimes took the position that we only need to rely on perception and memory, but at other times were willing to acknowledge a use of reason. This might suggest that some empiricists were wavering, confused, inconsistent in their stand on this question; and perhaps this is the impression Galen wants us to get. But if we remember that Menodotus was also a major Pyrrhonean sceptic (Diogenes Laertius (D.L.) IX.115), we can see another interpretation of the fact that empiricists like Menodotus only sometimes defended memorism. Their defence of memorism did not reflect their own position, but was a typically sceptical dialectical move against rationalism: since memorism is an alternative to rationalism we have no reason to be rationalists rather than memorists; but, of course, we also have no reason to be memorists rather than rationalists. And this raises the question whether memorism ever had been a position really espoused by empiricists, or whether it had not been all along a purely dialectical stance. I think the answer is that the empiricists did start out as memorists and that only later empiricists like Menodotus, in the light of a more refined scepticism, reinterpreted memorism as a purely dialectical stance. But this will need separate discussion in a final section of the chapter.

### (ii) Empiricism

Let us, then, begin with a review of the relevant details of the general debate between empiricists and rationalists. This debate was primarily concerned with the nature of expert, technical knowledge, the kind of knowledge a competent doctor who has mastered the art (*technē*) of medicine relies on in treating his patients, for example the knowledge that a patient suffering from this disease under these conditions will be cured in this way.

This, for a variety of reasons, had been a concern of doctors since the fifth century B.C. It has been questioned whether there was such a thing as an art of medicine (see, for instance, the treatise *The Art of Medicine* in the Hippocratic Corpus), a special competence or knowledge a doctor could draw on. The question arose because traditional medicine with its very limited ability to deal with disease came to be regarded as embarrassingly inadequate, so much so that one could at least raise the question whether a layman, just by exercising his common sense, would not do as well as a doctor. By Hellenistic times there was no longer a question as to whether the competent doctor did have some special knowledge or expertise which distinguished him from the layman, or even from those lowly practitioners of medical crafts who, perhaps as assistants of doctors, had mastered a smaller or larger number of standard medical routines. But it had become an issue what the nature of this technical knowledge was. From the fifth century onwards doctors had been inclined to say that, unlike the layman or the lowly practitioner who just relied on experience, perhaps even practical experience, the doctor had mastered a certain amount of theoretical knowledge which guided his practice, and that hence he did not just rely on routine and experience, but on rational insight, on a systematic exercise of reason. This is the way most writers of the Hippocratic Corpus and the great physicians of the fourth century and the early third century seem to see the matter. This is the way Plato distinguishes the physician from the lowly practitioner or slave-doctor (*Laws* 720a–c, 857c–d). It was thought that the way to get medicine on the firm road of progress, the way to turn it into a real art, a rational practice, was to develop an adequate medical theory which would allow us to identify the abnormal state of the body underlying a given set of symptoms, to determine the hidden cause of the abnormal bodily state, and thus to find out what it would take to remove this cause and thus the abnormal state and thereby the symptoms of disease, i.e. to effect a cure scientifically. If asked how we were supposed to arrive at this knowledge of matters hidden, which had eluded mankind for so many millennia, these doctors would answer 'by the power of reason'. They thought that if we just put our minds to it, if we went about things systematically, logically, clearheadedly, without prejudice and superstition, if we followed reason, we would be able to infer from the observable phenomena what the true theory had to be, in the way in which one might think that one can infer the existence of the void from the observable phenomenon of motion. At least some of them even thought that reason might provide us with direct insight into the nature of things, which then would allow us to deduce further truths from such insight, in the way Aristotle had conceived of theoretical knowledge and true science, namely as based on an insight into first principles, rather than on mere hypotheses or postulates.



This vision of a medical practice, firmly grounded in theoretical insight into the nature of the reality underlying the phenomena of disease, had lost a good deal of its original appeal by the time we come to the third century B.C. By that time there was an abundance of theories, unfortunately all in conflict with each other. There seemed to be no way to settle the question which of these theories was true; this suggested that none of them could possibly be known to be true, and that hence doctors, in fact, had not managed to gain the theoretical knowledge on which to base a new art of medicine. Indeed, there did not even seem to be a way to decide rationally between the theories, which suggested that there was not even good reason to adopt any one of them as a matter of rational belief. The adherents of the different theories had formed schools defending their own theory and attacking those of rival schools. Unfortunately these disputes did not lead to a resolution of the points of contention, but only to more sophisticated reformulations of the old positions. Thus at the time it could easily seem that, in spite of, or perhaps rather because of, all the energy and the ingenuity spent on them, these disputes about the true medical theory could go on for ever. It could also easily seem that all these disputes did little or nothing to advance the ability of the doctor to cure patients, to increase the knowledge he could rely on in actual practice.

Empiricism arose as a reaction to this situation. The empiricists decided that the quest for a medical theory which supposedly one day would supply medical practice with a firm basis had, at least so far, proved futile and perhaps was fundamentally mistaken, because reason does not have the power to provide us with such theoretical knowledge; in fact, reason seems to lead us nowhere, as we can see from the endless disputes between the different medical schools; reason is unreliable and untrustworthy, so untrustworthy that it even leads us to espouse positions which are in conflict with the phenomena. Moreover, they claimed, there was no need to rely on reason to provide us with a theory. For when we look at medical practice we see that all good doctors, whether they are empiricist or rationalist, in practice rely on the same remedies, on a common body of practical knowledge (cf. Galen, *de Sectis Ingredientibus*, p. 7, 16ff.). It is in virtue of this knowledge, exercised in practice, that a competent doctor is an expert, and not in virtue of his ability to give a theoretical account of his practice. After all, the task of a doctor is not to provide patients with a theoretical account of their disease and its cure, but to cure them.

Thus, from the empiricist point of view, the question concerning the nature of medical knowledge was reduced to a question concerning the nature of the practical knowledge the expert has. This, they claimed, is all the knowledge we actually have, but, fortunately, also all the knowledge we do need to have. And as to the nature of this knowledge, the empiricists

claimed that it is just a matter of experience. The doctor relies on remedies which are known remedies, known not because there is some theoretical account which proves them to be remedies and explains how they manage to have their beneficial effect, but because they have been tried and tested sufficiently in practice to have proved themselves to be remedies.

To the objection that we should only talk of 'expert knowledge' if a claim can be backed by the appropriate theoretical account, or – to put the matter differently – if the knowledge *that* is accompanied by a knowledge *why*, if factual knowledge is accompanied by and grounded in rational insight and understanding, they responded by saying that this is a dogmatic demand and that, in any case, they do not care about what one wants to call the expert knowledge of a doctor, as long as it is clear what the nature of this knowledge is (cf. Galen, *On Medical Experience*, p. 94, 12–19). To the objection that in this case there is not really a difference between the doctor and the layman or at least the lowly practitioner who, too, relies on experience acquired in practice, they responded by developing a detailed account of the complex ways in which the doctor acquires a complex experience which sets him off both from the layman and the lowly practitioner (cf. Galen, *Subfiguratio Empirica*, p. 65, 5ff.). The doctor relies not only on his own experience (*autopsia*), but also on the experience of others, which he ascertains by a careful study primarily of the medical literature (*historia*); moreover he does not just follow certain standard routines, but on the basis of past experience is able to think of new treatments which he puts to the test, if the need arises (*metabasis*, i.e. transition to the similar) (cf. Galen, *Subfiguratio Empirica*, p. 48, 8ff.). Thus the empiricist thought that he was able to argue that medical knowledge, the practical knowledge the doctor relies on, is not a matter of rational insight, but of experience, though a very complex experience. For it is by experience, and not by a piece of reasoning, by an exercise of reason, that remedies are known.

Given what we have said so far, the basic difference between empiricists and rationalists seems clear enough. The empiricists take the view that the kind of knowledge at issue, for example the knowledge that such a disease is cured by such a drug, counts as knowledge solely in so far as it has been borne out by experience that this drug constitutes a remedy for this disease. No matter how much reasoning and what kind of reasoning may underlie the use and the discovery of a remedy, what counts, and all that counts, as far as knowledge is concerned, is that the remedy should prove successful in experience. The empiricists are quite ready to use remedies discovered by rationalists: not because they are impressed by the reasoning underlying their rationalist use, but because they are persuaded by the observable therapeutic success of these remedies. It is the experience of their success which turns them into known remedies. The rationalists, on the other hand, take the view that this kind of knowledge, like all knowledge, at least ideally, is a matter of rational insight which goes beyond mere experience and allows us to see why a certain remedy is helpful in certain cases, and why it was thus not a matter of sheer accident or chance, or due to some unknown factor, that the remedy so far in our experience has turned out to be successful. On their view this practical knowledge, however much it is confirmed by experience, does not count as knowledge, properly speaking, in virtue of its confirmation by experience, but in virtue of the rational insight which in itself justifies and warrants the belief that this remedy helps in this kind of case.

The issue, thus put, seems clear enough. If there is an obscurity, it lies in the rationalist thesis that reason can confer some epistemological status on an assumption, which status somehow is independent of its empirical confirmation. Obviously this reflects a certain conception of reason which the empiricists do not share and which we have to get clearer about to understand the dispute fully.

But I want to postpone a discussion of this point and first turn to another aspect of the debate between empiricists and rationalists. So far we have only considered the issue of the nature of medical knowledge. But the debate also concerned the origin of this knowledge (cf. Galen, *de Sectis Ingredientibus*, p. 1, 12ff.). This, it seems, came about in the following way.

Among the objections rationalists raised against empiricism there was one which created particular difficulties for the empiricist. It is true that in the case of known remedies the empiricist was free to argue that he was not concerned with how these remedies were discovered, but with what makes them known remedies. It might, for example, be the case that a certain remedy was first thought of by a rationalist on the basis of highly theoretical, perhaps rather speculative, considerations; and it might be the case that a rationalist thinks that it is in virtue of his reasoning that he knows the remedy to be a remedy, and that its success in practice just confirms what he had known all along by rational insight. Still, the empiricist can claim that what shows the remedy to be a remedy is that it passes the test of experience. It is because of this that good doctors, whether rationalists or empiricists, in practice rely on the same stock of remedies. But, the rationalist insists, one expects more of a good doctor than just the ability to apply proven remedies in standard cases. For otherwise he would not differ fundamentally from the lowly practitioner of medical routines. One thing which distinguishes him importantly, and makes him a true expert, is that he can come up with a possible remedy in non-standard cases, in so far unknown cases, in cases for which past experience does not provide clear guidance, or in which the

guidance it provides is of no immediate use, because in the particular circumstances the known remedy is not available. In short, even if one were to grant that only those remedies are known remedies whose effectiveness has been borne out by ample experience, and that no amount of reasoning of whatever kind sufficed to make a remedy a known remedy, the question arises whether the thought of a new remedy which is then put to the test of experience does not often involve, or even require, a certain amount of thinking, of reasoning, in short some use of, and reliance on, reason. And since every remedy at some point was a new remedy, this raises the question of the origin of our practical medical knowledge quite generally, as opposed to its nature. Maybe, reason does not enter into an account of what it is in virtue of which we can be said to have such knowledge; but it still might crucially enter into a complete account of the ways in which we come to have such knowledge.

It is easy to see why this point would become a major focus of the debate between empiricists and rationalists. For if the empiricist was willing to grant at this point that it was all right to rely on reason, he was in danger of undermining his whole case. Once the rationalist had forced the empiricist to acknowledge some use of reason in the discovery of remedies, he had every right to ask whether this reasoning did not contribute something to our knowledge, to the epistemological status of the beliefs we arrive at, and why one should not say that experience just confirmed what one had known by one's reasoning all along and independently of its confirmation by experience. He also had every right to ask why, if reasoning somehow did contribute to knowledge, the particular kind of reasoning he was engaged in, theoretical reasoning, should be discriminated against. It, too, allowed one to think of new remedies which sometimes proved successful and which in all likelihood would have remained unknown, unless a certain bit of theoretical reasoning had led to their discovery. If, on the other hand, the empiricist refused to acknowledge any use or usefulness of reason even in the discovery of remedies, he seemed to stretch credulity just to save his position. For it seemed too obvious that some remedies had only been found on the basis of some rather elaborate reasoning.

It seems that the empiricists themselves were not in agreement as to how to deal with this problem. Some empiricists were willing to allow for some use of reason. They characterised it as the kind of reasoning which everybody relies on in common life (cf. Galen, *de Compositione Medicamentorum Secundum Genera* XIII, 362K). To distinguish it from the kind of reasoning the rationalists engage in, they called it *epilogismos* (Galen, *Subfiguratio Empirica*, p. 87, 27; *de Sectis Ingredientibus*, p. 11, 8ff.) and characterised it as a kind of reasoning based on the phenomena, on what is observable, and coming to a conclusion whose truth can be ascertained by observation. They thus only allowed for the kind of reasoning which experience could show to have led to the right conclusion. Thus experience itself can encourage certain patterns of reasoning, certain sequences of thought, and discourage others, as long as the reasoning remains within the realm of the observable. At the same time they in this way barred inferences to and from the unobservable, the kinds of inferences rationalists typically relied on, first to arrive at their theory and then to derive the practical knowledge in question from their theory. Other empiricists, though, took the view that there is no place for reasoning even in the discovery of remedies. This we can see, for example, from a report in Galen. Galen (*de Methodo Medendi* X, 163, 14ff.K) tells us that in the case of a certain composite drug whose composition quite obviously reflected a certain reasoning some empiricists were brazen enough to suggest that it may have been invented by accident, that the doctor may have poured the ingredients together by chance, and still, rather daringly, administered the mixture, only to find out that it was effective and that he had thus come upon a new drug. Thus some empiricists clearly went to considerable lengths to avoid having to acknowledge that at least in some cases reasoning is involved in the discovery of a remedy.

It is surely no accident that in the two detailed empiricist accounts of how we arrive at the complex experience the competent doctor relies on, which we find in Galen (*de Sectis Ingredientibus*, p. 2, 12ff.M and *Subfiguratio Empirica*, p. 44, 13ff.D), no account is taken of the possibility, at least not explicitly and under this heading, that somebody might have been moved to try a new remedy on the basis of some reasoning, though the accounts seem to try to be exhaustive and though one of them even takes note of the possibility that one might be moved by a dream to try a treatment which then proves successful (*de Sectis Ingredientibus*, p. 3,3). The *de Sectis* account perhaps implicitly makes reference to reasoning, but the way it does this rather confirms the point. It says (p. 3, 4) that we might be led to try a treatment by a belief. The suggestion is that our beliefs guide our thought, that in a given situation they may make us think something which then turns out to be correct. But there is not the slightest suggestion that this involves reason; the whole account is supposed to show that we can do without reason. And if the reference implicitly is to a bit of reasoning, it is clearly not conceived of as such, but rather as a matter of a belief's, in a certain circumstance, producing a further thought. Moreover, since Galen in the *Outline of Empiricism*, chap. 12, systematically discusses the empiricists' attitude towards reason, and since he singles out some empiricists who did acknowledge a place for reason, we must assume that there were empiricists who did not allow for any role of reason, either in an account of

the nature of our knowledge of remedies, or in an account of their discovery. And since the first empiricist Galen here mentions as acknowledging a place for reason is Heraclides of Tarentum (floruit c. 75 B.C.), it seems plausible to assume that the original empiricist position had been one of utter rejection of reason, offering instead an alternative account of knowledge and its origin solely in terms of perception and memory.

(iii) Memorism

At first one is tempted to think that only dogmatism and the fierce controversy between the schools could drive somebody to the view that there is no place whatsoever for reason in an account of human knowledge. Moreover one is inclined to think that it is just the spirit of controversy which could incline somebody to inflate the powers of memory artificially just to avoid having to acknowledge a use of reason. But further reflection shows that it is not reason as such which is rejected, but reason conceived of in a particular way, namely the way rationalists conceived of it. And it also shows that the alternative account in terms of memory is not merely the somewhat outrageous *ad hoc* move it at first appears to be, but relies on a long tradition in which memory is thought to fulfil some of the functions, or even all of the functions, we nowadays attribute to reason. In this regard, it seems, we again show ourselves to be heirs to the rationalist tradition, even if we have abandoned most of its tenets.

Our perspective on the matter is somewhat distorted because we stand in a tradition in which few things in philosophy seem to be as clear as the fact that there is some sense in which there is such a thing as reason, or rationality, which accounts for our thought and our reasoning. Thus we just take it for granted that, given that it is so obvious that we do think and reason, nobody could seriously reject reason. Moreover, we have a certain conception of reason, namely one according to which reason allows us, given certain true beliefs, to arrive at further true, or at least reasonable, beliefs, for example by a bit of inductive or probabilistic reasoning. And we take this notion of reason, or of reasoning, so much for granted that we tend to project it on our predecessors all the way back to antiquity. Unless we are historians, the thought that some of our predecessors would have considered the idea of inductive reasoning a contradiction in terms may not cross our minds. But to understand memorism, I think, we have to assume (i) that at the time it was not regarded as obvious by everybody that in order to account for thought and reasoning one had to postulate such a thing as reason, and (ii) that the kind of reason which was postulated by the rationalists was rather different from reason as conceived of by us. Thus it is misleading to say without qualification that the empiricists did reject reason; they did reject reason as conceived of by the rationalists, which was the way, though, reason was standardly conceived of by philosophers in their time. And this does not necessarily mean that they rejected whatever we might call 'reasoning'. They just either interpreted it differently, or, when they did not interpret it differently, when they acknowledged a use of reason, they did not acknowledge a use of reason as conceived of by the rationalists, but advocated a conception of reason based on ordinary conceptions of rationality and reasonableness.

It is rather difficult to specify more clearly the philosophical conception of reason introduced by the rationalists, and this all the more so, since the rationalists disagreed among themselves as to the details of this conception, depending on whether they had a Platonic, an Aristotelian, a Stoic or perhaps even an Epicurean conception. The Epicurean conception poses a special problem, since in crucial ways it seems to differ from the standard rationalist conception of reason and rather resemble the empiricist one. But all these conceptions, including the Epicurean one, involved the assumption that we have an ability, that there is this power in us, reason, in virtue of which we can go beyond what we observe and form rational beliefs, or even gain knowledge, concerning what we do not observe and even what in principle we cannot observe. The standard conception involved the assumption that reason can do this because it can grasp real relations of consequence or incompatibility between terms or states of affairs, which also hold between the observed and the unobserved, the observable and the unobservable (cf. the characterisation of reason in Galen, *Subfiguratio Empirica*, p. 89, 5ff.). Thus it can grasp a relation between motion and continuity, or between the existence of motion and the existence of a continuum, though neither a continuum as such nor the relation between motion and continuity is an object of perception. But to grasp such a relation at the same time is to see that, given something, for instance the existence of motion, something else, the existence of a continuum, follows, that one thing is an indication of something else (cf. Galen, *de Sectis Ingredientibus*, p. 10, 22–3). To grasp the relation between terms *A* and *B* which is such that all *A* are *B* is to see that if all *A* are *B* and all *C* are *A* then it follows that all *C* are *B* (cf. Aristotle, *Prior Analytics* (*An. Prior.*) A, 4, 25b37–40). To grasp the relation between *p* and *q* such that if *p*, then *q*, is to see that given, if *p* then *q*, and *p*, it follows that *q*. There is a theory which spells out in some detail what follows from what, given these basic relations between terms or states of affairs which reason can apprehend, namely dialectic or logic. All discursive thought, all inference, all reasoning, if made explicit, unless it is faulty reasoning, follows these syllogistic deductive inference patterns set out in logic, though its verbal expression at times may make this somewhat

difficult to recognise (cf. Aristotle, *An. Prior.* A, 23, 40b20–2; D.L. VII.79). This, in very rough outline, is the standard rationalist conception of reason, and it is reason thus conceived which the empiricists reject, and hence logic along with it (cf. Galen, *de Sectis Ingredientibus*, p. 10, 18–11, 8, *Subfiguratio Empirica*, p. 82, 3–4; *On Medical Experience*, p. 95, 1). Perhaps this notion of reason in question will become somewhat clearer incidentally and by contrast, when we now turn to the alternative view of thought as a function of memory. Actually there is a whole body of evidence for a way of thinking in Prehellenistic times which does not disregard rationality or reasonableness, but which does not countenance the existence of reason as a distinct mental power in the way in which Plato, Aristotle and the tradition dependent on them argue for it and come to take it for granted. Not much attention is paid to this evidence, and it is difficult to understand. Moreover, closely connected with it, there is a whole body of evidence of a way of thinking which attributes special importance to memory, making it account for some, if not all of the phenomena we are accustomed to account for in terms of reason. The suggestion is that the memorism of the empiricists grows out of this kind of tradition, and thus is not at all the somewhat artificial and far-fetched position we at first might take it to be.

In *Metaphysics* (*Met.*) IV.5, Aristotle argues against the view that all appearances are true. In the course of his argument Aristotle explains that this view gained currency because there was a general tendency among his predecessors to assume that thought (*phronēsis*) was nothing but perception, and perception nothing but an alteration or affection impressed or forced on us (1009b–12–13). Aristotle tries to produce evidence for this tendency from Democritus, Empedocles, Parmenides and even Homer. We may disagree with Aristotle's interpretation of these authors, but Aristotle can hardly be wrong if he sees in his predecessors a tendency to fail to recognise reason as a distinct cognitive power and to assume instead that all thought, directly or indirectly, is produced by perception. Aristotle's own view seems to be that to recognise reason as something apart from perception would involve a recognition of the intellect (*nous*) with its distinctive active power to grasp terms or universals and thus the basic terms and the immediate truths about them from which all other scientific truths can be deduced, a power which, though (at least in the case of human beings) causally linked to, and in a way based on, perception, nevertheless epistemologically is an independent source of knowledge, in fact the source of all knowledge properly speaking. Aristotle in the *de Anima* I, 2.404a 25ff. and 405a 8ff., basically makes the same point by complaining that his predecessors just identified the intellect with the soul, that even Anaxagoras in practice did so. They introduced the kind of soul in terms of which one could explain how living things, for instance, can perceive, but they made no special provision to account for the functions of the intellect or reason, as if they were already accounted for by providing for perception.

The kind of view Aristotle takes issue with also seems to be the kind of view under attack in Plato's *Theaetetus* when Plato criticises the thesis that knowledge is perception (*Theaet.* 151e). As Plato expounds the thesis, perception almost immediately (152b–c) gets quickly identified with appearance (*phantasia*), i.e. with things appearing to one in a certain way, and this in turn in the course of the discussion is identified with belief (see e.g. 158a1 together with 158a2 and 185b2), as if there was no distinction to be made here and as if having a belief was just a matter of being struck by things in a certain way. Plato's criticism of the thesis again crucially involves a reference to a distinct active power of the soul to grasp reality, perhaps based on reflection of what we perceive (186a–c), but not itself just the power to perceive but rather a power capable of going beyond sense-impressions to judge the reality underlying them (184b–186e). Belief, the suggestion is, is not a matter of passive receptivity, not even a matter of passive receptivity mediated by some internal processing, but crucially involves an activity of the mind, an active power, reason.

So both Plato and Aristotle are familiar with a view which tries to account for our beliefs, including our knowledge, in terms of perception without appealing to reason or the intellect. In fact, it seems that Plato and Aristotle only introduce the notion of reason as a distinct power in part to be able to give what they regard as an adequate account of knowledge or even mere belief. But this presupposes that they thought that they were facing a tradition in which reason as a distinct active cognitive power had not been acknowledged. Moreover it seems that when they introduce the notion of reason, they not only endow it with the power to judge, to reason, to make inferences, but also, and more importantly, with the ability to grasp reality, essences, natures, forms, and relations between them.

But even if one does not accord reason such powers it still remains that what we believe and what we know is not just simply a matter of what we perceive and observe; what we believe and what we know so obviously somehow are a function of how we process what we observe, that those who did not assume that it was reason which performed this function had to assume something else instead, in addition to the senses. Obviously, the empiricist account which we are considering assumes that memory serves this function. But again, as we can see from Plato, Aristotle and other sources, there had been a whole tradition of attributing such a function, or at least some of the functions of reason, to memory. It is against the background of such a tradition that we vaguely understand a remark like this in [Hippocrates] *Praecepta* (1): 'For reasoning is a kind of memory.'

Perhaps the earliest philosopher in whom we can find a view of this kind is

Alcmaeon of Croton. To be more precise, Plato in the Phaedo (96b5–8) reports the following view which scholars ascribe to Alcmaeon of Croton: 'the brain provides us with perceptions of hearing and seeing and smelling; from these might come about memory and belief, but from memory and belief, if it has reached a state of rest, on the basis of these, knowledge comes about'. We also are reminded of Plato's wax-tablet model of the mind in the *Theaetetus* 191c ff. Presumably to serve the purposes of the argument of the dialogue, this is a rather impoverished model; the view which it is supposed to illustrate does break down partly because of its limitations. It simply distinguishes between what we perceive and what we know, and it seems to identify what we know with what we remember, thus assuming that knowledge is a product of memory. Perhaps one of the most tangible traces this philosophical tradition has left in our sources is in Aristotle. In two quite conspicuous places, the very beginning of the *Metaphysics* (A, 1.980a 27 ff.) and the very end of his *Posterior Analytics* (*An. Post.*) (B, 19.99b 36 ff., especially 100a 3 ff.), Aristotle presents as his own a view which in some respects is remarkably similar to Alcmaeon's, though it also differs in at least one crucial and telling detail. The similarity lies in the fact that Aristotle, too, talks as if perception gave rise to memory and memory to art and ultimately to true knowledge or science, except that Aristotle also accords experience (*empeiria*) an important place in this scheme: memory does not give rise to art and science directly, but by giving rise to experience, which in turn gives rise to art and science.

For our purposes it is instructive to look at this in some more detail. Animals quite generally, Aristotle says, have the power to perceive, but only some animals have the ability somehow to retain what they perceive (*An. Post.* 99b36–7); they have a memory of what they perceive (*Met.* 980a28–9). Having such a memory, Aristotle says, they are more reasonable (*phronimotera*) and more docile; in fact, if they have the sense of hearing they can learn and they can be taught (980b21–5). Indeed Aristotle in various places has quite a bit to say about animal phronesis. This, at first sight, is somewhat of a surprise, given that Aristotle does not in the least want to attribute reason to animals. What this shows all the more is that even Aristotle himself thinks that a wide range of behaviour which at least is analogous to rational or reasonable behaviour can be explained in terms of memory (cf. *Historia Animalium* VIII, 1.588a 24 ff.). In this way, then, animals live by sense-impressions and memory, but the share in experience they have is only small (980b25–7). Human beings, on the other hand, not only have a more complex and rich experience, but in addition live by art and by reasoning. In their case memory gives rise to a rich experience, an experience so rich as almost to resemble art and science (981a1–2). But in fact art and science are not to be identified as some kind of experience; they are rather the result of experience in beings which, in addition, do have an intellect or reason. And thus Aristotle goes on to explain in some detail how experience, only by some intellectual grasp of some essential universal feature in the objects of experience, gives rise to art and science, and how, as a result, art and science crucially differ from mere experience, which does not involve such an intellectual grasp. Thus we might know from experience that certain kinds of patients respond positively to a certain kind of treatment, but we would never know, just on the basis of experience, which the crucial feature was in virtue of which these patients responded favourably to this treatment such that we could say: 'all patients with this feature respond positively to this treatment' and then explain in terms of the feature why they respond positively. Thus one might know on the basis of experience that meat of fowl is healthy without realising that the crucial feature is that of lightness and that it is light meat which is healthy, of which fowl just happens to be an instance (*Nicomachean Ethics* 1141b18–21). It is this grasp which turns what otherwise would be a mere empirical generalisation into a bit of real knowledge. Aristotle's explanation both here in the *Metaphysics* and in the *Posterior Analytics* of how the intellect or reason comes to grasp the crucial feature on the basis of experience is rather obscure and has been the subject of much scholarly debate. For our purposes it is not necessary to clear up how exactly Aristotle conceives of this.

But it is relevant to point out that precisely at the point where Aristotle tries to explain how human beings, in virtue of their intellect or reason, are capable of advancing beyond experience and to arrive at art and science, there is a considerable amount of obscurity. It is also relevant that memory plays a crucial role in this account and that rather remarkable powers are attributed to living things which have memory. Even animals are said to be more reasonable and more docile in virtue of it; it allows certain animals to learn. In the case of human beings memory gives rise to an experience which might be mistaken for art or scientific knowledge itself. In fact, as far as practice is concerned, there seems to be no difference between experience and art or science; if anything the person with experience has an advantage over the person with scientific knowledge, but lacking in experience (981a12–15). All this, it seems, if we just go by the account Aristotle gives here in *Met.* A1 and in the parallel account in *An. Post.* B.19, we owe to a sufficiently rich memory.

There are two further points of detail in Aristotle's remarks in the *Metaphysics* which deserve to be noted in this context. When Aristotle says (981a3–4) that experience brings forth art, he quotes Polus. Now, on the basis of remarks Plato makes in the *Gorgias* (448c, 462b), we have reason to

think that Polus not only took the view that experience produces art or technical skill, like the art of the rhetorician, but also that an art is just that, a certain kind of specialised experience one has acquired. And this presumably is the reason why Aristotle, who must be familiar with Polus' position, immediately after having quoted Polus as saying that experience produces art, goes on to explain how, though art arises from experience, it nevertheless quite crucially is not just a matter of experience, but involves reason. Thus Aristotle seems to be familiar with the view that art is just a matter of experience. Another striking detail is that Aristotle in his discussion of the difference between somebody who merely has experience and somebody who has art or science relies primarily on examples from medicine.

Presumably this reflects the fact that there had already been a certain amount of discussion as to whether the art of medicine was a 'rational' art, based on a theory, or a matter of complex experience, a discussion on whose results the empiricists could rely and build. Given that even Aristotle was willing to acknowledge that experience was necessary for good practice, but also perfectly sufficient as far as mere practice is concerned, the empiricists, who were just concerned with competent practice, had their account ready made for them, or at least the beginning of it.

If we think of other views of the time in which memory plays a crucial role, one immediately thinks of Plato's doctrine of anamnesis, according to which all knowledge is a matter of remembering. There is also the curious reference to memory and the connection between memory and belief in the section on Lacydes in Numenius' history of the Academy (*apud Eusebium P.E.* XIV, 7, 9). But more important is a trace of this tradition in Epicureanism. Epicureanism assigns a central role to memory. Epicurus' *Letter to Herodotus*, for instance, is replete with references to memory. He tells us to remember firmly the basic principles of Epicureanism, in fact to memorise them. What is behind these admonitions does not seem to be just the trivial view that if one wants to be an Epicurean one had better remember the basic tenets of Epicureanism, but rather the view that our whole way of thinking is determined by our memory, by what we remember having experienced and what we have committed to memory in the, perhaps wrong, belief that it is the case. It is tempting to think that Epicurus' rejection of dialectic or logic is related to this (see D.L. x.31). As understood by Platonists, Peripatetics or Stoics, dialectic or logic, as we noted earlier, is based on the assumption that there are certain relations between terms or propositions, or rather their counterparts in the world, such that in virtue of these relations certain things follow from, or are excluded by, other things. Dialectic teaches us to see these sometimes complex relations and to reason accordingly. In fact, this is what it is to reason, to argue on the basis of one's adequate or inadequate grasp of, or insight into, these relations. So when Epicurus rejects dialectic, one is inclined to assume that he is rejecting this rationalist view of thought and inference, just as the empiricists reject dialectic for this reason, too (cf. Galen, *de Sectis Ingredientibus*, p. 10, 25ff.). If the Epicureans, unlike the empiricists, do believe that there are some basic facts about the world which we can know, even though they are not manifest to the senses, for instance that there are atoms or that there is a void, or that if there is motion there is a void, it is not because they think that there is a real relation of consequence between the existence of motion and the existence of a void which the mind can grasp, and which justifies us in inferring the one from the other; nor is it because they think that the mind can directly grasp the void which the senses do not grasp. It is not easy to say precisely how the Epicureans want to explain positively how we know that there is no motion without a void. It is fairly clear, though, which general line the account will follow. Epicurus (*Letter to Herodotus* 51) takes this view: certain perceptions bring in their train certain thoughts. We have a tendency to accept these thoughts uncritically, not distinguishing clearly between what we perceive and what our thought adds to what we perceive and the added thoughts perception triggers, and to check whether these thoughts are confirmed by what we observe or otherwise know, or whether they are not disconfirmed by what we know. False belief comes about when we accept these thoughts occasioned by what we observe, though they lack confirmation or are disconfirmed; true belief, when we accept such a thought which is confirmed and not disconfirmed. Thus the idea must be that we know that motion requires a void, because what we see suggests this, and there is ample confirmation and no disconfirmation. Philodemus seems to offer the following more detailed account of this (*de Signis* VIII, 26ff.; XXXV, 35ff.; XXXVII, 36ff.): we realise that bodies in our experience, whatever the differences between them may be, only move under certain conditions, for example the condition that they have an empty place to move into; this makes us think that bodies quite generally, even those which we do not and cannot perceive, only move under these same conditions, for instance the condition that they have an empty place to move into. For this belief not only is confirmed by the behaviour of the entire range of objects in our experience, which in spite of all the differences between them are similar in this respect that they only move under these conditions; there is also nothing in what we observe, or otherwise know to be a fact, which speaks against our assuming, which prevents us from thinking, that bodies quite generally only move if there is a void (cf. XVI, 16–29; XXXV, 4ff.). And given that this is what we are



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made to think by what we observe, and that nothing gets in the way of our thinking this, unless we already have false and conflicting beliefs about the matter, we in fact cannot help but think that a body which moves moves into an empty place. It is thus inconceivable that there should be bodies which move without a void. For, thinking of them as moving, we cannot help but think of them as moving into a void.

Though the details of this account may be controversial, it is clear that the account does not invoke any special powers of reason. Nor does the general account of how we come to have true beliefs refer to the kind of deductive reasoning which is the object of the art of dialectic. Instead, it explains how, if we systematically follow the evidence of the senses and are not led astray by false beliefs about the matter, we cannot but come to think that motion requires a void. In this sense having the right beliefs is not a matter of reasoning at all, but rather a matter of critically examining the thoughts which are prompted by what we observe: are they in agreement with what we observe and is there any evidence which speaks against them? Once we have uncritically accepted certain thoughts which are false, they, rather than an ignorance of logic or an inability to reason, make us think about things in the wrong way. Conversely, if we firmly remember the right beliefs, they, rather than a mastery of logic or deductive reasoning, will keep our thoughts moving in the right direction. Perhaps the most crucial things to keep in mind, to remember, when it comes to the acceptance or rejection of a belief, are the preconceptions (*prolēpseis*), the common notions one naturally has, for instance of a human being, or a plant, or a divine being (D.L. x.31, 33–4). They themselves are supposed to be memories (D.L. x.33). Epicurus also characterizes perception as something which cannot fail to be true because it just gives us what is there without adding or subtracting from it, whereas a belief it prompts might add to, or subtract from, what is perceived and thus introduce falsehood. Thus it is crucial to distinguish between the perception itself and a thought the perception might induce.

There are close parallels between empiricism and Epicureanism which suggest a common tradition they both rely on. Part of this tradition, it seems, is the central role attributed to memory. So there is a good amount of evidence that there was a tradition which did not particularly recognise reason and which, instead, tried to account for thinking, believing, reasoning and knowing completely or largely in terms of perception and memory. Hence the empiricists' reliance on memory should not be regarded as a rather implausible and artificial, perhaps even desperate, attempt to avoid having to acknowledge a use of reason. There was a more or less articulate and developed way of looking at knowledge in this way which the empiricists could fall back on.

It remains for us to see how the
and to which use they put this view.

Obviously one thing memory can do for
observed in such a way that we can later tell what we
obviously memory can do this over enormous time-spans
number of items. But however amazing its achievements in this re
be, it is difficult to see how just in virtue of its power to retain individu
impressions it would give rise to experience and knowledge, let alone to reasonable, though unreasoned, assumptions and conjectures. The assumption must be that memory somehow processes what we observe or perceive, for example in such a way that it not only makes a difference whether we are seeing something for the first time or not, but also whether we have seen something only once or many times. Memory would not be of much use if it just faithfully retained impressions but did not, at least in certain contexts, remind us that what we are seeing is something we already have seen before or even many times before. But memory would not be able to do so unless it was somehow able to sort what we observe as something we already have observed. The empiricists standardly talk of having observed something many times. Experience in the relevant sense (*empeiria*) is characterised as the memory of things seen often and seen to happen in the same way (Galen, *de Sectis Ingredientibus*, p. 3, 15–18). Thus the empiricists must assume that memory involves some characterisation of what we observe, which allows us to recognise something as something we have seen before, perhaps even many times before, for instance a human being, or a human being suffering from pneumonia, or a human being suffering from pneumonia treated by a certain drug, or a human being suffering from pneumonia treated by a certain drug recovering from the disease. But there is no need to assume that we form such notions, for example the notion of a human being, by some reasoning, let alone by an act of intellectual intuition, by a grasp of reason. It is formed by memory, as we come to have perceived more and more human beings in appropriately varied contexts. Nor do we have to assume that to recognise something as a human being involves an act of reason. To recognise something as a human being is just to remember or to be reminded by memory that what one is perceiving is this kind of thing which one has seen many times before.

But we not only perceive and remember human beings; we also perceive and remember that a human being has such and such a complexion. We may also see and remember a good number of human beings with such a complexion. And if so, we may remember that human beings have this complexion. Here it is important to realise what we remember, if we remember this. To remember this is not to remember the particular human beings one has seen with this complexion. One may have forgotten about

some (or perhaps even all) of them. Still, one does remember that human beings have this complexion. This suggests that memory can process those of our observations which it retains by forming a certain kind of generalisation. And there is no need to assume that this generalisation is arrived at by rational inference. Having seen many adobe houses we may remember what adobe houses look like or even are like without having made any inference whatsoever from what we have seen. It rather seems that memory provides us with this kind of generalisation. But we not only observe and remember conjunctions or 'syndromes' of two or more contemporaneous items or features. We can usefully distinguish between (i) cases in which one thing is observed to be accompanied by another thing, (ii) cases in which one thing is observed to be preceded in time by another thing, and (iii) cases in which one thing is observed to be followed in time by another thing (cf. Galen, *Subfiguratio Empirica*, p. 58, 15ff.; *de Methodo Medendi* X, 126K; cf. Sextus Empiricus, *M* VIII.288). Corresponding generalisations, given further conditions, will make us talk about antecedent causes and make predictions.

At this point a further distinction needs to be made to which the empiricists attribute great importance. We may remember that human beings have this complexion. But we may have no idea whether all or most or half of the human beings, or only a few, have this complexion. But we also may have seen so many cases, appropriately distributed, that we come to think not only that human beings have such a complexion but that all, most, half of the human beings, or just a few, respectively, have this complexion. The empiricists call this kind of qualification (i.e. 'always', 'most of the time', 'half of the time', 'rarely') a 'distinction' (*diastolē*; cf. Galen, *Subfiguratio Empirica*, p. 45, 15ff.; 58, 17ff.; 62, 10ff.). They think that if one attends to a matter, takes interest in a matter, one not only remembers quite generally that *A*s are *F*, but also notes and remembers exceptions, and thus comes to have a more distinct idea concerning the conjunction of being an *A* and being an *F*, whether it is constant, fairly regular or quite irregular. Again, such an idea does not seem to be a matter of rational inference, let alone of some act of rational intuition. It rather seems that memory produces this sort of thought or belief on its own, without our doing anything. Thus we might come to think that only a few human beings have this complexion; but obviously it would be terribly unreasonable to make such an inference on the basis of the few human beings one has seen. The fact is that it is not an inference, but a belief memory produces under very complicated circumstances.

Now suppose one has attended to the matter, has observed a large number and a wide variety of cases, so that one is able to say not only that *A*s are *F*, but more precisely or distinctly that all, most, half of the *A*s, or only a few, are *F*; in this case one is said to know that, say, only a few *A*s are *F*. But this knowledge is not a matter of reason, but of a sufficiently rich experience produced by memory (cf. Galen, *Subfiguratio Empirica*, p. 46, 3ff.; *de Sectis Ingredientibus*, p. 3, 9–13.) In this way memory produces not only beliefs, but knowledge. In fact, all knowledge is produced by memory basically in this way. According to Galen (*de Methodo Medendi* X, 36, 1ff.K) the empiricists claim that we have to distinguish between what is evident or apparent (*phainomenon*) and what is known: evident or apparent is what we perceive, known is what we remember. This rather stretches the ordinary use of 'remember', but the point is that it is memory which produces the thoughts or beliefs which count as knowledge. And, of course, it is only under certain conditions on our memory or experience that we can be said to know. We only know for example that no more than a few human beings have this complexion if we have seen enough cases. If asked how many cases one has to have observed to be confident in such a judgement, so confident that one thinks one knows, the empiricist answers that there are no general rules to answer this sort of question (cf. Galen, *On Medical Experience*, p. 119). It varies from case to case, depending, for example, on the importance we attach to the matter. And, in any case, it is not a matter of seeing a certain number of cases such that having seen that number we would be justified in making an inference. It rather is the case that memory works this way: that once we have seen a sufficiently large number of cases, appropriately distributed, it produces the kind of belief which makes us say that we know.

Now, as we have already seen, it is not only the case that we can observe and remember that a person has a certain complexion; we can also observe and remember something else along with it, for instance that he has a certain temperature. In fact, we can also observe that somebody who exposed himself to too much sun later took on this complexion, or that somebody who has taken on this complexion later has strong stomach cramps. Remembering this, attending to cases of this kind because one has medical interests, having seen many cases of this kind because, for instance, one is training to become a doctor or is a doctor, one might come to know that in most cases such a complexion is preceded by long exposure to the sun, or that in most cases it is accompanied by fever, or that in most cases it is followed by severe stomach cramps. Thus, when we come across a person with such a complexion the thought might come to us that this person is most likely going to have severe stomach cramps. This is not a matter of inference. In fact, it is difficult to see and to explain how such an *inference* would be reasonable, though the belief clearly would be a rather natural belief to have. It is just that seeing a person with this complexion we are reminded of the many cases in which a person with such a complexion later

develops cramps, and this makes us think automatically – and quite reasonably – that this person is likely to get cramps. Of course, in some sense, if we load the term, raise the ordinary requirements, we do not *know* that he is going to have cramps, or even that he is likely to be going to have cramps. The way, it seems, empiricists prefer to talk about this is in subjective terms, in terms of expectation (*elpis*) and confidence (*pistis*) (cf. Galen, *de Sectis Ingredientibus*, p. 7, 8; *Subfiguratio Empirica*, p. 71, 26; 73, 24; *adversus Iulianum* XVIII A, 249f.K). Memory produces a certain expectation in us; we may be more or less confident that the person is going to develop cramps. Depending on whether our expectation is fulfilled or not, its degree will be higher or lower in future similar cases. If we have a certain kind of experience, we will have strong enough an expectation to be fully confident in the belief that this person is going to have cramps. But this belief is not a matter of inference, or a matter of some rational insight into the connection between having a certain complexion and going to develop cramps; we may have no idea what the connection is, or whether in fact there is any connection.

At this point, given certain present interests, a brief remark concerning relative frequency may be in order. There is no doubt that the empiricists took the view that the degree to which an outcome is expected, the confidence with which an outcome is predicted and the assumed likelihood or probability that a certain outcome will result are a function of relative frequency in experience. But it also seems clear that the empiricists did not proceed to try to determine the experienced relative frequency in numerical terms, or to attach a numerical value to the degree of expectation or assumed likelihood. They seem to have contented themselves with rough characterisations like 'for the most part' or 'rarely', though we must assume that the empiricists relied on the fact that a knowledgeable doctor could say much more precisely how rarely a thing happened which happened rarely. Thus, when Heraclides of Tarentum talks about the resetting of a luxated hip (apud Galen, *In Hippocratem de Arte* XVIII A 735f.K), he does talk in terms of numbers. He says that he twice observed how the resetting succeeded. But this seems to be just a more precise way of saying that, though the resetting succeeds very rarely, it is not invariably a failure. For he does not tell us in numbers how often he observed the procedure to fail, nor does he try to give a numerical estimate of the general failure-rate. He only tells us that it often fails, and that it fails more often in the case of adults than in the case of children.

In any case, we can see how empiricists might think that we know such things as 'in general, where there is smoke there is fire' or 'in general, if somebody has such a complexion, he will die soon' without a use of reason.

Moreover we can see how empiricists in terms of such knowledge might try to explain what dogmatic philosophers would regard as a clear case of reasoning or inference. If we wish, we may talk of somebody's complexion as a sign, especially if there is a more or less invariant or constant conjunction. In fact, dogmatic philosophers do talk about sign inferences of the form 'if something displays these features, then such-and-such is true of it; but *A* displays these features; hence such-and-such is true of *A*'. Such sign-inferences are of two kinds: either the conditional reflects a necessary connection between the antecedent and the consequent which cannot be observed to hold, but only be grasped by some insight of reason, or it reflects a conjunction which, for all we know, just in fact holds and can be known to hold only by observation. Signs of the first kind come to be called 'indicative signs', and signs of the second kind 'commemorative signs' (cf. [Galen] *de Optima Secta* I, 149K; Sextus Empiricus, *M* VIII. 151ff.; 156ff.; Galen, *de Causis Continentibus*, p. 23K). Needless to say, it is only signs of the second kind which empiricists allow for. In fact, the very expression 'commemorative sign' (*hypomnēstikon*) shows the empiricist origin of the term and presumably hence the distinction of the two kinds of signs. For the term indicates that this kind of sign reminds us, makes us remember, that if something displays these features, then such-and-such is true of it, and hence suggests to us, upon seeing A to have these features, that such-and-such is also true of A. But the very point of calling them 'commemorative' is to reject the assumption that their use involves a rational inference, for example of the *modus ponens* form, a bit of reasoning of the kind dogmatic philosophers or physicians postulate. They do not provide us with a premise for a bit of reasoning to the conclusion, but rather, given our experience of a constant conjunction, suggest the conclusion, more or less strongly.

Thus we begin to see how an empiricist might think that medical knowledge and its application do not involve any use of reason. The competent doctor has a large repertory of such conditionals he knows to be true by experience. A particular case will remind him of the relevant conditionals and, against the background of these conditionals, suggest the form of treatment dictated by experience.

No doubt, a more detailed and more sophisticated account of memorism would be desirable. But what has been said should be enough to see how empiricists could maintain that perception and memory are sufficient to explain the origin, the nature and the growth of the kind of experience which constitutes technical knowledge or expertise, and how this kind of account could be extended so as to cover cases in which we nowadays would speak of 'inference' or 'reasoning'.

Thus memorists as such do not deny the obvious, namely that often some

thought goes into the discovery of remedies. But they refuse to invoke some special power in us, namely reason, to explain this, and think it can be explained in terms of memory.

But suppose memorism can give an explanation even for at least everyday thought and reasoning. It still remains true that what up to a certain point sounds like a fairly plausible common-sense account of what happens when we think from a certain point onwards begins to sound more and more like a theory of thought and reasoning. It is one thing to say that a farmer, given his concern with the matter and given his experience, naturally has it come to his mind that it is going to rain when he sees a certain cloud formation. It is quite another thing to try to account for fairly complex forms of overt reasoning in terms of memory functions.

Hence it is easy to see why empiricists from a certain time onwards, beginning with Heraclides of Tarentum, preferred to take a different line. They acknowledge that we not only perceive and remember, but also argue, reason and make inferences, and they did not attempt to reduce such activities to memory functions. In this sense they talked about reason as something distinct from the senses and memory. But in doing so they did not mean to accept a special power in us in the way it was conceived of by the rationalists. They insisted that they were talking about reasoning in the sense in which human beings in ordinary life reason, work things out, come to some conclusion. And they had no need to deny that reason in this sense does play a significant role in the discovery of remedies. Thus, for instance, Theodas speaks of an 'epilogistikē peira', a case in which we try out in practice what a certain kind of reasoning has suggested to us (cf. Galen, *Subfiguratio Empirica*, p. 50, 3), namely common reason, the kind of reasoning which we use in everyday life, because it has proved to be useful.

### (iv) Memorism and scepticism

There was, then, a group of empiricists who tried to give an account of technical knowledge solely in terms of perception and memory, and there also was another version of empiricism in which reason played a role of its own, alongside the senses and memory. But, as we also noted in the beginning, there was yet a further group of empiricists in whom both versions existed side by side. Menodotus, Galen tells us (*Subfiguratio Empirica*, p. 87, 24ff.), sometimes gave an account solely in terms of the senses and memory, but sometimes an account which also referred to reason. There are various ways to account for Menodotus' seeming inconsistency. One possibility is that Menodotus just was inconsistent, sometimes following an older empiricist position, sometimes the more recent one. But such glaring and repeated inconsistency is highly unlikely. Another possibility is that Menodotus changed his mind. But, given the way Galen reports the matter, this does not seem likely either; for Galen talks as if Menodotus freely switched from one account to the other, as he saw fit. A further possibility is that Menodotus did not see any conflict between the two accounts: they merely offered two ways of talking about the same phenomena. But this does not seem right, either. It is true that up to a point it does not make any difference whether we say 'the evidence suggests to us that . . .' or 'on the basis of this evidence we conclude that . . .'. But to the extent that the memorist account is meant to make a substantial point, namely the point that there is no need to postulate reason as a distinct cognitive power, or even to deny its existence, there is a fundamental difference between the two accounts. And this suggests that the correct explanation may be the following: the two accounts in Menodotus have a different status; memorism is supposed to be a theory which provides us with an alternative to rationalism and thus undercuts rationalism, while the other account is an untheoretical account of how we come to have expert knowledge, which does allow for reason, but which does not commit us to a stand on the theoretical questions, for example the question whether there is such a distinct cognitive power in us as the rationalists assume. We know that Menodotus was a prominent Pyrrhonean sceptic. As we can see from Sextus Empiricus, *Outlines of Pyrrhonism* (*PH*) 1.5–6, Pyrrhoneans divided their account into a positive, non-theoretical report of their own position and procedure and into a negative, critical part in which they attacked their dogmatic opponents, using arguments to which they themselves did not feel committed to show in each case that an alternative to the dogmatic position attacked was available. It seems that empiricists from a certain point onwards followed this procedure (Galen, *Subfiguratio Empirica*, p. 86, 10). Moreover, to the extent that memorism is just another dogmatic theory of knowledge, we know that Menodotus, as a sceptic, could not have endorsed memorism as his own view. Thus it seems likely that Menodotus defended memorism as part of his attack on rationalism, rather than as the positive view he took himself, whereas the account in terms of perception, memory and common reason was part of his positive exposition of empiricism. This would also fit the fact that we know from Sextus Empiricus that Pyrrhoneans did not want to deny reason as such, given that it seemed obvious that human beings do reason (*PH* 1.24). But if we take the view that memorism in Menodotus is just a dialectical stance adopted in the argument against the rationalists, we have to ask whether it ever had been a view positively espoused by the empiricists, or whether it had not always been merely an argumentative ploy.

This question raises a host of problems which cannot be dealt with here.

But a tentative answer to the question may be the following. When Galen discusses the empiricists' attitude towards reason, the earliest empiricist he mentions who allows for a use of reason is Heraclides of Tarentum (*Subfiguratio Empirica*, p. 87, 11ff.). The way Galen puts the matter ('if there is such a power in our soul [sc. of reasoning], as Heraclides and some others say, who called themselves empiricists') is somewhat prejudicial, since we may doubt that Heraclides meant to posit a power in the soul. But even apart from this, Galen's language suggests that Heraclides' position in this respect constituted a departure from traditional empiricism. This would mean that it is not the case that empiricists had all along accepted reason in some ordinary sense and had just defended memorism for dialectical purposes. In fact, the evidence on the whole suggests that the early empiricists had adopted a somewhat crude dogmatic scepticism concerning reason. This attitude towards reason only changed with Heraclides and then under the influence of Pyrrhonean scepticism, when a good number of empiricists, for instance Theodas, Menodotus and Sextus Empiricus, were themselves exponents of Pyrrhonean scepticism (see D.L. IX.115).

This, I hope, shows that we need to pay more attention to the important role memory plays in ancient epistemology and philosophy of mind for a long time, but also that we are not yet as clear as we might wish to be about the evolution of the notion of reason. Obviously the two topics are closely connected. For, as it turns out, at least for a time and with authors tradition did not favour, memory and reason were in serious competition with each other.

# *Bibliography*

This bibliography is intended to provide a starting-point for further reading. It includes, in addition to the works cited in the text, other books and articles which will be of use in exploring ancient epistemology.

## General

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