

Locke on Bodies

Philosophy 322: Modern Philosophy
Professor Geoff Pynn
Northern Illinois University

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I CORPUSCULARIANISM

Like Descartes, Locke was a mechanist, in that he held that all bodily phenomena can be explained mathematically in terms of the motion and impact, and that all bodies could be fully characterized in terms of a very short list of properties: size, shape, motion, and (perhaps) solidity. Locke's version of mechanism was slightly different from Descartes's, though, and is known as *corpuscularianism*. Corpuscularians held that in addition to being extended, bodies are *solid*.

Descartes and his followers (the "Cartesian mechanists") thought that the essence of matter was simply extension. Since any extended region contains smaller regions within it, all material things (i.e., all bodies) are physically divisible. Thus Cartesians denied the existence of corpuscles.¹

Locke's commitment to corpuscularianism is an important bit of background to understanding his *Essay*. Some commentators have held that the *Essay* amounts to a philosophical defense of corpuscularianism. This interpretation is encouraged by a very famous passage in his 'Epistle to the Reader':

The Commonwealth of Learning, is not at this time without Master-Builders, whose mighty Designs, in advancing the Sciences, will leave lasting Monuments to the Admiration of Posterity; But every one must not hope to be a Boyle, or a Sydenham; and in an Age that produces such Masters, as the Great Huygenius, and the incomparable Mr. Newton, with some other of that Strain; 'tis ambition enough to be employed as an Under-Labourer in clearing Ground a little, and removing some of the Rubbish, that lies in the way to Knowledge; which certainly had been very much advanced in the World, if the Endeavours of ingenious and industrious Men had not been much cumbered with the learned but frivolous use of uncouth, affected, or unintelligible Terms, introduced into the Sciences ... (*Essay*, 'Epistle to the Reader').²

This passage indulges in false humility; Locke's contributions to philosophy are creative and much more than those of a mere "Under-Laborer." Still, Locke does play that role at times, attempting to

¹Leibniz held an intermediate view. He agreed with the corpuscularians that matter was essentially solid. But he also thought that any material body was divisible, so he was not a corpuscularian.

²Robert Boyle was the best known of the corpuscularians; his 'Of the Excellency and Grounds of the Corpuscular or Mechanical Philosophy' is reprinted in our anthology. Thomas Sydenham was an English physician; 'Huygenius' refers to Christiaan Huygens, an important Dutch scientist and mathematician. And 'Mr. Newton', of course, refers to Isaac Newton, probably the most influential physicist of all time. Locke knew all four men.

clear up confusions created by philosophical reflection that he sees as impeding scientific progress. His discussion of the nature of body is primarily aimed at clearing the ground for the development of mechanism and, in particular, corpuscularianism. At times, Locke advances arguments in the debate among mechanists concerning corpuscularianism. At other times, he is more interested in arguing against scholasticism, the chief rival of all forms of mechanism. In the rest of this handout we'll look at a famous example of Locke's work in each of those two debates.

2 AGAINST CARTESIAN MECHANISM: VACUUMS

Cartesians and corpuscularians disagreed about the possibility of a vacuum or void; i.e., a region of space containing no bodies. Any region of space is extended, so for Cartesians, any region of space contains a body, and hence vacuums are impossible. But for corpuscularians, bodies are essentially solid, so since a region of space could contain nothing solid, vacuums are possible. Locke provides a mess of arguments that vacuums are possible. We'll look at two that illustrate one of his central argumentative techniques: the dilemma.

Locke poses the following question to the Cartesians:

I would ask, Whether, if God placed a Man at the extremity of corporeal Beings, he could not stretch his Hand beyond his Body? (2.13.21)

If the answer is "yes, he could stretch his arm," then the Cartesian must admit that there was some region of space that did not contain any matter; i.e., the region into which the man stretched his arm. If the answer is "no, he couldn't stretch his arm," then Locke has a follow-up question: what is it that prevents the man from moving his hand? It must be something that is external to his body and is able to hinder that body's movement, but itself "is not body and has no solidity." Locke thinks that it's very implausible to suppose there is such a thing. How could something which is not material (since it has no extension or solidity) prevent a physical movement from occurring?

The Cartesian could respond that there is no "extremity of corporeal beings"; i.e., that space is infinite in extent and so has not boundaries. But Locke knows that Cartesians would not want to admit that; most Cartesians denied the infinity of matter, primarily for theological reasons.

Locke's second dilemma is this. Suppose that God "put an end to all motion that is in Matter, and fix all the Bodies of the Universe in a perfect quiet and rest" (2.13.21bis). Could he not then "annihilate either this Book, or the Body of him that reads it"? If the answer is "yes," then a vacuum is possible, for if none of the matter surrounding the annihilated body can move in to fill the space where the body was, then that space is a vacuum. But if the answer is "no," then we are forced to "take from God a power to annihilate" some part of matter while holding all motion in the universe, which seems clearly to be something God has the power to do.

Each argument has a similar form. Locke presents a thought experiment, and then claims that (a) if the situation described in the thought experiment is possible, then matter is more than mere extension and hence vacuums are possible, and (b) if the situation described in the thought experiment is impossible, then we are saddled with some very implausible consequence (the infinity of matter in the first argument; implausible limitations on God's power in the second).

3 PRIMARY AND SECONDARY QUALITIES

It is easiest to get an initial handle on the distinction between primary and secondary qualities by considering the examples Locke gives of each:

PRIMARY QUALITIES: solidity, extension, figure, mobility (2.8.9).

SECONDARY QUALITIES: colors, sounds, tastes, etc. (2.8.10).

Primary qualities are just those properties which corpuscularians think are essential to all matter. All other qualities we typically ascribe to a body—its secondary qualities—are somehow grounded in or dependent upon its primary qualities. Locke’s account of this distinction is a key part of his ground clearing for the development of mechanism.

Locke’s official definition of primary qualities is that they “are utterly inseparable from the Body, in estate soever it be” (2.8.9). This definition needs some clarification. Clearly, the *particular* shape (i.e., “figure”) of a body is “separable” from that body: a body can change its shape without ceasing to exist. Locke is saying that all bodies have *some* shape, whatever state they are in; the same goes for every other primary quality (every body has some degree of solidity, some degree of extension, etc.). Secondary qualities, by implication, are not like this. For example, Locke thinks there can be bodies that have no color whatsoever. For example, a body might be perfectly translucent; or a body might be so small as to have no color. Locke held (plausibly) that colors arose from the “texture” of bodies; i.e., the particular arrangement of corpuscles on its surface. Thus a single corpuscle has no color.

Locke’s official definition of secondary qualities is that they “are nothing in the Objects themselves, but Powers to produce various Sensations in us by their primary Qualities” (2.8.10). Thus a secondary quality (e.g., red) is, “in truth,” nothing but the power of an object to produce a certain sensation in us (e.g., the sensation of red). The primary qualities of the object (e.g., the texture of its surface) are the basis of this power.

But there is a puzzle about this definition. For Locke defines a “quality” itself as “the Power to produce any Idea in our mind” (2.8.8). So what makes a secondary quality any different from any other quality? The answer is that secondary qualities are *nothing but* the powers of objects to produce sensations (2.8.14). Primary qualities, by contrast, are not only powers to produce sensations in us, but also the *basis* of those powers.

Locke also holds that our ideas of primary qualities *resemble* those qualities, while our ideas of secondary qualities do not (2.8.15). Our idea of a body’s shape resembles the body’s shape, whereas our idea of a body’s color resembles nothing in the body: “the Ideas, produced in us by these Secondary Qualities, have no resemblance of them at all” (2.8.15). Likewise with all of our other ideas of colors, tastes, and sounds.

Thus we have three distinctions between primary and secondary qualities of bodies:

<i>Primary Qualities</i>	<i>Secondary Qualities</i>
1. Essential to bodies	Inessential to bodies
2. Basis of body’s power to produce sensations	Nothing but body’s power to produce sensations
3. Resemble our ideas of them	Don’t resemble our ideas of them

Number 2 reflects the fact that Locke is a *reductionist* about secondary qualities. Locke thinks that a body’s being red is nothing more than—“reduces to”—its having certain primary qualities

that give it the power to produce in us the sensation of redness. But while Locke is a reductionist about secondary qualities, he does think that bodies *have* secondary qualities. For a stronger view, consider Galileo:

[T]astes, odors, colors, etc., so far as their objective existence is concerned, are nothing but mere names for something which resides exclusively in our sensitive body, so that if the perceiving creatures were removed, all of these qualities would be annihilated and abolished from existence (Galileo, *The Assayer*).

Galileo is claiming that bodies don't have tastes, odors, or colors: our words for those qualities concern only our own sensations. Thus Galileo is an *eliminativist* about secondary qualities.

Though he is not an eliminativist about secondary qualities, Locke thinks that our understanding of secondary qualities is typically mistaken. We usually think that our ideas of secondary qualities resemble bodies themselves; e.g., we think that red things resemble our idea of redness. But, Locke thinks, we are wrong about this. Why do we have this false belief? Locke's conjecture is that when we perceive objects, we don't generally perceive the primary qualities that give rise to our sensations of secondary qualities. And, when we think about the relationship between, say, redness and shape, we don't detect any necessary connection between the two. So we tend to mistakenly think that secondary qualities resemble our ideas of them, just as primary qualities do:³

...the Ideas we have of distinct Colors, Sounds, etc. containing nothing at all in them, of Bulk, Figure, or Motion, we are not apt to think them the Effects of these primary Qualities, which appear not to our Senses to operate in their Production; and with which, they have not any apparent congruity, or conceivable Connexion. Hence it is, that we are so forward to imagine, that those Ideas are the resemblances of something really existing in the Objects themselves: Since Sensation discovers nothing of Bulk, Figure, or Motion of parts in their Production, nor can Reason shew, how Bodies by their Bulk, Figure, and Motion, should produce in the Mind the Ideas of Blue, or Yellow, etc. (2.8.25).

³This is what philosophers call an error theory. An error theory is an attempt to explain why it is that we falsely believe—i.e., are in error about—something. A philosopher only needs to offer an error theory when his philosophical theorizing leads him to a conclusion that is at odds with some ordinary belief.