

The Powers we have by means of our External senses

No. 2 of *Essays on the Intellectual Powers of Man*

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[Brackets] enclose editorial explanations. Small ·dots· enclose material that has been added, but can be read as though it were part of the original text. Occasional •bullets, and also indenting of passages that are not quotations, are meant as aids to grasping the structure of a sentence or a thought. Every four-point ellipsis. . . . indicates the omission of a brief passage that seems to present more difficulty than it is worth. Longer omissions are reported between brackets in normal-sized type.

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Chapter 1: The organs of sense

Of all the operations of our minds, the perception of external objects is the most familiar. When a person is still in his infancy, his senses come to maturity even though his other powers haven't yet sprung up. We have them in common with brute animals, and they provide us with the objects about which our other powers are most often employed. We find it easy to attend to the operations of our senses; and because they are familiar we re-apply *their* names to other powers that are thought to resemble them—for example, we say 'I can *see* that that argument is invalid'. These reasons give them a claim to be considered first.

The perception of external objects is one main link in the mysterious chain connecting the material world with the intellectual world. We shall find many things that we can't explain in this operation—enough of them to convince us that we don't know much about our own make-up, and that a complete understanding of our mental powers, and how they operate, is beyond the reach of our minds.

In perception there are impressions on the organs of sense, the nerves, and the brain—and by the laws of our nature these •impressions are followed by certain •operations of the mind. These •two things are apt to be confused with one another, but ought to be most carefully distinguished. Some philosophers have concluded—without good reason—that the impressions made on the body are the proper efficient cause of perception. [Efficient cause' means that you and I mean by 'cause'. The adjective distinguishes this from other aspects of a thing that were also called 'causes' of it in senses that we no longer have for that word.] Others have concluded—also without reason—that impressions are made on the mind similar to those made on the body. From these •two• mistakes many others have

arisen. The wrong notions that men have rashly taken up concerning the senses have led to wrong notions about other powers that are conceived to resemble them. Especially recently, many important powers of mind have been called 'internal senses', because of their supposed resemblance to the external senses—for example the sense of beauty, the sense of harmony, the moral sense. And it is to be feared that errors about the external senses have led to similar errors concerning the 'internal senses', because of the •supposed• analogy •or similarity• between them. So it matters a good deal to have sound views about the external senses, •not just because they are important in themselves, but also• so as to avoid errors in other parts of our study of the mind.

With this in mind, I'll begin with some remarks about •the physical aspects of perception—specifically• our •sense-organs, the •impressions that are made on them in perception, and •the nerves and •brain.

Our only way of perceiving any external object is through certain bodily organs that God has given us for that purpose. He gave us the powers of mind that he saw to be suitable for our condition and our rank in his creation, including power of perceiving many objects around us—the sun, moon and stars, the earth and sea, and a variety of animals, plants, and inanimate bodies. But our power of perceiving these objects is limited in various ways, especially in the fact that to perceive any external object we must have the organs of the various senses, and they must be in a sound and natural state. Many disorders of the eye cause total blindness; others reduce the power of vision without destroying it altogether; and the same holds for the organs of all the other senses.

We know all this so well from experience that it doesn't need proof; but take note that we know it *only* from experience. The only reason we can give for it is that it is the will of our maker, ·God, that we should perceive only through healthy organs of sense·. No-one can show it to be impossible for God to have given us the power of perceiving external objects without such organs. We have reason to believe that •when ·after death· we put off our present bodies and all the organs belonging to them, our perceptive powers will become better rather than becoming worse or being destroyed; that •God perceives everything in a much more perfect way than we do, without bodily organs; and that •there are other created beings that have more perfect and more extensive powers of perception than ours, with no sense-organs such as the ones that we find necessary. . . .

If a man were shut up in a dark room so that he could see nothing except through one small hole in the shutter of a window—would he come to the conclusion that the hole was the cause of his seeing, and that it was impossible to see in any other way? If he had never *ever* seen except in this way, perhaps he would think so; but the conclusion would be rash and groundless. The truth would be that he sees because God has given him the power of seeing, and he sees only through this small hole because his power of seeing is blocked in every direction outside the perimeter of the hole.

Another necessary warning: don't think that the •organ of perception is the •thing that does the perceiving. . . . The eye isn't the thing that sees; it's only the organ by which the person sees. The ear doesn't hear; it is the organ by which the person hears; and so on through the rest.

A man can't see the satellites of Jupiter except through

by a telescope. Does that lead him to think that it is *the telescope that sees* those moons? Of course not! That would be absurd! Well, it is equally absurd to think that eyes see or that ears hear. The telescope is an artificial organ of sight, which doesn't itself see. The eye is a natural organ of sight, by which we see; but it doesn't itself *see*, any more than the artificial organ does.

The eye is a machine that is most admirably designed for refracting the rays of light, and forming clear pictures of objects on the retina; but it doesn't see the object or the picture. An eye that has been removed from the head can still form the picture, but no vision results from that. Even when the eye is in its proper place and is perfectly healthy, we know that an obstruction in the optic nerve prevents vision, even though the eye has done the whole of *its* job.

This is really very obvious, but ·to be on the safe side· I shall offer one more supporting remark: If the faculty of seeing were in the eye, that of hearing in the ear, and so on with the other senses, this would imply that the thinking thing that I call *myself* is not one thing but many. ·One of us sees, another of us hears, a third tastes, and so on!· But this is contrary to everyone's unshakeable belief ·about himself·. When I say 'I see', 'I hear', 'I feel', 'I remember', this implies that a single self does all these things. Might we say that •seeing done by one piece of matter, •hearing by another, and •feeling by a third feeling could add up to ·sensory intake by· a single percipient being? That would be just as absurd as to suppose that •my memory, •your imagination, and •someone else's reason could add up to a single thinking being. . . .

Chapter 2: The impressions on the organs, nerves, and brain

A second law of our nature regarding perception is that we don't perceive any object unless some impression is made on the organ of sense, either through contact with the object or through contact with some medium—some intermediate thing—that travels from the object to the organ. (The first law of our nature regarding perception lays down that we can't perceive external objects unless we have sense-organs in good working order.)

In two of our senses—namely touch and taste—the object itself has to come into contact with the organ. In the other three the object is perceived at a distance, but still through some medium thing that makes an impression on the organ. The emissions from bodies drawn into the nostrils with the breath are the medium of smell; waves in the air are the medium of hearing; and rays of light passing from visible objects to the eye are the medium of sight. . . .

These are facts that we know from experience to hold universally and invariably, both in men and brute animals. They constitute a law of our nature, by which our powers of perceiving external objects are further limited and circumscribed—further, that is, than they are by the first law of our nature. And the only reason we can give for it is that God so chose it, knowing best what kinds and degrees of power are suited to our state. When we were in the womb our powers of perception were more limited than they are now, and in a future state after death they may be less limited than they are now.

Another law of our nature: for us to perceive objects, the impressions made on our sense-organs must be communicated to the nerves and through them to the brain. This is perfectly known to those who know anything of anatomy.

The nerves are fine cords that pass from the brain (or from the spinal marrow, which is an extension of the brain) to all parts of the body, dividing into smaller branches as they go until at last they are too small to see. And we have found by experience that all the body's movements, voluntary and involuntary, are performed by means of the nerves. When the nerves that serve a limb are cut or tightly tied, that leaves us with no more power to move that limb than if it had been amputated.

As well as nerves that serve the muscular movements there are others that serve the various senses; and just as without the former we can't move a limb, so without the latter we can't perceive anything.

God in his wisdom has made this train of machinery necessary for our perceiving objects. Various parts of the body collaborate in it, each with its own function:

- The object must make an impression on the sense-organ either immediately or through some medium.
- The organ is merely a medium through which an impression is made on the nerve.
- The nerve serves as a medium to make an impression on the brain.

Here the material part of the process involved in perception ends—or anyway we can't follow it any further—and all the rest of the process is intellectual. [Then a short paragraph sketching the empirical evidence for the view that nerves and brain are required for perception. Then:]

So we have sufficient reason to conclude that in perception the object produces some change in the organ, which produces some change in the nerve, which produces some change in the brain. And we give the name 'impression'

to those changes because we don't have a better name to express in a general manner *any change produced in a body by an external cause* without specifying the nature of that change. Whether it's pressure or attraction or repulsion or vibration or something unknown for which we have no name, still it can be called an 'impression'. But philosophers have never been able to discover anything at all concerning what in detail *happens in* this change or impression. . . . God has seen fit to limit our power of perception so that we don't perceive unless we undergo such impressions—and that's all we know of the matter.

But we have reason to conclude that in general, just as the •impressions on the organs nerves and brain correspond exactly to the •nature and conditions of the objects by which they are made, so also our •perceptions and sensations correspond to those •impressions, and vary and they do in kind and in degree. ·And it follows from this that our •perceptions and sensations in perception correspond to the •nature of the external objects that are perceived·. If this were not so, the information we get through our senses would not only be incomplete (as of course it *is*) but would be deceptive—which we have no reason to think it is.

Chapter 3: Hypotheses concerning the nerves and brain

Anatomists tell us that although the two coatings that enclose a nerve (they derive from the coatings of the brain) are tough and elastic, the nerve itself is not at all tough, being almost like ·bone· marrow. But it has a fibrous texture, and can be divided and subdivided until its fibres are too fine for our senses to detect them. And just because we know so very little about the texture of the nerves, there is plenty of room left for those who want to amuse themselves *conjecturing*.

The ancients conjectured •that the fibres of the nerves are fine tubes filled with a very fine spirit or vapour which they called 'animal spirits'; •that the brain is a gland that extracts the animal spirits from the finer part of the blood, stores them, and continuously replenishes them as they get used up; and •that these animal spirits are what enable the nerves to perform their functions. Descartes showed how—·according to this theory—muscular motion, percep-

tion, memory and imagination are brought about by the movements of these animal spirits back and forth along the nerves. He described all this as clearly as if he had been an eye-witness of all those operations. But it happens that neither eyesight nor the most delicately done injections has shown the nerves to have a tubular structure, ·which they must have if they are to be the channels for animal spirits·. So everything that has been said about animal spirits through more than fifteen centuries is mere conjecture.

[A paragraph on a theory by 'Dr Briggs, who was Newton's master in anatomy'. Reid judges that this theory, according to which the nerves do their work by being twanged like guitar strings, is fairly negligible. He reports that it has been generally neglected. Then:]

Newton in all his philosophical writings [reminder: 'philosophy' here covers science as well] took great care to distinguish

- his doctrines that he claimed to prove by sound induction, from
- his conjectures that were to stand or fall depending on whether future experiments and observations should establish or refute them.

He expressed his conjectures in the form of *questions*, so that they wouldn't be accepted as truths but would be enquired into and settled according to the evidence found for or against them. Those who mistake his questions for a part of his doctrine do him a great injustice, and pull him down to the level of the common herd of philosophers, who have in all ages adulterated philosophy by mixing •conjecture with •truth. . . . Among other questions this truly great philosopher proposed was this:

Is there an elastic medium—an *ether*—that is immensely finer and more fluid than air, and that pervades all bodies and is the cause of •gravitation, of the •refraction and reflection of the rays of light, of the •transmission of heat across regions that have no air in them, and of •many other phenomena?

In the 23rd query in his *Optics* he presents this question concerning the impressions made on the nerves and brain in perception:

Is vision brought about chiefly by the *vibrations* of this medium—i.e. the ether—that are caused at the back of the eye by the rays of light, and spread along the solid, uniform, light-transmitting fibres of the optic nerve? And is hearing brought about by the vibrations of this or some other medium that are aroused by the tremor of the air in the auditory nerves and spread along the solid and uniform fibres of those nerves? Similarly with regard to the other senses.

[Reid next sketches a few details of the work of David Hartley, whose view of these matters is essentially the one

that Newton asked about. Then:] Dr Hartley presents his system to the world with a request to his readers

to expect nothing but hints and conjectures on difficult and obscure matters, and a sketch of the principal reasons and evidences concerning matters that are clear. I acknowledge that I won't be able to carry out at all accurately the proper method of philosophising that has been recommended and followed by Newton. I will merely attempt a sketch for the benefit of future enquirers.

The modesty and caution of this seem to forbid any criticism of it. I am reluctant to criticise something that is proposed in this way and with such good intentions; but I *shall* make some remarks on the part of the system concerning the impressions made on the nerves and brain in perception. I have two reasons for this. •The tendency of this system of vibrations is to make all the operations of the mind mere *mechanism*, depending •only• on the laws of matter and motion; and •the system has been announced by its devotees as something that has in a way been demonstrated.

In general Dr Hartley's work consists of a chain of propositions, with their proofs and corollaries, all in good order and in a scientific form. But a good proportion of them are, as he candidly admits, only conjectures and hints, and he mixes these in with the propositions that have been legitimately proved, without distinguishing one lot from the other. The entire set, including the corollaries he draws from them, constitute *a system*. A system of this kind is like a chain of with some very strong links and some very weak ones: the chain is only as strong as its weakest link, for if that fails the chain fails and the object that it has been holding up falls to the ground.

All through the centuries philosophy has been adulterated by hypotheses—i.e. by systems built partly on facts and

largely on conjecture. It is a pity that a man of Dr Hartley's knowledge and candour should have followed the herd in this fallacious book of his, after expressing his approval of the right method of philosophising pointed out by Bacon and Newton. Indeed, Newton considered it as a reproach when his system was called his 'hypothesis', and said scornfully 'I don't make hypotheses' [Reid gives it in Latin]. And it is very strange that Dr Hartley doesn't just follow such a method of philosophising himself, but directs others to follow it in their enquiries. . . .

When men claim to account for any of the operations of Nature, the causes they assign are good for nothing unless they satisfy the two conditions that Newton has taught us:

- They must really exist, and not be merely *conjectured* to exist, without proof.
- They must be sufficient to produce the effect.

[In this context 'proof' = 'good evidence'.] ·Let us take these in turn, asking how Hartley's theory looks in the light of them·.

·DO THEY REALLY EXIST?·

As to the existence of vibrations in the substance in the centre of the nerves and in the brain, the evidence produced ·by Hartley· consists of (1) an empirical claim about a certain phenomenon, (2) an argument for conjecturing that the scope of the phenomenon is wider than we have evidence for, and (3) a conclusion drawn from this. Specifically: (1) We observe that the sensations of seeing and hearing, and some sensations of touch, last for a short time ·after the impression from the object has ceased·. (2) Though there is no direct evidence that the sensations of taste and smell, or most of the sensations of touch, are like this, *analogy* would incline one to believe that they must resemble the sensations of sight and hearing in this respect. (3) Given the continuance of all our sensations ·after the object has ceased to act·, it follows that external objects cause vibrations in

the substance of the nerves and brain; because vibration is the only kind of movement that can continue for any length of time ·after its cause has ceased·.

This is the chain of proof. Its first link is strong, being confirmed by experience; the second is very weak; and the third even weaker. Other kinds of motion besides vibration can have some continuance, for example rotation, bending or unbending of a spring, and perhaps others that we haven't yet encountered. And in any case we don't know that what is produced in the nerves ·in perception· is *motion*; perhaps it is pressure, attraction, repulsion, or something we don't yet know. . . . So there is no proof of vibrations in the infinitesimal particles of the brain and nerves.

You might think that the existence of an elastic vibrating ether is on more solid ground, having the authority of Newton, ·though of course he spoke of it in connection with problems in physics, not the physiology of nerves·. But don't forget that although this great man had formed conjectures about this ether nearly fifty years before he died, and through all that time had it in mind as something to be looked into, he seems never to have found any convincing proof of its existence, and right to the end of his life he thought it was a *question* whether there is such an ether or not. In the second edition of his *Optics* (1717—ten years before Newton's death·) he gives this warning to his readers: 'Lest anyone should think that I include gravity among the essential properties of bodies, I have added one question concerning its cause; I repeat, *a question*, for I don't regard it—i.e. the theory of ether·—as established.' If we have respect for the authority of Newton, then, we ought to regard the existence of ether as something not established by proof but waiting to be inquired into by experiments; and I have never heard that since Newton's time any new evidence of its existence has been found.

But, says Dr Hartley, ‘supposing that there is no direct evidence for the existence of ether, still if it—the ether theory—serves to account for a great variety of phenomena, that will provide it with indirect supporting evidence,’ There has never been a hypothesis invented by a clever man that didn’t have *this* kind of evidence in its favour: Descartes’s ‘vortices’ serve to account for a great variety of phenomena—so do the sylphs and gnomes of Pope!

... In his preface Dr Hartley declares his approval of the method of philosophising recommended and followed by Newton; but having first deviated from this method in his practice, he eventually faces the need to justify this deviation in theory, bring arguments in defence of a method diametrically opposite to it—i.e. to the procedure advocated by Newton. He writes: ‘I accept a key to a code as a true one when it explains the code completely.’ I answer: To find the key requires an understanding equal or superior to the understanding—in our present case, God’s—that made the cypher. . . .

The devotees of hypotheses have often been challenged to show one useful discovery in the works of Nature that was ever made in that way. If instances of this kind could be produced, we ought to conclude that Bacon and Newton have done great disservice to philosophy by what they said against hypotheses. But if no such instance can be produced, we must conclude with those great men that every system that purports to account for the phenomena of Nature by hypotheses or conjectures is spurious and illegitimate. . . .

Hartley tells us ‘that any hypothesis that has enough plausibility to explain a considerable number of facts helps us to •absorb these facts in proper order, to •bring new ones to light, and to •make crucial experiments for the sake of future enquirers’. Well, yes, let hypotheses be put to any of *these* uses as far as they can serve. Let them suggest

experiments or direct our *enquiries*; but let sound induction alone govern our *belief*.

[Then two paragraphs in which Reid discusses Hartley’s point that an ancient and respectable mathematical procedure known as ‘the rule of false’ involves starting to solve a problem with a *guess*. Reid says that that’s all right in mathematics, where there are independent means of knowing for sure whether the right conclusion was reached, but that it is worthless in the context of natural science.—Then a paragraph saying that most scientists since Newton have accepted his views about how science should be done; Hartley has been on his own in this. Then:]

•DO THEY EXPLAIN THE PHENOMENA?•

Another demand that Newton makes of the causes of natural things assigned by philosophers is that they be sufficient to account for the phenomena. Dr Hartley contends that vibrations etc. in the substance in the centre of the nerves and in the brain can account for all our sensations and ideas—in short, for all the operations of our minds. Let us briefly consider how sufficient they are for that purpose.

It would be an injustice to this author to think of him as a materialist. He presents his views very openly, and we shouldn’t take him to believe anything that his words don’t express. He thinks his theory has the following consequence:

If matter can be endowed with the most simple kinds of sensation, then it can achieve all the thinking that the human mind does.

He thinks his theory overturns all the arguments that are usually brought for the immateriality of the soul—arguments from the fine-grained complexity of our internal senses and of our faculty of thought, which is argued to outstrip anything that a merely material system could do. But he doesn’t undertake to settle whether matter *can* be endowed with sensation. He even acknowledges that matter and motion,

however finely divided and reasoned on, are still only matter and motion, so that he doesn't want to be interpreted as opposing the immateriality of the soul.

[Then a paragraph in which Reid says that although Hartley is not a materialist, he does contend that all the complexity of human thought and sensation can be matched, detail for detail, by complexities in the big and small vibrations—'vibrations and vibratiuncles'—in the nerves. Vibrations for our sensations, vibratiuncles for our ideas. Then:]

But how can we expect any proof of the connection between vibrations and thought when the existence of such vibrations hasn't been proved? The proof of their •connection can't be stronger than the proof of their •existence: the author acknowledges that we can't infer the existence of the thoughts from the existence of the vibrations, and it is equally obvious that we can't infer the existence of vibrations from the existence of our thoughts! The existence of both must be known *before* we can know that they are connected, and how. For the existence of our thoughts we have the evidence of consciousness—a kind of evidence that has never been called in question. But no proof has yet been brought of the existence of vibrations in the inner substance of the nerves and brain.

So the most we can expect from this hypothesis is that vibrations can have enough differences of kind and of degree to *match* the differences of kind and degree among the thoughts they are supposed to account for—the match being good enough to lead us to suspect that the vibrations are somehow *connected with* the thoughts. (This concerns vibrations considered abstractly; it's a thesis about what variety there *can* be among vibrations—not about what variety is empirically found in them.) If the divisions and subdivisions of thought run parallel with the divisions and subdivisions of vibrations, that would give to the hypothesis that they are

connected the sort of plausibility that we commonly expect even in a mere hypothesis.

But we don't find even this. Indeed, there isn't enough variety among vibrations to produce a match with even a small subset of mental events. Set aside

- all the thoughts and operations that Dr Hartley labels as 'ideas' and thinks to be connected with little vibrations, and
- the perception of external objects, which he wrongly counts as 'sensations', and
- the sensations properly so-called that accompany our emotions and affections;

and confine ourselves to

- the sensations that we have by means of our external senses;

and *still* we can't see any correspondence between the variety we find in their kinds and degrees and the variety that can be supposed in vibrations. To see this, let us look in turn at the two sides of this supposed match or correspondence.

We have five senses whose sensations are of totally different *kinds*; and *within* each of these kinds—except perhaps sensations of hearing—we have a variety of sensations which differ in kind and not merely in degree. Think how many •tastes and •smells there are that differ in kind from one another, each of them capable of all degrees of strength and weakness! Heat and cold, roughness and smoothness, hardness and softness, pain and pleasure, are different *kinds* of sensations, and each has an endless variety of *degrees*. Sounds have the qualities of shrill and low-pitched, with all the different degrees of each. Colours have many more varieties than we have names for. How shall we find varieties in vibrations corresponding to all this variety of sensations that we have merely by our five senses?

I know of only *two* qualities of vibrations in a uniform elastic medium. They may be •quick or slow in various degrees, and they may be •strong or weak in various degrees; but I can't find any division of our sensations that will make them match with those divisions of vibrations. If our only sensations were ones of hearing, the theory would do well enough: sounds are either •shrill or low-pitched, which may correspond to •quick or slow vibrations; and they are •loud or soft, corresponding to •strong or weak vibrations. But that leaves us with *no* variety in vibrations corresponding to the enormous variety in the sensations we have by sight, smell, taste, and touch.

[Reid then sketches and criticises Hartley's attempts to overcome this difficulty by *supposing* further differences among vibrations, 'heaping conjecture on conjecture'. Then:]

Philosophers have to some extent accounted for our various sensations of sound by the vibrations of elastic air. But bear in mind that we know that (1) such vibrations really do exist, and (2) that they tally exactly with the most noticeable phenomena of sound. We can't show *how* any vibration could produce the sensation of sound—this must be attributed to the will of God or to some altogether unknown cause. But we do know that as the vibration is strong or weak the sound is loud or soft, and that as the vibration is quick or slow the sound is shrill or low-pitched. We can point out

- the relations amongst synchronous vibrations that produce harmony or discord, and
- the relations amongst successive vibrations that produce melody.

And all this is not *conjectured* but proved by a sufficient induction. So this account of sounds is philosophical [here = 'scientific'], though there may be many aspects of sounds that we can't account for and whose causes remain hidden. The connections described in this branch of philosophy are the work of God, not the fanciful inventions of men.

If anything like *this* could be shown in accounting for *all* our sensations in terms of vibrations in the inner substance of the nerves and brain, it would deserve a place in sound philosophy. But •when we are told about vibrations in a substance that no-one could ever prove to have vibrations or to be capable of them, and •when such imaginary vibrations are said to account for all our sensations, though we can't see that their variety of kind and degree corresponds to the variety of sensations, the 'connections' described in a system like *that* are the creatures of human imagination and not the work of God.

Light-rays make an impression on the optic nerves, but not on the auditory or olfactory nerves. Vibrations of the air make an impression on the auditory nerves, but not on the optic or the olfactory nerves. Emissions from bodies make an impression on the olfactory nerves, but not on the optic or auditory nerves. No-one has been able to give a shadow of reason for all this. For as long as that is the case, isn't it better to •confess our ignorance of the nature of those impressions made on the nerves and brain in perception than to •gratify our pride by fancying ourselves to have knowledge that we don't have, and to •adulterate philosophy with a spurious brood of hypotheses?

Chapter 4: Three false inferences from impressions on the organs etc.

1. Some philosophers—ancient and modern—imagined that man is nothing but a piece of matter so intricately organised that the impressions of external objects produce in it sensation, perception, remembering, and all the other operations we are conscious of. This foolish opinion must have arisen from observing the constant connection that God has established between certain impressions made on our senses and our perception of the objects that make impression, from which they weakly inferred that those impressions were the proper efficient causes of the corresponding perception. [See note on 'efficient' on page 37.]

But no reasoning is more fallacious than the inference that one thing must be the *cause* of another because the two are always *conjoined*. Day and night have been joined in a constant succession since the beginning of the world, but who is so foolish as to infer from this that day causes night or that night causes the following day? Really, there is nothing more ridiculous than to imagine that any motion or state of matter should produce thought.

'I know of a telescope that is so exactly made that it has the power of seeing.' 'I know of a filing-cabinet that is built so elegantly that it has the power of memory.' 'I know of a machine that is so delicate that it feels pain when it is touched.' Such absurdities are so shocking to common sense that even savages wouldn't believe them; yet it is the same absurdity to think that the impressions of external objects on the machine of our bodies can be the real efficient cause of thought and perception. I shall now set this aside, as a notion too absurd to be reasoned about.

2. Another conclusion that many philosophers have drawn is that in perception an impression is made •on the

mind as well as •on the organ nerves and brain. As I noted in Essay 1, chapter 1 [around the middle of item 10], Aristotle thought that the *form* or *image* of the perceived object enters through the sense-organ and strikes on the mind. Hume gives the name 'impressions' to all our perceptions, to all our sensations, and even to the objects that we perceive. Locke says very positively that the ideas of external objects are produced in our minds by impact, 'that being the only way we can conceive bodies to operate in' (*Essay* II.viii.11). (To be fair to Locke, I should say that he retracted this view in his first letter to the Bishop of Worcester, and promised in the next edition of his *Essay* to have that passage corrected; but it isn't corrected in any of the subsequent editions I have seen; perhaps he forgot, or the printer was negligent.)

There is no prejudice more natural to man than to think of the mind as having some similarity to body *in its operations*. Thus, men have been prone to imagine that as bodies are started moving by some impulse or impression made on them by contiguous bodies, so also the mind is made to think and to perceive by some impression made on it or some impulse given to it by contiguous objects. . . . If we think of the mind as *immaterial*—and I think we have very strong proofs that it is—we'll find it difficult to attach any meaning to 'impressions made on the mind'.

[Reid then discusses the idiom involved in 'I was there when it happened but it made no impression on my mind'. This is correct ordinary usage, he says, but:] it is evident from the way modern philosophers use 'impression on my mind' that they don't mean merely to report my perceiving an object, but rather to *explain* how the perception came about. They think that the perceived object acts on the mind in

some way similar to that in which one body acts on another by making an impression on it. The impression on the mind is thought of as something in which the mind is entirely passive, and has some effect produced in it by the object. But this is a hypothesis that contradicts the common sense of mankind and ought not to be accepted without proof.

When I look at the wall of my room, the wall doesn't *act*—it *can't* act. Perceiving it is an act or operation of *mine*. This is how mankind in general see the situation; that is made clear by the way perception is spoken of in all languages.

Common folk don't worry about *how* they perceive objects; they say what they are conscious of, saying it in a perfectly proper manner. But philosophers are eager to know *how* we perceive objects; and, conceiving some similarity between •a body's being put into motion and •a mind's being made to perceive, they are led to think that just as •the body must receive some impulse to make it move so •the mind must receive some impulse or impression to make it perceive. This analogy seems to be confirmed by the fact that we perceive objects only when they make some impression on the organs of sense and on the nerves and brain; but bear in mind that it's in the ·passive· nature of body that it can't change its state except through some force's being impressed on it. The nature of mind is different. Everything we know about the mind shows it to be in its nature living and active, and to have the power of perception in its constitution, though still within the limits set for it by the laws of Nature.

So it seems that the phrase 'impression made on the mind by corporeal objects' either •is a phrase with no clear meaning—a sheer misuse of the English language—or •is based on a hypothesis for which there is no proof. I agree that in perception an impression is made on the sense-organ and on the nerves and brain, but I don't agree that the object makes any impression on the mind.

3. Another inference from the impressions made on the brain in perception has been adopted very generally by philosophers, though I think it has no solid foundation. It is that the impressions made on the brain create *images*—likenesses—of the object perceived, and that the mind, being located in the brain as its reception room, immediately perceives those images, and only *through* them does it perceive the external object. This view that we perceive external objects not immediately but through certain images of them conveyed by the senses seems •to be the oldest philosophical hypothesis we have on the subject of perception, and •to have kept its authority until now, with small variations.

As I noted earlier, Aristotle maintained that the 'species' or images or forms of external objects come from the object and are impressed on the mind. And what Aristotle said about his •immaterial 'species' or forms the followers of Democritus and Epicurus said about •thin films of subtle matter coming from the object.

Aristotle thought that every object of human understanding enters ·the mind· at first through the senses, and that the notions acquired through them are refined and spiritualized by the powers of the mind so that eventually they become objects of the most elevated and abstracted sciences. Plato on the other hand had a very low opinion of all the knowledge we get through the senses. He thought it didn't deserve to be called 'knowledge', and couldn't be a basis for science, because the objects of sense are mere *individuals*, and are in a constant state of change. All science, according to Plato, must concern the eternal and unchanging *ideas* that existed before the objects of sense and are not liable to any change. This marks an essential difference between the systems of these two philosophers: the notion of eternal unchanging ideas that Plato borrowed from the Pythagorean school was totally rejected by Aristotle, for whom it was a maxim, ·an

axiom, that there is nothing in the intellect that wasn't at first in the senses.

Despite this big difference between those two ancient systems, they *could* both agree about how we perceive objects through our senses. And I think they probably *did*, because Aristotle, as far as I know, doesn't note any difference between himself and his master on this point, and doesn't claim that his theory about how we perceive objects is his own invention. It is made still more probable by Plato's hints, in the seventh book of *Republic*, concerning how we perceive the objects of sense. He compares this to people in a deep and dark cave who don't see external objects but only their shadows by a light let into the cave through a small opening. . . .

The ancients had a great variety of views about where the soul is located. Since advances in anatomy have led to the discovery that •the nerves are the instruments of perception and of the sensations that accompany it, and that •the nerves ultimately run to the brain, philosophers have generally held that the soul is •in the brain, and that it perceives the images that are brought •there, and perceives external things only by means of those images.

Descartes thought the soul must have *one* location; and he saw that the pineal gland is the only part of the brain that is single, all the other parts being *double*; which led him to make that gland the soul's habitation, to which news is brought—by means of the animal spirits—concerning all the objects that affect the senses.

Others haven't thought it right to confine the soul to the pineal gland, and have located it •in the brain in general or •in some part of it that they call the *sensorium*. Even the great Newton favoured this opinion, though he presents it only as a question, with the modesty that distinguished him as much as his great genius did:

Isn't the sensorium of animals the place where the sensing substance is present, and to which the sensible species of things are brought through the nerves and brain so that they can be perceived by the mind that is present in that place? And isn't there an immaterial, living, thinking, and omnipresent being, •God•, who in infinite space (•as if it were his •infinite• sensorium) intimately perceives things themselves and comprehends them perfectly because he is present to them—these being things of which *our* instrument of thought and perception discerns (•in its little sensorium) only the images •or likenesses or sensible 'species'• that the sense-organs bring to it?

His great friend Samuel Clarke adopted the same position with more confidence. In his letters to Leibniz we find the following:

Unless it is *present to* the images of the things that are perceived, the soul couldn't possibly perceive them. A living substance can perceive a thing only when it is present either •to the thing itself (as omnipresent God is present to the whole universe) or •to the images of things (as the soul of man is in its own sensorium). A thing can't •act or be acted on in a place where it isn't present, any more that it can •exist in a place where it isn't present. (Clarke's second reply. . . .)

[Reid then gives evidence of Locke's also holding that we perceive things through images of them that enter the brain, the mind's reception room. Then:] But whether he thought with Descartes and Newton that the images in the brain are perceived by the mind that is present there, or rather that they are imprinted on the mind itself, is not so evident.

This hypothesis stands on three legs, and if any one of them fails the hypothesis must fall to the ground: (1) The soul

has its location—or as Locke calls it, its reception room—in the brain. (2) Images of all the objects of sense are formed in the brain. (3) The mind or soul perceives these images in the brain, and perceives external objects not immediately but only by means of those images. ·I shall discuss these in turn·.

(1) ‘The soul is located in the brain’—this is surely not so well established that we can safely build other principles on it! There have been various opinions and much disputation about the location of spirits—do they have a location at all? if they do, *how* do they occupy it? After men had for centuries fumbled in the dark regarding those questions, the wiser of them seem to have dropped the questions because these matters are beyond the reach of the human faculties.

(2) ‘Images of all the objects of sense are formed in the brain’—I venture to assert that there is no proof or even probability of this with regard to *any* of the objects of sense, and that with regard to *most* of them it is downright meaningless.

·NO PROOF OR PROBABILITY·

We haven’t the faintest evidence that an image of any external object is formed in the brain. The brain has been dissected countless times by the most careful and precise anatomists; every part of it has been examined by the naked eye and with the help of microscopes; but no trace of an image of any external object has ever been found. The brain is a soft, moist, spongy substance, which makes it *utterly* unsuitable for receiving or retaining images.

Anyway, how are these images formed? Where do they come from? Locke says that the sense-organs and nerves bring them in from outside the body. This is just the Aristotelian hypothesis of ‘sensible species’, which modern philosophers have taken trouble to refute and which must be admitted to be one of the least intelligible parts of the

Aristotelian system. Those who think that

- Aristotelian sensible· species of colour, shape, sound, and smell coming from the object and entering by the sense-organs

are part of the scholastic jargon that was discarded from sound philosophy long ago ought to have discarded

- images in the brain

along with them. No author has ever produced a shadow of argument to show that any image of an external object ever entered the brain through any sense-organ.

External objects do make *some* impression on the organs of sense and through them on the nerves and brain, but it is most improbable that those impressions *resemble* the objects that make them and thus count as ‘images’ of those objects. Every hypothesis that has been contrived shows that there can’t be any such resemblance: it can’t be supposed that

- the motions of animal spirits,
- the vibrations of elastic cords,
- the vibrations of elastic ether, or
- the vibrations of the tiny particles of the nerves

resemble the objects that cause them. We know that in vision an image—properly so-called, i.e. a *likeness*—of the visible object is formed at the bottom of the eye by the light-rays. But we also know that this image can’t be conveyed to the brain, because the optic nerve and all the parts that surround it are opaque, and don’t allow light-rays through. And in no other organ of sense is any image of the object formed, ·let alone conveyed to the brain·.

·MEANINGLESS·

With regard to *some* objects of the senses we can understand what is meant by ‘an image of the object imprinted on the brain’; but with regard to *most* objects of the senses that phrase is absolutely unintelligible and has no meaning

at all. As regards an object of *sight*: I understand what is meant by ‘an image of its shape in the brain’, but how am I to make sense of ‘an image of its colour’ in the brain where there is absolute darkness? And as for all objects of sense other than shape and colour, I can’t conceive what ‘an image of them could mean. I challenge anyone to say what he means by ‘an image of heat’, ‘... of cold’, ‘... of hardness’, ‘... of softness’, ‘... of sound’, ‘... of smell’, ‘... of taste’. The word ‘image’ when applied to these objects of sense has absolutely no meaning. What a weak foundation there is, then, for this hypothesis that images of all the objects of sense are imprinted on the brain, having been carried to it

along the channels of the organs and nerves!

(3) ‘The mind perceives the images in the brain, and perceives external objects only by means of them’—this is as improbable as the thesis that there are such images to be perceived. If our powers of perception are not totally untruthful, the objects we perceive are not in our brain but in our environment. So far from perceiving images in the brain, we don’t perceive our brain *at all*. If anatomists hadn’t done dissections, no-one would even know that he *had* a brain.

[Then two paragraphs summing up the findings of this chapter.]

Chapter 5: Perception

When we speak of the impressions made on our organs in perception, we are relying on facts taken from anatomy and physiology—facts for which we have the testimony of our senses. But now we are to speak of perception itself, not merely something that happens *in* perception. And perception is solely an act of *the mind*, so we must appeal to some authority other than anatomy and physiology. The operations of our minds are known not through the senses but by *consciousness*, the authority of which is as certain and as irresistible as that of the senses.

Everyone is *conscious of* the operations of his own mind; for us to have a clear notion of any of those operations of our own minds we need more than mere consciousness. We also have to •attend to them while they are going on, and •reflect on them carefully when they are recent and fresh in our

memory; and we need to do this often enough for us to get the *habit* of this sort of attention and reflection. Thus, when I make some factual claim on this topic, I can only appeal to *your thoughts*, asking whether my claims don’t square with what you are conscious of in your own mind.

Well, now, if we attend to the act of our mind that we call ‘perceiving an external object of sense’ we shall find in it these three things: (1) Some conception or notion of the object perceived. (2) A strong and irresistible conviction and belief that the object does at present exist. (3) That this conviction and belief are immediate, and not upshots of reasoning. I shall discuss these in turn.

(1) It is impossible to perceive an object without having some notion or conception of the thing we perceive. We can indeed conceive an object that we don’t perceive; but when

we perceive the object we must have some conception of it at the same time, and usually we have a clearer and steadier notion of the object while we perceive it than we get from memory or imagination at a time when we aren't perceiving it. Yet even during perception the notion our senses give us of the object may be extremely clear, extremely unclear, or something in between.

[Reid then comments on the variations in how well we see something, depending on distance, light conditions, naked eye versus microscope, and so on. He says that all this can easily be re-applied to the other senses, and that this is obvious to anyone who can reflect at all. Then:]

I need only add that the notion we get of an object merely by our external sense mustn't be confused with the more scientific notion that an adult may have of the same object by attending to its various attributes, or to its various parts and their relation to each other and to the whole. Thus the notion that a child has of a mechanical spit for roasting meat will obviously be very different from that of a man who understands the thing's construction and perceives how its parts relate to one another and to the whole thing. The child sees the apparatus and every part of it as well as the man does, so the child has all the notion of it that sight can give; and whatever else there is in the adult's notion of the apparatus must be derived ·not from sight but· from other powers of the mind. . . . We should be careful not to run together the operations of different powers of the mind—powers that are apt to be taken as one and the same because in our adult years they are always conjoined.

(2) In perception we have not only a more or less clear •notion of the perceived object but also an irresistible •belief that it exists. This is always the case when we are sure that we perceive it. A perception can be so faint and indistinct that we aren't sure whether we perceive the object or not.

For example, when a star begins to twinkle as the light of the sun fades, you may for a short time •think you see it without •being sure that you do, until the perception acquires some strength and steadiness. . . . But when the perception is in any degree clear and steady, there remains no doubt of its reality, in which case the existence of the perceived object is also past doubt.

[Reid then says that in every country's law-courts witnesses may be challenged as liars, but never on the grounds that 'the testimony of their eyes and ears' shouldn't be trusted. If any counsel 'dared to offer such an argument. . . .it would be rejected with disdain'. Then:] There couldn't be stronger proof that it is the universal judgment of mankind that

the evidence of the senses is a kind of evidence that we can safely depend on in the most momentous concerns of mankind, a kind of evidence against which we ought not to allow any reasoning; and therefore to reason against it—or *to reason for it*—is an insult to common sense.

The whole conduct of mankind in everyday life, as well as in the solemn procedure of courts in the trial of civil and criminal cases, demonstrates this. I know only of two exceptions that may be offered against this being the universal belief of mankind.

The first exception is that of some **lunatics** who become convinced of things that seem to contradict the clear testimony of their senses—e.g. one who seriously believed he was made of glass, and lived in continual terror of breaking. Well, our minds as well as our bodies are—in our present ·earthly· state—liable to strange disorders; and just as we don't judge concerning the natural constitution of the •body from the disorders or diseases that may come its way, so we oughtn't to judge concerning the natural powers of the •mind on the

basis of its disorders rather than from its sound state. . . . It is natural for man to have faculties superior to those of brutes; yet we see some individuals whose faculties are not equal to those of many brutes; and the wisest man can by various accidents be reduced to this state. General rules about those whose intellects are sound are not overthrown by instances of men whose intellects are not sound.

The other exception is that created by some **philosophers** who have maintained that the testimony of the senses is deceptive and therefore should never be trusted. Perhaps it is a sufficient answer to this to say that there's nothing so absurd that no philosophers have maintained it! It is one thing to proclaim a doctrine of this kind, another seriously to believe it and live by it. Obviously a man who didn't believe his senses couldn't keep out of harm's way for an hour; yet in all the history of philosophy we never read of any sceptic who walked into fire or water because he didn't believe his senses! . . . We are entitled to think that philosophy was never able to conquer men's natural belief in their senses, and that sceptical philosophers, in all their subtle reasonings against this belief, were never able to persuade themselves.

So it appears that the clear and distinct testimony of our senses carries irresistible conviction along with it to every man who is in his right mind.

(3) This conviction is not only irresistible but is immediate. It is not by reasoning and argumentation that we come to be convinced of the existence of what we perceive; the only *argument* we want for the object's existence is *that we perceive it*. Perception commands our belief on its own authority, and doesn't condescend to base its authority on any reasoning whatsoever.

·Don't think that point (3) follows from point (2), because it doesn't. A belief can be irresistible without being immediate. For example, my conviction that the three angles of every

plane triangle are equal to two right angles is irresistible, but it isn't immediate: I am convinced of it *only* by demonstrative reasoning. There are other truths in mathematics of which we have a conviction that is not only irresistible but also immediate. The axioms are like that. Our belief in the axioms of mathematics isn't based on argument. Arguments are based on the axioms, but *their* evidentness is discerned immediately by the human understanding.

It is one thing to have an immediate conviction of a self-evident axiom, and another thing to have an immediate conviction of the existence of what we see. But the conviction is equally immediate and equally irresistible in both cases. No man thinks of looking for reasons to believe in what he sees; and we trust our senses just as much before we are capable of reasoning as we do afterwards. . . . The constitution of our *•understanding* causes us to accept the truth of a mathematical axiom, regarding it as a first principle from which other truths can be deduced but isn't itself deduced from anything; and the constitution of our *•power of perception* causes us to accept the existence of what we clearly perceive, regarding *it* as a first principle from which other truths can be deduced but isn't itself deduced from anything.

[All this, Reid says, holds only for adults. Children don't have a clear line between what is imagined and what is perceived, and anyway they may be incapable of having any notion as abstract as that of *existence*. Then:]

The account I have given of our perception of external objects is intended as a faithful portrayal of what every adult man who is capable of attending to what passes in his own mind can feel in himself. *How* do our senses produce the notion of external objects and the immediate belief in their existence? I can't tell you, and I don't claim to be able to do so. If the power of perceiving external objects in certain

circumstances is a part of the original constitution of the human mind—part of its *basic* design—then all attempts to account for it will be vain. The only explanation we can give for the constitution of things is ‘They are like that because God willed that they should be so’. Just as we can give no reason why matter is extended and inert, why the mind thinks and is conscious of its thoughts, except ‘That was the choice of God, who made both matter and mind’ . . .

God intended us to have such knowledge of the material objects that surround us as we need for supplying our

natural wants and avoiding the dangers to which we are constantly exposed; and he has admirably fitted our powers of perception to this purpose. If the news we get about external objects could be acquired only through reasoning, the majority of men wouldn’t have it; for the majority hardly ever learn to reason; and in infancy and childhood no-one can reason. . . . So God in his wisdom conveys news of external objects to us in a way that puts us all on a level. The information of the senses is as perfect, and gives as full conviction, to the most ignorant as to the most learned.

Chapter 6: What it is to account for a phenomenon in Nature

Here is a fact that everyone knows:

If an object is placed at a proper distance from you, and in good light, while your eyes are shut, you won’t perceive it at all. But the moment you open your eyes you have—as though *by inspiration*—certain knowledge of the object’s existence, of its colour and shape, and of how far away it is.

Ordinary folk are satisfied with knowing this fact, and don’t trouble themselves about the cause of it. But a philosopher is impatient to know how this event comes about, to account for it, to assign its cause.

This eagerness to know the causes of things is the parent of all philosophy, true and false. For theoretically minded men, such knowledge is a large part of happiness! . . . But just as men often go astray when pursuing other kinds of happiness, so do they also—as often as anywhere—in the philosophical pursuit of the causes of things.

Common sense tells us that the causes we assign to appearances ought to be real, not fictions of human imagination. It is also self-evident that such causes ought to be adequate to the effects that are thought to be produced by them. [These are the two parts of Newton’s ‘first rule of philosophising’, introduced on page 42.]

If you are not very familiar with inquiries into the causes of natural appearances, I shall try to give you a better understanding what it is to •show the cause of such appearances, or to •account for them. I’ll do this in terms of a plain example of a phenomenon or appearance of which a full and satisfactory account has been given, namely:

A stone or any heavy body falling from a height continually speeds up as it falls; so that if it reaches a certain velocity in one second of time, it will be going twice as fast as that at the end of two seconds, three times as fast at the end of three seconds, and so on

in proportion to the time.

This accelerated velocity in a falling stone must have been •observed from the beginning of the world; but as far as we know the first person who •accounted for it in a proper and philosophical manner—after countless false and fictitious accounts had been given of it—was the famous Galileo.

He observed that once a body has been started moving, it will continue to move at that speed and in that direction until it is stopped or slowed down ·or speeded up· or diverted by some force impressed on it. This property of bodies is called their ‘inertia’, which is Latin for ‘inactivity’; because all it amounts to is that bodies can’t *unaided* change their state from rest to motion or from motion to rest. Galileo also observed that gravity acts constantly and equally on a body, and therefore will add equal amounts of speed to a body in equal times. From these principles, which are known from experience to be fixed laws of Nature, he showed that heavy bodies must descend with a uniformly accelerating speed, as experience shows them to do. ·Here is how his reasoning went·:

Suppose that the gravitation [here = ‘weight’] of a falling body gives it velocity V at the end of one second. If at that moment its gravitation •stopped, the body would go on falling with velocity V . But in fact its gravitation •continues, and will in another second give it an additional velocity equal to V that it gave in the first second; so that the whole velocity at the end of two seconds will be $2V$. And again, through the third second of the fall, $2V$ will continue while gravitation adds a further V , so that at the end of the third second the velocity will be $3V$, and so on, indefinitely.

Notice that *two* causes are assigned for this phenomenon:

(1) Bodies once put in motion retain their velocity and

direction until it is changed by some force impressed on them. (2) The weight or gravitation of a body is always the same. These are laws of Nature confirmed by universal experience, so they are true causes, not invented ones. Also, they are precisely adequate to the effect ascribed to them; they *must* produce just exactly the motion that experience shows us falling bodies have—neither more nor less. The account given of this phenomenon is sound and philosophical; no other account will ever be required, or accepted, by people who understand this one.

Notice also that the causes assigned for this phenomenon are things of which we can’t assign a cause in their turn. Why do bodies once put in motion continue to move? Why do bodies constantly gravitate towards the earth with the same force? No-one has been able to answer either question. These are facts confirmed by universal experience, and no doubt they *have* a cause; but their cause is unknown, and we call them ‘laws of Nature’ *because* the only cause of them that we know is the will of God.

‘Can’t we try to find the cause of gravitation, and of other phenomena that we call “laws of Nature”?’ Of course we can! We don’t know what limit has been set to human knowledge, and there’s no such thing as *going too far* in our search for knowledge of the works of God. But ·don’t lose sight of what is involved in going one step back up the causal chain·. One might, for instance, hope to account for gravitation by *an ethereal elastic medium*; but to do this one must prove (1) that this medium does exist and is elastic, and (2) that this medium must necessarily produce the gravitation that bodies are known to have. Until these two things have been done, gravitation is not accounted for and its cause is not known; and when they *are* done, the elasticity of this ethereal medium will be considered as a law of Nature whose cause is unknown. ·The title ‘law of Nature’ will be lost by

the gravitation of bodies, and picked up by the elasticity of the ether. The chain of natural causes has aptly been compared to a chain hanging down from heaven: a link is discovered that supports the links below it, but it must be supported in its turn; and what supports *it* must also be supported. . . .and so on· until we come to the first link,

which is supported by the throne of ·God· the almighty. Every natural cause must *have* a cause, until we ascend to the first cause. And that is *uncaused*, and operates not by necessity but by will—meaning that God acts as he *chooses* to, not as he *must*. . . .

Chapter 7: What Malebranche believed about the perception of external objects

'How does the thinking agent within us keep in step with the material world outside us?' This has always been found a very difficult problem for the philosophers who think they have to account for every phenomenon in Nature. Many philosophers, ancient and modern, have racked their brains trying to discover what makes us perceive external objects through our senses. And there seems to be great uniformity in their main views, though with variations in the details.

Here is how Plato illustrates our way of perceiving the objects of sense. He supposes a dark underground cave in which men lie, tied up in such a way that they look only towards one part of the cave. Far behind there is a light, some rays of which come over a wall to the part of the cave that the prisoners can see. A number of people going about their business pass between them and the light, and the prisoners see their shadows but not the people themselves. [Reid goes on to say that Plato probably got his ideas about perception from Pythagoras, and that Aristotle's views on this are probably a version of Plato's. Then:] The •shadows of Plato may very well represent the •species and phantasms of the Aristotelian school and the •ideas and impressions of

modern philosophers.

Two thousand years after Plato, Locke. . . .represents our way of perceiving external objects by an image very like that of the cave:

The understanding strikes me as being like a closet that is wholly sealed against light, with only some little openings left to let in external visible resemblances or ideas of things outside. If the pictures coming into such a dark room stayed there, and lay in order so that they could be found again when needed, it would very much resemble the understanding of a man, as far as objects of sight and the ideas of them are concerned. (*Essay* II.xi.17)

Plato's cave and Locke's closet can easily be made the vehicles for every theory of perception that has been invented. For they *all* presuppose that we don't perceive external objects immediately, and that the immediate objects of perception are only certain shadows of the external objects. Those shadows or images. . . .were by the ancients called 'species', 'forms', 'phantasms'. Since the time of Descartes they have commonly been called 'ideas', and by Hume 'im-

pressions'. But all philosophers from Plato to Hume agree that we don't perceive external objects immediately, and that the immediate object of perception must be some image that is present to the mind. There seems here to be a unanimity rarely to be found among philosophers on such abstruse points!

'According to the opinion of these philosophers, do we perceive only the images or ideas, and *infer* from them the existence and qualities of the external object? Or do they rather hold that we really perceive the external object as well as its image?' The answer to this question is not quite obvious.

On the one hand, philosophers—except Berkeley and Hume—believe in the existence of external objects of sense, and call them objects of perception though not *immediate* objects. But what they mean by a 'mediate object of perception' I don't find clearly explained. I am left wondering whether

they are suiting their language to popular opinion, and mean merely that we 'perceive external objects' in the figurative sense in which we say that we 'perceive an absent friend' when we look at a picture of him,

or whether instead

they mean that really and literally we perceive both the external object and the idea of it in the mind.

In the latter case, it would follow that in every case of perception a double object is perceived—for instance that I perceive one sun in the heavens and another in my own mind. I don't find any of these philosophers saying this, however; and as it contradicts the experience of all mankind, I shan't impute it to them.

So it seems that •they hold that we don't really perceive the external object, but only the internal one; and that •when they speak of 'perceiving external objects' they mean this

only in a popular or in a figurative sense as above explained. I have given one reason for thinking this to be the opinion of the philosophers in question. Here are three more: (1) If we really do perceive the external object itself, there seems to be no need—no *use*—for an image of it. (2) Since the time of Descartes, philosophers have generally thought that the existence of external objects of sense needs to be proved, and can only be proved from the existence of their ideas. (3) The way in which philosophers speak of ideas seems to imply that they are the only objects of perception.

Having tried to explain what is •common to philosophers in accounting for our perception of external objects, I shall give some details concerning their •differences. That will occupy this chapter and the next eight.

The ideas by which we perceive external objects are said by some to be •God's ideas; but most have thought that every man's ideas are •his own, and are either in his mind or in his sensorium—the part of the brain where the mind is immediately present. The former view is the theory of Malebranche; I shall call the latter 'the common theory'. [Malebranche died about 70 years before this work appeared. Reid's discussions of other philosophers' theories of perception will run until page 100.]

•LEADING UP TO MALEBRANCHE•

Malebranche's theory seems to have something in common with the Platonic notion of ideas, but it isn't the same. Plato believed that there are three eternal basic sources from which all things have their origin:

matter, ideas, and an efficient cause.

Matter is what all things are made of, and the ancient philosophers thought it was eternal. **Ideas** are forms, without matter, of every kind of thing that can exist; and Plato thought that these too were eternal and unchanging, and that they were the models or patterns on the basis of which

the **efficient cause**, namely God, formed every part of this universe. These ideas were thought to be the sole objects of science, and indeed of all true knowledge. While we are imprisoned in the body, we are apt to attend only to the objects of sense; but these—being. . . shadows rather than realities—can't be the object of real knowledge. All science is concerned not with individual things, but with things that are universal and thought of in abstraction from matter. Truth is eternal and unchanging, and must therefore have eternal and unchanging ideas as its object. We, even in our present state, can contemplate ideas in some degree, but not without a certain purification of mind and abstraction from the objects of sense. Those, as far as I can understand them, were the lofty notions of Plato and probably of Pythagoras.

The philosophers of the Alexandrian school, commonly called the later Platonists, seem to have adopted the same system with one difference: they held that the eternal ideas are not a source distinct from God, but rather are *in* God's intellect as the objects of the conceptions that his divine mind must have had from all eternity—not only of everything he has made but also of every possible existence, and of all the relations between things. By suitably purifying our minds and abstracting from the objects of sense, we may be in some measure not merely put in touch with *ideas*, but united to *God*, becoming able in his eternal light to discern the most sublime intellectual truths.

These Platonic notions, grafted onto Christianity, probably gave rise to the sect of the 'mystics'. Although this in its spirit and principles is extremely opposite to the Aristotelian system, it has never been extinguished and survives to this day.

Many of the Fathers of the Christian church—Augustine, for one—have a touch of the doctrines of the Alexandrian or later Platonist school. But as far as I know that neither Plato

nor the later Platonists nor St Augustine nor the mystics thought that we perceive the objects of sense in God's ideas. They had too low a view of our perception of sensible objects to credit it with having such a high origin!

·ARRIVING AT MALEBRANCHE·

So the theory that we perceive the objects of sense in God's ideas I take to be the invention of Father Malebranche himself. He cites many passages of St Augustine in support of it, and seems very anxious to have that Father of the Church in his camp. But although in those passages Augustine speaks of God's being the 'light of our minds', of our being 'illuminated immediately by the eternal light', and uses other such elevated expressions, still he seems to apply those expressions only to our illumination in moral and divine matters, not to the perception of objects by the senses. . . .

Malebranche, with a very penetrating intellect, undertook a more detailed examination of the powers of the human mind than anyone before him. He had the advantage of the discoveries made by Descartes, whom he followed but not uncritically.

He lays it down as a principle accepted by all philosophers and not open to question that we perceive external objects not •immediately but •by means of images or ideas of them that are present to the mind:

Everyone will grant, I suppose, that we don't perceive objects external to us immediately and of themselves. We see the sun, the stars, and countless other objects external to us; and it's very unlikely that the soul ventures to leave the body and stroll (as it were) through the heavens to contemplate all those objects immediately. . . . The immediate object of the mind when it sees the sun, for example, is not •the sun but •something intimately united to the soul; and *that* is

what I call an 'idea'. So what I mean by 'idea' is just 'whatever it is that is the immediate object, or nearest to the mind, when we perceive any object'. It should be carefully noted that for the mind to perceive any object it *must* have the idea of that object actually present to it. It's not possible to doubt this. The things the soul perceives are of two kinds: those in the soul, and those external to it. The ones in the soul are its own thoughts, i.e. its various states and events. The soul doesn't need ideas to perceive *these* things. But with regard to things external to the soul, we can't perceive them except by means of ideas. (*The Search After Truth*, start of Book 3, Part 2, chapter 1)

Having laid this foundation, as a principle accepted by all philosophers and admitting of no doubt, Malebranche proceeds to list all the ways in which the ideas of sensible objects *could* be presented to the mind:

- They come from the bodies that we perceive.
- The soul has the power of producing them in itself.
- They are produced by God, either in creating us or from time to time as there is use for them.
- The soul has in itself *potentially* all the perfections that it perceives in bodies;
- The soul is united with a being who has all perfection, and who has in himself the ideas of all created things.

He takes this to be a complete list of all the possible ways for the ideas of external objects to be presented to our minds. He devotes a whole chapter to each, rejecting the first four, and giving various arguments in support of the fifth: God is always present to our minds in a more intimate way than anything else is, so he can on the occasion of the impressions made on our bodies reveal to us, as far as he thinks proper and according to fixed laws, his own ideas of the object; and thus we see all things in God or in the divine

ideas. ['Occasion', as used here and in several later passages, is a technical term in Cartesian philosophy. Physical events of kind K_1 can't *cause* mental events of kind K_2 , Malebranche held; but there seems to be such causation because God establishes regularities—'laws'—according to which whenever a K_1 event occurs a K_2 event follows, the former being not the cause but the 'occasion' for the latter.]

At first glance this system may appear visionary; but when we consider that Malebranche agreed with the whole tribe of philosophers in taking *ideas* to be the immediate objects of perception, and that he found insuperable difficulties and even absurdities in every other hypothesis about ideas, it won't be so surprising that a man of very great intellectual power should opt for *this* hypothesis; and, devout as he was, it probably pleased him all the more because it highlights our dependence on God and his continual presence with us.

Malebranche distinguished more accurately than any previous philosopher •the objects that we perceive from •the sensations in our own minds which, by the laws of Nature, always accompany our perception of the object. In this as in many things he has great merit, for I think that this is a key that opens the way to a correct understanding both of our external senses and of other powers of the mind. Ordinary folk confuse •sensation with •other powers of the mind, and confuse it with •the objects ·they perceive·, because the purposes of everyday living don't make a distinction necessary. Running these together in ordinary language has led philosophers in one period to treat things that are really sensations in our own minds as though they were external, and in another period—going *of course!* to the opposite extreme—taking almost everything to be a sensation or feeling in our minds.

Obviously Malebranche's system doesn't allow anything that we perceive by our senses to count as evidence of the existence of a material world; for God's ideas, which are the

objects we immediately perceive, were the same before the world was created as they are now. Malebranche was too sharp not to spot this consequence of his system, and too fair-minded not to acknowledge it. He fairly admits it, and tries to turn it to his advantage by making the authority of *revelation* the only evidence we have of the existence of matter. He shows that Descartes's arguments to prove the existence of a material world, though as good as any that reason could provide, are not perfectly conclusive; and though he agrees with Descartes that we feel ourself strongly drawn to believing in the existence of a material world, he thinks that this isn't sufficient, and that to succumb to such urges in the absence of evidence is to expose ourselves to perpetual delusion. He thinks, therefore, that the only convincing evidence we have of the existence of a material world is that revelation assures us that God created the heavens and the earth. . . . He is aware that this strange opinion may expose him to ridicule from those who are guided by prejudice, but for the sake of truth he is willing to bear it. But no author—not even Berkeley—has shown more clearly that neither his own system nor what philosophers commonly say about ideas leaves us with any evidence, whether from reason or from our senses, of the existence of a material world. It is only fair to Father Malebranche to acknowledge that Berkeley's arguments are to be found, in full force, in his works.

[Reid then briefly discusses the views of John Norris, an English follower of Malebranche, who 'has made a feeble effort' to 'prove that material things cannot be an immediate

object of perception'. Then:]

Malebranche's system was adopted by many devout people in France. . . .but it seems to have had no great currency in other countries. Locke wrote, but did not publish, a small tract against it. . . . But there is less strength and solidity in that than in most of his writings—he wrote it either •in haste or •at an advanced age when his intellect had lost some of its energy. Malebranche's most formidable antagonist was his fellow-countryman, Antoine Arnauld, teacher at the Sorbonne and one of the sharpest writers the Jansenists have to boast of (though that sect has produced many). Malebranche was a Jesuit, and the bad feelings between the Jesuits and Jansenists gave him no reason to expect mercy from his learned antagonist! If you want to see Malebranche's system attacked and defended, with each side displaying subtlety of argument and elegance of expression, . . . you should read

Malebranche's *Search after Truth*,
Arnauld's *True and False Ideas*,
Malebranche's *Response to Arnauld's Book*,

and some subsequent replies and defences. In controversies of this kind the attacker usually has the advantage, . . . for it is easier to overturn all the theories of philosophers on this subject than to defend any one of them. Bayle has remarked, rightly, that in this controversy Arnauld's arguments against Malebranche's system were often unanswerable, but that they held equally against Arnauld's own system; and his ingenious antagonist knew well how to use this defence.

Chapter 8: The 'common theory', and the views of the Aristotelians and of Descartes

What I call 'the common theory' [see page 56] holds that we perceive external objects only by certain images that are in our minds or in the sensorium, the part of the brain to which the mind is immediately present. Philosophers down through the centuries have differed both in the names they have given to those images and in their notions of what the images are. To list all their variations probably wouldn't be worth the labour. I shall merely sketch the principal differences with regard to their names and their nature.

·NAMES·

Aristotle and his followers called the images presented to our senses 'sensible species' or 'forms'; those presented to our memory or imagination were called 'phantasms'; and those presented to our intellect were called 'intelligible species'; and they held that there can be no perception or imagination or thought without species or phantasms. In later times, and especially since the time of Descartes, the items to which the ancient philosophers gave three different names came to be lumped together under the common name 'ideas'. The Cartesians divided our ideas into three classes—ideas of sensation, of imagination, and of pure thought. They held that the images of the objects of sensation and of imagination are in the brain, while the images of objects that are incorporeal are in the understanding or pure intellect.

Locke took 'idea' in the same sense as Descartes had done before him, to signify 'whatever is meant by "phantasm", "notion" or "species"'. He divided ideas into those of sensation and those of reflection; meaning by the first the ideas of all corporeal objects, whether perceived, remembered, or imagined; by the second the ideas of the powers and

operations of our minds. What Locke calls 'ideas' Hume divides into two distinct kinds—'impressions' and 'ideas'. The difference between these, he says, consists in the degrees of force and liveliness with which they strike on the mind. Under 'impressions' he brings all our sensations, passions and emotions as they make their first appearance in the soul. By 'ideas' he means the faint images of impressions, in thinking and reasoning.

Hartley gives the same meaning to 'idea' as Hume does, and what Hume calls 'impressions' he calls 'sensations', conceiving our sensations to be occasioned by vibrations of the infinitesimal particles of the brain, and our ideas by vibrations that are even smaller. . . .

·NATURE·

I shall now present in some detail, though briefly, the views of the Aristotelians and Cartesians (in this chapter) and of Locke, Berkeley and Hume (in the next four chapters) about what sort of thing these images are.

Aristotle seems to have thought that the soul consists of two parts, or rather that we have two souls:

(1) The animal soul, which Aristotle calls simply 'the soul'. This is what is involved in the senses, memory, and imagination. We have this in common with brute animals.

(2) The rational soul, which Aristotle calls 'the intellect'. This is what is involved in judgment, opinion, belief and reasoning. Man has this, but the brute animals don't.

He thought that the animal soul is a certain *form of the body*; it can't be separated from the body, and it goes out of existence at death. . . . He defines a *sense* as that which

can receive the sensible forms or species of objects without any of their matter—as soft wax receives the form of the seal without any of its matter. The forms of sound, of colour, of taste, and of other sensible qualities are all taken in by the senses in the same way.

Aristotle's doctrine seems to imply that bodies are constantly sending out in all directions as many different kinds of forms-without-matter as they have different sensible qualities; for the forms of colour must enter by the eye, the forms of sound by the ear, and so on. I haven't found Aristotle himself saying this explicitly, but his followers did. They argued over details, but the whole theoretical framework of these disputes. . . . is so far above my understanding that I might be unfair to it if I went into it in more detail.

Malebranche in his *Search for the Truth* devoted a whole chapter to arguing that material objects do *not* send out sensible species of their various sensible qualities.

The great revolution that Descartes produced in philosophy was the effect of •his greater genius aided by •the circumstances of the times. For more than a thousand years men had looked up to Aristotle as an oracle in philosophy. His authority was the test of truth. . . . Aristotelian doctrines were so closely interwoven with the whole system of scholastic theology that to •dissent from Aristotle was to •alarm the Church! •Europe was dominated by Aristotle's thought, and not even by the best of it. The most useful and intelligible parts of Aristotle's own writings were neglected, and philosophy became a set of techniques for speaking learnedly and disputing subtly without coming up with anything of use in human life. It bore a great crop of *words* but no *works*! It was splendidly designed for drawing a veil over human ignorance, and putting a stop to the progress of knowledge, by making men think that they knew everything. It also produced a big crop of controversies; but they were

mostly about •words, or •things that don't matter, or •things above the reach of the human faculties. The outcome of each controversy was what you might expect: the disputing parties fought without gaining or losing an inch of ground, until they were weary of the dispute or their attention was drawn away to some other subject.

Such was the philosophy of the schools [= 'the Aristotle-dominated Roman Catholic philosophy departments'] of Europe during the centuries of darkness and barbarism that followed the decline of the Roman empire; so that philosophy needed to be reformed as much as religion did. The light began to dawn at last; a spirit of enquiry sprang up, and men got the courage to question Aristotle's dogmas as well as the Popes' decrees. The most important step in the reformation of •religion was to destroy the claim of •Papal• infallibility, which had blocked men from using their own judgment in matters of religion. And the most important step in the reformation of •philosophy was to destroy the authority that Aristotle had had for so long without being challenged. The reform of philosophy had been attempted by Bacon and others, just as zealously as the reform of religion has been attempted by Luther and Calvin.

Descartes knew well the defects of the prevailing system, which had begun to lose its authority. His genius enabled him, and his spirit prompted him, to attempt a new one. He had worked hard at the mathematical sciences and had made considerable improvements in them. He wanted to introduce into other branches of philosophy the clarity and evidentness that he found in mathematics. [Descartes died about 135 years before this work appeared.]

Being aware of how apt we are to be led astray by prejudices that have been taught to us, Descartes thought that the only way to avoid error was to set oneself to doubt everything—to regard *everything* as uncertain, even things

he had been taught to regard as most certain—until he encountered something that was so clearly and powerfully evident to him that it *compelled* his assent.

In this state of universal doubt, what first appeared to him to be clear and certain was *his own existence*. He was certain because he was conscious that he thought, that he reasoned, and that he doubted. So his argument to prove his own existence was this: *cogito ergo sum* [= 'I think, therefore I exist']. He took this to be the first of all truths—the foundation-stone on which the whole structure of human knowledge is built. . . . He was bowled over by the discovery of one certain principle that released him from the state of universal doubt, and he thought that this principle alone would serve as a foundation on which he could build the whole system of science. So he seems not to have taken much trouble to look for *other* first principles whose clarity and evidentness entitled them to be accepted by every man of sound judgment. The love of simplicity, which is so natural to the mind of man, led Descartes to apply the whole force of his mind to building the edifice of knowledge on this one principle, rather than looking for a broader foundation.

So he doesn't count the evidence of the senses as a first principle, as he does the evidence of consciousness. He brought out the arguments of the ancient sceptics—that •our senses often deceive us. . . .and that •in sleep we often seem to see and hear things that we are convinced have never existed. But what chiefly led Descartes to think that he oughtn't to trust his senses without proof of their truthfulness was that he took it for granted, as all philosophers had done before him, that •what he perceived were not external objects themselves but only certain images of them in his own mind, images called 'ideas'. Consciousness made him certain that he had the ideas of sun and moon, earth and sea; but how could he be assured that there really existed

external objects similar to these ideas?

Having reached the stage of being uncertain of everything but the existence of himself and of the operations and ideas of his own mind, . . . Descartes didn't stop there. Rather, he tried to prove by a new argument—drawn from his idea of a god—the existence of an infinitely perfect being who created him and all his faculties. Because this being is perfect (Descartes reasoned), he couldn't be a deceiver; from which he inferred that his senses and the other faculties he found in himself are not deceptive but can be trusted when they are used properly.

Descartes sets out his system very clearly and sharply in his writings, which you should consult if you want to understand it.

Descartes's merit is hard to grasp for anyone who doesn't have any notion of the Aristotelian system in which he was educated. To throw off the prejudices of education, and to create a system of Nature totally different from the one had dominated the understanding of mankind for so many centuries, required an uncommon force of mind.

•WHAT DESCARTES WAS BROUGHT UP IN•

The world that Descartes presents to us is not only •structurally very different from that of the Aristotelians, but is—so to speak—•composed of different materials.

In the old system a kind of metaphysical sublimation turned everything into principles so mysterious that it's an open question whether they were words without meaning or were notions too refined for human understanding. [Reid is probably using 'sublimation' in two of its senses at once: •intellectually making something higher or purer or more sublime, and •physically turning a solid into a gas!]

All that we observe in Nature, according to Aristotle, is a constant sequence of the operations of *generation* and *corruption* [= 'coming into existence and going out of existence', thought of

mainly in biological terms]. The sources of generation are •matter and •form. All natural things are produced or generated by the union of matter and form, as though matter were the mother and form the father. As to matter—or 'prime matter' as it is called—it is neither substance nor accident; it has no qualities or properties; it is nothing •actually, but is everything •potentially. It has such a strong appetite for form that no sooner does it lose one form than it is clothed in another, and it is capable of having all forms one at a time. It has no nature of its own, but only the capacity for having any nature. This is the Aristotelian account of **prime matter**. This is not matter considered as stuff you can hold in your hand, that has a shape and size and weight and so on. That is *secondary* matter. Aristotle's *prime* or *first* matter is just what is left of a substance if you subtract its form, i.e. subtract *all* its properties or qualities. That is why it has no nature of its own, why it is potentially anything but actually nothing, and so on.

The other source of generation is **form, act, perfection**—in Aristotle's system those three words signify the same thing. But we mustn't think of form as consisting in the shape, size, arrangement, or movement of the parts of matter. These are indeed •accidental forms by which •artificial things are formed; but everything produced by •Nature has a •substantial form, which when joined to matter makes the thing to be what it is. The substantial form is a kind of *informing* soul that gives the thing its specific nature, and all its qualities, powers, and activity. Thus the substantial form of a heavy body is what makes it fall, the substantial form of a light body is what makes it rise. The substantial form of gold is what makes it ductile, fusible, heavy, yellow, and so on; and the same line of thought applies to every natural production. A change in the •accidental form of a body—for example, a lump of gold being turned into a

coin—is merely an •alteration. But a change in a thing's •substantial form—for example, a lump of gold turning into lead—is •generation and •corruption. It is corruption with respect to the substantial form (·gold·) of which the body is deprived, and generation with respect to the substantial form (·lead·) that takes its place. When a horse dies and turns to dust, the ·Aristotelian· philosophical account of the phenomenon is this: A certain portion of prime matter that was joined to the substantial form of a horse is deprived of that form and in the same instant is clothed in the substantial form of earth. As every substance must have a substantial form, some of the forms are •inanimate, some •vegetative, some •animal, and some •rational. The first three kinds can only exist in matter; but the last, according to the schoolmen, is immediately created by God and infused into the body, making one substance with it while they are united; yet capable of being separated from the body and existing by itself.

One last point: I said that the sources of generation are matter and form. I now add that the source of corruption is *privation*—as when the gold (or the horse) is *deprived* of its substantial form.

Those are the principles of natural things in the Aristotelian system. [Reid then briefly discusses how much or little this system has in common with the system of Pythagoras and of Plato, ending with:] But these two systems differed less from one another than Descartes's differed from both.

·WHAT DESCARTES REPLACED IT BY·

In the world of Descartes we meet with only two kinds of beings, namely •body and •mind; •one the object of our senses, •the other the object of consciousness; both of them things of which we have a firm grasp if the human mind is capable of firmly grasping anything. The only qualities

ascribed to body are •extension, shape, and motion; the only qualities ascribed to mind are •thought and its various modifications—•various thought-episodes, various ways of thinking—of which we are conscious. He couldn't see any common attribute, any resembling feature in the attributes of body and mind, so he concluded that they are distinct substances and totally different in kind. He held that body is by its very nature inanimate and inert, incapable of any kind of thought or sensation and unable to produce any change or alteration in itself.

To Descartes goes the honour of being the first person to draw a clear line between the •material and •intellectual worlds, which the old systems blended together so that it was impossible to say where the one ends and the other begins. It would be hard to express *how much* this distinction has contributed to modern improvements in the philosophy of body and the philosophy of mind.

One obvious consequence of it was •the realization• that the only way to make any progress in the knowledge of minds is by careful reflection on the operations of our own mind. Malebranche, Locke, Berkeley, and Hume learned this lesson from Descartes; and we owe to it the most valuable discoveries that those philosophers made in this branch of philosophy. There is another way of reaching conclusions about the mind, namely by *analogical thinking* in which the •powers of the mind are described in terms of the •properties of body. This analogical approach

is something that most people find natural,
agreed with the principles of the old philosophy,
was the source of almost all the errors on this subject,
and
was flatly contrary to the principles of Descartes.

So we can truly say that Descartes laid the foundation for the philosophy of the mind, and set us on the path that all

wise men now agree is the only one on which we can expect success.

•AN ASIDE ON THE BREAKTHROUGH IN PHYSICS•

With regard to physics, or the philosophy of body, even though Descartes didn't lead men onto the right path we must give him credit for bringing them out of a wrong one. When the Aristotelians assigned to every species of body a particular substantial form that produces *in an unknown manner* all the effects we observe in it, they put a stop to all improvement in physics. Heaviness and lightness, fluidity and hardness, heat and cold—these were qualities arising from the substantial form of the bodies that had them. The Aristotelians always had ready at hand •the concepts of•

generation and corruption,
substantial forms, and
occult [= 'hidden'] qualities

to 'explain' any phenomenon. Thus this philosophy, instead of •genuinely• accounting for any of the phenomena of Nature, merely managed to give learned names to their unknown causes, and fed men with the husks of barbarous terminology instead of the fruit of real knowledge.

Through the spread of the Cartesian system, 'prime matter' and 'substantial forms' and 'occult qualities'—along with all the jargon of Aristotelian physics—fell into utter disgrace and were never mentioned by the followers of the new •Cartesian• system except as something to be ridiculed. Men became aware that their understanding had been hoodwinked by those hard terms. They were now accustomed to explaining the phenomena of Nature in terms that are perfectly comfortable for human understanding—shape, size, and motion of particles of matter—and they could no longer put up with anything in philosophy that was obscure and unintelligible. After a reign of more than a thousand years, arrayed in the mock majesty of his 'substantial forms' and

'occult qualities', Aristotle was now exposed as an object of derision, even to the man in the street. . . .

Given the weakness of human nature, men can't be expected to rush violently from one extreme without going more or less to the opposite extreme! Descartes and his followers were not free of this weakness: they thought that •extension, •shape and •motion were all that was needed to explain all the phenomena of the material system. To allow into their system any other qualities, with unknown causes, would be to return to Egypt, from which they had been so happily delivered. [Reid is referring to the Old Testament story about Moses leading the Israelites out of bondage in Egypt.]

When Newton's doctrine of gravitation was published, the great objection to it—which stopped it from being generally accepted in Europe for half a century—was that gravitation seemed to be an *occult quality* because it couldn't be accounted for by extension, shape, and motion, the known attributes of body. His defenders found it hard to answer this objection to the satisfaction of those who had been initiated in the principles of the Cartesian system. But men gradually came to realize that in revolting against Aristotle the Cartesians had gone to the opposite extreme; experience convinced them that there *are* qualities in the material world whose existence is certain though their cause is occult •or hidden•. Admitting this is behaving in a way that is utterly appropriate for a philosopher, honestly confessing human ignorance.

Just as our whole knowledge of the mind must come from carefully observing what happens within ourselves, so our whole knowledge of the material system must come from what we can learn through our senses. Descartes knew this, and his system wasn't as unfriendly to observation and experiment as the old •Aristotelian• system was. He conducted many experiments, and earnestly called on all

lovers of truth to help him in this work. But •two of his beliefs made him unduly optimistic about how much could be learned from just a few experiments•. He believed that

- all the phenomena of the material world result from extension, shape, and motion,

and that

- God always combines these so as to produce the phenomena in the simplest way possible.

•Having taken these two doctrines on board•, he thought that from a few experiments he might be able to discover the simplest way in which the obvious phenomena of Nature could be produced purely by extension, shape and motion, and that this •simplest possible way• must be the way in which the phenomena actually *are* produced. Given his basic principles, his conjectures were ingenious; but they have turned out to be far from the truth—so far that they ought to discourage philosophers from ever trusting to conjecture regarding the operations of Nature. . . .

It was left for Newton to point out clearly the road to the knowledge of Nature's works. Taught by Bacon to despise hypotheses, as the fictions of the human imagination, Newton laid it down as a rule of philosophising that nothing should be assigned as the cause of a natural thing unless it can be proved that it really exists. He saw that the furthest men can go in accounting for phenomena is discovering the laws of Nature according to which they are produced; so that the true method of philosophising is this:

- From real facts, ascertained by observation and experiment, establish by sound induction what the laws of Nature are, and use the laws discovered in this way to account for the phenomena of Nature.

Thus the natural philosopher has the rules of his art fixed just as precisely as does the mathematician, and can be just as sure when he keeps to them and when he doesn't. A law

discovered through induction is not *demonstratively* evident, but it has the kind of evidentness on which all the most important affairs of human life must rest.

Pursuing this road without deviation, Newton discovered the laws of our planetary system and of the rays of light, and gave the first and most important examples of the sound kind of induction that Bacon advocated, but could only delineate in theory because in his day there *weren't* any examples of it.

How strange is it that the human mind should have wandered for so many ages without stumbling onto this path? How much *stranger* that after the path has been clearly discovered and good progress made along it, many choose instead to wander in the fairyland regions of hypothesis?

·RETURNING TO THE TOPIC OF PERCEPTION·

Let us return to Descartes's views about how we perceive external objects. (I digressed from it because I wanted to do justice to the merit of that great reformer in philosophy.) He took it for granted, as the old philosophers had done, that what we immediately perceive must be either •in the mind itself or •in the brain to which the mind is immediately present. According to Descartes's philosophy, the impressions made on our sense-organs, nerves, and brain can't be anything but various special cases of extension, shape, and motion. There can't be anything in the brain that is *like* sound or colour, taste or smell, heat or cold; these are sensations in the mind which, by the laws of the union of soul and body, are stirred up when certain traces occur in the brain. Descartes calls those brain-traces 'ideas', but he doesn't think that they have to be perfectly *like* the things they represent any more than words or signs resemble the things they signify. But he says that we may allow a slight resemblance, so as to follow generally accepted views as far as we can. Thus, we know that a picture in a book can

represent houses, temples and groves, yet it doesn't have to be perfectly *like* what it represents—quite the contrary, indeed, for a circle must often be represented by an ellipse, a square by a rhombus, and so on.

Sense-perceptions, Descartes thought, relate purely to the *union* of soul and body. They usually reveal to us only things that might hurt or profit our bodies; and only rarely and through some fluke do they exhibit things as they are in themselves. By keeping this in mind we can learn to throw off the prejudices of the •senses, and attend with our •intellect to the ideas that Nature has implanted in it. This will lead us to understand that the nature of matter doesn't consist •in the things that affect our senses—such as colour, or smell or taste—but only •in its being something extended in length, breadth, and depth.

Descartes's writings are in general remarkably clear; and he undoubtedly intended that in this respect his philosophy should be a perfect contrast to Aristotle's; yet in different parts of his writings his treatment of our perception of external objects is sometimes obscure and even inconsistent. Did he have different opinions on sense-perception at different times. or was it just that he was struggling with difficulties? I won't offer to answer this.

On two points in particular I can't reconcile Descartes to himself: (1) regarding the place of the ideas or images of external objects that are the immediate objects of perception; and (2) regarding the truthfulness of our external senses.

(1) He sometimes locates the ideas of material objects in the brain, not only when they are perceived but also when they are remembered or imagined; and this has always been taken to be the Cartesian doctrine. But he sometimes warns us not to think of the images or traces in the brain as being *perceived*, as if there were eyes in the brain; these traces are only occasions on which, by the laws of the union of

soul and body, ideas are aroused in the mind; and therefore there is no need for the traces to resemble exactly the things they represent, any more than for words or signs to resemble exactly the things they signify. [For 'occasion' see the note on page 58.]

I don't think that these two opinions can be reconciled. For if the images or traces in the brain are *perceived*, they must be the •objects of perception and not merely the •occasions for it. Putting it the other way around: if they are only the occasions for our perceiving, they aren't themselves perceived at all. Descartes seems to have hesitated between the two opinions, or to have alternated between them. . . .

Newton and Clarke uniformly speak of the species or images of material things as being in the part of the brain called the *sensorium*, and as perceived by the mind that is present there; though Newton speaks of this point only incidentally, and with his usual modesty in the form of a question. Malebranche is perfectly clear and unambiguous in this matter. According to his system, the images or traces in the brain are not perceived at all—they are only occasions on which, by the laws of Nature, certain sensations are felt by us and certain of god's ideas are revealed to our minds.

(2) Descartes seems to waver also regarding the trust that we should put in the testimony of our senses.

Sometimes he infers from •God's being perfect and not a deceiver that •our senses and our other faculties can't be untruthful. And since we seem clearly to perceive that the idea of matter comes to us from external things that it perfectly resembles, therefore we must conclude that there really exists something that is extended in three dimensions and has all the properties that we clearly perceive to belong to an extended thing.

At other times we find Descartes and his followers making frequent complaints, as all the ancient philosophers did,

about the untrustworthiness of the senses. He warns us to throw off the prejudices of *sense*, and attend only with our *intellect* to the ideas implanted there. This will enable us to perceive that the nature of matter doesn't consist in hardness, colour, weight, or any of the things that affect our senses, but only in being extended in three dimensions. The senses, Descartes says, are only relative to our present state; they exhibit things only as they tend to profit or to hurt us and only rarely and accidentally as they are in themselves.

What led Descartes to deny that there is any •substance of matter distinct from the •qualities of matter that we perceive was probably his unwillingness to admit into philosophy anything of which we don't have a clear and distinct conception. We say that matter is

something that is extended, shaped, and movable.

So extension, shape, and mobility are not •matter but qualities belonging to this •'something' that we call matter. Descartes had no taste for this obscure 'something' that is supposed to be the *subject* or *substratum* of those qualities; so he therefore maintained that extension is the very essence of matter. But as we have to credit space as well as matter with being extended, he was forced to maintain that space and matter are the same thing, differing only in how we conceive them; so that wherever there is space, there is matter—and no void, no empty space, left in the universe. . . .

It was probably for the same reason that Descartes maintained that the essence of the soul consists in *thought*. He wouldn't allow it to be an unknown 'something' that *has* the power of thinking; so it can't exist without thought •because it *is* thought. And because he believed that all thought must involve ideas, •Descartes concluded that •the soul must have had ideas when it was first formed—ideas that must therefore be innate.

Those who came after Descartes had various views concerning the nature of body and mind. Many have maintained that a •body is only a collection of qualities to which we give one name, and that the notion of a subject. . . .to which those qualities *belong* is a mere fiction of the mind. Some have even maintained that a •soul is only a sequence of related ideas, without any subject to which those ideas *belong*. You can see from what I have said how far these notions are allied to the Cartesian system.

The triumph of the Cartesian system over that of Aristotle is one of the most remarkable revolutions in the history of philosophy, and has led me to dwell on it for longer than the present subject perhaps required. . . .

•Once Descartes's system took hold•, the authority of Aristotle was extinguished. The •reverence for difficult words and dark notions by which men's understanding had been strangled in past centuries was turned into •contempt, and anything that wasn't clearly and distinctly understood was regarded as suspect. This is the *spirit* of the Cartesian philosophy, which is a more important gift to mankind than any particular Cartesian *doctrines*; and for exercising this spirit so zealously and spreading it so successfully Descartes deserves immortal honour.

Note, though, that Descartes rejected only one part of the ancient theory about the sensory perception of external objects, and that he adopted the other part. The ancient theory can be divided into two parts:

- (1) Images, species, or forms of external objects come from the object and reach the mind through the senses.
- (2) What is actually perceived is not the external object itself but only the species or image of it in the mind.

Descartes and his followers rejected (1), refuting it by solid arguments. But neither he nor his followers thought of

calling (2) into question, for they were convinced that what we perceive is only a representative mental image of the external object, not the object itself. And this image, which the Aristotelians called a 'species', he called an 'idea'—a mere change of •name, presenting no challenge to the •thing.

Descartes took great pains to throw off the prejudices that he had been taught, to dismiss all his former opinions, and to assent only to things that were so evident that they *compelled* his assent; which makes it strange that he wasn't led to doubt this doctrine of the ancient philosophy. It's obviously a *philosophical* opinion, for the vulgar undoubtedly think that we immediately perceive the external object, not a mere representative image of it. That's why they look on it as total lunacy to call in question the existence of external objects.

It seems to be accepted as a basic principle by the learned and the uneducated alike that •what is really perceived must exist, i.e. that to perceive what doesn't exist is impossible. So far the uneducated man and the philosopher agree. The uneducated man says:

I perceive the external object, and I perceive it to exist.
Nothing could be more absurd than to doubt that it exists.

The Aristotelian says:

What I perceive is the individual form of the object, which came immediately from the object and makes an impression on my mind as a seal does on wax; and therefore I can have no doubt of the existence of an object whose form I perceive.

But what does the Cartesian say? Well, for a start:

I don't perceive the external object itself.

So far he agrees with the Aristotelian and differs from the uneducated man. He continues:

But I perceive an image or form or idea in my own mind or in my brain. I am certain of the existence of the idea because I immediately perceive it. But how this idea is formed, or what it represents, is not self-evident; so I must find arguments that will let me infer from •the existence of the idea that I perceive •the existence of an external object that it represents.

Given that these are the principles of the •uneducated man, of the •Aristotelian, and of •the Cartesian, I think that they all reason correctly, each from his own principles: the Cartesian has strong grounds to doubt of the existence of external objects; the Aristotelian very little ground for doubt; and the uneducated man has none at all. Why the difference? Well, the uneducated man has no hypothesis; the Aristotelian leans on a hypothesis; and the Cartesian leans on half of it.

Descartes, according to the spirit of his own philosophy, ought to have called in question *both* parts of the Aristotelian

hypothesis, or to have given his reasons for adopting one part along with reasons for rejecting the other part. ·The views of the man in the street ought to have put him onto this·. Uneducated people, who can do just as good a job of perceiving objects by their senses as philosophers can, and should therefore know as well as philosophers do *what* it is that they perceive, have been unanimous in holding that what they perceive are not ideas in their own minds but external things. It might have been expected that a philosopher who was so cautious as not to take *his own existence* for granted without proof wouldn't have taken it for granted without proof that everything he perceived was only ideas in his own mind!

But if Descartes took a rash step here (as I think he did), he oughtn't to bear the blame alone. His successors have still followed that same track, and following his example have adopted one part of the ancient theory—namely that the objects we immediately perceive are only ideas. All their systems are built on this foundation.

Chapter 9: Locke's views

The reputation that Locke's *Essay concerning Human Understanding* had in England from the beginning, and that it has gradually acquired abroad, is a sufficient testimony of its merit. [Locke died about 80 years before this work appeared.] There may be no metaphysical book that has been so generally read by those who understand English, or that is better fitted to •teach men to think with precision and •to inspire in them the honesty and love of truth that is the genuine

spirit of philosophy. I think this was the first example in the English language of such remarkably simple and clear writing on such abstract subjects, and I'm glad to say that in this Locke has been imitated by others who came after him. No author has more successfully pointed out the danger of ambiguous words, and the importance of having clear and settled notions in judging and reasoning. His points about

the various powers of the human understanding,
the use and misuse of words, and
the extent and limits of human knowledge

are drawn from attentive reflection on the operations of his own mind, the true source of all real knowledge on these subjects; and they show an unusual degree of penetration and judgment. But Locke doesn't need praise from me; and I make these remarks only so that when I have occasion to differ from him you won't think I am unaware of the merit of an author whom I highly respect—one whose writings first led me into philosophy and then kept me working at it.

He sets out in his *Essay* with a full conviction, shared with other philosophers, that ideas in the mind are the objects of all our thoughts in every operation of the understanding. This leads him to use the word 'idea' so much more often than was usual in the English language that he felt a need to apologise for it:

'Idea' seems to be the best word to stand for *whatever is the object of the understanding when a man thinks*; I have used it to express whatever is meant by 'phantasm', 'notion', 'species', or whatever it is that the mind can be employed about in thinking; and I couldn't avoid frequently using it.

Nobody, I presume, will deny that there are such ideas in men's minds; everyone is conscious of them in himself, and men's words and actions will satisfy him that they are in others. (*Essay* I.i.8)

Speaking of the *reality* of our knowledge, he says:

Obviously the mind knows things not •immediately but only •through the intervention of its ideas of them. So our knowledge is real only to the extent that our ideas conform to the reality of things. But what is to be the criterion for this? How can the mind, which

perceives nothing but its own ideas, know that they agree with things themselves? This seems like a hard thing to discover; but I think there are two sorts of ideas that we can be sure *do* agree with things. (IV.iv.3)

We see that Locke was as aware as Descartes was that the doctrine of ideas made it both •necessary and •difficult to prove the existence of a material world external to us; because according to that doctrine the mind perceives in itself nothing but a world of ideas. Not only Descartes, but also Malebranche, Arnauld, and Norris had seen this difficulty and tried without much success to overcome it. Locke attempts the same thing, but his arguments are feeble. He even seems to be aware of this, for he concludes his reasoning with this remark: 'Such an assurance of the existence of things outside us is sufficient to direct us in the attaining the good and avoiding the evil that is caused by them; and this is what really matters to us in our acquaintance with them.' (IV.xi.8) Anyone who *denies* the existence of a material world can accept *this!*

[Then three paragraphs about differences between Locke and Descartes on topics not directly relevant to sense-perception. Reid's report on Locke's distinction between 'real essences' and 'nominal essences' is notably approving. Then:]

Since the time of Descartes, philosophers have differed greatly with regard to •what part they think the mind plays in the construction of the representative beings called 'ideas' and with regard to •*how* this work is carried on.

[Two paragraphs sketching Robert Hook's view that ideas are material substances. Then:]

Locke hasn't gone into such fine detail about how ideas are manufactured; but he ascribes to the mind a very considerable part in forming its own ideas. With regard

to our **sensations**, the mind is passive, 'they being produced in us only by different speeds and kinds of motion in our animal spirits as they are variously stirred up by external objects' (II.viii.4). These, however, go out of existence as soon as they stop being perceived; but through memory and imagination 'the mind is able to revive them again when it wants to, and as it were to paint them on itself again, with varying degrees of difficulty'. (II.x.2)

As for the ideas of **reflection**, the only cause he assigns to those is the attention that the mind can give to its own operations. So these are formed by the mind itself. He also ascribes to the mind the power •of compounding its simple ideas into complex ones of various sorts, •of repeating them and adding the repetitions together; •of dividing and classifying them; •of contemplating them two at a time and on that basis forming the ideas of the relations between them; even •of forming a general idea of a species or genus by taking from the idea of an individual everything that distinguishes it from other individuals of that kind, till at last it becomes an abstract general idea that is common to all the individuals of the kind.

I think these are ·all· the powers that Locke ascribes to the mind itself in the manufacture of its ideas. Berkeley, as we shall see later, abridged them considerably, and Hume even more.

Our ideas of the various qualities of bodies are not all of the same kind, Locke thinks. Some are images or resemblances of what is really in the body, others are not. There are certain qualities inseparable from matter—such as extension, solidity, shape, mobility—and our ideas of these are real resemblances of the qualities in the body, which Locke calls 'primary qualities'. He labels as 'secondary qualities' colour, sound, taste, smell, heat, and cold, which he thinks are only bodies' powers to produce certain sensations

in us; and these sensations don't resemble anything else, though they are commonly thought to be exact resemblances of something in the body. . . .

Although no author has more merit than Locke in pointing out the ambiguity of words, and by that means solving many knotty problems that had tortured the brains of the schoolmen, I think that *he* has sometimes been misled by the ambiguity of the word 'idea', which he uses so often on almost every page of the *Essay*. [The *Essay* contains nearly 3800 occurrences of the word 'idea'.]

When I explained this word I called attention to two meanings that are given to it, a popular meaning and a philosophical one. In the popular meaning, to 'have an idea' of something is simply to think of it. ·Don't be misled by the occurrence of the noun 'idea' in these locutions·.

Although the operations of the mind are most properly and naturally—and indeed, in popular speech, most commonly—expressed by active *verbs*, there is another way of expressing them that is less common but equally well understood.

To think of a thing = to have a thought of it

To believe a thing = to have a belief in it

To see a thing = to have a sight of it

To conceive a thing = to have a conception, notion, or idea of it

—the members of each of these pairs are perfectly synonymous. In these phrases, 'thought' means nothing but the *act* of thinking, 'belief' means the *act* of believing, and 'conception' or 'notion' or 'idea' means the *act* of conceiving; ·so those *nouns* shouldn't be thought of a standing for particular mental *things*·. To 'have a clear and distinct idea' is in this sense simply to conceive the thing clearly and distinctly. When the word 'idea' is taken in this popular sense, it is beyond question that we have ideas in our minds. To think

without ideas would be to think without thought, which is an obvious contradiction.

But the word 'idea' also has another meaning, used only by philosophers and based on a philosophical theory that never occurs to the man in the street. Philosophers ancient and modern have maintained that the mind's operations. . . . can only be employed on objects that are present in the mind, or in the brain where the mind is supposed to be located. Therefore objects that are distant in time or place—these being the two ways of not being *present*—must have a representative in the mind or in the brain, some image or picture of them which is what the mind actually contemplates. . . . As this has been a common opinion among philosophers as far back as we can trace philosophy, it isn't surprising that they should be apt to confuse •the operation of the mind in thinking with •the idea or object of thought that is supposed to be accompany any act of thinking—i.e. to confuse •'idea' in its vulgar sense with •'idea' in its philosophical sense.

If we have any respect for the common sense of mankind, •thought and •the object of thought are different things and ought to be distinguished. It's true that thought has to have an object, for anyone who thinks must think *of* something; but •the object he thinks of is one thing, and •his thought of it is something else. They are distinguished in all languages, even by the vulgar; and many things can be said about thought—i.e. about the operation of the mind in thinking—which it would be wrong and even absurd to say about the object of that operation.

From this I think it is evident that if 'idea' in a work where it occurs in every paragraph is used without any mention of its ambiguity—sometimes signifying thought or the operation of the mind in thinking, sometimes signifying the internal objects of thought that philosophers suppose—this must

create confusion in the thoughts both of the author and of the readers. I take this to be the greatest blemish in Locke's *Essay*.

[Then a page or so of detailed textual discussion, focussing on the fact that Locke seems to say that we can think only about ideas *and* that we can think about external objects, but evidently doesn't think that those objects are ideas. Then:]

The necessary consequence of this seems to be that there are two objects of my thought about Alexander the Great—the •idea that is in my mind and the •person represented by that idea, the idea being the immediate object of my thought, while Alexander is also the object of the same thought, *but not the immediate object*. This is hard to swallow, for it means that every thought of external things has a double object. Everyone is conscious of his own thoughts, but no-one perceives any such doubleness in the object he thinks about, even when he looks in on himself most attentively. . . .

[Then a paragraph questioning whether it even makes sense to talk of 'an object of thought that isn't an *immediate* object of thought'. Then:]

So I think that if philosophers insist on maintaining that ideas in the mind are the *only immediate objects of thought*, they will be forced to grant that they are the *only objects of thought*, and that we can't possibly think of anything else. Locke apparently didn't see that this was the •consequence of maintaining that ideas in the mind are the only immediate objects of thought; for he surely *did* believe that we can think of many things other than ideas in the mind.

The •consequence *was* seen by Berkeley and Hume, however; and they chose to admit the conclusion rather than give up the principle from which it follows. . . .

In explaining the word 'idea', Locke says that he uses it for whatever is meant by 'phantasm', 'notion', 'species' (I.i.8).

Here are three synonyms for the word 'idea'. The first and third are excellent for expressing the philosophical meaning of the word. . . . But 'notion' is a word in common language, meaning exactly what 'idea' means in its popular meaning but not in its philosophical meaning.

When these two different meanings of 'idea' are run together in a considered and explicit explanation of the word, we can hardly expect them to be carefully distinguished in the frequent use of it. Many passages in the *Essay* are intelligible only when 'idea' is taken in one of those two senses, and in many other passages it has to be taken in the other sense. Probably Locke wasn't attending to this ambiguity, and simply used the word in one sense or the other as the context required; and most of his readers have probably done the same.

Locke also quite often uses 'idea' in a third sense, in which it signifies objects of thought that are not in the mind but external. (He seems to be aware of this, and somewhere makes an apology for it.) In ever so many places he asserts that all human knowledge consists in *the perception of the agreement or disagreement of our ideas*. To make this mean something that is consistent with his principles, we have to take 'ideas' to signify every object of human thought, whether mediate or immediate—in short, everything that can be signified by the subject or predicate of a proposition.

Thus we see that 'idea' has three different meanings in the *Essay*; and the author seems to have used it sometimes in one meaning and sometimes in another, without being aware of any change in the meaning. The reader slides easily into the same mistake, with the meaning that gives the best sense to each context being the one that most readily comes to his mind. . . .

Locke is not alone in this fault of attending too little to the distinction between the •operations of the mind and

the •objects of those operations. Although this distinction is familiar to the vulgar, and found in the structure of all languages, philosophers when they speak of 'ideas' often run the two together. They are led to do this by their *theory* about ideas: for ideas are supposed to be a shadowy kind of beings, intermediate between •the thought and •the object of thought, so they sometimes seem to coalesce with the thought, sometimes with the object of thought, and sometimes to have a separate existence of their own.

The same philosophical theory of ideas has led philosophers to run together the different operations of the understanding, calling them all 'perceptions'. Locke did this sometimes, but not as often as some who came after him. The vulgar give the name 'perception' to the immediate knowledge of external objects which we have by our external senses. This is its proper meaning in our language, though sometimes it can be applied to other things metaphorically or analogically. When I think of something that doesn't exist—such as the city of Atlantis—I don't *perceive* it; I only conceive or imagine it. When I think of what happened to me yesterday I don't perceive it; I remember it. When I am in pain from gout, it isn't proper to say that I *perceive* the pain; I feel it, or am conscious of it. It is not an object of perception, but of sensation and of consciousness. Here we see the vulgar very properly distinguishing the different operations of the mind, and never giving the same name to things that are so different in their nature. But the theory of ideas leads philosophers •to think of all those operations as being of one kind, and •to give them one name. They are all, according to that theory, perceptions of ideas in the mind. Perceiving, remembering, imagining, being conscious—these are all perceiving ideas in the mind, and are called 'perceptions'. . . .

It seems unlikely that philosophers who have carefully studied the operations of their own minds would describe them less properly and less clearly than the vulgar do—but although unlikely it really is the case. The only explanation for this strange phenomenon seems to be this:

The vulgar aren't looking for a *theory to account for* the operations of their minds. They know *that* they see and hear and remember and imagine; and those who think clearly will express these operations clearly, as their consciousness represents them to the mind. But philosophers think they ought to know not only •that there are such operations but •how they are performed—*how* they see and hear and remember and imagine. And having invented a theory to explain

these operations in terms of ideas or images in the mind, they make their terminology fit their theory; and in this way a false theory darkens the phenomena it is trying to explain.

I shall examine this theory later on. Here I merely remark that if it is false, it can be expected to lead able men who adopt it to confuse the operations of the mind with their objects, and to confuse different operations with one another, even where the common language of uneducated people clearly distinguishes them. Someone who trusts to a false guide is in greater danger of being led astray than someone who trusts his own eyes, even if he doesn't know the road at all well.

Chapter 10: Berkeley's views

George Berkeley published his *New Theory of Vision* in 1709, his *Principles of Human Knowledge* in 1710, and his *Three Dialogues* in 1713. . . . Everyone regards him as having great merit as an excellent writer, and a very acute and clear reasoner, on the most abstract subjects—not to speak of his very conspicuous personal virtues. [Berkeley died about 30 years before this work appeared.] Yet the doctrine that is mainly propounded in the works I have mentioned, and especially in the second and third of them, has generally been thought so very absurd that hardly anyone thinks he believed it himself or that he seriously meant to convince others of its truth.

He maintains that there is no such thing as matter; that sun and moon, earth and sea, our own bodies and those of

our friends, are nothing but ideas in the minds of those who think of them, and don't exist when they are not the objects of thought. All there is in the universe, Berkeley holds, falls into two categories, namely *minds* and *ideas in the mind*. He thinks he has demonstrated this, by a variety of arguments based on principles of philosophy that everyone accepts.

But however absurd this doctrine might appear to •uneducated people, who consider the existence of the objects of sense as the most evident of all truths and not open to question for anyone in his right mind, the •philosophers who had been accustomed to regarding ideas as the immediate objects of all thought were not entitled to take such a dim view of this doctrine of Berkeley's.

They were taught by Descartes and by all who came after him that the existence of the objects of sense is not self-evident, and needs to be proved by arguments; and although Descartes and many others had worked to find such arguments, the ones they came up with seemed not to have the force and clarity that one might expect in such an important matter. •Norris had declared that all those arguments had made it merely probable, by no means certain, that there is an external world. •Malebranche thought that the existence of an external world rested on the authority of revelation, and that the reason-based arguments for it were not perfectly conclusive. •Others thought that the argument from revelation was fallacious, because revelation comes to us by our senses and must rest on their authority.

Thus we see that the new philosophy had been inching its way towards Berkeley's position; and whatever *others* might say, the *philosophers* had no right to look on it as absurd or unworthy of a fair examination. Several authors tried to answer his arguments, but with little success; others admitted that they couldn't answer the arguments *or* accept their conclusion. Berkeley probably made very few converts to his doctrine; but it is certain that he made some, and that he himself continued to the end of his life firmly convinced that his doctrine is true and is important for the growth of human knowledge and especially for the defence of religion. . . .

[Then a page and half in which Reid reports on Berkeley's *New Theory of Vision*. This doesn't assert the whole doctrine of the two later works, maintaining only that the objects of *sight* are merely ideas in the mind. Reid praises warmly its work on the perception of distance, and on Berkeley's account of] how the objects of sense would be thought of by a thinking being who could see but couldn't touch them. Shallow thinkers may see this as a trivial question; but Berkeley saw it differently, and so will anyone who can enter

into it and who knows how important it is in explaining many of the phenomena of vision. [Twenty years earlier, Reid, following Berkeley's lead, dug deeply into this topic in his *Inquiry into the Human Mind*, chapter 6, sections 8, 11.] Berkeley seems indeed to have exerted more force of genius in this than in the main part of his system, ·to which I now turn·.

In the new philosophy, the pillars by which the existence of a material world was supported were so feeble that it didn't need the strength of a Samson to pull them down; and in this matter we have less reason to admire •the power of Berkeley's thought than to admire •his boldness in publishing to the world an opinion that uneducated people would be apt to interpret as a sign of madness.

A man who was quite convinced of the doctrine of ideas universally accepted by philosophers, if he could only muster up the courage to call in question the existence of a material world, would easily find unanswerable arguments in that very doctrine. 'Some truths are so close to the mind, and so obvious,' he writes, 'that as soon as you open your eyes you will see them. An important truth of that kind is this: All the choir of heaven and furniture of the earth, in a word all those bodies that compose the mighty structure of the world, have no existence outside a mind.' (*Principles* 6)

The principle from which this important conclusion is clearly inferred is laid down in the first sentence of his *Principles of Human Knowledge* as evident; and indeed it has always been acknowledged by philosophers:

Anyone who surveys the objects of human knowledge will find it evident that they are all *ideas* that are either •imprinted on the senses or •perceived by attending to one's own emotions and mental activities or •formed from ideas of the first two types with help from memory and imagination, by compounding or dividing or reproducing ideas of those other two kinds.

This is the foundation on which the whole system rests. If this is true, then indeed the existence of a material world must be a dream that has deceived all mankind from the beginning of the world.

The foundation on which such a structure rests needs to be very solid and well established, but all Berkeley says on its behalf is that it is 'evident'. If he means that it is *self-evident*, that indeed might be a good reason for not offering any direct argument in support of it. But I don't think that this can rightly be said. A self-evident proposition is one that appears evident to every man of sound understanding who firmly grasps its meaning attends to it without prejudice. Can *that* be said of the proposition that all the objects of our knowledge are ideas in our own minds? To any man who hasn't had instruction in philosophy, I believe, this proposition will appear very improbable if not absurd. However scanty his knowledge may be, he does think that the sun and moon, the earth and sea, are objects of it; and it won't be easy to convince him that those objects of his knowledge are ideas in his own mind, and don't exist when he doesn't think of them! Speaking for myself: I used to believe this doctrine of ideas so firmly that I accepted the whole of Berkeley's system in consequence of it; then I found it to have other consequences that worried me more than did the lack of a material world; and that prompted me to ask myself: 'What *evidence* do I have for this doctrine that all the objects of my knowledge are ideas in my own mind?' Ever since that time more than forty years ago, I have been for looking for evidence for this principle, and I think I have done this honestly and without bias. My search hasn't turned up any support for the principle other than the authority of philosophers.

I shall examine the case for it later on. At present I shall only remark that all the arguments brought by Berkeley against the existence of a material world are based on it, and

that he hasn't tried to give any evidence for it, merely taking it for granted as other philosophers had done before him.

If the principle is true, Berkeley's system is secure. No demonstration could be more evident than his reasoning from the principle. Whatever is perceived is an idea, and an idea can exist only in a mind. It doesn't exist when it is not perceived; and the only thing that can be *like* an idea is another idea.

[Then two paragraphs reporting that Berkeley himself thought that, given the 'principle', very little argument was needed to establish his conclusion; and that most of his time and energy went into defensive moves, anticipating and meeting possible objections, and so on. Then:]

Berkeley foresaw the opposition that would be made to his system from two different quarters—first from the philosophers, and secondly from the vulgar, who are led by the plain dictates of Nature.

He had the courage to oppose the philosophers openly and explicitly; he was more afraid of the vulgar, and therefore takes a great deal of trouble—and, I think, uses some skill—to bring the vulgar over to his side. This is particularly observable in his *Three Dialogues*. . . . He writes openly that his views 'carry with them a great opposition to the prejudices of philosophers', 'but his attitude to the vulgar is different'. [In passages from the *Dialogues*, Hylas speaks for critics of Berkeley's system, Philonous speaks for Berkeley.] When Hylas objects: 'You can never persuade me, Philonous, that denying the existence of matter. . . . isn't contradictory to the universal sense of mankind', he answers:

I would like both our positions to be fairly stated and submitted to the judgment of men who have plain common sense without the prejudices of a learned education. Let me be represented as one who trusts his senses, who thinks he knows the things he sees

and feels, and has no doubts about their existence. . . . If by 'material substance' is meant only *sensible body*, that which is seen and felt (and I dare say that unphilosophical people mean no more), then I am more certain of matter's existence than you or any other philosopher claim to be. If there is anything that turns people in general off from the views that I support, it is the mistaken idea that I deny the reality of sensible things. But it is you who are guilty of that, not I, so what they are really hostile to are your notions, not mine.

·And a few pages earlier·:

I am content to appeal to the common sense of the world for the truth of my view.

·And a few pages further back still·:

I have the common man's frame of mind; I am simple enough to believe my senses and to leave things as I find them.

[Then some further quotations providing yet more evidence for] Berkeley's concern to reconcile his system to the plain dictates of Nature and common sense, while expressing no concern to reconcile it to the received doctrines of philosophers. . . . It's a pity that he didn't carry his suspicion of the doctrine of philosophers far enough to doubt the philosophical tenet on which his whole system is built, namely that the things immediately perceived by the senses are ideas existing only in the mind!

And yet it doesn't seem easy to make the vulgar opinion come to terms with Berkeley's system. To accomplish this he seems to me to *pull* the two towards one another, with some straining.

[Then several pages in which Reid sketches various of Berkeley's moves aiming to reconcile his system with the common-sense opinions of the vulgar, and sums up thus: 'I

think that Berkeley has carried this attempt to reconcile his system to the vulgar opinion further than reason supports him.' He also reports Berkeley's moves aiming to show that his immaterialism doesn't have the bad consequences that have been alleged against it. Reid concedes this:] The evidence of an all-governing mind, so far from being weakened, seems to appear in an even more striking light on his hypothesis than on the common one. . . . In all this Berkeley reasons soundly and acutely.

But he seems not to have attended to one uncomfortable consequence of his system—one from which it will be found difficult or even impossible to guard it. I mean this: Although the system leaves us sufficient evidence of a supreme thinking mind, it seems to take away all the evidence we have of other thinking beings like ourselves. What I call my father, my brother, or my friend is only a cluster of ideas in *my* mind; and such a cluster can't possibly have to another mind the relation they have to mine, any more than the pain I feel can be the very same individual pain that you feel. I can't find in Berkeley's system anything that makes it even *probable* that there are other thinking beings like myself in the relations of father, brother, friend, or fellow-citizen. I am left alone as the only creature of God in the universe. . . .

Of all the opinions that have ever been advanced by philosophers, Berkeley's view that there is no material world seems the strangest and the most apt to bring philosophy into ridicule with plain men who are guided by the dictates of Nature and common sense. So it may be worthwhile to trace this offspring of the doctrine of ideas from its birth, and to watch it growing up until it was so strong that a pious and learned bishop, ·Berkeley·, was bold enough to usher it into the world •as demonstrable from universally accepted the principles of philosophy, and •as an admirable device for advancing knowledge and defending religion.

During the reign of the Aristotelian philosophy, men were little disposed to doubt and much disposed to dogmatize! The existence of the objects of sense was held as a first principle; and the accepted doctrine was that the 'sensible species' or idea is the very form of the external object, separated from its matter and sent across into the perceiving mind. So in that philosophy there is no hint of scepticism about the existence of matter.

Descartes taught men to doubt even things that had been taken for first principles. He rejected the doctrine of species or ideas coming from objects; but still maintained that what we immediately perceive is not the external object but an idea or image of it in our mind. This led some of his disciples to disbelieve the existence of every created thing in the universe except themselves and their own ideas.

But Descartes himself. . . . was determined to support the existence of matter. To do this consistently with his principles, he found that he had to rely on arguments that are far-fetched and not very strong. Sometimes he argues that our senses are given to us by God, who is not a deceiver; and therefore we ought to believe what they tell us. But this argument is weak, because according to Descartes's principles our senses tell us only that we have certain ideas. If we infer from this testimony a conclusion that doesn't really follow from it, we are deceiving ourselves rather than being deceived by God. To strengthen this weak argument Descartes sometimes adds that we have by nature a strong propensity to believe that there is an external world corresponding to our ideas.

Malebranche thought that this strong propensity is not a sufficient reason to believe in the existence of matter; and that it is to be accepted as an article of faith that can't be established for sure by reason. He is aware that faith comes through hearing, and that it may be said that prophets,

apostles, and miracles are only ideas in our minds. But to this he answers that even if those things are only ideas, faith turns them into realities; and this answer he hopes will satisfy those who are not too fastidious!

It may seem strange that Locke, who wrote so much about ideas, didn't see the consequences that Berkeley thought so obviously deducible from that doctrine. Locke surely didn't want the doctrine of ideas to be thought to be loaded with such consequences! He acknowledges that the existence of a material world is not to be accepted as a first principle, and that it can't be demonstrated; but he argues for it as best he can, and makes up for the weakness of his arguments by remarking that we have enough evidence to direct us in pursuing the good and avoiding the harm that external things could do us, beyond which we have no concern.

There is just one passage in Locke's *Essay* which may lead one to conjecture that he had a glimpse of the system that Berkeley afterwards advanced, but thought proper to keep it to himself. The passage is in *Essay* IV.x. Having proved the existence of an eternal thinking mind, he comes to answer those who think that matter must also be eternal because we can't conceive how it could be made out of nothing. After remarking that the creation of minds requires as much power as the creation of matter, he adds this:

Actually, when we think about it we find that the creation of a mind requires as much power as the creation of matter. Indeed, if we were to free ourselves from everyday notions, and raise our thoughts as far as possible to a closer contemplation of things, we might be able to aim at some dim and seeming conception of how matter might at first be made, how it might begin to exist by the power of the eternal first being; whereas to bring a mind into existence would be found a *more* inconceivable effect of omnipotent

power. But this would perhaps lead us too far from the notions on which the philosophy now in the world is built. . . . (*Essay IV.x.18*)

[Reid offers a close analysis of this passage, suggesting that it hints at something like Berkeley's system, and concluding:] It seems reasonable to conjecture, from the passage quoted above, that Locke was aware of the 'Berkeleyian' consequence of his own views, but left it to those who should come after him to carry his principles their full length after they have become better established and better able to stand the shock of their collision with vulgar notions. [Reid was wrong about this.

We now know what Locke had in mind in IV.x.18. For the full story see www.earlymoderntexts.com/jfb/howmat.pdf]. . . .

So we learn that the doctrine of ideas as it was newly shaped by Descartes looked with an unfriendly eye on the material world; and although philosophers were very unwilling to give up either 'the doctrine or the world', they found it hard to reconcile them to each other. In this state of affairs, I think Berkeley counts as the first who had the courage to give up the 'material world altogether as a sacrifice to the accepted 'philosophy of ideas. . . .

Chapter 11: Berkeley's view about the nature of ideas

I pass over Berkeley's views about abstract ideas, and about space and time, these being topics that can more properly be considered in another place, 'namely Essay 5'. But I must pay attention to one part of his system, in which he seems to have deviated from the common opinion about ideas.

Though he sets out in his *Principles of Human Knowledge* by telling us that it is 'evident' that the objects of human knowledge are ideas, and builds his whole system on this principle, Berkeley finds as the system develops that certain objects of human knowledge are not 'ideas 'that go out of existence when not thought of' but 'things that have a permanent existence. The objects of knowledge of which we have no ideas are 'our own minds and their various operations, 'other finite minds, and 'the mind of God. The reason why there can be no ideas of minds and their operations, Berkeley tells us, is this [not a direct quotation from Berkeley]:

Ideas are passive, inert, unthinking things, so they can't be the image or likeness of things that have thought and will and active power. We have *notions* of minds and of their operations, but not *ideas* of them. We know what we mean by 'thinking', 'willing', and 'perceiving'; we can reason about beings that have those powers; but we have no ideas of them. A 'spirit or mind is the only substance or support in which 'unthinking things or ideas can exist; but it would be absurd to suppose that this substance that supports or perceives ideas is itself an idea or like an idea.

He observes further [The parts of this all come from *Principles* 142, but Reid has altered their order]:

Because all relations include an act of the mind, we can't properly be said to have an *idea* of the relations between things or of their relational properties, but

rather a *notion* of them. But if in the modern way ‘idea’ is stretched to cover minds and relations and acts, this is after all a merely verbal matter; though it is clearer and more correct to distinguish very different things by different names.

This is an important part of Berkeley’s system, which deserves our attention. It leads us to divide the objects of human knowledge into two kinds. (1) Ideas, which we have by our five senses; they exist only in the minds of those who perceive them, and don’t exist at all when they aren’t perceived. (2) Minds, their actions, and the relations and relational properties of things. Of these we have notions, but no ideas. No idea can represent them or resemble them. Yet we understand what they—or rather their names—mean, and we can speak of them with understanding and can reason about them without ideas.

This account of ideas is very different from Locke’s.

In Locke’s system: We have no knowledge where we have no ideas. *Every* thought must have an idea as its immediate object.

In Berkeley’s: The most important objects are known without ideas.

In Locke’s system: There are two sources for our ideas—sensation and reflection.

In Berkeley’s: Sensation is the only source for ideas, because there can’t be ideas of the objects of reflection. We know them without ideas.

In Locke’s system: Ideas are divided into those of •substances, •modes, and •relations.

In Berkeley’s: There are no ideas of •substances or of •relations, or even of the operations of our own minds, which are a subset of •modes. Of all these items we have clear notions but no ideas.

[Then a paragraph about the closeness of Malebranche’s system to Berkeley’s, and about ‘whether these two acute philosophers foresaw the consequences that follow from the full-strength system of ideas’. Then:]

Be that as it may, if so many things can be thought about and known without ideas, this naturally suggests a doubt about the rest. It may be asked:

If we can think and reason about the •world of minds without ideas, mightn’t we be able to think and reason about a •material world without ideas? If consciousness and reflection provide us with notions of minds and of their attributes, without ideas, mightn’t our senses provide us with notions of bodies and their attributes, without ideas?

Berkeley foresaw this objection to his system, and puts it into Hylas’s mouth thus:

If you can have a thought about the mind of God without having an idea of him, then why can’t I conceive the existence of matter without having an idea of it?

Philonous replies:

(i) You don’t perceive matter objectively, as you do an inactive being or idea; (ii) nor do you know it, as you know yourself, by an act of mentally attending to yourself. (iii) You don’t understand it indirectly, through a resemblance between it and either your ideas or yourself; and (iv) you don’t bring it into your mind by reasoning from what you know immediately. All of this makes the case of matter widely different from that of the Deity, because your knowledge of him involves (iii) and (iv).

[Berkeley was using ‘objectively’ in its older meaning of ‘by mental representation’. Reid seems to take it to mean ‘accurately’ or ‘realistically’, a meaning that is closer to the one we have today.]

Though Hylas says he is satisfied with this answer, I confess that I am not! If I can trust the faculties that God has given me, I *do* perceive matter objectively—i.e. as something that is extended and solid, that can be measured and weighed, and that is the immediate object of my touch and sight. And I take this object to be •matter, not an •idea. Philosophers tell me that what I immediately touch is an idea, not matter; but I have never been able to confirm this by the most careful attention to my own perceptions.

I wish this ingenious author had explained what he means by ‘ideas’ as distinct from ‘notions’. The word ‘notion’ is well understood as a word in ordinary language. What everyone means by it is the conception, the apprehension, the thought that we have of some object of thought. So a notion is something the mind *does* in conceiving or thinking of some object. The object of the thought may be in the mind, or not in the mind. It may be something that has no existence ·at any time·, or something that did or does or will exist. But the notion that I have of that object is an *act* of my mind—it really exists while I think of the object, but doesn’t exist when I don’t think of it. In ordinary speech ‘idea’ means exactly the same as ‘notion’; but philosophers have another meaning for ‘idea’, and it’s hard to say what that meaning is.

The whole of Berkeley’s system depends on the distinction between notions and ideas; so it will be time well spent if we can discover what the things are that he calls ‘ideas’ as distinct from ‘notions’.

Notice first that he recognizes two kinds of ideas—ideas of •sense and ideas of •imagination:

The **(1)** ideas imprinted on the senses by the author of Nature are called ‘real things’; and those **(2)** that are caused by the imagination, being less regular, vivid, and constant, are more properly called ‘ideas’ or ‘images’ of things that they copy and represent. But

our **(1)** sensations, however vivid and distinct they may be, are nevertheless *ideas*; that is, they exist in the mind, or are perceived by it, as truly as **(2)** the ideas that mind itself makes. The **(1)** ideas of sense are agreed to have more reality in them—that is, to be more strong, orderly, and coherent than ideas made by the mind. They are also less dependent on the mind or thinking substance that perceives them, for they are caused by the will of another and more powerful mind, ·namely God·; but still they are ideas, and certainly no idea—whether faint or strong—can exist otherwise than in a mind perceiving it.

This passage shows us that by ‘ideas of sense’ the author means *sensations*. And this is also evident from many other passages. [Reid also offers brief quotations from Berkeley’s *Principles* sections 5, 18, and 25. The long passage quoted above is from 33.

It seems certain, therefore, that by ‘ideas of sense’ the author meant *sensations* that we have through our senses. I have tried to explain the meaning of ‘sensation’ in Essay 1, chapter 1 [item 12]; and that explanation appears to me to fit perfectly with the sense in which Berkeley uses the word.

Just as there can be no notion or thought except in a thinking being, so also there can be no sensation except in a sentient being. A sensation is the act or feeling of a sentient being, and its very essence consists in its being *felt*. Nothing can resemble a sensation except a similar sensation in the same mind or in some other mind. To think that any quality of an inanimate thing can resemble a sensation is a great absurdity. In all this I have to agree perfectly with Berkeley; and I think his notions of *sensation* are much clearer and more accurate than Locke’s—who thought that the primary qualities of body do resemble our sensations while the secondary ones don’t.

'We have many sensations by means of our external senses'—there can be no doubt about *that*; and if Berkeley chooses to call those sensations 'ideas', there ought to be no dispute about the meaning of a word. But, he says, by our senses we have the knowledge **only** of our sensations—or 'ideas', call them what you like. I allow Berkeley to call them what *he* likes; but please give due weight to the word 'only' in the foregoing sentence, because a great deal depends on it.

If it's true that our senses can give us knowledge *only* of our sensations, then his system must be accepted and the existence of a material world given up as a dream. No demonstration can be more secure than this. If we have any knowledge of a material world it must be by the senses. But the senses give us knowledge of nothing but our sensations; and they don't resemble anything that can exist in a material world. The only questionable proposition in this demonstration is 'The senses give us knowledge of nothing but our sensations'. If there are objects of the senses that are not sensations, Berkeley's arguments don't touch them; they may be things that don't exist in the mind as all sensations do; they may be things of which our senses give us notions though no ideas; just as by consciousness and reflection we have notions of minds and of their operations without ideas or sensations.

[Then a short paragraph in which the discussion of 'notions' leads, by a scarcely followable route, to the thesis that •ideas of sensation are •sensations. Reid continues:] Let us hear the dictates of common sense on this point.

Suppose I am pricked with a pin. Is the *pain* I feel a sensation? It certainly is! There can't be anything that resembles pain in any inanimate thing. Is the *pin* a sensation? I have to answer that it isn't a sensation and can't have the least resemblance to any sensation. The pin has length and

thickness and shape and weight, whereas a sensation can't have any of those qualities. I am as certain that the pin is not a sensation as I am that the pain I feel is a sensation; yet the pin is an object of sense; and I am as certain that •I perceive its shape and hardness by my senses as that •I feel pain when pricked by it.

Having said that much about the *ideas of sense* in Berkeley's system, we should now consider his account of *ideas of imagination*. About these he says:

I find I can arouse ideas in my mind at will, and vary and shift the mental scene whenever I want to. I need only to will, and straight away this or that idea arises in my mind; and by willing again I can obliterate it and bring on another. It is because the mind makes and unmakes ideas in this way that it can properly be called *active*. It certainly *is* active; we know this from experience. (*Principles* 28)

And five sections earlier he says that our sensations are called 'real things', and that the ideas of imagination are more properly termed 'ideas' or 'images' of things—which presumably makes them images of our sensations. Given that the ideas of imagination are made by us, one would expect that we'd be well acquainted with them; and yet after all that Berkeley said about them I am at a loss to know what they are.

First point: these ideas of imagination are not sensations. For surely sensation is the work of the senses, not of imagination; and though pain is a sensation, my thought of pain when I am not in pain is not a sensation.

Second point: I can't find any difference between •ideas of imagination and •notions, though Berkeley says that the latter are not ideas. I can easily distinguish a notion from a sensation. Having the sensation of pain is one thing; having a notion of pain is another. Having a notion of pain is

merely understanding what ‘pain’ means, whereas having the sensation of pain is really feeling pain. But I can’t find any difference between the •notion of pain and the •imagination of pain—or indeed between the notion of *anything* and the imagination of it. So I can’t give any account of Berkeley’s distinction between •ideas of imagination and •notions, which he says are not ideas. They seem to me to coincide perfectly.

He does indeed seem to say that ideas of imagination differ from those of the senses not in •kind but only in their •degree of regularity, liveliness, and constancy (*Principles* 30). This doctrine was later greedily embraced by Hume, who used it as a main pillar of his system; but it can’t be reconciled to common sense, for which Berkeley claims to have great respect. For according to this doctrine, if we compare •the state of a man racked by the gout with •his state when he comfortably tells us about what he *has* suffered, the only difference between these two states is that in the latter the pain is less regular, vivid, and constant than in the former. We can’t possibly assent to this. Everyone knows •that he can report a pain that he suffered •at some past time• not only *without pain* but *with pleasure*, and •that suffering pain and •thinking about pain are totally different in kind, not merely in degree.

Summing up: We see that according to Berkeley’s system we have no ideas at all of the most important objects of knowledge, i.e. minds, their operations, and the relations among things; we have •notions of these but not •ideas. The ideas we do have are ideas of •sense and of •imagination. The •former are the sensations we have by means of our senses, whose existence everyone must admit because he is conscious of them, and whose nature Berkeley has explained with great accuracy. As to •ideas of imagination, he has left us much in the dark. He makes them images of our sensations, though according to his own doctrine nothing

can resemble a sensation but a sensation. [Reminder: In Reid’s day the core meaning of ‘image of x’ was ‘likeness of x’.] He seems to think that they differ from sensations only in their degree of regularity, liveliness, and constancy. But this can’t be reconciled to the experience of mankind. . . . Indeed, the very reason he gives why we can’t have ideas of mental acts or of the relations of things applies also to what he calls ideas of imagination:

Although it is not strictly right to say that we have an *idea* of an active being or of an action, we can be said to have a *notion* of them. I have some knowledge or notion of my mind and of how it acts with regard to ideas, in that I know or understand what is meant by those words. Also, since all relations include an act of the mind, we ought strictly speaking to be said to have not an •idea but rather a •notion of the relations between things and of their relational properties. (*Principles* 142)

This implies that our imaginings are not strictly •ideas but •notions, because they ‘include an act of the mind’. For Berkeley tells us in a passage I have already quoted that they are creatures of the mind’s own making, that it makes and unmakes them as it thinks fit, and that that’s why it is properly called ‘active’ . . .

When so much has been written and so many disputes raised about ideas, it would be good if we knew what they are, what category or class of beings they belong to. We might think that Berkeley would tell us this, given his known accuracy and precision in the use of words; and that is why I have taken so much trouble to find out what he took ideas to be. •Here, in summary, is what I have come up with•:

(1) If I understand what he calls ‘ideas of sense’, they are the sensations we have by means of our five senses; but he says that ‘ideas’ is a less proper name for them.

(2) I also understand what he calls ‘notions’, but he says that they are very different from ideas, though these days they are often called by that name.

(3) That leaves ‘ideas of imagination’, which Berkeley says are the things most properly called ‘ideas’. I am still very much in the dark about these. When I imagine a lion or an elephant, •the lion or elephant is the object imagined. •The act of the mind in conceiving that object is the notion, conception or imagination of the object. If besides •the object and •the act of the mind concerning it there is some •third• thing called the •idea of the object, I don’t know what it is.

If we consult other authors who have discussed ‘ideas’ we’ll get no more help regarding the meaning of this philosophical term. The vulgar have adopted it; but all they mean by ‘idea’ is the notion or conception we have of a object, especially our more abstract or general notions. When ‘idea’ is used in this way to signify the mind’s *operation* on objects—conceiving, remembering, or perceiving—it is well understood. But philosophers insist that ideas are the *objects of* the mind’s operations and not the operations themselves. There is indeed great variety of objects of thought. We can think about

minds and their operations, and about

bodies and their qualities and relations.

If ideas are not included in any of these classes, I am at a loss to understand what they are.

In ancient philosophy, ideas were said to be immaterial *forms* that exist from all eternity (according to one system) or are sent out from the objects whose form they are (according to another). In modern philosophy they are things in the

mind that are the immediate objects of all our thoughts, having no existence when we don’t think of them. They are called the ‘images’, ‘resemblances’, or ‘representatives’ of external objects of sense; yet they don’t have colour or smell or shape or motion or any sensible quality! I respect the authority of philosophers, especially when they are so unanimous; but until I can understand what •they mean by ‘idea’ I must think and speak with •the vulgar. [This alludes to Berkeley’s remark that on some of these matters we should ‘think with the learned and speak with the vulgar’.]

In sensation, properly so-called, I can distinguish two things—the •mind or sentient being and the •sensation. I am not going to argue about whether the sensation is to be called a ‘feeling’ or an ‘operation’, but •I do assert• that its only object is the sensation itself. If sensation involves a third thing called an •‘idea’, I don’t know what that is.

In perceiving, remembering, conceiving, and imagining I *can* distinguish three things: •the mind that operates, •the operation of the mind, and •the object of that operation. The perceived object is one thing and the perception of it another—I am as certain of that as I can be of anything. The holds also for conception, remembering, love and hatred, desire and aversion. In *all* these the act of the mind about its object is one thing and the object is another. There must be an object, real or imaginary, that is distinct from the operation of the mind concerning it. Now if in these operations the ‘idea’ is a fourth thing, different from the three I have mentioned, I don’t know what it is, and haven’t been able to learn from all that has been written about ideas. . . .

Chapter 12: Hume's views

Two volumes of the *Treatise of Human Nature* were published in 1739 and the third in 1740. The doctrine contained in this *Treatise* was published in a more popular form in Hume's *Philosophical Essays*, of which there have been several editions. [Hume died about eight years before the present work appeared.] What other authors from Descartes on had called 'ideas' Hume distinguishes into two kinds:

- impressions, including all our sensations, passions, and emotions; and
- ideas, including the faint images of impressions when we remember or imagine them.

He sets out with a principle that he doesn't offer to prove because he thinks it doesn't need one, namely:

All the perceptions of the human mind come down to these two kinds—•impressions and •ideas.

This proposition is the foundation on which the whole of Hume's system rests, and from which it is built with great acuteness and ingenuity; so we might wish that he had told us what his authority was for it. But he doesn't; he leaves us to *guess* whether it is offered as a self-evident first principle or rather is to be accepted on the authority of philosophers.

Locke had taught us that all the immediate objects of human knowledge are ideas in the mind. Berkeley working from this same basis easily demonstrated that there is no material world. He thought that for the purposes both philosophy and religion we would find no loss but great benefit in getting rid of the material world. But...he was unwilling to give up the world of minds or spirits. He clearly saw that ideas are no more fit to represent minds than they are to represent bodies. Perhaps he saw that if we perceived

only *ideas of* minds, we couldn't infer their real existence from the existence of their ideas, any more than we can infer the existence of matter from the idea of it; and so, while he gives up the material world in favour of the system of ideas, he gives up half of that system in favour of the world of minds; and maintains that we don't need ideas to think, speak, and reason intelligibly about minds and their qualities and operations.

Hume shows no such bias in favour of the world of minds. He adopts the *whole* theory of ideas, not just Berkeley's half of it; and that enables him to 'show' that the universe contains no matter *and no minds*—nothing but impressions and ideas. What we call a 'body' is only a bundle of sensations; and what we call the 'mind' is only a bundle of thoughts, passions, and emotions, without any subject. i.e. without any *thing that has* the thought, passion or emotion...

When a system of consequences is intelligently and soundly inferred from a few very abstract principles, that is of real utility in science and may be a help towards gaining real knowledge; and this is true even if the inferred system is in itself absurd. Hume's metaphysical writings have this merit in high degree...

It is amusing to consider that while philosophers have been labouring by means of 'ideas' to explain perception and the other operations of the mind, those ideas have gradually usurped the place of perception, object, and even the mind itself, supplanting the very things they were introduced to explain! Descartes reduced all the operations of the understanding to •perception, which is natural for someone who believes that those operations are only different ways of •perceiving ideas in our own minds. Locke runs •ideas

together sometimes with the •perception of an external object and sometimes with the •external object itself. In Berkeley's system the idea is the only object, and yet it is often run together with the perception of it. But in Hume's system the idea—or the impression, which is only a more lively idea—is mind, perception, and object all in one! So that by the term 'perception' in Hume's system we must understand

- the mind itself; •all its operations, both of understanding and will; and •all the objects of these operations.

With 'perception' taken in this sense, he divides perceptions into our more lively perceptions, which he calls impressions, and the less lively ones, which he calls ideas. For comments, look back at what I said in Essay 1, chapter 1 about the meanings of the words 'perceive' [item 6], 'object' [item 9] and 'impression' [item 11].

Philosophers have differed greatly with regard to the origin of our ideas, the sources from which they are derived. The Aristotelians held that all knowledge initially comes from the senses, and this ancient doctrine seems to be revived by some recent French philosophers and by Hartley and Priestley among the British. Descartes maintained that many of our ideas are innate. Locke energetically opposed the doctrine of innate ideas, employing the whole of *Essay I* against it. But he allows two different sources of ideas, sensation and reflection. . . . The main purpose of *Essay II* is to show that absolutely *all* our simple ideas come from the one or other or both of these sources. This leads Locke into some paradoxes, although in general he doesn't care for paradoxes. And if he had foreseen all the consequences that

can be inferred from his account of the origin of our ideas, he would probably have examined it more carefully!

Hume adopts Locke's account of the origin of our ideas, and infers from it that we have no idea of substance, bodily or mental; no idea of power; no idea of *cause of x* except the idea of something that occurs before *x* does and is constantly conjoined with it; in short that we can have no idea of anything except our sensations and the operations of mind that we are conscious of.

He doesn't grant to the mind any power in forming its ideas and impressions; and that's not surprising, because he holds that we don't have any idea of power, and the mind is nothing but the sequence of impressions and ideas of which we are intimately conscious.

So he thinks that our impressions arise from unknown causes, and that the impressions are the causes of their corresponding ideas. All he means by this is that they always go before the ideas; for •according to him• that's all that is needed to constitute the relation of cause and effect.

As for the order and succession of our ideas, he thinks that that is governed by •three laws of attraction or association, which he takes to be basic properties of the ideas—properties that lead ideas to attract (so to speak), or associate themselves with, other ideas that either •resemble them or •have been contiguous to them in time and place or •are related to them by the relations of cause and effect. (Actually, the second of these seems to include the third, since according to Hume causation implies nothing more than contiguity in time and place.) . . .

Chapter 13: Arnauld's views

In this sketch of philosophers' opinions about ideas we must not omit Antoine Arnauld, doctor of the Sorbonne, who in the year 1683 published his book *True and False Ideas* in opposition to the system of Malebranche that I have described. I couldn't find this book until about ten years ago; I believe it is rare.

Though Arnauld wrote before Locke, Berkeley and Hume, I have kept until last my account of his views, because I find it hard to determine whether he •adopted the common theory of ideas or whether he is on his own in rejecting it altogether as a fiction of philosophers. [Common theory' is explained on page 56.]

The controversy between Malebranche and Arnauld inevitably led them to consider what kind of things ideas are—a point on which other philosophers had very generally been silent. Both of them proclaimed the universally accepted doctrine •that we don't perceive material things immediately, •that the immediate objects of our thought are their ideas, and •that it is in the idea of any thing that we perceive its properties.

I should explain at the outset that both these authors use 'perception' as Descartes had done before them—namely, to signify every operation of the understanding. 'To think, to know, to perceive, are the same thing', says Arnauld. I should also note that they both call the various operations of the mind 'modifications' of the mind. [Modification' means 'state or quality or property'. The force of saying that thinking is a modification of the mind is that the rock-bottom truth about a given mind's thinking has the form *it thinks*, not *it performs a thought*, suggesting that the mind stands in a certain relation to something other than itself.]. . . .

•ARNAULD'S TARGET: MALEBRANCHE•

The things that the mind perceives, says Malebranche, are of two kinds: they are either •in the mind itself or •external to it. The things in the mind are all its different modifications—its sensations, imaginations, pure thinkings, passions, and affections. These are immediately perceived: we are conscious of them, and have no need of ideas to represent them to us.

Things external to the mind are either bodily or mental. With regard to mental objects of thought, he thinks it possible that in another state •after death• minds may become immediate objects of our understandings, and thus be perceived without ideas; and that •even now higher-than-human• spirits may immediately perceive each other and communicate their thoughts back and forth without signs and without ideas.

But leaving this as an open question, he holds it to be undeniable that material things can't be perceived immediately but only by the mediation of ideas. He thought it likewise undeniable that the idea must be immediately present to the mind, that it must touch the soul (as it were) and affect its perception of the object.

These principles force us to choose: either the idea is some modification of the *human* mind or it is an idea in the *divine* mind that is always intimately present to our minds. Having reached this parting of the ways, Malebranche first considers all the possible ways such a modification may be produced in our mind as the item we call an 'idea of a material object'—always taking it for granted that it must be an •object that is perceived, something different from the mind's •act in perceiving it. He finds insuperable objections

against every hypothesis about how such ideas might be produced in *our* minds, and therefore concludes that the immediate objects of perception are the ideas in *the mind of God*.

·ARNAULD ATTACKS THE TARGET·

Against this system Arnauld wrote his book *True and False Ideas*. He doesn't bring objections against Malebranche's parting of the ways, but he maintains •that• at this fork in the road Malebranche took the wrong direction, i.e. •that• ideas are modifications of *our* minds. And when he looks for a modification of the human mind that could be called 'idea of an external object', the only one he can find is *perception*.

I take the •idea of an object and the •perception of an object to be the same thing. There may be other things to which the name 'idea' could also be given. But it is certain that there *are* ideas in this sense of 'idea', and that these ideas are either attributes or modifications of our minds.

This, I think, attacked Malebranche's system on its weak side, which was also the side on which an attack was least expected. Philosophers had been so unanimous in maintaining that we don't perceive external objects immediately, but only by certain representative images of them called 'ideas', that Malebranche might well think his system was safe on that flank, and that the only remaining question was: In what subject—what thinking substance—are those ideas located—the human mind or God's mind?

But, says Arnauld, those 'ideas' are mere chimeras—fictions of philosophers; there are no such things in Nature; so that no question arises as to whether they are in the divine or in the human mind. The only true and real ideas are our *perceptions*, which all philosophers (including Malebranche) agree are acts or modifications of our own minds. . . .

Of all the powers of our mind, the external senses are thought to be the best understood and their objects are the most familiar. Hence we think of other powers in terms of the external senses, and transfer to other powers the language that properly belongs to them. ·Here is an example of such a transfer·. An object of the senses can't be perceived unless it is •present to the ·relevant· sense or •within its sphere. This leads us to say, by analogy, of anything that we are thinking about that it is 'present' to the mind or is 'in' the mind. But this 'presence' is only metaphorical or analogical; and Arnauld calls it 'objective presence' to distinguish it from the local presence that is required in objects that are perceived by sense. But because both are called by the same name, they come to be run together, and things that belong only to real or local presence are attributed also to the metaphorical 'presence'. [In this context, 'objective' is used in a sense that it did once have, to mean something like 'representative'—something is 'objectively present in the mind' if the mind is thinking about it. (See page 80.) 'Local presence' is just presence in the most literal sense, in which something's being present to my mind depends on *where* it is, its *location*.]

Similarly, we are accustomed to seeing objects by their images in a mirror or in water; which leads us by analogy to think that objects can be presented to the memory or imagination in some similar manner, through images that philosophers have called 'ideas'.

By such prejudices and analogies, Arnauld thinks, men have been led to believe that the objects of memory and imagination must be presented to the mind by images or ideas; and philosophers have been more carried away by these prejudices than even the vulgar, because they could use this theory to 'explain' the various operations of the mind—a matter in which the vulgar take no interest.

But he thinks that Descartes overcame •these prejudices, and that he used 'idea' to signify the same thing as

'perception', so he was surprised that an admiring disciple of Descartes such as Malebranche was carried away by them. It is strange indeed that the two most eminent disciples of Descartes and his contemporaries should differ so crucially regarding his doctrine about ideas.

I shan't try to tell you how this controversy between those two acute philosophers developed in the subsequent defences and replies, because I haven't been able to see them. All I know about them is that after much reasoning and some animosity, each continued in his own opinion and left his antagonist where he found him. Malebranche's view that we see all things in God soon died away of itself; and Arnauld's notion of ideas seems to have been given less attention than it deserved by the philosophers who came after him—perhaps in part because he seems in a way to have relinquished it

by trying to reconcile it to the common doctrine concerning ideas.

[Reid then spends more than a page giving textual evidence of Arnauld's trying to reconcile his position with 'the common doctrine'. He ends the chapter thus:]

Summing up: If Arnauld had taken his stand on his doctrine that ideas considered as representative images of external objects are a mere philosophers' fiction, and had boldly rejected the doctrine of Descartes as well as of the other philosophers concerning those fictitious beings and all the ways of speaking that imply their existence, I would have thought him more self-consistent, and his doctrine concerning ideas more rational and intelligible, than that of any other author I know of who has discussed this subject.

Chapter 14: Thoughts about the common theory of ideas

After such a long account of the views of philosophers ancient and modern concerning ideas, it may seem presumptuous to question whether ideas exist! But no philosophical opinion, however ancient and however generally accepted, ought to rest on authority. It isn't presumptuous to require evidence for it, or to let our belief be governed by the evidence we can find.

Please bear in mind: If by 'ideas' are meant only the acts or operations of our minds in perceiving, remembering, or imagining objects, I am far from questioning their existence; we are conscious of those acts every day and every hour of our lives, and I don't think any sane man ever doubted

the real existence of the mental operations of which he is conscious. Nor is it to be doubted that the faculties God has given us enable us to conceive things that are absent as well as to perceive things that are within the reach of our senses, and that such conceptions can be more or less distinct, and more or less lively and strong. We have reason to ascribe to God distinct conceptions of all things existent and possible, and of all their relations; and if these conceptions are called his eternal 'ideas', there ought to be no dispute among philosophers about a word. The 'ideas' of whose existence I require proof are not the operations of any mind but the supposed objects of those operations. . . .

Nor do I dispute the existence of what the vulgar call ‘objects of perception’. Everyone who acknowledges the existence of these calls them ‘real things’, not ‘ideas’. But philosophers maintain that in addition to these there are immediate objects of perception in the mind itself, and that is what I am disputing. . . . [Then a paragraph making the same point about objects of remembering and imagining. Then:]

My first thought about this philosophical opinion is that it is directly contrary to the sense of *everyone* who hasn’t been instructed in philosophy. When we see the sun or moon, we have no doubt that the very objects that we immediately see are far from us and from one another, and that this is the sun and moon that God created some thousands of years ago and that have continued to move around in the heavens ever since. How astonished we are when the philosopher tells us that we are wrong about all this, that the sun and moon that we see are. . . .in our own mind, and that they didn’t exist before we saw them and won’t exist after we stop perceiving and thinking about them! . . .

If a plain man uninstructed in philosophy has faith to accept these mysteries, how astonished he must be! He is brought into a new world where everything he sees, tastes, or touches is an idea—a fleeting kind of thing that he can conjure into existence or annihilate in the twinkling of an eye.

After he has calmed down, it will be natural for him to ask his philosophical instructor: ‘Please, sir, are there then *no* substantial and permanent things called the “sun” and “moon”, things that continue to exist whether or not we think about them?’

Here the philosophers differ. Locke and his predecessors will answer: ‘Indeed there are substantial and permanent beings called the “sun” and “moon”; but they never appear to

us in their own right, but only through their representatives—the ideas in our own minds—and we know nothing about them except what we can gather from those ideas.’

Berkeley and Hume would give a different answer to the question. They would assure the questioner that it is a vulgar error, a mere prejudice of the ignorant and uneducated, to think that there are any permanent and substantial beings called the ‘sun’ and ‘moon’; that the heavenly bodies, our own bodies, and all bodies whatsoever, are nothing but ideas in our minds; and that they can’t represent anything outside us because they can’t resemble anything outside us, because nothing can be *like* the ideas of one mind but the ideas of another mind. . . .

In this representation of the theory of ideas I don’t think I have exaggerated or misrepresented anything; and surely that is enough to show that to the uninstructed in philosophy the theory must appear extravagant and visionary and utterly contrary to the dictates of common understanding.

There is little need for any further proof of this because it is amply acknowledged by Hume:

It seems clear that we humans are naturally, instinctively inclined to trust our senses, and that without any reasoning—indeed, almost before the use of reason—we take it that there is an external universe that doesn’t depend on our perceiving it and would have existed if there had never been any perceiving creatures or if we had all been annihilated. Even the animals are governed by a similar opinion, and maintain this belief in external objects in all their thoughts, plans and actions.

It also seems clear that when men follow this blind and powerful instinct of Nature they always suppose that the very images that their senses present to them *are* the external objects that they perceive;

it never crosses their minds that •sensory images are merely *representations* of •external objects. This very table that we see as white and feel as hard is believed to exist independently of our perception, and to be something external to our mind that perceives it. Our presence doesn't bring it into existence, and our absence doesn't annihilate it. It stays in existence (we think), complete and unchanging, independent of any facts about intelligent beings who perceive it or think about it.

But the slightest philosophy is enough to destroy this basic belief that all men have. For philosophy teaches us that images (or perceptions) are the only things that can ever be present to the mind, and that the senses serve only to bring these images before the mind and cannot put our minds into any immediate relation with external objects. (*Enquiry Concerning Human Understanding*, section 12)

So Hume acknowledges that there is a natural instinct or assumption, a universal and basic opinion of all men, a primary instinct of Nature, that what we immediately perceive by our senses are not images in our minds but external objects, and that their existence is independent of us and our perception.

In this acknowledgement Hume seems to me more *giving* and even more *honest* than Berkeley, who tries to persuade us that his opinion doesn't oppose the vulgar opinion but only that of the philosophers; and that the external existence of a material world is a philosophical hypothesis and not the natural dictate of our perceptive powers. **Bishop** Berkeley is nervous about confronting such an adversary as a primary and universal opinion of all men, and tries to persuade it to support him. But **philosopher** Berkeley boldly defies this antagonist, and seems to glory in a conflict that was worthy of

his arm. . . . After all that fuss, I suspect that a philosopher who wages war with *this* adversary will find himself in the same fix as a mathematician trying to demonstrate that there is no truth in the axioms of mathematics.

My second thought on this topic is this: The authors who have discussed ideas have generally taken their existence for granted, as something that couldn't be called in question; and such arguments as they have casually introduced in order to prove it seem too weak to support the conclusion.

Locke in the introduction to his *Essay* tells us that he uses 'idea' to signify whatever is the immediate object of thought, and then he adds: 'I presume it will be easily granted me that there *are* such ideas in men's minds; everyone is conscious of them in himself, and men's words and actions will satisfy him that they are in others as well.' (*Essay* I.i.8) I am indeed 'conscious of perceiving, remembering, imagining; but I am *not* conscious that the objects of these operations are images in my mind. I am satisfied by men's words and actions that they often perceive the same objects that I perceive, which they couldn't do if the objects I perceive were ideas in my own mind.

[Then a paragraph reporting on and criticising Norris's four arguments for the thesis that material things *couldn't* be perceived immediately. Reid says that they are respectively 'lame', unintelligible, irrelevant, and 'mysterious'. Then:]

An argument that is hinted at by Malebranche and by several other authors deserves to be more seriously considered. I find it most clearly expressed and most strongly urged by Clarke; so I shall give it in his words:

The soul could not possibly perceive anything without being present to an image of it. A living substance can't perceive •anywhere unless it is present •there—present either to the things themselves, as the omnipresent God is to the whole universe, or to the

images of things, as the soul is in its sensorium, ·i.e. in the part of the brain where it is located·. (Leibniz-Clarke Correspondence, Clarke's second reply)

Newton expresses the same opinion, though with his usual reserve he expresses it only as a question.

The ingenious William Porterfield adopts this opinion with more confidence:

Nothing can *act or be acted on* at a place where it doesn't *exist*; therefore our mind can never perceive anything but its own states and the various states of the sensorium to which it is present. So what our mind perceives are not the external sun and moon up in the sky but only their image or representation impressed on the sensorium. How the soul sees these images—how it receives those ideas from such agitations in the sensorium—I don't know; but I am sure that it can never perceive the external bodies themselves, bodies to which it is not present. (*Medical Essays and Observations*, vol. 3)

These are indeed great authorities, but in matters of philosophy we should be guided not by authority but by reason. . . . I think we must accept that

•Nothing can act immediately in a place where it doesn't exist;

for I agree with Newton that •power without substance is inconceivable, from which it follows that •nothing can be acted on immediately at a place where the agent—the substance that acts—is not present. To reach the conclusion of the ·Clarke-Porterfield· argument, however, another premise is needed, namely:

•When we perceive objects, either they act on us or we act on them.

This doesn't look self-evident, and I have never seen any argument for it. I shall briefly present the reasons why I

think it ought not to be accepted.

When we say that x 'acts on' y, we mean that x exerts some power or force that produces or tends to produce a change in y. . . . So there seems to be no reason to say that in perception either (1) the object acts on the mind or (2) the mind acts on the object.

(1) An object in being perceived doesn't *act* at all. I perceive the walls of the room I am sitting in; but they are completely inactive, and therefore are not acting on my mind. *Being perceived* is what logicians call an 'external denomination', ·a purely relational property·, which implies neither action nor quality in the object perceived. ·Something can go from *being perceived* to *not being perceived* without undergoing any change in itself—like an author's going from *being neglected* to *not being neglected* simply because his works have started to attract attention on the other side of the world without his even knowing about it·. No-one would have bought into this notion that perception arises from the perceived object's acting on the mind if we weren't so prone to form our notions of the mind on the basis of some similarity we think it has to bodies:

- thought in the mind is thought of as analogous to motion in a body;
- what starts a body moving is its being acted on by some other body;

so we are inclined to infer, analogically, that

- what starts the mind perceiving is some impulse it receives from the object.

But reasonings drawn from such analogies ought never to be trusted. They are indeed the cause of most of our errors regarding the mind. We might as well conclude that minds can be measured in feet and inches, or weighed by ounces or grams, because bodies can!

(2) I see as little reason to believe that in perception the mind acts on the object: perceiving an object is one thing; acting on it is another, and isn't any *part* of perceiving. To say 'I act on the wall by looking at it' is a meaningless misuse of language. . . .

So we have no evidence that in perception the mind acts on the object or vice versa, but strong reasons to the contrary; so Clarke's argument against our immediately perceiving external objects collapses.

Like many other prejudices, this notion that in perception the object must be contiguous to—spatially right up against—the percipient seems to be borrowed from analogy. In all the external senses there must be some impression made on the organ of sense by the object itself or by something coming from it [see chapter 2]; and an impression requires contiguity. So we are led by analogy to conceive something similar in the operations of the mind. Many philosophers analyse almost all operations of the mind into 'impressions' and 'feelings'—words that are obviously borrowed from the sense of touch. And it is very natural to think that there must be contiguity between the thing that makes the impression and the thing that receives it, between the thing that is felt and the thing that feels. No philosopher these days will offer to justify such analogical reasoning as this, but it still has a powerful influence on our judgment. . . .

When we set aside those analogies and reflect *attend to* our perception of the objects of sense, we must admit that though we are conscious of perceiving objects we are ignorant of *how* this happens. . . . And if we do admit an image in the mind or right up against it, we have no more idea of •how perception could be produced by this image than we have of •how it could be produced by the most distant object. . . .

I have been able to find only one other argument against our perceiving external objects immediately. It is proposed

by Hume, who accepts that all men have a basic belief that we perceive external objects immediately, and then adds this:

But the slightest philosophy is enough to destroy this basic belief that all men have. For philosophy teaches us that images (or perceptions) are the only things that can ever be present to the mind, and that the senses serve only to bring these images before the mind and can't put our minds into any immediate relation with external objects. The table that we see seems to shrink as we move away from it; but the real table that exists independently of us doesn't alter; so what was present to the mind was not the real table but only an image of it. These are the obvious dictates of reason; and no-one who thinks about it has ever doubted that when we say 'this house' and 'that tree' the things we are referring to are nothing but perceptions in the mind—fleeting copies or representations of other things that are independent of us and do not change. To that extent, then, reason compels us to contradict or depart from the basic instincts of Nature, and to adopt a new set of views about the evidence of our senses. (*Enquiry* 12)

This puts all mankind into a remarkable conflict between two contradictory opinions. On one side stand *all* the vulgar—*all* the men in the street—who are unpractised in philosophical researches and are guided by the uncorrupted basic instincts of Nature. On the other side stand *all* the philosophers, ancient and modern—every single man who reflects. In this division I find to my great humiliation that I am grouped with the vulgar!

The passage quoted above is the only one I have found in Hume's writings on this point; and there is indeed more reasoning in it than I have found in any other author; so

I shall examine it in detail. My examination will have five main points.

(1) He tells us that ‘the slightest philosophy is enough to destroy this basic belief that all men have. For philosophy teaches us that images (or perceptions) are the only things that can ever be present to the mind’. The phrase ‘be present to the mind’ has some obscurity, but I think he means ‘is an immediate object of thought’—for instance an immediate object of perception or memory or imagination. If this is the meaning (and it’s the only relevant one I can think of), then all this passage does is to *assert* the proposition to be proved and *assert* that philosophy teaches it. If that is right, I beg leave to dissent from philosophy until it gives me some *reason* for what it teaches. Common sense and my external senses demand my assent to their dictates on their own authority, but philosophy is not entitled to this privilege! Still, I don’t want to dissent from such a grave personage as Philosophy without giving a reason, so I give this reason: I see the sun when it shines, and I remember the battle of Culloden; and neither the sun nor the battle is an image or perception.

He tells us in the next place that ‘the senses serve only to bring these images before the mind’. I know that Aristotle and the schoolmen taught that images or ‘species’ flow from objects, are let in by the senses, and strike on the mind; but this has been so effectively refuted by Descartes, Malebranche, and many others that nobody now defends it. Reasonable men regard it as one of the least intelligible and least meaningful parts of the ancient system. Then what makes modern philosophers—not just Hume—so prone to slide back into this hypothesis as though they really believed it? I think it is because *images in the mind* and *images let in by the senses* are so nearly allied and so strictly connected that they must stand or fall together. The ancient system

consistently maintained both, whereas the new system has rejected the doctrine of images let in by the senses while still holding that there are images in the mind. Then, once they have made this unnatural divorce of two doctrines that ought to stay married, the one they have retained often leads them back involuntarily to the one they have rejected—and so we find them writing as though they were Aristotelians.

Hume surely didn’t seriously believe that an image of sound is let in by the ear, an image of smell by the nose, images of hardness and softness by the sense of touch. For one thing, this is just *absurd*, as I have shown repeatedly. And anyway Hume and all modern philosophers maintain that the images that are the immediate objects of perception don’t exist when they are not perceived; but if they were *let in by the senses* they would have to exist *before* being perceived, and would have an existence independent of the perceiving mind.

Hume tells us further that philosophy teaches that ‘the senses can’t put our minds into any immediate relation with external objects’. I still want to know what *reasons* philosophy gives for this; for it seems to me that I immediately perceive external objects, and I take it that this is the ‘immediate relation’ that Hume is talking about.

(2) So far I don’t see anything that can be called an *argument*. Perhaps the passage was intended only for illustration. The argument—the *only* argument—is this:

The table that we see seems to shrink as we move away from it; but the real table that exists independently of us doesn’t alter; so what was present to the mind was not the real table but only an image of it. These are the obvious dictates of reason.

To judge the strength of this argument we must attend to the technical distinction between real and apparent size. The real size of a line is measured by some known measure

of length, such as inches, feet, or miles. The real size of a surface or of a solid is measured by known measures of area or volume. This size is an object of touch only, and not of sight; and we couldn't even have had any conception of it without the sense of touch, which is why Berkeley calls it 'tangible size'.

Apparent size is measured by the angle that an object subtends at the eye. Suppose that two straight lines are drawn from the eye to the extremities of the object, making an angle at the eye: the apparent size of the object is measured by this angle. It is an object of sight and not of touch; Berkeley calls it 'visible size'.

The apparent size of the sun's diameter is about 31 minutes of a degree.

The real size of the sun's diameter is N thousand miles or K times the earth's diameter.

This shows clearly that apparent size and real size are utterly different things, though each is called a 'size'. The first is measured by an angle, the second by a line. The first pertains only to two dimensions (surfaces), the second to three dimensions (solids).

All this makes it *obvious* that the real size of a body must continue unchanged while the body is unchanged. But is it also obvious that the apparent size must stay the same while the body is unchanged? Far from it! Anyone who knows *anything* of mathematics can easily show that the same individual object, remaining in the same place and not altering, *must* vary in its apparent size according to the distance from which it is seen. . . . This is as certain as the principles of geometry.

There is also this point: Although the real size of a body is basically an object of touch, not of sight, we learn by experience to judge many real sizes by sight. We learn by experience to judge the approximate distance of a body

from the eye, and from its distance and apparent size taken together we learn to judge its real size. And this kind of judgment, by being repeated every hour and almost every minute of our lives, eventually comes to us so easily and habitually that it greatly resembles the original perceptions of our senses, and can reasonably be called 'learned perception'—as distinct from 'original perception.' [Reid often calls it 'acquired perception', evidently meaning the same as 'learned perception'. This version will stay with 'learned' throughout, in the interests of clarity.]. . . . It is evident that by means of this we often discover by one sense things that are properly and naturally the objects of another. So I may correctly say 'I hear a drum' or 'I hear a big bell', though the shape or size of the sounding body is not originally an object of hearing. . . .

If these things are borne in mind, it will appear that Hume's argument has no force to support his conclusion—indeed that it leads to the opposite conclusion. Here is the argument:

- The table we see seems to shrink as we move away from it—i.e. its apparent size lessens.
- The real table undergoes no alteration—i.e. there is no change in its real size.

Therefore

- What we see is not the real table.

I accept both the premises in this syllogism, but I deny the conclusion. The syllogism has *two* middle terms (as the logicians call them), whereas its validity requires there to be only *one*. *Apparent* size is the middle term in the first premise, *real* size in the second. Therefore, according to the rules of logic, the conclusion is not validly inferred from the premises. Anyway, setting aside the rules of logic let us examine it by the light of common sense.

Suppose for a moment that it *is* the real table we see. Mustn't this real table seem to shrink as we move away from

it? It is demonstrable that it must. Well, then, how can this apparent shrinking be evidence that it is *not* the real table? . . .

I remarked that Hume's argument actually leads to the opposite opinion to his, i.e. leads to the conclusion that it is the real table that we see. The reason why is very plain: the •table we see has precisely the apparent size that the •real table must have when placed at that distance.

This argument is made much stronger by considering this:

The real table can be placed successively at a thousand different distances, and at every distance in a thousand different orientations; and its apparent size and apparent shape in each of those •one million• distances and orientations can be determined demonstratively by the rules of geometry and perspective. Give the table, successively, as many of those different distances and orientations as you will—or all of them!—and for each of them open your eyes and look. You'll see a table with precisely the apparent size and apparent shape that the real table must have at that distance and with that orientation.

Isn't this a strong argument that it is the real table you see?

In short, the appearance of a visible object is infinitely diversified according to its distance and orientation. The visible appearances are innumerable for any one object, and when many objects are involved the number of different appearances is multiplied accordingly. Clever men have been theorizing about those appearances at least since the time of Euclid. They have accounted for all this variety on the supposition that the objects we see are external and not in the mind itself. The rules they have demonstrated about

- the various projections of the sphere,
- the appearances of the planets when they seem to go

forward, to stop, and to go backwards, and

- all the rules of perspective

are built on the supposition that the objects of sight are external. Each rule can be tried in thousands of instances. In many arts and professions, innumerable trials are made every day, and they have never been found to fail in a single instance. Shall we say that a false supposition invented by the rough and primitive vulgar has had that much luck in explaining an infinite number of phenomena of Nature? This would surely be a greater feat than philosophy ever put on! And don't forget that on the supposition that the objects of sight are internal—are in the mind, not in the external world—*no* account can be given of any one of those appearances. . . .

Now I have considered every argument I have found advanced to prove the existence of ideas or images of external things in the mind. If no better arguments can be found, I can't help thinking that the whole history of philosophy has never provided another instance of an opinion so unani- mously accepted by philosophers on such slight grounds.

(3) Although philosophers are unanimous as to the existence of ideas, they don't agree much about anything else concerning them. If ideas weren't a mere fiction, we'd be better placed to know about them than about anything else; yet there is nothing about which men differ so much.

Some have held them to be •self-existent, others to be •in God's mind, others •in our own minds, and others again •in the brain or sensorium. . . .

Some philosophers insist that our ideas—or some of them—are innate, others that they are all caused from outside ourselves. Some derive them from the senses alone, others from sensation and reflection. As for how they are made, there are adherents of the views that

- they are manufactured by the mind itself,
- they are produced by external objects,
- they come from the immediate operation of God,
- impressions cause ideas, and we don't know what causes impressions.

Some think that we have ideas only of material objects, but none of minds, of their operations, or of the relations of things; others think that the immediate object of *every* thought is an idea. Some think we have abstract ideas, and that this is what chiefly marks us off from the brutes; others maintain that there can't be any such thing as an abstract idea. For some philosophers ideas are the *immediate* objects of thought, while for others they are the *only* objects of thought.

(4) Ideas were first invented, probably, as an aid to helping us understand some of the operations of the mind. Well, *they don't!*

We are at a loss to know how we perceive distant objects, how we remember past things, how we imagine things that don't exist. Ideas in the mind—ideas that represent distant things, past things, non-existent things—*seem* to account for all these operations, by reducing them all to a single operation. The operation is a kind of feeling or immediate perception of things that are present and in contact with the percipient; and *feeling* is an operation so familiar that we think it doesn't need explanation but can help to explain other operations.

But this feeling or immediate perception is as hard to understand as the things it is said to explain. Two things can be in contact without any feeling or perception; so when there *is* some feeling or perception, there must be more than mere contact—the percipient must have a power to feel or to perceive. How this power is produced, and how it operates,

is quite beyond the reach of our knowledge. Nor can we know whether this power must be limited to things that are present and in contact with us. No-one can claim to prove that God, who gave us the power to perceive things that are present to us, may not give us the power also to perceive things that are distant, to remember things past, and to conceive things that never existed. . . .

(5) Finally, the natural and necessary consequences of this theory of 'ideas' rightly turn people against it—I mean people have a proper regard for the common sense of mankind.

It led the Pythagoreans and Plato to imagine that we see only the shadows of external things, and not the things themselves. It gave rise to the Aristotelian doctrine of 'sensible species', one of the greatest absurdities of that ancient system. And consider what has come of it since it was revived by Descartes. That great reformer in philosophy saw the absurdity of the doctrine about ideas •coming from external objects, and refuted it effectively after it had been accepted by philosophers for thousands of years; but he still retained ideas •in the brain and •in the mind. This is the foundation on which all our modern systems of the powers of the mind are based; and the tottering state of those structures, though they were built by skillful hands, can make us strongly suspect that the foundation is unsound.

It was this theory of ideas that led Descartes and his successors to think they needed philosophical arguments to prove the existence of material objects. Anyone can see that philosophy makes a fool of itself in the eyes of sensible men when it goes to work rounding up metaphysical arguments to prove that there is a sun and a moon, an earth and a sea! Yet we find these truly great men—Descartes, Malebranche, Arnauld, and Locke—seriously employing themselves in this argument. . . .

I might mention several paradoxes that Locke—no friend of paradoxes—was led into by this theory of ideas:

- The secondary 'qualities of bodies' are really just sensations of the mind.
- The primary qualities of body resemble our sensations.
- We have no notion of duration except from the succession of ideas in our minds.
- Personal identity consists in consciousness, so that the same individual thinking being can make several persons, and several thinking beings can make one person.
- Judgment is nothing but a perception of the agreement or disagreement of our ideas.

I shall examine most of these paradoxes when their turn comes.

Even these consequences of the doctrine of ideas were tolerable compared with the ones that were discovered later by Berkeley and Hume:

- There is no material world.
- There are no abstract ideas or notions.

- The mind is only a sequence of related impressions and ideas, without any *thing* that has them.
- There is no space or time.
- There is no body or mind—only impressions and ideas.

And the bottom line:

- There is no probability, even in demonstration itself, and no one proposition is more probable than its contrary.

These are the noble fruits that have grown on this theory of ideas since it began to be cultivated by skillful hands. It's no wonder that sensible men should be disgusted with philosophy, when such wild and shocking paradoxes pass under its name. However, just because these paradoxes have been inferred from the theory of ideas with great acuteness and ingenuity and by valid reasoning, they must at last bring *this* advantage: Positions so shocking to the common sense of mankind, and so contrary to the decisions of all our intellectual powers, will open men's eyes and break the force of the prejudice which has held them entangled in that theory.

Chapter 15: Leibniz's system

There is one more theory of perception of which I shall give some account because of the fame of its author. It is the invention of the famous German philosopher Leibniz who, while he lived, held the first rank among the Germans in all parts of philosophy as well as in mathematics, in jurisprudence, in the knowledge of antiquities, and in every

branch both of science and of literature. [Leibniz died about 70 years before this work appeared]. . . . The famous controversy between him and the British mathematicians about whether he or Newton was the inventor of. . . .the differential calculus engaged the attention of mathematicians in Europe for several years. He also had a controversy with the learned

and judicious Samuel Clarke about several points in the Newtonian philosophy that he disapproved of.

[Reid then sketches the main lines of Leibniz's metaphysics, focussing on his view that x's perceiving y is an upshot of a universe-wide 'harmony' in which *every* state of *every* simple substance is reflected or echoed in the states of *every* other. Reid impatiently rejects this in its entirety, objecting with special fierceness to Leibniz's view that every state of any simple substance is a perception. Thus:] As consciousness is the only power by which we discern the operations of our own minds, or can form any notion of them, an operation of our mind of which we are not conscious is—who knows what? To call such an operation a 'perception' is a misuse of language. No-one can perceive an object without being conscious that he perceives it. No man can think without being conscious that he thinks. So anything that men are not conscious of can't properly be called either perception or thought of any kind.

[The rest of Reid's attack on Leibniz is not very instructive, but its closing paragraphs should be noted. Thus:]

My final remark about this system—and about all the others as well—is that it is *all hypothesis*, made up of unproved conjectures and suppositions. •The Aristotelians **supposed** that 'sensible species' are sent out by the objects of sense. •The moderns **suppose** that there are ideas in the brain or in the mind. •Malebranche **supposed** that we perceive the ideas of God's mind. •Leibniz **supposed** monads and a pre-established harmony; and because these monads are creatures of his own making, he is free to give them whatever properties and powers his imagination may suggest. Similarly, the Indian philosopher **supposed** that the earth is supported by a huge elephant and that the elephant stands on the back of a huge tortoise (Locke, *Essay* II.xxiii.2).

Such suppositions, when no proof of them is offered, are nothing but fictions of the human fancy, and we oughtn't to believe them any more than we believe Homer's fictions concerning Apollo's silver bow or Minerva's shield or Venus's girdle! In poetry such fictions are agreeable to the rules of the art. They are intended to please, not to convince. But the philosophers want us to *believe* their fictions. . . .

Men begin to have a true taste in philosophy only when they learn to regard hypotheses as negligible, and to consider them as theorizers' day-dreams that will never have any similarity to the works of God.

God has given us some information about his works through •what our senses inform us concerning external things and •what our consciousness and reflection inform us concerning the operations of our own minds. Whatever can be validly and soberly inferred from these ordinary informations is true and legitimate philosophy. But anything that we add to this from conjecture is all spurious and illegitimate.

After this long account of the theories that philosophers have put forward to account for our perception of external objects, I hope you now see that. . . .none of those theories gives a satisfying account of this power of the mind or makes it more intelligible than it is without their aid. . . . Perception, consciousness, memory, and imagination are all basic simple powers of the mind, built into its constitution. That is why, though I have tried to show that the theories of philosophers on this subject are ill-grounded and insufficient, I don't try to replace them by some other theory.

Everyone feels that perception gives him an unconquerable belief in the existence of the things he perceives, and that this belief is not the effect of reasoning, but the *immediate* consequence of perception. When philosophers have wearied themselves and their readers with their speculations

on this subject, they can't strengthen this belief or weaken it; nor can they show how it is produced. The belief puts the philosopher on a level with the peasant: neither of them can

give any reason for believing his senses except that he finds it impossible not to.

Chapter 16: Sensation

Having said what I wanted to regarding the act of mind that we call 'perception of an external object', I proceed to consider another act of the mind which our make-up links with perception and indeed with many other mental acts. I refer to *sensation*. See my explanation of the word 'sensation' in Essay 1, chapter 1 [item 12].

Almost all our •perceptions have corresponding •sensations that constantly accompany them, and that fact makes us very apt to confuse the two. And we shouldn't expect the sensation and its corresponding perception to be distinguished in ordinary language, because the purposes of everyday life don't require it. . . . A •perceived quality and the •sensation corresponding to that perception often go under the same name.

This makes the names of most of our sensations ambiguous, which has created tangles and difficulties for philosophers. I'll have to give some examples to illustrate the distinction between our sensations and the objects of perception.

When I smell a rose, this involves both sensation and perception. The pleasant odour I feel, considered by itself and not in relation to any external object, is merely a sensation. It affects the mind in a certain way, and this state of the mind can be conceived without any thought of the rose or

of any other object. This sensation can't *be* other than it is *felt to be*. Its very essence consists in being felt, and when it isn't felt it doesn't exist. There is no difference between •the sensation and •the feeling of it—they are one and the same thing. That is why I remarked earlier [Essay 1, chapter 1, item 12] that in sensation there is no •object distinct from •the act of the mind by which it is felt; and this holds true with regard to all sensations.

Now let us attend to the perception that we have in smelling a rose. Perception always has an external object, and in our present case the object of my perception is the quality in the rose that I detect by the sense of smell. Observing that the pleasant sensation occurs when the rose is near and stops when it is removed, I am led by my nature to conclude that some quality in the rose is the cause of this sensation. This quality in the rose is the object I perceive; and the act of my mind by which I have the conviction and belief in this quality is what in this case I call 'perception'.

Notice, though, that •the sensation I feel and •the quality in the rose which I perceive are both called by the same name—'the smell of a rose'. So this phrase has two meanings; and distinguishing them removes all the tangles, and enables us to give clear and distinct answers to questions about which philosophers have held much dispute.

For example, 'Is the smell •in the rose or •in the mind that feels it?' The answer is obvious; 'the smell •of the rose' can stand for either of two different things, one of which is •in the mind and can't exist except in a sentient being, while the other is truly and properly •in the rose. The sensation that I feel is in my mind, and neither it nor anything like it could be in the rose, because the rose is not sentient. But this sensation in my mind is occasioned by a certain quality in the rose; the quality has the same name as the sensation, not because they are *alike* (which they aren't) but because they constantly go together.

The names we have for smells, tastes, sounds, and the various degrees of heat and cold are all ambiguous in the same way; and what I have said about 'the smell of a rose' can be applied to them too. They signify both a •sensation and a •quality perceived by means of that sensation—a •sign and •something that is signified. Because they are conjoined by Nature, and the purposes of daily life don't require them to be separated in our thoughts, they are both called by the same name. And this ambiguity occurs in all languages because the reason for it extends to all.

The same ambiguity is found in the names of diseases that are indicated by a particular painful sensation, such as 'toothache', 'headache'. 'Toothache' signifies a painful sensation that can only exist in a sentient being; but it also signifies a disorder in the body, which is in no way similar to the sensation but is naturally connected with it.

Pressing my hand **with force** against the table, I •feel pain and I •feel the table to be hard. The pain is a sensation of the mind, and there's nothing like it in the table. The hardness is in the table, and there's nothing like it in the mind. We say that I 'feel' both, but that involves two senses of 'feel'—a word that is applied to the •act of sensation and to the •act of perceiving by the sense of touch.

I touch the table **gently** with my hand, and I feel it to be smooth, hard, and cold. These are qualities of the table that I perceive by touch; but I perceive them by means of a sensation that indicates them. Because this sensation is not painful, I usually pay no attention to it. It carries my thought immediately to the thing signified by it, and is itself forgotten as though it had never existed. But by repeating it, turning my attention to it, and abstracting my thought from the thing signified by it, I find it to be merely a sensation, with no similarity to what it signifies—the hardness, smoothness, and coldness of the table.

It is difficult at first to attend separately to things that have always come as a pair, and to reflect on something for the very first time; but making the effort and putting in the practice will enable you overcome this difficulty, if you are one of those who have acquired the habit of reflecting on the operations of their own minds.

There are *many* mental operations to which we give one name, and think of as one thing, though they are really complex in their nature and made up of several simpler ingredients—sensation often being one of the ingredients. I shall give some instances of this. This takes us outside the over-all topic of this chapter, which requires us only to consider sensations that we have through our external senses. But this extension of our range will serve to illustrate things I have been saying, and I also think it is of importance in itself.

The appetite of hunger includes •an unpleasant sensation and •a desire of food. Sensation and desire are different acts of mind; desire must have an object, whereas sensation has no object. These two ingredients can always be thought about separately; perhaps sometimes one of them occurs without the other; but the term 'hunger' covers both.

Benevolence towards our fellow-creatures includes •a pleasant feeling and also •a desire for the happiness of others. The ancients commonly called benevolence a 'desire'. Many moderns choose rather to call it a 'feeling'. Both are right; and if there's any error here it is the error of those who select one ingredient and exclude the other. Are these two ingredients necessarily connected? That may be hard for us to determine, because there are many necessary connections that we don't perceive to be necessary; but •even if they are necessarily linked•, we can separate them in thought. They are different acts of the mind.

•An unpleasant feeling and •a desire are in the same way ingredients of malevolent states such as malice, envy, revenge. *Fear* includes an unpleasant sensation or feeling and a belief that one is in danger; and *hope* is made up of the opposite ingredients. When we hear of a heroic action, it causes in our mind something made up of various ingredients—a pleasant feeling, a benevolent affection towards the person, and a judgment or opinion about his merit.

If we analyse the various operations of our minds in this way, we'll find •that many of them that we think of as perfectly simple because we have been accustomed to call them by one name are made up out of simpler ingredients, and •that sensation (or feeling, which is only a more refined kind of sensation) is one of the ingredients not only in the perception of external objects but in most operations of the mind.

[We are about to encounter the word 'sentiment'. In Reid it usually means 'view' or 'opinion', and up to here has been translated thus in the present text; but it can also mean 'feeling'; in the present context the word is left alone in all its ambiguity, for the obvious reason.] A very little reflection can show us that the number and variety of our sensations and feelings is enormous. Our

moral sentiments and sentiments of taste, and even our external senses, provide a great variety of sensations of different •kinds and, within almost every kind, an endless variety of •degrees. (Not to mention all the sensations that accompany our appetites, emotions, and affections.) Every discrimination that we make with regard to taste, smell, sound, colour, heat, cold, and the tangible qualities of bodies is indicated by a sensation corresponding to it.

The most general and most important classification of our sensations and feelings is into •pleasant, •unpleasant, and •neutral. Everything we call pleasure, happiness, or enjoyment (on the one hand) and everything we call misery, pain, or unpleasure (on the other) is a sensation or feeling. For no-one can be happier or more miserable at a given time than he then feels himself to be. He can't be deceived about the enjoyment or suffering of that moment.

But I realize that besides the sensations that are either pleasant or unpleasant there are many more that are neutral. We attend so little to these that they have no name, and are immediately forgotten as if they had never existed. To be convinced of their existence we have to *attend* to the operations of our minds.

[Then a paragraph giving examples of such neutral sensations, and reasons for thinking there are countless many of them. Then:]

Neutral sensations are by no means useless. They serve as signs to distinguish things that are unlike, and the information we get concerning external things comes through them. Thus, for someone who wasn't able to get •pleasure from the harmony or melody of sounds, •or to get •unpleasure from noises of any sort•, the sense of hearing would still be extremely useful. . . . And the same thing holds for the sensations we have by all the other senses.

Sensations and feelings that are pleasant or unpleasant differ greatly not only in •degree but also in •kind and in •dignity. Some belong to the animal part of our nature, and we share them with the brutes—they are more properly called ‘sensations’. Others belong to our rational and moral part, and are more properly called ‘feelings’.

The intention of Nature in them is mostly obvious and well worth attending to. . . . In his distribution of pleasant and painful feelings, God has wisely and benevolently aimed at the good of the human species, and has even shown us by the same means how we ought to behave. •Painful sensations of the animal kind are warnings to avoid what would hurt us; and pleasant sensations of that same kind encourage us to act in ways that are required to preserve the individual or the species. •By the same means, Nature invites us to engage in moderate bodily exercise—telling us to avoid idleness and inactivity on the one hand, and excessive labour and fatigue on the other. •The moderate exercise of all our rational powers gives pleasure. •Every species of beauty is beheld with pleasure, and every species of ugliness with disgust; and we shall find that everything we find beautiful is either admirable or useful in itself or a sign of something that is admirable or useful. •The benevolent affections are all accompanied by a pleasant feeling, and the malevolent •attitudes• with an unpleasant one. •The highest, noblest, and most durable pleasure is that of doing well and acting as we should; and the most bitter and painful sentiment is the anguish and remorse of a guilty conscience. . . .

I shall end this chapter by remarking that just as

confusing our sensations with the perception of external objects that is constantly conjoined with them has given rise to most of the errors and false theories of philosophers concerning the senses,

so also

distinguishing these operations seems to me to be the key that leads to a right understanding of both •sensations and perceptions•.

‘Sensation’ doesn’t in itself imply a conception of or belief in any external object. It implies a sentient being, and a certain way in which that being is affected, and that is *all* it implies. ‘Perception’ implies an immediate conviction and belief in something external—something different both from the mind that perceives and from the act of perception. Things that are intrinsically as different •as perception and sensation are• ought to be distinguished; but we are so built that in us they are always united. Every perception comes along with its own special kind of sensation. The sensation is the sign, the perception is the thing signified. They coalesce in our imagination. They are given a single name, and are thought of as one simple operation. The purposes of everyday life don’t require them to be distinguished.

The philosopher—and he alone—does have reason to distinguish them when he wants to analyse the compound operation that they make up. But he has no suspicion that there *is* anything compound here, and to learn that there *is* requires a degree of reflection that has been too little practised, even by philosophers.

In the ancient philosophy, sensation and perception were completely run together. A ‘sensible species’ coming from the object and impressed on the mind was the whole •story•—and you could call it ‘sensation’ or ‘perception’ as you pleased.

Descartes and Locke, paying more attention to the operations of their own minds, say that the sensations that tell us of secondary qualities are not like anything that pertains to body; but they didn’t see that this can just as well be said about primary qualities. Locke maintains that the sensations we have from primary qualities *are* like those qualities. This shows how grossly the cleverest men can go wrong with

regard to the operations of their minds. I don't deny that it is much easier to have a clear notion of the sensations belonging to secondary qualities than of those belonging to primary qualities; I'll explain why this is so, early in the next chapter.

But if Locke had attended carefully enough to the sensations that he was receiving from primary qualities every day and every hour, he would have seen that they can't resemble any quality of an inanimate thing, any more than pain can resemble a cube or a circle.

Berkeley saw clearly the thing that the able Locke had missed. He had a correct notion of •sensations, and saw that no quality of an insentient thing could possibly resemble •them—a truth that is so evident in itself that it is amazing that it was for so long unknown.

Let us attend now to the consequence of this discovery. Philosophers as well as the vulgar had been accustomed to giving one name to sensation and perception, and to

regard them as a single simple operation. Philosophers, even more than the vulgar, gave the name 'sensation' to the whole operation of the senses, and all the notions we have of material things were called 'ideas of sensation'. This led Berkeley to take one ingredient of a complex operation to be the whole operation; and having clearly discovered the nature of sensation, and taking it for granted that the senses present to the mind only *sensation*, which can't resemble anything material, he concluded that there is no material world.

If the senses provided us with no materials of thought except sensations, his conclusion would be right; for no sensation can give us the conception of material things, let alone any argument to prove their existence. But if in fact our senses give us not only a variety of •sensations but also a •conception of external objects and an immediate natural •conviction that they exist, he reasons from a false supposition and his arguments fall to the ground.

Chapter 17: Objects of perception, starting with primary and secondary qualities

The objects of perception are the various qualities of bodies. Intending to treat of these only in general, and chiefly with a view to explain the notions which our senses give us of them, I begin with the distinction between primary and secondary qualities. These were distinguished very early. The Aristotelian system confounded them and left no difference. The distinction was revived by Descartes and Locke, and a second time abolished by Berkeley and Hume. If the real foundation of this distinction can be pointed out,

that will enable us to account for the various revolutions in the sentiments of philosophers concerning it.

Everyone knows that Locke gave the name 'primary qualities' to extension, divisibility, shape, motion, solidity, hardness, softness, and fluidity; and that he called sound, colour, taste, smell, and heat or cold 'secondary qualities'. Is there a sound basis for this distinction? Is there anything that is true of all the 'primary' qualities and none of the 'secondary' ones? And what is it?

I answer that there seems to me to be a real basis for the distinction; namely this:

- Our senses give us a direct and distinct notion of the primary qualities, and inform us what they are in themselves.
- But our senses give us only a relative and obscure notion of the 'secondary' qualities. They inform us only that they are qualities that affect us in a certain way, i.e. produce in us a certain sensation; but our senses tell us nothing about what the secondary qualities are in themselves.

Any thinking person can easily satisfy himself that he has a perfectly clear and distinct notion of extension, divisibility, shape, and motion. A body's *solidity* means merely that it prevents other bodies from occupying the place it is in while it is there. Hardness, softness, and fluidity are different degrees of cohesion in the parts of a body: the body is fluid when it has no detectable cohesion, soft when its cohesion is weak, and hard when it is strong. We don't know what causes this cohesion, but we do understand the cohesion itself, being immediately informed of it by the sense of touch. . . .

And, as I noted, our notion of primary qualities is direct, not merely relative. A relative notion of a thing is strictly speaking not a notion of the thing at all, but only of some relation which it bears to something else.

Thus 'gravity' sometimes signifies the •tendency of bodies •to move• towards the earth, and sometimes signifies the •cause of that tendency. When it means the •tendency, I have a direct and distinct notion of gravity—I see it and feel it and know perfectly what it is. But this tendency must have a •cause. We call the cause 'gravity' too, and people have thought and theorized about what it is. Now, when we think and reason about this cause, what *notion* of it do we have? Obviously, we think of it as *an unknown cause of a*

known effect. This is a relative notion, and it is bound to be obscure because it gives us no conception of what the thing is but only of what relation it has to something else. . . . There are many objects of thought and of discourse of which our faculties can give us no better than a relative notion.

That explanation makes it clear that our notion of primary qualities is *not* of this relative kind. We know what the primary qualities are, not merely how they relate to something else.

It is otherwise with secondary qualities. 'What is that quality or state of a rose that you call its smell?' I am at a loss to answer directly. On reflection I find that I do have a distinct notion of the sensation that the quality in question produces in my mind; but there can't be anything like this sensation in the rose, because it is not sentient. What that quality *is* I don't know. . . . And the same line of thought applies to every secondary quality.

Thus I think it appears that there is a real basis for distinguishing primary from secondary qualities. The account I have given of this distinction isn't founded on any hypothesis. That our notions of primary qualities are direct and distinct, while those of the secondary qualities are relative and obscure, are matters of fact that you can know for sure by attentively reflecting on them. Here, now, are some thoughts on this subject.

1. The primary qualities are not sensations or like sensations. This strikes me as self-evident. I have a clear and distinct notion of each of the primary qualities. I have a clear and distinct notion of sensation. When I hold them together in my mind I can't detect any resemblance. Sensation is the act or the feeling (never mind which) of a sentient being. Shape, divisibility, solidity are not acts or feelings. A sensation must be had by a sentient being, for 'a sensation that is not felt by some sentient being' is an absurdity. Shape

and divisibility must be had by something that is shaped and divisible, but not by something sentient.

2. We have no reason to think that any of the secondary qualities resemble any sensation. The absurdity of this notion has been clearly shown by Descartes, Locke, and many modern philosophers. It was a tenet of the ancient philosophy, and many philosophers attribute it to the vulgar even today, but only as a vulgar *error*. That the vibrations of a bell don't resemble the sensation of sound, and that the little particles emanating from a piece of cheese don't resemble the sensation of smell—these truths are too obvious to need proof.

3. The distinctness of our notions of primary qualities prevents all questions and disputes about their nature. There are no differences of opinion about the nature of extension, shape, or motion, or about the nature of any other primary quality. Their nature is manifest to our senses, and no-one can be ignorant of them or mistaken about them, though their causes may admit of dispute.

The primary qualities are treated in the mathematical sciences, and the distinctness of our notions of them enables us to reason demonstratively about them to a great extent. Their various modifications [= 'special cases', e.g. circularity is a modification of shape] are precisely defined in the imagination, which enables us to compare them and establish their relations with precision and certainty.

It is not so with secondary qualities. . . . Our feeling informs us that the fire is hot, but it doesn't tell us what that heat of the fire is. 'Isn't it a contradiction to say we •know that the fire is hot but •don't know what that heat is?' I answer that there is the same appearance of contradiction in many things that are certainly true. We •know that wine has an inebriating quality; but we •don't know what that quality is. Of course, if we didn't have *any* notion of what is meant

by 'the heat of fire' or by 'an inebriating quality', we couldn't meaningfully affirm anything of either of them. But we *do* have a notion of each, but it is only a relative notion. We know that they are the causes of certain known effects.

4. The nature of secondary qualities is a proper subject of philosophical inquiry, and philosophy has made some progress on this topic. It has been discovered that

- the sensation of smell is occasioned by particles emitted by bodies,
- the sensation of sound is occasioned by bodies' vibration, and that
- the sensation of colour is occasioned by bodies' disposition to reflect a particular kind of light.

Interesting and surprising discoveries have been made concerning the nature of heat, and a rich field of further discovery about these subjects lies open.

5. We can see why our attention is drawn to the sensations belonging to secondary qualities but not to the sensations that belong to the primary qualities.

[Reid in this next paragraph writes a little confusingly, referring to a secondary *quality* as 'the *object*'. This will be avoided by expressing his point in terms of a single secondary quality, namely heat.] The sensation belonging to the secondary quality *heat* is not only a sign of heat—it forms a large part of the notion we have of heat. We think of heat only as *what occasions such and such a sensation*, so we can't think about it without thinking of the sensation that it occasions. We have no other mark by which to distinguish it. 'Generalizing now', the thought of any secondary quality always carries us back to the sensation that it produces; we give the same name to both, and are apt to run them together.

But having a clear and distinct conception of primary qualities, we can think of them without recalling their sensations. When a primary quality is perceived, the sensation

immediately leads our thought to the quality signified by it, and is itself forgotten. We have no reason afterwards to reflect on it, and so we come to be as little acquainted with it as if we had never felt it. Nature intended the sensations belonging to primary qualities only as signs; and when they have served that purpose they vanish.

The only exception is when the sensations are so painful or so pleasant as to draw our attention. When a man bangs his hand against a pointed hard body, he feels pain, and can easily believe that this pain is a sensation and that there is nothing resembling it in the hard body; at the same time he perceives the body to be hard and pointed, and he knows that these qualities belong to the body only. In this case it is easy to distinguish •what he feels from •what he perceives—i.e. to distinguish •his pain from •the body's hardness and pointedness. . . .

·THE VULGAR VERSUS THE PHILOSOPHERS·

We are now to consider the opinions both of the vulgar and of philosophers on this subject. It is not to be expected that the vulgar should make distinctions that have no connection with ordinary everyday life, which is why they don't distinguish primary qualities from secondary ones, but speak of both as being equally qualities of the external object. They have a distinct notion of the primary qualities, because these are immediately and distinctly perceived by the senses. Their notions of the secondary qualities are less satisfactory, but they aren't *erroneous*, merely confused and indistinct. A secondary quality is the unknown cause or occasion of a well known effect, and the cause and the effect are given the same name. Now, sharply distinguishing •the different ingredients of a complex notion and, at the same time, •the different meanings of an ambiguous word, is the work of a philosopher; and we can't expect the vulgar to do it when they have no practical need to.

. . . . There seems to be a contradiction between the vulgar and the philosopher on this subject, and each accuses the other of a gross absurdity. The vulgar say: 'Fire is hot, snow is cold, sugar is sweet; and to deny this is a gross absurdity that contradicts the testimony of our senses.' The philosopher says: 'Heat and cold and sweetness are nothing but sensations in our minds; and it is absurd to think of these sensations as being in the fire, the snow, or the sugar.'

I think that this contradiction between the vulgar and the philosopher is more apparent than real; and that it arises from a misuse of language on the part of the philosopher and from unclear notions on the part of the vulgar. The philosopher says 'There is no heat in the fire', meaning that the fire doesn't have the sensation of heat. What he means is right, and the vulgar will agree with him as soon as they understand what he means. But his language is improper; for there really *is* a quality in the fire of which the proper name is 'heat'; and this name 'heat' is given to this quality—both by philosophers and by the vulgar—much more frequently than to the sensation of heat. . . .

·HISTORY OF VIEWS ABOUT THE DISTINCTION·

As I have already remarked, there have been different phases in the opinions of philosophers about primary and secondary qualities. They were distinguished long before Aristotle's time by the atomists, among whom Democritus looms large. Back then the name 'quality' was applied only to the ones we call 'secondary' qualities, because primary qualities being considered as essential to matter, and were not called 'qualities'. Those philosophers had no doubt that the atoms that they held to be the basic sources of things were extended, solid, shaped, and movable, but there was a question as to whether they had •smell, taste, and colour (or, in the terminology they used, whether they had •*qualities*.) The atomists maintained that they didn't, and

that the qualities were not in bodies but were an effect of the action of bodies on our senses.

It would seem that when men began to think about this subject the primary qualities appeared so clear and obvious that the thinkers couldn't doubt that they existed wherever matter existed; but the secondary were so obscure that they didn't know where to locate them. They used this comparison: as •fire is produced by the collision of •flint with •steel without being in either of them, so also •the secondary qualities are produced by the impact of •bodies on •our senses without being in either of them.

Aristotle disagreed. He thought that taste and colour are substantial forms of bodies, and that their 'species' as well as those of shape and motion are received by the senses. [Reid has explained 'substantial form' on page 63, and the present sense of 'species' = 'sensible species' in Essay I, chapter I, middle of item 10.]

In believing that what we ordinarily call 'taste' and 'colour' is something really inherent in body, and doesn't depend on its being tasted or seen, Aristotle followed •Nature. But in believing that our sensations of taste and colour are the 'forms' or 'species' of those qualities, received by the senses, he followed •his own theory which was an absurd fiction. Descartes not only showed the absurdity of 'sensible species received by the senses' but gave a sounder and more intelligible account of secondary qualities than had been given before. Locke followed him, and took a lot of trouble with this subject. I think it was he who first called them 'secondary qualities', a name that has been very generally adopted. He distinguished •the sensation from •the quality in the body which is the cause or occasion of that sensation, and showed that there isn't and can't be any similarity between them.

This account clears the senses of the charge of lying to us: the sensation is real, with nothing erroneous about it; the

quality in the body that causes or occasions this sensation is also real, though its nature isn't manifest to our senses. If *we* deceive *ourselves* by confusing the sensation with the quality that occasions it, this comes from rash judgment or weak understanding, not from false testimony of our senses.

I regard this account of secondary qualities as very sound; and if Locke had stopped here, he would have left the matter very clear. But he thought he had to introduce the theory of ideas to explain the distinction between primary and secondary qualities, and by that means I think he tangled and darkened it.

When philosophers speak about 'ideas', we're often at a loss to know what they mean by that word, and may well suspect that ideas are mere fictions. The philosophers have told us that by 'the ideas that we have immediately from our senses' they mean *our sensations*. These are indeed real things, not fictions. By attending to them carefully we can completely know their nature; and if philosophers kept to this meaning of 'idea' when applied to the objects of sense they would at least be more intelligible. Let us hear how Locke explains the nature of those ideas when applied to primary and secondary qualities:

To reveal the nature of our ideas better, and to talk about them intelligibly, it will be convenient to distinguish them •as they are ideas or perceptions in our minds, and •as they are states of matter in the bodies that cause such perceptions in us. That may save us from the belief (which is perhaps the common opinion) that the ideas are exactly the images and resemblances of something inherent in the object. •That belief is quite wrong. Most ideas of sensation are (in the mind) no more *like* a thing existing outside us than the names that stand for them are *like* the ideas themselves. (*Essay II.viii.7*)

This way of distinguishing a thing—first as what it is, then as what it is not—strikes me as a very extraordinary way of revealing its nature. If ideas are ‘ideas or perceptions in our minds’ and at the same time ‘the states of matter in the bodies that cause such perceptions in us’, it won’t be easy to talk about them intelligibly!

The account of the nature of ideas is carried on in Locke’s next section in an equally extraordinary manner:

Whatever the mind perceives in itself—whatever is the immediate object of perception, thought, or understanding—I call an *idea*; and the power to produce an idea in our mind I call a *quality* of the thing that has that power. Thus a snow-ball having the power to produce in us the ideas of white, cold, and round, the powers to produce those ideas in us, as they are in the snow-ball, I call *qualities*; and as they are sensations or perceptions in our understandings, I call them *ideas*. If I sometimes speak of ‘ideas’ as in the things themselves, please understand me to mean to be talking about the *qualities* in the objects that produce them in us. (II.viii.8)

These are the distinctions that Locke thought would help to ‘reveal the nature of our ideas’ of the qualities of matter better, so that we could ‘talk about them intelligibly’! I think it will be hard to find two other paragraphs in the *Essay* as unintelligible as these. Does this come from ‘the intractable nature of ideas or from ‘Locke’s drowsy inattention (a fault of which he is very rarely guilty)? Judge for yourself. Several other passages in that chapter are also obscure in the same way, but I shan’t dwell on them. Locke’s bottom-line conclusion is that primary and secondary qualities are distinguished by this:

•The ideas of the primary qualities resemble or copy the qualities.

•The ideas of the secondary qualities do not resemble or copy the qualities.

There are two things I want to say about this doctrine.

(1) Taking it for granted that by the ‘ideas’ of primary and secondary qualities he means the sensations they arouse in us, I remark that it appears strange that a sensation should be the idea of a quality in body to which it is admitted to have no resemblance. If the ‘sensation of sound is the idea of the ‘vibration of the bell that occasions it, a ‘surfeit may for the same reason be the idea of a ‘feast!

(2) When Locke affirms that the ideas of primary qualities—i.e. the sensations they arouse in us—resemble those qualities, he seems not to have attended properly either to (a) *those* sensations or to (b) the nature of sensation in general.

(a) Press your hand against a hard body and attend to the sensation you feel, excluding from your thought everything external, even the body that is the cause of your feeling. This abstraction ·or exclusion· is indeed difficult, and it has hardly ever been done. But it is possible, and it is obviously the only way to understand the nature of the sensation. Properly attending to this sensation will satisfy you that ‘it is no more like ‘hardness in a body than the ‘sensation of sound is like ‘vibration in a bell.

The only ideas I know of are my *conceptions*. My ‘idea of hardness in a body’ ·in that sense· is the conception of

a body’s having parts that cohere [= ‘hold together’] so that a great deal of force is needed to pull them apart.

When I have a ‘sensation of pain from pressing my hand against a hard body, I have at the same time both the ‘conception of and the ‘belief in this quality in the body. My constitution conjoins the ‘sensation with the perception—·and thus with the ‘conception and ‘belief involved in perception·—but I’m sure they are in no way alike. The

only basis for calling one the ‘idea of’ the other would be an equally good or bad basis for calling every natural effect the ‘idea of its cause—e.g. for calling an over-full stomach the ‘idea of the preceding feast’.

(b) When Locke said that the sensations aroused by primary qualities (which he called the ‘ideas of the primary qualities’) resemble those qualities, he hadn’t attended adequately to the nature of sensation in general. The proposition

There can’t be anything like sensation in an insentient being, or anything like thought in an unthinking being is *self-evident*, and Berkeley has shown that all thinking people accept it. Yet it was unknown to Locke! It is a humbling fact that in subjects of this kind self-evident truths can be hidden from the eyes of the ablest men. But we have consolation in the fact that when such truths are revealed they shine by their own light—light that can’t be extinguished again. . . .

Berkeley adopted the common philosophical view about the ideas we have by our senses, namely that they are all sensations; but then he saw more clearly than his predecessors had done what follows from this doctrine, namely that there is no material world, and that there are no primary or secondary qualities and thus no basis for any distinction between them. He exposed the absurdity of the

view that our sensations resemble *any* quality—primary or secondary—of a substance that is supposed to be insentient. Indeed, if you allow that the only role of the senses is to provide us with sensations, you’ll find it impossible to make any distinction between primary and secondary qualities, or even to maintain the existence of a material world.

From the account I have given of the various turns in the opinions of philosophers about primary and secondary qualities, I think it appears that all the darkness and complexity that thinking men have found in this subject, and the errors they have fallen into, have come from the difficulty of clearly distinguishing sensation from perception, what we feel from what we perceive.

[Then two paragraphs that repeat things that have already been said more than once in this Essay. Ending with:] The progress made in correctly analysing the operations of our senses has been very slow. The theory about ‘ideas’ . . . has greatly held back this progress; we might hope for a quicker advance if philosophers could humble themselves enough to believe that in every branch of the philosophy of Nature the productions of human fancy and conjecture will be found to be dross; and that the only pure metal that will stand up to testing is what is discovered by patient observation and properly conducted induction.

Chapter 18: Other objects of perception

Besides primary and secondary qualities of bodies there are many other immediate objects of perception. Without claiming to offer a complete list, I think they mostly belong to one or another of the following five classes:

- (1) Certain states or conditions of our own bodies.
- (2) Mechanical powers or forces.
- (3) Chemical powers.
- (4) Medical powers.
- (5) Powers of plants and animals.

·I shall discuss the first two of these and sketchily allude to the other three·.

(1) No-one would deny that we perceive certain disorders in our own bodies by means of unpleasant sensations that Nature has attached to them. Of this kind are toothache, headache, gout, and every illness and physical injury that we feel. The notions that our senses give of these have a strong analogy to our notions of secondary qualities. The two kinds of notions are built up in the same way, and can be analysed along similar lines. Also, they throw light on one another.

In toothache, for instance, there is *first* a painful feeling and *secondly* a conception of and belief in something wrong in the tooth that is believed to be causing the unpleasant feeling. The first is a •sensation, and the second is •perception because it includes a conception of and belief in an external object. But although these two things are of different natures, they are so constantly conjoined in our experience and in our imagination that we think of them as one, and call them both ‘toothache’, which is the correct name both for the pain and for the disorder in the tooth that causes the pain. Is the *toothache* in the mind that feels it or in the tooth that has

something wrong with it? A great deal could be said on each side of this question if it isn’t noticed that ‘toothache’ has two meanings. . . .

We say that we *feel* the toothache, not that we *perceive* it. On the other hand we say that we *perceive* the colour of a body, not that we *feel* it; yet in each of these there is sensation and perception conjoined. Can any reason be given for this difference of terminology? I answer Yes, the reason being this:

- In the toothache, the sensation is very painful and strongly calls attention to itself; and this leads us to speak of it as if it were only *felt* and not *perceived*.
- In seeing a coloured body, the sensation is neutral and doesn’t attract our attention. The quality in the body that we call its ‘colour’ is the only object of attention; and so we speak of it as if it were *perceived* and not *felt*.

Though all philosophers agree that seeing colours involves sensations, it isn’t easy to persuade the vulgar that when they see a coloured body in a moderate light and with a healthy eye they have any sensation or feeling at all.

Some sensations are very often felt yet never attended to or thought about. We have no conception of them, and so we have no name for them and no turns of phrase that imply their existence. Such are the sensations of colour, and of all primary qualities; and therefore those qualities are said to be perceived but not to be felt. Taste and smell and heat and cold have sensations that are often strongly pleasant enough, or strongly unpleasant enough, to draw our attention to them, and they are sometimes said to be ‘felt’ and sometimes to be ‘perceived’. . . .

[Then more than a page on issues related to 'I feel a pain in my toe'. Reid insists that this can be a perfectly good thing to say; it can report a real fact, in language that is correct because universally accepted and understood. It is for the philosophers to analyse 'pain in my toe', and Reid shows how to do this. He deals similarly with the phenomenon of feeling a 'phantom pain' in a leg that has been amputated, and goes on to discuss supposed 'deceptions of the senses'. In every such case, Reid says, the senses deliver a sensation which doesn't imply anything and therefore can't be deceptive; but there may be, associated with the sensation, a perception—a conception and belief—and *this* can be and sometimes is deceptive. Then:]

(2) Let us next consider the notions our senses give us of the attributes of bodies called 'powers'. There's a special need to look into this topic, because 'power' seems to imply some activity, yet we consider body as a dead inactive thing which doesn't act but can be acted on.

Of the mechanical powers ascribed to bodies, let us start with the one called their *vis inertia* [= 'power of not moving']. This means merely that bodies never change their state *themselves*—whether starting to move, stopping moving, or changing speed or direction. Any such change must come from some force impressed on them ·from the outside·; and the change that is produced is exactly proportional to the strength and direction of that external force.

That all bodies have this property is a matter of fact that we learn from daily observation as well as from the most precise experiments. It seems clear that this ·property· doesn't imply any *activity* in body, but rather the contrary. Activity in a body would be involved in its having a power to •change its state rather than its •continuing in the same state. So this property of bodies, despite its name, does not imply any 'power' properly so-called.

Now consider the power of gravity. It is a fact that all the bodies of our planetary system gravitate towards each other. This has been fully proved by the great Newton. But he doesn't think of this gravitation as a power inherent in bodies, which they exercise of themselves; rather, he takes it to be a force imposed on them, to which they must necessarily yield. We don't know whether this force is imposed on them by some superfine ether, or by the power of God or of some subordinate spiritual being; but all sound natural philosophy, especially Newton's, takes it to be a force that is imposed on bodies and not inherent in them.

So when bodies gravitate they don't strictly speaking *act*, but are *acted on*. They only succumb to an impression that is made on them. We ordinarily express by active verbs many changes in things in respect of which they are merely passive. And this way of speaking is used chiefly when the cause of the change is not obvious to the senses. Thus we say that a ship 'sails' when every man of common sense knows that it has no inherent power of motion and is only driven by wind and tide. Similarly, when we say that the planets 'gravitate' towards the sun, all we mean is that some unknown power pulls or pushes them in that direction.

What I have said about the power of gravitation can be re-applied to other mechanical powers such as cohesion, magnetism, electricity; and also to chemical and medical powers. By all these, certain effects are produced when one body is applied to another. Our senses discover the effect, but the power is hidden. We know there must *be* a cause of the effect, and we form a relative notion of it from its effect; and very often the same name is used to signify the unknown cause and the known effect.

We ascribe to plants the powers of drawing nourishment, growing, and multiplying their kind. Here too the effect is manifest but the cause is hidden from the senses. So

these powers, like the others that we ascribe to bodies, are unknown causes of certain known effects. It is the business of philosophy to investigate the nature of those powers as far as we can, but our senses leave us in the dark. We can see a great similarity in the notions that our senses give us of

- secondary qualities,
- the disorders we feel in our own bodies, and
- the various powers of bodies that I have listed.

They are all obscure and relative notions—each being a conception of some unknown cause of a known effect. They mostly have a single name for the effect and for its cause; and they are a proper subject of philosophical discussion. It wouldn't be wrong, I think, to call them *occult* qualities.

This label has indeed fallen into disgrace since the time of Descartes. The Aristotelians are said to have used it to cloak their ignorance and to stop all enquiry into the nature of the qualities they called 'occult'. So be it. Let those who were guilty of this *misuse* of the word answer for their crime! To call a thing 'occult', if we attend to the meaning of the word, is not to cloak one's ignorance but rather to own up to it modestly. It is to point the thing out as a proper subject for the investigation of philosophers, whose business it is to better the condition of humanity by discovering what was before hidden from human knowledge.

So if I were to offer a classification of the qualities of bodies in terms of how they appear to our senses, I would divide them first into •manifest and •occult. The **manifest** qualities are those that Locke calls 'primary'—such as exten-

sion, shape, divisibility, motion, hardness, softness, fluidity. The nature of these is manifest even to our senses; and the business of the philosopher with regard to them is not •to find out their nature (because that is already well known) but •to discover the effects that are produced by their various combinations, and with regard to those of them that aren't essential to matter •to discover their causes as far as he can.

The **occult** qualities can be subdivided into various kinds:

- the secondary qualities;
- the disorders we feel in our own bodies;
- the qualities we call 'powers of bodies', whether mechanical, chemical, medical, animal, or vegetable; and
- any others there may be that aren't already covered.

The *existence* of these isn't hidden; it is manifest to our senses; but their *nature* is occult; and here the philosopher has an ample field of inquiry open before him.

God in his generosity has made manifest to all men what we need for the conduct of our animal life. But there are many other precious secrets of Nature the discovery of which enlarges man's power and raises his state. These are left to be discovered by the proper use of our rational powers. They are hidden not so that they'll always be concealed from human knowledge, but so that we may be stimulated to search for them. This is the proper business of a philosopher, and it is the glory of a man and the best reward of his labour to discover what Nature has thus concealed. [Reminder: 'philosopher' here includes the meaning of 'scientist'.]

Chapter 19: Matter and space

The objects of sense that we have considered up to here are *qualities*. But any quality must have a subject, .i.e. some *thing* that *has* the quality. We give the names ‘matter’, ‘material substance’ and ‘body’ to the subject of sensible qualities, and the question arises: What is this matter?

In a billiard ball I perceive shape, colour, and motion; but the ball is not shape, is not colour, is not motion, nor is it all three of these taken together; it is something that *has* shape and colour and motion. This is a dictate of Nature, and is what everyone believes.

As to the nature of this ‘something’, I’m afraid I can give little account of that except to say: It *has* the qualities that our senses discover.

‘How do we know that they are qualities, and that they can’t exist without a subject?’ I admit I can’t explain how we know that they can’t exist without a subject, any more than I can explain how we know that they exist. Nature tells us that they exist, and I think it also tells us that they are qualities.

The belief that shape, motion, and colour are qualities and require a subject must be either •a judgment of Nature, or •revealed by reason, or •a prejudice with no solid basis. Some philosophers maintain that it is a mere prejudice; that a body is nothing but a collection of what we call ‘sensible qualities’, and that they don’t have any subject and don’t need one. This is the opinion of Berkeley and Hume; and they were led to it by finding that they didn’t have in their minds any idea of substance. It couldn’t be an idea of sensation or of reflection.

But to me nothing seems more absurd than to suppose there is extension without anything extended, or motion

without anything that moves; but I can’t give *reasons* for my opinion because it seems to me self-evident and an immediate dictate of my nature.

And it is also the belief of all mankind; this is shown by the structure of all languages, in which we find adjectives used to express sensible qualities. It is well known that every adjective in language must belong to some substantive expressed or understood; that is every quality must belong to some subject.

[Then two paragraphs developing the thesis that it is a ‘judgment of Nature’ that the things we immediately perceive are qualities that must be qualities *of* something. Then:]

In this .intellectual area., the philosopher seems to be no better placed than the vulgar. They perceive colour and shape and motion by their senses as well as he does, and they are as certain as he is that there is a subject of those qualities. Furthermore, the notions they have of this subject are no more obscure than his. When the philosopher calls it a ‘substratum’ and a ‘subject of inhesion’, those learned words mean only what every man understands and expresses by saying in common language that it’s an extended and solid and movable *thing*.

The *relation* that sensible qualities have to their subject— .i.e. to the body that has them—is not so dark that it can’t be easily distinguished from all other relations. Everyone can distinguish it from the relation of effect to cause, of means to end, of a sign to the thing it signifies.

I think it requires some maturity of understanding to distinguish •the qualities of a body from •the body. It may be that brute animals and human infants don’t make this distinction; and if you think that this distinction is made not

by our senses but by some other power of the mind, I shan't dispute the point—as long as you grant me that men when their faculties are mature have a natural conviction that sensible qualities can't exist by themselves without some subject to which they belong.

I do indeed think that some of the views about matter that we arrive at can't be deduced solely from the testimony of sense, and must be assigned to some other source.

·DIVISIBILITY OF BODY·

It seems to be utterly evident that all bodies must consist of parts, and that every part of a body is itself a body—a distinct being that can exist without the other parts—and yet I don't think this conclusion is deduced solely from the testimony of sense. For one thing: the divisibility of all body is a necessary truth, and therefore not something learnable from the senses. Also: there is a limit to how fine a division of a body we can perceive; eventually the parts become too small to be perceived by our senses; but we are still quite sure that the body could be further divided while still continuing to be a body. We carry on the division and subdivision *in our thought*, far beyond the reach of our senses, and we can find no end to it. I think indeed that we plainly discern [Reid's word] that there can't be any limit to how far the division can be carried. Here is an argument for this conclusion. If there is a limit to this division, then either division can bring us to

- a body that is extended but has no parts and is absolutely indivisible,

or it can bring us to

- a body that is divisible but will stop being a body the moment it is divided.

Both of these positions seem to me absurd, yet the truth of one or the other of them is the necessary consequence of supposing a limit to the divisibility of matter.

On the other hand, if it is admitted that the divisibility of matter has no limit, it will follow that no body can be called *one* individual substance. You may as well call it *two* or *twenty* or *two hundred*. For when it is divided into parts, every part is a being or substance distinct from all the other parts, and was so even before the division. Any one part could continue to exist even if all the other parts were annihilated.

There is indeed a principle, long accepted as an axiom in metaphysics, which I can't reconcile with the endless divisibility of matter. It is the principle:

Every being is one—*omne ens est unum* [Latin].

I take this to mean that every thing that exists must either be one indivisible being or be composed of a determinate number of indivisible beings. Thus an army can be divided into regiments, a regiment into companies, and a company into men. But here the division has its limit, for you can't divide a man without destroying him, because he is an individual; and according to this axiom everything must be an individual or be made up of individuals.

There can be no doubt that this axiom holds with regard to an army, and with regard to many other things. But what evidence is there that it holds for all beings whatsoever?

Leibniz, conceiving that all beings must have this metaphysical unity, was led to maintain that matter and indeed the whole universe is made up of 'monads', i.e. simple and indivisible substances.

It may have been the same line of thought that led Boscovich into his hypothesis, which seems to me much more ingenious than Leibniz's, namely that matter is composed of a definite number of mathematical points that are endowed with certain powers of attraction and repulsion.

The divisibility of matter without any limit seems to me more tenable than either of these hypotheses. As for the

metaphysical axiom about **unity** that led to them: I don't attach much weight to that, considering its origin. Metaphysicians thought they should develop a science devoted to the attributes that are common to all beings. It must be pretty hard to find out such attributes! After racking their brains, they specified three—**unity**, truth, and goodness—the basis for this list, I think, was not any clear evidence that those three are universal but rather a sense that three was a good-looking number.

There are other views about matter that I think are not based solely on the testimony of sense. For example, it is impossible

- for two bodies to occupy the same place at the same time,
- for one body to be in different places at the same time,
- for a body to be moved from one place to another without passing through some connected intermediate series of places.

These seem to be necessary truths, so they can't be conclusions of our senses; for our senses testify only to what *is*, not what *must be*.

•SPACE•

Our next topic is our notion of *space*. Notice first that although space that is empty of matter isn't perceived through any of our senses, when we perceive any of the primary qualities space presents itself as a necessary concomitant. There has to be space if there is to be extension, motion, shape, division, or cohesion of parts.

The notion of space enters into the mind through only two of our senses—namely touch and sight. If someone lacked both of these senses, I don't see how he could ever have any conception of space. And even with both these senses, he still can't have any notion of •space until he sees or feels other •objects. Space has no colour or shape to make it an

object of sight; and it has no tangible quality to make it an object of touch. But other objects of sight and touch carry the notion of space along with them. And not only the notion but also the belief in it: a body couldn't exist if there was no space to contain it, and it couldn't move if there was no space for it to move through. Its location, its distance from other bodies, and every other relation it has to other bodies, all presuppose space.

But though the notion of space seems not to enter the mind until it is introduced by the proper objects of sense, once it *has* been introduced it stays with us as something we conceive and in which we believe, even if the objects that introduced it have been removed. We see no absurdity in supposing a body to be annihilated while the space that contained it remains; and to suppose *that* to be annihilated seems to be absurd. •Empty space is so much allied to •nothing or •emptiness that it seems incapable of being annihilated or created.

As well as keeping a firm hold on our belief even when we suppose all the objects that introduced it to be annihilated, space swells to an infinite size. We can't set any limits to how far it spreads or how long it lasts. Hence we call it

infinite, eternal, immovable, and indestructible.

But it is only

an infinite, eternal, immovable, and indestructible
void or emptiness.

Perhaps we can say of it what the Aristotelians said of their 'prime matter', namely that whatever it is, it is potentially only, not actually.

When we consider parts of space that have a definite size and shape, there is nothing we understand better, nothing about which we can reason so clearly and to such a great extent. *Extension* and *shape* are circumscribed parts of space, and are the subject-matter of geometry—a science in

which human reason has the widest field and can go deeper and with more certainty than in any other science. But when we try to grasp the *whole* of space, and to trace it to its origin, we get lost. The deep theorizings of able men on this subject differ so widely that we may well suspect that the line of human understanding is too short to reach the bottom of it.

I think Berkeley was the first to point out that •the extension, shape, and space that we talk about in ordinary language, and that geometry treats of, are basically perceived only by the sense of touch, but that •there is a notion of extension, shape, and space that can be acquired through sight without help from touch. To distinguish these he calls the first ‘tangible extension’, ‘tangible shape’, and ‘tangible space’, and the others ‘visible extension’ etc.

Because I think this distinction is very important in the philosophy of our senses, I shall adopt the names used for it by its discoverer, Berkeley, bearing in mind my previous point that *space*, whether tangible or visible, is not strictly speaking an object of sense but rather something that necessarily accompanies the objects both of sight and touch.

Please note also that when I use the names ‘tangible space’ and ‘visible space’ I don’t mean to follow Berkeley to the point of thinking that these are really •different things and altogether unlike. I take them to be •different conceptions of the same thing—one very partial and the other more complete, but each clear and sound as far as it goes.

Thus, when I see a spire at a very great distance it seems like the point of a needle; there appears to be no weather-vane at the top, no angles. But when I see the same spire from close up, I see a huge pyramid with several angles and a vane at the top. Neither of these appearances is erroneous. Each is what it ought to be—what it *must* be for that sort of object seen at that distance. These different appearances of a single object illustrate the different conceptions of space—the

conception based on the information of sight alone, and the conception drawn from the additional information of touch.

Our sight alone, unaided by touch, gives a notion of space that is very partial but clear. When space is considered according to this partial notion, I call it ‘visible space’. The sense of touch gives a much more complete notion of space, and when space is considered according to *this* notion I call it ‘tangible space’. There may be thinking beings of a higher order •than us•, whose conceptions of space are much more complete than those we have from sight and touch combined. Another sense added to sight and touch might, for all I know, give us •conceptions of space that differed as much from •the ones we can now attain as •tangible space differs from •visible space; and those further conceptions might solve many knotty problems which we, because of the imperfection of our faculties, can’t possibly solve.

Berkeley acknowledges the visible shape and size of objects corresponds exactly with their tangible •shape and size•, and that every detail in either of them has a corresponding detail in the other. He acknowledges also that Nature has established such a connection between the **(1)** visible shape and size of an object and **(2)** its tangible shape and size that we learn by experience to know **(1)** from **(2)**. We have been doing this all our lives, and we come to be so good and quick at it that we think we are seeing the tangible shape, size, and distance of bodies when really we only infer those tangible qualities from the corresponding visible qualities that are their natural signs.

[Then three paragraphs in which Reid likens the situation regarding how •visible shape etc. relates to •tangible shape etc. to the situation regarding how •our sensations relate to •the primary qualities with which they are connected. In each case, we are confronted by item x, which carries our mind immediately to item y, whereupon x is forgotten. Then:]

Visible shape or size was never made an object of thought among philosophers until Berkeley gave it a name and pointed out •how it corresponds to and is connected with tangible size and shape, and •how the mind gets the habit of passing from visible shape as a sign to tangible shape as the thing signified by it, doing this so instantaneously that the visible shape is perfectly forgotten.

Visible shape, extension, and space can be made a subject of mathematical theorizing as well as tangible shape etc. can. Here are some differences between them:

Visible: two dimensions

Tangible: three dimensions

Visible: size measured by angles

Tangible: size measured by lengths of lines

Visible: every part is some definite proportion of the whole

Tangible: no part bears any proportion to the whole because the whole is immense [= 'infinite']

Such differences in their properties led Berkeley to think that visible size and shape are totally different from tangible size and shape—different and dissimilar, and not possibly belonging to the same object.

This dissimilarity is the basis for one of the strongest arguments in support of his system. It goes like this:

If there are external objects that have a real extension and shape, it must be either

- tangible extension and shape, or
- visible extension and shape, or
- both tangible *and* visible extension and shape.

The third option seems absurd; and no-one has ever maintained that a single object has two utterly dissimilar kinds of extension and shape. So only one of the two is really in the object, while the other extension and shape are ideal—i.e. are in the mind and not in

the object. But which of the two should be awarded the reality prize? There is no basis for any answer. No reason can be given for •selecting the perceptions of sight as real and declaring that those of touch are only ideal, or for •selecting the perceptions of touch as real and declaring those of sight to be only ideal. Anyone who is convinced that the objects of sight are only ideas has just as much reason to believe the same of the objects of touch.

But this argument loses all its force if something that I have already hinted at is true, namely that visible shape and extension are only a •partial conception, and tangible shape and extension a •more complete conception, of that •unique and •complete shape and extension that is, •in all its •completeness, really in the object.

Berkeley very thoroughly showed that sight alone, unaided by information from the sense of touch, gives us no perception of the **distance from the eye** of any object—indeed, it doesn't even give us the *thought* of such a distance. But he wasn't aware that this very principle overturns the argument for his system based on the difference between visible and tangible extension and shape. For supposing that external objects do exist, and have the tangible extension and shape that we perceive, it follows rigorously from the principle I have just mentioned that objects' visible extension and shape must be just what we see it to be—or, more accurately, it follows not from the principle that sight, unaided, doesn't yield the concept of distance from the eye,

but rather from the facts about how we *do* get the concept of distance from the eye, given that we *don't* get it from unaided sight.

The rules of perspective. . . are demonstrable. They presuppose the existence of external objects that have tangible

extension and shape; and on that basis the rules demonstrate what the visible extension and shape of such objects *must be* when they placed in such-and-such an orientation at such-and-such a distance.

So it becomes obvious that the visible shape and extension of objects, far from being incompatible with tangible shape and extension, is a necessary consequence of it in beings who see as we do. The correspondence between visible and tangible isn't arbitrary, like the correspondence between words and the things they signify, as Berkeley thought.

[Berkeley held that our visual states constitute a *future-tense conditional language* in which God tells us what we shall feel if we move thus and so.] Rather, the visible/tangible correspondence results necessarily from the nature of the two senses. Furthermore, this correspondence is always found in experience to be exactly what the rules of perspective say that it ought to be if the senses give true information; and that is an argument for both the truth of the rule and the truth of what our senses tell us.

Chapter 20: The evidence of the senses, and belief in general

It is obvious *why* Nature gave us the powers that we call the 'external senses'. They are intended to give us such information about external objects as God saw to be appropriate for us in our present state; and they give to all mankind the information needed for survival, without reasoning or skill or investigation on our part.

The most uneducated peasant has as clear a conception of, and as firm a belief in, the immediate objects of his senses as does the greatest philosopher; and he is satisfied with this, not being interested in *how* he came by this conception and belief. But the philosopher is eager to know how his conception of external objects and his belief in their existence is produced. I'm afraid that this is hidden in impenetrable darkness. But the lack of *knowledge* leaves all the more room for *conjecture*; and philosophers have always been very liberal with *that!*

Plato's dark cave and shadows, Aristotle's 'sensible-

species', Epicurus's films, and the modern philosophers' ideas and impressions are all products of the human mind, successively invented to satisfy philosophers' eager desire to know how we perceive external objects; but they all lack the two essential characters of a true and philosophical explanation of the phenomenon. [See the 'first rule of philosophising' laid down by 'the great Newton', Essay 1, late in chapter 3.] We have no evidence that they exist, and even if they did exist it can't be shown how they would produce perception.

I have pointed out that this operation of perception contains two ingredients—the conception or notion of the object, and the belief in its present existence—and neither can be explained.

Most enlightened philosophers today, I think, agree that we can't assign any adequate cause for our first conceptions of things. We know that we are built in such a way that in certain circumstances we have certain conceptions; but we

don't know *how* they are produced any more than we know how *we* were produced.

Once we have acquired through our senses conceptions of external objects, we can analyse them in our thought into their simple ingredients; and we can built those ingredients into various new compound forms that the senses never presented. But it is beyond the power of human imagination to form *any* conception whose simple ingredients aren't provided by Nature in some manner that we can't explain.

inner: We have a conception of the operations of our own minds,

outer: We have a conception of external objects,

inner: we have it immediately,

outer: we have it through our external senses,

inner: combined with a belief in their existence.

outer: combined with a belief in their existence.

inner: We call this ·combination of conception and belief· 'consciousness'.

outer: We call this ·combination of conception and belief· 'perception'.

But in each case we are only *naming* one of our sources of knowledge; we aren't *explaining* it, i.e.· revealing its cause.

We know that when certain •impressions are made on our organs, nerves, and brain, certain corresponding •sensations are felt and certain objects are both •conceived and believed to exist. But in this sequence of operations Nature works in the dark. We can't discover the cause of any one of them, or any necessary connection of one with another. Are they connected by some necessary tie or merely conjoined in our constitution by God's will? We don't know.

It seems very absurd to suppose that any kind of impression on a body should be the efficient cause of a sensation.

Nor can we see any necessary connection between sensation and the conception of and belief in an external object. For all we can tell, we might have been constituted in such a way that we had all the sensations that we do actually have by our senses, without any ·preceding· impressions on our organs and without any ·following· conception of any external object. For all we know, we might have been made so as to perceive external objects without any impressions on bodily organs or any of the sensations that invariably accompany perception in us as we are actually constituted.

If our conception of external objects is inexplicable, the conviction and belief in their existence which we get by our senses is no less so.

'Belief', 'assent', 'conviction' are words that I don't think admit of logical definition because the mental operation that they signify is perfectly simple, and of its own kind. But they don't *need* to be defined, because they are common words and well understood.

[Reid and his contemporaries understood a 'logical definition' as one in which something complex is displayed in terms of its simpler ingredients, as in:

'circle' = •plane figure that is •bounded by a line all the points on which are equidistant from a single point'.

Reid holds that 'belief' can't be logically defined because the concept of belief is 'simple'—it has no simpler ingredients that could be spread out in a definition.]

Belief must have an object: someone who believes must believe *something*; and this something is called the 'object' of his belief. Of this object of his belief he must have some conception, clear or obscure; for although there can be a clear and distinct conception of an object without any belief in its existence, there can't be a belief without a conception.

Belief is always expressed in language by a proposition [= 'sentence' here and nearly everywhere in Reid] in which something is affirmed or denied. This is the form of speech that in all

languages is assigned to that purpose; and if there were no belief there couldn't be affirmations or denials, and we wouldn't have any form of words to express either. Belief can be of different strengths, ranging from the slightest suspicion right up to the fullest assurance. These things are obvious to anyone who ever reflects; it would be an abuse of your patience if I went on about them.

I remark next that there are many operations of mind in which, when we analyse them as far as we can, we find belief to be an essential ingredient. A man can't be conscious of his own thoughts without believing that he thinks. He can't perceive an object of sense without believing that it exists. He can't clearly remember a past event without believing that it did occur. Thus, belief is an ingredient in consciousness, in perception, and in remembering.

Belief is an ingredient not only in most of our •intellectual operations but also in many of the •active principles of the human mind. Joy and sorrow, hope and fear, imply a belief about good or ill either present or in expectation. Esteem, gratitude, pity, and resentment imply a belief about certain qualities in their objects. Anyone who acts for an end must believe that his act is likely to achieve that end. Belief has such a large a share in the sources of our intellectual operations, and in the operations themselves, that just as faith in God is represented as the mainspring in the life of a Christian, so also belief in general is the mainspring in the life of a man.

Men often believe things that there are no good reasons to believe, and are led by this into hurtful errors—that is too obvious to be denied. On the other hand, there *are* good reasons for some beliefs—that can't be questioned either, except by someone who is a complete sceptic.

We label as 'evidence' anything that is a ground for belief. To believe without evidence is a weakness that every man

has good reason to avoid and that every man wants to avoid. And it isn't in a man's power to believe anything for which he doesn't *think* he has evidence. [In Reid's time, 'evidence' could mean what it does to us, which is also what it seems to mean through much of this chapter. But sometimes in the chapter there are signs of the word's being used in its other then-current meaning, namely *evidentness*: Reid's phrase 'the evidence of reasoning' could mean 'the evidentness that a proposition can have through being reached by reasoning'. Which meaning is involved in a given passage in this chapter is not always a clear-cut question; answering it is left to you.]

What this evidence *is* is more easily felt than described. Those who have never reflected on its nature still feel its influence in governing their belief. It is the logician's business to explain its nature and to distinguish its various kinds and degrees; but every intelligent man can judge concerning it, and he commonly judges rightly when the evidence is fairly laid before him and his mind is free from prejudice. A man who •knows nothing of the theory of vision may •have a good eye; and a man who •never theorized about evidence in the abstract may •have good judgment.

Everyday concerns lead us to distinguish evidence into different kinds, to which we give names that are well understood—such as

- evidence of the senses,
- evidence of memory,
- evidence of consciousness,
- evidence of testimony,
- evidence of axioms,
- evidence of reasoning.

All men of ordinary intelligence agree that each of these kinds of evidence can provide good grounds for belief, and they pretty much agree about what details in a piece of evidence would strengthen or weaken it.

Philosophers have tried by analysing the different sorts of evidence to discover some common nature in which they all share, thereby to reducing them all to one. This was the aim of the schoolmen in their intricate disputes about the criterion of truth. Descartes placed this criterion of truth in *clear and distinct perception*, and laid it down as a maxim that

•whatever we clearly and distinctly perceive to be true is true;

but what he means by ‘clearly and distinctly perceive’ in this maxim it’s hard to say! Locke placed the criterion in a perception of the agreement or disagreement of our ideas, this perception being •immediate in •intuitive knowledge, and •by the intervention of intervening ideas in •reasoning.

I think I have a clear notion of the different kinds of evidence I have listed, and perhaps of some others that I needn’t list here; but I have to say that I can’t find any nature that is common to them all, defining a common kind to which they all belong. They seem to me to agree only in this: they are all fitted by Nature to produce belief in the human mind, some of them in the highest degree (which we call ‘certainty’), others in various degrees according to circumstances.

I shall take it for granted that the evidence of the senses, when the proper circumstances are in place, is good evidence and a sound basis for belief. My intention here is only to set it alongside the other kinds that I have listed, so that we can judge whether it is a special case of any of them or rather is a nature special to itself.

Evidence of **the senses** seems to be quite different from the evidence of **reasoning**. All •good evidence is commonly called ‘reasonable’ evidence, and rightly so, because •it ought to govern our belief as reasonable creatures. And in line with this label I think that the evidence of the senses is just as ‘reasonable’ as the evidence of demonstration. If Nature

informs us about things that concern us, by means other than reasoning, reason itself will direct us to accept that information gratefully and to make the best use of it.

But when we speak of ‘evidence of reasoning’ as a particular *kind* of evidence, we are talking about the evidence of propositions that are inferred by reasoning from propositions already known and believed. Thus the evidence of the fifth proposition of the first book of Euclid’s *Elements* consists in its being shown to be the necessary consequence of the axioms and preceding propositions. In all reasoning there must be one or more premises and a conclusion drawn from them. And the premises are called ‘the reason why’ we must believe the conclusion which we see to follow from them.

That the evidence of the senses is of a different kind from this needs little proof. No-one looks for a *reason* for believing what he sees or feels! And if someone *did*, it would be hard to find one. But though a man can give no reason for believing his senses, his belief remains as firm as if it were grounded on demonstration.

Many eminent philosophers have thought it unreasonable to believe when they couldn’t show a reason, and this has led them to work to provide us with *reasons for believing our senses*. But their reasons are very weak, and won’t bear examination. Other philosophers have shown very clearly the defects of these reasons, and have (so they think) discovered invincible reasons *against* •this belief •in the senses; but they have never been able to shake •it off in themselves, or to convince others. The statesman continues to plot, the soldier to fight, and the merchant to export and import, without being in the least moved by the demonstrations that have been offered of the non-existence of the things they are so seriously employed about. You have as much chance of arguing the moon into leaving its orbit as you have of destroying by argument anyone’s belief in the objects of the

senses. [Reid wrote ‘the stateman continues to plod’; but in his day one of the meanings of ‘plod’ was *plot*.]

[Then three paragraphs arguing against the thesis that ‘the evidence of the senses is the same as the evidence of **axioms** or self-evident truths’. This, Reid says, misuses the word ‘axiom’ and ignores the fact that sense-attested propositions, however secure, are not ‘necessary and immutable’. Then:]

There is no doubt an analogy between the evidence of the senses and the evidence of **testimony**. That is why we find in all languages such analogical expressions as ‘the testimony of our senses’, ‘of giving credit to our senses’, and the like. But there is a real difference between the two as well as a similarity. When we believe something on the basis of someone’s testimony, we rely on that person’s authority. But we have no such authority for believing our senses.

Shall we say then that this belief is God’s inspiration? I think there is a sense in which that is true, because I take the belief in question to be the immediate effect of our constitution, which is God’s work. But if ‘inspiration’ is understood to imply a conviction that it comes from God, our belief in the objects of the senses is *not* inspiration; for a man would believe his senses even if he had no notion of any god. Someone who is convinced that he is the workmanship of God, and that it is a part of his constitution to believe his senses, may think *that* to be a good reason to *confirm* his belief. But it won’t be the *basis* for the belief, because he had the belief before he could give this or any other reason for it.

If we compare the evidence of the senses with that of **memory**, we find a great resemblance but still some difference.

memory: ‘I clearly remember dining yesterday with Mr Stewart’—what does that mean?

senses: ‘I see a chair to my right.’ What does that mean?

memory: It means that I have a distinct conception of and firm belief in this past event—not by reasoning, not by testimony, but immediately from my constitution.

senses: It means that I have by my constitution a distinct conception of and firm belief in the present existence of the chair in that place.

memory: I give the name ‘memory’ to the part of my constitution by which I have this kind of conviction regarding past events.

senses: I give the name ‘seeing’ to the part of my constitution by which I have this immediate conviction.

The two operations agree in the immediate conviction that they give. They agree also in that the things believed are not necessary but contingent and limited to time and place. But they differ in two respects. (1) The object of memory must have existed at some •past time; but the object of sight—and of all the other senses—must be something that exists at •present. (2) I see only *by my eyes*, and only when they are directed to the object and when it is illuminated; but my memory isn’t tied down to any bodily organ that I know of, or limited by light and darkness—though it does have limitations of another kind.

These differences are obvious to all men, and very reasonably lead them to consider seeing and remembering as operations of fundamentally different kinds. But the nature of the evidence they give has a great resemblance. A comparable difference and a comparable resemblance obtains between the evidence of the senses and the evidence of **consciousness**; I leave this for you to work out for yourself.

As for ·Locke's· opinion that evidence consists in a perception of the agreement or disagreement of ideas, I may have occasion to consider it in more detail in another place. All I will say here is that this thesis, when taken in its most favourable sense, does fit the evidence of reasoning and the evidence of some axioms. But I can't see how it can be applied in *any* sense to the evidence of consciousness, or of memory, or of the senses.

When I compare the different kinds of evidence that I have listed, I have to say that the evidence of •reasoning and of some •necessary and self-evident truths seems to be the least mysterious, the most completely understood; so I am not surprised that philosophers should have tried to reduce all kinds of evidence to these.

When I see that a proposition is self-evident and necessary, and that its subject is plainly included in its predicate, I seem to have everything I need to understand why I believe it. And when I see that a consequence necessarily follows from one or more self-evident propositions, that is all I need for believing that consequence. The light of truth so fills my mind in these cases that I can't want or ·even· conceive anything more satisfying.

When I clearly remember a past event or see an object before my eyes, this commands my belief just as much as an axiom does. But when as a philosopher I reflect on this

belief, and want to trace it to its origin, I can't resolve it into necessary and self-evident axioms or into conclusions that necessarily follow from them. It seems that I don't have *that* kind of evidence—the kind that I can best comprehend and that gives perfect satisfaction to an inquisitive mind—and yet it would be ridiculous to doubt, and anyway I find that *I can't* doubt. Trying to throw off this belief is like trying to fly—ridiculous and impracticable.

To a philosopher, one who has long thought that his knowledge is chiefly due to the acquisition of the reasoning power that he is so proud of, it is no doubt humiliating to find that his reason can lay no claim to the greater part of what he knows. Through his reason he can discover certain abstract and necessary relations of things; but his knowledge of what really does or did exist comes through another channel—one that is open to those who cannot reason. He is led to it in the dark, and doesn't know how he got there.

It's not surprising that the pride of philosophy should lead some philosophers to invent empty theories in order to account for this knowledge; and that others, who see that this can't be done, spurn a ·kind of· knowledge they can't account for, and vainly try to get rid of it as a reproach to their understanding. But the wise and the humble will receive it as the gift of heaven, and try to make the best use of it.

Chapter 21: Improving the senses

Our senses can be thought of in two ways—(1) as givers of pleasant or unpleasant sensations, and (2) as givers of information about things that concern us.

[Reid then devotes about a page to saying that the senses in the first of their two roles can't be improved and don't need to be. Some of his points: •Nasty sensations are Nature's way of warning us of impending trouble. •It can happen that an intensely nasty kind of sensation, when repeated often enough, flattens out to being tolerable and eventually neutral. Similarly with a pleasant kind, flattening out into 'insipid' and perhaps even worse. This is in contrast to 'our active and perceptive powers', which intensify with frequent use. •If you try 'by a soft and luxurious life' to develop your capacity for pleasant sensations, you'll do the same for your capacity for unpleasant ones; and you will 'encourage many diseases that cause pain'. Then:]

The improvement of our external senses in their role as givers of information is a subject more worthy of our attention. The external senses aren't the noblest and most exalted powers of our nature, but they aren't the least useful. All that we can know about the material world must be based on information that they give, and everyone—the philosopher as well as the day-labourer—must be indebted to them for most of his knowledge.

Some of our perceptions by the senses could be called •**original**' or 'basic', because they don't require any previous experience or learning; but ever so many more of our perceptions are •**acquired** or **learned**, and are the fruit of experience.

[Reid applies this distinction to the senses of smell, taste, and hearing, repeating some of what he has said earlier

about secondary qualities. Then:]

We know *much* more about the world through the other two senses. By sight we learn to distinguish objects by their colour, in the same way that we distinguish them by their sound, taste, and smell. By this sense we perceive visible objects to have •extension in two dimensions, •visible shape and size, and •a certain angular distance from one another. These I take to be the **original** perceptions of sight.

By the sense of touch we not only perceive whether bodies are hot or cold (which are secondary qualities), but we also perceive **originally** their •three dimensions, their •tangible shape and size, their •distance from one another, and their •hardness or softness or fluidity. We **originally** perceive these •primary• qualities by touch alone, but through experience we **learn** to perceive most of them by sight.

We **learn** to perceive by one sense what **originally** could have been perceived only by another, doing this by finding a connection between the objects of the different senses. The original perceptions or the sensations of one sense become *signs* of whatever has always been found connected with them; and from the sign the mind passes immediately to the conception of and belief in the thing signified. And although the connection in the mind between the sign and the thing signified by it is an effect of custom—which means that it has been **learned**—this custom becomes second nature, making it hard to distinguish from the **original** power of perception.

For example, if a sphere of one uniform colour is placed in front of me, I easily perceive by my eye its spherical shape and its three dimensions. Everyone will agree that just by looking and without touching I can be certain that it is a

sphere; but it is equally certain that by the **original** power of sight I couldn't perceive it to be a sphere and to have three dimensions. The eye originally could only perceive two dimensions and a gradual variation of colour on the different sides of the object.

It's from experience that we **learn** that the variation of colour is an effect of the spherical shape and of the distribution of light and shade. But our thought moves so fast from the effect to the cause—from the colour-variation etc. to •the object's being a three-dimensional sphere—that we attend only to •the cause and can hardly be persuaded that we don't *immediately* see the three dimensions of the sphere. . . .

[Reid proceeds to re-tell this story in terms of *signs* and *things signified*. Then:]

Those who have had their eyesight from infancy come to have **acquired** perceptions so early that they can't remember ever *not* having them; so they don't distinguish them from their **original** perceptions; and can't be easily persuaded that there is any solid basis for such a distinction. . . .

This power that we **acquire** of perceiving through our senses things that **originally** we wouldn't have perceived is not the effect of any reasoning on our part. It's the result of our constitution—the way we are made—and of the situations in which we happen to be placed. We are made in such a way that when two things are found to be conjoined in certain circumstances, we are prone to believe that they are connected by Nature and will always be found together in similar circumstances.

This belief isn't intuitively obvious, nor do we get it through reasoning; I think it is an immediate effect of our constitution. So it is strongest in infancy, before our reasoning power appears, before we are able to draw a conclusion from premises. Suppose a child *once* burns his finger in

a candle: from that single event he connects the pain of burning with putting his finger in the candle, and believes that these two things must go together. This part of our constitution is obviously very useful to us before we come to the use of reason. . . .

No doubt someone's being *perfectly rational* would show in his having no beliefs except ones based on intuitive evidentness or on sound reasoning. But man is not perfectly rational, and Nature doesn't intend that he should be so at every moment of his life. We come into the world without the use of reason; before we are •rational creatures we are merely •animal; and our survival depends on our believing many things before we can reason. . . . Our beliefs at that time are not governed by chance. They are regulated by certain principles that are parts of our constitution. Call them 'animal principles' or 'instinctive principles' or what you will; the name doesn't matter; what matters is that they are different from the faculty of reason. They do the work of reason while it is in its infancy. . . .

From what I have said you will see that our original powers of perceiving objects by our senses are greatly improved by use and habit. . . . This is the greatest and most important improvement of our external senses. . . .

Besides this •natural improvement of our senses, there are various •artificial ways in which they can be improved, or their defects remedied. (1) By proper care of the organs of sense, this being a medical matter. . . .

(2) By accurate attention to the *objects* of sense. [In this passage, 'artist' refers to anyone who practises a skill or technique—a painter, a physician, a plumber, etc. And similarly with 'art'.] In every art we can see how such attention improves the senses. The artist, by giving more attention to certain objects than others do, comes to perceive many things in those objects that others don't. And many people who happen to be deprived

of one sense make up for that defect to a large extent by attending more carefully to the objects of the senses they do have. The blind have often been known to acquire unusual sharpness in distinguishing things by touch and hearing; and the deaf are better than the rest of us at reading men's thoughts in their faces.

(3) Our senses can be improved also by additional artificial organs or instruments. . . .

(4) Information acquired by our senses can be improved by discovering how Nature has connected objects' sensible qualities with their more hidden qualities. . . . I am taught that bodies belonging to a certain species have certain hidden qualities, but how am I to know that *this* individual belongs

to *that* species? Only through the sensible qualities that characterise the species; I must know that this is bread and that is wine before I eat the one or drink the other. . . .

It is *one* branch of human knowledge to •know the names of the various species of natural and artificial bodies, and to •know the sensible qualities by which things are recognized as members of them. It is *another* branch of knowledge to •know the hidden qualities of the various species, and the uses to which they can be put. Someone who possesses both these branches is informed by his senses of countless important things that are hidden from those who possess only one, or neither. . . .

Chapter 22: The deceptiveness of the senses

Complaints that our senses are deceptive have been very common in ancient and in modern times, especially among philosophers. If we accepted everything they have said on this subject, it would seem natural for us to conclude that

some malignant demon gave us our senses so as to delude us,

rather than that

our senses were formed by God, who is wise and beneficent, so as to give us true information about things we need to know for our survival and happiness.

The whole sect of atomists. . . . maintained that all the qualities of bodies that the moderns call 'secondary qualities'. . . . are mere illusions of sense and have no real existence. Plato maintained that we can get no real knowledge of

material things, and that eternal and unchanging ideas are the only objects of real knowledge. The. . . . sceptics anxiously hunted up arguments to prove the deceptiveness of our senses, in support of their favourite doctrine that we ought to withhold assent even in things that seem most evident.

Among the Aristotelians we find frequent complaints that the senses often deceive us, and that their testimony is suspect when it isn't confirmed by reason, which can correct the errors of the senses. They supported this complaint by many everyday examples, such as the crooked appearance of an oar in water; objects being magnified and their distance mistaken in a fog; the sun and moon appearing to be about a foot or two in diameter, when really they are thousands of miles across; a square tower being taken at a distance to

be round. They believed that *the deceptiveness of the senses* sufficed to explain these appearances and many others like them. So they were using ‘the deceptiveness of the senses’ as a decent cover to conceal their ·shameful· ignorance of the real causes of the phenomena—the same role that had been found for ‘occult qualities’ and ‘substantial forms’.

Descartes and his followers joined in the same complaint. [Reid then brings in the Cartesian philosopher le Grand, from whom he quotes a passage about the deceptiveness of the senses, ending with this:] ‘The senses are given by Nature for just one purpose, namely to warn us of what is useful and what is hurtful to us. We pervert the order of Nature when we put them to use in another way, namely as a means to knowledge of truth.’ . . .

It seems to taking a poor view of God’s workmanship to think that he has given us one faculty (our senses) to deceive us and another faculty (reason) to detect the deception!

So we ought to consider whether the ·belief in the· deceptiveness of our senses isn’t rather a common error that men have been led into in an attempt to conceal their ignorance or to apologise for their mistakes.

There are two powers that we owe to our external senses—•sensation and •the perception of external objects. There can’t be anything deceptive in sensation, because we are *conscious* of all our sensations, and ·therefore· they can’t be different in kind, or more or less intense, than we feel them to be. A man can’t possibly be in pain when he doesn’t feel pain; and when he feels pain it is impossible that his pain shouldn’t be real and be as intense as he feels it to be; and the same thing goes for every sensation whatsoever. A pleasant or unpleasant sensation may be forgotten when it is •past, but when it is •present it can’t be other than what we feel.

So if there is anything deceptive in our senses, it must be

in the perception of external objects, which is my next topic.

Our powers of perceiving external objects aren’t the best *conceivable*; perhaps beings of some higher order have more perfect powers than ours. We can perceive external objects only by means of bodily organs; and these are liable to various disorders that sometimes affect our powers of perception. The nerves and brain, which are interior organs of perception, are also as liable to disorders as every part of the human frame is.

But it’s not only our powers of perception that are all liable to be hurt or even destroyed by disorders of the body; the same thing is true of the imagination, the memory, and the powers of judging and reasoning—but that doesn’t lead us to call *them* deceptive!

Our senses, our memory, and our reason are all limited and imperfect. That is the human fate. But they are such as God saw to be best fitted for us in our present state. Superior beings may have intellectual powers that we don’t have at all, or have ones that we also have but less perfectly than they do and more liable to accidental disorders than theirs are. But we have no reason to think that God has given deceptive powers to any of his creatures. This would be to think dishonourably of our maker, and would lay a basis for universal scepticism.

The appearances commonly imputed to the deceptions of the senses are many and various, but I think they can be placed in the four following classes.

(1) Many things called deceptions of the senses are only conclusions rashly drawn from the testimony of the senses. In these cases, the testimony of the senses is true but we rashly draw from it a conclusion that doesn’t necessarily follow. We are disposed to blame our errors on false information rather than on inconclusive reasoning, blaming our senses for the wrong conclusions we draw from their testimony.

[Reid illustrates this at some length, e.g. by the example of someone who is taken in by a counterfeit coin. And then moves on to something that seems to be of intrinsic interest to him, not merely—not even *mainly*—as raising issues about the deceptiveness of the senses. Thus:]

Many false judgments that are regarded as deceptions of the senses arise from our mistaking •relative motion for •real or absolute motion. These mistakes *can't* be deceptions of the senses because:

by our senses we perceive only the relative motions of bodies; it is by reasoning that we infer real ·or absolute· motion from the relative motion that we perceive.

A little reflection can satisfy us of this.

I noted earlier that we perceive extension to be *one* sensible quality of bodies, which inevitably leads us to conceive *space*, though space itself isn't an object of sense. When a body is moved out of its place, the space that it filled remains empty until it is filled by some other body; and if it were never filled in that way it would remain empty forever. Before any bodies existed, the space they now occupy was *empty space*, capable of receiving bodies; for no body can exist where there is no space to contain it. Thus, there is space wherever bodies exist or *can* exist.

This makes it obvious that space can't have any limits. It is equally obvious that space is immovable. Bodies *in* space are movable, but the place where they are can't be moved—we can no more think of •one part of space as moving nearer to or further from another than we can think of •a thing as being moved away from itself!

This unlimited and immovable space is what philosophers call 'absolute space'. •Absolute or real motion is a •change of place in absolute space.

Our senses don't inform us of the absolute motion or absolute immobility of any body. When one body moves away from another, this can be picked up by the senses; but we don't perceive by our senses whether any body keeps to the same part of absolute space. When one body seems to move away from another, we can infer with certainty that absolute motion has occurred; but our senses don't tell us whether the absolute motion was in this body or that body or both.

[Reid then introduces the formerly widespread belief that 'the earth keeps its place unmoved'; says that it would be interesting to have an explanation of its popularity and of people's tendency to cling to it even in times when we all know better; says explicitly that such an explanation 'is not our present business'; and proceeds with the supposedly more limited project of showing that this popular error 'cannot justly be called a deception of the senses'. Thus:]

All motion must be estimated from some point or place that is supposed to be at rest. We don't perceive the points of absolute space from which real and absolute motion must be reckoned. And there are obvious reasons why mankind in a state of ignorance should make the earth the fixed place from which to estimate the various motions they perceive. The practice of doing this from infancy, and of constantly using a language that supposes the earth to be at rest, may perhaps be the cause of the general prejudice in favour of this opinion. ['not our present business!']. . . .

(2) Another class of errors that are blamed on the deceptions of the senses are the ones we are liable to in our *learned* perceptions. [Reid repeats his earlier explanation of 'learned perceptions'. Then:] Whether this learned perception •is a process of reasoning that we no longer remember (as some philosophers think) or rather •results from some part of our constitution distinct from reason (as I believe), is not

relevant to our present topic. If the former view is right, the errors of learned perception belong in class (1) that I have already discussed. If not, they are in a distinct class of their own. Either way, the errors of learned perception are not deceptions of our senses.

[Reid then gives several examples, including the example of the sphere. The closing paragraphs of this segment of the chapter explain why it is good for us to have learned perceptions, especially in childhood—which Reid describes with great charm and insight. Thus:]

We come into the world ignorant of everything, and exposed by our ignorance to many dangers and to many mistakes. The regular sequence of causes and effects that God in his wisdom has established, and that directs every step of our adult conduct, is unknown until it is gradually discovered by experience.

We must learn a lot from experience before we can reason, so we are likely to make many errors. Indeed I think that in our early years reason would do us much more harm than good. If we were aware of our condition in that period of life, and could reflect on it, we would be like a man in the dark surrounded with dangers, where every step he takes may be into a pit. Reason would direct him to sit down and wait until he could see around him.

Similarly, if an infant were endowed with reason it would direct him to do nothing until he knew what could be done safely. He can know this only by trying things out, and experiments are dangerous. Reason directs that dangerous experiments shouldn't be conducted unless there is a very urgent reason. So reason, if the infant had it, would make him unhappy and would get in the way of his learning through experience.

Nature has followed another plan. The child, unaware of danger, is led by instinct to exert all his active powers to

•try everything without the cautious warnings of reason, and to •believe everything he is told. Sometimes his rashness brings him harm that reason would have prevented. But his suffering is itself a useful discipline, leading him to avoid in future whatever caused it. Sometimes •his credulity leads to his being misled, but •it is infinitely beneficial to him on the whole. His activity and credulity are more useful qualities, and better instructors, than reason would be: they teach him more in a day than reason would do in a year; they provide a stock of materials for reason to work on; they make him relaxed and happy at a time in his life when reason could only serve to suggest a thousand tormenting anxieties and fears. And even when he •does things and •believes things that reason wouldn't justify, he is acting •and believing• in conformity with Nature's intention and with the constitution it gave him. So that the wisdom and goodness of the author of Nature can be seen just as clearly in withholding the exercise of our reason in infancy as in bestowing it when we are ready for it.

(3) A third class of errors ascribed to the deceptions of the senses proceeds from ignorance of the laws of Nature.

The laws of Nature (I mean physical laws, not moral ones) are learned either from our own experience or from the experience of others who have had the opportunity to observe the course of Nature.

Ignorance of those laws, or inattention to them, is apt to lead to false judgments concerning the objects of the senses, especially those of hearing and of sight. Those false judgments are often called 'deceptions of the senses', but that is not what they are.

Sounds affect the ear differently depending on whether the bell (for example) is in front of us or behind, on the right hand or on the left, near or far away. We learn to judge where the bell is on the basis of how its sound affects

the ear, and in most cases we judge correctly. But we are sometimes deceived by •echoes that bounce the sound back, or •whispering galleries that alter its direction, or •speaking trumpets that convey it across a distance without lessening.

Ventriloquists are people who have acquired the art of modifying their voice so that it affects the hearer's ear as if it came from another person or from the sky or from under the earth. The deception they produce is still greater than those I have just listed, because it is less common than they are.

Well, the deception they are *said to* produce! I never had the good fortune to hear one of these artists at work, so I can't say how perfect their art has become. [In Reid's time an 'art' was any human activity involving techniques or rules or skills, including medicine, farming, painting—and ventriloquism!] I suspect that it is very imperfect imitation, and not apt to deceive anyone who isn't inattentive or flustered. If ventriloquism could be carried to perfection, the ventriloquist would be a very dangerous man in society. . . . And if the ventriloquists have all been too virtuous to use their talent to the harm of others, we might at least expect that some of them would use it for their own benefit. If it could be brought to any significant degree of perfection, it seems to be as legitimate a device for getting money as conjuring or rope-dancing. But I have never heard of any exhibition of this kind, which inclines me to think that it is too crude an imitation to stand being publicly exhibited, even to the vulgar.

Some people are said to have the art of imitating the voice of someone else so exactly that in the dark they might be taken for the person whose voice they are imitating. I am apt to think that the stories told about this art are also exaggerated—as amazing stories are apt to be—and that an attentive ear would be able to distinguish the copy from the original.

Here is a wonderful example of how accurate [here = 'fine-grained', 'sensitive'] as well as of how truthful our senses are in matters that are of real use in life: we can distinguish all the people we know by their faces, voices, and hand-writing, although we are often unable to *say* what tiny differences we are going by when we identify them; and we are hardly ever deceived in matters of this kind, when we give proper attention to what the senses tell us.

But when it *does* happen that sounds produced by different causes are not distinguishable by the ear, this may prove that our senses are •imperfect but not that they are •deceptive. The ear may not be able to draw the right conclusion, but it's only our ignorance of the laws of sound that leads us to a wrong conclusion.

Deceptions of •sight arising from ignorance of the laws of Nature are more numerous and more remarkable than those of •hearing.

The rays of light that are our means of seeing travel in straight lines from the object to the eye when they aren't obstructed, and we are naturally led to conceive the visible object to be in the direction of the rays that reach the eye. But the rays can be reflected, refracted, or inflected [= 'bent'] in their journey from the object to the eye, according to certain fixed laws of Nature, and this can change their direction, thereby changing the apparent place, shape, or size of the object.

Thus, a child sees himself in a mirror and thinks he sees another child behind the mirror imitating all his motions. But even a child soon gets the better of this deception and knows that he sees only himself.

All the deceptions made by telescopes, microscopes, camera obscuras, and magic lanterns are of the same kind, though less familiar to the vulgar. Ignorant people may be deceived by them; but to those who know the principles of

optics they give solid and true information, and the laws of Nature by which they are produced bring infinite benefit to mankind.

(4) There remains one further class of errors commonly called ‘deceptions of the senses’—these are the only ones that I think can properly be given that label. I mean the deceptions that come from some disorder or abnormal state either of the •external sense-organ or of the •nerves and brain that are internal organs of perception.

In a delirium or in madness, perception, memory, imagination, and our reasoning powers are strangely disordered and confused. There are also disorders that affect some of our senses while others are sound. Thus, a man can feel pain in his toes after the leg has been cut off. If you hold a small ball between your crossed fingers, you may feel it as two balls. You may see an object double by not directing both eyes properly to it. By pressing the ball of your eye you can see colours that are not real. Someone with jaundice in his eyes may mistake colours. These are more properly called ‘deceptions of the senses’ than any of classes (1) through (3).

We have to accept that it comes with *being human* that all our faculties are liable, through accidental causes, to be hurt and wholly or partly unfitted for their natural functions. But as this imperfection is common to •all our faculties, it provides no sound basis for picking out •some of them as deceptive.

Summing up: it seems to have been a common error of philosophers to regard the senses as deceptive. And to this error they have added another: that one use of reason is to detect the deceptions of the senses.

From what I have said I think it appears that there is no more reason to account our •senses as deceptive than our •reason, our •memory, or any other •faculty of judging that Nature has given us. They are *all* limited and imperfect, but

are wisely suited to the present condition of man. We are liable to error and wrong judgment in the use of them all; but no more in the information provided by the senses than in the deductions of reasoning. And the errors we fall into regarding objects of the senses are corrected not •by reason but •by more accurate attention to the input we get from our senses themselves.

Perhaps philosophers’ *pride* gave rise to this error •of thinking that reason has the task of correcting the supposed deceptions of the senses•. They think that *reason* is what puts them on a higher level than uneducated people. The testimony of the senses are common to the philosopher and to the most illiterate. They put all men on a level, and so they’re apt to be undervalued •by educated people•. But we are indebted to the testimony of the senses for most of our knowledge, and for the most interesting part of it. The wisdom of Nature has made the most useful things the most common, and their commonness shouldn’t lead us to despise them. Nature also pressures us to believe the testimony of the senses, and philosophy’s attempts to weaken that force are all fruitless and vain.

One last remark on this topic: There seems to be a contradiction between •what philosophers teach concerning ideas and •their doctrine of the deceptiveness of the senses. We are taught that the role of the senses is only to give us the *ideas of* external objects. If that is right, there can’t be any deceptiveness in the senses: ideas can’t be true or false; if the senses don’t testify anything they can’t give false testimony; if they aren’t judging faculties, no judgment—whether true or false—can be attributed to them. So there is a contradiction between •the common doctrine concerning ideas and •the common doctrine concerning the deceptiveness of the senses. Both could be false, as I believe they are; they can’t both be true.