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# Epistemology and Science in the Image of Modern Philosophy: Rorty on Descartes and Locke

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As with most human activities, philosophy has been shaped by its past. More importantly, it is, like other intellectual pursuits, deeply conditioned by its conception of its own history. For this reason, the history of philosophy is never far from the center of philosophical consciousness. Indeed, history is a prominent mode of philosophizing because of the self-knowledge it provides.[1] The more we know about how our questions have been shaped by their original motivations, the better we will be able to see new possibilities in the problem-space to which they belong—new ways of posing old questions and new questions to pose.

In the past two decades, the most widely discussed attempt to use history for philosophical ends has been Richard Rorty's *Philosophy and the Mirror of Nature*.[2] Rorty draws on a popular account of the rise of modern philosophy in order to diagnose the ills of contemporary philosophy. He traces those ills to the epistemologies of Descartes and Locke and the attempt to frame a general picture of the relation between mind and world that could secure the foundations of knowledge. His prescribed cure is to give up the foundational quest—which, in his view, amounts to abandoning the characteristic aims of modern philosophy. Philosophers should instead engage in the sort of edifying and hermeneutic conversation found in literary criticism and cultural studies.

Although I share Rorty's reservations about some styles of contemporary philosophy, I accept neither his diagnosis nor his remedy. Rorty's critical evaluation of epistemology in Descartes and Locke is vitiated by his failure to give sufficient attention to—or by his outright misunderstanding of—the relation between philosophy and science in the early modern period. One recurrent theme in recent work in the history of modern philosophy has been the central importance of the rise of modern science as a motivation for and topical object of early modern epistemology and metaphysics.[3] If one adopts a contextual approach to modern philosophy from Descartes to Kant, the interplay between science and philosophy is apparent: the new science was at the center of Descartes' and Locke's philosophical projects, and Newton's new science powerfully conditioned the work of Berke-

ley, Hume, and Kant. To ignore modern science in discussing epistemology and metaphysics in these authors is to risk missing the point of their work entirely—which is what Rorty has done, to the detriment of his diagnostic efforts.

## Rorty's Evaluation of Early Modern Philosophy

Rorty intended his book to change the way philosophy is done. His argument that a change was both possible and desirable rested on his account of the aetiology of some philosophical problems—primarily epistemological—that were prominent in the mid twentieth century. His strategy was to use history to show that the "epistemological turn" of modern philosophy was based upon contingent (read, "dispensable") doctrines advanced by Descartes and Locke. His target was a particular image of philosophy, according to which philosophers stand apart from the intellectual concerns that engage scientists, historians, and critics, pose abstract questions about the nature and possibility of knowledge, and then promote their answers as binding on the cognitive practices of all. He believed that an evaluation of early modern epistemology would expose the illegitimacy of philosophy so conceived.

According to Rorty's diagnostic analysis (*PMN*, pp. 3–4 and chap. 1, 3), the direction of philosophy for the last three centuries was set by two mistakes made long ago: first, the interposition of ideas as third things between the knower and the world and, second, the attempt to do epistemology by doing psychology. The first mistake resulted in the creation of the "problem of knowledge" as a general problem admitting of a general solution (*PMN*, chap. 1, especially pp. 29–30, 45–61). As the story goes, this creation was made possible when Descartes "invented the mind" by conflating sensations and beliefs, thereby launching the "theory of ideas." According to this theory, we are immediately aware only of ideas; this doctrine allegedly locks us into a "thought world" by interposing a "veil of ideas" between us and the world we would know. The task of philosophy accordingly becomes that of ascertaining the representational accuracy of ideas, since ideas mediate knowledge. In using the theory of ideas to pose a skeptical challenge he could not meet, Descartes set the problematic for subsequent metaphysics and epistemology.

This first mistake made possible the second. According to Rorty, Descartes's "invention of the mind" enabled his successors to stake out the mental as a special domain of investigation, and thereby to secure their roles as epistemological gatekeepers for the rest of intellectual culture. As Rorty tells it, Descartes and Locke could claim such authority because they (or at least Locke) believed themselves to have provided something analogous to a scientific account of the mind (*PMN*, ch. 3, especially pp. 137–148). Because they had given an account of the instrument of knowledge, they could assert authority over all fields in which the instrument was used, that is, over all fields of human knowledge taken generally. Rorty contends that this claim of authority rested on a confusion between causal explanation of the interactions among mental states and the quite different task



of analyzing the grounds of justification for knowledge. According to Rorty, from the time of Locke through Kant down to the present, philosophy's claim to intellectual authority has rested on a confusion between psychology and epistemology. It has rested, that is to say, on the fallacy of "psychologism."[4]

Response to Rorty has been mixed. On the one hand, his skills as philosophical pathologist have been criticized on the grounds that his diagnosis is mistaken about both disease and aetiology. In particular, it has been objected that his conception of epistemology as preeminently concerned with absolute foundations is out of touch with recent work and that his history is incorrect.[5] On the other hand, many philosophers have found his diagnosis to be on the mark and his outline of history acceptable.[6] Indeed, his history was largely based on received opinion.

My evaluation of Rorty's use of history examines the two central mistakes he attributes to Descartes and Locke. A brief review of recent contextually based scholarship will suffice to counter Rorty's lively rendition of the tired "veil of ideas" story. It remains unclear whether this scholarship demands a reassessment of Rorty's general historical critique, for it has been observed that, even if the details of Rorty's history were unsatisfactory, his central point about the ill effects of the "epistemological turn" and the consequent conception of philosophy's task could stand.[7] In assessing Rorty's diagnostic use of history, we must look not only at the accuracy of his analysis of the theory of ideas, but also at the broader question of whether he has understood the use to which that theory was put within early modern philosophy. Such an investigation must appeal to the history of science, inasmuch as Descartes' and Locke's queries about the representational accuracy or inaccuracy of ideas were motivated by their interest in discerning the proper categories of explanation in natural science. Their motivation for bringing "representational accuracy" into this endeavor becomes clearer against the background of scholastic Aristotelian theories of perception. Further, Rorty's charge of psychologism must also be rejected, despite its long acceptance (especially for Locke).[8] Descartes and Locke were not guilty of psychologism, and their discussions of the mind's activities in knowing are not best conceived as anticipations of naturalistic psychology.

## The Theory of Ideas and the "Theory of Knowledge"

The theory of ideas has long been cast as an especially pernicious early modern doctrine, because it is alleged to have inevitably spawned the problematic of the "veil of ideas." In Rorty's account, the veil of ideas arose when a mistaken model of knowledge led to a mistaken ontology. The mistaken model of knowledge is expressed in the "visual metaphor": to know something is to see it clearly with the mind's eye. The "thing" known in this way is no ordinary object, but a special entity, an "idea" or "representation," interposed as a third thing between perceiver and external world.[9] The same model, applied to intellectual apprehension, spirited a special domain of intellectual objects into existence, which mediate all knowledge while placing a screen between knower and known.[10] Conse-

quently, philosophy became fixated on the "representational accuracy" of ideas in relation to the (inaccessible) external world.

Rorty's reconstruction of the development of modern philosophy not only traces the origin of doctrines deemed "bad" because of their legacy in recent philosophy; it also suggests that acceptance of these doctrines allowed for, and perhaps was motivated by, a claim to intellectual authority on the part of philosophers. But in fact Rorty devotes little attention to determining what might actually have motivated Descartes and Locke, who serve as the main villains in his story. These authors are portrayed as if they blindly (or strategically) adopted the visual metaphor, or accepted an unreasoned demand for certainty, independent of questions of genuine intellectual interest. In evaluating this portrayal, we need to pay heed both to the "bad" doctrines attributed to them—in order to determine whether they in fact held them—and to the motivation for the doctrines they did in fact hold.

Rorty's story, despite its erstwhile popularity, does not withstand scrutiny. Descartes and Locke were not ontologically committed to ideas as third things. Attention to the formal constraints of Descartes's ontology has revealed that he treated ideas not as separate or "third" things, but as "modes" (or modifications) of minds.[11] Minds do not stand in a perceptual relation to ideas as separate existents; rather, minds *have* ideas. But what does this mean? An interpretation according to which minds "have" ideas of shape in the way bodies have shapes—by having the property of being shaped—will not do. Minds have ideas of shape and color without being shaped and colored. Descartes treated ideas as modes of minds; he did not hypostatize ideas as third things. But this doctrine by itself does not explain how ideas as objects of awareness are related to the minds that have them.

Descartes sought to explain the relations among minds, ideas, and the objects of ideas by appealing to a distinction between "formal" and "objective" reality.[12] When ideas are considered formally, they just are modifications of thinking substance: minds have ideas (formally) just as bodies have shape. But ideas may also be considered "objectively," or in terms of their "content"; ideas have the peculiar characteristic that objects are found "in" them objectively or by way of representation. Descartes treats the content of an idea as the object of that idea, where "object" is understood as intentional object or object of thought. To think of an absent friend, and to perceive that friend by sight, both involve having a mental state with a certain content or intentional object (that of the friend). The mental content presents the absent or present friend without being identical with the friend. There is a distinction between ideas and the external objects they purport to (and sometimes do) represent, but ideas are not something in addition to acts of perception and their contents. Ideas reduce to perceivings. Locke's talk of ideas has been given a similar reading, despite his use of reifying language.[13] Locke's interpreters have persuasively argued that his talk of "perceiving ideas" typically means simply that one has a perception of a certain kind, rather than that one stands in a perceptual relation to an idea considered as a thing.[14] Lockean ideas are then seen as acts of perception with intentional objects or contents.[15]

The suggestion that ideas be treated as perceivings in Descartes and Locke provides a handle on the notion that ideas are representations: they are representations just insofar as, qua perceptions, they have one or another "content" or intentional object. The expansion of "perceiving an idea" into the fulsome "having a modification of the mind with a certain intentional object" does not render talk of ideas and their contents any less problematic than talk of intentional objects. But it does remove the location of problem pertaining to the representative function of ideas from the "theory of ideas"; for even the "anti-idealist" Reid was committed to the notion that perceptions have objects, and that these objects may or may not coincide with external objects.[16] Moreover, although this interpretation does not remove the possibility of posing skepticism in conjunction with the theory of ideas, it makes it clear that skepticism is not the special heritage of that theory. The skeptic's wedge can find entry at the moment perceivers are distinguished from things perceived; skepticism about the senses only requires admission of the conceptual possibility that a state of the perceiver such as might be taken to constitute perception of an external object can occur in the absence of said object. This minimal requirement shows that the skeptical problematic does not depend on the theory of ideas. Indeed, the fact that skepticism toward the senses does not depend upon the "veil of ideas" is evident from its convertibility to "brain in the vat" skepticism. This latter skeptical challenge certainly does not presuppose the theory of ideas; it may require no more than a willingness to engage in science fiction.[17]



These considerations challenge the historical accuracy of Rorty's discussion of ideas, but they don't neutralize his description of the ills of modern philosophy. Rorty's plaint against the theory of ideas only begins with the theory's putative ontology. According to his analysis, its most pernicious effect was to promulgate the image of the mind as a "mirror of nature." The conception of the mind as a representational medium led philosophers to concentrate, without good reason, on assessing the representational accuracy of various groups of ideas. The claim that there was a general problem about accuracy that could be solved by a philosophical cum scientific theory abetted the development of a corps of professional philosophers who asserted their authority to adjudicate all cognitive claims.

Rorty is right that Descartes and Locke sought to assess the representational accuracy of ideas. An evaluation of his diagnostic polemic requires us to understand why they did so. Both authors formulated the question of "representational accuracy" in terms of the "resemblance" (or lack thereof) between the contents of ideas and external objects. Their much-maligned talk of resemblance is rendered understandable (and so less obviously objectionable) when put in context.[18] The notion of resemblance in perception was prominent in the seventeenth century as an interpretation of the Aristotelian notion of a "similitude" between perceptual contents and external objects.[19] According to the Aristotelian theory of the senses, the cause of our experience of color is the quality of color per se, considered as a primitive property of objects which is transmitted as a "form without matter" through the medium and into the brain; the cause of our experience of shape (at least as regards the two-dimensional spatial arrangement in vision) is an actually shaped pattern in the brain, which arises from the spatial arrangement of points in the visual field.[20]

Descartes and Locke denied that the sensory ideas of what (Locke called) secondary qualities are "resemblances" of material objects, but they allowed that ideas of "primary qualities" might be resemblances. In so doing, they were intent

on denying that ideas of color and other secondary qualities accurately represent the basic properties of material objects. These denials did not arise out of a detached fixation on representational accuracy; they arose in the context of a project to determine the basic properties that should be admitted into physical explanations.[21] In this context, to say that color as experienced does not "resemble" anything in objects is to say that a proper scientific account of color perception will explain color as a property of objects by appeal to other, more basic properties—in particular, to size, shape, position, and motion. To say that ideas of shape are accurate representations is to say that the things perceived as having shape typically do possess that property in a way in which they don't have color. The reality of shape as a property makes it a viable candidate for inclusion among the fundamental properties of matter, in terms of which other properties of bodies are to be explained. The question of representational accuracy becomes the question of deciding which, among those properties of bodies that we perceive or mentally represent, should be made basic in physics. Descartes' and Locke's discussions of the "resemblance" or "accuracy" of sensory ideas do not reveal their idle (or seditious) concern with abstract "problems of epistemology"; these discussions arose from a central intellectual concern of the early modern period, the quest for an adequate science of nature.

In fact, Rorty does allow that a concern to further the "New Science" was present in Descartes. But he totally misperceives Descartes's relation to the new science. According to Rorty, Descartes understood his "cultural role" in terms of the warfare between science and religion: he was fighting "to make the intellectual world safe for Copernicus and Galileo" (*PMN*, p. 131). There is a grain of truth in this characterization, inasmuch as Descartes was, I would argue, sensitive to the need to free the metaphysics of natural science from an overly close connection with rational theology.[22] But Rorty misses Descartes's central mission, which was to discover the fundamental principles of physics. In Rorty's view, Descartes was committed to the distinction between primary and secondary qualities merely as a by-product of his project to provide a "philosophical foundation" for Galilean mechanics (*PMN*, p. 65). He thus presents Descartes's interest in the new physics as an instance of philosophy's claim to professional authority through its role as foundation-provider—a claim legitimized by the notion that philosophy must certify the cognitive tenets of other disciplines. As Rorty would have it, Galileo developed a general physics of nature which was seized upon as a possible object of foundation-providing by a parasitic Descartes.

This picture is doubly in error. First, Galileo didn't conceive of either a general mechanistic physics or a general mathematical science of nature: as far as his writings reveal, he was working within the framework of various mathematical *sciences* of nature, a framework that departed from the Aristotelian "mixed mathematical sciences" only by adding *Two New Sciences* to their number.[23] Second, it was Descartes, not Galileo, who first conceived of a general mechanistic physics and of a general science of nature founded upon a few simple laws of motion. Descartes's metaphysical investigations, far from constituting a mere pretext for professional authority, were instrumental in his arriving at this vision of a general physics, a vision that later was to inspire Newton.[24] Indeed, prior to his "metaphysical turn" of 1629, Descartes (together with Isaac Beeckman) had conceived only of the possibility of various physico-mathematical sciences; it was in connection with his search for a metaphysical justification for excluding substantial forms from matter that he came to develop his vision of a general physics of nature.[25]



Rorty's discussion of representational accuracy, which treats Descartes and Locke as the originators of a common problematic, masks an interesting difference between the arguments they provided for adopting their respective lists of primary qualities. Descartes claimed to provide a criterion for determining the basic properties of matter that is independent of the senses: this independent source is the intellect itself, conceived as a faculty capable of operating without sensory materials. His "clear and distinct perception" that extension is the essence of matter is provided by the intellect operating independently of the senses and imagination; in this use, the intellect finds that phenomenal color does not pertain to matter. With respect to matter, the objects of intellectual perception are the geometrical and kinematic properties: size, shape, position, and motion.[26] Sensory properties such as color, which are not found among those that are clearly and distinctly perceived by the intellect, are not basic properties of matter; they are at best secondary properties that depend on the basic properties.

Descartes's justification of the distinction between primary and secondary qualities was not open to Locke.[27] Despite the passages in the *Essay* that read like Descartes's appeal to conceivability (especially II.viii.9), Locke was not in a position to accept "pure conceivings" as a source of knowledge about the external world. He rejected the notion that the intellect can grasp essences independently of the senses; this rejection is one implication of the doctrine that all knowledge comes through the senses.[28] The passages on conceivability are best read as reflections on what is conceivable in accordance with the most plausible scientific account of the operation of the senses.[29] And indeed, immediately subsequent to these passages, Locke invokes a mechanistic account of sensory stimulation, according to which colors in objects are surface textures that cause light to be reflected so as to produce certain effects in the nervous system, which in turn produce various sensations or sensory ideas.[30]

I will return to the contrast between Locke's and Descartes's attitudes toward the relation between philosophy and natural science. For the moment, I should acknowledge that according to my reading, a fundamental difference in their arguments pertains to the power of a particular cognitive faculty, the intellect. This fact would seem to confirm the second part of Rorty's condemnation of Locke and Descartes, according to which Descartes's invention of the mind paved the way for Locke's proposal that philosophy has a special authority over other cognitive enterprises because it provides a scientific account of the mechanics of the mind. Let us then turn to Rorty's charge that Locke attempted to ground his account of human cognition in a natural science of the mind and so committed the "naturalistic fallacy."

## Epistemology and Psychology

Rorty charges Locke with "confusedly thinking that an analogue of Newton's particle mechanics for 'inner space' would somehow 'be of great advantage in

directing our Thoughts in the search of other Things' and would somehow let us 'see, what Objects our Understandings were, or were not fitted to deal with'."[31] Significantly, his support for this charge comes not from specific citations to Locke's *Essay*, but from extensive quotations of the works of T. H. Green, Wilfrid Sellars, and Thomas Reid; the upshot of these quotations is that Locke confused the "logical space of reasons" with that of causes, offering a causal analysis where he should have been concerned with reasons and grounds.[32] Rorty is surely correct that Locke thought he was engaged in an investigation that would determine the domain and limits of human understanding, an investigation that took as its object the faculties and powers of the human mind. But I deny that Locke was, for all his talk of probing the depths of our mental faculties, engaged in anything resembling a "mechanics of the mind" or a natural scientific theory of human mental processes. Rather, he was pursuing an epistemological inquiry of the sort that Rorty's quoted sources accuse him of confusing with psychology, an inquiry that yielded results Rorty would have found philosophically interesting, had he understood them.

That it was Locke's *intention* to engage in what we should call epistemology and not to entertain causal hypotheses about the operations of the mind is clear from the opening of sections of the *Essay*. Indeed, Locke explicitly sets his project apart from the sort of natural scientific "physiological" investigation with which Rorty would saddle him (*PMN*, pp. 141, 145, 146). Thus, he remarks that "my *Purpose* being to enquire into the Original, Certainty, and Extent of humane Knowledge; together with the Grounds and Degrees of Belief, Opinion, and Assent; I shall not at present meddle with the Physical Consideration of the Mind; or trouble myself to examine, wherein its Essence consists, or by what Motion of our Spirits, or Alterations of our Bodies, we come to have any Sensation by our Organs, or any *Ideas* in our Understandings." Setting aside any concern with the physiology or ontology of nervous system and mind, Locke firmly channels his investigation toward epistemological topics: the ways we acquire our "Notions of Things," the "Measures of the Certainty of our Knowledge," and the "Grounds of those Perswasions" which are found among human beings, and "the *Bounds* between Opinion and Knowledge" (*Essay*, I.i.2–3). True to his word, Locke leaves physiological speculation out of the *Essay*.[33]

Locke was investigating the grounds of belief, which fits into the "logical space of reasons" rather than that of causes. But he also claimed to be investigating the "original" of human knowledge, and the "ways" we attain our notions of things. This wording, taken together with his analysis of mental contents into simple and complex ideas, his discussion of innateness, and his avowal of the "plain, historical method," may make it look as if Locke were actually pursuing psychological questions, despite his other statements. His distinction between simple and complex ideas may seem like the first step in analyzing mental processes into their constituent elements, a hallmark of the old association psychology. Innateness, too, became a much disputed topic in psychology. In this light, Locke's talk of a "plain, historical method" may well seem like a statement of his intention to settle such questions through natural scientific observation.

The discrepancy between Locke's stated epistemological aims and the seemingly psychological character of his results reveals something about our retrospective application of the category "psychological." Our perspective of hindsight may cause us to perceive earlier authors as pursuing psychological projects because of surface similarities between their projects and later, benchmark instances of psychological or natural-scientific approaches to mind. David Hume, David Hartley, and legions of later associationists claimed to resolve complex ideas into simple constituent elements as a first step in a naturalistic account of the mind's operations (modeled on Newtonian lines). The question of whether various visual abilities are innate or learned was an object of controversy in the optical literature of the seventeenth and eighteenth centuries. Thomas Reid and others brought clinical evidence to bear on this controversy, and it became an organizing theme in Hermann Helmholtz's psychology of spatial vision.[34] Be that as it may, Locke's concern with similar topics should not be classified as psychological. Briefly put, the analysis into simple and complex ideas should be seen, not as an attempt to discover the psychological primitives from which to construct a mechanics of the mind, but as part of an empiricist analysis of mental contents. Some contents, Locke argues, are primitive, "given" atomic sensory ideas, while others are derived by composition from these atomic contents. This mental atomism is not driven by an interest in psychogenesis, but by a desire to investigate the epistemological standing of simple and complex notions. Notoriously, Locke contends that complex notions, such as that of substance, are epistemically inferior to those based in simple ideas.[35]



Locke's discussion of innateness also should not be assimilated directly to later discussions of innateness in psychology. When we ask today whether a concept or an ability is innate or acquired, we are simply asking whether it is inborn or results from learning, and such questions are typically considered to be distinct from the epistemological concern with the justification of knowledge claims. Hence, to link innateness with justification would appear to confuse causal origin with evidential basis, for mere innateness doesn't provide epistemic warrant. But as matters were understood in the seventeenth century, there was a clear basis for supposing that innateness could provide epistemic credentials. Locke was intent on showing that there are no ideas or principles "stamped upon the Mind of Man" by "Nature" or by a deity (*Essay*, I.ii.1, see also I.iv.12–17). Those, like Descartes, who posited innate principles bestowed by God argued that their divine origin gave them an epistemic warranty. The fact that philosophers today reject divine origins for innate ideas does not render the content of the earlier claims psychological, as if by default; even if rejected as false, the claims remain assertions about a cognitive guarantee. And so, though Locke did indeed ask whether certain ideas and principles are innate, his discussion should not be assimilated to later psychological discussions, for the stakes were different.

Finally, there is Locke's appeal to the plain, historical method. This phrase should be seen as asserting no more than Locke's commitment to reflecting on human cognitive practices in investigating the scope and limits of human knowledge. And unless one believes that philosophy can draw on a priori sources of knowledge, any conceptual investigation must rely upon experience as its source of instances and examples. If every appeal to human experience were to be counted as an appeal to empirical natural science, then every epistemologist and

philosopher of mind who attended to examples drawn from actual practice could be charged with psychologism. Such a broad-scope charge loses its bite.

The considerations just canvassed could explain Rorty's misperception of Locke as engaged in a psychologistic project. Underlying this misperception is a deeper failure to distinguish adequately between early modern *mentalism* and nineteenth-century *psychologism*. Many philosophers in the seventeenth and eighteenth centuries undertook an investigation of the mind's powers and capacities as part of an investigation of the grounds of knowledge.[36] As we have seen in the case of Locke, such investigations may have been "empirical" in the sense that they appealed to experience, but they need not for that reason be seen as proto-natural-scientific investigations of mind. This point stands out especially clearly in the case of rationalistic philosophers such as Descartes and Spinoza, who believed that the mind possesses a truth-discerning power capable of recognizing substantive metaphysical truths and has access to ideas that reveal such truths independently of sensory experience. They each marked off a certain class of thoughts as privileged, which Descartes labeled "clear and distinct perception" and Spinoza called "the third kind of knowledge."[37] The privileged status of these thoughts was explained by divine warranty or by an appeal to the irreducible trustworthiness of the intellect. For these philosophers, investigation of the mind—the knowing power—was a reasonable means for evaluating the possibility and limits of knowledge.

The mentalism evident in the positions of Descartes, Spinoza, and Locke is in sharp contrast with the recognizably naturalistic and natural scientific approach to the mind that took root and grew in the eighteenth century. The natural scientific approach to the mind of authors such as David Hartley and Johann Lossius was characterized by a rejection of the framework of bare truth-perceiving powers, and the attempt to replace it with a description and explanation of mental phenomena that appealed only to a naturalistic vocabulary modeled after Newton's physics: a vocabulary of simple entities (ideas) characterized by a few dimensions of variation (say, quality and intensity) and governed by laws of interaction defined over those dimensions (typically, laws of association).[38] This sort of associationist psychology was one stream feeding the growth of self-described natural-scientific psychologies in the nineteenth century.[39] Perhaps because such genuine attempts at a natural science of the mind were ignored by Rorty, he failed to see how they differed from the projects of Descartes, Locke, and others.

Rorty's portrayal of Locke as simply a link in the chain from Descartes' "invention of the mind" to Kant's alleged assertion of philosophy's cultural hegemony caused him not only to miss the epistemological character of Locke's investigation; it also diverted him from some interesting results of Locke's *Essay* pertaining to the theory of knowledge itself. Locke granted what he termed "intuitive and demonstrative knowledge" the highest degree of certainty, and he explained this certainty in terms of the perception of agreement or disagreement between ideas;[40] to this extent, he embraced the model of the mind's eye examining the contents of ideas in order to determine their agreement or disagreement.[41] But Locke did not restrict his account of knowledge to this model. In addition to "intuitive" and "demonstrative" knowledge, he countenanced "knowledge of real existence"; and, at least in the case of ordinary objects, he did not think that this



sort of knowledge could achieve the certainty of intuition. Locke denied that the intuitive certainty with which we perceive relations between ideas extends to the cognition of particular bodies.[42]

In point of fact, Rorty concedes that Locke did not retain—or as he puts it "could not hold on to"—Cartesian certainty, but he seems comfortable in assuming that Locke still supports his case. In treating this fact about Locke as a minor deviation from an alleged early modern fixation on foundational certainty, Rorty fails to appreciate one of the central thrusts of Locke's investigation of knowledge, which was to broaden the basis for rational assent beyond the model of intuitive and demonstrative certainty found in mathematics.[43] This aspect of Locke's epistemology, though relatively neglected, has been receiving attention of late.[44] A thorough reading of Book IV of the *Essay* reveals that Locke's admission of "sensitive knowledge" into the domain of knowledge, even though it lacks the certainty of intuition and demonstration, is not an embarrassing lapse in his program, but one step on the way to a second, more radical aim: that of legitimizing merely probable belief as worthy of rational assent.

Locke proposed that propositions possessing even less certainty than his "sensitive knowledge"—propositions which therefore do not meet the minimal standard for being called "knowledge"—nonetheless may be warranted for rational belief. In Chapters 14 through 17 of Book IV, he develops an account of propositions that may be affirmed through what he termed "judgment." Locke defines judgment as follows: "The Faculty, which God has given Man to supply the want of clear and certain Knowledge in Cases where that cannot be had, is *Judgment*: whereby the Mind takes its *Ideas* to agree, or disagree; or which is the same, any Proposition to be true, or false, without perceiving a demonstrative evidence in the Proofs" (*Essay*, IV.xiv.3). In surrounding passages, he distinguishes between a standard of certainty appropriate to knowledge and one that is appropriate for what he terms "probability." He goes on to give an account of probability, which is not to be understood as a mathematical calculus of chances but as a doctrine of judgmental approbation or epistemic probity. Probable propositions typically affirm what has been observed to be true always or "for the most part" (*Essay*, IV.xiv.1, IV.xvi.6–7). In Chapters 16 and 17, Locke works out the degrees of assent that may be accorded probable propositions, which range from assurance and confidence, through belief, conjecture, and guess, to doubt, wavering, distrust, disbelief, and others. Any doubt that Locke intends these to be gradations of *rational* assent is put to rest early in Chapter 17, where he includes within the purview of reason arguments whose discursive steps are each based on judgments of probability.[45]

If we now read the account of probable assent found in Book IV back into the discussions of real and nominal essences in Book III, and into the investigations of the idea of substance, and of adequate and inadequate ideas in Book II, a consistent picture begins to emerge. These earlier discussions do not simply reflect Locke's unfulfilled longing for rationalistic insight into real essences and necessary connections. Rather, they show Locke mounting his case that such longings will never be sated with respect to knowledge of substances or of the mechanical constitution of bodies. By contrast with Descartes, the privilege that Locke grants to the primary qualities in physical explanation will rest on weaker grounds than

those found in mathematics. But that does not mean that the mechanical philosophy, as a systematic approach to nature, should be abandoned. Rather, it will rest on the Boylean grounds of what can be "probably said," or said with probity, in favor of the mechanical philosophy.[46] Locke concedes that a proper (demonstrative) *science* of body is beyond our means, and then proceeds to *replace* the ideal of a science of body with the conception of a system of probable doctrine. In brief, Locke denies metaphysics to make room for empirically grounded rational belief. Far from being trapped behind the mirrorlike surface of his glassy essence, Locke was prepared to explore conceptions of rational assent that break through the glassy surface of the intuitively evident to include a range of probable judgments regarding matters of fact.

According to this reading, Locke is a philosopher whose hermeneutic conversation Rorty might have enjoyed. In focusing so exclusively on his own diagnostic story, Rorty failed to appreciate Locke philosophically and so to use Locke's example to full advantage. But Rorty's own detached imperialism regarding Locke should come as no surprise. Examination of the full range of conceptions surrounding the theory of ideas and the relation of epistemology to psychology has demonstrated the extent to which the traditional story recounted by Rorty relies on a misconception of the history of modern philosophy. Much of this misconception arose from Rorty's failure to appreciate the relations between early modern philosophy and early modern science, including both the science of physics and the nascent science of psychology. Rorty failed to appreciate Descartes's genuine contribution to the vision of a unified science of nature. And he misconstrued Locke's epistemological project as psychological, thereby missing much of interest in Locke's analyses of knowledge and warranted belief.

## Conclusion

Rorty's reliance on a distorted account of seventeenth- and eighteenth-century philosophy led him into serious error. Yet I doubt that he would be much distressed by this judgment. In fact, in his book he dismisses various revisionist readings of Descartes and Locke with the remark that if the traditional story is wrong, say, in singling out Descartes as the originator of the "Cartesian problematic," one must simply look elsewhere for its origin (*PMN*, pp. 49–50, note 19). For Rorty is certain that the problematic exists, and he is right.

Interestingly, Rorty was perfectly correct in his claim that he could ignore historical accuracy and still mount an effective attack on his quarry. But that is only because, despite promising a general diagnosis of all of modern philosophy, Rorty's effective target is an image of philosophy of recent vintage. According to this image, philosophy is detached and imperialistic, dictatorial and culturally alienated. I hope to have shown that this image could not have been drawn from a careful analysis of the historical relation between philosophy and other intellectual pursuits during the modern period. It is most likely a product of Rorty's personal acquaintance with a variant of the "professionalized philosophy" that arose after the wave of disciplinary specialization at the end of the nineteenth century. In any event, criticism of the alleged assumptions of Descartes, Locke, and others was a vehicle available to Rorty precisely because some contemporary epistemologists and philosophers of mind had assimilated or usurped the works of these authors for their own purposes. And so it was that during the middle decades of the twentieth century, a kind of legendary, even mythic image of various modern philosophers took hold. Descartes, for example, came to be known primarily through the use of the First Meditation as the standard introduction to veil-of-ideas skepticism and the problem of knowledge. Anyone who has taught the *Meditations* to graduate students schooled in the image of Descartes as an unmotivated skeptic knows the staying power of that image, notwithstanding the availability of historically and philosophically sophisticated treatments of the method of doubt.[47]



But is this objection to Rorty's version of history anything more than a quibble about historical accuracy? Rorty himself locates the "professional turn" of philosophy late in the nineteenth century. Perhaps he needn't care about history prior to this time. He knows that the "bad" philosophy he wants to attack has existed, and he knows that it has used the texts of Descartes and others to define its problematic. Indeed, Rorty's turn to history most likely was motivated by the admirable aim of stamping out the sort of philosopher who imperiously seeks to judge the ongoing intellectual projects of others without truly engaging those projects. I think his evidence for the existence of such boorish philosophers came not from his analysis of history, but from his acquaintance with colleagues who were rude at parties. Rorty no doubt has observed colleagues who *were* downright rude at parties—who listen to the conversation of nonphilosophers for a moment or two, and then jump in as know-it-alls when speaking on subjects in which their listeners are experts, but about which they are virtually unversed. Rorty probably believes such colleagues behave so badly because of their mistaken conception of the power of a priori analyses of the conditions for knowledge, or something of the like. He wants them to be more polite, perhaps so that he won't have to share the collective blame for their behavior. In Rorty's book of etiquette, philosophers should join into conversation not with the authority of judge or umpire, nor even with the voice of a full participant, but only as a kind of gossip. They should listen to the edifying words of others and then pass them on as opportunity arises. Philosophers should seek to facilitate the flow of ideas while at the same time acknowledging that they really have nothing to add; they should behave like caterer's assistants, who present the edifying morsels prepared by master chefs from other disciplines and are themselves allowed to contribute only to the arrangement of the items on their trays.

In offering this unappealing picture of philosophy and its future, Rorty has fallen prey, I contend, to his own distorted history. Indeed, his acontextual reading of the theory of ideas is an instance of the very trend that he laments. He has stood back from the philosophical tradition in an attempt to unmask errors latent in certain philosophical projects and positions. He effectively treats these projects and positions as timeless—as divorced from context or motive. Because he refused to engage his named quarries historically, he failed to benefit from history as he might have, and in two ways.

First, if he had really wanted to counter foundationalism in epistemology, he should have looked to the recent history of foundationalism. He would have found, I think, that twentieth-century foundationalism arose in the context of a particular philosophical program that took shape in the first two decades of the century. When the project of constructing the world out of incorrigibly-known sense-data failed, the continued philosophical fascination with sense-data came to appear futile and detached from questions of much interest. Rorty is thus right that a concern with representational accuracy is not of great interest in itself, any more than questions of historical accuracy are of interest in themselves. But he failed to diagnose the recent conditions leading to the fruitlessness of such questions.

The consequences of this first failure are compounded by a second. Rorty failed to appreciate a type of lesson that we philosophers can take from our history. He allows that we can gain self-understanding through history, by discovering how the problems we take seriously came to be regarded as problems (my criticism of him here is simply that he failed to make any interesting discoveries). But beyond self-knowledge, history can teach us about philosophy itself; it can stir us from musings on recent problematics by offering models of philosophical activity that was culturally engaged rather than imperiously detached. Attention to the great philosophers of the seventeenth and eighteenth centuries does not reveal Rorty's intellectual autocrats, but participants involved in producing and shaping the intellectual projects of their time. Attention to nineteenth-century discussions—especially by the neo-Kantians—of the relations among philosophy, other humanistic disciplines, and the natural sciences could offer additional models of the kind of outward-looking, humanistic stance Rorty might appreciate.[48] In these cases, genuine contact with the history of philosophy offers materials for redirecting philosophy now.

A theme of Rorty's book is that in the old days, beginning with Descartes, philosophers claimed a special authority for their craft. It is true that Descartes, as a metaphysician, claimed a certain authority over physics. But it was not the authority to bring a successful, ongoing research program before the independent tribunal of philosophy; rather, it was the "authority" to present an argument in favor of a new physics to replace the old. And although it is true that Descartes provided an account of the mind as knower in order to achieve a metaphysical perspective from which to argue for the new physics, not all philosophers adopted his strategy. Locke didn't. Like Descartes, he claimed no more authority than that which the reader can find in his arguments; but unlike Descartes, he attempted no "metaperspective" to undergird his foundational descriptions of the new science. We may reject Descartes's attempt at a "metaperspective," but not because he was detached and imperious. We will do so because we don't think his sort of metaphysical "metaperspective" is attainable; that is, we will do so because we have a substantive disagreement with his position.

When we examine the projects of authors such as Descartes and Locke in their contexts, they do not at all resemble Rorty's image of those philosophers as detached yet imperious, an image that does fit some epistemologists and philosophers of science of the twentieth century. Like more recent epistemologists, Descartes and Locke did claim to be investigating claims to knowledge and, more



specifically, to be discerning the limits of human knowledge in general. But they did not attempt to investigate these limits in the abstract or with respect to mere "puzzle" problems, say, about tables and chairs, as epistemologists earlier in our century did, characteristically and regrettably. They undertook investigations of the scope and limits of human knowledge in the face of pressing and consequential questions about the existence and character of a deity, the nature of the soul, and the possibility and characteristics of a science of nature. These were live questions of great intellectual significance, and the work done by Descartes, Locke, and their successors in responding to them constitutes a permanent achievement of Western philosophy.

Rorty has suggested that philosophy should give up epistemology in favor of cultural criticism. But epistemologically oriented philosophy in the early modern period was already engaged in cultural criticism, both speculative and reactive. Philosophers in that period were onto the hot topics of their age; moreover, they proposed as well as disposed. Rorty's depressing image of contemporary philosophy notwithstanding, this kind of philosophy is alive and well. In reflections on social and political institutions and thought, in investigations of the concepts and methods of such sciences as physics, biology, psychology, and economics, in explorations of questions of interpretation in art and literature, and in analyses of the historical constitution of philosophy itself (and its relation to other dimensions of culture), philosophers continue a tradition of criticism and speculation at the horizons of thought.[49] Some of this reflection might be characterized as epistemology and even as the investigation of the foundations of knowledge. But here, an investigation of "foundations" is an inquiry into what is "basic" or "central," not into the "incorrigibly grounded." So we can hope that epistemology will continue to investigate foundations, in the spirit of Descartes's and Locke's engagement with live endeavors to know, even if we reject those authors' particular doctrines. More generally, we can admire the critically participatory philosophy that flourishes in our time.

My final assessment of the story told in *Philosophy and the Mirror of Nature* finds that the tarnished image of philosophy presented there is an optical artifact, a refraction from the local disputes of philosophers in the mid twentieth century. In presenting this image, Rorty hoped to act not merely as the pathologist, but also as the undertaker of philosophy in the modern tradition. I have sought to construct a counterimage to Rorty's unappealing portrait of this tradition by drawing on contextual readings of two modern philosophical projects. In doing so, I have endeavored to provide an historicist twist on the wise saying that philosophy buries its undertakers.

## NOTES

An earlier version of this chapter was presented as an inaugural lecture in the Austin-Hempel Lecture Series at Dalhousie University, Nova Scotia, June 1991.

1. As Michael Ayers has argued, philosophers need to consider history because they need to understand the origin of the problems they continue to take seriously: see his "Analytical Philosophy and the History of Philosophy," in *Philosophy and Its*

*Past*, ed. Michael Ayers, Jonathan Reé, and Adam Westoby (Hassocks, U.K.: Harvester Press, 1978) (hereafter Ayers, Reé, and Westoby 1978), pp. 42–66, and his "The End of Metaphysics and the Historiography of Philosophy," in *Philosophy, Its History and Historiography*, ed. A. J. Holland (Dordrecht: Reidel, 1985), pp. 27–40 (hereafter Holland 1985). See also the editors' introduction and the chapters by Charles Taylor and Alasdair MacIntyre in *Philosophy in History*, ed. Richard Rorty, J. B. Schneewind, and Quentin Skinner (Cambridge: Cambridge University Press, 1984), (hereafter Rorty, Schneewind and Skinner 1984).

2. Richard Rorty, *Philosophy and the Mirror of Nature* (Princeton: Princeton University Press, 1979); hereafter *PMN*. Stephen Toulmin, *Cosmopolis: The Hidden Agenda of Modernity* (Chicago: University of Chicago Press, 1992) (hereafter Toulmin 1992), is a more recent attempt at diagnosing the modern mistake.

3. For example, Michael Friedman, *Kant and the Exact Sciences* (Cambridge, Mass.: Harvard University Press, 1992); Daniel Garber, *Descartes' Metaphysical Science* (Chicago: University of Chicago Press, 1992); and my "Metaphysics and the New Science" (hereafter Hatfield 1990a), in *Reappraisals of the Scientific Revolution*, ed. D. Lindberg and R. Westman (Cambridge: Cambridge University Press, 1990) (hereafter Lindberg and Westman 1990), pp. 93–166. In Toulmin's hands, the central role of science is equated with an obsession with formal validity in the case of Descartes, which is intended to explain much that is bad in subsequent philosophy (1992, pp. 20, 31, 72, 80, 177–178); on Descartes' lack of concern with formality, see Ian Hacking, "Proof and Eternal Truths: Descartes and Leibniz," in S. Gaukroger, ed., *Descartes: Philosophy, Mathematics and Physics* (Sussex: Harvester Press, 1980) pp. 169–180 (hereafter Hacking 1980).

4. Rorty does not use the term "psychologism" to name the fallacy he describes (rather, he compares it to the "naturalistic fallacy" in ethics, *PMN*, p. 141), but his charge fits the classical meaning of that term, according to which psychologism is the attempt to base epistemology on psychology. J. E. Erdmann apparently introduced the term with this meaning in his *Grundriss der Geschichte der Philosophie*, 2d ed., 2 vols. (Berlin, 1870), vol. 2, p. 636; see also J. Dewey, "Psychologism," in J. M. Baldwin, ed., *Dictionary of Philosophy and Psychology*, 3 vols. (New York: Macmillan, 1901–1905), vol. 2, p. 382.

5. Rorty's portrayal of contemporary epistemology is rejected by Alvin Goldman and Fred Dretske in their respective reviews of *PMN*: Goldman, "Review of *Philosophy and the Mirror of Nature*," *The Philosophical Review* 90 (1981): 424–429; and Dretske, "Review of *Philosophy and the Mirror of Nature*," *International Studies in Philosophy* 14 (1982): 96–98. S. Rosen in his "Review of *Philosophy and the Mirror of Nature*," *Review of Metaphysics* 33 (1980): 799–802, endorses Rorty's attack on contemporary philosophy and has only minor quibbles with the history; John W. Yolton argues that Rorty's account of the theory of ideas is seriously mistaken in his *Perceptual Acquaintance from Descartes to Reid* (Minneapolis: University of Minnesota Press, 1984) (hereafter Yolton 1984), pp. 5, 58–73, 222, and in his "Mirrors and Veils, Thoughts and Things: The Epistemological Problematic" (hereafter Yolton 1990), in *Reading Rorty*, ed. Alan R. Malachowski (Oxford: Basil Blackwell, 1990) (hereafter Malachowski 1990), pp. 58–73.

6. See Robert Bernstein, "Philosophy in the Conversation of Mankind," *Review of Metaphysics* 33 (1980): 743–775; Quentin Skinner, "Review of *Philosophy and the Mirror of Nature*," *New York Review of Books* 28 (19 March 1981): 46; Alasdair MacIntyre, "Review of *Philosophy and the Mirror of Nature*," *London Review of Books* 2 (5–18 June 1980): 15–16; Jennifer Hornsby, "Descartes, Rorty and the Mind-Body Fiction" (in Malachowski 1990, pp. 41–57) finds Rorty's conclusions "congenial" and accepts his "command of the history," but seeks to fill out the picture of Descartes so as to mitigate the grounds for Rorty's rejection of the philosophy of mind.

7. See the reviews of *PMN* by Robert Schwartz, "Review of *Philosophy and the Mirror of Nature*," *Journal of Philosophy* 80 (1983): 51–67, especially p. 64; and Victoria Choy, "Review of *Philosophy and the Mirror of Nature*," *Synthese* 52 (1982): 515–541, especially p. 524.



8. Locke as pursuing psychology: Yolton (1984), pp. 16, 39, 105; Mary Hesse, "Epistemology without Foundations," in Holland (1985), pp. 49–68, p. 51. Rorty reviews earlier instances of the charge in T. H. Green and Wilfrid Sellars, *PMN*, pp. 140–143. Others see the naturalistic or psychological aspects of Locke's discussion of knowledge as a virtue: R. S.Woolhouse, *Locke* (Brighton, U.K.: Harvester Press, 1983), pp. 186–187; and E. J. Lowe, *Locke on Human Understanding* (London: Routledge, 1995), chapter 8. On Locke on knowledge, compare Michael Ayers, *Locke: Epistemology and Ontology*, 2 vols. (London: Routledge, 1991) (hereafter Ayers 1991), vol. 1, part 2.

9. The notion that the perceiver is placed at one remove from the external world did not need to rely on a mere analogy with vision in order to gain its plausibility, for it could also rely upon extant theories of vision as formulated in early modern optical writings. Typical seventeenth-century theories of sensory perception analyzed the perceptual process as a causal chain starting with external objects and ending with a mental sensation or idea. The earlier portions of the chain comprised the mechanical transmission of a sensory impression to the common sense or sensorium (a structure in the brain), where the impression caused its mental effect. But if the mind is locked away inside the brain, how could it be aware of objects at some distance from it? Yolton (1984) describes the contribution of theories of the senses to the doctrine of the veil of perception, while at the same time questioning the standard (and Rortyan) reading of Descartes and Locke, observing that this reading has been unduly influenced by Thomas Reid.

10. On the postulation of ideas as "entities modeled on retinal images," which are treated as "distinct particulars," see Rorty, *PMN*, pp. 30 and 45. Rorty doesn't keep straight whether ideas are distinct from the minds that have them, or are modes of mind (see p. 58), and doesn't seem to think it matters (*PMN*, pp. 49–50, n. 19).

11. Descartes' clearest statement of the ontology of ideas as modes of mind occurs in the *Principles*, part 1, articles 53, 56, 65 (in *The Philosophical Writings of Descartes*, trans. John Cottingham, Robert Stoothoff, and Dugald Murdoch, 3 vols. [Cambridge: Cambridge University Press, 1984–1985], volume 1).

12. See Brian E. O'Neil, *Epistemological Direct Realism in Descartes' Philosophy* (Albuquerque: University of New Mexico Press, 1974), p. 71 and chapter 4; Yolton (1984), pp. 34–38; and Yolton (1990), pp. 63–65; Steven Nadler, *Arnauld and the Cartesian Philosophy of Ideas* (Princeton: Princeton University Press, 1989), section 15. An extensive and rewarding discussion of objective reality and representational content in Descartes occurs in Wilfred Sellars, "Berkeley and Descartes: Reflections on the Theory of Ideas," in *Studies in Perception: Interrelations in the History and Philosophy of Science*, ed. Peter Machamer and Robert Turnbull (Columbus: Ohio State University Press, 1978), pp. 259–311.

13. See for example, Locke's *An Essay concerning Human Understanding*, ed. Peter H. Nidditch (Oxford: Oxford University Press, 1975) (hereafter cited as *Essay*), II.iii.1, where Locke speaks of ideas as things that "make their approaches to our minds," are conducted by the nerves "to their audience in the brain, the mind's presence room," and are perceived inasmuch as they "bring themselves into view." See also *Essay* II.vii.10 and II.x.14.

14. J. L. Mackie, *Problems from Locke* (Oxford: Clarendon Press, 1976), pp. 37–51, and Douglas Greenlee, "Locke's Ideas of 'Idea,'" in *Locke on Human Understanding*, ed. I. C. Tipton (Oxford: Oxford University Press, 1977), pp. 41–54 (including a discussion by Gunnar Aspelin, with Greenlee's reply).

15. Yolton (1984), chapters. 5–6; Vere Chappell, "Locke's Theory of Ideas," in *The Cambridge Companion to Locke*, ed. Vere Chappell (Cambridge: Cambridge University Press, 1994), pp. 26–55; Ayers (1991), vol. 1, part 1, discusses both "intentional object" and "blank effect" interpretations of Locke on ideas (according to the latter interpretation, ideas are mental effects having their own arbitrary character and are

used by the mind as signs). He favors treating ideas as images, having intentionality appropriate to imagistic representations.

16. Thomas Reid, *Works*, ed. W. Hamilton, 8th ed., 2 vols. (Edinburgh, 1895), vol. 1, pp. 135–137, 292b.

17. Even Berkeley's skepticism regarding material substance, while invoking veil-of-ideas arguments, is ultimately based on the comparative intelligibility of alternative causal chains for the production of sensory ideas; he argues that *matter* cannot coherently be ascribed the causal role, whereas God, an infinite active spirit, can; see *Treatise on the Principles of Philosophy* (Dublin, 1710) part 1, sections 25–30.

18. On resemblance theories in the history of philosophy, see Richard A. Watson, *Representational Ideas from Plato to Churchland* (Boston: Dordrecht, 1995).

19. On scholastic theories, see my "Cognitive Faculties," in *Cambridge History of Seventeenth Century Philosophy*, ed. Michael Ayers and Daniel Garber (Cambridge: Cambridge University Press, 1997), pp. 952–1001 (hereafter Hatfield 1997). Descartes, *Optics*, part 4, explicitly mentions the theory of the schools; in the *Essay*, II.viii.13, Locke introduces resemblance by denying it for the secondary qualities, without mentioning the Aristotelians, though their theory is in the background.

20. On Aristotelian theories as elaborated within the optical tradition, see Gary Hatfield and William Epstein, "The Sensory Core and the Medieval Foundations of Early Modern Perceptual Theory," *Isis* 70 (1979): 363–384; on Aristotelian theories more generally, see Alison Simmons, "Explaining Sense Perception: A Scholastic Challenge," *Philosophical Studies* 73 (1994): 257–275.

21. Peter Alexander, *Ideas, Qualities and Corpuscles: Locke and Boyle on the External World* (Cambridge: Cambridge University Press, 1985), chapters 4–6; Steven Nadler, *Malebranche and Ideas* (New York: Oxford University Press, 1992), pp. 15–18; and Hatfield (1990a), pp. 112–114.

22. Gary Hatfield, "Reason, Nature, and God in Descartes," in *Essays on the Philosophy and Science of René Descartes*, ed. Stephen Voss (New York: Oxford University Press, 1993), pp. 259–287, (hereafter Hatfield, 1993), pp. 259–287. By contrast, Toulmin (1992, p. 105) portrays Descartes as attempting to achieve theological dividends from natural philosophical work.

23. See my "Was the Scientific Revolution Really a Revolution in Science?" in *Tradition, Transmission, Transformation*, ed. Jamil Ragep and Sally Ragep (Leiden: Brill, 1996), pp. 489–525 (hereafter Hatfield 1996).

24. Newton made a close study of Descartes' *Principles* during the 1660s. It is true that the style of Newton's general mathematical physics of nature is closer to that of Galileo than to that of Descartes, for Descartes' mechanistic physics was not mathematical in the Newtonian manner: see Hatfield (1990a), pp. 114–115; and on Newton's relation to Galileo's style of mathematical science, I. Bernard Cohen, *The Newtonian Revolution: With Illustrations of the Transformation of Scientific Ideas* (Cambridge: Cambridge University Press, 1980), pp. 132–133. Nonetheless, Descartes was, as far as I know, the first to envision a general physics based on a few laws of motion.

25. On this account of Descartes' development, see Hatfield "Science, Certainty, and Descartes," in *PSA 1988*, vol. 2 (East Lansing, Mich.: Philosophy of Science Association, 1989) (hereafter Hatfield 1989), pp. 249–262; and Hatfield (1993).

26. See my "The Senses and the Fleshless Eye: The Meditations as Cognitive Exercises," in *Essays on Descartes' Meditations*, ed. Amélie Rorty (Berkeley: University of California Press, 1986), pp. 45–79 (hereafter Hatfield 1986), section IV.

27. Gary Hatfield, *The Natural and the Normative: Theories of Spatial Perception from Kant to Helmholtz* (Cambridge, Mass.: MIT Press, 1990) (hereafter Hatfield 1990b), pp. 56–57; the argument is summarized in the present paragraph together with the preceding one.

28. Locke says that the "materials of reason and knowledge" derive from sensation and reflection (*Essay*, II.i.2); since ideas of reflection have as their source the



operation of the mind in connection with sensory ideas, the latter are necessary if the mind is to have any "materials" whatsoever. Locke's denial of innate ideas and his discussion of the operation of the rational faculties (II.xi) are further evidence of his views that the mind's powers are always directed toward sense-derived ideas and that reason is unable to provide its own content.

29. In this connection, see *Essay*, IV.iii.16, which Peter Alexander discusses in his "Boyle and Locke on Primary and Secondary Qualities," *Ratio* 16 (1974): 51–67. On the role of the corpuscular hypothesis in Locke's distinction, see also E. M. Curley, "Locke, Boyle, and the Distinction between Primary and Secondary Qualities," *The Philosophical Review* 81 (1972): 438–464.

30. In the *Essay*, II.viii.11–14, Locke presents a mechanistic account of the operation of bodies upon the senses; in II.viii.15, he draws the resemblance thesis from this discussion.

31. *PMN*, p. 137; the second and third of the phrases placed in quotations by Rorty are from Locke's *Essay*, I.i.1 and the Epistle to the Reader.

32. *PMN*, pp. 140–147; Locke's *Essay* is quoted only once in these pages, to the effect that the mind must be aware of any "imprint" made upon it.

33. At II.viii.12, Locke conjectures about the manner in which insensible corpuscles act upon the senses; at II.xxi.73, he remarks that the details of the causal processes producing ideas are beyond the scope of his investigation, "my present purpose being only to enquire into the Knowledge the Mind has of Things, by those *Ideas*, and Appearances, which *God* has fitted it to receive from them, and how the Mind comes by that Knowledge; rather than into their Causes, or manner of Production."

34. On the associationist tradition, Reid, and Helmholtz, see Hatfield (1990b) chapters 2, 4, and 5. On Helmholtz and the innateness controversy, see R. Steven Turner, *In the Eye's Mind: Vision and the Helmholtz-Hering Controversy* (Princeton: Princeton University Press, 1994), chapters 5 and 9.

35. See Ayers (1991), vol. 1, part 1.

36. See Hatfield, "The Workings of the Intellect: Mind and Psychology," in *Logic and the Workings of the Mind*, ed. Patricia Easton (Atascadero, Calif.: North American Kant Society Publications, Ridgeview, 1997), pp. 21–45.

37. Benedict de Spinoza, *Ethics*, in Spinoza, *Collected Works*, ed. and trans. Edwin Curley (Princeton: Princeton University Press, 1985), vol. 1, pp. 477–478.

38. David Hartley, *Observations on Man, His Frame, His Duty, and His Expectations*, 2 vols. (London: 1749), part 1, proposition 12, corollary 10, and proposition 86 (vol. 1, pp. 79, 324–334), gives an associationist account of assent. So does Johann Lossius, *Physische Ursachen des Wahren* (Gotha, 1775), on which see Hatfield (1990b), pp. 71–72.

39. The old picture according to which natural-scientific psychology arose suddenly in the latter part of the nineteenth century is not viable. Work on a better understanding is underway: see Scheerer, "Psychologie," in Joachem Ritter, ed., *Historisches Wörterbuch der Philosophie* (Basel: Schwabe, 1971), vol. 7, columns 1599–1653; Fernando Vidal, "Psychology in the Eighteenth Century," *History of the Human Sciences* 6 (1993): 89–119; Gary Hatfield, "Remaking the Science of Mind: Psychology as a Natural Science," in Christopher Fox, Roy Porter, and Robert Wokler, eds., *Inventing Human Science* (Berkeley: University of California Press, 1995), pp. 184–231 (hereafter Hatfield 1995a).

40. Locke, *Essay*, IV.ii.1–2; Locke allowed that intuitive and demonstrative certainty could be extended beyond mathematics (IV.ii.9), even to "visible connections" among the primary qualities of things, for example, that figure presupposes extension (IV.iii.14). See also Hume's *A Treatise of Human Nature*, 2d ed., ed. P. H. Nidditch (New York: Oxford University Press, 1978), in which he argued that intuitive certainty extends to arithmetic and algebra, but not geometry (I.iii.1); in his *Enquiry Concerning Human Understanding* (in Hume, *Enquiries Concerning Human Understand-*

*ing and Concerning the Principles of Morals*, 3d ed., ed. P. H. Nidditch [New York: Oxford University Press, 1975]), he allowed that arithmetic, algebra, and geometry all admit of intuitive and demonstrative certainty (section IV, part 1).

41. Again, one might observe that, though Locke thereby fits Rorty's story inasmuch as he embraces a visual metaphor for knowledge, his doing so was not the product of an aimless pursuit of epistemological authority; instead, this model of knowledge was guided by the then-current best understanding of the basis for geometrical demonstration, at a time when geometry rightly served as the paradigm of certain knowledge, on which see Lisa Shabel, "Kant on the 'Symbolic Construction' of Mathematical Concepts," *Studies in History and Philosophy of Science* 29 (1998): 589–621.

42. Locke contrasts intuitive and demonstrative knowledge of relations among ideas with knowledge of "the particular existence of finite beings without us" (IV.ii.14); Locke's talk of relations is cast in terms of the perception of "agreement or disagreement" among ideas (IV.ii.1).

43. This broadening is illustrated in Locke's response to skepticism. He regarded the standards of certainty demanded by both Descartes and the skeptic as too high, and so he dismisses skepticism with regard to the senses, remarking that the certainty we have of things existing in nature, "when we have *the testimony of our Senses* for it, is not only *as great* as our frame can attain to, but *as our Condition needs*" (IV.xi.9; see also IV.ii.14; iv.4; xi.3).

44. Douglas Lane Patey, *Probability and Literary Form: Philosophic Theory and Literary Practice in the Augustan Age* (Cambridge: Cambridge University Press, 1984); Ernan McMullin, "Conceptions of Science in the Scientific Revolution," in Lindberg and Westman (1990), pp. 27–92, pp. 75–76; and Ayers (1991), vol. 1, part 2.

45. *Essay*, IV.17.2: "For as Reason perceives the necessary, and indubitable connexion of all the Proofs one to another, in each step of any Demonstration that produces Knowledge: so it likewise perceives the probable connexion of all the Proofs one to another, in every step of a Discourse, to which it will think Assent due. This is the lowest degree of that, which can be truly called Reason." The contrast found here and between "Demonstration that produces Knowledge" and "the probable connexion . . . to which [Reason] will think Assent due" may perhaps be understood by recalling that "knowledge" may have had the sense of the Latin *scientia*, which meant a systematic or demonstrative body of well-founded doctrine. Although Locke's probable judgments may be systematic, they lack the certainty of demonstration, and so fail to reach the level of knowledge or science. This reading squares with Locke's denial that humans can achieve a science of body, or a scientific physics, while affirming that the mechanical hypothesis should be adopted. Indeed, at IV.16.6, Locke accords the "highest degree of probability," but not the status of knowledge proper, to "all the stated Constitutions and Properties of Bodies, and the regular proceedings of Causes and Effects in the ordinary course of Nature."

46. Robert Boyle, "About the Excellency and Grounds of the Mechanical Philosophy," in Boyle, *Selected Philosophical Papers*, ed. M. A. Stewart (Manchester: Manchester University Press, 1979), pp. 138–154, p. 138. Locke was fully acquainted with Boyle and his corpuscularianism as he composed the *Essay* (over a period of some twenty years); by contrast, Newton's *Philosophiae naturalis principia mathematica* (London, 1687) appeared only three years before the *Essay* was published.

47. See, for instance, Margaret Wilson, *Descartes* (London: Routledge, 1978); E. M. Curley, *Descartes against the Skeptics* (Cambridge, Mass.: Harvard University Press, 1978); and Hatfield (1993).

48. Heinrich Rickert, *Limits of Concept Formation in the Natural Sciences: A Logical Introduction to the Historical Sciences*, abridged edition, ed. and trans. Guy Oakes (Cambridge: Cambridge University Press, 1986), introduction; Wilhelm Dilthey, *Pattern and Meaning in History: Thoughts on History and Society*, ed. and trans. H. P. Rickman (New York: Harper & Row, 1962), chapter 4. On Dilthey, see Rudolf A. Makkreel, *Dilthey: Philosopher of the Human Studies*, 3d ed. (Princeton, New Jersey: Princeton University Press, 1992).



49. Examples include John Rawls, *A Theory of Justice* (Cambridge, Mass.: Harvard University Press, 1971); Michael Friedman, *Foundations of Space-Time Theories: Relativistic Physics and Philosophy of Science* (Princeton, New Jersey: Princeton University Press, 1983); Arthur Fine, *The Shaky Game: Einstein, the Quantum Theory* (Chicago: University of Chicago Press, 1986); Philip Kitcher, *Vaulting Ambition: Sociobiology and the Quest for Human Nature* (Cambridge, Mass.: MIT Press, 1985); Elliott Sober, *Reconstructing the Past: Parsimony, Evolution, and Inference* (Cambridge, Mass.: MIT Press, 1988); Dan Lloyd, *Simple Minds* (Cambridge, Mass.: MIT Press, 1989); Martin Carrier and Jurgen Mittelstrass, *Mind, Brain, Behavior: The Mind-Body Problem and the Philosophy of Psychology* (Berlin and New York: Walter de Gruyter, 1991); Daniel Hausman, *Essays on Philosophy and Economic Methodology* (Cambridge: Cambridge University Press, 1992); and Ayers, Reé, and Westoby (1978). See also Hatfield, "Philosophy of Psychology as Philosophy of Science," in *PSA 1994*, ed. David Hull, Mickey Forbes, and Richard Burian (East Lansing, Mich.: Philosophy of Science Association, 1995), vol. 2, pp. 19–23.