20 Locke, *Essay* II.viii.7-26 Primary and Secondary Qualities

Over *Essay* II.viii.7-26 Locke considered the question of how our simple ideas of sensation are related to the objects that produce them. Might the qualities that appear in our ideas also be qualities of bodies that exist outside of us? Might they at least resemble qualities of bodies? Or might there be nothing like the qualities of our ideas to be found in bodies? Alternatively might some qualities of our ideas be qualities of bodies while others are not?

In addressing these questions, Locke divided our simple ideas of sensation into three different classes:

- i) ideas of solidity, extension or bulk, and their various modifications,
- ii) ideas of sensible qualities like colour, smell, taste, sound, heat and cold,
- iii) ideas of pleasure and pain.

He proceeded to point out that people have generally supposed that the qualities represented by our type (i) and (ii) ideas are more or less exact replicas of properties existing in external objects, and that we only have these ideas because external objects have somehow managed to impress us with their shapes or infect us with their colours, temperatures and other properties, thereby creating ideas of these qualities in us. In contrast, people have generally supposed that type (iii) ideas of pleasure and pain do not resemble anything to be found in external objects, even though they are also caused by these objects. Type (iii) ideas are supposed to exist only in the mind, and only when they are perceived.

Locke's main point over this part of the *Essay* is that while the tradition is right about type (iii) ideas, it is wrong about type (ii) ideas, and only partially right about type (i) ideas. Our type (ii) ideas are no different from our type (iii) ideas. And our type (i) ideas are not adequate representations of the qualities in bodies. They probably resemble the large-scale or macroscopic qualities of bodies. Though we can suppose that the insensibly small parts of bodies probably have these qualities as well, we get little information from our ideas about exactly what shapes, motions, or modifications of solidity these parts may have.

The main reason Locke had to offer for this position is expressed in *Essay* II.viii.11. Locke there claimed that the only way in which one body can be conceived to act upon another is by impact. This requires us to ascribe motion, solidity, and figure to bodies, since to impact on one another bodies have to be moving and solid, and to be solid they have to take up a space of some figure. However, it also means that we must consider all of our ideas to be products of the motion, solidity and figure of bodies, rather than to be due to some quality in the bodies that bleeds out of them and into our sense organs. For, if all action of one body on another requires impact, then the action of bodies on our sense organs must also require impact; and that means that bodies must be supposed to affect us through being moving, solid and figured, and not through transmitting other qualities.

QUESTIONS ON THE READING

1. Explain the difference between qualities and ideas.

Reading Note: In both II.viii.7 and II.viii.10 the phrase "in the subject" occurs. You should understand this phrase to be a reference to the object outside us, not to the perceiving subject. Thus, II.viii.7 is a reference to "resemblance of something inherent in the external object," and



II.viii.10 to "real qualities in the external object." Locke used "subject" here in the sense of "subject of investigation."

- 2. What features must a quality have if it is to be considered primary?
- 3. How do the secondary qualities differ from the primary, if at all?
- 4. How do the tertiary qualities differ from the primary and the secondary, if at all?
- 5. How is it possible for one body to act on another?
- 6. Given that external objects are not only not united to our minds but even sometimes set at some distance from us, by what means do we come to perceive their original qualities?
- 7. When Locke wrote in II.viii.15 that "the *Ideas, produced* in us *by* these *Secondary Qualities, have no resemblance* of them at all," what were the ideas he was referring to, and what were the secondary qualities that he had in mind?
- 8. What produces the idea of the motion and shape of a piece of manna in us? What produces the ideas of sickness, acute pains, and gripings in those who have eaten a piece of manna? What produces our ideas of the whiteness and sweetness of the manna?
- 9. What is the only effect that the pounding of an almond can produce in the almond? What effect does the pounding of an almond produce in us when we perceive it?

NOTES ON THE READING

The topic of *Essay* II.viii.7-26 does not fit very well with the idea of doing a critique of the human knowing powers by means of the "historical, plain method" of investigating the origins of our ideas, their nature, and the conclusions that can be drawn from them. Instead of starting from ideas and determining what can be inferred from them, Locke here simply presupposed the existence of external objects, presupposed that these objects affect us, and went on to inquire how our ideas might be related to them.

However, what Locke later described as "this little excursion into natural philosophy" (II.viii.22) is not entirely unjustified if we consider that, unlike Descartes, he did not think that he first needed to prove the existence of bodies from absolutely certain first principles. For him, it is enough that it should be likely that there are bodies. Granting that it is indeed likely, the question of the relation between our ideas and bodies naturally arises, and Locke thought it would be wise, right at the outset, to get clear about which features of our ideas might even possibly be supposed to be resemblances of qualities in bodies. This is especially the case since, as he thought, people have generally taken things like colours, heat and cold to be qualities in bodies when in fact they can be nothing more than ideas in us.

To justify this position, Locke needed to come up with some sort of test for discriminating which, among the various things we find in our simple ideas, might resemble qualities actually existing in bodies. He fixed on the same criterion Newton was to identify in Rule 3.

Qualities thus considered in Bodies are, First such as are utterly inseparable from the Body, in whatever 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; and Such as sense constantly finds in every particle of Matter [that] has bulk enough to be perceived, and the Mind finds inseparable from every particle of Matter, though less than to make itself singly be perceived by our Senses [II.viii.9]

Compare Newton's claim that "the qualities of bodies [that] admit neither intensification nor remission of degrees, and [that] are found to belong to all bodies within the reach of our experiments, are to be esteemed the universal qualities of all bodies whatsoever." Newton's



requirement that a quality not admit of intensification or remission of degrees is reflected in Locke's that a quality be "such as in all the alternations and changes it suffers, all the force can be used upon it, it constantly keeps." And Newton's requirement that a quality be found to belong to all bodies within the reach of our experiments is reflected in Locke's that a quality be "Such as sense constantly finds in every particle of Matter [that] has bulk enough to be perceived."

We might wonder why Locke thought these are useful criteria for identifying the "first" qualities of bodies. After all, it is not as if we see the bodies themselves and so can discern from experience that all bodies in fact have certain qualities and that no process in nature ever destroys those qualities. We can only see our ideas. Unfortunately, Locke provided us with no enlightenment on this score. The most likely answer is that he may have thought that if any features of our ideas could be ascribed to bodies, they would be those that are present in all of our ideas of bodies.

Applying this rule, Locke determined that all bodies must be solid (for reasons already considered in the previous chapter), and also that they must be extended. For, even though bodies may be divided, division does not destroy their extension, but merely cuts it up into separate pieces that can be moved apart from one another. No extension is destroyed through division and none is created in aggregation; extended parts are merely redistributed. Unlike Newton, however, Locke did not list gravitational mass among the qualities that must be admitted among all bodies (action at a distance seems to have been simply too much for him to accept, though in later editions of the *Essay* he silenced his objections to it in deference to Newton's results), and he speculated that inertial mass (impulse and resistance) and hardness (protrusion) may be simply modifications of solidity (II.iv.5).

Insofar as bodies are admitted to be solid and extended, they must also have all the qualities that arise from the way solidity and extension can be modified. That is, they must have inertia (which, as noted, Locke took to be an effect of solidity [II.iv.5]), hardness, figure, size, orientation, and mobility, and they must be divisible into parts. These parts in turn must have their own inertia, hardness, figures and sizes, and depending on how they are ordered and interlinked in composite bodies, they create different textures.

Looking at things in this way led Locke to conclude that people are in fact right to take their type (i) ideas to be reflections or resemblances of qualities that are actually in bodies. However, Locke did not think that the solidity, shape, and motion of bodies are directly communicated to the mind, to produce our type (i) ideas. He took it to be "manifest" that the only way one body can operate on another is by impulse (that is, communication of motion as a result of impact or contact). (Hence, his earlier noted inability to countenance gravitational mass among the primary qualities.) This applies to the effect of bodies on the senses as well. Insofar as bodies bring about ideas in us, it must be by impulse. But impulse requires contact, and bodies are not in contact with our minds, or even with our brains. Indeed, some of the bodies that we sense are set at quite some distance from us. Reflecting on this fact, Locke concluded that if we nonetheless get type (i) ideas from these bodies, it must be because they emit or reflect a stream of insensibly small particles towards our sense organs. The impact of these particles on our sense organs then brings about motions in our nerves that are transmitted to the brain. The result of this process, a motion of the parts of the brain, likely bears only the most remote similarity to the body that originally caused it. However, Locke supposed that the particular ideas of extension and solidity that are produced in the mind when particular motions occur in the brain do, happily or because of divine providence, represent the macroscopic shapes, motions, and solidity of the bodies that originally affected us.



But, Locke went on to claim, it is a vulgar error to suppose that the type (ii) ideas also resemble qualities in bodies. In fact, he claimed, we have more reason to suppose that they are like the type (iii) ideas — that they only exist in us and only exist when perceived, though they are caused by something that endures in external objects independently of being perceived.

It is important to appropriately appreciate the path of Locke's argument. Locke did not claim that we can *know* that our type (i) ideas are resemblances of qualities in bodies, but that our type (ii) ideas are not. He rather argued that we have a number of good reasons to doubt that our type (ii) ideas resemble any qualities actually inhering in bodies. These same reasons do not, however, apply to our type (i) ideas (*Essay* II.viii.21 contrasts the different sensations of heat and cold that we can get when we immerse a hot and a cold hand in the same bucket of water with the sensations that we have of the figures of bodies, which according to Locke never vary regardless of what state our hands are in). Therefore, while we have reason to *doubt* that our type (ii) ideas resemble qualities in bodies, we have no reason to doubt that our type (i) ideas do so. This does not mean that we can claim to know or be certain that our type (i) ideas do resemble qualities in bodies. At best it means that we have no good reason to doubt this claim, and so can believe it is probably true.

Locke offered five main reasons for doubting that type (ii) ideas resemble qualities in bodies. The first is to be found at II.viii.16. Locke there observed that type (ii) ideas can, as it were, shade off into type (iii) ideas. Warmth and cold, for example, are type (ii) ideas that turn into pain as they are intensified. This is an indication that type (ii) ideas cannot really be distinct from type (iii) ideas. They are simply lesser degrees of the same phenomena that are present in more intense degrees in our type (iii) ideas. But everyone is agreed that type (iii) ideas exist only as ideas in us and are not qualities in bodies. If the type (ii) ideas are simply less intense degrees of the type (iii), then they ought to exist only as ideas in us as well.

Locke's second argument is alluded to in the last clause of II.viii.16 and laid out more fully in II.viii.18. (II.viii.17 does not offer an argument but simply further describes the theory and is passed over here.) At the close of paragraph 16 he observed that if the only way change can occur is by impulse (as was claimed in II.viii.11), then the only way any ideas whatsoever, including our ideas of sensible qualities, can be brought about in us is by motions of solid, shaped parts. But if all that needs to exist in order to cause our ideas of sensible qualities is the motion of shaped and solid particles, then it would be extravagant to suppose that bodies must also have qualities that resemble colours, smell, heat and cold, and other sensible qualities. II.viii.18 argues for this same point by means of an extended discussion of a piece of manna. (Manna was an 18th century medicinal concoction used to induce nausea and vomiting. It was white and sweet and was baked up in pans like cake and then cut up in squares.) Locke's point is that the type (i) ideas we get of the manna's shape and motion are supposed to be the result of the aggregate shape and motion of its insensibly small parts. Similarly, the type (iii) ideas we get of pain in the guts are supposed to be the result of exactly the same cause: the motion of the insensibly small, shaped and solid parts that go to make up the manna, acting on our intestines. Why, therefore, asked Locke, should we suppose that the whiteness and sweetness must alone have some other, unique cause, qualities actually resembling whiteness and sweetness? It is not as if it is any more mysterious how colourless, tasteless particles could produce ideas of colour and taste than it is how they could produce ideas of cramping and pain, yet we have no problem accepting the latter consequence. By parity of example we ought to accept the former.



Locke's third argument is given over II.viii.19, and turns on the observation that our type (ii) ideas can disappear even though the bodies remain and are not thought to have undergone any alteration. Locke instanced the mineral, porphyry, which looks to be red and white, but which does not have those qualities in the dark. Since the red and white disappear in the dark, but we do not think that the porphyry is destroyed or altered by shutting off the light, we must conclude that these colours are not really qualities in the body, porphyry, but rather results of the way light affects our senses.

Locke's fourth argument is found at II.viii.20. He there observed that operations that can only plausibly be supposed to change the shapes, arrangements, and motions of the insensibly small parts of bodies lead us to have different type (ii) ideas. Pounding, for instance, is an operation that can only be supposed to break the extension of a body up into a number of separately movable parts, and so make it softer. But pounding also changes the colour and taste of an almond. Since all that pounding can really do is alter the almond's texture and hardness, the changed taste and colour must be merely effects of the changes in the texture and hardness on our senses of vision and taste, and not independently existing qualities in the bodies at all.

Locke's final argument is found at II.viii.21 and takes the form of an inference to the best explanation. He there observed that the same body can simultaneously give us different, incompatible type (ii) ideas. The same bucket of water, for instance, can simultaneously feel warm to a cold hand and cold to a warm one. Or the same egg might look white to a healthy eye and yellow a person with jaundice. Locke pointed out that it is difficult to account for this fact on the supposition that our ideas of colour or heat and cold are caused by resembling qualities that migrate into us from the bodies that affect us. Since the ideas are incompatible, both cannot simultaneously exist in the object. At least one of them must be merely an idea in us and not a quality in the body. But which one is the real one and where does the unreal one come from and how do we know that the real one does not come from the same causes that produce the unreal one rather than from the object? All of these difficult questions are avoided, Locke claimed, if we accept an alternative theory. If we take the colour and the degree of temperature to be merely ideas produced in us as a result of bodies hitting our sense organs, then we can take the previously existing state of the sense organ to enhance or impede the motion and so alter the character of the sensation that is communicated to the brain. And altered sensations can be expected to produce different ideas in the mind. Thus, taking type (ii) ideas to be produced in us by the impact of solid, moving parts provides a better explanation of the phenomena of perceptual relativity than does the supposition that they are caused by resembling qualities in the bodies.

Summing up all of these considerations, Locke claimed that there are three types of qualities in bodies, and three types of ideas in us:

First, there are primary qualities in bodies. These qualities are solidity, extension, and their modifications. When bodies are aggregated together in large enough numbers to build up composites of sufficient size to be visible or tangible, our type (i) ideas can be considered to be tolerably accurate resemblances of the macroscopic solidity, size, shape, and motion of the composite bodies. Thus, type (i) ideas can be considered to be resembling ideas, or ideas that resemble the primary qualities of macroscopic bodies. However, even these ideas do not represent the micro-structure of bodies. Moreover, they are not themselves the cause of the ideas we have of them. Our ideas are rather caused by insensibly small, shaped and solid particles reflected or transmitted towards our sense organs. And even where the macroscopic bodies do affect our sense organs, as they do in touch, it is the motions of the small parts of the nerves and brain that directly



cause the sensation, and not the quality in the body. The sensation merely fortuitously resembles the quality in the body.

Locke considered that in addition to the primary qualities of extension, solidity and their modes, bodies also have a further set of qualities. He called these qualities powers. When we consider what bodies can do to us, we get the idea that they have the power to bring about ideas of sensation in us, and when we consider what they can do to one another, we get the idea that they have the power to change one another. If all motion is due to impact, these powers must ultimately arise from something solid, shaped, and moving hitting something else. But since we cannot see what it is in bodies that brings about many of their effects (large-scale machines of human design being one of the few exceptions), our ideas of the powers in things tend to be "relative." The power is really some arrangement of solid, shaped, moving, insensibly small particles. But since that is too small for us to see, we denominate the power by referring to its effect.

Locke referred to the powers that bodies have to bring about ideas in us as their secondary qualities. It is important to appreciate that the secondary qualities of bodies are responsible for getting us to have all of our ideas, even our type (i) ideas.

It is also very important to distinguish between secondary qualities as they are in bodies, and type (ii) or non-resembling ideas as they are in us. Colours, smells, tastes, and so on are not secondary qualities. They are type (ii) ideas brought about by some of the secondary qualities of bodies. As effects of the secondary qualities in objects, which are powers, they may serve as "relative" ideas of those powers, and this can lead to some confusion. Since we can only think of the different powers by referring to their effects, not by directly discerning the powers themselves, we tend to substitute our ideas of the effects in the place of that of the powers, of which we have no idea. This can happen easily and inadvertently in language, where it is simply easier to talk about the "redness" in a body than to employ a circumlocution like "the power in the body to bring about the idea of red in us." Locke warned us that he himself often slipped into this way of speaking, even though he knew better. We need to keep in mind, therefore, that even though he may on many occasions speak as though he takes colours, scents, tastes, and the like to be secondary qualities in bodies, his considered position is that the secondary qualities are powers due to the arrangement of solid, shaped, and moving parts and do not resemble our type (ii) ideas in any way. If they resemble anything, it is our type (i) ideas. To confuse colours, smells, tastes and the rest with secondary qualities in bodies is to commit just the error Locke was attempting to expose over II.viii.7-26.

Finally, there are tertiary qualities in bodies. These qualities are also specific textures and motions that bodies acquire from the way their microscopic parts are shaped, size, ordered, connected, and moving. But they are these textures and motions considered insofar as they tend to bring about various alterations in other bodies, rather than insofar as they tend to bring about ideas in us. For example, the texture and motion of the particles of acid, insofar as it causes a salt taste on the tongue, is a secondary quality, but insofar as it causes a metal to dissolve, it is a tertiary quality. Tertiary qualities obviously have nothing to do with type (iii) ideas. They do not cause our type (iii) ideas, and our type (iii) ideas do not represent tertiary qualities.

To sum up, the relations between qualities in things and ideas in us may be listed as follows:

- Primary qualities in the insensibly small parts of things constitute their secondary and tertiary qualities
- Secondary qualities cause all of our ideas, be they of type (i), (ii) or (iii)



- Type (i) ideas resemble the macroscopic primary qualities of things, but since we do not have
 microscopical eyes, our senses are not adequate to give us type (i) ideas of the primary qualities
 of their small parts, and so we are not able to discern what gives things their secondary and
 tertiary qualities
- Type (ii) and type (iii) ideas do not resemble any qualities of things, primary or secondary, however, both type (ii) and type (iii) ideas give us relative ideas of the secondary qualities of things
- Changes in the type (i), (ii), and (iii), particularly the type (ii) ideas of bodies give us relative ideas of the tertiary qualities of the things that cause those changes.

Essay II ix.1-4,8-9; x.1-2; xi,1,4,6,8,9,15,17 Perception and other Simple Ideas of Reflection

For Locke, in addition to the ideas that we get from sense, which refer to objects outside us, there are ideas we get from reflection on the operations of our own minds. It is through these ideas that we first become conscious of what our own minds do to the ideas they have previously received. Through them, we learn how the mind processes ideas to generate knowledge, belief, opinion, fantasy, and even experience itself. Essay II.ix-xi is devoted to an examination of some of the main ideas of reflection and the operations they refer to.

These main operations are perceiving, remembering, discerning and comparing, compounding and repeating, naming, and abstracting.

QUESTIONS ON THE READING

- 1. Can we have ideas that go unnoticed by us?
- 2. What is the idea immediately imprinted on the mind when we see a black or golden globe?
- 3. What makes it "evident" that this is all there is to the immediate idea?
- 4. What was Molyneux's question and what was his reason for answering this question in the negative?
- 5. What moral did Locke draw from Molyneux's negative answer to this question?
- 6. Explain Locke's distinction between the role played by "perception of sensation" and "idea of judgment" in visual perception. What is immediately perceived as a consequence of sensation and what is judged?
- 7. What is wrong with viewing memory as a storehouse for ideas we have had in the past? What is memory if not a storehouse?
- 8. How is it that particular ideas can be made to become general?

NOTES ON THE READING

Perceiving consists in attending to the influences our senses convey from objects to the brain. Locke's idea seems to have been that, unless the mind actively attends to or "perceives" these influences, ideas will generally not arise from sensation. There are exceptions — bright lights, fast moving objects, cuts, burns, pinches, and loud noises tend to intrude on the mind, draw its attention, and force it to form corresponding ideas of colour, motion, pain, and sound. But objects can often have an influence on our senses and brains that goes unnoticed and does not lead the mind to have any perceptions. This is readily exemplified by the case of our sensations of pressure and gravity. Up until this moment, you have likely not been aware of the feeling of your chair or the ground pressing up on you from below. Yet the chair and the ground have all along been



Early Modern Philosophy by <u>Lorne Falkenstein</u> is licensed under a <u>Creative Commons Attribution-</u> NonCommercial-NoDerivs 3.0 Unported License. having an influence on your sense of touch, and your sense of touch has all along been transmitting something to your brain as a consequence of being so affected. But until you chose to attend to them, those sensations did not produce any ideas of solidity or pressure in your mind. In this case, your ideas are not simply passively received as a result of stimulation of your sense organs, but depend on a special effort of attention. That effort is what Locke called perceiving.

Note that, Locke did not define perception as the operation of attending to ideas that already exist, unnoticed, in the mind. The process of perceiving or attending is required to bring ideas into being. If that process is not performed, the sense organs can still transmit motions or impressions into the brain and those motions and impressions will exist unperceived in the brain. But they will not cause ideas. They cause ideas only with the cooperation of the perceptual faculty of the mind. This cooperation can sometimes be compelled (as in the case of very strong or painful sensations, as noted earlier), but if it is not compelled, ideas will simply not be created, even though the appropriate impressions and motions for doing so exist in the brain. There can be no unperceived ideas, therefore. Ideas only exist insofar as they are perceived.

Locke went on to note that there is something else that can happen in perception in addition to the bare creation of an idea. Perception can sometimes also include an act of judgment.

Usually, when we judge, the act of judging is explicitly a two-stage process. There is something that is given to us in perception as information or premises, and then a conclusion is drawn from this information. We are perfectly aware that the information is one thing and the conclusion drawn from the information something quite different. However, in cases where we have been called upon to make the same judgment over and over again, the judgment can become so automatic that we are not aware of making it. We get the information by perception, make the judgment, and then forget the information we based the judgment on, and forget the act of judgment and just think of the conclusion, so that it seems to us as if we are actually perceiving the conclusion, rather than perceiving the original information and then judging that it entails the conclusion.

Locke gave an example. A sensation is transmitted from the senses to the brain. The mind attends to this sensation. In very young children, attention to this particular type of influence naturally and originally produces the idea of a flat circle, variously coloured. However, children discover as they grow up that their visual ideas of flat circles, variously coloured, are associated with tangible ideas of globes, and these globes are seen, upon being turned about, to actually be of a uniform colour. As a result of this experience, an act of judgment intrudes to influence our perception. In adults the original idea of a flat circle variously coloured is taken to be a sign of a uniformly coloured globe and the transition from the one idea to the other is so easy and rapid that the initially received idea is transformed into the associated idea.

In giving this example Locke supposed that we originally see in just two dimensions. This is something that he took to have been made evident by the practice of painters. Locke seems to have thought that when we go to paint, we are forced to attend more closely to what we really see than we normally do. Painters who go to paint a golden or jet globe actually see, upon close inspection of this object, that it is not in fact of a uniform colour, but that the colour shades from bright to dark over various parts. Then, when they go to replicate this actual appearance on canvas, they discover that their painting, despite being made on a flat surface, actually looks rounded, like a globe, whereas if they had made it all one colour, it would have looked flat and circular. This experience convinces us, Locke seems to have believed, that the sensations we originally receive from vision must be like what the painter actually paints onto canvas. Painters are forced by their craft to paint



what they really see. So the features painters put into paintings must be the features of the original visual ideas themselves.

If Locke is right about this, then those who have not yet had the relevant experiences should still see the original visual ideas without the modifications our experience subsequently leads us to inject into them. Thus, very young children should only see in two dimensions.

This is a controversial issue, and it touches on a dispute between Locke and Descartes. Descartes shared Locke's supposition that we originally only see in two dimensions. But, when discussing the means whereby we come to visually perceive depth in his *Optics*, he had declared that some of these means involve "as it were an innate geometry." That is, Descartes had supposed that we are simply innately so constituted that, on the occasion of experiencing certain two-dimensional visual ideas, we automatically judge their three-dimensional significance.

Locke's rejection of innate knowledge did not dispose him to want to accept Descartes's account of depth perception. In opposition to Descartes, he wanted to insist that it is only after we have discovered through experience that certain visual ideas correspond to certain tangible ideas that we are enabled to make judgments concerning visual depth. Unfortunately, Locke and Descartes could not resolve their dispute by introspection. None of us is any longer in a position to remember how things originally looked to us in the first weeks after birth, or whether we had to learn what distances outwards along the depth axis to associate with what features of our visual experiences. Neither could the dispute be resolved by approaching very young children and asking them whether they are able to see depth. By the time children have acquired the verbal and intellectual abilities to understand the question, they are too old to remember what their original visual experiences were like.

The Molyneux Question. This last reflection led Locke into a fascinating digression on what adults, blind since birth, but intellectually sophisticated, able to communicate, and familiar with geometrical concepts learned from the sense of touch would tell us upon acquiring the power of vision. One of his friends, William Molyneux, had earlier posed a question on this topic — a question that has since become one of the central topics of perceptual psychology. What would happen, Molyneux asked Locke, if a blind person, who had learned by touch to distinguish between a cube and a sphere were made to see and then shown a cube and a sphere? Would the blind person be able to tell which was the cube and which the sphere just by looking at them, without first touching them?

Both Molyneux and Locke speculated that the answer to this question would have to be no. They thought that the previously blind person would see two dimensionally extended coloured patches and would probably be able to apply concepts like "circle" and "square" to those patches. For them, the only question was whether the previously blind person would see more than that, and be immediately able to identify distances of the parts of objects outwards from one another in the direction of depth, and so not just see circles and squares, but cubes and spheres. To justify their intuition that the person would not be able to do this, they claimed that the person could have no reasonable assurance that, as Molyneux put it, simply because something *looks* to have a certain shape it would also be *felt* to have that shape. More specifically, just because something looks to have a certain *two-dimensional* shape, it does not follow what *three-dimensional* shape it would be felt to have. (Note that when the previously blind person is asked which is the "sphere" and which the "cube" it is suggested that the objects have three dimensional shapes.) We have all had the experience that things that feel a certain way do not always look the way they feel. For example, a straight pencil looks bent when half inserted in a glass of water. Solid objects cast different images



on the eyes depending on how they are turned. What appears smooth, small, and round from a distance may look craggy, large, and square from close up. Any object looks to have the shape of a dot if viewed from a sufficient distance under sufficient illumination. And so on. But even if objects always in fact looked the way they felt, a previously blind person would be in no position to suppose, in advance of experience, that such an extraordinary affinity actually takes place. It would be as if, in language, the names of things were modeled on the sounds they make, so that clocks were called "tick-tocks" and cats "meows." A blind person would no more expect an affinity in shape to hold between vision and touch than a person learning a new language has to suppose it to hold between the names people give to objects and the noises those objects make. But more to the point, where the question is that of a relation between the two-dimensional objects seen in vision and the three-dimensional objects felt in touch, there must necessarily be a very significant difference between the two experiences. Supposing disposition in the third dimension is not immediately seen, the previously blind person is in no position to know how the three dimensional objects of touch project themselves onto the sense of vision. It would be as possible that the uniform feel of the sphere should project itself as the uniform colour of the square colour patch and the variegated feel of the cube project itself as the variegated colour of the circular patch as that the sphere should project itself as a circle and the cube as a square.

We might ask what would happen if the blind person were told in advance that objects seen from close up generally look the way they feel, or that each point of the three dimensional objects of touch projects onto the visual field by lines drawn from that point, intersecting at the center of the eyeball, and hitting a concave surface behind that point. Locke and Molyneux would probably answer that in that case the experiment would be corrupted and nothing would be learned from it. Molyneux's question was whether someone newly made to see would immediately see how the parts of objects are placed before and behind one another along the depth axis. If you tell the blind person in advance everything that they need to know in order to draw a judgment about which object is which, then you won't be able to tell whether they are just immediately seeing or instead drawing an inference from what they immediately see.

Those who have since considered Molyneux's question have often forgotten the context in which it was asked, and the presuppositions about the nature of visual experience that Locke and Molyneux carried to their study of that question. For instance, Leibniz, writing a bit later, claimed that the blind person ought to be able to associate the prickly feel of a cube with the existence of angles in the square colour patch experienced in vision and so discriminate the visual cube from the visual sphere on first sight. And Reid, a generation after that, maintained that Nicholas Saunderson (a famous English mathematician and geometer, who was blind, but understood the laws of geometrical projection very well), would be able to tell which was which as long as he was told how light rays are reflected from objects and refracted onto the retina by the lens of the eye. Both Leibniz and Reid missed the point that Molyneux was not asking whether the previously blind person could make an educated guess or a correct judgment. Molyneux and Locke were trying to get an answer to the question of whether visual experience is originally three dimensional or only originally two dimensional, and they wanted the experiment with the previously blind person to be set up in such a way as to test what that person would immediately see, not what they would be inclined to guess or judge about what they saw.

Other philosophers and psychologists, beginning perhaps with Berkeley and Condillac, have wondered whether the previously blind person would at first be able to see any shapes, or even any spatial order of colour points at all. Perhaps because of shadows or variations in brightness, the



person would think there are edges where we only see subtle differences in shading of a uniformly coloured surface. In that case, the person would not be able to distinguish figure from background colours and so would be in no position to identify which things go together to compose a shape and which fall on opposite sides of the boundaries between different shapes. Or perhaps the person would not even be able to tell which colour points are placed where in relation to one another. These thinkers did not share Locke's and Molyneux's supposition that the person would at least be able to see two dimensional colour patches. Locke and Molyneux might have welcomed that objection as an even more compelling way of making their point that three-dimensional arrangement could certainly not be immediately seen. But Locke might also have seen it as a worrying challenge to his position on primary qualities. If the objects of vision are effectively not immediately seen to be in space at all, then extension and motion cannot be assumed to be universal qualities of all the objects of sensation. And since solidity cannot be understood apart from motion and extension (since it has to do with resistance to entry of a moving object into a space), nothing is left that could be a primary quality.

There were no actual tests of the Molyneux question made in Locke's day, though a generation later an English physician, William Chesselden, removed cataracts from a boy's eyes and made careful observations on the boy's reactions — observations that appeared to confirm Locke's and Molyneux's positions on the question. Subsequent work has been more ambiguous and has tended, if anything, to establish Berkeley's and Condillac's conjecture that visual experience is far more complex and multi-faceted than Locke and Molyneux had imagined.

Locke's purpose in raising the Molyneux question was programmatic. "This I have set down, and leave with my Reader[s]," he wrote towards the close of *Essay* II.ix.8, "as an occasion for [them] to consider, how much [they] may be beholding to experience, improvement, and acquired notions, where [they] think, [they have] not the least use of, or help from them." Over subsequent parts of *Essay* II, Locke intended to argue that a number of ideas that Descartes and others had supposed to be immediately perceived by a direct inspection on the part of the understanding — ideas like those of substance, infinity, intelligible extension, and identity — are in fact built up by mental operations (such as compounding, comparing, and abstracting) from more primitive ideas that were originally given through sensation. The consideration of the Molyneux question served as a sort of preparative for that argument. Locke's thought was that if we could be led, by consideration of the Molyneux question, to appreciate that a significant number of the ideas that we think are directly and immediately perceived by us are actually worked up by unnoticed mental operations performed upon more primitive and simpler ideas, then we would be more receptive to what he had to say in the remainder of *Essay* II.

Before turning to that argument, however, Locke provided a capsule summary of some of the other main operations that the mind performs upon simple ideas.

Contemplation and Memory. Locke noted that we have a capacity to hold an idea we have once perceived in mind even after the sensation that caused it is no longer occurring in the brain. Locke called this capacity contemplation.

Memory, in contrast to contemplation, is the capacity to have ideas that have been perceived in the past. Obviously, we do remember things, and we do so all the time. But memory is an extremely difficult operation to account for. There is something almost paradoxical about it. We cannot remember something off in the past the way we see something off in the distance, by just looking and seeing it faint and obscure on the horizon. For the past no longer exists. Past objects are not still there to be seen. Given this fact, it is tempting to say that what we do is contemplate



some left over trace or echo of the past object that continues to exist. Hobbes, insofar as he treated our sensations as producing motions that continue to reverberate in the brain after the time of their initial impression, took such a position. However, Locke was explicit that memory cannot involve storing the echoes or traces of past ideas away in some filing cabinet of the mind, like so many pictures or documents, and then pulling them out again when needed. Were we to accept that view, we would have to accept that ideas continue to exist when not perceived and Locke did not want to make that supposition. Rather, he took memory to be a capacity to recreate ideas we have had before and that have since disappeared, even though the sensory stimulus that originally produced them is no longer present.

But then how do we distinguish these ideas from ideas currently being produced in us? How do we know that we are remembering? We cannot say that this is because there are no motions or impressions currently being communicated by our senses to our brains to cause the ideas, because all that we ever aware of is our ideas, not the activities in the brain that are supposed to cause them.

To solve this problem Locke declared that when we ourselves recreate an idea in memory we form the further idea that this idea was sensed at some time before, and attach this idea of "beforeness" to the idea we are currently creating.

However, this position raises further problems. To remember an idea, on this account, is to attach to a currently existing idea the further idea that it was had before. But what could make us think such a thing, if the currently existing idea exists now, rather than earlier? To answer that we *remember* that an idea just like it was had earlier (or "before") is unacceptable, because Locke is here supposed to be explaining what memory is. To say that to *remember* is to now have an idea that you *remember* was had more vividly in the past is not an explanation of what memory is because it employs the very notion we are trying to explain as part of the explanation. So it looks like Locke would have to say that we are simply innately so constituted that when we perform the operation of remembering we simultaneously produce an idea of beforeness, which we attach to what we remember.

One problem with this approach is that beforeness is something that comes in degrees. How do we know how much before or how earlier to consider a remembered idea to be? What gives us the capacity to not merely reproduce the idea, but keep track of how must time has passed since we had it so that we can attach the appropriate amount of "beforeness" to it? It is not clear how a non question-begging answer could be these questions (how they could be answered without presupposing that we somehow remember how long it has been since we last had the idea, though how we remember anything is just what is supposed to be explained).

Another problem concerns how Locke would account for the origin of the idea of beforeness. He could not take it to be an idea of sensation, like our idea of red, because ideas of sensation originate in us when our senses communicate some special motion or impression to the brain. But the whole point of memory is that remembered ideas are not the product of any motion or impression currently being produced in the brain by the senses. They are rather the product of an operation performed by the mind. So should we say, then, that our idea of "beforeness" is an idea of reflection? This does not seem quite right either. Ideas of reflection are ideas we form through reflecting on the operations of our minds. The idea of remembering is an idea we form through reflecting on the operation the mind performs when it remembers. But the idea of "beforeness" is not an idea of an operation on the part of the mind. It is an idea of a relation (a temporal relation) between two ideas, and Locke's position seems to be that the operation of remembering consists, in part, in grabbing hold of this idea and attaching it to an idea that the mind reproduces. But then the



question recurs. Where is this idea coming from? The only remaining possibility would seem to be that the idea is innate, but that is hardly an option that Locke would be happy to countenance.

Discerning and Comparing. When we perceive, it is typically the case that many different simple ideas are perceived together. Some of these simple ideas may follow one another in time; others may be disposed alongside one another in space, and yet others may be bundled together, as figure and colour are bundled together in a colour patch. Discerning is an operation of the mind that works like a more acute perception. When we discern we isolate the individual simple ideas that our perceptions contain and contemplate them separately from one another.

We may also compare various perceptions, or even various simple ideas with one another. This operation leads us to form ideas of the respects in which the ideas we are comparing resemble or are different from one another. Our ideas of relations arise in this way. These are highly refined ideas that are not given in sensation, and are not parts or aggregates of ideas of sensation, but are quite new ideas, though new ideas that can only arise in us insofar as certain other ideas have first been given in sensation and reflection and then compared in the right way. It is through discerning and comparing that we come up with the idea of identity — the relation of being the same as — as well as the idea of difference — the relation of being different from. The supposedly innate principles of the identity of indiscernibles (if there is no discernible difference whatsoever between one thing and another then they are the same), and the law of non-contradiction (nothing is the same as what is different from itself) are read directly out of these relations. But since the relations of identity and difference have to be learned by comparing and contrasting sensations, these principles cannot in fact be innate.

Repeating and Combining. The mind also has the ability to imaginatively combine ideas that have originally been given separately from one another in distinct perceptions. This is what accounts for all our fantastic ideas as well as for all our ideas of new inventions that have never before been seen. It is also what accounts for our mathematical and geometrical ideas of magnitudes in time and space and number, which are generated by taking a unit and adding it to itself. Locke sometimes described combinations of multiple replicas of the same idea (like the idea of a unit repeated twice, three times, etc., to give us our idea of number) as "repeating." "Combining," in contrast to repeating, involves combinations of different ideas.

Naming. Naming is an operation whereby occurrences of a given idea are associated with a particular word. A word is itself just a special kind of auditory or visual idea (a spoken word or written symbol). Once we have named our ideas we can use these names to later call them to mind.

Abstracting. Abstracting is the operation whereby the mind isolates some feature that a number of different ideas have in common and forms an idea just of that common feature. (It is therefore importantly distinct from discerning and separating.) Abstraction gives rise to our generic ideas (i.e., our ideas of kinds of things or groups or classes, as opposed to our ideas of particular things). All, or most of our words are in fact names of general ideas. Very few are reserved to name particular objects.

ESSAY QUESTIONS AND RESEARCH PROJECTS

- 1. Critically assess Locke's argument for inferring that our type (i) ideas must be resemblances of qualities in bodies.
- 2. Critically assess Locke's arguments for inferring that our type (ii) ideas are not resemblances of any qualities actually inhering in bodies.



- 3. Locke's claim that there is a distinction to be drawn between type (i) and type (ii) ideas was in part based on an appeal to the claim that type (ii) ideas are relative (the same water can feel warm to one hand but cold to the other) whereas our senses never give us conflicting information about the type (i) qualities of objects (no object ever feels like a globe to one hand but a cube to another *Essay* II.viii.21). However, this claim seems obviously false in a number of cases (a pencil in a glass of water looks bent but feels straight, for example). This is a point that was made by Bayle in note H of his Zeno article (to be read later in this class), by way of criticism of the Cartesian claim that a "blind impulse" leads us to think that material things are coloured, but a clear and distinct perception leads us to think that they must be extended. However, it works just as well as a criticism of Locke, and both Berkeley (*Principles* 14-15) and Hume (*Enquiry* XII) used it as such. Survey Bayle's, Berkeley's, and Hume's statements of this objection and assess its adequacy.
- 4. Locke's claim that there is a distinction to be drawn between type (i) and type (ii) ideas was also attacked by Berkeley (*Principles* 10, drawing on the argument of his Introduction to the *Principles*) on the grounds that it is impossible to form a type (i) idea without making use of a type (ii) idea. This is because we cannot think of a figure without a boundary, and we cannot think of a boundary without employing contrasting qualities to mark its presence. Berkeley's argument was later restated and improved upon by Hume (see his *A treatise concerning human understanding*, Book I, Part iv, Section 4). Study Berkeley's and Hume's statements of this objection and determine whether Locke would have had any way of defending his position against it.
- 5. In his *New essays on human understanding*, Book II, Chapter 9, Section 8, Leibniz rejected Locke's and Molyneux's answer to the Molyneux question, writing that "the blind man whose sight is restored could distinguish [the cube and the sphere] by applying rational principles to the sensory knowledge he has already obtained by touch" (Remnant and Bennett, eds. [Cambridge: Cambridge University Press, 1981], p.136). Outline the reasons Leibniz gave for his view and the qualifications he applied to his positive answer. Assess whether Leibniz or Molyneux has the stronger case.
- 6. It has occasionally been charged that Locke's negative answer to the Molyneux question is inconsistent with his own position on the distinction between type (i) and type (ii) ideas. According to this objection, if type (i) are resemblances of qualities in bodies, then the newly sighted person ought, on first seeing a globe or a cube, to be able to suppose that the type (i) ideas they receive from vision resemble qualities actually existing in bodies, and relate that information to their tangible experience in order to be able to say which object is the globe and which the cube. This objection is not supported by the interpretation of Locke's reasons for agreeing with Molyneux that was offered in the reading notes. However, the issue is not clear-cut. Accounts of Locke's position on the Molyneux question can be found both in works on Locke (e.g., E.J. Lowe, *Locke on human understanding* [London: Routledge, 1995], p.58, and in works on the history of psychology and of the theory of vision (e.g., Michael Morgan, *Molyneux's question* [Cambridge, Cambridge University Press: 1977]). Consult some of these works and determine whether Locke's negative answer to the Molyneux Question is consistent or inconsistent with his position on the resemblance of type (i) ideas to features of bodies.
- 7. Locke was not the only early modern philosopher to have problems accounting for the phenomenon of memory. Do a comparative and critical survey of attempts to account for



the phenomenon of remembering by major and minor figures in the seventeenth and eighteenth century. Particularly worthy of study are, in addition to Locke, Condillac, Hume, Immanuel Kant, and Thomas Reid.