

composite things, are doubtful; while arithmetic, geometry, and other subjects of this kind, which deal only with the simplest and most general things, regardless of whether they really exist in nature or not, contain something certain and indubitable. For whether I am awake or asleep, two and three added together are five, and a square has no more than four sides. It seems impossible that such transparent truths should incur any suspicion of being false.

And yet firmly rooted in my mind is the long-standing opinion that there is an omnipotent God who made me the kind of creature that I am. How do I know that he has not brought it about that there is no earth, no sky, no extended thing, no shape, no size, no place, while at the same time ensuring that all these things appear to me to exist just as they do now? What is more, just as I consider that others sometimes go astray in cases where they think they have the most perfect knowledge, how do I know that God has not brought it about that I too go wrong every time I add two and three or count the sides of a square, or in some even simpler matter, if that is imaginable? But perhaps God would not have allowed me to be deceived in this way, since he is said to be supremely good. But if it were inconsistent with his goodness to have created me such that I am deceived all the time, it would seem equally foreign to his goodness to allow me to be deceived even occasionally; yet this last assertion cannot be made.

Perhaps there may be some who would prefer to deny the existence of so powerful a God rather than believe that everything else is uncertain. Let us not argue with them, but grant them that everything said about God is a fiction. According to their supposition, then, I have arrived at my present state by fate or chance or a continuous chain of events, or by some other means; yet since deception and error seem to be imperfections, the less powerful they make my original cause, the more likely it is that I am so imperfect as to be deceived all the time. I have no answer to these arguments, but am finally compelled to admit that there is not one of my former beliefs about which a doubt may not properly be raised; and

this is not a flippant or ill-considered conclusion, but is based on powerful and well thought-out reasons. So in future I must withhold my assent from these former beliefs just as carefully as I would from obvious falsehoods, if I want to discover any certainty.

But it is not enough merely to have noticed this; I must make an effort to remember it. My habitual opinions keep coming back, and, despite my wishes, they capture my belief, which is as it were bound over to them as a result of long occupation and the law of custom. I shall never get out of the habit of confidently assenting to these opinions, so long as I suppose them to be what in fact they are, namely, highly probable opinions—opinions which, despite the fact that they are in a sense doubtful, as has just been shown, it is still much more reasonable to believe than to deny. In view of this, I think it will be a good plan to turn my will in completely the opposite direction and deceive myself, by pretending for a time that these former opinions are utterly false and imaginary. I shall do this until the weight of preconceived opinion is counter-balanced and the distorting influence of habit no longer prevents my judgement from perceiving things correctly. In the meantime, I know that no danger or error will result from my plan, and that I cannot possibly go too far in my distrustful attitude. This is because the task now in hand does not involve action but merely the acquisition of knowledge.

I will suppose therefore that not God, who is supremely good and the source of truth, but rather some malicious demon of the utmost power and cunning has employed all his energies in order to deceive me. I shall think that the sky, the air, the earth, colours, shapes, sounds, and all external things are merely the delusions of dreams which he has devised to ensnare my judgement. I shall consider myself as not having hands or eyes, or flesh, or blood or senses, but as falsely believing that I have all these things. I shall stubbornly and firmly persist in this mediation; and, even if it is not in my power to know any truth, I shall at least do what is in my power, that is, resolutely guard against assenting to any falsehoods, so that the deceiver, however

powerful and cunning he may be, will be unable to impose on me in the slightest degree. But this is an arduous undertaking, and a kind of laziness brings me back to normal life. I am like a prisoner who is enjoying an imaginary freedom while asleep; as he begins to suspect that he is asleep, he dreads being woken up, and goes

along with the pleasant illusion as long as he can. In the same way, I happily slide back into my old opinions and dread being shaken out of them, for fear that my peaceful sleep may be followed by hard labour when I wake, and that I shall have to toil not in the light, but amid the inextricable darkness of the problems I have now raised.

Study Questions

1. Can you ever be sure your senses are not deceiving you?
2. How can you tell that you are not now asleep?
3. Why does Descartes introduce the possibility of a malicious demon?
4. Can you doubt all your beliefs at once?

An Essay Concerning Human Understanding

JOHN LOCKE

Philosophers like Descartes, who base knowledge on reason alone rather than sense experience, are known as "rationalists." Those who base knowledge on sense experience rather than pure reason are known as "empiricists," and the leading historical exponents of empiricism are John Locke, George Berkeley, and David Hume.

Locke (1632–1704) argues that we can be mistaken in our beliefs about the external world; they fall short of Descartes' standard of absolute certainty. Nevertheless, our understanding of physical objects is a paradigm of knowledge, thus demonstrating that Descartes was mistaken in the standard he set.

Locke claims that our ideas are not innate but can be traced to two sources: sensation (i.e., sense perception) and reflection (i.e., awareness of the operations of our mind). Our knowledge of the world has its source in sensation. For example, I know a solid brown table is in front of me, and the basis for my knowledge is the evidence of my senses.

Locke draws a distinction between an object's primary and secondary qualities. The primary qualities are those inseparable from an object, such as its solidity, size, or velocity. The secondary qualities are powers in an object to produce sensations in us, for example, color, taste, and odor. Thus the solid brown table I see in front of me is in itself solid but only perceived as brown. If I looked at it in a different light, it would still be solid but might look black or some other color.

NO INNATE SPECULATIVE PRINCIPLES

1. *The way shown how we come by any knowledge, sufficient to prove it not innate.* It is an established opinion amongst some men, that there are in the understanding certain *innate principles*; some primary notions, . . . , characters, as it were, stamped upon the mind of man; which the soul receives in its very first being, and brings into the world with it. It would be sufficient to convince unprejudiced readers of the falseness of this supposition, if I should only show (as I hope I shall in the following parts of this Discourse) how men, barely by the use of their natural faculties, may attain to all the knowledge they have, without the help of any innate impressions; and may arrive at certainty, without any such original notions or principles . . .

2. *General Assent the great Argument.* There is nothing more commonly taken for granted than that there are certain *principles*, both *speculative* and *practical*, (for they speak of both), universally agreed upon by all mankind: which therefore, they argue, must needs be the constant impressions which the souls of men receive in their first beings, and which they bring into the world with them, as necessarily and really as they do any of their inherent faculties.

3. *Universal Consent proves nothing innate.* This argument, drawn from universal consent, has this misfortune in it, that if it were true in matter of fact, that there were certain truths wherein all mankind agreed, it would not prove them innate, if there can be any other way shown how men may come to that universal agreement, in the things they do consent in, which I presume may be done.

4. *'What is, is,' and 'It is impossible for the same Thing to be and not to be,' not universally assented to.* But, which is worse, this argument of universal consent which is made use of to prove innate principles, seems to me a demonstration that

there are none such: because there are none to which all mankind give an universal assent. I shall begin with the speculative, and instance in those magnified principles of demonstration, 'Whatsoever is, is,' and 'It is impossible for the same thing to be and not to be'; which, of all others, I think have the most allowed title to innate. These have so settled a reputation of maxims universally received, that it will no doubt be thought strange if any one should seem to question it. But yet I take liberty to say, that these propositions are so far from having an universal assent, that there are a great part of mankind to whom they are not so much as known.

5. *Not on the Mind naturally imprinted, because not known to Children, Idiots, &c.* For, first, it is evident, that all children and idiots have not the least apprehension or thought of them. And the want of that is enough to destroy that universal assent which must needs be the necessary concomitant of all innate truths: it seeming to me near a contradiction to say, that there are truths imprinted on the soul, which it perceives or understands not: imprinting, if it signify anything, being nothing else but the making certain truths to be perceived. For to imprint anything on the mind without the mind's perceiving it, seems to me hardly intelligible. If therefore children and idiots have souls, have minds, with those impressions upon them, they must unavoidably perceive them, and necessarily know and assent to these truths; which since they do not, it is evident that there are no such impressions. For if they are not notions naturally imprinted, how can they be innate? and if they are notions imprinted, how can they be unknown? To say a notion is imprinted on the mind, and yet at the same time to say, that the mind is ignorant of it, and never yet took notice of it, is to make this impression nothing. No proposition can be said to be in the mind which it never yet knew, which it was never yet conscious of. . . .

CONCERNING OUR SIMPLE IDEAS OF SENSATION

7. To discover the nature of our ideas the better, and to discourse of them intelligibly, it will be convenient to distinguish them as they are ideas or perceptions in our minds, and as they are modifications of matter in the bodies that cause such perceptions in us, that so we may not think (as perhaps usually is done) that they are exactly the images and resemblances of something inherent in the subject; most of those of sensation being in the mind no more the likeness of something existing without us, than the names that stand for them are the likeness of our ideas, which yet upon hearing they are apt to excite in us.

8. Whatsoever the mind perceives in itself, or is the immediate object of perception, thought, or understanding, that I call idea; and the power to produce any idea in our mind, I call quality of the subject wherein that power is. Thus a snowball having the power to produce in us the ideas of white, cold, and round, the power to produce those ideas in us, as they are in the snowball, I call qualities; and as they are sensations or perceptions in our understandings, I call them ideas; which ideas, if I speak of sometimes as in the things themselves, I would be understood to mean those qualities in the objects which produce them in us.

9. Qualities thus considered in bodies are, first, such as are utterly inseparable from the body, in what state 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 which 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, e.g., take a grain of wheat, divide it into two parts, each part has still solidity, extension, figure, and mobility; divide it again, and it retains still the same

qualities; and so divide it on till the parts become insensible, they must retain still each of them all those qualities. For division (which is all that a mill, or pestle, or any other body, does upon another, in reducing it to insensible parts) can never take away either solidity, extension, figure, or mobility from any body, but only makes two or more distinct separate masses of matter, of that which was but one before; all which distinct masses, reckoned as so many distinct bodies, after division, make a certain number. These I call original or primary qualities of body, which I think we may observe to produce simple ideas in us, viz., solidity, extension, figure, motion or rest, and number.

10. 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 insensible parts, as colours, sounds, tastes, etc., these I call secondary qualities. To these might be added a third sort, which are allowed to be barely powers, though they are as much real qualities in the subject, as those which I, to comply with the common way of speaking, call qualities, but for distinction, secondary qualities. For the power in fire to produce a new colour or consistency in wax or clay, by its primary qualities, is as much a quality in fire as the power it has to produce in me a new idea or sensation of warmth or burning, which I felt not before, by the same primary qualities, viz., the bulk, texture, and motion of its insensible parts.

11. The next thing to be considered is, how bodies produce ideas in us; and that is manifestly by impulse, the only way which we can conceive bodies to operate in.

12. If then external objects be not united to our minds when they produce ideas therein, and yet we perceive these original qualities in such of them as singly fall under our senses, it is evident that some motion must be thence continued by our nerves or animal spirits, by some parts of

our bodies, to the brain, or the seat of sensation, there to produce in our minds the particular ideas we have of them. And since the extension, figure, number, and motion of bodies of an observable bigness, may be perceived at a distance by the sight, it is evident some singly imperceptible bodies must come from them to the eyes, and thereby convey to the brain some motion, which produces these ideas which we have of them in us.

13. After the same manner that the ideas of these original qualities are produced in us, we may conceive that the ideas of secondary qualities are also produced, viz., by the operations of insensible particles on our senses. For it being manifest that there are bodies and good store of bodies, each whereof are so small, that we cannot by any of our senses discover either their bulk, figure, or motion, as is evident in the particles of the air and water, and others extremely smaller than those, perhaps as much smaller than the particles of air and water, as the particles of air and water are smaller than peas or hailstones; let us suppose that the different motions and figures, bulk and number, of such particles, affecting the several organs of our senses, produce in us those different sensations which we have from the colours and smells of bodies; e.g., that a violet, by the impulse of such insensible particles of matter of peculiar figures and bulks, and in different degrees and modifications of their motions, causes the ideas of the blue colour and sweet scent of that flower to be produced in our minds; it being no more impossible to conceive that God should annex such ideas to such motions, with which they have no similitude, than that he should annex the idea of pain to the motion of a piece of steel dividing our flesh, with which that idea has no resemblance.

14. What I have said concerning colours and smells may be understood also of tastes and sounds, and other the like sensible qualities; which, whatever reality we by mistake attribute to them, are in truth nothing in the objects themselves, but powers to produce various

sensations in us, and depend on those primary qualities, viz., bulk, figure, texture, and motion of parts, as I have said.

15. From whence I think it easy to draw this observation, that the ideas of primary qualities of bodies are resemblances of them, and their patterns do really exist in the bodies themselves; but the ideas produced in us by these secondary qualities have no resemblance of them at all. There is nothing like our ideas existing in the bodies themselves. They are in the bodies we denominate from them, only a power to produce those sensations in us; and what is sweet, blue, or warm in idea, is but the certain bulk, figure, and motion of the insensible parts in the bodies themselves, which we call so.

16. Flame is denominated hot and light; snow, white and cold; and manna, white and sweet, from the ideas they produce in us; which qualities are commonly thought to be the same in those bodies that those ideas are in us, the one the perfect resemblance of the other, as they are in a mirror; and it would by most men be judged very extravagant if one should say otherwise. And yet he that will consider that the same fire that at one distance produces in us the sensation of warmth, does at a nearer approach produce in us the far different sensation of pain, ought to bethink himself what reason he has to say that this idea of warmth, which was produced in him by the fire, is actually in the fire; and his idea of pain, which the same fire produced in him the same way, is not in the fire. Why are whiteness and coldness in snow, and pain not, when it produces the one and the other idea in us; and can do neither, but by the bulk, figure, number, and motion of its solid parts?

17. The particular bulk, number, figure, and motion of the parts of fire or snow are really in them, whether anyone's senses perceive them or not, and therefore they may be called real qualities, because they really exist in those bodies; but light, heat, whiteness, or coldness, are no more really in them than sickness or pain is in manna. Take away the sensation of them; let not the eyes see light or colours, nor the ears hear

sounds; let the palate not taste, nor the nose smell; and the colours, tastes, odours, and sounds, as they are such particular ideas, vanish and cease, and are reduced to their causes, i.e., bulk, figure, and motion of parts.

21. *Explains how water felt as cold by one hand may be warm to the other.* Ideas being thus distinguished and understood, we may be able to give an account how the same water, at the same time, may produce the idea of cold by one hand and of heat by the other: whereas it is impossible that the same water, if those ideas were really in it, should at the same time be both hot and cold. For, if we imagine *warmth*, as it is in our hands, to be nothing but a certain sort and degree of motion in the minute particles of our nerves or animal spirits, we may understand how it is possible that the same water may, at the same time, produce the sensations of heat in one hand and cold in the other; which yet *figure* never does, that never producing the idea of a square by one hand which has produced the idea of a globe by another. But if the sensation of heat and cold be nothing but the increase or diminution of the motion of the minute parts of our bodies, caused by the corpuscles of any other body, it is easy to be understood, that if that motion be greater in one hand than in the other; if a body be applied to the two hands, which has in its minute particles a greater motion than in those of one of the hands, and a less than in those of the other, it will increase the motion of the one hand and lessen it in the other; and so cause the different sensations of heat and cold that depend thereon.

23. The qualities, then, that are in bodies, rightly considered, are of three sorts.

First, the bulk, figure, number, situation, and motion or rest of their solid parts; those are in them, whether we perceive them or not; and when they are of that size that we can discover them, we have by these an idea of the thing as it is in itself, as is plain in artificial things. These I call primary qualities.

Secondly, the power that is in any body, by reason of its insensible primary qualities, to

operate after a peculiar manner on any of our senses, and thereby produce in us the different ideas of several colours, sounds, smells, tastes, etc. These are usually called sensible qualities.

Thirdly, the power that is in any body, by reason of the particular constitution of its primary qualities, to make such a change in the bulk, figure, texture, and motion of another body, as to make it operate on our senses differently from what it did before. Thus the sun has a power to make wax white, and fire to make lead fluid. These are usually called powers.

The first of these, as has been said, I think may be properly called real, original, or primary qualities, because they are in the things themselves, whether they are perceived or not; and upon their different modifications it is that the secondary qualities depend.

The other two are only powers to act differently upon other things, which powers result from the different modifications of those primary qualities.

OF OUR KNOWLEDGE OF THE EXISTENCE OF OTHER THINGS

1. The knowledge of our own being we have by intuition. The existence of a God reason clearly makes known to us. . . .

The knowledge of the existence of any other thing we can have only by sensation: for there being no necessary connection of real existence with any idea a man has in his memory; nor of any other existence but that of God with the existence of any particular man: no particular man can know the existence of any other being, but only when, by actually operating upon him, it makes itself perceived by him. For having the idea of anything in our mind no more proves the existence of that thing than the picture of a man evidences his being in the world, or the visions of a dream make thereby a true history.

2. It is therefore the actual receiving of ideas from without that gives us notice of the existence of other things, and makes us know that

something does exist at that time without us which causes that idea in us, though perhaps we neither know nor consider how it does it. For it takes not from the certainty of our senses, and the ideas we receive by them, that we know not the manner wherein they are produced: e.g., while I write this, I have, by the paper affecting my eyes, that idea produced in my mind, which whatever object causes, I call white; by which I know that that quality or accident (i.e., whose appearance before my eyes always causes that idea) does really exist, and has a being without me. And of this, the greatest assurance I can possibly have, and to which my faculties can attain, is the testimony of my eyes, which are the proper and sole judges of this thing; whose testimony I have reason to rely on as so certain, that I can no more doubt, whilst I write this, that I see white and black, and that something really exists that causes that sensation in me, than that I write or move my hand; which is a certainty as great as human nature is capable of, concerning the existence of anything but a man's self alone, and of God.

3. The notice we have by our senses of the existing of things without us, though it be not altogether so certain as our intuitive knowledge, or the deductions of our reason employed about the clear abstract ideas of our own minds; yet it is an assurance that deserves the name of *knowledge*. If we persuade ourselves that our faculties act and inform us right concerning the existence of those objects that affect them, it cannot pass for an ill-grounded confidence: for I think nobody can, in earnest, be so sceptical as to be uncertain of the existence of those things which he sees and feels. At least, he that can doubt so far (whatever he may have with his own thoughts) will never have any controversy with me; since he can never be sure I say anything contrary to his opinion. As to myself, I think God has given me assurance enough of the existence of things without me; since by their different application I can produce in myself both pleasure and pain, which is one great concern of my present state. This is certain, the confidence

that our faculties do not herein deceive us is the greatest assurance we are capable of concerning the existence of material beings. For we cannot act anything but by our faculties, nor talk of knowledge itself, but by the help of those faculties which are fitted to apprehend even what knowledge is. But besides the assurance we have from our senses themselves, that they do not err in the information they give us of the existence of things without us, when they are affected by them, we are farther confirmed in this assurance by other concurrent reasons.

8. But yet, if after all this anyone will be so sceptical as to distrust his senses, and to affirm that all we see and hear, feel and taste, think and do, during our whole being, is but the series and deluding appearances of a long dream whereof there is no reality; and therefore will question the existence of all things or our knowledge of anything: I must desire him to consider, that if all be a dream, then he does but dream that he makes the question; and so it is not much matter that a waking man should answer him. But yet, if he pleases, he may dream that I make him this answer, that the certainty of things existing *in rerum natura* when we have the testimony of our senses for it, is not only as great as our frame can attain to, but as our condition needs. For our faculties being suited not to the full extent of being; nor to a perfect, clear, comprehensive knowledge of things free from all doubt and scruple; but to the preservation of us, in whom they are; and accommodated to the use of life: they serve to our purpose well enough, if they will but give us certain notice of those things which are convenient or inconvenient to us. For he that sees a candle burning, and has experimented the force of its flame by putting his finger in it, will little doubt that this is something existing without him, which does him harm and puts him to great pain. And if our dreamer pleases to try whether the glowing heat of a glass furnace be barely a wandering imagination in a drowsy man's fancy, by putting his hand into it, he may perhaps be awakened into a certainty, greater than he could wish, that it is

something more than bare imagination. So that this evidence is as great as we can desire, being as certain to us as our pleasure or pain, i.e., happiness or misery; beyond which we have no concern, either of knowing or being. Such an

assurance of the existence of things without us is sufficient to direct us in attaining the good and avoiding the evil which is caused by them, which is the important concern we have of being made acquainted with them.

Study Questions

1. How does Locke distinguish primary from secondary qualities?
2. How can you decide if a quality is primary or secondary?
3. According to Locke, how do we know of a world outside ourselves?
4. How does Locke reply to those who would doubt that they have knowledge of the material world?

New Essays on Human Understanding

GOTTFRIED LEIBNIZ

Gottfried Wilhelm Leibniz (1646–1716), born in Leipzig, Germany, was a master of many fields of intellectual inquiry, including mathematics and physics, and became one of the leading figures in the history of philosophy. His intricate philosophical system is classified as a form of rationalism, as opposed to empiricism, and in this brief excerpt from the preface to his posthumously published commentary on Locke's *An Essay Concerning Human Understanding*, Leibniz argues against Locke that the mind is furnished with innate ideas. In Leibniz's own philosophical system, not presented here, he maintains that among innate ideas are those of self, substance, and causation.

The *Essay on the Understanding*, produced by an illustrious Englishman, is one of the finest and most admired works of the age. Since I have thought at length about the same subject and about most of the topics which are dealt with in it, I have decided to comment upon it. . . .

Our disagreements concern points of some importance. There is the question whether the

soul in itself is completely blank like a writing tablet on which nothing has as yet been written—a *tabula rasa*—as Aristotle and the author of the *Essay* maintain, and whether everything which is inscribed there comes solely from the senses and experience; or whether the soul inherently contains the sources of various notions and doctrines, which external objects merely rouse up