Naturalism, fallibilism and evolutionary epistemology

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In response to the failure of a number of attempts to provide foundations for certain knowledge of empirical facts, many epistemologists have tried to defend various forms of fallibilism. They hold that we may, with justification, be certain of beliefs which, we admit, risk falsification, or that we may be justified in holding beliefs although there are none of which we are certain. In all cases, a central theme is that the failure of the project of providing foundations for knowledge does not warrant scepticism. Along with this has often gone a general rejection of the idea of a First Philosophy, more secure than, or prior to, the sciences, and an acceptance of the naturalistic doctrine that a philosophical account of knowledge should be permitted to use empirical information drawn from the sciences. A more indirect borrowing from the sciences has been the use of evolutionary models, derived from the theory of natural selection, to describe or explain how fallible knowledge can grow. Various aspects of these topics will be considered in this paper, which falls into three parts. In the first, I discuss the relations between fallibilism and naturalism by examining the opposition to naturalism of the pragmatist, C. S. Peirce, and the way that he reconciles this with his fallibilism. The second section examines the claims of Quine to have ‘naturalized epistemology’, and the third offers some brief critical remarks on the evolutionary epistemology of Donald Campbell.

1. FALLIBILISM AND NATURALISM

The denial of naturalism carries with it the recognition of the possibility of an epistemology which is prior to all of the special sciences, and which can make no use of general or particular facts about nature. There are questions about knowledge which may, or must, be answered using limited resources, although there is disagreement about what the available resources are. For instance, if it is supposed that some of our perceptual judgements have a form of intrinsic credibility, and if a set of canons of rationality can be justified without recourse to the special sciences – they are analytic, self-evident, or a conventionally adopted linguistic framework – then it may
be possible to trace the credibility of all rational beliefs to that possessed by this foundation. If a reductive programme of this kind is possible, we may be tempted to provide a rational reconstruction of our knowledge which shows how the credibility of derived claims can be traced to that of the foundation. The epistemological importance of such an exercise is evident, as is the fact that care would have to be taken to avoid circularity, to ensure that we did not make the credibility of a claim to knowledge depend upon beliefs that were not in the foundation. This suggests, perhaps, that the need for a prior epistemology depends, not on the character of the general questions which epistemology starts from, but rather from the kinds of solutions which, in this case, are offered – namely reductive ones. If we are sceptical that an evidential base with intrinsic credibility and a isolatable and justifiable conception of rationality can be found, then we might try to tackle the same problems non-reductively, in which case anti-naturalist scruples seem out of place. This suspicion is supported by the remarks of many fallibilist and pragmatist philosophers about scepticism. It is only if we are in the grip of a mistaken conception of truth that the mere possibility of a belief being mistaken carries with it the threat of scepticism; it is an indication that the sceptic’s conception of truth is not ours that his arguments do not prompt an epistemic crisis. There are many things that we are certain of and, although it might be useful to try to doubt these certainties, we should not pretend to doubt what we do not doubt in our hearts. Consequently, unless we are convinced of the possibility of a reductive account of knowledge, let us not tie our hands by refusing to make use of facts that we know to be true. This style of argument is frequently found in Peirce’s writings, so we should expect him to make use of materials from psychology and biology in his writings on knowledge.\(^1\) However, perhaps the most distinctive feature of his philosophical system, dictating its somewhat Gothic structure, is, from his earliest work, a total repudiation of naturalism, and a defence of epistemology (‘Grammar’ and ‘Logic’) as a prior philosophy. In this section, I want to examine how this ‘contrite fallibilist’ rejected naturalism with a view to seeing more clearly the bearing of naturalistic matters on philosophical questions about knowledge.

The opposition to naturalism shows in his ‘classifications of the sciences’: mathematics, the only subject needing no foundation, grounds phenomenology, which in turn grounds the general theory of value which issues in logic and epistemology.\(^2\) Finally comes metaphysics which provides a bridge between logic and the special sciences. He was only clear about the

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1 Such arguments can be found in the first of Peirce’s reviews of Berkeley’s philosophy in Peirce (1934–58) at vol. 8, para. 71f. Henceforth, references of the form n,m will be to paragraph m of volume n of the Collected Papers. Similar arguments are in ‘Consequences of Four Incapacities’ (5.264–5).

2 A selection of writings on this topic are in vol. 1 of Peirce (1934–58).
Naturalism, fallibilism and evolutionary epistemology classification as he worked through the foundations of his pragmatism and metaphysics in the 1890s, but it represents the systematization of a set of views that he had been groping towards since the 1860s. It is reflected in two themes that he stressed then, in work reported in the influential set of three papers appearing in the *Journal of Speculative Philosophy* in the late 1860s. The material in these papers is prefigured in several sets of lectures delivered in Cambridge, Mass., from 1865 on. The first of the themes I want to mention – a resolute opposition to the psychologism of Mill and others – is stressed at the beginning of each series of lectures. He groups himself with Hamilton, Boole, Herbart, etc. in holding that logic does not depend upon psychology – it studies the ‘products of reasoning’ (terms, propositions, arguments) directly, and employs an objective notion of validity defined in terms of an objective notion of truth. Believing, at that time, that the source of psychologism was the idea that no objective treatment of the logic of ampliative inference was possible – together with the desire for a logic which treats all forms of inference in a systematic fashion – he set out to provide an appropriate definition of truth, and of validity, and thus to offer a systematic objective foundation for logic. Of course, this does not rule out the use of naturalistic facts so long as an objective notion of validity is employed – the validity of inductive inference could turn on features of the context in which it is carried out, or the perceptual apparatus of the reasoner. (Peirce remarks that unless logic deals with a fact of psychology it is a mathematical game! But he secures the connection by subordinating psychology to logic. In ascribing psychological states to people we rationalize their behaviour, employing the standards of rationality explained by logic (see 5.266–82.).)

The second theme that interests me is implicit in the opening paragraphs of the third of the published papers, ‘Grounds of Validity of the Laws of Logic’. Concerned specifically with the issue why there is no circularity involved in a justification of deduction which employs deductive reasoning, he contrasts explaining the validity of a form of inference – for which purpose we can use any of our knowledge – with persuading someone of the correctness of a rule – which requires that we avoid circularity. Our deductive practice needs no such justificatory shoring up and cannot be revised by rational argument, hence there is no circularity in deploying it in the explanation. As his work developed, he became increasingly clear that our means for discovering the truth about reality stood in need of a persuasive justification.

3 ‘Questions Concerning Certain Faculties Claimed for Man’, ‘Consequences of Four Incapacities’, and ‘Grounds of Validity of the Laws of Logic: Further Consequences of Four Incapacities’. All are in vol. 5 of Peirce (1931–58).

4 5.318. The discussion is a little more complex than as described in the text and is elaborated in Hookway 1985.
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Of course, that epistemology faces problems of persuasive justification does not, by itself, entail that no use can be made of empirical beliefs. Demands for persuasive justification arise in contexts where an agent is faced with a choice. The context determines what materials we can use in justifying a choice and the standards to which appeal will be made. Circularity results only if information is used in justifying the choice which is available only if the choice is resolved in one way rather than another. Use of naturalistic information is wholly disallowed only if there can be some settleable choice of cognitive methods where all of our naturalistic information is available only if we resolve the choice in one of the possible ways. This appears to involve a form of transcendental standpoint. Why does Peirce think that we are faced with such a choice? How can his robust commonsensical fallibilism be reconciled with his recognizing such a demand for justification?

The reconciliation lies in Peirce’s view of ‘science’ and its relation to common sense. He sometimes speaks of the scientific method as one of the possible methods of responding to doubt, sometimes as a ‘way of life’, but he always seems to see it as optional though supremely rational. It represents a way of life, it seems, that has only really become possible in the nineteenth century, although Kepler may have approximated it. A philosophical conservative, he would have sympathized with the view of his father, a defender of natural theology, that the life of science could be understood as a sacred duty. The scientific method is not identified as a set of methodological rules or strategies. Rather, to adopt the method involves accepting that there is a ‘reality’, which is as it is independently of what anyone may think of it, but which suitably organized inquiry is fated to discover eventually; around the early 1870s Peirce speaks of reality as the final cause of inquiry. The life of science involves dedicating one’s life to the discovery of the nature of reality. In 1878–9, Peirce published a six-part work in the Popular Science Monthly, entitled Illustrations of the Logic of Science. In the first part of this, ‘Fixation of Belief’, he outlines the project of grounding logical rules in the ‘presupposition’ of scientific inquiry – that there is a discoverable reality – and in subsequent papers attempts to do just that.5 Adopting the ‘method of science’ involves resolving to use whatever rules can be justified by reference to the hypothesis of reality.

The suggestion that the concept of reality, or truth, is optional is not immediately compelling. And plainly Peirce does not deny that we have some common sense grasp of it; but he holds that taking it seriously transforms the character of inquiry. Ordinary inquiry is directed at the efficient settlement of belief, so that error or ignorance will not interfere

5 Compare 5.369 with (e.g.) 2.693.
Naturalism, fallibilism and evolutionary epistemology with our practical concerns.\footnote{The Fixation of Belief, 5.35ff.} Forming the intention to adopt beliefs only when they correspond to reality postpones the settlement of belief: we are forced to adopt rules which, while they are guaranteed to reveal reality to us in the long run, are not guaranteed to do so in the short run. The inquirer does not believe current scientific results, but simply looks upon them as the current stage on the route to a final description of reality.\footnote{‘...belief is the willingness to risk a great deal upon a proposition. But this belief is no concern of science, which has nothing at stake on any temporal venture but is in pursuit of eternal verities (not resemblances to truth) and looks upon this pursuit, not as the work of one man's life, but as that of generation after generation indefinitely’ (5.589); ‘pure science has nothing to do with belief’ (7.606).} (He may believe them qua practical man, but not qua scientist.) The individual sees himself as contributing to an indefinite process of inquiry by an unlimited community of inquirers, and he may well not believe that he will be around to see inquiry converge on the truth (5.589, 2.652ff.). Inquiry has no bearing on the practical concerns of life, and science should not be valued for any (unscientific) practical applications that may be made of its current resting places (1.616ff.). Yet this life of contributing to the progress towards knowledge of reality is rational, is a – perhaps the – form of human flourishing. The conflicts and inconsistencies present in our commonsense and other more primitive concepts of inquiry are resolved in a procedure which exhibited a harmony between presumption, aim, and method; it can be pursued in a totally self-conscious, reflective, self-controlled and rational fashion. If we accept Peirce’s characterization of science, we must acknowledge a discontinuity between ordinary commonsense procedures of inquiry, which all settle belief in the short run, and the life of science, although, of course, the latter may affect the former. The inquirer is distanced from current results, and sees himself, not as finding things out but as contributing to the cognitive progress of a wider community.

The tasks of Peirce’s philosophical epistemology become clearer now. He seeks to provide a substantive characterization of the concept of reality which will enable him to do two things: first, to show how certain rules and procedures are logically correct, how employment of them will suffice to guide us towards knowledge of reality; secondly, to show how it can be rational for a self-controlled agent to seek to contribute to knowledge of reality. I do not intend to say much about how he proposes to do this, or about the background in nineteenth-century intellectual history which accounts for his finding the picture attractive. That it would be out of place to use scientific discoveries in the course of the investigation ought to be clear: if science is optional, it would be improper to use results deriving from that science in justifying it; and, if scientific results are held, tentatively, at arm’s length anyway, they are not certain beliefs that would be appropriate
for philosophical argument. Philosophy, although observational, rests upon observations which are open to all – denied only through slips, ignored only because of their obviousness. It rests upon ‘acritical’ observations and inferences, which are not subject to self-control nor guided by an understanding of the concept of reality. Agreement on philosophical issues does not risk endless postponement, as does agreement in the special sciences.

The justifications of procedures of inquiry are of two distinct kinds. For Peirce, statistical sampling is the fundamental kind of amplitative inference, and for this he derives its ‘validity’ from his understanding of reality – its repeated use will take us to the truth in the long run. Other methodological issues cannot be solved in this straightforward fashion: reality is not wholly determinate, so there are statements with the property that no long-run agreement on their truth or falsity can be expected, so when are we justified in continuing inquiry into a question which may, for all we know, have no answer? And, since there is no limit to the number of hypotheses that can fit a given body of data, what reason have we to suppose that we are capable of producing, and finding plausible, an hypothesis that is on the right lines? With respect to the second of these issues, Peirce holds that it is rational to suppose that there is, in any particular case, an affinity between our sense of plausibility and the nature of reality. This supposition has the form of a ‘regulative hope’ – both are adopted on the same basis that a card player bases his play on the hope of an improbable distribution of the cards if no other possible distribution gives him any chance of winning at all. But this takes out a philosophical loan that must be repaid in the post-philosophical sciences which explain the affinity in question. Here naturalism seems to slip back in, at least in the attempt to explain how knowledge is possible for us. In fact, Peirce’s explanation is metaphysical, resting on his panpsychist objective idealism: he rejects the use of natural selection in the explanation because the fact that a faculty was necessary for the commonsense inquiries which facilitate survival and reproduction is no guarantee that it will help us to describe reality. Science has no survival value, and we have to rely upon our sense of plausibility in areas remote from the vital concerns of everyday practice (7.219; Hardwick 1977: 20).

I shall now draw some general morals from this sketch of the structure of

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8 Hence much of this philosophical energy, in later life, was devoted to finding a proof of pragmatism which would make it obvious to all – from ‘High Metaphysicians’ to ‘Nominalists’.

9 The best source for Peirce’s views on grounding induction is probably ‘The Doctrine of Necessity Examined’ (6.35–65).

10 Cf. 2.113, and Peirce (1976: iv.19): ‘The true presuppositions of logic are merely hopes; and as such when we consider their consequences collectively, we cannot condemn scepticism as to how far they may be borne out by facts.’
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Peirce’s philosophical thought. It is useful to distinguish two elements in his view of knowledge and its philosophical elucidation. First, there is a demand for a clear and complete self-consciousness about what we are doing when we form beliefs about the world – a philosophical account of knowledge provides a perspicuous account of knowledge which means that we pursue inquiries knowing what we are doing, knowing why it is rational to proceed as we do, and understanding how we can obtain knowledge. The second element is the picture of serious inquiry as optional, and as something from the results of which the inquirer is distanced. It is plausible to see the first point as spelling out the root problem for a philosophical account of knowledge, and the second as linked to Peirce’s anti-naturalism. Whether the view of science led Peirce to look for a prior epistemology, or whether the desire for, or availability of, a prior epistemology led him to think of inquiry as he did, are questions I shall not pursue here. The conception of serious inquiry as optional is required, it seems, if the demand that inquiry be made self-conscious and rational is to call for justification rather than explanation. And, as yet, we have seen no reason to suppose that the need for explanation calls for a prior epistemology. In the next section, I pursue this point by looking at Quine’s programme for naturalizing epistemology.

2. NATURALIZED EPISTEMOLOGY

Quine appears to hold that, since, regrettably, the project of providing a reconstruction of human knowledge which traces the credibility of all justified beliefs to the operations of canons of rationality upon intrinsically credible perceptual beliefs has failed, the only remaining motivation for avoiding the use of naturalistic materials in epistemology is an unwarranted desire that our knowledge be shown to be certain. For the fallibilist, epistemology ‘or something like it, simply falls into place as a chapter of psychology and hence of natural science’, it ‘goes on, though in a new setting, and a clarified status’. It is notable that he does not see himself abandoning epistemology, but as continuing it, doing it better than it previously had been done. It studies a human subject who

is accorded a certain experimentally controlled input – certain patterns of irradiation in assorted frequencies, for instance – and in the fullness of time the subject delivers as output a description of the three dimensional external world and its history. The relation between the meager input and the torrential output is a relation that we are prompted to study for somewhat the same reasons that always prompted epistemology; namely, in order to see how evidence relates to theory, and in what ways one’s theory of nature transcends any available evidence. (Quine 1969b: 82–3)
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Transcendental reflection is not required for dealing with what Quine takes to be the traditional concerns of epistemology. It is useful, tentatively, to distinguish two elements in Quine’s thinking here: his commitment to naturalism and rejection of the need for epistemology to exercise ‘scruples about circularity’; and his list of acceptable sciences, which excludes all of the social and human sciences, cognitive psychology, etc. It is not obvious that the grounds for his naturalism would evaporate if he took seriously a wider variety of forms of discourse. I want to take seriously the suggestion that the sort of inquiry that Quine has in mind could be the heir to traditional epistemology – although I shall not restrict the concerns of the latter to studying the relation of evidence to theory. I shall, therefore, pursue two issues. First, can Quine be forced to acknowledge that questions arise which demand transcendental reflection – does his resistance to such issues flow naturally from his philosophy, or does it require a stubborn closing of the mind? Secondly, can a naturalized epistemology provide the perspicuous self-conscious understanding of inquiry which we saw, in the last section, to lie behind some traditional theorizing – can he cope with normative issues and questions of justification? His refusal to take seriously the possibility of a confirmation theory, for example, can easily lead one to believe that he is closing his eyes to important normative issues.

Notoriously, positivists such as Carnap enunciated a principle of meaningfulness which banned transcendental reflection, but which could only be justified by the sort of argument which it debarred. Wittgenstein, early and late, constantly strained with the temptation to discuss what could not be discussed. One reading of Quine is that his practice conforms to the Wittgensteinian teaching: only questions that can be resolved arise for him. If the reflective clarity about knowledge that we desire can be obtained, it can be obtained naturalistically. His ‘robust realism’ results from the fact that he cannot attain the standpoint of transcendental reflection from which he can notice what we take to be idealist tendencies in his work. If he could adopt that standpoint, he might describe himself as an empirical realist but a transcendental idealist; but, since he cannot adopt that standpoint, he is just a ‘realist’. The ‘idealism’ shows in his verificationism, and in the indeterminacy of translation, but it never reaches a formulation. Of course, this is a one-sided and distorting reading, but it provides a perspective from which some central Quinean themes hang together.

Peirce’s first philosophy requires that we can formulate substantive conceptions of truth and reference without recourse to the special sciences. Employing those conceptions, we can ask how we can know that we have succeeded in referring to anything, and how we can know that we have come up with an accurate description of what we have referred to. Unless
Naturalism, fallibilism and evolutionary epistemology we can think about truth and reference from the standpoint of transcendental reflection – unless we have substantive conceptions of those notions – the questions we raise are not intelligible. For Quine, our substantive conceptions do not have this independence of the special sciences. When we raise questions about truth and reality, we carry with us presumptions derived from the special sciences, and thus cannot achieve transcendental reflection. As is well brought out in a recent paper, the views of Carnap’s which Quine opposed involved the claim that conventionally adopted analytic linguistic frameworks provided criteria of reality, which set up the standards according to which any question that might arise was settleable (Ricketts 1982). By denying that we could empirically identify the linguistic framework employed by other agents (or, indeed by ourselves), Quine challenged the claim that we can have a substantive prior conception of truth which can be used to formulate questions for transcendental reflection.

But let us look directly at Quine’s discussions of transcendental arguments and transcendental reflection. In a recent paper, Stroud argues that Quine can be forced to acknowledge questions which cannot be answered by his naturalized epistemology (Stroud 1981). Stroud grants that if we want to know how a third person can know the nature of reality, we might carry out a psychological investigation of his methods of information processing, and then compare the results of his reasoning with known facts. Naturalistic epistemology may suffice. The problems arise when we shift to the first person, asking how we come to have knowledge of the world, and asking how we are justified in dismissing the possibility that reality is wholly other than we take it to be. When faced with these questions, he urges, we must bracket our ‘scientific beliefs’, and naturalistic epistemology will be of no use. We do not have a conception of how reality is with which to compare our opinions. Quine’s response is instructive, although it may at first seem dismissive.

[Stroud] demurs at our projecting ourselves into the subject’s place, since we no longer have the independent facts to compare with. My answer is that this projection must be seen not transcendentally, but as a routine matter of analogies and causal hypotheses within our scientific theory . . . [In] keeping with my naturalism I am reasoning within the overall scientific system rather than somehow above or beyond it . . . Transcendental argument, or what purports to be first philosophy, tends generally to take on rather this status of immanent epistemology insofar as I succeed in making sense of it. (Quine 1981: 474–5)

I can speculate about how I know about reality, but no bracketing of current empirical certainties is required.

Before asking what feature of Quine’s position is supposed to make this response possible, we should note Quine’s response to familiar sceptical
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arguments, for example, those that rest upon evidence for perceptual error and illusion, and upon empirical evidence of delusion. He acknowledges the ‘Humean predicament’; both induction and the hypothetico-deductive method are fallible, so that any of the beliefs which result from them could turn out to be in error. He also grants that a sceptic might ‘use science to repudiate science’; our entire theory of external objects might be overthrown.

Experience might, tomorrow, take a turn that would justify the skeptic’s doubts about external objects. Our success in predicting observations might fall off sharply, and concomitantly with this we might begin to be somewhat successful in basing predictions on dreams and reveries. At this point we might reasonably doubt our theory of nature in even its broadest outlines. But our doubts would still be immanent and of a piece with the scientific endeavour. (Quine 1981: 475)

Quine’s response to someone who believes that there is evidence to warrant this extreme measure is that the sceptic is ‘overreacting’, manifesting bizarre or deviant patterns of entrenchment of beliefs, different standards of plausibility and evidence. There is no evidence that he thinks they can be argued out of their scepticism, but, since they have convinced neither him nor us, this is no cause for concern. We might try to explain their eccentric trait.

What is at issue in calling this use of the sceptical argument ‘scientific’? The intended contrast is between repudiating science because we cannot understand how to bring it into harmony with an antecedently given substantive conception of reality, and rejecting our most general scientific theories because they are constantly surprised by experience. Quite what it would be like to give up material bodies I shall not consider. However, what is behind Quine’s refusal to admit a prior substantive concept of reality – a corollary of his rejection of the a priori – is that our broadest conception of reality is derived from science; ‘science identifies and describes reality’ and without science we have no way to think or talk about it at all. Raising questions about whether we are able to know the nature of reality carries with it the scientific baggage involved in our substantive conception of truth. Once we attain the transcendental standpoint, we have ceased to carry with us the substantive concept of truth required to raise epistemological questions. Thus Quine can make use of psychological facts to inform someone such as Stroud that all we look for in inquiry is accurate prediction and control of ‘triggerings of our sensory receptors’, and can show no interest in further sceptical possibilities.

As is clear from ‘Facts of the Matter’, (Quine 1977), Quine’s substantive conception of reality is taken primarily from physics. Physicalism is adopted as a regulative principle because physical objects provide the most familiar examples of ‘things’; Physics is permitted to provide our standards