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Jennifer McKittrick

*University of Nebraska-Lincoln*, [jmckitrick2@unl.edu](mailto:jmckitrick2@unl.edu)

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## Reid's Foundation for the Primary/Secondary Quality Distinction

Jennifer McKittrick

### Abstract

Thomas Reid (1710-1796) offers an under-appreciated account of the primary/secondary quality distinction. He gives sound reasons for rejecting the views of Locke, Boyle, Galileo and others, and presents a better alternative, according to which the distinction is epistemic rather than metaphysical. Primary qualities, for Reid, are qualities whose intrinsic natures can be known through sensation. Secondary qualities, on the other hand, are unknown causes of sensations. Some may object that Reid's view is internally inconsistent, or unacceptably relativistic. However, a deeper understanding shows that it is consistent, and relative only to normal humans. To acquire this deeper understanding, one must also explore the nature of dispositions, Reid's rejection of the theory of ideas, his distinction between sensation and perception, and his distinction between natural and acquired perceptions.

The distinction betwixt primary and secondary qualities hath had several revolutions. Democritus and Epicurus, and their followers, maintained it. Aristotle and the Peripatetics abolished it. Des Cartes, Malebranche, and Locke, revived it, and were thought to have put it in a very clear light. But Bishop Berkeley again discarded this distinction, by such proofs as must be convincing to those that hold the received doctrine of ideas. Yet, after all, there appears to be a real foundation for it in the principles of our nature.<sup>1</sup>

And so Reid summarizes the history of thought on sensible qualities, inviting the following questions. Where did these earlier accounts go wrong? What, according to Reid, is the real foundation of the primary/secondary quality distinction? How is it to be found in the "principles of our nature"? Does Reid offer a viable alternative to the views of Locke and others? These are the questions I aim to answer in this paper.

Traditionally, the distinction is roughly that primary qualities such as shape, size and motion are in some sense observer-independent features of the world,

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1. Thomas Reid, *An Inquiry into the Human Mind on the Principles of Common Sense* (hereafter *Inq*), ed. Derek R. Brookes (Edinburgh UP, 1997), V iv, p. 62.

while secondary qualities, such as color, smell, taste and sound are more closely tied to our particular (human) perceptual perspective. Beyond this rough characterization, there is little consensus. Many have noted that primary and secondary qualities somehow “involve” dispositions.<sup>2</sup> I think that disagreement about the nature of primary and secondary qualities is in large part a disagreement about the nature of this involvement. Consequently some understanding of the nature of dispositions is important to understanding the debate.

In §I, I sketch a few accounts of dispositions to serve as a framework for subsequent discussion. In §II, I explore competing accounts of primary and secondary qualities. In §III, I explain why Reid rejects the Lockean accounts. In §IV, I present Reid's alternative, according to which the distinction is epistemic rather than metaphysical. In §V, I defend the coherence of Reid's view. In §§VI-VII, I defend Reid against the charge that his distinction collapses upon scrutiny. This defense further explicates the nature of Reid's distinction.

## I. Dispositions

When “the vulgar” talk of dispositions, they usually think of character traits, such as cowardice, shyness, irritability, etc. But people also talk of physical objects as being “disposed to do so and so.” The fragile glass is disposed to break. The water-soluble tablet is disposed to dissolve in water. Contemporary philosophers point to properties like fragility, elasticity and solubility as paradigm examples of dispositions. Reid speaks of dispositions in terms of “occult” or “latent” qualities:

... are there not numberless qualities of bodies, which are known only by their effects, to which, notwithstanding, we find it necessary to give names? Medicine alone might furnish us with a hundred instances of this kind. Do not the words *astrigent*, *narcotic*, *epispastic*, *caustic*, and innumerable others, signify qualities of bodies, which are known only by their effects upon animal bodies?<sup>3</sup>

... the notions which our senses give us of secondary qualities, of the disorders we feel in our own bodies, and of the various powers of bodies ... are all obscure and relative notions, being a conception of some unknown cause of a known effect. Their names are, for the most part, common to the effect, and to its cause; and they are a proper subject of philosophical disquisition. They might therefore, I think, not improperly be called *occult* qualities.<sup>4</sup>

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2. For example, see N. Wolterstorff, *Thomas Reid and the Story of Epistemology* (Cambridge UP, 2000), p. 110.

3. *Inq VI v*, p. 88. I take “qualities” to be synonymous with “properties.”

4. Reid, *Essays on the Intellectual Powers of Man* (hereafter *IP*), ed. Baruch A. Brody (MIT Press, 1969), II xviii, p. 274. See also pp. 306-8 for “latent” qualities.

Reid says that there are three types of occult qualities: bodily disorders (unknown causes of certain symptoms), powers in objects to affect other objects (mechanical, chemical, medical, etc.), and secondary qualities (*IP* II xviii, p. 275). The secondary qualities are distinguished from other occult qualities by the fact that their common effects are sensations in humans. In order to say more about qualities, primary, secondary and occult, the following terms are helpful:

*Manifestation* – a type of event that occurs when a disposition is triggered. The manifestation of fragility is breaking.

*Circumstances of manifestation* – conditions which trigger the occurrence of the manifestation. The fragile glass breaks when struck.

*Causal basis* – a property “in virtue of which” the disposed object has the disposition. When the disposition is triggered, the causal basis is part of the cause of the manifestation, the other part being the circumstances of manifestation. (If we are reluctant to say that properties are causes, or parts of causes, we can say that the event, or the fact that the object has the property, is part of the cause. Or we could say that the property is a causally relevant property of the cause.) The glass is fragile in virtue of some microstructural property of the glass.

An obvious approach to understanding dispositional concepts is in terms of conditionals.<sup>5</sup> On this view, to say something is fragile is just to say that if it were struck, it would break, or something on those lines. In general, to have a disposition is to be such that if you were in the circumstances of manifestation, you would exhibit the manifestation. In other words,

X has disposition *D* to exhibit *M* in *C* iff if *X* were in *C*, *X* would exhibit *M*.

This analysis is too simple, and is unlikely to withstand scrutiny. However, it is possible that modern philosophers have something like the conditional view in mind when speaking of powers or latent qualities.

An alternative approach to analyzing dispositional concepts is in terms of second-order properties.<sup>6</sup> A second-order property is a property of having a property that satisfies a certain condition. For example, suppose that I like squareness and roundness. *X* is square. *Y* is round. *X* and *Y* both have the second-order property

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5. Views along these lines can be attributed to Hume, *Treatise of Human Nature*, ed. P. H. Nidditch (Oxford UP, 1978), I iii 14, II i 10; R. Carnap, “Testability and Meaning,” *Philosophy of Science*, 3 (1936), pp. 420-71, at p. 444; G. Ryle, *The Concept of Mind* (London: Hutchinson, 1949), p. 125; M. Dummett, *Truth and Other Enigmas* (London: Duckworth, 1978), p. 150.

6. Accounts along these lines have been defended by Mark Johnston, “How to Speak of the Colors,” *Philosophical Studies*, 68 (1992), pp. 221-63; and David Lewis, “Finkish Dispositions,” *The Philosophical Quarterly*, 47 (1997), pp 143-58.

of having a property that I like. (A second-order property should not be confused with a secondary quality.) According to a second-order property account of dispositions, a disposition is a second-order property of having a property that causes a certain type of event – the manifestation. In other words, a disposition is the property of having a causal basis. This can be formulated as follows:

*X* has disposition *D* to produce manifestation *M* in circumstances *C* iff there is some property *P* such that (*X* has *P* & *P* would cause *M* in *C*).

This does not entail that *D* is the same property as *P*. *P* is a first-order property, the causal basis of *D*. *D* is the second-order property of having *P* – more accurately, the property of having some property or other that plays a certain causal role. Dispositions are, typically, multiply realizable. Crystal glasses and eggshells are both fragile, but presumably they have different microphysical structures that account for this.

According to the two views above, a disposition and its causal basis are two distinct properties. Yet a third view of dispositional concepts, David Armstrong's, claims that the distinction between a disposition and its causal basis is "a verbal distinction that cuts no ontological ice."<sup>7</sup> I shall call this "the identity view." "The fragility of the glass" and "the crystalline structure of the glass" are but two ways of referring to the same property of the glass. We use the former for pragmatic purposes, or out of ignorance. While such disposition ascriptions may be true, that is not to say that the glass has some property over and above its crystalline structure. Armstrong espouses this view in the following passage (p. 15):

If dispositions are states of the disposed object, they are marked off from (many) other states by the way they are *identified*. When we speak of the brittleness of an object we are identifying a state of the object by reference to what the thing which is in that state is capable of bringing about (in conjunction with some active, triggering cause), instead of identifying the state by its intrinsic nature. And this in turn is connected with the role that dispositional concepts play in our thinking. We introduce such a concept where, for example, it is found that an object of a certain sort, acted upon in a certain way, behaves in certain further ways of a relatively unusual sort. We assign responsibility for this behaviour to some relatively unusual state of the object. But since we normally do not know, prior to painful and extensive scientific investigation, what the nature of the state is, we name it from its effects.

This passage is remarkably reminiscent of Reid's discussion of occult qualities (*Inq* VI v, p. 88; *IP* II xviii, p. 274):

... are there not numberless qualities of bodies, which are known only by their effects, to which, notwithstanding, we find it necessary to give names?

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7. D. M. Armstrong, *Belief Truth, and Knowledge* (Cambridge UP, 1973), p. 15.

... Their names are, for the most part, common to the effect ... they are a proper subject of philosophical disquisition.

I understand "philosophical disquisition" to include natural philosophy, that is, scientific investigation. Reid is not reverting to medieval Aristotelianism in his appeal to occult qualities, but is merely allowing that we refer to some properties whose intrinsic natures are unknown to us. According to Reid, a property conceived of as an occult quality is conceived of as an unknown cause of a known effect. Once we learn more about the cause, we can conceive of the same property in terms of its intrinsic nature. According to Reid, an expression like "narcotic" does not merely refer to the power of opium to relieve pain. It also refers to some (as yet) unknown intrinsic property, in virtue of which opium has this power.

Dispositional ascriptions, on this view, are placeholders or promissory notes, offered until we learn more. We use a disposition term to pick out a property by reference to its typical effect. The effect is a semantic constituent of the disposition term. A disposition term is a kind of relational specification of a property. Something is relationally specified if we pick it out by its relation to something else.<sup>8</sup> In this case, the relation is to the typical effect of the property. To say that a disposition term is a relational specification of a causal basis is to say that the disposition and the causal basis are one and the same property.<sup>9</sup> Hence relational specification goes hand in hand with the identity view. (These views are typically held in conjunction. They could, in principle, come apart. For example, someone could hold that dispositions are identical to their causal bases, but that disposition terms are not relational specifications of those bases.)

So dispositional concepts can be analyzed in terms of conditionals, second-order properties, or relational specifications of causal bases. Which approach should we employ to understand Reid's talk of "occult" and "latent" qualities? Perhaps the answer to this question is underdetermined by the texts, but Reid's discussion

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8. Whether something is relationally specified varies according to how we refer to it. Bob is relationally specified if we pick him out by saying "the guy standing next to Harry." Properties can be relationally specified as well. "Bob's favorite property" is relationally specified by reference to Bob. A relationally specified property is not necessarily an extrinsic property. I could pick out squareness as "Bob's favorite property." This is consistent with squareness being intrinsic to the square thing. I disagree with Gideon Yaffe, who takes Reid's relational specification of secondary qualities to show that they are not intrinsic: "Thomas Reid," E. N. Zalta, ed., *The Stanford Encyclopedia of Philosophy*, online <http://plato.stanford.edu>

9. Multiple realizability is an apparent problem for the identity theorist. It seems that a disposition cannot be identical with two distinct causal bases. As with identity theories in philosophy of mind, there are a number of ways in which an identity theorist might reply, such as appealing to token-token identity, rather than type-type identity. See, e.g., Armstrong, *The Mind/Body Problem* (Boulder: Westview, 1999), p. 101.

suggests that he holds the identity view. I shall now explore the ways in which dispositions may be involved with secondary qualities.

## II. Competing Views of Primary and Secondary Qualities

According to Frank Jackson,

There is an important sense in which we know the live possibilities as far as colour is concerned. We know that objects have dispositions to look one or another colour, that they have dispositions to modify incident and transmitted light in ways that underlie their dispositions to look one or another colour, that they have physical properties that are responsible for both these dispositions, and that their subjects have experiences as of things looking one or another colour. We also know that this list includes all the possibly relevant properties.<sup>10</sup>

Jackson's statement about color can be generalized. Physical objects have dispositions to cause mental events, or instantiations of mental properties. The causal basis for such a disposition is to be found among the intrinsic physical properties of the object. In short, the properties which are candidates for being primary or secondary qualities are mental properties, dispositions in objects to cause mental properties, and the causal bases of those dispositions. Most philosophers who talk about primary qualities identify them with the base properties, but there is less of a consensus about the secondary qualities.

Some have identified secondary qualities with certain mental properties, or something in the mind of the perceiver — an idea, a sensation, an impression, an appearance, an experience. This view is attributed to the Greek Atomists and to Galileo.<sup>11</sup> Many attribute this view to Locke, and to early modern philosophers in general. Berkeley's Hylas credits "philosophers" with the view that secondary qualities "are only so many sensations or ideas existing nowhere but in the mind" (Berkeley, *Three Dialogues*, p. 23). Hume calls the view that secondary qualities are "nothing but impressions in the mind" a "fundamental principle" of modern philosophy (*Treatise*, p. 226). Reid says "Des Cartes, Malebranche, and Locke, revived the distinction between primary and secondary qualities. But they made the secondary qualities mere sensations" (*Inq* V viii, p. 73). In more recent times, Gra-

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10. F. Jackson, "The Primary Quality View of Colour," in *From Metaphysics to Ethics* (Oxford UP, 2000), p. 87.

11. R. M. Adams, "Editor's Introduction" to Berkeley's *Three Dialogues between Hylas and Philonous* (Indianapolis, Hackett, 1979), p. xv; Galileo Galilei, *The Assayer*, in R. H. Poplin, ed., *The Philosophy of the Sixteenth and Seventeenth Centuries* (New York: Free Press, 1966), §48, p. 65.

ham Priest says "I shall use the term "secondary property" solely as referring to the appearance."<sup>12</sup>

Others have identified secondary qualities with dispositions of objects to produce mental events. Robert Boyle (who is credited with coining the terms "primary" and "secondary" qualities) held this view.<sup>13</sup> Contemporary proponents include J.J.C. Smart (in his early work), Colin McGinn, and John McDowell.<sup>14</sup> This view is also attributed to Locke.<sup>15</sup> The following passage from Locke seems to support this interpretation:

Secondly, such qualities, which in truth are nothing in the objects themselves, but powers to produce various sensations in us by their primary qualities, i.e., by the bulk, figure, texture, and motion of their sensible parts, as colours, sounds, tastes, etc., these I call *secondary* qualities.<sup>16</sup>

According to Locke, objects have configurations of primary qualities that produce various ideas in the minds of sentient beings. Some of these ideas resemble the qualities in the object that produced them. These are ideas of primary qualities. The idea of roundness resembles a quality of the object that produces it. However, other ideas, such as ideas of redness or sweetness, do not resemble any quality in the object. These are ideas of secondary qualities. If we think that there is something in the object that resembles the idea, we are mistaken. However, there is something in the object that we may call the secondary quality, and this is the disposition to cause the idea. The causal basis of this disposition is a configuration of primary qualities.

### III. Reid's Rejection of Some Lockean Views

Reid rejects the view that secondary qualities are sensations in the mind, because it conflicts with common sense and linguistic practices.

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12. G. Priest, "Primary Qualities are Secondary Qualities Too," *British Journal for the Philosophy of Science*, 40 (1989), pp. 29-37, at p. 32.

13. R. Boyle, "The Origin of Forms and Qualities," in *The Works of the Honourable Robert Boyle* (London, 1772), pp. 18-27.

14. D. M. Armstrong, "Smart and the Secondary Qualities," in P. Pettit, ed., *Metaphysics and Morality* (Oxford: Blackwell, 1987), pp. 1-15, and "Values and Secondary Qualities," in T. Honderich, ed., *Morality and Objectivity* (London: Routledge, 1985), pp. 110-29; C. McGinn, *The Subjective View* (Oxford: Clarendon Press, 1983), p. 8.

15. My interpretation of Locke follows J. L. Mackie, *Problems from Locke* (Oxford: Clarendon Press, 1976), pp. 7-36.

16. Locke, *An Essay Concerning Human Understanding* (London: Everyman, 1990), II xxiii 9, p. 136. This passage is perhaps not conclusive support. Mackie (p. 12) notes "In this often-quoted remark "nothing ..., but" means (despite the comma) "nothing except"; but many students and some commentators have read it as if "but" were the conjunction, and so have taken the first part of the remark as saying that secondary qualities are not in objects at all."



The vulgar say, that fire is hot, and snow cold, and sugar sweet; and that to deny this is a gross absurdity, and contradicts the testimony of our senses (*IP* II xvii, p. 258).

... to deny that there can be heat and cold when they are not felt, is an absurdity too gross to merit confutation. For what could be more absurd, than to say, that the thermometer cannot rise or fall, unless some person be present, or that the coast of Guinea would be as cold as Nova Zembla, if it had no inhabitants? (*Inq* V i, p. 54)

Reid notes that there is an ambiguity in many property terms, and this causes some confusion. Words like "red," "sweet," and "hot" are usually used to refer to qualities in bodies, but sometimes they are used to refer to the sensations those qualities cause (*Inq* V i, p. 54; *IP* I xvi, pp. 242-3). While there are a number of linguistic options for clarifying this ambiguity, Reid says that philosophers abuse language when they say things like "Colors exist nowhere but in the mind."

Reid's disagreement with the Lockean view, however, is more than terminological. The basis of Locke's distinction is that primary qualities resemble the ideas they cause, while secondary qualities do not. Reid balks, for this account presupposes the maligned "theory of ideas," the view that the immediate objects of perception are mental entities which sometimes represent and resemble objects in the world.<sup>17</sup> If there are no ideas to resemble or fail to resemble qualities in the world, they cannot serve as the basis for the distinction. Even if one granted the theory of ideas, Locke's account would still fall prey to Berkeley's criticisms. Reid credits Berkeley for exposing "the absurdity of a resemblance between our sensations and any quality, primary or secondary, of a substance that is supposed to be insentient" (*IP* II xvii, p. 264). There is nothing about an unconscious object like a table that resembles the cool sensation one gets by stroking its surface, nor the sensation of hardness one gets by pressing against it. Since no qualities in bodies resemble sensations, resemblance cannot serve to distinguish primary qualities from secondary qualities. According to Berkeley (*Three Dialogues*, pp. 24-5), whatever reasons we have to believe that secondary qualities are only in the mind are equally reasons to believe primary qualities are only in the mind. Noting this, Reid concludes (*IP*, p. 264) that if you hold the theory of ideas, you lose not only the distinction between primary and secondary qualities, but also knowledge of the material world.

#### IV. Reid's Account of the Distinction

Despite Reid's rejection of the above accounts, he still thinks that some distinction can be maintained. But how?

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17. See *IP* II xiv, "Reflections on the Common Theory of Ideas," p. 211.

First of all, he replaces Lockean ideas with "sensations." Reid's account of sensation is roughly as follows.<sup>18</sup> Suppose I come into contact with an apple. The apple impinges upon my sense organs, giving rise to a sensation in my mind. The sensation is a sign of a quality in the apple. The sensation suggests to me a conception of the quality in the apple, and I come to believe that this quality really exists. That is to say, I *perceive* the quality signified. Reid is perhaps the first to note the important distinction between sensation and perception. Speaking of the primary/secondary quality distinction, Reid says "all the darkness and intricacy that thinking men have found in this subject, and the errors they have fallen into, have been owing to the difficulty of distinguishing clearly sensation from perception — what we feel from what we perceive" (*IP* II xvii, p. 265). The object of perception is a quality in the apple itself. However, the sensation is a mental act that has no object apart from itself. On some interpretations, Reid holds an adverbial theory of sensation.<sup>19</sup> To have a sensation of red is simply to sense "redly." An act of sensing bears no resemblance to any quality in a body.

Replacing ideas with sensations is not Reid's only departure from Locke. Reid claims that the foundation for the distinction is to be found in the principles of our nature. The basis of the distinction is not in the nature of the properties themselves.<sup>20</sup> The difference between primary and secondary qualities is a matter of a difference in human epistemic access to these qualities. We have substantial, direct knowledge of primary qualities. We only have limited, indirect knowledge of secondary qualities:

... our senses give us a direct and a distinct notion of the primary qualities, and inform us what they are in themselves; but of the secondary qualities, our senses give us only a relative and obscure notion. They inform us only, that they are qualities that affect us in a certain manner, that is, produce in us a certain sensation; but as to what they are in themselves, our senses leave us in the dark (*IP* II xvii, p. 252).

According to Reid, our senses give us only a relative and obscure notion of secondary qualities. Reid explains what he means by a relative notion: "A relative notion of a thing, is, strictly speaking, no notion of the thing at all, but only of

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18. My interpretation of Reid here follows that of Vere Chappell, "The Theory of Sensations," in M. Dalgarno and E. Matthews, eds., *The Philosophy of Thomas Reid* (Dordrecht: Kluwer, 1989), p. 51.

19. This interpretation of Reid is proposed in E. Sosa and J. Van Cleve, "Thomas Reid," in S. M. Emmanuel, ed., *The Blackwell Guide to Modern Philosophers: from Descartes to Nietzsche* (Oxford: Blackwell, 2001), p. 182. Reid seems non-committal: "Sensation is the act, or the feeling. I dispute not which, of a sentient being" (*IP* II xvii, p. 255).

20. Similarly, Keith Lehrer says that Reid's distinction is drawn "on conceptual grounds, in terms of our ways of conceiving these qualities, rather than in terms of the nature of the qualities themselves": Lehrer, "Reid on Primary and Secondary Qualities," *Monist*, 61 (1978), pp. 184-91, at p. 186.

some relation which it bears to something else" (*IP* II xvii, p. 253). If we have only a relative notion of a thing, we tend to pick it out by a relational specification. According to Reid, we pick out and refer to secondary qualities by the relation they bear to sensations. A secondary quality's paradigm specification is relational, because all that we know about the secondary quality is its relational properties — what it causes. (Strictly speaking, because of his views about causation, Reid does not think that the relation between qualities and sensations is genuinely causal. Rather, qualities "suggest," "occasion," or are conjoined by the laws of nature with, sensations. Nevertheless he is happy to use causal talk: see *Inq* V iii, p. 59.)

In sum, secondary qualities cause sensations, but we know little or nothing else about them. Reid explicates these ideas with the example of smelling a rose:

The quality in the rose is something which occasions the sensation in me; but what that something is, I know not. My senses give me no information upon this point. The only notion therefore my senses give is this, that smell in the rose is an unknown quality or modification, which is the cause or occasion of a sensation which I know well (*IP* II xvii, p. 254).

I shall distinguish three properties here, using the terminology introduced earlier, to explicate Reid's view.

*S* is the fragrant sensation I am experiencing, the manifestation of the disposition  
*D* is a property of the rose, a disposition to produce *S* in me  
*P* is a property of the rose that causes *S* in me, the causal basis of *D*

Which is the secondary quality for Reid, *S*, *P*, or *D*? We can quickly eliminate *S*. I pointed out above that Reid rejects the view that secondary qualities are sensations. On his own account, a secondary quality is an "unknown cause of a known effect" (*IP* II xviii, p. 274). The sensation is the known effect, not the unknown cause. Reid says, for example, that

colour is not a sensation, but a secondary quality of bodies ... it is a certain power or virtue in bodies, that in fair daylight exhibits to the eye an appearance, which is very familiar to us, although it hath no name (*Inq* VI iv, p. 87).

Clearly Reid's secondary qualities are not sensations. His talk of a secondary quality being "a certain power or virtue in bodies" seems to suggest that it is the disposition *D*. However, the secondary quality is unknown and obscure, which *D* is not. I know that the rose has the disposition to produce *S* in me. As Wolterstorff (p. 112) notes, "If green were a disposition in things to cause certain sensations under certain conditions and not the physical basis of that disposition, we would know what it was." We may not know the causal basis of the disposition, but that is not to say that the disposition itself is obscure.

Most of Reid's discussion supports the view that the secondary quality is *P*, the causal basis. *P* is the unknown cause of the known sensation. It fits the description of secondary qualities as qualities that "affect us in a certain manner" and "produce in us a certain sensation" (*IP* II xvii, p. 253). So it seems that a secondary quality is the causal basis of a disposition to produce a sensation. (Reid's view of color is similar in broad outlines to that of Frank Jackson. However, perhaps ironically, Jackson calls his view "the primary quality view of colour." This goes to show how variable the uses of the terms "primary quality" and "secondary quality" are.)

How are we to interpret those passages in which Reid seems to be talking about secondary qualities as dispositions? Wolterstorff (p. 112) says that Reid "doesn't speak consistently on the matter" of whether secondary qualities are dispositions to produce sensations, or causal bases of those dispositions. Perhaps. However, Wolterstorff assumes that Reid holds a certain view of dispositions according to which they are distinct from their causal bases. My suggestion is that Reid holds the identity view, according to which dispositions are identical with their causal bases. According to Reid, occult-quality expressions refer to unknown, underlying causal bases, rather than to powers over and above those intrinsic, physical properties. If he holds the identity view, then he is not being inconsistent when he speaks of secondary qualities sometimes as dispositions and at other times as causal bases.

So which is the secondary quality for Reid, the sensation, the disposition or the causal basis? Perhaps it is the disposition *and* the causal basis, since they are one and the same property, on the identity view. But how is it that this property is both known and unknown? Some things are known about it, others are not. We know that it typically has certain effects. That is to say, it is known *qua* disposition. However, we know nothing of its intrinsic nature. *Qua* causal basis, it is obscure.

## V. Is Reid Consistent?

Reid is accused of a deeper, more troubling inconsistency.<sup>21</sup> He seems to hold

*The semantic thesis.* Sensations are semantic constituents of the meanings of secondary-quality terms.<sup>22</sup>

To conceive of a property as a secondary quality is to conceive of it as a cause of a sensation. Reid says "We conceive it only as that which occasions such a sensa-

21. This problem is discussed by Chappell, pp. 59-60.

22. *IP* II xvii, p. 257; cf. Lehrer, *Thomas Reid* (London: Routledge, 1998), p. 47.

tion, and therefore cannot reflect upon it without thinking of the sensation which it occasions" (*IP* II xvii, p. 257). For example, I shall call the type of sensation typically caused by redness " $R^*$ ." It is part of the meaning of "redness" that it causes  $R^*$  (in normal humans in standard conditions). Reid seems committed to the view that, necessarily, redness causes  $R^*$ .

However, Reid also seems to hold

*The contingency thesis.* The connection between secondary qualities and the sensations they cause is contingent.

Secondary qualities might not have caused the sensations that they do cause. Reid says "We might perhaps have had the perception of external objects, without ... sensations" (*Inq* VI xxi, p. 176). This suggests that redness might not have caused  $R^*$  sensations. So Reid also seems committed to the view that, possibly, redness does not cause  $R^*$ . So it appears as if he has an inconsistent view.

This problem can be resolved. The statement "Redness causes  $R^*$ " is ambiguous. It admits of two readings, one of which is analytic or necessarily true, the other contingent. This kind of ambiguity is not uncommon, as in "The President is the President." This statement may be true in virtue of its meaning, but under some interpretations it expresses a contingent proposition. If it means "For all  $x$ , if  $x$  is the President, then  $x$  is the President," then it does seem to be necessarily true. On the other hand "the President" may be functioning as a name rather than a predicate. So the statement can be interpreted as "George W. Bush is the President," which certainly could have been otherwise (in a very near possible world!). "The cause of cancer causes cancer" is similar. Necessarily, whatever causes cancer causes cancer. But if we consider a particular carcinogen, say, dioxin, it seems possible that it might have been harmless.

To return to secondary qualities and "Redness causes  $R^*$ ," if we understand "redness" as referring to whatsoever causes  $R^*$ , then the proposition expressed does seem necessary. However, if we think of "redness" as rigidly designating the particular property that happens to cause  $R^*$  in this world, then we can allow that redness might not have caused  $R^*$ .

This ambiguity is likely to arise when one uses relational specifications. You can relationally specify something, and then say of that thing that it stands in that very relation. If that thing does not necessarily stand in that relation, then you have said something contingent. However, this statement may be confused with the necessary truth that whatsoever stands in that relation stands in that relation.

Dispelling this confusion allows us to see that Reid's view is coherent. Next, I consider whether Reid's view is stable.

## VI. Has Reid Established a Real Distinction?

The similarities between primary qualities and secondary qualities, on Reid's view, are perhaps more striking than their differences. Like secondary qualities, "The primary qualities are neither sensations, nor are they resemblances of sensations" (*IP* II xvii, p. 255). Both are causal bases of dispositions to cause sensations. Both produce sensations. Both fail to resemble those sensations. And yet Reid maintains that they differ. Prior to the statement of the distinction I have earlier quoted (p. 486 above), he says

Every one knows that extension, divisibility, figure, motion, solidity, hardness, softness, and fluidity, were by Mr Locke called primary qualities of body; and that sound, colour, taste, smell, and heat or cold, were called secondary qualities. Is there a just foundation for this distinction? is there any thing common to the primary which belongs not to the secondary? And what is it?

I answer, that there appears to me to be a real foundation for the distinction (*IP* II xvii, p. 252).

Reid promises an account that classifies the sensible qualities as Locke does, but offers a better justification for classifying them in this way. In this section, I consider whether Reid delivers what he promises.

Reid's account of the foundation of the distinction is that the sensations caused by primary qualities suggest or signify something about the intrinsic nature of those qualities, while the sensations caused by secondary qualities signify only some unknown cause of that sensation. He gives an example:

The sensation of heat, and the sensation we have by pressing a hard body, are equally feelings: nor can we by reasoning draw any conclusion from the one, but what may be drawn from the other: but, by our constitution, we conclude from the first an obscure or occult quality, of which we have only this relative conception, that it is something adapted to raise in us the sensation of heat; from the second, we conclude a quality of which we have a clear and distinct conception, to wit, the hardness of the body (*Inq* V v, p. 65).

Hardness is a primary quality. I shall call " $H_1^*$ " the sensation hardness causes.  $H_1^*$  does not resemble hardness. However, it conjures up the conception of hardness as firm cohesion of the parts of the body. How  $H_1^*$  causes us to think of hardness we do not know. It is "a natural kind of magic" (*Inq* V iii, p. 60). Heat is equally some real quality in the body, which nowadays we might think of as mean molecular kinetic energy. Heat causes sensation  $H_2^*$ . But  $H_2^*$  does not prompt us to think of heat as it is in itself, but only as something which causes  $H_2^*$ . Hence heat is a secondary quality.

On this picture, the only difference between primary and secondary qualities is "in the head," not in the properties. There is no metaphysical difference in the properties, only a difference in our epistemic access to them.  $H_1^*$  and  $H_2^*$  both lead us to believe that something is causing those sensations, but  $H_2^*$  tells us nothing more.  $H_1^*$  on the other hand gives us additional knowledge of the nature of hardness.

What accounts for this difference? Reid says it is a brute mysterious fact about our constitution. It could have been different. Pressing on a table might have caused a sensation of redness, and looking at a ripe apple might have produced  $H_1^*$  (*Inq* VI xxi, p. 176; *IP* II xxi, p. 289). Or the sensation of redness might have conveyed to us information about the intrinsic nature of redness, and  $H_1^*$  might have suggested only that some unknown cause is causing this sensation. Reid's view seems to imply that properties which are secondary qualities for us might be primary qualities for other creatures. We might have had a different constitution such that the primary qualities were secondary and the secondary qualities primary. We just happen to be constituted as we are.

These implications invite the following questions. Could this fact of our constitution change? Could our epistemic access to the secondary qualities change with experience? Could the human species evolve, learn or be trained to perceive the causes of our sensations which are currently unknown? Could  $H_2^*$  ever give us knowledge of the intrinsic nature of heat?

Reid stresses again and again that secondary qualities are unknown and obscure, and that our senses give us no information about them, apart from their effect on us. We know they cause sensations, but "as to what they are in themselves, our senses leave us in the dark" (*IP*, p. 252). But elsewhere he suggests that this could change. The nature of secondary qualities

is a proper subject of philosophical disquisition; and in this, philosophy has made some progress. It has been discovered, that the sensation of smell is occasioned by the effluvia of bodies; that of sound by their vibration. The disposition of bodies to reflect a particular kind of light occasions the sensation of colour. Very curious discoveries have been made of the nature of heat, and an ample field of discovery in these subjects remains (*IP* II xvii, p. 256; see also xxi, pp. 305-8).

Apparently Reid did not think that secondary qualities must forever remain shrouded in mystery. If our senses can give us knowledge of secondary qualities, then it looks as if the primary/secondary quality distinction turns on this contingent and variable epistemic difference. A quality's primary or secondary status seems to be entirely relative to individual humans, even in normal circumstances.<sup>23</sup>

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23. Cf. J. L. Ramsey, "Realism, Essentialism, and Intrinsic Properties," in N. Bhushan and S. Rosenfeld, eds., *Of Minds and Molecules* (Oxford UP, 2000), pp. 117-28.

If the above claims are correct, Reid cannot say that smells are secondary *simpliciter*, but only in relation to those who glean nothing about their intrinsic natures through utilization of their senses. Reid does not propose some non-sensory way of learning about the intrinsic natures of latent qualities. He says that the man who has knowledge of sensible and latent qualities “is informed *by his senses* of innumerable things” (*IP* II xxi, p. 307; my italics). Scientific investigation of latent qualities requires observation. When scientists investigate “effluvia,” they use their senses to learn about the intrinsic nature of smells. If they are successful, their senses tell them more about this property than that it is a cause of a certain sensation. By Reid’s account, then, it seems that this property is no longer a secondary quality for those scientists. A property could cease to be secondary for someone if that person learns about its intrinsic nature through the senses.

This relativistic view is not what Reid advertised. I suppose there is nothing *wrong* with categorizing properties relative to individual perceivers’ knowledge of their intrinsic natures; however, doing so will not reliably distinguish smells and colors on the one hand from size and shape on the other. In fact, this “foundation” provides no reason for dividing the sensible qualities in any particular way. But this is precisely what Reid said that his account would do.

## VII. Saving the Distinction

This worry suggests that we have yet to understand Reid’s view fully. We should note Reid’s remarks that secondary qualities are such that “we know no more *naturally*, than that they are adapted to raise certain sensations in us,” and “the latent qualities are such as are not *immediately* discovered by our senses” (*Inq* V iv, p. 61; *IP* II xxi, p. 307; my italics). This implies that perception of the intrinsic nature of a primary quality is immediate, but perception of the intrinsic nature of a secondary quality, if it occurs at all, is mediated.

To develop this idea further, we need to look to Reid’s distinction between original and acquired perception:

In original perception, the signs are the various sensations which are produced by the impressions made upon our organs. The things signified, are the objects perceived in consequence of those sensations, by the original constitution of our nature....

In acquired perception, the sign may be either a sensation, or something originally perceived. The thing signified is something, which, by experience, has been found connected with that sign (*IP* II xxi, pp. 302-3).



For example, when I feel a ball in my hands, the sensation I get through touch signifies the spherical shape of the ball naturally, because of my constitution. However, it is said that someone who merely looked at a ball for the first time (or had recently acquired sight) would not be able to discern its spherical shape from its shading alone.<sup>24</sup> So the perception of three-dimensional shape through touch is an original perception, while the perception of three-dimensional shape through sight is an acquired perception. Other acquired perceptions can be more sophisticated and specialized, such as the perception that some hunk of metal is a carburetor.

What do original and acquired perceptions have to do with primary and secondary qualities? I understand Reid to be saying that one can have acquired perceptions of primary and secondary qualities, and one can have original perceptions of primary qualities, but one cannot have original perceptions of secondary qualities, except as unknown causes of sensations. Feeling a sphere's roundness is an original perception of a primary quality. *Seeing* its roundness is an acquired perception of a primary quality. We can also have *acquired* perceptions of secondary qualities. We can learn about the effluvia that produce olfactory sensations in us, and come to perceive that certain objects emit effluvia. But human beings do not *originally* perceive secondary qualities, except as unknown causes of sensations. It is not a part of our original constitution that sensations produced by secondary qualities give us perceptions of those qualities as they are in themselves.

This may sound odd. For example, it seems to imply that perception of colors, smells, and tastes is acquired. However, according to Reid, these secondary qualities are properly conceived of as causal bases of dispositions to produce sensations. No one has original perceptions of the causal bases of colors, smells, and tastes, other than those of unknown causes of sensations. The sensations caused by secondary qualities do not allow us to perceive the qualities as they are in themselves. However, we can have acquired perceptions of causal bases:

No man can pretend to set limits to the discoveries that may be made by human genius and industry, of such connections between the latent and the sensible qualities of bodies. A wide field here opens to our view, whose boundaries no man can ascertain, of improvements that may hereafter be made in the information conveyed to us by our senses (*IP* II xxi, p. 308).

Perhaps, through investigation and training, we can come to perceive that some molecules are moving very fast, or that a surface has certain reflectance properties. This view has striking similarities to Paul Churchland's:

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24. For a discussion of this issue, see *IP* II xxi, p. 301; Locke, *Essay* II ix 8, p. 67; M. Morgan, *Molyneux's Question: Vision, Touch, and the Philosophy of Perception* (Cambridge UP, 1977).

... it is quite open to us to begin framing our spontaneous perceptual reports in the language of the more sophisticated reducing theory.... We can thus make more penetrating use of our native perceptual equipment.<sup>25</sup>

It is important for us to try to appreciate, if only dimly, the extent of the perceptual transformation here envisaged. These people do not sit on the beach and listen to the steady roar of the pounding surf. They sit on the beach and listen to the aperiodic atmospheric compression waves produced as the coherent energy of the ocean waves is audibly redistributed in the chaotic turbulence of the shallows.<sup>26</sup>

However, Reid is unlikely to go along with a wholesale revision of common sense conceptual frameworks. Because perception of secondary qualities is not original and natural, but mediated and acquired, the relational specification of secondary qualities is likely to remain the paradigm mode of reference.

This connection to original and acquired perceptions helps us to see why Reid's view does not reduce to the radical relativism discussed earlier. While the primary/secondary quality distinction may be relativized to the human race, it is not relativized to individual perceivers and times. Our epistemic situation may change, but we can still find a foundation for the distinction in the principles of our nature. Because of some natural principle of our constitution, we do not have original perceptions of the intrinsic natures of certain properties. When these properties cause sensations in us, we infer that the sensations have been caused by something or other, but we do not know by exactly what. If we want to refer to these properties, we have to pick them out in a relative way as whatever it is that causes these sensations. We have to use relational specifications of these properties, at least until we do some investigation and learn something about their intrinsic nature.

*University of Alabama at Birmingham*

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25. P. Churchland, "Reduction, Qualia, and the Direct Introspection of Brain States," in *A Neurocomputational Perspective* (MIT Press, 1989), p. 53.

26. Churchland, *Scientific Realism and the Plasticity of Mind* (Cambridge UP, 1979), p. 29.