

CHAPTER 6

The "Sensible Object" and the
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BOTH IMMANUEL KANT AND PAUL GUYER have raised important concerns about the limitations of Lockean thought. Following Guyer, I will focus my attention on questions about the proper ambitions and likely achievements of inquiry into the natural/physical world. I will argue that there are at least two important respects, not discussed by Guyer, in which Locke's account of natural philosophy is much more flexible and accommodating than may be immediately apparent. (And, I am inclined to think, one of these respects represents a way in which Kant's system is objectionably constrained, where Locke's is in principle open.) On my interpretation, however, one crucial source of a too-limited vision of natural philosophy remains in Locke, where he is appropriately criticized by both Kant and Guyer.

My method will be to begin with a distinction that Locke draws in the very first draft of the *Essay*, between what he calls "the sensible object" and, on the other hand, "the uncertain philosophical cause." I believe that Locke's notion of "sensible object," *as opposed to* uncertain philosophical cause, retains a central place in his thought in the published *Essay*, even though this contrast is never made explicitly there. Tracing the evolution of these two concepts in his thought will allow us to track and better understand his developing views about the relation between the project of the *Essay* and natural philosophy and about the prospects for natural philosophy itself.

THE DISTINCTION

In the first extant draft of the *Essay* (Draft A), predating publication by eighteen years, Locke makes an intriguing distinction:

for though white or sweet & many other sensations in us be perhaps caused in us constantly by particles of certain figures which figures are a relative consideration when the parts thereof are compared with one another. yet the Idea of white or sweet &c being produced in me &

retein'd in my memory without any relative consideration but as one simple positive Idea & when our senses are conversant about any object we take no notice of any relation between the thing & our senses we ought to consider them as positive things, the uncertain philosophical cause of such a sensation in me being not here enquir'd into but the Idea & sensible object that produces it. & the greatest part of mankind who never perplex their thoughts to examine wherein the nature of that thing which when they look on they call white & feel the same sensation in them selves as a philosopher doth, have perfectly the same Idea of white that any philosopher hath who thinks he hath found out the very essence nature or formality thereof or the way whereby it produces such a sensation in him. (*Drafts*, pp. 32–33)¹

On the one hand, we have the idea of whiteness, which Locke here clearly treats as a sensation, a mental item. The interesting distinction comes on the side of the nonmental correlate of the idea. Locke singles out the "sensible object" that "produces" the idea as being a proper subject for his enquiry, along with the idea itself, while setting aside questions involving the "uncertain philosophical cause."

How should we understand Locke's sensible object, as he introduces it in Draft A? The sensible object apparently does not require special investigation or theoretical knowledge to identify. A Berkeleyan interpretation of the sensible object as a combination of ideas might seem to be suggested by Locke's insistence on the ready availability of the object to the ordinary person. This interpretation should be bracketed as unlikely, however, since (1) Locke describes the sensible object as *producing* the idea and (2) nowhere in his corpus does he betray any genuine attraction to idealism. (We will see later how to explain the occurrence of other passages that might seem amenable to an idealist reading.) If the sensible object is not something like a bundle of ideas, then, it is presumably not a different *thing* from the uncertain philosophical cause—both of the phrases in question refer to the physical thing that is the source of our ideas. Locke therefore must have in mind two different ways of understanding or conceptualizing this physical thing. The sensible object, I suggest, is the physical object as we are acquainted with it in sensory experience, the object *as known through* sense perception. The uncertain philosophical cause, on the other hand, is the object as it would be described in an ideal natural philosophy, i.e., *scientia*. Such a conception of the object is philosophical in the sense of belonging to natural philosophy. It is uncertain because we do not have access to such an ideal account.

On this interpretation, the basic thought expressed in the previous passage is a familiar one from the *Essay*: Locke does not want to enter into any controversial issues in natural philosophy; rather, he wants to work

with and analyze what is available to everyman. In particular, he wants to discuss bodies, among other substances, as they are made epistemically available to us through sense perception. The suggestion, however, that sensible objects are objects as known to us through sense perception requires further elucidation. How should we understand sensible objects on this account?

Of course, for Locke all our sensory knowledge of objects comes down to sensory ideas. In an important sense, Locke holds that what we know of objects are our sensory ideas of them. This very modest point goes some way toward explaining a persistent puzzle about the *Essay*: Why does Locke slip as easily as he does between ideas and qualities, to the point that he is capable of writing passages that seem to imply that our very ideas inhere in bodies themselves?² Locke writes in this way so often because he holds that to talk of external objects as known to us through sense perception *is* to talk about our ideas.

As early as Draft A, however, he realizes that such talk needs reform. That draft ends with the following “memorandum”:

When I speak of simple Ideas as existing in things I would be understood to mean. such a constitution of that thing which produces that idea in our mindes. soe that Idea when it is spoken of as being in our understanding is the very perception or thought we have there, when it is spoken of as existing without is the cause of that perception. & is supposed to be resembled by it. & this also I call quality. whereby I meane anything existing without us which affecting any of our senses produces any simple Idea in us. (*Drafts*, pp. 82–83)

The same warning is repeated almost verbatim in Draft B (*Drafts*, p. 164), with “supposed” now strengthened to “vulgarly supposd.” Note that Locke’s understanding of quality here is still quite loose; it seems a new and only roughly defined concept in his thought.³ What Locke clearly wants is a way of talking about that which, in the object, corresponds to the idea in us. He utilizes the term “quality” for this specific purpose. But in this paragraph, he characterizes this notion in too many ways. What seems constant is the thought that the quality is the cause of the perception/idea in us. In the last part of the paragraph, Locke characterizes this too broadly for his purposes, since a substance would count as a quality on that account. In the first part of the paragraph, he threatens to characterize it too deeply, since the “constitution of that thing” sounds like an aspect of the uncertain philosophical cause.

Locke’s official characterization of quality in the published *Essay* is considerably more careful:

Whatsoever the Mind perceives in itself, or is the immediate object of Perception, Thought, or Understanding, that I call *Idea*; and the Power

to produce any *Idea* in our mind I call a *Quality* of the Subject wherein that power is. Thus a Snow-ball having the power to produce in us the *Ideas* of *White*, *Cold*, and *Round*, the Powers to produce those *Ideas* in us, as they are in the Snow-ball, I call *Qualities*; and as they are Sensations or Perceptions in our Understandings, I call them *Ideas*; which *Ideas*, if I speak of sometimes, as in the things themselves, I would be understood to mean those *Qualities* in the Objects which produce them in us. (*E* 2.8.8)

Ideas “in the things themselves” are really qualities; qualities are powers to produce ideas. This definition seems carefully tuned to get the result that qualities are fully knowable through sensory experience, since Locke never questions that we can know, when we have an idea, that some thing without us has the power to cause that idea (*E* 4.11.2).⁴ Qualities in objects are thus, as it were, interconvertible with ideas, even in epistemic contexts. The sensible object, rather than being a bundle of ideas, should be a bundle of powers, as is suggested by his remarks in A:

all the notion we have of substance amounting at last to noe more then the Ideas of certain powers i.e either of sustaining in its self several simple Ideas or else altering or produceing other simple Ideas in other Beings. (*Drafts*, p. 20)

The bundled powers are of two sorts: (1) sensible qualities, that is, powers to produce ideas in us directly, and (2) powers to affect other objects such that they produce different ideas in us.

THE SENSIBLE OBJECT AND THE OBSCURE IDEA OF SUBSTANCE IN GENERAL

The notion of a bundle of powers, however, is conceptually problematic. This point is acknowledged in the early drafts, but becomes developed doctrine in the *Essay*. The idea of power that we glean from experience is a relative one, linking an item regarded as producing change to one regarded as receiving change. The idea of substance, by giving us a terminus for the power relation, unifies a bundle of powers and allows us to think in terms of *things with* powers.⁵ It is this extra content that the general idea of substance supplies for us. Locke gives his best, most considered account of the content and origin of this idea in the correspondence with Stillingfleet:⁶

all the ideas of all the sensible qualities of a cherry come into my mind by sensation; the ideas of perceiving, thinking, reasoning, knowing, & c. come into my mind by reflection: the ideas of these qualities and

actions, or powers, are perceived by the mind to be by themselves inconsistent with existence; . . . i.e. that they cannot exist or subsist of themselves. Hence the mind perceives their necessary connexion with inherence or being supported; which being a relative idea superadded to the red colour in a cherry, or to thinking in a man, the mind frames the correlative idea of a support. For I never denied, that the mind could frame to itself ideas of relation, but have showed the quite contrary in my chapters about relation. But because a relation cannot be founded in nothing, or be the relation of nothing, and the thing here related as a supporter or support is not represented to the mind by any clear and distinct idea; therefore *the obscure, indistinct, vague idea of thing or something, is all that is left to be the positive idea*, which has the relation of a support or substratum to modes or accidents; and that general indetermined idea of something, is, by the abstraction of the mind, derived also from the simple ideas of sensation and reflection: and thus the mind, from the positive, simple ideas got by sensation or reflection, comes to the general relative idea of substance; which, without the positive simple ideas, it would never have. (LW 4 21–22, emphasis mine)

Note that as Locke characterizes it, the idea *does* have positive content, exactly the modest content needed to fill out our idea of the sensible object, on the account just given. A sensible object is a thing with powers. Thus, Locke is completely sincere in his avowals to Stillingfleet that he denies neither the existence of substances nor the need for and existence of a general idea of substance.

Furthermore, if we keep in mind Locke's distinction between sensible object and uncertain philosophical cause, it is easy to see the truth of Michael Ayers's claim⁷ that the obscure idea of substance in general is not, in Locke's view, *logically* required by the nature of predication, and it could (in principle) be supplanted by ideas of the real essences of things. We need the impoverished idea of substance because experience acquaints us with bodies only as bundles of powers, and we do not see what unites those powers.⁸ If, on the other hand, we knew the real essence of an apple, we would understand the basis for all of its powers, we would grasp their necessary coexistence, and we would not need the idea of a bare thing to hang the bare powers on.⁹

CORPUSCULARIANISM AND THE UNCERTAIN PHILOSOPHICAL CAUSE: LOCKE'S EVOLVING COMMITMENTS

That objects, as Locke is primarily concerned with them, are sensible objects is a point on which he remains firm throughout the development of

the *Essay*. The object as it is known through sensory experience is a thing with powers. This view is manifest in his treatment of the reality, adequacy, and truth of our ideas, doctrines at the epistemological heart of the *Essay*. His views about what can and should be said about objects as uncertain philosophical causes, however, undergo considerable change over the course of the successive drafts and editions of the *Essay*, from 1671 through 1700.

If Locke wants to eschew all discussion of uncertain philosophical causes, as promised in the passage from Draft A with which we began, he ought not to commit himself to the truth of any particular scientific theory about the natures of bodies. In particular, of course, he ought not to commit himself to the truth of Boylean corpuscularianism as an account of the uncertain philosophical causes of our ideas. Drafts A and B from 1671 are consistent with Locke's declared intention to consider sensible objects rather than uncertain philosophical causes.¹⁰ In these drafts, Locke employs the corpuscularian hypothesis in a circumscribed fashion, as a resource for the elucidation and defense of the following philosophical points: (1) We must distinguish between idea and corporeal cause. (2) We lack sensory access to the crucial micro-level of causal processes. (3) Extension and cohesion are central to our conception of body, and impulse to our understanding of body's activity. At the ontological level, Locke commits himself to no more than the uncontroversial view that macroscopic processes have causes that elude our senses. Moreover, the *effect* of Locke's limited deployment of corpuscularianism in the drafts is, as promised, to focus attention on the understanding, on our ideas (including our ideas of body) and the relations among them, and to emphasize exactly how uncertain is our access to the philosophical causes of those ideas.

In the much later Draft C (1685), however, Locke assigns a more prominent role to corpuscularianism.¹¹ Specifically, Locke's introductions, in this draft, of the primary/secondary quality distinction and the real/nominal essence distinction seem to commit him to the truth of corpuscularianism, for he characterizes both primary qualities and real essences exclusively or primarily in corpuscularian terms. These developments create severe tensions in Draft C which are not present in earlier drafts. The most basic tension is between assuming the truth of corpuscularianism and building further conclusions upon it, and, on the other hand, treating corpuscularianism as a probable hypothesis about matters beyond the scope of the *Essay*.¹² A still more serious tension arises between Locke's suggestion that corpuscularianism captures the nature of body qua body, evidenced in his treatment of primary qualities and real essence, and his periodic insistence that the ultimate nature of body is unknown to us.¹³ Both tensions are produced by Locke's new inclination to suppose that

corpuscularianism correctly characterizes the uncertain philosophical causes of our ideas.

Given the problems it created, why was Locke tempted to transgress the limits he had set to his own project? One set of motivations is not difficult to identify. In Drafts A and B, Locke employs a corpuscularian thought experiment in order to motivate the distinction between ideas and their causes. In Draft C, Locke stresses both this distinction and the pessimistic moral implicit in the example of positive ideas from privative causes, namely, that we cannot assume that our ideas “are Exactly the images and resemblances of something inherent in their subjects and Existing without us” (Draft C 2.7.8). Reifying the corpuscularian thought experiment allows Locke to make this point very forcefully indeed: assuming the truth of corpuscularianism, most of our sensory ideas fail to resemble their causes and are “no more the likeness of something Existing without us then the names that stand for them are the likeness of our Ideas” (Draft C 2.7.8). Likewise, the move permits a forceful presentation of the Lockean point that we do not sort bodies according to their real essences. For if the real essences of bodies are corpuscularian constitutions, we are quite ignorant of their real essences, and we obviously do not sort bodies according to them.

In the published *Essay*, Locke backs away from the Draft C commitment to corpuscularianism. This process occurs in two steps. The first is the articulation of an abstract notion of real essence, according to which each thing has a real constitution by which it is what it is. Aristotelianism and corpuscularianism, then, represent two different *hypotheses* as to what these real essences are like. This abstract understanding of real essence is suggested as early as Draft C 2.33.11 and is safely ensconced in the first edition of the *Essay* (E 3.3.15–17) in 1689.¹⁴ It is a metaphysical notion in the sense of abstracting from particular physical theories to a notion that any natural philosophy would have to provide an account of. The abstract notion of real essence allows Locke to discuss uncertain philosophical causes without supposing that we are in a position to properly characterize them, that is, to render them certain.

It is not until the fourth (1700) edition of the *Essay* that Locke goes some ways toward alleviating the tensions involved in his discussion of primary and secondary qualities. The revisions are minimal, in keeping with Locke’s general distaste for discarding his philosophical prose. First, as is relatively well-known, Locke modifies the claim of earlier editions that bodies can operate only by impulse by limiting its application to how bodies act upon us in sense perception. More importantly, he eliminates an argument that purported to establish the impossibility of action at a distance, making only the much more limited claim that impulse is the only sort of bodily action that we can conceive (E 2.8.11). It

is less often noticed that Locke also modified E 2.8.9–10 in the fourth edition: rather than introducing the primary/secondary quality distinction, as in earlier versions, in terms of a *list* of properties that the strict corpuscularian theory takes to be basic, i.e., size, shape, solidity, number, mobility, Locke *first* introduces the notion of primary quality as an abstract, metaphysical notion:

Qualities thus considered in Bodies are, First such as are utterly inseparable from the Body, in what estate soever it be; such as in all the alterations and changes it suffers, all the force can be used upon it, it constantly keeps. (E 2.8.9)

The primary/secondary quality distinction thus emerges as a distinction between the essential, intrinsic qualities of bodies, the qualities that “*are really in them*, whether any ones Senses perceive them or no” (E 2.8.17), and other apparent qualities reducible to the effects of those primary qualities on perceivers. This abstract notion of primary quality is logically linked to his abstract notion of real essence: the primary qualities of a body are the intrinsic and irreducible properties that ground all its other powers. The real essence of a substance is the source of its observable qualities, that which makes it the thing that it is. The real essence of a body of a certain kind, X, is thus constituted by that combination of the primary qualities of its constituents that are the causal source of those qualities according to which we classify it as an X. This notion of primary quality, then, like that of real essence, allows Locke to direct our attention toward uncertain philosophical causes, without attempting to definitively characterize them.¹⁵

How then should we understand Locke’s famous thought experiment involving the grain of wheat? Here I think I am largely in agreement with Paul Guyer, at least to begin with. Locke is illustrating the use of sensory and conceptual criteria to isolate a list of qualities:

Take a grain of Wheat, divide it into two parts, each part has still *Solidity, Extension, Figure, and Mobility*; divide it again, and it retains still the same qualities; and so divide it on, till the parts become insensible, they must retain still each of them all those qualities. For division (which is all that a Mill, or Pestel, or any other Body, does upon another, in reducing it to insensible parts) can never take away either Solidity, Extension, Figure, or Mobility from any Body, but only makes two, or more distinct separate masses of Matter, of that which was but one before, all which distinct masses, reckon’d as so many distinct Bodies, after division make a certain Number. These I call *original* or *primary Qualities* of Body, which I think we may observe to produce simple *Ideas* in us, *viz.* Solidity, Extension, Figure, Motion, or Rest, and Number. (E 2.8.9)

Locke's point is that observation and ordinary reflection upon it lead us to the view that the primary qualities of bodies are size, shape, solidity, motion/rest, and number. At least by the time of the fourth edition of the *Essay*, however, if not earlier, Locke is not officially committed to the correctness of this natural view. What we derive in this fashion is the *nominal essence* of body.¹⁶ The nominal essence we assign to body represents one, uniquely natural, hypothesis about the real essence of body in general, and thus about what the primary qualities of bodies are,¹⁷ that is, about the terms in which the real essences of individual bodies should be characterized.

Note that while Locke's notion of real essence applies to the uncertain philosophical cause—to specify a real essence is to characterize the uncertain philosophical cause—the paired notion of nominal essence, naturally enough, applies to sensible objects. We create a kind by selecting some set of observable properties (powers) that we will take to be necessary and sufficient to be of that kind. This allows us to divide the set of powers belonging to a sensible object into “essential” and “accidental” qualities, that is, to distinguish between those powers that make the object part of its kind, and those that are optional relative to that kind.¹⁸

Locke's discussion of our “primary ideas” of body and spirit must be understood as exemplifying this sort of partition among qualities. In that discussion, Locke seems to jump from the now-familiar view that we know the Substance of Body only as “the complex *Idea* of extended, figured, coloured, and all other sensible Qualities” (*E* 2.23.16) to the apparently unmotivated contention that “*the primary Ideas we have peculiar to Body . . . are the cohesion of solid, and consequently separable parts, and a power of communicating Motion by impulse*” (2.23.17). To locate our primary ideas of body, Locke considers the qualities belonging to the nominal essence of body, that is, those that we cannot conceive of bodies as lacking because they are definitive of our concept of body.¹⁹ He then eliminates any common to both body and spirit, since the goal is to locate the ideas peculiar to body, in order to contrast them with those peculiar to spirit. The result (somewhat massaged, it seems, so as to secure parity between matter and spirit) is that there are two such primary ideas of body: the cohesion of solid parts and the power of communicating motion by impulse. The point is confined to the sensible object; Locke is tracking a conceptual priority among our ideas of bodies, derived from reflection on sensory experience. In this modest sense, then, some powers are more than mere powers, even at the level of the sensible object.

I maintain that, in the end, a similar account applies to Locke's treatment of primary qualities in *E* 2.8.9. Locke's point there is to remind us that the corpuscularian concept of body derives from the nominal essence we attach to body, and thus provides a peculiarly intelligible *example* of

what the primary qualities of bodies could be. Through reflection on sensory experience, as exemplified in the thought experiment about the grain of wheat, we refine our conception of body. What Locke argues in *E* 2.8.9 is that the net result of this procedure, the conception of body that we distill from ordinary sensory experience, is the corpuscularian one.²⁰ To be a body is, we stipulate, to be something possessing size, shape, solidity, motion or rest, and number. This represents a stipulation in that all nominal essences, including the nominal essence of body, are made by us, not nature. They are not, of course, made arbitrarily, as Locke repeatedly emphasizes and as his *E* 2.8.9 account attempts to illustrate for the case of the nominal essence of body. That nominal essence, then, represents one uniquely natural hypothesis (the corpuscularian hypothesis) about what the real essences of bodies are like.

An obvious question to ask at this point is: Why *not* suppose that the uniquely natural hypothesis just *is* the correct one? I think Locke takes such an assumption to be entirely reasonable in the absence of any principled problem with corpuscularianism. Certainly, Locke does *not* simply assume that the uncertain philosophical causes of our ideas are unknowable in virtue of being the causes of our ideas. Were it the case that mechanism offered explanatory resources to account for our experience and manifested no obvious conflicts with our experience, Locke would take mechanism's truth to be a good bet. Indeed, this surely lies behind Locke's Draft C commitment to mechanism, as well as his persistent tendency to slide easily from an abstract understanding of real essence/primary quality to a mechanist one—that is, to the view of the uniquely natural scientific theory as to what fills the roles of real essence and primary quality.

However, as Margaret Wilson showed us in her influential and beautiful article, “Superadded Properties,” Locke goes out of his way to *argue* in the *Essay* that mechanism cannot explain cohesion, impact, or body-mind causation (Wilson 1999a, pp. 196–208). This is the “more incurable . . . Ignorance” (*E* 4.3.12) that Locke discusses in conjunction with the less incurable ignorance emphasized by Guyer—that is, the limitations of our senses. In effect, *E* 4.3 provides a hierarchy of increasingly grave sources of limitations on our knowledge of physical substances:

- (1) Supposing that mechanism is right, that is, that it correctly characterizes the uncertain philosophical causes of our ideas, the mechanist real essences of bodies elude us in virtue of their minuteness. [the less incurable ignorance]
- (2) Even if we knew those mechanist real essences, we still would not understand how sensations are produced (nor would we understand cohesion or how motion is transferred at impact). [the more incurable ignorance]

- (3) Mechanism might be the wrong theory, in which case the uncertain philosophical causes are “yet more remote from our Comprehension” (E 4.3.11).

Item (2) reinforces (3): mechanism’s explanatory limitations give us reason to back away from our natural commitment to mechanism, for we see that it has no prospects for providing a complete *scientia* of body.

The last straw for Locke was provided by his growing appreciation of both the power of Newton’s physics and the challenge it posed to strict mechanism.²¹ What finally triggered the actual revisions to the fourth edition (1700) of the *Essay* was prodding from Edward Stillingfleet, to which Locke famously responded (in 1698):

It is true, I say, “that bodies operate by impulse, and nothing else.” And so I thought when I writ it, and can yet conceive no other way of their operation. But I am since convinced by the judicious Mr. Newton’s incomparable book, that it is too bold a presumption to limit God’s power, in this point, by my narrow conceptions. The gravitation of matter towards matter, by ways inconceivable to me, is not only a demonstration that God can, if he pleases, put into bodies powers and ways of operation above what can be derived from our idea of body, or can be explained by what we know of matter, but also an unquestionable and every where visible instance, that he has done so. And therefore in the next edition of my book I shall take care to have that passage rectified. (LW 4 467–68)

Newton’s results undermine not only strict mechanism’s contact action principle, but also its claim that the intrinsic qualities of bodies are exhausted by extension, solidity, and motion/rest. Responding to these developments, Locke finally and decisively retreats from speculation about the nature of uncertain philosophical causes, in keeping with his original proscription. What remains constitutes philosophical development of the very notion of uncertain philosophical cause, that is, explanation of what it would be to have a *scientia* of bodies, a scientific understanding of bodies as they are in themselves. To have a *scientia* of bodies would be to know what the primary qualities of bodies are—what sorts of qualities are intrinsic to them and irreducible to more basic qualities. Further, we would know what particular modifications of those qualities in particular bodies constitute the real essences from which all of their powers flow.

SUPERADDITION AND TWO MODELS OF NATURAL PHILOSOPHY

As we saw earlier, Locke’s decisive retreat from commitment to mechanism is marked by the declaration (to Stillingfleet) that God has made matter gravitate toward matter by ways inconceivable to us. This led Leib-

niz to regard him as being among those who threatened the hard-won advances of the new science by advocating a return to occult and inexplicable qualities.²² I will briefly argue in this section that, although there are real differences between the two philosophers here, Leibniz’s central objection to Locke’s position can be dissolved by a judicious application of Locke’s distinction between sensible object and uncertain philosophical cause. In replying to Leibniz on Locke’s behalf, I will also return to the set of questions raised by Paul Guyer—questions concerning whether, to what extent, and why Locke has foreclosed our prospects for scientific development.

What drew Leibniz’s philosophical ire²³ was Locke’s use of the notion of superaddition, according to which God may superadd qualities to substances even where we do not see how those substances are capable of such qualities. Locke applies this notion to both Newtonian attraction and to thought in matter (though Leibniz is surely malicious in suggesting that it is the latter that *motivates* the former). When forced to *defend* his view that, for all we know, God might allow matter to think, Locke appeals to the well-known example of Newtonian gravity:

But it is farther urged, that we cannot conceive how matter can think. I grant it; but to argue from thence, that God therefore cannot give to matter a faculty of thinking, is to say God’s omnipotency is limited to a narrow compass, because man’s understanding is so; and brings down God’s infinite power to the size of our capacities. If God can give no power to any parts of matter, but what men can account for from the essence of matter in general; if all such qualities and properties must destroy the essence, or change the essential properties of matter, which are to our conceptions above it, and we cannot conceive to be the natural consequence of that essence: it is plain, that the essence of matter is destroyed, and its essential properties changed in most of the sensible parts of this our system. For it is visible, that all the planets have revolutions about certain remote centres, which I would have any one explain, or make conceivable by the bare essence or natural powers depending on the essence of matter in general, without something added to that essence, which we cannot conceive: for the moving of matter in a crooked line, or the attraction of matter by matter, is all that can be said in the case; either of which it is above our reach to derive from the essence of matter, or body in general; though one of these two must unavoidably be allowed to be superadded in this instance to the essence of matter in general. The omnipotent Creator advised not with us in the making of the world, and his ways are not the less excellent, because they are past our finding out. (LW 4 461)

As Leibniz sees it, Locke here joins the Newtonians in proposing either occult qualities or a perpetual miracle; his response is to give

Locke a rather patronizing little lecture on the proper way to understand modifications:

[I]t must be borne in mind above all that the modifications which can occur to a single subject naturally and without miracles must arise from limitations and variations of a real genus, i.e. of a constant and absolute inherent nature. For that is how philosophers distinguish the modes of an absolute being from that being itself; just as we know that size, shape and motion are obviously limitations and variations of corporeal nature (for it is plain how a limited extension yields shapes, and that changes occurring in it are nothing but motion). Whenever we find some quality in a subject, we ought to believe that if we understood the nature of both the subject and the quality we would conceive how the quality could arise from it. So within the order of nature (miracles apart) it is not at God's arbitrary discretion to attach this or that quality haphazardly to substances. He will never give them any which are not natural to them, that is, which cannot arise from their nature as explicable modifications. So we may take it that matter will not naturally possess the attractive power referred to above, and that it will not of itself move in a curved path, because it is impossible to conceive how this could happen—that is, to explain it mechanically—whereas what is natural must be such as could become distinctly conceivable by anyone admitted into the secrets of things. (NE 65–66; AL 6.6 65–66)

I submit that Locke has given us no reason to suppose that he actually disagrees with anything but the last sentence of Leibniz's lecture. Indeed, Locke's descriptions in the *Essay* of what it would be to know the real essences of things, that we would then understand how all of their properties followed from those essences, suggest a fundamental sympathy with Leibniz's picture, in particular, with the claim that "if we understood the nature of both the subject and the quality we would conceive how the quality could arise from it."²⁴ Superaddition is a notion we invoke from our position of ignorance; to say that God superadds a quality to body is to say that he bestows it upon bodies in some way which we do not comprehend. A quality that we must regard as superadded in this way is one that does not follow from our idea of matter as solid, extended stuff, but that is not to rule out that the quality might follow from the real essence of a body or of body in general.²⁵ The essences to which Locke refers in the previous famous passage are nominal essences.²⁶

Locke says as much in another well-known passage that is easily misinterpreted:

The idea of matter is an extended solid substance; wherever there is such a substance, there is matter, and the essence of matter, whatever other qualities, not contained in that essence, it shall please God to

superadd to it. For example, God creates an extended solid substance, without the superadding any thing else to it, and so we may consider it at rest: to some parts of it he superadds motion, but it has still the essence of matter: other parts of it he frames into plants, with all the excellencies of vegetation, life, and beauty, which are to be found in a rose or a peach-tree, &c. above the essence of matter in general, but it is still but matter: to other parts he adds sense and spontaneous motion, and those other properties that are to be found in an elephant. Hitherto it is not doubted but the power of God may go, and that the properties of a rose, a peach, or an elephant, superadded to matter, change not the properties of matter; but matter is in these things matter still. But if one venture to go on one step further, and say, God may give to matter thought, reason, and volition, as well as sense and spontaneous motion, there are men ready presently to limit the power of the omnipotent Creator, and tell us he cannot do it; because it destroys the essence, "changes the essential properties of matter." To make good which assertion, they have no more to say, but that thought and reason are not included in the essence of matter. I grant it; but whatever excellency, not contained in its essence, be superadded to matter, it does not destroy the essence of matter, if it leaves it an extended solid substance; wherever that is, there is the essence of matter: and if every thing of greater perfection, superadded to such a substance, destroys the essence of matter, what will become of the essence of matter in a plant, or an animal, whose properties far exceed those of a mere extended solid substance? (LW 4 460–61)

Locke clearly states at the beginning of the passage that we are talking about nominal essences—our idea of matter. Anything that causes in us ideas of extension and solidity satisfies the nominal essence of matter and thus is matter, whatever the uncertain philosophical cause. He ends with the very same point: wherever we have solid, extended stuff, we have the essence of matter; no essences have been violated. In fact, this is true in two senses: of course, the nominal essence remains the same, defined as it is by our abstract idea, and the stuff continues to satisfy it as long as it is solid and extended. We can also be sure that whatever is extended and solid has the real essence of body, since real essences of kinds are defined in relation to nominal ones.²⁷ Thus, Locke does not mean to be offering any models, by means of his examples, as to what superaddition amounts to and how it is accomplished.²⁸ Nothing Locke says, for example, rules out the thought that God bestows attraction on bodies by making the intrinsic and irreducible qualities of bodies such that attraction follows from them, that is, by building it into the nature of matter, as Leibniz might put it.²⁹

If that is what God has done, of course, then the corpuscularian account of the real essence/nature of body is incorrect. Leibniz goes wrong in his Locke interpretation by supposing that Locke agrees with him in holding that intelligibility considerations allow us to definitively characterize the uncertain philosophical cause, and to do so along corpuscularian lines. Although, as we have seen, Locke is tempted in this direction around the time of Draft C and the first edition of the *Essay*, the correspondence with Stillingfleet marks an official repudiation of that temptation.

That superaddition is with respect to the sensible object is further supported by Locke's treatment of the thinking matter issue in his first letter, where he tells us that the question comes down to this: whether there exists any substance that has both the quality of solidity and the power of thought. Leibniz, like some later commentators, supposes that Locke has been misled by his obscure idea of substance in general (*NE* 63–64; *AL* VI.vi.63–64), but there is no such confusion. As Locke sees it, all we are in a position to rule out attributing to bodies are *contradictory* qualities/powers (*LW* 4 465), which again fits with his view that the sensible object, the object as known through sensory experience, is simply a thing with powers.

Locke defends the possibility of superaddition of thought to matter because we cannot rule it out; he maintains the fact of the superaddition of attraction because it has been empirically demonstrated. That is simply to say that empirical investigation can reveal to us that matter has more powers than are included in the nominal essence of matter that we derive from ordinary reflection on sensory experience. Locke has no difficulty in attributing those powers to sensible objects, without determining how they are grounded in the uncertain philosophical cause. This brings out very vividly the way in which Locke's thought contains two very different ideals of science or, better, ideals of two quite different practices, each of which might go under the modern label of "science." On the one hand, the *Essay* makes use of an old ideal of *scientia*, which seeks to deduce effects from causes, and thus to gain knowledge of necessary connections among qualities. Locke calls the uncertain philosophical cause "philosophical" because it is the proper concern of natural philosophers, who pursue such *scientia*, that is, "Knowledge of the Principles, Properties, and Operations of Things, as they are in themselves" (*TCE*, pp. 244–45). As we have seen, Locke holds that our prospects for *scientia* are grim, for the three reasons examined earlier, and we would do better to aim at nearer targets.³⁰ Locke's treatment of sensible objects suggests a model for the empirical study of the powers of bodies which fits both Boyle's experimental work and Newton's *Principia*, which, as Locke sees it, offers "Mathematicks, applied to some Parts of Nature" based on "Principles that Matter of Fact justifie," rather than a "*Natural Philosophy* from the

first Principles of Bodies in general" (*TCE*, p. 248). This sort of empirical project results in judgment, not knowledge (*E* 4.12.10), but where knowledge is not to be had, we would be well-advised to seek judgment instead. The example of Newton's *Principia* clearly convinced Locke that the possible achievements of this sort of experimental natural philosophy could not be determined in advance. The example of Newton's optical researches certainly ought to have convinced him that we might in this way reach probable judgments about the submicroscopic.³¹ Thus, Locke has available an account of disciplined inquiry into nature that is much more open than what is suggested by his pessimistic remarks about *scientia*.

Natural philosophy, so understood, would avoid speculation about uncertain philosophical causes, a general strategy endorsed by many prominent Newtonians. One might well wonder, however, whether working in this empirical way, generalizing from experience about the powers of bodies, might lead us in the end toward a new post-corpuscularian hypothesis about uncertain philosophical causes, a new attempt to characterize bodies as they are in themselves, that is, in terms of their ultimate intrinsic properties. It is clear that Locke holds out no real hope for such an eventuality. Here I do think that Locke went wrong. I conclude with some somewhat speculative suggestions about what led Locke to this overly pessimistic view.

(1) Locke's dogmatic empiricism severely restricts the basic *vocabulary* of natural philosophy. Because of this, any candidate for a primary quality must, it seems, be cashed out in one way or other in terms of sensory qualities. Presumably, Locke saw little room to maneuver here: although many theories could be invented which start from sensory qualities, why suppose that any of them could provide a better approximation of *scientia* than corpuscularianism? Here I think Kant's complaints about Locke's physiology of human understanding hit their mark—Kant is simply correct to see Locke's strict empiricism and doctrine of simple and complex ideas as providing an inadequate basis for the contents of human knowledge.

(2) Locke's standard for *scientia* is too high, requiring the deducibility of properties from essences in a way that parallels geometry. Here, I would argue that Locke's system is in principle more flexible than Locke himself saw, as well as being more flexible than Kant's. Locke's notions of real essence and primary quality must, like any other, be derived from reflection on experience. In *E* 2.8, one thing that Locke shows us is how reflection on sensory experience allows us to distinguish between appearance and reality and arrive at the very notion of a primary quality—a quality that bodies have intrinsically and that grounds other powers. In effect, Locke holds that we have a natural metaphysics, that it is the metaphysics

of real essence and primary quality, and that it entails the (in principle) deducibility of properties from essences. Of course, he also held that we have a natural physics—corpuscularianism. He thought that demonstrated problems with corpuscularianism should lead us to distance ourselves from our natural physics, to acknowledge that God has made a world that does not fit easily with the view of bodies that we distill from ordinary experience. In principle, he ought to allow for an analogous critique of our natural metaphysics, the one we distill from reflection on ordinary experience. I think Locke saw no parallel reason to question the more abstract metaphysics that lay behind corpuscularianism and thus never confronted this issue. Locke's own views, however, dictate that our natural metaphysics—and thus our standard for scientia (an account of uncertain philosophical causes)—is something that could itself be called into question. Here he distinguishes himself in a positive way from Kant, for whom, of course, the categories are bedrock or, one might say, petrified.

Kant and the Early Moderns

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TO THE MEMORY OF

MARGARET DAULER WILSON

scholar, teacher, friend