

Okay, today's topic is a double one dealing with perception and the primary-secondary quality distinction. These are very closely related topics, as we'll see. And the various luminaries here, all of whom have something to do with Oxford, are Robert Boyle, who did his famous experiments, more or less founding the science of chemistry in Oxford, John Locke of Christchurch, Bishop Berkeley, who died and is buried in Oxford, and AJ Ayer, who was Wickham professor of logic at New College. JL Austin and Peter Strawson, whom we've already met.

Now, as he explained in the introductory lectures, a lot of these problems arose precisely because of the development of modern science in the early modern period. In particular, the move away from Aristotelianism to a mechanical account of the world implied explaining perception not in terms of some kind of thing coming from the object to the eye, which was somehow intrinsically similar to the object so that we directly grasped its qualities, but rather in terms of causal intermediaries, particles or waves. Little particles of light that bounce off the objects and come to our eyes and are then interpreted by our brains in order to give us a perception of objects.

Now, obviously the issue doesn't only affect organs of sight, but all of our senses. But most of the discussions of this period tend to be focused on sight or, to some extent, touch. Those are the senses that seem to come closest to giving us a presentation of objects as they are.

This kind of view of the world started, as we saw, with Galileo and Descartes, but Locke's account is the one that was most influential. So when people discuss these issues, it's typically against the background of a Lockean account of perception and the primary-secondary quality distinction.

So, what are objects like when we perceive them? In particular, when we see them? There are impressions caused in us, in our brains somehow, by a means of our sense organs, particularly our eyes. But we hypothesize that these are caused by particles or waves of light coming from the objects, and the properties of those particles or waves bear no resemblance at all to the objects themselves. They somehow convey that information, but we're aware that there is very complex processing that goes on. With the particles or waves hitting the retina, messages traveling down the optic nerve, somehow being synthesized by the brain, and so on.

First of all, it does imply that that intermediary process involves things that are quite unlike either the perceptions that we have mentally and also probably quite unlike the objects themselves. If we're thinking in terms of a mechanical paradigm, that the best explanation of how things happen is basically things bashing into each other, then that naturally suggests that the explanation of all this process had better be in mechanical terms. We naturally see geometrical and dynamical properties, things like shape and size and motion, as being the crucial causal determinants of what happens.

Now John Locke, as we've seen before, took over Boyle's corpuscularian hypothesis. He mentions it actually explicitly in the Essay, only once, Book IV, Part III, Section 16. He doesn't commit himself to this, he doesn't say this is definitely the right account of things, but he says this seems to come closest to an intelligible explanation of how things work. So the

corpuscularian hypothesis explains the properties of different substances, say gold or lead or whatever it may be, as arising from their particular microstructure. So the hypothesis is that the microstructure of gold is different from the microstructure of lead in a way that explains their different properties.

Why they have the color they do, why they melt at the temperature that they melt at, why they're as hard as they are, and so on. So the microstructure is supposed to consist of lots of little corpuscles. Now, these corpuscles are likely to vary between the different substances, presumably they do vary. They might vary in shape, in size, and in organization. They might be differently packed, say. But the corpuscularian hypothesis involves the conjecture that all of these corpuscles are made of the same stuff. So they may vary in their properties, shape, and size, and so on, but they're made of the same stuff, which Boyle called universal matter. And when Locke talks about pure substance in general, it seems likely that he is referring to the same kind of thing. Except, of course, when Locke talks about pure substance in general and the ideas we have of it, he doesn't want to commit himself to the corpuscularian hypothesis. So he's talking about the stuff of which things are made, whatever that is. On the corpuscularian hypothesis, it would be the universal matter from which the corpuscles are composed.

So, this underlying substance is hypothesized to have primary qualities, that is, shapes, movement, texture, and what Boyle called impenetrability and what Locke called solidity. And these are the qualities which are supposed to belong, as it were, intrinsically to the stuff. And those are the qualities in terms of which the appearance of the stuff to us is to be explained. So, the secondary qualities, things like color, smell, taste, the qualities that appear to us, are explained by the primary qualities. They are, in themselves, nothing like what we see. So, when I see something, suppose I look at the light and I see it as yellow, there is nothing in the light remotely like my idea of yellowness. It's rather that the primary qualities somehow caused that idea in me. Being yellow is a matter of having the power to produce the idea of yellow. That phenomenal idea that we are familiar with from seeing yellow, it's having the power to produce that in an observer who's suitably placed.

So, let's focus on the problem here by considering the case of a circular hot plate. Suppose there's an electric hot plate on an oven and it's been heated up until it's glowing red hot. OK, quite familiar. I bring my hand close to the hot plate and I feel warmth. I bring it still closer and I feel pain. Well, the sensations of felt warmth and pain are clearly in the mind. We don't attribute the pain to the hot plate itself. We're not even tempted to do that. Warmth may be less clear, but at least the felt sensation of warmth, we won't attribute that to it. The circular shape, where we are inclined to attribute that to the object, the hot plate really is circular, we think. What about the red color, the red circle that we see when we look at the hot plate? Is that in the mind or is it in the object? And you can see that there's a bit of tension here. When we look at objects and see them as colored, we're naturally too inclined to think of the color as being in the object. But if we start speculating about the mechanisms of perception, as one naturally does in the early modern period, and now, of course, you're naturally led to think, "Hang on, it can't be like that, though."

We're inclined to attribute the redness to the thing itself. Actually, there's no way there can be anything remotely like the redness in the object. Now, there's a well-known text in Locke's Essay, Book II, Chapter VIII, Section 10, which is quite notorious. Locke here is drawing a distinction between primary and secondary qualities, and he is discussing what he understands

by a secondary quality. So he talks about "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 insensible parts, as colors, sounds, tastes, etc. These I call secondary qualities."

Okay, so you've got the primary qualities in the object, the bulk, figure, texture, motion. You've got the secondary qualities, colors, sounds, tastes, and so forth, which are, he says, "nothing in the objects themselves but powers to produce ideas in us." Now, that comma before "but" is rather unfortunate. It gives the impression that Locke is saying that secondary qualities are nothing in the objects themselves. That's quite different from saying that they are nothing in the object but powers. They are in the object, that they are powers. Now, some people have interpreted Locke one way, some the other. I think it's quite clear that Locke does think that secondary qualities are in the object. But secondary qualities in the object are powers.

Now, Berkeley read Locke as denying that secondary qualities are in objects. He thought Locke was saying that secondary qualities are just in the mind, not in objects. But Locke is actually pretty clear on the matter. If you look at his chapter on the adequacy of ideas, I've quoted a little passage there. Now, an adequate idea is one which faithfully represents what it is the idea of. So whether an idea is adequate or not depends on the faithfulness of the representation. And Locke, being an empiricist, is trying to find a suitable foundation for our knowledge. How can we know that any of our perceptions of the world are securely anchored in the way things are? And Locke comes up with a very ingenious solution to this. It's really quite clever. Take the simple idea of yellow that I get from looking at something yellow, just that particular color, not the shape, just the yellowness. And I ask myself, "Is that thing really yellow? Is my idea of yellow a faithful representation of what is there?" And Locke says, "Yes, it is. Definitely. Simple ideas are certainly adequate. Because, being intended to express nothing but the power in things to produce in the mind such a sensation, it follows, since I see the yellow, the thing itself must have the power to produce that idea. And that's all I mean by calling it yellow, that it has that power. Therefore, my idea must be adequate." Very ingenious. If something causes the idea of yellow in me, then that is its being yellow. There's nothing more to being yellow than having the power to produce the idea in me. So at least we can tick off the simple ideas like yellow as corresponding to the way things are.

Now, that's quite important. It's an important epistemological point, a very subtle and clever one. Locke is saying that an object being yellow is not a matter of there being anything in the object that resembles my idea of yellow. It's simply a matter of the object having whatever qualities it is that normally and naturally produce the idea of yellow. So that gives us something solid epistemologically to build on. And this is just one example of a quite fundamental shift between Descartes and Locke. Descartes looks at a piece of wax in Meditation II and finds that his sensory perceptions are leading him radically astray and reckons that the only way that he can get a proper adequate idea of what's there is to use his intellect to penetrate into the nature of matter and see that its essence is extension. So Descartes wants to found everything on intellectual perception. But here is Locke, founding everything on sensory perception and saying, "Here we have a solid anchor." So it's quite a deep move. But at this point, I'm just mainly using it to prove that Locke does think that secondary qualities are in objects. So when you read Locke and Berkeley on these things, it's worth bearing in mind that Berkeley, and indeed Hume, get Locke wrong in this particular respect.

